ACCESSORIES & EQUIPMENT

Fixed and Moveable Windows - Escalade, Suburban, Tahoe, Yukon

SPECIFICATIONS

FASTENER SPECIFICATIONS

Application	Specification	
	Metric	English
Front Side Door Window Belt Reveal Molding Bolt	3 N.m	27 lb in
Front Side Door Window Frame Rear Applique Upper Screw	2.5 N.m	22 lb in
Front Side Door Window Regulator Guide Bolts	11 N.m	97 lb in
Front Side Door Window Regulator Motor Bolts	11 N.m	97 lb in
Front Side Door Window Regulator Nuts	12 N.m	108 lb in
Liftgate Window Latch Screws	9 N.m	80 lb in
Rear Side Door Window Belt Reveal Molding Bolts	3 N.m	27 lb in
Rear Side Door Window Channel Retainer Bolts	11 N.m	97 lb in
Rear Side Door Window Frame Front Applique Upper Screw	2.5 N.m	22 lb in
Rear Side Door Window Frame Rear Applique Upper Screw	2.5 N.m	22 lb in
Rear Side Door Window Regulator Guide Bolts	11 N.m	97 lb in
Rear Side Door Window Regulator Motor Bolts	11 N.m	97 lb in
Rear Side Door Window Regulator Nuts	12 N.m	108 lb in
Rear Side Door Window Weatherstrip Bolt	11 N.m	97 lb in
Rear Side Door Window Weatherstrip Screw	2.5 N.m	22 lb in

SCHEMATIC WIRING DIAGRAMS

MOVEABLE WINDOW WIRING SCHEMATICS

Driver

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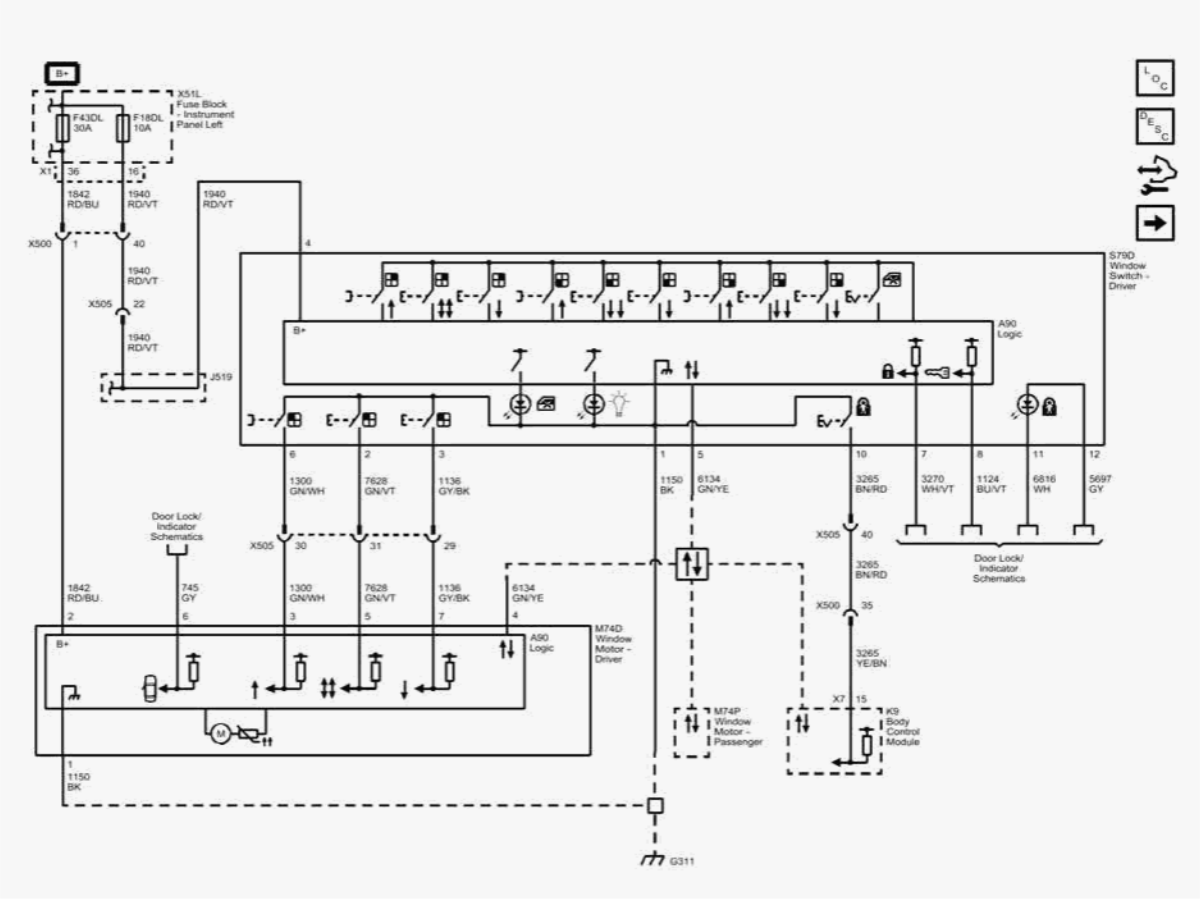


Fig. 1: Driver

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Passenger

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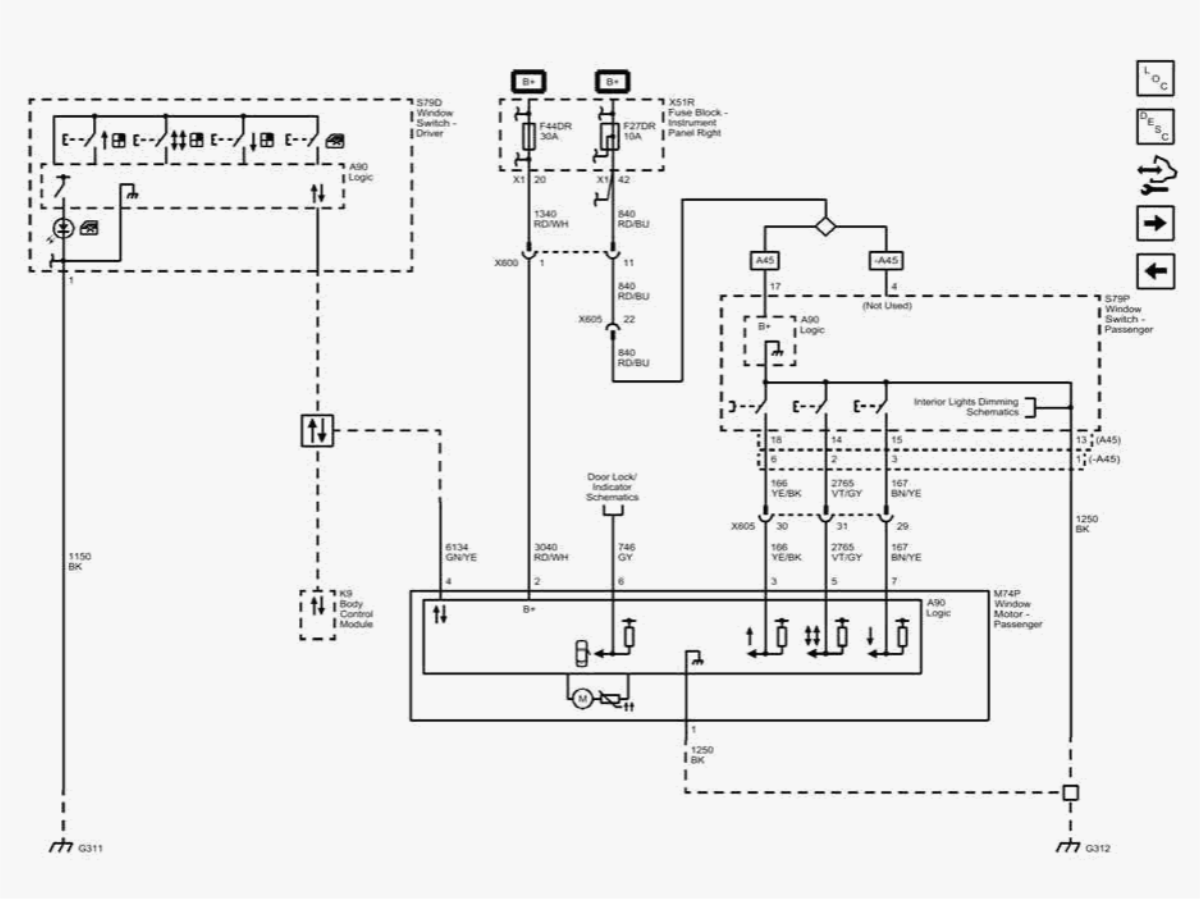


Fig. 2: Passenger

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Rear Doors

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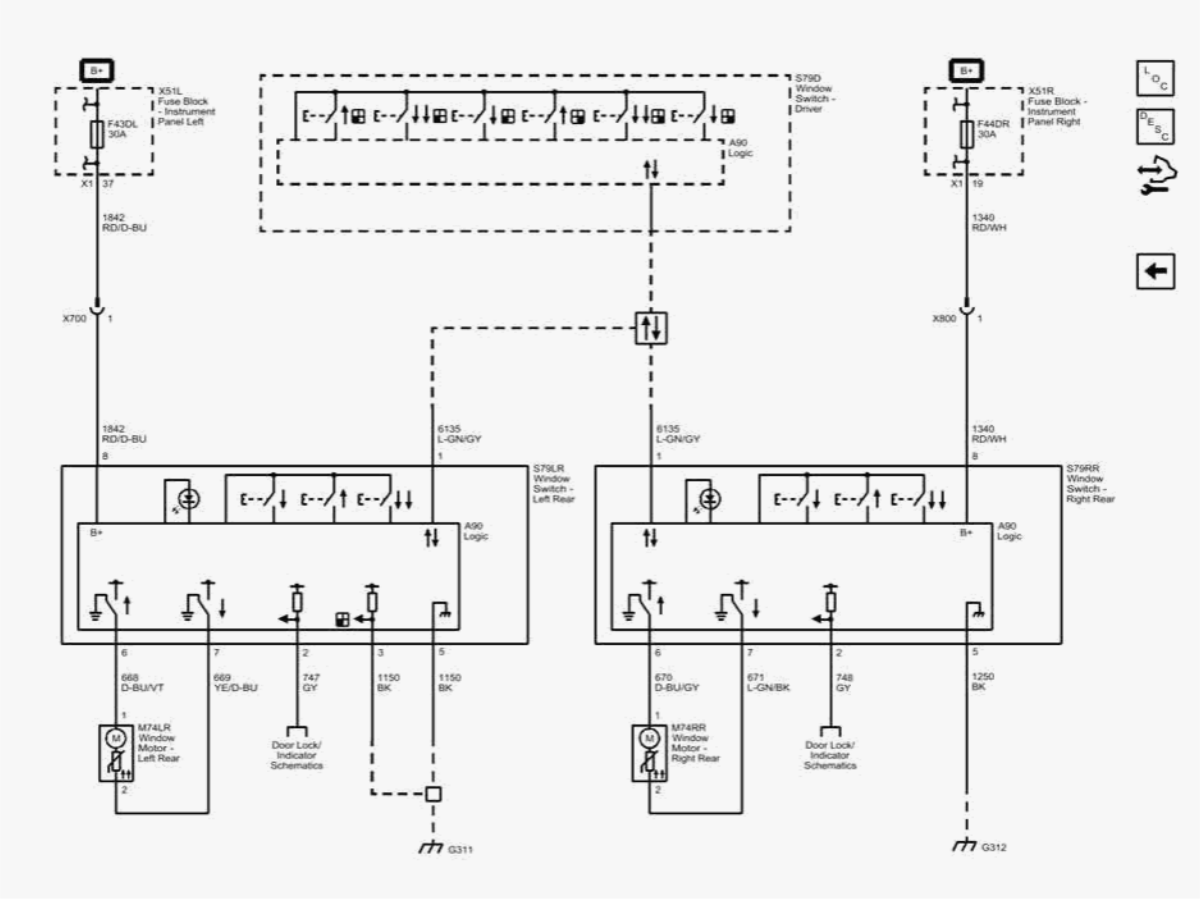


Fig. 3: Rear Doors

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DEFOGGER WIRING SCHEMATICS

Defogger

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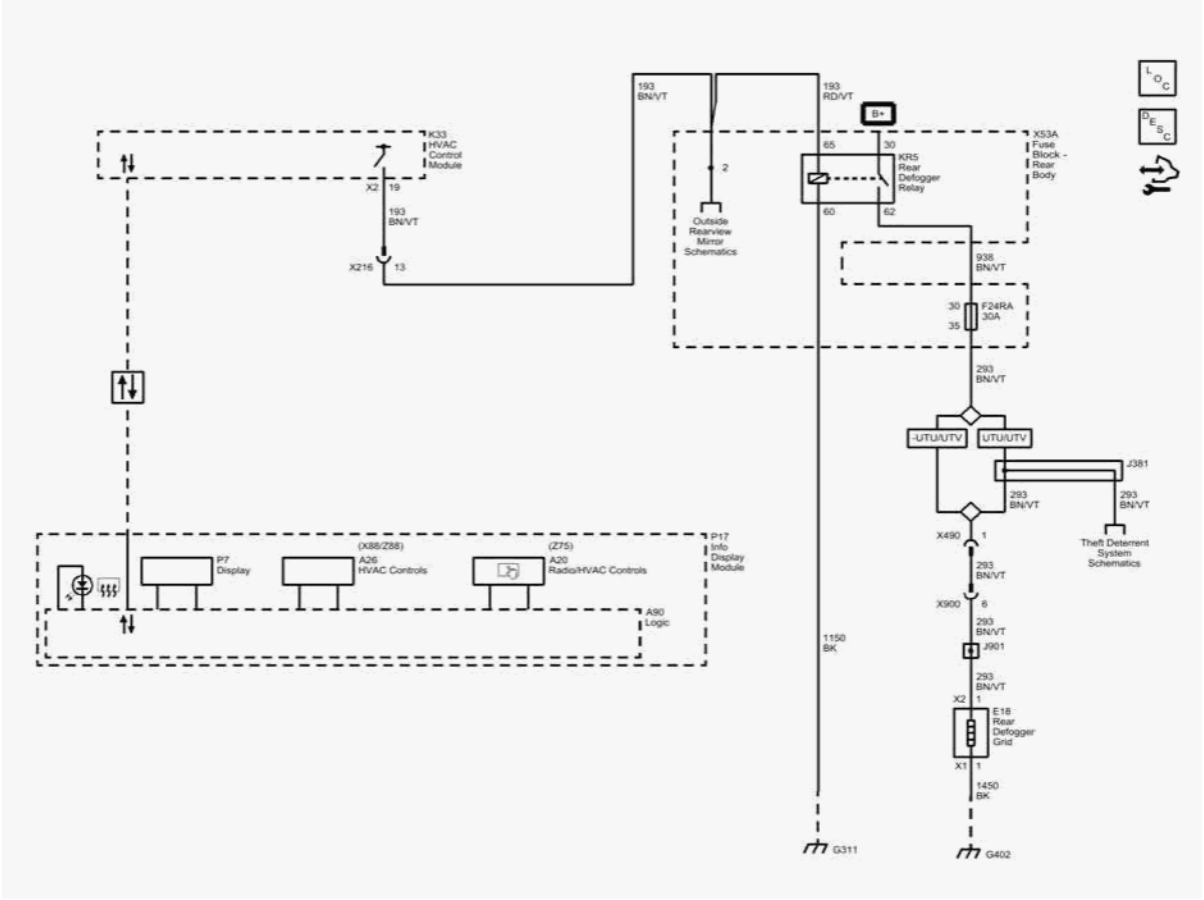


Fig. 4: Defogger
Courtesy of GENERAL MOTORS COMPANY

DIAGNOSTIC INFORMATION AND PROCEDURES

DTC B0283: REAR DEFROST CIRCUIT

Diagnostic Instructions

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

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DTC Descriptors

DTC B0283 02

Rear Defrost Circuit Short To Ground

DTC B0283 05

Rear Defrost Circuit High Voltage/Open

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Outside Rearview Mirror Heater Relay Control	B0283 02	1	B0283 05	-
Rear Defogger Relay Control	B0283 02	1	B0283 05	-
1. Rear Defogger Inoperative				

Circuit/System Description

When the HVAC control module receives a rear window defog request from the HVAC control faceplate, the HVAC control module will supply voltage to the relay coil. Battery positive voltage is supplied at all times to the relay switched input and the relay coil is always grounded. This allows battery positive voltage from the relay switched input to flow through the switch contacts and out the relay switched output to the rear window defogger grid.

Conditions for Running the DTC

Battery voltage must be between 9-16 V.

Conditions for Setting the DTC

B0283 02

The HVAC control module detects a short to ground on a relay control circuit for 1 second or greater.

B0283 05

The HVAC control module detects a short to voltage or an open/high resistance a relay control circuit for 1 second or greater.

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Action Taken When the DTC Sets

B0283 02

The rear window defogger will be inoperative.

B0283 05

The rear window defogger will malfunction.

Conditions for Clearing the DTC

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

Reference Information

Schematic Reference

Defogger Schematics

Outside Rearview Mirror Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Rear Window Defogger Description and Operation

Electrical Information Reference

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

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Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Engine Running.
2. Verify the E18 Rear Defogger Grid turns ON and OFF when commanding the Rear Defogger Command ON and OFF with a scan tool.
   - **If the E18 Rear Defogger Grid does not turn ON or OFF**

     Refer to Circuit/System Testing

   - **If the E18 Rear Defogger Grid turns ON and OFF**
3. All OK.

Circuit/System Testing

1. Ignition OFF, disconnect the KR5 Rear Defogger Relay
2. Disconnect the KR4B Outside Rear View Mirror Heater Relay.
3. Connect a test lamp between the control circuit terminal 65 and the ground circuit terminal 60 at the KR5 Rear Defogger Relay, Engine Running.
4. Verify the test lamp turns ON and OFF commanding the Rear Defogger Command ON and OFF with a scan tool.
   - **If the test lamp is always OFF**

   1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K33 HVAC Control Module.
   2. Test for infinite resistance between the control circuit and ground.
      - If less than infinite resistance, repair the short to ground on the circuit.
      - If infinite resistance
   3. Test for less than 2 Ω in the control circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance in the circuit.
      - If less than 2 Ω, replace the K33 HVAC Control Module.

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

   1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K33 HVAC Control Module, Engine Running.
   2. Test for less than 1 V between the control circuit and ground.

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- If 1 V or greater, repair the short to voltage on the circuit.
- If less than 1 V, replace the K33 HVAC Control Module.

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

5. Test or replace the KR5 Rear Defogger Relay or the KR4B Outside Rear View Mirror Heater Relay.

Component Testing

Rear Defogger Relay Test

1. Ignition OFF, disconnect the KR5 Rear Defogger Relay or the KR4B Outside Rear View Mirror Heater Relay.
2. Test for 60-180 Ω between terminals 85 and 86.
   - **If less than 60 Ω or greater than 180 Ω**

     Replace the KR5 Rear Defogger Relay or the KR4B Outside Rear View Mirror Heater Relay.

   - **If between 60-180 Ω**
3. Test for infinite resistance between the terminals listed below:
   - 30 and 86
   - 30 and 87
   - 30 and 85
   - 85 and 87
   - **If less than infinite resistance**

     Replace the KR5 Rear Defogger Relay or the KR4B Outside Rear View Mirror Heater Relay.

   - **If infinite resistance**
4. Install a 3 A fused jumper wire between relay terminal 85 and 12 V. Install a jumper wire between relay terminal 86 and ground.
5. Test for less than 2 Ω between terminals 30 and 87.
   - **If 2 Ω or greater**

     Replace the KR5 Rear Defogger Relay or the KR4B Outside Rear View Mirror Heater Relay.

   - **If less than 2 Ω**
6. All OK

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Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair.

- **Relay Replacement (Attached to Wire Harness)** **Relay Replacement (Within an Electrical Center)**
- **Control Module References** for HVAC control module replacement, programming and setup

DTC B316B, B317A, B318A, OR B319A: WINDOW SWITCH

Diagnostic Instructions

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

DTC Descriptors

DTC B316B

Driver Window Switch

DTC B317A

Passenger Window Switch

DTC B318A

Left Rear Window Switch

DTC B319A

Right Rear Window Switch

For symptom byte information refer to: **Symptom Byte List**

Diagnostic Fault Information

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

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Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Driver Window Switch Down Signal	B316B 02	1	1	-
Driver Window Switch Up Signal	B316B 02	1	1	-
Driver Window Switch Express Signal	B316B 02	1	1	-
Passenger Window Switch Up Signal	B317A 02	2	2	-
Passenger Window Switch Down Signal	B317A 02	2	2	-
Passenger Window Switch Express Signal	B317A 02	2	2	-
1. Driver Window Malfunction 2. Passenger Window Malfunction				

Circuit/System Description

The driver and passenger window motors supply 12 V signal circuits to their respective window switches, when a window switch has been activated, a switch closes providing a ground to the appropriate signal circuit causing the voltage to drop to 0 V. The window motor will detect the voltage drop in the signal circuit and will command the window to move in the desired direction.

The driver window master control switch also contains control switches for the passenger, left rear and right rear window functions. When a window switch is pressed, a serial data message is sent to the body control module (BCM). The BCM examines the request and checks for messages from other power window motors that may prohibit window movement. If no prohibitive messages have been received, the BCM will send a serial data message to the passenger window motor or to the appropriate rear window switch which will perform the command as requested.

Conditions for Running the DTC

Battery voltage must be between 9-16 V.

Conditions for Setting the DTC

B316B 00

The BCM has detected a control switch on the driver window switch has been active for greater than 60 seconds.

B316B 02

The driver window motor has detected the driver window switch is active for greater than 60 seconds.

B317A 02

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The passenger window motor has detected the passenger window switch is active for greater than 60 seconds.

B318A 02

The BCM has detected the left rear window switch is active for greater than 60 seconds

B319A 02

The BCM has detected the right rear window switch is active for greater than 60 seconds

B316B 39

The driver window motor has detected an internal failure within the driver window switch

B317A 39

The passenger window motor has detected an internal failure within the passenger window switch

B318A 39

The BCM has detected an internal failure within the left rear window switch

B319A 39

The BCM has detected an internal failure within the right rear window switch

Action Taken When the DTC Sets

The affected power window will malfunction.

Conditions for Clearing the DTC

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

- The DTC will be current for as long as the fault is present.
- The DTC will change from current to history when the fault is no longer present.
- A history DTC will clear after 100 consecutive ignition cycles if the condition for the malfunction is no longer present.

B316B 39, B317A 39, B318A 39, B319A 39

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If the DTC is current, the affected window switch must be replaced before the DTC can be cleared.

Reference Information

Schematic Reference

Moveable Window Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Power Windows Description and Operation

Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition ON.
2. Verify the scan tool parameters listed below change when pressing and pulling the switches for the passenger, left rear and right rear window on the S79D Window Switch-Driver;
    - Left Rear Main Control Down Switch - Inactive and Active
    - Left Rear Main Control Express Switch - Inactive and Active
    - Left Rear Main Control Up Switch - Inactive and Active
    - Right Rear Main Control Down Switch - Inactive and Active

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- Right Rear Main Control Express Switch - Inactive and Active
- Right Rear Main Control Up Switch - Inactive and Active
- Front Passenger Main Control Down Switch - Inactive and Active
- Front Passenger Main Control Express Switch - Inactive and Active
- Front Passenger Main Control Up Switch - Inactive and Active
- **If any parameter does not change**

  Replace the S79D Window Switch-Driver.

- **If the parameters change**

3. Verify the scan tool parameters listed below change when pressing and pulling the driver window control switch on the S79D Window Switch-Driver:
   - Driver Window Main Control Down Switch - Inactive and Active
   - Driver Window Main Control Up Switch - Inactive and Active
   - Driver Window Main Control Express Down Switch - Inactive and Active
   - Driver Window Main Control Express Up Switch - Inactive and Active
   - **If any parameter does not change**

     Refer to Circuit/System Testing - Driver Window Switch Malfunction.

   - **If all the parameters change**
4. Verify the scan tool Passenger Window Switch at Door parameters change to Inactive, Up, Express Up, Down, Express Down when pressing and pulling the S79P Window Switch-Passenger.
   - **If any parameter does not change**

     Refer to Circuit/System Testing - Passenger Window Switch Malfunction.

   - **If all the parameters change**
5. Verify the scan tool parameters listed below change when pressing and pulling the S79LR Window Switch-Left Rear and the S79RR Window Switch-Right Rear.
   - Left Rear Window Switch at Door - Inactive, Up, Express Up, Down, Express Down
   - Right Rear Window Switch at Door - Inactive, Up, Express Up, Down, Express Down

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- **If any parameter does not change**

  Test or replace the appropriate S79 Window Switch-Rear.

- **If all the parameters change**

6. All OK.

Circuit/System Testing

Driver Window Switch Malfunction

1. Ignition OFF, disconnect the harness connector at the S79D Window Switch-Driver. Ignition ON.
2. Verify the scan tool Driver Window Main Control Down Switch parameter is Inactive.
   - **If not Inactive**
   1. Ignition OFF, disconnect the harness connector at the M74D Window Motor-Driver.
   2. Test for infinite resistance between the S79D Window Switch-Driver signal circuit terminal 3 and ground.
      - If less than infinite resistance, repair the short to ground on the circuit.
      - If infinite resistance, replace the M74D Window Motor-Driver.
   - **If Inactive**
3. Install a 3 A fused jumper wire between the signal circuit terminal 3 and the ground circuit terminal 1.
4. Verify the scan tool Driver Window Main Control Down Switch parameter is Active
   - **If not Active**
   1. Ignition OFF, remove the 3 A fused jumper wire, disconnect the harness connector at the M74D Window Motor-Driver, ignition ON.
   2. Test for less than 1 V between the S79D Window Switch-Driver signal circuit terminal 3 and ground.
      - If 1 V or greater, repair the short to voltage on the circuit.
      - If less than 1 V
   3. Test for less than 2 Ω in the signal circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance in the circuit.
      - If less than 2 Ω, replace the M74D Window Motor-Driver.
   - **If Active**
5. Verify the scan tool Driver Window Main Control Up Switch parameter is Inactive.

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- **If not Inactive**

1. Ignition OFF, disconnect the harness connector at the M74D Window Motor-Driver.
2. Test for infinite resistance between the S79D Window Switch-Driver signal circuit terminal 6 and ground.
    - If less than infinite resistance, repair the short to ground on the circuit.
    - If infinite resistance, replace the M74D Window Motor-Driver.

- **If Inactive**

6. Install a 3 A fused jumper wire between the signal circuit terminal 6 and the ground circuit terminal 1.
7. Verify the scan tool Driver Window Main Control Up Switch parameter is Active
    - **If not Active**

    1. Ignition OFF, remove the 3 A fused jumper wire, disconnect the harness connector at the M74D Window Motor-Driver, ignition ON.
    2. Test for less than 1 V between the S79D Window Switch-Driver signal circuit 6 and ground.
        - If 1 V or greater, repair the short to voltage on the circuit.
        - If less than 1 V
    3. Test for less than 2 Ω in the signal circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, replace the M74D Window Motor-Driver.

    - **If Active**

8. Verify the scan tool Driver Window Main Control Express Switch parameter is Inactive.
    - **If not Inactive**

    1. Ignition OFF, disconnect the harness connector at the M74D Window Motor-Driver.
    2. Test for infinite resistance between the S79D Window Switch-Driver signal circuit terminal 2 and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, replace the M74D Window Motor-Driver.

    - **If Inactive**

9. Install a 3 A fused jumper wire between the signal circuit terminal 2 and the ground circuit terminal 1.
10. Verify the scan tool Driver Window Main Control Express Switch parameter is Active
    - **If not Active**

    1. Ignition OFF, remove the 3 A fused jumper wire, disconnect the harness connector at the M74D Window Motor-Driver, ignition ON.
    2. Test for less than 1 V between the S79D Window Switch-Driver signal circuit 2 and ground.

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

3. Test for less than 2 Ω in the signal circuit end to end.
    - If 2 Ω or greater, repair the open/high resistance in the circuit.
    - If less than 2 Ω, replace the M74D Window Motor-Driver.

- **If Active**

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

Passenger Window Switch Malfunction

1. Ignition OFF, disconnect the harness connector at the S79P Window Switch-Passenger. Ignition ON
2. Verify the scan tool Passenger Window Switch at Door parameter is Inactive.
    - **If not Inactive**

    1. Ignition OFF, disconnect the harness connector at the M74P Window Motor-Passenger
    2. Test for infinite resistance between the signal circuit terminal listed below and ground:
        - S79P Window Switch-Passenger - signal circuit terminal 7
        - S79P Window Switch-Passenger - signal circuit terminal 8
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, replace the M74P Window Motor-Passenger.

    - **If Inactive**

3. Install a 3 A fused jumper wire between the signal circuit terminal 8 and ground:
4. Verify the scan tool Passenger Window Switch at Door parameter is Up
    - **If not Up**

    1. Ignition OFF, remove the fused jumper wire, disconnect the harness connector at the M74P Window Motor-Passenger, ignition ON.
    2. Test for less than 1 V between the S79P Window Switch-Passenger signal circuit terminal 8 and ground.
        - If 1 V or greater, repair the short to voltage on the circuit.
        - If less than 1 V
    3. Ignition OFF, test for less than 2 Ω in the signal circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, replace the M74P Window Motor-Passenger.

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- **If Up**

5. Install a 3 A fused jumper wire between the signal circuit terminal 7 and ground.
6. Verify the scan tool Passenger Window Switch at Door parameter is Down
    - **If not Down**
    1. Ignition OFF, remove the fused jumper wire, disconnect the harness connector at the M74P Window Motor-Passenger, ignition ON.
    2. Test for less than 1 V between the S79P Window Switch-Passenger signal circuit terminal 7 and ground.
        - If 1 V or greater, repair the short to voltage on the circuit.
        - If less than 1 V
    3. Ignition OFF, test for less than 2 Ω in the signal circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, replace the M74P Window Motor-Passenger.
    - **If Down**
7. Test for greater than 10 V between the signal circuit terminal 6 and ground
    - **If less than 10 V**
    1. Ignition OFF, disconnect the harness connector at the M74P Window Motor-Passenger.
    2. Test for infinite resistance between the S79P Window Switch-Passenger signal circuit 6 and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance
    3. Test for less than 2 Ω in the signal circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance on the circuit.
        - If less than 2 Ω, replace the M74P Window Motor-Passenger.
    - **If greater than 10 V**
8. Test or replace the S79P Window Switch-Passenger.

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair.

- **Front Side Door Window Control Switch Replacement (Chevrolet, GMC)Front Side Door Window Control Switch Replacement (Cadillac)**
- **Front Side Door Window Switch Replacement - Right Side (Chevrolet, GMC)Front Side Door Window Switch Replacement - Right**

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Side (Cadillac)

- Rear Side Door Window Switch Replacement (Chevrolet, GMC)Rear Side Door Window Switch Replacement (Cadillac)
- Front Side Door Window Regulator Motor Replacement
- Rear Side Door Window Regulator Motor Replacement

DTC B3205 OR B3210: WINDOW MOTOR

Diagnostic Instructions

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

DTC Descriptors

DTC B3205

Driver Window Motor

DTC B3210

Passenger Window Motor

For symptom byte information, refer to Symptom Byte List .

Circuit/System Description

The body control module (BCM) monitors, receives and transmits serial data messages to the driver and passenger window motors. When a window switch has been activated on the driver window switch, a signal is sent to the BCM which sends a signal to the appropriate window motor and the window motor will move in the direction commanded.

Conditions for Running the DTC

- The ignition switch is in the ON position.
- Battery voltage must be between 9-16 V.

Conditions for Setting the DTC

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B3205 00, B3210 00

The BCM has detected that the compatibility code stored in the affected window motor does not match the compatibility code stored in the BCM.

B3205 39, B3210 39

An internal malfunction has been detected by the BCM in the power window motor while commanding the window UP or DOWN.

B3205 42, B3210 42

The BCM will automatically attempt to download the calibration program into the appropriate window motor (As will occur when the window motor has been replaced), if the first calibration program fails to load, the BCM will attempt to download the calibration program a second time. If this download fails, the BCM will set appropriate DTC.

B3205 4B, B3210 4B

The BCM detects that a window motor is "not normalized" which will occur under the following conditions:

- When the battery has been disconnected
- When the battery has been replaced
- When the door wiring harness has been disconnected
- When the window motor has been disconnected.

Action Taken When the DTC Sets

B3205 00, B3205 39, B3205 42, B3210 00, B3210 39, B3210 42

The affected motor will be inoperative.

B3205 4B, B3210 4B

The affected motor will not perform the express up or express down functions and the driver information center will display Open, then Close Driver Window or will display Open, then Close Passenger Window.

Conditions for Clearing the DTC

B3205 00, B3210 00

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Installing a compatible window motor for that specific make and model vehicle.

B3205 39, B3210 39

The appropriate window motor must be replaced before the DTC can be cleared.

B3205 42, B3210 42

The appropriate window motor must be replaced before the DTC can be cleared.

B3205 4B, B3210 4B

The appropriate window motor must be normalized before the DTC can be cleared.

Reference Information

Schematic Reference

Moveable Window Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Power Windows Description and Operation

Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

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Circuit/System Verification

1. Ignition ON.
2. Verify the driver and passenger functions while commanding the Driver Window Motor or Passenger Window Motor Up and Down with a scan tool.
    - **If the Up and Down does not work**

      Replace the appropriate M74 Window Motor.

    - **If the Up and Down works**
3. Verify the driver and passenger window performs the Express Up and Express Down functions with the S79D Window Switch-Driver.
    - **If a window does not Express Up and Express Down**

      Normalize the M74 Window Motor, refer to **Window Motor Programming - Express Function**.

    - **If the window performs the Express Up and Express Down functions**
4. Ignition OFF and all vehicle systems OFF. It may take up to 2 minutes for all vehicle systems to power down.
5. Ignition ON
6. Verify the driver and passenger window performs the Express Up and Express Down functions with the S79D Window Switch-Driver.
    - **If a window does not Express Up and Express Down**

      Replace the M74 Window Motor

    - **If both windows perform the Express Up and Express Down functions**
7. All OK.

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair

Front Side Door Window Regulator Motor Replacement

SYMPTOMS - FIXED AND MOVEABLE WINDOWS

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

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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 module(s) can communicate via serial data link.
2. Review the system description and operation in order to familiarize yourself with the system functions. Refer to the following:
   - **Power Windows Description and Operation**
   - **Rear Window Defogger Description and Operation**

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the power windows or 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

Thoroughly inspect the wiring and connectors. An incomplete inspection of the wiring and connectors may result in misdiagnosis causing part replacement with the reappearance of the malfunction. If an intermittent malfunction exists, refer to **Testing for Intermittent Conditions and Poor Connections** .

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**
- **Liftgate Window Release Inoperative**

REAR WINDOW DEFOGGER MALFUNCTION

Diagnostic Instructions

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

Diagnostic Fault Information

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

Circuit/System Description

When the rear defogger switch is pressed, the HVAC control module will supply voltage to the relay coil. Battery positive voltage is supplied at all times to the relay switched input and the relay coil is always grounded. This allows battery positive voltage from the relay switched input through the switch contacts and out the relay switched output to the rear window defogger grid.

Diagnostic Aids

The rear window defogger indicator will still function when the rear defogger switch is pressed, but any of the following conditions may cause the rear window defogger grid not to function:

- The battery state of charge is out of range causing the HVAC control module to suspend the rear window defogger operation.
- The Remote Start Enable ambient temperature is greater than 5Â°C (40Â°F).

Reference Information

Schematic Reference

Defogger Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Rear Window Defogger Description and Operation

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Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Engine running.
2. Verify the scan tool Rear Defogger Status parameter changes between On and Off when pressing the rear window defogger switch.
   - **If the parameter does not change between On and Off**

     Replace the K33 HVAC Control Module.

   - **If the parameter changes between On and Off**
3. Verify the E18 Rear Defogger Grid turns ON and OFF when commanding the Rear Defogger Command On and Off with a scan tool.
   - **If the E18 Rear Defogger Grid does not turn ON and OFF**

     Refer to Circuit/System Testing

   - **If the E18 Rear Defogger Grid turns ON and OFF**
4. Verify the rear defogger indicator turns ON and OFF when commanding the Illuminate All Indicators On with a scan tool.
   - **If the rear defogger indicator does not turn ON and OFF**

     Replace the K33 HVAC Control Module.

   - **If the rear defogger indicator turns ON and OFF**
5. All OK.

Circuit/System Testing

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1. Ignition OFF and all vehicle systems OFF, disconnect the KR5 Rear Defogger Relay. It may take up to 2 minutes for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 60 and ground.
    - **If 10 Ω or greater**
    1. Ignition OFF.
    2. Test for less than 2 Ω in the ground circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, repair the open/high resistance in the ground connection.
    - **If less than 10 Ω**
3. Engine Running.
4. Verify a test lamp illuminates between the B+ circuit terminal 63 and ground.
    - **If the test lamp does not illuminate**
    - Replace the X53A Fuse Block-Rear Body
    - **If the test lamp illuminates**
5. Connect a test lamp between the control circuit terminal 65 and the ground circuit terminal 60.
6. Verify the test lamp turns ON and OFF when commanding the Rear Defogger Command On and Off with a scan tool.
    - **If the test lamp is always OFF**
    1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K33 HVAC Control Module.
    2. Test for infinite resistance between the control circuit and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance
    3. Test for less than 2 Ω in the control circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, replace the K33 HVAC Control Module.
    - **If the test lamp is always ON**
    1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K33 HVAC Control Module, ignition ON.
    2. Test for less than 1 V between the control circuit and ground.
        - If 1 V or greater, repair the short to voltage on the circuit.
        - If less than 1 V, replace the K33 HVAC Control Module.

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

7. Verify that a test lamp does not illuminate between the control circuit terminal 62 and ground.
   - **If the test lamp illuminates**

     Repair the short to voltage on the control circuit

   - **If the test lamp does not illuminate**
8. Ignition OFF and all vehicle systems OFF, disconnect the X2 harness connector at the E18 Rear Defogger Grid. It may take up to 2 minutes for all vehicle systems to power down.
9. Test for less than 10 Ω between the ground circuit terminal 1 and ground.
   - **If 10 Ω or greater**
   1. Ignition OFF.
   2. Test for less than 2 Ω in the ground circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance in the circuit.
      - If less than 2 Ω, repair the open/high resistance in the ground connection.
   - **If less than 10 Ω**
10. Connect the X2 harness connector at the E18 Rear Defogger Grid.
11. Ignition ON, connect a 30 A fused jumper wire between the B+ circuit terminal 63 and the control circuit terminal 62.
12. Verify the E18 Rear Defogger Grid is activated.
    - **If the E18 Rear Defogger Grid does not activate**
    1. Ignition OFF, disconnect the X1 harness connector at the E18 Rear Defogger Grid.
    2. Test for infinite resistance between the control circuit and ground.
       - If less than infinite resistance, repair the short to ground on the circuit.
       - If infinite resistance
    3. Test for less than 2 Ω in the control circuit end to end.
       - If 2 Ω or greater, repair the open/high resistance in the circuit.
       - If less than 2 Ω, test or replace the E18 Rear Defogger Grid.
    - **If the E18 Rear Defogger Grid activates**
13. Test or replace the KR5 Rear Defogger Relay.

Component Testing

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Relay Test

1. Ignition OFF, disconnect the KR5 Rear Defogger Relay.
2. Test for 60-180 Ω between terminals 85 and 86.
   - **If less than 60 Ω or greater than 180 Ω**

     Replace the KR5 Rear Defogger Relay.

   - **If between 60-180 Ω**
3. Test for infinite resistance between the terminals listed below:
   - 30 and 86
   - 30 and 87
   - 30 and 85
   - 85 and 87
   - **If less than infinite resistance**

     Replace the KR5 Rear Defogger Relay.

   - **If infinite resistance**
4. Install a 3 A fused jumper wire between relay terminal 85 and 12 V. Install a jumper wire between relay terminal 86 and ground.
5. Test for less than 2 Ω between terminals 30 and 87.
   - **If 2 Ω or greater**

     Replace the KR5 Rear Defogger Relay.

   - **If less than 2 Ω**
6. All OK

Rear Defogger Grid Test

NOTE: **Lightly touch the grid lines when testing with the test lamp. If the test lamp point is scraped through the grid line it can cause an open in the circuit**

1. Engine running, command the Rear Defogger ON with a scan tool.

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2. Verify that a test lamp illuminates between each rear window defogger grid line and ground. The test lamp should be off when testing at the ground side of the grid and get brighter as the test lamp moves closer to the voltage supply side of the grid. The test lamp should be dim when testing each grid line in the middle
    - **If the test lamp remains bright at the middle of the grid line.**

      The grid line is open between the test point and the ground side of the grid.

      Replace the rear window

    - **If the test lamp remains off at the middle of the grid line.**

      The grid line is open between the test point and the voltage supply side of the grid.

      Replace the rear window

    - **If the test lamp remains dim at the middle of each grid line.**
3. All OK

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair.

- **Rear Compartment Lift Window Replacement (Chevrolet, GMC)Rear Compartment Lift Window Replacement (Cadillac)**
- **Relay Replacement (Attached to Wire Harness)** **Relay Replacement (Within an Electrical Center)**
- **Control Module References** for HVAC control module replacement, setup, and programming

POWER WINDOWS MALFUNCTION

Diagnostic Instructions

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

Diagnostic Fault Information

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

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		Resistance		
Driver Window Switch B+	U1538 00	U1538 00	-	-
Driver Window Switch Serial Data	U1534 00, U1538 00, U153A 00	U1538 00	U1538 00	-
Driver Window Switch Ground	-	U1538 00	-	-
Driver Window Motor B+	U1530 00, U1534 00	U1530 00	-	-
Driver Window Motor Serial Data	U1530 00, U1534 00	U1534 00	U1534 00	-
Driver Window Motor Control	B316B 02	1	1	-
Driver Window Motor Ground	-	U1534 00	-	-
Passenger Window Motor B+	U1530 00, U1534 00	U1534 00	-	-
Passenger Window Motor Serial Data	U1530 00, U1534 00	U1534 00	U1534 00	-
Passenger Window Motor Control	B317A 02	2	2	-
Passenger Window Motor Ground	-	U1534 00	-	-
Passenger Window Switch Ground	-	U153A 00	-	-
Left Rear Window Switch B+	U1534 00	U1534 00	-	-
Left Rear Window Switch Serial Data	U1534 00, U154A 00	U1534 00	U1534 00	-
Left Rear Window Switch Ground	-	U1534 00	-	-
Left Rear Window Motor Control	3	3	3	-
Right Rear Window Switch B+	U154A 00	U154A 00	-	-
Right Rear Window Switch Serial Data	U154A 00, U1548 00	U154A 00	U154A 00	-
Right Rear Window Switch Ground	-	U154A 00	-	-
Right Rear Window Motor Control	4	4	4	-

1. Driver Window Motor Inoperative
2. Passenger Window Motor Inoperative
3. Left Rear Window Inoperative From All Switches
4. Right Rear Window Inoperative From All Switches

Circuit/System Description

The driver and passenger window motors supply 12V signal circuits to their respective window switches, when a window switch has been activated, a switch closes providing a ground to the appropriate signal circuit causing the voltage to drop to 0V. The window motor will detect the voltage drop

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in the signal circuit and will command the window to move in the desired direction.

The driver window master control switch also contains control switches for the passenger, left rear and right rear window functions. When a window switch is pressed, a serial data message is sent to the body control module (BCM). The BCM examines the request and checks for messages from other power window motors that may prohibit window movement. If no prohibitive messages have been received, the BCM will send a serial data message to the passenger window motor or to the appropriate rear window switch which will perform the command as requested.

Diagnostic Aids

The loss of the express up and express down functions for the driver or passenger window may have occurred for the following reasons:

- The battery was disconnected
- The battery was replaced
- A door wiring harness was disconnected
- A window motor was disconnected

The window motor will need to be normalized in order to restore the express functions, refer to **Window Motor Programming - Express Function** for the proper procedure

Reference Information

Schematic Reference

Moveable Window Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Power Windows Description and Operation

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**

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

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition ON.
2. Verify the driver window functions while commanding the Driver Window Motor Up and Down with a scan tool.
   - **If the window does not move UP and DOWN as commanded**

     Refer to Circuit/System Testing - Driver/Passenger Window Motor Malfunction.

   - **If the window moves UP and DOWN as commanded**
3. Verify the driver window moves while commanding the window UP and DOWN with the S79D Window Switch-Driver.
   - **If the window does not move UP and DOWN as commanded**

     Refer to Circuit/System Testing - Driver Window Switch Malfunction.

   - **If the window moves UP and DOWN as commanded**
4. Verify the driver window performs the express UP and express DOWN functions with the S79D Window Switch-Driver.
   - **If the driver window does not express UP or express DOWN**

     Normalize the driver window motor, refer to **Window Motor Programming - Express Function**.

     1. Verify the driver window performs the express UP and express DOWN functions with the S79D Window Switch-Driver
   - **If the driver window does not express UP or express DOWN**

     Refer to Circuit/System Testing - Driver Window Switch Malfunction.

   - **If the driver window performs the express UP and express DOWN functions**
5. Verify the scan tool parameters listed below change when pressing and pulling the switches for the passenger, left rear and right rear window on the S79D Window Switch-Driver
   - Left Rear Main Control Down Switch - Inactive and Active

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- Left Rear Main Control Express Switch - Inactive and Active
- Left Rear Main Control Up Switch - Inactive and Active
- Right Rear Main Control Down Switch - Inactive and Active
- Right Rear Main Control Express Switch - Inactive and Active
- Right Rear Main Control Up Switch - Inactive and Active
- Front Passenger Main Control Down Switch - Inactive and Active
- Front Passenger Main Control Express Switch - Inactive and Active
- Front Passenger Main Control Up Switch - Inactive and Active
- **If the parameters do not change**

  Refer to Circuit/System Testing - Driver Window Switch Malfunction.

- **If the parameters changes**

6. Verify the passenger window moves while commanding the Passenger Window Motor Up and Down with a scan tool.
   - **If the passenger window does not move UP and DOWN as commanded**

     Refer to Circuit/System Testing - Driver/Passenger Window Motor Malfunction.

   - **If the window moves UP and DOWN as commanded**
7. Verify the passenger window moves while commanding the window UP and DOWN with the S79P Window Switch-Passenger.
   - **If the passenger window does not move UP and DOWN as commanded**

     Refer to Circuit/System Testing - Passenger Window Switch Malfunction.

   - **If the window moves UP and DOWN as commanded**
8. Verify the passenger window performs the express UP and express DOWN functions with the S79P Window Switch-Passenger.
   - **If the passenger window does not express UP or express DOWN**

     Normalize the passenger window motor, refer to **Window Motor Programming - Express Function**.

     1. Verify the passenger window performs the express UP and express DOWN functions with the S79P Window Switch-Passenger
   - **If the passenger window does not express UP or express DOWN**

     Refer to Circuit/System Testing - Passenger Window Switch Malfunction.

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- **If the passenger window performs the express UP and express DOWN functions**

9. Verify the left rear and right rear window move while commanding the Left Rear Window Motor and Right Rear Window Motor Up and Down with a scan tool.
    - **If a rear window does not move UP and DOWN as commanded**

      Refer to Circuit/System Testing - Rear Power Window Inoperative.

    - **If the rear window moves UP and DOWN as commanded**
10. All OK.

Circuit/System Testing

Driver/Passenger Window Motor Malfunction

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the appropriate driver or passenger M74 Window Motor. It may take up to 2 minutes for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 1 and ground.
    - **If 10 Ω or greater**
    1. Ignition OFF.
    2. Test for less than 2 Ω in the ground circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, repair the open/high resistance in the ground connection.
    - **If less than 10 Ω**
3. Ignition ON.
4. Verify a test lamp illuminates between the B+ circuit terminal 2 and ground.
    - **If the test lamp does not illuminate and the circuit fuse is good**
    1. Ignition OFF.
    2. Test for less than 2 Ω in the B+ circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, verify the fuse is not open and there is voltage at the fuse.
    - **If the test lamp does not illuminate and the circuit fuse is open**
    1. Ignition OFF.

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2. Test for infinite resistance between the B+ circuit and ground.
    - If less than infinite resistance, repair the short to ground on the circuit.
    - If infinite resistance, replace the M74 Window Motor.
- **If the test lamp illuminates**

5. Test or replace the M74 Window Motor.

Driver Window Switch Malfunction

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the S79D Window Switch-Driver. It may take up to 2 minutes for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 1 and ground.
    - **If 10 Ω or greater**
    1. Ignition OFF.
    2. Test for less than 2 Ω in the ground circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, repair the open/high resistance in the ground connection.
    - **If less than 10 Ω**
3. Ignition ON.
4. Verify a test lamp illuminates between the B+ circuit terminal 4 and ground.
    - **If the test lamp does not illuminate and the circuit fuse is good**
    1. Ignition OFF.
    2. Test for less than 2 Ω in the B+ circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, verify the fuse is not open and there is voltage at the fuse.
    - **If the test lamp does not illuminate and the circuit fuse is open**
    1. Ignition OFF.
    2. Test for infinite resistance between the B+ circuit and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, replace the S79D Window Switch-Driver
    - **If the test lamp illuminates**

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5. Verify the scan tool Driver Window Main Control Down Switch parameter is Inactive.
    - **If not Inactive**
    1. Ignition OFF, disconnect the harness connector at the M74D Window Motor-Driver.
    2. Test for infinite resistance between the signal circuit terminal 3 and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, replace the M74D Window Motor-Driver.
    - **If Inactive**
6. Install a 3 A fused jumper wire between the signal circuit terminal 3 and the ground circuit terminal 1.
7. Verify the scan tool Driver Window Main Control Down Switch parameter is Active
    - **If not Active**
    1. Ignition OFF, remove the 3 A fused jumper wire, disconnect the harness connector at the M74D Window Motor-Driver, ignition ON.
    2. Test for less than 1 V between the signal circuit terminal 3 and ground.
        - If 1 V or greater, repair the short to voltage on the circuit.
        - If less than 1 V
    3. Test for less than 2 Ω in the signal circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, replace the M74D Window Motor-Driver.
    - **If Active**
8. Verify the scan tool Driver Window Main Control Up Switch parameter is Inactive.
    - **If not Inactive**
    1. Ignition OFF, disconnect the harness connector at the M74D Window Motor-Driver.
    2. Test for infinite resistance between the signal circuit terminal 6 and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, replace the M74D Window Motor-Driver.
    - **If Inactive**
9. Install a 3 A fused jumper wire between the signal circuit terminal 6 and the ground circuit terminal 1.
10. Verify the scan tool Driver Window Main Control Up Switch parameter is Active
    - **If not Active**
    1. Ignition OFF, remove the 3 A fused jumper wire, disconnect the harness connector at the M74D Window Motor-Driver, ignition ON.

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2. Test for less than 1 V between the signal circuit and ground.
    - If 1 V or greater, repair the short to voltage on the circuit.
    - If less than 1 V
3. Test for less than 2 Ω in the signal circuit end to end.
    - If 2 Ω or greater, repair the open/high resistance in the circuit.
    - If less than 2 Ω, replace the M74D Window Motor-Driver.

- **If Active**

11. Verify the scan tool Driver Window Main Control Express Switch parameter is Inactive.

- **If not Inactive**

1. Ignition OFF, disconnect the harness connector at the M74D Window Motor-Driver.
2. Test for infinite resistance between the signal circuit terminal 2 and ground.
    - If less than infinite resistance, repair the short to ground on the circuit.
    - If infinite resistance, replace the M74D Window Motor-Driver.

- **If Inactive**

12. Install a 3 A fused jumper wire between the signal circuit terminal 2 and the ground circuit terminal 1.
13. Verify the scan tool Driver Window Main Control Express Switch parameter is Active

- **If not Active**

1. Ignition OFF, remove the 3 A fused jumper wire, disconnect the harness connector at the M74D Window Motor-Driver, ignition ON.
2. Test for less than 1 V between the signal circuit and ground.
    - If 1 V or greater, repair the short to voltage on the circuit.
    - If less than 1 V
3. Test for less than 2 Ω in the signal circuit end to end.
    - If 2 Ω or greater, repair the open/high resistance in the circuit.
    - If less than 2 Ω, replace the M74D Window Motor-Driver.

- **If Active**

14. Test or replace the S79D Window Switch-Driver.

Passenger Window Switch Malfunction

1. Ignition OFF and all vehicle systems OFF, disconnect the X1 harness connector at the S79P Window Switch-Passenger. It may take up to 2

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minutes for all vehicle systems to power down.

2. Test for less than 10 Ω between the ground circuit terminal listed below and ground:
    - Ground circuit terminal 1 (-A45)
    - Ground circuit terminal 13 (+A45)
    - **If 10 Ω or greater**

    1. Ignition OFF.
    2. Test for less than 2 Ω in the ground circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, repair the open/high resistance in the ground connection.

    - **If less than 10 Ω**

3. Ignition ON.
4. Verify the scan tool Passenger Window Switch at Door parameter is Inactive.
    - **If the value is UP**

    1. Ignition OFF, disconnect the harness connector at the M74P Window Motor-Passenger.
    2. Test for infinite resistance between the signal circuit terminal listed below and ground:
        - Signal circuit terminal 6 (-A45)
        - Signal circuit terminal 18 (+A45)
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, replace the M74P Window Motor-Passenger.

    - **If the value is Down**

    1. Ignition OFF, disconnect the harness connector at the M74P Window Motor-Passenger, ignition ON.
    2. Test for infinite resistance between the signal circuit terminal listed below and ground:
        - Signal circuit terminal 3 (-A45)
        - Signal circuit terminal 15 (+A45)
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, replace the M74P Window Motor-Passenger.

    - **If Inactive**

5. Install a 3 A fused jumper wire between the signal circuit terminal and the ground circuit terminal listed below:
    - Signal circuit terminal 3 and ground circuit terminal 1 (-A45)

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- Signal circuit terminal 15 and ground circuit terminal 13 (+A45)

6. Verify the scan tool Passenger Window Switch at Door parameter is Down
   - **If Inactive**
   1. Ignition OFF, remove the 3 A fused jumper wire, disconnect the harness connector at the M74P Window Motor-Passenger, ignition ON.
   2. Test for less than 1 V between the signal circuit terminal listed below and ground:
      - Signal circuit terminal 3 (-A45)
      - Signal circuit terminal 15 (+A45)
      - If 1 V or greater, repair the short to voltage on the circuit.
      - If less than 1 V
   3. Test for less than 2 Ω in the signal circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance in the circuit.
      - If less than 2 Ω, replace the M74P Window Motor-Passenger.
   - **If Down**
7. Install a 3 A fused jumper wire between the signal circuit terminal and ground circuit terminal listed below:
   - Signal circuit terminal 6 and ground circuit terminal 1 (-A45)
   - Signal circuit terminal 18 and ground circuit terminal 13 (+A45)
8. Verify the scan tool Passenger Window Switch at Door parameter is Up
   - **If Inactive**
   1. Ignition OFF, remove the 3 A fused jumper wire, disconnect the harness connector at the M74P Window Motor-Passenger, ignition ON.
   2. Test for less than 1 V between the signal circuit terminal 8 and ground.
      - If 1 V or greater, repair the short to voltage on the circuit.
      - If less than 1 V
   3. Test for less than 2 Ω in the signal circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance in the circuit.
      - If less than 2 Ω, replace the M74P Window Motor-Passenger.
   - **If Down**
9. Test for greater than 10 V between the signal circuit terminal and ground circuit terminal listed below:
   - Signal circuit terminal 2 (-A45)
   - Signal circuit terminal 14 (+A45)

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- **If less than 10 V**

1. Ignition OFF, disconnect the harness connector at the M74P Window Motor-Passenger.
2. Test for infinite resistance between the signal circuit and ground.
    - If less than infinite resistance, repair the short to ground on the circuit.
    - If infinite resistance
3. Test for less than 2 Ω in the signal circuit end to end.
    - If 2 Ω or greater, repair the open/high resistance on the circuit.
    - If less than 2 Ω, replace the M74P Window Motor-Passenger.

- **If greater than 10 V**

10. Test or replace the S79P Window Switch-Passenger.

Rear Power Window Inoperative

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the appropriate S79 Window Switch-Rear. It may take up to 2 minutes for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 5 and ground.
    - **If 10 Ω or greater**

    1. Ignition OFF.
    2. Test for less than 2 Ω in the ground circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, repair the open/high resistance in the ground connection.

    - **If less than 10 Ω**

3. Ignition ON.
4. Verify a test lamp illuminates between the B+ circuit terminal 8.
    - **If the test lamp does not illuminate and the circuit fuse is good**

    1. Ignition OFF.
    2. Test for less than 2 Ω in the B+ circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, verify the fuse is not open and there is voltage at the fuse.

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

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1. Ignition OFF.
2. Test for infinite resistance between the B+ circuit and ground.
    - If less than infinite resistance, repair the short to ground on the circuit.
    - If infinite resistance, replace the S79 Window Switch-Rear
- **If the test lamp illuminates**

5. Ignition OFF, connect the harness connector at the S79 Window Switch-Rear and disconnect the harness connector at the M74 Window Motor-Rear.
6. Test for less than 5 Ω between the control circuit terminal 1 and ground.
    - **If 5 Ω or greater**
    1. Ignition OFF, disconnect the harness connector at the S79 Window Switch-Rear.
    2. Test for less than 2 Ω in the control circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, replace the S79 Window Switch-Rear.
    - **If less than 5 Ω**
7. Test for less than 5 Ω between the control circuit terminal 2 and ground.
    - **If 5 Ω or greater**
    1. Ignition OFF, disconnect the harness connector at the S79 Window Switch-Rear.
    2. Test for less than 2 Ω in the control circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, replace the S79 Window Switch-Rear.
    - **If less than 5 Ω**
8. Connect a test lamp between the control circuit terminal 1 and control circuit terminal 2, ignition ON.
9. Verify the test lamp turns ON when commanding the UP and DOWN states with the S79 Window Switch-Rear.
    - **If the test lamp remains OFF during either of the commands**
    1. Ignition OFF, remove the test lamp, disconnect the harness connector at the S79 Window Switch-Rear.
    2. Test for infinite resistance between each control circuit and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, replace the S79 Window Switch-Rear.
    - **If the test lamp turns ON during each of the commands**

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10. Test or replace the M74 Window Motor-Rear.

Component Testing

Rear Window Motor

1. Ignition OFF, disconnect the harness connector at the appropriate M74 Window Motor-Rear.
2. Install a 25 A fused jumper wire between one of the control terminals and 12 V. Momentarily install a jumper wire between the other control terminal and ground. Reverse the jumper wires at least two times, the M74 Window Motor-Rear should perform the UP and DOWN functions.
   - **If the M74 Window Motor-Rear does not perform the UP and DOWN functions**

     Replace the M74 Window Motor-Rear.

   - **If the M74 Window Motor-Rear performs the UP and DOWN functions**
3. All OK

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair.

- **Front Side Door Window Control Switch Replacement (Chevrolet, GMC)Front Side Door Window Control Switch Replacement (Cadillac)**
- **Front Side Door Window Switch Replacement - Right Side (Chevrolet, GMC)Front Side Door Window Switch Replacement - Right Side (Cadillac)**
- **Rear Side Door Window Switch Replacement (Chevrolet, GMC)Rear Side Door Window Switch Replacement (Cadillac)**
- **Front Side Door Window Regulator Motor Replacement**
- **Rear Side Door Window Regulator Motor Replacement**

LIFTGATE WINDOW RELEASE INOPERATIVE

Diagnostic Instructions

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

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Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Liftglass/Trunk Release Signal	B3618 00	1	1	-
Liftgate Window Unlatch Relay Control	B3265 02	B3265 04	B3265 01	-
Liftgate Window Unlatch Actuator Control	2	2	2	-
Liftgate Window Unlatch Relay Ground	-	B3265 04	-	-
Liftgate Window Unlatch Switch Ground	-	1	-	-
Liftgate Window Unlatch Actuator Ground	-	1	-	-
1. Liftgate Window Unlatch Switch Inoperative 2. Liftgate Window Release Inoperative				

Circuit/System Description

The liftgate window unlatch switch is an input to the body control module (BCM). The BCM supplies a 12 V signal to the liftgate window unlatch switch and when the switch is pressed, signal circuit voltage goes low. When the BCM receives a liftglass release signal, the BCM will supply voltage and ground to the liftgate window unlatch relay coil, energizing the relay. When the relay is energized, battery voltage flows through the closed contacts of the relay to the liftgate window latch assembly which activates allowing for the liftgate window to be raised to the open position.

Reference Information

Schematic Reference

Release Systems Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Rear Hatch/Gate Description and Operation

Electrical Information Reference

- **Circuit Testing**

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

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition ON.
2. Verify the scan tool Exterior Liftgate Window Unlatch Switch parameter changes between Active and Inactive when pressing and releasing the S141 Liftgate Window Unlatch Switch.
   - **If the parameter does not change**

     Refer to Circuit/System Testing - Liftgate Window Switch Inoperative.

   - **If the parameter changes**

   NOTE: The M33 Liftgate Window Latch Assembly will be disabled if the body control module has detected that the M45 Rear Wiper Motor is Active, verify the function of the M45 Rear Wiper Motor prior to commanding the M33 Liftgate Window Latch Assembly. Refer to Rear Wiper System Malfunction

3. Verify the M33 Liftgate Window Latch Assembly releases the liftgate window when pressing and releasing the S141 Liftgate Window Unlatch Switch.
   - **If the liftgate window does not release**

     Refer to Circuit/System Testing - Liftgate Window Latch Inoperative.

   - **If the liftgate window does release**
4. All OK.

Circuit/System Testing

Liftgate Window Switch Inoperative

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the S141 Liftgate Window Unlatch Switch. It may take up to 2

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minutes for all vehicle systems to power down.

2. Test for less than 10 Ω between the ground circuit terminal 1 and ground.
    - **If 10 Ω or greater**
    1. Ignition OFF.
    2. Test for less than 2 Ω in the ground circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, repair the open/high resistance in the ground connection.
    - **If less than 10 Ω**
3. Ignition ON.
4. Verify the scan tool Exterior Liftgate Window Unlatch Switch parameter is Inactive.
    - **If not Inactive**
    1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.
    2. Test for infinite resistance between the signal circuit terminal 2 and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, replace the K9 Body Control Module.
    - **If Inactive**
5. Install a 3 A fused jumper wire between the signal circuit terminal 2 and the ground circuit terminal 1.
6. Verify the scan tool Exterior Liftgate Window Unlatch Switch parameter is Active.
    - **If not Active**
    1. Ignition OFF, remove the 3 A fused jumper wire, disconnect the harness connector at the K9 Body Control Module, ignition ON.
    2. Test for less than 1 V between the signal circuit and ground.
        - If 1 V or greater, repair the short to voltage on the circuit.
        - If less than 1 V
    3. Test for less than 2 Ω in the signal circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, replace the K9 Body Control Module.
    - **If Active**
7. Test or replace the S141 Liftgate Window Unlatch Switch.

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Liftgate Window Latch Inoperative

1. Ignition OFF and all vehicle systems OFF, disconnect the KR162 Liftgate Window Unlatch Relay. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 16 and ground.
    - **If 10 Ω or greater**
    1. Ignition OFF.
    2. Test for less than 2 Ω in the ground circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, repair the open/high resistance in the ground connection.
    - **If less than 10 Ω**
3. Ignition ON.
4. Verify a test lamp illuminates between the B+ circuit terminal 7 and ground.
    - **If the test lamp does not illuminate and the circuit fuse is good**
    1. Ignition OFF.
    2. Test for less than 2 Ω in the B+ circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, verify the fuse is not open and there is voltage at the fuse.
    - **If the test lamp does not illuminate and the circuit fuse is open**
    1. Ignition OFF.
    2. Test for infinite resistance between the B+ circuit and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance
    3. Disconnect the harness connector at the M33 Liftgate Window Latch Assembly.
    4. Test for infinite resistance between the control circuit terminal 15 and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, replace the Liftgate Window Unlatch Relay.
    - **If the test lamp illuminates**
5. Connect a test lamp between the control circuit terminal 6 and the ground circuit terminal 16.

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6. Verify the test lamp turns ON and OFF when pressing and releasing the S141 Liftgate Window Unlatch Switch.
    - **If the test lamp is always OFF**
    1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control Module.
    2. Test for infinite resistance between the control circuit and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance
    3. Test for less than 2 Ω in the control circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, replace the K9 Body Control Module.
    - **If the test lamp is always ON**
    1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control Module, ignition ON.
    2. Test for less than 1 V between the control circuit and ground.
        - If 1 V or greater, repair the short to voltage on the circuit.
        - If less than 1 V, replace the K9 Body Control Module.
    - **If the test lamp turns ON and OFF**
7. Verify that a test lamp does not illuminate between the control circuit terminal 15 and ground.
    - **If the test lamp illuminates**

      Repair the short to voltage on the control circuit

    - **If the test lamp does not illuminate**
8. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the M33 Liftgate Window Latch Assembly. It may take up to 2 min for all vehicle systems to power down.
9. Test for less than 10 Ω between the ground circuit terminal 2 and ground.
    - **If 10 Ω or greater**
    1. Ignition OFF.
    2. Test for less than 2 Ω in the ground circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, repair the open/high resistance in the ground connection.
    - **If less than 10 Ω**

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10. Connect the harness connector at the M33 Liftgate Window Latch Assembly.
11. Ignition ON, connect a 10 A fused jumper wire between the B+ circuit terminal 7 and the control circuit terminal 15.
12. Verify the M33 Liftgate Window Latch Assembly is activated.
    - **If the M33 Liftgate Window Latch Assembly does not activate**
    1. Ignition OFF, remove the jumper wire, disconnect the harness connector at the M33 Liftgate Window Latch Assembly.
    2. Test for less than 2 Ω in the control circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, replace the M33 Liftgate Window Latch Assembly.
    - **If the M33 Liftgate Window Latch Assembly activates**
13. Test or replace the KR162 Liftgate Window Unlatch Relay.

Component Testing

Liftgate Window Unlatch Switch

1. Ignition OFF, disconnect the harness connector at the S141 Liftgate Window Unlatch Switch.
2. Test for infinite resistance between the signal terminal 2 and the ground terminal 1 with the switch in the open position.
    - **If less than infinite resistance**

      Replace the S141 Liftgate Window Unlatch Switch.

    - **If infinite resistance**
3. Test for less than 3 Ω between the signal terminal 2 and the ground terminal 1 with the switch in the closed position.
    - **If 3 Ω or greater**

      Replace the S141 Liftgate Window Unlatch Switch.

    - **If less than 3 Ω**
4. All OK

Liftgate Window Latch

1. Ignition OFF, disconnect the harness connector at the M33 Liftgate Window Latch Assembly.
2. Install a 10 A fused jumper wire between the control terminal 1 and 12 V. Install a jumper wire between the ground terminal 2 and ground.

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3. Verify the M33 Liftgate Window Latch Assembly activates
    - **If the M33 Liftgate Window Latch Assembly does not activate.**

      Replace the M33 Liftgate Window Latch Assembly.

    - **If the M33 Liftgate Window Latch Assembly does activate.**
4. All OK

Relay Test

1. Ignition OFF, disconnect the KR162 Liftgate Window Unlatch Relay.
2. Test for 60-180 Ω between terminals 86 and 85.
    - **If less than 60 Ω or greater than 180 Ω**

      Replace the KR162 Liftgate Window Unlatch Relay.

    - **If between 60-180 Ω**
3. Test for infinite resistance between the terminals listed below:
    - 86 and 30
    - 86 and 87
    - 85 and 30
    - 85 and 87
    - **If less than infinite resistance**

      Replace the KR162 Liftgate Window Unlatch Relay.

    - **If infinite resistance**
4. Install a 3 A fused jumper wire between relay terminal 86 and 12 V. Install a jumper wire between relay terminal 85 and ground.
5. Test for less than 2 Ω between terminals 30 and 87.
    - **If 2 Ω or greater**

      Replace the KR162 Liftgate Window Unlatch Relay.

    - **If less than 2 Ω**

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6. All OK

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair.

- **Liftgate Window Latch Replacement (Chevrolet, GMC)** **Liftgate Window Latch Replacement (Cadillac)**
- **Rear Compartment Lid Release Switch Replacement (Chevrolet, GMC)** **Rear Compartment Lid Release Switch Replacement (Cadillac)**
- **Relay Replacement (Attached to Wire Harness)** **Relay Replacement (Within an Electrical Center)**
- **Control Module References** for BCM replacement, programming and setup

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.
	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	Check seals, reinitialize the glass and/or realign the glass.

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Cause	Correction
unexpectedly.	Check for debris in the glass run channel.

REPAIR INSTRUCTIONS

WINDSHIELD REPLACEMENT

Special Tools

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

For equivalent regional tools, refer to **Special Tools**.

Removal Procedure

1. Open the hood.
2. Remove the windshield wiper arms. Refer to **Windshield Wiper Arm Replacement (Chevrolet/GMC)** **Windshield Wiper Arm Replacement (Cadillac)** .
3. Remove the air inlet grille panel. Refer to **Air Inlet Grille Panel Replacement (Chevrolet/GMC)** **Air Inlet Grille Panel Replacement (Cadillac)** .
4. Remove the sunshade. Refer to **Sunshade Replacement** .
5. Lower the front section of the headliner only to access the urethane adhesive bead. Refer to **Headlining Trim Panel Replacement (Standard Wheelbase)** **Headlining Trim Panel Replacement (Extended Wheelbase)** .

   NOTE: **If the windshield is equipped with a blackout area around the mirror base bracket Care Must be used not to cut or scrape the blackout. If the mount bracket come off the windshield it can Not be reinstalled and the windshield must be replaced. If the bracket is bonded to the windshield it is Not reusable. Remove all sensor, cover, electrical devices, and bracket. from the pins. If the bracket is bonded to the windshield it is Not reusable.**

6. Remove the inside rearview mirror. Refer to **Inside Rearview Mirror Replacement (With UE1)** **Inside Rearview Mirror Replacement (Without UE1)** .
7. Remove the windshield outside moisture/ambient light and humidity sensor. Refer to **Windshield Outside Moisture/Ambient Light and Humidity Sensor Replacement** .

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

8. Cover to protect the following parts from broken glass:
   - Upper dash pad
   - Defroster outlets and A/C outlets
   - Seats and carpeting
9. Using the appropriate tool, carefully cut the lace from around the window in order to access the urethane adhesive bead.

WARNING: **Refer to Glass and Sheet Metal Handling Warning .**

NOTE: **If reusing the window use care not to cut off the locator pins located in the upper corners. If the locating pins are cut off in the removal it will be necessary to use masking tape to tape the window in place until the urethane adhesive cures.**

10. Do the following steps when separated the window from the urethane adhesive:
    - Leave a base of urethane adhesive on the pinchweld flange.
    - The only suitable lubrication is clean water, no oils, lubes or soaps.
    - **BO-39032** Stationary Glass Removal Tool, or equivalent in order to remove the window.

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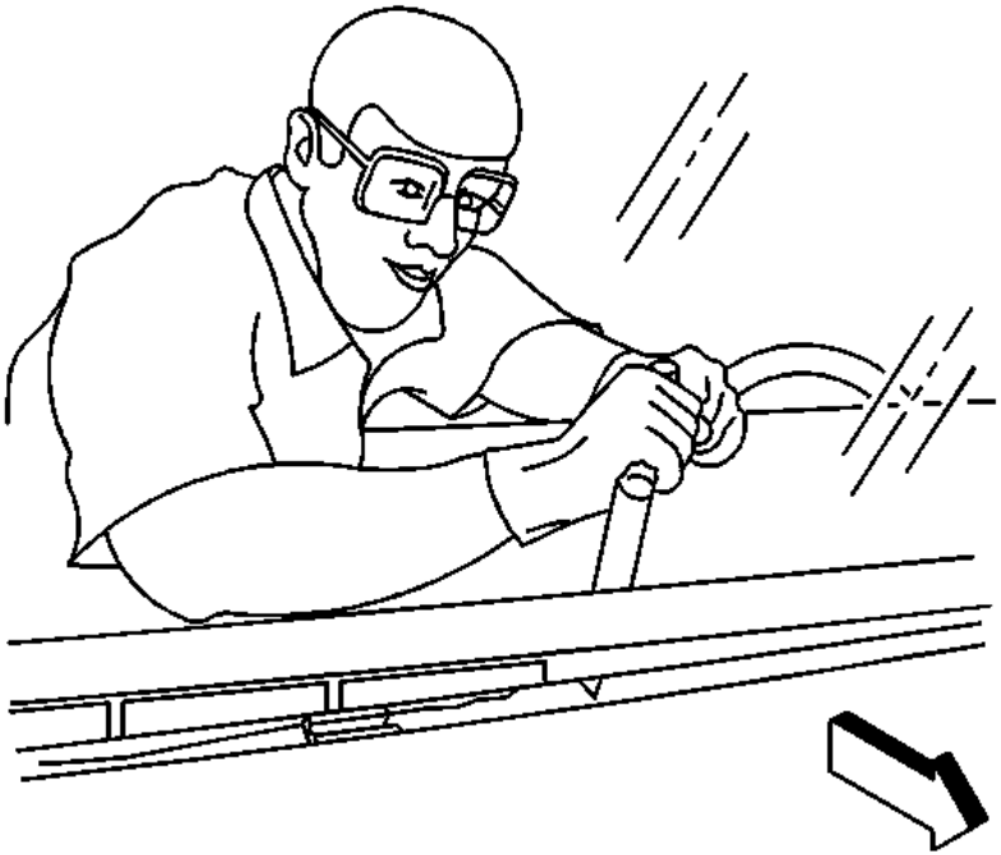


Fig. 5: Separating Bottom Of Window
Courtesy of GENERAL MOTORS COMPANY

11. Using the appropriate tool, cut along the bottom of the window separating the window from urethane adhesive. Keep the cutting edge of the tool against the window. Do this from inside the vehicle. While cutting from inside the vehicle, reposition the tool to cut the urethane adhesive along the top and both sides to release the window completely.

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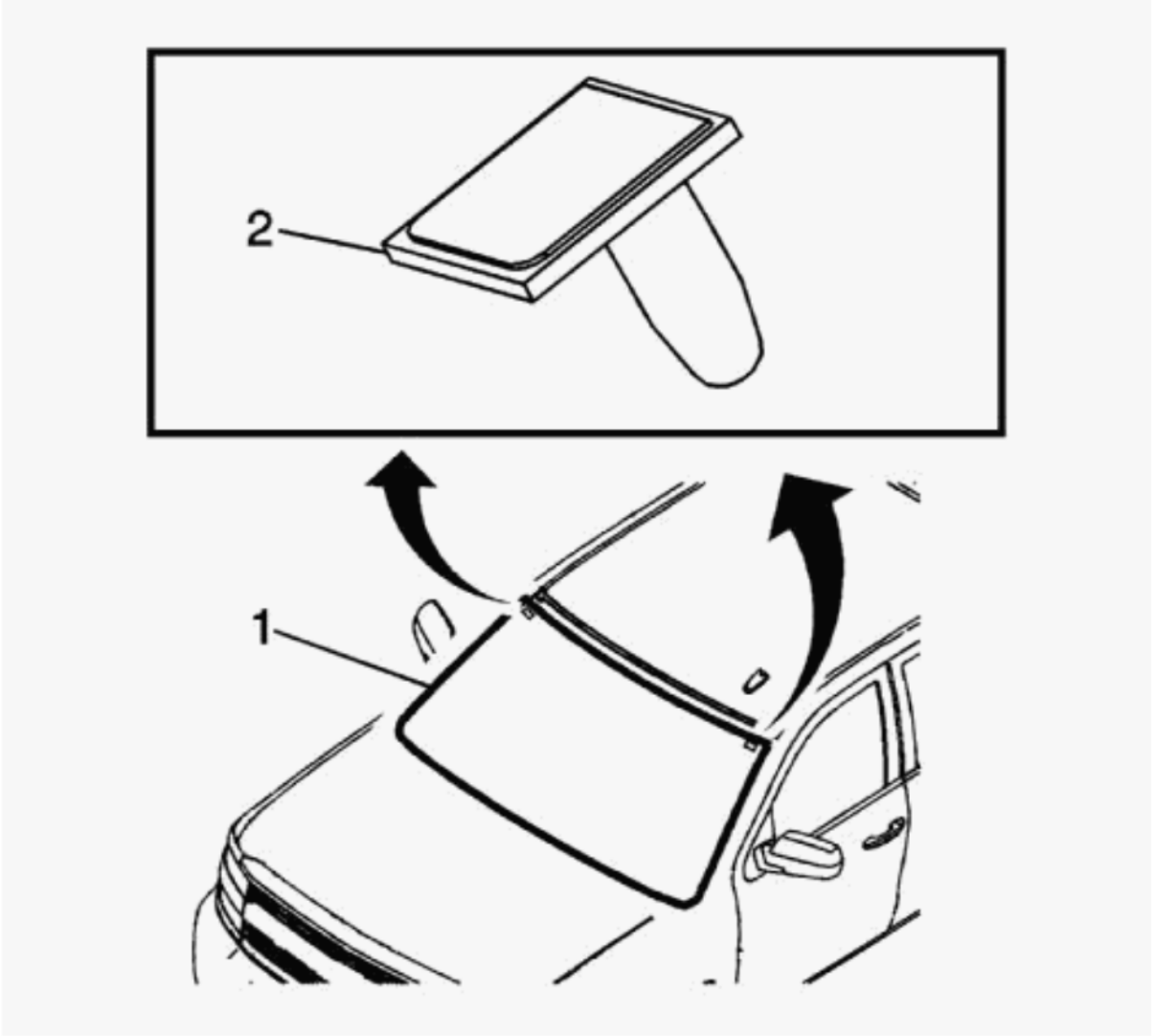


Fig. 6: Removing Window
Courtesy of GENERAL MOTORS COMPANY

12. Remove the window (1) from the vehicle with an assistant and Do the following:
    1. After removing the window spacers, mark the location of each one, If equipped.
    2. Check that the locator pins (2) are still attached to each upper corner of the window (1) for installing, if reusing.
    3. Remove all mounds or loose pieces of urethane adhesive from the pinchweld area.

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4. If the original window (1) is being reused, remove all but approximately 2 mm (0.078 in) of the existing bead of urethane adhesive from the pinchweld flange surface, using a clean utility knife or razor blade scraper.

13. Inspect for any of the following conditions in order to help prevent future breakage of the window:
    - High weld
    - Solder spots
    - Hardened sealer
    - Any other obstruction or irregularity in the pinchweld flange

NOTE: **If corrosion of the pinchweld flange is present or if sheet metal repairs or replacements are required, the pinchweld 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 DE15Â®, DuPont 2610Â®, Sherwin-Williams PSE 4600 and NP70Â® and Martin-Semour 5120 and 5130Â® PPG DP90LF SPIES/HECKER 3688/8590 - 3688/5150 - 4070/5090 STANDOX 11158/13320 - 14653/14980 products are approved for this application.**

14. 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.

Installation Procedure

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.**

1. Verify that all primers and urethane adhesive being used are within expiration dates.
2. If reusing or replacing the window, use the appropriate tool, remove the urethane adhesive bead on the window surface and pinchweld flange to approximately 2 mm (0.078 in).

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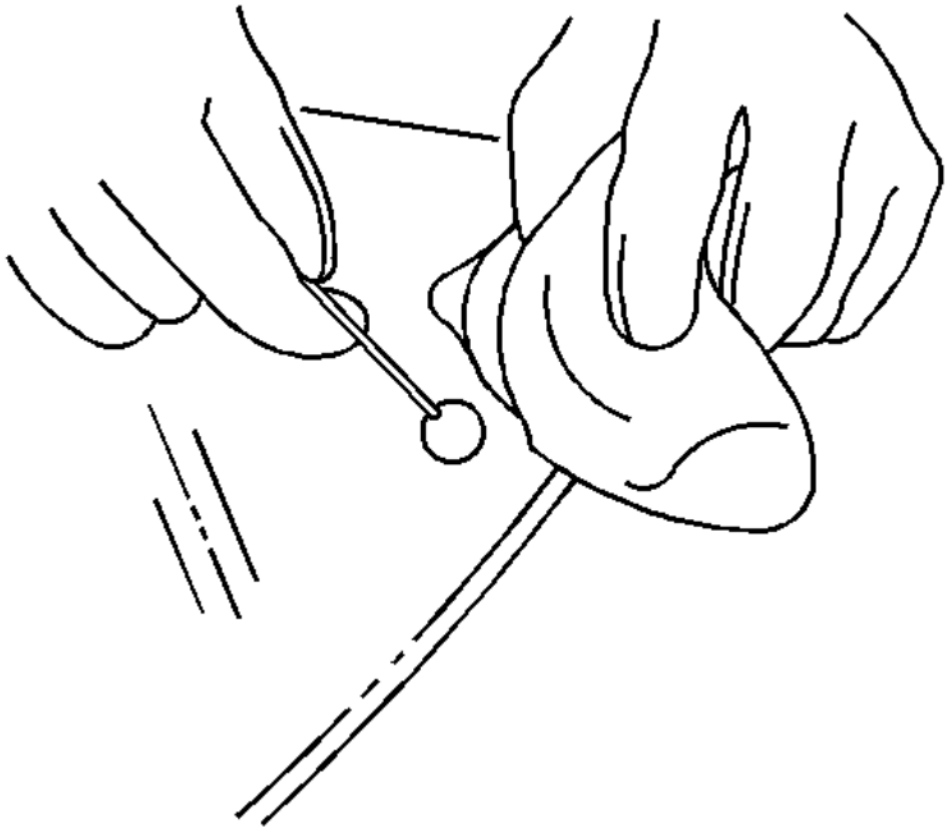


Fig. 7: Applying Glass Prep
Courtesy of GENERAL MOTORS COMPANY

NOTE: **Use Prep #1 Clear**

3. Apply the Prep #1 clear primer to the bonding surface of the windows inside edge and the bonding surface of the pinchweld flange opening, refer to the instructions of the manufacturer's.

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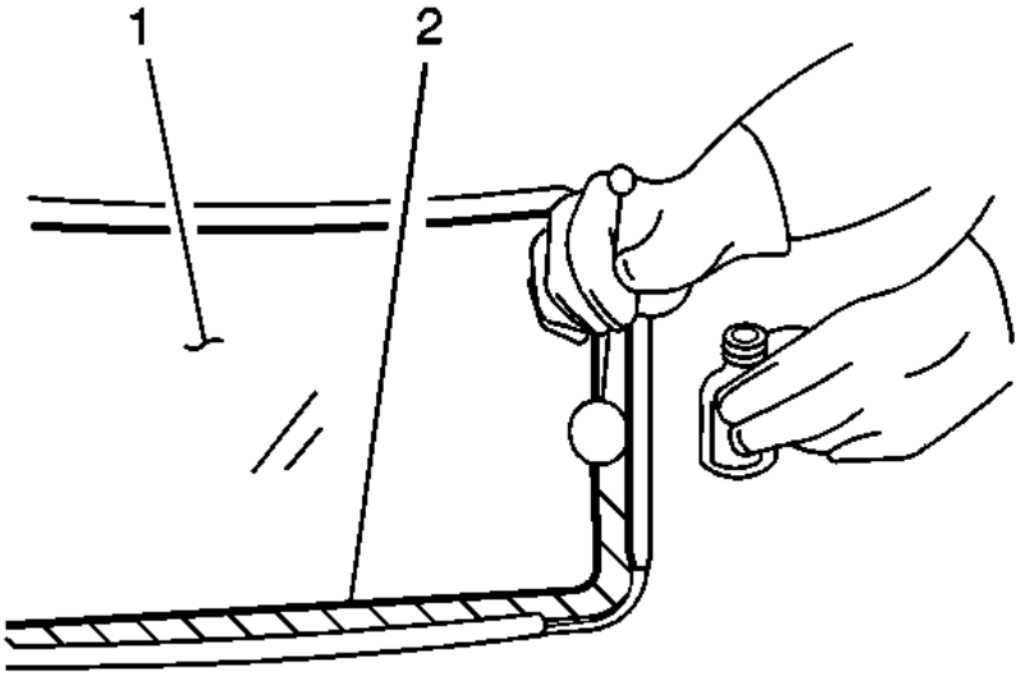


Fig. 8: Applying Glass Primer
Courtesy of GENERAL MOTORS COMPANY

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.

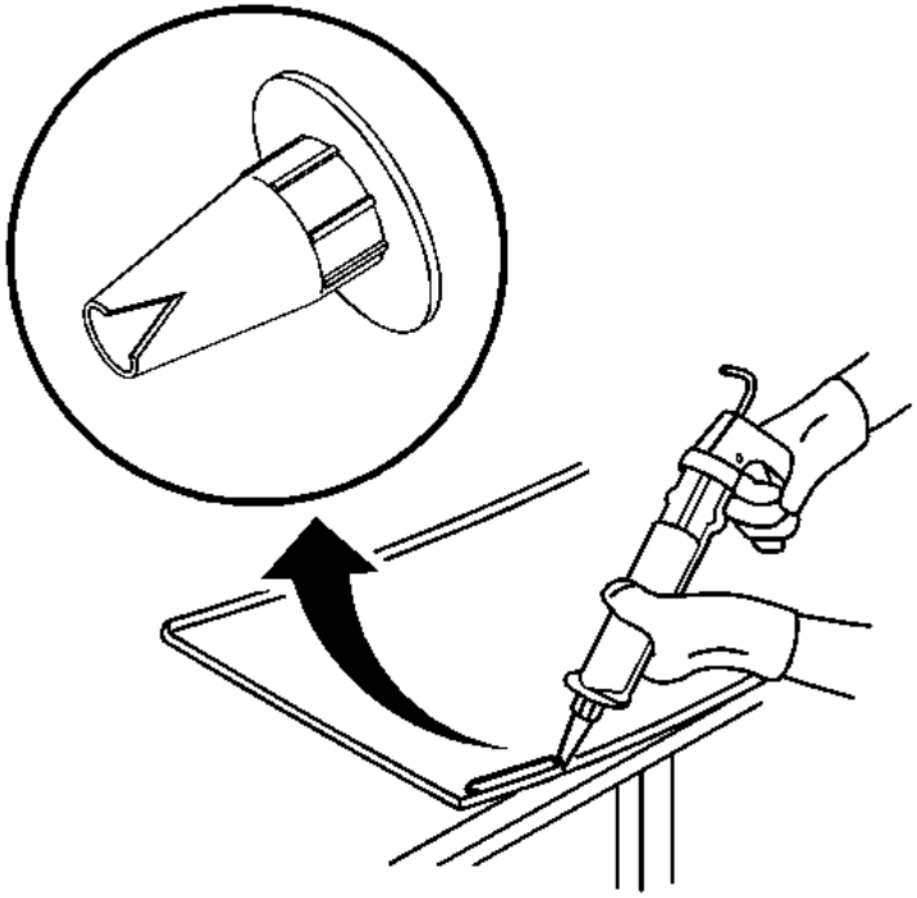
NOTE: Following the urethane adhesive installation instructions, using P/N 9981062 (VM/P Naphtha) or equivalent to remove any excess of urethane adhesive within 3 minutes, otherwise it may not be possible to remove

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the urethane adhesive excess unless using mechanical means.

NOTE: **The Prep #2 Black Primer is for, Blackout primer, UV Blackout.**

4. Apply the Prep #2 urethane adhesive primer (2) around the perimeter of the window (1), refer to the instructions of the manufacturer's.
5. Install the spacers for the window to the marked locations on the pinchweld flange, If equipped



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Fig. 9: View Of Modified Applicator Nozzle
Courtesy of GENERAL MOTORS COMPANY

6. 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.

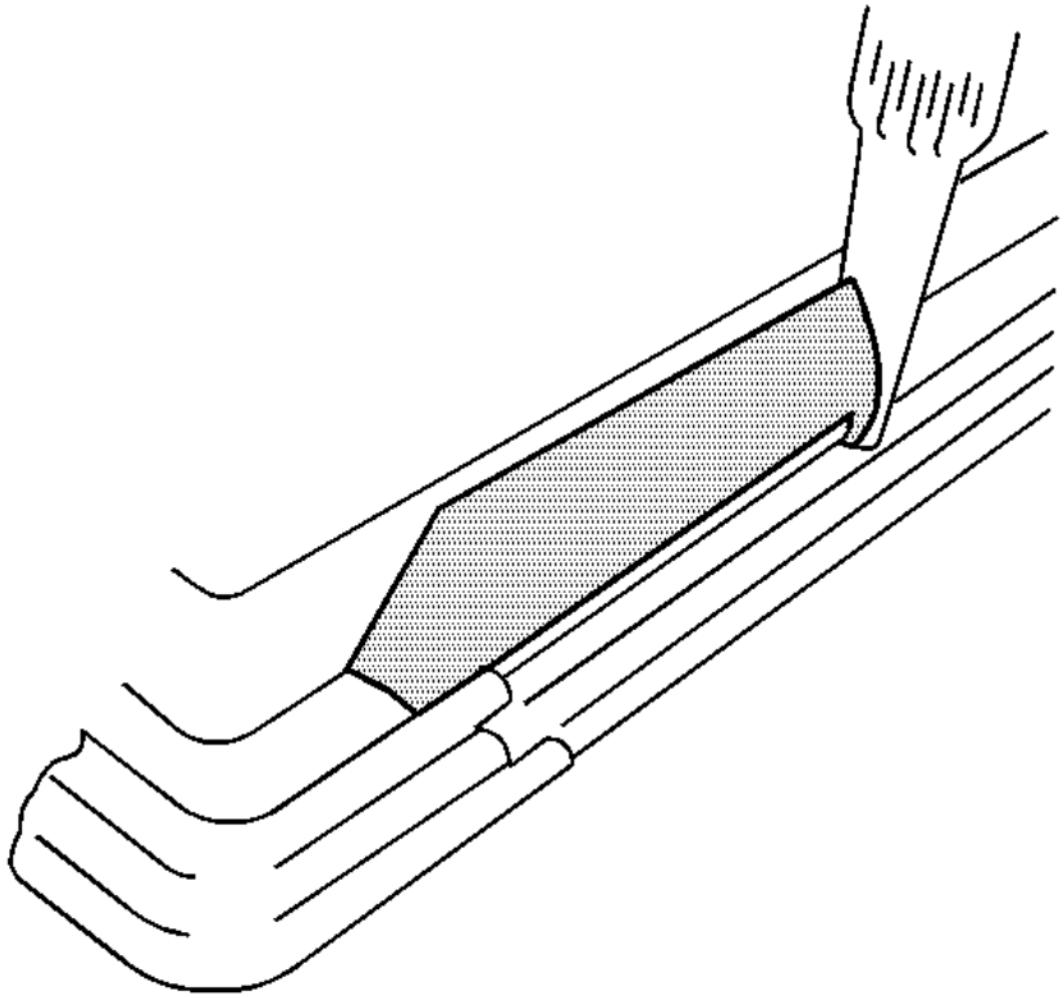


Fig. 10: Applying Continuous Bead Of Urethane Adhesive
Courtesy of GENERAL MOTORS COMPANY

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7. Use the appropriate tool in order to apply a smooth, continuous bead of urethane adhesive to the window or the pinchweld flange.

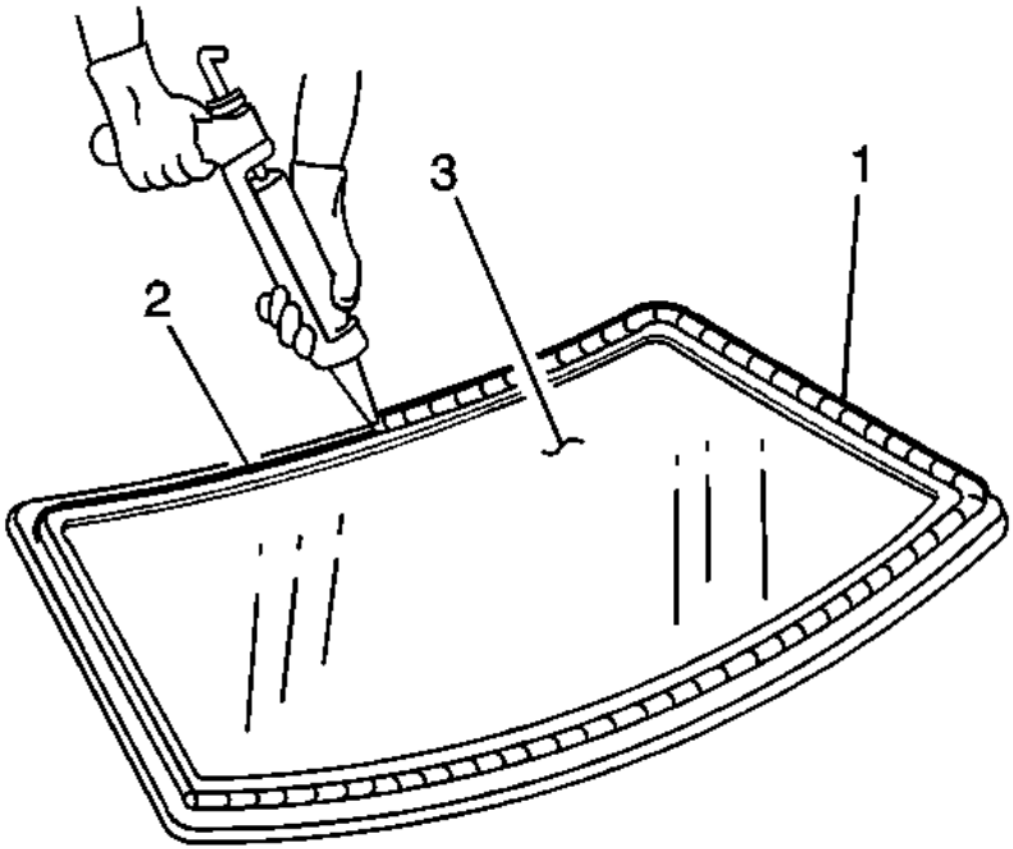


Fig. 11: Applying Urethane Adhesive To Inner Surface Of Window
Courtesy of GENERAL MOTORS COMPANY

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

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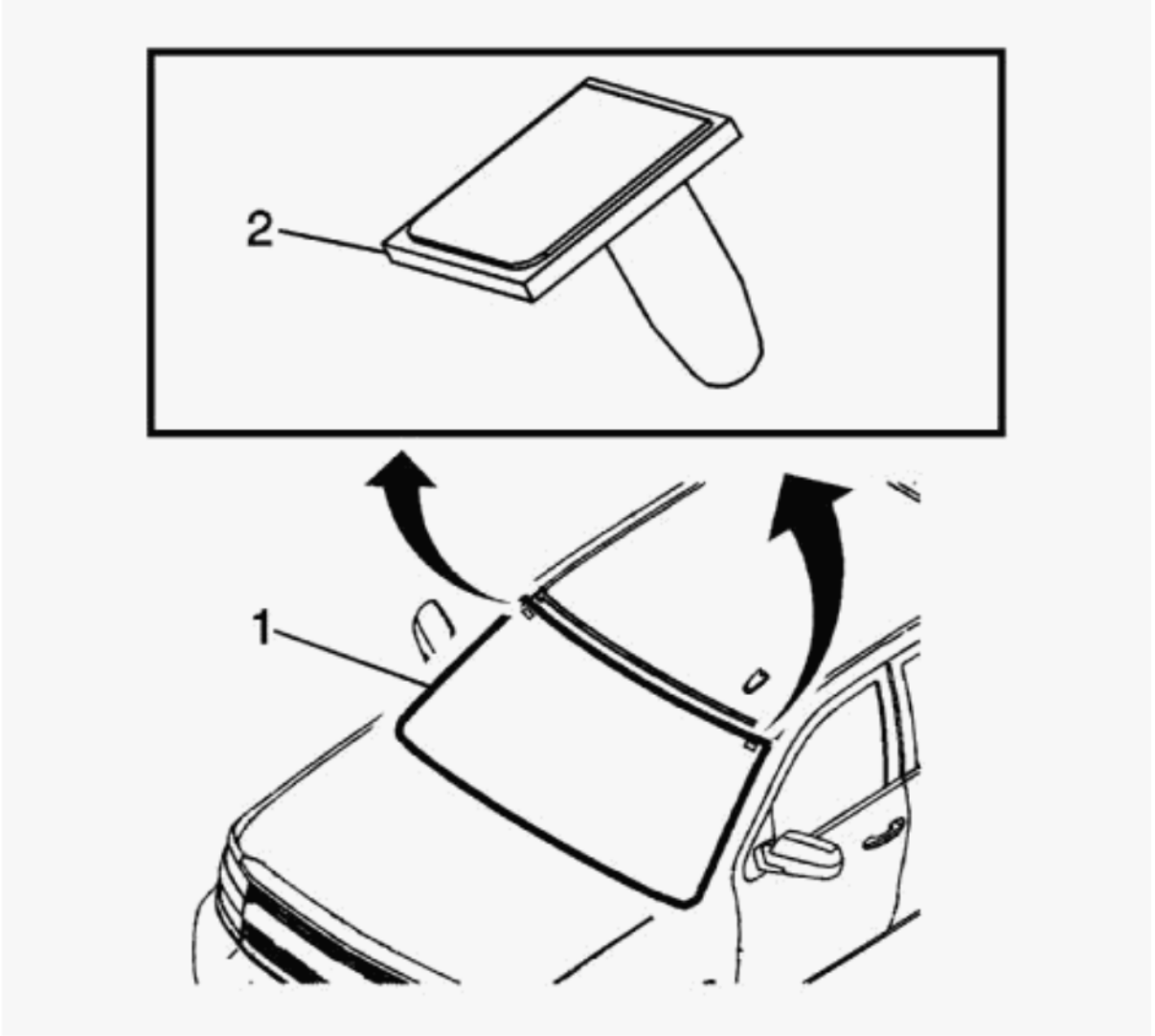


Fig. 12: Removing Window
Courtesy of GENERAL MOTORS COMPANY

9. With an assistant, place the window (1) and locator pins (2) into the locator slots in the pinchweld flange of the vehicle.

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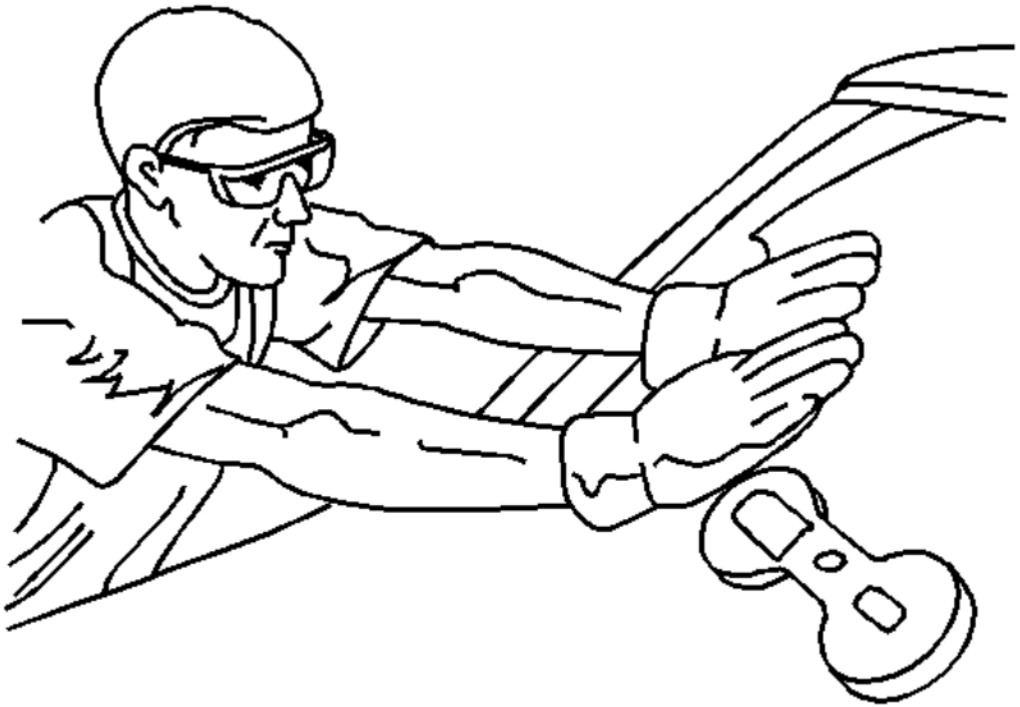


Fig. 13: Pressing Window Into Place
Courtesy of GENERAL MOTORS COMPANY

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 roof sheet metal.**

10. Press firmly around the entire periphery of the window in order to wet-out the urethane adhesive bead.

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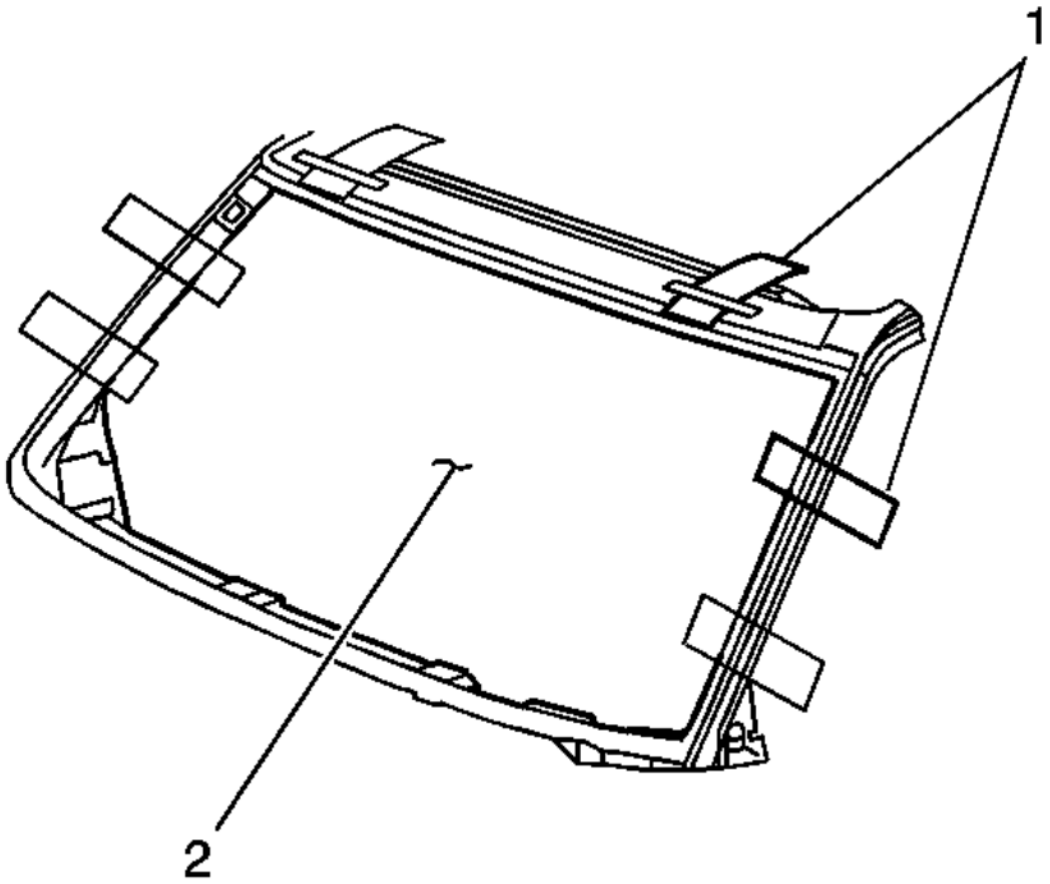


Fig. 14: Aligning Tape Lines On Window To Body
Courtesy of GENERAL MOTORS COMPANY

11. Use masking tape (1) to hold the window (2) in the position until the urethane adhesive completely cures.
12. Remove the double layer of masking tape around the perimeter of the painted surfaces and the interior trim.

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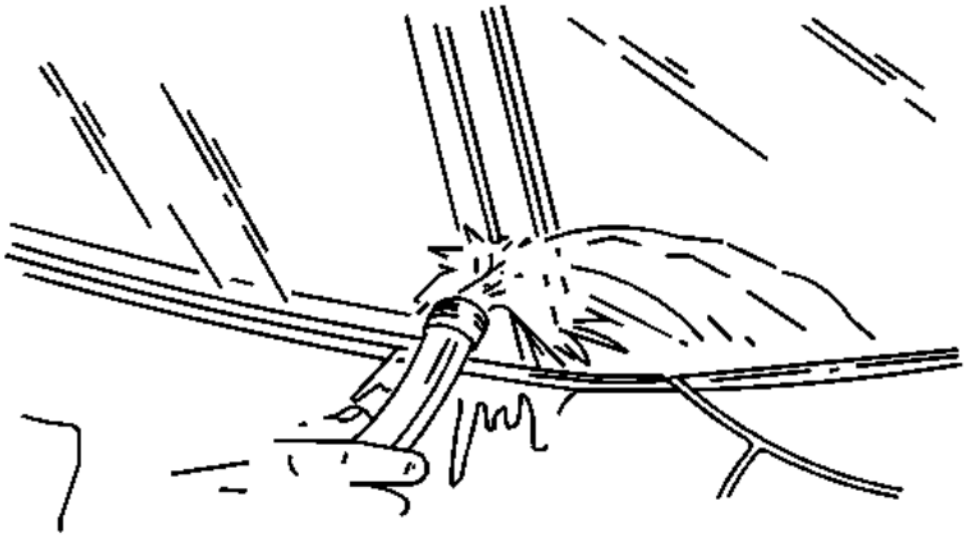


Fig. 15: Performing Water Hose Test
Courtesy of GENERAL MOTORS COMPANY

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

13. Use a soft spray of warm water in order to immediately water test the window.

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14. Inspect the window for leaks.
15. If any leaks are found, use a plastic paddle in order to apply extra urethane adhesive at the leak point.
16. 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 21Â°C (70Â°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.

17. Maintain the following conditions in order to properly cure the urethane adhesive by manufacturers instructions:
    - 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 instructions of the manufacturers curing times.
    - Do not use compressed air in order to dry the urethane adhesive.
18. Remove the air inlet grille panel. Refer to **Air Inlet Grille Panel Replacement (Chevrolet/GMC)** **Air Inlet Grille Panel Replacement (Cadillac)** .
19. Install the windshield wipers arms. Refer to **Windshield Wiper Arm Replacement (Chevrolet/GMC)** **Windshield Wiper Arm Replacement (Cadillac)** .
20. Install the front section of the headliner. Refer to **Headlining Trim Panel Replacement (Standard Wheelbase)** **Headlining Trim Panel Replacement (Extended Wheelbase)** .
21. Install the sunshade. Refer to **Sunshade Replacement** .
22. Install the windshield outside moisture/ambient light and humidity sensor. Refer to **Windshield Outside Moisture/Ambient Light and Humidity Sensor Replacement** .
23. Install the rearview mirror. Refer to **Inside Rearview Mirror Replacement (With UE1)** **Inside Rearview Mirror Replacement (Without UE1)** .
24. Remove the double layer of masking tape around the perimeter of the painted surfaces and the interior trim.
25. Close the hood.

FRONT SIDE DOOR WINDOW REPLACEMENT

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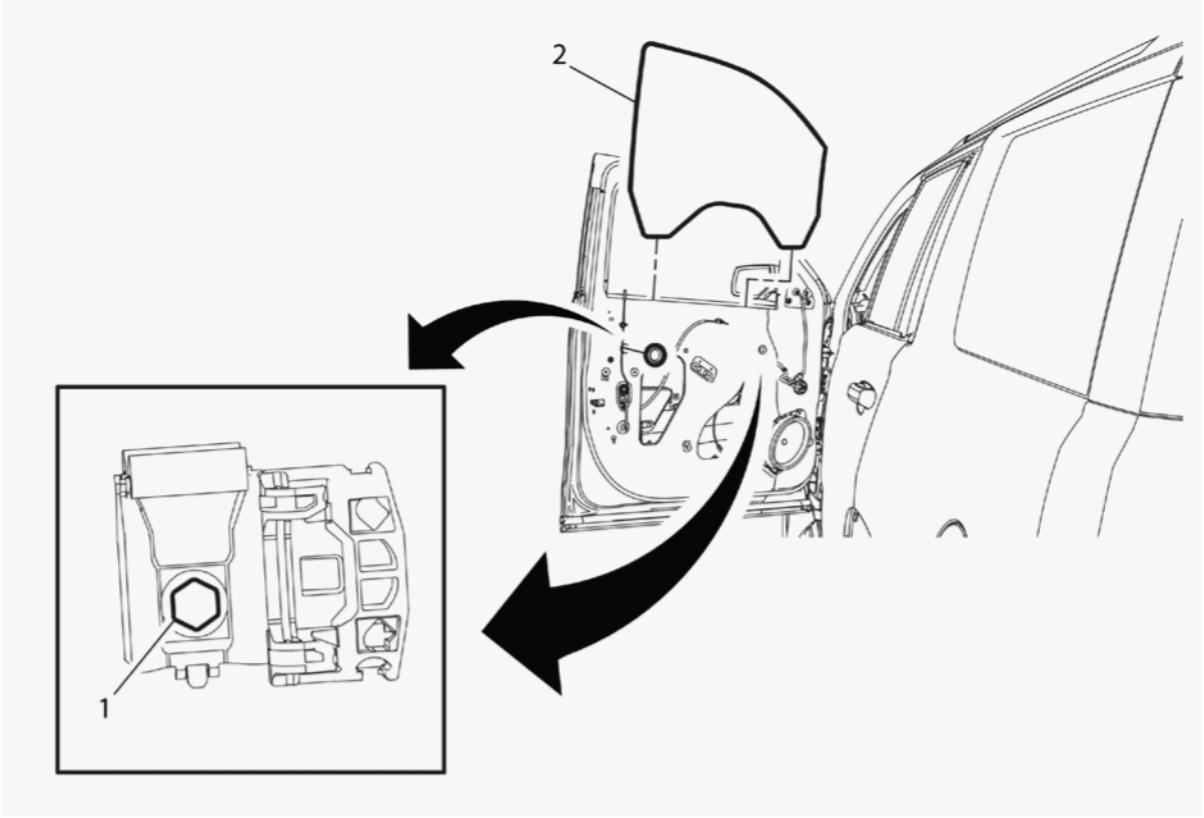


Fig. 16: Front Side Door Window
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
WARNING: Refer to Glass and Sheet Metal Handling Warning . WARNING: Disconnect the power	

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Callout	Component Name
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. Open the door to the full open position. 2. Remove the front side door belt reveal molding. Refer to **Front Side Door Window Belt Reveal Molding Replacement**. 3. Remove the front side door pull handle bracket. Refer to **Front Side Door Pull Handle Bracket Replacement** . 4. Remove the front side door water deflector. 5. Remove the front side door window channel retainer. Refer to **Front Side Door Window Channel Retainer Replacement**.	
1	Front Side Door Window Regulator Guide Bolt (Qty: 2) **CAUTION:** **Refer to Fastener Caution .**

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Callout	Component Name
	Procedure 1. Use masking tape, tape off the outer door frame to prevent scratching. 2. Lower the window to align the guide bolts with the access holes in the inner door panel. 3. Remove the access hole plug in the inner door panel, if equipped. 4. Loosen the bolts that attach the window to the window regulator guides. **Tighten** 11 N.m (97 lb in)
2	Front Side Door Window 1. In order to remove the window, carefully grasp and tilt the window as you guide the window up and forward. 2. Install the window on the guides. 3. Do not operate the regulator motor without supporting the window. Ensure that the window remains in the guide when operating the regulator motor. 4. Carefully move the regulator upward for short slow intervals, while ensuring that the window remains in the guide. Tighten the bolts to the window guide. **NOTE:** **Inspect the window for proper operation before installing the door trim.**

REAR SIDE DOOR WINDOW REPLACEMENT (SHORT WHEELBASE)

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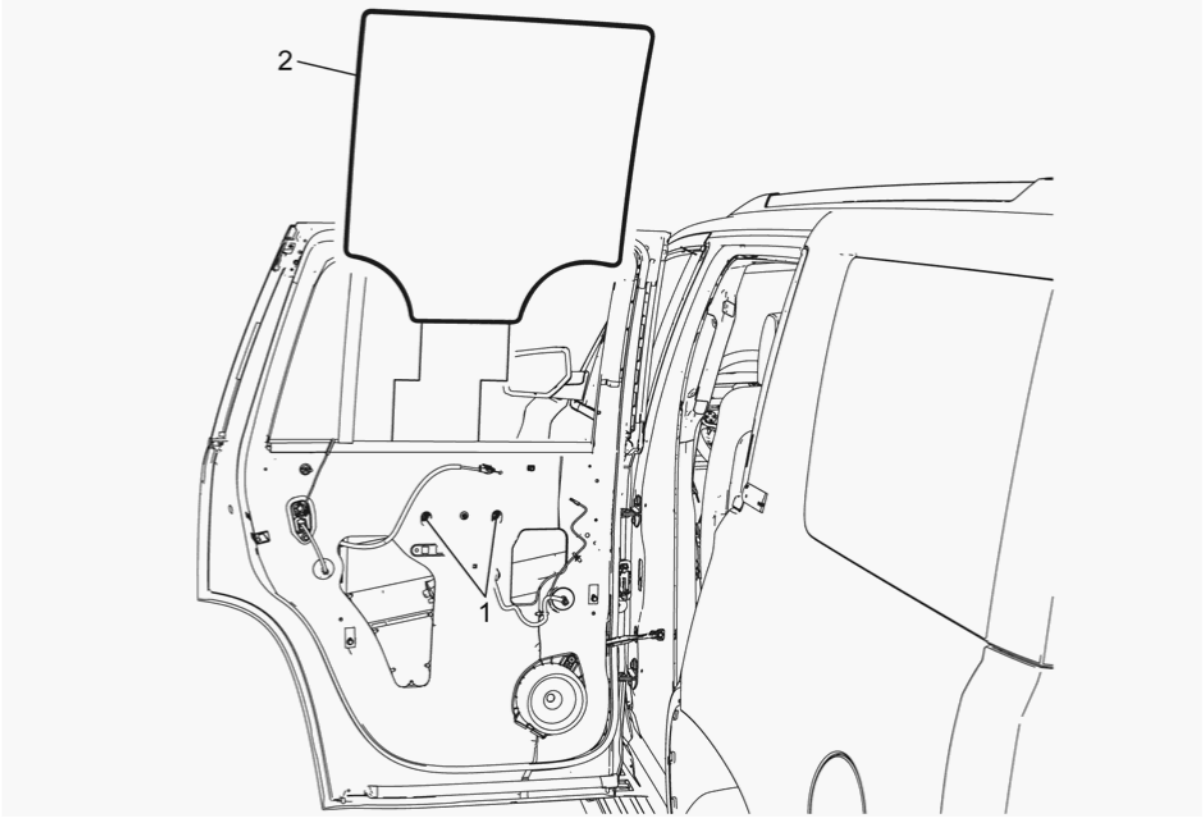


Fig. 17: Rear Side Door Window (Short Wheelbase)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
WARNING: Refer to Glass and Sheet Metal Handling Warning . **WARNING:** Refer to Express	

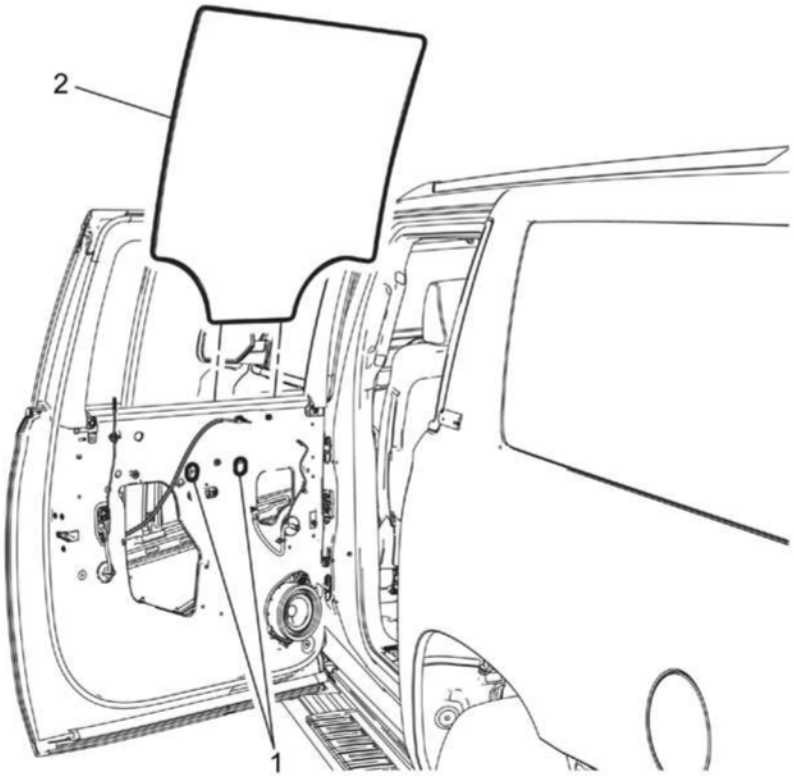
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Callout	Component Name
Window Down Warning . **Preliminary Procedure** Remove the rear side door window weatherstrip. Refer to **Rear Side Door Window Weatherstrip Replacement (Short Wheelbase)**.	
1	Rear Side Door Window Regulator Guide Bolt (Qty: 2) **CAUTION:** **Refer to Fastener Caution** . **Procedure** 1. Use masking tape, tape off the outer door frame and applique to prevent scratching. 2. Lower the window to align the guide bolts with the access holes in the inner door panel. 3. Remove the access hole plugs in the inner door panel, if equipped. 4. Loosen the bolts that attach the window to the window regulator guides. **Tighten** 11 N.m (97 lb in)
2	Rear Side Door Window **Procedure** 1. In order to remove the window out of the frame, carefully grasp and tilt the window as you guide the window up and forward. 2. Install the window to the guide. 3. Do not operate the regulator motor without supporting the window. Ensure that the window remains in the guide when operating the regulator motor. 4. Carefully move the regulator upward for short slow intervals, while ensuring that the window remains in the guide.

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Callout	Component Name
	Tighten the bolts to the window guide. **NOTE:** **Inspect the door window for proper operation before installing the door trim.**

REAR SIDE DOOR WINDOW REPLACEMENT (LONG WHEELBASE)



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Fig. 18: Rear Side Door Window (Long Wheelbase)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
	WARNING: **Refer to Glass and Sheet Metal Handling Warning .** **WARNING:** **Refer to Express Window Down Warning .** **Preliminary Procedure** Remove the rear side door window weatherstrip. Refer to **Rear Side Door Window Weatherstrip Replacement (Long Wheelbase)**.
1	Rear Side Door Window Regulator Guide Bolt (Qty: 2) **CAUTION:** **Refer to Fastener Caution .** **Procedure** 1. Use masking tape, tape off the outer door frame and applique to prevent scratching. 2. Lower the window to align the guide bolts with the access holes in the inner door panel. 3. Remove the access hole plugs in the inner door panel, if equipped. 4. Loosen the bolts that attach the window to the window regulator guides.

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Callout	Component Name
	Tighten 11 N.m (97 lb in)
2	Rear Side Door Window **Procedure** 1. In order to remove the window out of the frame, carefully grasp and tilt the window as you guide the window up and forward. 2. Install the window to the guide. 3. Do not operate the regulator motor without supporting the window. Ensure that the window remains in the guide when operating the regulator motor. 4. Carefully move the regulator upward for short slow intervals, while ensuring that the window remains in the guide. Tighten the bolts to the window guide. **NOTE:** **Inspect the door window for proper operation before installing the door trim.**

REAR COMPARTMENT LIFT WINDOW REPLACEMENT (CHEVROLET, GMC)

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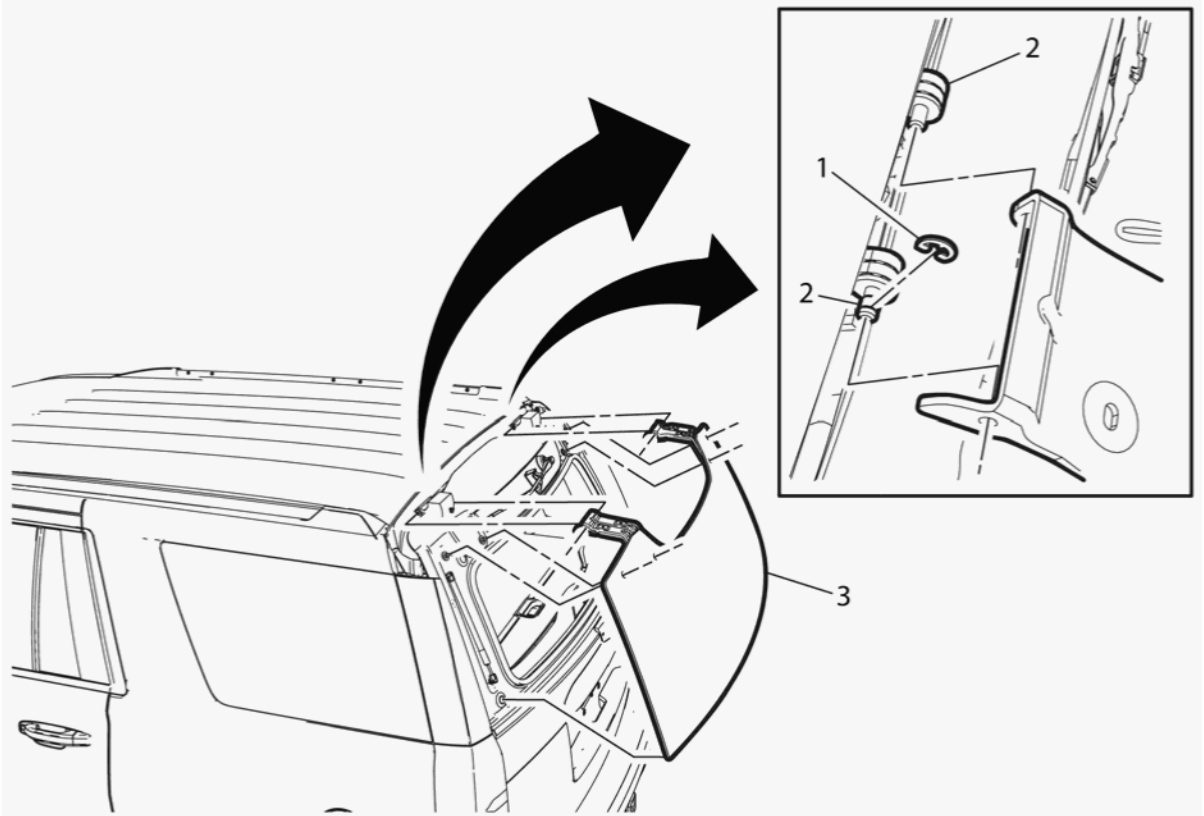


Fig. 19: Rear Compartment Lift Window (Chevrolet, GMC)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
WARNING: When a lift gate hold open device is being removed or installed, provide alternate support to	

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Callout	Component Name
avoid the possibility of damage to the vehicle or personal injury. **Preliminary Procedure** 1. Remove the rear end spoiler. Refer to **Rear End Spoiler Replacement** . 2. Disconnect the rear defogger electrical connectors. 3. Disconnect the liftgate window support struts. Refer to **Liftgate Strut Replacement (Manual)** **Liftgate Strut Replacement (Power Assist)** .	
1	Rear Compartment Lift Window Hinge C-Clip (Qty: 2) **Procedure** Remove both c-clips from rear compartment lift window hinge pins.
2	Rear Compartment Lift Window Hinge Pin (Qty: 2) **Procedure** Lift the window upward and slide window outward off of the pins.
3	Rear Compartment Lift Window **Procedure** Transfer all necessary parts.

REAR COMPARTMENT LIFT WINDOW REPLACEMENT (CADILLAC)

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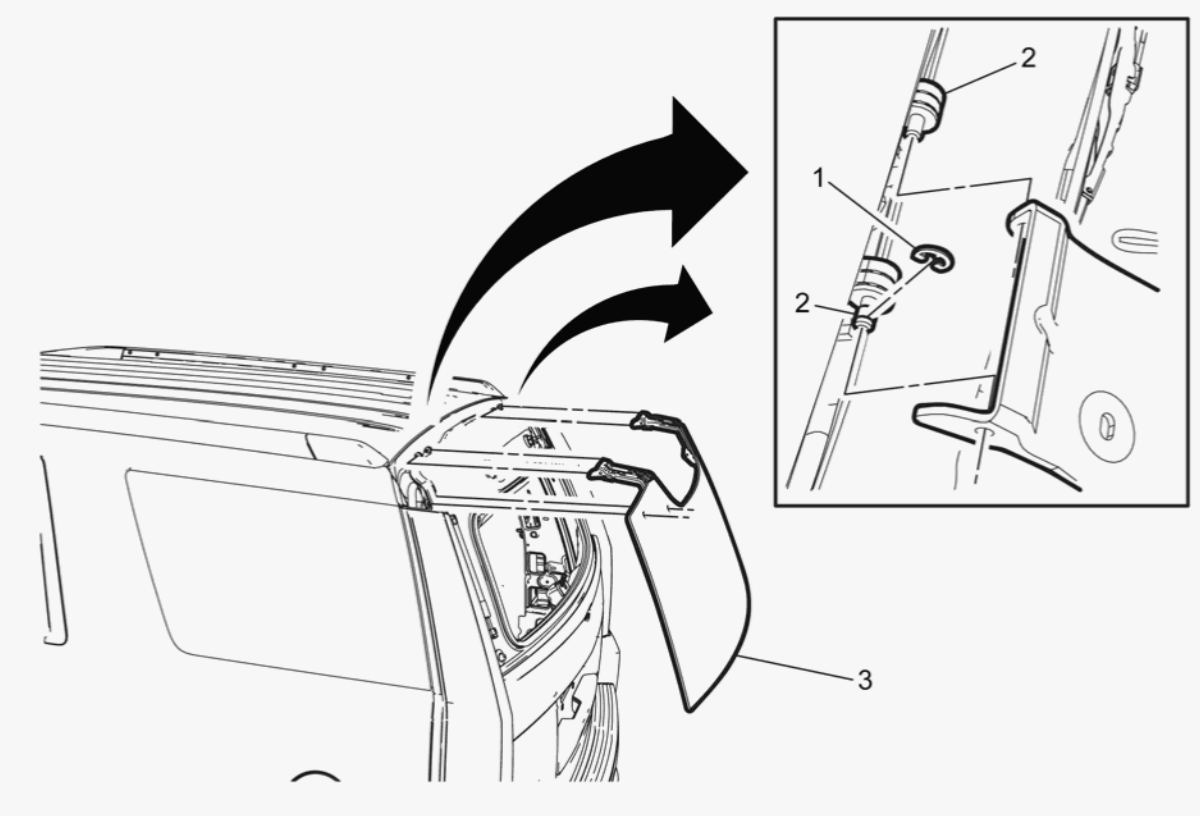


Fig. 20: Rear Compartment Lift Window (Cadillac)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
WARNING: **When a lift gate hold open device is being removed or installed, provide alternate support to**	

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Callout	Component Name
avoid the possibility of damage to the vehicle or personal injury. **Preliminary Procedure** 1. Remove the rear end spoiler. Refer to **Rear End Spoiler Replacement** . 2. Disconnect the rear defogger electrical connectors. 3. Disconnect the liftgate window support struts. Refer to **Liftgate Strut Replacement (Manual)** **Liftgate Strut Replacement (Power Assist)** .	
1	Rear Compartment Lift Window Hinge C-Clip (Qty: 2) **Procedure** Remove both c-clips from rear compartment lift window hinge pins.
2	Rear Compartment Lift Window Hinge Pin (Qty: 2) **Procedure** Lift the window upward and slide window outward off of the pins.
3	Rear Compartment Lift Window **Procedure** Transfer all necessary parts.

LIFTGATE WINDOW STRUT REPLACEMENT (CHEVROLET, GMC)

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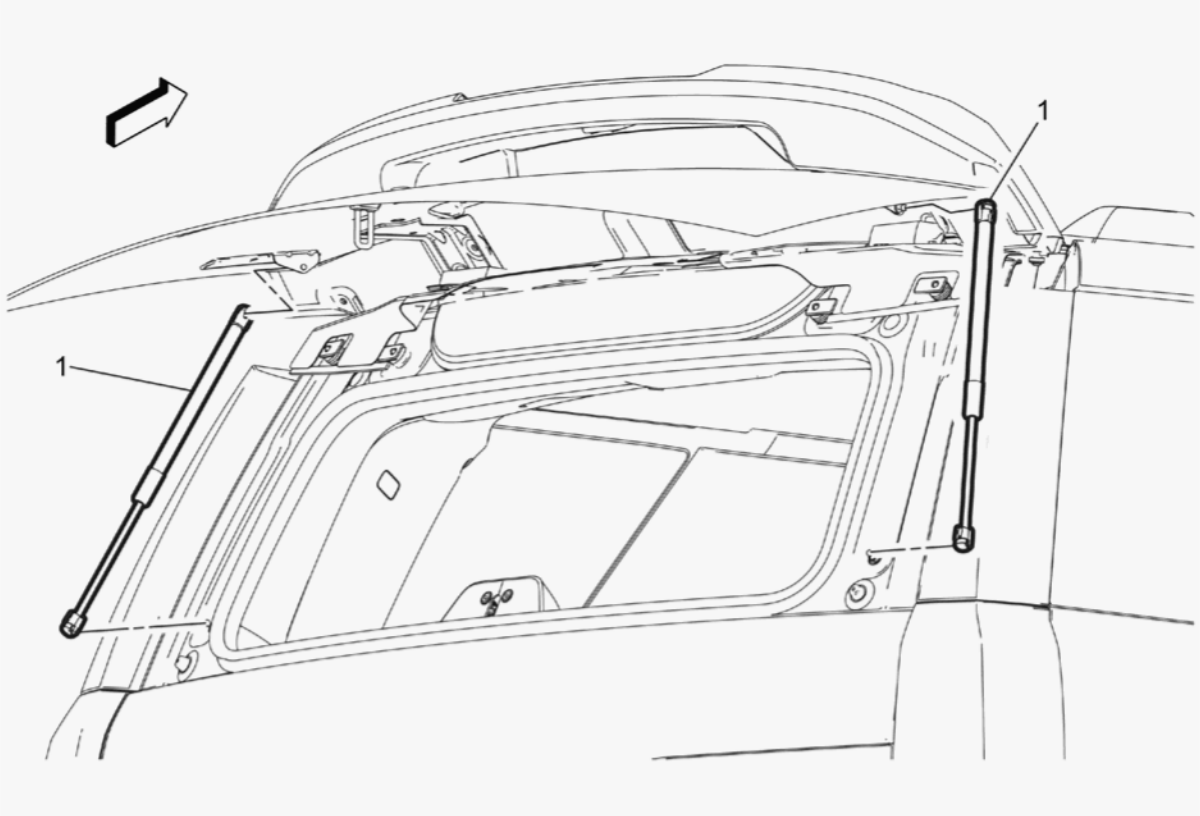


Fig. 21: Liftgate Window Strut (Chevrolet, GMC)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
WARNING: When a lift gate hold open device is being removed or installed, provide alternate support to	

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Callout	Component Name
avoid the possibility of damage to the vehicle or personal injury.	
1	Liftgate Window Strut (Qty: 2) **Procedure** Ensure the clip is fully seated when rod is reinstalled. If clip cannot be fully seated, a new rod should be installed.

LIFTGATE WINDOW STRUT REPLACEMENT (CADILLAC)

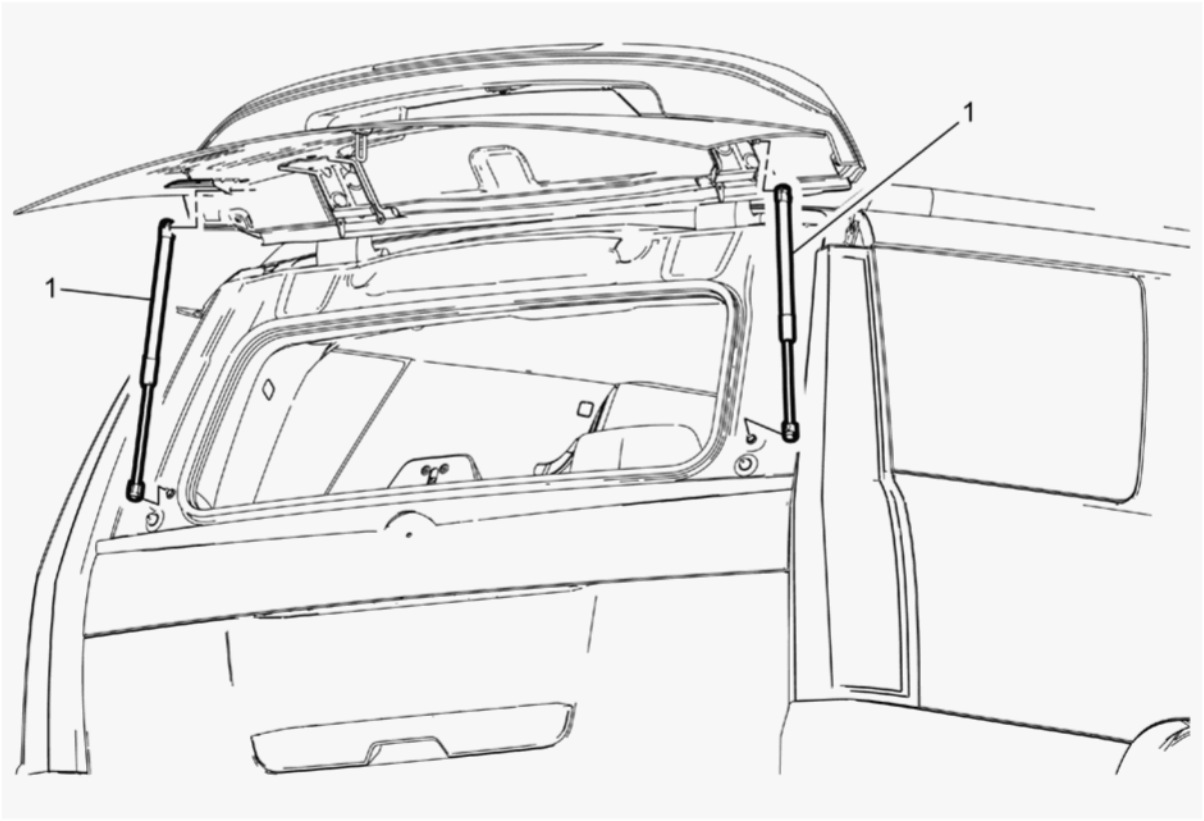


Fig. 22: Liftgate Window Strut (Cadillac)

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Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
WARNING: **When a lift gate hold open device is being removed or installed, provide alternate support to avoid the possibility of damage to the vehicle or personal injury.**	
1	Liftgate Window Strut (Qty: 2) **Procedure** Ensure the clip is fully seated when rod is reinstalled. If clip cannot be fully seated, a new rod should be installed.

LIFTGATE WINDOW LATCH REPLACEMENT (CHEVROLET, GMC)

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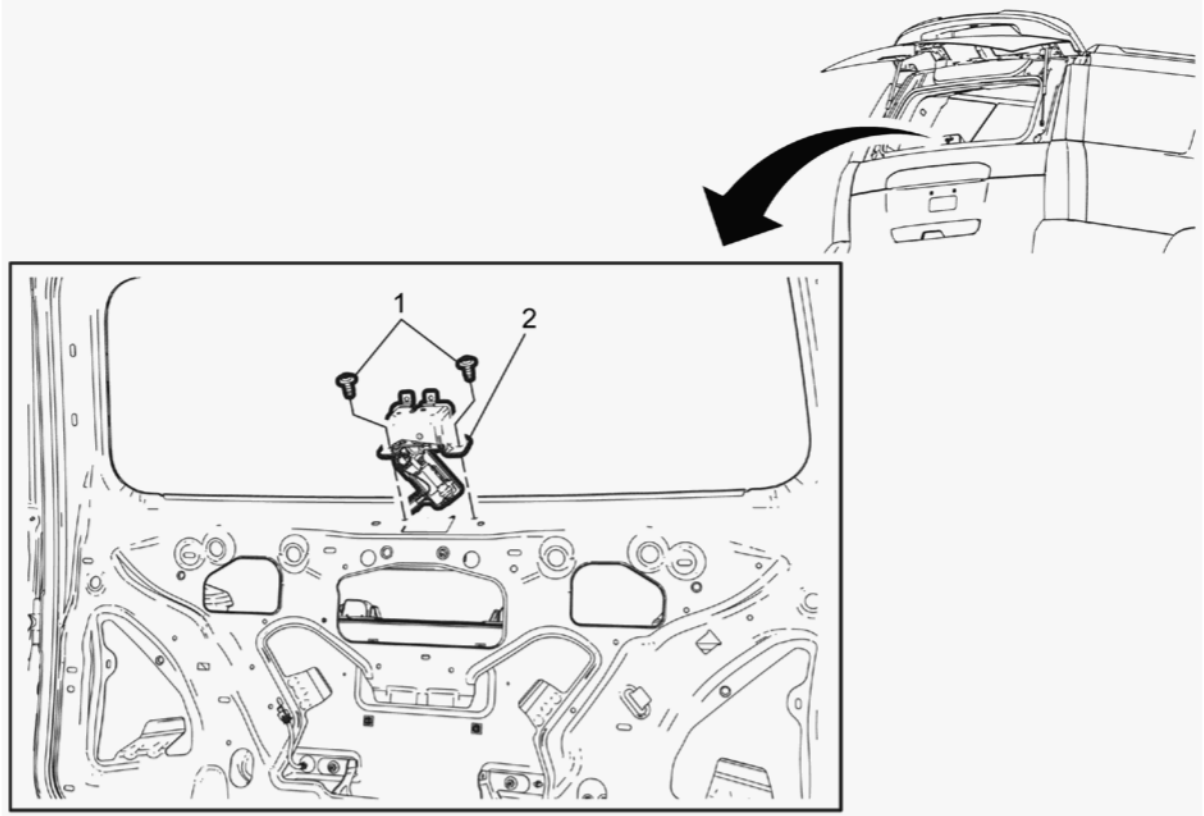


Fig. 23: Liftgate Window Latch (Chevrolet, GMC)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure 1. Remove the liftgate trim finish panel. Refer to **Liftgate Trim Finish Panel Replacement** . 2. Disconnect the electrical connector.	
1	Liftgate Window Latch Screw (Qty: 2) **CAUTION:** **Refer to** **Fastener**

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Callout	Component Name
	Caution . **Tighten** 9 N.m (80 lb in)
2	Liftgate Window Latch

LIFTGATE WINDOW LATCH REPLACEMENT (CADILLAC)

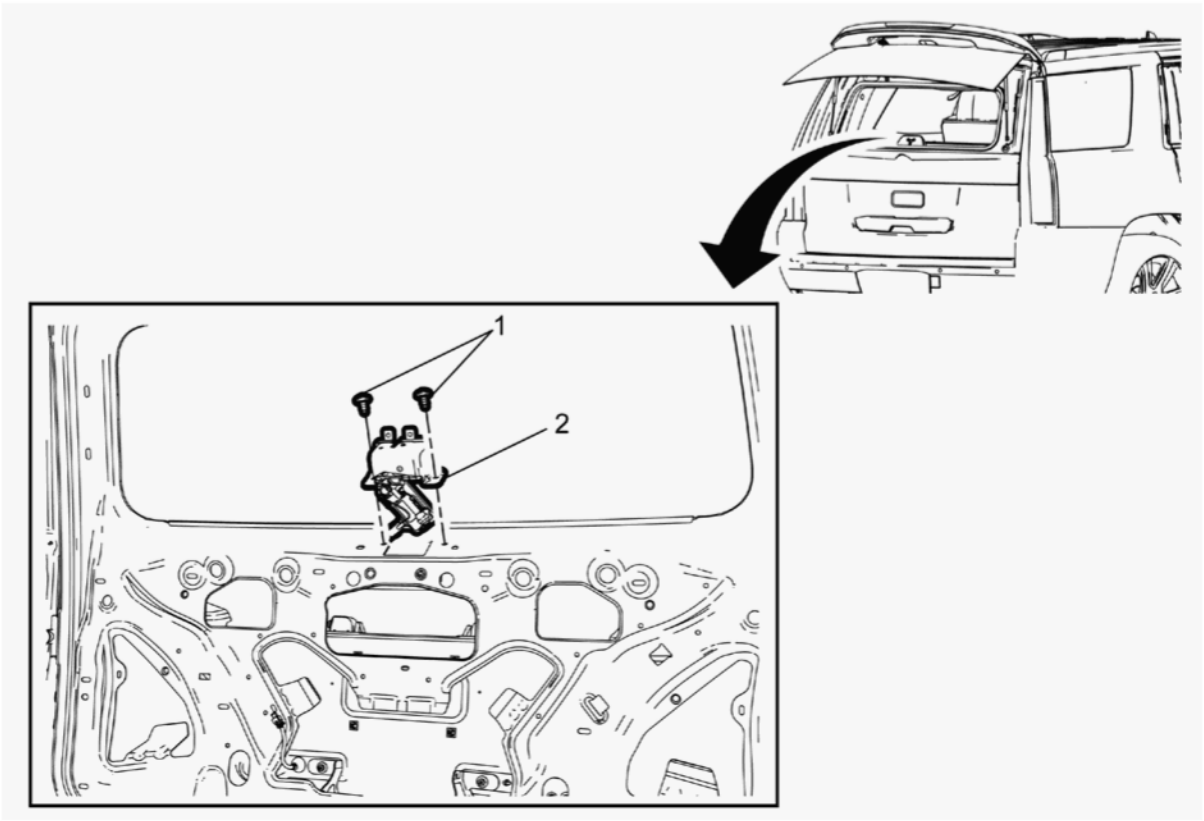


Fig. 24: Liftgate Window Latch (Cadillac)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name

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Callout	Component Name
Preliminary Procedure 1. Remove the liftgate trim finish panel. Refer to **Liftgate Trim Finish Panel Replacement** . 2. Disconnect the electrical connector.	
1	Liftgate Window Latch Screw (Qty: 2) **CAUTION:** **Refer to Fastener Caution .** **Tighten** 9 N.m (80 lb in)
2	Liftgate Window Latch

BODY SIDE REAR WINDOW REPLACEMENT (SHORT WHEELBASE)

Special Tools

- **BO 39032** Stationary Glass Removal Tool
- Use a urethane adhesive systems which meet GM Specification GM 3651G

For equivalent regional tools, refer to **Special Tools**.

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.**

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1. Open the liftgate.
2. Remove the back body opening side molding. Refer to **Back Body Opening Side Molding Replacement** .
3. Remove the headlining trim panel. Refer to **Headlining Trim Panel Replacement (Standard Wheelbase)** .
4. Remove the quarter lower rear trim panel. Refer to **Quarter Lower Rear Trim Panel Replacement (Left Side, Standard Wheelbase)** **Quarter Lower Rear Trim Panel Replacement (Right Side, Standard Wheelbase)** .
5. Disconnect the electrical connector from the body side rear window.

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

6. Cover the following parts to protect from broken glass:
    1. The upper dash pad
    2. The defroster outlets and A/C outlets
    3. The seats and the carpeting

NOTE: **Keep the cutting edge of the tool against the body side 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 body side rear window.
    - Leave a base of urethane on the pinchweld flange.
    - The only suitable lubrication is clear water.

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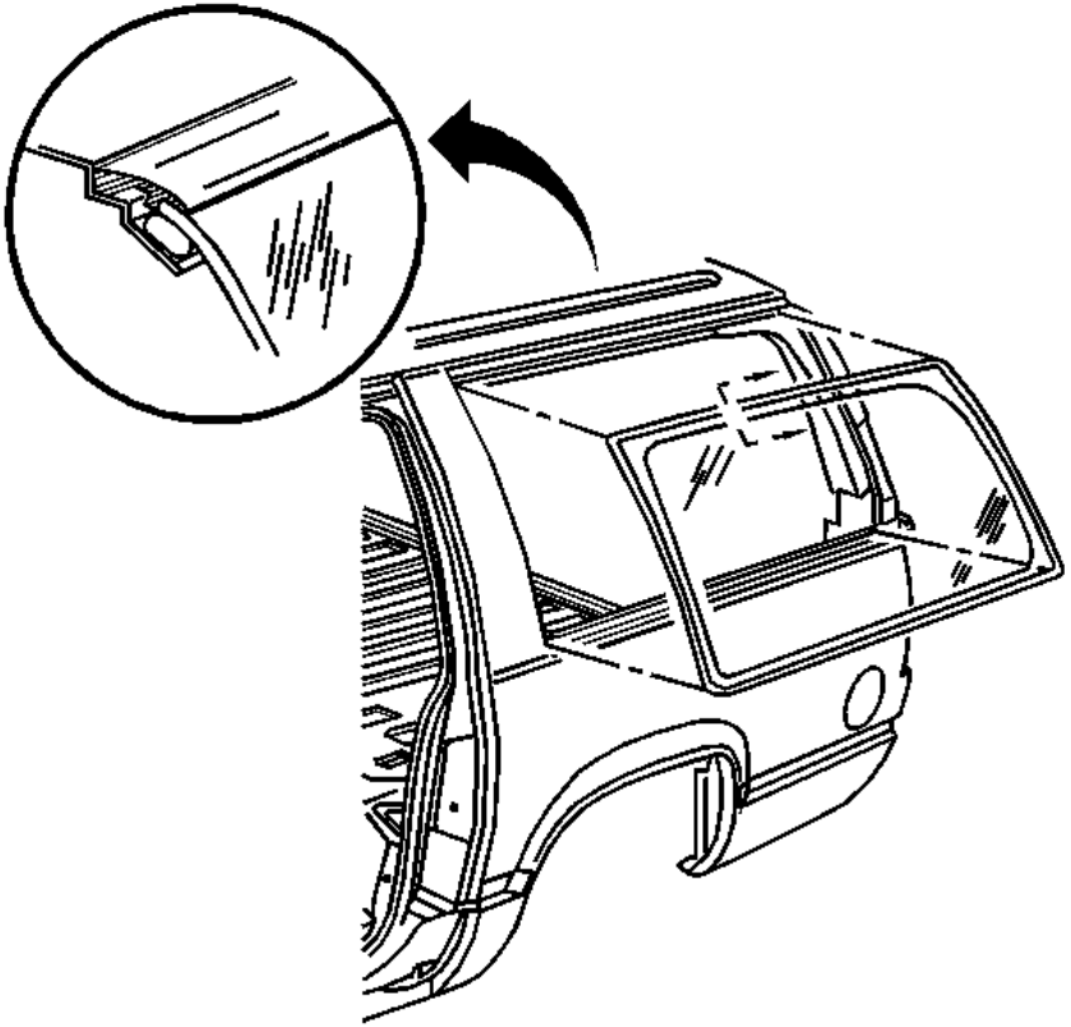


Fig. 25: View Of Quarter Window
Courtesy of GENERAL MOTORS COMPANY

NOTE: **If the antenna on the body side rear window is damaged, replace the body side rear window.**

8. With an assistant, remove the window from the opening.

Installation Procedure

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1. Install the body side rear window. Refer to **Adhesive Installation of Bodyside Stationary Windows**.
2. Connect the electrical connector to the body side rear window.
3. Install the back body opening side molding. Refer to **Back Body Opening Side Molding Replacement** .
4. Install the quarter lower rear trim panel. Refer to **Quarter Lower Rear Trim Panel Replacement (Left Side, Standard Wheelbase)** **Quarter Lower Rear Trim Panel Replacement (Right Side, Standard Wheelbase)** .
5. Install the headlining trim panel. Refer to **Headlining Trim Panel Replacement (Standard Wheelbase)** .
6. Ensure that the radio has reception.
7. Remove the double layer of masking tape around the perimeter of the painted surfaces and the interior trim.
8. Close the liftgate.

BODY SIDE REAR WINDOW REPLACEMENT (LONG WHEELBASE)

Special Tools

- **BO 39032** Stationary Glass Removal Tool
- Use a urethane adhesive systems which meet GM Specification GM 3651G

For equivalent regional tools, refer to **Special Tools**.

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 the back body opening side molding. Refer to **Back Body Opening Side Molding Replacement** .
3. Remove the headlining rear trim panel. Refer to **Headlining Rear Trim Panel Replacement** .
4. Remove the quarter lower rear trim panel. Refer to **Quarter Lower Rear Trim Panel Replacement (Left Side, Extended Wheelbase)** **Quarter Lower Rear Trim Panel Replacement (Right Side, Extended Wheelbase)** .
5. Disconnect the electrical connector from the body side rear window.

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

6. Cover the following parts to protect from broken glass:
    1. The upper dash pad
    2. The defroster outlets and A/C outlets
    3. The seats and the carpeting

NOTE: **Keep the cutting edge of the tool against the body side 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 body side rear window.
    - Leave a base of urethane on the pinchweld flange.
    - The only suitable lubrication is clear water.

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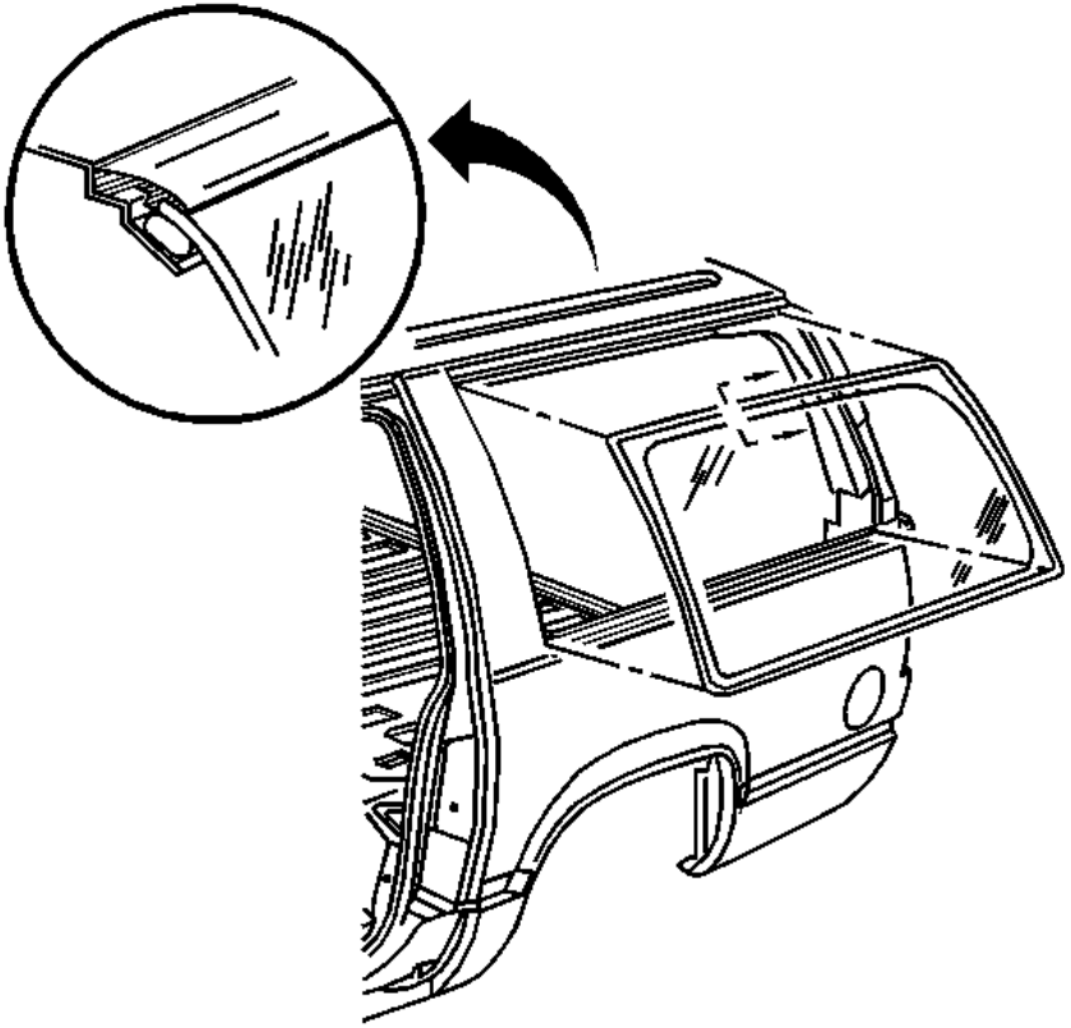


Fig. 26: View Of Quarter Window
Courtesy of GENERAL MOTORS COMPANY

NOTE: **If the antenna on the body side rear window is damaged, replace the body side rear window.**

8. With an assistant, remove the window from the opening.

Installation Procedure

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1. Install the body side rear window. Refer to **Adhesive Installation of Bodyside Stationary Windows**.
2. Connect the electrical connector to the body side rear window.
3. Install the back body opening side molding. Refer to **Back Body Opening Side Molding Replacement** .
4. Install the quarter lower rear trim panel. Refer to **Quarter Lower Rear Trim Panel Replacement (Left Side, Extended Wheelbase)** **Quarter Lower Rear Trim Panel Replacement (Right Side, Extended Wheelbase)** .
5. Install the headlining rear trim panel. Refer to **Headlining Rear Trim Panel Replacement** .
6. Ensure that the radio has reception.
7. Remove the double layer of masking tape around the perimeter of the painted surfaces and the interior trim.
8. Close the liftgate.

REAR SIDE DOOR WINDOW FRONT CHANNEL REPLACEMENT (SHORT WHEELBASE)

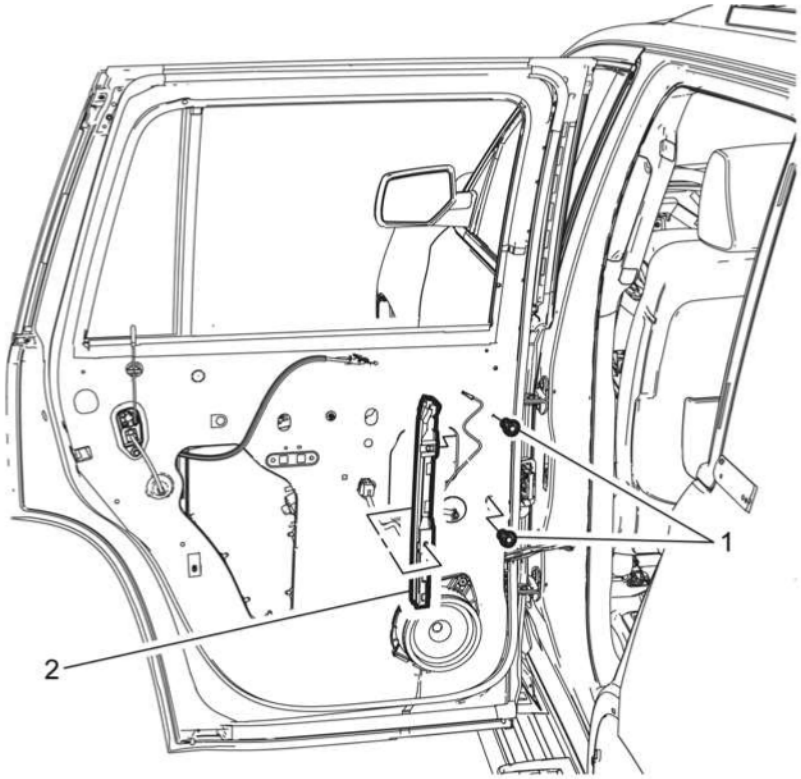


Fig. 27: Rear Side Door Window Front Channel (Short Wheelbase)

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Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Remove the rear side door pull handle bracket. Refer to **Rear Side Door Pull Handle Bracket Replacement** . 2. Remove the rear side door water deflector. 3. Position the door window as needed to gain access to the retainer bolt.	
1	Rear Side Door Window Channel Retainer Bolt (Qty:2) **CAUTION:** **Refer to Fastener Caution .** **Tighten** 11 N.m (97 lb in)
2	Rear Side Door Window Front Channel Retainer **NOTE:** **Inspect the window for proper operation before installing the door trim.**

REAR SIDE DOOR WINDOW FRONT CHANNEL REPLACEMENT (LONG WHEELBASE)

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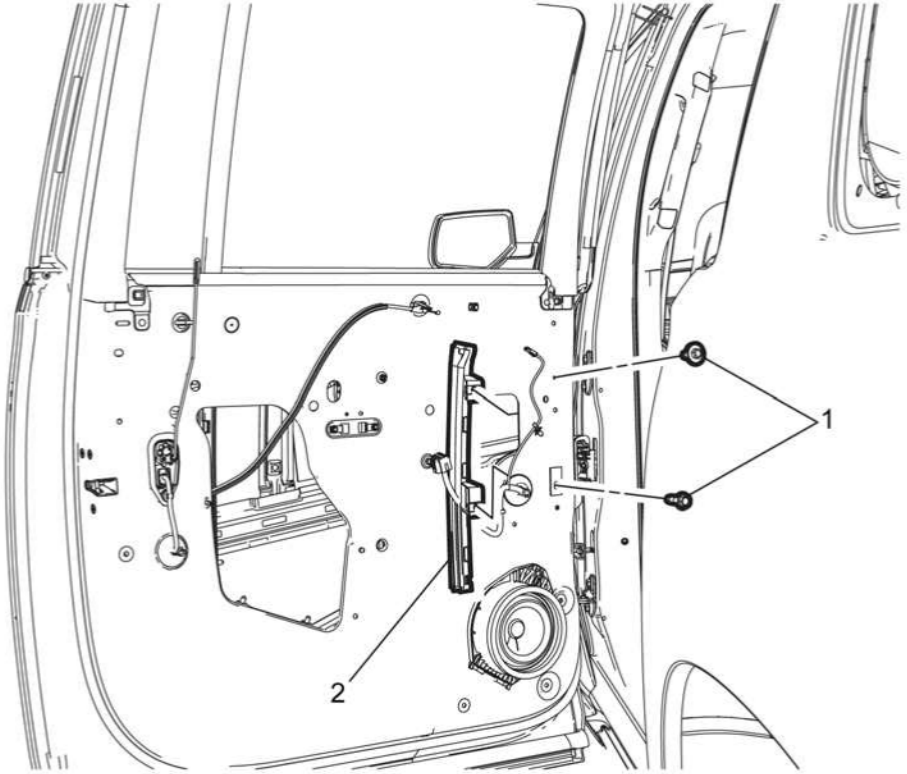


Fig. 28: Rear Side Door Window Front Channel (Long Wheelbase)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Remove the rear side door pull handle bracket. Refer to **Rear Side Door Pull Handle Bracket Replacement** . 2. Remove the rear side door water deflector. 3. Position the door window as needed to gain access to the retainer bolt.	
1	Rear Side Door Window Channel Retainer Bolt (Qty:2) **CAUTION:**

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Callout	Component Name
	Refer to Fastener Caution . **Tighten** 11 N.m (97 lb in)
2	Rear Side Door Window Front Channel Retainer **NOTE:** **Inspect the window for proper operation before installing the door trim.**

REAR SIDE DOOR WINDOW REAR CHANNEL REPLACEMENT (SHORT WHEELBASE)

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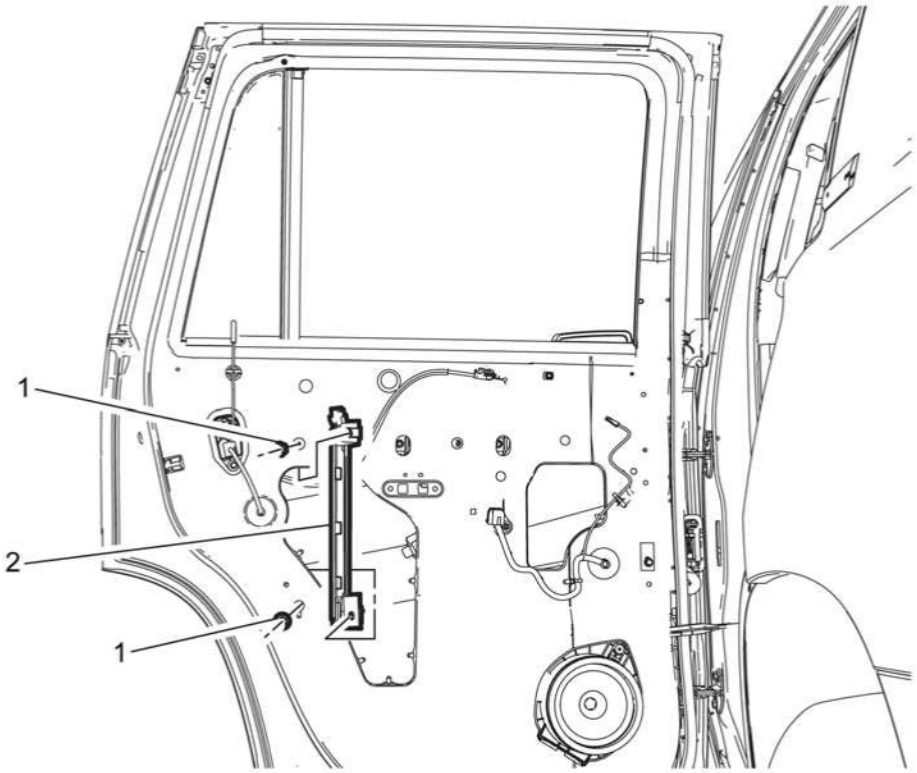


Fig. 29: Rear Side Door Window Rear Channel (Short Wheelbase)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Remove the rear side door pull handle bracket. Refer to **Rear Side Door Pull Handle Bracket Replacement** . 2. Remove the rear side door water deflector. 3. Position the door window as needed to gain access to the retainer bolt.	
1	Rear Side Door Window Channel Retainer Bolt (Qty:2) **CAUTION:**

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Callout	Component Name
	Refer to Fastener Caution . **Tighten** 11 N.m (97 lb in)
2	Rear Side Door Window Rear Channel Retainer **NOTE:** **Inspect the window for proper operation before installing the door trim.**

REAR SIDE DOOR WINDOW REAR CHANNEL REPLACEMENT (LONG WHEELBASE)

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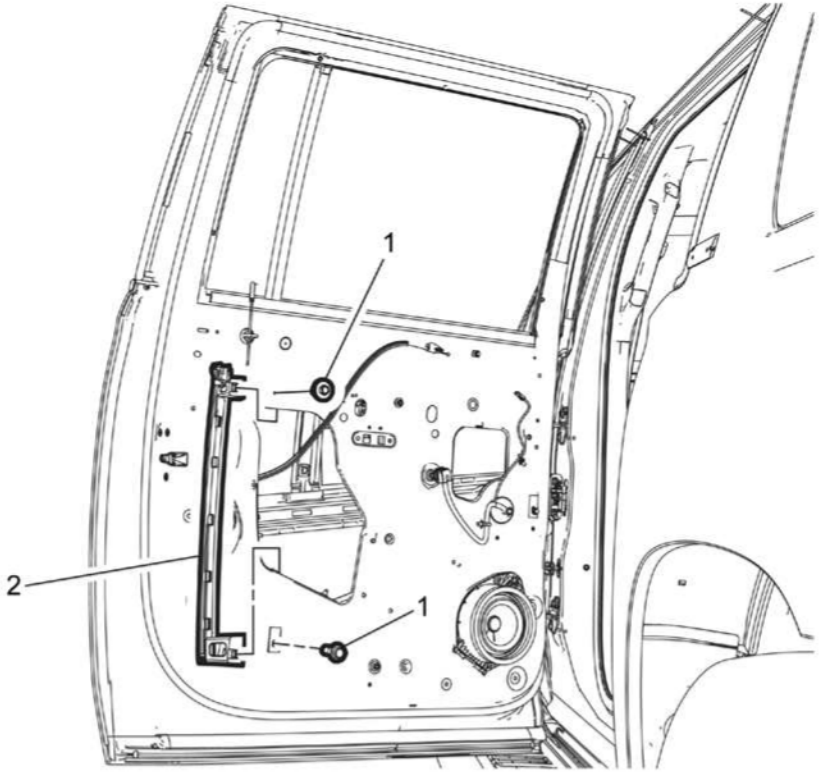


Fig. 30: Rear Side Door Window Rear Channel (Long Wheelbase)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Remove the rear side door pull handle bracket. Refer to **Rear Side Door Pull Handle Bracket Replacement** . 2. Remove the rear side door water deflector. 3. Position the door window as needed to gain access to the retainer bolt.	
1	Rear Side Door Window Channel Retainer Bolt (Qty:2) **CAUTION:**

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Callout	Component Name
	Refer to Fastener Caution . **Tighten** 11 N.m (97 lb in)
2	Rear Side Door Window Rear Channel Retainer **NOTE:** **Inspect the window for proper operation before installing the door trim.**

FRONT SIDE DOOR WINDOW FRAME REAR APPLIQUE REPLACEMENT

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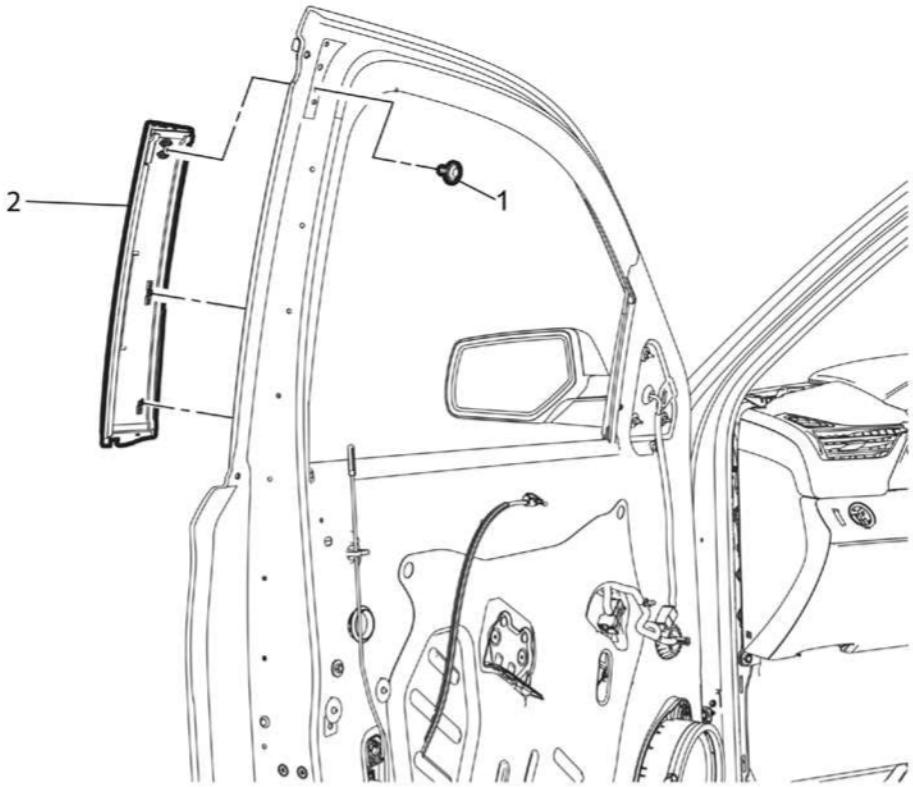


Fig. 31: Front Side Door Window Frame Rear Applique
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Remove the front side door window belt reveal molding. Refer to **Front Side Door Window Belt Reveal Molding Replacement**. 2. Reposition the upper rear edge of the front side door weatherstrip. It is not necessary to completely remove the weatherstrip. Refer to **Front Side Door Weatherstrip Replacement - Door Side** .	
1	Front Side Door Window Frame Rear Applique Upper Screw **CAUTION:**

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Callout	Component Name
	Refer to Fastener Caution . **Tighten** 2.5 N.m (22 lb in)
2	Front Side Door Window Frame Rear Applique 1. Use a small flat-bladed tool to release the clips from the front side door. 2. Slide applique down and rearward to remove from door window frame. 3. Use a solution of 50/50 isopropyl alcohol and water to clean the adhesive surface. 4. Peel off tape liner from back of replacement applique. 5. Applique has a C channel along the rear edge that must wrap around rear of window frame during installation. 6. Align top rear edge of applique to rear edge of front side door upper reveal molding. 7. Engage in-line clips by pushing applique inboard. 8. Tighten applique upper screw. 9. Apply pressure to applique against door sheet metal to ensure proper wet out of tape. **NOTE:** • **When reinstalling belt reveal molding and clips appear broken replace the molding.** • **DO NOT overtighten screw**

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Callout	Component Name
	during installation of applique.

REAR SIDE DOOR WINDOW FRAME FRONT APPLIQUE REPLACEMENT

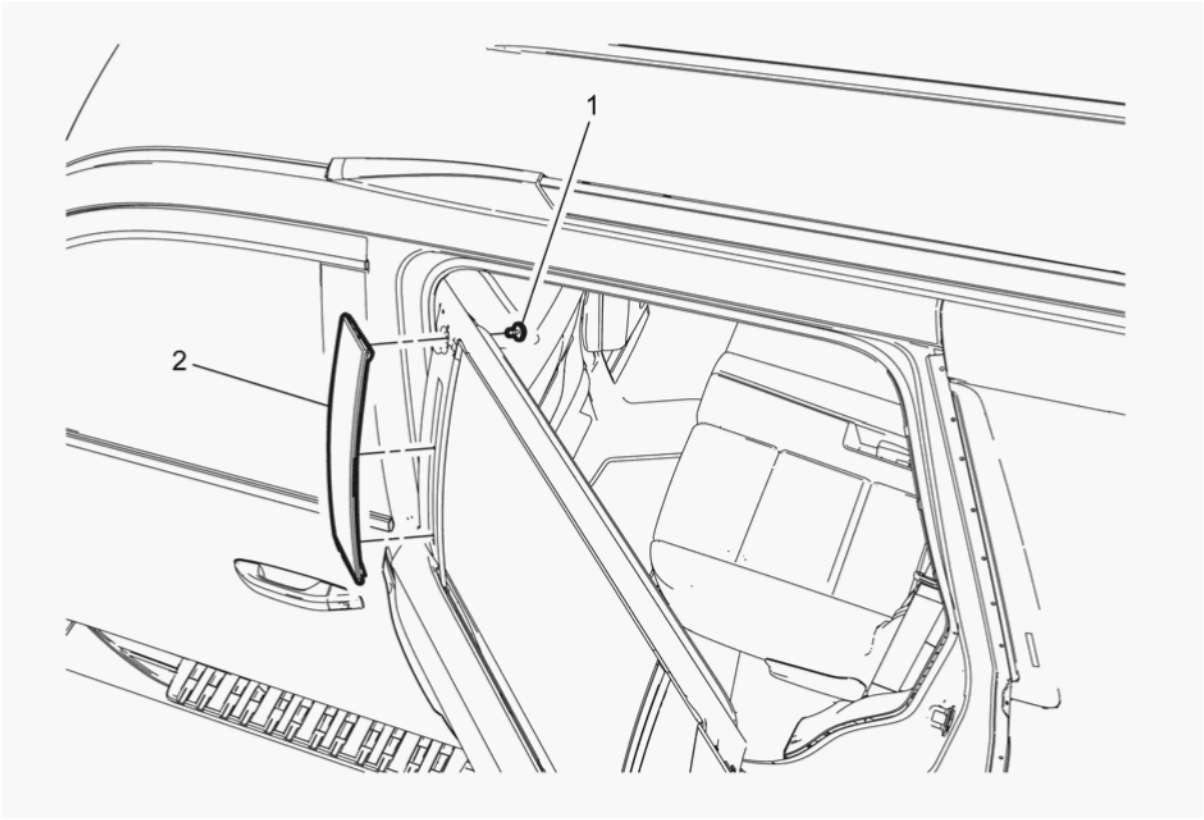


Fig. 32: Rear Side Door Window Frame Front Applique
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures	

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Callout	Component Name
1. Remove the rear side door window belt reveal molding. Refer to **Rear Side Door Window Belt Reveal Molding Replacement (Short Wheelbase)Rear Side Door Window Belt Reveal Molding Replacement (Long Wheelbase)**. 2. Reposition the front upper edge of the rear side door weatherstrip to gain access to the front applique upper screw. Refer to **Rear Side Door Weatherstrip Replacement - Door Side (Short Wheelbase) Rear Side Door Weatherstrip Replacement - Door Side (Long Wheelbase)** .	
1	Rear Side Door Window Frame Front Applique Upper Screw **CAUTION:** **Refer to** **Fastener Caution** . **Tighten** 2.5 N.m (22 lb in)
2	Rear Side Door Window Frame Front Applique 1. Use a small flat-bladed tool to release the clips from the front side door. 2. Slide the applique down and forward to remove from door window frame. 3. Use a solution of 50/50 isopropyl alcohol and water to clean the adhesive surface. 4. Peel off tape liner from back of applique. 5. Applique has a C channel on the front edge that must wrap around the front window frame during installation. 6. Align top front edge of applique to front edge of upper door reveal molding. 7. Engage in-line clips by pushing applique inboard. 8. Tighten applique upper screw. 9. Reposition side door weatherstrip. 10. Reseat rear window belt molding. **NOTE:** • **When**

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Callout	Component Name
	reinstalling belt reveal molding and clips appear broken replace the molding. • DO NOT overtighten screw during installation of applique.

REAR SIDE DOOR WINDOW FRAME REAR APPLIQUE REPLACEMENT

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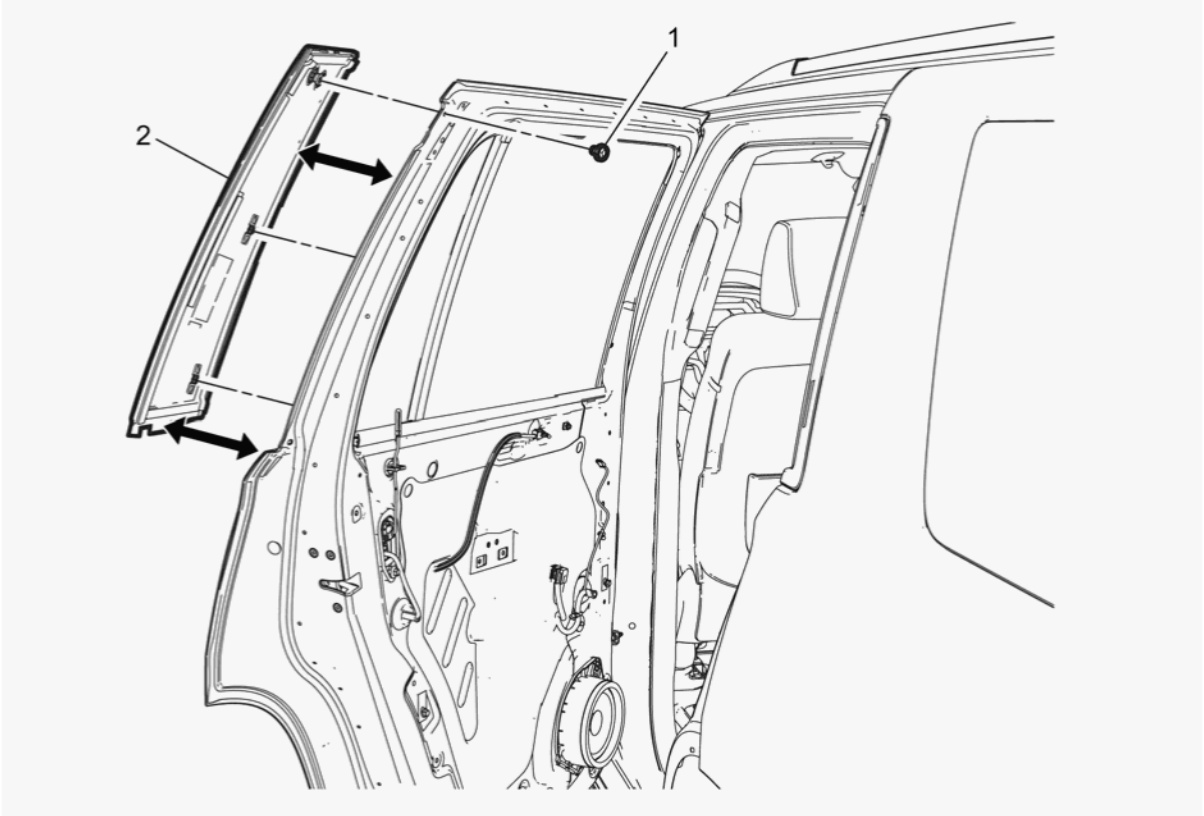


Fig. 33: Rear Side Door Window Frame Rear Applique
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Remove the rear side door window belt reveal molding. Refer to **Rear Side Door Window Belt Reveal Molding Replacement (Short Wheelbase)Rear Side Door Window Belt Reveal Molding Replacement (Long Wheelbase)**. 2. Reposition the rear upper edge of the rear side door weatherstrip to gain access to the rear applique upper screw. Refer to **Rear Side Door Weatherstrip Replacement - Door Side (Short Wheelbase) Rear Side Door Weatherstrip Replacement - Door Side (Long Wheelbase)** .	
1	Rear Side Door Window Frame Rear Applique Upper Screw

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Callout	Component Name
	CAUTION: **Refer to Fastener Caution .** Tighten 2.5 N.m (22 lb in)
2	Rear Side Door Window Frame Rear Applique 1. Use a small flat-bladed tool to release the clips from the front side door. 2. Slide applique down and rearward to remove from door window frame. 3. Use a solution of 50/50 isopropyl alcohol and water to clean the adhesive surface. 4. Peel off tape from back of replacement applique. 5. Applique has a C channel along the rear edge that must wrap around rear of window frame during installation. 6. Align top rear edge of applique to upper reveal molding. 7. Engage in-line clips by pushing applique inboard. 8. Tighten applique upper screw. 9. Apply pressure to applique against door sheet metal to ensure proper wet put of tape. 10. Reposition door weatherstrip. 11. Reseat belt reveal molding. **NOTE:** • **When reinstalling belt reveal molding and clips appear broken replace the molding.** • **DO NOT overtighten**

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Callout	Component Name
	screw during installation of applique.

FRONT SIDE DOOR WINDOW CONTROL SWITCH REPLACEMENT (CHEVROLET, GMC)

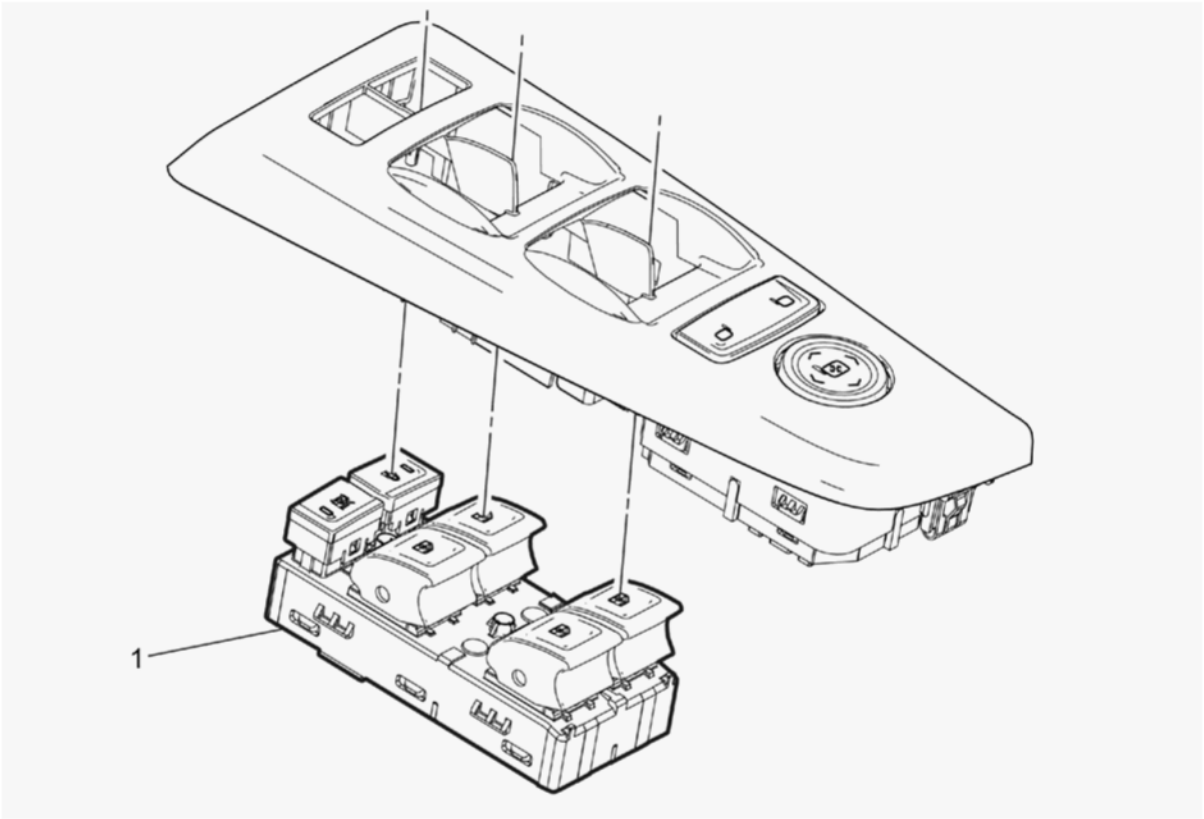


Fig. 34: Front Side Door Window Control Switch (Chevrolet, GMC)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name

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Callout	Component Name
Preliminary Procedure Remove the front side door accessory switch mount plate - driver side. Refer to **Front Side Door Accessory Switch Mount Plate Replacement - Driver Side (Chevrolet, GMC)** .	
1	Front Side Door Window Control Switch Assembly **Procedure** 1. Release tabs on switch to remove from front side door accessory switch mount plate - driver side. 2. Refer to **Control Module References** for programming and set up procedures, if required.

FRONT SIDE DOOR WINDOW CONTROL SWITCH REPLACEMENT (CADILLAC)

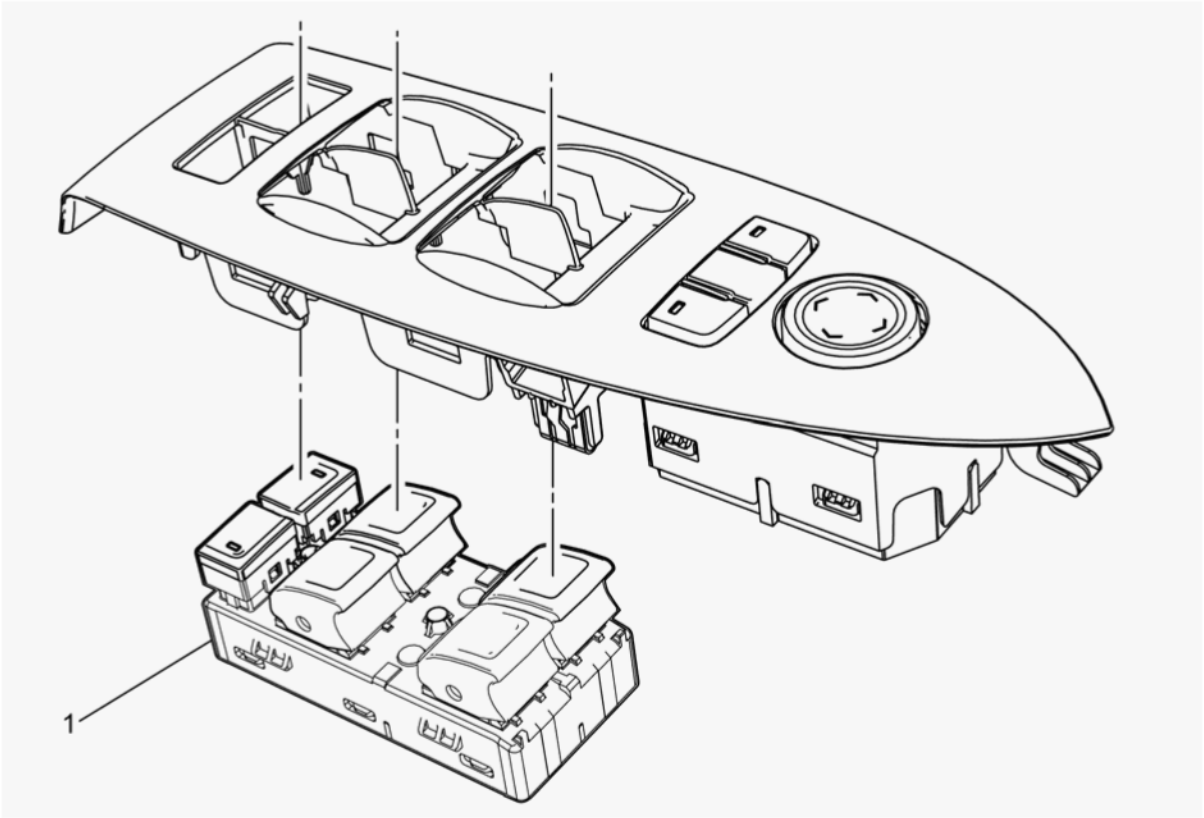


Fig. 35: Front Side Door Window Control Switch (Cadillac)

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Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front side door accessory switch mount plate - driver side. Refer to **Front Side Door Accessory Switch Mount Plate Replacement - Driver Side (Cadillac)** .	
1	Front Side Door Window Control Switch Assembly **Procedure** 1. Release tabs on switch to remove from front side door accessory switch mount plate - driver side. 2. Refer to **Control Module References** for programming and set up procedures, if required.

FRONT SIDE DOOR WINDOW SWITCH REPLACEMENT - RIGHT SIDE (CHEVROLET, GMC)

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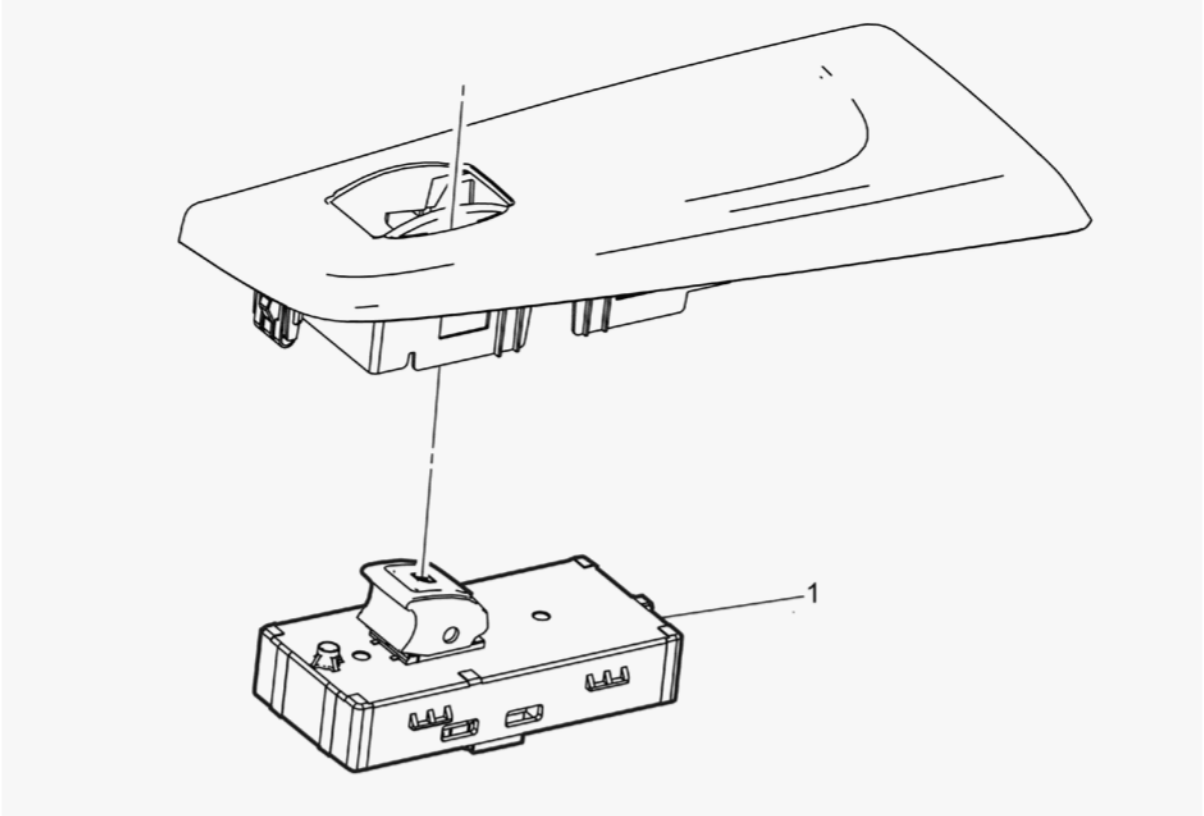


Fig. 36: Front Side Door Window Switch - Right Side (Chevrolet, GMC)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front side door accessory switch mount plate - passenger side. Refer to **Front Side Door Accessory Switch Mount Plate Replacement - Passenger Side (Chevrolet, GMC)** .	
1	Front Side Door Window Switch Assembly - Right Side **Procedure** 1. Release tabs on switch to remove from front side door accessory switch mount plate - passenger side. 2. Refer to **Control Module References** for programming and set up procedures, if required.

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

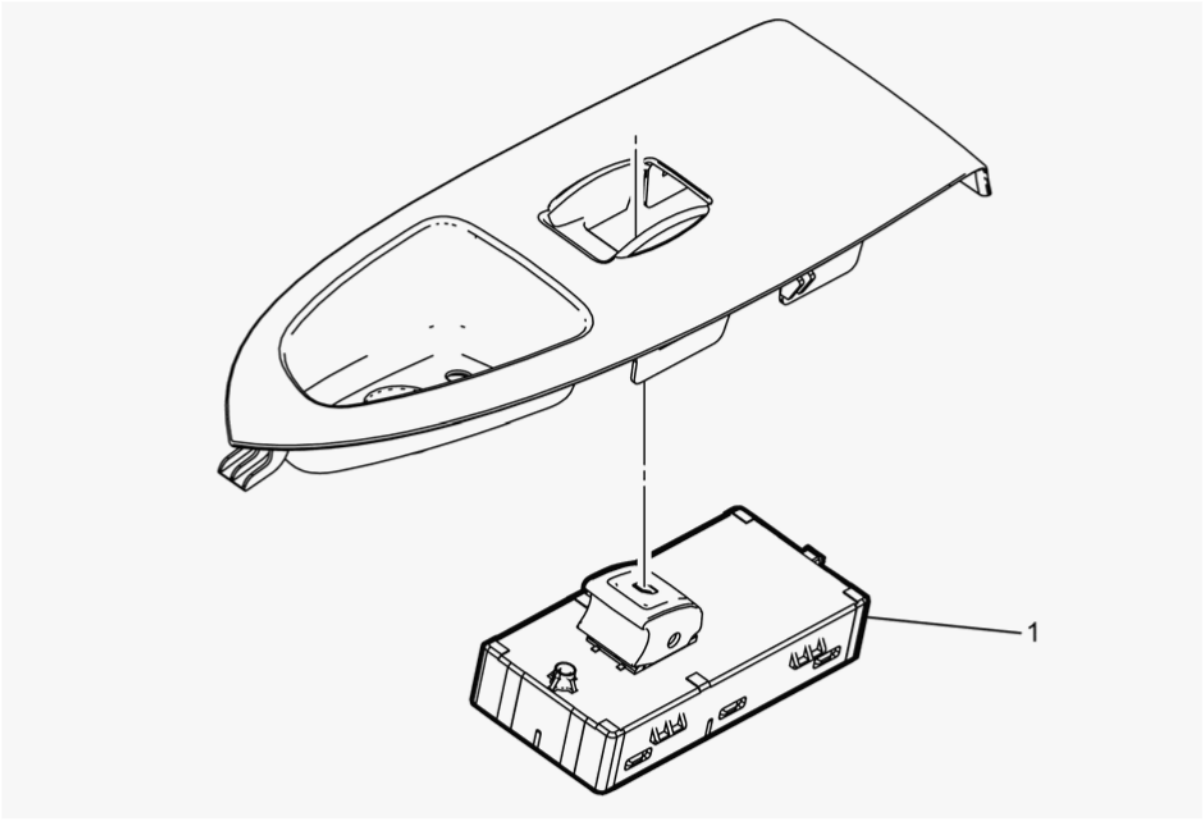


Fig. 37: Front Side Door Window Switch - Right Side (Cadillac)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front side door accessory switch mount plate - passenger side. Refer to **Front Side Door Accessory Switch Mount Plate Replacement - Passenger Side (Cadillac)** .	
1	Front Side Door Window Switch Assembly - Right Side **Procedure** 1. Release tabs on switch to remove from front side door accessory switch mount plate - passenger side.

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Callout	Component Name
	2. Refer to **Control Module References** for programming and set up procedures, if required.

REAR SIDE DOOR WINDOW SWITCH REPLACEMENT (CHEVROLET, GMC)

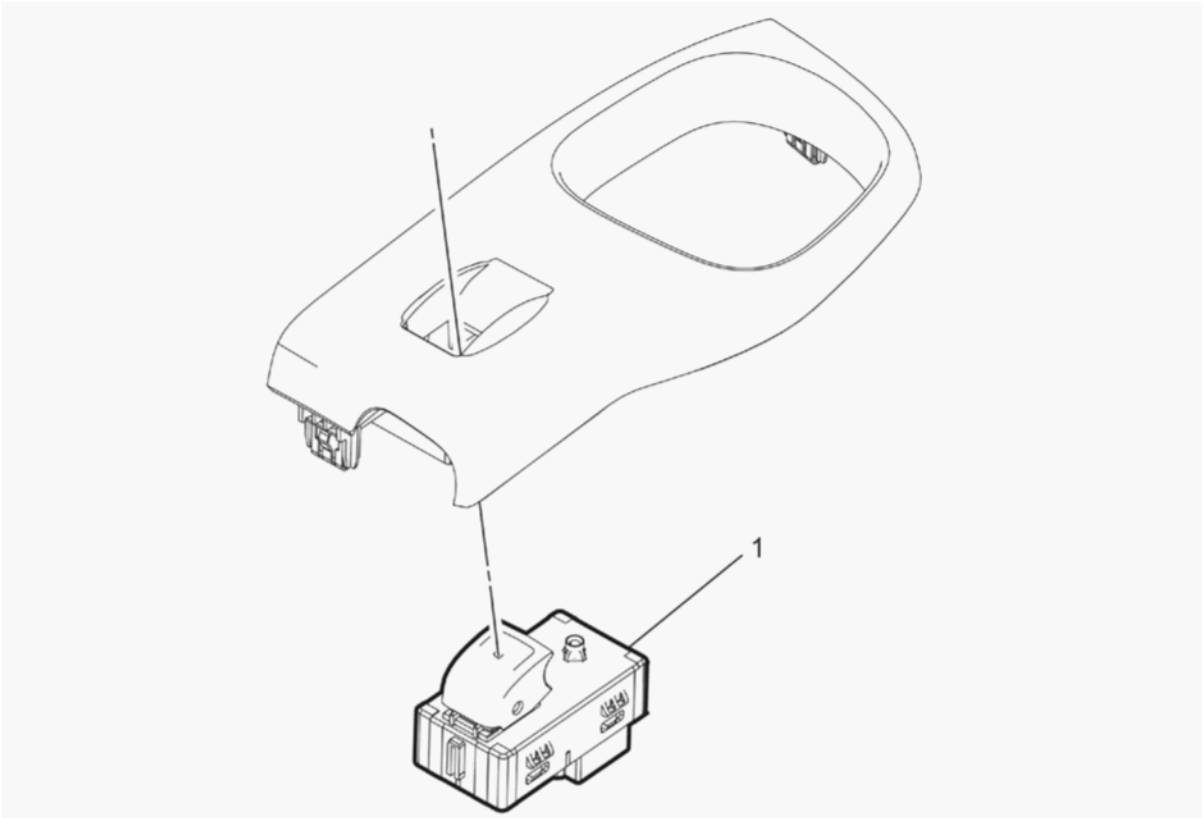


Fig. 38: Rear Side Door Window Switch (Chevrolet, GMC)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure	
Remove the rear side door accessory switch mount plate. Refer to **Rear Side Door Accessory Switch Mount Plate Replacement (Chevrolet, GMC)** .	

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Callout	Component Name
1	Rear Side Door Window Switch Assembly **Procedure** 1. Release the tabs on switch to remove from the rear side door accessory switch mount plate. 2. Refer to **Control Module References** for programming and set up procedures, if required.

REAR SIDE DOOR WINDOW SWITCH REPLACEMENT (CADILLAC)

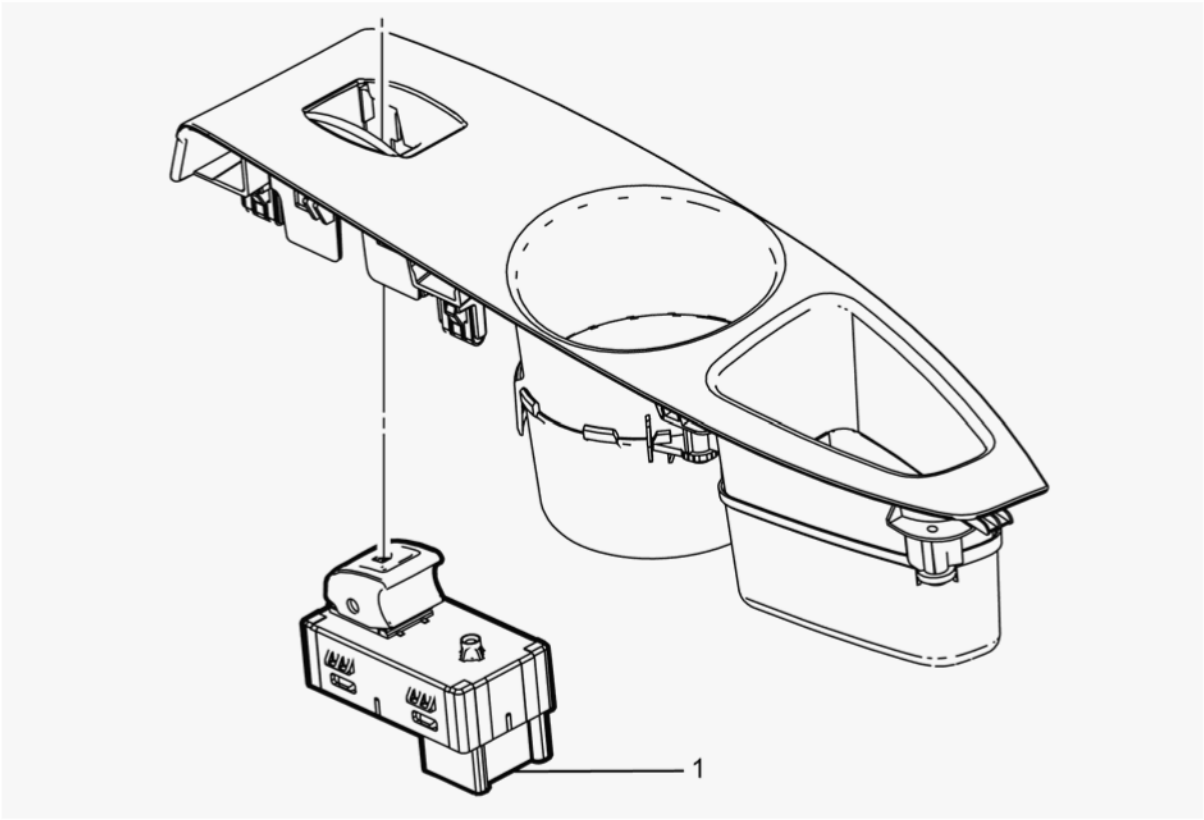


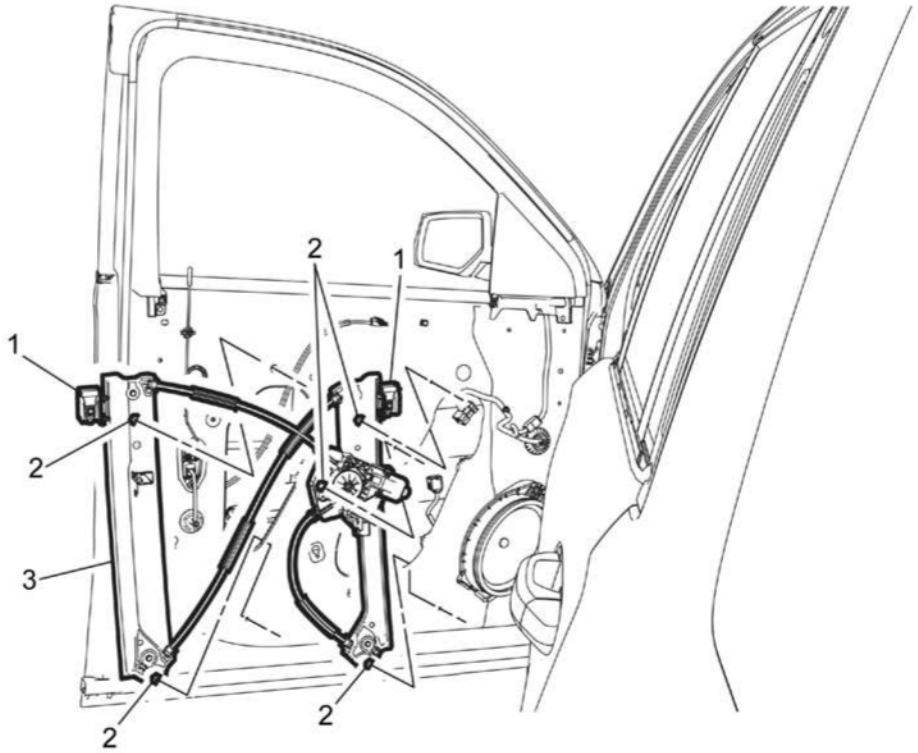
Fig. 39: Rear Side Door Window Switch (Cadillac)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name

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Callout	Component Name
Preliminary Procedure Remove the rear side door accessory switch mount plate. Refer to **Rear Side Door Accessory Switch Mount Plate Replacement (Cadillac)** .	
1	Rear Side Door Window Switch Assembly **Procedure** 1. Release the tabs on switch to remove from the rear side door accessory switch mount plate. 2. Refer to **Control Module References** for programming and set up procedures, if required.

FRONT SIDE DOOR WINDOW REGULATOR REPLACEMENT



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Fig. 40: Front Side Door Window Regulator
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Open the door to the full open position. 2. Remove the front side door pull handle bracket. Refer to **Front Side Door Pull Handle Bracket Replacement** . 3. Remove the front side door water deflector.	
1	Front Side Door Window Regulator Guide Bolt (Qty: 2) **CAUTION:** **Refer to Fastener Caution .** **Procedure** 1. Tape the window to the door frame to prevent it from moving. 2. Remove the rubber plug to gain access to the window regulator guide bolt. 3. Loosen the two bolts that attach the window to the window regulator. 4. Disconnect the front side door window regulator electrical connector. **Tighten** 11 N.m (97 lb in)
2	Front Side Door Window Regulator Nut (Qty: 5) **Tighten** 12 N.m (108 lb in)
3	Front Side Door Window Regulator **Procedure** Transfer the power window motor and program after installing in the vehicle. Refer to **Window Motor Programming - Express Function**.

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Callout	Component Name
	NOTE: • **Ensure the window regulator cables are routed the same way as removed to prevent damage to components.** • **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.**

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.

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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

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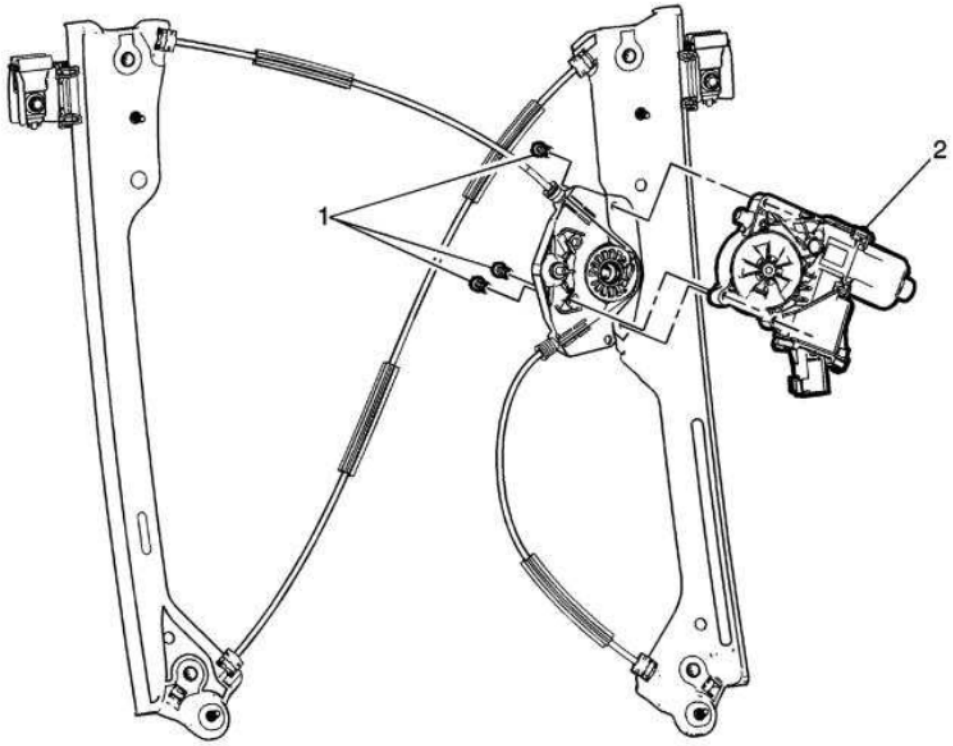


Fig. 41: Front Side Door Window Regulator Motor
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front side door window regulator. Refer to **Front Side Door Window Regulator Replacement**.	
1	Front Side Door Window Regulator Motor Bolt (Qty: 3) **Tighten** 7 N.m (62 lb in)
2	Front Side Door Window Regulator Motor **NOTE:** **Inspect the door window**

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Callout	Component Name
	for proper operation before installing the door trim.

REAR SIDE DOOR WINDOW REGULATOR REPLACEMENT (SHORT WHEELBASE)

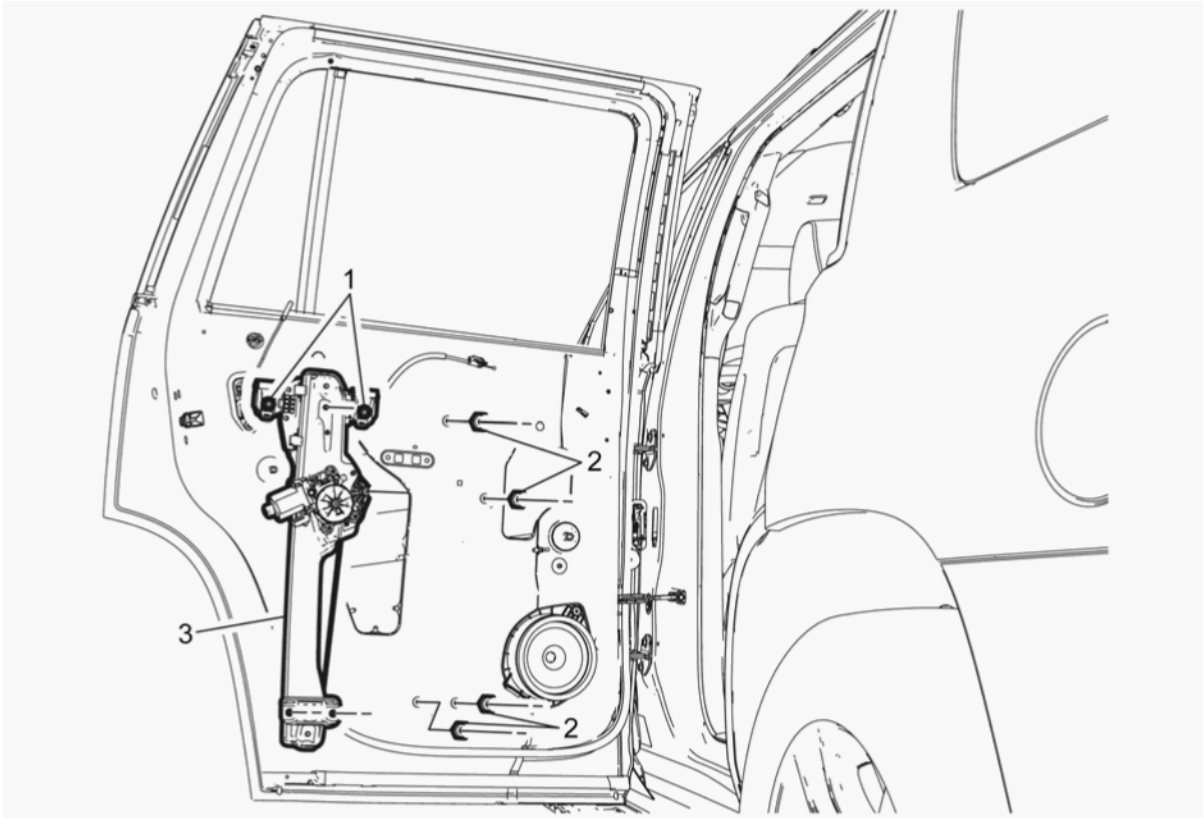


Fig. 42: Rear Side Door Window Regulator (Short Wheelbase)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
WARNING:	

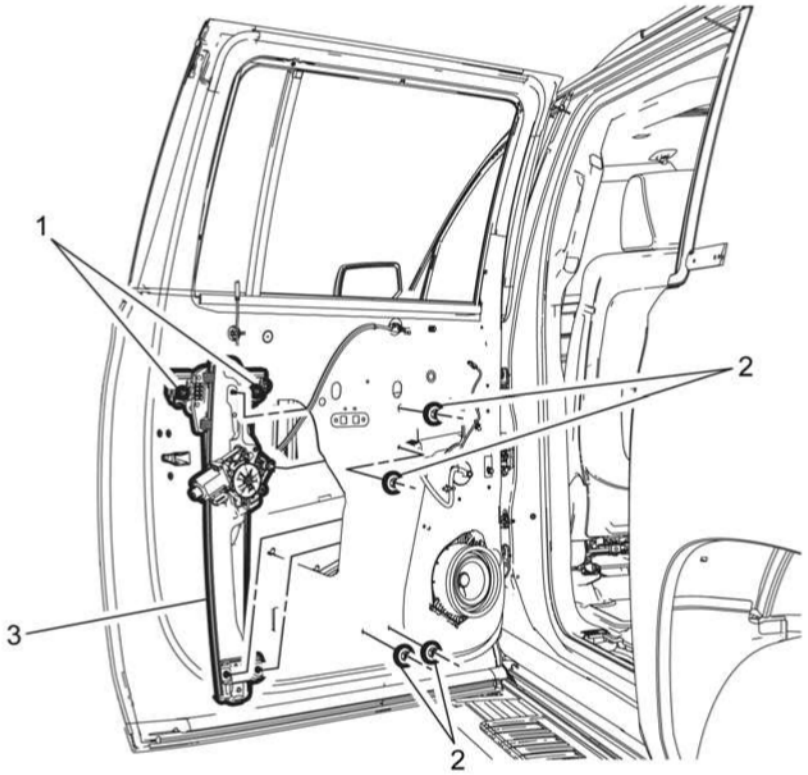
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Callout	Component Name
Refer to Glass and Sheet Metal Handling Warning . **Preliminary Procedures** 1. Open the door to the full open position. 2. Remove the rear side door pull handle bracket. Refer to **Rear Side Door Pull Handle Bracket Replacement** . 3. Remove the rear side door water deflector.	
1	Rear Side Door Window Regulator Guide Bolt (Qty: 2) **CAUTION:** **Refer to Fastener Caution .** **Procedure** 1. Tape the window to the door frame to prevent it from moving. 2. Loosen the two bolts that attach the window to the window regulator. 3. Disconnect the rear side door window regulator electrical connector. **Tighten** 11 N.m (97 lb in)
2	Rear Side Door Window Regulator Nut (Qty: 4) **Tighten** 12 N.m (108 lb in)
3	Rear Side Door Window Regulator **Procedure** Transfer the power window motor and program after installing in the vehicle. Refer to **Window Motor Programming -**

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Callout	Component Name
	Express Function. **NOTE:** Inspect the door window for proper operation before installing the door trim.

REAR SIDE DOOR WINDOW REGULATOR REPLACEMENT (LONG WHEELBASE)



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Fig. 43: Rear Side Door Window Regulator (Long Wheelbase)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
WARNING: **Refer to Glass and Sheet Metal Handling Warning .** **Preliminary Procedures** 1. Open the door to the full open position. 2. Remove the rear side door pull handle bracket. Refer to **Rear Side Door Pull Handle Bracket Replacement** . 3. Remove the rear side door water deflector.	
1	Rear Side Door Window Regulator Guide Bolt (Qty: 2) **CAUTION:** **Refer to Fastener Caution .** **Procedure** 1. Tape the window to the door frame to prevent it from moving. 2. Loosen the two bolts that attach the window to the window regulator. 3. Disconnect the rear side door window regulator electrical connector. **Tighten** 11 N.m (97 lb in)
2	Rear Side Door Window Regulator Nut (Qty: 4) **Tighten**

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Callout	Component Name
	12 N.m (108 lb in)
3	Rear Side Door Window Regulator **Procedure** Transfer the power window motor and program after installing in the vehicle. 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

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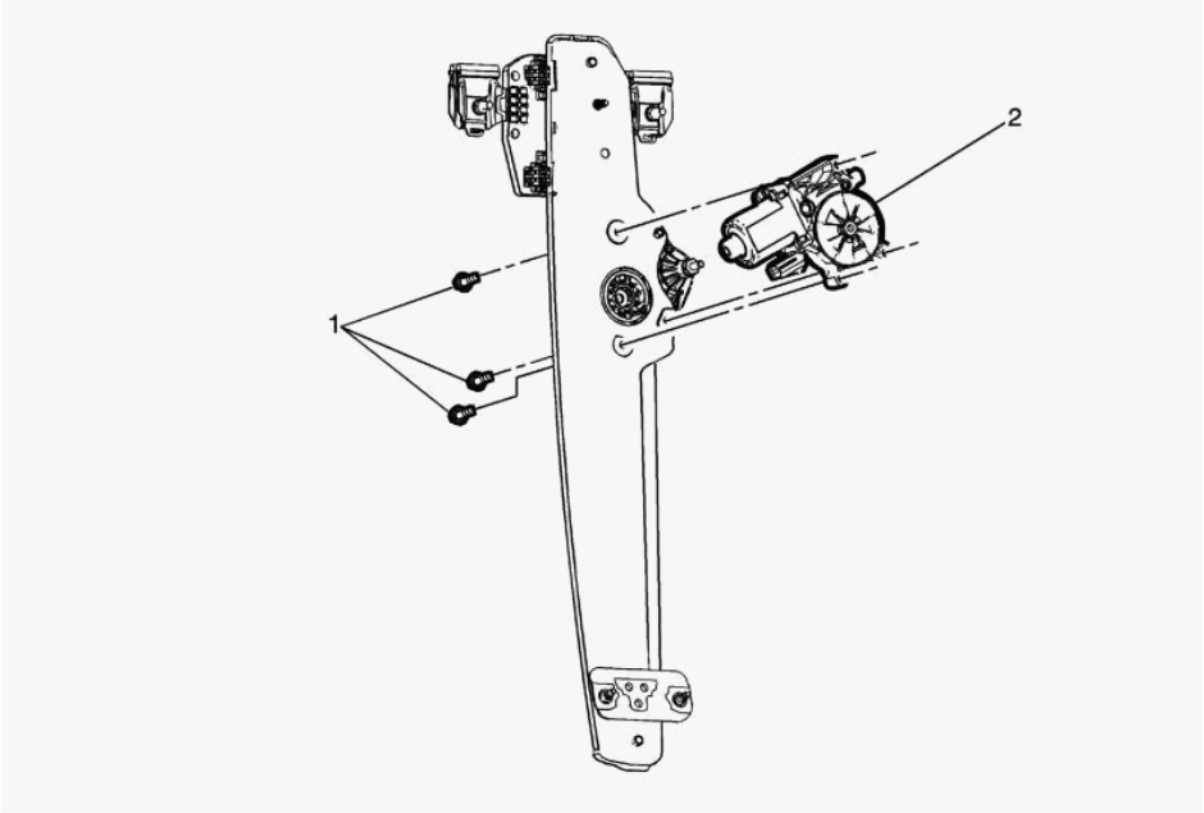


Fig. 44: Rear Side Door Window Regulator Motor
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
WARNING: Refer to Glass and Sheet Metal Handling Warning .	
Preliminary Procedure Remove the rear side door window regulator. Refer to Rear Side Door Window Regulator Replacement (Short Wheelbase)Rear Side Door Window Regulator Replacement (Long Wheelbase).	

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Callout	Component Name
1	Rear Side Door Window Regulator Motor Bolt (Qty: 3). **CAUTION:** **Refer to Fastener Caution .** **Tighten** 7 N.m (62 lb in)
2	Rear Side Door Window Regulator Motor **NOTE:** **Inspect the door window for proper operation before installing the door trim.**

FRONT SIDE DOOR WINDOW CHANNEL RETAINER REPLACEMENT

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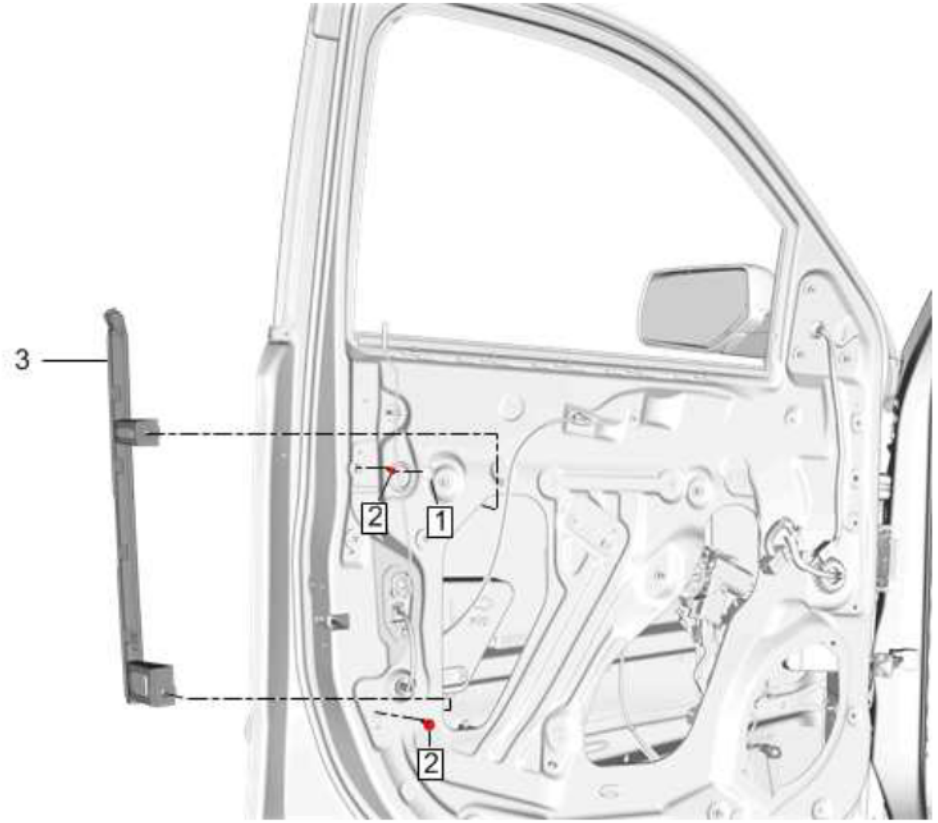


Fig. 45: Front Side Door Window Channel Retainer
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Remove the front side door inner sealing strip. Refer to **Front Side Door Window Inner Sealing Strip Replacement**. 2. Remove the front side door pull handle bracket. Refer to **Front Side Door Pull Handle Bracket Replacement** . 3. Remove the front side door water deflector.	
1	Front Side Door Access Hole Plug
2	Front Side Door Window Channel Retainer Bolt (Qty: 2) **CAUTION:**

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Callout	Component Name
	Refer to Fastener Caution . **Tighten** 11 N.m (97 lb in)
3	Front Side Door Window Channel Retainer **NOTE:** **Inspect the window for proper operation before installing the door trim.**

FRONT SIDE DOOR WINDOW INNER SEALING STRIP REPLACEMENT

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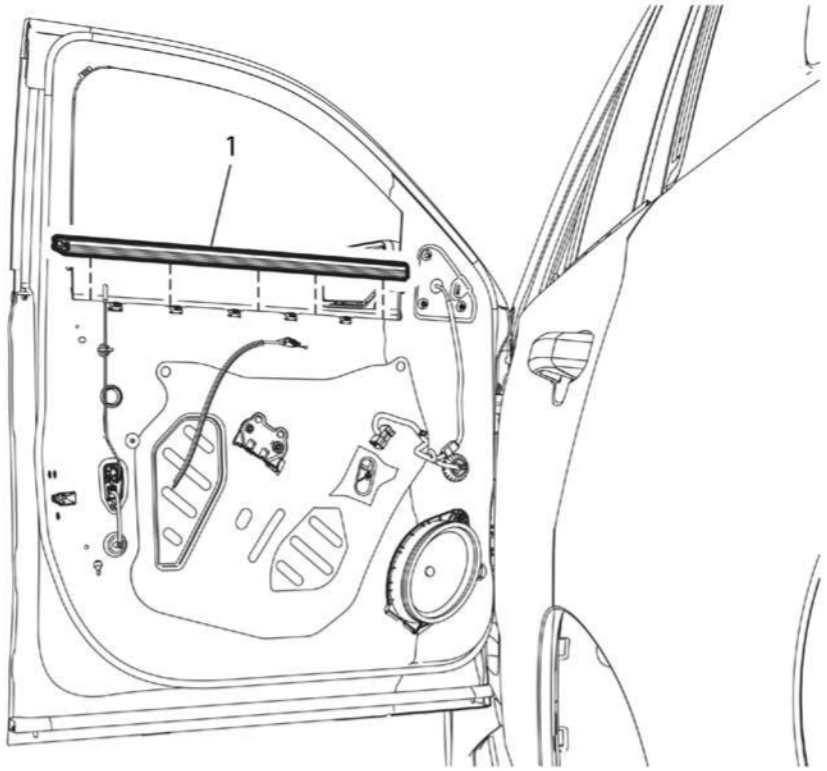


Fig. 46: Front Side Door Window Inner Sealing Strip
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front side door trim. Refer to **Front Side Door Trim Replacement** .	
1	Front Side Door Window Inner Sealing Strip **Procedure** Pull upward on the sealing strip to release it from the inside door flange. **NOTE:** **Inspect the window for proper**

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Callout	Component Name
	operation before installing the door trim.

REAR SIDE DOOR WINDOW UPPER REVEAL MOLDING REPLACEMENT

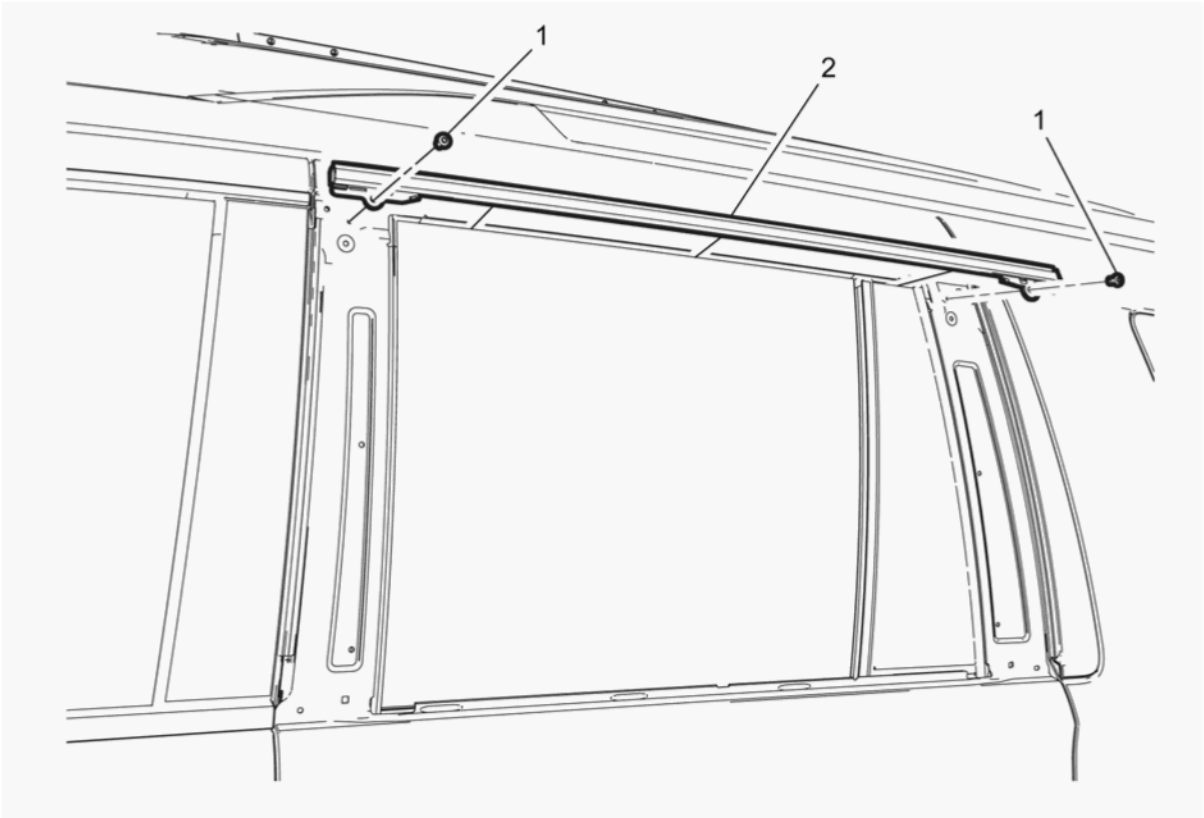


Fig. 47: Rear Side Door Window Upper Reveal Molding
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures	

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Callout	Component Name
1. Remove the rear side door window frame front applique. Refer to **Rear Side Door Window Frame Front Applique Replacement**. 2. Remove the rear side door window frame rear applique. Refer to **Rear Side Door Window Frame Rear Applique Replacement**. 3. Remove the rear side door window weatherstrip. Refer to **Rear Side Door Window Weatherstrip Replacement (Short Wheelbase)Rear Side Door Window Weatherstrip Replacement (Long Wheelbase)**.	
1	Rivet (Qty: 2) **WARNING:** **Eye protection must be worn when drilling rivets to reduce the chance of personal injury.** **Procedure** Using a twist type drill, remove the rivets.
2	Rear Side Door Window Upper Reveal Molding **Procedure** Using the appropriate tool, release the three retaining clips and pull molding outward to remove from door.

REAR SIDE DOOR WINDOW BELT REVEAL MOLDING REPLACEMENT (SHORT WHEELBASE)

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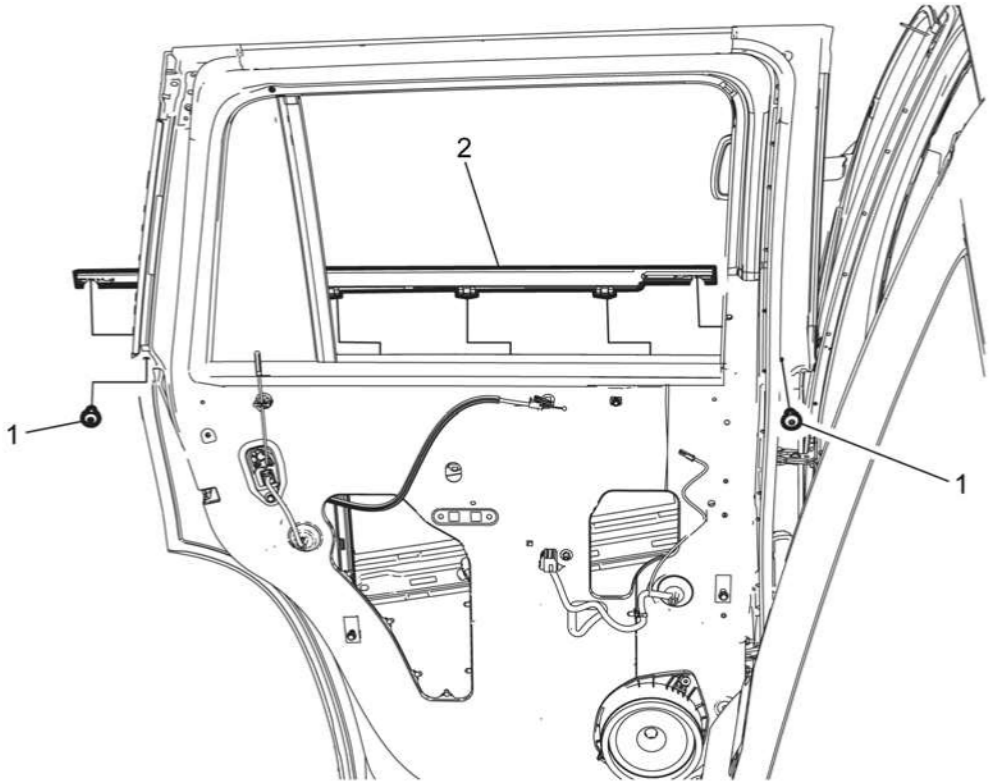


Fig. 48: Rear Side Door Window Belt Reveal Molding(Short Wheelbase)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure 1. Position the door window as needed for service. 2. Tape off the lower window frame to prevent damage to the door. 3. Reposition the front edge of the rear side door weatherstrip to gain access to the reveal molding bolt. Refer to **Rear Side Door Weatherstrip Replacement - Door Side (Short Wheelbase)** .	
1	Rear Side Door Window Belt Reveal Molding Bolt (Qty: 2) **CAUTION:**

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Callout	Component Name
	Refer to **Fastener** **Caution** **Tighten** 3 N.m (27 lb in)
2	Rear Side Door Window Belt Reveal Molding **Procedure** 1. Lift upward on the reveal molding in order to unhook it from the door flange. 2. Install the reveal molding 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 (LONG WHEELBASE)

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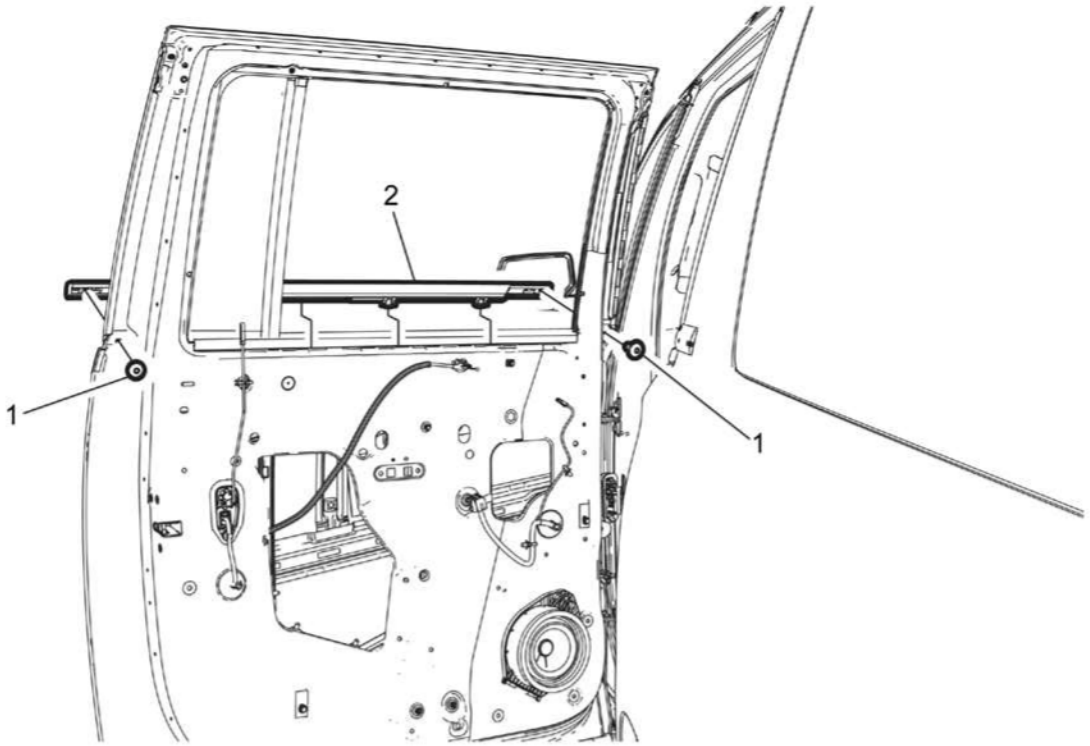


Fig. 49: Rear Side Door Window Belt Reveal Molding (Long Wheelbase)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure 1. Position the door window as needed for service. 2. Tape off the lower window frame to prevent damage to the door. 3. Reposition the front edge of the rear side door weatherstrip to gain access to the reveal molding bolt. Refer to **Rear Side Door Weatherstrip Replacement - Door Side (Long Wheelbase)** .	
1	Rear Side Door Window Belt Reveal Molding Bolt (Qty: 2) **CAUTION:**

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Callout	Component Name
	Refer to **Fastener** **Caution** **Tighten** 3 N.m (27 lb in)
2	Rear Side Door Window Belt Reveal Molding **Procedure** 1. Lift upward on the reveal molding in order to unhook it from the door flange. 2. Install the reveal molding 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

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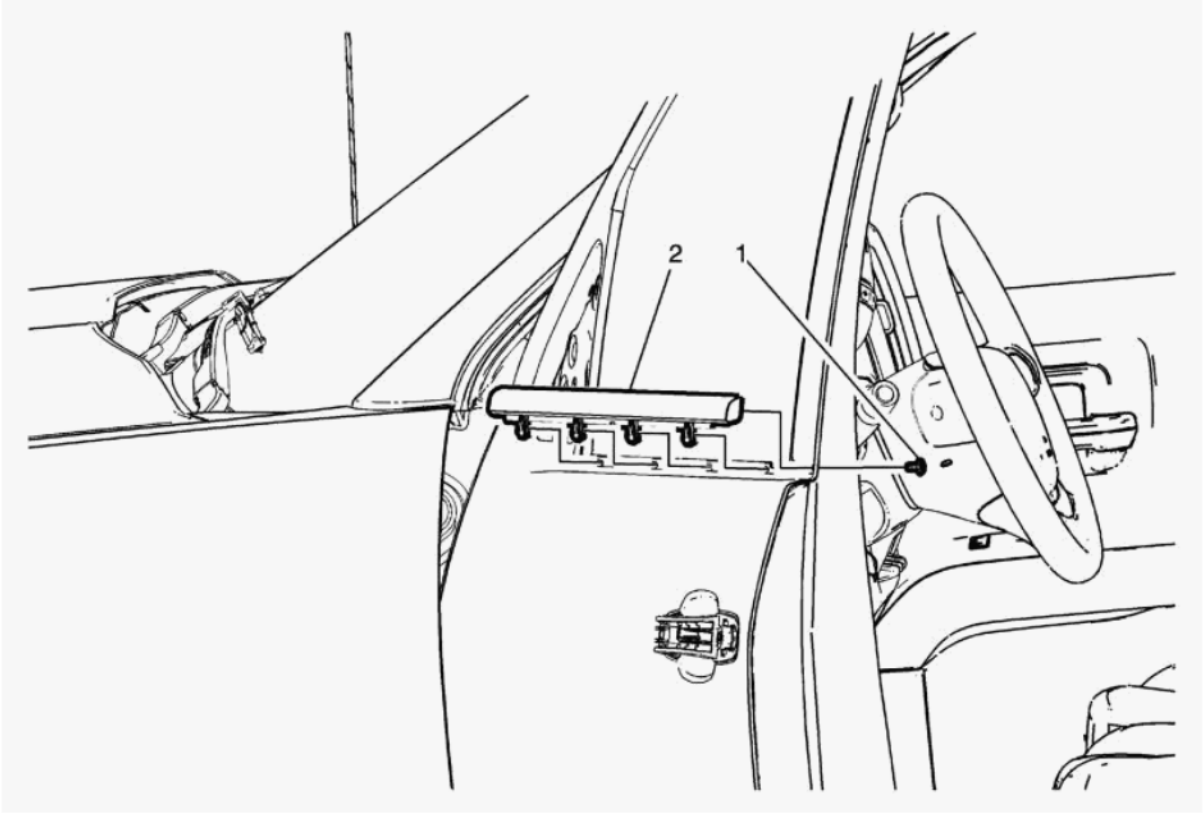


Fig. 50: Front Side Door Window Belt Reveal Molding
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure 1. Tape off the lower window frame to prevent damage to the door. 2. Remove the outside rearview mirror. Refer to **Outside Rearview Mirror Replacement (DL3, DL8)** **Outside Rearview Mirror Replacement (DR4)** .	
1	Front Side Door Window Belt Reveal Molding Bolt **CAUTION:**

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Callout	Component Name
	Refer to **Fastener** **Caution** **Tighten** 3 N.m (27 lb in)
2	Front Side Door Window Belt Reveal Molding **Procedure** 1. Lift upward on the reveal molding in order to unhook it from the outside door flange and slide rearward from the front side door window upper reveal molding. 2. Slide the reveal molding forward on the front side door window upper reveal molding and push reveal molding downward on the outside door flange until fully seated.

FRONT SIDE DOOR WINDOW UPPER REVEAL MOLDING REPLACEMENT

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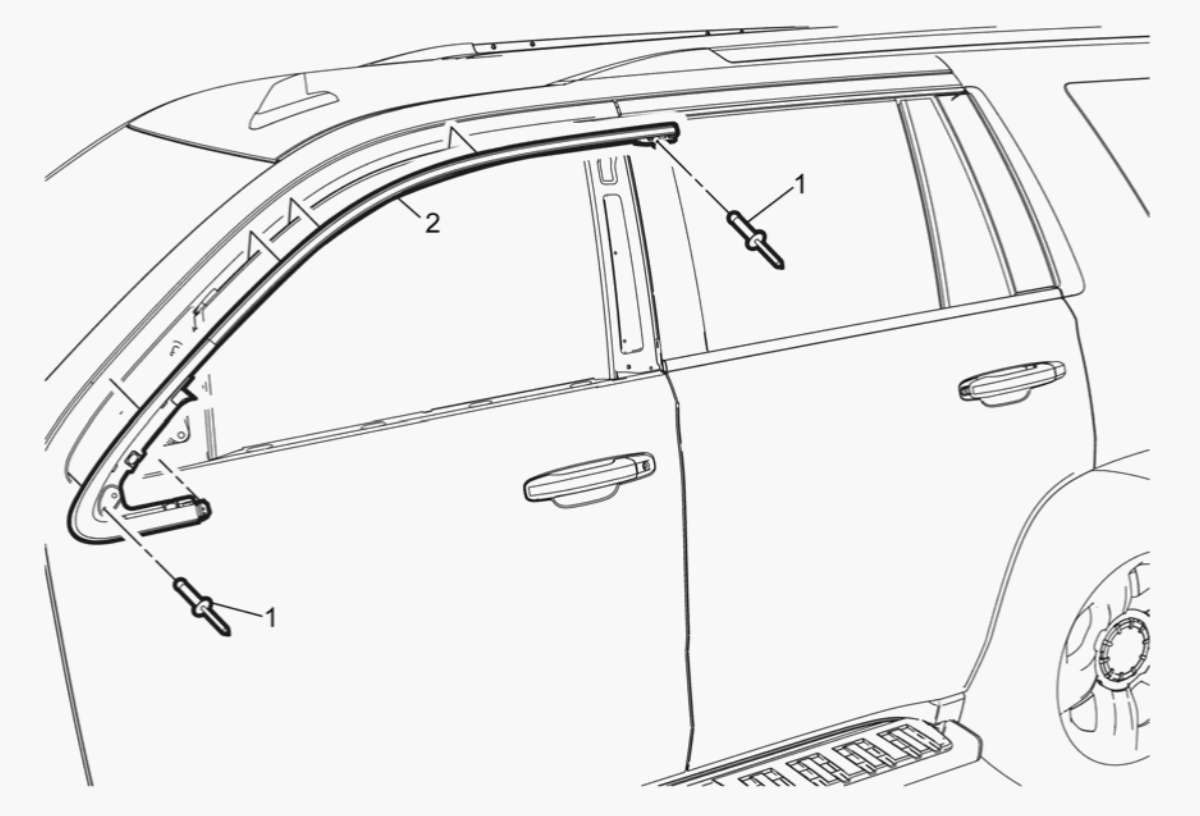


Fig. 51: Front Side Door Window Upper Reveal Molding
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Remove the outside rearview mirror. Refer to **Outside Rearview Mirror Replacement (DL3, DL8)** **Outside Rearview Mirror Replacement (DR4)** . 2. Remove the front side door window frame rear applique. Refer to **Front Side Door Window Frame Rear Applique Replacement**.	
1	Rivet (Qty: 2) **WARNING:**

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Callout	Component Name
	Eye protection must be worn when drilling rivets to reduce the chance of personal injury. **Procedure** Using a twist type drill, remove the rivets.
2	Front Side Door Window Upper Reveal Molding **Procedure** 1. Reposition the front side door window weatherstrip to gain access to the clips. 2. Using the appropriate tool, release the three retaining clips and pull molding outward to remove from door.

REAR SIDE DOOR WINDOW INNER SEALING STRIP REPLACEMENT (SHORT WHEELBASE)

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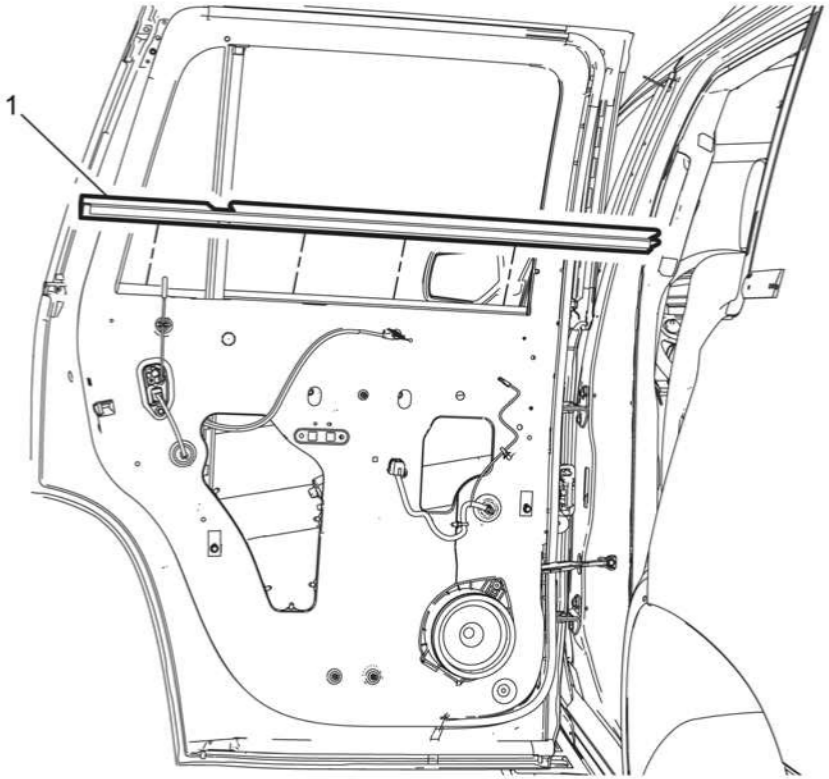


Fig. 52: Rear Side Door Window Inner Sealing Strip (Short Wheelbase)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the rear side door trim. Refer to **Rear Side Door Trim Replacement (Chevrolet, GMC)** **Rear Side Door Trim Replacement (Cadillac)** .	
1	Rear Side Door Inner Belt Sealing Strip **Procedure** 1. Lifting upward on the sealing strip end in order to unhook it from the door flange. 2. Install the sealing strip to the flange of the door and push downward until fully seated.

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Callout	Component Name
	NOTE:

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REAR SIDE DOOR WINDOW INNER SEALING STRIP REPLACEMENT (LONG WHEELBASE)

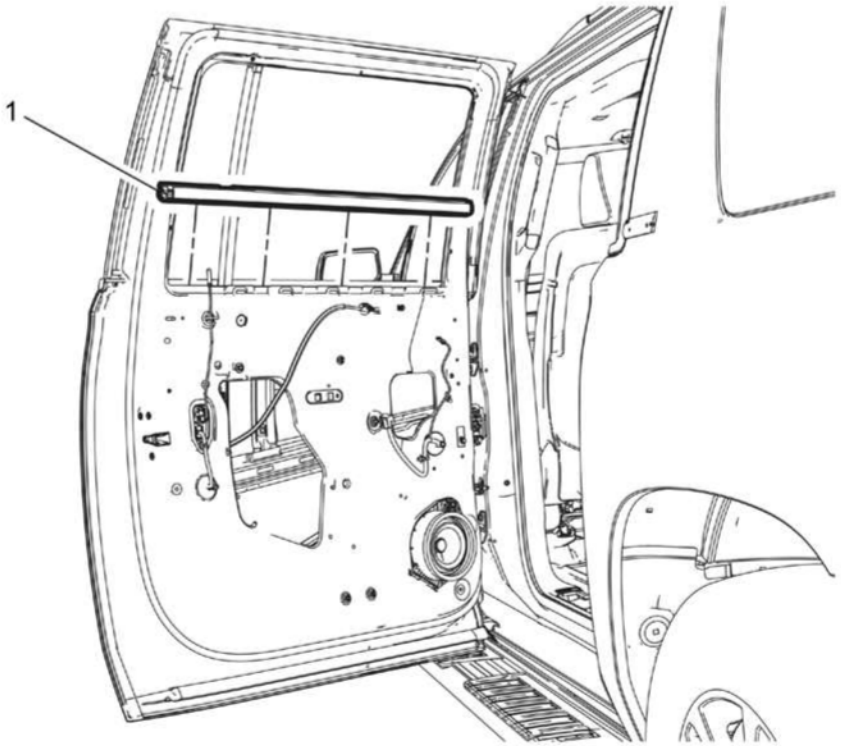


Fig. 53: Rear Side Door Window Inner Sealing Strip(Long Wheelbase)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the rear side door trim. Refer to **Rear Side Door Trim Replacement (Chevrolet, GMC)** **Rear Side Door Trim Replacement (Cadillac)** .	
1	Rear Side Door Inner Belt Sealing Strip

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Callout	Component Name
	Procedure 1. Lifting upward on the sealing strip end in order to unhook it from the door flange. 2. Install the sealing strip to the flange of the door and push downward until fully seated. **NOTE:** **Inspect the door window for proper operation before installing the door trim.**

FRONT SIDE DOOR WINDOW WEATHERSTRIP REPLACEMENT

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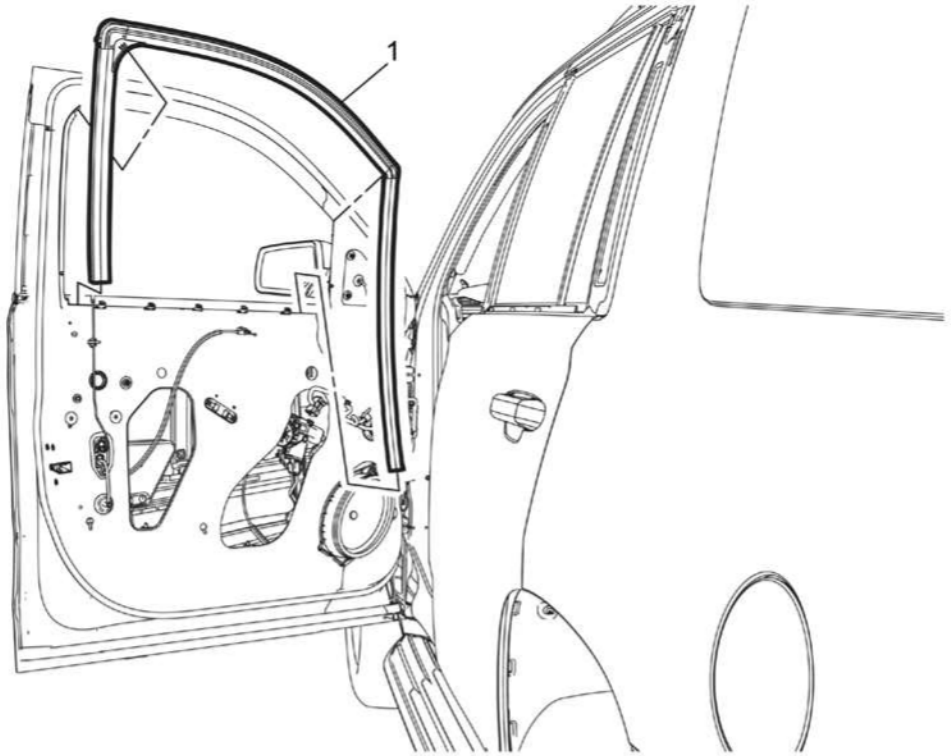


Fig. 54: Front Side Door Window Weatherstrip
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front side door window. Refer to **Front Side Door Window Replacement**.	
1	Front Side Door Window Weatherstrip **Procedure** 1. Grasp both upper corners of the window weatherstrip, pull downward releasing the assembly from the door frame. 2. Insert the weatherstrip downward in the front guide until fully seated. 3. Position the window weatherstrip in the upper rear corner of the frame, work the weatherstrip around the door frame. 4. Carefully move the regulator upward for short slow intervals, while ensuring that the window remains in the guide.

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Callout	Component Name
	NOTE: Inspect the door window for proper operation before installing the door trim.

REAR SIDE DOOR WINDOW WEATHERSTRIP REPLACEMENT (SHORT WHEELBASE)

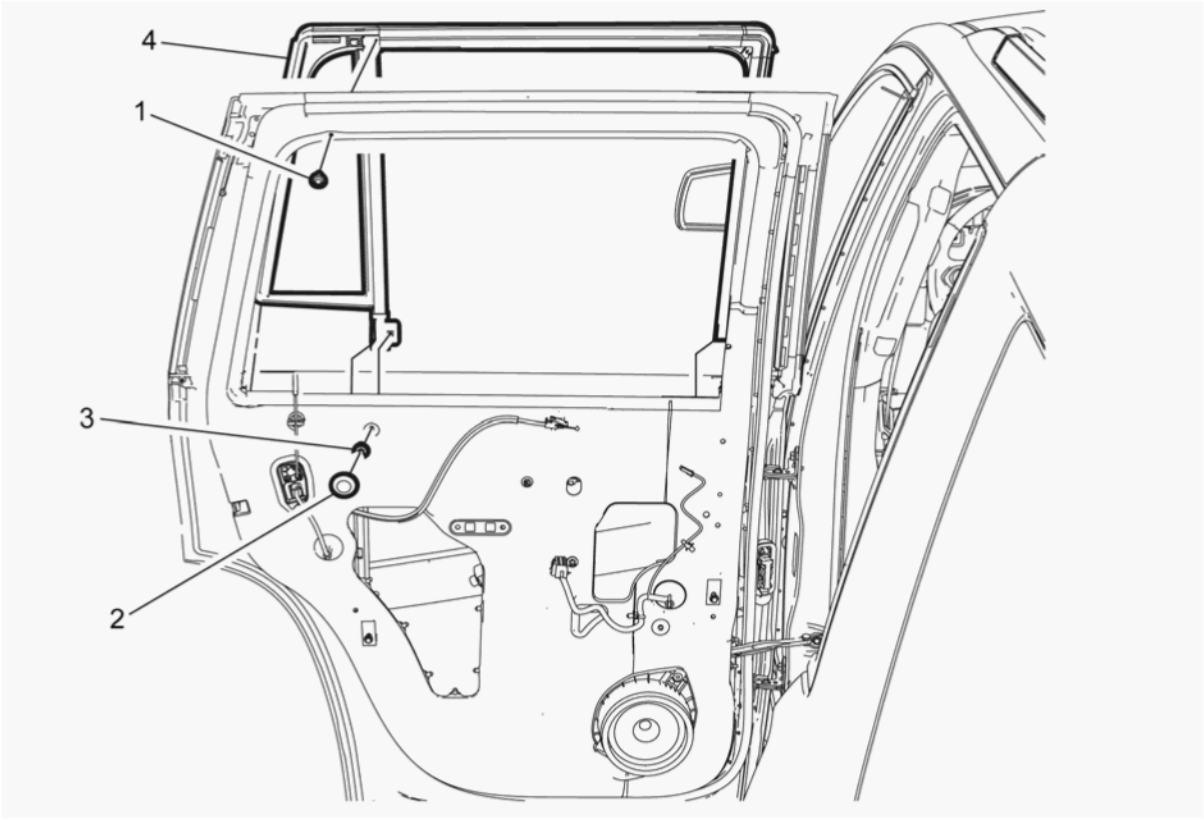


Fig. 55: Rear Side Door Window Weatherstrip (Short Wheelbase)
Courtesy of GENERAL MOTORS COMPANY

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Callout	Component Name
WARNING: **Refer to Glass and Sheet Metal Handling Warning .** **WARNING:** **Refer to Express Window Down Warning .** **Preliminary Procedures** 1. Remove the rear side door window inner sealing strip. Refer to **Rear Side Door Window Inner Sealing Strip Replacement (Short Wheelbase)**. 2. Remove the rear side door pull handle bracket. Refer to **Rear Side Door Pull Handle Bracket Replacement** . 3. Remove the rear side door water deflector. 4. Remove the rear side door window belt reveal molding. Refer to **Rear Side Door Window Belt Reveal Molding Replacement (Short Wheelbase)**.	
1	Rear Side Door Window Weatherstrip Screw **CAUTION:** **Refer to Fastener Caution .** **Tighten** 2.5 N.m (22 lb in)

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Callout	Component Name
2	Rear Side Door Window Weatherstrip Bolt Plug
3	Rear Side Door Window Weatherstrip Bolt **Tighten** 11 N.m (97 lb in)
4	Rear Side Door Window Weatherstrip **Procedures** 1. Grasp both upper corners of the window weatherstrip, pull downward releasing it from the door frame. 2. Insert the weatherstrip downward in the guide until fully seated. 3. Position the weatherstrip in the upper rear corner of the frame, working the weatherstrip around the door frame. 4. Carefully move the regulator upward for short slow intervals, while ensuring that the window remains in the guides. **NOTE:** **Inspect the door window for proper operation before installing the door trim.**

REAR SIDE DOOR WINDOW WEATHERSTRIP REPLACEMENT (LONG WHEELBASE)

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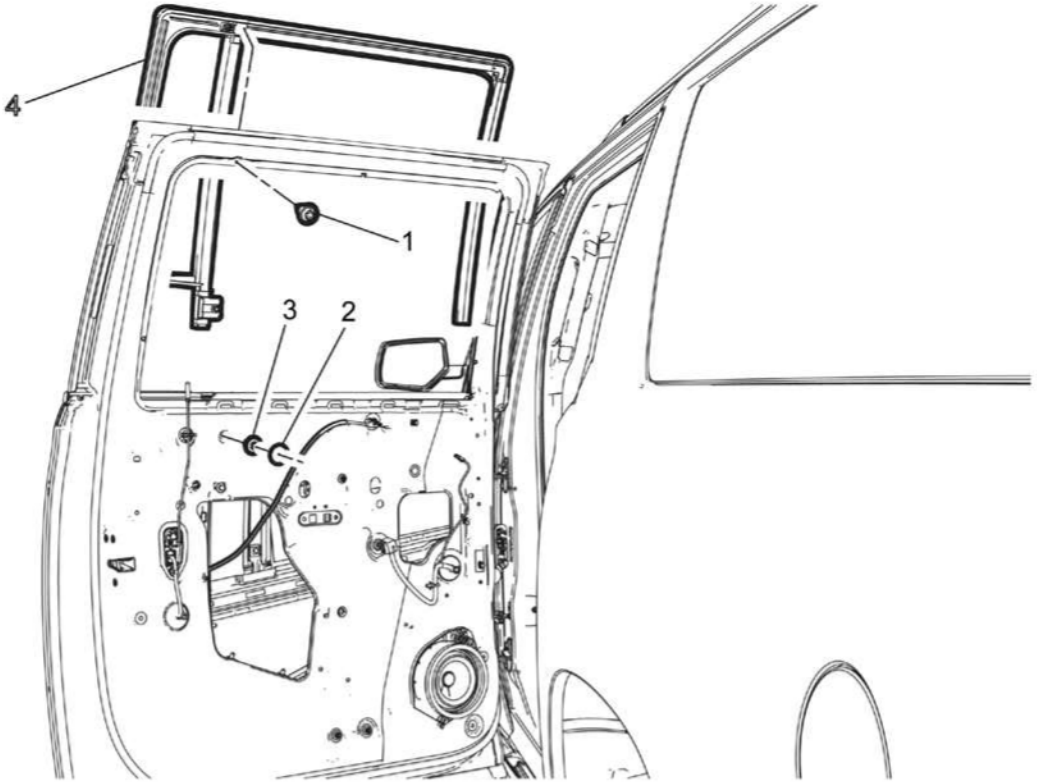


Fig. 56: Rear Side Door Window Weatherstrip (Long Wheelbase)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
WARNING: Refer to Glass and Sheet Metal Handling Warning . **WARNING:** Refer to Express	

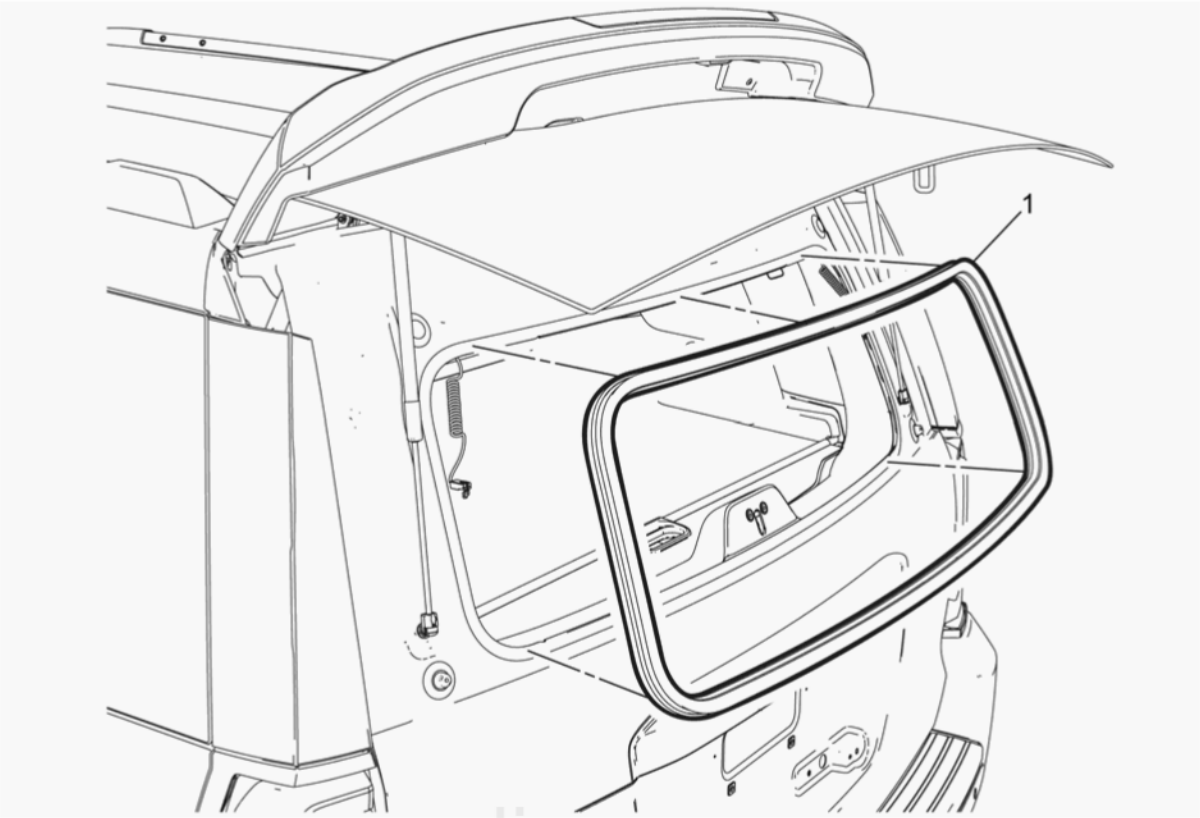
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Callout	Component Name
Window Down Warning . **Preliminary Procedures** 1. Remove the rear side door window inner sealing strip. Refer to **Rear Side Door Window Inner Sealing Strip Replacement (Long Wheelbase)**. 2. Remove the rear side door pull handle bracket. Refer to **Rear Side Door Pull Handle Bracket Replacement** . 3. Remove the rear side door water deflector. 4. Remove the rear side door window belt reveal molding. Refer to **Rear Side Door Window Belt Reveal Molding Replacement (Long Wheelbase)**.	
1	Rear Side Door Window Weatherstrip Screw **CAUTION:** **Refer to Fastener Caution** . **Tighten** 2.5 N.m (22 lb in)
2	Rear Side Door Window Weatherstrip Bolt Plug
3	Rear Side Door Window Weatherstrip Bolt **Tighten** 11 N.m (97 lb in)
4	Rear Side Door Window Weatherstrip **Procedures** 1. Grasp both upper corners of the window weatherstrip, pull downward releasing it from the door frame. 2. Insert the weatherstrip downward in the guide until fully seated.

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Callout	Component Name
	3. Position the weatherstrip in the upper rear corner of the frame, working the weatherstrip around the door frame. 4. Carefully move the regulator upward for short slow intervals, while ensuring that the window remains in the guides. **NOTE:** **Inspect the door window for proper operation before installing the door trim.**

LIFTGATE WINDOW WEATHERSTRIP REPLACEMENT (CHEVROLET, GMC)



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Fig. 57: Liftgate Window Weatherstrip (Chevrolet, GMC)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure 1. Open the liftgate window. 2. Disconnect the electrical connectors from the rear window defogger.	
1	Liftgate Window Weatherstrip **Procedure** 1. Roll the weatherstrip from the center to the upper corners. 2. Roll the weather strip from the upper corners to the lower corners. 3. Roll the weatherstrip from the lower corners to the center.

LIFTGATE WINDOW WEATHERSTRIP REPLACEMENT (CADILLAC)

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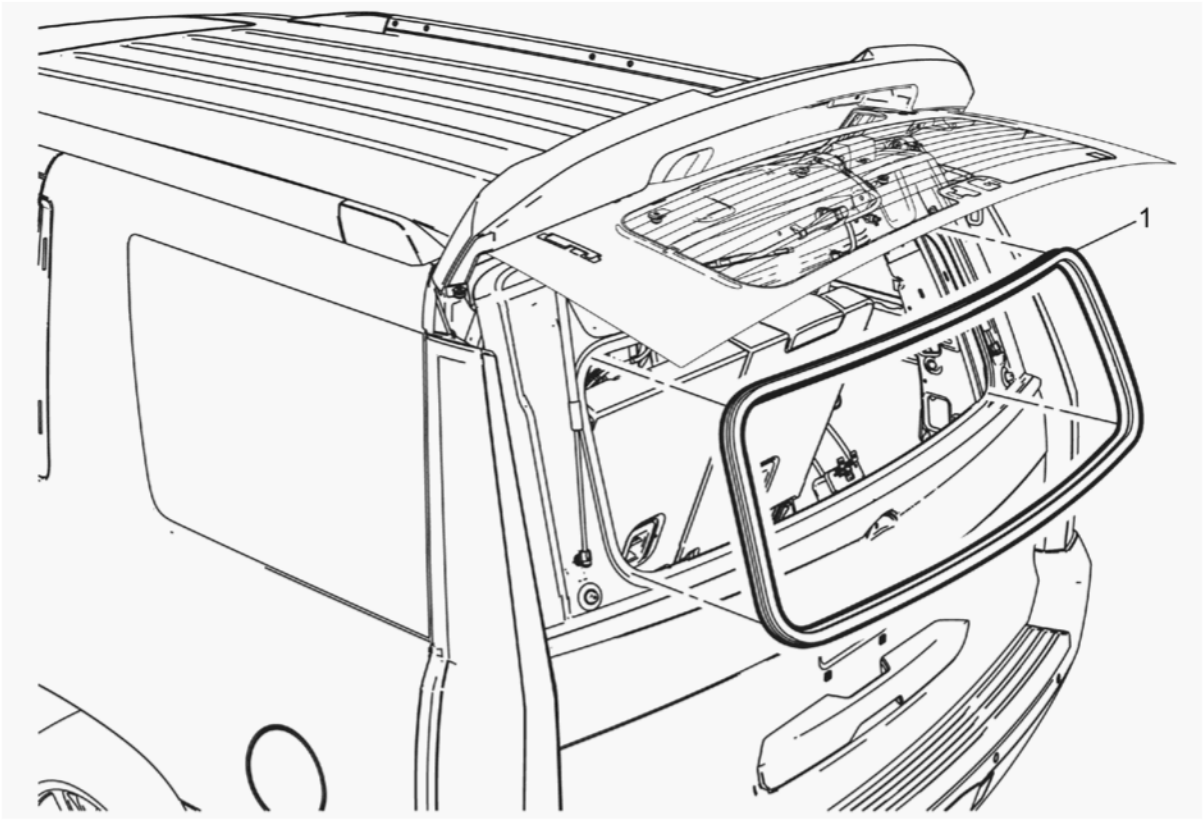


Fig. 58: Liftgate Window Weatherstrip (Cadillac)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure 1. Open the liftgate window. 2. Disconnect the electrical connectors from the rear window defogger.	
1	Liftgate Window Weatherstrip **Procedure** 1. Roll the weatherstrip from the center to the upper corners.

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Callout	Component Name
	2. Roll the weather strip from the upper corners to the lower corners. 3. Roll the weatherstrip from the lower corners to the center.

ADHESIVE INSTALLATION OF WINDSHIELDS

1. Use a urethane adhesive systems which meet GM Specification GM 3651G

WARNING: **Refer to Glass and Sheet Metal Handling Warning .**

2. Remove all mounds or loose pieces of urethane adhesive from the pinch-weld 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 pinch-weld flange and the window surface 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:
   - High weld
   - Solder spots on the pinchweld
   - Hardened sealer
   - Any other obstruction or irregularity in the pinch-weld 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 DE15Â®, DuPont 2610Â®, Sherwin-Williams PSE 4600 and NP70Â® and Martin-Semour 5120 and 5130Â® 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.

WARNING: **Refer to Window Retention Warning .**

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6. Verify all primers and urethane adhesive are within expiration dates.

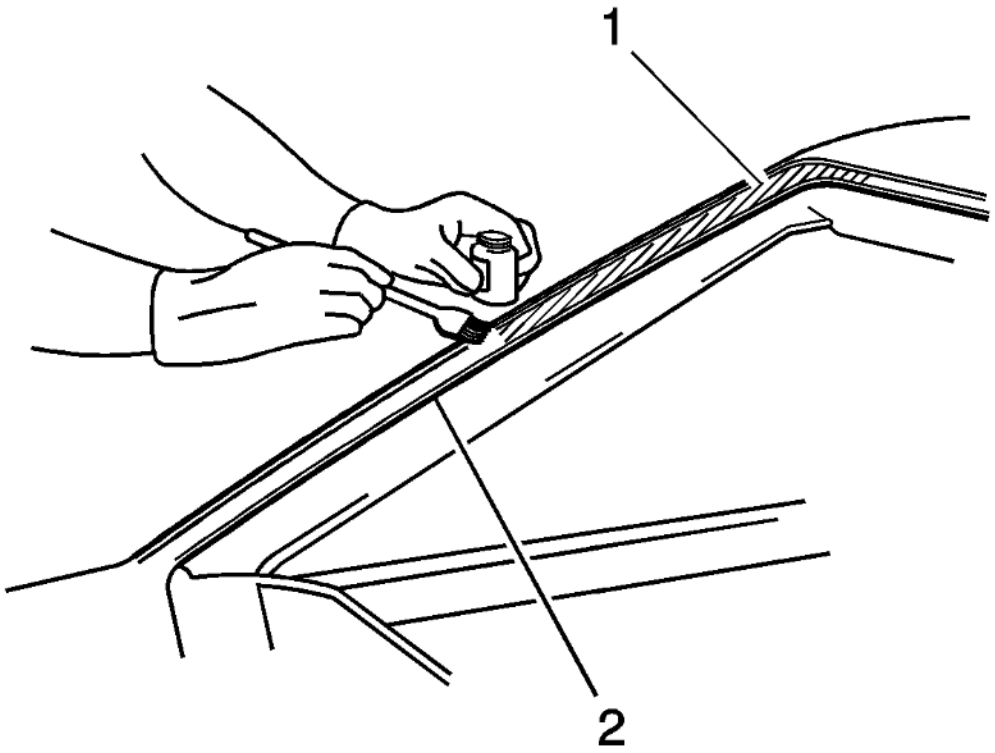


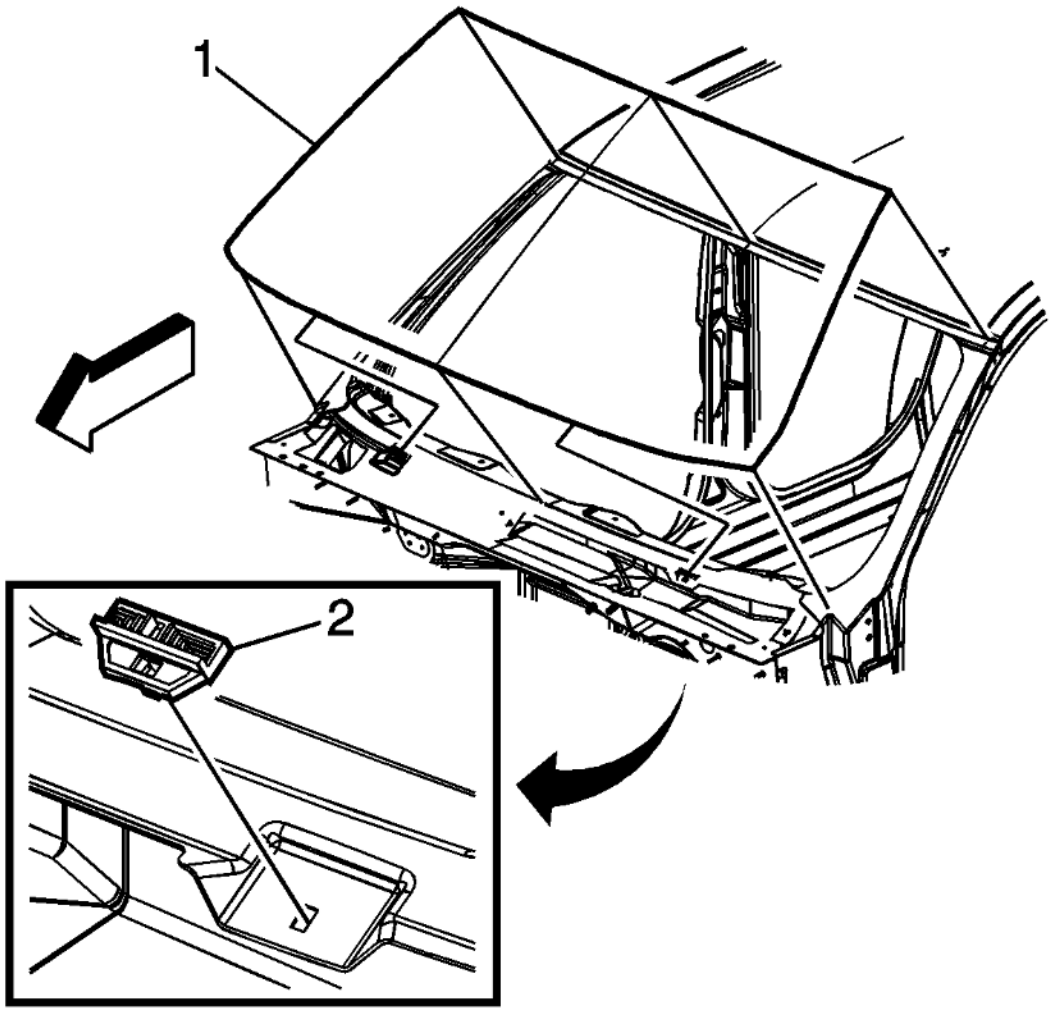
Fig. 59: Applying Pinch-Weld Primer
Courtesy of GENERAL MOTORS COMPANY

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.

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NOTE: **Do not apply the black #3 primer to the existing bead (1) 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 (1).
9. Allow the pinch-weld primer to dry for approximately 10 minutes.



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Fig. 60: Dry Fitting The 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.

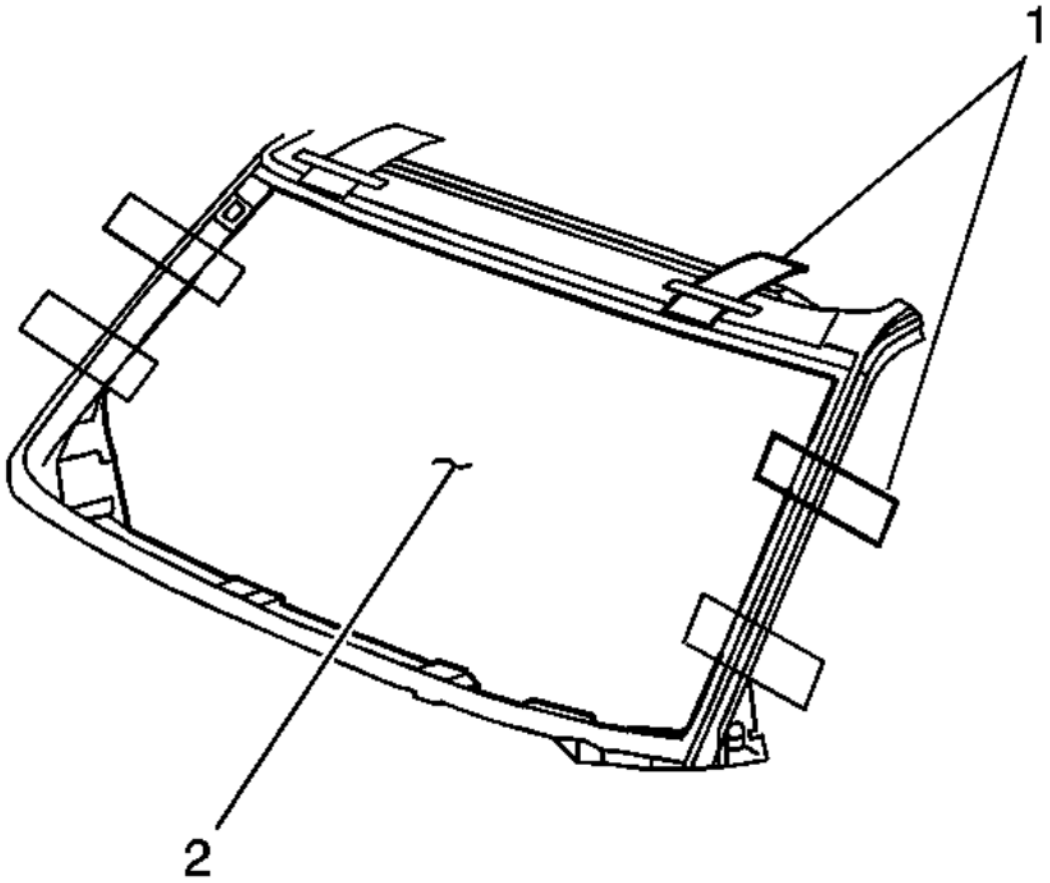


Fig. 61: Aligning Tape Lines On Window To Body
Courtesy of GENERAL MOTORS COMPANY

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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.

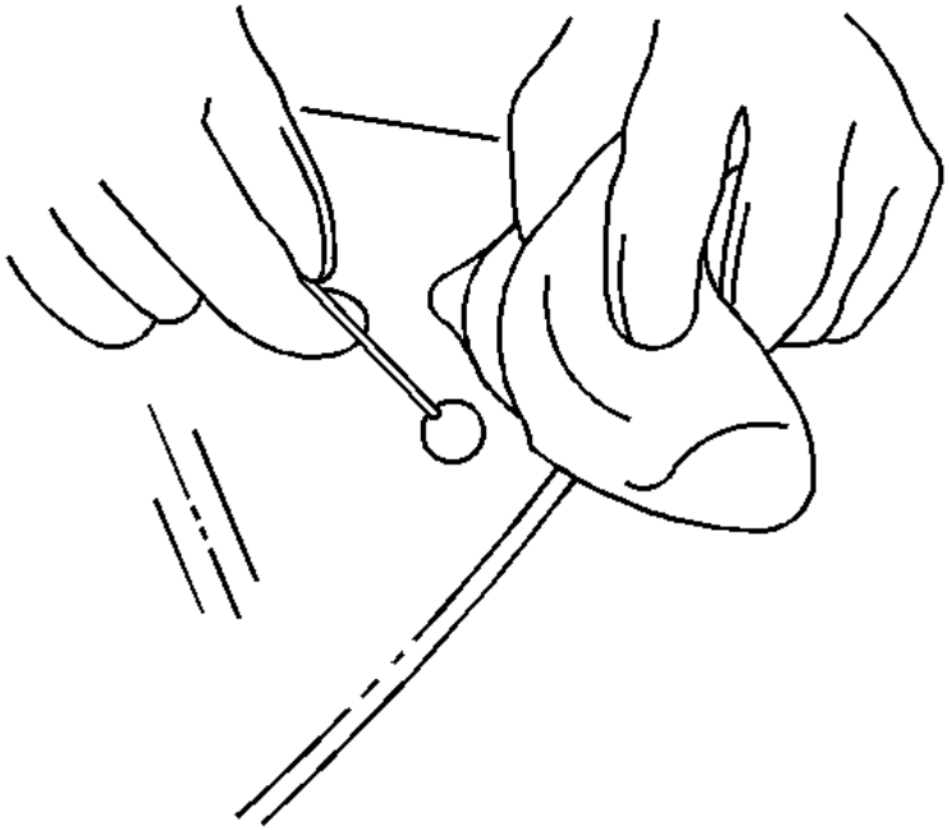


Fig. 62: Applying Glass Prep
Courtesy of GENERAL MOTORS COMPANY

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.**

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13. Use a new dauber in order to apply glass prep clear #1 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.

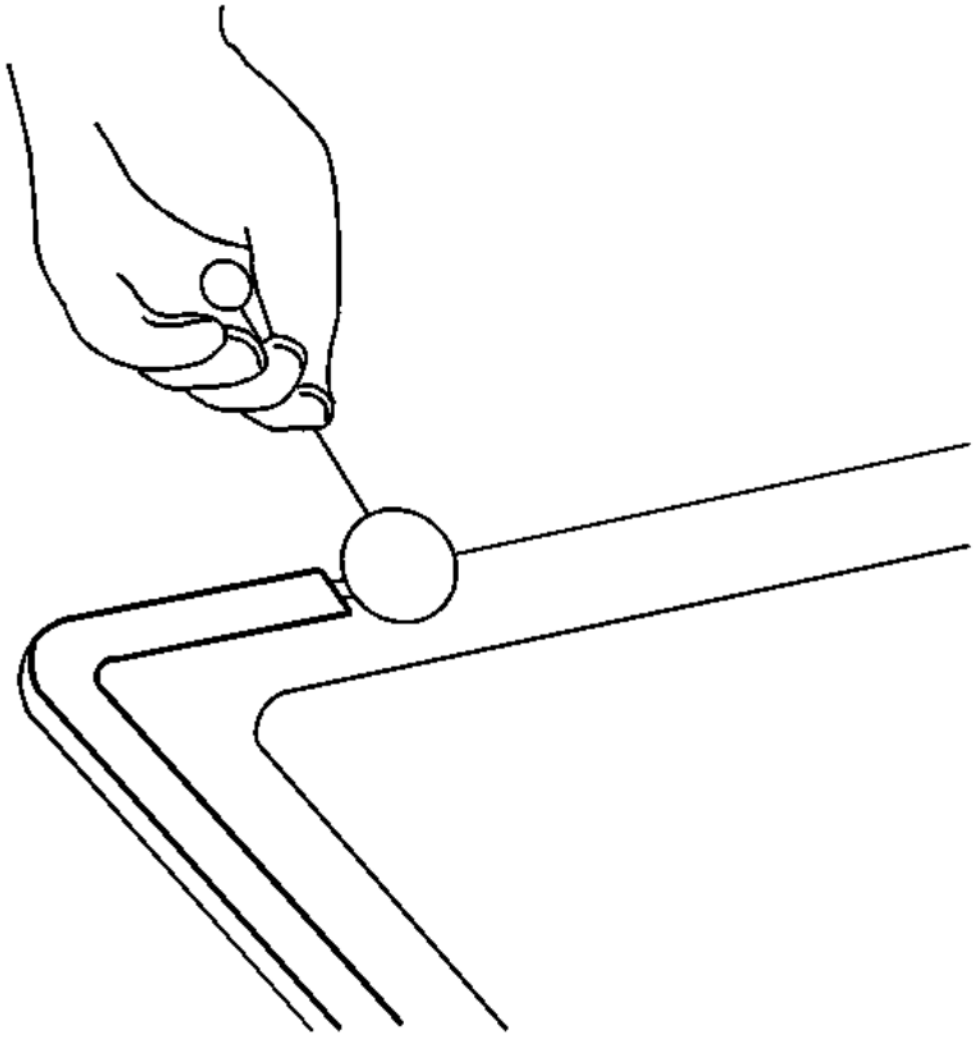


Fig. 63: Applying Glass Prep
Courtesy of GENERAL MOTORS COMPANY

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

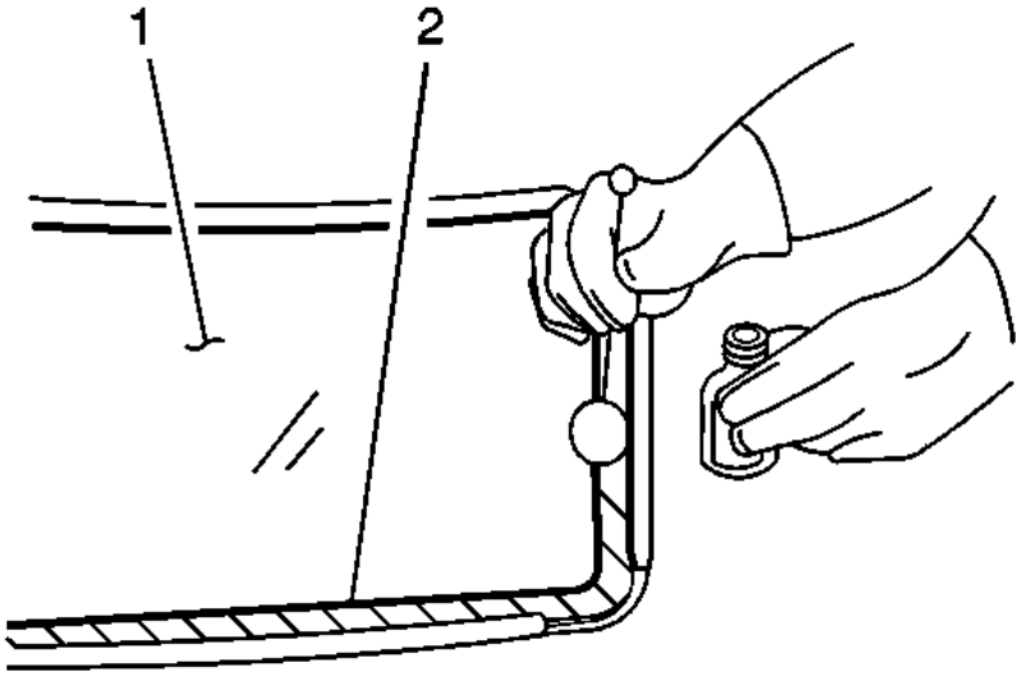


Fig. 64: Applying Glass Primer
Courtesy of GENERAL MOTORS COMPANY

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.**

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

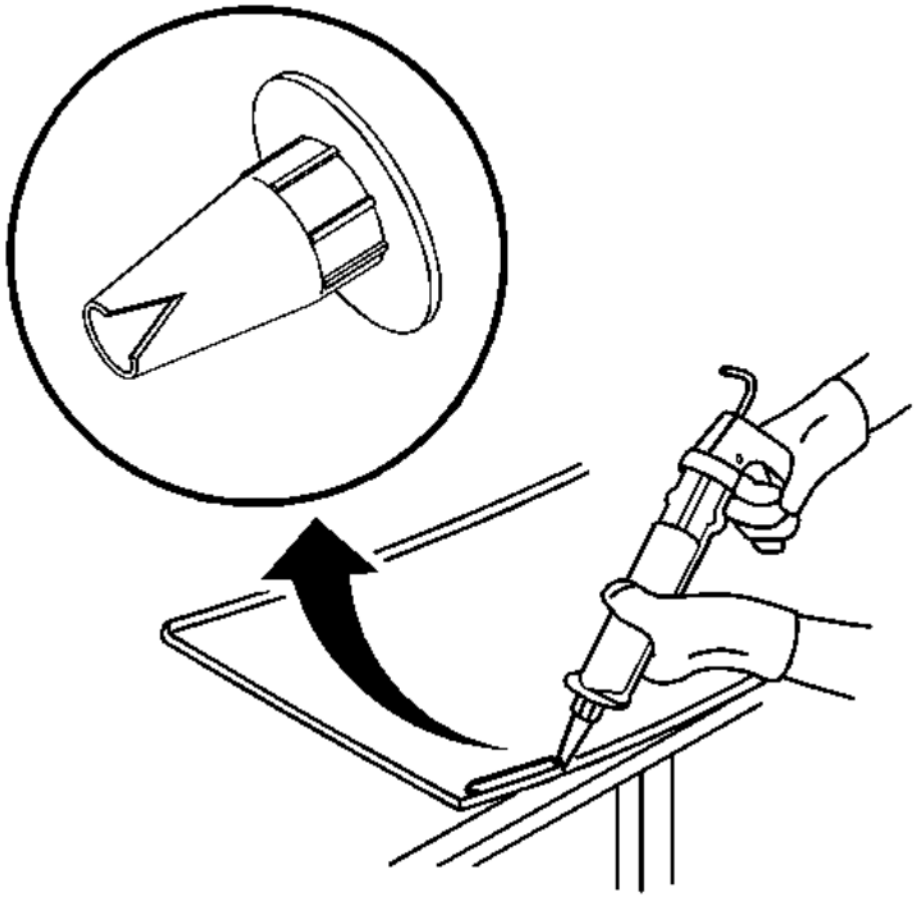


Fig. 65: View Of Modified Applicator Nozzle
Courtesy of GENERAL MOTORS COMPANY

18. Cut the applicator nozzle in order to provide a bead of 8 mm (0.316 in) wide and 12.7 mm (1/2 in) high.

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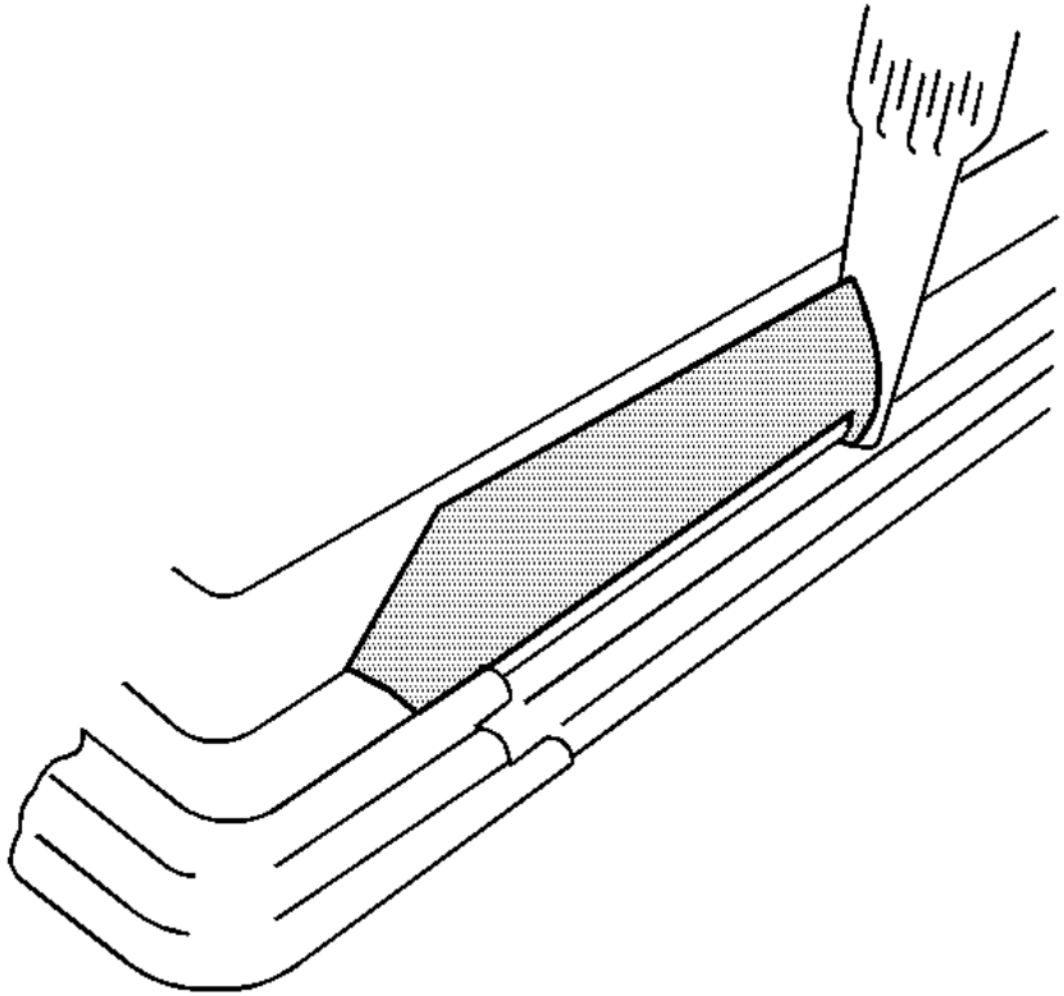


Fig. 66: Applying Continuous Bead Of Urethane Adhesive
Courtesy of GENERAL MOTORS COMPANY

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

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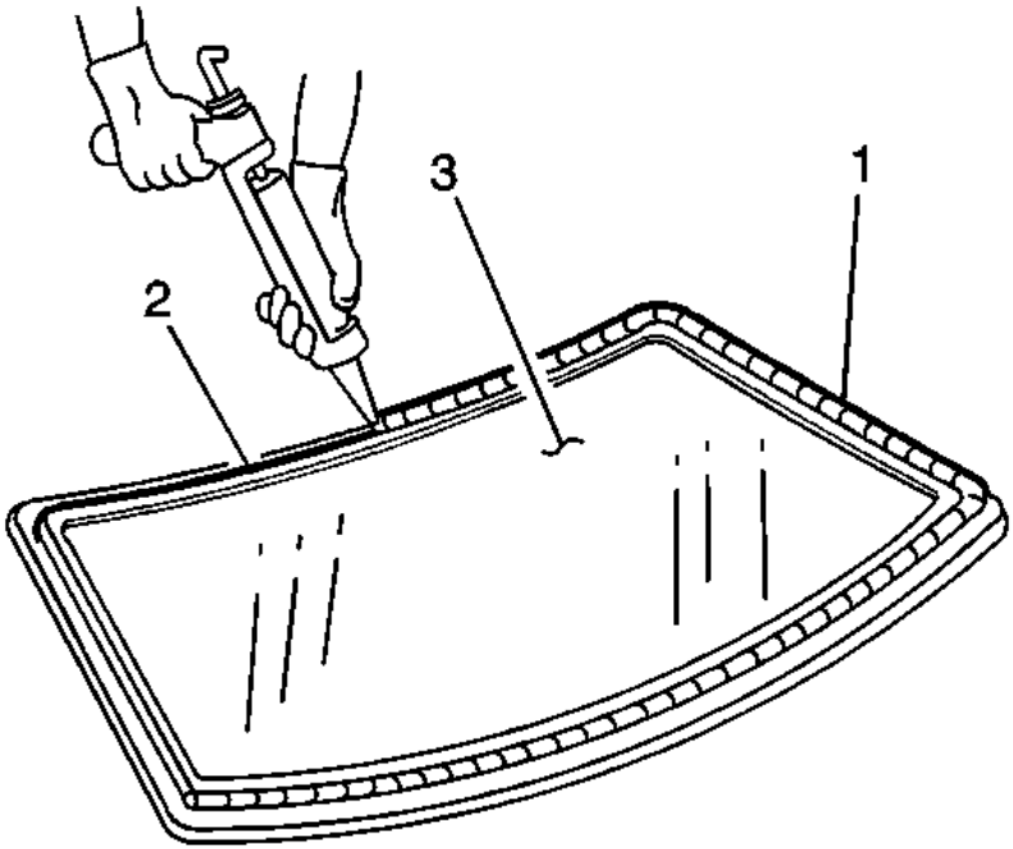


Fig. 67: Applying Urethane Adhesive To Inner Surface Of Window
Courtesy of GENERAL MOTORS COMPANY

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).

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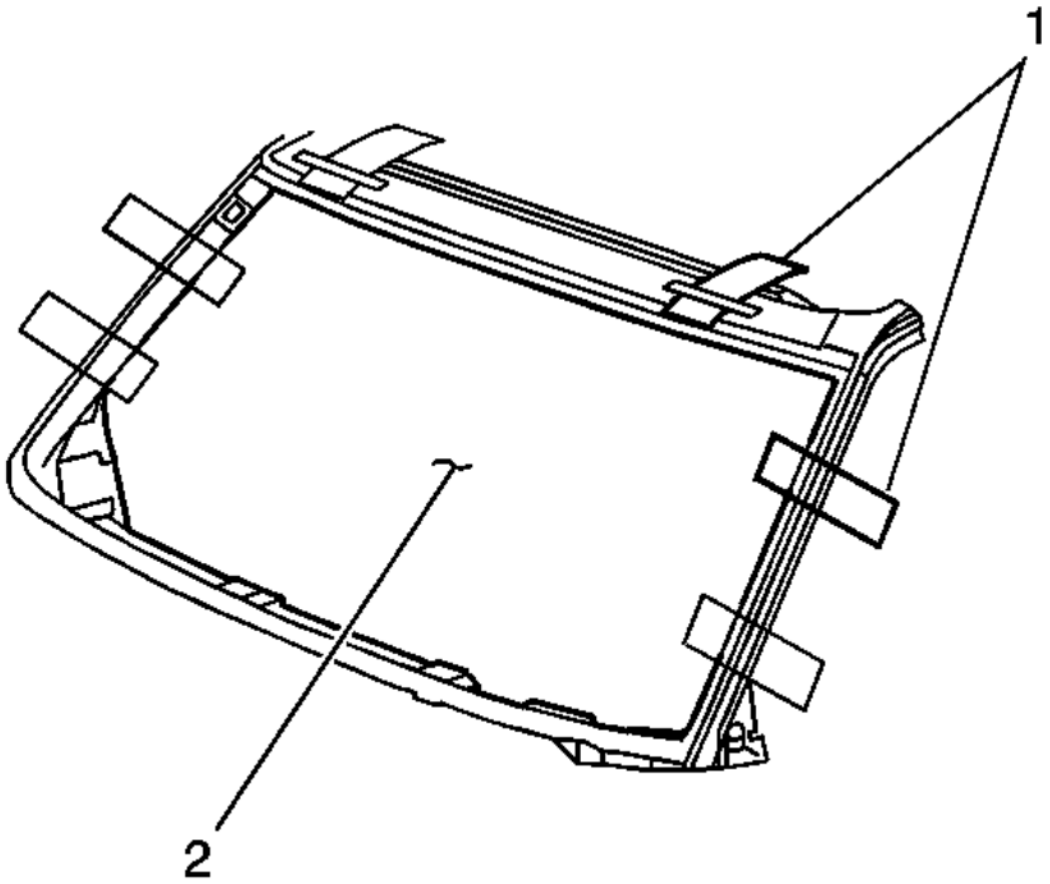


Fig. 68: Aligning Tape Lines On Window To Body
Courtesy of GENERAL MOTORS COMPANY

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

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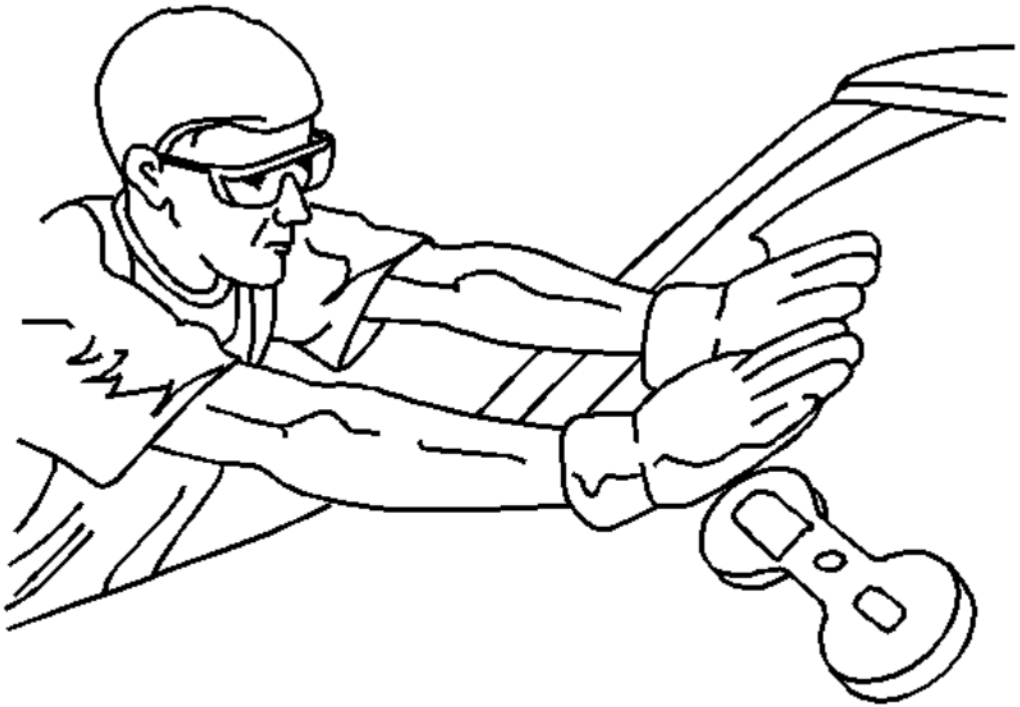


Fig. 69: Pressing Window Into Place
Courtesy of GENERAL MOTORS COMPANY

22. Press the window firmly into place.
23. Tape the window to the body in order to minimize movement until the urethane adhesive cures.

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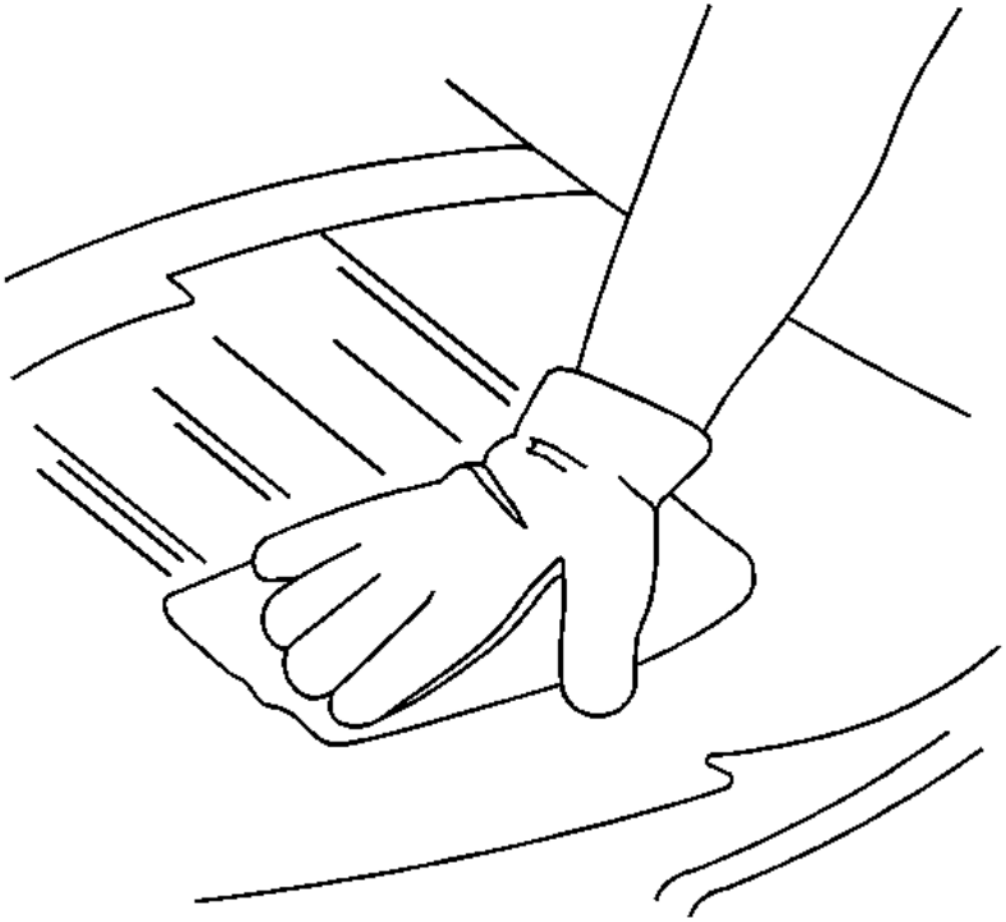


Fig. 70: Cleaning Excess Urethane Adhesive From Body
Courtesy of GENERAL MOTORS COMPANY

24. Clean any excess urethane adhesive from the body.

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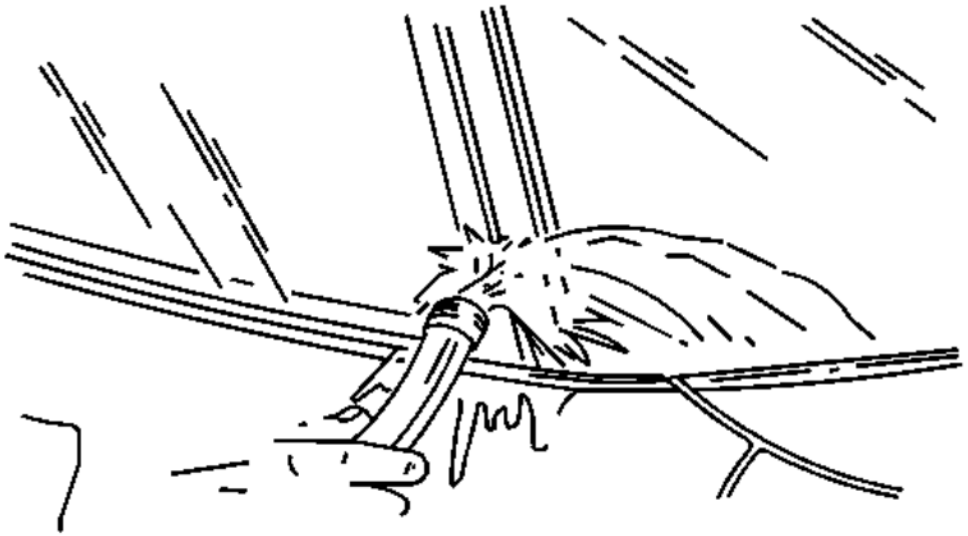


Fig. 71: Performing Water Hose Test
Courtesy of GENERAL MOTORS COMPANY

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

25. Use a soft spray of warm water in order to immediately water test the window.

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26. Inspect the window for leaks.
27. If any leaks are found, use a plastic paddle in order to apply extra urethane adhesive at the leak point.
28. 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 21Â°C (70Â°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.

29. 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.
30. Complete the window installation.

ADHESIVE INSTALLATION OF BODYSIDE STATIONARY WINDOWS

1. Use a urethane adhesive systems which meet GM Specification GM 3651G

WARNING: Refer to Glass and Sheet Metal Handling Warning .

2. Remove all mounds or loose pieces of urethane adhesive from the pinch-weld 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 pinch-weld flange and the window surface 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:
    - High weld
    - Solder spots on the pinchweld
    - Hardened sealer
    - Any other obstruction or irregularity in the pinch-weld flange

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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 DE15Â®, DuPont 2610Â®, Sherwin-Williams PSE 4600 and NP70Â® and Martin-Semour 5120 and 5130Â® 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.

WARNING: **Refer to Window Retention Warning .**

6. Verify all primers and urethane adhesive are within expiration dates.

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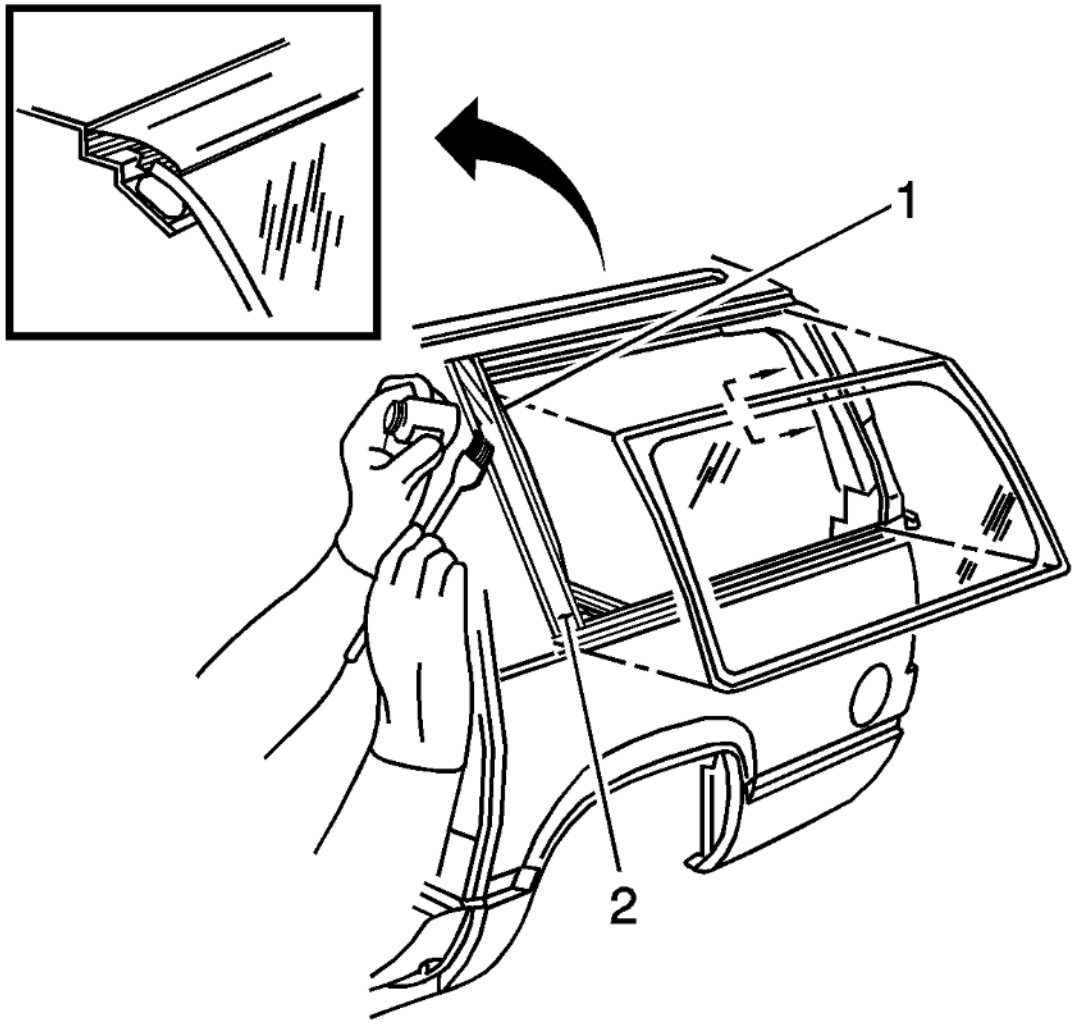


Fig. 72: Applying Urethane Adhesive
Courtesy of GENERAL MOTORS COMPANY

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 (1) of the urethane adhesive on the pinch-weld**

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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 (1).
9. Allow the pinch-weld primer to dry for approximately 10 minutes.

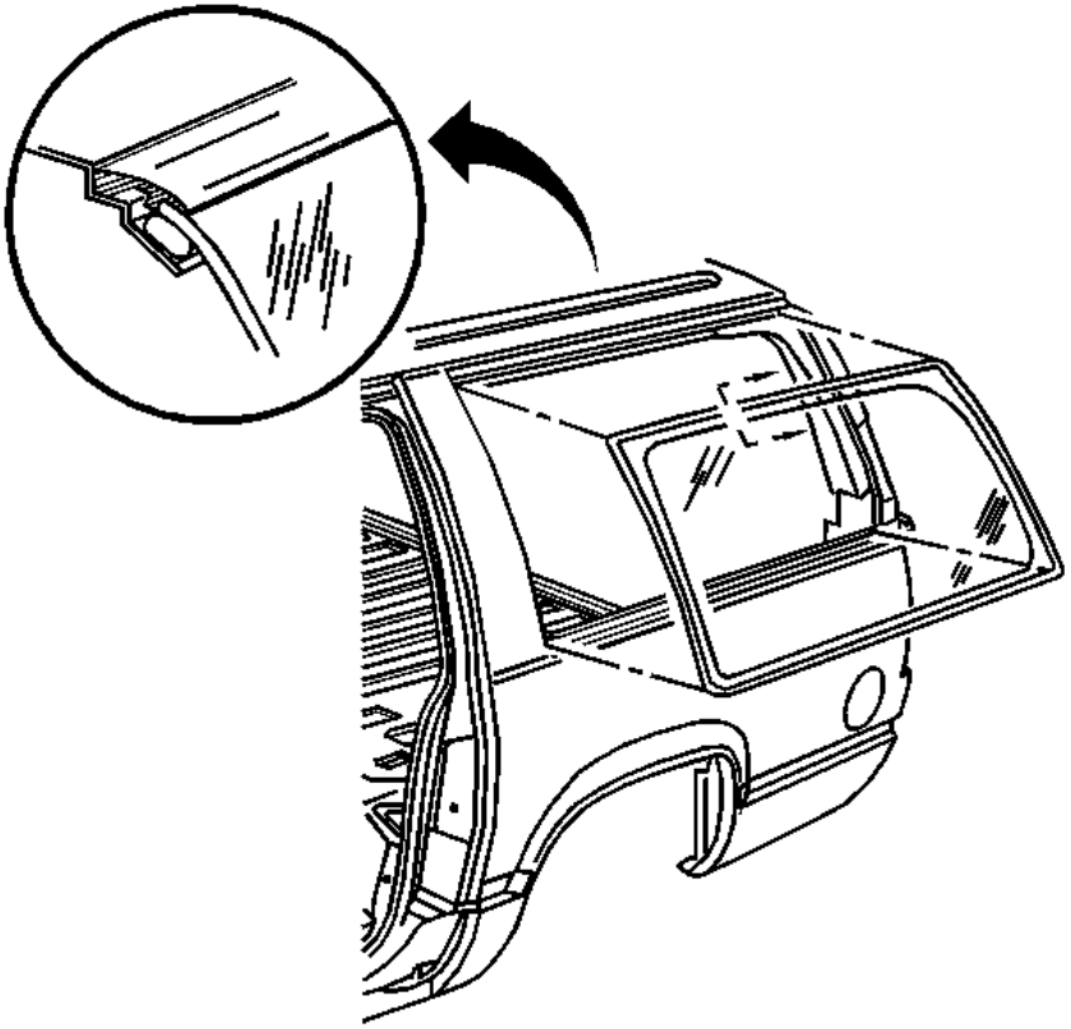


Fig. 73: View Of Quarter Window

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Courtesy of GENERAL MOTORS COMPANY

10. With the aid of an assistant, dry fit the window to the opening in order to determine the correct position.

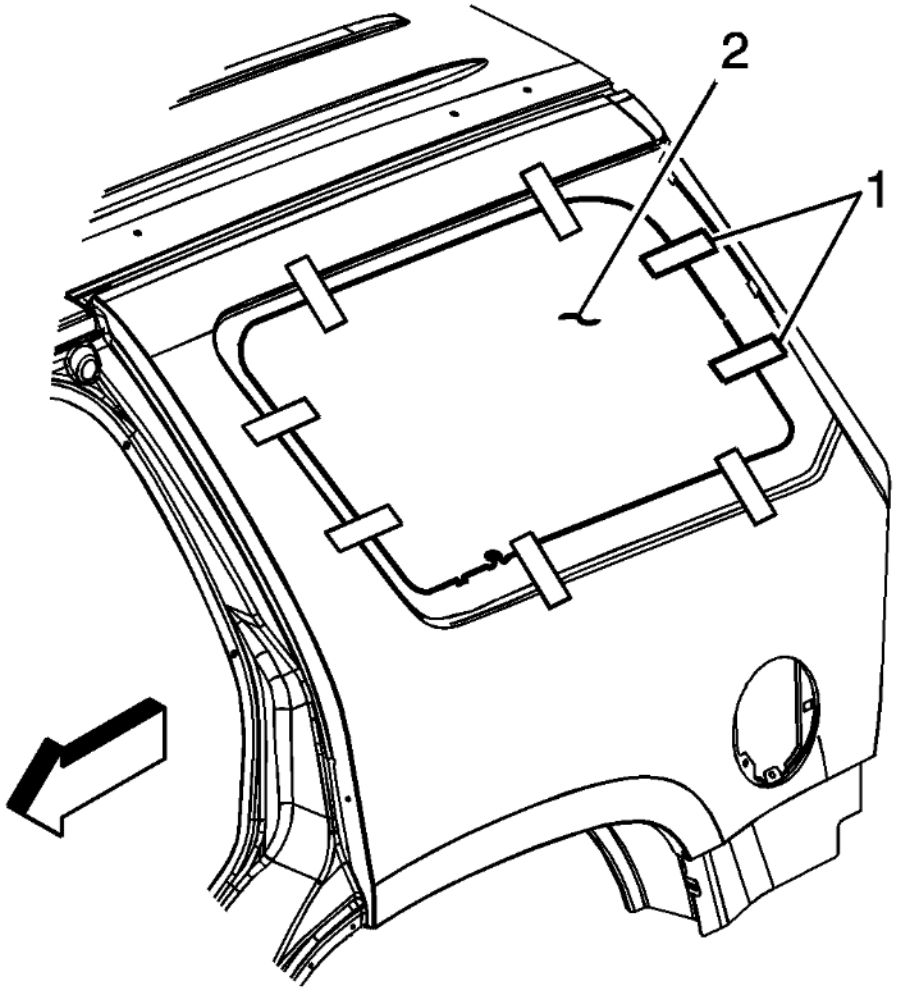


Fig. 74: View Of Marked Locations On Window
Courtesy of GENERAL MOTORS COMPANY

11. Use masking tape in order to mark the locations (1) of the window (2) in the opening.

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12. Cut the masking tape in the center and remove the window from the opening.

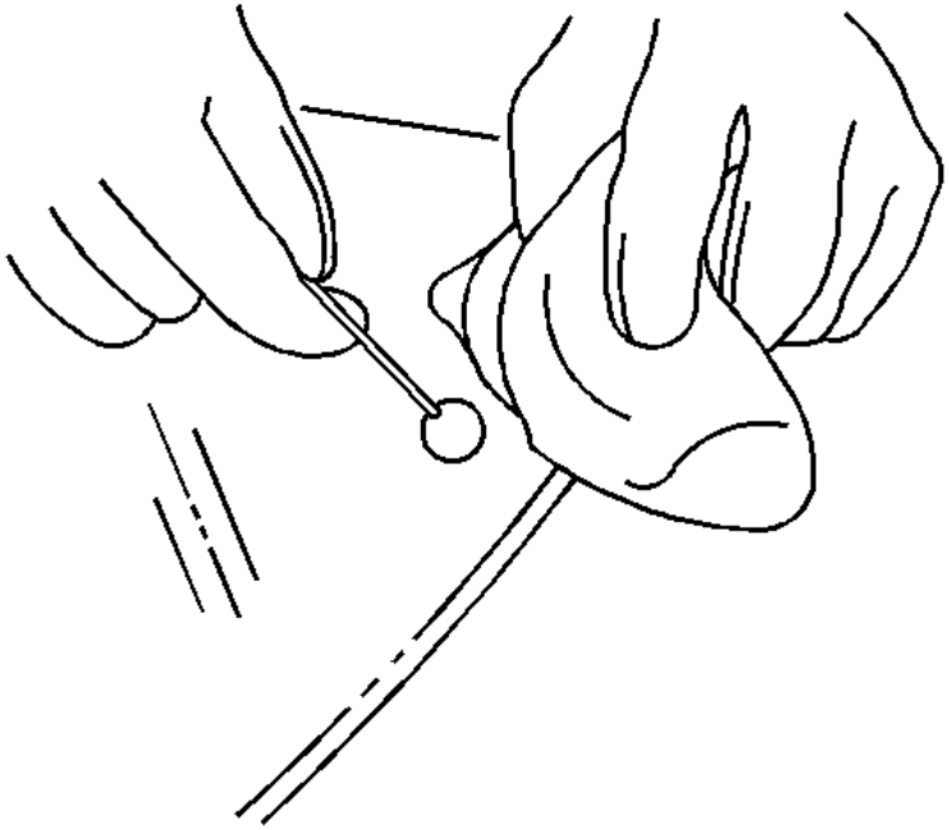


Fig. 75: Applying Glass Prep
Courtesy of GENERAL MOTORS COMPANY

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.**

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13. Use a new dauber in order to apply glass prep clear #1 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.

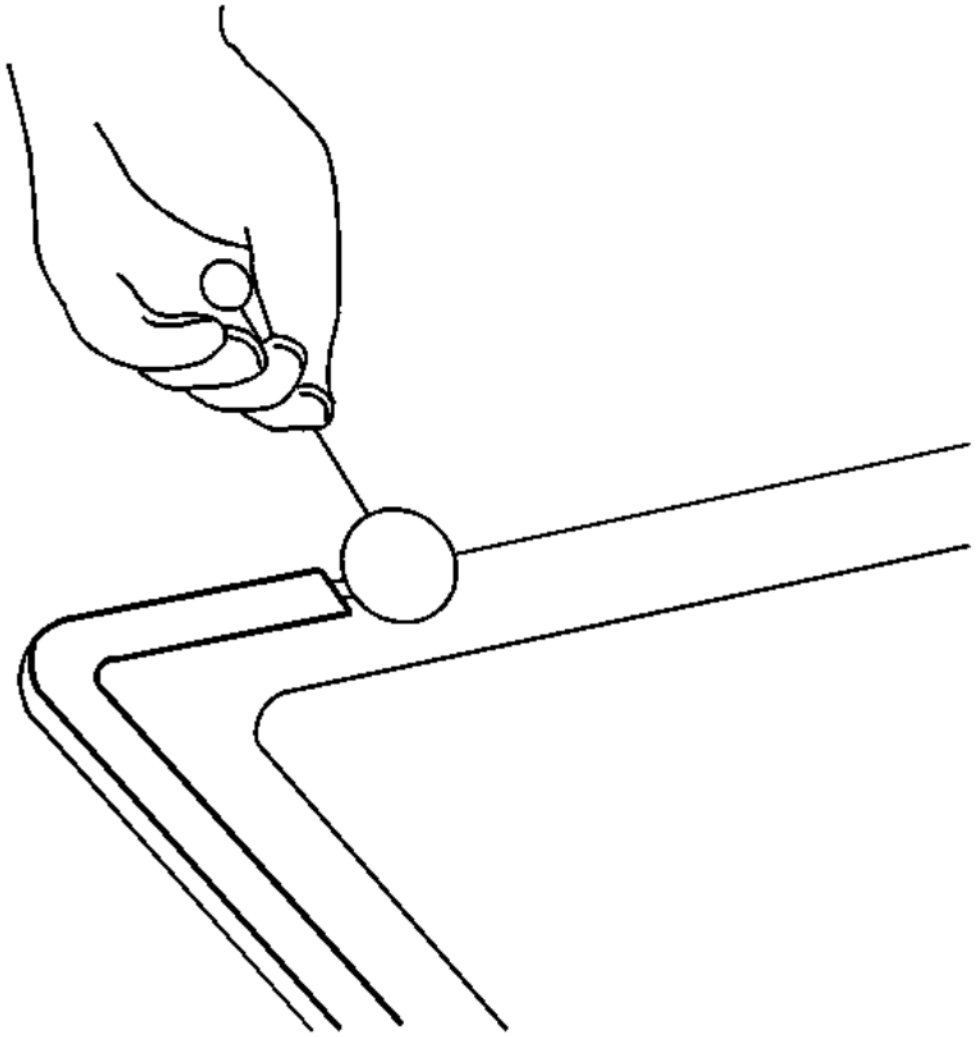


Fig. 76: Applying Glass Prep
Courtesy of GENERAL MOTORS COMPANY

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

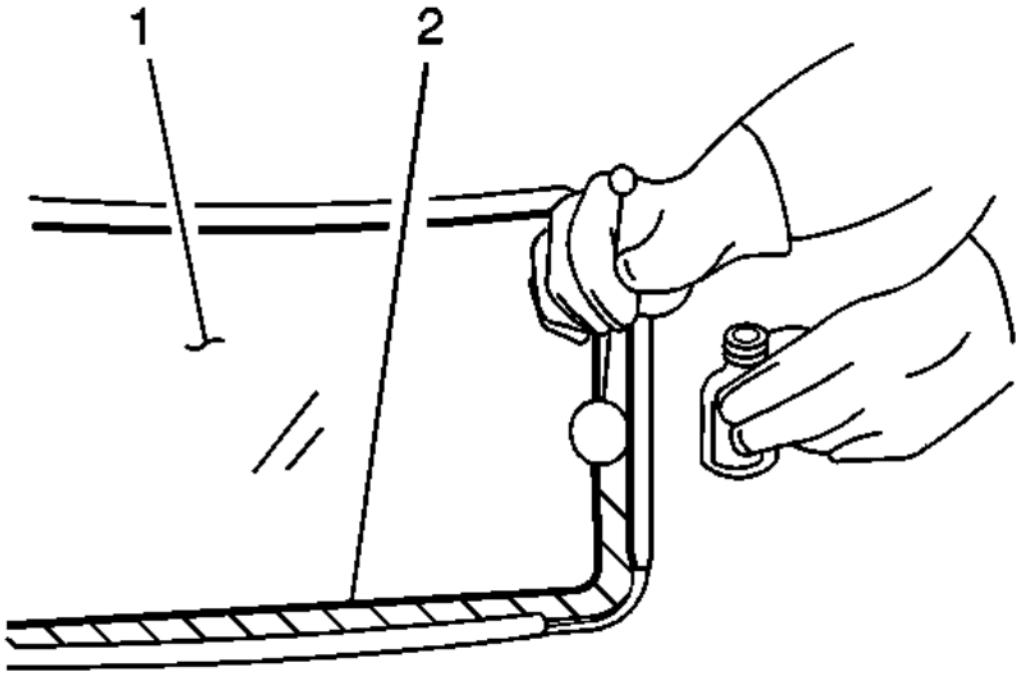


Fig. 77: Applying Glass Primer
Courtesy of GENERAL MOTORS COMPANY

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.**

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

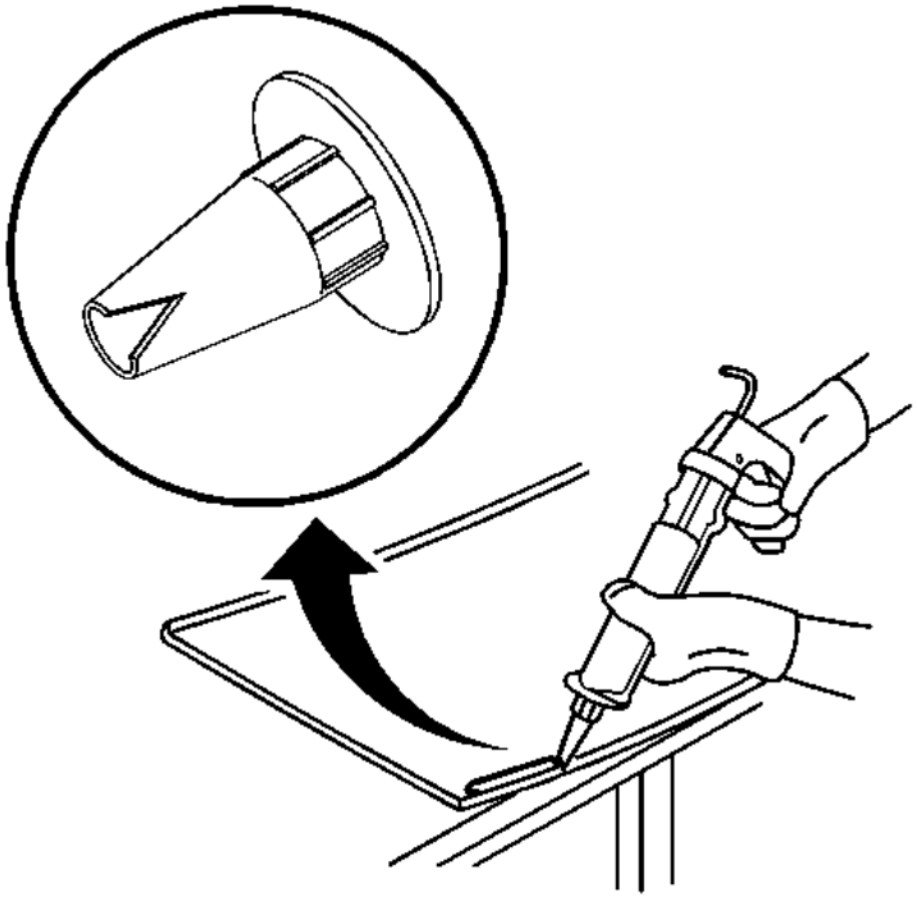


Fig. 78: View Of Modified Applicator Nozzle
Courtesy of GENERAL MOTORS COMPANY

18. Cut the applicator nozzle in order to provide a bead of 8 mm (0.316 in) wide and 12.7 mm (1/2 in) high.

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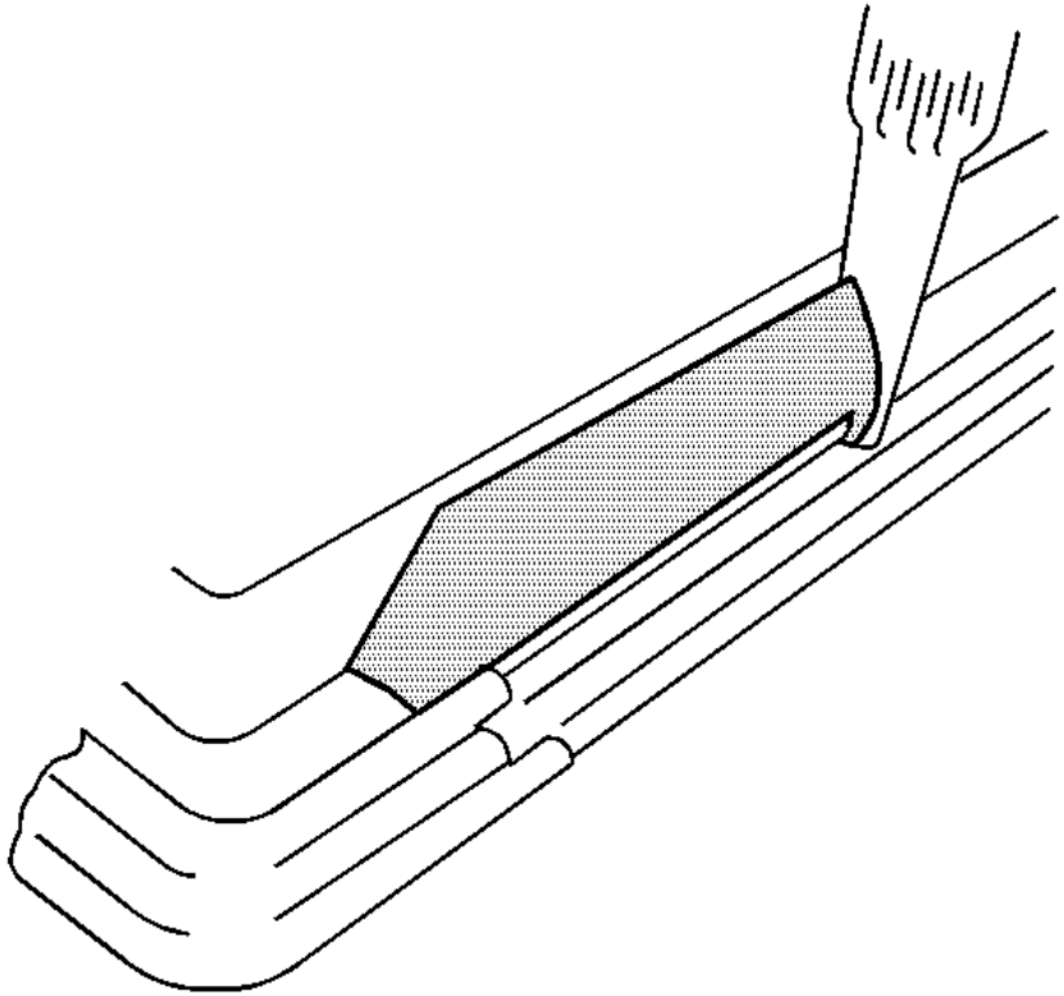


Fig. 79: Applying Continuous Bead Of Urethane Adhesive
Courtesy of GENERAL MOTORS COMPANY

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

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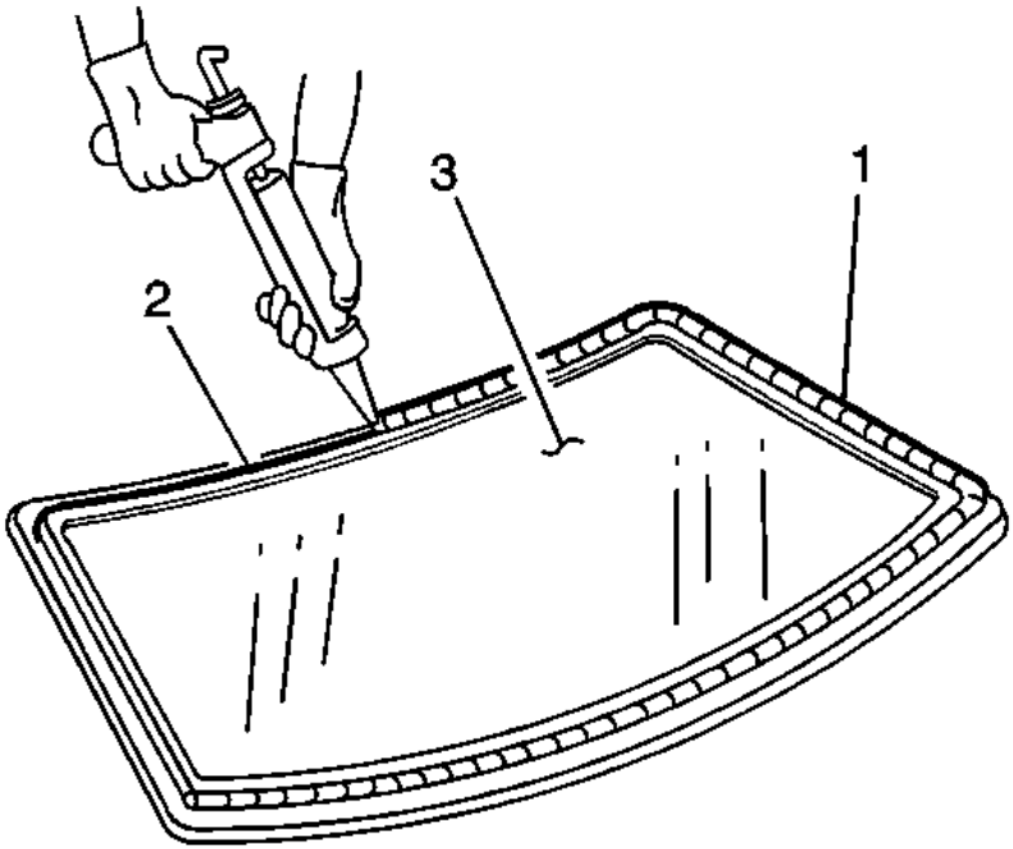


Fig. 80: Applying Urethane Adhesive To Inner Surface Of Window
Courtesy of GENERAL MOTORS COMPANY

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).

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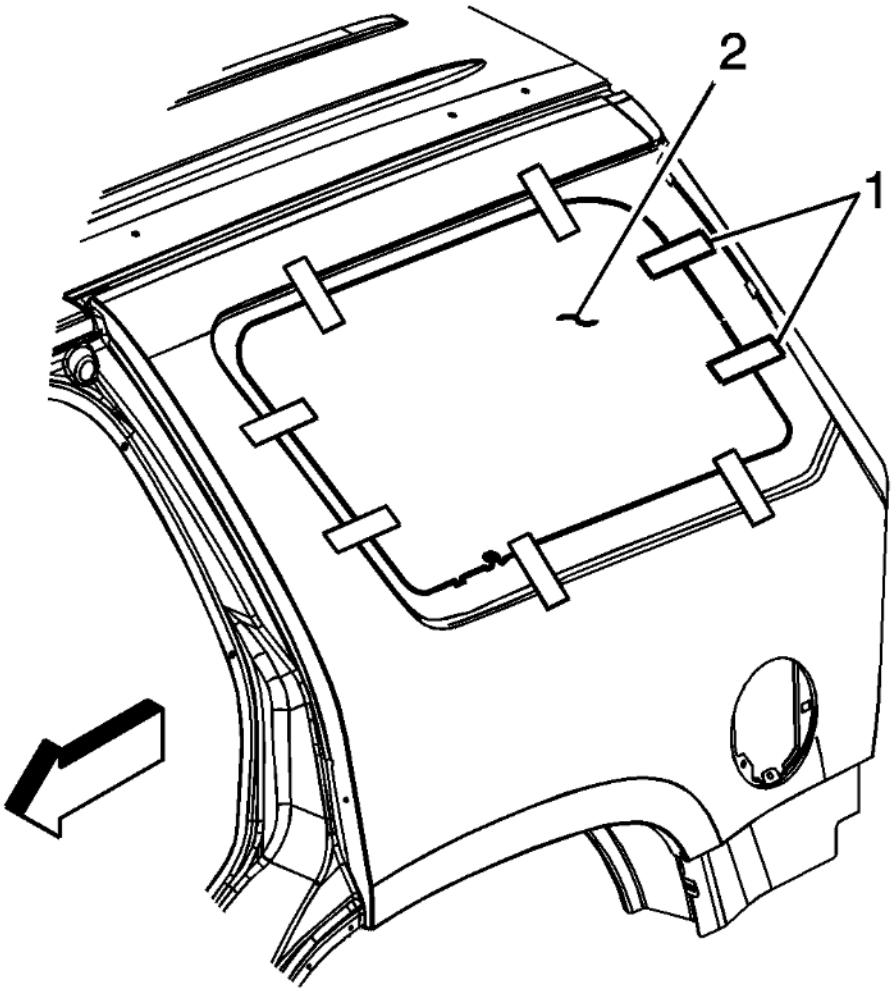


Fig. 81: View Of Marked Locations On Window
Courtesy of GENERAL MOTORS COMPANY

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

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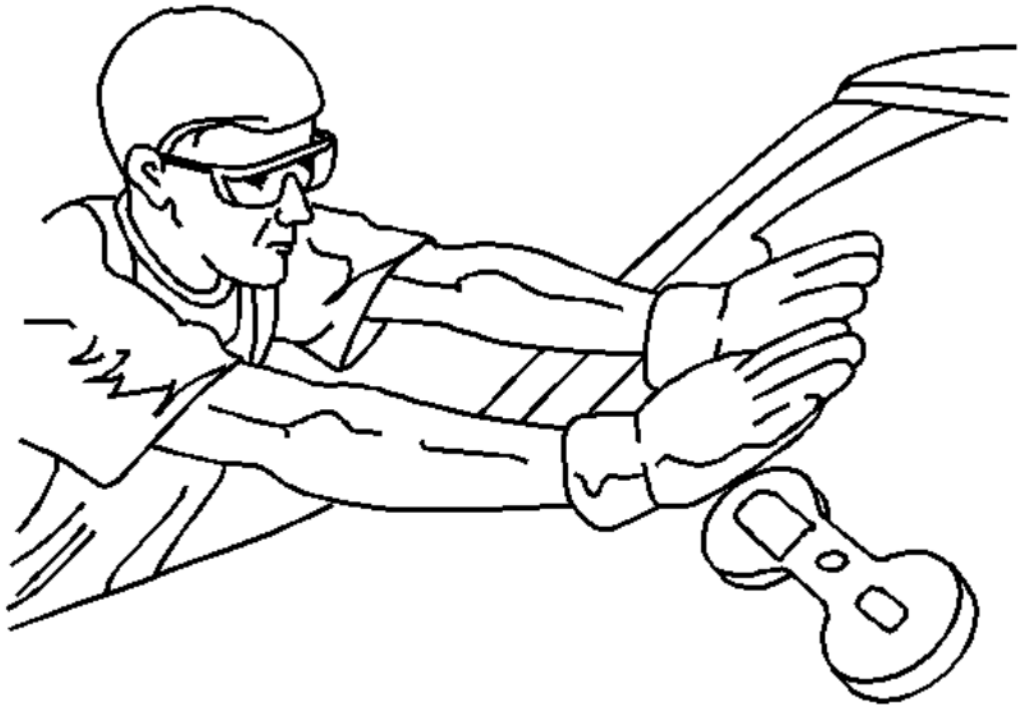


Fig. 82: Pressing Window Into Place
Courtesy of GENERAL MOTORS COMPANY

22. Press the window firmly into place.
23. Tape the window to the body in order to minimize movement until the urethane adhesive cures.

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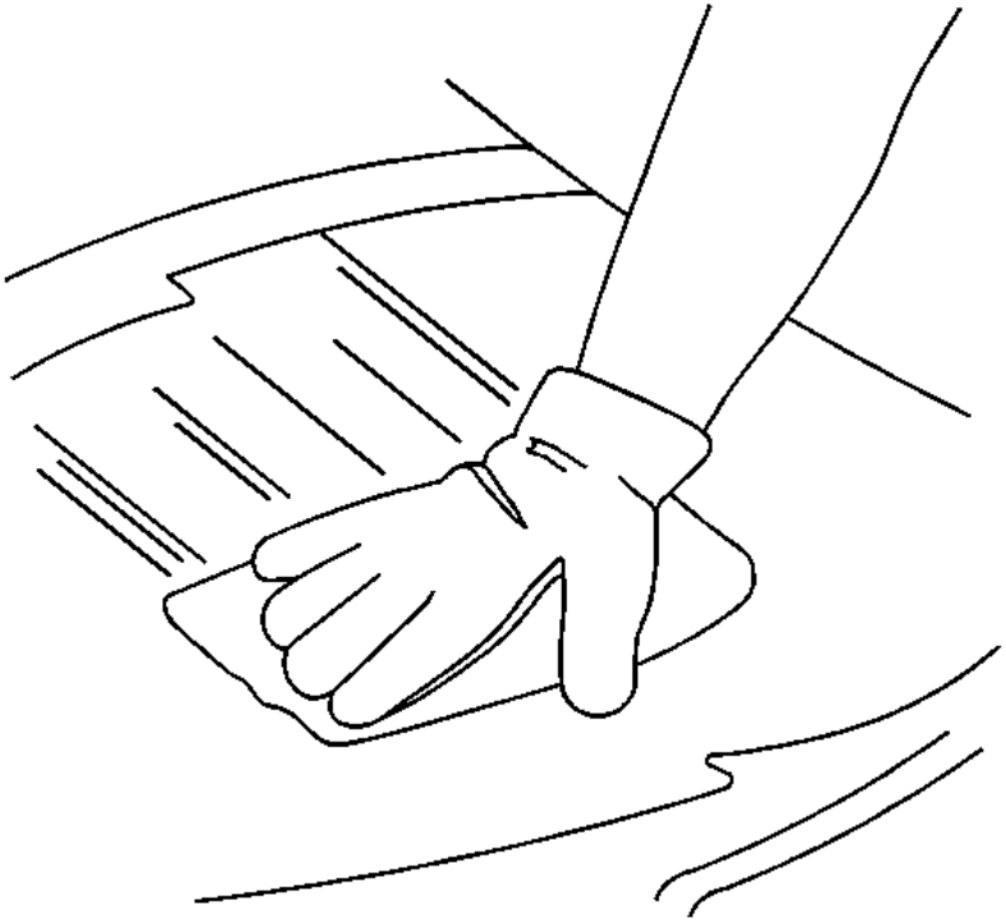


Fig. 83: Cleaning Excess Urethane Adhesive From Body
Courtesy of GENERAL MOTORS COMPANY

24. Clean any excess urethane adhesive from the body.

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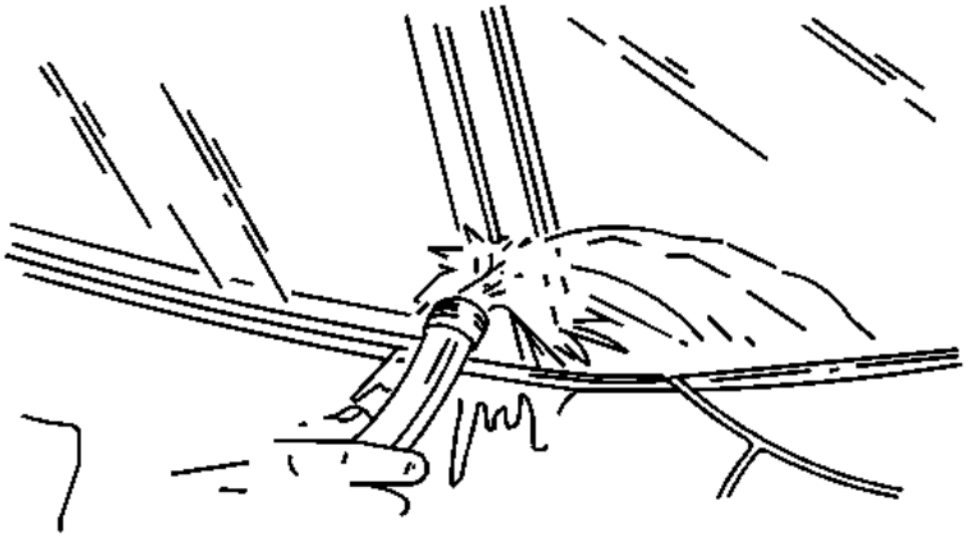


Fig. 84: Performing Water Hose Test
Courtesy of GENERAL MOTORS COMPANY

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

25. Use a soft spray of warm water in order to immediately water test the window.

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26. Inspect the window for leaks.
27. If any leaks are found, use a plastic paddle in order to apply extra urethane adhesive at the leak point.
28. 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 21Â°C (70Â°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.

29. 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.
30. Complete the window installation.

DESCRIPTION AND OPERATION

FULL-CUT METHOD DESCRIPTION

- 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.

IMPORTANT:

- Appropriate materials for these primer applications are typically 2 component catalyzed products. Use materials such as BASF DE15Â®, DuPont 2610Â®, Sherwin-Williams PSE 4600 and NP70Â® and Martin-Semour 5120, 5130Â®, 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.

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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
- 5A Fuse
- 30A Fuse
- Body control module (BCM)

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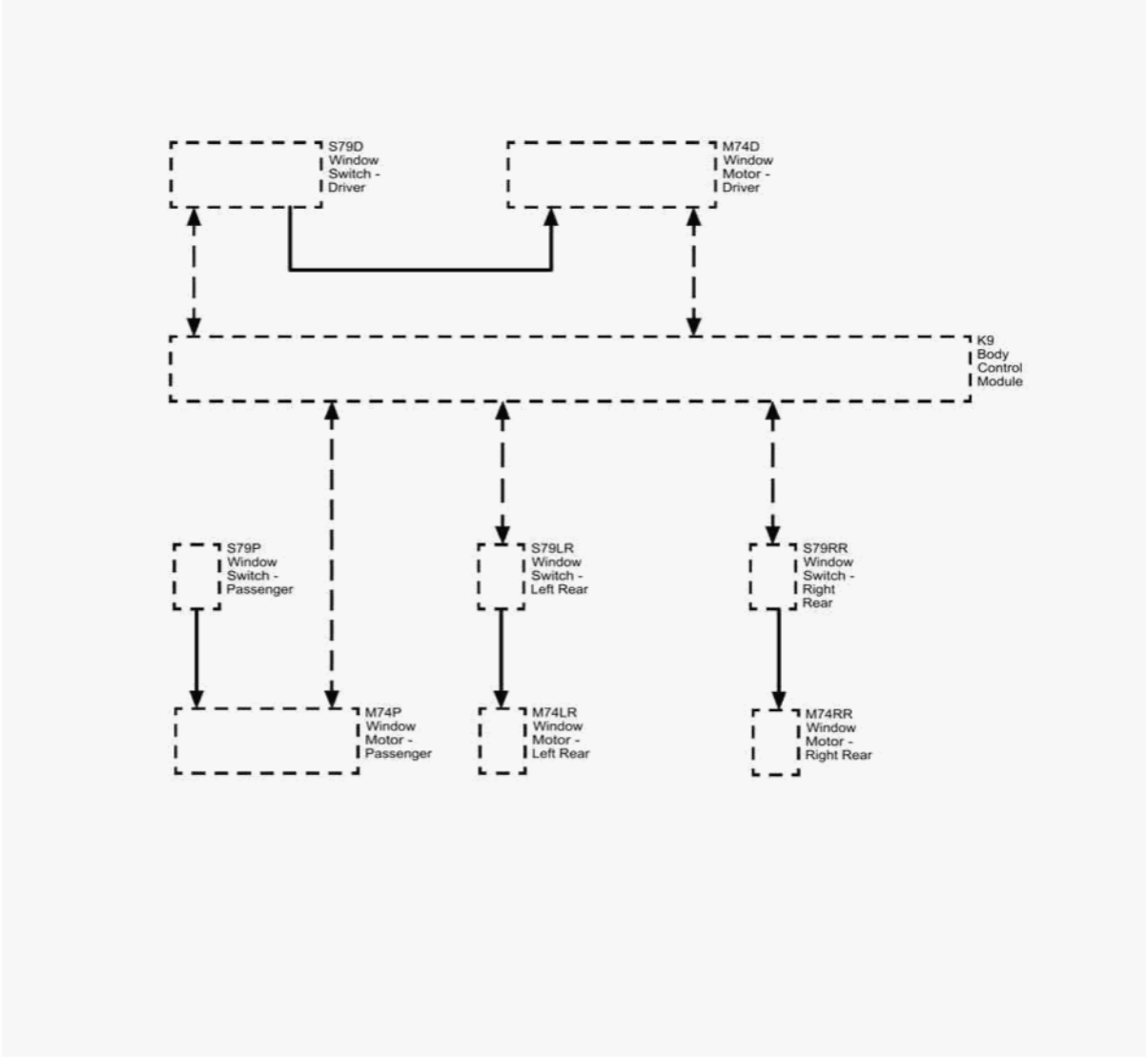


Fig. 85: Power Windows System Diagram
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
S79D	S79D Window Switch - Driver
M74D	M74D Window Motor - Driver
K9	K9 Body Control Module

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Callout	Component Name
S79RR	S79RR Window Switch - Right Rear
S79LR	S79LR Window Switch - Left Rear
S79P	S79P Window Switch - 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.

Left Rear, Right Rear Express Down Window Motors

For the 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 rear window switch communicates to the BCM by a serial data circuit. When the driver wishes to control the 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 rear door window switch which will then command that window to move in the direction requested.

Lockout Switch Feature

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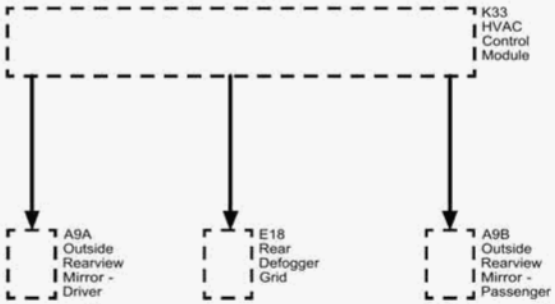
The driver power window switch contains a window lockout switch, when the driver presses the window lockout switch, a serial data message is sent to the BCM which will send a disable command to the rear window switches, deactivating them. The rear windows will still function normally from the switches 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
- Rear defogger relay
- Rear defogger grid
- 40A fuse



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Fig. 86: Rear Window Defogger Block Diagram
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
A9B	A9B Outside Rearview Mirror - Passenger
E18	E18 Rear Defogger Grid
A9A	A9A Outside Rearview Mirror - Driver
K33	K33 HVAC Control Module

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 equipped. A switch for the customer to control the system is provided within the HVAC control module, also included in the HVAC control module 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 on the HVAC control module causes the HVAC control module to 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 window switch is pressed and the engine is running, the rear defog control system will remain active for 10 minutes. After the initial cycle has lapsed, pressing the switch again will continue rear window defogger operation, but the cycle will only last 5 minutes.

STATIONARY WINDOW DESCRIPTION

Most stationary windows, specifically windshields, are retained to the body with urethane adhesive which adheres the window to the body, increasing structural integrity. The reinstallation of the windows with urethane adhesive requires complete replacement of the urethane adhesive bead, and is known as the full cut method.

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.

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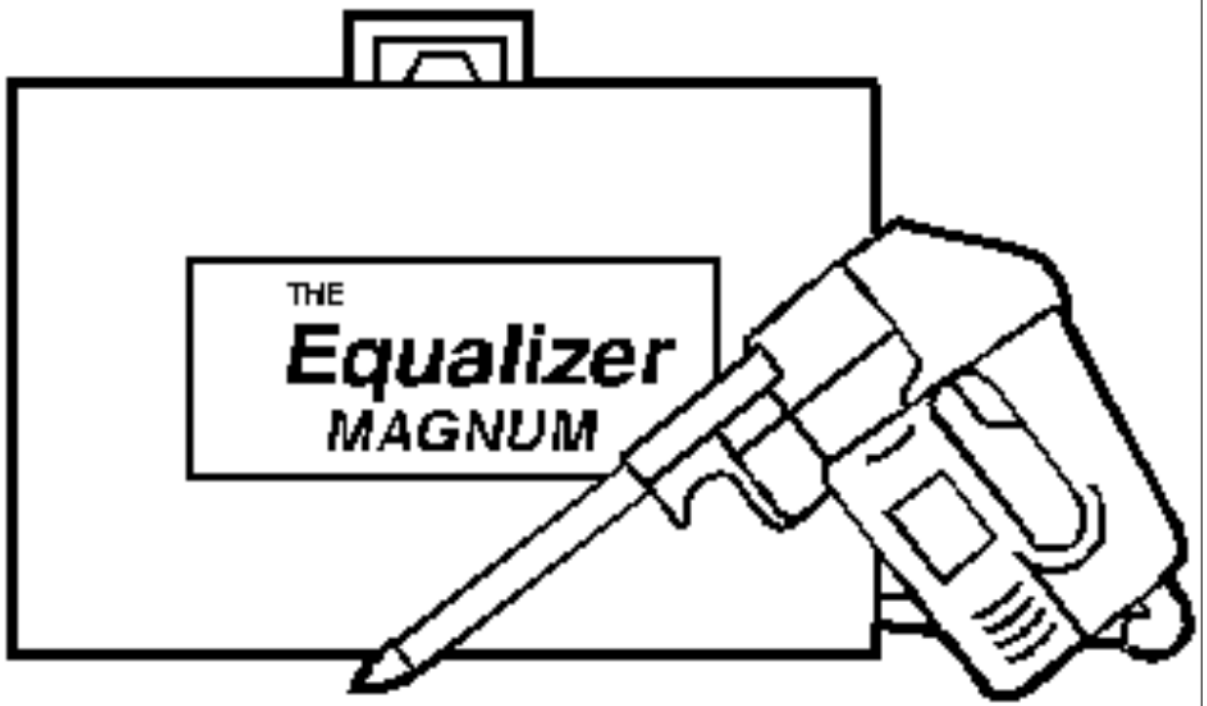
Always follow the system manufacturers instructions for application, handling, and curing.

SPECIAL TOOLS AND EQUIPMENT

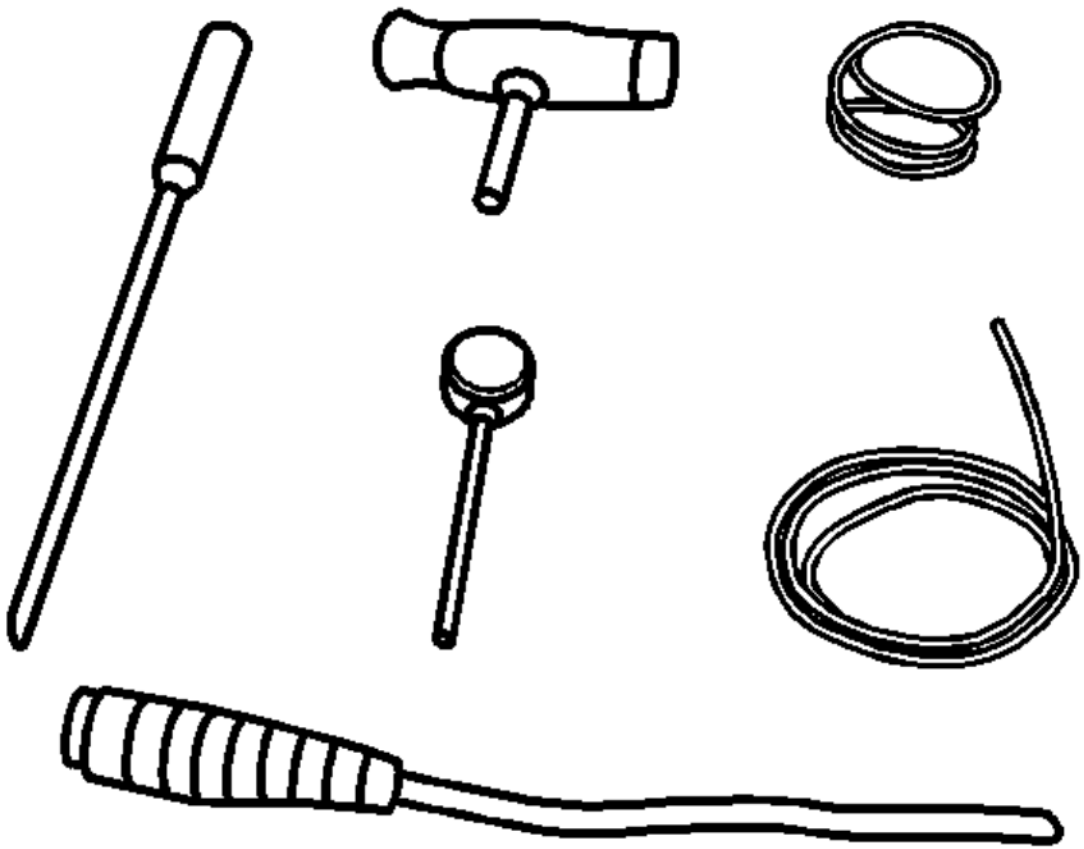
SPECIAL TOOLS

Illustration	Tool Number/ Description

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Illustration	Tool Number/ Description
	BO-39032 J-39032 Stationary Glass Removal Tool

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Illustration	Tool Number/ Description
	BO-0201964 S-0201964 Bonded-Glass Removing Device Brazil-Use local equivalent

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