

2010 ACCESSORIES & EQUIPMENT

Fixed and Moveable Windows - Equinox & Terrain

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Application	Specification	
	Metric	English
Front Side Door Window Regulator Bolts	11 N.m	97 lb in
Front Side Door Window Regulator Guide Nuts	11 N.m	97 lb in
Front Side Door Window Regulator Motor Bolts	8 N.m	71 lb in
Front Side Door Window Weatherstrip Bolts	11 N.m	97 lb in
Rear Side Door Window Regulator Bolts	11 N.m	97 lb in
Rear Side Door Window Regulator Guide Nuts	11 N.m	97 lb in
Rear Side Door Window Regulator Motor Bolts	8 N.m	71 lb in
Rear Side Door Window Weatherstrip Bolts	11 N.m	97 lb in

SCHEMATIC AND ROUTING DIAGRAMS

MOVEABLE WINDOW SCHEMATICS

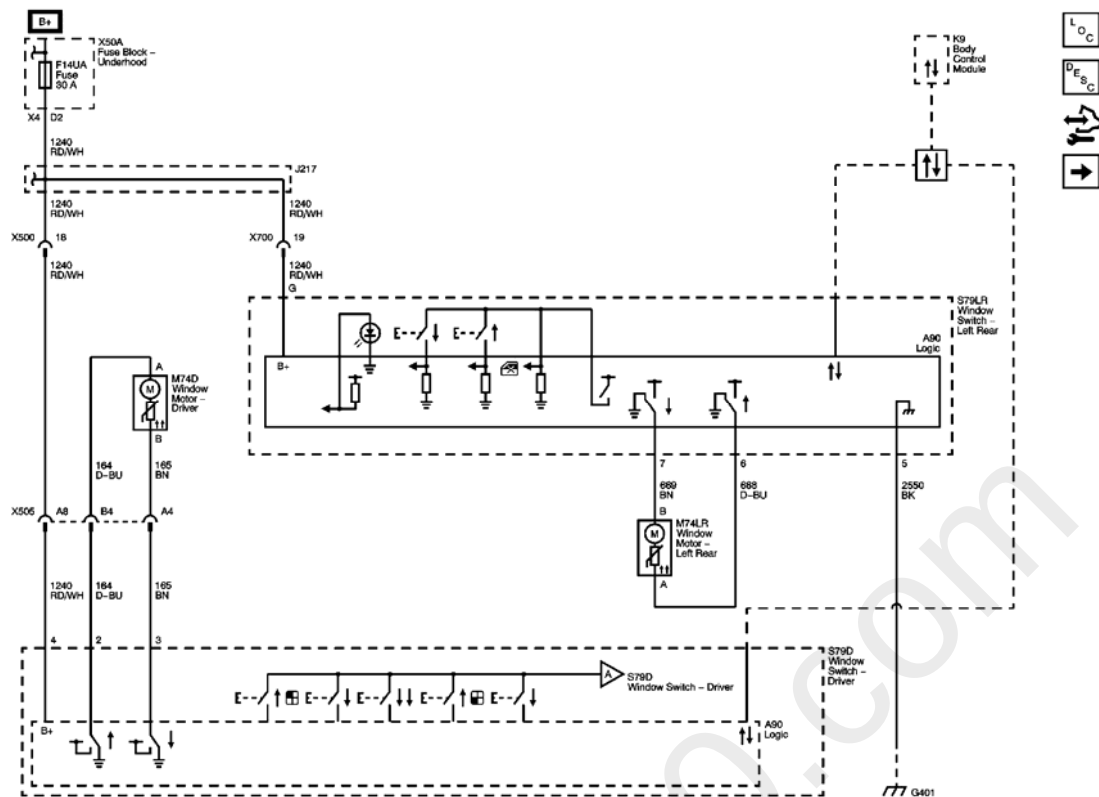


Fig. 1: Left Doors

Courtesy of GENERAL MOTORS CORP.

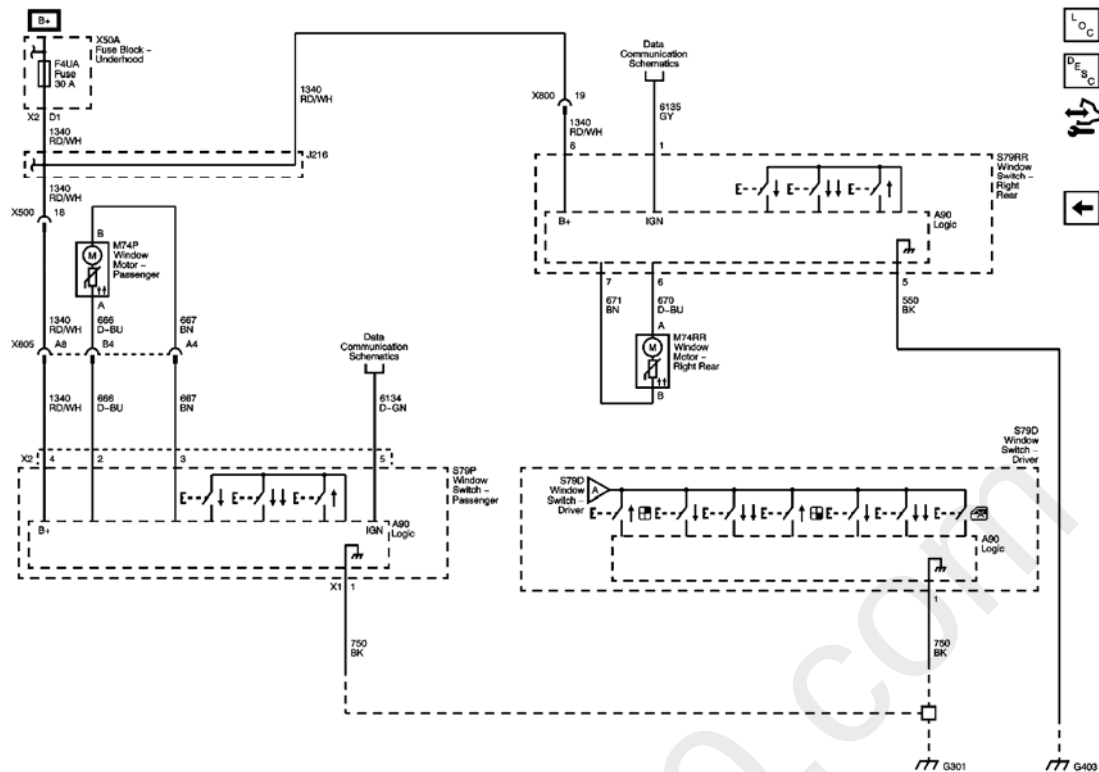


Fig. 2: Right Doors

Courtesy of GENERAL MOTORS CORP.

DEFOGGER SCHEMATICS

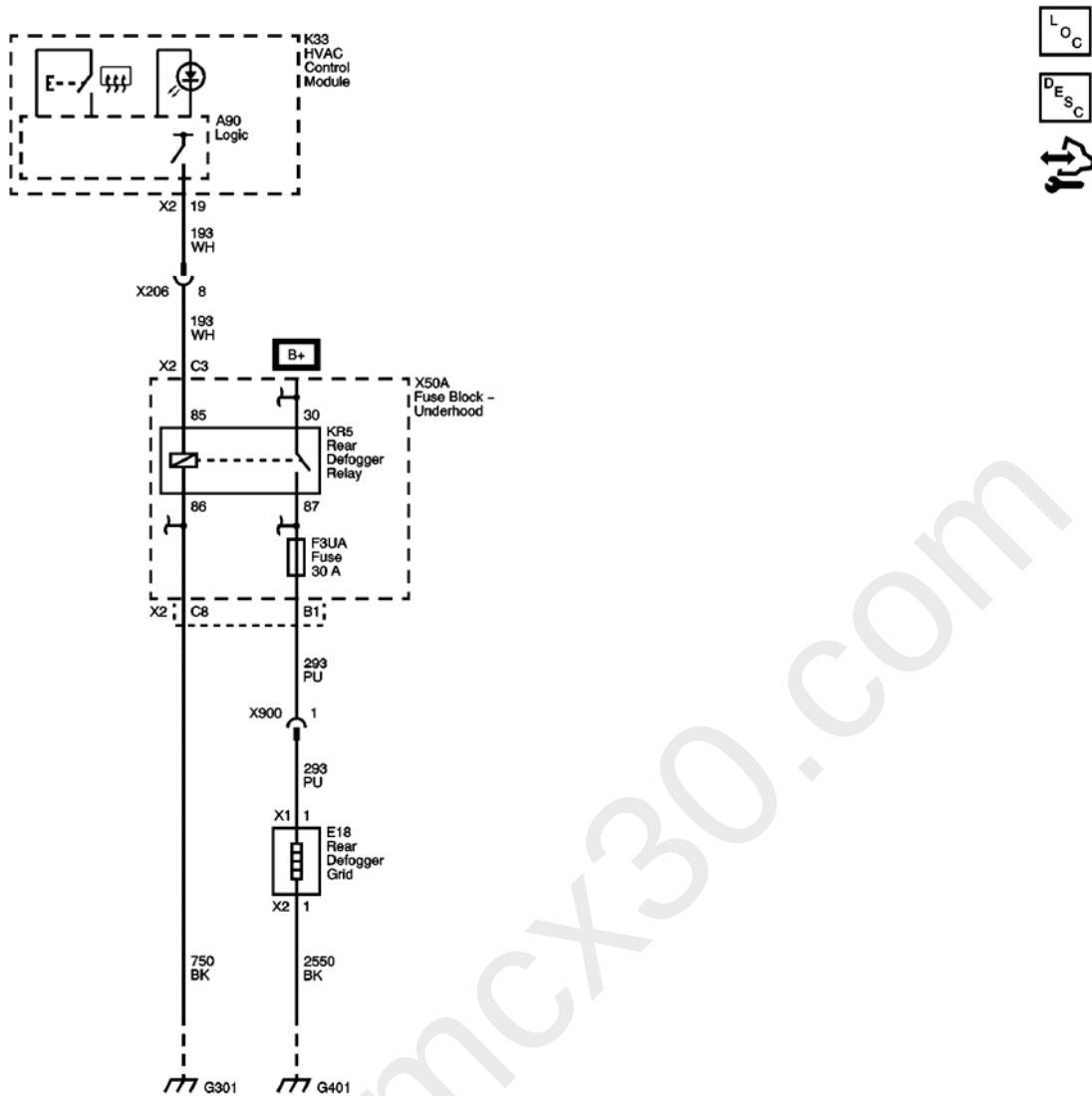


Fig. 3: Defogger
Courtesy of GENERAL MOTORS CORP.

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC CODE INDEX

DIAGNOSTIC CODE INDEX

DTC	Description
DTC B0283	B0283 02: Electric Rear Defrost Circuit Short To Ground B0283 05: Electric Rear Defrost Circuit Short To Battery or Open
DTC B316B, B317A, B318A, or B319A	B316B 00: Driver Window Switch Malfunction B316B 02: Driver Window Switch Short to Ground B316B 39: Driver Window Switch Internal Malfunction

	B317A 02: Passenger Window Switch Short to Ground B317B 39: Passenger Window Switch Internal Malfunction B318A 02: Left Rear Window Switch Short to Ground B318A 39: Left Rear Window Switch Internal Malfunction B319A 02: Right Rear Window Switch Short to Ground B319A 39: Right Rear Window Switch Internal Malfunction
--	---

DTC B0283

Diagnostic Instructions

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

DTC Descriptors

DTC B0283 02

Electric Rear Defrost Circuit Short To Ground

DTC B0283 05

Electric Rear Defrost Circuit Short To Battery or Open

Diagnostic Fault Information

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

Circuit/System Description

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

Conditions for Running the DTC

Battery voltage must be between 9-16 volts.

Conditions for Setting the DTC

B0283 02

The HVAC control module detects a short to ground in the relay control circuit.

B0283 05

The HVAC control module detects a short to voltage or an open/high resistance in the rear window defogger relay control circuit or an open/high resistance in the rear window defogger relay ground circuit.

Action Taken When the DTC Sets

- If B0283 02 is current, the rear window defogger grid will operate continuously.
- If B0283 05 is current, the rear window defogger grid will be inoperative.

Conditions for Clearing the DTC

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

Reference Information

Schematic Reference

Defogger Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Rear Window Defogger Description and Operation

Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

Engine running, command the Rear Defog ON and OFF with a scan tool, the rear window defogger grid should turn ON or OFF while changing between the commanded states.

Circuit/System Testing

1. Ignition OFF, disconnect the K55 DEFOG RR relay.
2. Test for less than 5 ohm between the ground circuit terminal 86 and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance
3. Connect a test lamp between the control circuit terminal 85 and the ground circuit terminal 86.
4. Engine running, command the Rear Defog ON and OFF with a scan tool. The test lamp should turn ON and OFF when changing between the commanded states.
 - If the test lamp is always ON, test the control circuit for a short to voltage. If the circuit tests normal, replace the K33 HVAC control module.
 - If the test lamp is always OFF, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the K33 HVAC control module.
5. If all circuits test normal, test or replace the K55 DEFOG RR relay.

Component Testing

Relay Test

1. Ignition OFF, disconnect the K55 DEFOG RR relay.
2. Test for 60-180 ohms between terminals 85 and 86.
 - If not within the specified range, replace the K55 DEFOG RR relay.
3. Test for infinite resistance between the following terminals:
 - 30 and 86
 - 30 and 87
 - 30 and 85
 - 85 and 87
 - If not the specified value, replace the K55 DEFOG RR relay.
4. Install a 25A fused jumper wire between relay terminal 86 and 12V. Install a jumper wire between relay terminal 85 and ground. Test for less than 2 ohms between terminals 30 and 87.
 - If greater than the specified range, replace the K55 DEFOG RR relay.

Repair Procedures

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

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

DTC B316B, B317A, B318A, OR B319A

Diagnostic Instructions

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

DTC Descriptors

DTC B316B 00

Driver Window Switch Malfunction

DTC B316B 02

Driver Window Switch Short to Ground

DTC B316B 39

Driver Window Switch Internal Malfunction

DTC B317A 02

Passenger Window Switch Short to Ground

DTC B317B 39

Passenger Window Switch Internal Malfunction

DTC B318A 02

Left Rear Window Switch Short to Ground

DTC B318A 39

Left Rear Window Switch Internal Malfunction

DTC B319A 02

Right Rear Window Switch Short to Ground

DTC B319A 39

Right Rear Window Switch Internal Malfunction

Circuit/System Description

The body control module (BCM) monitors, receives and transmits serial data to each of the doors switches. When a window switch has been activated on the driver window switch, a signal is sent to the BCM which sends a signal to the appropriate passenger or rear window switch and the window switch will then command the corresponding window motor to move in the direction commanded.

Conditions for Running the DTC

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

Conditions for Setting the DTC

B316B 00

The BCM has detected the driver right front or left rear or right rear window switch is active for greater than 60 seconds.

B316B 02

The BCM has detected the driver left front window switch is active for greater than 60 seconds.

B316B 39

The BCM has detected an internal failure within the driver door switch.

B317A 02

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

B317B 39

The BCM has detected an internal failure within the passenger window switch.

B318A 02

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

B318B 39

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

B319A 02

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

B319B 39

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

Action Taken When the DTC Sets

The affected power window switch will malfunction.

Conditions for Clearing the DTC

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

Reference Information

Schematic Reference

Moveable Window Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Power Windows Description and Operation

Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

Ignition ON, command each window UP and DOWN by using each switch on the S79D window switch-driver and by using the S79P window switch-passenger, the S79LR window switch-left rear and the S79RR window switch-right rear. Each window should perform the UP and DOWN functions from each switch.

Circuit/System Testing

1. Ignition ON, verify that the scan tool Driver Window Main Control Down Switch, Driver Window Main Control Express Switch, Driver Window Main Control Up Switch, Front Passenger Main Control Down Switch, Front Passenger Main Control Express Switch, Front Passenger Main Control Up Switch, Left

Rear Window Main Control Down Switch, Left Rear Window Main Control Express Switch, Left Rear Window Main Control Up Switch, Right Rear Window Main Control Down Switch, Right Rear Window Main Control Express Switch, and Right Rear Window Main Control Up Switch parameters are inactive.

- If any of the parameters are always Active, replace the S79D window switch-driver.
- 2. Verify that the scan tool Passenger Window Switch at Door parameter is Inactive.
 - If not the specified value, replace the S79P window switch-passenger.
- 3. Verify that the scan tool Left Rear Window Switch at Door parameter is Inactive.
 - If not the specified value, replace the S79LR window switch-left rear.
- 4. Verify that the scan tool Right Rear Window Switch at Door parameter is Inactive.
 - If not the specified value, replace the S79RR window switch-right rear.

Repair Procedures

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

- **Front Side Door Window and Multifunction Switch Replacement**
- **Rear Side Door Window Switch 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 - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Defog Rear Relay Switch B+	1	1	-	-
Radio/ HVAC Control Serial Data	U1510 00	U1510 00	U1510 00	-
Defog Rear Relay Control	B0283 02	B0283 05	B0283 05	-
Rear Window Defogger Grid				

Control	1	1	2	-
Rear Window Defogger Relay Coil Ground	-	B0283 05	1	-
Rear Window Defogger Grid Ground	-	1	1	-
1. Rear Defogger Inoperative 2. Rear Defogger Always ON				

Circuit/System Description

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

Diagnostic Aids

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

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

Reference Information

Schematic Reference

Defogger Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Rear Window Defogger Description and Operation

Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Engine running, observe the scan tool Rear Defogger Switch parameter while pressing the heated rear window switch. The parameter should change from Inactive to Active.
 - If the value does not change, replace the A20 radio/HVAC control.
2. Observe the operation of the rear window defogger indicator while pressing the heated rear window switch. The indicator should turn ON or OFF each time the heated rear window switch is pressed.
 - If the indicator does not turn ON or OFF with each switch press, replace the A20 radio/HVAC control.
3. Command the Rear Defog ON and OFF with a scan tool, the E18 rear defogger grid should turn ON or OFF while changing between the commanded states.

Circuit/System Testing

1. Ignition OFF, disconnect the K55 DEFOG RR relay.
2. Test for less than 30 ohms between the ground circuit terminal 85 and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Engine running, verify a test lamp does not illuminate between the control circuit terminal 87 and ground.
 - If the test lamp illuminates, test the control circuit for a short to voltage.
4. Verify a test lamp illuminates between the B+ circuit terminal 30 and ground.
 - If the test lamp does not illuminate, test the B+ circuit for a short to ground or an open/high resistance.
5. Ignition OFF, disconnect the X2 harness connector at the E18 rear window defogger grid.
6. Test for less than 30 ohms between the ground circuit terminal 1 and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
7. Connect the X2 harness connector at the E18 rear window defogger grid.
8. Engine running, connect a 30 A fused jumper wire between the B+ circuit terminal 30 and the control circuit terminal 87. Verify the E18 rear window defogger grid is activated.
 - If the E18 rear window defogger grid does not activate, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, test or replace the E18 rear defogger grid.
9. Connect a test lamp between the control circuit terminal 86 and the ground circuit terminal 85.
10. Command the Rear Defog ON and OFF with a scan tool, the test lamp should turn ON and OFF when changing between the commanded states.
 - If the test lamp is always ON, test the control circuit for a short to voltage. If the circuit tests normal, replace the K33 HVAC control module.
 - If the test lamp is always OFF, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the K33 HVAC control module.
11. If all circuits test normal, test or replace the K55 DEFOG RR relay.

Component Testing

Rear Window Defogger Grid Test

1. Engine running, turn on the E18 rear window defogger grid.
2. Verify that a test lamp illuminates between each E18 rear window defogger grid line and ground. The test lamp should be off when testing at the ground side of the grid and get brighter as the test lamp moves closer to the voltage supply side of the grid. The test lamp should be dim when testing each grid line in the middle.
 - If the test lamp remains bright at the middle of the grid line, test for an open between the test point and the ground side of the grid.
 - If the test lamp remains off at the middle of the grid line, test for an open between the test point and the voltage supply side of the grid

Relay Test

1. Ignition OFF, disconnect the K55 DEFOG RR relay.
2. Test for 60-180 ohms between terminals 85 and 86.
 - If the not within the specified range, replace the K55 DEFOG RR relay.
3. Test for infinite resistance between the following terminals:
 - 30 and 86
 - 30 and 87
 - 30 and 85
 - 85 and 87
 - If not the specified value, replace the K55 DEFOG RR relay.
4. Install a 25 A fused jumper wire between relay terminal 86 and 12 V. Install a jumper wire between relay terminal 85 and ground. Test for less than 2 ohms between terminals 30 and 87.
 - If greater than the specified range, replace the K55 DEFOG RR relay.

Repair Procedures

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

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

POWER WINDOWS MALFUNCTION

Diagnostic Instructions

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

- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Driver Window Switch B+	1, 2, 4	1	-	-
Passenger Window Switch B+	1, 2, 4	2	-	-
Left Rear Window Switch B+	1, 3	3	-	-
Right Rear Window Switch B+	1, 2, 4	4	-	-
Driver Window Motor Control	1	1	1	-
Left Rear Window Motor Control	3	3	3	-
Passenger Window Motor Control	2	2	2	-
Right Rear Window Motor Control	4	4	4	-
Driver Window Switch Ground	-	1	-	-
Left Rear Window Switch Ground	-	3	-	-
Passenger Window Switch Ground	-	2	-	-
Right Rear Window Switch Ground	-	4	-	-
1. Driver Window Malfunction 2. Passenger Window Malfunction 3. Left Rear Window Malfunction 4. Right Rear Window Malfunction				

Circuit/System Description

When the ignition switch is in the RUN or ACCY position, or retained accessory power (RAP) is enabled and the driver or passenger window switch or rear window switch is pressed in the down position, voltage is applied to the appropriate window motor causing that window to open. When the driver or passenger window switch is pulled in the up position, voltage is applied to the appropriate window motor in the opposite direction causing that window to close.

Reference Information

Schematic Reference

Moveable Window Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Power Windows Description and Operation

Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition ON, observe the scan tool parameters listed below while using left front, right front, left rear and right rear switches on the S79D window switch-driver. The parameters for each switch should change from Inactive to Active.
 - Driver Window Main Control Up Switch parameter
 - Driver Window Main Control Express Switch parameter
 - Driver Window Main Control Down Switch parameter
 - Front Passenger Main Control Down Switch parameter
 - Front Passenger Main Control Express Switch parameter
 - Front Passenger Main Control Up Switch parameter
 - Left Rear Main Control Down Switch parameter
 - Left Rear Main Control Express Switch parameter
 - Left Rear Main Control Up Switch parameter
 - Right Rear Main Control Down Switch parameter
 - Right Rear Main Control Express Switch parameter
 - Right Rear Main Control Up Switch parameter
 - If the parameters do not change or if the parameter is No Communication, refer to Window Switch Malfunction.
2. Observe the appropriate scan tool Window Switch at Door parameter while using the S79P window switch-passenger, S79LR window switch-left rear and S79RR window switch-right rear. The parameters for each S79 window switch should change from Inactive to Up, Down and Express.
 - If the parameters do not change or if the parameter is No Communication, refer to Window Switch Malfunction.
3. Command each window UP and DOWN by using their respective S79 window switch, each window should perform the UP and DOWN functions from each switch.
 - If a window does not perform as specified, refer to Window Motor Malfunction.

Circuit/System Testing

Window Switch Malfunction

1. Ignition OFF, disconnect the harness connector at the appropriate S79 window switch.
2. Test for less than 15 ohms between the ground circuit terminal listed below and ground:
 - S79D window switch-driver terminal 1
 - S79P window switch-passenger terminal 1
 - S79LR window switch-left rear terminal 5
 - S79RR window switch-right rear terminal 5
 - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition ON, verify that a test lamp illuminates between the B+ circuit terminal listed below and ground:
 - S79D window switch-driver terminal 4
 - S79P window switch-passenger terminal 4
 - S79LR window switch-left rear terminal 8
 - S79RR window switch-right rear terminal 8
 - If the test lamp does not illuminate, test the B+ circuit for a short to ground or an open/high resistance.
4. Test for 6.5-9V between the LIN circuit terminal listed below and ground.
 - S79D window switch-driver terminal 5
 - S79P window switch-passenger terminal 5
 - S79LR window switch-left rear terminal 1
 - S79RR window switch-right rear terminal 1
 - If greater than the specified range, test the LIN circuit for a short to voltage. If the circuit tests normal, replace the BCM.
 - If less than the specified range, test the LIN circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the BCM.
5. If all circuits test normal, test or replace the S79 window switch.

Window Motor Malfunction

1. Ignition OFF, disconnect the harness connector at the appropriate M74 window motor.
2. Test for less than 15 ohms between the control circuit terminal A and ground.
 - If greater than the specified range, test the control circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the appropriate S79 window switch.
3. Test for less than 15 ohms between the control circuit terminal B and ground.
 - If greater than the specified range, test the control circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the appropriate S79 window switch.
4. Connect a test lamp between the control circuit terminal A and control circuit terminal B.
5. Ignition ON, command the M74 window motor UP and DOWN by using the S79 window switch. The test lamp should briefly illuminate during the UP and DOWN commands.
 - If the test lamp does not illuminate during the UP or DOWN command, test either control circuit for a short to ground. If the circuits tests normal, replace the S79 window switch.
6. If all circuits test normal, test or replace the M74 window motor.

Component Testing

Window Motor

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

Repair Procedures

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

- **Front Side Door Window Regulator Motor Replacement**
- **Rear Side Door Window Regulator Motor Replacement**
- **Rear Side Door Window Switch Replacement**
- **Front Side Door Window and Multifunction Switch Replacement**
- **Control Module References** for the BCM replacement, setup and programming

SIDE DOOR WINDOW MECHANICAL DIAGNOSIS

Cause	Correction
DEFINITION: A mechanical condition that requires a correction for proper operation of the side door window. Refer to <u>Symptoms - Fixed and Moveable Windows</u> 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.
	Check seals, reinitialize the glass and/or realign the glass.

False glass reversal, the glass goes down unexpectedly.

Check for debris in the glass run channel.

REPAIR INSTRUCTIONS

WINDSHIELD REPLACEMENT

Special Tools

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

Removal Procedure

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

1. Open the hood.
2. Remove the windshield wiper arms and blades. Refer to **Windshield Wiper Arm Replacement (Equinox Driver Side)** or **Windshield Wiper Arm Replacement (Equinox Passenger Side)** or **Windshield Wiper Arm Replacement (Terrain Driver Side)** or **Windshield Wiper Arm Replacement (Terrain Passenger Side)** .
3. Remove the air inlet grille. Refer to **Air Inlet Screen Replacement (Equinox)** or **Air Inlet Screen Replacement (Terrain)** .
4. Remove the interior windshield pillar garnish moldings. Refer to **Windshield Side Garnish Molding Replacement** .
5. Remove the rearview mirror. Refer to **Inside Rearview Mirror Replacement** .
6. Remove the remote control door lock receiver. Refer to **Remote Control Door Lock Receiver Replacement** .

WARNING: Refer to **Defroster Outlet Warning** .

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

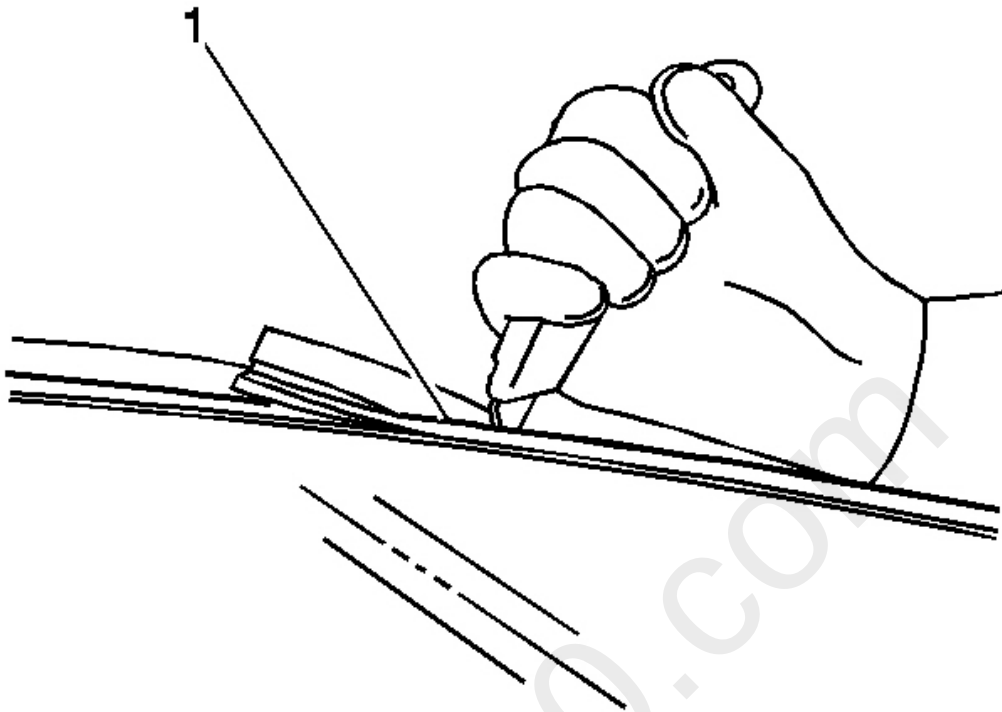


Fig. 4: Using Utility Knife To Remove Reveal Molding
Courtesy of GENERAL MOTORS CORP.

WARNING: Refer to Glass and Sheet Metal Handling Warning .

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

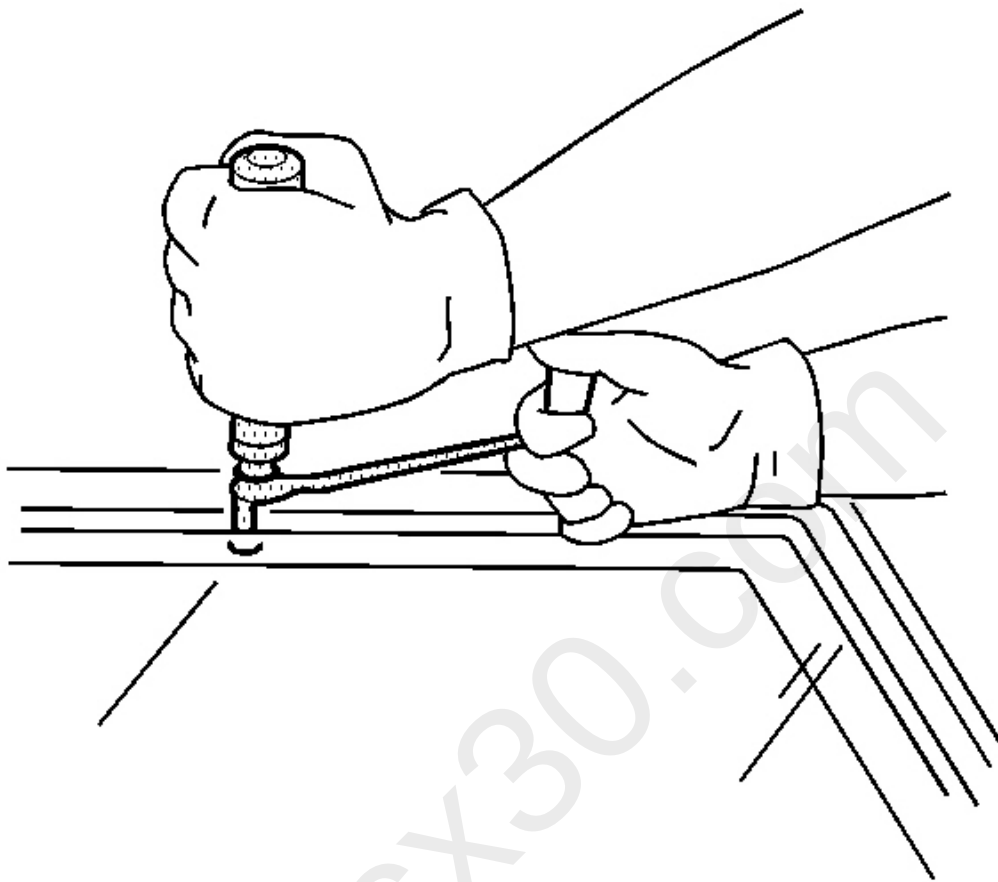


Fig. 5: Separating Urethane Adhesive From Window
Courtesy of GENERAL MOTORS CORP.

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

9. Remove the window from the urethane adhesive.
 - Leave a base of urethane approximately 2 mm (0.078 in) on the pinch-weld flange.
 - The only suitable lubrication is clear water.
 - Use **J 24402-A** , **J 39032** , or equivalent to remove the window. See **Special Tools**.

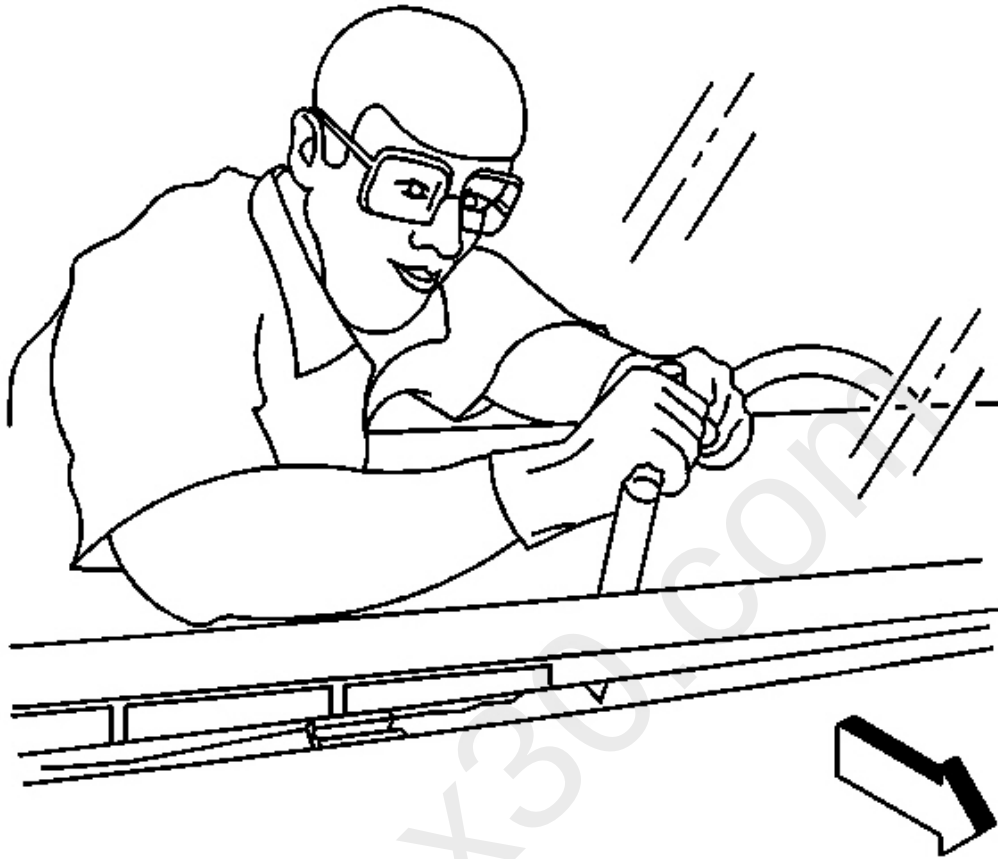


Fig. 6: Separating Bottom Of Window
Courtesy of GENERAL MOTORS CORP.

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

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

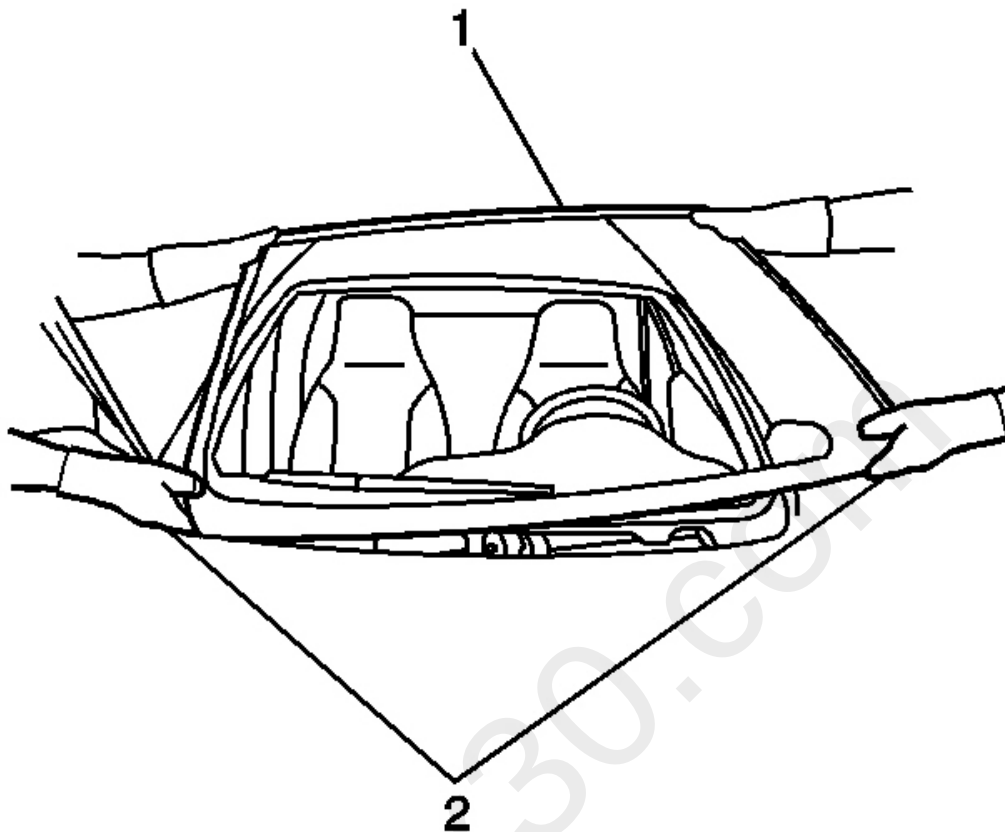


Fig. 7: Removing/Installing Windshield
Courtesy of GENERAL MOTORS CORP.

NOTE: If the retainers are cut off when removing the window it will be necessary to tape the it in place.

11. With the aid of an assistant (2), remove the windshield (1) from the vehicle.

Installation Procedure

1. Install the windshield into the opening. Refer to **Adhesive Installation of Windshields**.
2. Install the remote control door lock receiver. Refer to **Remote Control Door Lock Receiver Replacement** .
3. Install the rearview mirror. Refer to **Inside Rearview Mirror Replacement** .
4. Install the interior windshield pillar garnish moldings. Refer to **Windshield Side Garnish Molding Replacement** .

5. Install the air inlet grille. Refer to **Air Inlet Screen Replacement (Equinox)** or **Air Inlet Screen Replacement (Terrain)** .
6. Install the windshield wipers arms and blades. Refer to **Windshield Wiper Arm Replacement (Equinox Driver Side)** or **Windshield Wiper Arm Replacement (Equinox Passenger Side)** or **Windshield Wiper Arm Replacement (Terrain Driver Side)** or **Windshield Wiper Arm Replacement (Terrain Passenger Side)** .
7. Remove the double layer of masking tape around the perimeter of the painted surfaces and the interior trim.
8. Close the hood.

FRONT SIDE DOOR WINDOW REPLACEMENT

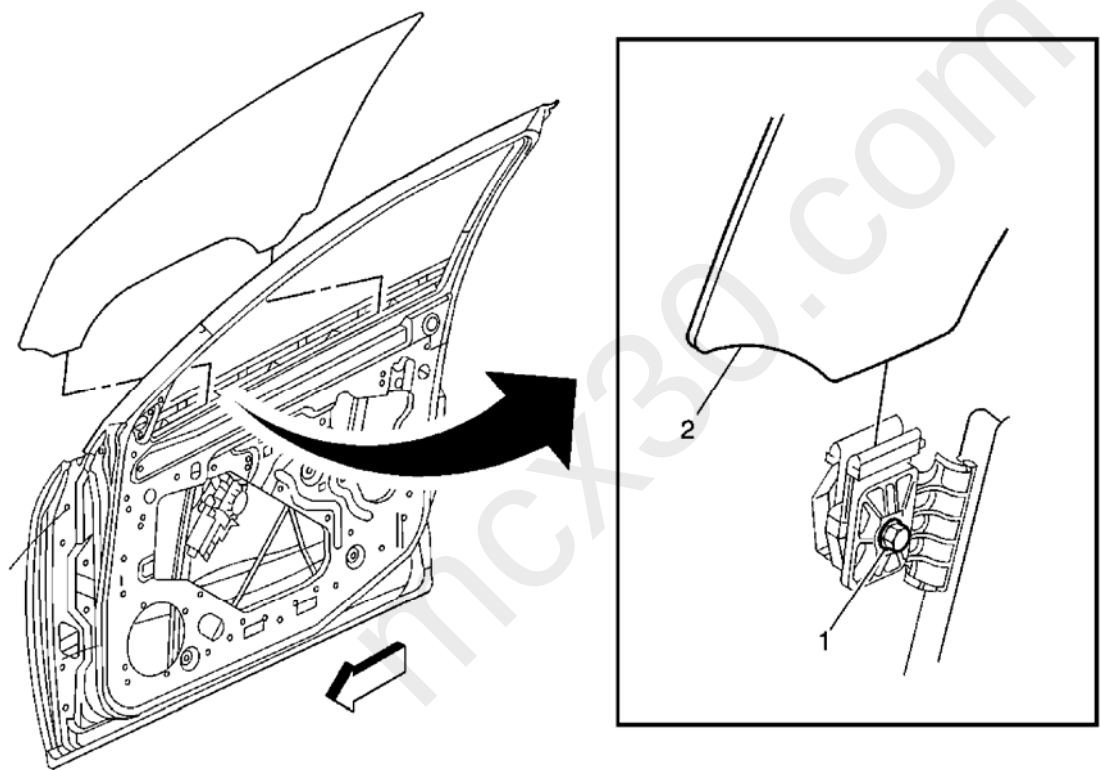


Fig. 8: Front Side Door Window
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures	
1.	Place the window in the up down position.
2.	Remove front door trim panel. Refer to <u>Front Side Door Trim Panel Replacement</u> .
3.	Remove the front side door garnish molding. Refer to <u>Front Side Door Garnish Molding Replacement</u> .

4. Remove the front side door inner sealing strip. Refer to **Front Side Door Window Inner Sealing Strip Replacement**.

1	Front Side Door Window Regulator Guide Nuts to Window (Qty: 2) WARNING: Refer to Glass and Sheet Metal Handling Warning. CAUTION: Refer to <u>Fastener Caution</u> . Procedure 1. Pull the front side door window weatherstrip from the channel. 2. Apply masking tape to the applique to protect the finish. 3. Remove the front side door water deflector. 4. Position the window in the full up to access the front side door window regulator guide nuts. 5. Tape the window in place, before remove lower the window regulator. Tighten: 11 N.m (97 lb in)
2	Front Side Door Window Procedure 1. Remove the tape from the window. 2. Install the window to left and right side of the channel before operating the window. 3. Inspect the operation of the window before installing the door trim panel.

REAR SIDE DOOR WINDOW REPLACEMENT

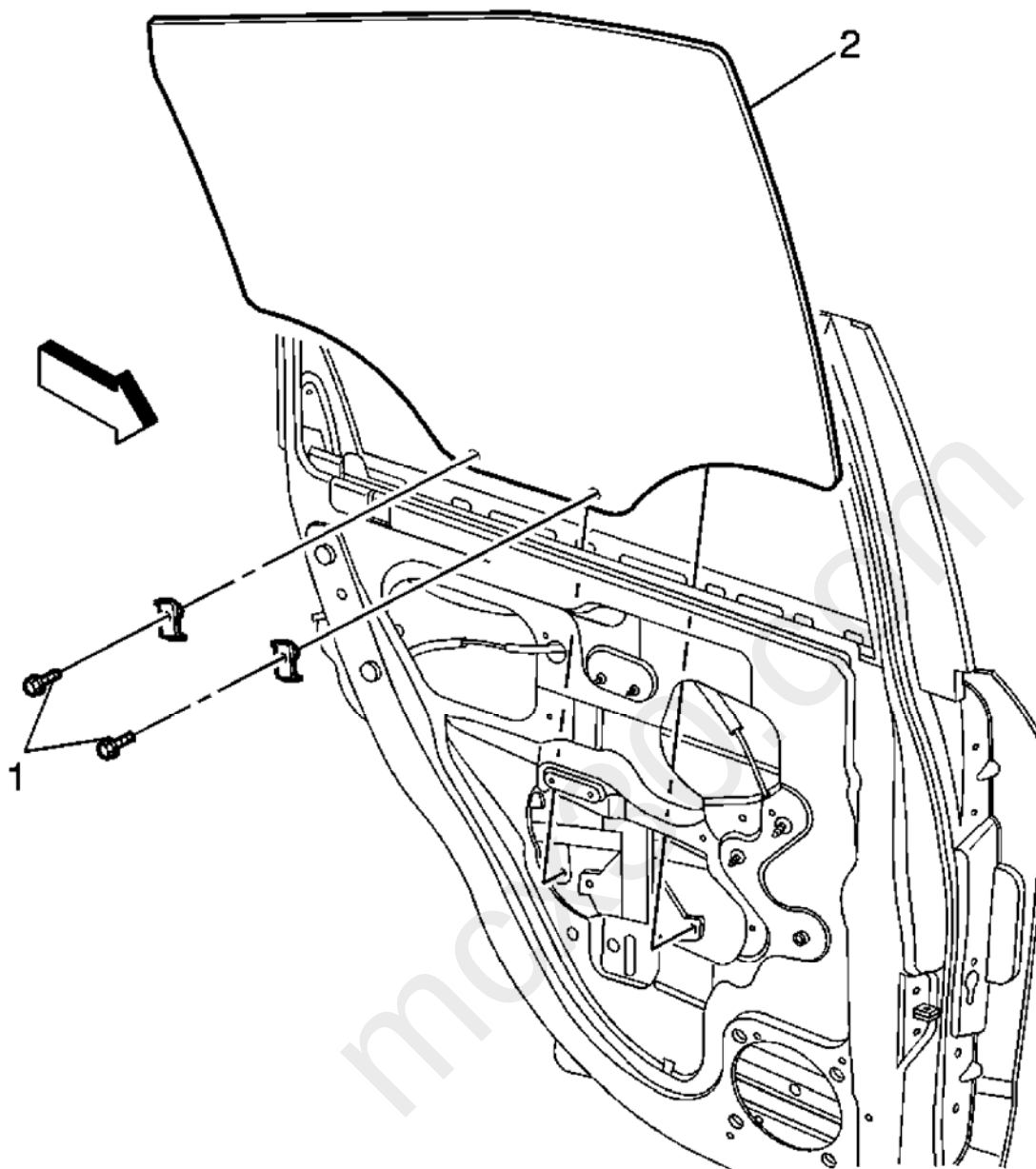


Fig. 9: Rear Side Door Window
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures	
1. Place the window in the fully down position.	
2. Remove rear door trim panel. Refer to <u>Rear Side Door Trim Panel Replacement</u> .	
3. Remove the rear side door garnish molding. Refer to <u>Rear Side Door Garnish Molding Replacement</u> .	

4.	Remove the rear side door inner sealing strip. Refer to <u>Rear Side Door Window Inner Sealing Strip Replacement</u> .
1	Rear Side Door Window Regulator Guide Nuts to Window (Qty: 2) WARNING: Refer to Glass and Sheet Metal Handling Warning. CAUTION: Refer to <u>Fastener Caution</u> . Procedure 1. Pull the rear side door window weatherstrip from the channel. 2. Apply masking tape to the applique to protect the finish. 3. Remove the rear side door water deflector. 4. Position window to access the rear side door window regulator guide nuts. Tighten: 11 N.m (97 lb in)
2	Rear Side Door Window Procedure 1. In order to remove the window out of the frame, carefully grasp and tilt the window as you guide the window up and forward. 2. Install the window to left and right side of the channel before operating the window. 3. Inspect the operation of the window before installing the door trim panel. 4. Ensure that the window is fully seated into the rear side door window weatherstrip.

QUARTER WINDOW REPLACEMENT

Special Tools

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

Removal Procedure

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

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

1. Open the liftgate.
2. Remove the quarter window trim finish panel. Refer to **Quarter Window Trim Finish Panel Replacement** .

WARNING: Refer to **Defroster Outlet Warning** .

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

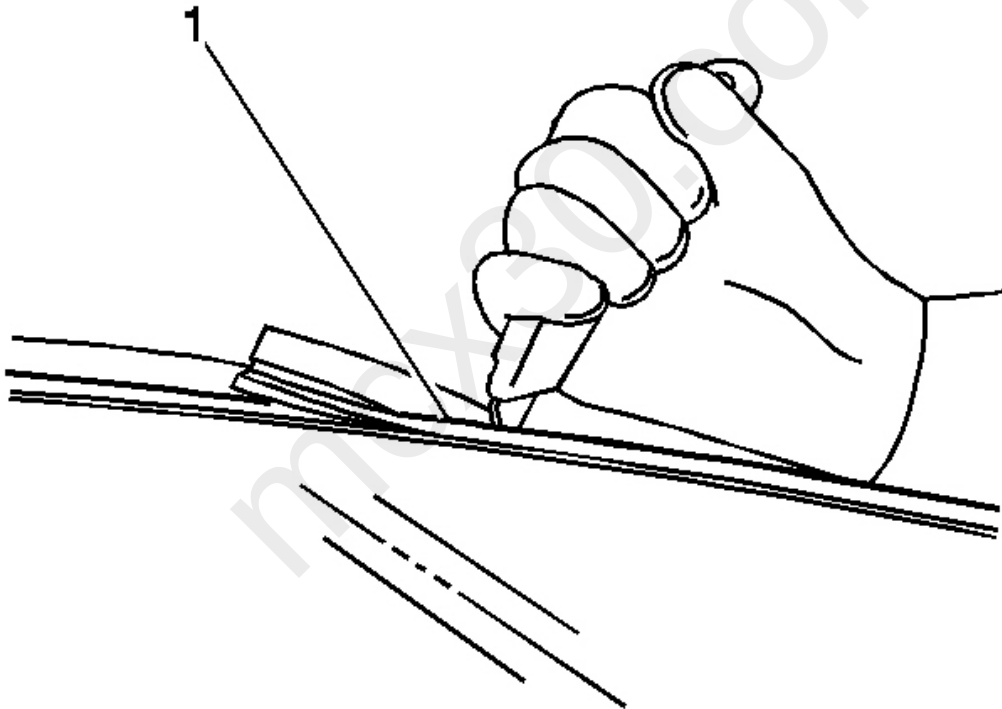


Fig. 10: Using Utility Knife To Remove Reveal Molding
Courtesy of GENERAL MOTORS CORP.

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

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

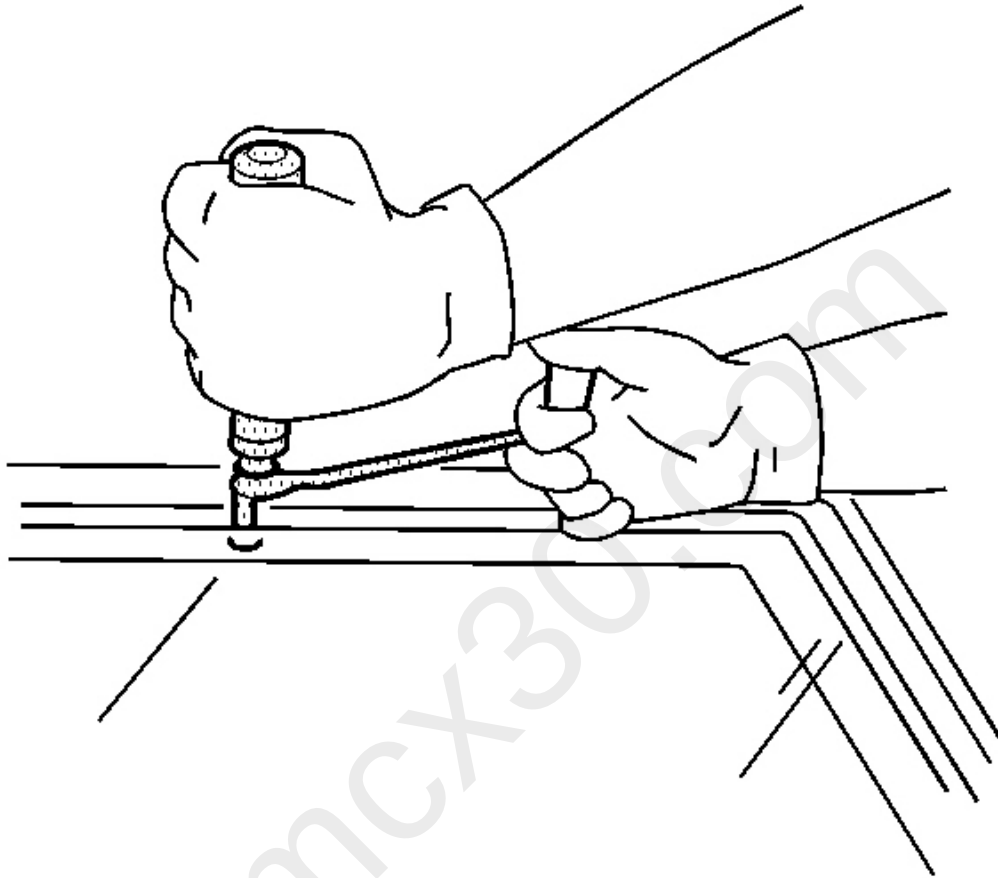


Fig. 11: Separating Urethane Adhesive From Window
Courtesy of GENERAL MOTORS CORP.

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

5. Remove the window from the urethane adhesive.
 - Leave a base of urethane approximately 2 mm (0.078 in) on the pinch-weld flange.
 - The only suitable lubrication is clear water.
 - Use J 24402-A , J 39032 , or equivalent to remove the window. See **Special Tools**.

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

inside the vehicle.

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

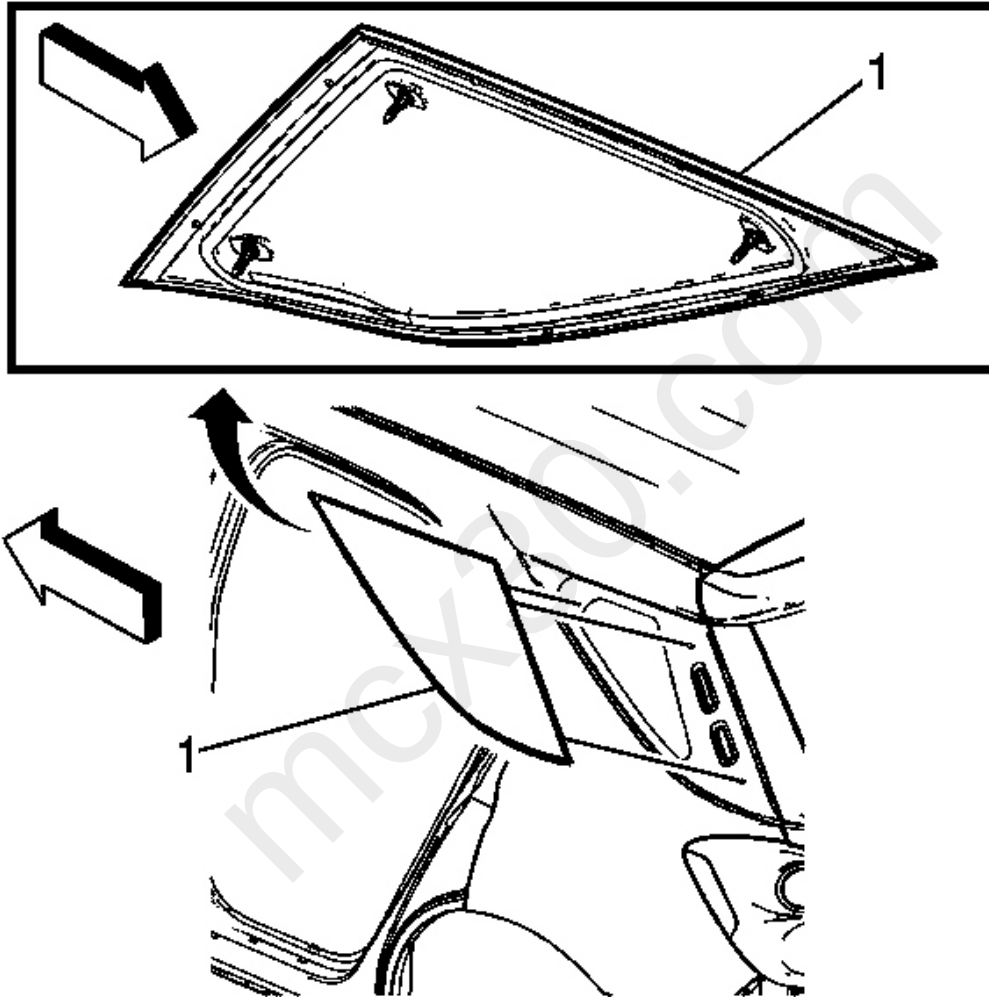


Fig. 12: Identifying Window
Courtesy of GENERAL MOTORS CORP.

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

Installation Procedure

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

LIFTGATE WINDOW REPLACEMENT

Special Tools

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

Removal Procedure

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

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

1. Open the liftgate.
2. Remove the liftgate lower trim finish panel. Refer to **Liftgate Lower Trim Finish Panel Replacement** and **Liftgate Lower Trim Finish Panel Replacement** .
3. Disconnect the electrical connectors from the liftgate window defogger bus bar.
4. Remove the rear window wiper arm. Refer to **Rear Window Wiper Arm Replacement (Equinox)** or **Rear Window Wiper Arm Replacement (Terrain)** .
5. Remove the rear end spoiler. Refer to **Rear End Spoiler Replacement (Equinox)** or **Rear End Spoiler Replacement (Terrain)** .

WARNING: Refer to **Defroster Outlet Warning** .

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

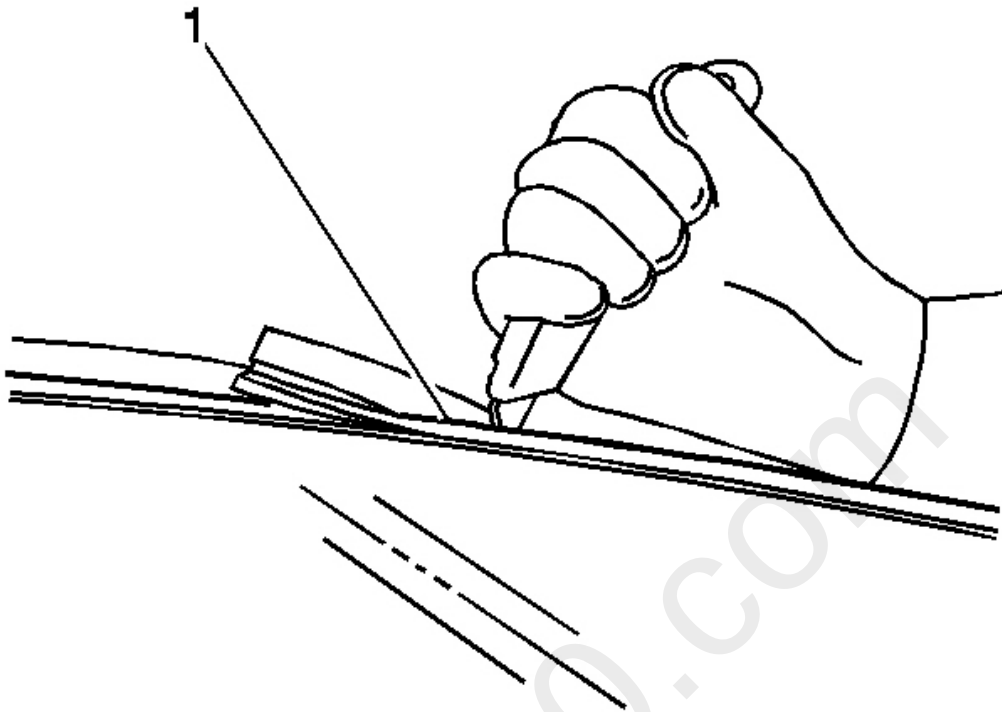


Fig. 13: Using Utility Knife To Remove Reveal Molding
Courtesy of GENERAL MOTORS CORP.

WARNING: Refer to Glass and Sheet Metal Handling Warning .

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

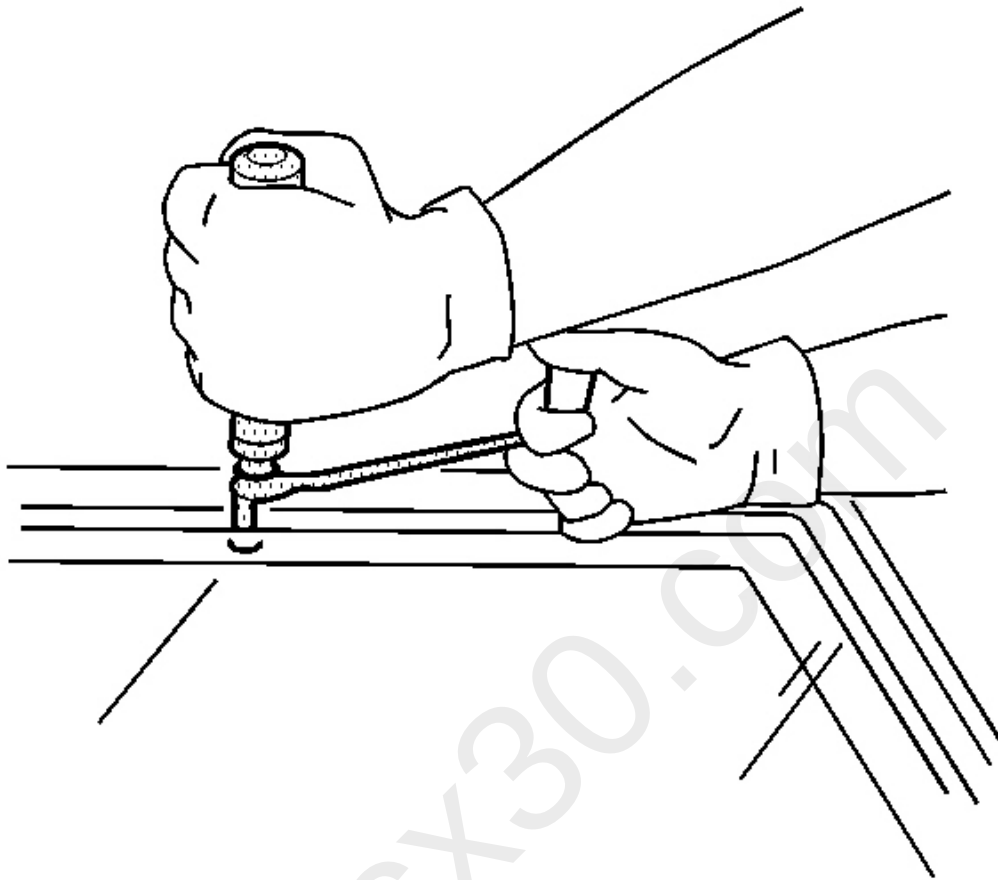


Fig. 14: Separating Urethane Adhesive From Window
Courtesy of GENERAL MOTORS CORP.

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

8. Remove the window from the urethane adhesive.
 - Leave a base of urethane approximately 2 mm (0.078 in) on the pinch-weld flange.
 - The only suitable lubrication is clear water.
 - Use J 24402-A , J 39032 or equivalent in order to remove the window. See **Special Tools**.

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

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

urethane adhesive.

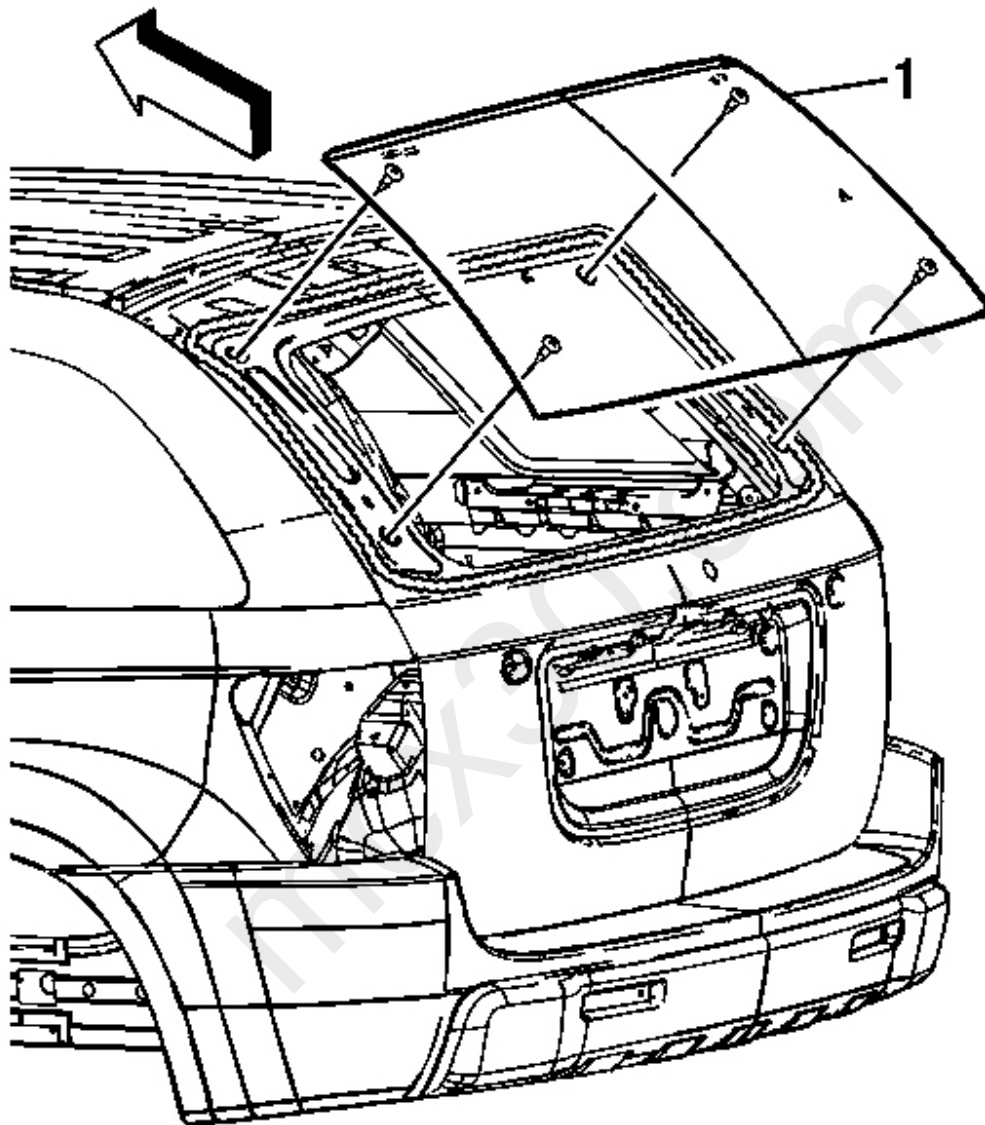


Fig. 15: View Of Liftgate Window
Courtesy of GENERAL MOTORS CORP.

10. With the aid of an assistant, remove the window (1) from the vehicle.

Installation Procedure

1. Install the liftgate window into the opening. Refer to **Adhesive Installation of Liftgate Windows**.
2. Install the rear end spoiler. Refer to **Rear End Spoiler Replacement (Equinox)** or **Rear End Spoiler Replacement (Terrain)** .
3. Install the rear window wiper arm. Refer to **Rear Window Wiper Arm Replacement (Equinox)** or **Rear Window Wiper Arm Replacement (Terrain)** .
4. Connect the liftgate window defogger electrical connectors to the bus bar.
5. Install the liftgate lower trim finish panel. Refer to **Liftgate Lower Trim Finish Panel Replacement** and **Liftgate Lower Trim Finish Panel Replacement** .
6. Remove the double layer of masking tape around the perimeter of the painted surfaces and the interior trim.
7. Close the liftgate.

FRONT SIDE DOOR WINDOW FRAME REAR APPLIQUE REPLACEMENT

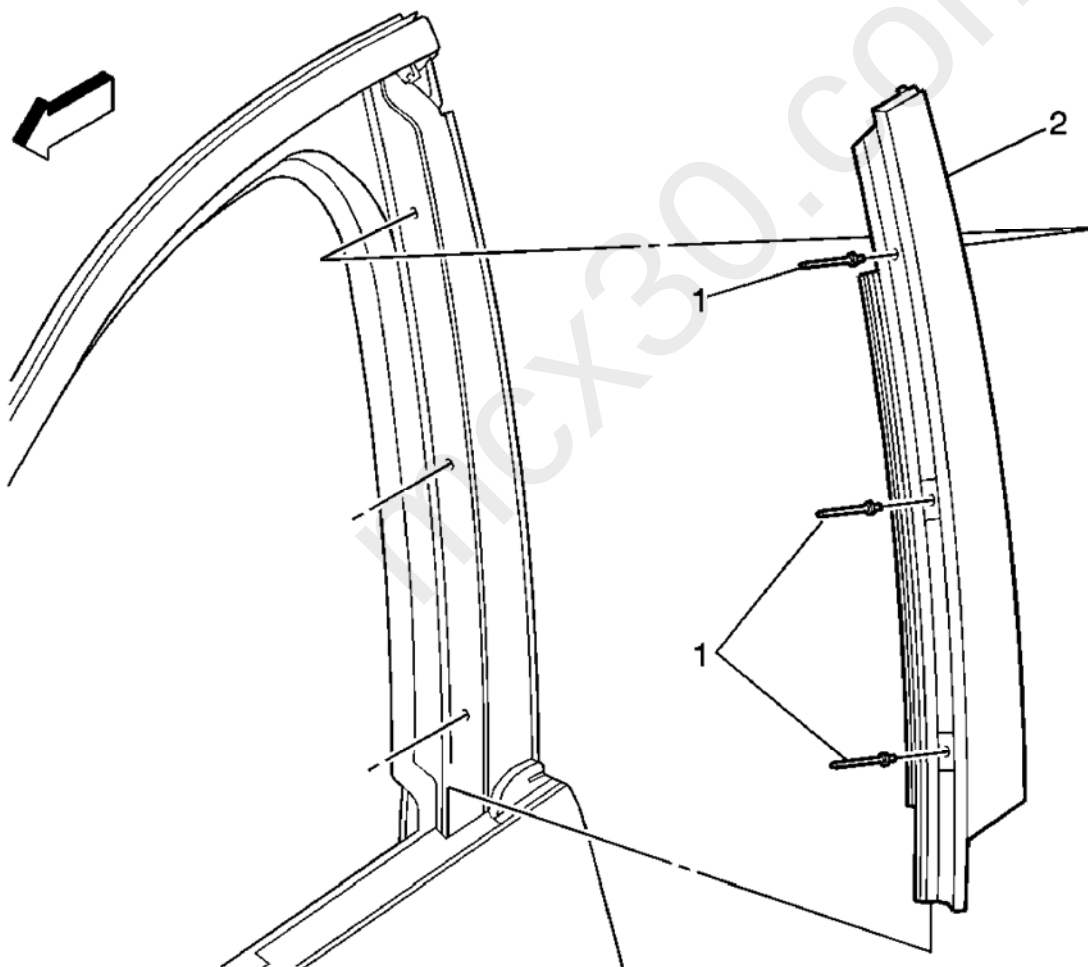


Fig. 16: Front Side Door Window Frame Rear Applique
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove the front side door window belt reveal molding. Refer to <u>Front Side Door Window Belt Reveal Molding Replacement</u> .	
1	Front Side Door Window Frame Rear Applique Rivet (Qty: 3) WARNING: Refer to <u>Glass and Sheet Metal Handling Warning</u> . Procedure 1. Lower the window to the fully down position. 2. Apply masking tape to the applique to protect the finish. 3. Pull the front side door window weatherstrip away from the door flange to expose the rivets. 4. When drilling cover/protect the interior trim and door from metal shavings. 5. Use a suitable tool, drill out the rivets from the upper door frame.
2	Front Side Door Window Frame Rear Applique Procedure 1. Use a suitable tool, install the rivets in the front side door frame. 2. Inspect the door window for proper operation.

REAR SIDE DOOR WINDOW FRAME FRONT APPLIQUE REPLACEMENT

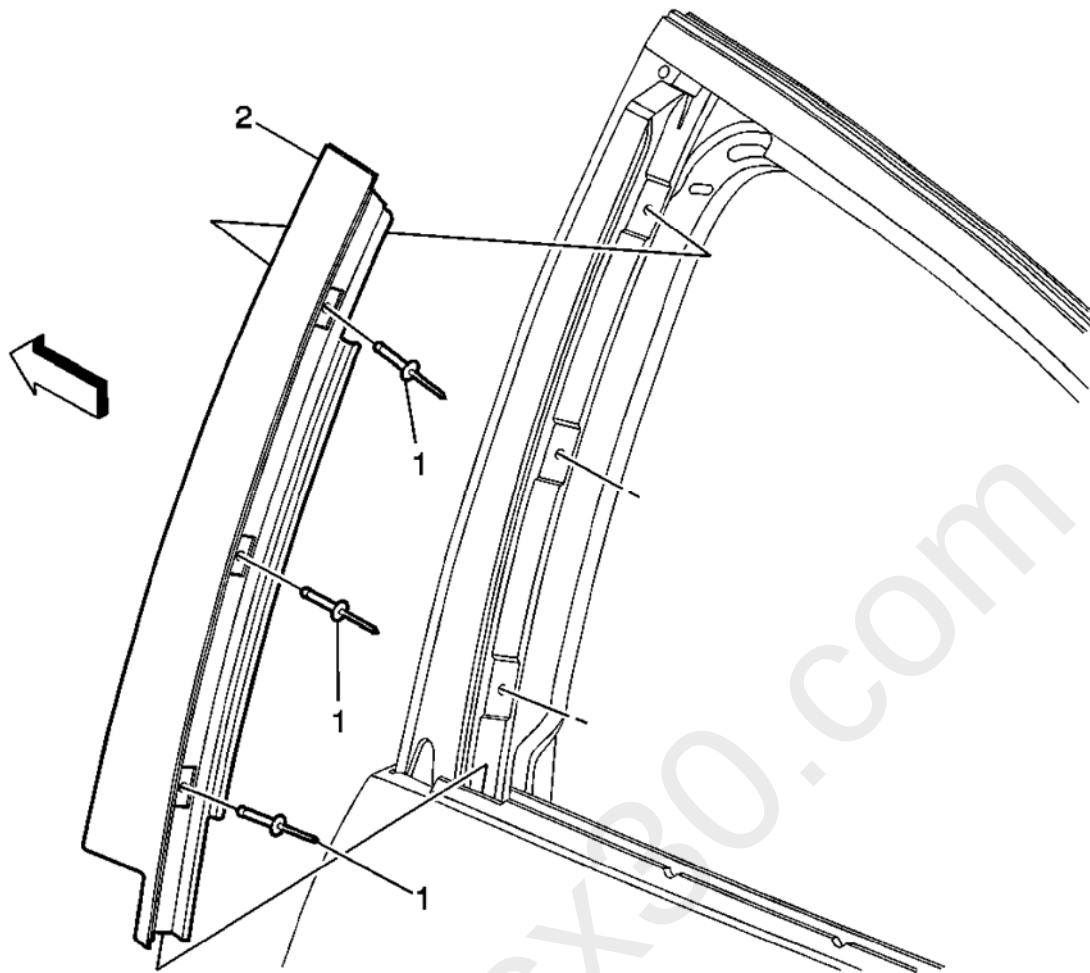


Fig. 17: Rear Side Door Window Frame Front Applique
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove the rear side door window belt reveal molding. Refer to <u>Rear Side Door Window Belt Reveal Molding Replacement</u> .	
1	Rear Side Door Window Frame Front Applique Rivets (Qty: 3) WARNING: Refer to <u>Glass and Sheet Metal Handling Warning</u> . Procedure 1. Lower the window to the fully down position. 2. Apply masking tape to the applique to protect the finish. 3. Pull the front side door window weatherstrip away from the door flange to expose the

	rivets. - When drilling cover/protect the interior trim and door from metal shavings. - Use a suitable tool, drill out the rivets from the upper door frame.
2	Rear Side Door Window Frame Front Applique Procedure - Use a suitable tool, install the rivets in the rear side door frame. - Inspect the door window for proper operation before installing the door trim panel. - Transfer the sealing strip.

FRONT SIDE DOOR WINDOW SWITCH REPLACEMENT

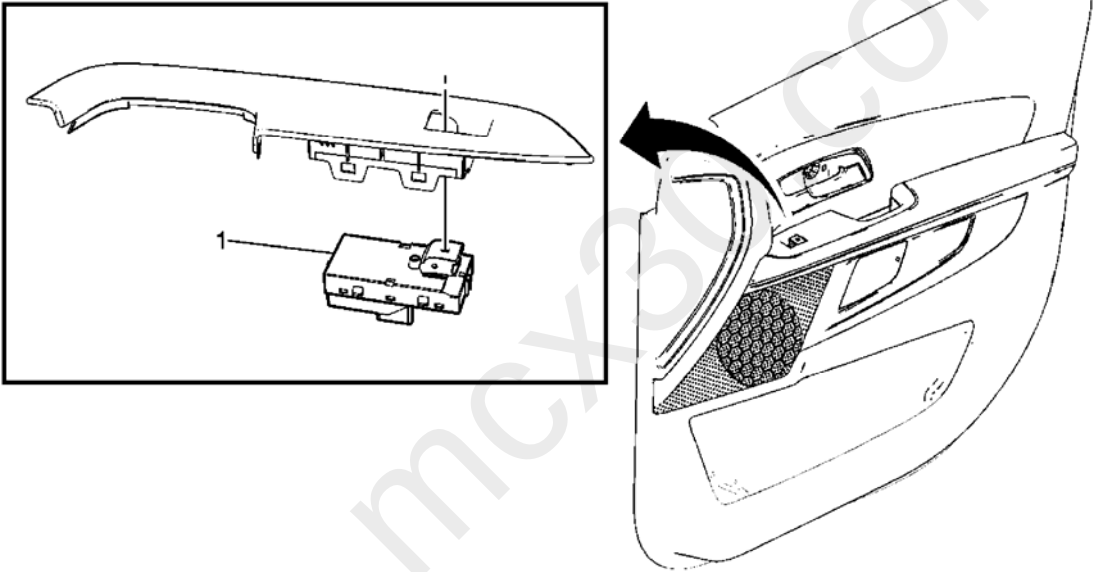


Fig. 18: Front Side Door Window Switch
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove the front side door accessory switch mount plate. Refer to Front Side Door Accessory Switch Mount Plate Replacement .	
1	Front Side Door Window Switch Assembly Procedure Disconnect the electrical connectors.

2. Refer to **Control Module References** for programming and setup information.

FRONT SIDE DOOR WINDOW AND MULTIFUNCTION SWITCH REPLACEMENT

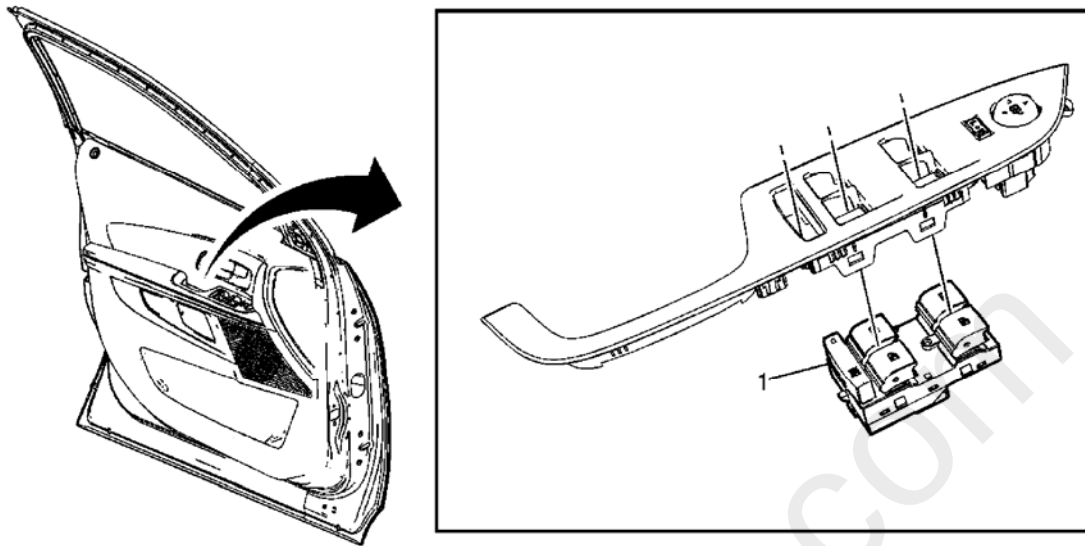


Fig. 19: Front Side Door Window and Multifunction Switch
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove the front side door accessory switch mount plate. Refer to <u>Front Side Door Accessory Switch Mount Plate Replacement</u> .	
1	Front Window and Multifunction Switch Assembly Procedure 1. Disconnect the electrical connectors. 2. Refer to <u>Control Module References</u> for programming and setup information.

REAR SIDE DOOR WINDOW SWITCH REPLACEMENT

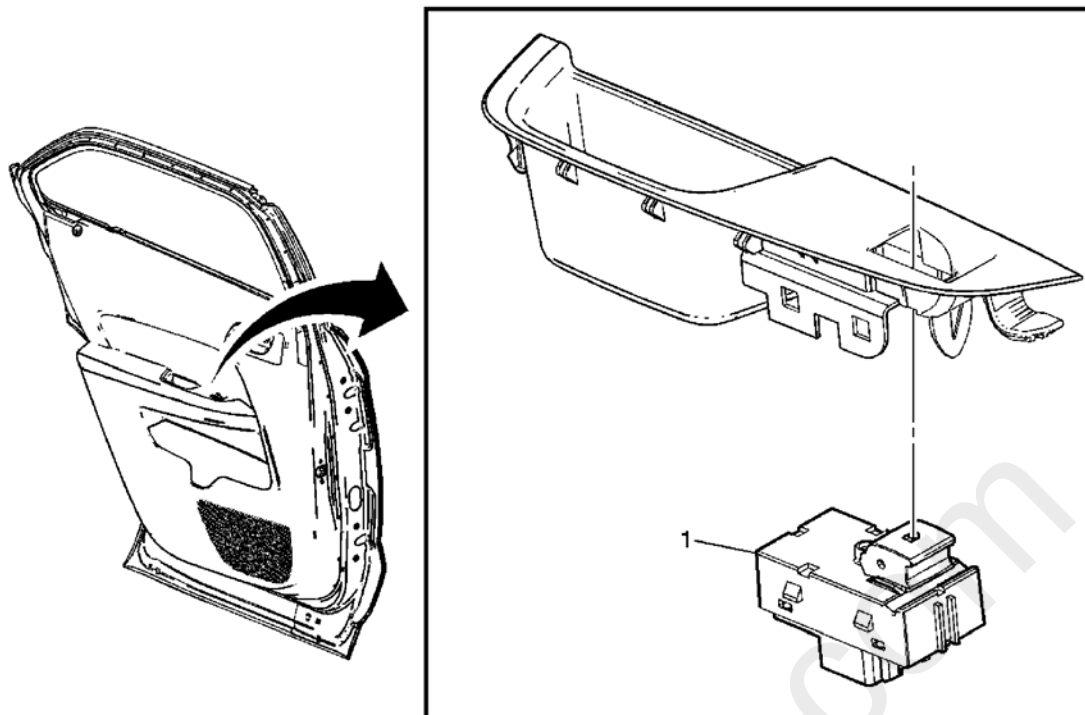


Fig. 20: Rear Side Door Window Switch
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove the rear side door accessory switch mount plate. Refer to <u>Rear Side Door Accessory Switch Mount Plate Replacement</u> .	
1	Rear Side Door Window Switch Assembly Procedure 1. Disconnect the electrical connectors. 2. Refer to <u>Control Module References</u> for programming and setup information.

FRONT SIDE DOOR WINDOW REGULATOR REPLACEMENT

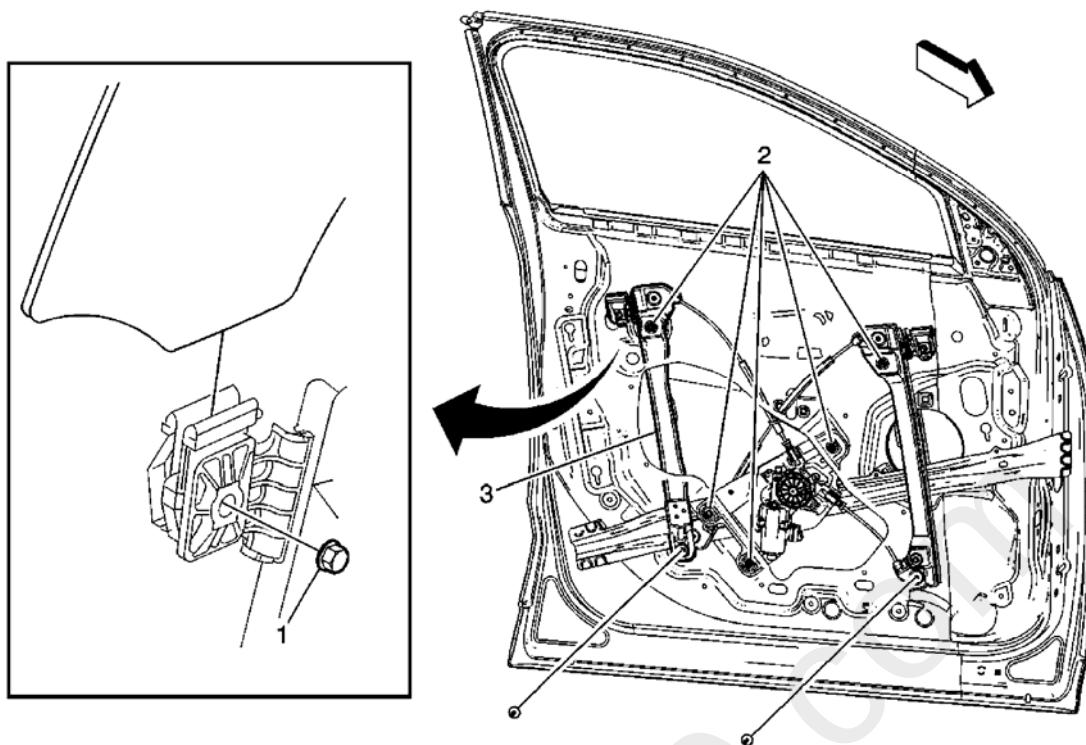


Fig. 21: Front Side Door Window Regulator
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures	
1. Place the window in the fully down position. 2. Remove front door trim panel. Refer to <u>Front Side Door Trim Panel Replacement</u> . 3. Remove the front side door inner sealing strip. Refer to <u>Front Side Door Window Inner Sealing Strip Replacement</u>.	
1	Front Side Door Window Regulator Guide Nuts to Window (Qty: 2) WARNING: Refer to <u>Glass and Sheet Metal Handling Warning</u> . CAUTION: Refer to <u>Fastener Caution</u> . Procedure 1. Remove the front side door water deflector. 2. Remove the nuts on the window regulator guide.

	3. Raise the window to the fully up position, tape in place. 4. Disconnect the electrical connector from the motor. 5. Position window to access the front side door window regulator guide nuts. Tighten: 11 N.m (97 lb in)
2	Front Side Door Window Regulator Bolt (Qty: 7) Tighten: 11 N.m (97 lb in)
3	Front Side Door Window Regulator Procedure 1. When installing a new window regulator, transfer the two window regulator guides nuts. 2. After the window regulator has been installed and connected remove the tape from the window and lower the window to meet the regulator guides nuts. 3. Inspect the door window for proper operation before installing the door trim panel.

FRONT SIDE DOOR WINDOW REGULATOR MOTOR REPLACEMENT

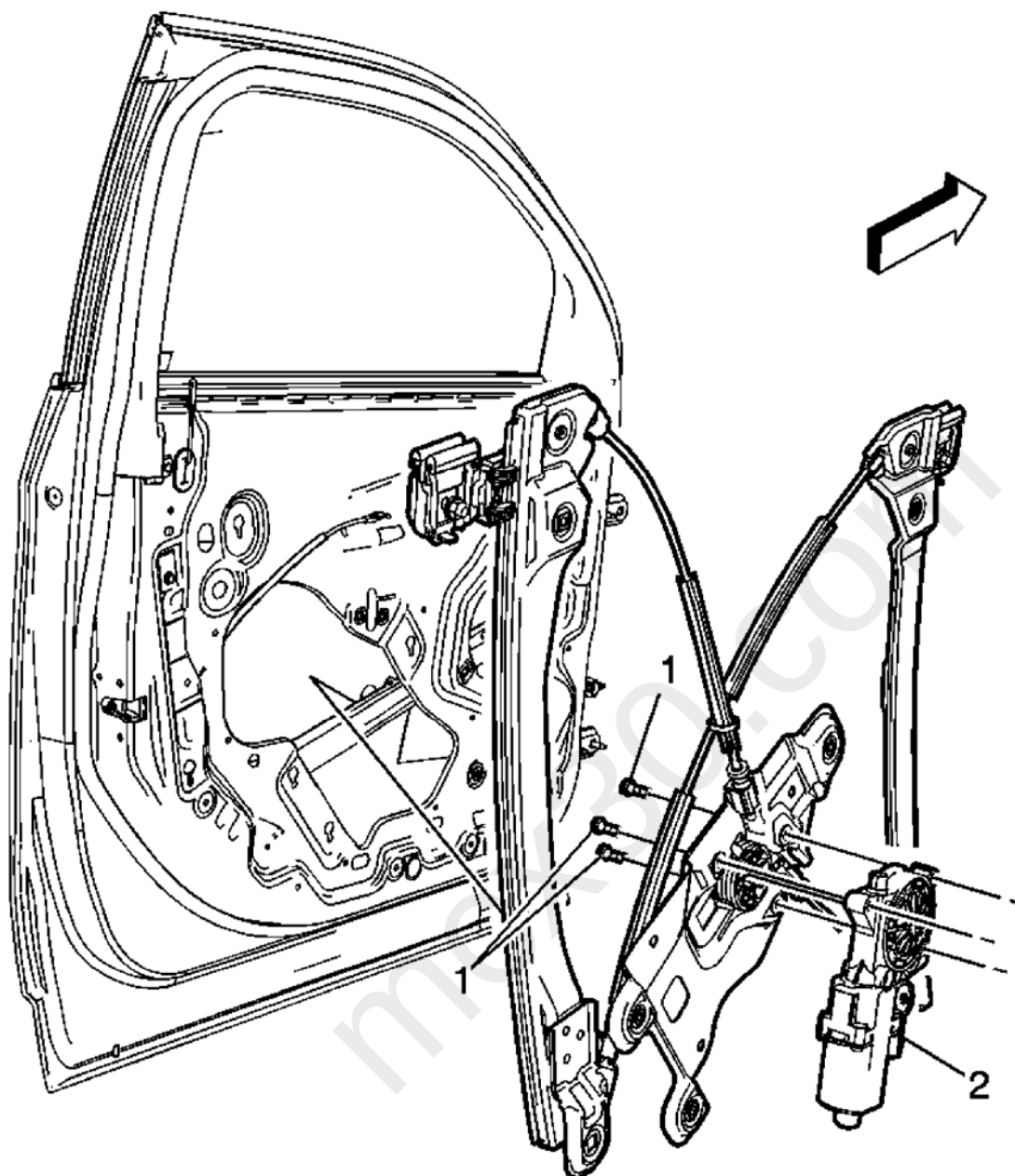


Fig. 22: Front Side Door Window Regulator Motor
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove the front side door window regulator. Refer to Front Side Door Window Regulator Replacement	
	Front Side Door Window Regulator Motor Bolt (Qty: 3)

1	WARNING: Refer to <u>Glass and Sheet Metal Handling Warning</u> . CAUTION: Refer to <u>Fastener Caution</u> . Tighten: 8 N.m (71 lb in)
2	Front Side Door Window Regulator Motor Procedure: Inspect the operation of the window before installing the door trim panel.

REAR SIDE DOOR WINDOW REGULATOR REPLACEMENT

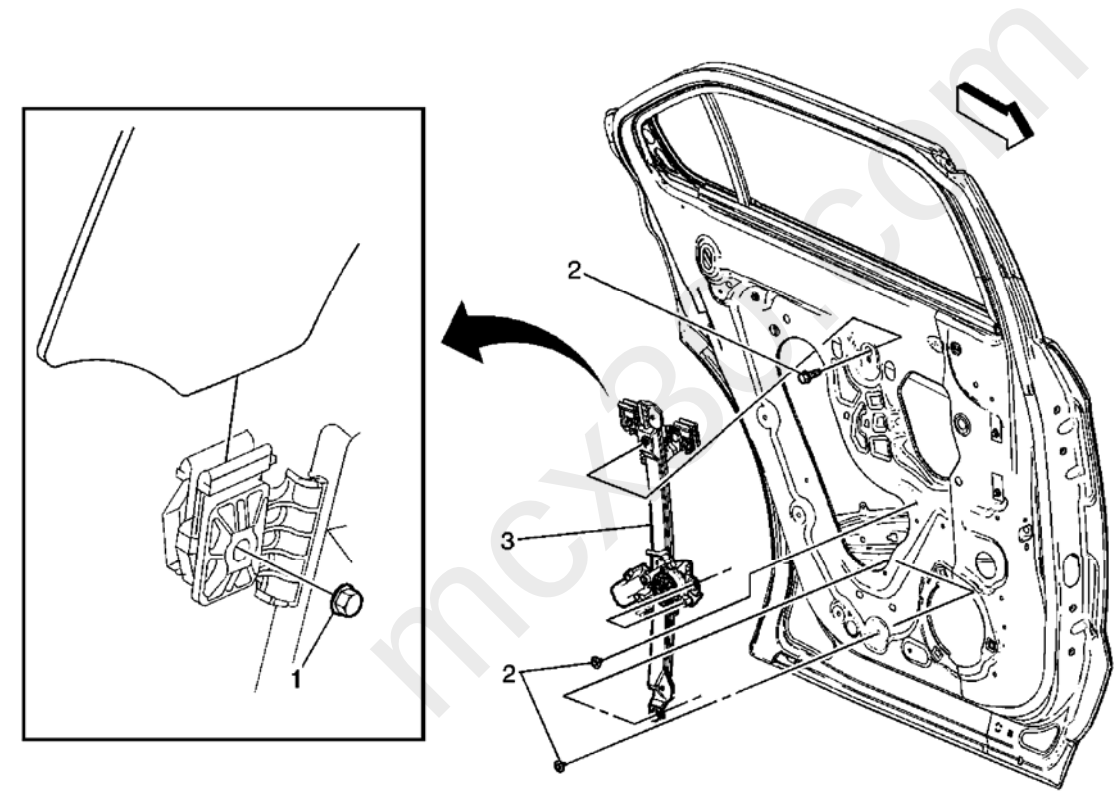


Fig. 23: Rear Side Door Window Regulator
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures 1. Place the window in the fully down position. 2. Remove rear door trim panel. Refer to <u>Rear Side Door Trim Panel Replacement</u> . 3. Remove the rear side door inner sealing strip. Refer to <u>Rear Side Door Window Inner Sealing Strip Replacement</u>.	

1	Rear Side Door Window Regulator Guide Nut to Window (Qty: 2) WARNING: Refer to Glass and Sheet Metal Handling Warning. CAUTION: Refer to <u>Fastener Caution</u> . Procedure 1. Remove the rear side door water deflector. 2. Position window to access the rear side door window regulator guide bolts. Loosen the nuts on the window regulator guide. 3. Raise the window to the fully up position, tape in place. 4. Disconnect the electrical connector from the motor. Tighten: 11 N.m (96 lb in)
2	Rear Side Door Window Regulator Bolts (Qty: 3) Tighten: 11 N.m (97 lb in)
3	Rear Side Door Window Regulator Procedure 1. When installing a new window regulator, transfer the two window regulator guides nuts. 2. After the window regulator has been installed and connected remove the tape from the window and lower the window to meet the regulator guides nuts. 3. Inspect the door window for proper operation before installing the door trim panel.

REAR SIDE DOOR WINDOW REGULATOR MOTOR REPLACEMENT

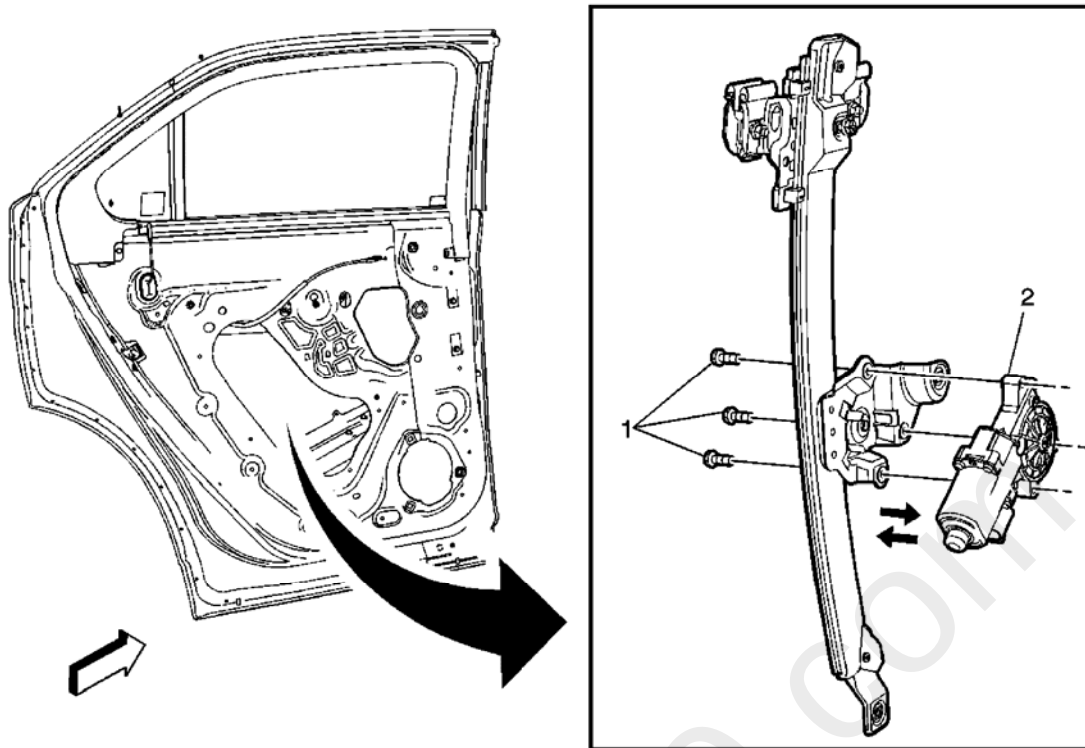


Fig. 24: Rear Side Door Window Regulator Motor
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove the rear side door window regulator. <u>Rear Side Door Window Regulator Replacement.</u>	
1	Rear Side Door Window Regulator Motor Screw (Qty: 3). CAUTION: Refer to <u>Fastener Caution</u> . Tighten: 8 N.m (71 lb in)
2	Rear Side Door Window Regulator Motor Procedure: Inspect the operation of the window before installing the door trim panel.

FRONT SIDE DOOR WINDOW INNER SEALING STRIP REPLACEMENT

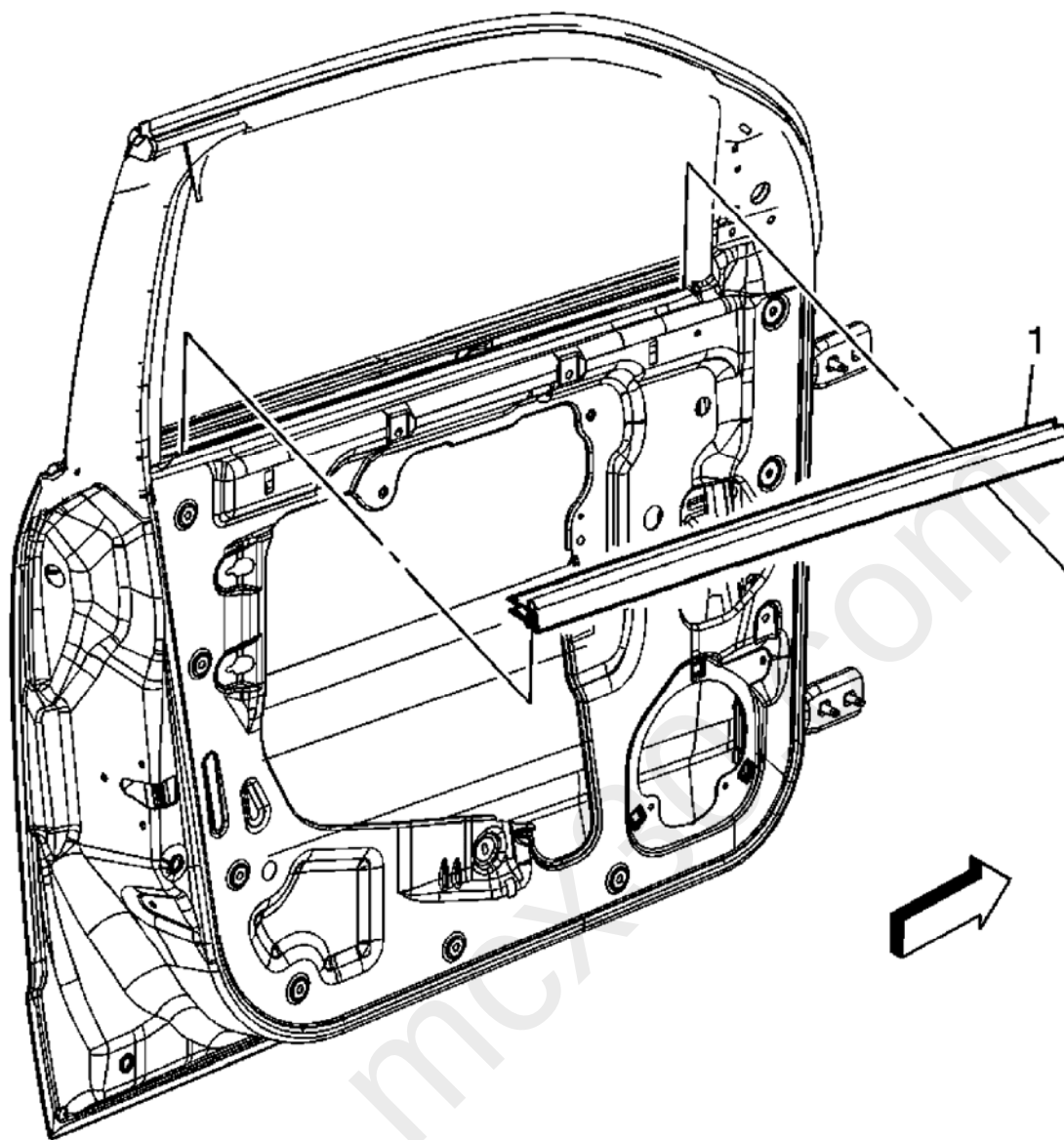


Fig. 25: Front Side Door Window Inner Sealing Strip
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures: Remove front door trim panel. Refer to <u>Front Side Door Trim Panel Replacement</u> .	
1	Front Side Door Inner Window Sealing Strip Procedure 1. Start from the front edge of the door, pull upward on the inner window sealing strip to release it from the pinch-weld flange.

2. Install the inner window sealing strip to the front edge of the door, press firmly onto the pinch-weld flange and work it rearward.
3. Inspect the operation of the window before installing the door trim panel.

REAR SIDE DOOR WINDOW UPPER REVEAL MOLDING REPLACEMENT

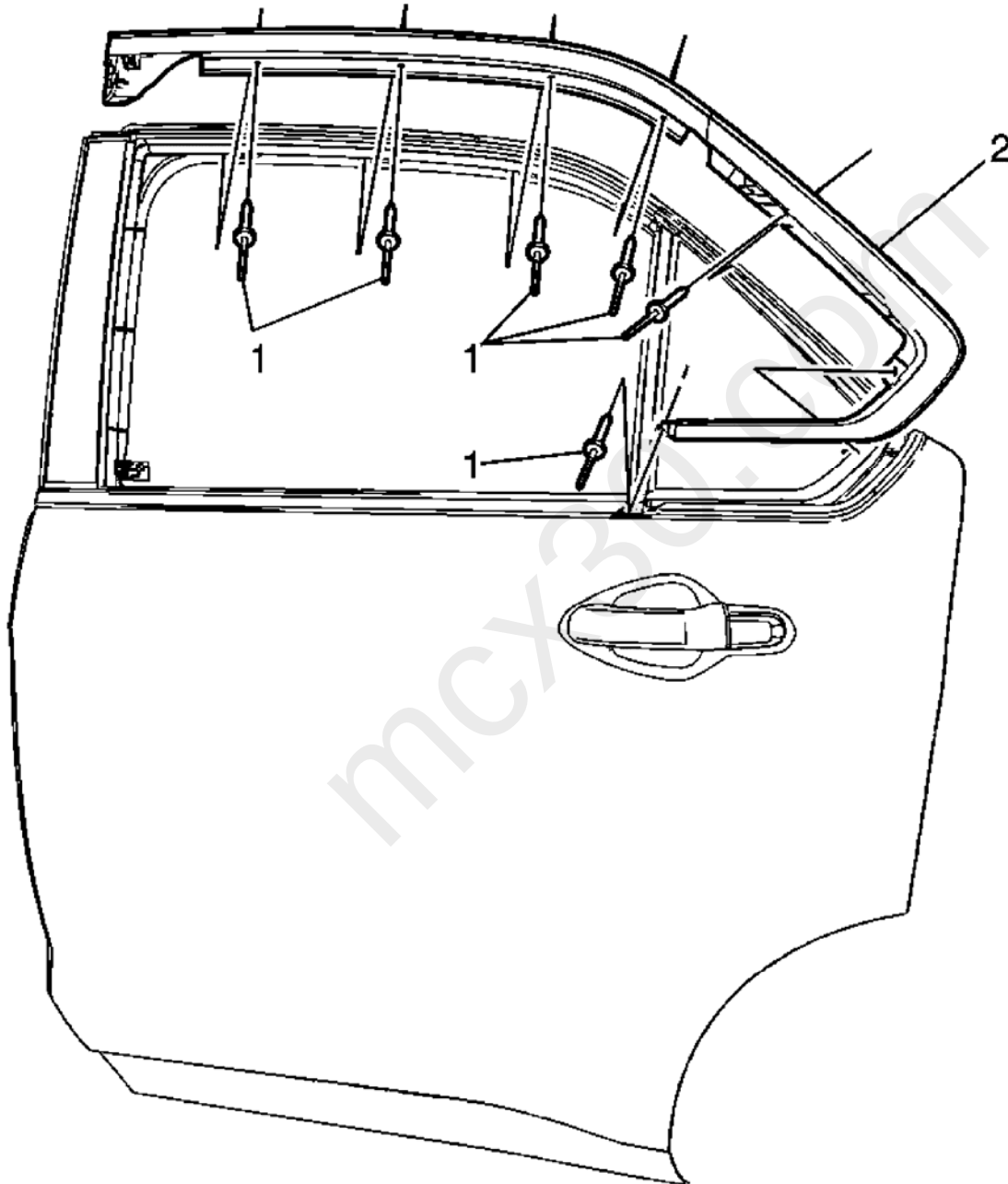


Fig. 26: Rear Side Door Window Upper Reveal Molding
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures 1. Remove the rear side door trim panel. Refer to <u>Rear Side Door Trim Panel Replacement</u> . 2. Remove the rear side door garnish molding. Refer to <u>Rear Side Door Garnish Molding Replacement</u> . 3. Remove the rear side door window belt reveal molding. Refer to <u>Rear Side Door Window Belt Reveal Molding Replacement</u>. 4. Remove the rear side window weatherstrip. Refer to <u>Rear Side Door Window Weatherstrip Replacement</u>.	
1	Rear Side Door Window Upper Reveal Molding Rivet (Qty: 7) WARNING: Refer to <u>Glass and Sheet Metal Handling Warning</u> . Procedure 1. One rivet is located under the rear side door window belt reveal molding. 2. Lower the window to the fully down position. 3. Apply masking tape to the applique to protect the finish. 4. When drilling cover/protect the interior trim and door from the metal shavings. 5. Use a suitable tool, drill out the rivets from the door frame.
2	Rear Side Door Window Upper Reveal Molding Procedure 1. Start at the front edge of the rear door, fully seat the molding before installing the rivets. 2. Use a suitable tool, install the rivets in the upper door frame. 3. Inspect the door window for proper operation before installing the door trim panel.

REAR SIDE DOOR WINDOW BELT REVEAL MOLDING REPLACEMENT

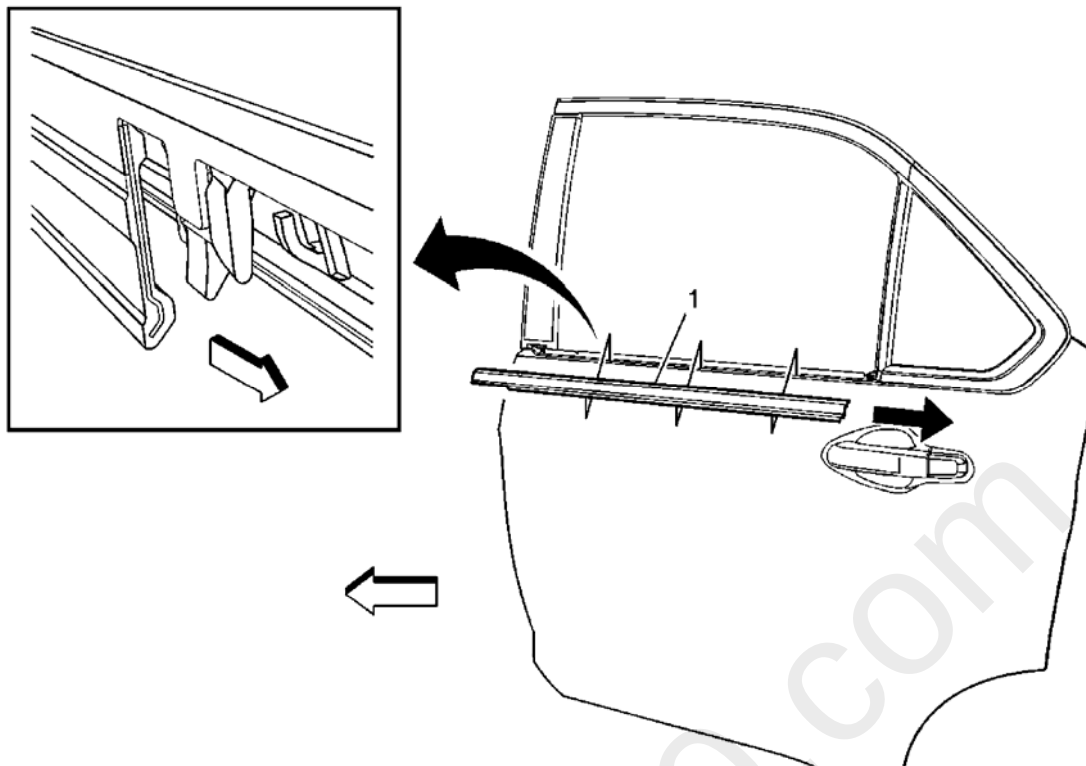


Fig. 27: Rear Side Door Window Belt Reveal Molding
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
1	Rear Side Door Window Belt Reveal Molding Procedure 1. Place the window in the fully down position. 2. Apply masking tape to the applique to protect the finish. 3. Start at the front edge of the rear side door window reveal molding, pull upward while working rearward releasing it from the door flange. 4. Inspect the door window for proper operation. Tip: The reveal molding has two clips that attach to the inner door flange, front and rear edge of the molding.

FRONT SIDE DOOR WINDOW BELT REVEAL MOLDING REPLACEMENT

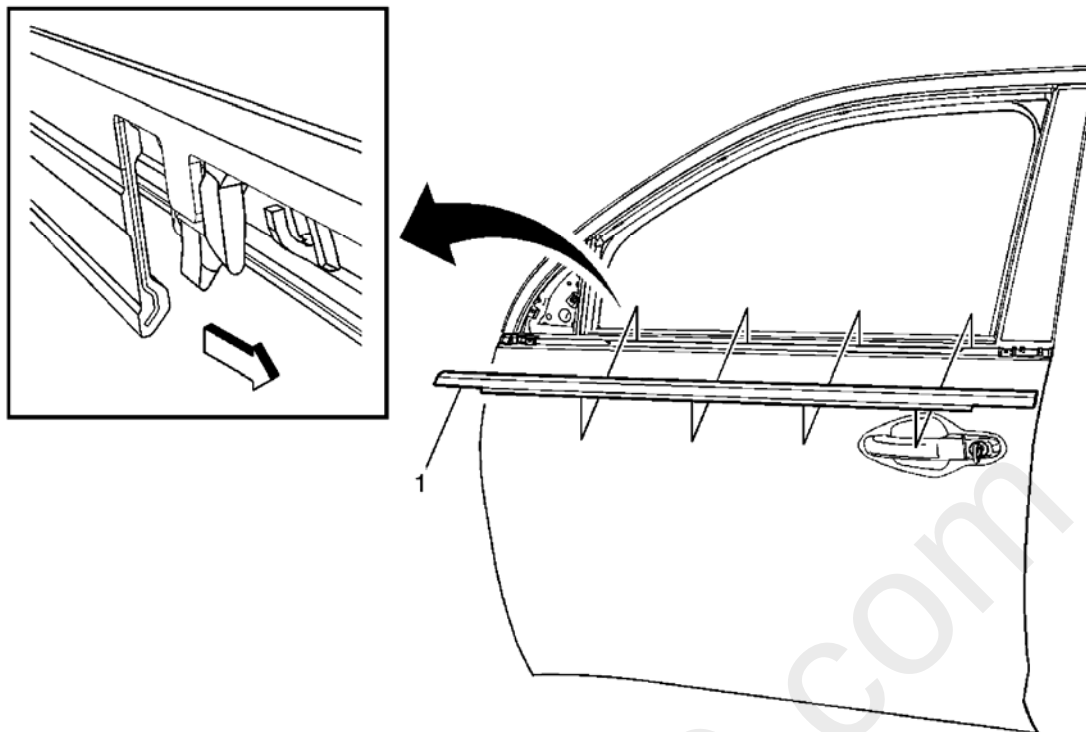


Fig. 28: Front Side Door Window Belt Reveal Molding
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures 1. Place the window in the fully down position. 2. Remove the outside rearview mirror. Refer to <u>Outside Rearview Mirror Replacement (Equinox)</u> or <u>Outside Rearview Mirror Replacement (Terrain)</u>.	
1	Front Side Door Window Belt Reveal Molding Procedure 1. Apply masking tape to the applique to protect the finish. 2. Start at the front edge of the front side door window reveal molding, pull upward while working rearward releasing it from the door flange. 3. Inspect the operation of the window before installing the door trim panel. Tip: The reveal molding has two clips that attach to the inner door flange, front and rear edge of the molding.

FRONT SIDE DOOR WINDOW UPPER REVEAL MOLDING REPLACEMENT

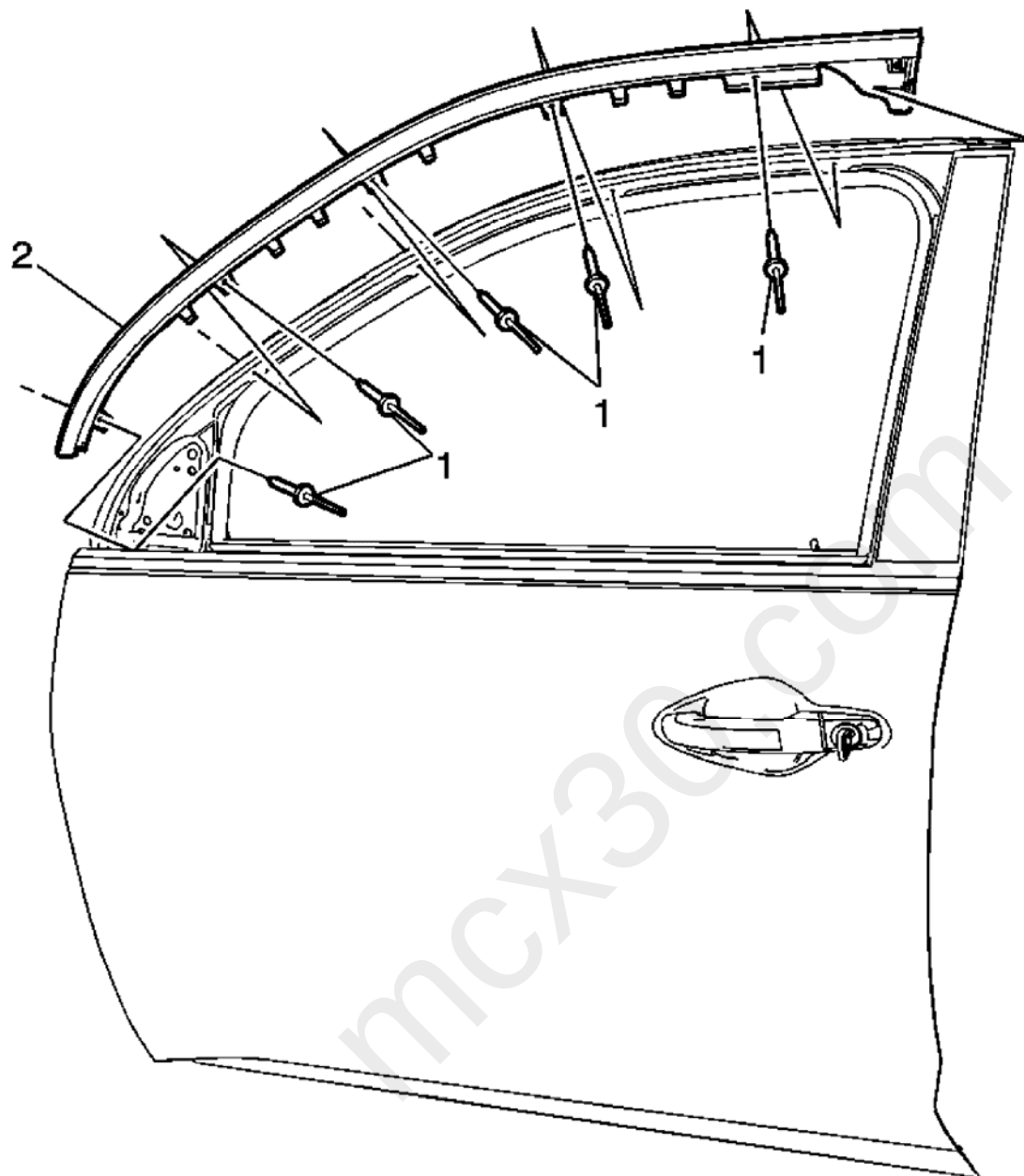


Fig. 29: Front Side Door Window Upper Reveal Molding
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures	
1.	Remove the front side door trim panel. Refer to <u>Front Side Door Trim Panel Replacement</u> .
2.	Remove the front side door garnish molding. Refer to <u>Front Side Door Garnish Molding Replacement</u> .

3. Remove the outside rearview mirror. Refer to <u>Outside Rearview Mirror Replacement (Equinox)</u> or <u>Outside Rearview Mirror Replacement (Terrain)</u> .	
1	Front Side Door Window Upper Reveal Molding Fastener (Qty: 5) WARNING: Refer to <u>Glass and Sheet Metal Handling Warning</u> . Procedure 1. One clip is located on the inner upper door frame. 2. Lower the window to the fully down position. 3. Apply masking tape to the applique to protect the finish. 4. Pull the front side door window weatherstrip from the door frame to expose the rivets. 5. When drilling cover/protect the interior trim and door from the metal shavings. 6. Use a suitable tool, drill out the rivets from the door frame.
2	Front Side Door Window Upper Reveal Molding Procedure 1. Use a suitable tool, install the rivets in the front side door frame. 2. Start at the rear of the front door edge, fully seat the molding before installing the rivets. 3. Inspect the operation of the window before installing the door trim panel.

REAR SIDE DOOR WINDOW INNER SEALING STRIP REPLACEMENT

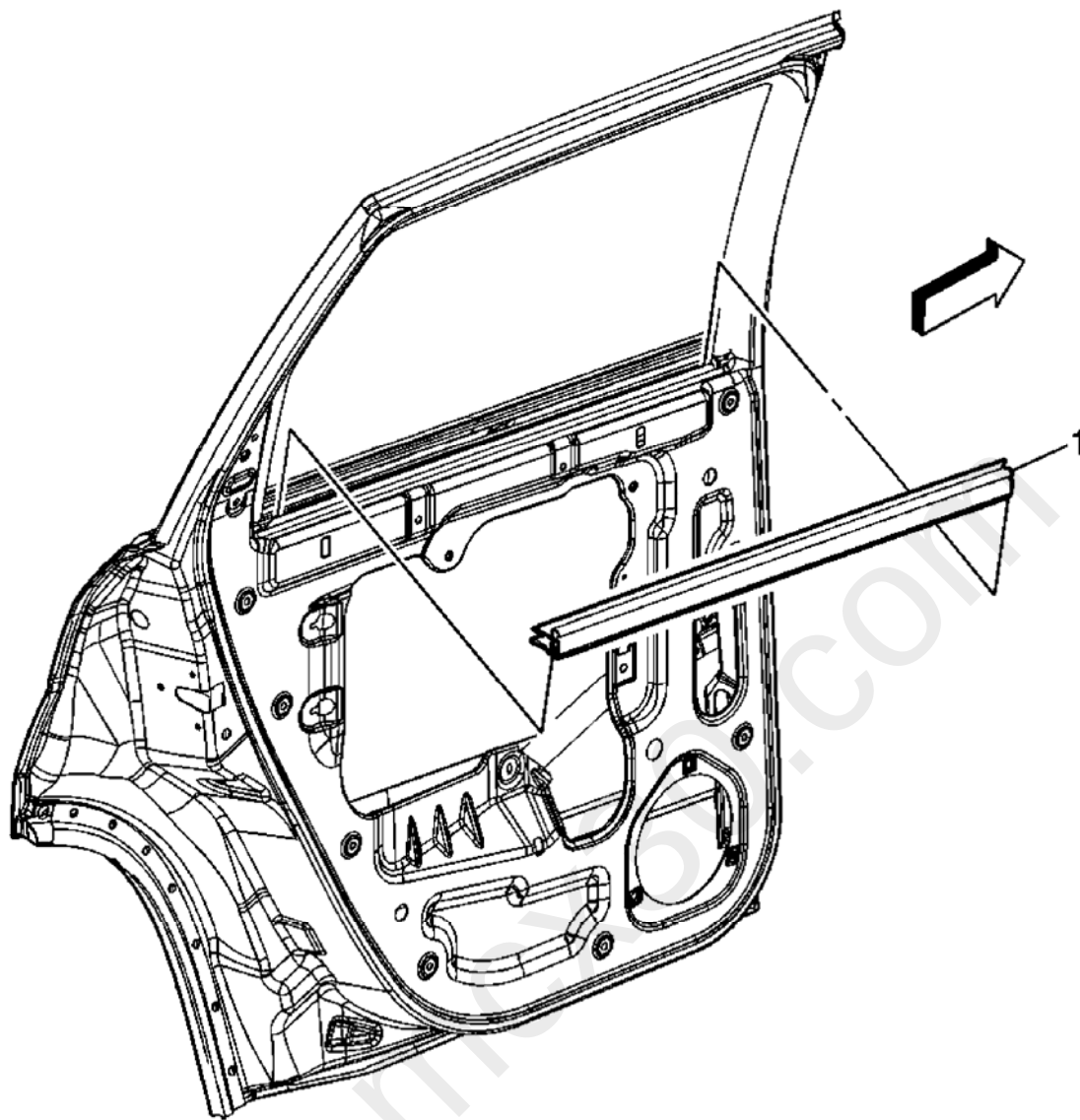


Fig. 30: Rear Side Door Window Inner Sealing Strip
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove rear door trim panel. Refer to <u>Rear Side Door Trim Panel Replacement</u> .	
1	Rear Side Door Inner Window Sealing Strip Procedure 1. Start from the front edge of the door, pull upward on the inner window sealing strip to release it from the pinch-weld flange. 2. Install the inner window sealing strip to the front edge of the door, press firmly onto

the pinch-weld flange and work it rearward.

3. Inspect the operation of the window before installing the door trim panel.

FRONT SIDE DOOR WINDOW WEATHERSTRIP REPLACEMENT

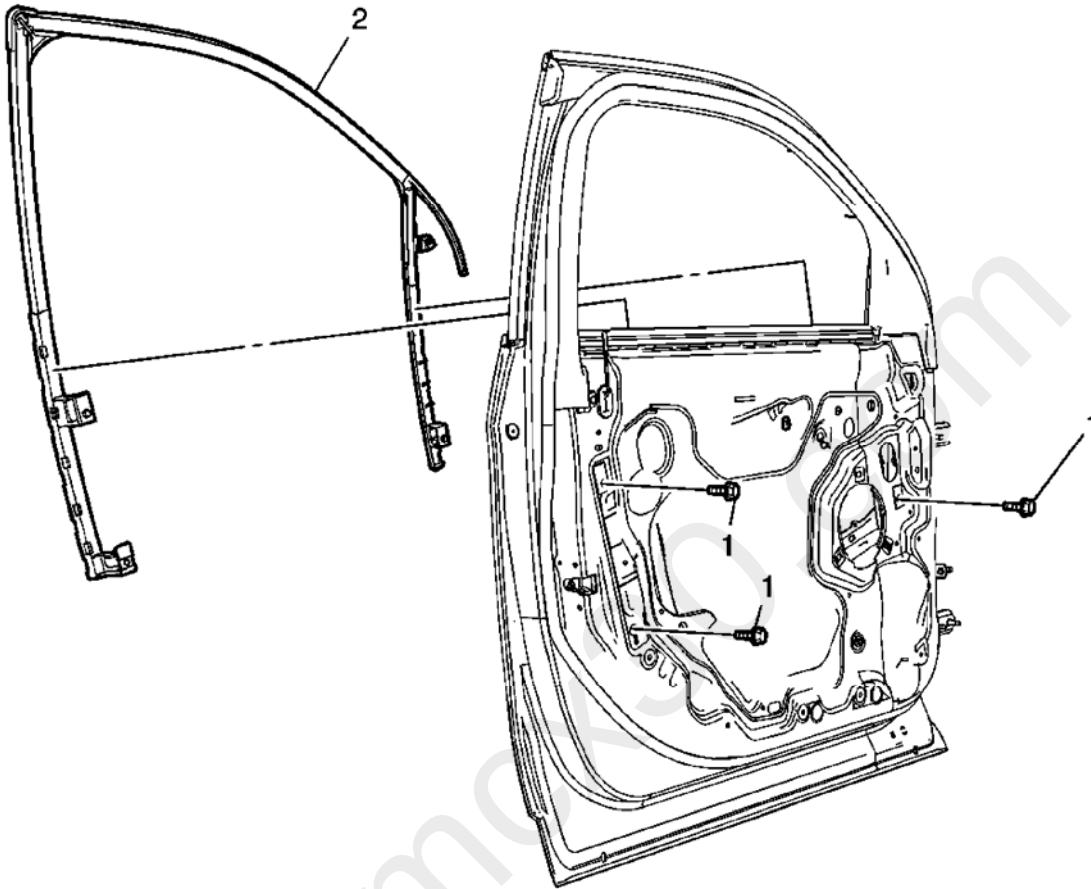


Fig. 31: Front Side Door Window Weatherstrip
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove the front side door window. Refer to Front Side Door Window Replacement .	
1	Front Side Door Window Weatherstrip Bolts (Qty: 3) WARNING: Refer to Glass and Sheet Metal Handling Warning . CAUTION: Refer to Fastener Caution .

	Procedure 1. Apply masking tape to the applique to protect the finish. 2. Remove the front side door water deflector. Tighten: 11 N.m (97 lb in)
2	Front Side Door Window Weatherstrip Procedure 1. Pull back the upper rear corner of the weatherstrip to expose the retainer. 2. Remove the front side door window weatherstrip from the outside of the door frame. 3. Align the upper notch in the window weatherstrip to the fixed window post and press the weatherstrip onto the window flange. 4. Ensure that the weatherstrip is fully secured into the upper corners and sides of the door frame before operating the window. 5. Inspect the operation of the window before installing the door trim panel.

REAR SIDE DOOR WINDOW WEATHERSTRIP REPLACEMENT

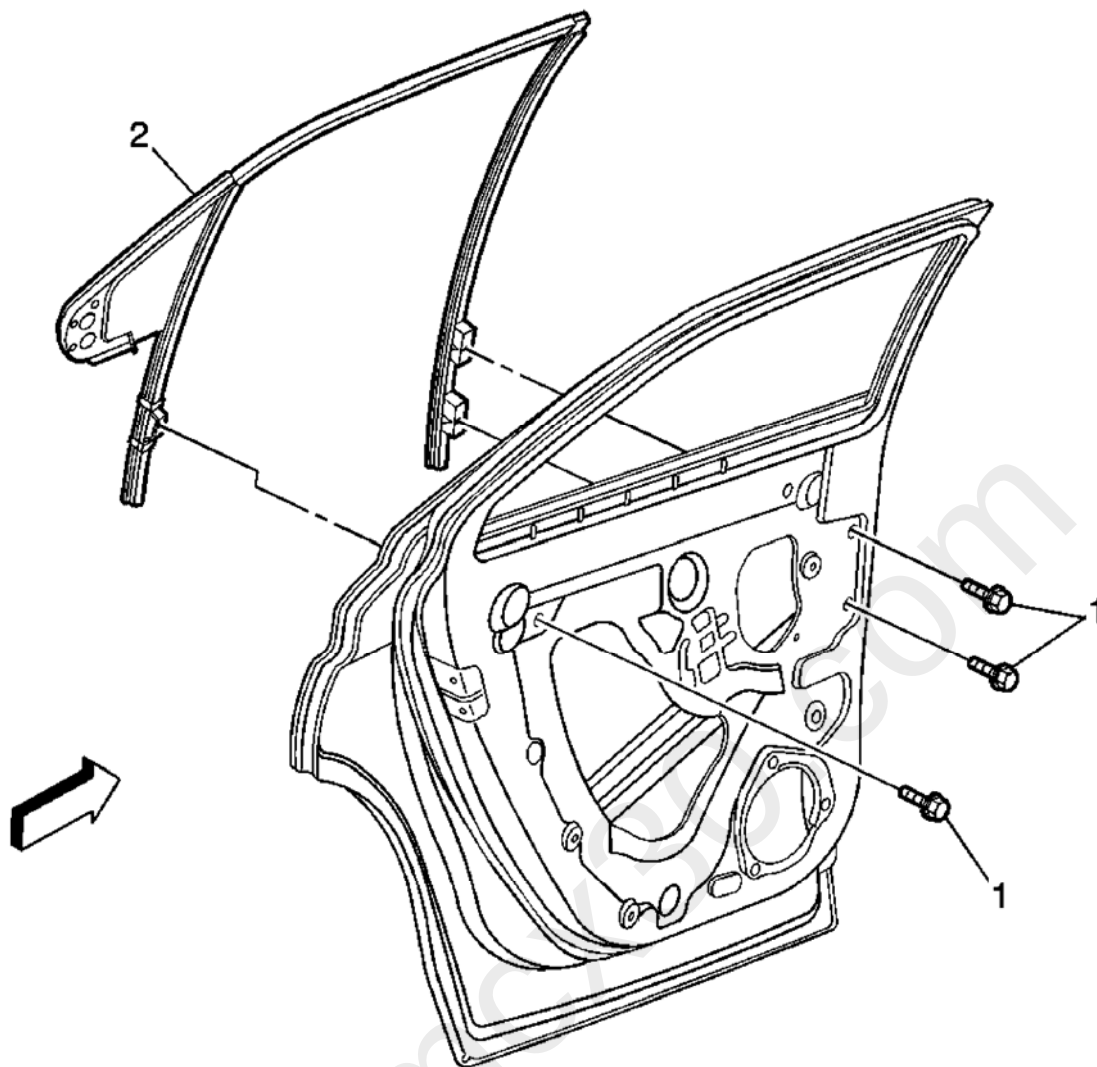


Fig. 32: Rear Side Door Window Weatherstrip
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures	
1.	Place the window in the fully down position.
2.	Remove rear door trim panel. Refer to <u>Rear Side Door Trim Panel Replacement</u> .
3.	Remove the rear side door garnish molding. Refer to <u>Rear Side Door Garnish Molding Replacement</u> .
4.	Remove the rear side door inner sealing strip. Refer to <u>Rear Side Door Window Inner Sealing Strip Replacement</u> .
5.	Remove the rear side door window belt reveal molding. Refer to <u>Rear Side Door Window Belt Reveal Molding Replacement</u> .

1	Rear Side Door Window Weatherstrip Bolts (Qty: 3) WARNING: Refer to Glass and Sheet Metal Handling Warning. CAUTION: Refer to <u>Fastener Caution</u> . Procedure 1. Apply masking tape to the applique to protect the finish. 2. Remove the rear side door water deflector. Tighten: 11 N.m (97 lb in)
2	Rear Side Door Window Weatherstrip Procedure 1. Pull back the upper front corner of the weatherstrip to expose the retainer. 2. Remove the rear side door window weatherstrip from the outside of the door frame. 3. Align the upper notch in the window weatherstrip to the fixed window post and press the weatherstrip onto the window flange. 4. Ensure that the weatherstrip is fully secured into the upper corners and sides of the door frame before operating the window. 5. Inspect the operation of the window before installing the door trim panel.

ADHESIVE INSTALLATION OF WINDSHIELDS

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

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

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

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

WARNING: When replacing stationary windows, use Urethane Adhesive Kit GM P/N 12346392 (Canadian P/N 10952983), or a urethane adhesive system meeting GM Specification GM3651G, to maintain original installation integrity. Failure to use the urethane adhesive kit will result in poor retention of the window which may allow unrestrained occupants to be ejected from the vehicle resulting in personal injury.

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

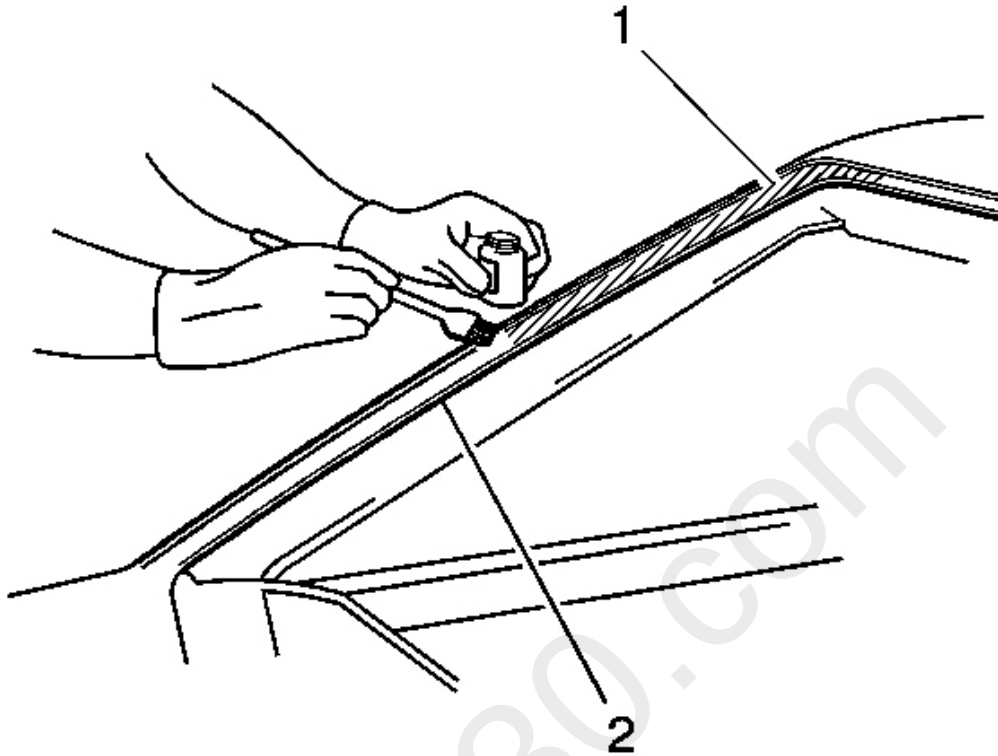


Fig. 33: Applying Pinch-Weld Primer
Courtesy of GENERAL MOTORS CORP.

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

NOTE: Do not apply the black #3 primer to the existing bead (1) of the urethane adhesive on the pinch-weld flange. Apply the primer only to nicks, scratches or the primed surfaces.

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

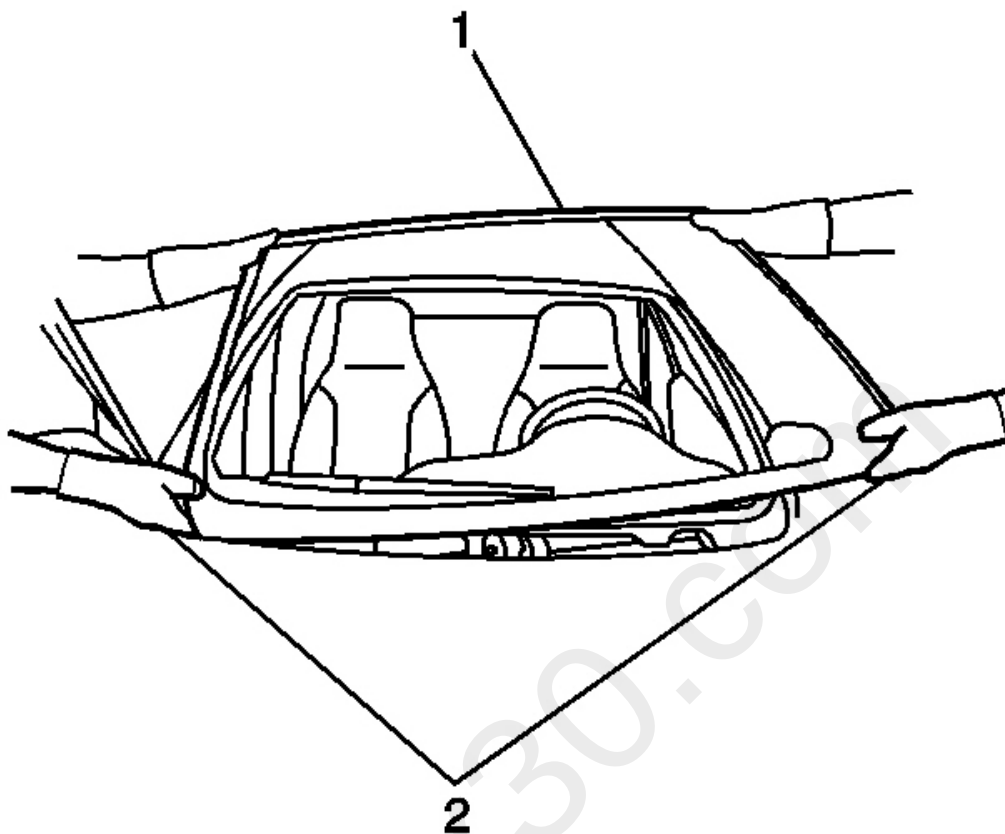


Fig. 34: Removing/Installing Windshield
Courtesy of GENERAL MOTORS CORP.

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

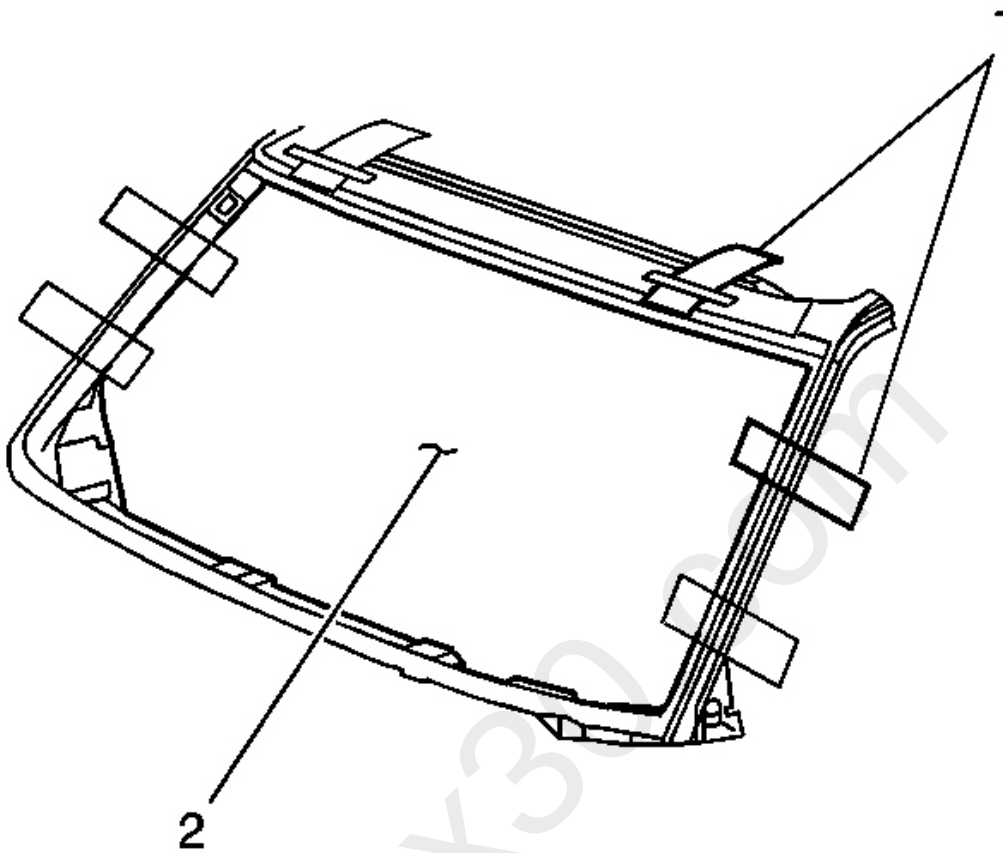


Fig. 35: Aligning Tape Lines On Window To Body
Courtesy of GENERAL MOTORS CORP.

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

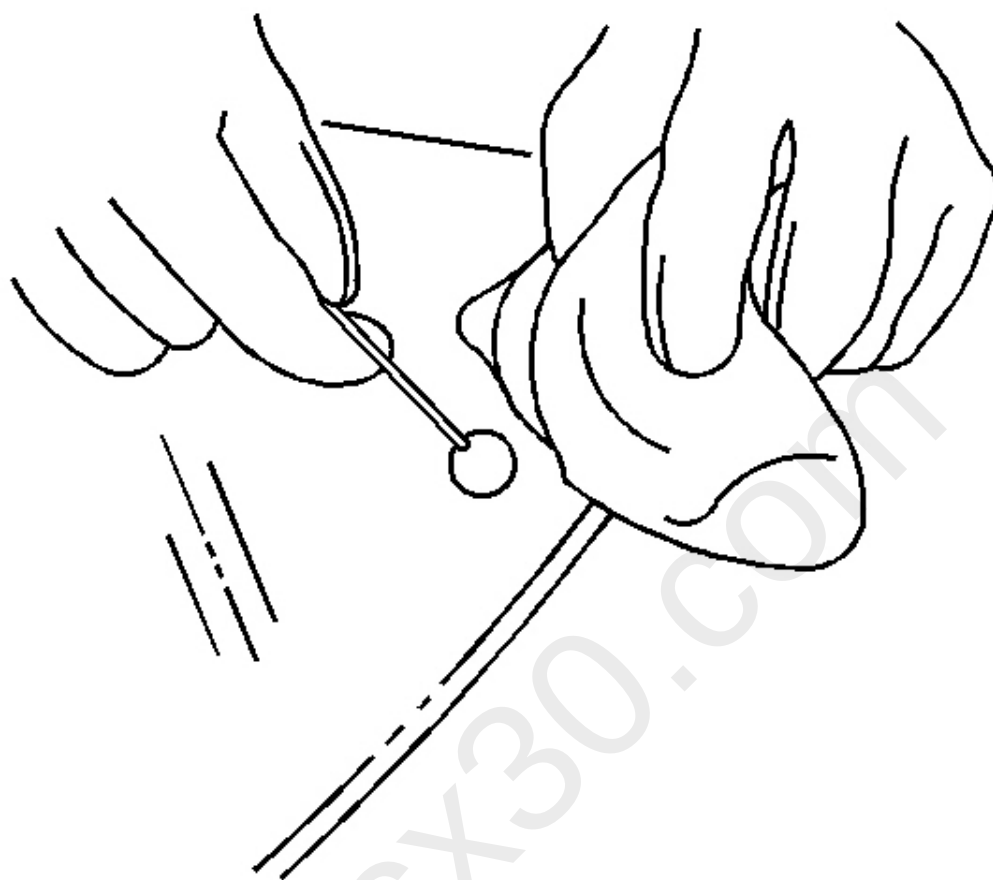


Fig. 36: Applying Glass Prep

Courtesy of GENERAL MOTORS CORP.

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

13. Use a new dauber in order to apply glass prep clear #1 to the area approximately 10-16 mm (3/8-5/8 in) around the entire perimeter of the window inner surface.

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

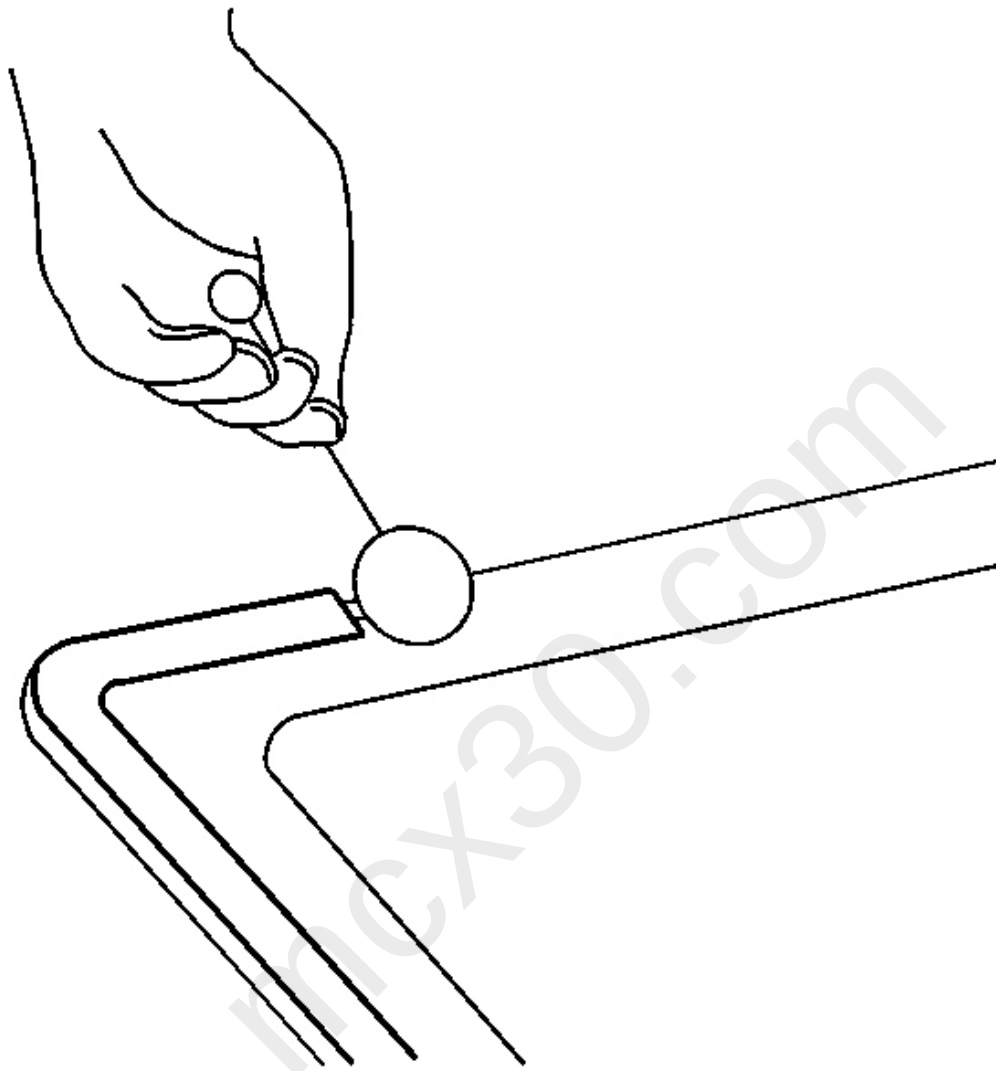


Fig. 37: Applying Glass Prep
Courtesy of GENERAL MOTORS CORP.

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

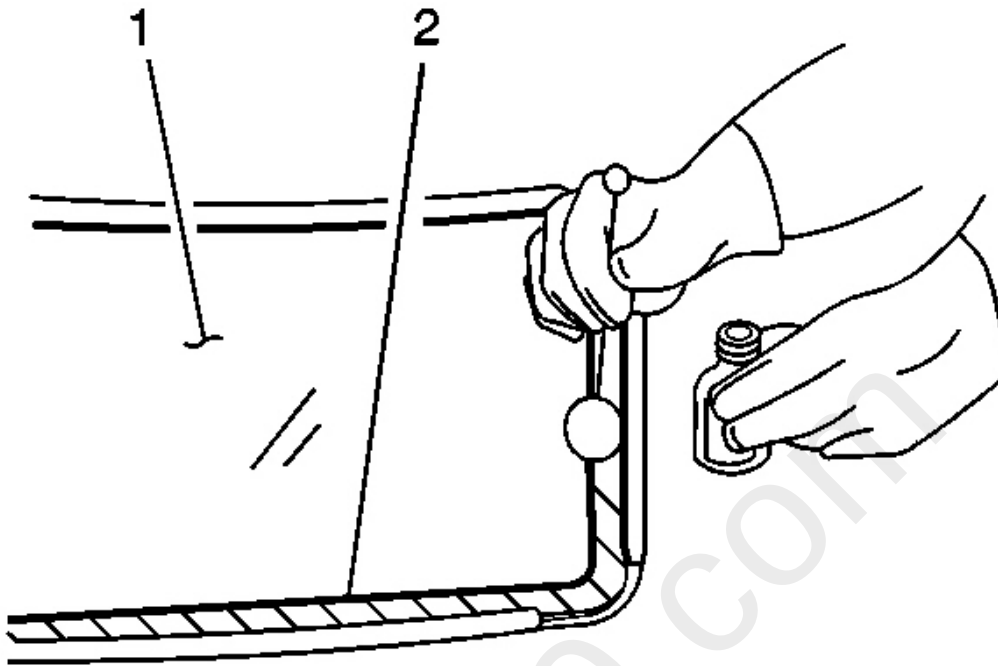


Fig. 38: Applying Glass Primer
Courtesy of GENERAL MOTORS CORP.

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

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

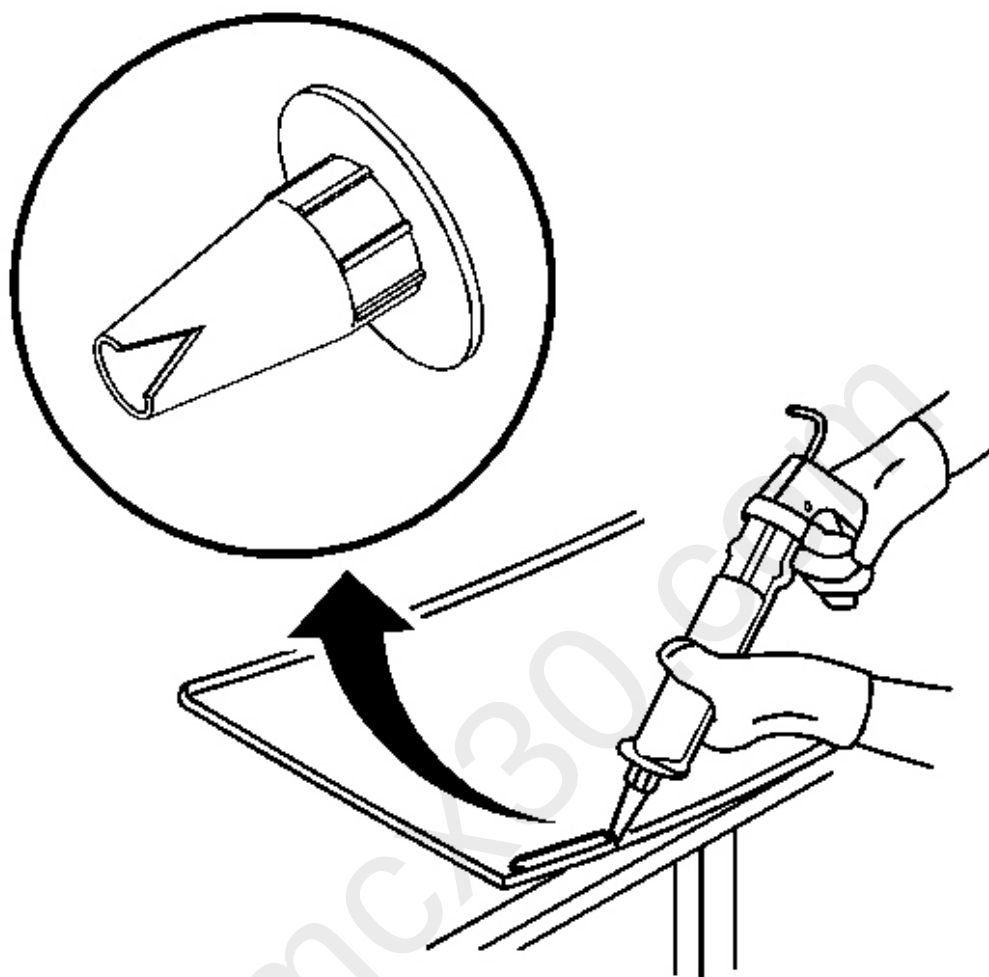


Fig. 39: View Of Modified Applicator Nozzle
Courtesy of GENERAL MOTORS CORP.

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

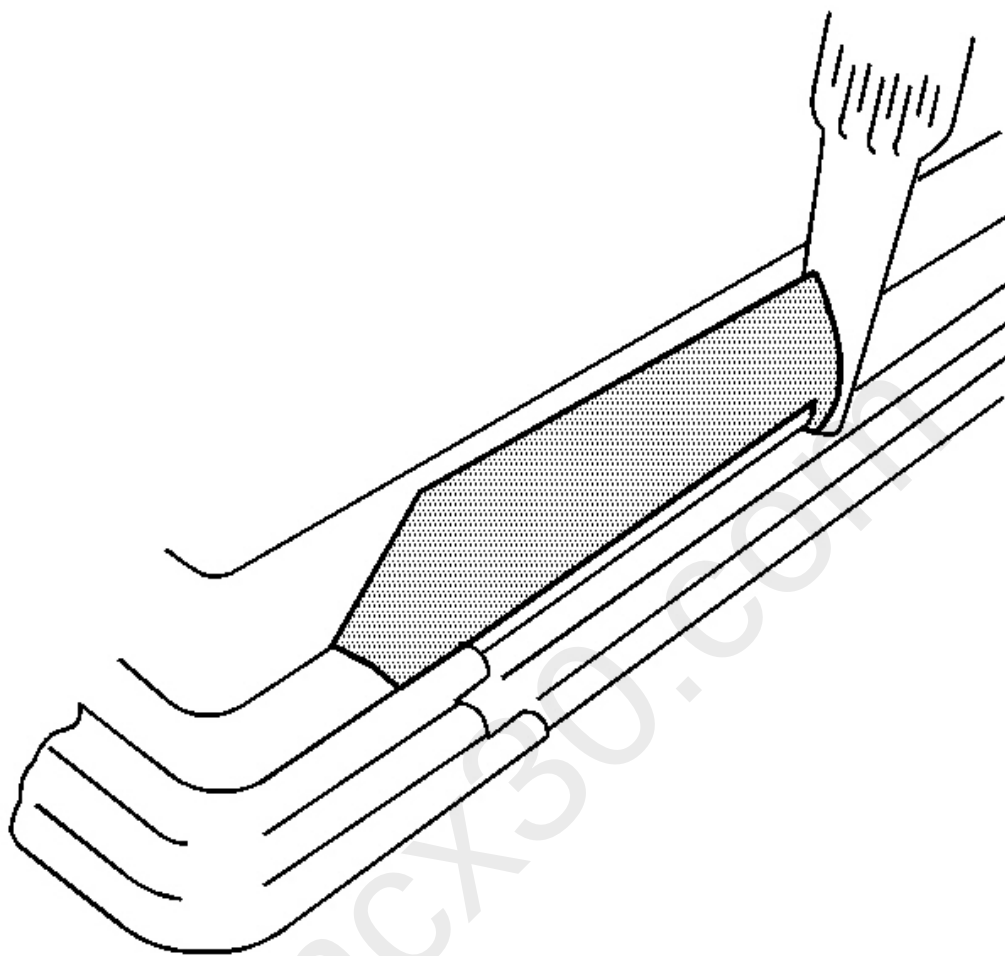


Fig. 40: Applying Bead Of Urethane Adhesive
Courtesy of GENERAL MOTORS CORP.

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

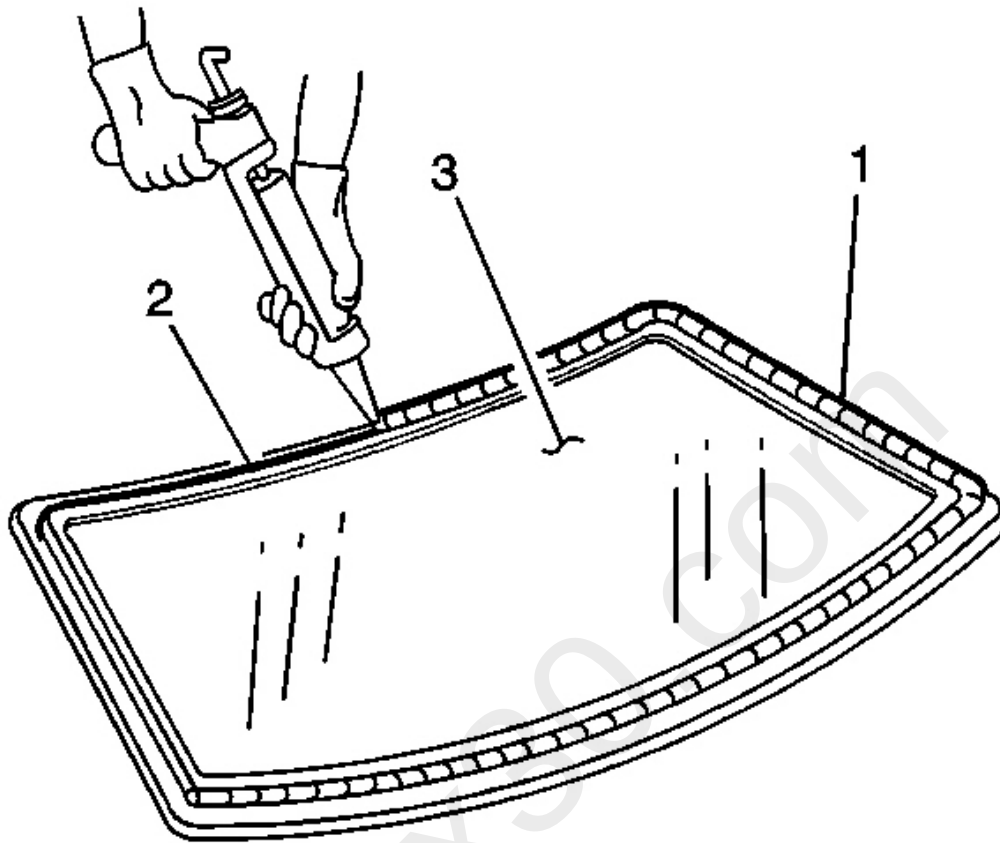


Fig. 41: Applying Urethane Adhesive To Inner Surface Of Window
Courtesy of GENERAL MOTORS CORP.

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

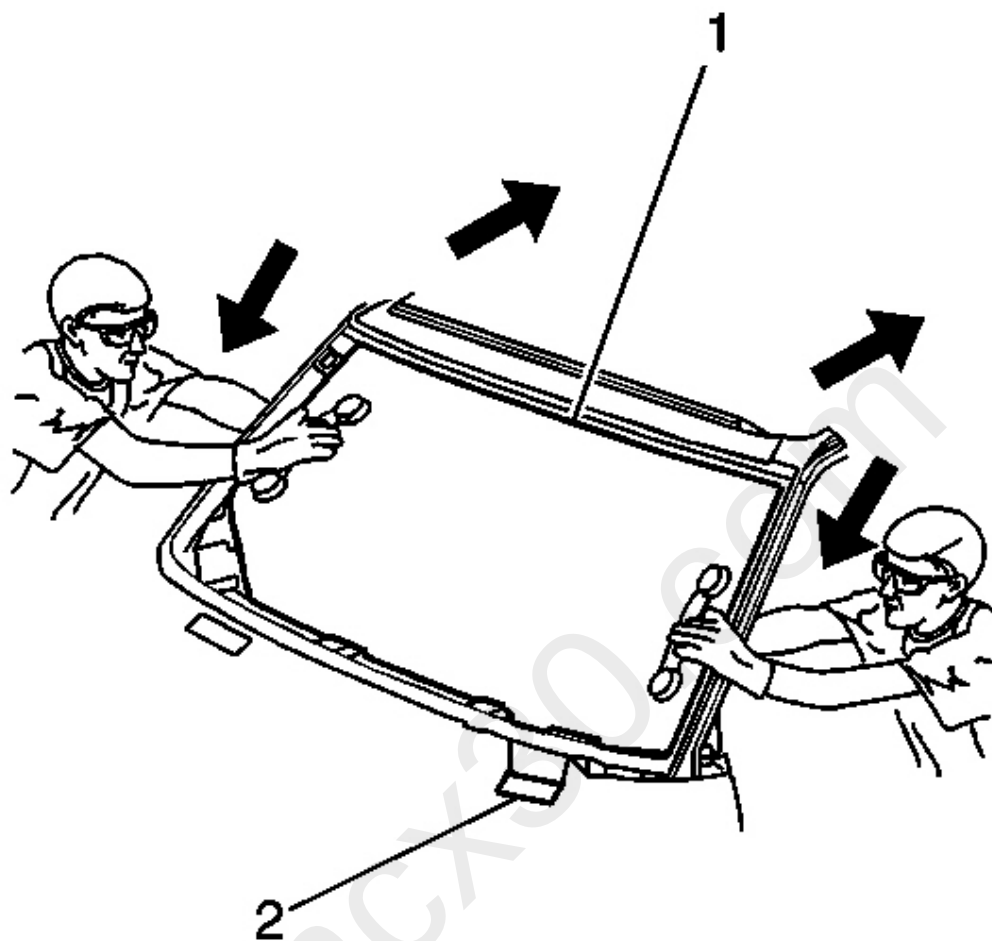


Fig. 42: Installing Windshield

Courtesy of GENERAL MOTORS CORP.

21. With the aid of an assistant, place the window in the opening. If installing a windshield, place the windshield on the lower supports (2), if equipped.

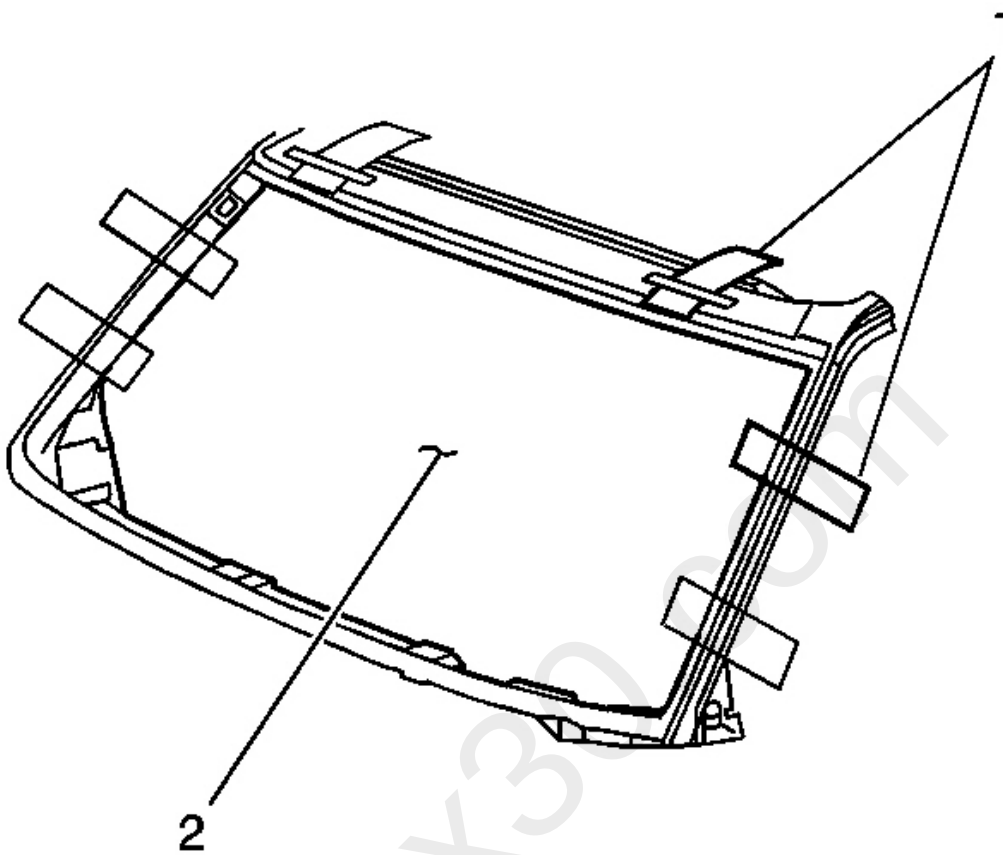


Fig. 43: Aligning Tape Lines On Window To Body
Courtesy of GENERAL MOTORS CORP.

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

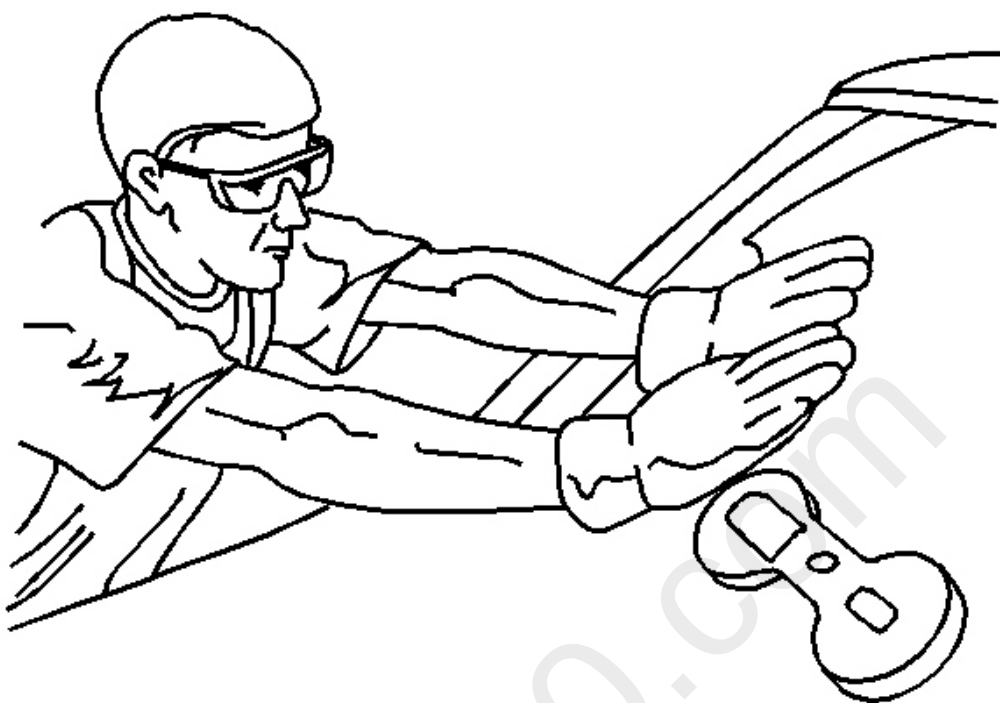


Fig. 44: Pressing Window Into Place
Courtesy of GENERAL MOTORS CORP.

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

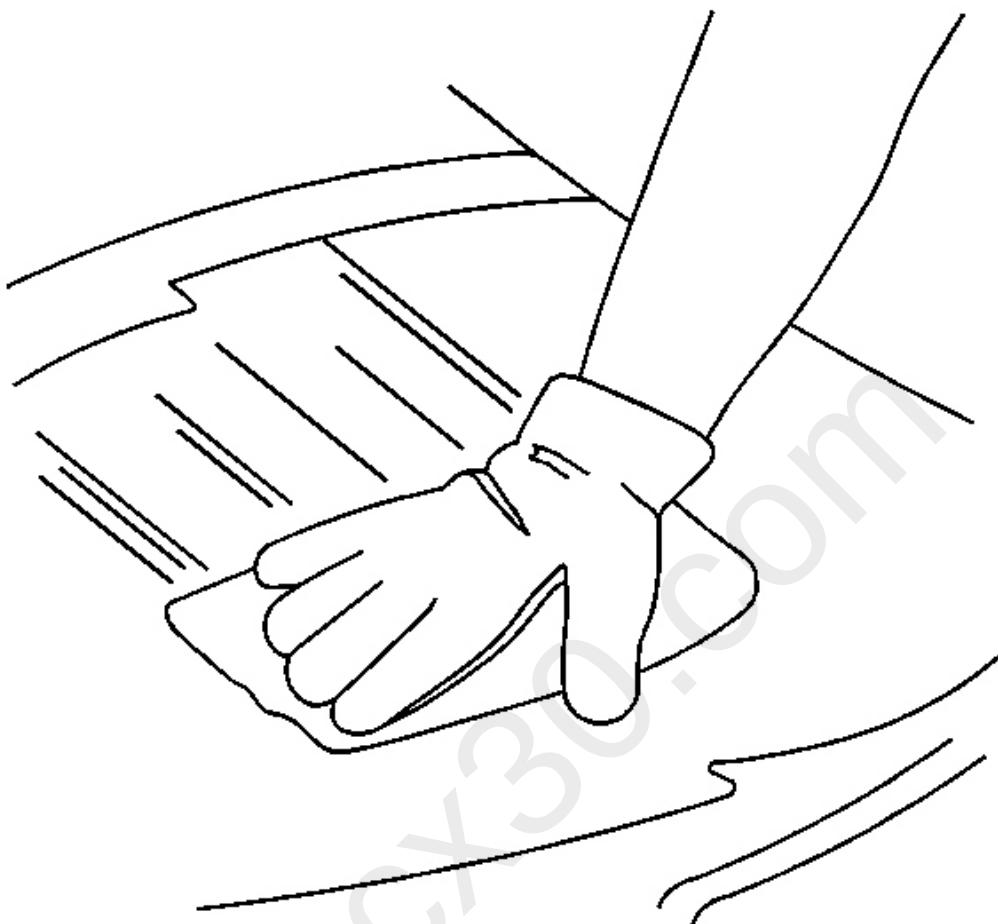


Fig. 45: Cleaning Window

Courtesy of GENERAL MOTORS CORP.

25. Clean any excess urethane adhesive from the body.

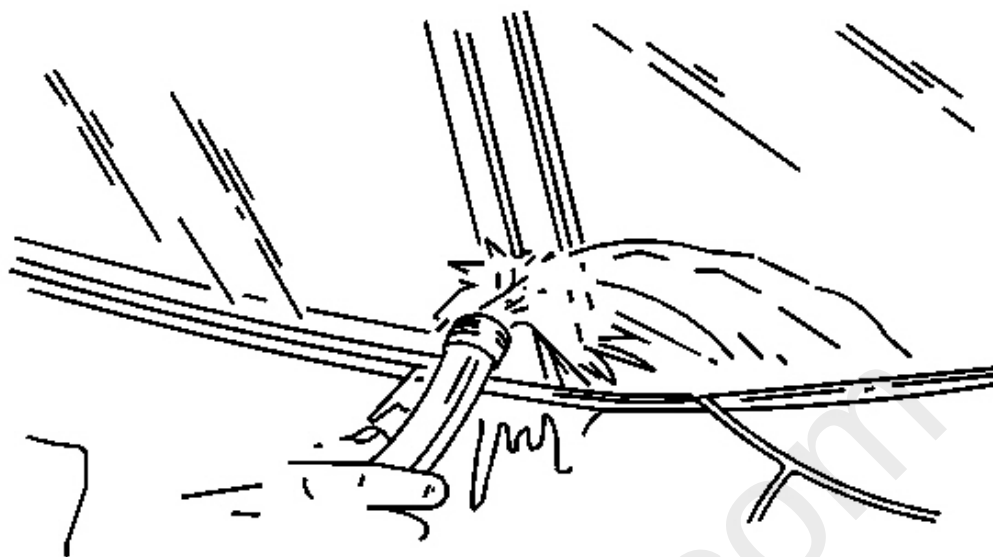


Fig. 46: Performing Water Hose Test
Courtesy of GENERAL MOTORS CORP.

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

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

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

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

Do NOT physically disturb the repair area until after these minimum

times have elapsed.

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

ADHESIVE INSTALLATION OF QUARTER WINDOWS

WARNING: Refer to Glass and Sheet Metal Handling Warning .

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

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

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

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

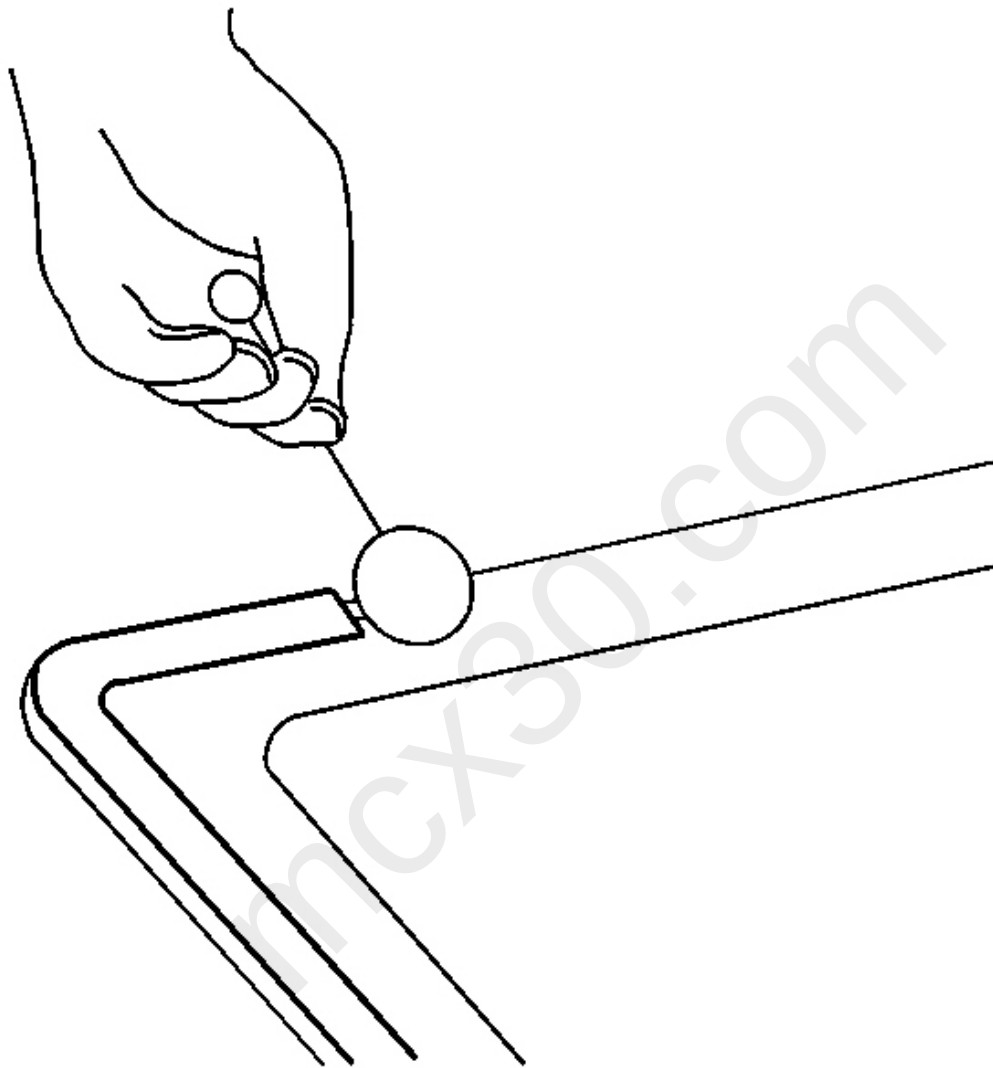


Fig. 47: Applying Glass Prep
Courtesy of GENERAL MOTORS CORP.

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

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

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

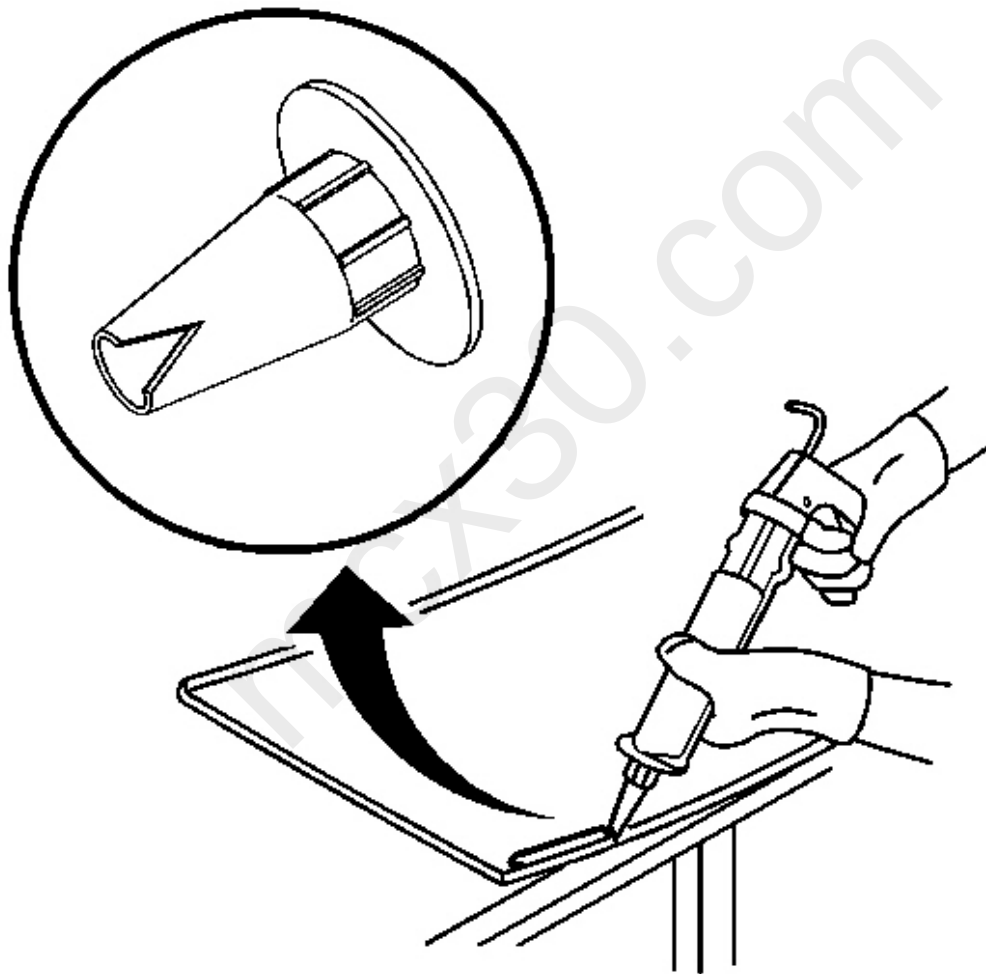


Fig. 48: View Of Modified Applicator Nozzle
Courtesy of GENERAL MOTORS CORP.

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

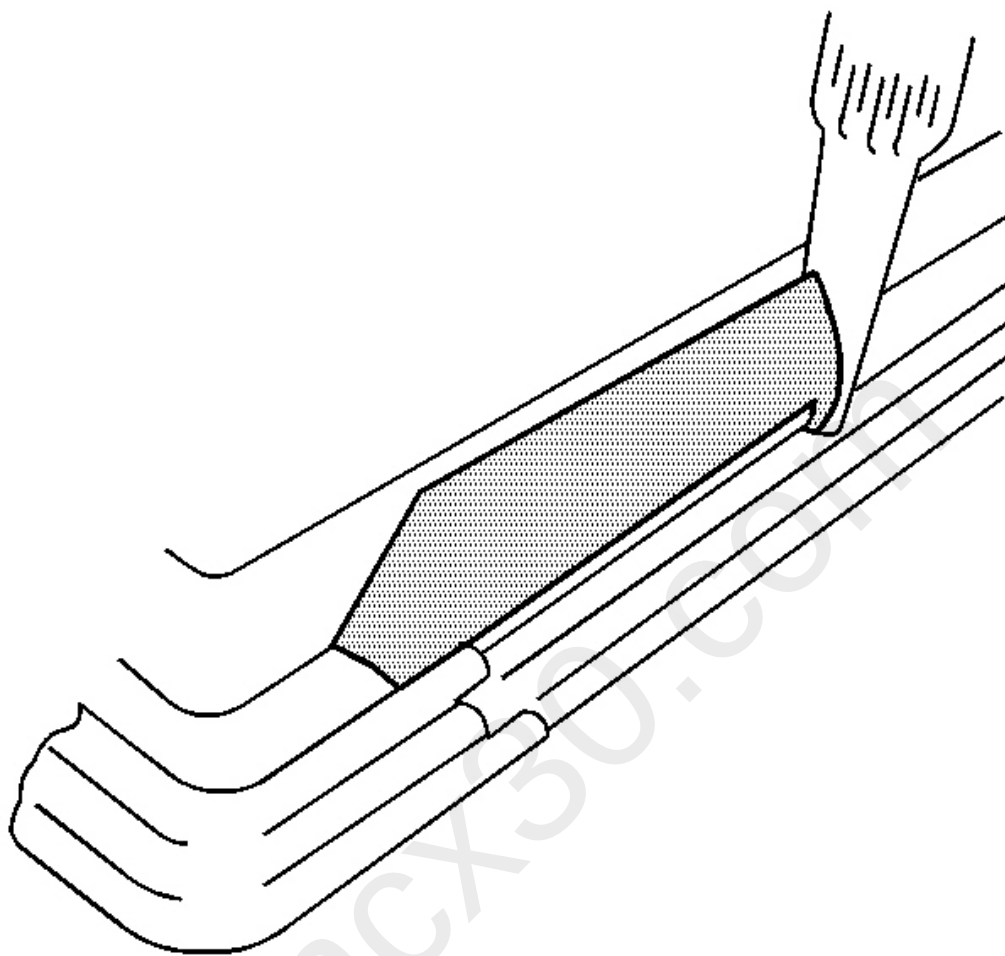


Fig. 49: Applying Bead Of Urethane Adhesive
Courtesy of GENERAL MOTORS CORP.

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

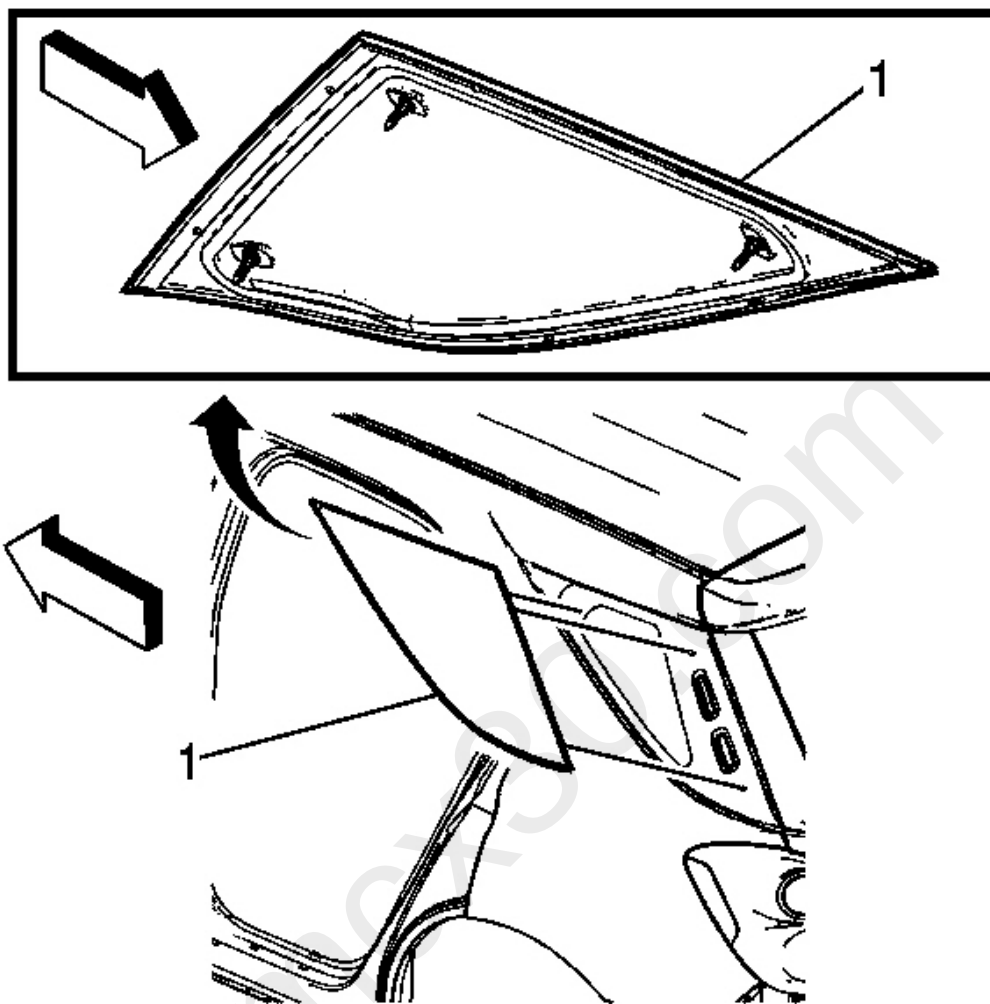


Fig. 50: Placing Window
Courtesy of GENERAL MOTORS CORP.

18. Place the window (1) in the opening.
19. Align the masking tape lines on the window and the body.
20. Press firmly around the entire periphery of the window in order to wet-out the urethane bead.
21. Tape the window to the body in order to minimize movement until the urethane adhesive cures.
22. Clean any excess urethane adhesive from the body.

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

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

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

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

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

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

ADHESIVE INSTALLATION OF LIFTGATE WINDOWS

WARNING: Refer to Glass and Sheet Metal Handling Warning .

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

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

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

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

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

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

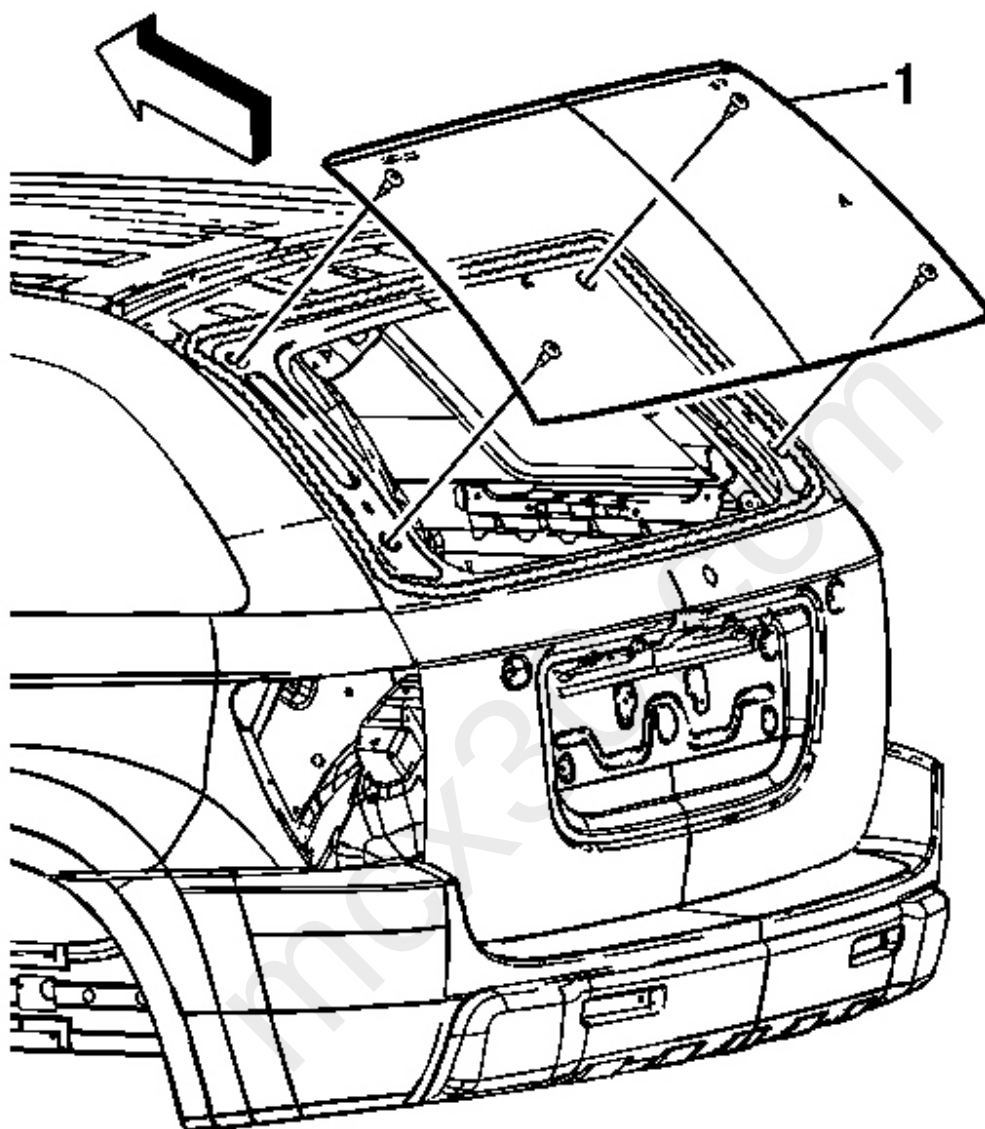


Fig. 51: View Of Liftgate Window
Courtesy of GENERAL MOTORS CORP.

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

13. Cut the masking in the center and remove the window from the opening.

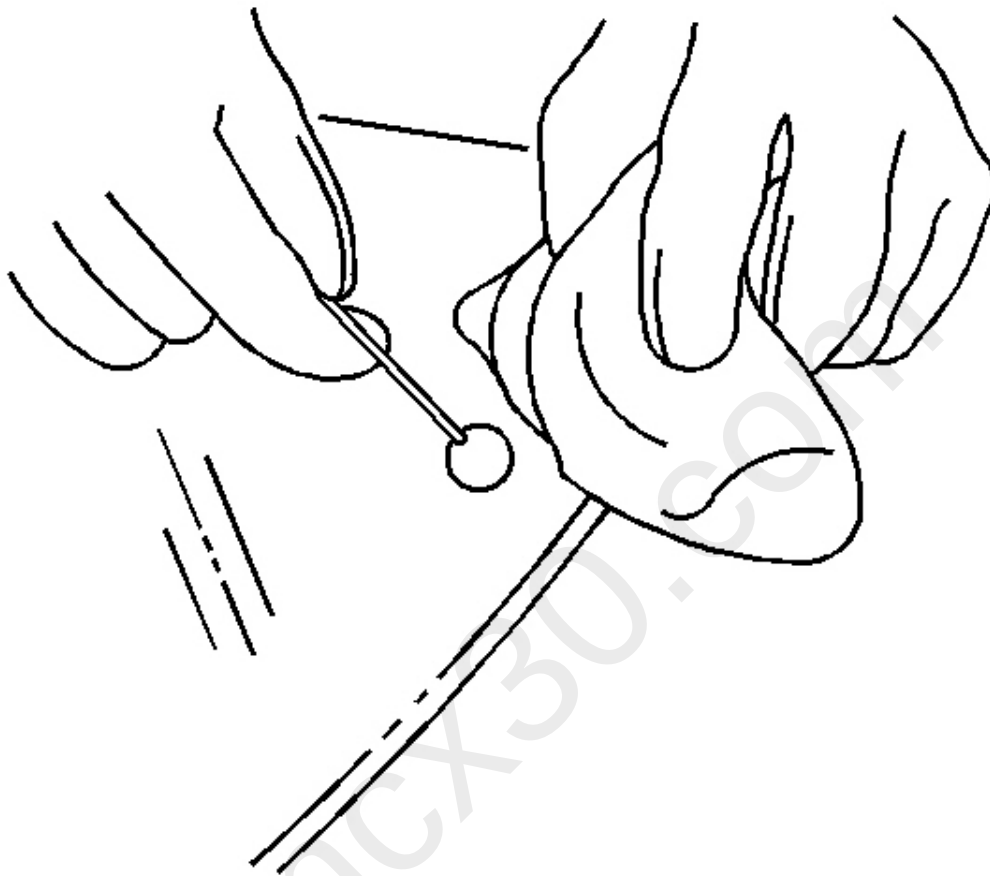


Fig. 52: Applying Glass Prep
Courtesy of GENERAL MOTORS CORP.

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

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

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

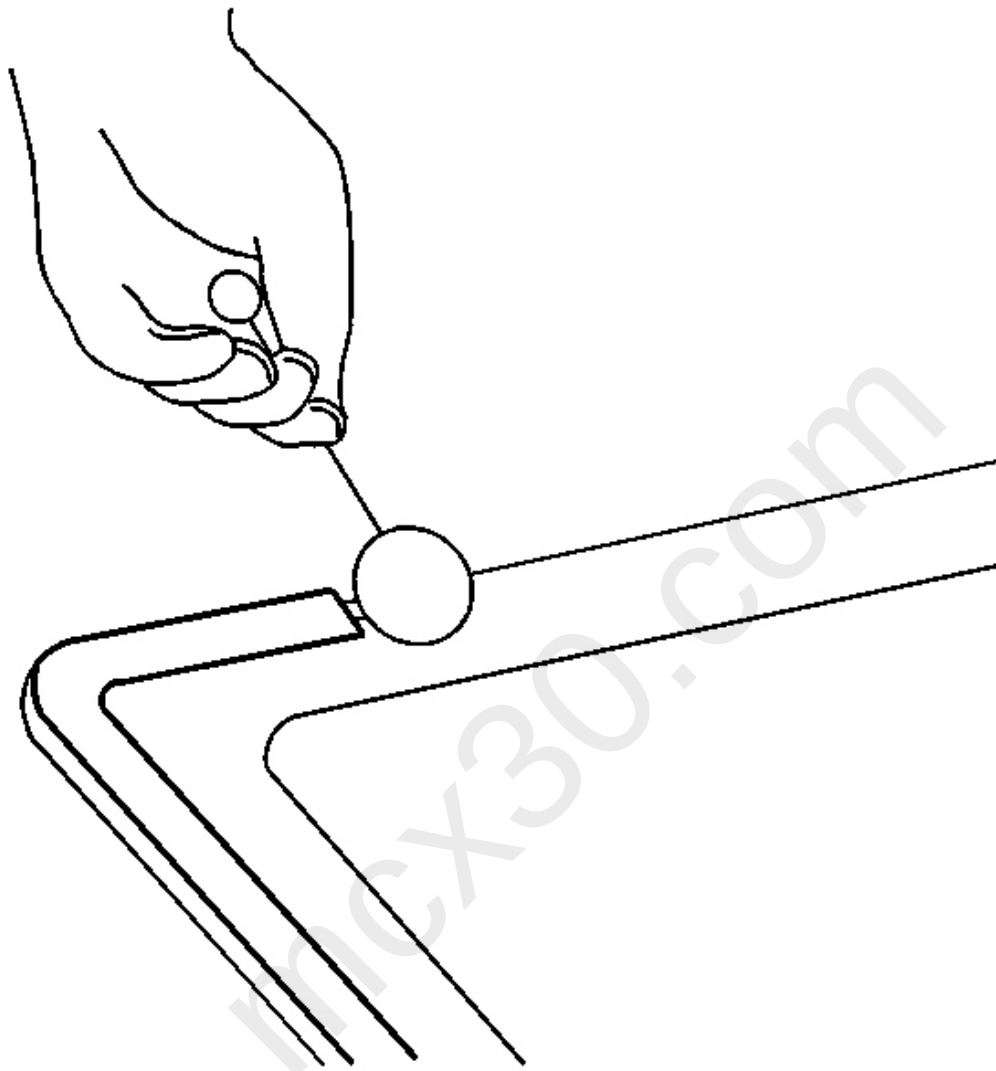


Fig. 53: Applying Glass Prep
Courtesy of GENERAL MOTORS CORP.

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

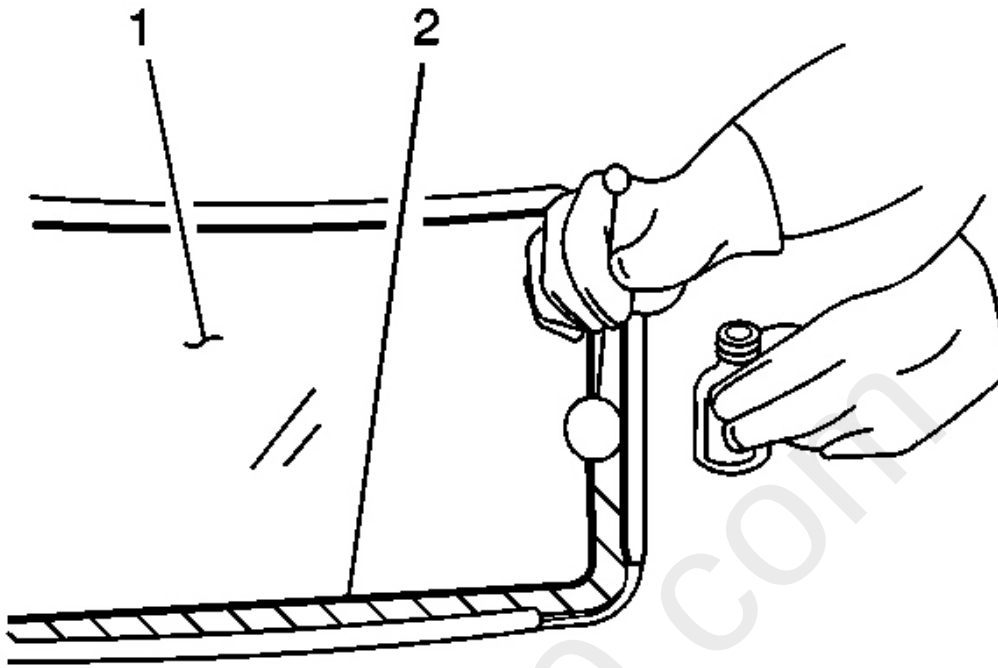


Fig. 54: Applying Glass Primer
Courtesy of GENERAL MOTORS CORP.

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

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

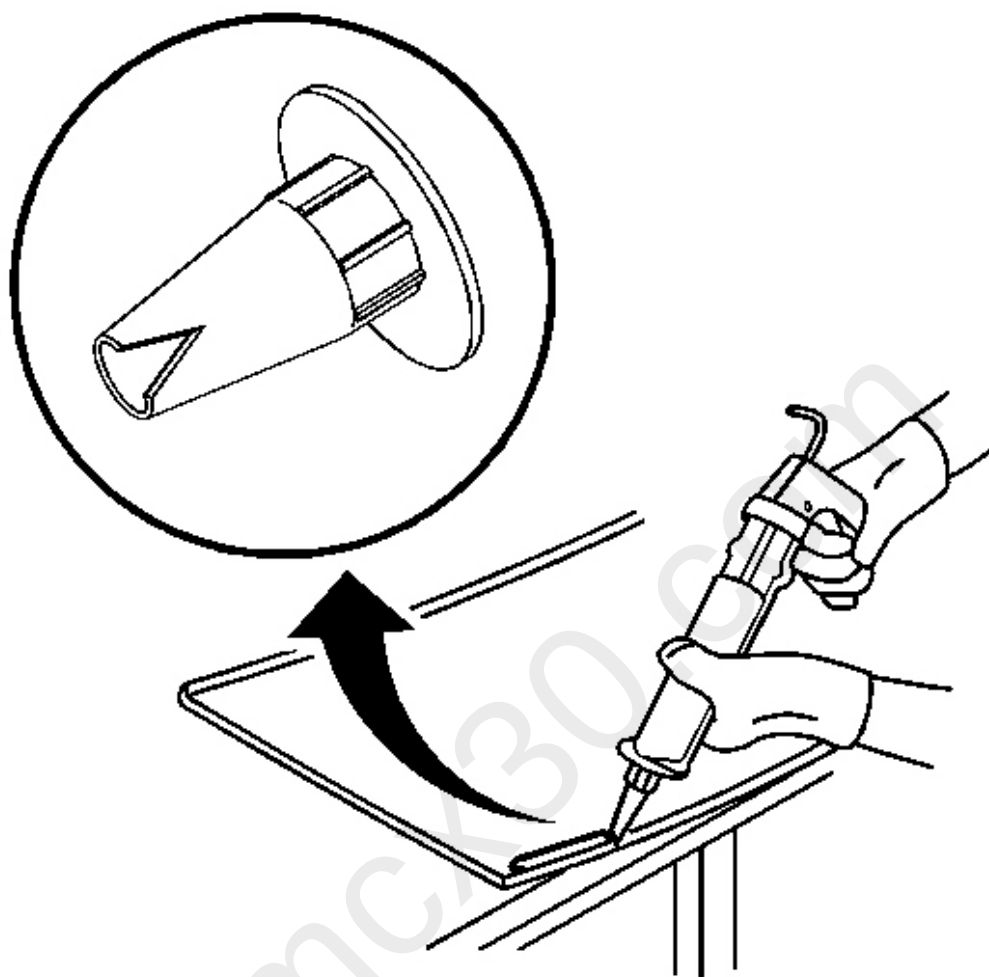


Fig. 55: View Of Modified Applicator Nozzle
Courtesy of GENERAL MOTORS CORP.

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

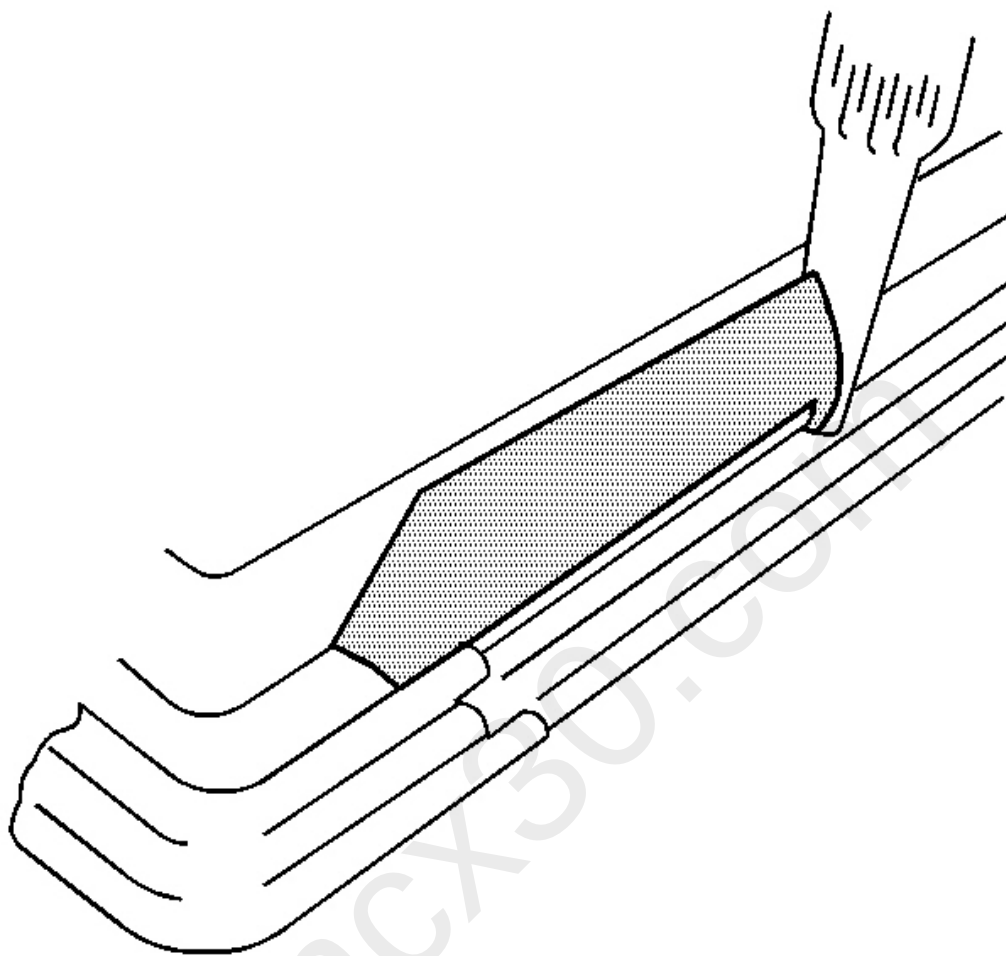


Fig. 56: Applying Bead Of Urethane Adhesive
Courtesy of GENERAL MOTORS CORP.

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

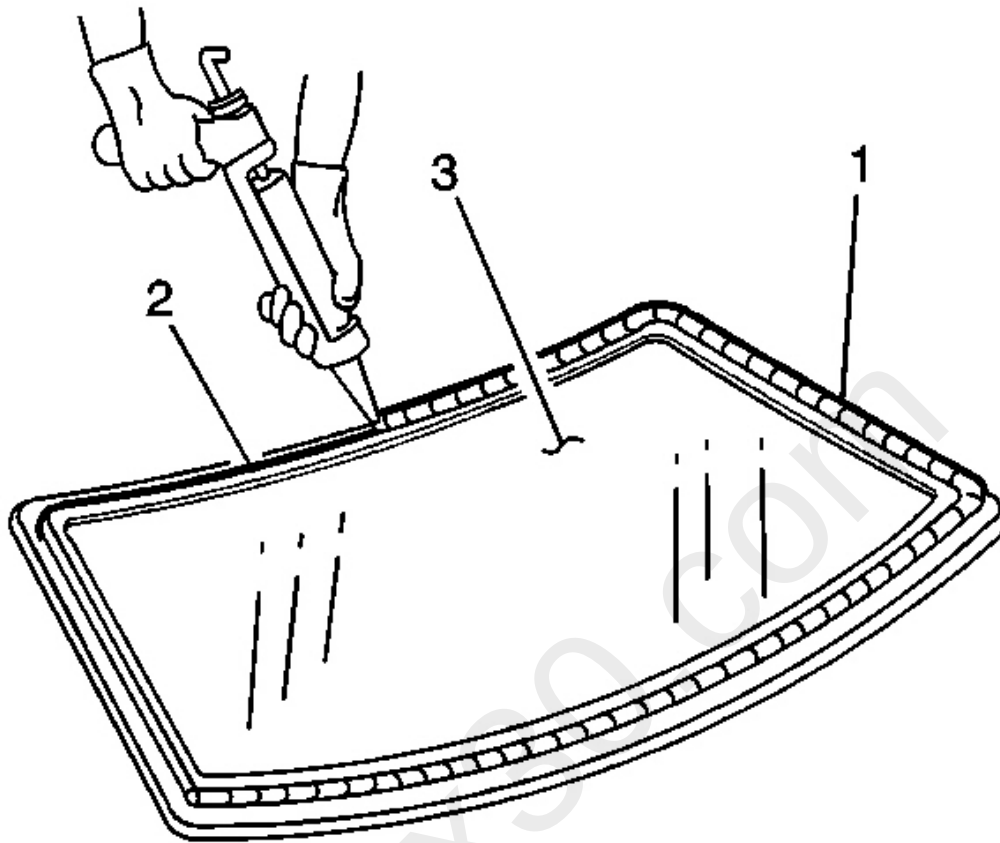


Fig. 57: Applying Urethane Adhesive To Inner Surface Of Window
Courtesy of GENERAL MOTORS CORP.

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

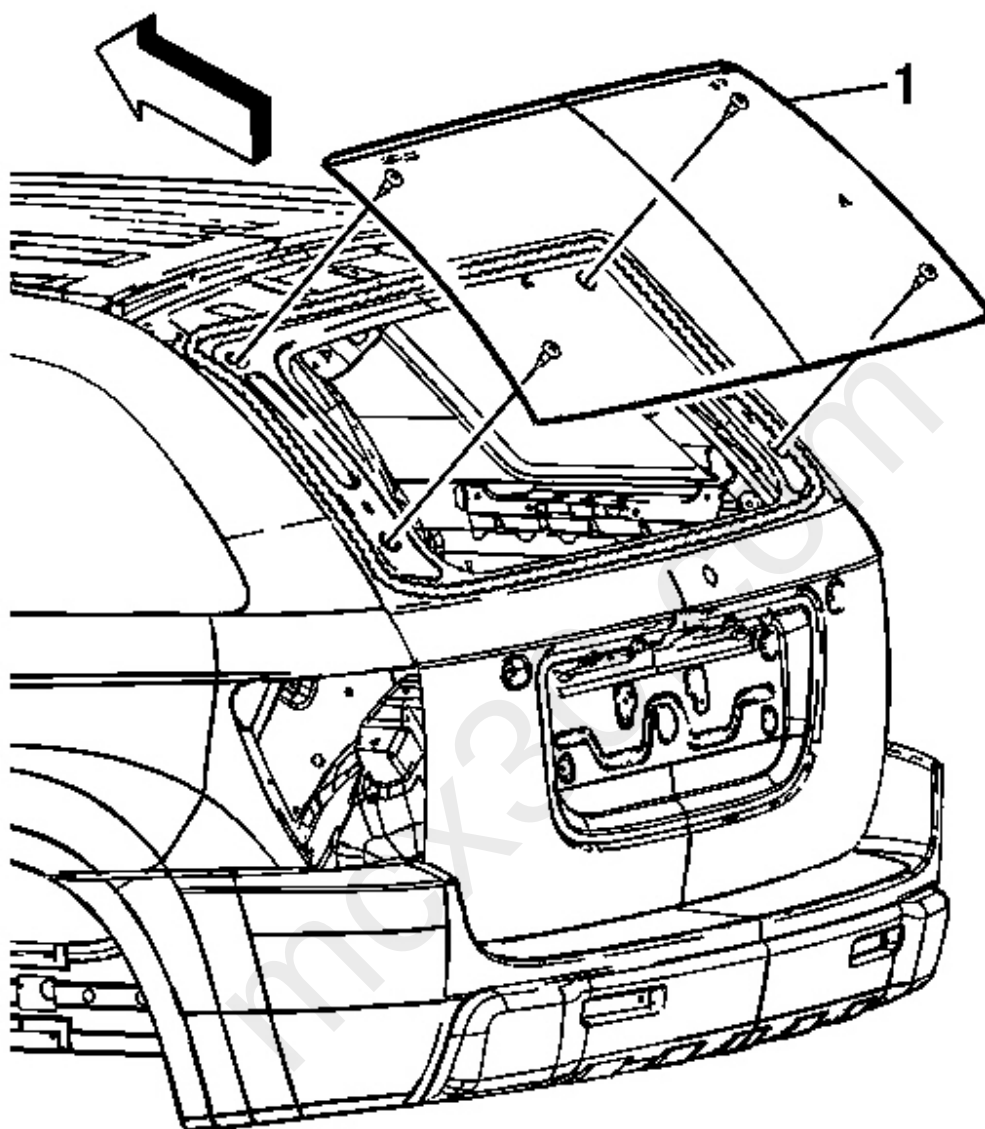


Fig. 58: View Of Liftgate Window
Courtesy of GENERAL MOTORS CORP.

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

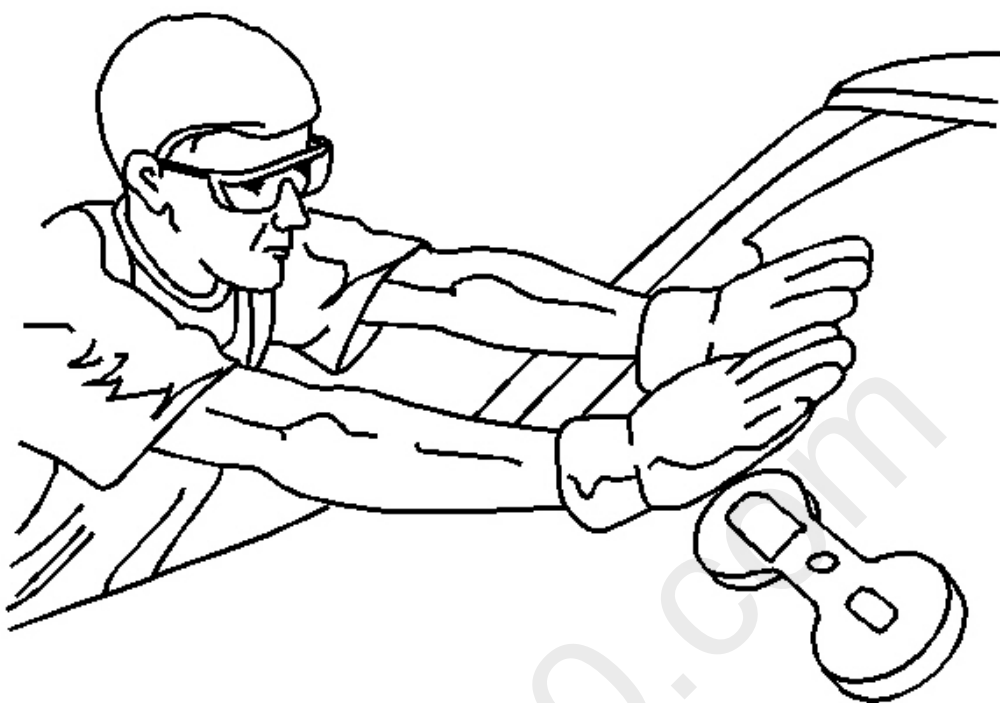


Fig. 59: Pressing Window Into Place
Courtesy of GENERAL MOTORS CORP.

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

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

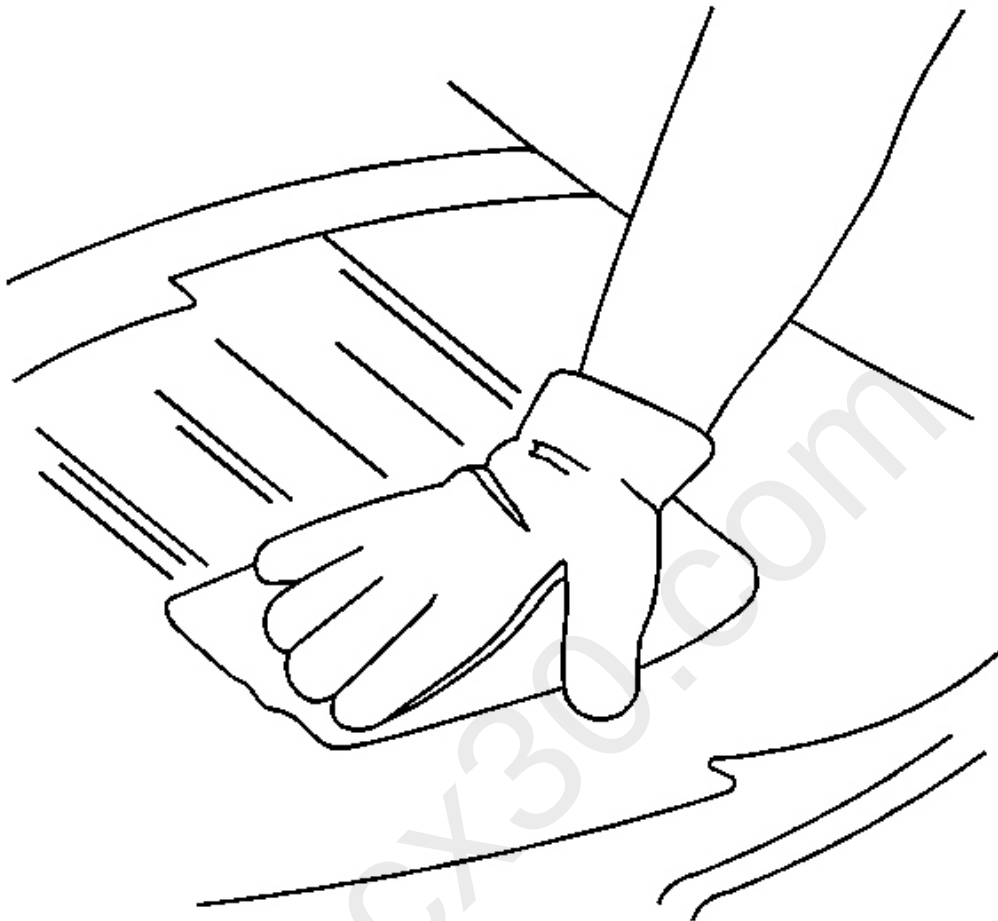


Fig. 60: Cleaning Window

Courtesy of GENERAL MOTORS CORP.

26. Clean any excess urethane adhesive from the body.

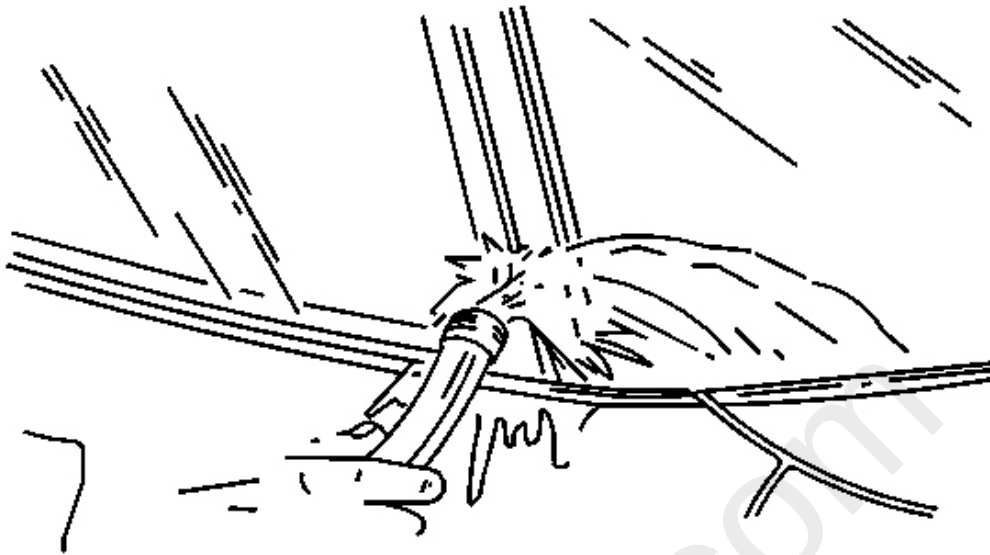


Fig. 61: Performing Water Hose Test
Courtesy of GENERAL MOTORS CORP.

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

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

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

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

Do NOT physically disturb the repair area until after these minimum

times have elapsed.

31. Maintain the following conditions in order to properly cure the urethane adhesive:

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

32. Complete the window installation.

DESCRIPTION AND OPERATION

FULL-CUT METHOD DESCRIPTION

IMPORTANT:

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

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

This method includes the following:

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

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

POWER WINDOWS DESCRIPTION AND OPERATION

Power Windows System Components

The power window system consists of the following components:

- Driver window switch
- Passenger window switch
- Left rear window switch
- Right rear window switch
- Window motors in each of the doors
- F4UA 30A Fuse
- F14UA 30A Fuse
- Body control module (BCM)

Driver, Passenger, Left Rear, Right Rear Power Window Motors

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

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

Lockout Switch Feature

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

REAR WINDOW DEFOGGER DESCRIPTION AND OPERATION

Rear Window Defogger System Components

The rear window defogger system consists of the following components:

- HVAC Control Module
- HVAC Control Head
- Rear Window Defogger Relay
- Rear Defogger Grid
- F28UA 40A Fuse

Rear Window Defogger Operation

The rear defog control system utilizes a single zone backlight design, driven with a single relay configuration. Additionally, up to two outside rear view mirrors can be heated if required. A switch for the customer to control the system is provided within the HVAC control head. Also included in the HVAC control head 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 face plate causes the HVAC control head to send a serial data message to the HVAC control module requesting rear window defog operation. The HVAC control module upon receipt of the serial data message will provide voltage to the coil side of the rear window defogger relay, this will energize the relay causing the relay switch contacts to close allowing B+ voltage to flow through the rear defogger grid control circuit to the rear defogger grid.

When the rear heated window switch is pressed and the engine is running, the rear defog control system will remain active for 10 minutes. After the initial cycle has lapsed, pressing the switch again will continue rear window defogger operation, but the cycle will only last 5 minutes. The rear defog control system will function continuously if the vehicle speed is greater than 70 kilometers per hour (45 mph).

STATIONARY WINDOW DESCRIPTION

Most stationary windows, specifically windshields, are retained to the body with adhesive which adheres the window to the body, increasing structural integrity. The reinstallation of the windows with adhesive requires complete replacement of the adhesive bead, and is known as the full cut method. All stationary windows must use a adhesive systems which meet GM Specification GM 3651G

URETHANE ADHESIVE DESCRIPTION

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

Use adhesive systems which meet GM Specification GM 3651G.

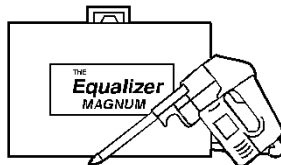
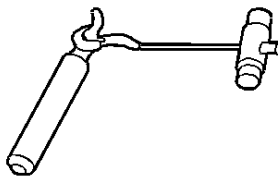
Use these materials based on specific manufacturer. Do NOT intermix primers or adhesives from one manufacturer to another.

Always follow the system manufacturer's instructions for application, handling, and curing.

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

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



BO-39032
J-39032
Stationary Glass Removal Tool

BO-39040
J-39040
Quarter Window Remover