

## 2017 ACCESSORIES & EQUIPMENT

### Fixed and Moveable Windows - Impala

## SPECIFICATIONS

### FASTENER SPECIFICATIONS

#### Reusable Threaded Fastener Tightening Specifications

##### NOTE:

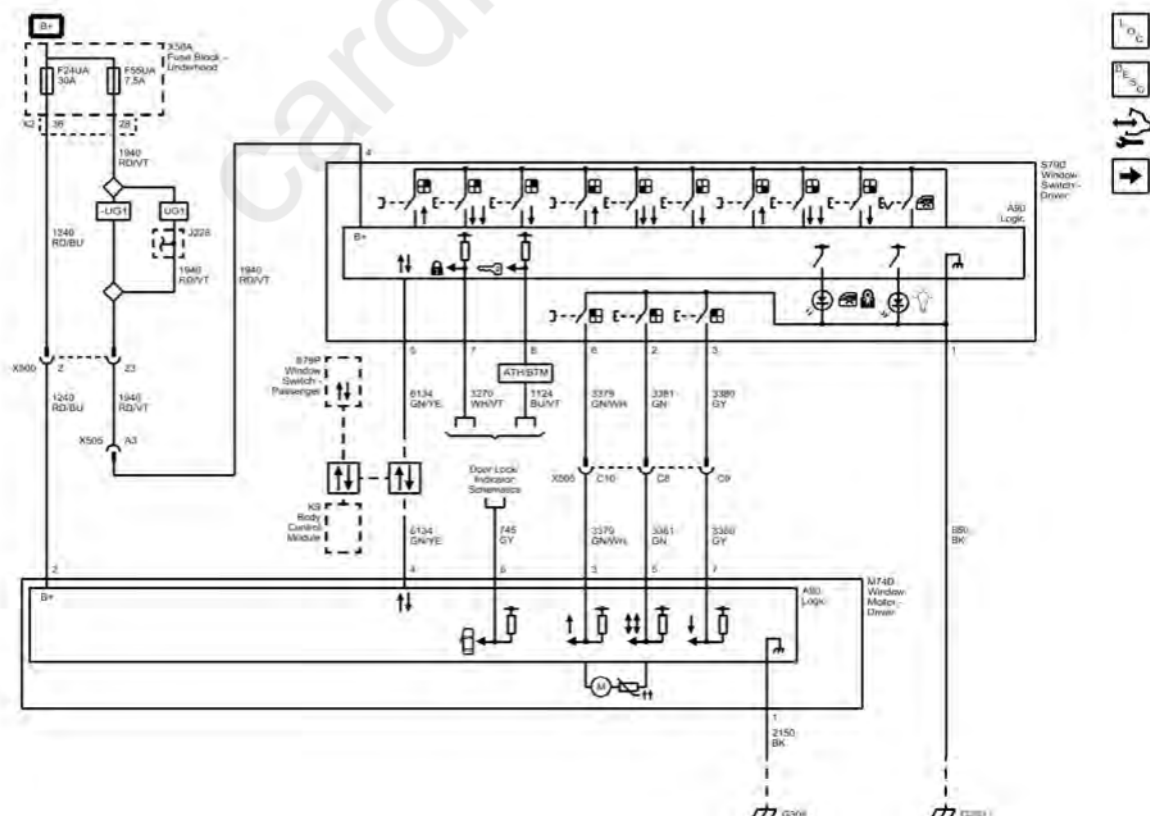
*All fasteners listed in this table can be reused after removal.*

| Application                                  | Specification     |
|----------------------------------------------|-------------------|
|                                              | Metric (English)  |
| Front Side Door Window Rear Channel Bolt     | 10 N.m (89 lb in) |
| Front Side Door Window Regulator Lower Bolt  | 10 N.m(89 lb in)  |
| Front Side Door Window Regulator Motor Screw | 5 N.m (44 lb in)  |
| Front Side Door Window Regulator Upper Bolt  | 10 N.m(89 lb in)  |
| Rear Side Door Window Rear Channel Bolt      | 10 N.m (89 lb in) |
| Rear Side Door Window Regulator Bolt         | 10 N.m (89 lb in) |
| Rear Side Door Window Regulator Motor Bolt   | 5 N.m (44 lb in)  |

## SCHEMATIC WIRING DIAGRAMS

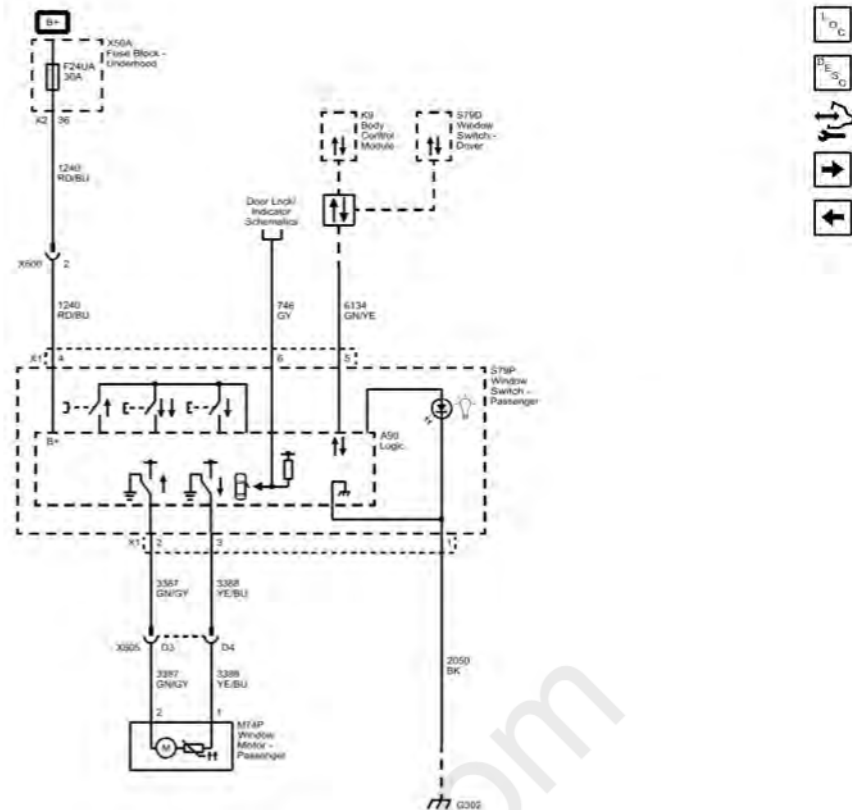
### MOVEABLE WINDOW WIRING SCHEMATICS

#### Driver Door



**Fig. 1: Driver Door**

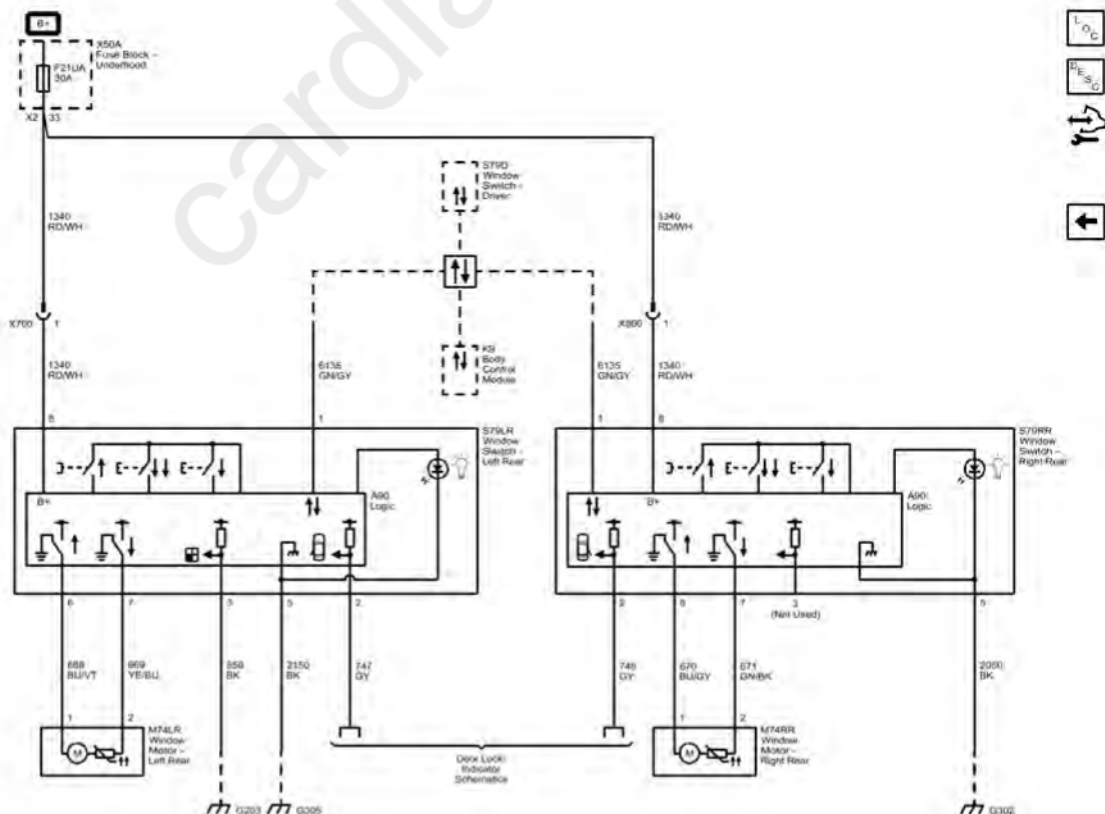
Courtesy of GENERAL MOTORS COMPANY



**Fig. 2: Passenger Door**

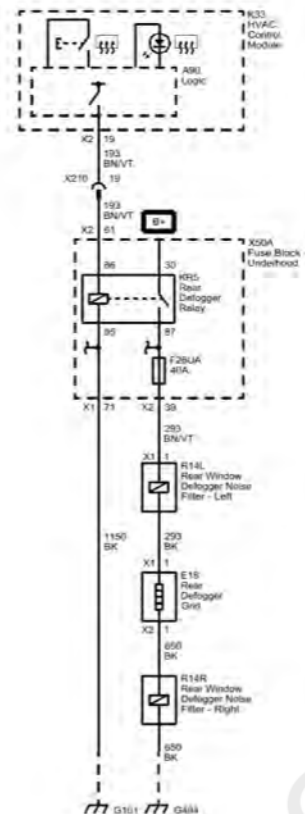
Courtesy of GENERAL MOTORS COMPANY

## Rear Doors



**Fig. 3: Rear Doors**

Courtesy of GENERAL MOTORS COMPANY



**Fig. 4: Rear Window Defogger**

Courtesy of GENERAL MOTORS COMPANY

## DIAGNOSTIC INFORMATION AND PROCEDURES

### DTC B0283: REAR DEFOGGER CIRCUIT

#### Diagnostic Instructions

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

#### DTC Descriptor

#### DTC B0283

Rear Defogger Circuit

- Symptom Byte: 02-Short to Ground
- Symptom Byte: 05-High Voltage/Open

#### Diagnostic Fault Information

| Circuit              | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|----------------------|-----------------|----------------------|------------------|--------------------|
| Control - Relay Coil | B0283 02        | B0283 05             | B0283 05         | -                  |
| Ground - Relay Coil  | -               | B0283 05             | -                | -                  |

#### Circuit/System Description

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

| <b>Circuit</b>                            | <b>Description</b>                                                |
|-------------------------------------------|-------------------------------------------------------------------|
| B+ - Relay Switch                         | Supplied from a fuse.                                             |
| E18 Rear Defogger GridControl - Component | The output circuit is switched to 12 V to activate the component. |
| Control - Relay Coil                      | The output circuit is switched to 12 V to activate the component. |
| E18 Rear Defogger GridGround - Component  | Chassis Ground                                                    |
| Ground - Relay Coil                       | Chassis Ground                                                    |

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

### Conditions for Running the DTC

If within 9- 16 V of the battery voltage

### Conditions for Setting the DTC

- B0283 02 Control Circuit=Short to Ground
- B0283 05 Control Circuit=OpenorShort to Battery

### Actions Taken When the DTC Sets

- B0283 02 E18 Rear Defogger Grid=Disabled
- B0283 05 E18 Rear Defogger Grid=DisabledorAlways On

### Conditions for Clearing the DTC

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

### Reference Information

Schematic Reference

### Defogger Schematics

Connector End View Reference

### COMPONENT CONNECTOR END VIEWS - INDEX

Component View Reference

### Front of Vehicle/Engine Compartment Component Views

Electrical Information Reference

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



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

Scan Tool Reference

## Control Module References

### Circuit/System Verification

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

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

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

Refer to: Circuit/System Testing

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

3. All OK.

### Circuit/System Testing

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

1. Ignition/Vehicle & All vehicle systems - Off
2. Remove the component:KR5 Rear Defogger Relay
3. Test for less than 10  $\Omega$  between the test points:Ground circuit terminal 85 & Ground
  - **If 10  $\Omega$  or greater**
    1. Ground Connection - Disconnect
    2. Test for less than 2  $\Omega$  between the test points:Ground circuit terminal 85 & Ground Connection
      - If 2  $\Omega$  or greater - Repair the open/high resistance in the circuit.
      - If less than 2  $\Omega$  - Repair the open/high resistance in the ground connection.
  - **If less than 10  $\Omega$**
4. Connect a test lamp between the test points:Control circuit terminal 86 & Ground circuit terminal 85
5. Ignition - On / Vehicle - In Service Mode
6. Perform the scan tool control function:Rear Defogger - On and Off

Verify the test lamp turns On and Off.

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

1. Ignition/Vehicle - Off & Remove - Test lamp
2. Disconnect the electrical connector:K33 HVAC Control Module
3. Test for infinite resistance between the test points:Control circuit terminal 86 @Relay Socket & Ground
  - If less than infinite resistance - Repair the short to ground on the circuit.
  - If infinite resistance
4. Test for less than 2  $\Omega$  between the test points:Control circuit terminal 86 @Relay Socket & Terminal 19 X2 @Control module harness
  - If 2  $\Omega$  or greater - Repair the open/high resistance in the circuit.
  - If less than 2  $\Omega$  - Replace the component:K33 HVAC Control Module
- **If the test lamp is always On**

1. Ignition/Vehicle - Off & Remove - Test lamp
2. Disconnect the electrical connector:K33 HVAC Control Module
3. Ignition - On / Vehicle - In Service Mode
4. Test for less than 1 V between the test points:Control circuit terminal 86 @Relay Socket & Ground
  - If 1 V or greater - Repair the short to voltage on the circuit.
  - If less than 1 V - Replace the component:K33 HVAC Control Module
- **If the test lamp turns On and Off**
7. Test or replace the component:KR5 Rear Defogger Relay

## Component Testing

### Relay Test

1. Ignition/Vehicle - Off
2. Remove the component:KR5 Rear Defogger Relay
3. Test for 70 to 110  $\Omega$  between the test points:Component terminal 85 & 86
  - **If not between 70 to 110  $\Omega$**   
Replace the component:KR5 Rear Defogger Relay
  - **If between 70 to 110  $\Omega$**
4. Test for infinite resistance between the test points:
  - Component terminal 30&85
  - Component terminal 30&86
  - Component terminal 30&87
  - Component terminal 85&87
  - **If less than infinite resistance**  
Replace the component:KR5 Rear Defogger Relay
  - **If infinite resistance**
5. Connect a 3 A fused jumper wire between the test points:Component terminal 86 & 12 V  
Connect a jumper wire between the test points:Component terminal 85 & Ground
6. Test for less than 2  $\Omega$  between the test points:Component terminal 30 & 87
  - **If 2  $\Omega$  or greater**  
Replace the component:KR5 Rear Defogger Relay
  - **If less than 2  $\Omega$**
7. All OK.

## Repair Instructions

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

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

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

### Diagnostic Instructions

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

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

## DTC Descriptor

### DTC B316B

Driver Window Switch

### DTC B317A

Passenger Window Switch

### DTC B318A

Left Rear Window Switch

### DTC B319A

Right Rear Window Switch

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

## Diagnostic Fault Information

| Circuit                                                                                                                                                                  | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------|------------------|--------------------|
| Power Window Switch Driver Down Signal                                                                                                                                   | B316B 02        | 1                    | 1                | B316B 39           |
| Power Window Switch Driver Up Signal                                                                                                                                     | B316B 02        | 2                    | 2                | B316B 39           |
| Power Window Switch Driver Express Signal                                                                                                                                | B316B 02        | 3                    | 3                | B316B 39           |
| 1. Driver Left Front Window Switch - Down=Inoperative<br>2. Driver Left Front Window Switch - Up=Inoperative<br>3. Driver Left Front Window Switch - Express=Inoperative |                 |                      |                  |                    |

## Circuit/System Description

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

| Circuit                                   | Description                                                                   |
|-------------------------------------------|-------------------------------------------------------------------------------|
| B+ - S79D Window Switch - Driver          | Supplied from a fuse.                                                         |
| B+ - M74D Window Motor - Driver           | Supplied from a fuse.                                                         |
| B+ - S79P Window Switch - Passenger       | Supplied from a fuse.                                                         |
| B+ - S79LR Window Switch - Left Rear      | Supplied from a fuse.                                                         |
| B+ - S79RR Window Switch - Right Rear     | Supplied from a fuse.                                                         |
| Power Window Switch Driver Up Signal      | The output circuit is switched to ground to activate the component.           |
| Power Window Switch Driver Down Signal    | The output circuit is switched to ground to activate the component.           |
| Power Window Switch Driver Express Signal | The output circuit is switched to ground to activate the component.           |
| Power Window Motor Passenger Up Control   | The output circuit is switched from ground to 12 V to activate the component. |
| Power Window Motor Passenger Down Control | The output circuit is switched from ground to 12 V to activate the component. |

| Circuit                                    | Description                                                                   |
|--------------------------------------------|-------------------------------------------------------------------------------|
| Power Window Motor Left Rear Up Control    | The output circuit is switched from ground to 12 V to activate the component. |
| Power Window Motor Left Rear Down Control  | The output circuit is switched from ground to 12 V to activate the component. |
| Power Window Motor Right Rear Up Control   | The output circuit is switched from ground to 12 V to activate the component. |
| Power Window Motor Right Rear Down Control | The output circuit is switched from ground to 12 V to activate the component. |
| Ground                                     | Chassis Ground                                                                |

| Component                        | Description                                                                                                                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| S79D Window Switch - Driver      | The S79D sends a serial data message to the K9 indicating the M74 function that has been requested.                                                                                          |
| M74D Window Motor - Driver       | <ul style="list-style-type: none"> <li>Power Window Control</li> <li>The control module also reads various switches and sensors and makes their values available via serial data.</li> </ul> |
| S79P Window Switch - Passenger   | The switch has a normally open contact.                                                                                                                                                      |
| M74P Window Motor - Passenger    | An electric DC motor.                                                                                                                                                                        |
| S79LR Window Switch - Left Rear  | The switch has a normally open contact.                                                                                                                                                      |
| M74LR Window Motor - Left Rear   | An electric DC motor.                                                                                                                                                                        |
| S79RR Window Switch - Right Rear | The switch has a normally open contact.                                                                                                                                                      |
| M74RR Window Motor - Right Rear  | An electric DC motor.                                                                                                                                                                        |
| K9 Body Control Module           | The module controls various vehicle functions like lighting, central door locking, power windows, etc.                                                                                       |

### Conditions for Running the DTC

Ignition - On / Vehicle - In Service Mode

### Conditions for Setting the DTC

#### B316B 00

- S79D Window Switch - Driver - Right Front Window Switch=Switch Stuck - For greater than 60 s
- S79D Window Switch - Driver - Left Rear Window Switch=Switch Stuck - For greater than 60 s
- S79D Window Switch - Driver - Right Rear Window Switch=Switch Stuck - For greater than 60 s

#### B316B 02

- Power Window Switch Driver Express Signal=Short to Ground - For greater than 60 s
- Power Window Switch Driver Down Signal=Short to Ground - For greater than 60 s
- Power Window Switch Driver Up Signal=Short to Ground - For greater than 60 s

#### B316B 39

S79D Window Switch - Driver=Signal Erratic

#### B317A 02

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

#### B318A 02

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

#### B319A 02

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

### Actions Taken When the DTC Sets

Window Switch - Malfunction

### Conditions for Clearing the DTC

#### **B316B 00, B316B 02, B317A 02, B318A 02, B319A 02**

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

#### **B316B 39**

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

### Reference Information

Schematic Reference

### Moveable Window Schematics

Connector End View Reference

### COMPONENT CONNECTOR END VIEWS - INDEX

Component View Reference

### Door Component Views

Electrical Information Reference

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

Scan Tool Reference

### Control Module References

### Circuit/System Verification

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

Verify the scan tool parameter:

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

Refer to: Circuit/System Testing

- **If the specified state**

3. S79D Window Switch - Driver - No Button Pressed

Verify the scan tool parameter:

- Left Rear Window Main Control Down Switch=Inactive



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

Test or replace the component:S79D Window Switch - Driver

- **If the specified state**

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

Verify the scan tool parameter:

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

Refer to: Circuit/System Testing

- **If the specified state**

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

Verify the scan tool parameter:

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

Test or replace the component:S79D Window Switch - Driver

- **If the specified state**

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

Verify the scan tool parameter:

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

Test or replace the component:S79D Window Switch - Driver

- **If the specified state**

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

Verify the scan tool parameter:

- Front Passenger Window Main Control Down Switch=Active

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

Test or replace the component:S79D Window Switch - Driver

- **If the specified state**

#### 8. S79P Window Switch - Passenger - Not Pressed

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

- **If not the specified state**

Test or replace the component:S79P Window Switch - Passenger

- **If the specified state**

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

Verify the scan tool parameter:

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

Test or replace the component:S79P Window Switch - Passenger

- **If the specified state**

#### 10. S79LR Window Switch - Left Rear - Not Pressed

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

- **If not the specified state**

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

- **If the specified state**

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

Verify the scan tool parameter:

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

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

- **If the specified state**

#### 12. S79RR Window Switch - Right Rear - Not Pressed

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

- **If not the specified state**

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

- **If the specified state**

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

Verify the scan tool parameter:

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

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

- **If the specified state**

14. All OK.

### Circuit/System Testing

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

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the electrical connector:S79D Window Switch - Driver
3. Test for less than 10 ohms between the test points:Ground circuit terminal 1 & Ground
  - **If 10  $\Omega$  or greater**
    1. Ground Connection - Disconnect
    2. Test for less than 2  $\Omega$  between the test points:Ground circuit terminal 1 @Component harness & Ground Connection
      - If 2  $\Omega$  or greater - Repair the open/high resistance in the circuit.
      - If less than 2  $\Omega$  - Repair the open/high resistance in the ground connection.
  - **If less than 10  $\Omega$**
4. Ignition - On / Vehicle - In Service Mode
5. Verify a test lamp turns On between the test points: B+ circuit terminal 4 & Ground
  - **If the test lamp does not turn On and the circuit fuse is OK**
    1. Ignition/Vehicle - Off & Remove - Test lamp
      - If 2  $\Omega$  or greater - Repair the open/high resistance in the circuit.
      - If less than 2  $\Omega$  - Verify the fuse is OK and there is voltage at the fuse.
  - **If the test lamp does not turn On and the circuit fuse is open**
    1. Ignition/Vehicle - Off & Remove - Test lamp
    2. Test for infinite resistance between the test points:B+ circuit terminal 4 & Ground
      - If less than infinite resistance - Repair the short to ground on the circuit.
      - If infinite resistance - Replace the component:S79D Window Switch - Driver
  - **If the test lamp turns On**
6. Verify the scan tool parameter:Driver Window Main Control Down Switch=Inactive
  - **If not the specified state**
    1. Ignition/Vehicle - Off
    2. Disconnect the electrical connector:M74D Window Motor - Driver
    3. Test for infinite resistance between the test points:Signal circuit terminal 4 @Component harness & Ground
      - If less than infinite resistance - Repair the short to ground on the circuit.
      - If infinite resistance - Replace the component:M74D Window Motor - Driver
  - **If the specified state**
7. Momentarily connect a 3 A fused jumper wire between the test points:Signal circuit terminal 3 & Ground circuit terminal 1

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

- **If not the specified state**

1. Ignition/Vehicle - Off & Remove - Jumper wire(s)
2. Disconnect the electrical connector:M74D Window Motor - Driver
3. Ignition - On / Vehicle - In Service Mode
4. Test for less than 1 V between the test points:Signal circuit terminal 3 @Component harness & Ground
  - If 1 V or greater - Repair the short to voltage on the circuit.
  - If less than 1 V
5. Ignition/Vehicle - Off
6. Test for less than 2  $\Omega$  between the test points:Signal circuit terminal 3 @Component harness & Signal circuit terminal 7 @M74D Window Motor - Driver
  - If 2  $\Omega$  or greater - Repair the open/high resistance in the circuit.
  - If less than 2  $\Omega$  - Replace the component:M74D Window Motor - Driver
- **If the specified state**
8. Verify the scan tool parameter:Driver Window Main Control Up Switch=Inactive
  - **If not the specified state**
    1. Ignition/Vehicle - Off
    2. Disconnect the electrical connector:M74D Window Motor - Driver
    3. Test for infinite resistance between the test points:Signal circuit terminal 6 @Component harness & Ground
      - If less than infinite resistance - Repair the short to ground on the circuit.
      - If infinite resistance - Replace the component:M74D Window Motor - Driver
  - **If the specified state**
9. Momentarily connect a 3 A fused jumper wire between the test points:Signal circuit terminal 3 & Ground circuit terminal 1

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

- **If not the specified state**
    1. Ignition/Vehicle - Off & Remove - Jumper wire(s)
    2. Disconnect the electrical connector:M74D Window Motor - Driver
    3. Ignition - On / Vehicle - In Service Mode
    4. Test for less than 1 V between the test points:Signal circuit terminal 3 @Component harness & Ground
      - If 1 V or greater - Repair the short to voltage on the circuit.
      - If less than 1 V
    5. Ignition/Vehicle - Off
    6. Test for less than 2  $\Omega$  between the test points:Signal circuit terminal 3 @Component harness & Signal circuit terminal 3 @M74D Window Motor - Driver
      - If 2  $\Omega$  or greater - Repair the open/high resistance in the circuit.
      - If less than 2  $\Omega$  - Replace the component:M74D Window Motor - Driver
  - **If the specified state**
10. Verify the scan tool parameter:Driver Window Main Control Express Switch=Inactive
    - **If not the specified state**
      1. Ignition/Vehicle - Off
      2. Disconnect the electrical connector:M74D Window Motor - Driver
      3. Test for infinite resistance between the test points:Signal circuit terminal 6 @Component harness & Ground
        - If less than infinite resistance - Repair the short to ground on the circuit.
        - If infinite resistance - Replace the component:M74D Window Motor - Driver
    - **If the specified state**

11. Momentarily connect a 3 A fused jumper wire between the test points:Signal circuit terminal 6 & Ground circuit terminal 1

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

- **If not the specified state**

1. Ignition/Vehicle - Off & Remove - Jumper wire(s)
2. Disconnect the electrical connector:M74D Window Motor - Driver
3. Ignition - On / Vehicle - In Service Mode
4. Test for less than 1 V between the test points:Signal circuit terminal 6 @Component harness & Ground
  - If 1 V or greater - Repair the short to voltage on the circuit.
  - If less than 1 V
5. Ignition/Vehicle - Off
6. Test for less than 2  $\Omega$  between the test points:Signal circuit terminal 6 @Component harness & Signal circuit terminal 3 @M74D Window Motor - Driver
  - If 2  $\Omega$  or greater - Repair the open/high resistance in the circuit.
  - If less than 2  $\Omega$  - Replace the component:M74D Window Motor - Driver

- **If the specified state**

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

### Repair Instructions

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

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

## DTC B3205: DRIVER WINDOW MOTOR

### Diagnostic Instructions

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

### DTC Descriptor

#### DTC B3205

Driver Window Motor

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

### Circuit/System Description

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

| Circuit                         | Description           |
|---------------------------------|-----------------------|
| B+ - M74D Window Motor - Driver | Supplied from a fuse. |
| Ground                          | Chassis Ground        |

| Component | Description |
|-----------|-------------|
|           |             |



| Component                  | Description                                                                                                                               |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| M74D Window Motor - Driver | <ul style="list-style-type: none"> <li>• Power Window Control</li> <li>• The control module and the DC motor are one assembly.</li> </ul> |

### Conditions for Running the DTC

Ignition - On / Vehicle - In Service Mode

### Conditions for Setting the DTC

#### **B3205 00**

M74D Window Motor - Driver=Incompatible Hardware or Equipment

#### **B3205 39**

M74D Window Motor - Driver=Internal Malfunction

#### **B3205 42**

Calibration Update=Failed

#### **B3205 4B**

- Battery - Disconnected/Replaced
- Front Side Door Wiring Harness - Disconnected
- M74D Window Motor - Driver - Disconnected

### Actions Taken When the DTC Sets

#### **B3205 00, B3205 39, B3205 42**

M74D Window Motor - Driver=Inoperative

#### **B3205 4B**

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

### Conditions for Clearing the DTC

#### **B3205 00**

M74D Window Motor - Driver - Replaced - A current DTC can be cleared after the procedure is performed.

#### **B3205 39, B3205 42**

M74D Window Motor - Driver - Replaced - A current DTC can be cleared after the procedure is performed.

#### **B3205 4B**

M74D Window Motor - Driver - Normalized - A current DTC can be cleared after the procedure is performed.

### Reference Information

Schematic Reference

### Moveable Window Schematics

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

Scan Tool Reference

### **Control Module References**

#### **Circuit/System Verification**

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

Verify the component works as specified:M74D Window Motor - Driver =Up & Down

- **If not the specified state**

Test or replace the component:M74D Window Motor - Driver

- **If the specified state**

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

Verify the component works as specified:M74D Window Motor - Driver =Express Up

- **If not the specified state**

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

- **If the specified state**

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

Verify the component works as specified:M74D Window Motor - Driver =Express Up

- **If not the specified state**

Test or replace the component:M74D Window Motor - Driver

- **If the specified state**

9. All OK.

#### **Repair Instructions**

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

### **Front Side Door Window Regulator Motor Replacement**

## **SYMPTOMS - FIXED AND MOVEABLE WINDOWS**

## Important Preliminary Checks Before Starting:

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

## Visual/Physical Inspection

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

## Intermittent

### NOTE:

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

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

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

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

## Symptom List

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

- **Rear Window Defogger Malfunction**
- **Power Windows Malfunction**

## REAR WINDOW DEFOGGER MALFUNCTION

### Diagnostic Instructions

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

### Diagnostic Fault Information

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

### Circuit/System Description

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

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

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

### Reference Information

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

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

Scan Tool Reference

## [Control Module References](#)

### [Circuit/System Verification](#)

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

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

- **If not the specified state**

Replace the component:K33 HVAC Control Module

- **If the specified state**

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

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

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

Refer to: Circuit/System Testing

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

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

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

Replace the component:K33 HVAC Control Module

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

6. All OK.

### [Circuit/System Testing](#)

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

1. Ignition/Vehicle & All vehicle systems - Off
2. Remove the component:KR5 Rear Defogger Relay
3. Test for less than 10  $\Omega$  between the test points:Ground circuit terminal 85 & Ground
  - **If 10  $\Omega$  or greater**
    1. Ground Connection - Disconnect
    2. Test for less than 2  $\Omega$  between the test points:Ground circuit terminal 85 & Ground Connection
      - If 2  $\Omega$  or greater - Repair the open/high resistance in the circuit.
      - If less than 2  $\Omega$  - Repair the open/high resistance in the ground connection.
  - **If less than 10  $\Omega$**



4. Connect a test lamp between the test points:Control circuit terminal 86 & Ground circuit terminal 85
5. Ignition - On / Vehicle - In Service Mode
6. Perform the scan tool control function:Rear Defogger - On and Off

Verify the test lamp turns On and Off.

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

1. Ignition/Vehicle - Off & Remove - Test lamp
2. Disconnect the electrical connector: X2 @K33 HVAC Control Module
3. Test for infinite resistance between the test points:Control circuit terminal 86 @Relay Socket & Ground
  - If less than infinite resistance - Repair the short to ground on the circuit.
  - If infinite resistance
4. Test for less than 2  $\Omega$  between the test points:Control circuit terminal 86 @Relay Socket & Terminal 19 X2 @Control module harness
  - If 2  $\Omega$  or greater - Repair the open/high resistance in the circuit.
  - If less than 2  $\Omega$  - Replace the component:K33 HVAC Control Module

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

1. Ignition/Vehicle - Off & Remove - Test lamp
2. Disconnect the electrical connector:K33 HVAC Control Module
3. Ignition - On / Vehicle - In Service Mode
4. Test for less than 1 V between the test points:Control circuit terminal 86 @Relay Socket & Ground
  - If 1 V or greater - Repair the short to voltage on the circuit.
  - If less than 1 V - Replace the component:K33 HVAC Control Module

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

7. Verify a test lamp turns On between the test points:B+ circuit terminal 30 & Ground

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

1. Ignition/Vehicle - Off & Remove - Test lamp
2. Test for less than 2  $\Omega$  between the test points:B+ circuit terminal 30 @Relay Socket & Output terminal@Fuse
  - If 2  $\Omega$  or greater - Repair the open/high resistance in the circuit.
  - If less than 2  $\Omega$  - Verify the fuse is OK and there is voltage at the fuse.

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

1. Ignition/Vehicle - Off & Remove - Test lamp
2. Test for infinite resistance between the test points:B+ circuit terminal 30 & Ground
  - If less than infinite resistance - Repair the short to ground on the circuit.
  - If infinite resistance
3. Disconnect the electrical connector: X1 & X2 @E18 Rear Defogger Grid
4. Test for infinite resistance between the test points:Control circuit terminal 87 @Relay Socket & Ground
  - If less than infinite resistance - Repair the short to ground on the circuit.
  - If infinite resistance
5. Replace the component:Fuse
6. Install the component:KR5 Rear Defogger Relay
7. Connect a test lamp between the test points:Control circuit terminal 1 X1 & Ground circuit terminal 1 X2
8. Ignition - On / Vehicle - In Service Mode
9. Perform the scan tool control function:Rear Defogger - On and Off

Verify the test lamp turns On and Off.

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

- **If the test lamp turns On**

8. Momentarily connect a 40 A fused jumper wire between the test points:B+ circuit terminal 87 & Control circuit terminal 87

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

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

Test or replace the component:KR5 Rear Defogger Relay

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

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

Verify the test lamp turns On and Off.

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

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

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

Repair the short to voltage on the circuit:Control Circuit

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

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

## Component Testing

### Relay Test

1. Ignition/Vehicle - Off
2. Remove the component:KR5 Rear Defogger Relay
3. Test for 70 to 110 ohms between the test points:Component terminal 85 & Component terminal 86
  - **If not between 70 and 110  $\Omega$** 

Replace the component:KR5 Rear Defogger Relay
  - **If between 70 and 110  $\Omega$**
4. Test for infinite resistance between the test points:

- Component terminal 30&85
- Component terminal 30&86
- Component terminal 30&87
- Component terminal 85&87
- **If less than infinite resistance**

Replace the component:KR5 Rear Defogger Relay

- **If infinite resistance**

5. Connect a 3 A fused jumper wire between the test points:Component terminal 86 & 12 V

Connect a jumper wire between the test points:Component terminal 85 & Ground

6. Test for less than 2  $\Omega$  between the test points:Component terminal 30 & Component terminal 87

- **If 2  $\Omega$  or greater**

Replace the component:KR5 Rear Defogger Relay

- **If less than 2  $\Omega$**

7. All OK.

### Repair Instructions

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

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

## POWER WINDOWS MALFUNCTION

### Diagnostic Instructions

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

### Diagnostic Fault Information

| Circuit                                   | Short to Ground                    | Open/High Resistance | Short to Voltage | Signal Performance |
|-------------------------------------------|------------------------------------|----------------------|------------------|--------------------|
| B+ - S79D Window Switch - Driver          | U1538 00                           | U1538 00             | -                | -                  |
| B+ - M74D Window Motor - Driver           | U1534 00                           | U1534 00             | -                | -                  |
| B+ - S79P Window Switch - Passenger       | U153A 00                           | U153A 00             | -                | -                  |
| B+ - S79RR Window Switch - Right Rear     | U1534 00,<br>U154A 00              | U1534 00             | -                | -                  |
| B+ - S79LR Window Switch - Left Rear      | U1534 00,<br>U154A 00              | U1534 00             | -                | -                  |
| Serial Data - S79D Window Switch - Driver | U1534 00,<br>U1538 00,<br>U153A 00 | U1538 00             | U1538 00         | -                  |
| Serial Data - M74D Window Motor - Driver  | U1534 00,<br>U1538 00,<br>U153A 00 | U1534 00             | U1534 00         | -                  |

| Circuit                                                                                                                                                                                      | Short to Ground                    | Open/High Resistance | Short to Voltage | Signal Performance |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|----------------------|------------------|--------------------|
| Serial Data - S79P Window Switch - Passenger                                                                                                                                                 | U1534 00,<br>U1538 00,<br>U153A 00 | U153A 00             | U153A 00         | -                  |
| Serial Data - S79LR Window Switch - Left Rear                                                                                                                                                | U1534 00,<br>U154A 00              | U1534 00             | U1534 00         | -                  |
| Serial Data - S79RR Window Switch - Right Rear                                                                                                                                               | U1534 00,<br>U154A 00              | U154A 00             | U154A 00         | -                  |
| Power Window Master Switch Left Front Down Signal                                                                                                                                            | B316B 02                           | 1                    | 1                | -                  |
| Power Window Switch Driver Express Signal                                                                                                                                                    | B316B 02                           | 1                    | 1                | -                  |
| Power Window Master Switch Left Front Up Signal                                                                                                                                              | B316B 02                           | 1                    | 1                | -                  |
| Control - M74P Window Motor - Passenger                                                                                                                                                      | 2                                  | 2                    | 2                | -                  |
| Control - M74LR Window Motor - Left Rear                                                                                                                                                     | 3                                  | 3                    | 3                | -                  |
| Control - M74RR Window Motor - Right Rear                                                                                                                                                    | 4                                  | 4                    | 4                | -                  |
| Ground - S79D Window Switch - Driver                                                                                                                                                         | -                                  | U1538 00             | -                | -                  |
| Ground - M74D Window Motor - Driver                                                                                                                                                          | -                                  | U1534 00             | -                | -                  |
| Ground - S79P Window Switch - Passenger                                                                                                                                                      | -                                  | U153A 00             | -                | -                  |
| Ground - S79LR Window Switch - Left Rear                                                                                                                                                     | -                                  | 1534 00              | -                | -                  |
| Ground - S79RR Window Switch - Right Rear                                                                                                                                                    | -                                  | U154A 00             | -                | -                  |
| 1. M74D Window Motor - Driver=Inoperative<br>2. M74P Window Motor - Passenger=Inoperative<br>3. M74LR Window Motor - Left Rear=Inoperative<br>4. M74RR Window Motor - Right Rear=Inoperative |                                    |                      |                  |                    |

### Circuit/System Description

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

| Circuit                                   | Description                                                                   |
|-------------------------------------------|-------------------------------------------------------------------------------|
| B+ - M74D Window Motor - Driver           | Supplied from a fuse.                                                         |
| B+ - S79D Window Switch - Driver          | Supplied from a fuse.                                                         |
| B+ - S79P Window Switch - Passenger       | Supplied from a fuse.                                                         |
| B+ - S79LR Window Switch - Left Rear      | Supplied from a fuse.                                                         |
| B+ - S79RR Window Switch - Right Rear     | Supplied from a fuse.                                                         |
| Power Window Switch Driver Down Signal    | The output circuit is switched to ground to activate the component.           |
| Power Window Switch Driver Express Signal | The output circuit is switched to ground to activate the component.           |
| Power Window Switch Driver Up Signal      | The output circuit is switched to ground to activate the component.           |
| Power Window Motor Passenger Down Control | The output circuit is switched from ground to 12 V to activate the component. |

| Circuit                                    | Description                                                                   |
|--------------------------------------------|-------------------------------------------------------------------------------|
| Power Window Motor Passenger Up Control    | The output circuit is switched from ground to 12 V to activate the component. |
| Power Window Motor Left Rear Up Control    | The output circuit is switched from ground to 12 V to activate the component. |
| Power Window Motor Left Rear Down Control  | The output circuit is switched from ground to 12 V to activate the component. |
| Power Window Motor Right Rear Up Control   | The output circuit is switched from ground to 12 V to activate the component. |
| Power Window Motor Right Rear Down Control | The output circuit is switched from ground to 12 V to activate the component. |
| Ground                                     | Chassis Ground                                                                |

| Component                        | Description                                                                                                                           |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| S79D Window Switch - Driver      | The S79 sends a serial data message to the K9 indicating the M74 function that has been requested.                                    |
| M74D Window Motor - Driver       | <ul style="list-style-type: none"> <li>Power Window Control</li> <li>The control module and the DC motor are one assembly.</li> </ul> |
| S79P Window Switch - Passenger   | The switch has a normally open contact.                                                                                               |
| M74P Window Motor - Passenger    | An electric DC motor.                                                                                                                 |
| S79LR Window Switch - Left Rear  | The switch has a normally open contact.                                                                                               |
| M74LR Window Motor - Left Rear   | An electric DC motor.                                                                                                                 |
| S79RR Window Switch - Right Rear | The switch has a normally open contact.                                                                                               |
| M74RR Window Motor - Right Rear  | An electric DC motor.                                                                                                                 |
| K9 Body Control Module           | The module controls various vehicle functions like lighting, central door locking, power windows, etc.                                |

### Diagnostic Aids

M74D Window Motor - Driver - Window Express Up System Not Initialized

- Battery - Disconnected/Replaced
- Front Side Door Wiring Harness - Disconnected
- M74 Window Motor - Disconnected

M74D Window Motor - Driver - Normalized - [Window Motor Programming - Express Function](#)

### Reference Information

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### [Moveable Window Schematics](#)

Connector End View Reference

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- [Wiring Repairs](#)

Scan Tool Reference

## Control Module References

### Circuit/System Verification

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

Verify the component operates in both directions: M74D Window Motor - Driver

- **If not the specified state**

Refer to: Circuit/System Testing - Test 1

- **If the specified state**

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

Verify the component works as specified: M74D Window Motor - Driver = Up/Express Up /Down/Express Down

- **If not the specified state**

Refer to: Circuit/System Testing - Test 2

- **If the specified state**

4. S79D Window Switch - Driver - Not Pressed

Verify the scan tool parameter:

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

Test or replace the component: S79D Window Switch - Driver

- **If the specified state**

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

Verify the scan tool parameter:

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

Test or replace the component: S79D Window Switch - Driver

- **If the specified state**

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

Verify the scan tool parameter:

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

Test or replace the component:S79D Window Switch - Driver

- **If the specified state**

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

Verify the scan tool parameter:

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

Test or replace the component:S79D Window Switch - Driver

- **If the specified state**

8. Perform the scan tool control function:Passenger Window Motor - Up & Down

Verify the component works as specified:M74P Window Motor - Passenger =Up & Down

- **If not the specified state**

Refer to: Circuit/System Testing - Test 3

- **If the specified state**

9. Perform the scan tool control function:Left Rear Window Motor - Up & Down

Verify the component works as specified:M74LR Window Motor - Left Rear =Up & Down

- **If not the specified state**

Refer to: Circuit/System Testing - Test 3

- **If the specified state**

10. Perform the scan tool control function:Right Rear Window Motor - Up & Down

Verify the component works as specified:M74RR Window Motor - Right Rear =Up & Down

- **If not the specified state**

Refer to: Circuit/System Testing - Test 3

- **If the specified state**

11. All OK.

### Circuit/System Testing

#### Test 1

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

performed.

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the electrical connector:M74D Window Motor - Driver
3. Test for less than 10  $\Omega$  between the test points:Ground circuit terminal 1 & Ground
  - **If 10  $\Omega$  or greater**
    1. Ground Connection - Disconnect
    2. Test for less than 2  $\Omega$  between the test points:M74D Window Motor - DriverGround circuit terminal 1 @Component harness & Ground Connection
      - If 2  $\Omega$  or greater - Repair the open/high resistance in the circuit.
      - If less than 2  $\Omega$  - Repair the open/high resistance in the ground connection.
  - **If less than 10  $\Omega$**
4. Ignition - On / Vehicle - In Service Mode
5. Verify a test lamp turns On between the test points:B+ circuit terminal 2 & Ground
  - **If the test lamp does not turn On and the circuit fuse is OK**
    1. Ignition/Vehicle - Off & Remove - Test lamp
    2. Test for less than 2  $\Omega$  between the test points: M74D Window Motor - DriverB+ circuit terminal 2 @Output terminal @ F24UA Fuse
      - If 2  $\Omega$  or greater - Repair the open/high resistance in the circuit.
      - If less than 2  $\Omega$  - Verify the fuse is OK and there is voltage at the fuse.
  - **If the test lamp does not turn On and the circuit fuse is open**
    1. Ignition/Vehicle - Off & Remove - Test lamp
    2. Test for infinite resistance between the test points:B+ circuit terminal 2 & Ground
      - If less than infinite resistance - Repair the short to ground on the circuit.
      - If infinite resistance - Replace the component:M74D Window Motor - Driver
  - **If the test lamp turns On**
6. Test or replace the component:M74D Window Motor - Driver

## Test 2

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

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the electrical connector:S79D Window Switch - Driver
3. Test for less than 10  $\Omega$  between the test points:Ground circuit terminal 1 & Ground
  - **If 10  $\Omega$  or greater**
    1. Ground Connection - Disconnect
    2. Test for less than 2  $\Omega$  between the test points:Ground circuit terminal 1 @Component harness & Ground Connection
      - If 2  $\Omega$  or greater - Repair the open/high resistance in the circuit.
      - If less than 2  $\Omega$  - Repair the open/high resistance in the ground connection.
  - **If less than 10  $\Omega$**
4. Ignition - On / Vehicle - In Service Mode
5. Verify a test lamp turns On between the test points: B+ circuit terminal 4 & Ground
  - **If the test lamp does not turn On and the circuit fuse is OK**
    1. Ignition/Vehicle - Off & Remove - Test lamp
      - If 2  $\Omega$  or greater - Repair the open/high resistance in the circuit.
      - If less than 2  $\Omega$  - Verify the fuse is OK and there is voltage at the fuse.
  - **If the test lamp does not turn On and the circuit fuse is open**

1. Ignition/Vehicle - Off & Remove - Test lamp
2. Test for infinite resistance between the test points: B+ circuit terminal 4 & Ground
  - If less than infinite resistance - Repair the short to ground on the circuit.
  - If infinite resistance - Replace the component: S79D Window Switch - Driver
- **If the test lamp turns On**
6. Verify the scan tool parameter: Driver Window Main Control Down Switch=Inactive
  - **If not the specified state**
    1. Ignition/Vehicle - Off
    2. Disconnect the electrical connector: M74D Window Motor - Driver
    3. Test for infinite resistance between the test points: Signal circuit terminal 3 @Component harness & Ground
      - If less than infinite resistance - Repair the short to ground on the circuit.
      - If infinite resistance - Replace the component: M74D Window Motor - Driver
  - **If the specified state**
7. Momentarily connect a 3 A fused jumper wire between the test points: Signal circuit terminal 3 & Ground circuit terminal 1

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

- **If not the specified state**
    1. Ignition/Vehicle - Off & Remove - Jumper wire(s)
    2. Disconnect the electrical connector: M74D Window Motor - Driver
    3. Ignition - On / Vehicle - In Service Mode
    4. Test for less than 1 V between the test points: Signal circuit terminal 3 @Component harness & Ground
      - If 1 V or greater - Repair the short to voltage on the circuit.
      - If less than 1 V
    5. Ignition/Vehicle - Off
    6. Test for less than 2  $\Omega$  between the test points: Signal circuit terminal 3 @Component harness & Signal circuit terminal 7 @M74D Window Motor - Driver
      - If 2  $\Omega$  or greater - Repair the open/high resistance in the circuit.
      - If less than 2  $\Omega$  - Replace the component: M74D Window Motor - Driver
  - **If the specified state**
8. Verify the scan tool parameter: Driver Window Main Control Up Switch=Inactive
    - **If not the specified state**
      1. Ignition/Vehicle - Off
      2. Disconnect the electrical connector: M74D Window Motor - Driver
      3. Test for infinite resistance between the test points: Signal circuit terminal 6 @Component harness & Ground
        - If less than infinite resistance - Repair the short to ground on the circuit.
        - If infinite resistance - Replace the component: M74D Window Motor - Driver
    - **If the specified state**
  9. Momentarily connect a 3 A fused jumper wire between the test points: Signal circuit terminal 6 & Ground circuit terminal 1

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

- **If not the specified state**
  1. Ignition/Vehicle - Off & Remove - Jumper wire(s)
  2. Disconnect the electrical connector: M74D Window Motor - Driver
  3. Ignition - On / Vehicle - In Service Mode

4. Test for less than 1 V between the test points:Signal circuit terminal 6 @Component harness & Ground

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

5. Ignition/Vehicle - Off

6. Test for less than 2  $\Omega$  between the test points:Signal circuit terminal 6 @Component harness & Signal circuit terminal 3 @M74D Window Motor - Driver

- If 2  $\Omega$  or greater - Repair the open/high resistance in the circuit.
- If less than 2  $\Omega$  - Replace the component:M74D Window Motor - Driver

• **If the specified state**

10. Verify the scan tool parameter:Driver Window Main Control Express Switch=Inactive

• **If not the specified state**

1. Ignition/Vehicle - Off

2. Disconnect the electrical connector:M74D Window Motor - Driver

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

- If less than infinite resistance - Repair the short to ground on the circuit.
- If infinite resistance - Replace the component:M74D Window Motor - Driver

• **If the specified state**

11. Momentarily connect a 3 A fused jumper wire between the test points:Signal circuit terminal 2 & Ground circuit terminal 1

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

• **If not the specified state**

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

2. Disconnect the electrical connector:M74D Window Motor - Driver

3. Ignition - On / Vehicle - In Service Mode

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

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

5. Ignition/Vehicle - Off

6. Test for less than 2  $\Omega$  between the test points:Signal circuit terminal 2 @Component harness & Signal circuit terminal 5 @M74D Window Motor - Driver

- If 2  $\Omega$  or greater - Repair the open/high resistance in the circuit.
- If less than 2  $\Omega$  - Replace the component:M74D Window Motor - Driver

• **If the specified state**

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

### Test 3

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

1. Ignition/Vehicle & All vehicle systems - Off

2. Disconnect the appropriate electrical connector:S79P Window Switch - Passenger/S79LR Window Switch - Left Rear/S79RR Window Switch - Right Rear

3. Test for less than 10  $\Omega$  between the test points:

- S79P Window Switch - Passenger:Ground circuit terminal 1 X1 & Ground
- S79LR Window Switch - Left Rear:Ground circuit terminal 5 & Ground
- S79RR Window Switch - Right Rear:Ground circuit terminal 5 & Ground



- **If 10  $\Omega$  or greater**

1. Ground Connection - Disconnect

2. Test for less than 2  $\Omega$  between the test points:

- Ground circuit terminal 1 X1 @S79P Window Switch - Passenger & Ground Connection
- Ground circuit terminal 5 @S79LR Window Switch - Left Rear & Ground Connection
- Ground circuit terminal 5 @S79RR Window Switch - Right Rear & Ground Connection
- If 2  $\Omega$  or greater - Repair the open/high resistance in the circuit.
- If less than 2  $\Omega$  - Repair the open/high resistance in the ground connection.

- **If less than 10  $\Omega$**

4. Ignition - On / Vehicle - In Service Mode

5. Verify a test lamp turns On between the test points:

- S79P Window Switch - Passenger:B+ circuit terminal 4 X1 & Ground
- S79LR Window Switch - Left Rear:B+ circuit terminal 8 & Ground
- S79RR Window Switch - Right Rear:B+ circuit terminal 8 & Ground

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

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

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

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

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

2. Test for infinite resistance between the test points:

- S79P Window Switch - Passenger:B+ circuit terminal 4 X1 & Ground
- S79LR Window Switch - Left Rear:B+ circuit terminal 8 & Ground
- S79RR Window Switch - Right Rear:B+ circuit terminal 8 & Ground
- If less than infinite resistance - Repair the short to ground on the circuit.
- If infinite resistance - Replace the component:S79 Window Switch

- **If the test lamp turns On**

6. Ignition/Vehicle - Off

7. Connect the electrical connector:S79 Window Switch

8. Disconnect the electrical connector:M74 Window Motor

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

10. Ignition - On / Vehicle - In Service Mode

11. Perform the scan tool control function:Window Motor - Up & Down

Verify the test lamp state:

Window Motor - Up=Test lamp On

Window Motor - Down=Test lamp On

- **If not the specified state**

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

2. Disconnect the electrical connector: S79 Window Switch

3. Ignition - On / Vehicle - In Service Mode

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

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

1. Ignition/Vehicle - Off

2. Test for infinite resistance between the test points:

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

1. Test for less than 2  $\Omega$  between the test points:

- Control circuit terminal 1 @Component harness & Control circuit terminal 2 X1 @ S79P Window Switch - Passenger
- Control circuit terminal 2 @Component harness & Control circuit terminal 3 X1 @ S79P Window Switch - Passenger
- Control circuit terminal 1 @Component harness & Control circuit terminal 6 @ S79LR Window Switch - Left Rear
- Control circuit terminal 2 @Component harness & Control circuit terminal 7 @ S79LR Window Switch - Left Rear
- Control circuit terminal 1 @Component harness & Control circuit terminal 6 @ S79RR Window Switch - Right Rear
- Control circuit terminal 2 @Component harness & Control circuit terminal 7 @ S79RR Window Switch - Right Rear
  - If 2  $\Omega$  or greater - Repair the open/high resistance in the circuit.
  - If less than 2  $\Omega$  - Replace the component: S79 Window Switch

- **If the specified state**

12. Test or replace the component: M74 Window Motor

### Component Testing

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

1. Ignition/Vehicle - Off
2. Disconnect the appropriate electrical connector:
  - M74P Window Motor - Passenger
  - M74LR Window Motor - Left Rear
  - M74RR Window Motor - Right Rear
3. Connect a 3 A fused jumper wire between the test points: Control terminal 1 & B+

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

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

Reverse the jumper wires 2 times between the terminals.

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

- **If not the specified state**

Replace the component:

- M74P Window Motor - Passenger
- M74LR Window Motor - Left Rear
- M74RR Window Motor - Right Rear
- **If not the specified state**

6. All OK.

### Repair Instructions

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

- [Front Side Door Window Regulator Replacement](#)
- [Front Side Door Window and Multifunction Switch Replacement](#)
- [Rear Side Door Window Regulator Motor Replacement](#)
- [Rear Side Door Window Switch Replacement](#)
- [Front Side Door Window Switch Replacement \(Passenger\)](#)

## SIDE DOOR WINDOW MECHANICAL DIAGNOSIS

| Cause                                                                                                                                                                                                        | Correction                                                                                                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DEFINITION: A mechanical condition that requires a correction for proper operation of the side door window.<br>Refer to <a href="#">Symptoms - Fixed and Moveable Windows</a> 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 unexpectedly.                                                                                                                                                      | Check seals, reinitialize the glass and/or realign the glass.                                                                                                                   |
|                                                                                                                                                                                                              | 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](#) .
3. Remove the air inlet grille. Refer to [Air Inlet Grille Panel Replacement](#) .
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 \(With Sunroof\)](#) [Headlining Trim Panel Replacement \(Without Sunroof\)](#) .

6. Remove the remote control door lock receiver. Refer to [Remote Control Door Lock Receiver Replacement](#) , if equipped.

**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.

7. Remove the inside rearview mirror. Refer to [Inside Rearview Mirror Replacement](#) .
8. Remove the windshield garnish moldings left and right side. Refer to [Windshield Garnish Molding Replacement](#) .

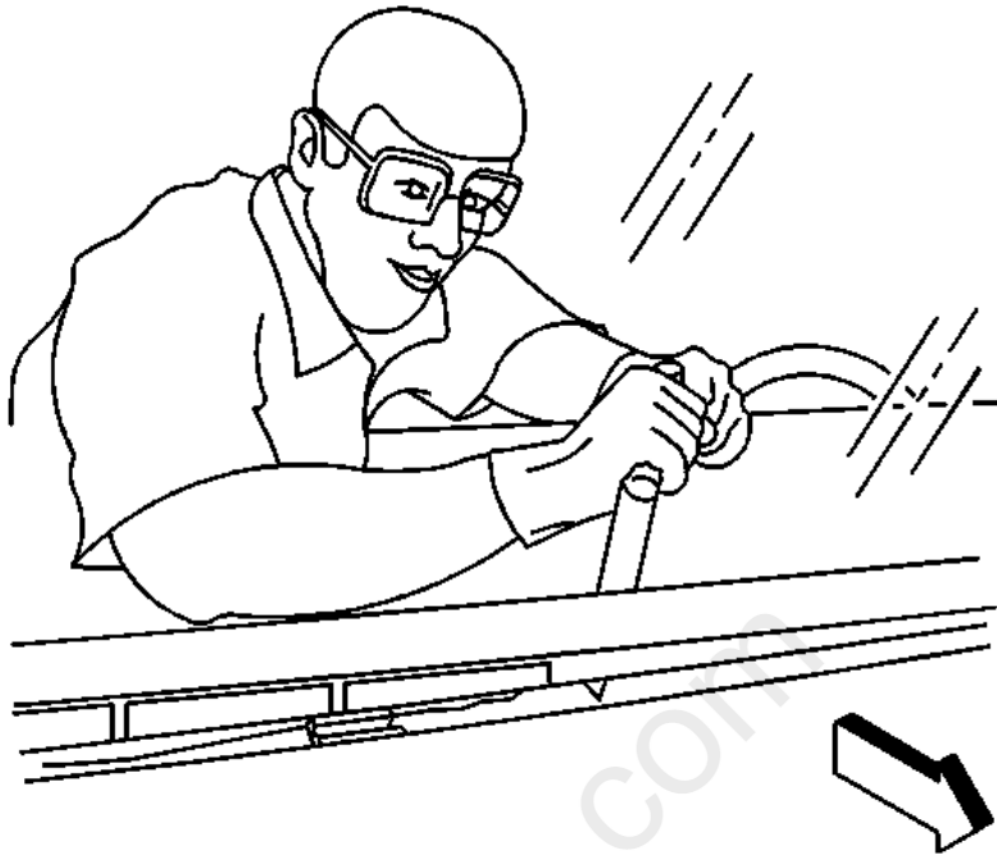
**WARNING:** If broken glass falls into the defroster outlets, it can be blown into the passenger compartment and cause personal injury.

9. Cover to protect the following parts from broken glass:
- Upper dash pad
  - Defroster outlets and A/C outlets
  - Seats and carpeting
10. 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.

11. 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.

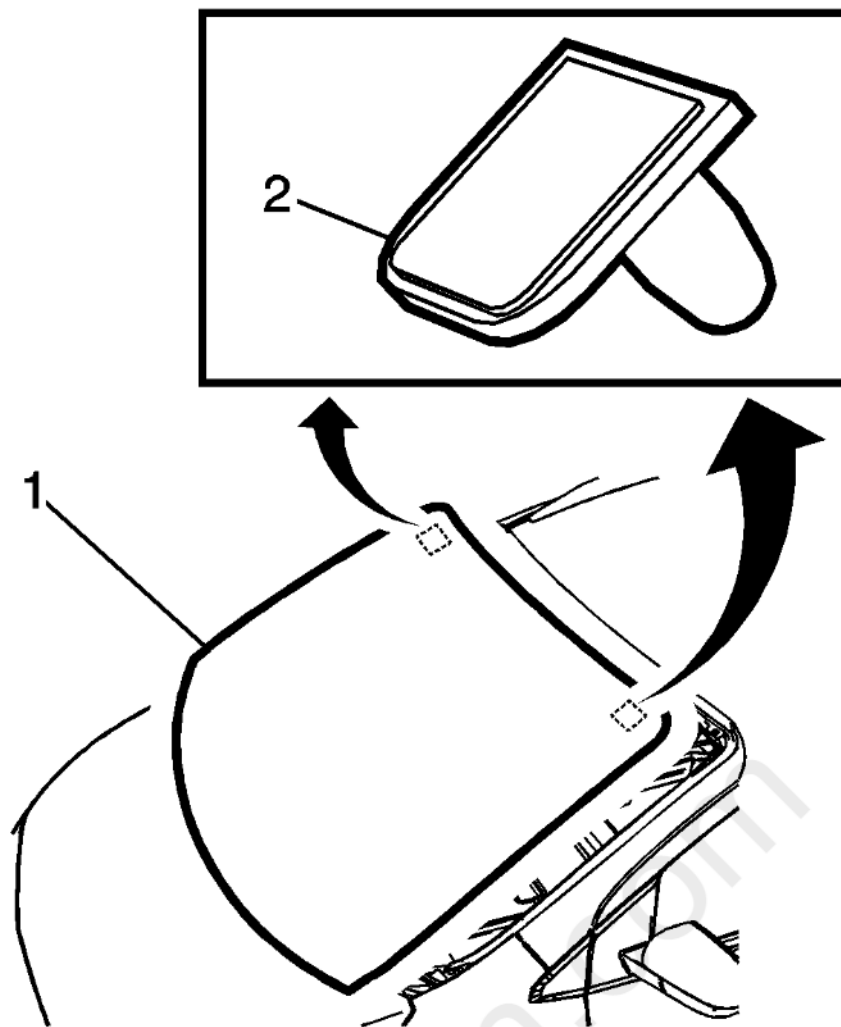


**Fig. 5: Separating Bottom Of Window**

**Courtesy of GENERAL MOTORS COMPANY**

12. 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.





**Fig. 6: Windshield & Locator Pins**

Courtesy of GENERAL MOTORS COMPANY

13. Remove the window (1) from the vehicle with an assistant and Do the following:
  1. After removing the window spacers and mark the location of each one. If equipped.
  2. Check that the locator pins are still attached to each upper corner of the window for installing, if reusing.
  3. Remove all mounds or loose pieces of urethane adhesive from the pinchweld area.
  4. If the original window 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.
14. 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 DE15<sup>®</sup>, DuPont 2610<sup>®</sup>, Sherwin-Williams PSE 4600 and NP70<sup>®</sup> and Martin-Semour 5120 and 5130<sup>®</sup> PPG DP90LF SPIES/HECKER 3688/8590 - 3688/5150 - 4070/5090 STANDOX 11158/13320 - 14653/14980 products are approved for this application.

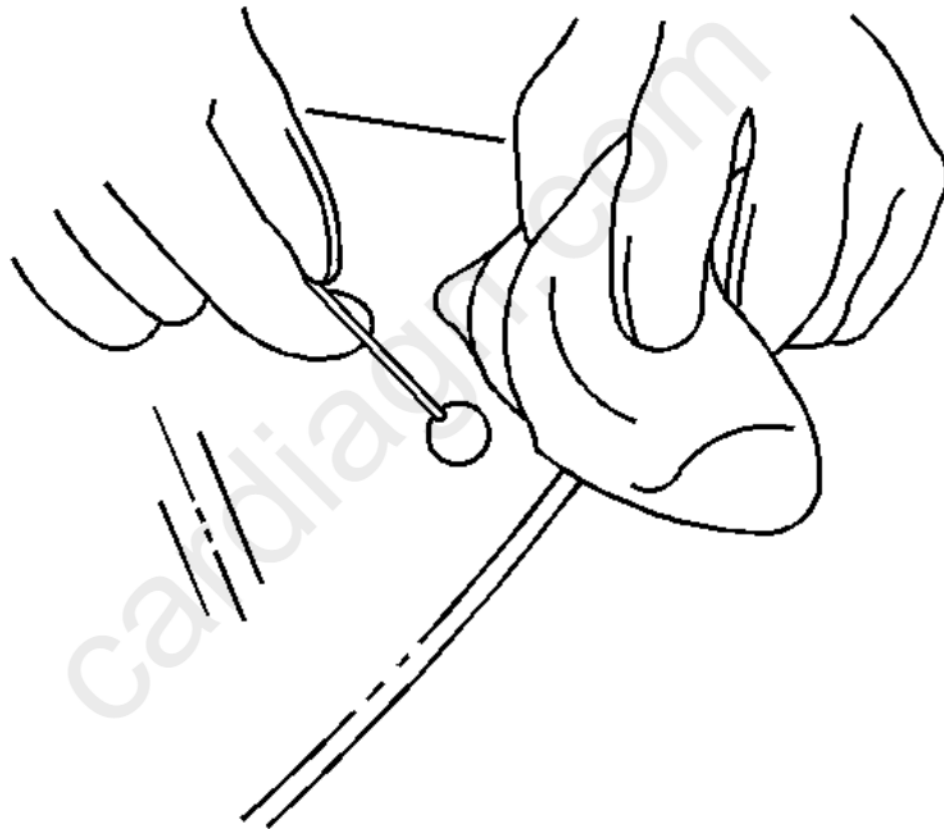
15. After repairing the opening as indicated, perform the following steps:

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).

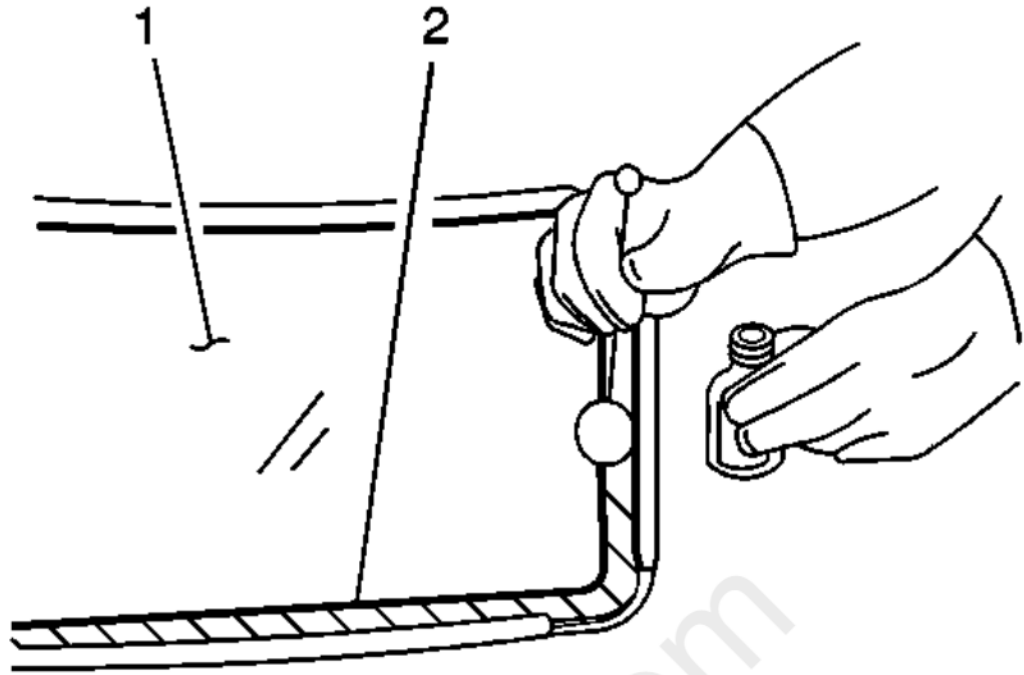


**Fig. 7: Applying Glass Prep**

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.

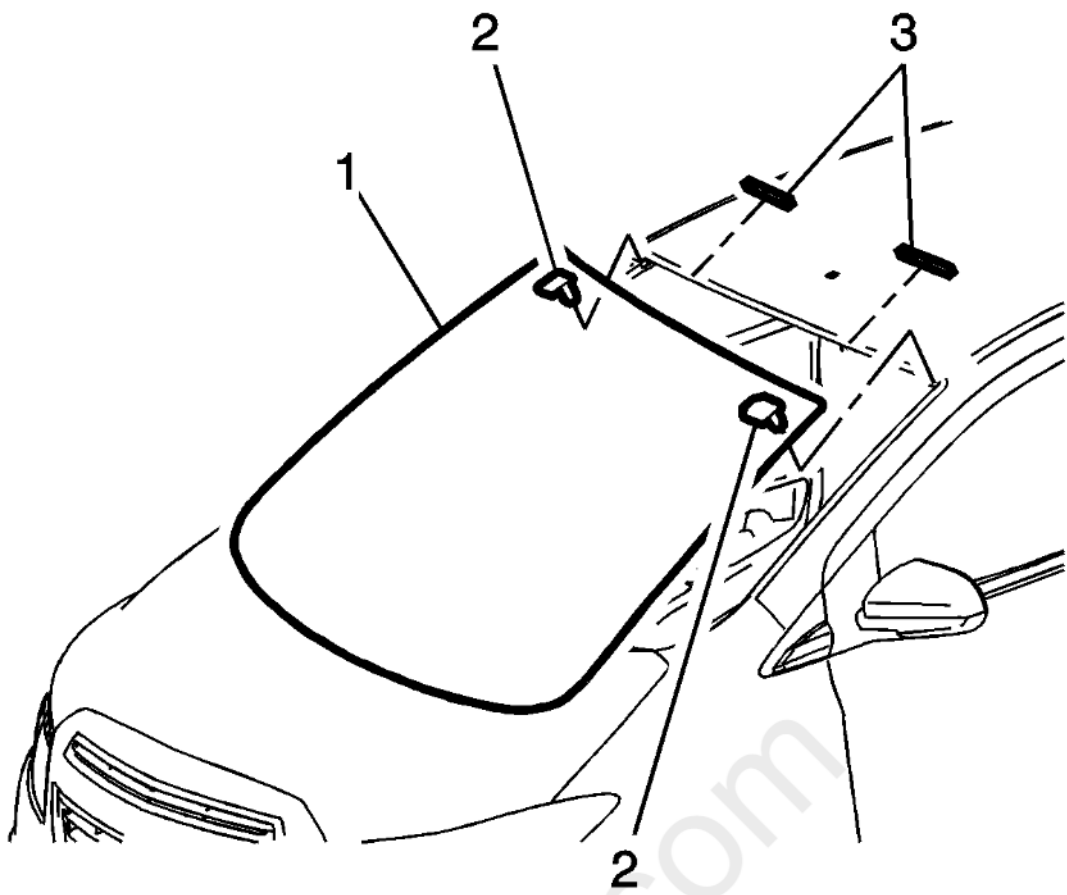


**Fig. 8: Applying Glass Primer**

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 the urethane adhesive excess unless using mechanical means.
- NOTE:** The Prep #2 Black Primer is for, Blackout primer, UV Blackout.

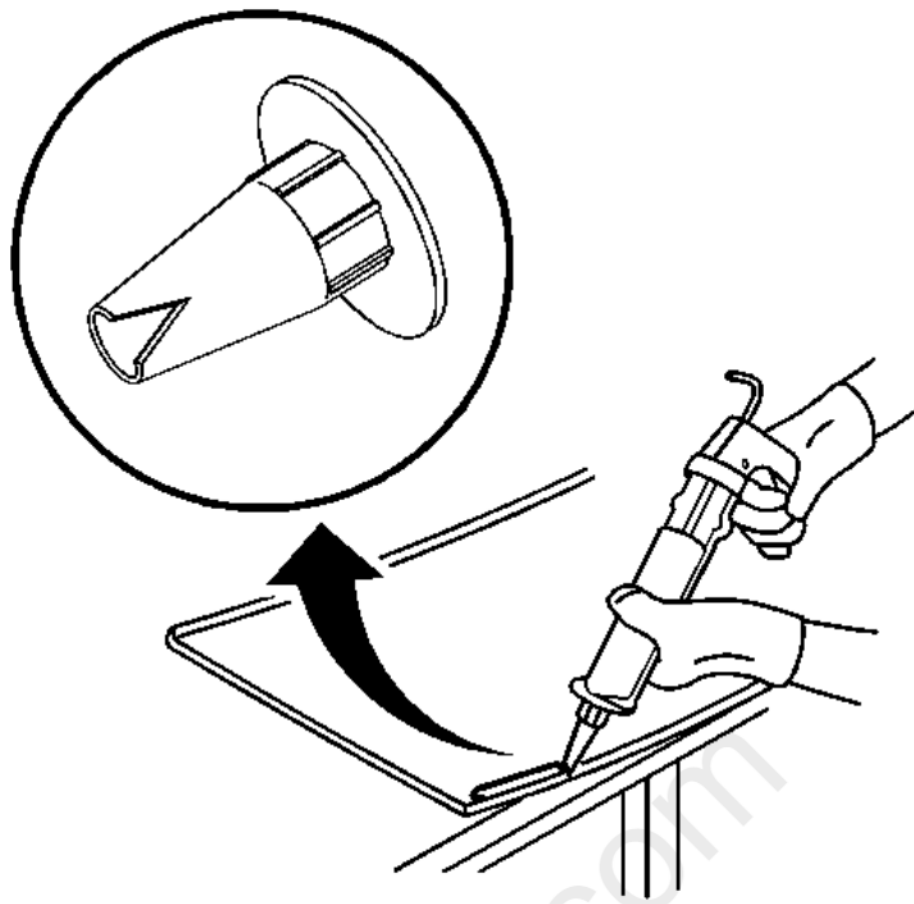
4. Apply the Prep #2 urethane adhesive primer (2) around the perimeter of the window (1), refer to the instructions of the manufacturer's.



**Fig. 9: Installing Spacers For Window**

**Courtesy of GENERAL MOTORS COMPANY**

5. Install the spacers (2) for the window (1) to the marked locates on the pinchweld flange. If equipped

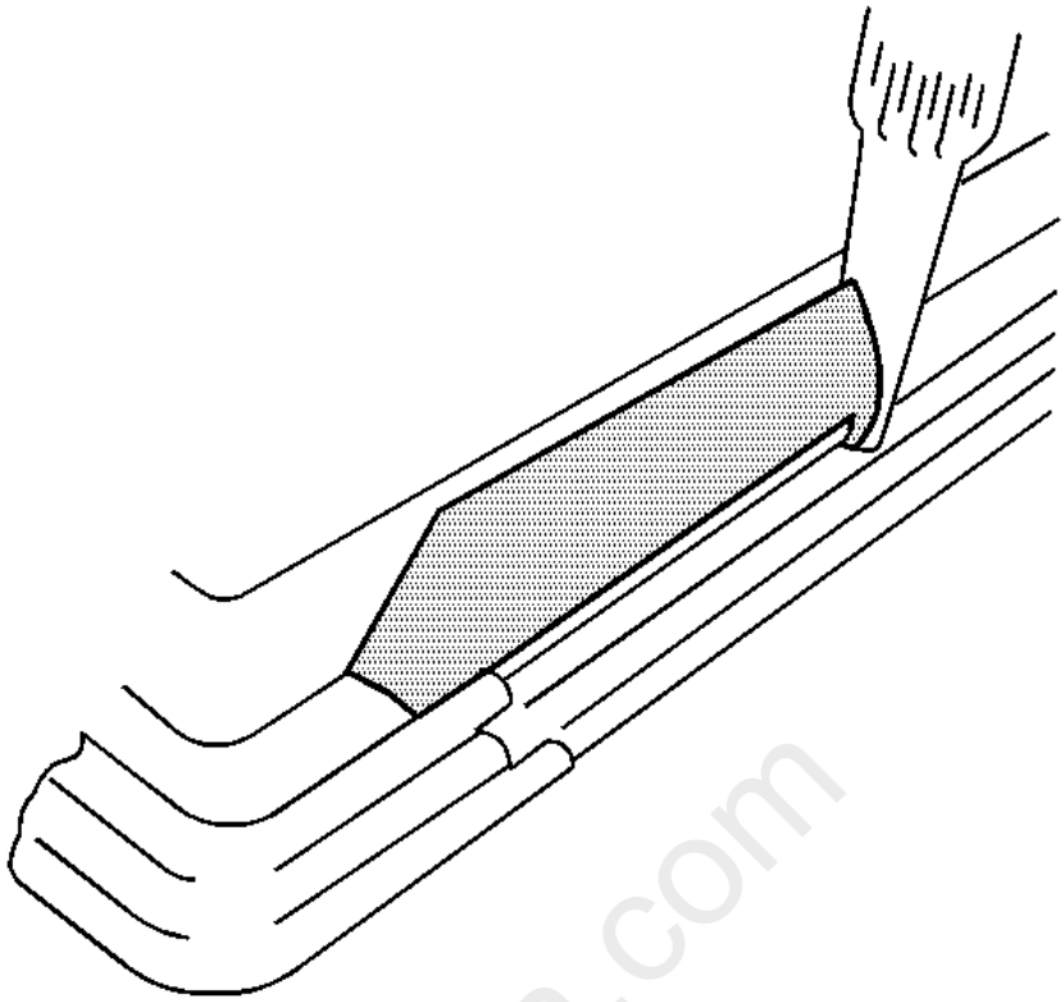


**Fig. 10: View Of Modified Applicator Nozzle**

**Courtesy of GENERAL MOTORS COMPANY**

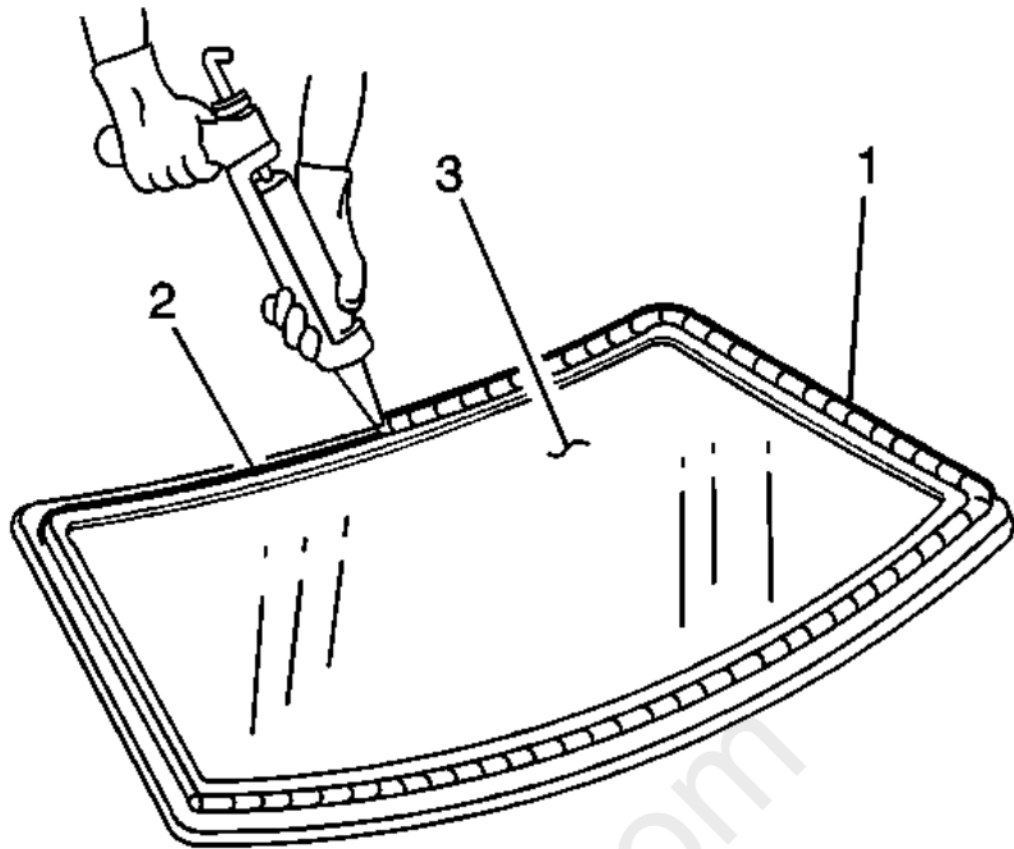
6. Cut the applicator nozzle in order to provide a bead of 12.7 mm (1/2 in) wide and 12.7 mm (1/2 in) high.





**Fig. 11: Applying Continuous Bead Of Urethane Adhesive**  
Courtesy of GENERAL MOTORS COMPANY

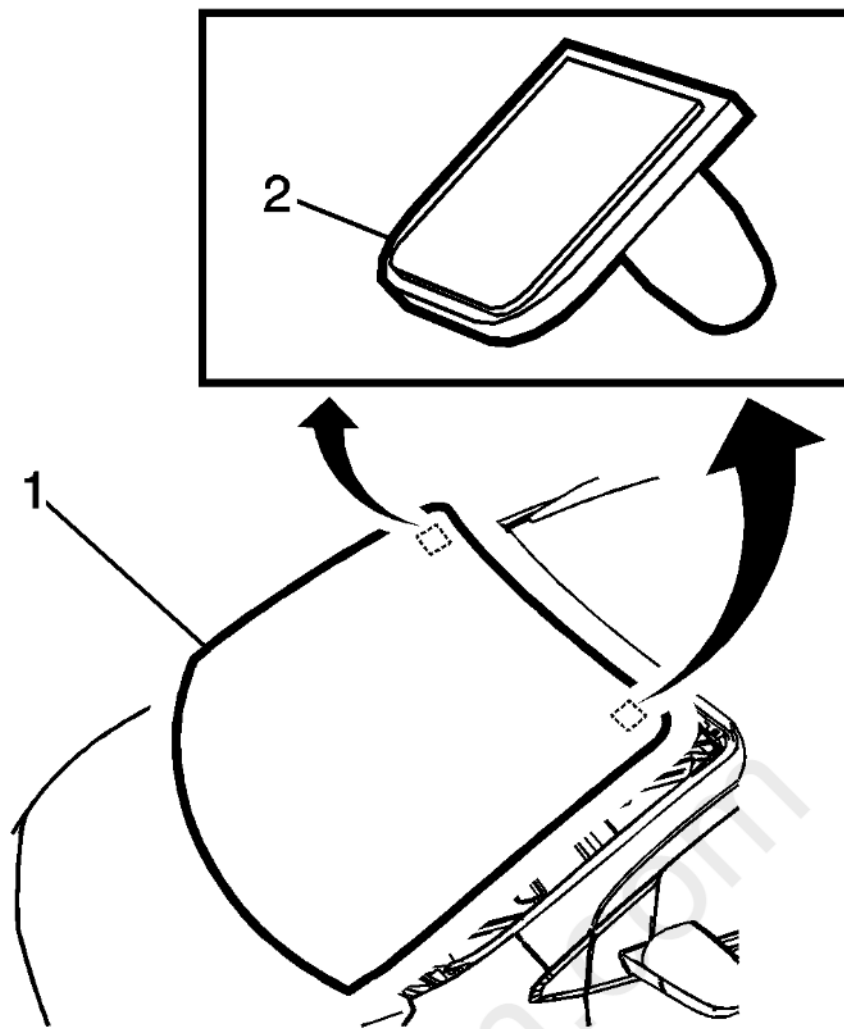
7. Use the appropriate tool in order to apply a smooth, continuous bead of urethane adhesive to the window or the pinchweld flange.



**Fig. 12: Applying Urethane Adhesive To Inner Surface Of Window**

**Courtesy of GENERAL MOTORS COMPANY**

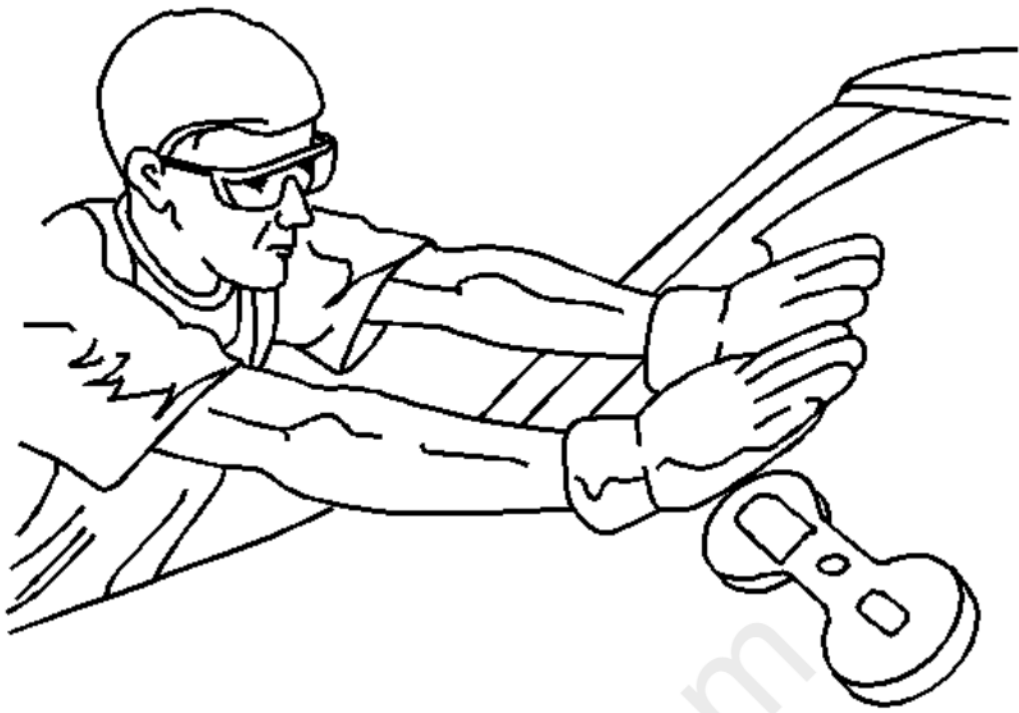
8. Use the edge of the window as a guide for the nozzle in order to apply a continuous bead of urethane adhesive (1) to the inner surface of the window (3).



**Fig. 13: Windshield & Locator Pins**

**Courtesy of GENERAL MOTORS COMPANY**

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

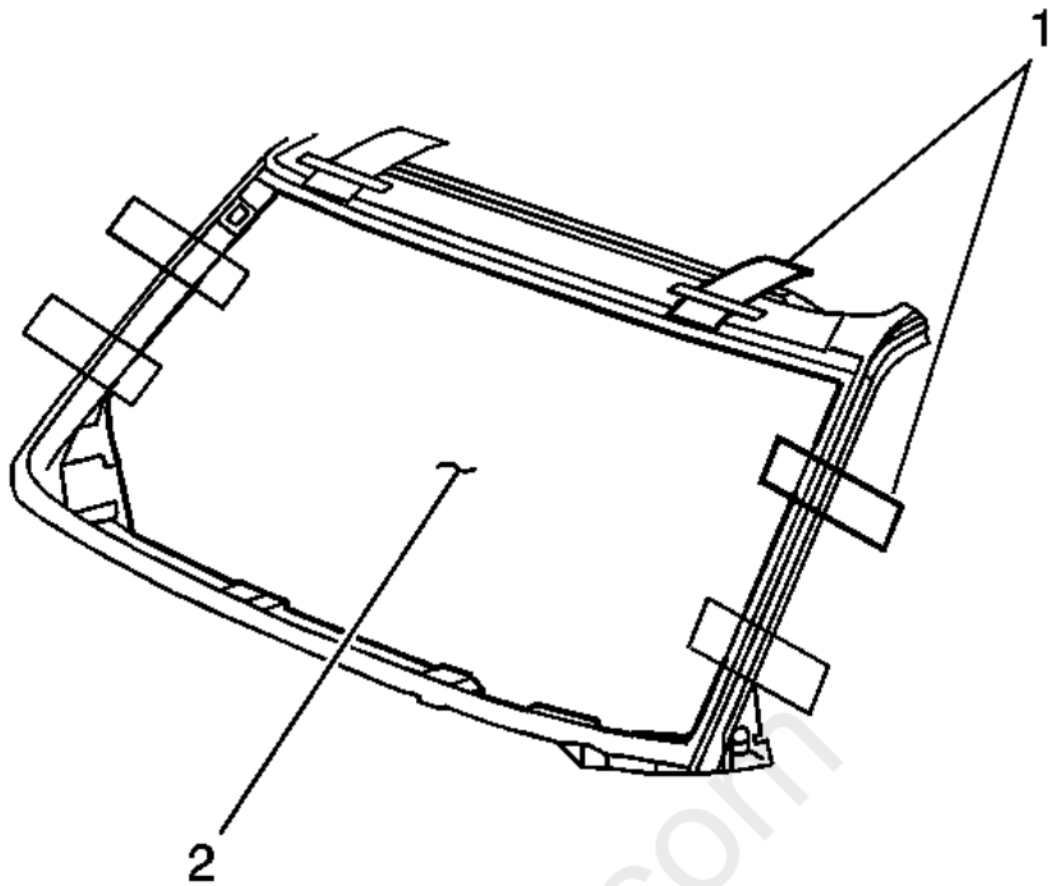


**Fig. 14: Pressing Window Into Place**

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.

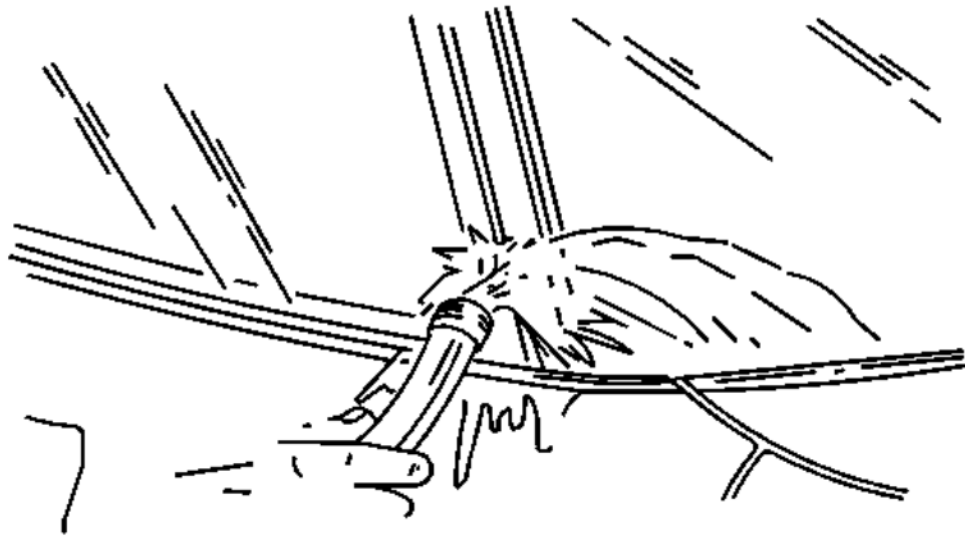


**Fig. 15: Aligning Tape Lines On Window To Body.**

**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.





**Fig. 16: 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.
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.

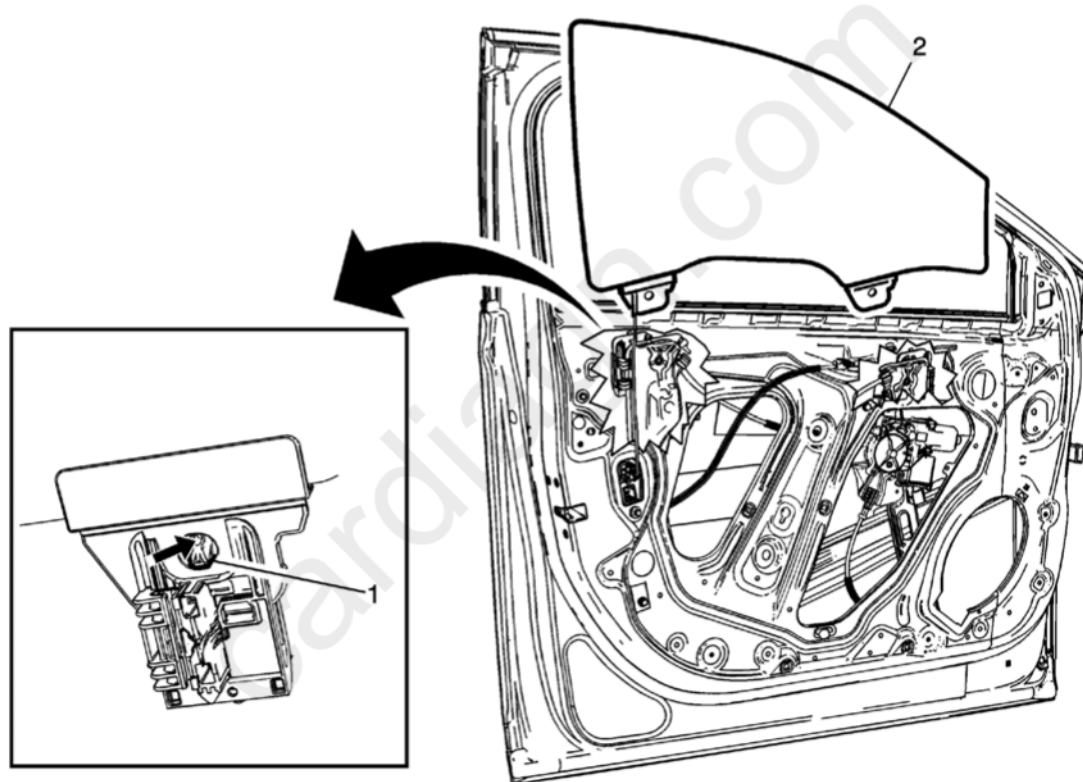
- For the moisture-curing type of urethane adhesive, allow a minimum of 6 hours at 21°C (70°F) or greater and with at least 30 percent relative humidity. Allow at least 24 hours for the complete curing of the urethane adhesive.
- For the chemical-curing type of urethane adhesive, allow a minimum of 1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

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

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. Install the front section of the headliner only. Refer to [Headlining Trim Panel Replacement \(With Sunroof\)](#) [Headlining Trim Panel Replacement \(Without Sunroof\)](#) .
  19. Install the sunshade. Refer to [Sunshade Replacement](#) .
  20. Install the remote control door lock receiver. Refer to [Remote Control Door Lock Receiver Replacement](#) if equipped.
  21. Install the rearview mirror. Refer to [Inside Rearview Mirror Replacement](#) .
  22. Install the windshield garnish moldings left and right side. Refer to [Windshield Garnish Molding Replacement](#) .
  23. Install the air inlet grille. Refer to [Air Inlet Grille Panel Replacement](#) .
  24. Install the windshield wipers arms. Refer to [Windshield Wiper Arm Replacement](#) .
  25. Remove the double layer of masking tape around the perimeter of the painted surfaces and the interior trim.
  26. Close the hood.

## FRONT SIDE DOOR WINDOW REPLACEMENT

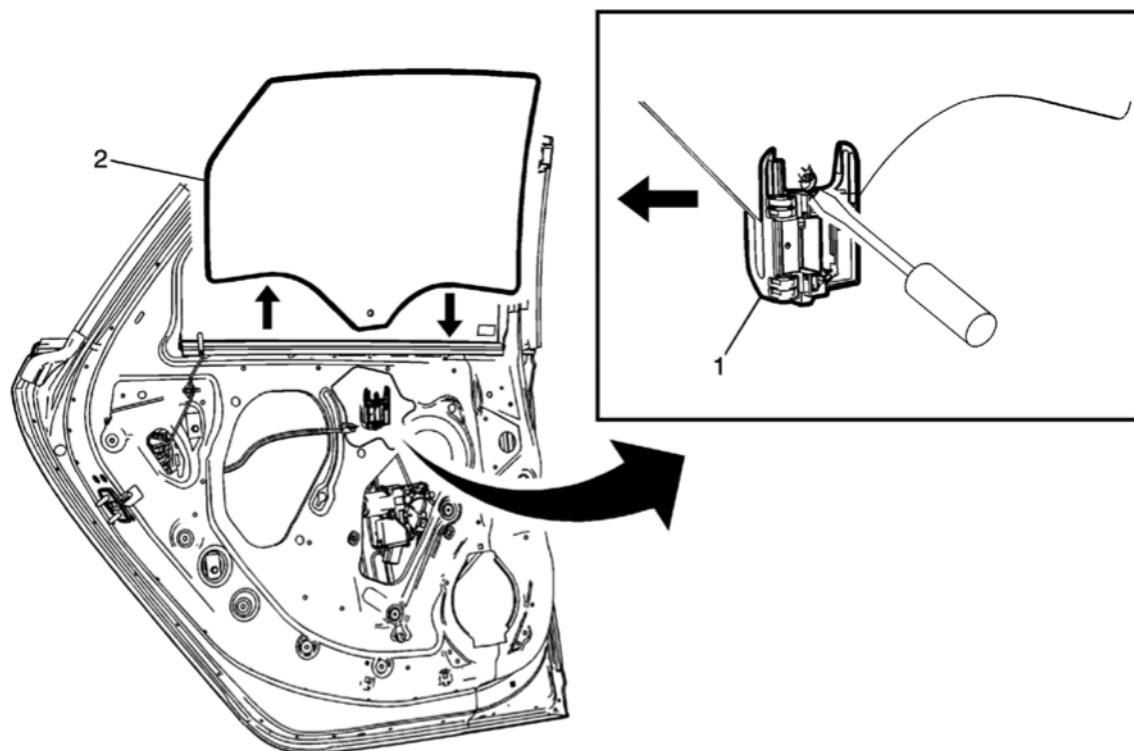


**Fig. 17: Front Side Door Window & Guide Retainer Clips**  
 Courtesy of GENERAL MOTORS COMPANY

| Callout | Component Name |
|---------|----------------|
|         |                |

| Callout                                                                                                                                                                                                                                                                                                                                                                            | Component Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>WARNING:</b><br>Refer to <a href="#">Glass and Sheet Metal Handling Warning</a> .                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>WARNING:</b><br>Disconnect the power window switch when working inside the door. When operated, the Express Up/Down Feature allows the door window to move very quickly, without stopping, which could cause personal injury.                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Preliminary Procedures</b>                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 1. Remove the radio front side door speaker. Refer to <a href="#">Radio Front Side Door Speaker Replacement</a> .<br>2. Remove the front side door garnish molding. Refer to <a href="#">Front Side Door Garnish Molding Replacement</a> .<br>3. Remove the front side door inner sealing strip. Refer to <a href="#">Front Side Door Window Inner Sealing Strip Replacement</a> . |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 1                                                                                                                                                                                                                                                                                                                                                                                  | Front Side Door Window Guide Retainer Clip (Qty: 2)<br><br><b>Procedure</b> <ol style="list-style-type: none"> <li>1. Apply masking tape to the applique and reveal belt molding and door frame.</li> <li>2. Position the window approximately half way down in the door.</li> <li>3. Remove the armrest bracket.</li> <li>4. Remove the front door water deflector.</li> <li>5. Use a suitable tool, push inward on the window guide retainer clip, lift upward on the window until it releases from the retaining clip on the left and right side.</li> <li>6. Tilt the window downward in the front, pull up on the back of the window and pull it out from the frame.</li> </ol> |
| 2                                                                                                                                                                                                                                                                                                                                                                                  | Front Side Door Window<br><b>Procedure</b><br>Place the window into the door frame, slide the window downward locking the retainers into the window retaining holes.<br><br><b>NOTE:</b><br><b>Inspect the window for proper operation before installing the trim.</b>                                                                                                                                                                                                                                                                                                                                                                                                               |

## REAR SIDE DOOR WINDOW REPLACEMENT



**Fig. 18: Rear Side Door Window & Guide Retainer Clip**

Courtesy of GENERAL MOTORS COMPANY

| Callout                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Component Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Preliminary Procedures</b> <ol style="list-style-type: none"> <li>1. Remove the rear side door trim. Refer to <a href="#">Rear Side Door Trim Replacement</a> .</li> <li>2. Remove the rear side door inner sealing strip. Refer to <a href="#">Rear Side Door Window Inner Sealing Strip Replacement</a>.</li> <li>3. Remove the rear side door belt reveal molding. Refer to <a href="#">Rear Side Door Window Belt Reveal Molding Replacement</a></li> <li>4. Remove the rear side door window rear channel. Refer to <a href="#">Rear Side Door Window Rear Channel Replacement</a>.</li> </ol> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Rear Side Door Window Guide Retainer Clip<br><b>Procedure</b> <ol style="list-style-type: none"> <li>1. Apply masking tape to the both appliques and frame.</li> <li>2. Position the window approximately half way down in the door.</li> <li>3. Remove the armrest bracket.</li> <li>4. Remove the rear door water deflector.</li> <li>5. Use a suitable tool, push inward on the window guide retainer clip, lift upward on the window until it releases from the retaining clip.</li> <li>6. Tilt the window downward in the rear, pull up on the back of the window and pull it out from the frame.</li> </ol> |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Rear Side Door Window<br><b>Procedure</b><br>Place the window into the door frame, slide the window downward locking the retainers into the window retaining hole.<br><br><b>NOTE:</b><br><b>Inspect the window for proper operation before installing the trim.</b>                                                                                                                                                                                                                                                                                                                                               |



## QUARTER WINDOW REPLACEMENT

### Special Tools

- **J 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

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

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

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

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

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

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

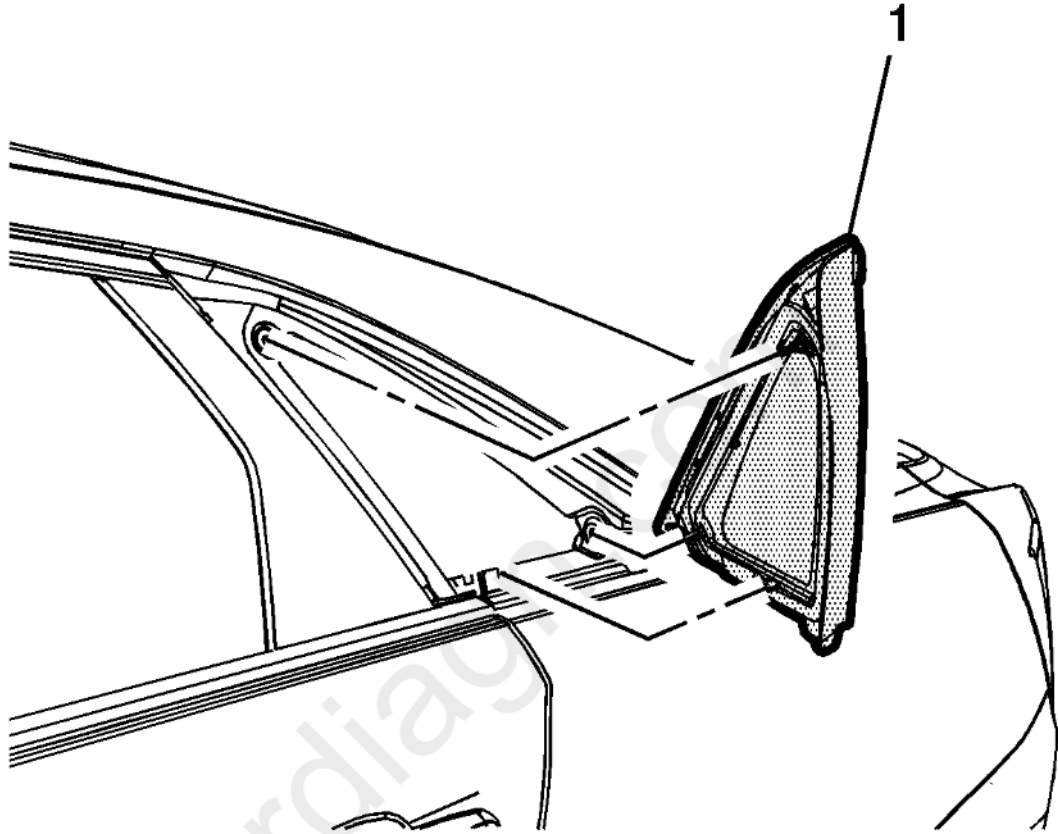
**NOTE:** Keep the cutting edge of the tool against the window. Use care Not to damage the window corner locator pins. If the window locator pins get cut off when removing the window it will be necessary to tape the window in place when installing.

4. Do this from inside the vehicle, use a suitable tool, cut around the window separating the window from the urethane adhesive.
  - If the original window 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.
  - Check that the locator pins are still attached to each corner of the window for installing, if reusing.
  - The only suitable lubrication is clear water, no oils, lubricates or soaps.
  - **BO-39032** Stationary Glass Removal Tool, or equivalent in order to remove the window.
5. Using the appropriate tool, cut around the window separating the window from urethane adhesive. Keep the cutting edge of the tool against the window. While cutting from inside the vehicle, reposition the tool to cut the urethane adhesive along the inner edge to release the window completely.
6. 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 DE15<sup>®</sup>, DuPont 2610<sup>®</sup>, Sherwin-Williams PSE 4600 and NP70<sup>®</sup> and Martin-Semour 5120 and 5130<sup>®</sup> PPG DP90LF SPIES/HECKER 3688/8590 - 3688/5150 - 4070/5090 STANDOX 11158/13320 - 14653/14980 products are approved for this application.

7. After repairing the opening as indicated, perform the following steps:
  1. Remove all traces of broken glass from the seats and floor.
  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.



**Fig. 19: Quarter Window**

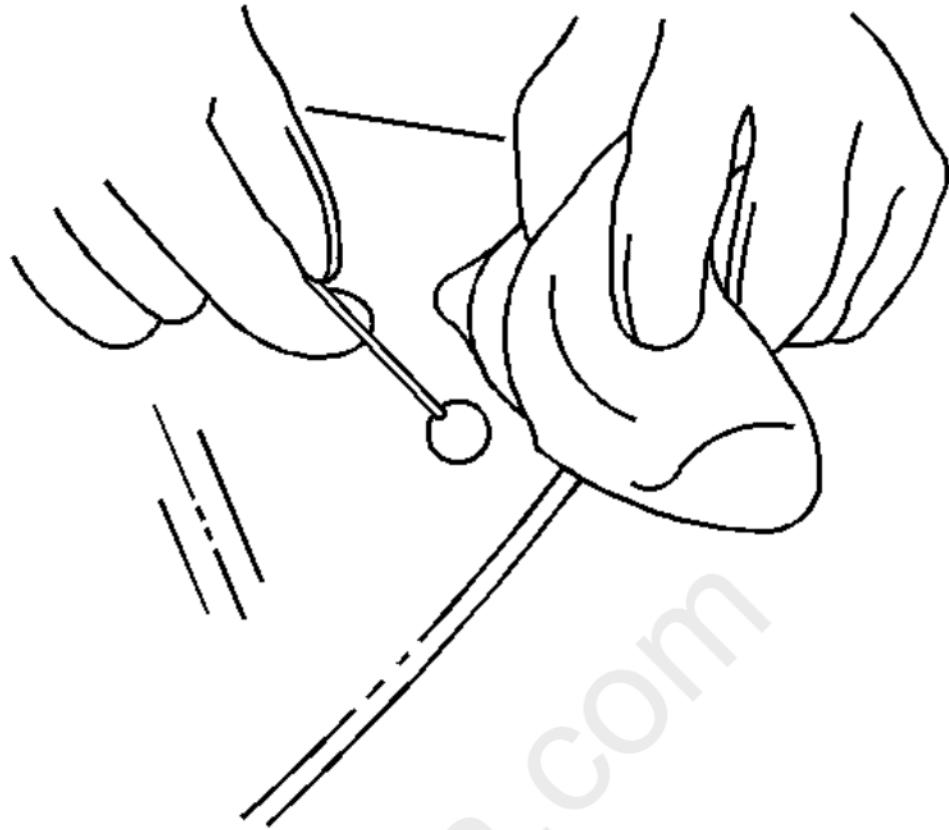
Courtesy of GENERAL MOTORS COMPANY

8. With an assistant, remove the window (1) from the vehicle.

#### **Installation Procedure**

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).



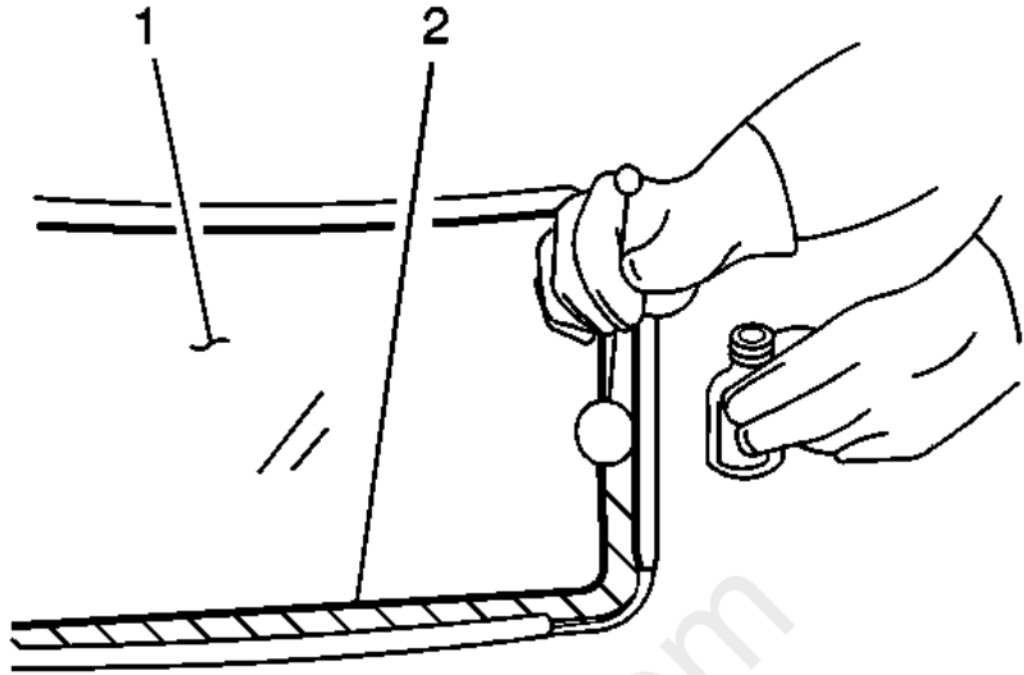


**Fig. 20: Applying Glass Prep**

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, per instructions by the manufacturer's.

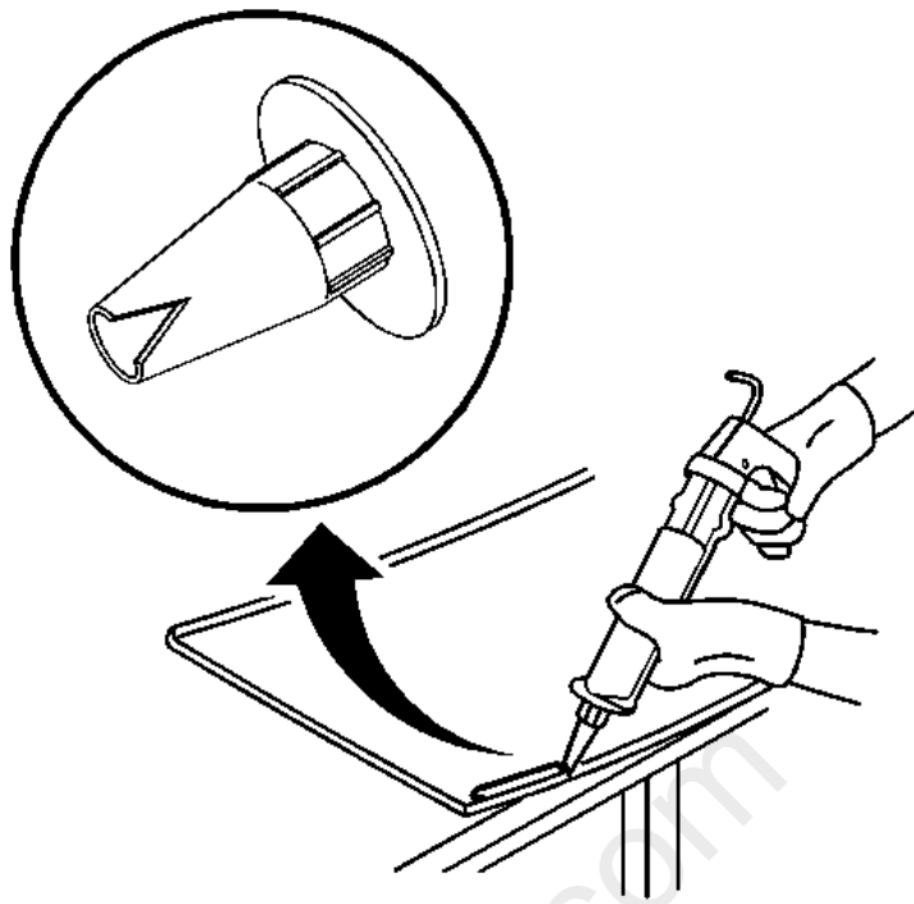


**Fig. 21: Applying Glass Primer**

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 the urethane adhesive excess unless using mechanical means.
- NOTE:** The Prep #2 Black Primer is for, Blackout primer, UV Blackout.

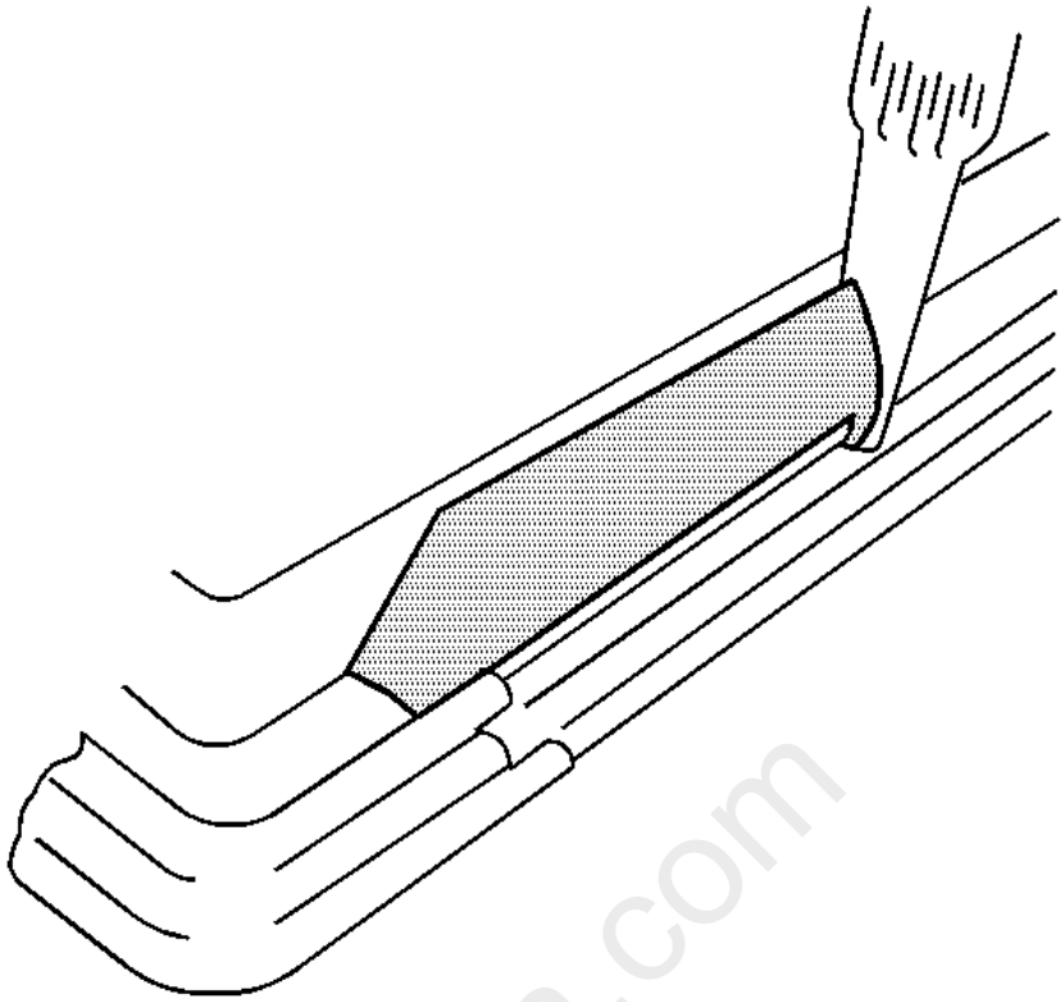
4. Apply the Prep #2 urethane adhesive primer (2) around the perimeter of the window (1), per instructions by the manufacturer's.



**Fig. 22: View Of Modified Applicator Nozzle**

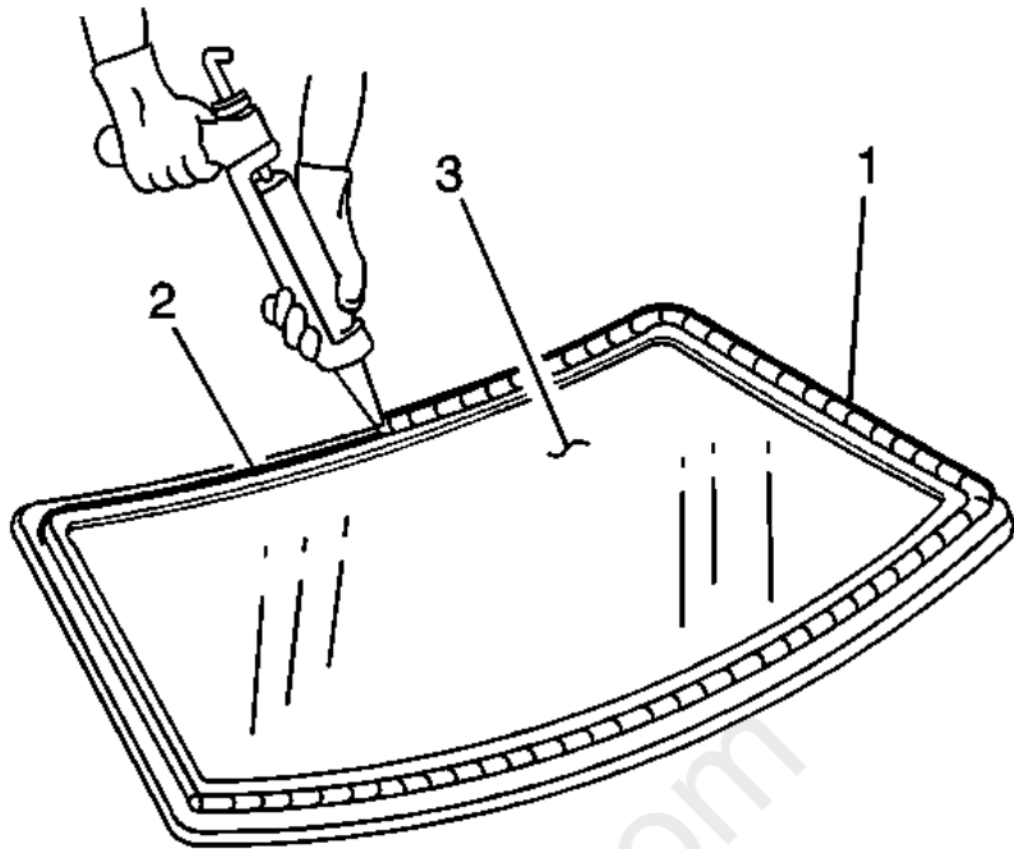
**Courtesy of GENERAL MOTORS COMPANY**

5. 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. 23: Applying Continuous Bead Of Urethane Adhesive**  
Courtesy of GENERAL MOTORS COMPANY

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

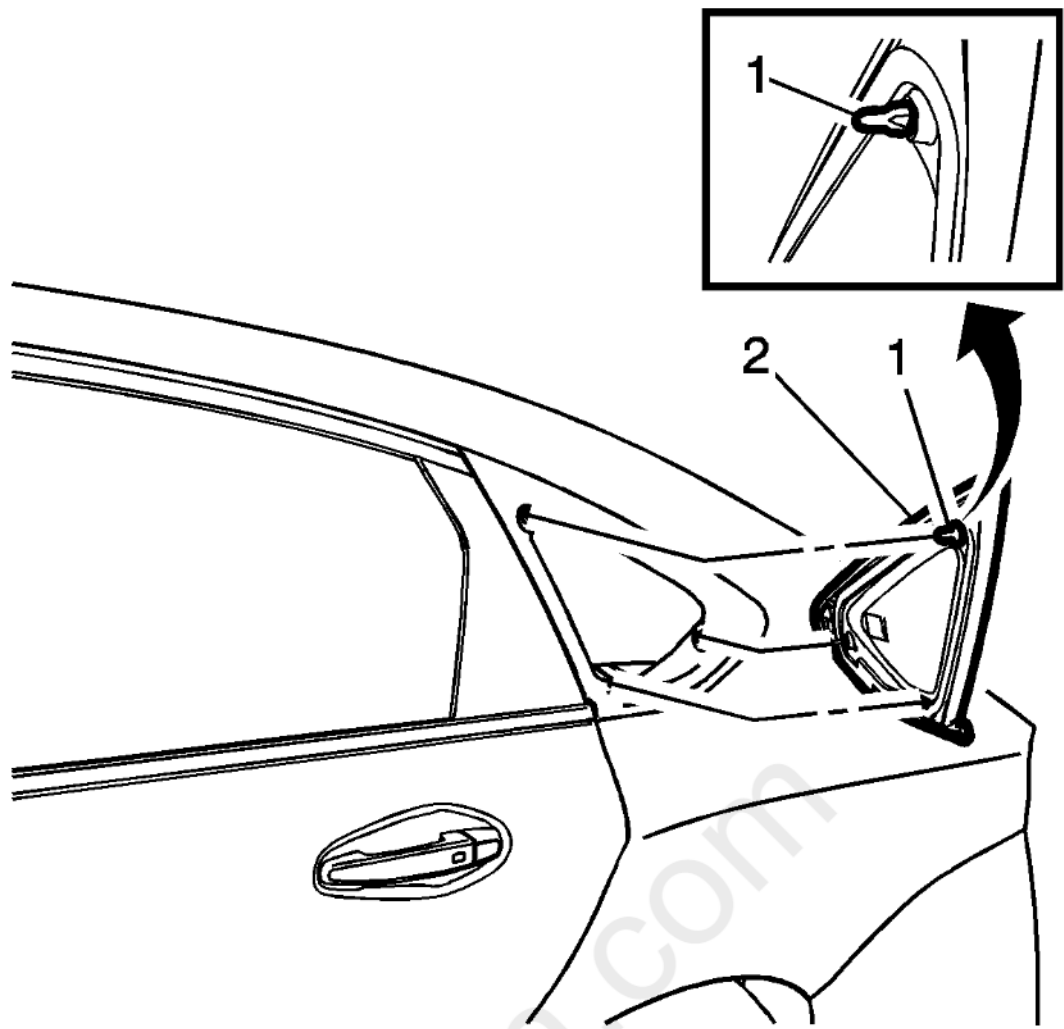


**Fig. 24: Applying Urethane Adhesive To Inner Surface Of Window**

**Courtesy of GENERAL MOTORS COMPANY**

7. 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).





**Fig. 25: Quarter Window & Locators**

Courtesy of GENERAL MOTORS COMPANY

8. Place the window (2) and locators (1) into the locator slots in the pinchweld flange of the vehicle.

**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.

9. Press firmly around the entire periphery of the window in order to wet-out the urethane adhesive bead.
10. Use masking tape to hold the window in the position until the urethane adhesive completely cures.
11. Remove the double layer of masking tape around the perimeter of the painted surfaces and the interior trim.

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

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

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

- For the moisture-curing type of urethane adhesive, allow a minimum of 6 hours at 21°C (70°F) or greater and with at

least 30 percent relative humidity. Allow at least 24 hours for the complete curing of the urethane adhesive.

- For the chemical-curing type of urethane adhesive, allow a minimum of 1 hour.

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

16. 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 for curing times.
  - Do not use compressed air in order to dry the urethane adhesive.
17. Install the quarter window trim finish panel. Refer to [Quarter Window Trim Finish Panel Replacement](#).
18. Remove the double layer of masking tape around the perimeter of the painted surfaces and the interior trim.
19. Close the rear door.

## REAR WINDOW 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. Apply a double layer of masking tape around the perimeter of the rear window, painted surfaces and the interior trim of the vehicle.
2. Open the rear side doors.
3. Remove the quarter window trim finish on the left and right side. Refer to [Quarter Window Trim Finish Panel Replacement](#).
4. Lower the rear edge of the headliner only, this will allow the appropriate tool to cut across the top of the window and not damage the headliner edge. Refer to [Headlining Trim Panel Replacement \(With Sunroof\)](#) [Headlining Trim Panel Replacement \(Without Sunroof\)](#).
5. Disconnect the electrical connectors from the rear window defogger bus bar.
6. Disconnect the connector from the radio antenna module. If equipped.
7. Open the rear compartment lid.
8. Remove the sealing strip from the lower edge of the rear window, if equipped.

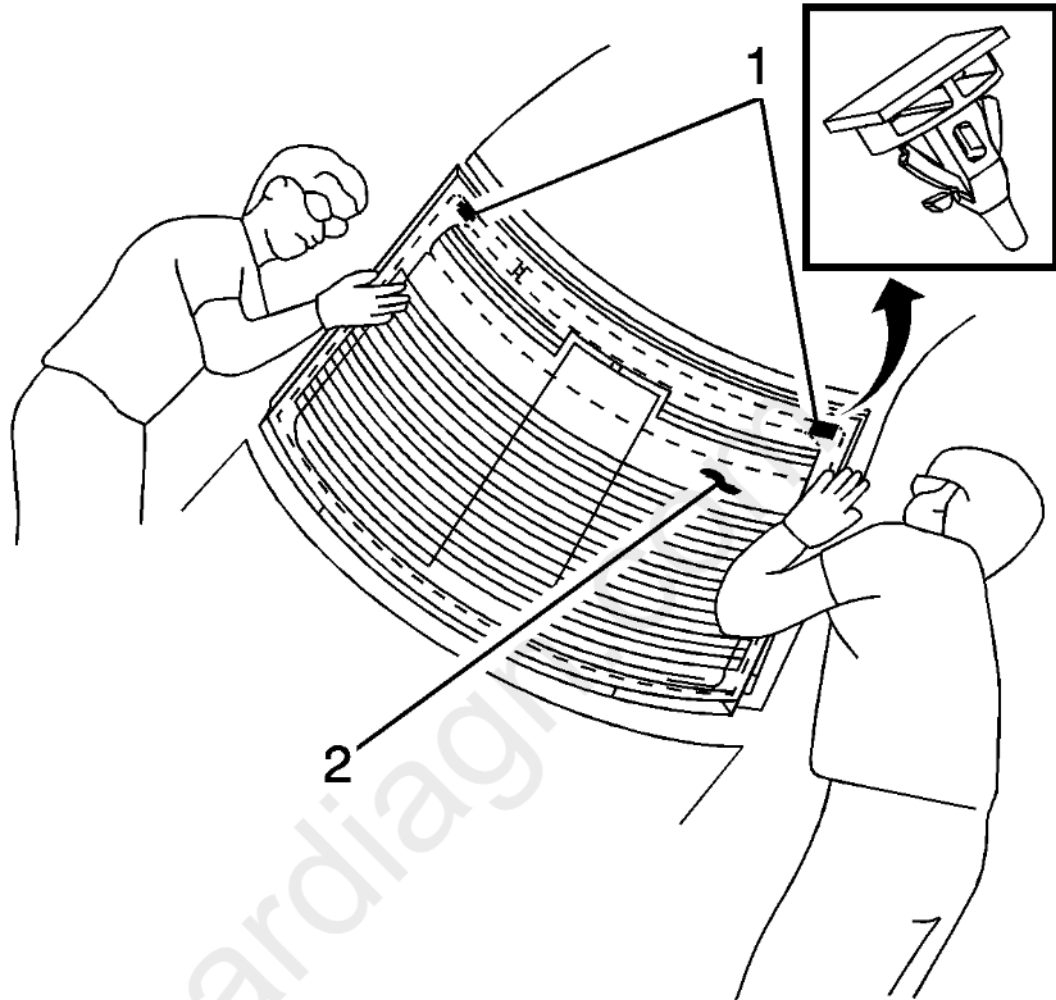
**WARNING:** If broken glass falls into the defroster outlets, it can be blown into the passenger compartment and cause personal injury.

9. Protect the following parts from broken glass, seats and carpeting.
10. 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.

11. Do the following steps when separating 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 to remove the window.
12. 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.



**Fig. 26: Installing Rear Window**  
Courtesy of GENERAL MOTORS COMPANY

13. With an assistant, remove the locators (1) and window (2) from the locator slots in the pinchweld flange of the vehicle after the window has been removed do the following:
1. Remove any window spacers and mark the location of each one, if equipped.
  2. Check that the locator pins are still attached to each upper corner of the window for installing, if reusing.
  3. Remove all mounds or loose pieces of urethane adhesive from the pinchweld area.
  4. If the original window 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.
14. 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 DE15<sup>®</sup>, DuPont 2610<sup>®</sup>, Sherwin-Williams PSE 4600 and NP70<sup>®</sup> and Martin-Semour 5120 and 5130<sup>®</sup> PPG DP90LF SPIES/HECKER 3688/8590 - 3688/5150 - 4070/5090 STANDOX 11158/13320 - 14653/14980 products are approved for this application.

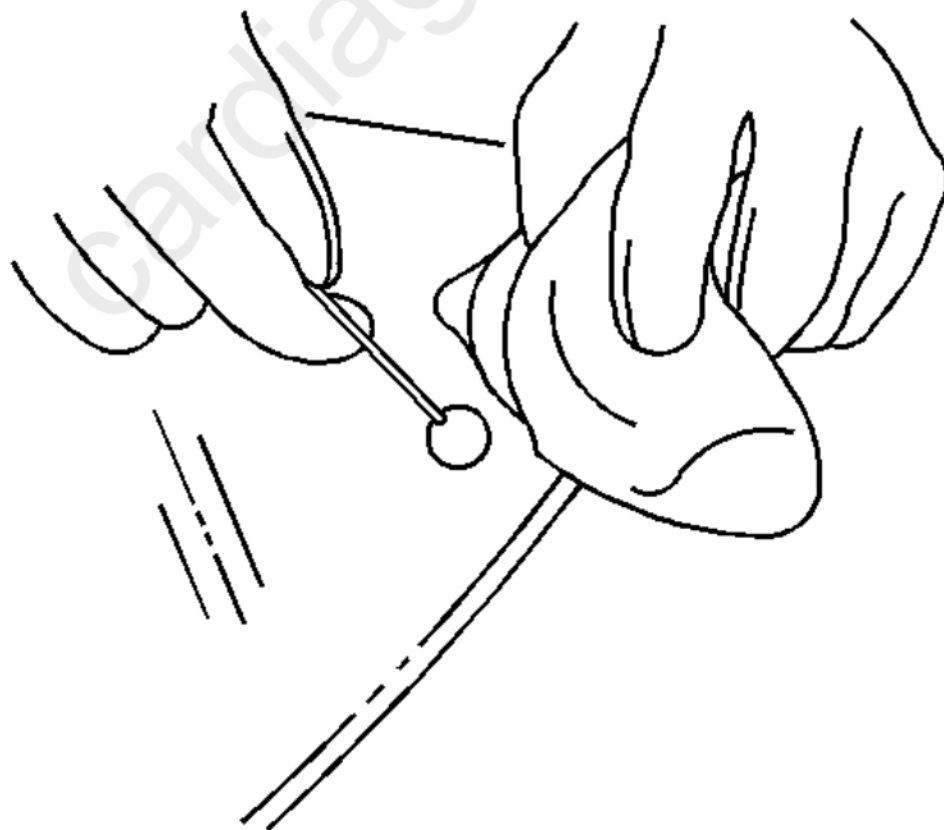
15. After repairing the opening as indicated, perform the following steps:

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).



**Fig. 27: Applying Glass Prep**

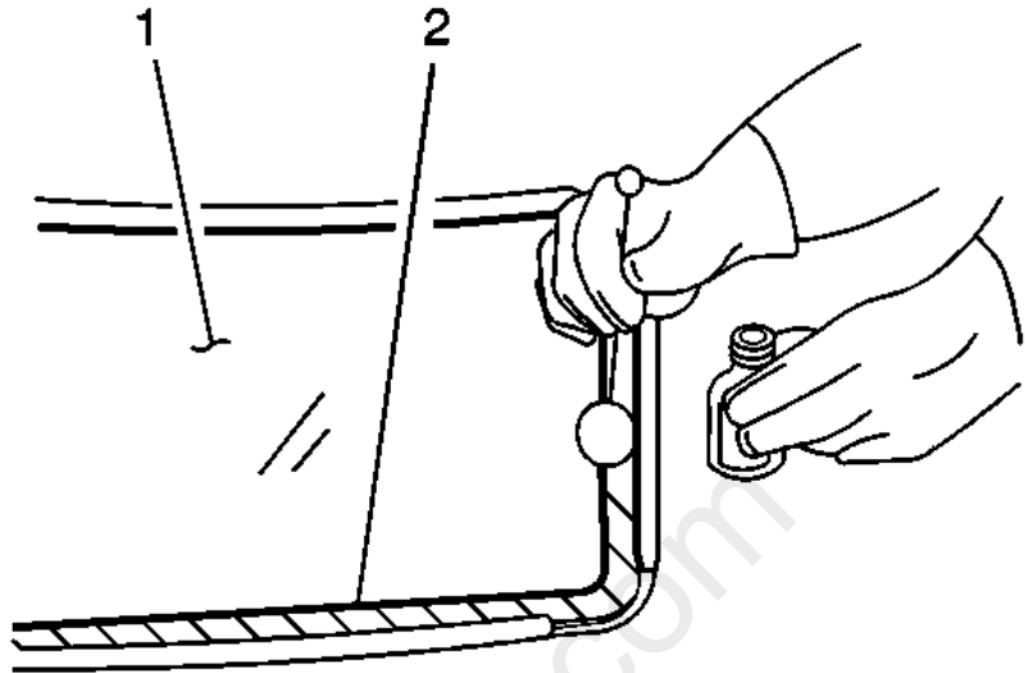
Courtesy of GENERAL MOTORS COMPANY

**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, per instructions by the manufacturer's.

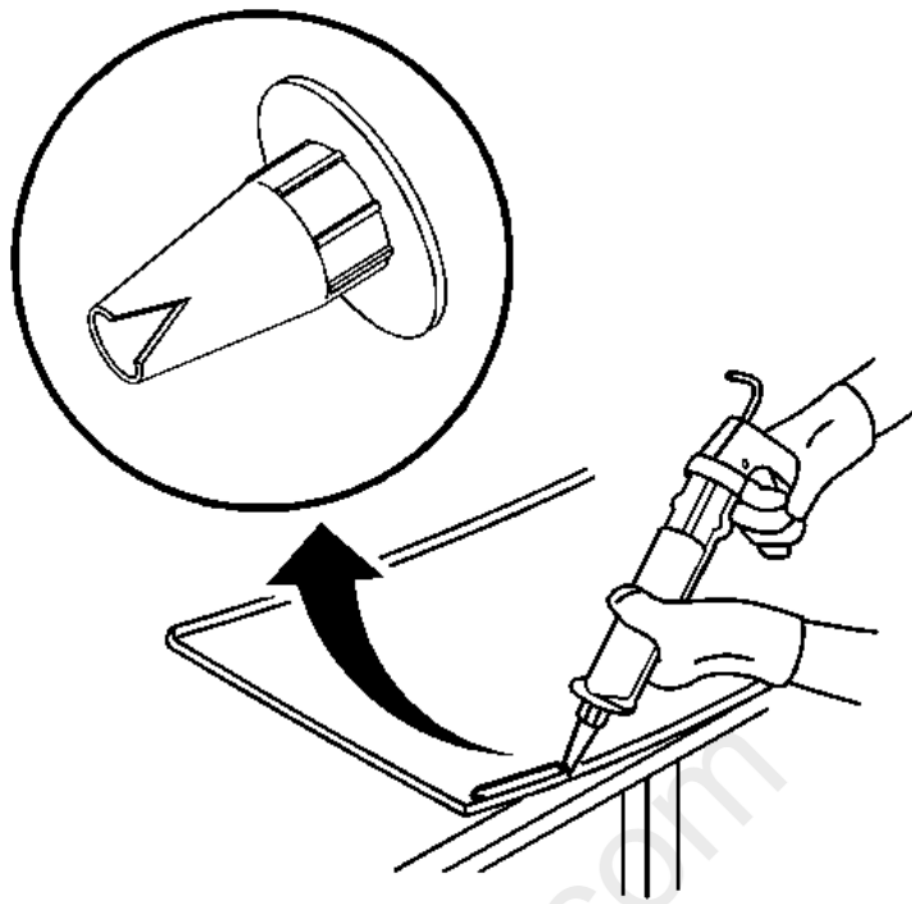


**Fig. 28: Applying Glass Primer**

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 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), per instructions by the manufacturer's.

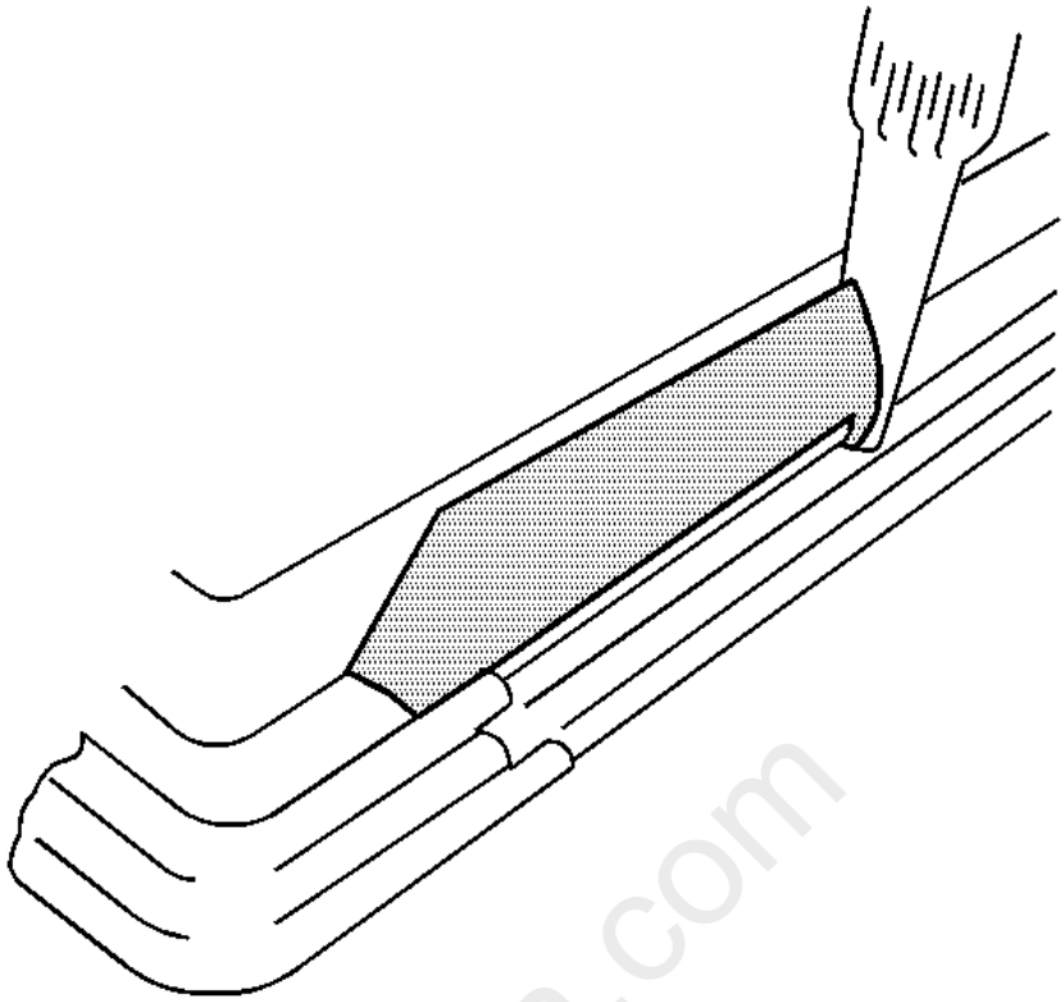


**Fig. 29: View Of Modified Applicator Nozzle**

**Courtesy of GENERAL MOTORS COMPANY**

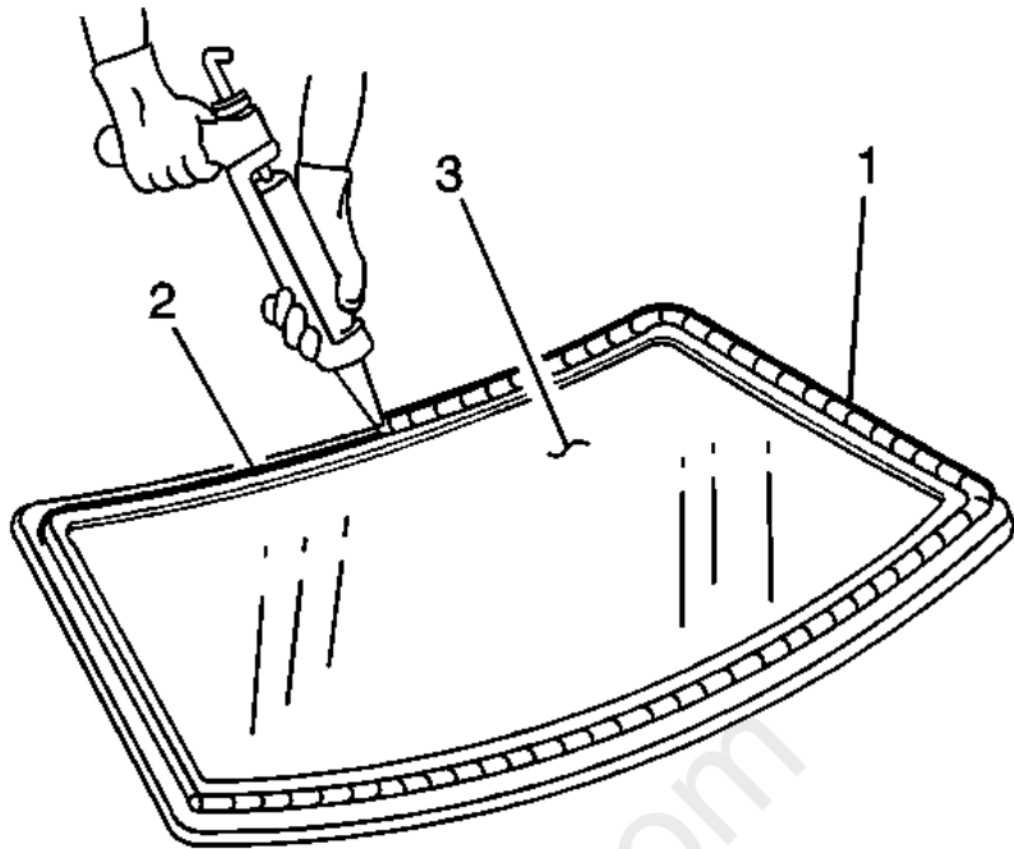
5. Cut the applicator nozzle in order to provide a bead of 12.7 mm (1/2 in) wide and 12.7 mm (1/2 in) high.





**Fig. 30: Applying Continuous Bead Of Urethane Adhesive**  
Courtesy of GENERAL MOTORS COMPANY

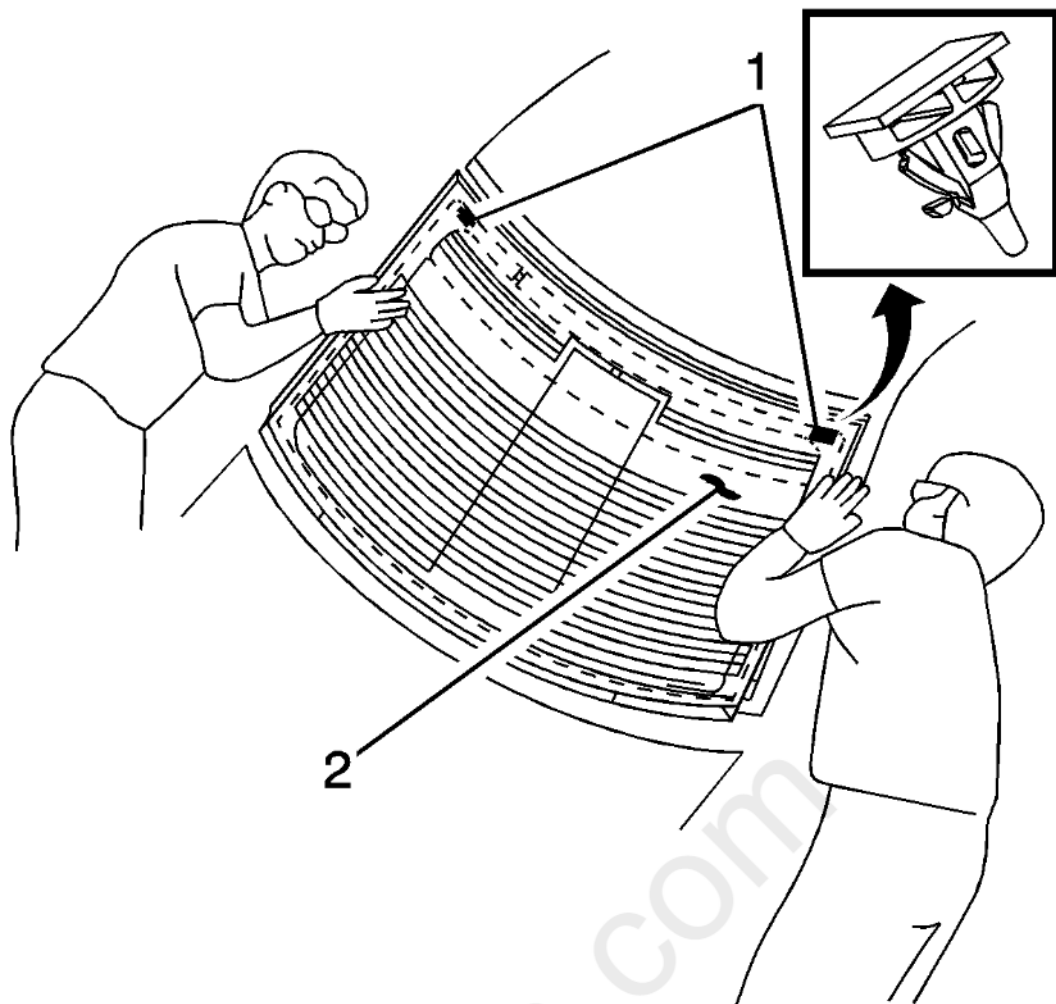
6. Use the appropriate tool in order to apply a smooth, continuous bead of urethane adhesive to the window or the pinchweld flange.



**Fig. 31: Applying Urethane Adhesive To Inner Surface Of Window**

**Courtesy of GENERAL MOTORS COMPANY**

7. 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).
8. Install the sealing strip from the lower edge of the rear window, if equipped.



**Fig. 32: Installing Rear Window**

Courtesy of GENERAL MOTORS COMPANY

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

**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.
11. Use masking tape to hold the window in the position until the urethane adhesive completely cures.
12. Remove the double layer of masking tape around the perimeter of the rear window, painted surfaces and the interior trim of the vehicle.

**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.
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 21°C (70°F) or greater and with at

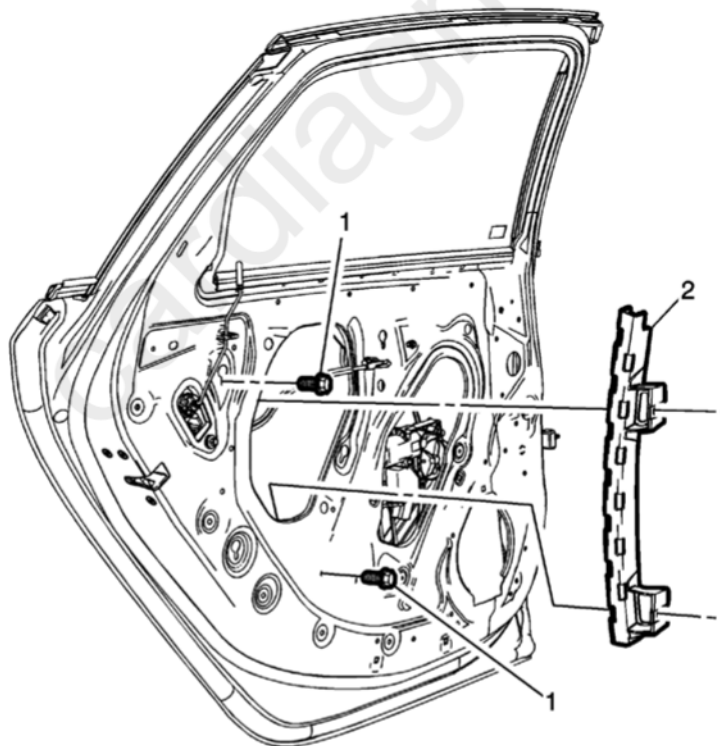
least 30 percent relative humidity. Allow at least 24 hours for the complete curing of the urethane adhesive.

- For the chemical-curing type of urethane adhesive, allow a minimum of 1 hour.

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

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. Install the rear edge of the headliner. Refer to [Headlining Trim Panel Replacement \(With Sunroof\)](#) [Headlining Trim Panel Replacement \(Without Sunroof\)](#) .
19. Connect the electrical connectors from the rear window defogger bus bar.
20. Connect the connector from the radio antenna module. If equipped.
21. Install the quarter window trim finish on the left and right side. Refer to [Quarter Window Trim Finish Panel Replacement](#) ..
22. Close the rear side doors.
23. Close the rear compartment lid.

## REAR SIDE DOOR WINDOW REAR CHANNEL REPLACEMENT



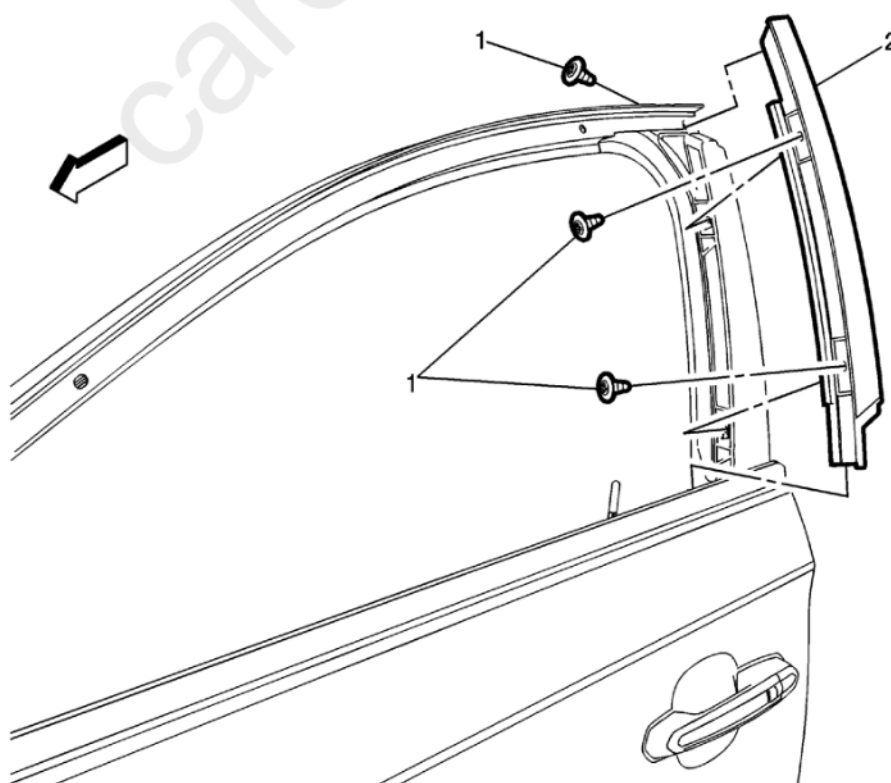
**Fig. 33: Rear Side Door Window Rear Channel & Bolts**

Courtesy of GENERAL MOTORS COMPANY

| Callout                                                                                    | Component Name |
|--------------------------------------------------------------------------------------------|----------------|
| <b>Preliminary Procedure</b>                                                               |                |
| Remove the rear side door trim. Refer to <a href="#">Rear Side Door Trim Replacement</a> . |                |
|                                                                                            |                |

| Callout | Component Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | <p>Rear Side Door Window Rear Channel Bolt (Qty: 2)</p> <p><b>CAUTION:</b><br/>Refer to <a href="#">Fastener Caution</a> .</p> <p><b>Procedure</b></p> <ol style="list-style-type: none"> <li>1. Place the window in the full up position.</li> <li>2. Remove the armrest bracket.</li> <li>3. Remove the rear door water deflector.</li> <li>4. Pull the lower section of the window weatherstrip out of the rear lower channel.</li> <li>5. Pull the rear side door window rear channel downward releasing it from the stationary window.</li> <li>6. Remove the electrical harness retainer from the channel.</li> </ol> <p><b>Tighten</b><br/>10 N.m (89 lb in)</p> |
| 2       | <p>Rear Side Door Window Rear Channel</p> <p><b>Procedure</b></p> <ol style="list-style-type: none"> <li>1. When installing the rear side door window rear channel ensure that it is in line with the stationary window so that the window will roll properly.</li> <li>2. After install the rear side door window rear channel, start at the top of the channel working downward.</li> </ol> <p><b>NOTE:</b><br/>Inspect the window for proper operation before installing the trim.</p>                                                                                                                                                                               |

## FRONT SIDE DOOR WINDOW FRAME REAR APPLIQUE REPLACEMENT

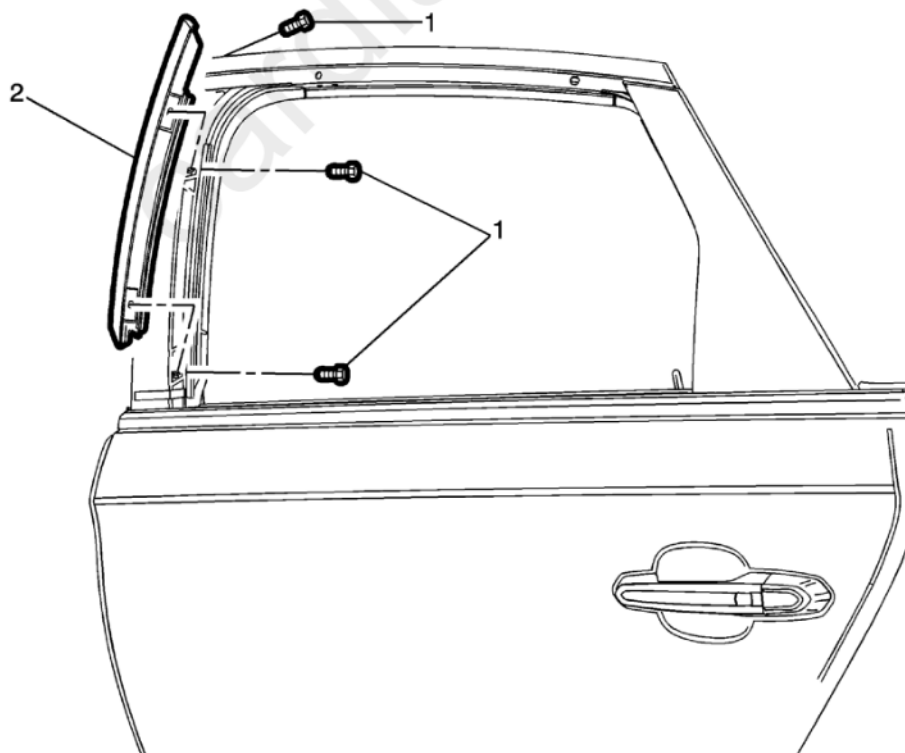


**Fig. 34: Front Side Door Window Frame Rear Applique & Fasteners**  
Courtesy of GENERAL MOTORS COMPANY



| Callout                                                                                                                                                                                                                                                                                                                                           | Component Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Preliminary Procedures</b> <ol style="list-style-type: none"> <li>1. Remove the front side door belt reveal molding. Refer to <a href="#">Front Side Door Window Belt Reveal Molding Replacement</a>.</li> <li>2. Remove the front side door garnish molding. Refer to <a href="#">Front Side Door Garnish Molding Replacement</a>.</li> </ol> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 1                                                                                                                                                                                                                                                                                                                                                 | Front Side Door Applique Fastener (Qty: 3)<br><br><b>CAUTION:</b><br>Refer to <a href="#">Fastener Caution</a> .<br><br><b>Procedure</b> <ol style="list-style-type: none"> <li>1. Place the window in the full down position.</li> <li>2. With the door open, remove the upper rear screw attaching the weatherstrip to the door frame.</li> <li>3. Use a suitable tool, starting in the upper corner of the door frame pulling the weatherstrip partly out of the rear side door frame to access the screws.</li> </ol> |
| 2                                                                                                                                                                                                                                                                                                                                                 | Front Side Door Applique<br><b>Procedure</b><br>Work the weatherstrip around the inner door frame, ensure that the weatherstrip is fully seated before operating the window.<br><br><b>NOTE:</b><br>Inspect the door window for proper operation.                                                                                                                                                                                                                                                                         |

## REAR SIDE DOOR WINDOW FRAME FRONT APPLIQUE REPLACEMENT



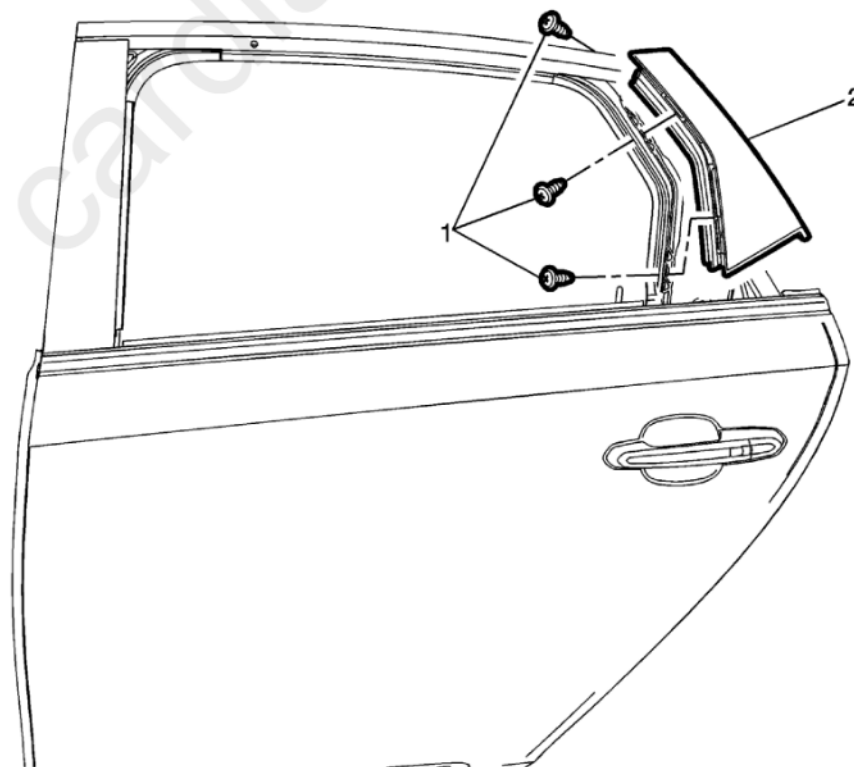
**Fig. 35: Rear Side Door Window Frame Front Applique & Fasteners**  
 Courtesy of GENERAL MOTORS COMPANY

| Callout | Component Name |
|---------|----------------|
|         |                |



| Callout                                                                                                                                                                                                                                                                                                                                       | Component Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Preliminary Procedures</b> <ol style="list-style-type: none"> <li>1. Remove the rear side door belt reveal molding. Refer to <a href="#">Rear Side Door Window Belt Reveal Molding Replacement</a>.</li> <li>2. Remove the rear side door garnish molding. Refer to <a href="#">Rear Side Door Garnish Molding Replacement</a>.</li> </ol> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1                                                                                                                                                                                                                                                                                                                                             | Rear Side Door Window Frame Front Applique Fastener (Qty: 3)<br><br><b>CAUTION:</b><br>Refer to <a href="#">Fastener Caution</a> .<br><br><b>Procedure</b> <ol style="list-style-type: none"> <li>1. Place the window in the down position.</li> <li>2. With the door open, remove the upper front screw attaching the weatherstrip to the door frame.</li> <li>3. Use a suitable tool, starting in the upper corner of the door frame pulling the weatherstrip partly out of the front side door frame to access the screws.</li> </ol> |
| 2                                                                                                                                                                                                                                                                                                                                             | Rear Side Door Window Frame Front Applique<br><b>Procedure</b><br>Work the weatherstrip around the inner door frame, ensure that the weatherstrip is fully seated before operating the window.<br><br><b>NOTE:</b><br><b>Inspect the door window for proper operation.</b>                                                                                                                                                                                                                                                               |

## REAR SIDE DOOR WINDOW FRAME REAR APPLIQUE REPLACEMENT

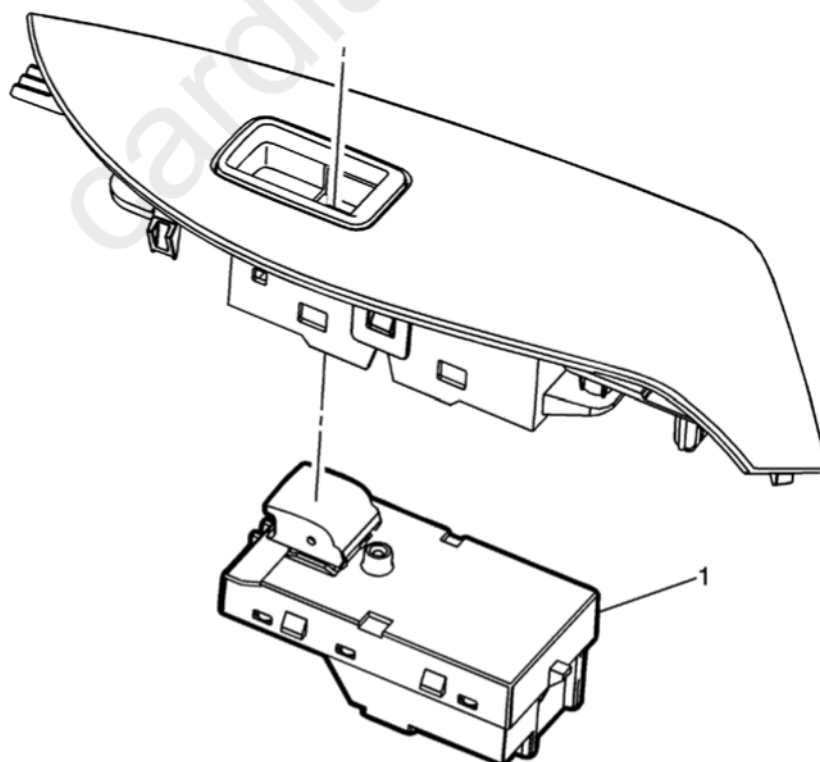


**Fig. 36: Rear Side Door Window Frame Rear Applique & Fasteners**  
Courtesy of GENERAL MOTORS COMPANY

| Callout | Component Name |
|---------|----------------|
|         |                |

| Callout                                                                                                                                                                                                                                                                                                                                  | Component Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Preliminary Procedures</b> <ol style="list-style-type: none"> <li>1. Remove the rear side door belt reveal molding. Refer to <a href="#">Rear Side Door Window Belt Reveal Molding Replacement</a>.</li> <li>2. Remove the rear side garnish molding. Refer to <a href="#">Rear Side Door Garnish Molding Replacement</a>.</li> </ol> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 1                                                                                                                                                                                                                                                                                                                                        | Rear Side Door Window Rear Frame Rear Applique Fastener (Qty: 3)<br><br><b>CAUTION:</b><br>Refer to <a href="#">Fastener Caution</a> .<br><br><b>Procedure</b> <ol style="list-style-type: none"> <li>1. Place the window in the down position.</li> <li>2. With the door open, remove the upper rear screw attaching the weatherstrip to the door frame.</li> <li>3. Use a suitable tool, starting in the upper corner of the door frame pulling the weatherstrip partly out of the rear side door frame to access the screws.</li> </ol> |
| 2                                                                                                                                                                                                                                                                                                                                        | Rear Side Door Window Rear Frame Rear Applique<br><b>Procedure</b><br>Work the weatherstrip around the inner door frame, ensure that the weatherstrip is fully seated before operating the window.<br><br><b>NOTE:</b><br><b>Inspect the door window for proper operation.</b>                                                                                                                                                                                                                                                             |

## FRONT SIDE DOOR WINDOW SWITCH REPLACEMENT (PASSENGER)

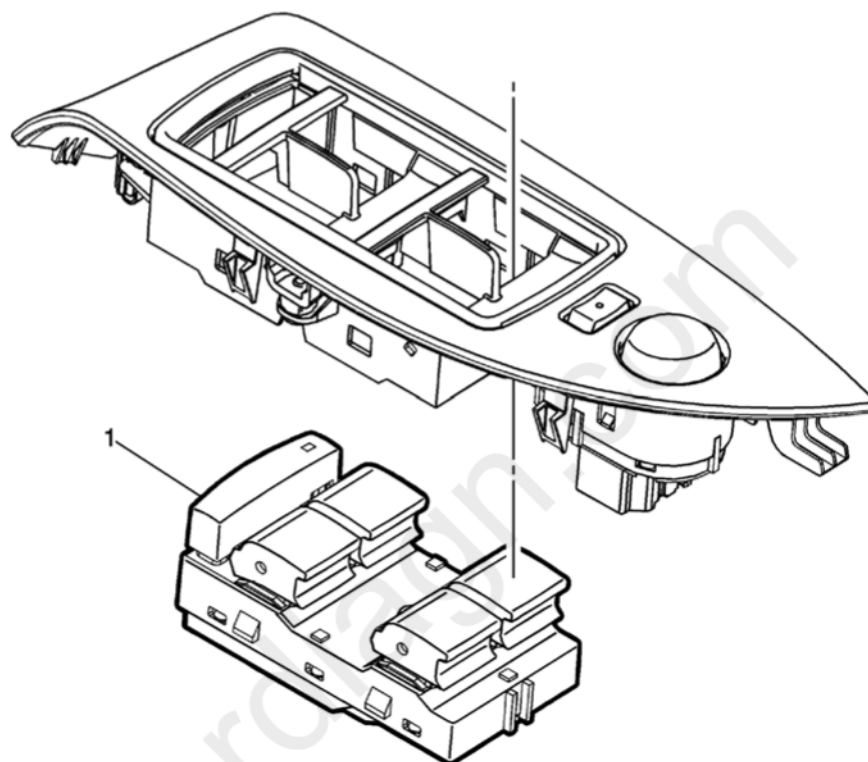


**Fig. 37: Front Side Door Window Switch (Passenger)**  
Courtesy of GENERAL MOTORS COMPANY

| Callout | Component Name |
|---------|----------------|
|         |                |

| Callout                                                                                                                                                                      | Component Name                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Preliminary Procedure</b><br>Remove the front side door accessory switch mount plate. Refer to <a href="#">Front Side Door Accessory Switch Mount Plate Replacement</a> . |                                                                                                                                                                                                                                                                                                               |
| 1                                                                                                                                                                            | Front Side Door Window Switch Assembly<br><br><b>Procedure</b> <ol style="list-style-type: none"> <li>1. Release tabs on switch to remove from front side door accessory switch mount plate.</li> <li>2. Refer to <a href="#">Control Module References</a> for programming and set up procedures.</li> </ol> |

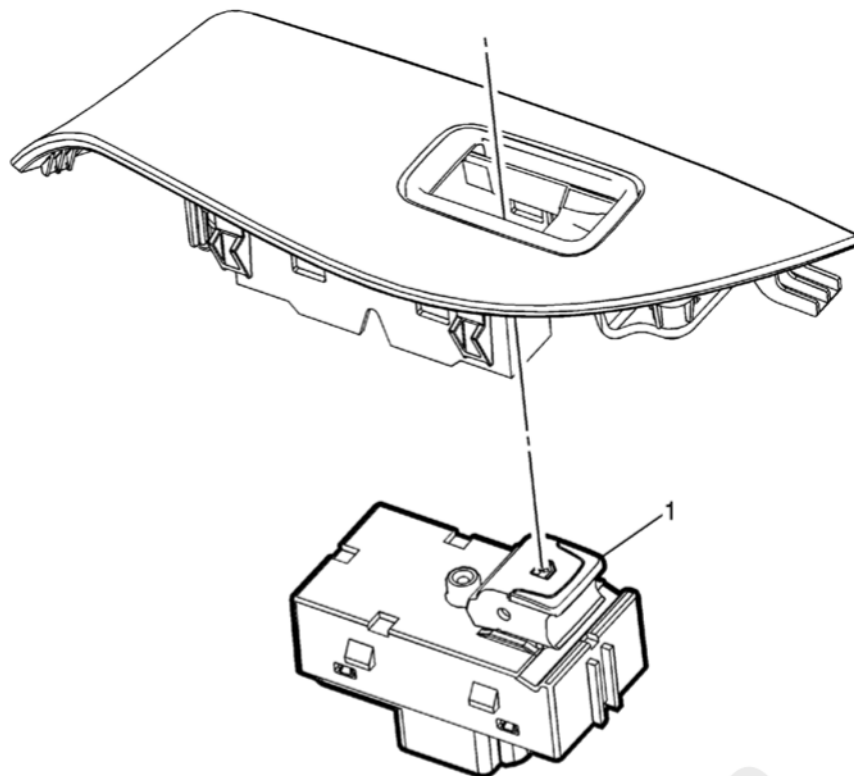
## FRONT SIDE DOOR WINDOW AND MULTIFUNCTION SWITCH REPLACEMENT



**Fig. 38: Front Side Door Window and Multifunction Switch**  
Courtesy of GENERAL MOTORS COMPANY

| Callout                                                                                                                                                                      | Component Name                                                                                                                                                                                                                                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Preliminary Procedure</b><br>Remove the front side door accessory switch mount plate. Refer to <a href="#">Front Side Door Accessory Switch Mount Plate Replacement</a> . |                                                                                                                                                                                                                                                                                                                                     |
| 1                                                                                                                                                                            | Front Side Door Window and Multifunction Switch Assembly<br><br><b>Procedure</b> <ol style="list-style-type: none"> <li>1. Release tabs on switch to remove from the front side door accessory switch mount plate.</li> <li>2. Refer to <a href="#">Control Module References</a> for programming and set up procedures.</li> </ol> |

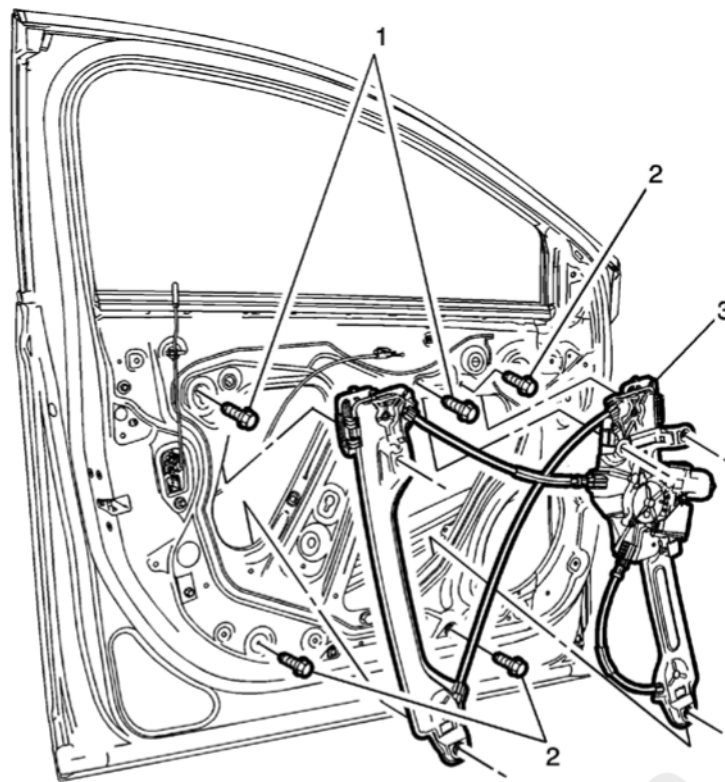
## REAR SIDE DOOR WINDOW SWITCH REPLACEMENT



**Fig. 39: Rear Side Door Window Switch**  
 Courtesy of GENERAL MOTORS COMPANY

| Callout                                                                                                                                                                    | Component Name                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Preliminary Procedure</b><br>Remove the rear side door accessory switch mount plate. Refer to <a href="#">Rear Side Door Accessory Switch Mount Plate Replacement</a> . |                                                                                                                                                                                                                                                                                                                     |
| 1                                                                                                                                                                          | Rear Side Door Window Switch Assembly<br><br><b>Procedure</b> <ol style="list-style-type: none"> <li>1. Release the tabs on switch to remove from the rear side door accessory switch mount plate.</li> <li>2. Refer to <a href="#">Control Module References</a> for programming and set up procedures.</li> </ol> |

## FRONT SIDE DOOR WINDOW REGULATOR REPLACEMENT



**Fig. 40: Front Side Door Window Regulator & Mounting Components**

Courtesy of GENERAL MOTORS COMPANY

| Callout                                                                                                                      | Component Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Preliminary Procedure</b><br>Remove the front side door trim. Refer to <a href="#">Front Side Door Trim Replacement</a> . |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 1                                                                                                                            | <p>Front Side Door Window Regulator Upper Bolt (Qty: 2)</p> <p><b>WARNING:</b><br/>Refer to <a href="#">Glass and Sheet Metal Handling Warning</a> .</p> <p><b>WARNING:</b><br/>Disconnect the power window switch when working inside the door.<br/>When operated, the Express Up/Down Feature allows the door window to move very quickly, without stopping, which could cause personal injury.</p> <p><b>CAUTION:</b><br/>Refer to <a href="#">Fastener Caution</a> .</p> <p><b>Procedure</b></p> <ol style="list-style-type: none"> <li>1. Remove the armrest bracket.</li> <li>2. Remove the water deflector.</li> <li>3. Position the window to access the 2 window guide retainers. Refer to <a href="#">Front Side Door Window Replacement</a>.</li> <li>4. Push the window to the full up position and tape in place.</li> </ol> <p><b>NOTE:</b><br/>Leave the two upper bolts in the window regulator for alignment when installing. It maybe necessary to transfer the bolts if replacing the window regulator.</p> <p><b>Tighten</b><br/>10 N.m (89 lb in)</p> |



| Callout | Component Name                                                                                                                                                                                                                                                                                                                               |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2       | Front Side Door Window Regulator Lower Bolt (Qty: 3)<br><b>Procedure</b><br>Disconnect the front side door window regulator electrical connector.<br><b>Tighten</b><br>10 N.m (89 lb in)                                                                                                                                                     |
| 3       | Front Side Door Window Regulator<br><b>Procedure</b><br>Transfer the power window motor, if necessary and program it after its installing in the vehicle. Refer to <a href="#">Window Motor Programming - Express Function</a> .<br><br><b>NOTE:</b><br><b>Inspect the door window for proper operation before installing the door trim.</b> |

## WINDOW MOTOR PROGRAMMING - EXPRESS FUNCTION

### Window Motor Normalized Procedure

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

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

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

Open, then Close Driver Window

Open, then Close Passenger Window

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

To normalize the window motor, follow these steps:

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

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

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

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



## Window Motor Relearn Procedure

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

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

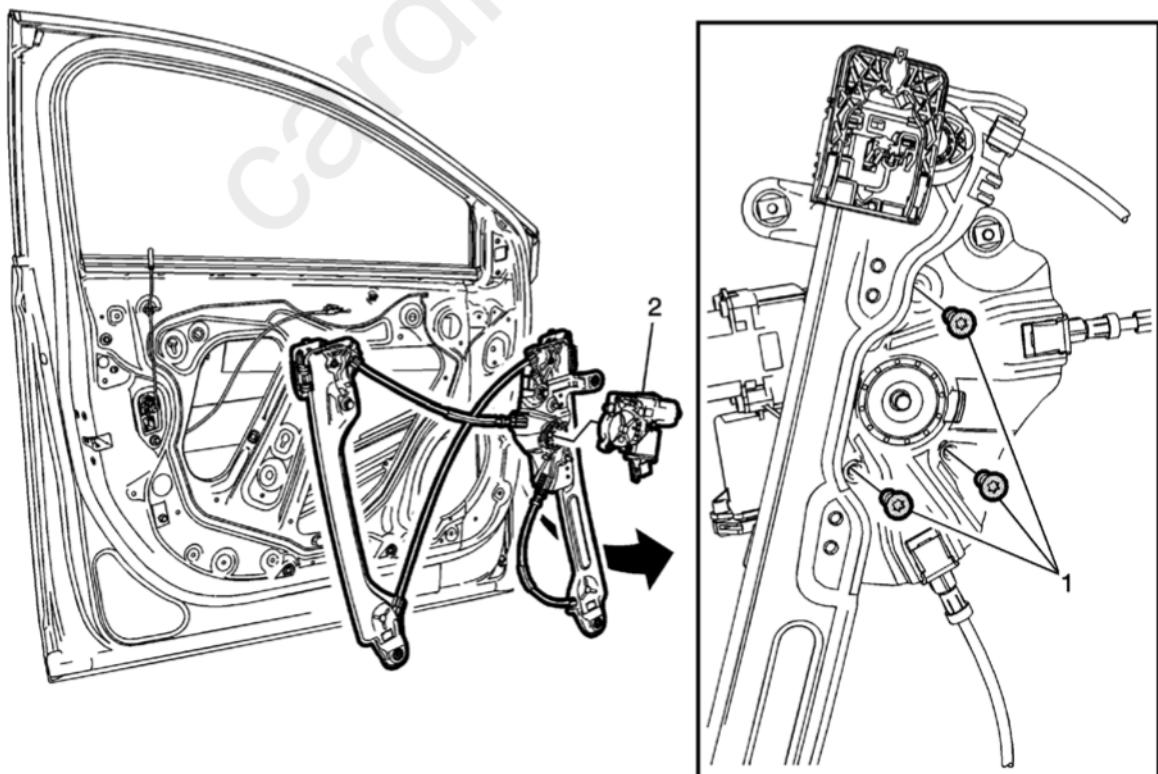
**NOTE:** Prior to performing the relearn procedure the vehicle must have all 4 wheels properly inflated and mounted, the vehicle must be sitting on a level surface and all doors must be completely closed and for vehicles equipped with a folding convertible top, the top must be closed and firmly latched..

To relearn the window motor, follow these steps:

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

The window is now reprogrammed.

## FRONT SIDE DOOR WINDOW REGULATOR MOTOR REPLACEMENT

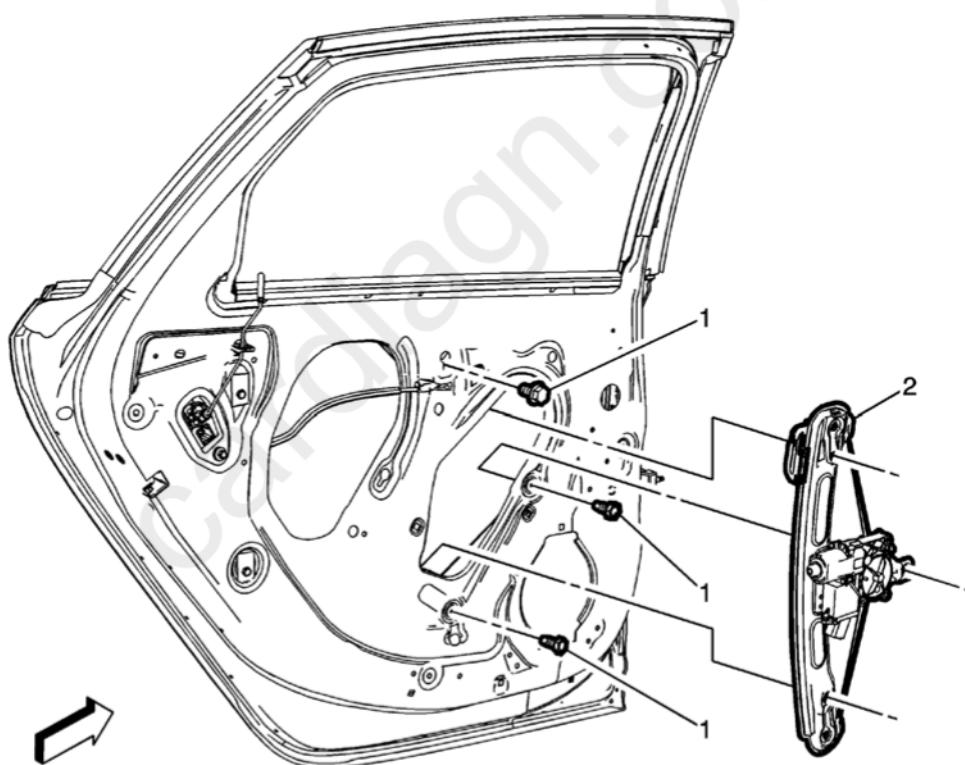


**Fig. 41: Front Side Door Window Regulator Motor & Screws**  
Courtesy of GENERAL MOTORS COMPANY

| Callout | Component Name |
|---------|----------------|
|         |                |

| Callout                                                                                                                                               | Component Name                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Preliminary Procedures</b><br>Remove the front side door window regulator. Refer to <a href="#">Front Side Door Window Regulator Replacement</a> . |                                                                                                                                                                                                                                                                                                                               |
| 1                                                                                                                                                     | Front Side Door Window Regulator Motor Screws (Qty: 3)<br><br><b>CAUTION:</b><br>Refer to <a href="#">Fastener Caution</a> .<br><br><b>Tighten</b><br>5 N.m (44 lb in)                                                                                                                                                        |
| 2                                                                                                                                                     | Front Side Door Window Regulator Motor<br><b>Procedures</b><br>Program front side door window regulator motor after installing it in the vehicle. Refer to <a href="#">Window Motor Programming - Express Function</a> .<br><br><b>NOTE:</b><br>Inspect the door window for proper operation before installing the door trim. |

## REAR SIDE DOOR WINDOW REGULATOR REPLACEMENT

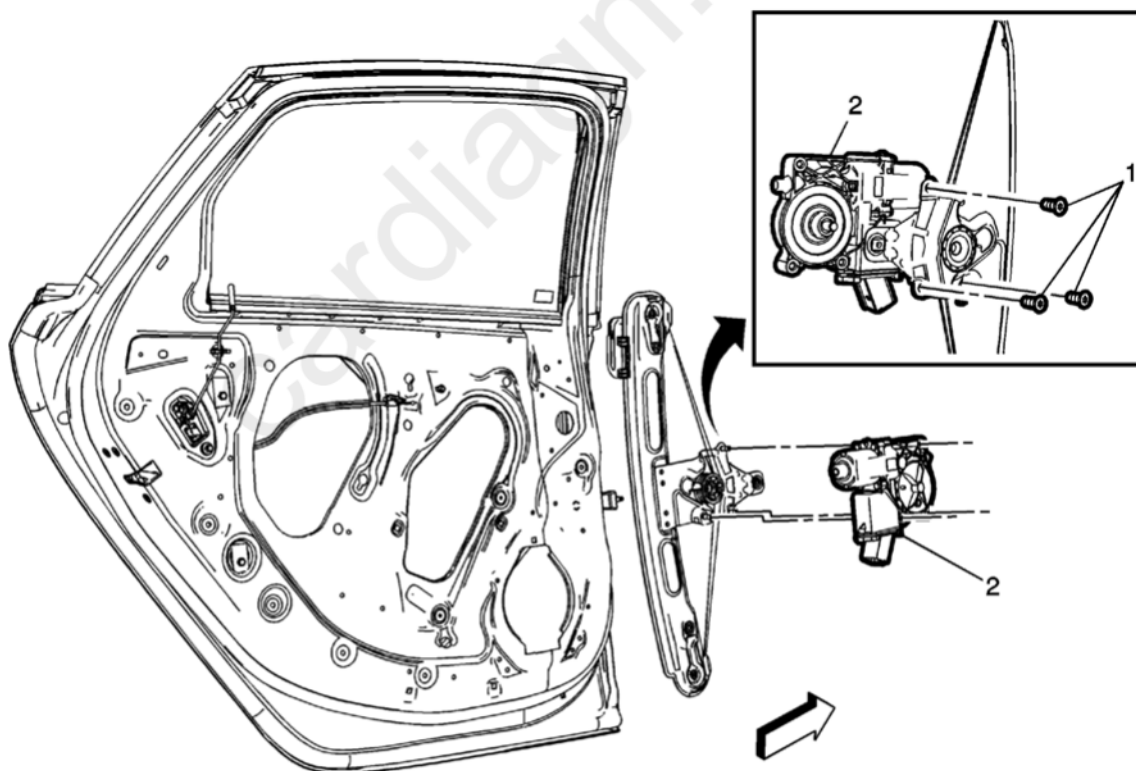


**Fig. 42: Rear Side Door Window Regulator & Mounting Components**  
Courtesy of GENERAL MOTORS COMPANY

| Callout                                                                                                                    | Component Name |
|----------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Preliminary Procedure</b><br>Remove the rear side door trim. Refer to <a href="#">Rear Side Door Trim Replacement</a> . |                |
|                                                                                                                            |                |

| Callout | Component Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | <p>Rear Side Door Window Regulator Bolt (Qty: 3)</p> <p><b>CAUTION:</b><br/>Refer to <a href="#">Fastener Caution</a> .</p> <p><b>Procedure</b></p> <ol style="list-style-type: none"> <li>1. Remove the armrest bracket.</li> <li>2. Remove the water deflector.</li> <li>3. Position the window to access the 1 window guide retainers. Refer to <a href="#">Rear Side Door Window Replacement</a>.</li> <li>4. Release the window, push the window to the full up position and tape in place.</li> </ol> <p><b>Tighten</b><br/>10 N.m (89 lb in)</p> |
| 2       | <p>Rear Side Door Window Regulator</p> <p><b>Procedure</b><br/>Disconnect the electrical connector.</p> <p><b>NOTE:</b><br/>Inspect the window for proper operation before installing the trim.</p>                                                                                                                                                                                                                                                                                                                                                     |

## REAR SIDE DOOR WINDOW REGULATOR MOTOR REPLACEMENT

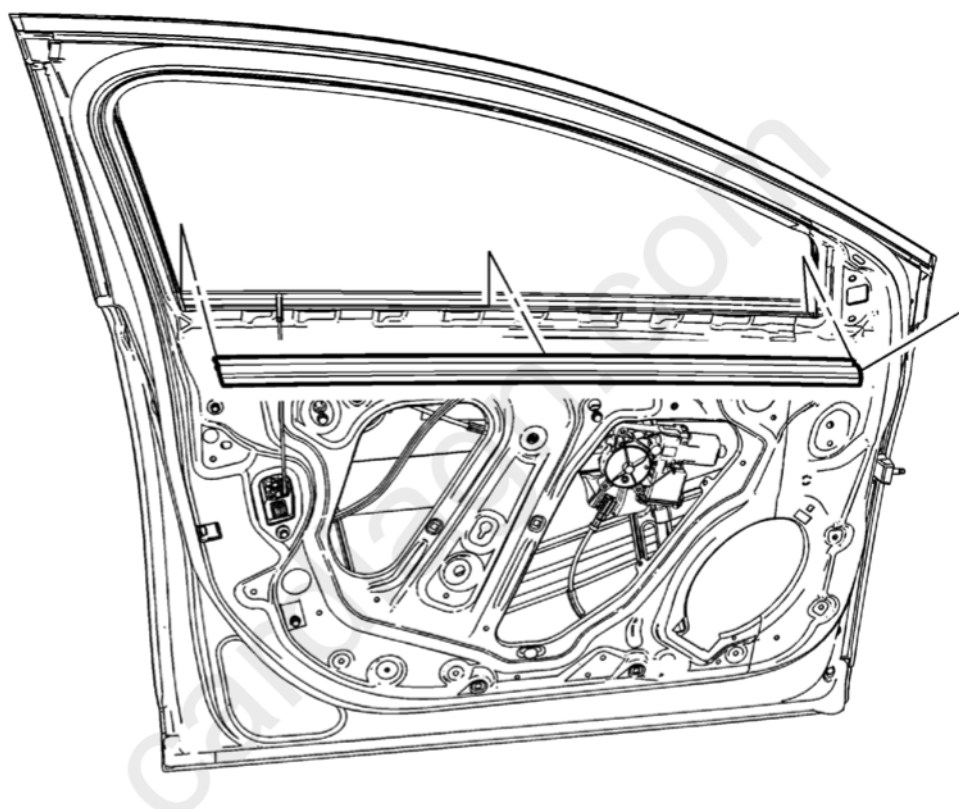


**Fig. 43: Rear Side Door Window Regulator Motor & Bolts**  
Courtesy of GENERAL MOTORS COMPANY

| Callout                                                                                                                                                   | Component Name |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <p><b>Preliminary Procedure</b><br/>Remove the rear side door window regulator. Refer to <a href="#">Rear Side Door Window Regulator Replacement</a>.</p> |                |

| Callout | Component Name                                                                                                                                                      |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Rear Side Door Window Regulator Motor Bolt (Qty: 3)<br><br><b>CAUTION:</b><br>Refer to <a href="#">Fastener Caution</a> .<br><br><b>Tighten</b><br>5 N.m (44 lb in) |
| 2       | Rear Side Door Window Regulator Motor<br><br><b>NOTE:</b><br>Inspect the window for proper operation before installing the trim.                                    |

## FRONT SIDE DOOR WINDOW INNER SEALING STRIP REPLACEMENT



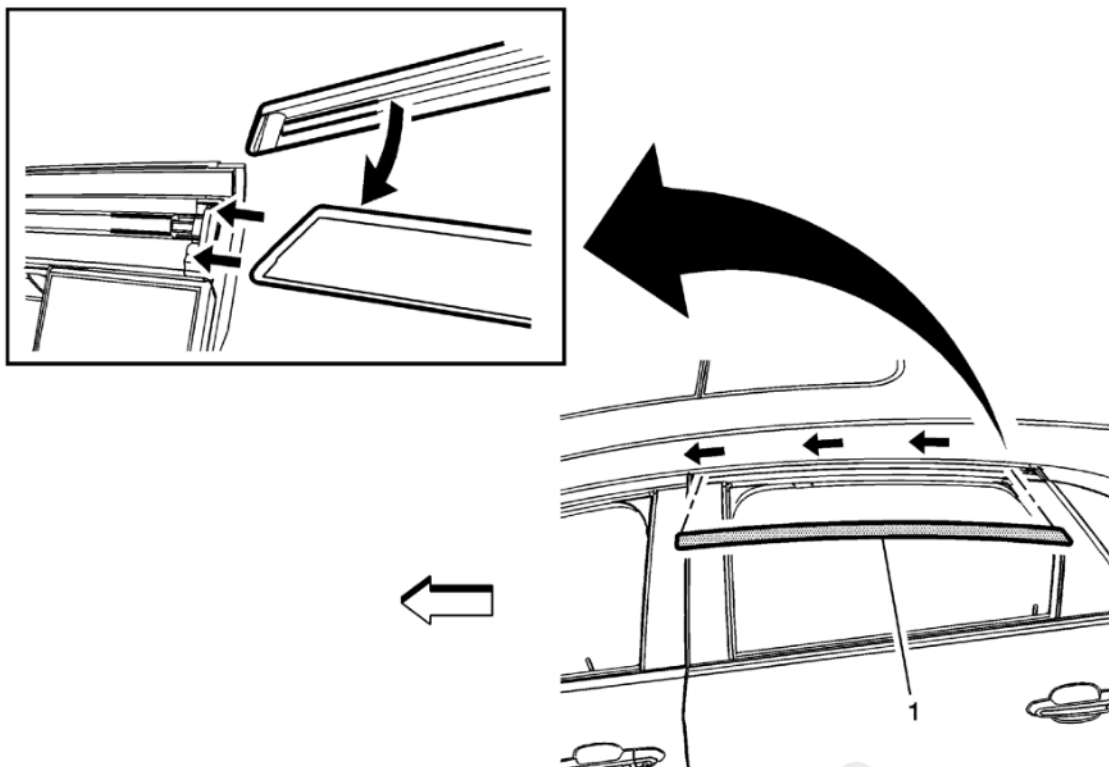
**Fig. 44: Front Side Door Window Inner Sealing Strip (Sedan)**

Courtesy of GENERAL MOTORS COMPANY

| Callout                                                                                                                      | Component Name                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Preliminary Procedure</b><br>Remove the front side door trim. Refer to <a href="#">Front Side Door Trim Replacement</a> . |                                                                                                                                                                                                                                                                                            |
| 1                                                                                                                            | Front Side Door Inner Sealing Strip<br><br><b>Procedure</b> <ol style="list-style-type: none"> <li>1. Lift the front side door window inner strip off the pinch-weld flange.</li> <li>2. Press firmly to insert the front side door window inner strip back on the door flange.</li> </ol> |

## REAR SIDE DOOR WINDOW UPPER REVEAL MOLDING REPLACEMENT



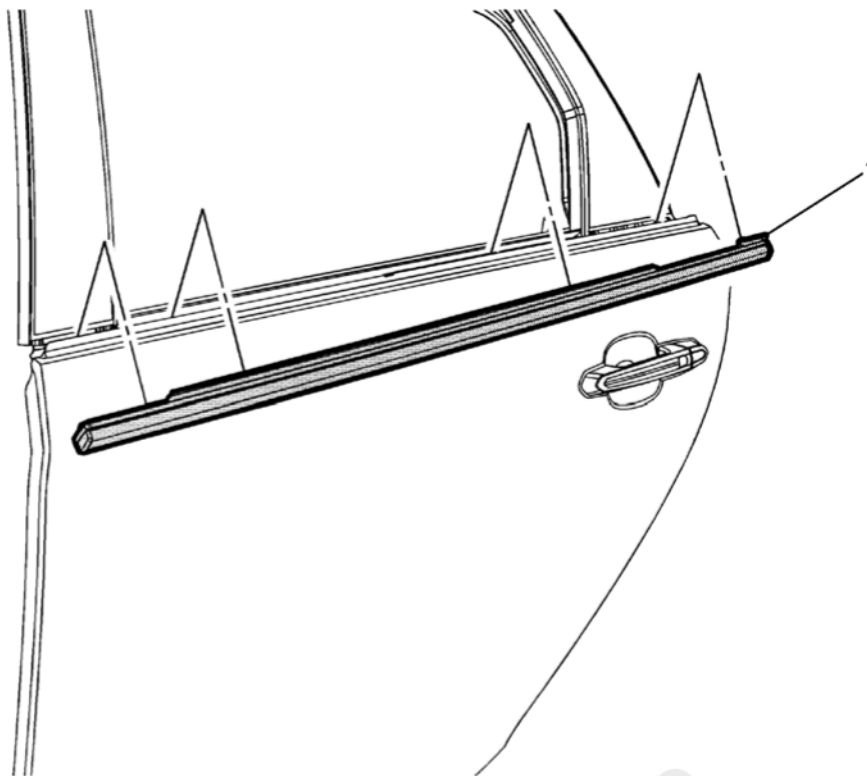


**Fig. 45: Rear Side Door Window Upper Reveal Molding**  
 Courtesy of GENERAL MOTORS COMPANY

| Calloos | Component Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Rear Side Door Window Upper Reveal Molding<br><br><b>Procedure</b> <ol style="list-style-type: none"> <li>1. Open the door fully, place the window in the full down position.</li> <li>2. Apply masking tape to the outer applique and door frame.</li> <li>3. Start at the rear upper corner of the door, use a suitable tool separate the upper reveal molding from the side door window weatherstrip.</li> <li>4. Cover the door trim, spray the weatherstrip with a suitable lubricant to assist in sliding the reveal molding down the center of the weatherstrip.</li> </ol> |

## **REAR SIDE DOOR WINDOW BELT REVEAL MOLDING REPLACEMENT**

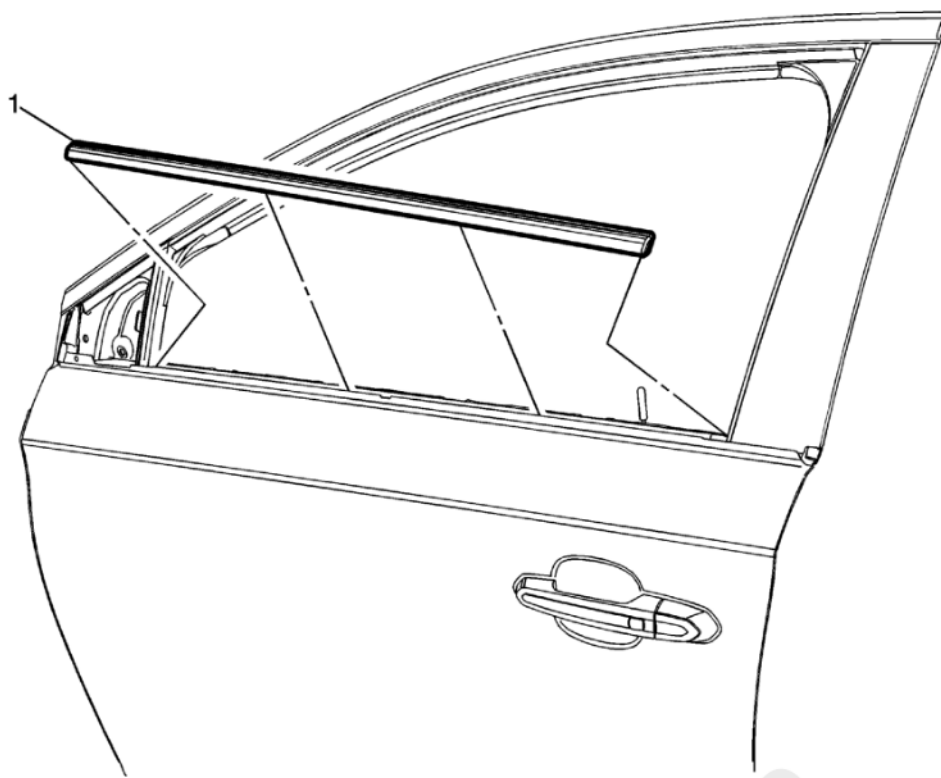




**Fig. 46: Rear Side Door Window Belt Reveal Molding**  
 Courtesy of GENERAL MOTORS COMPANY

| Callout | Component Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | <p>Rear Side Door Window Belt Reveal Molding</p> <p><b>Procedure</b></p> <ol style="list-style-type: none"> <li>1. Lower the rear side door window to the fully down position.</li> <li>2. Tape off the lower window frame to prevent damage to the door.</li> <li>3. Using a suitable tool, lift upward on one end of the reveal molding. Work the reveal molding down the door flange until it fully releases.</li> <li>4. Install the sealing strip to the door flange, push downward until fully seated.</li> </ol> <p><b>NOTE:</b><br/> <b>Inspect the door window for proper operation.</b></p> |

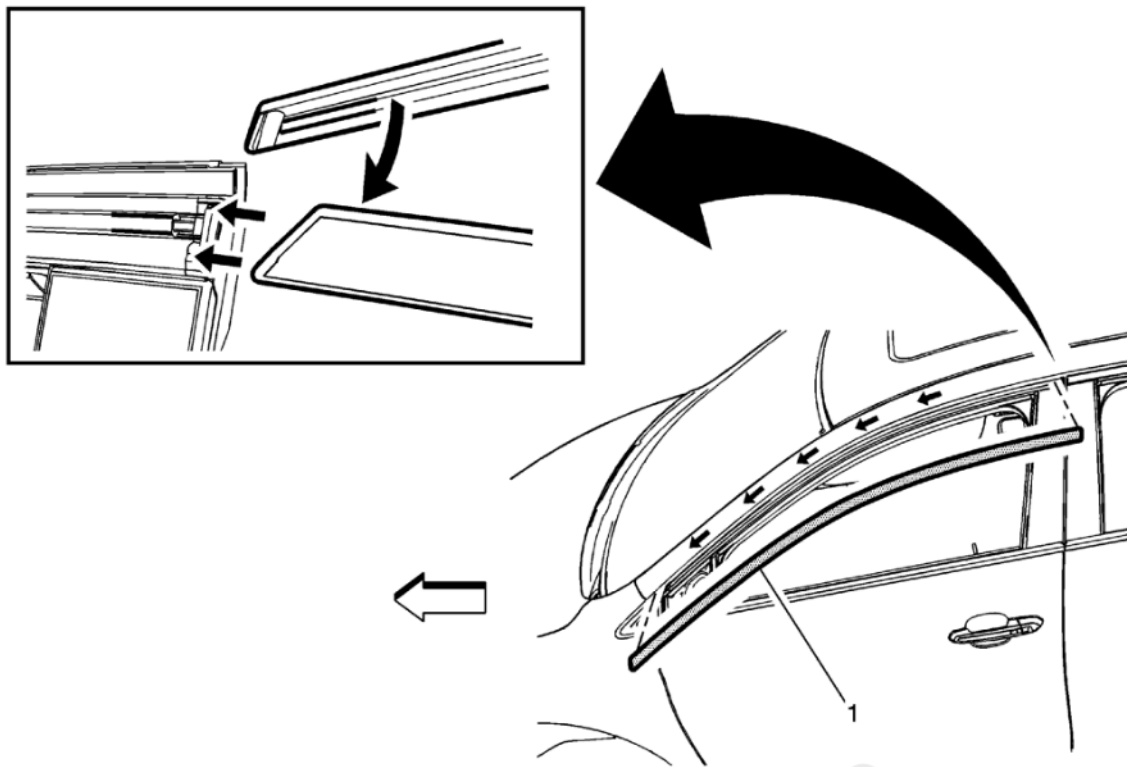
## **FRONT SIDE DOOR WINDOW BELT REVEAL MOLDING REPLACEMENT**



**Fig. 47: Front Side Door Window Belt Reveal Molding**  
**Courtesy of GENERAL MOTORS COMPANY**

| Callout | Component Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | <p>Front Side Door Window Belt Reveal Molding</p> <p><b>Procedure</b></p> <ol style="list-style-type: none"> <li>1. Lower the front side door window to the fully down position.</li> <li>2. Tape off the lower window frame to prevent damage to the door.</li> <li>3. Using a suitable tool, lift upward on one end of the reveal molding. Work the reveal molding down the door flange until it fully releases.</li> <li>4. Pull the sealing strip from under the outside rearview mirror, when installing slide the sealing strip back in position.</li> <li>5. Install the reveal molding to the door flange, push downward until fully seated.</li> </ol> <p><b>NOTE:</b><br/> <b>Inspect the door window for proper operation.</b></p> |

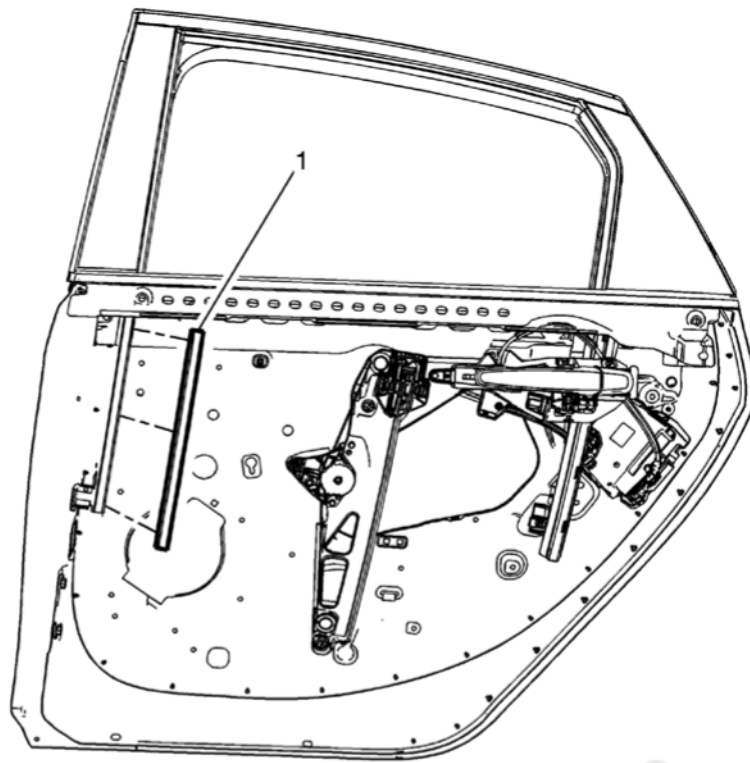
## **FRONT SIDE DOOR WINDOW UPPER REVEAL MOLDING REPLACEMENT**



**Fig. 48: Front Side Door Window Upper Reveal Molding**  
 Courtesy of GENERAL MOTORS COMPANY

| Calloos | Component Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | <p>Front Side Door Window Upper Reveal Molding</p> <p><b>Procedure</b></p> <ol style="list-style-type: none"> <li>1. Open the door fully, place the window in the full down position.</li> <li>2. Apply masking tape to the outer applique and door frame.</li> <li>3. Start at the rear upper corner of the door, use a suitable tool separate the upper reveal molding from the side door window weatherstrip.</li> <li>4. Cover the door trim, spray the weatherstrip with a suitable lubricant to assist in sliding the reveal molding down the center of the weatherstrip.</li> </ol> |

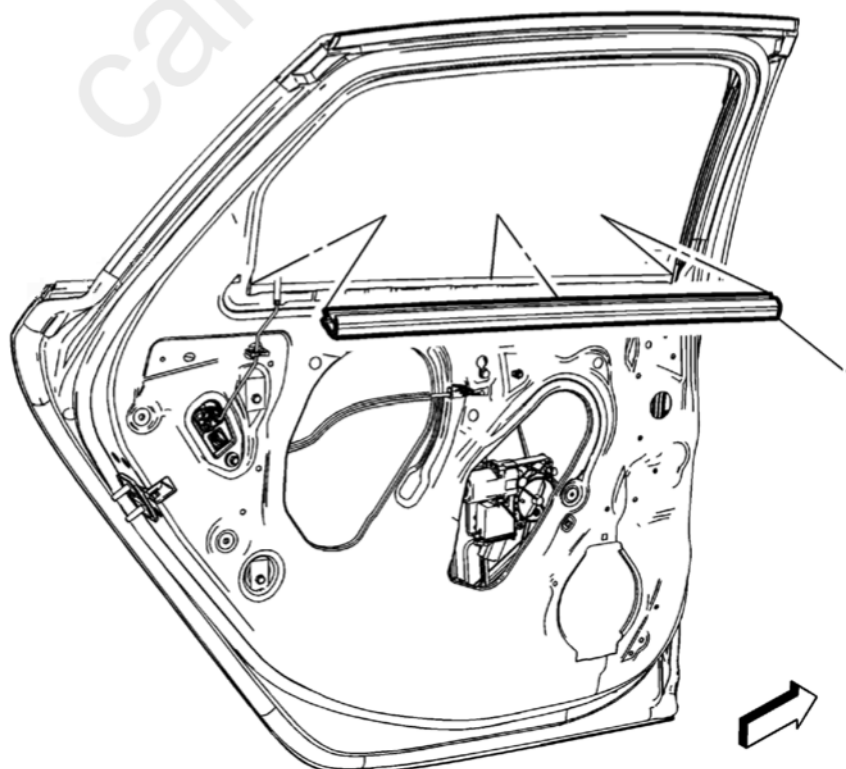
## REAR SIDE DOOR WINDOW FRAME INNER FILLER INSULATOR REPLACEMENT



**Fig. 49: Rear Side Door Window Frame Inner Filler Insulator**  
 Courtesy of GENERAL MOTORS COMPANY

| Callout                                                                                                                                                    | Component Name                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| <b>Preliminary Procedures</b>                                                                                                                              |                                                    |
| 1. Remove the rear side door speaker. Refer to <a href="#">Radio Rear Side Door Speaker Replacement</a> .<br>2. Remove the rear side door water deflector. |                                                    |
| 1                                                                                                                                                          | Rear Side Door Window Frame Inner Filler Insulator |

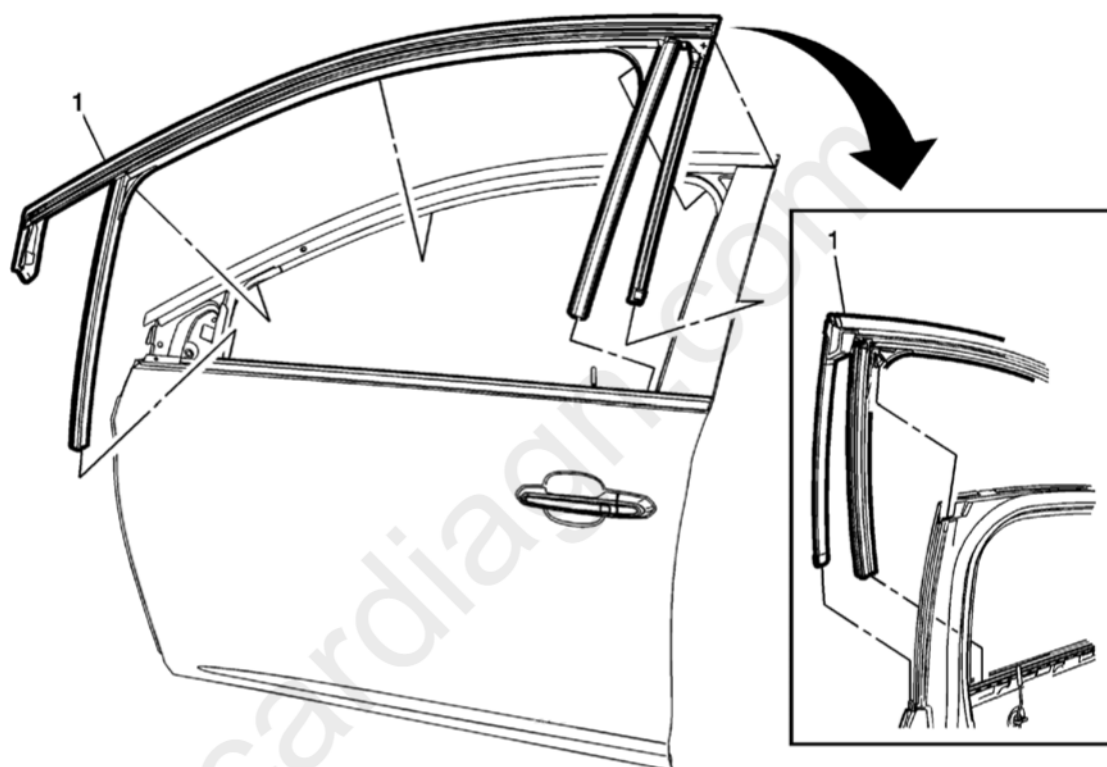
## REAR SIDE DOOR WINDOW INNER SEALING STRIP REPLACEMENT



**Fig. 50: Rear Side Door Window Inner Sealing Strip**  
 Courtesy of GENERAL MOTORS COMPANY

| Callout                                                                                                                     | Component Name                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Preliminary Procedures</b><br>Remove the rear side door trim. Refer to <a href="#">Rear Side Door Trim Replacement</a> . |                                                                                                                                                                                                                                                                                                                                                                               |
| 1                                                                                                                           | Rear Side Door Window Inner Strip<br><br><b>Procedure</b> <ol style="list-style-type: none"> <li>1. Lift the rear side door window inner strip off the pinch-weld flange.</li> <li>2. Press firmly to insert the rear side door window inner strip back on the door flange.</li> </ol><br><b>NOTE:</b><br>Inspect the window for proper operation before installing the trim. |

## FRONT SIDE DOOR WINDOW WEATHERSTRIP REPLACEMENT



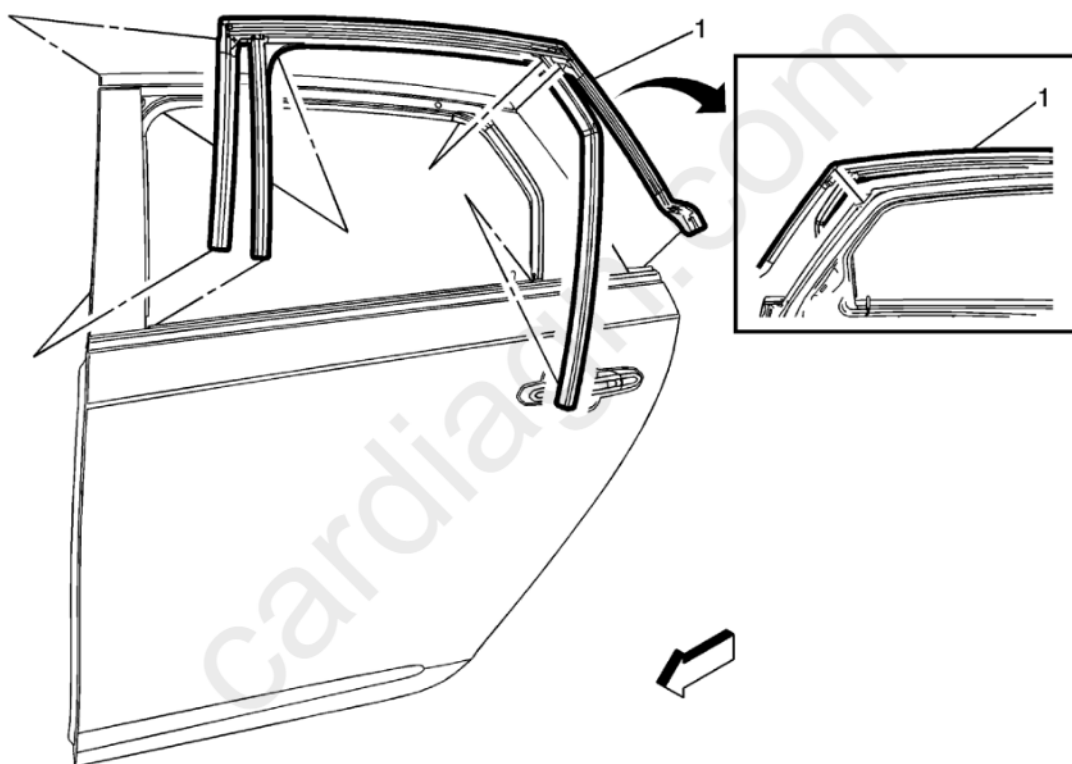
**Fig. 51: Front Side Door Window Weatherstrip**  
Courtesy of GENERAL MOTORS COMPANY

| Callout                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Component Name |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Preliminary Procedures</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |
| <ol style="list-style-type: none"> <li>1. Remove the front side door window. Refer to <a href="#">Front Side Door Window Replacement</a>.</li> <li>2. Remove the outside rearview mirror. Refer to <a href="#">Outside Rearview Mirror Replacement</a> .</li> <li>3. Remove the front side door Window frame rear applique. Refer to <a href="#">Front Side Door Window Frame Rear Applique Replacement</a>.</li> <li>4. Remove the front side door window upper reveal molding. Refer to <a href="#">Front Side Door Window Upper Reveal Molding Replacement</a>.</li> <li>5. Remove the radio front side door speaker. Refer to <a href="#">Radio Front Side Door Speaker Replacement</a> .</li> </ol> |                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |



| Callout | Component Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | <p>Front Side Door Window Weatherstrip</p> <p><b>Procedure</b></p> <ol style="list-style-type: none"> <li>1. Start in the top upper rear corner of the door frame, pull the weatherstrip out of the door frame and front window channel.</li> <li>2. Install the window weatherstrip to the top upper rear corner of the door frame, work the weatherstrip around the upper door frame and then down both front and rear channel.</li> <li>3. Ensure that the weatherstrip is fully seated into the upper door frame and down both front and channels before installing the window.</li> </ol> <p><b>NOTE:</b><br/>Inspect the door window for proper operation before installing the door trim.</p> |

## REAR SIDE DOOR WINDOW WEATHERSTRIP REPLACEMENT

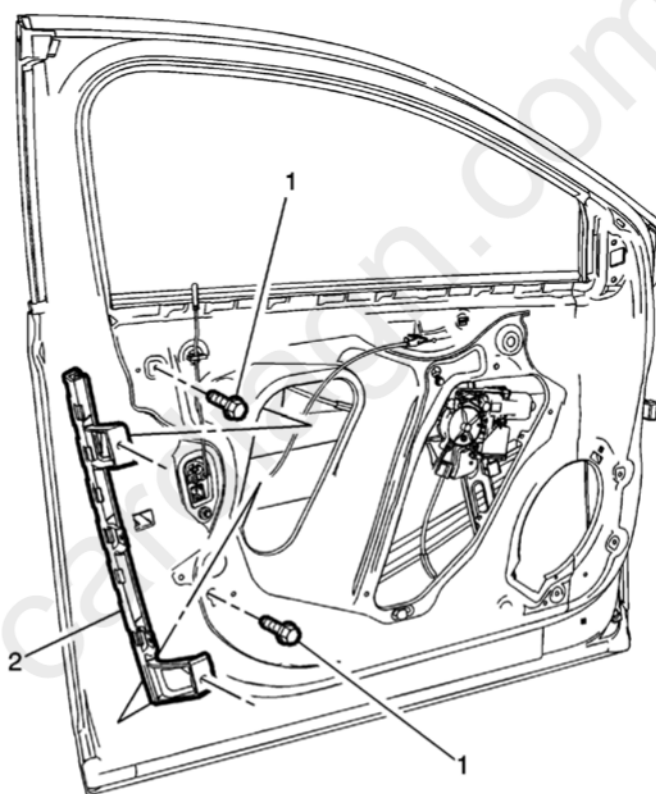


**Fig. 52: Rear Side Door Window Weatherstrip**  
Courtesy of GENERAL MOTORS COMPANY

| Callout                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Component Name |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <p><b>Preliminary Procedures</b></p> <ol style="list-style-type: none"> <li>1. Remove the rear side door window. Refer to <a href="#">Rear Side Door Window Replacement</a>.</li> <li>2. Remove the rear side door upper reveal molding. Refer to <a href="#">Rear Side Door Window Upper Reveal Molding Replacement</a>.</li> <li>3. Remove the rear side door window frame front applique. Refer to <a href="#">Rear Side Door Window Frame Front Applique Replacement</a>.</li> <li>4. Remove the rear side door window frame rear applique. Refer to <a href="#">Rear Side Door Window Frame Rear Applique Replacement</a>.</li> </ol> |                |

| Callout | Component Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | <p>Rear Side Door Window Weatherstrip</p> <p><b>Procedure</b></p> <ol style="list-style-type: none"> <li>1. Remove the push in retainer from the front lower edge of the weatherstrip.</li> <li>2. Start in the top upper rear corner of the door frame, pull the weatherstrip out of the door frame and front window channel.</li> <li>3. Install the window weatherstrip to the top upper rear corner of the door frame, work the weatherstrip around the upper door frame and then down both front and rear channel.</li> <li>4. Ensure that the weatherstrip is fully seated into the upper door frame and down both front and channels before installing the window.</li> </ol> <p><b>NOTE:</b><br/>Inspect the door window for proper operation before installing the door trim.</p> |

## FRONT SIDE DOOR WINDOW REAR CHANNEL REPLACEMENT



**Fig. 53: Front Side Door Window Rear Channel & Bolts**

Courtesy of GENERAL MOTORS COMPANY

| Callout                                                                                                                                                                                                                                                      | Component Name |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <p><b>Preliminary Procedures</b></p> <ol style="list-style-type: none"> <li>1. Place the front side door window in the full up position.</li> <li>2. Remove the front side door trim. Refer to <a href="#">Front Side Door Trim Replacement</a> .</li> </ol> |                |
|                                                                                                                                                                                                                                                              |                |

| Callout | Component Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | <p>Front Side Door Window Rear Channel Bolt (Qty: 2)</p> <p><b>CAUTION:</b><br/>Refer to <a href="#">Fastener Caution</a> .</p> <p><b>Procedure</b></p> <ol style="list-style-type: none"> <li>1. Remove the armrest bracket.</li> <li>2. Remove the front door water deflector.</li> <li>3. Disconnect the window from the window regulator, place the window in the full up position, using masking tape to tape the window to the door upper frame. Position the window regulator rail to access the front side door window rear channel. Refer to <a href="#">Front Side Door Window Regulator Replacement</a>.</li> <li>4. Pull the lower section of the window weatherstrip out of the rear lower channel.</li> <li>5. Pull the front side door window rear channel downward releasing it from the stationary window.</li> </ol> <p><b>Tighten</b><br/>10 N.m (89 lb in)</p> |
| 2       | <p>Front Side Door Window Rear Channel</p> <p><b>Procedure</b></p> <ol style="list-style-type: none"> <li>1. Unclip the wiring harness retainer from the channel.</li> <li>2. When installing the front side door window rear channel ensure that it is in line with the stationary window so that the window will roll properly.</li> <li>3. After install the front side door window rear channel, start at the top of the channel working downward.</li> </ol> <p><b>NOTE:</b><br/><b>Inspect the window for proper operation before installing the trim.</b></p>                                                                                                                                                                                                                                                                                                               |

## DESCRIPTION AND OPERATION

### FULL-CUT METHOD DESCRIPTION

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 urethane adhesive bead. Remove all but approximately 2 mm (3/64 in) of the existing bead of urethane 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 urethane adhesive should remain on the pinch-weld flange. Do not remove all traces of urethane adhesive.

#### IMPORTANT:

- If corrosion of the pinch-weld flange is present, or if sheet metal repairs or replacements are required, refinish the pinch-weld flange in order to present a clean, primer-only surface.
- If paint repairs are required, mask the flange bonding area, prior to applying the color coat, in order to provide a clean, primer-only surface.
- Appropriate materials for these primer applications are typically 2 component catalyzed products. Use materials such as BASF DE15, DuPont 2610, Sherwin-Williams PSE 4600 and NP70 and Martin-Semour 5120, 5130, and

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.

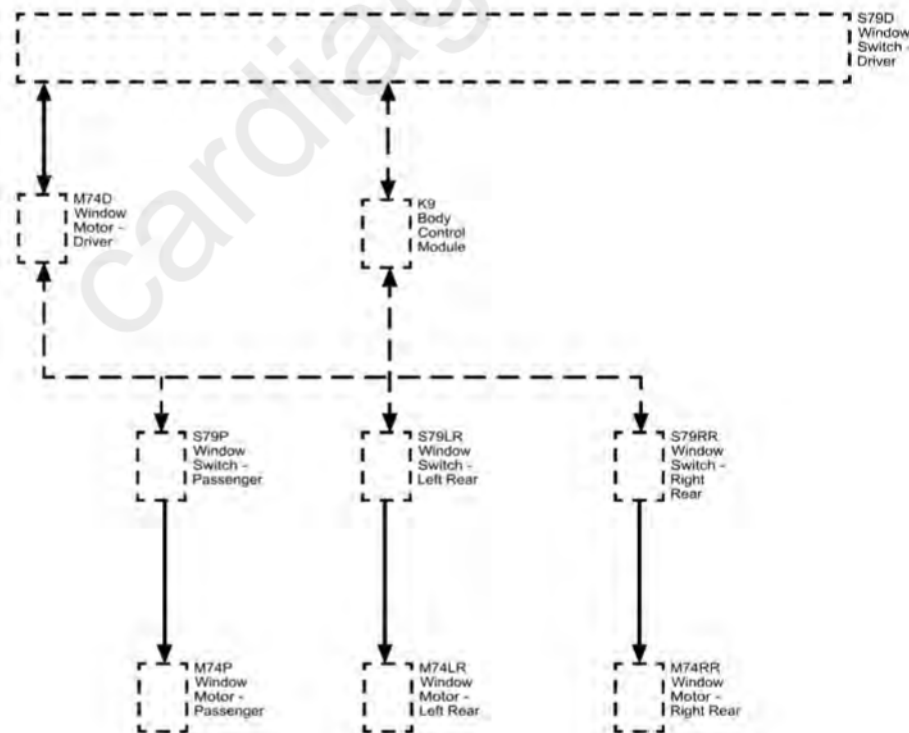
- After repairing the opening as indicated, shake the pinch-weld primer black well. Using a new dauber, apply the primer to the primed surface of the flange in the bonding area. Allow the primer to dry for 10 minutes.

## 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
- Right rear door latch
- Left rear door latch
- Window motors in each of the doors
- 30A Fuse
- 7.5A Fuse
- 30A Fuse
- Body control module (BCM)



**Fig. 54: Power Windows System Diagram**

Courtesy of GENERAL MOTORS COMPANY



### **Driver Express Up and Express Down Power Window Motor**

The driver door 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 driver window switch, the contacts close causing a voltage drop within the appropriate signal circuit. The driver window motor will detect the voltage drop and will command the window to move in the direction requested.

### **Passenger, Left Rear and Right Rear Express Down Window Motors**

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

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

### **Lockout Switch Feature**

The child door lockout switch is on the driver door lock/window switch and controls the child locks on the rear doors as well as the rear window switches. When the BCM receives a command from the window lockout switch, it will apply voltage to the door lock security relay coil, this will energize the relay and the contact within the relay will then direct the voltage to lock the left rear and right rear child locks and then isolate them from the normal door lock system to prevent the rear doors from being opened by using the interior rear door handles.

The BCM monitors the voltage level of the rear lock status signal circuits to determine if the rear door latches have been locked out. A switch within the rear door latch will be open or closed depending upon the lockout status of the rear latch. If the rear latches are locked out, the switch will be open and the BCM will disable the functions of the rear window switches. If the latches have not been lockout, the switch will be closed, pulling the voltage within the signal circuit to 0 volts and the BCM will permit normal rear window switch functions.

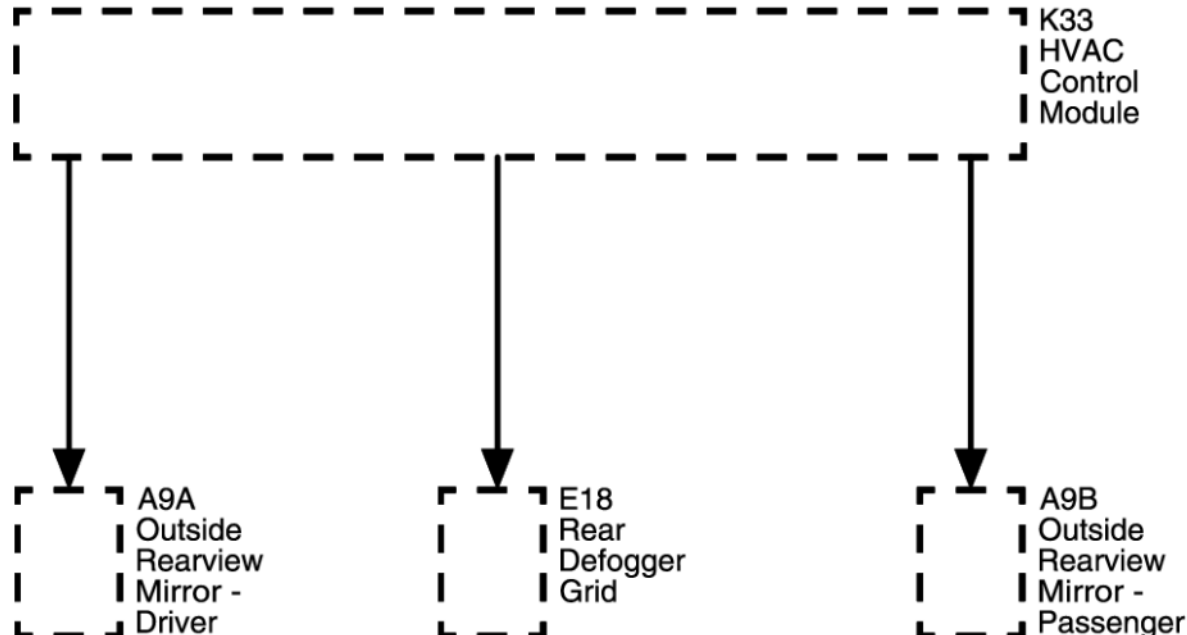
## **REAR WINDOW DEFOGGER DESCRIPTION AND OPERATION**

### **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





**Fig. 55: Rear Window Defogger System 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 rear window switch is pressed and the engine is running, the rear window defogger grid will activate and will turn off automatically depending upon the vehicle speed (refer to owner's manual for rear window defogger operation cycles)

### STATIONARY WINDOW DESCRIPTION

Most stationary windows, specifically windshields, are retained to the body with urethane adhesive which adheres the window to the body. This increases structural integrity. The reinstallation of windows with urethane adhesive requires complete replacement of the urethane adhesive bead:

The extended method (also known as long method, full strip or full cut) is the only recommended procedure for General Motor Vehicle. Use an adhesive that is approved by GM, Specification GMW-15672

### URETHANE ADHESIVE DESCRIPTION

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

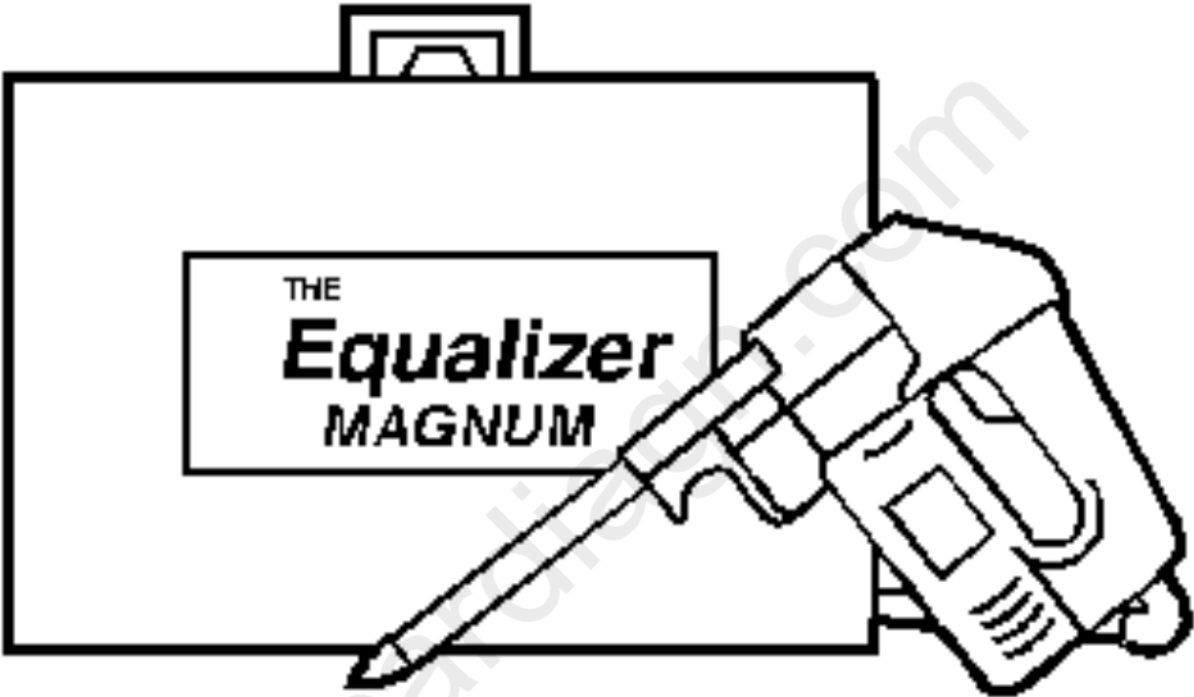
Use an adhesive that is approved by GM, Specification GMW-15672.

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

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

**SPECIAL TOOLS AND EQUIPMENT**

**SPECIAL TOOLS**

| Illustration                                                                                                                                                                                                                                                                                                                                                                                                                  | Tool Number/<br>Description                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
|  A line drawing of a rectangular toolbox with a handle on top. A label on the front reads "THE Equalizer MAGNUM". A large, complex mechanical tool, which is a stationary glass removal tool, is shown leaning against the toolbox. The tool has a long, angled nozzle and a handle with various adjustment knobs and a trigger mechanism. | BO-39032<br>J-39032<br>Stationary<br>Glass<br>Removal<br>Tool |