

2010 Cadillac SRX

2010 ACCESSORIES & EQUIPMENT Fixed and Moveable Windows - SRX

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Fixed and Moveable Windows SRX

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Application	Specification	
	Metric	English
Front Side Door Window Belt Reveal Molding Screw	1.5 N.m	13 lb in
Front Side Door Window Regulator Bolts	10 N.m	89 lb in
Front Side Door Window Weatherstrip Fastener	10 N.m	89 lb in
Front Side Door Window Regulator Guide Nuts	11 N.m	98 lb in
Rear Side Door Window Belt Reveal Molding Screw	1.5 N.m	13 lb in
Rear Side Door Window Regulator Bolts	10 N.m	89 lb in
Rear Side Door Window Regulator Guide Nuts	11 N.m	98 lb in
Rear Side Door Window Regulator Motor Fasteners	10 N.m	89 lb in
Rear Side Door Window Weatherstrip Front Fastener	10 N.m	89 lb in
Rear Side Door Window Weatherstrip Rear Fastener	10 N.m	89 lb in

SCHEMATIC AND ROTATION DIRECTIONS

MOVEABLE WINDOW SCHEMATICS

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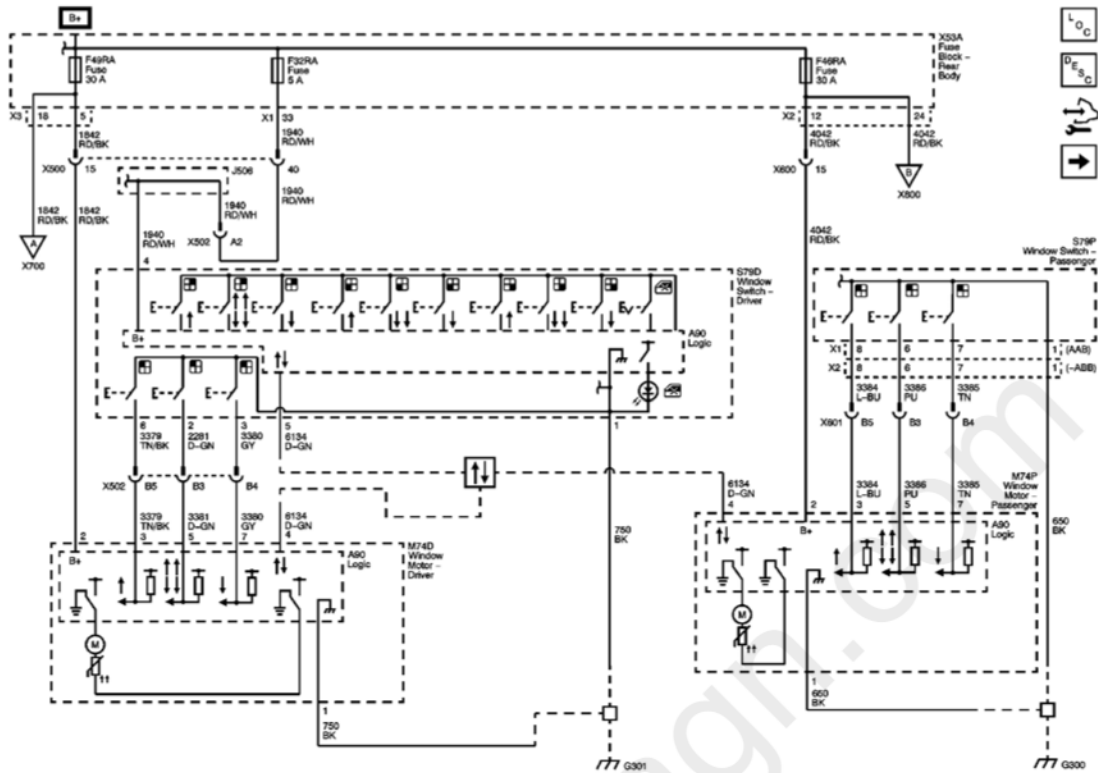


Fig 1 Front Doors Circuit Schematic
Courtesy of GE ERA MOTORS CORP

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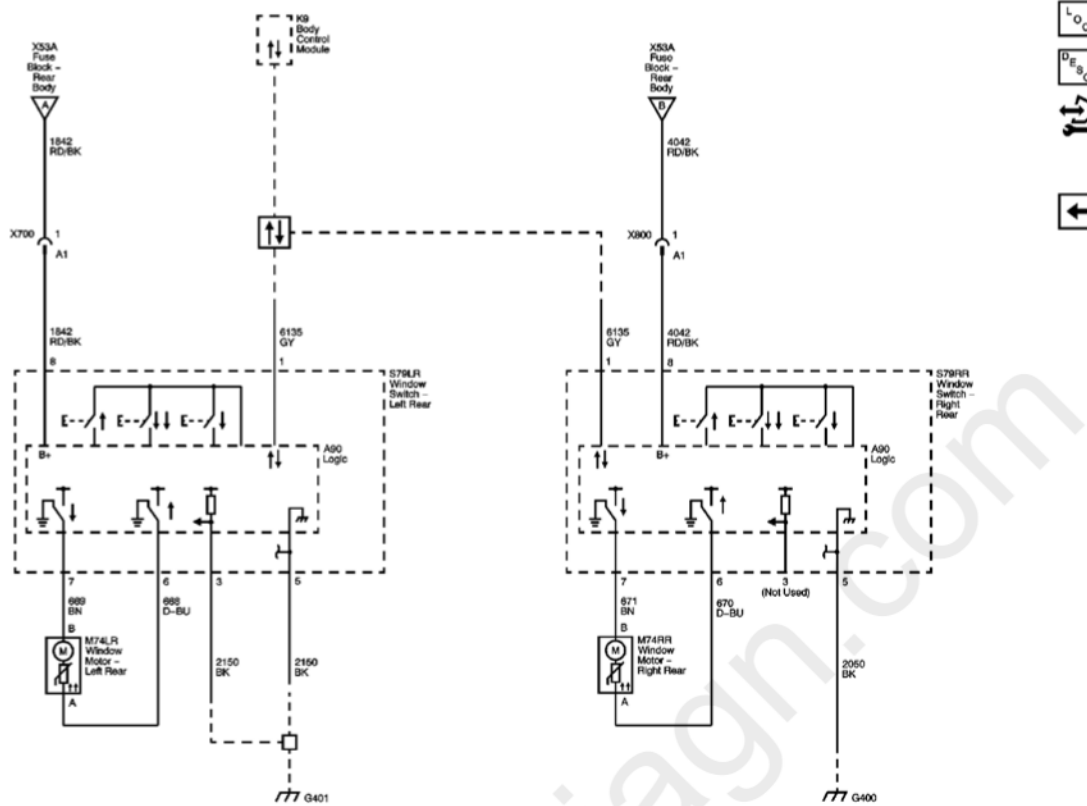


Fig 2 Rear Doors Circuit Schematic
Courtesy of GE ERA MOTORS CORP

DEFOGGER SCHEMATICS

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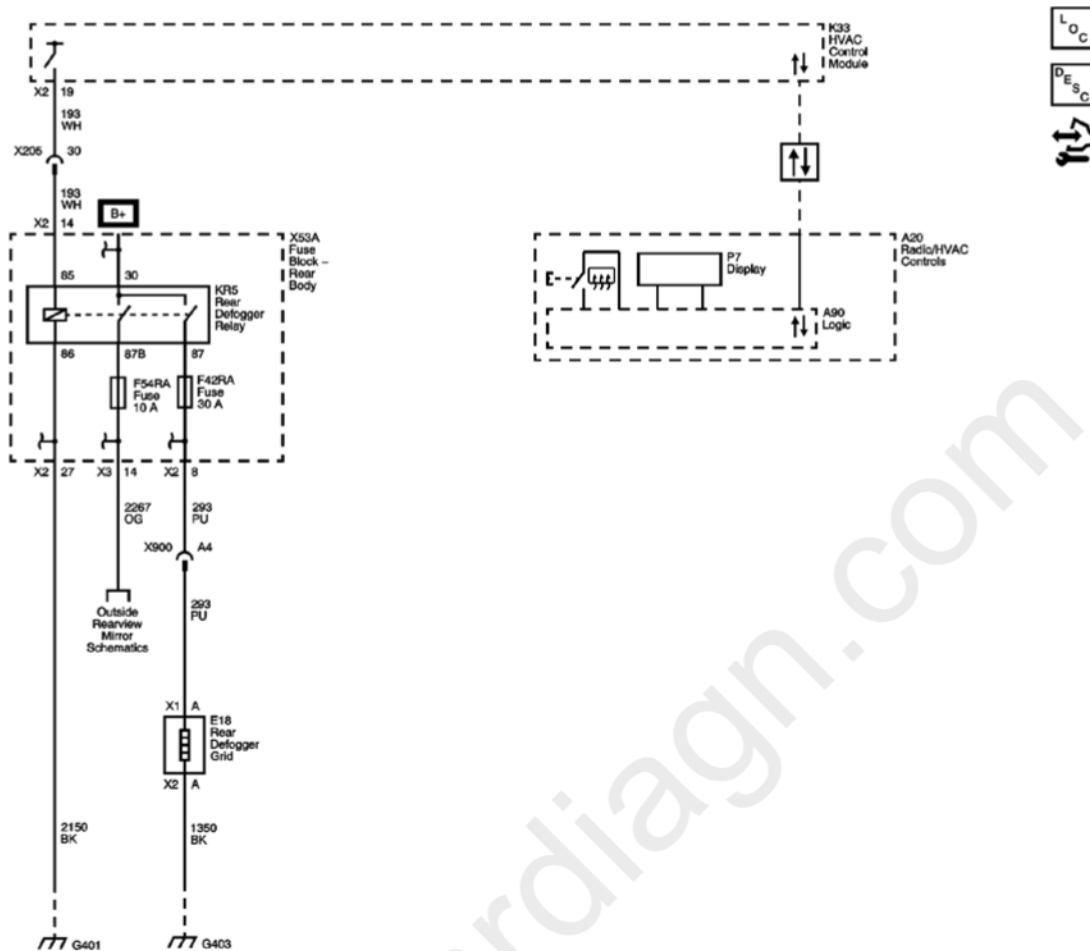


Fig 3 Rear Window Defogger Circuit Schematic

Courtesy of GE ERA MOTORS CORP

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC CODE IDENTIFICATION

DIAGNOSTIC CODE IDENTIFICATION

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 B316B 02: Driver Window Switch Short to Ground B316B 39: Driver Window Switch Internal Malfunction B317A 02: Passenger Window Switch Short to Ground B317A 39: Passenger Window Switch Internal Malfunction B318A 02: Left Rear Window Switch Short to Ground B318A 39: Left Rear Window Switch Internal Malfunction

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	B319A 02: Right Rear Window Switch Short to Ground B319A 39: Right Rear Window Switch Internal Malfunction
<u>DTC B3205, B3210, B3215, or B3220</u>	B3205 00: Driver Window Motor Circuit B3205 39: Driver Window Motor Circuit internal electronic failure B3205 42: Driver Window Motor Circuit calibration data set not programmed B3205 4B: Driver Window Motor Circuit calibration not learned B3210 00: Right Front/Passenger Window Motor Circuit B3210 39: Right Front/Passenger Window Motor Circuit internal electronic failure B3210 42: Right Front/Passenger Window Motor Circuit calibration data set not programmed B3210 4B: Right Front/Passenger Window Motor Circuit calibration not learned B3215 39: Left Rear Window Motor Circuit internal electronic failure B3220 39: Right Rear Window Motor Circuit internal electronic failure

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	-	1	-	-
1. Rear Defogger Inoperative				

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Circuit/System Description

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

Conditions for Running the DTC

Battery voltage must be between 9-16 V.

Conditions for Setting the DTC

B0283 02

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

B0283 05

The HVAC control module detects a short to voltage or an open/high resistance in the relay control 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 defogger grid ON and OFF by pressing and depressing the heated rear window switch. The rear defogger grid should turn ON and OFF when changing between the commanded states.

Circuit/System Testing

1. Ignition OFF, disconnect the KR5 rear defogger relay.
2. Test for less than 30 ohms 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 defogger grid ON and OFF by pressing and depressing the heated rear window switch. 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 KR5 rear defogger relay.

Component Testing**Relay Test**

1. Ignition OFF, disconnect the KR5 rear defogger relay.
2. Test for 60-180 ohms between terminals 85 and 86.
 - If not within the specified range, replace the KR5 rear defogger relay.
3. Test for infinite resistance between the following terminals:
 - 30 and 86
 - 30 and 87
 - 30 and 85
 - 85 and 87

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- If not the specified value, replace the KR5 rear defogger 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 KR5 rear defogger 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 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

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 B317A 39

Passenger Window Switch Internal Malfunction

DTC B318A 02

Left Rear Window Switch Short to Ground

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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

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Driver Window Motor Control	B316B 02	1	1	-
Left Rear Window Motor Control	3	3	3	-
Right Front Window Motor Control	4	4	4	-
Passenger Window Motor Control	B317A 02	2	2	-
1. Driver Window Malfunction 2. Passenger Window Malfunction 3. Left Rear Window Malfunction 4. Right Rear Window Malfunction				

Circuit/System Description

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

Conditions for Running the DTC

Battery voltage must be between 9-16 V.

Conditions for Setting the DTC

B316B 00

The BCM has detected 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.

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B317A 02

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

B318A 02

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

B319A 02

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

B316B 39, B317A 39, B318A 39, B319A 39

The BCM has detected an internal failure within the affected door switch

Action Taken When the DTC Sets

The affected power window will malfunction.

Conditions for Clearing the DTC

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

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

B316B 39, B317A 39, B318A 39, B319A 39

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

Reference Information

Schematic Reference

Moveable Window Schematics

Connector End View Reference

Component Connector End Views

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, verify that each of the scan tool parameters listed below are Inactive:
 - 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
 - Right Rear Window Main Control Up Switch
 - If any of the parameters are always Active, replace the S79D window switch-driver.
2. Verify that the scan tool Left Rear Window Switch at Door parameter is Inactive.
 - If not the specified value, replace the S79R window switch-left rear.
3. 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.
4. Command the driver window to go UP, DOWN, express UP and express DOWN by using the S79D window switch-driver. The driver window should perform the UP, DOWN, express UP and express DOWN functions.
 - If the driver window does not perform as specified, refer to **Driver Window Switch Malfunction**.
5. Command the passenger window to go UP, DOWN, express UP and express DOWN by using the S79P window switch-passenger. The passenger window should perform the UP, DOWN, express UP and express DOWN function.
 - If the passenger window does not perform as specified, refer to **Passenger Switch Window Malfunction**.

Circuit/System Testing

Driver Window Switch Malfunction

1. Ignition OFF, disconnect the harness connector at the S79D window switch-driver.
2. Ignition ON, verify that the scan tool Driver Window Main Control Down Switch parameter is Inactive.

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- If not the specified value, test the control circuit terminal 3 for a short to ground. If the circuit tests normal, test or replace the M74D window motor-driver.
- 3. Verify that the scan tool Driver Window Main Control Up Switch parameter is Inactive.
 - If not the specified value, test the control circuit terminal 6 for a short to ground. If the circuit tests normal, test or replace the M74D window motor-driver.
- 4. Verify that the scan tool Driver Window Main Control Express Switch parameter is Inactive.
 - If not the specified value, test the control circuit terminal 2 for a short to ground. If the circuit tests normal, test or replace the M74D window motor-driver.
- 5. If all circuits test normal, test or replace the S79D window switch-driver.

Passenger Switch Window Malfunction

- 1. Ignition OFF, disconnect the harness connector at the S79P window switch-passenger.
- 2. Ignition ON, test for greater than 10V between the signal circuit terminal listed below and ground:
 - Signal circuit terminal 6
 - Signal circuit terminal 7
 - Signal circuit terminal 8
 - If less than the specified range, test the signal circuit for a short to ground or an open/high resistance. If the circuit tests normal, test or replace the M74P window motor-passenger.
- 3. If all circuits test normal, test or replace the S79P window switch-passenger.

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**
- **Rear Side Door Window Regulator Motor Replacement**

DTC B3205, B3210, B3215, OR B3220

Diagnostic Instructions

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

DTC Descriptors

DTC B3205 00

Driver Window Motor Circuit

DTC B3205 3

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Driver Window Motor Circuit internal electronic failure

DTC B3205 42

Driver Window Motor Circuit calibration data set not programmed

DTC B3205 4B

Driver Window Motor Circuit calibration not learned

DTC B3210 00

Right Front/Passenger Window Motor Circuit

DTC B3210 3

Right Front/Passenger Window Motor Circuit internal electronic failure

DTC B3210 42

Right Front/Passenger Window Motor Circuit calibration data set not programmed

DTC B3210 4B

Right Front/Passenger Window Motor Circuit calibration not learned

DTC B3215 3

Left Rear Window Motor Circuit internal electronic failure

DTC B3220 3

Right Rear Window Motor Circuit internal electronic failure

Circuit/System Description

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

Conditions for Running the DTC

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

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Conditions for Setting the DTC

B3205 00, B3210 00

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

B3205 3 , B3210 3 , B3215 3 , B3220 3

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

B3205 42, B3210 42

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

B3205 4B, B3210 4B

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

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

Action Taken When the DTC Sets

B3205 00, B3205 3 , B3205 42, B3210 00, B3210 3 , B3210 42, B3215 3 , B3220 3

The affected motor will be inoperative.

B3205 4B, B3210 4B

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

Conditions for Clearing the DTC

B3205 00, B3210 00

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

B3205 3 , B3210 3 , B3215 3 , B3220 3

If the DTC is current, the appropriate window motor must be replaced before the DTC can be cleared.

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B3205 42, B3210 42

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

B3205 4B, B3210 4B

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

Reference Information

Schematic Reference

Moveable Window Schematics

Connector End View Reference

Component Connector End Views

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

B3205 00, B3205 3 , B3205 42, B3210 00, B3210 3 , B3210 42, B3215 3 , B3220 3

1. Ignition ON, command the M74 window motor UP and DOWN with a scan tool. The M74 window motor should perform the UP and DOWN functions.

NOTE If the M74 window motor does not perform the UP and DOWN functions, the DTC

2. Replace the M74 window motor with a M74 window motor compatible for that specific make and model vehicle.

Circuit/System Testing

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B3205 4B, B3210 4B

1. Ignition ON, starting with the window completely UP, press and hold the appropriate 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.
2. 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.
3. Command the window to express UP and express DOWN by pressing the window switch past the first detent and releasing and then pulling the window switch past the first detent and releasing. The window should perform the express UP and express DOWN functions.
 - If the M74 window motor does not perform as specified and the DTC resets, replace the M74 window motor.

Repair Procedures

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

- Front Side Door Window Regulator Replacement
- Rear 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 - 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
Rear Window Defogger Relay Switch B+	1	1	-	-
HVAC Control Serial Data	U1510 00	U1510 00	U1510 00	-

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Rear Window Defogger Relay Control	B0283 02	B0283 05	B0283 05	-
Rear Defogger Grid Control	1	1	2	-
Rear Window Defogger Relay Coil Ground	-	1	1	-
Rear 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 HVAC control faceplate, the HVAC control module will supply voltage to the relay coil. Battery positive voltage is supplied at all times to the relay switched input and the relay coil is always grounded. This allows battery positive voltage from the relay switched input to flow through the switch contacts and out the relay switched output to the rear window defogger grid.

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 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 HVAC control.
3. Command the Rear Defog ON and OFF with a scan tool, the rear defogger grid should turn ON or OFF while changing between the commanded states.

Circuit/System Testing

1. Ignition OFF, disconnect the KR5 rear defogger relay.
2. Test for less than 30 ohms between the ground circuit terminal 86 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 defogger grid.
6. Test for less than 30 ohms between the ground circuit terminal A 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 defogger grid.
8. Engine running, connect a 40 A fused jumper wire between the B+ circuit terminal 30 and the control circuit terminal 87. Verify the E18 rear defogger grid is activated.
 - If the rear 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 85 and the ground circuit terminal 86.
10. Command the rear defogger grid ON and OFF by pressing and depressing the heated rear window switch, 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 KR5 rear defogger relay.

Component Testing

Rear Window Defogger Grid Test

1. Engine running, turn on the rear defogger grid.
2. Verify that a test lamp illuminates between each rear window defogger grid line and ground. The test lamp should be off when testing at the ground side of the grid and get brighter as the test lamp moves closer to the voltage supply side of the grid. The test lamp should be dim when testing each grid line in the middle.
 - If the test lamp remains bright at the middle of the grid line, 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 KR5 rear defogger relay.
2. Test for 60-180 ohms between terminals 85 and 86.
 - If not within the specified range, replace the KR5 rear defogger 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 KR5 rear defogger 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 KR5 rear defogger 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.

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

Circuit/System Description

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

Each power window motor is controlled by their respective window switches. When a power window switch is activated to a desired position, power window switch will send a signal to its respective door window motor to

move the window to the desired position.

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, command the driver window and passenger window to go UP, DOWN, express UP and express DOWN with a scan tool. Each window should perform the UP, DOWN, express UP and express DOWN commands.
 - If either window does perform as specified, refer to **Front Window Motor Malfunction**.
2. Command the driver window to go UP, DOWN, express UP and express DOWN by using the S79D window switch-driver. The driver window should perform the UP, DOWN, express UP and express DOWN commands.
 - If the driver window does perform as specified, refer to **Driver Window Switch Malfunction**.
3. Observe the scan tool Left Rear Main Control Down Switch, Left Rear Main Control Express Switch, Left Rear Main Control Up Switch, Right Rear Main Control Down Switch, Right Rear Main Control Express Switch, Right Rear Main Control Up Switch, Front Passenger Main Control Down Switch, Front Passenger Main Control Express Switch, and the Front Passenger Main Control Up Switch parameters while using the appropriate switches on the S79D window switch-driver. Each value should change from Inactive to Active as the Switch is used
 - If any of the values are always Inactive or always Active, refer to **Driver Switches Malfunction**.
4. Observe the scan tool Passenger Window Switch at Door parameter while using the S79P window switch

passenger, the values should change from Inactive to Up, Express Up, Down, and Express Down as the switch is used.

- If the value is always Inactive or does not change as specified, refer to **Passenger Window Switch Malfunction**.
- 5. Command the right rear window to go UP and DOWN by using the S79RR window switch-right rear, the right rear window should perform the UP and DOWN function.
 - If the right rear window does perform as specified, refer to **Rear Window Malfunction**.
- 6. Command the left rear window to go UP and DOWN by using the S79LR window switch-left rear, the left rear window should perform the UP and DOWN function.
 - If the left rear window does perform as specified, refer to **Rear Window Malfunction**.

Circuit/System Testing

Front Window Motor Malfunction

1. Ignition OFF for, disconnect the harness connector at the appropriate front M74 window motor.
2. After 10 minutes, 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.
3. Ignition ON, verify that a test lamp illuminates between the B circuit terminal 2 and ground.
 - If the test lamp does not illuminate, test the B circuit for a short to ground or an open/high resistance.
4. Test for 5 - 10 between the serial data circuit terminal 4 and ground.
 - If greater than the specified range, test the serial data circuit for a short to voltage. If the circuit tests normal, replace the K9 BCM.
 - If less than the specified range, test the serial data circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the K9 BCM.
5. If all circuits test normal, replace the front M74 window motor.

Driver Window Switch Malfunction

1. Ignition OFF, disconnect the harness connector at the S79D window switch-driver.
2. After 10 minutes, 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.
3. Ignition ON, verify that the scan tool Driver Window Main Control Down Switch parameter is Inactive.
 - If not the specified value, test the signal circuit terminal 7 for a short to ground. If the circuit tests normal, replace the M74D window motor-driver.
4. Connect a 3 A fused jumper wire between the signal circuit terminal 7 and ground. Verify that the scan tool Driver Window Main Control Down Switch parameter is Active.
 - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the M74D window motor-driver.
5. Verify that the scan tool Driver Window Main Control Up Switch parameter is Inactive.
 - If not the specified value, test the signal circuit terminal 8 for a short to ground. If the circuit tests normal, replace the M74D window motor-driver.

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6. Connect a 3 A fused jumper wire between the signal circuit terminal 8 and ground. Verify that the scan tool Driver Window Main Control Up Switch parameter is Active.
 - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the M74D window motor-driver.
7. Verify the scan tool Driver Window Main Control Express Switch parameter is Inactive.
 - If not the specified value, test the signal circuit terminal 6 for a short to ground. If the circuit tests normal, replace the M74 driver window motor.
8. Connect a 3 A fused jumper wire between the signal circuit terminal 6 and ground, verify the scan tool Driver Window Main Control Express Switch parameter is Active.
 - If not the specified value, test the signal circuit terminal for a short to voltage or an open/high resistance. If the circuit tests normal, replace the M74 driver window motor.
9. If all circuits test normal, replace the S79D window switch-driver.

Driver Switches Malfunction

1. Ignition OFF, disconnect the harness connector at the S79D window switch-driver.
2. Ignition ON, verify that a test lamp illuminates between the B⁺ circuit terminal 4 and ground.
 - If the test lamp does not illuminate, test the B⁺ circuit for a short to ground or an open/high resistance.
3. Test for 5-10 Ω between the serial data circuit terminal 5 and ground.
 - If greater than the specified range, test the serial data circuit for a short to voltage.
 - If less than the specified range, test the serial data circuit for a short to ground or an open/high resistance.
4. If all circuits test normal, replace the S79D window switch-driver.

Passenger Window Switch Malfunction

1. Ignition OFF, disconnect the harness connector at the S79P window switch-passenger.
2. 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.
3. Ignition ON, verify that the scan tool Passenger Window Switch at Door parameter is Inactive.
 - If the value is Up, test the signal circuit terminal 8 for a short to ground. If the circuit tests normal, test or replace the M74P window motor-passenger.
 - If the value is Down, test the signal circuit terminal 7 for a short to ground. If the circuit tests normal, test or replace the M74P window motor-passenger.
4. Connect a 3 A fused jumper wire between the signal circuit terminal 8 and ground, verify that the scan tool Passenger Window Switch at Door parameter is Up.
 - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the M74P window motor-passenger.
5. Connect a 3 A fused jumper wire between the signal circuit terminal 7 and ground, verify that the scan tool Passenger Window Switch at Door parameter is Down.
 - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If

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the circuit tests normal, replace the M74P window motor-passenger.

6. Test for greater than 10 between the signal circuit terminal 6 and ground.
 - If less than the specified range, test the signal circuit for a short to ground or an open/high resistance. If the circuit tests normal, test or replace the 74P window motor-passenger.
7. If all circuits test normal, test or replace the S79P window switch-passenger.

Rear Window Malfunction

1. Ignition OFF, disconnect the harness connector at the appropriate S79R window switch-rear.
2. Test for less than 5 ohms between the ground circuit terminal 5 and ground.
 - 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 8 and ground
 - If the test lamp does not illuminate, test the B circuit for a short to ground or an open/high resistance.
4. Test for 5-10 between the serial data circuit terminal 1 and ground.
 - If greater than the specified range, test the serial data circuit for a short to voltage.
 - If less than the specified range, test the serial data circuit for a short to ground or an open/high resistance.
5. Ignition OFF, connect the harness connector at the S79R window switch-rear.
6. Disconnect the harness connector at the appropriate M74R window motor-rear.
7. Test for less than 5 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 S79R window switch-rear.
8. Test for less than 5 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 S79R window switch-rear.
9. Connect a test lamp between the control circuit terminal A and control circuit terminal B.
10. Ignition ON, command the rear window UP and DOWN using the S79R window switch-rear. The test lamp should briefly illuminate when commanding the UP and DOWN states.
 - If the test lamp does not illuminate during either of the commands, test both control circuits for a short to ground. If the circuits test normal, replace the S79R window switch-rear.
11. If all circuits test normal, test or replace the M74R window motor-rear.

Component Testing

1. Ignition OFF, disconnect the harness connector at the appropriate M74R window motor-rear.
2. Install a 30A fused jumper wire between one of the control terminals and 12 . Momentarily install a jumper wire between the other control terminal and ground. Reverse the jumper wires at least two times, the M74R window motor-rear should perform the UP and DOWN functions.
 - If it does not perform as specified, replace the M74R window motor-rear.

Repair Procedures

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

- **Front Side Door Window and Multifunction Switch Replacement**
- **Rear Side Door Window Switch Replacement**
- **Front Side Door Window Regulator Replacement**
- **Rear Side Door Window Regulator Motor Replacement**

SIDE DOOR WINDOW MECHANICAL DIAGNOSIS

Cause	Correction
DEFINITION: A mechanical condition that requires a correction for proper operation of the side door window. Refer to <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.
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

- **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

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Removal Procedure

NOTE

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1. Open the hood.
2. Remove the windshield wiper arms and blades. Refer to **Windshield Wiper Arm Replacement** .
3. Remove the air inlet grille. Refer to **Air Inlet Grille Panel Replacement** .
4. Remove the interior windshield pillar garnish moldings. Refer to **Windshield Garnish Molding Replacement** .
5. Remove the rearview mirror. Refer to **Inside Rearview Mirror Replacement** .

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

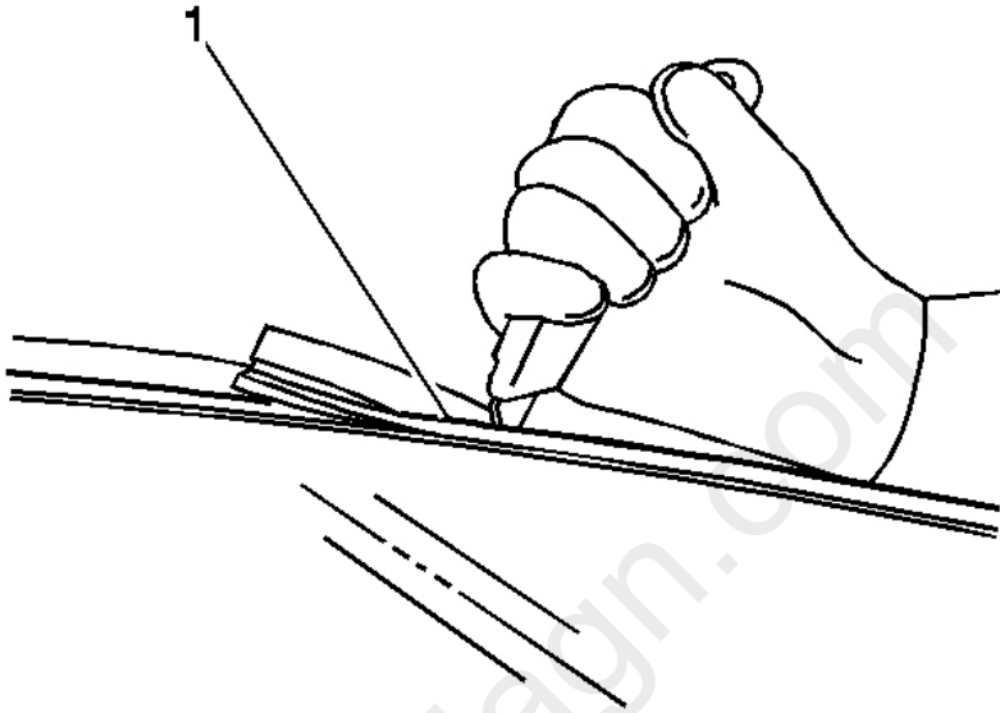


Fig. 4: Using Utility Knife To Remove Reveal Molding
Courtesy of GENERAL MOTORS CORP.

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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.

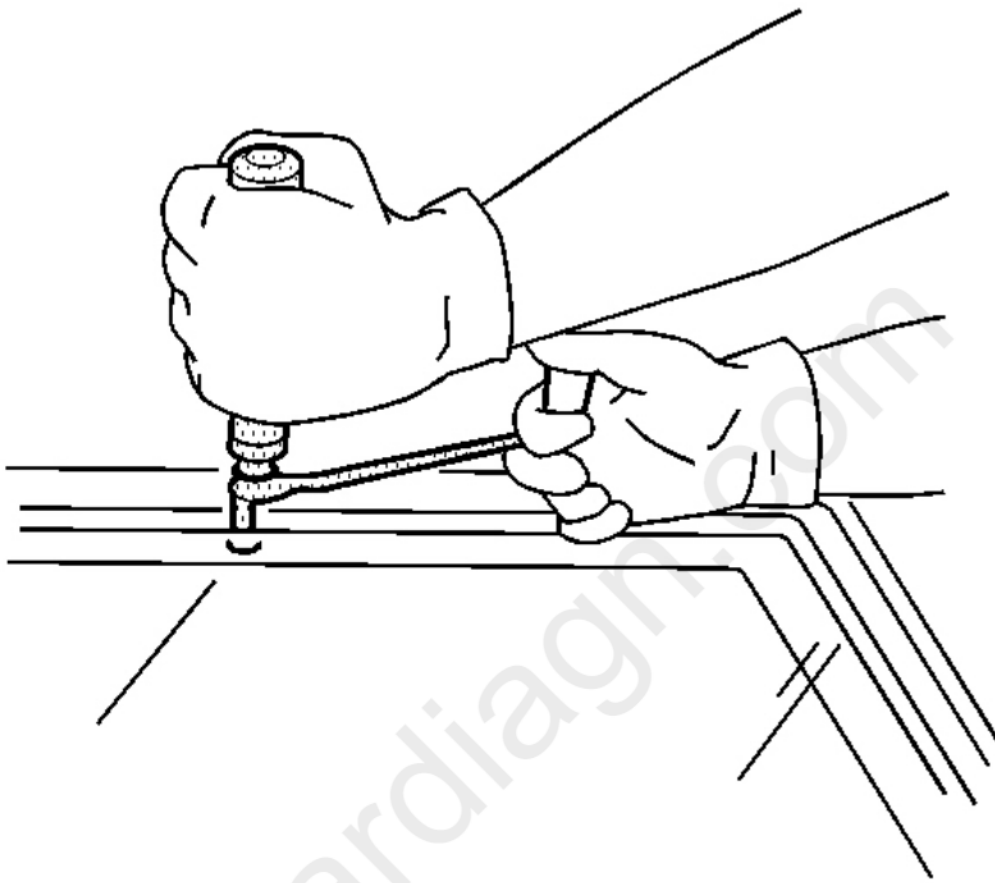


Fig. : Separating Urethane Adhesive From Window
Courtesy of GENERAL MOTORS CORP.

NOTE

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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 to remove the window. See **Special Tools**.

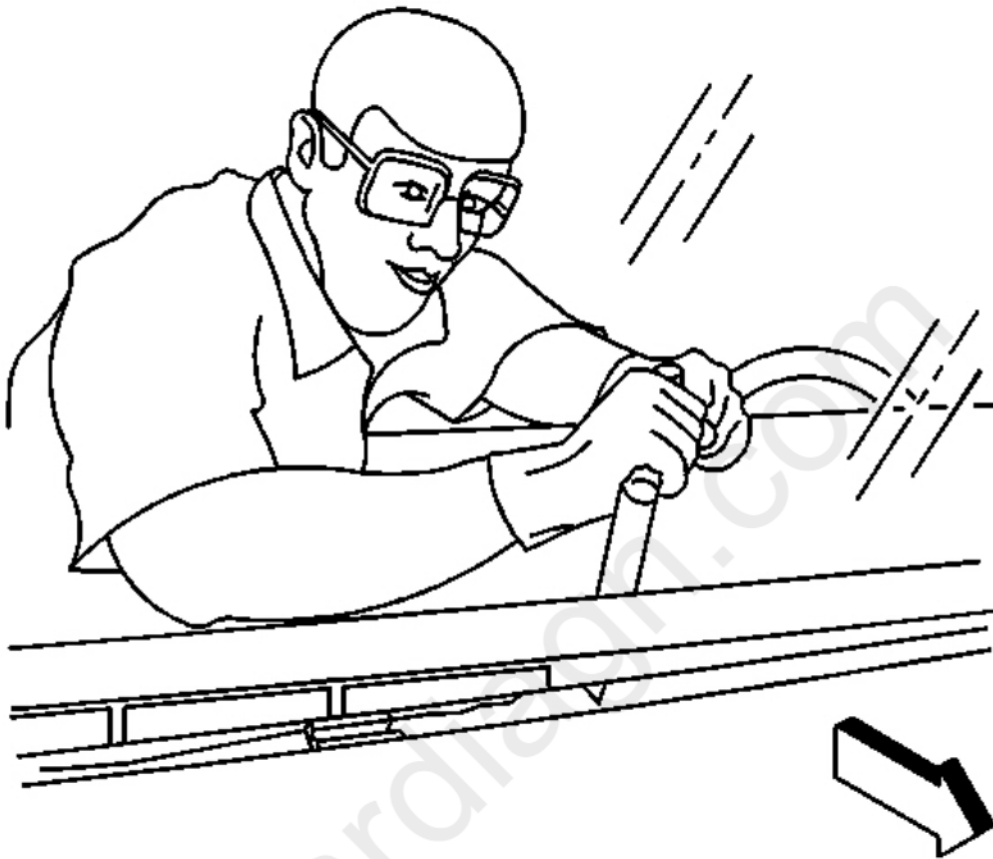


Fig. : Separating Bottom Of Window
Courtesy of GENERAL MOTORS CORP.

NOTE

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

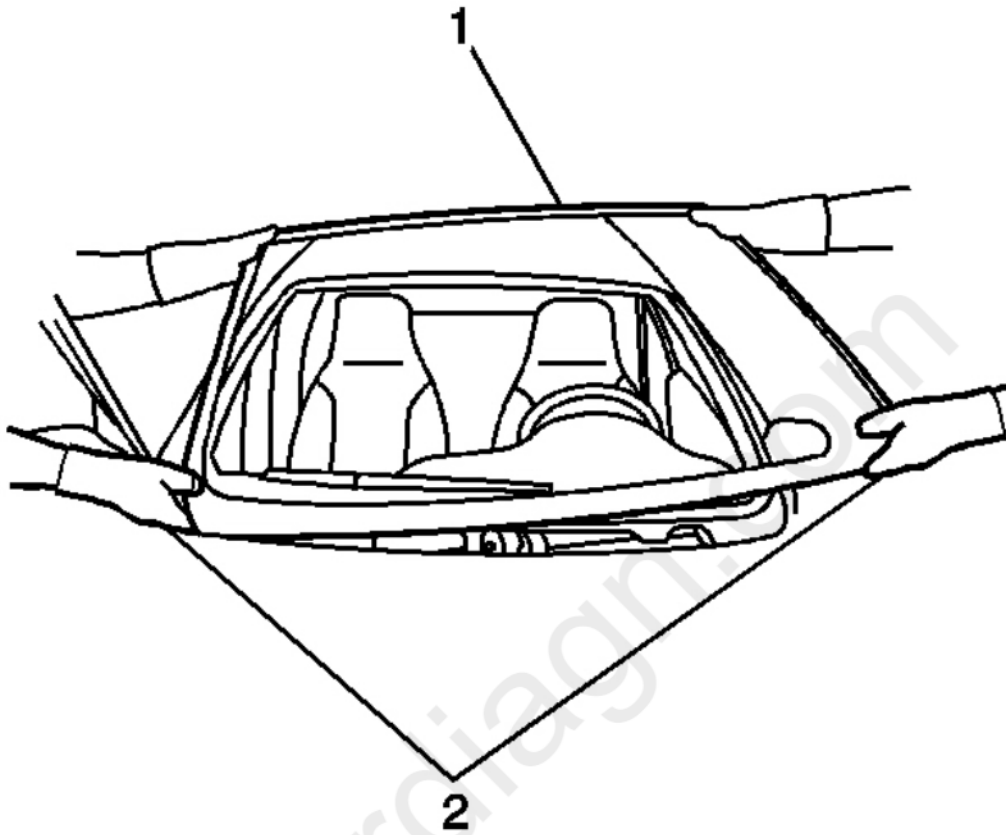


Fig. 7: Identifying Assistant & Windshield
Courtesy of GENERAL MOTORS CORP.

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10. 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 rearview mirror. Refer to **Inside Rearview Mirror Replacement**.
3. Install the interior windshield pillar garnish moldings. Refer to **Windshield Garnish Molding Replacement**.
4. Install the air inlet grille. Refer to **Air Inlet Grille Panel Replacement**.
5. Install the windshield wipers arms and blades. Refer to **Windshield Wiper Arm Replacement**.

6. Remove the double layer of masking tape around the perimeter of the painted surfaces and the interior trim.
7. Close the hood.

FRONT SIDE DOOR WINDOW REPLACEMENT

Removal Procedure

1. Run the window to the fully closed position.

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2. Remove the front side door trim panel. Refer to Front Side Door Trim Replacement.
3. Remove the front side door garnish molding. Refer to Front Side Door Window Garnish Molding Replacement.
4. Remove the water deflector.
5. Remove the front side window inner sealing strip. Refer to Front Side Door Window Inner Sealing Strip Replacement.
6. Tape the window in the closed position.
7. Loosen the window regulator guide nuts 4 revolutions.
8. Connect the door trim panel electrical connector.
9. Using the power window switch, lower the window regulator to separate the window from the regulator guides.
10. Remove the tape.

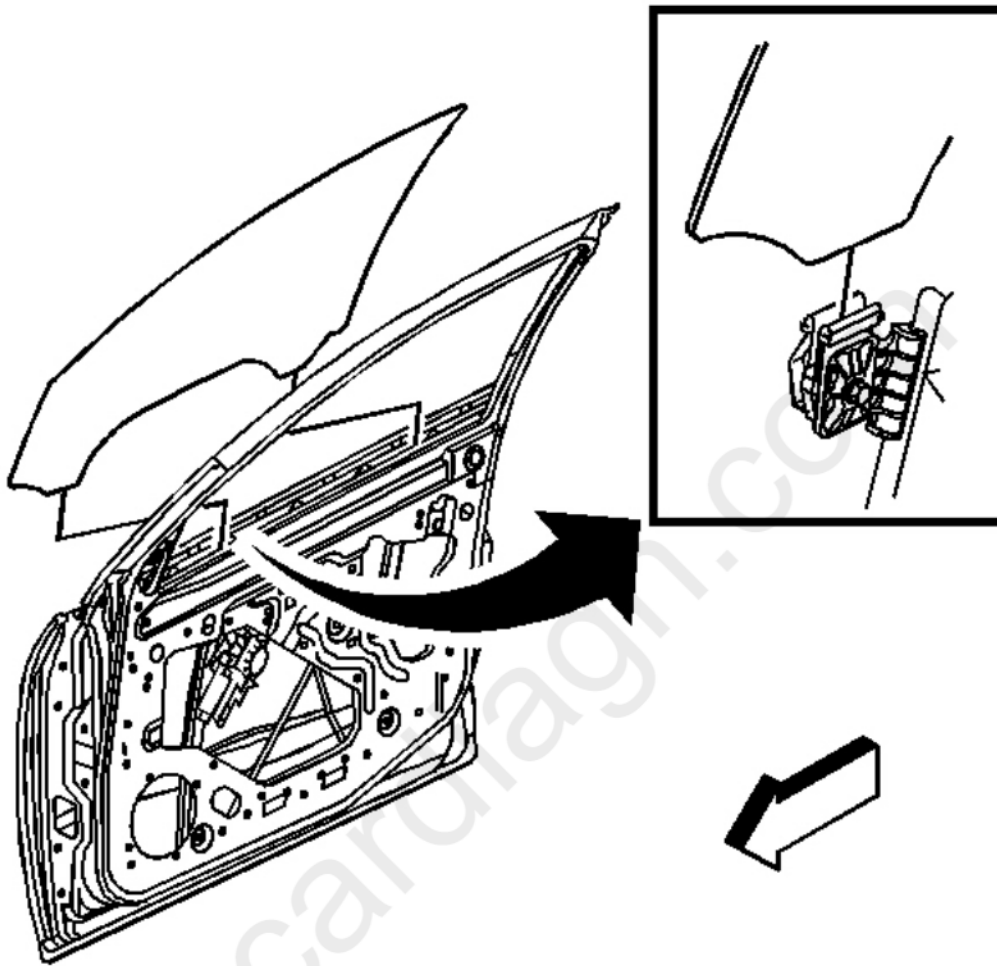


Fig. 8: View Of Front Window Regulator Clamp
Courtesy of GENERAL MOTORS CORP.

11. Remove the window by tilting the window forward then pulling the window up and out of the door.

Installation Procedure

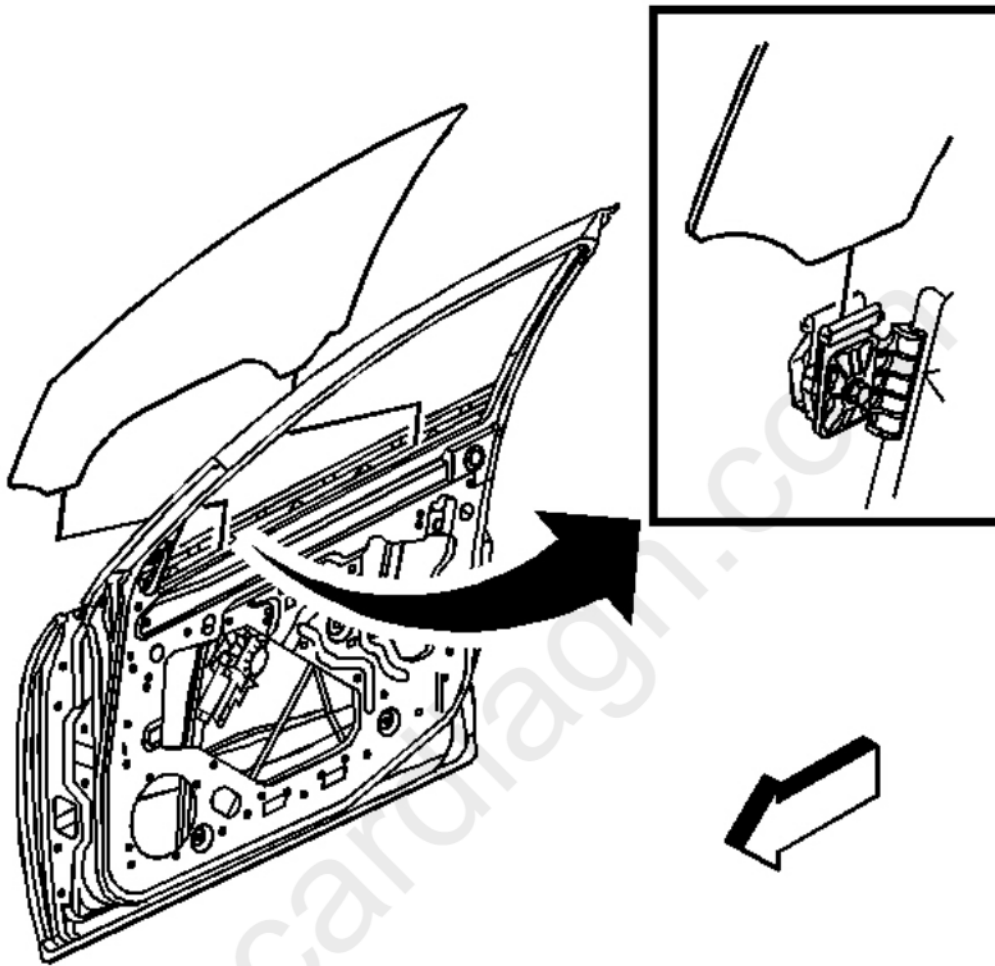


Fig. 9: View Of Front Window Regulator Clamp
Courtesy of GENERAL MOTORS CORP.

NOTE The window is installed into the door. The window is installed into the door.

1. Install the window down into the door.
2. Position the window into the 2 window regulator guides.

NOTE The window is installed into the door. The window is installed into the door.

3. Start the vehicle.

CAUTION Read the Caution

4. Using the power window switch, raise the window to the fully closed position. Tighten the window regulator guide nuts to 11 N.m (98 lb in).
5. Install the front side window inner sealing strip. Refer to **Front Side Door Window Inner Sealing Strip Replacement**.
6. Inspect the window for proper operation and a tight seal.
7. Shut off the vehicle.
8. Install the water deflector.
9. Install the front side door garnish molding. Refer to **Front Side Door Window Garnish Molding Replacement**.
10. Install the front side door trim panel. Refer to **Front Side Door Trim Replacement**.

REAR SIDE DOOR WINDOW REPLACEMENT

Removal Procedure

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1. Lower the window all the way down.
2. Remove the rear side door trim panel. Refer to **Rear Side Door Trim Replacement**.
3. Remove the rear side door garnish molding. Refer to **Rear Side Door Window Garnish Molding Replacement**.
4. Remove the rear side door water deflector.
5. Remove the rear side door window inner sealing strip. Refer to **Rear Side Door Window Inner Sealing Strip Replacement**.
6. Remove the rear side door window belt reveal molding. Refer to **Rear Side Door Window Belt Reveal Molding Replacement**.
7. Connect the rear side door trim panel electrical connector.
8. Run the window to the fully up position.
9. Tape the window in the up position.
10. Loosen rear side door front window run channel bolt.
11. Loosen the window regulator guide nuts 4 revolutions.
12. Using the power window switch, lower the window regulator to the fully down position.
13. Remove the tape.
14. Slide the window down past the window regulator guides and out of the front window run channel.

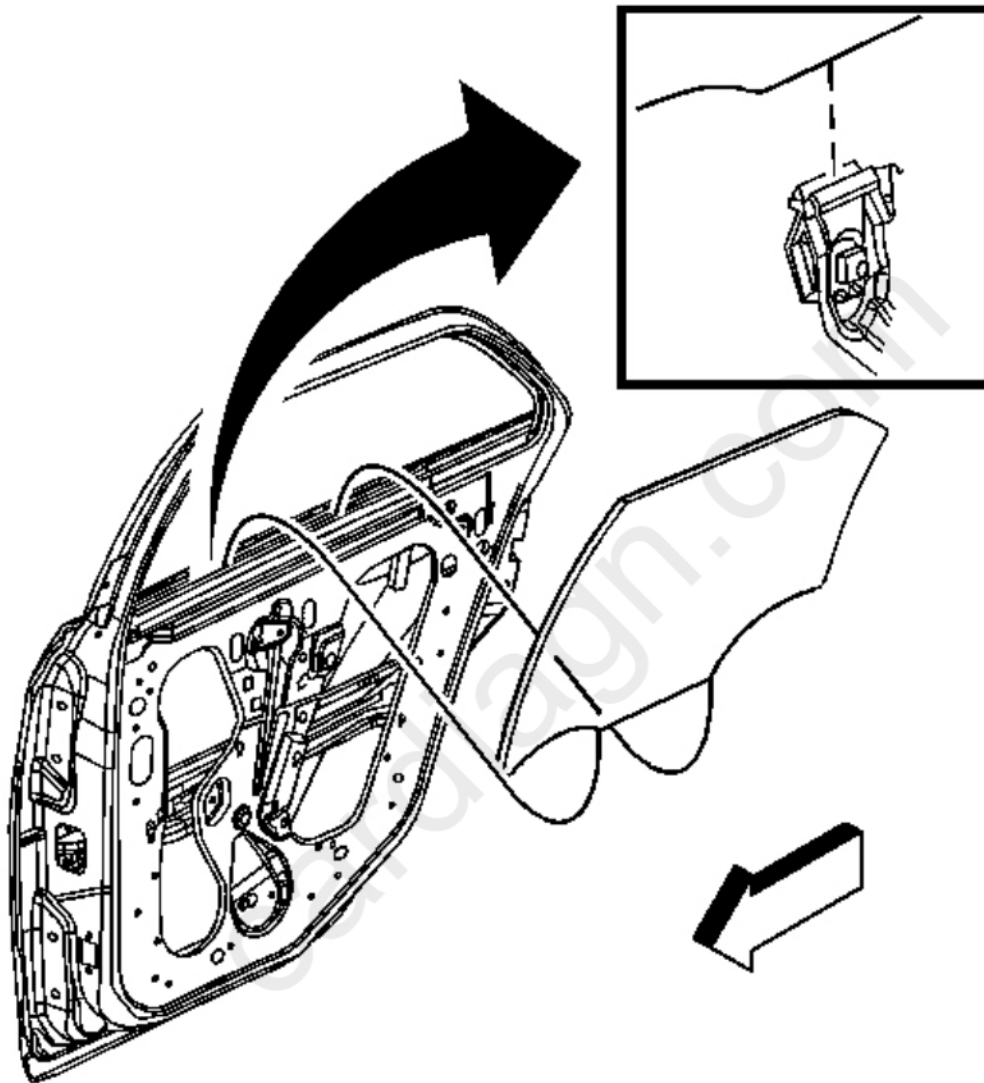


Fig. 10: Removing & Installing Rear Door Window
Courtesy of GENERAL MOTORS CORP.

15. Lift the rear side door window out of the door.

Installation Procedure

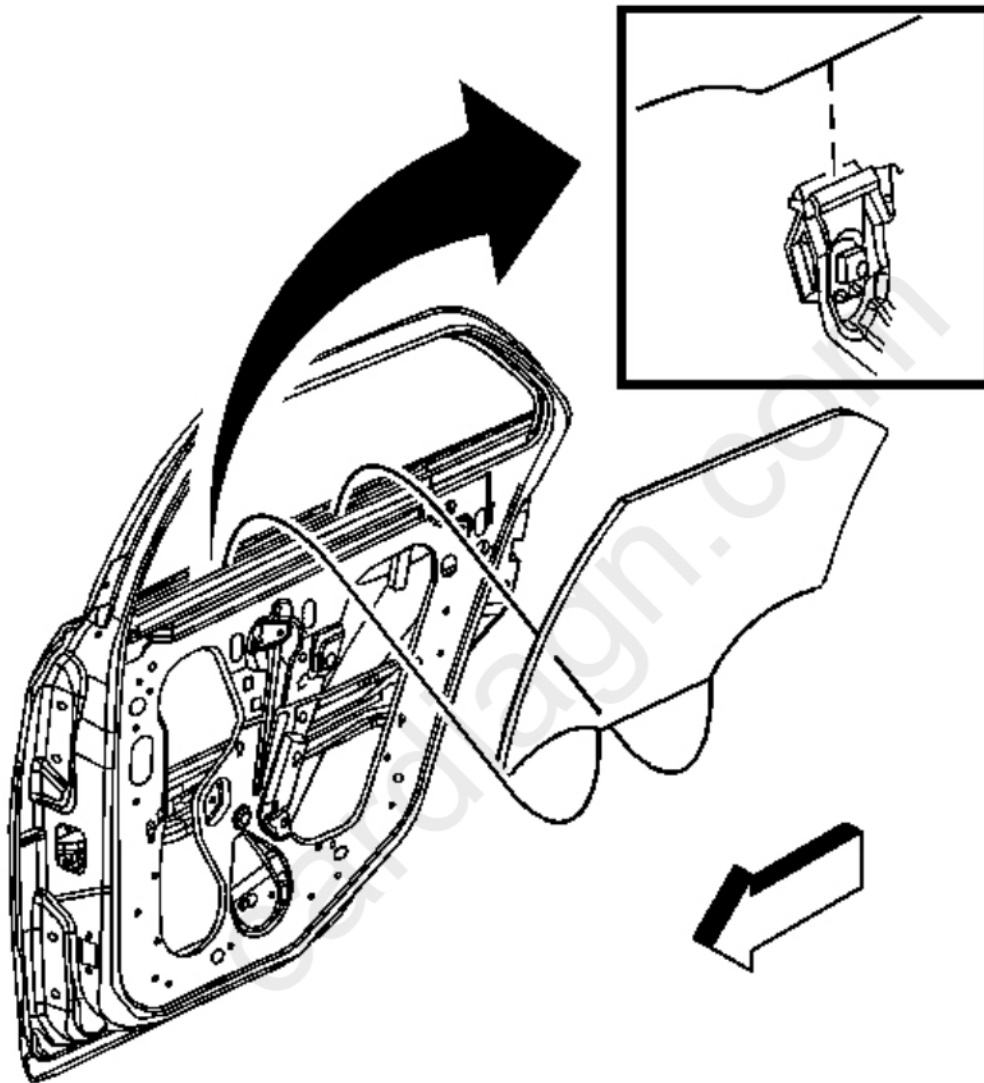


Fig. 11: Removing & Installing Rear Door Window
Courtesy of GENERAL MOTORS CORP.

1. Install the window down into the door, past the window regulator guides.
2. Raise the window past the window regulator guides.
3. Lower the window into the window regulator guides.
4. Push the glass forward into the front glass run channel.

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5. Start the vehicle.

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6. Using the power window switch, raise the window to the fully up position. Tighten the window regulator guide nuts to 11 N.m (98 lb in).
7. Install the window into the rear side door front window run channel, tighten the bolts to 9 N.m (80 lb in).
8. Inspect the window for proper operation and a tight seal.
9. Shut off the vehicle.
10. Install the rear side door window belt reveal molding. Refer to Rear Side Door Window Belt Reveal Molding Replacement
11. Install the rear side door window inner sealing strip. Refer to Rear Side Door Window Inner Sealing Strip Replacement
12. Install rear side door water deflector.
13. Install the rear side door garnish molding. Refer to Rear Side Door Window Garnish Molding Replacement
14. Install the rear side door trim panel. Refer to Rear Side Door Trim Replacement

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

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1. Remove the rear quarter trim panel. Refer to Quarter Upper Trim Panel Replacement
2. Disconnect the electrical connector from the window.

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3. Cover to protect the following parts from broken glass:

1. Upper dash pad
2. Defroster outlets and A/C outlets
3. Seats and carpeting

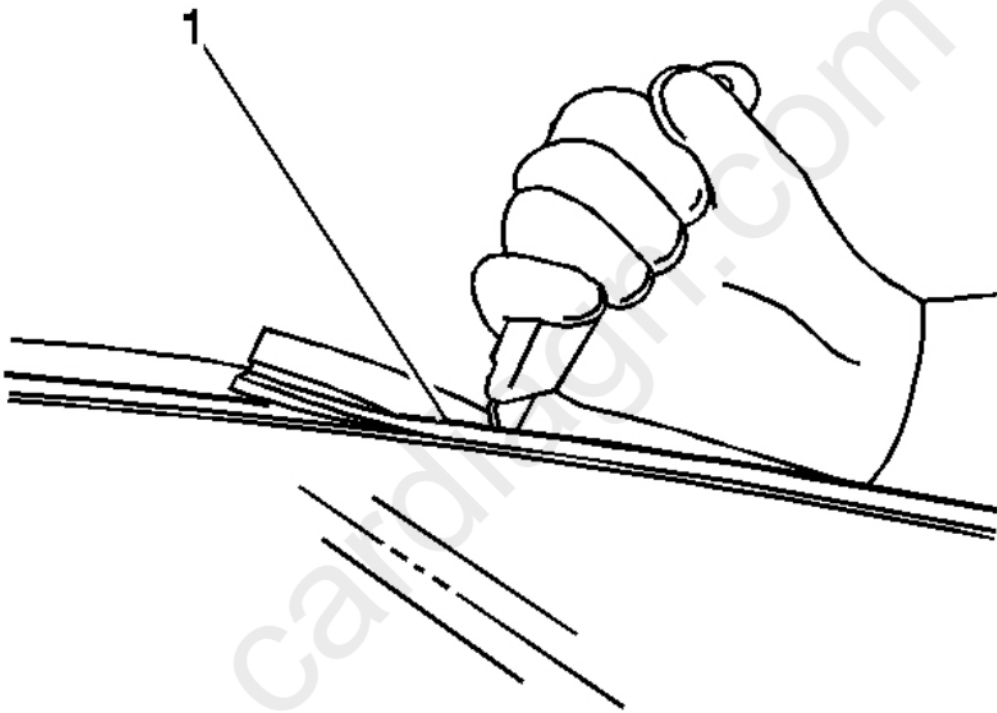


Fig. 12: Using Utility Knife To Remove Reveal Molding
 Courtesy of GENERAL MOTORS CORP.

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4. Use a utility knife in order to cut around the outer and inner window edge (1).
5. Use care not to cut off the window retainers on the inside edge.

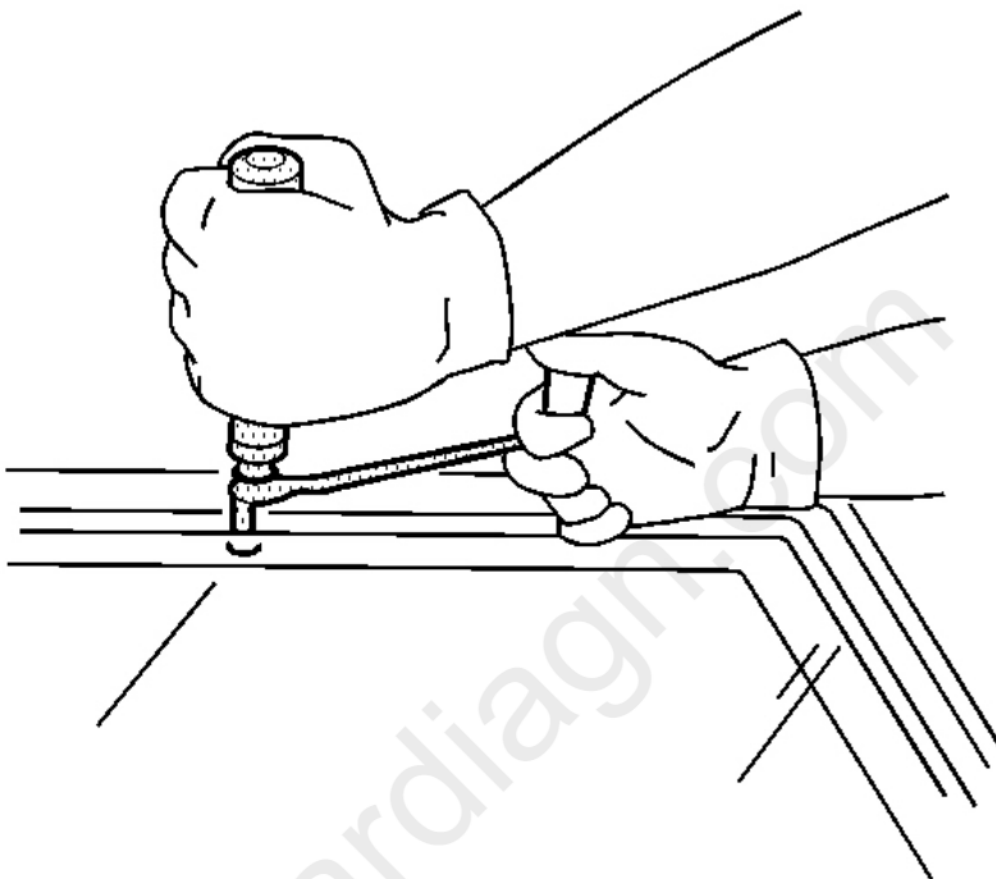


Fig. 13: Separating Urethane Adhesive From Window
Courtesy of GENERAL MOTORS CORP.

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6. This will allow the urethane adhesive to be separated from the window.
 - Leave a base of urethane on the pinchweld flange.
 - The only suitable lubrication is clear water.
 - Use **J 24402-A** or, **J 39032** , or equivalent to remove the window. See **Special Tools**.

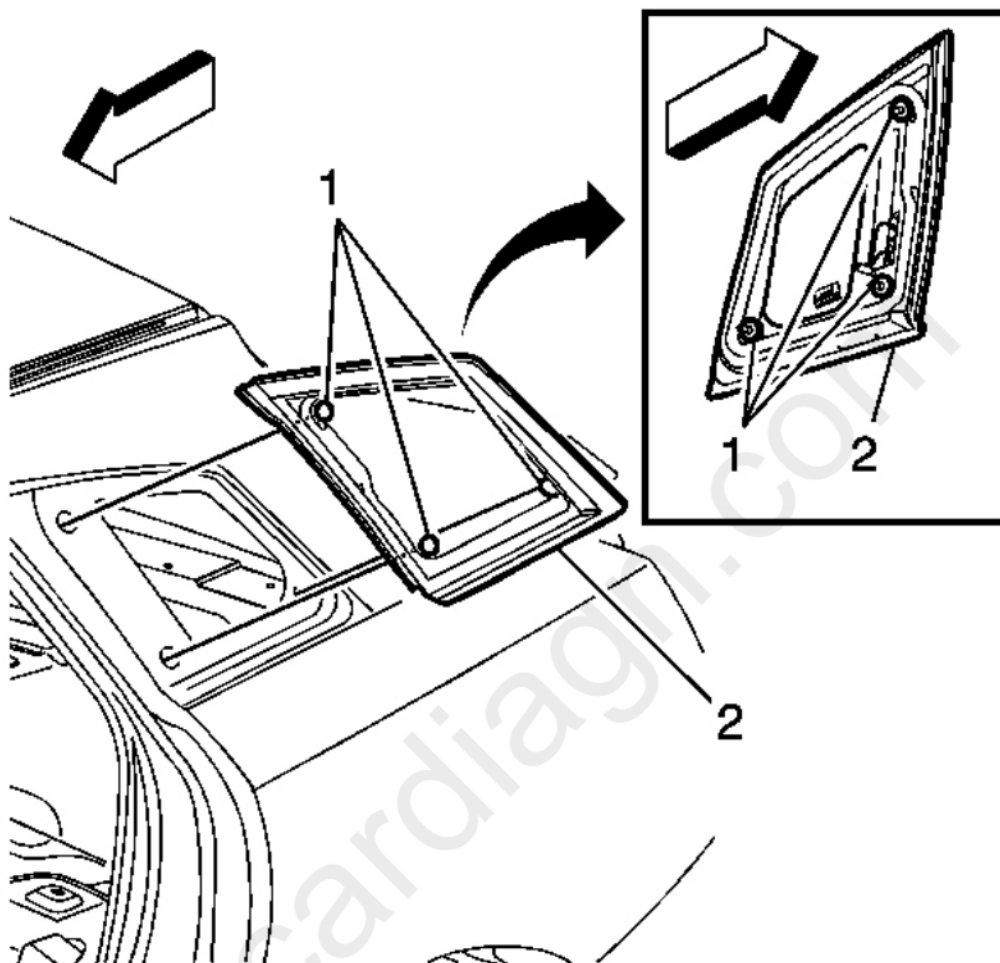


Fig. 1 : View Of Quarter Window Alignment Pins
Courtesy of GENERAL MOTORS CORP.

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7. Remove the quarter window (2) from the opening.

Installation Procedure

1. Install the quarter window in the opening. Refer to Adhesive Installation of Quarter Windows
2. Connect the electrical connector to the window.
3. Install the rear quarter trim panel. Refer to Quarter Upper Trim Panel Replacement

4. Remove the protective coverings and tape from the vehicle quarter.

LIFTGATE WINDOW REPLACEMENT

Special Tools

- **2 02 A** Glass Sealant (Cold Knife) Remover. See Special Tools.
- **90 2** Stationary Glass Removal Tool. See Special Tools.
- Use a urethane adhesive systems which meet GM Specification GM 3651G

Removal Procedure

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1. Open the liftgate.
2. Remove the liftgate lower trim. Refer to Liftgate Lower Trim Finish Panel Replacement .
3. Disconnect the electrical connectors from the liftgate window rear defogger.
4. Remove the rear window wiper arm. Refer to Rear Window Wiper Arm Replacement .
5. Remove the rear spoiler. Refer to Rear End Spoiler Replacement .

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

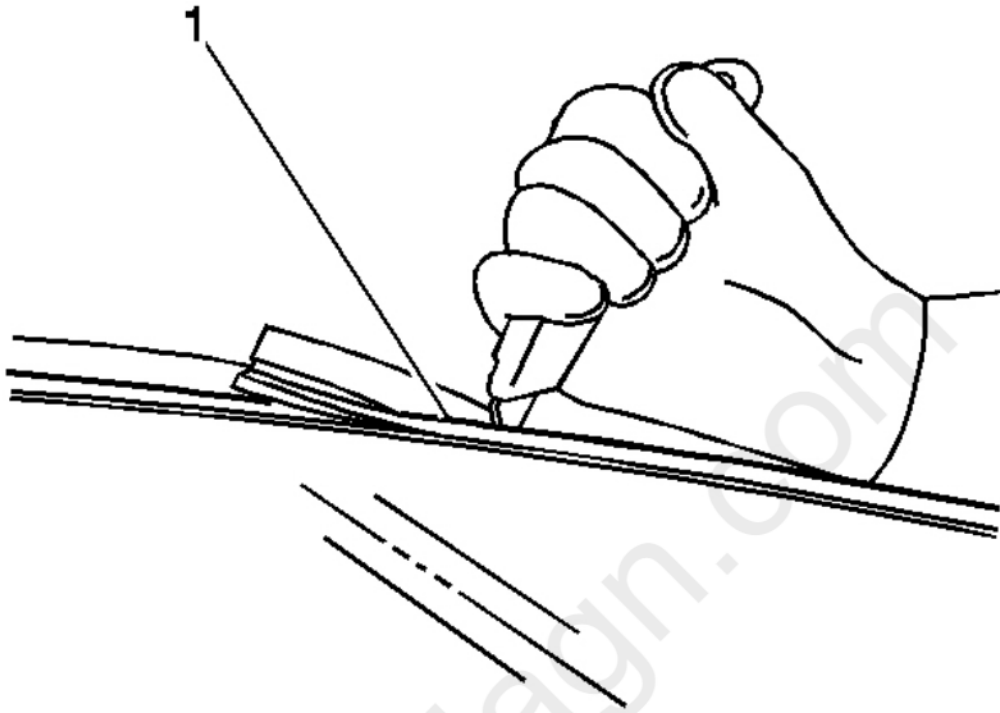


Fig. 1 : Using Utility knife To Remove Reveal Molding
Courtesy of GENERAL MOTORS CORP.

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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.

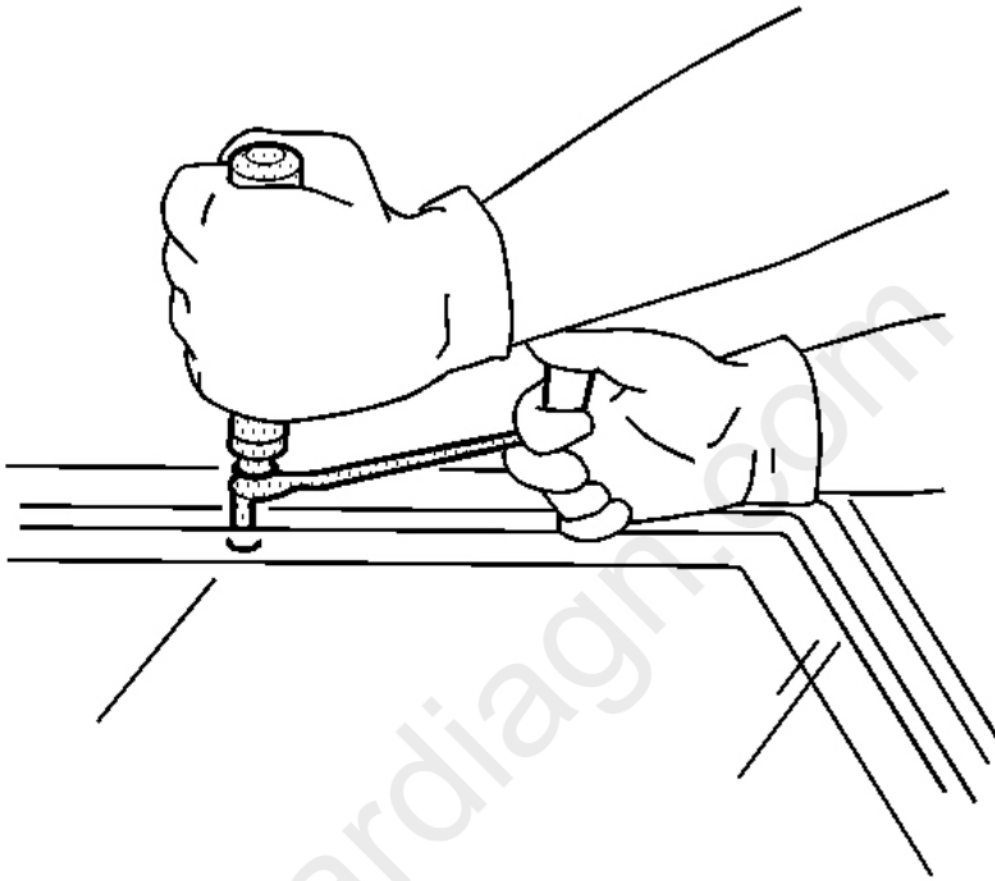


Fig. 1 : Separating Urethane Adhesive From Window
Courtesy of GENERAL MOTORS CORP.

NOTE

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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 2 02 A, 90 2 or equivalent in order to remove the window. See **Special Tools**.

NOTE

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

urethane adhesive.

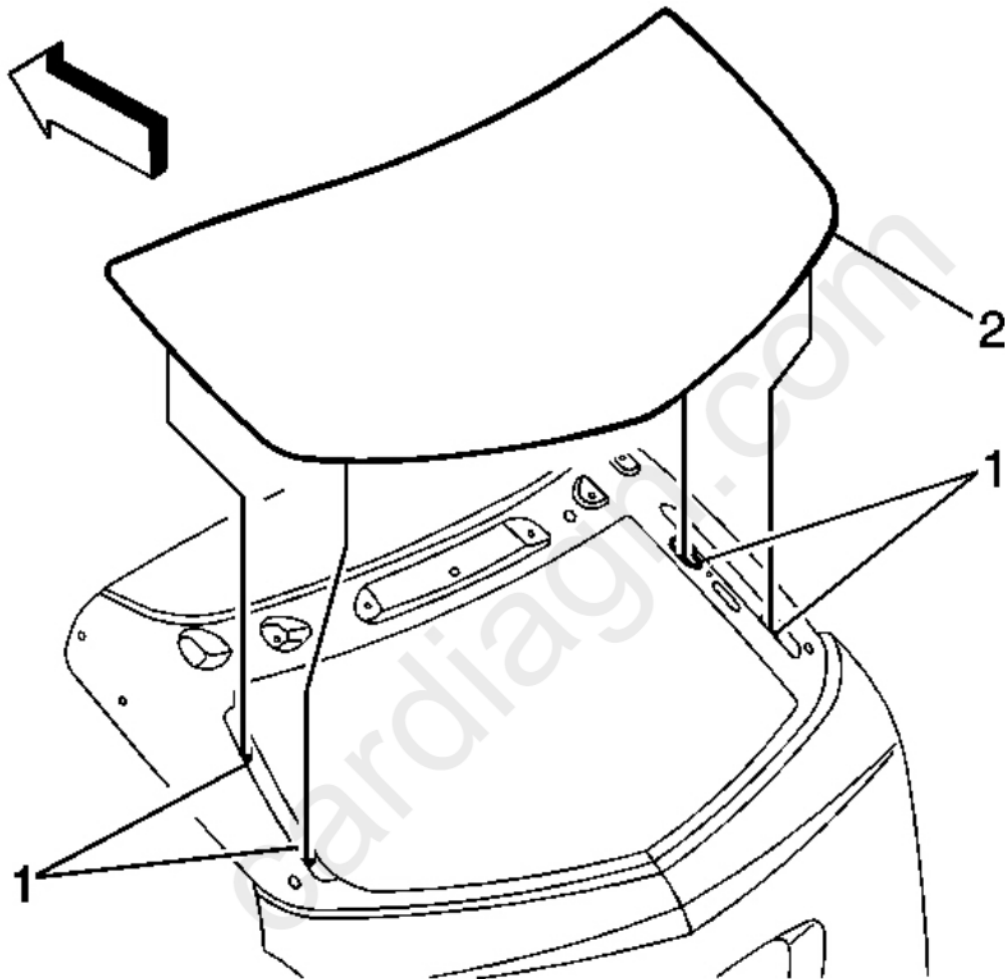


Fig. 1 : View Of Liftgate Window
Courtesy of GENERAL MOTORS CORP.

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10. With the aid of an assistant, remove the window (2) from the vehicle.

Installation Procedure

1. Install the liftgate window into the opening. Refer to **Adhesive Installation of Liftgate Windows.**

2. Install the rear spoiler. Refer to **Rear End Spoiler Replacement**.
3. Install the rear window wiper arm. Refer to **Rear Window Wiper Arm Replacement**.
4. Connect the liftgate window rear defogger electrical connectors.
5. Install the liftgate lower trim. Refer to **Liftgate Lower Trim Finish Panel Replacement**.
 - Remove the double layer of masking tape around the perimeter of the painted surfaces and the interior trim.
 - Close the liftgate.

FRONT SIDE DOOR WINDOW FRAME REAR APPLIQUE REPLACEMENT

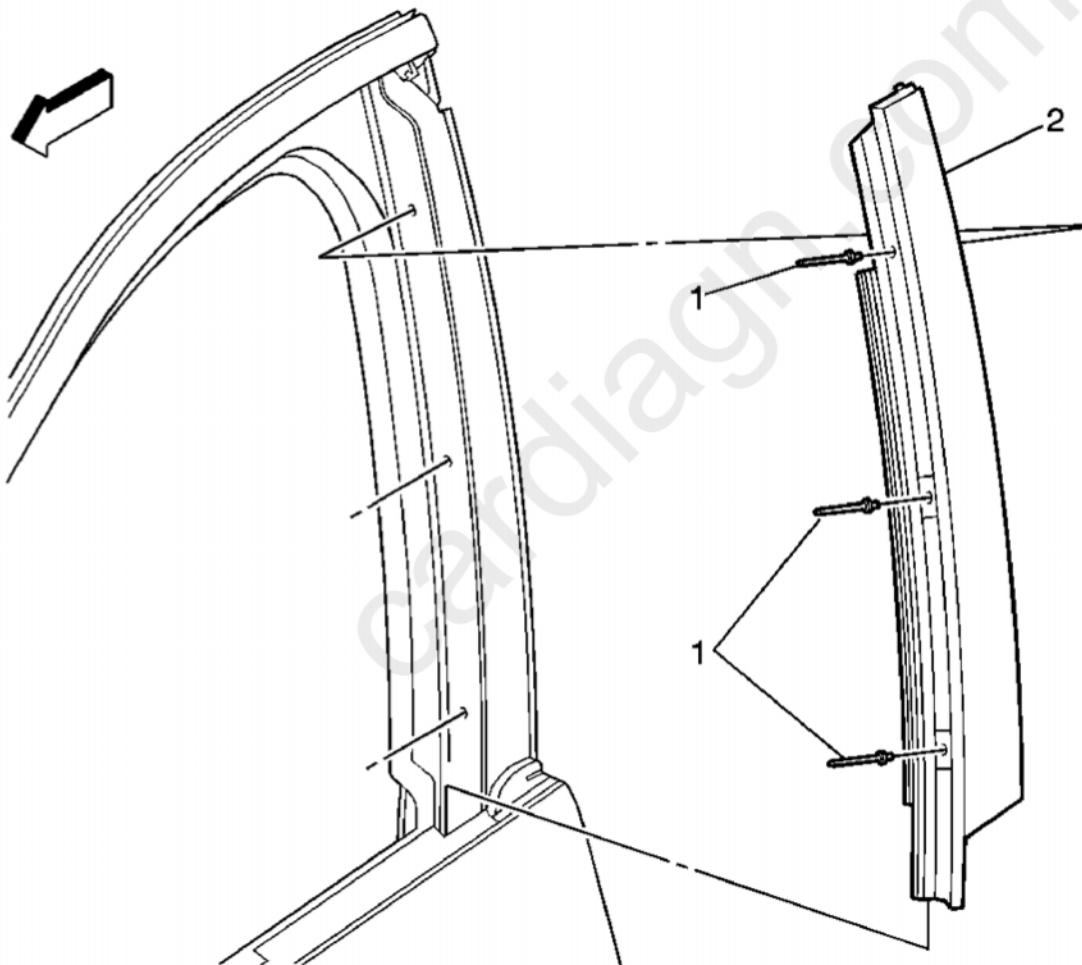


Fig. 18: Identifying Front Side Door Window Frame Rear Applique
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove the front side door window belt reveal molding. Refer to <u>Front Side Door Window Belt Reveal</u>	

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Molding Replacement.

1	Front Side Door Window Frame Rear Applique Rivets (Qty: 3) ARNIN R <u>la a d S M al a dli a i</u> Procedure 1. Lower the window to the fully down position. 2. Pull the front side door window weatherstrip from the rear applique to expose the rivets. 3. When drilling cover protect the interior trim and door from the metal shavings. 4. Using a suitable tool, drill out the rivets from the rear of the front door frame applique.
2	Front Side Door Window Frame Rear Applique Procedure: Use a suitable tool, install the rivets in the front side door frame.

REAR SIDE DOOR WINDOW FRAME FRONT APPLIQUE REPLACEMENT

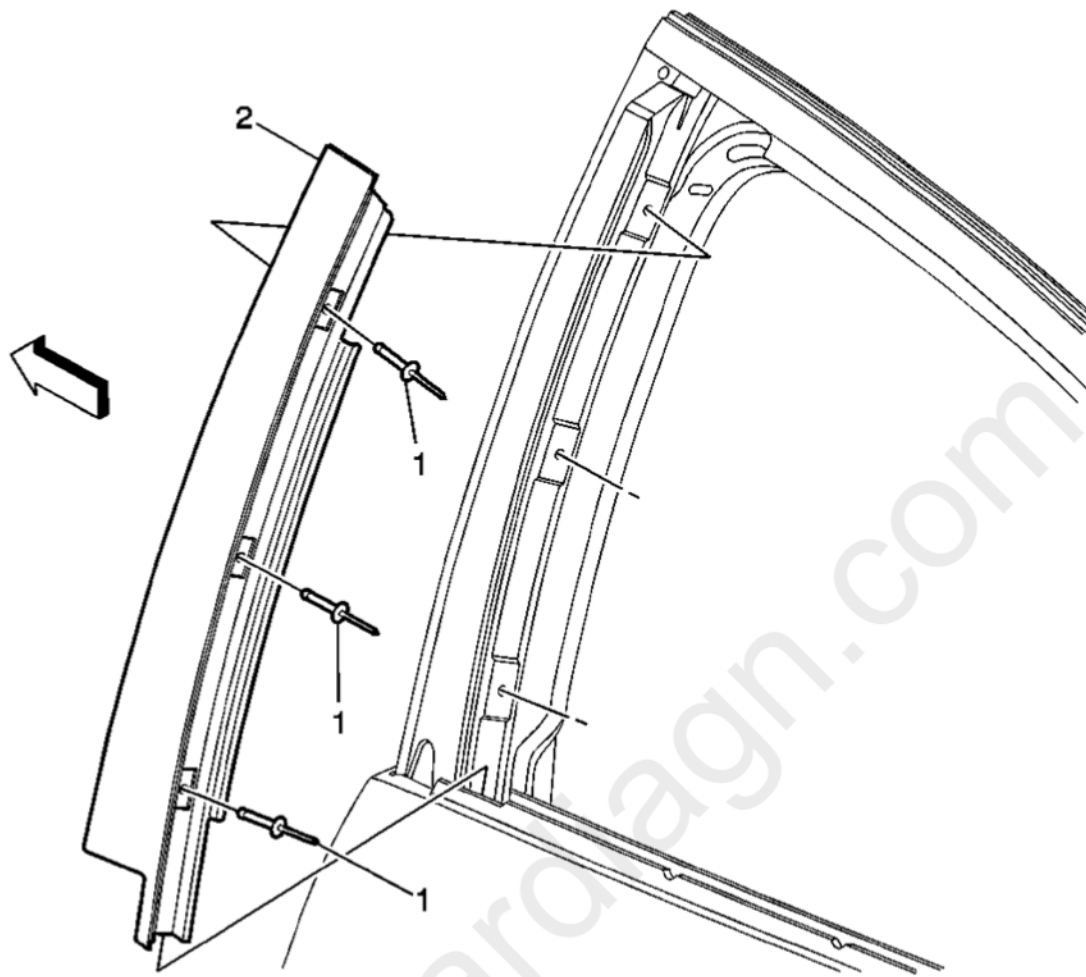


Fig. 19: View Of Rear Side Door Window Frame Front Applique
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove the rear side door window. Refer to <u>Rear Side Door Window Replacement</u> .	
1	Rear Side Door Window Frame Front Applique Fastener (Qty: 3) ARNIN R <u>la a d S M a l a d l i a i</u>
	Procedure 1. Pull the rear side door window weatherstrip from the front applique to expose the rivets. 2. When drilling cover protect the interior trim and door from the metal shavings. 3. Using a suitable tool, drill out the rivets from the front of the rear door frame

	appli ue.
2	Rear Side Door Window Frame Front Appli ue Procedure: se a suitable tool, install the rivets in the front side door frame.

REAR SIDE DOOR WINDOW FRAME REAR APPLIQUE REPLACEMENT

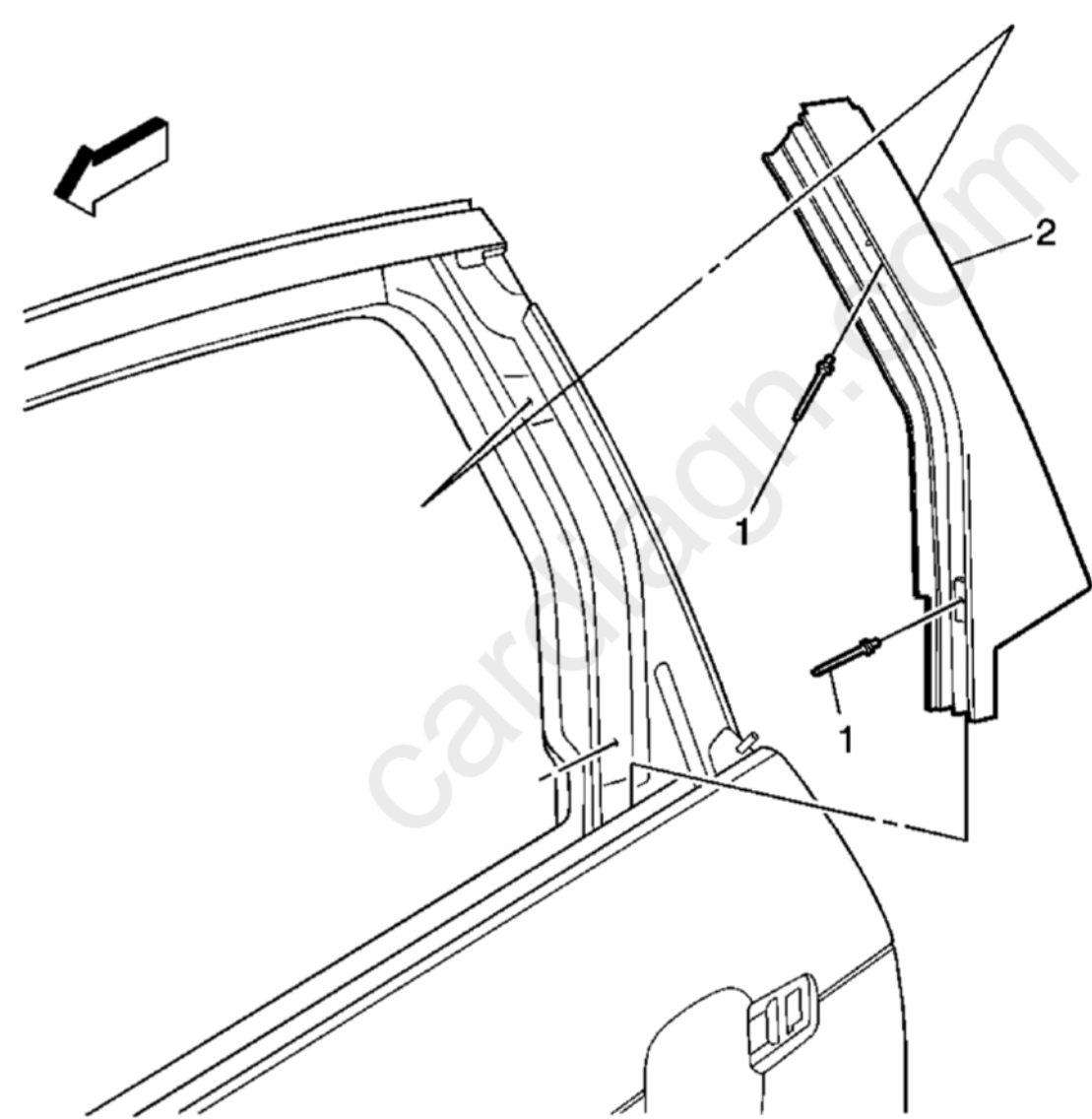


Fig. 20: View Of Rear Side Door Window Frame Rear Applique
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove the rear side door window belt reveal molding. Refer to Rear Side Door Window Belt Reveal	

Molding Replacement.

1	Rear Side Door Window Frame Rear Appli ue Fastener (Qty: 2) ARNIN R <u>la a d S M al a dli a i</u> Procedure 1. Lower the window to the fully down position. 2. Pull the rear side door window weatherstrip from the front appli ue to e pose the rivets. 3. When drilling cover protect the interior trim and door from the metal shavings. 4. sing a suitable tool, drill out the rivets from the rear door frame appli ue.
2	Rear Side Door Window Frame Rear Appli ue Procedure: se a suitable tool, install the rivets in the rear side door frame.

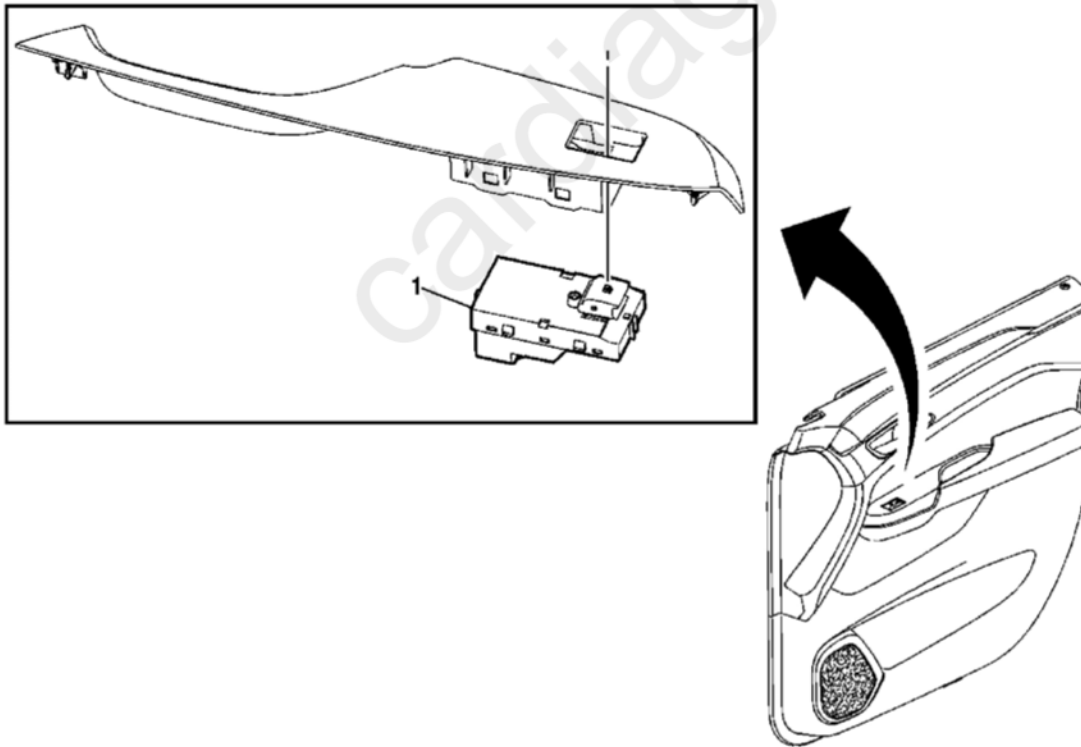
FRONT SIDE DOOR WINDOW SWITCH REPLACEMENT

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

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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 Side Door Window Switch Assembly Procedure 1. Disconnect the electrical connectors. 2. Refer to <u>Control Module References</u>.

FRONT SIDE DOOR WINDOW AND MULTIFUNCTION SWITC REPLACEMENT

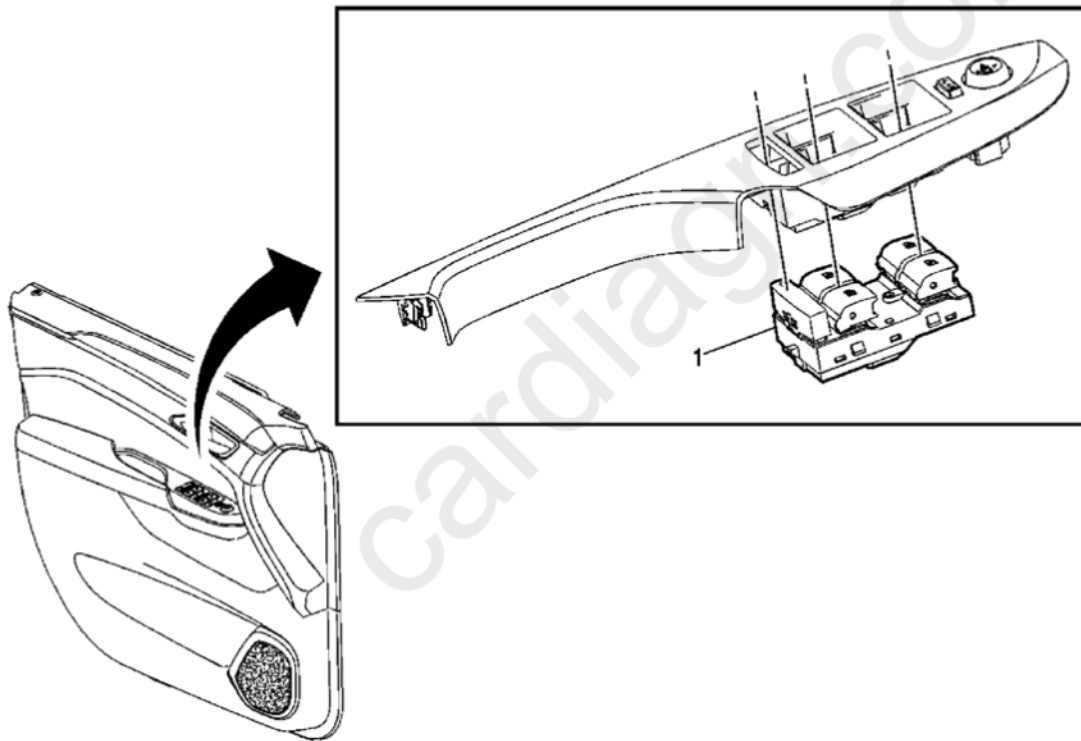


Fig. 22: Identifying Front Side Door Window and Multifunction Switch
Courtesy of GENERAL MOTORS CORP.

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> .	
	Front Window and Multifunction Switch Assembly Procedure

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1

1. Disconnect the electrical connectors.
2. Refer to **Control Module References**.

REAR SIDE DOOR WINDOW SWITC REPLACEMENT

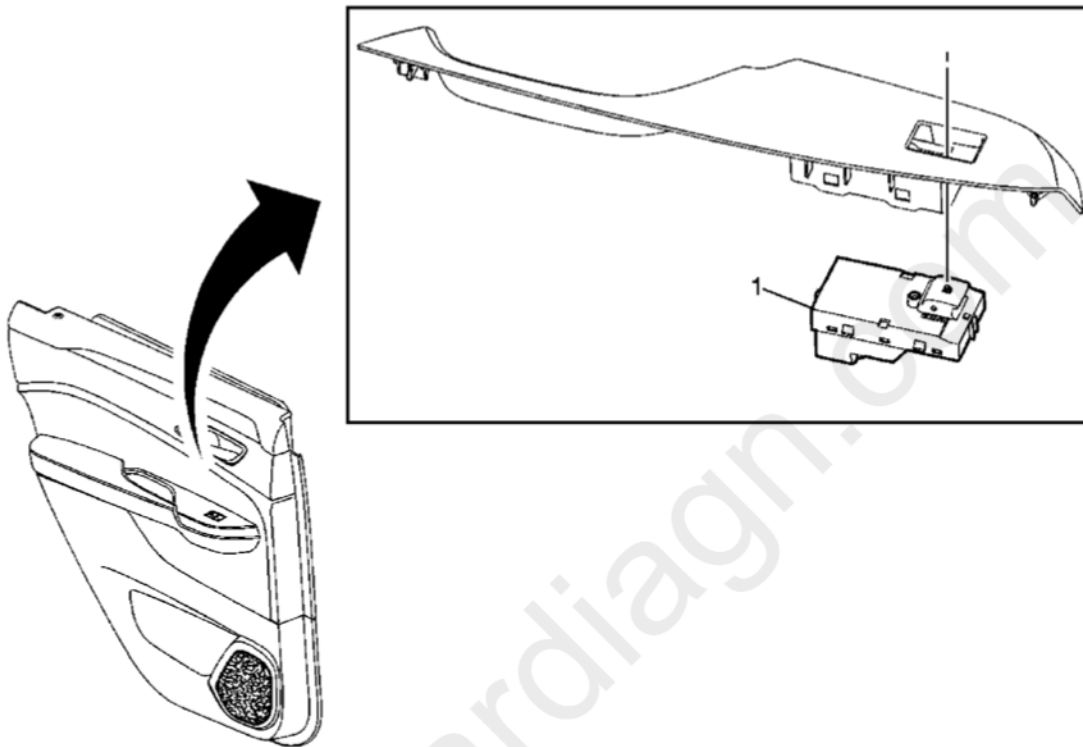


Fig. 23: Identifying Rear Side Door Window Switch
Courtesy of GENERAL MOTORS CORP.

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 set up procedures.

FRONT SIDE DOOR WINDOW REGULATOR REPLACEMENT

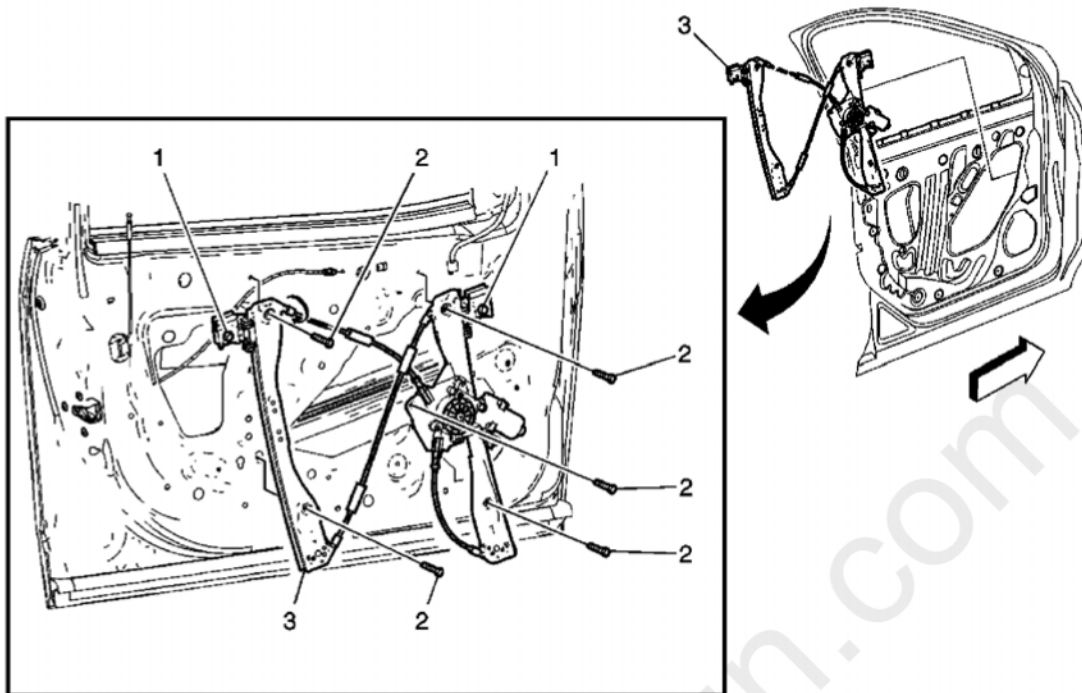


Fig. 2 : Identifying Front Side Door Window Regulator
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures: Remove the front side door trim panel. Refer to Front Side Door Trim Replacement	
1	Front Side Door Window Regulator Guide Nuts to Window (Qty: 2) CAUTION R a Ca i Procedure: Remove the front side door water deflector. Tighten: 11 N.m (98 lb in)
2	Front Side Door Window Regulator Bolts (Qty: 5) Procedure 1. Position window to access the front side door window regulator guide bolts. Loosen the nuts on the window regulator guide. 2. Raise the window to the fully up position, tape in place.

Tighten: 10 N.m (89 lb in)

Front Side Door Window Regulator

Procedure

3

1. Disconnect the electrical connector from the motor.
2. The window regulator motor is not serviceable.
3. When installing a new window regulator, remove the two window regulator guides bolts.
4. The window regulator guides must be raised to meet the window before installing the window regulator guides bolts.

REAR SIDE DOOR WINDOW REGULATOR REPLACEMENT

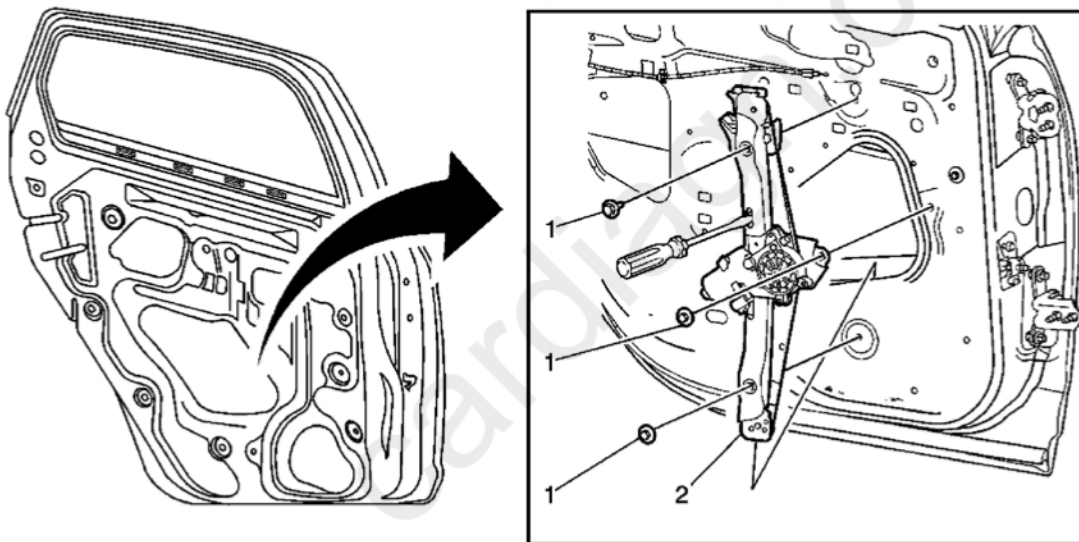


Fig. 2 : Identifying Rear Side Door Window Regulator

Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures: Remove the rear side door trim panel. Refer to <u>Rear Side Door Trim Replacement</u>	
	Rear Side Door Window Regulator Guide Fasteners (Qty: 3)
	CAUTION R <u> a </u> <u> Ca </u> <u> i </u>
	Procedure

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1	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. Tighten: 11 N.m (98 lb in)
2	Rear Side Door Window Regulator CAUTION R a Ca i Procedure: Disconnect the electrical connector from the motor.

REAR SIDE DOOR WINDOW REGULATOR MOTOR REPLACEMENT

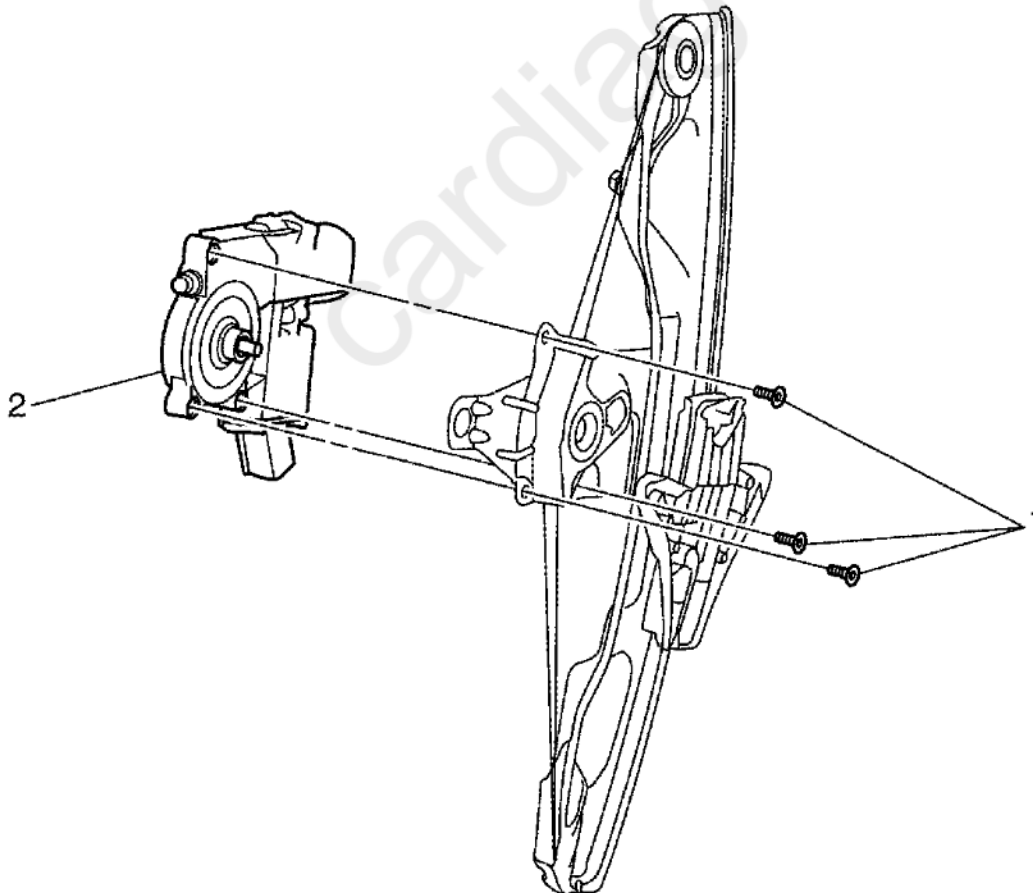


Fig. 2 : View Of Rear Side Door Window Regulator Motor & Bolts

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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 Replacement</u>. 2. Remove the rear side door window regulator. Refer to <u>Rear Side Door Window Regulator Replacement</u>.	
1	Rear Side Door Window Regulator Motor Fastener (Qty: 3) CAUTION R a Ca i Tighten: 10 N.m (89 lb in)
2	Rear Side Door Window Regulator Motor Procedure: Disconnect the electrical connector from the motor.

FRONT SIDE DOOR WINDOW INNER SEALING STRIP REPLACEMENT

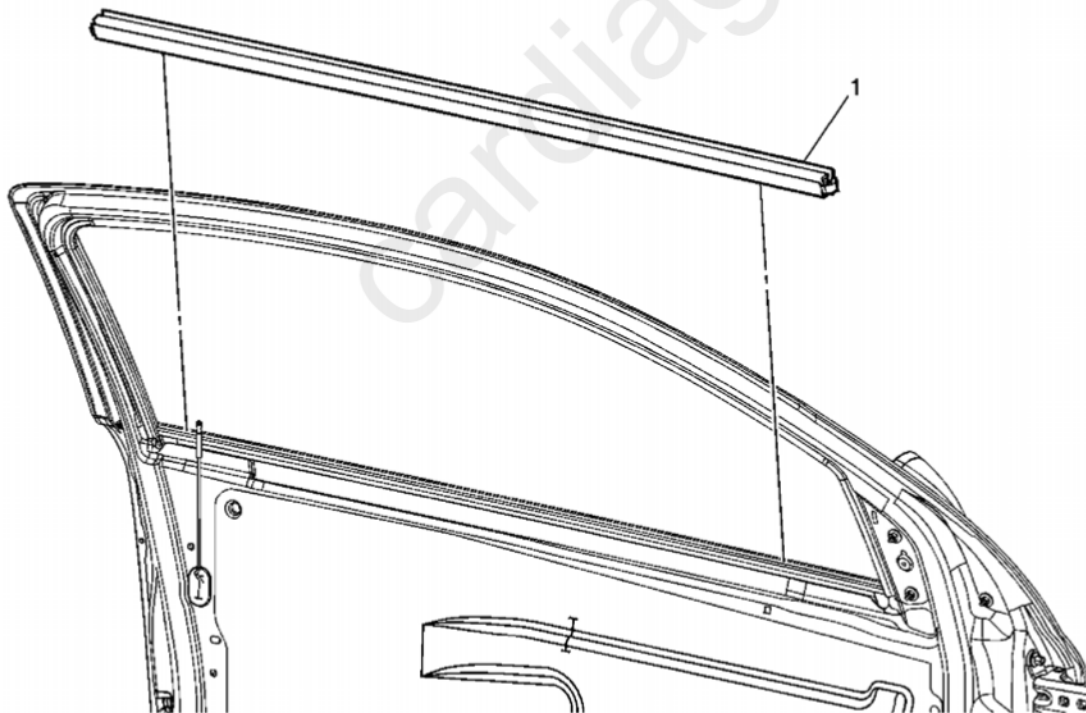


Fig. 27: Identifying Front Door Window Belt Inner Sealing Strip
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
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Preliminary Procedure:

Remove the front side door trim panel. Refer to **Front Side Door Trim Replacement**

Front Side Door Window Inner Sealing Strip**Procedure**

1. Lift the front door window inner belt sealing strip off the pinch-weld flange.
2. Position the window belt inner sealing strip to the door flange.
 - Ensure the front end of the window inner belt sealing strip is flush to the front door frame weatherstrip.
 - Use hand pressure in order to firmly seat the front door window inner belt sealing strip on the pinch-weld flange.

Tip: Inspect the front door window for proper operation before installing the trim panel.

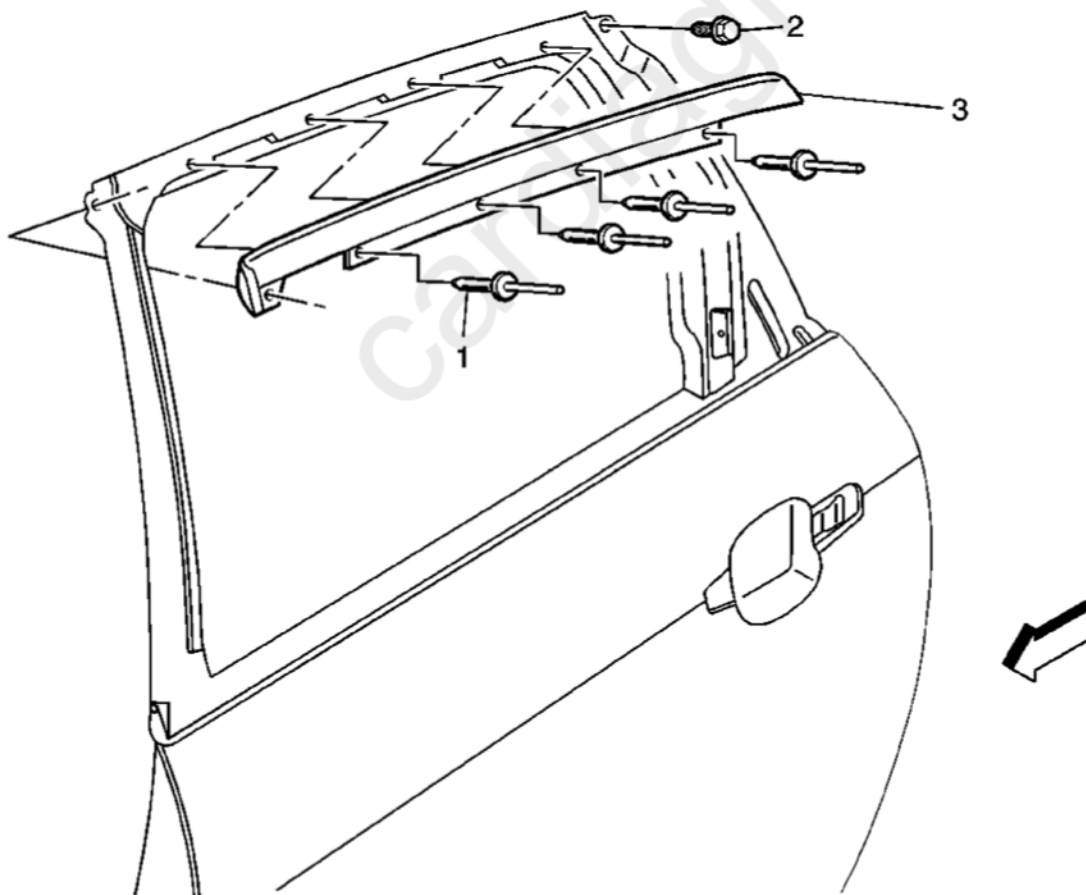
REAR SIDE DOOR WINDOW UPPER REVEAL MOLDING REPLACEMENT

Fig. 28: Identifying Rear Side Door Window Upper Reveal Molding & Rivets

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2010 ACCESSORIES & EQUIPMENT Fixed and Moveable Windows - SRX

Courtesy of GENERAL MOTORS CORP.

Callouts	Component Name
	Rear Side Door Window Upper Reveal Molding Rivets (Qty: 4) ARNIN R <u>la a d S M al a dli a i</u>
1	Procedure 1. Lower the window to the fully down position. 2. Peel off the door frame front and rear applique. 3. Lower the run channel weatherstrip, by grasping both upper inner corners and pull downward to expose the rivets. Do Not remove it from the door. 4. When drilling cover/protect the interior trim and door from the metal shavings. 5. The rivets are located in the inner upper door frame. 6. Use a suitable tool, drill out the rivets from around the upper door frame.
2	Rear Side Door Window Upper Reveal Molding Screw
3	Rear Side Door Window Upper Reveal Molding

REAR SIDE DOOR WINDOW BELT REVEAL MOLDING REPLACEMENT

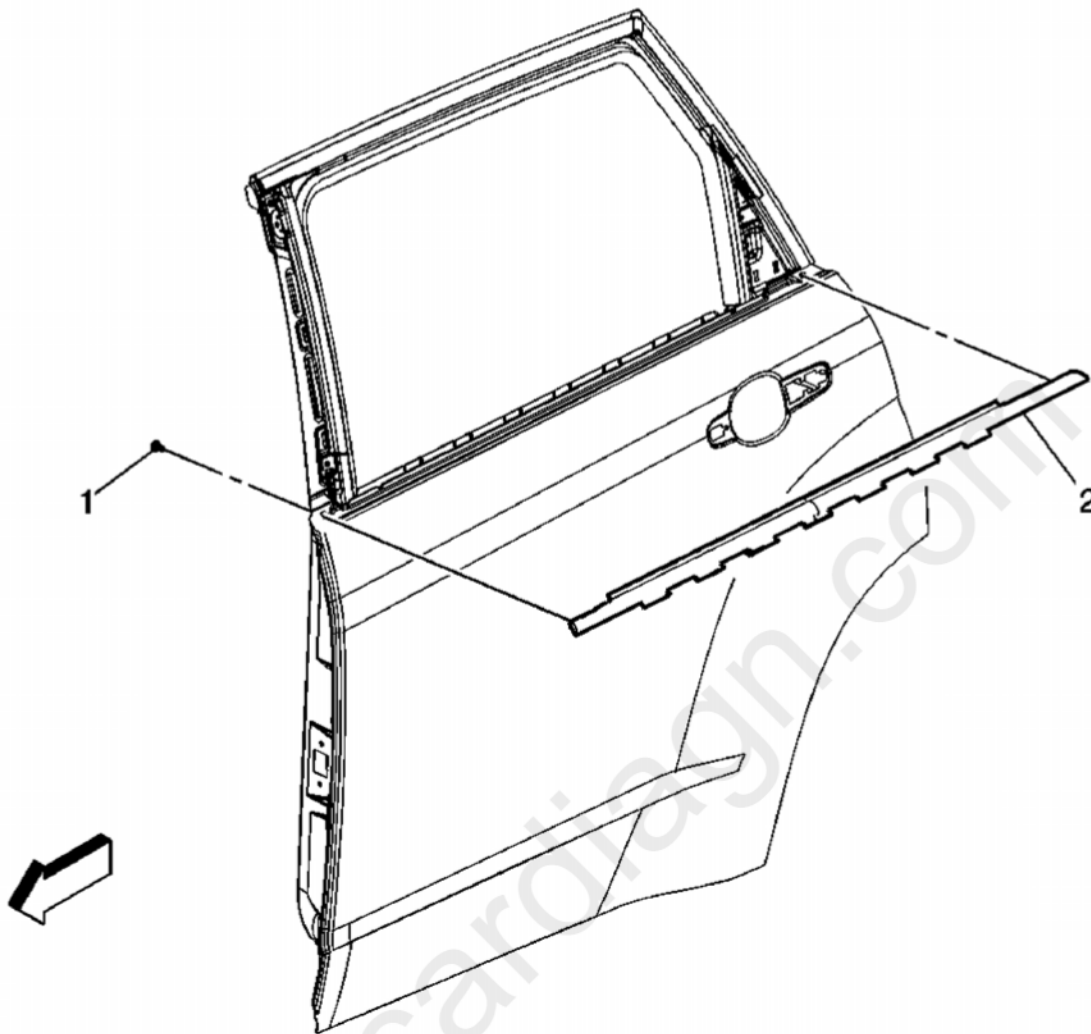


Fig. 29: View Of Rear Door Window Belt Outer Sealing Strip
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
1	Rear Side Door Window Belt Reveal Molding Screws (Qty: 2) CAUTION R a Ca i Tighten: 1.5 N.m (13 lb in)
2	Rear Side Door Window Belt Reveal Molding Procedure 1. Remove the belt reveal molding by lifting up at one end, working from the rear of the

door.

2. When re-installing, align belt reveal fastener location with hole in door structure and outer panel retaining tabs.
3. Start at rear of belt reveal molding, push down onto flange until fully seated.

FRONT SIDE DOOR WINDOW BELT REVEAL MOLDING REPLACEMENT

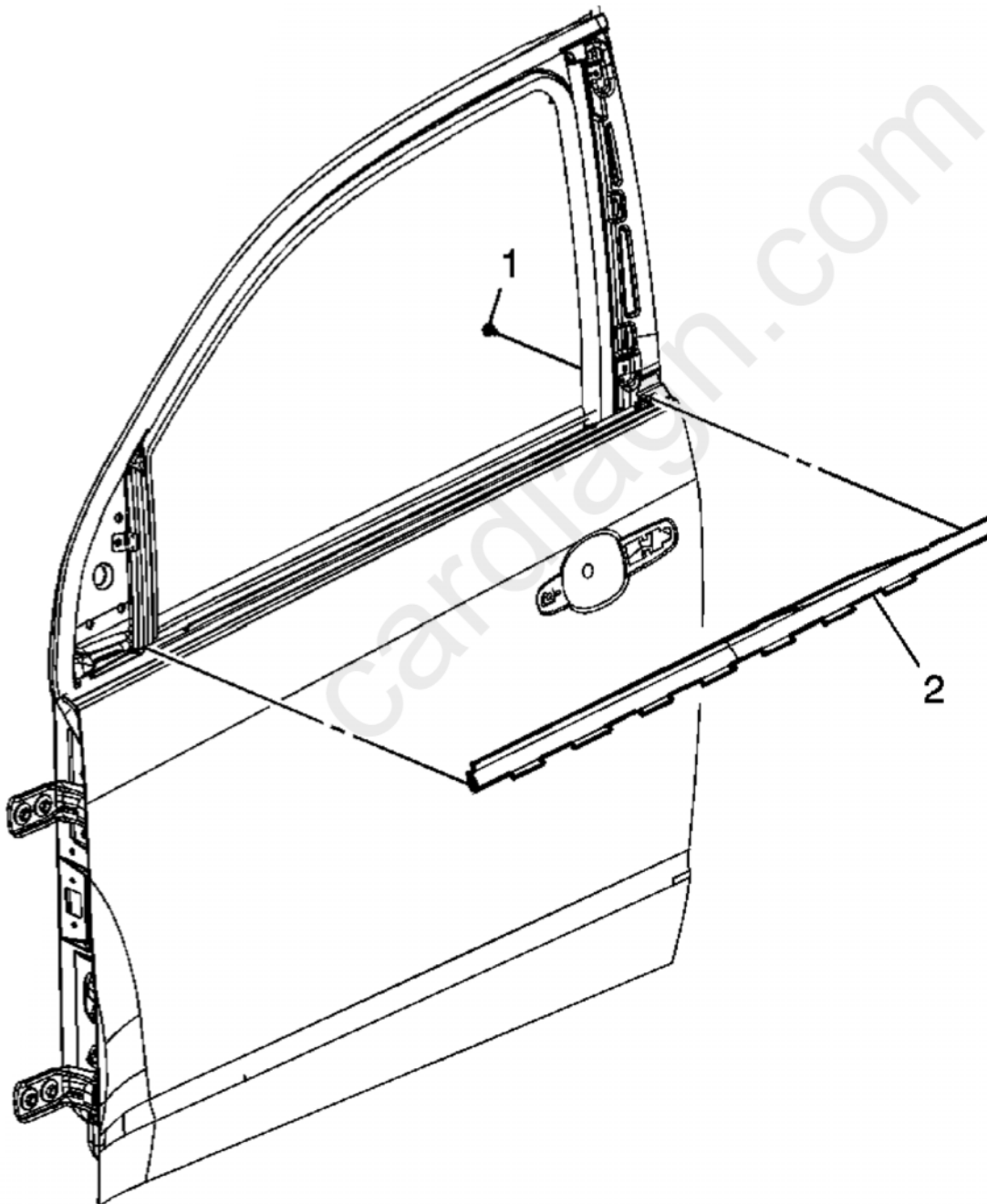


Fig. 30: View Of Front Side Door Window Belt Outer Sealing Strip

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2010 ACCESSORIES & EQUIPMENT Fixed and Moveable Windows - SRX

Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure 1. Remove the front side door trim panel. Refer to Front Side Door Trim Replacement 2. Remove the outside rearview mirror. Refer to Outside Rear View Mirror Replacement	
1	Front Side Door Window Belt Reveal Molding Screw CAUTION Remove the Caution Tip: The screw is located in the lower rear of the door frame. Tighten: 1.5 N.m (13 lb in)
2	Front Side Door Window Belt Reveal Molding Procedures 1. Remove the belt reveal molding by lifting up on the front of the seal and working rearward. 2. When re-installing the belt reveal molding, align the fastener with the locating hole in the door frame.

FRONT SIDE DOOR WINDOW UPPER REVEAL MOLDING REPLACEMENT

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2010 ACCESSORIES & EQUIPMENT Fixed and Moveable Windows - SRX

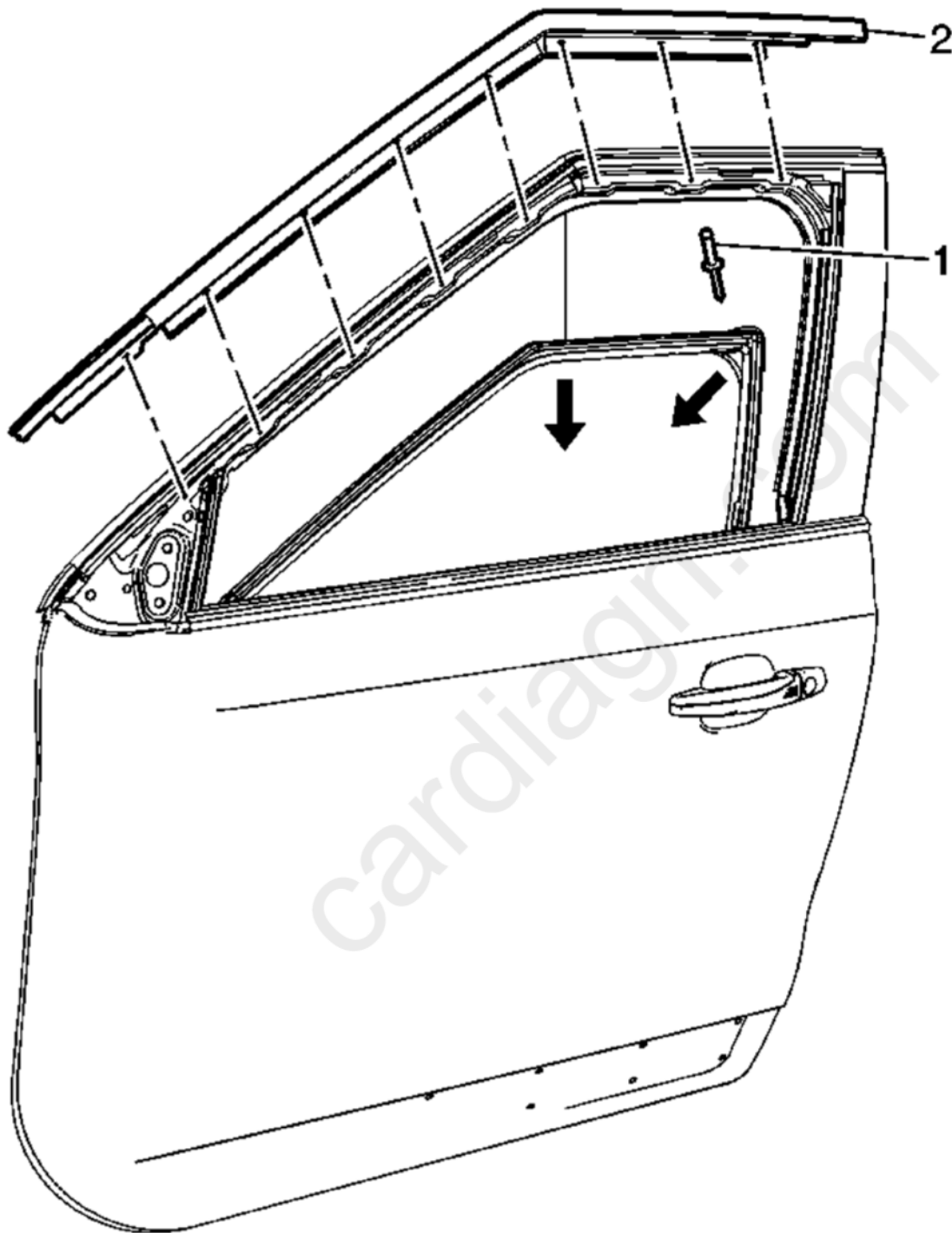


Fig. 3 : View Of Front Side Door Window Upper Rear Molding
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures:	

Remove the outside rearview mirror. Refer to **Outside Rear View Mirror Replacement**.

1	Front Side Door Window Upper Reveal Molding Rivets (Qty: 8) ARNIN R <u>la a d S M a l a d l i a i</u> Procedure 1. Lower the window to the fully down position. 2. Peel off the front side door window rear applique. 3. Lower the run channel weatherstrip, by grasping both upper inner corners and pull downward to expose the rivets. Do Not remove it from the door. 4. When drilling cover/protect the interior trim and door from the metal shavings. 5. The rivets are located in the inner upper door frame. 6. Use a suitable tool, drill the rivets out from around the upper door frame.
2	Front Side Door Window Upper Reveal Molding Procedure: Using a suitable tool, install the rivets in the upper door frame. When installing the rivets start in the upper corner of the door frame working forward.

REAR SIDE DOOR WINDOW INNER SEALING STRIP REPLACEMENT

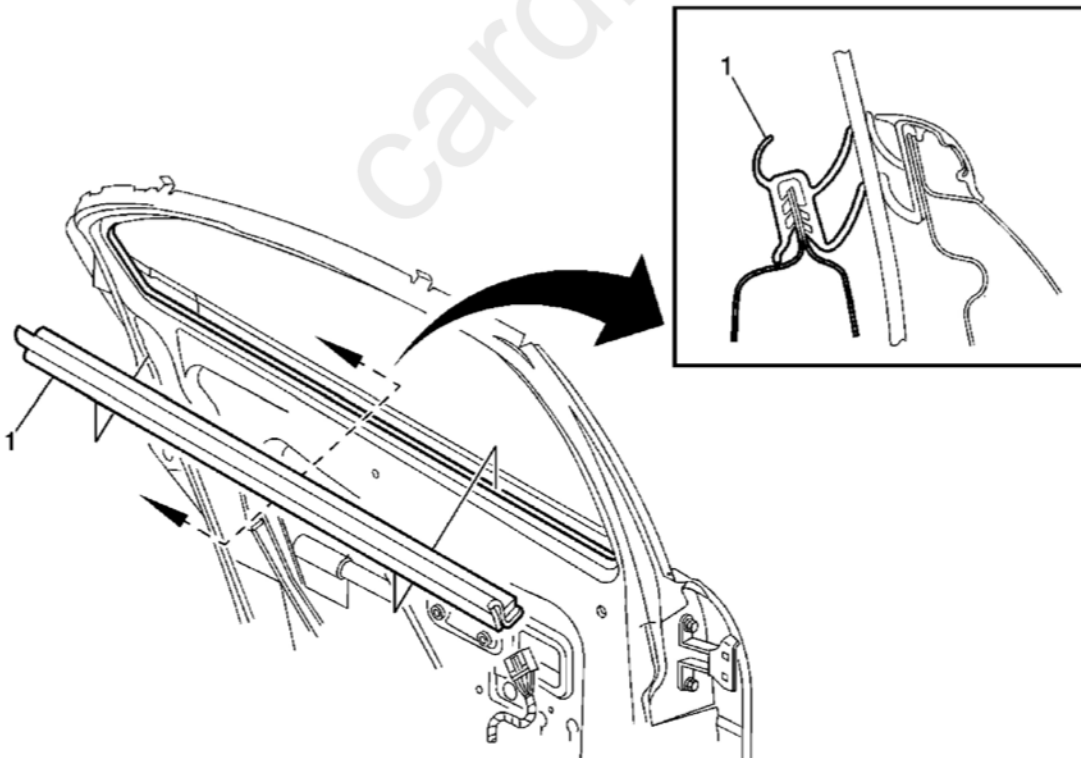


Fig. 3 : View Of Rear Side Door Window Inner Sealing Strip
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove the interior trim panel. Refer to Rear Side Door Trim Replacement	
1	Rear Side Door Window Inner Sealing Strip Procedure 1. Lift the inner belt sealing strip off the pinch-weld flange. 2. Position the inner sealing strip to the door flange. • Ensure the rear end of the inner sealing strip is flush to the rear door frame weatherstrip. • Use hand pressure in order to firmly seat the inner belt sealing strip on the pinch-weld flange. • Inspect the door window for proper operation.

FRONT SIDE DOOR WINDOW WEATHERSTRIP REPLACEMENT

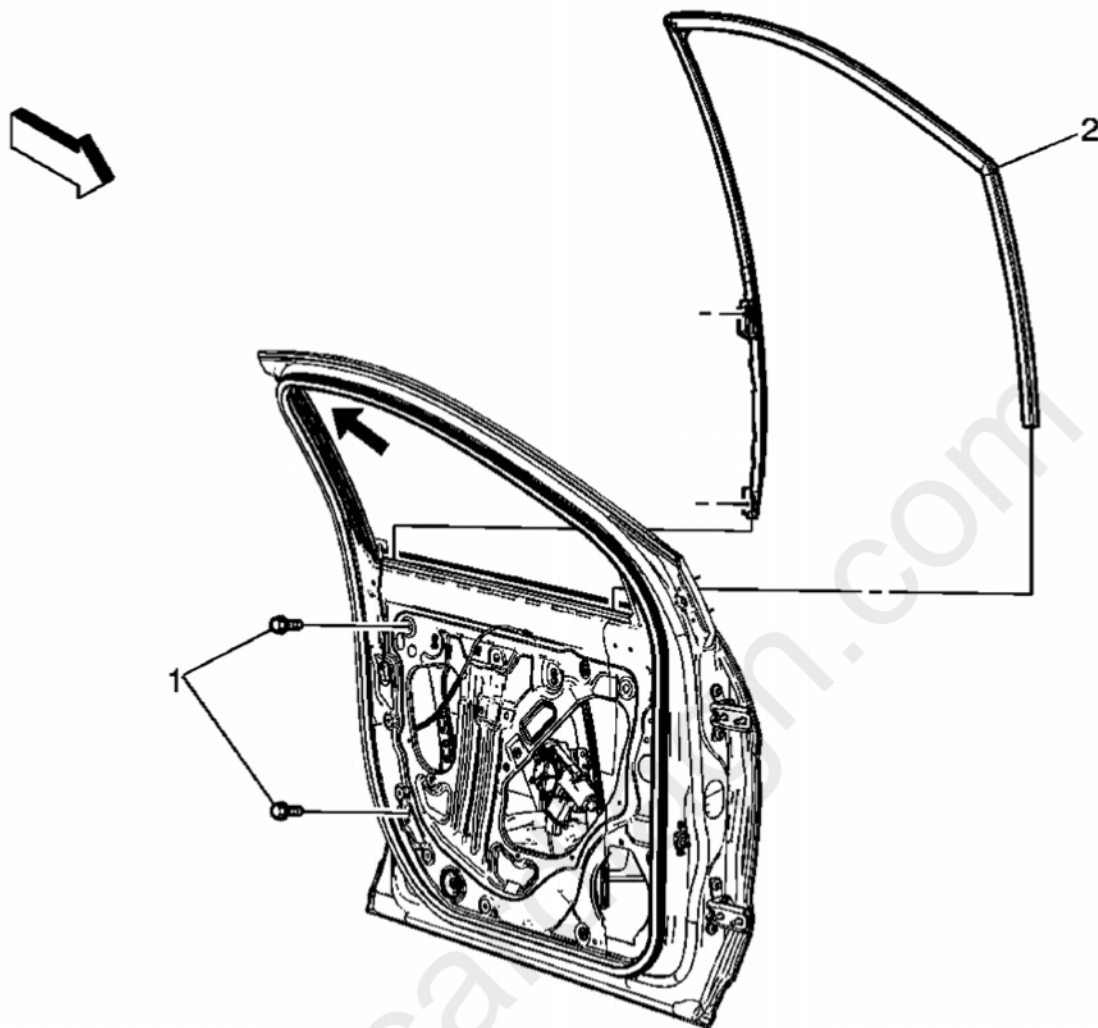


Fig. 33: Identifying Front Side Door Window Weatherstrip
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure	
1.	Remove the front side door trim panel. Refer to <u>Front Side Door Trim Replacement</u>
2.	Remove the front side door window inner sealing strip. Refer to <u>Front Side Door Window Inner Sealing Strip Replacement</u>
3.	Remove the front side door window garnish molding. Refer to <u>Front Side Door Window Garnish Molding Replacement</u>
4.	Remove the front side door window. Refer to <u>Front Side Door Window Replacement</u> .
	Front Side Door Window Weatherstrip Fastener (Qty: 2) Procedure: Remove the water deflector.

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1	CAUTION R <u>a</u> Ca i Tighten: 10 N.m (89 lb in)
2	Front Side Door Window Weatherstrip Procedure 1. Starting in the upper corner of the door frame, pull the weatherstrip away from the window frame and lower front channel. 2. Center the weatherstrip in the center of the door frame. Work the weatherstrip towards the corner. 3. Install the weatherstrip into door frame channel. 4. Operate the window to ensure that the window seal properly into the inner door frame.

REAR SIDE DOOR WINDOW WEATHERSTRIP REPLACEMENT

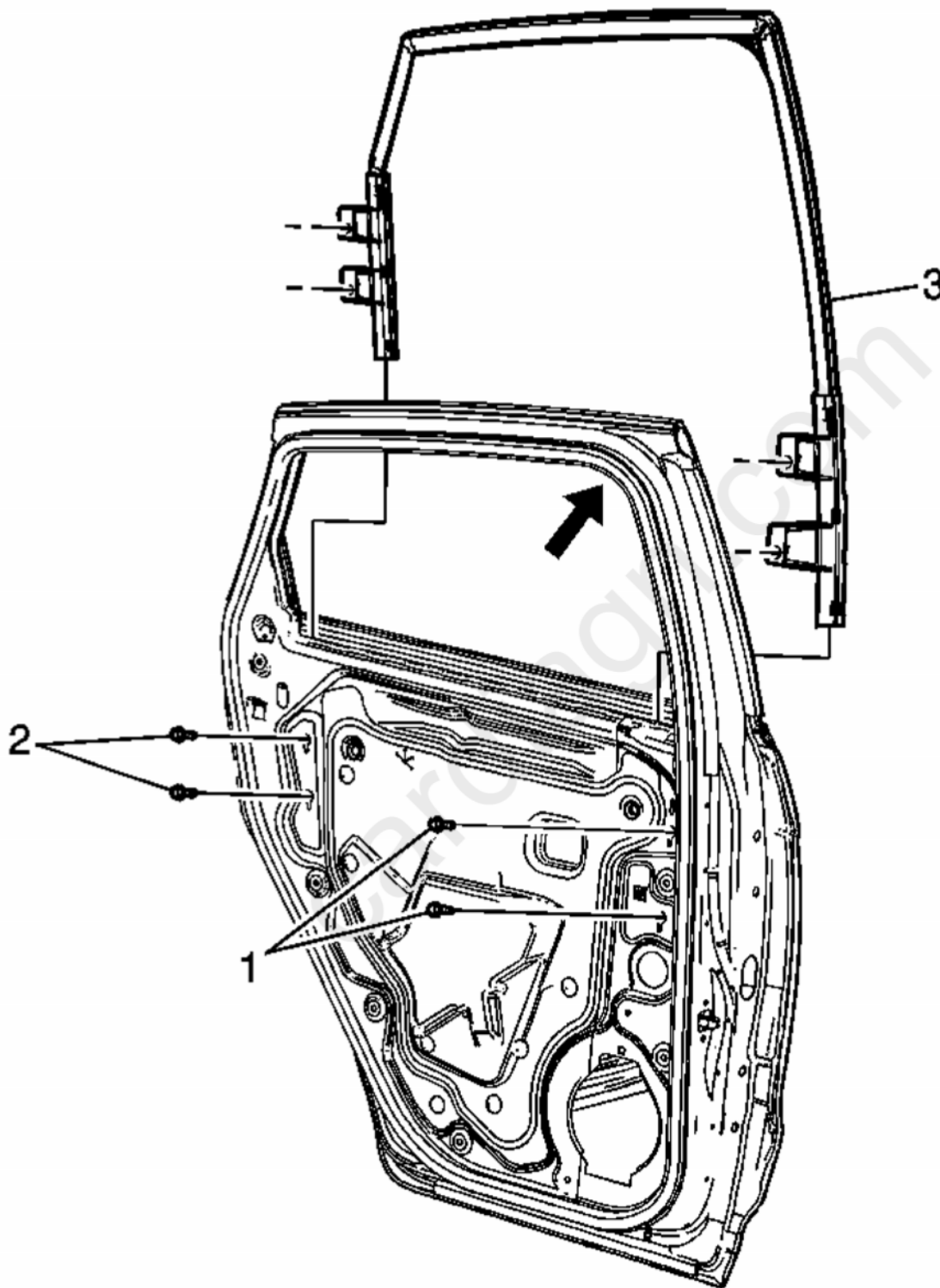


Fig. 34: View Of Rear Side Door Window Weatherstrip
Courtesy of GENERAL MOTORS CORP.

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Callout	Component Name
Preliminary Procedure	
1. Remove the rear side door trim panel. Refer to <u>Rear Side Door Trim Replacement</u> 2. Remove the rear side door window inner sealing strip. Refer to <u>Rear Side Door Window Inner Sealing Strip Replacement</u>. 3. Remove the rear side door window garnish molding. Refer to <u>Rear Side Door Window Garnish Molding Replacement</u> 4. Remove the rear side door window. Refer to <u>Rear Side Door Window Replacement</u>.	
1	Rear Side Door Window Weatherstrip Front Fasteners (Qty: 2) CAUTION R a Ca i Procedure: Remove the water deflector. Tighten: 10 N.m (89 lb in)
2	Rear Side Door Window Weatherstrip Rear Fasteners (Qty: 2) Tighten: 10 N.m (89 lb in)
3	Rear Side Door Window Weatherstrip Procedure 1. Starting in the upper corner of the door frame, pull the weatherstrip out of the window frame. 2. Center the weatherstrip in door frame. Work the weatherstrip towards the corners of the door frame. 3. Operate the window to ensure that the window seal properly into the inner door frame.

AD ESI E INSTALLATION OF WINDS IELDS

ARNIN R la a d S M al a dli a i

1. Use a urethane adhesive systems which meet GM Specification GM 3651G.
2. Remove all mounds or loose pieces of urethane adhesive from the pinch-weld area.
3. If the original window is being reused, remove all but approximately 2 mm (3/64 in) of the existing bead of urethane adhesive from the pinch-weld flange surface by using a clean utility knife or razor blade scraper.

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4. Inspect the pinch weld flange of the window opening for causes of a broken window.
5. Inspect for any of the following problems in order to help prevent future breakage of the window:
 - High weld
 - Solder spots
 - Hardened sealer
 - Any other obstruction or irregularity in the pinch-weld flange

NOTE

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

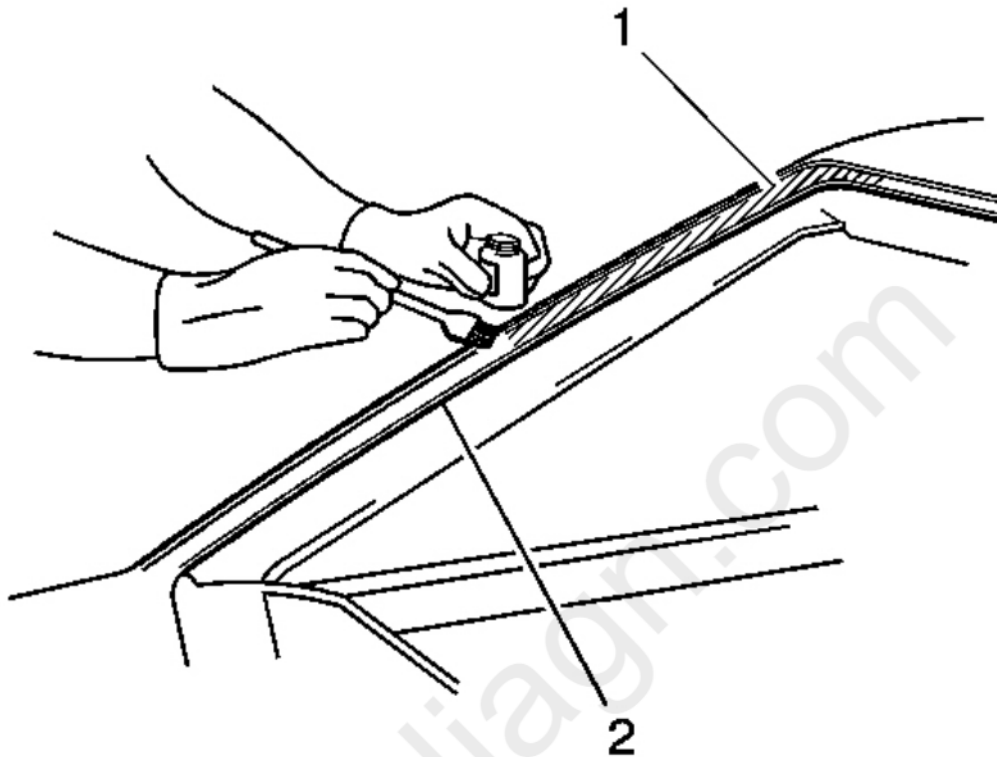


Fig. 3 : Applying Pinch-Weld Primer
Courtesy of GENERAL MOTORS CORP.

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

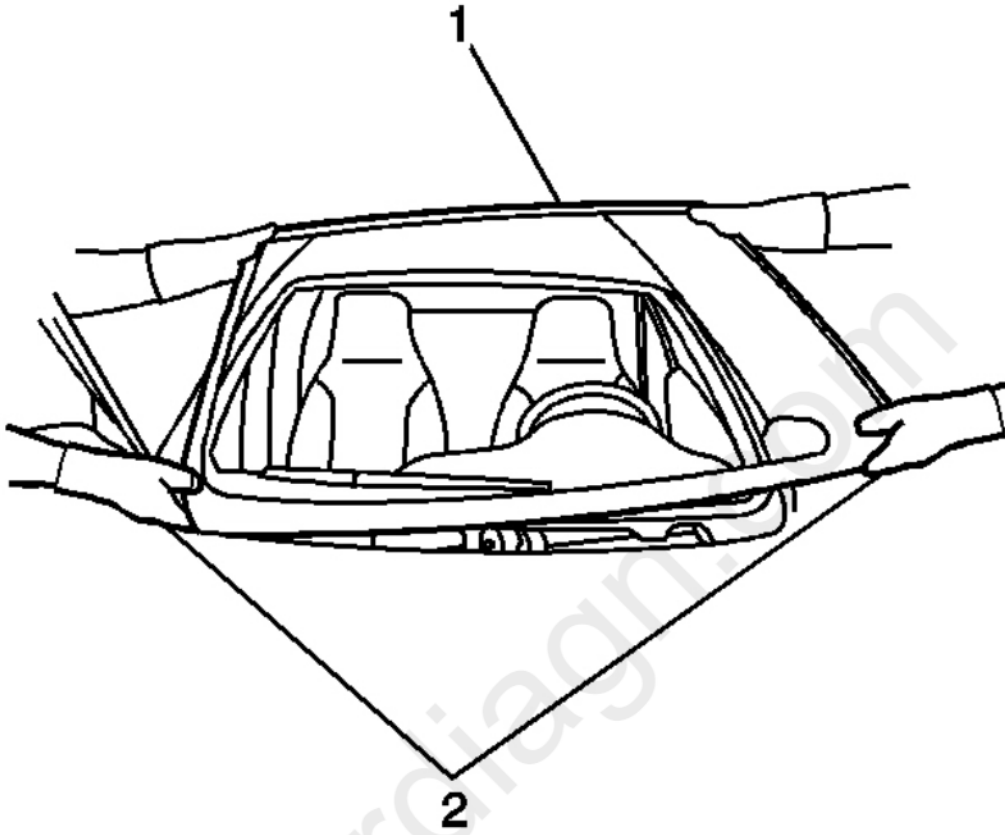


Fig. 36: Identifying Assistant & Windshield
Courtesy of GENERAL MOTORS CORP.

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

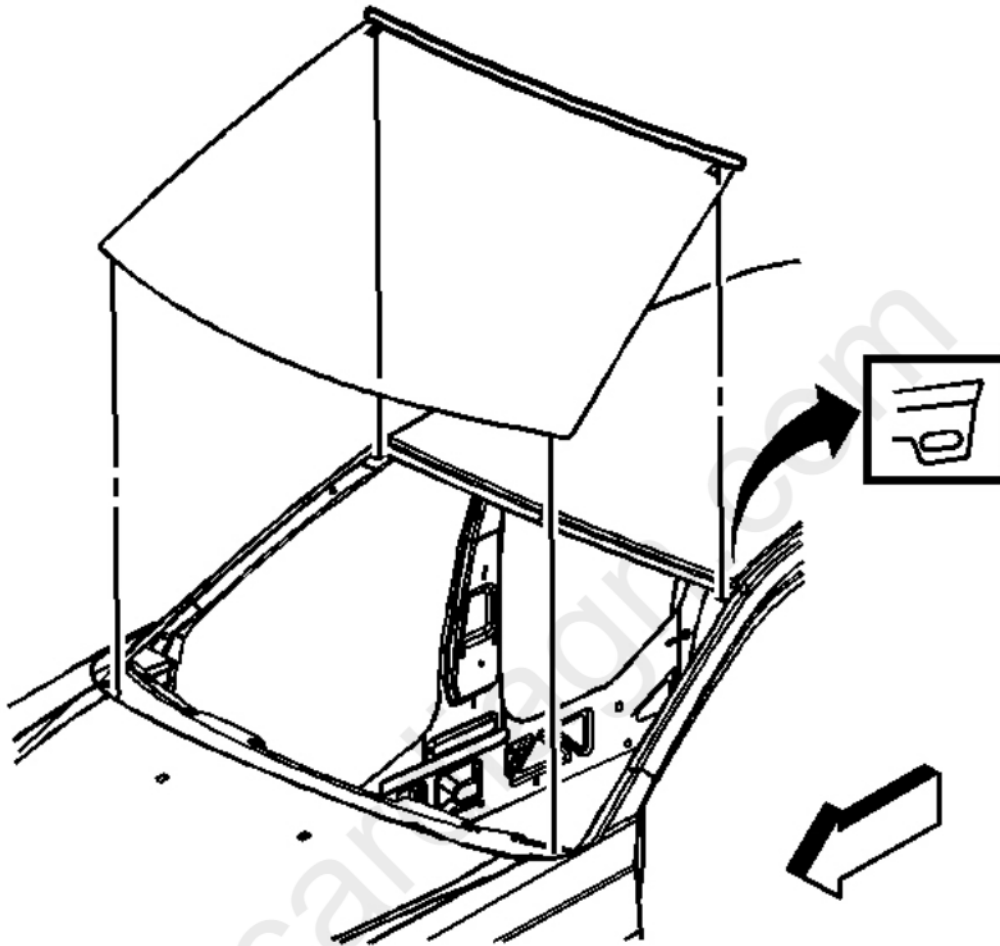


Fig. 37: Identifying Locator Slots On Upper Pinch-Weld Flange
Courtesy of GENERAL MOTORS CORP.

12. If equipped, ensure that the windshield locator pins are positioned into the locator slots on the upper pinch-weld flange.

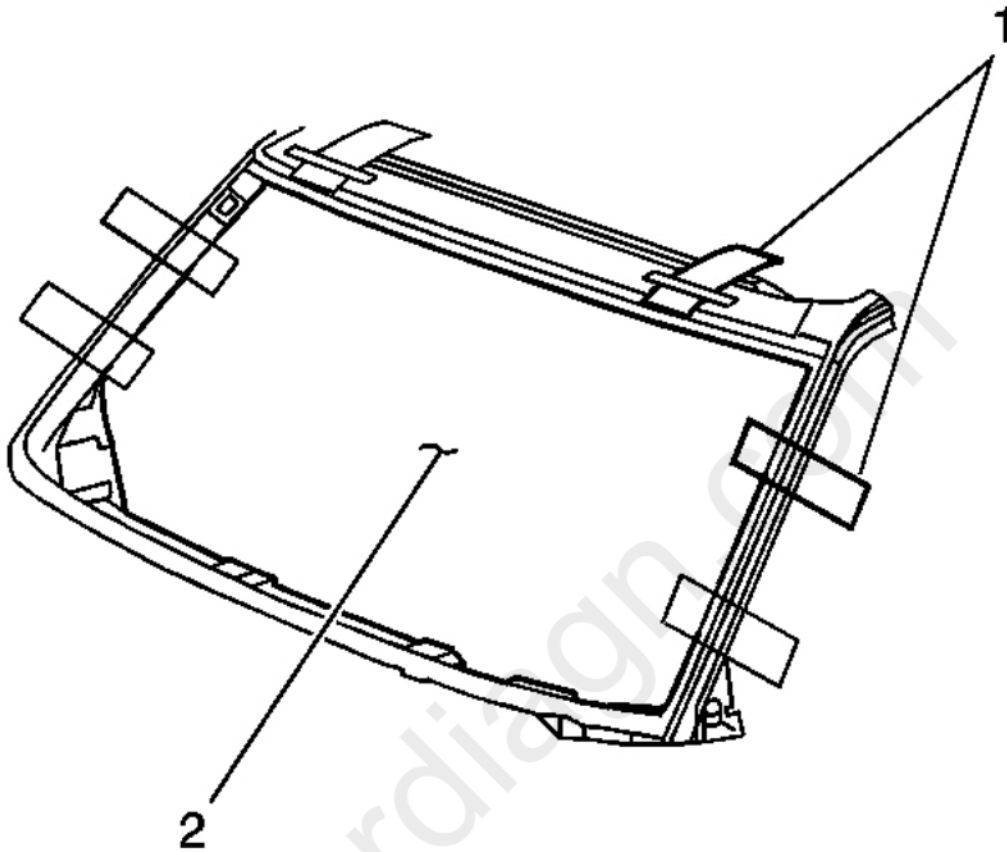


Fig. 38: View Of Aligning Tape Lines On Window To Body
Courtesy of GENERAL MOTORS CORP.

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

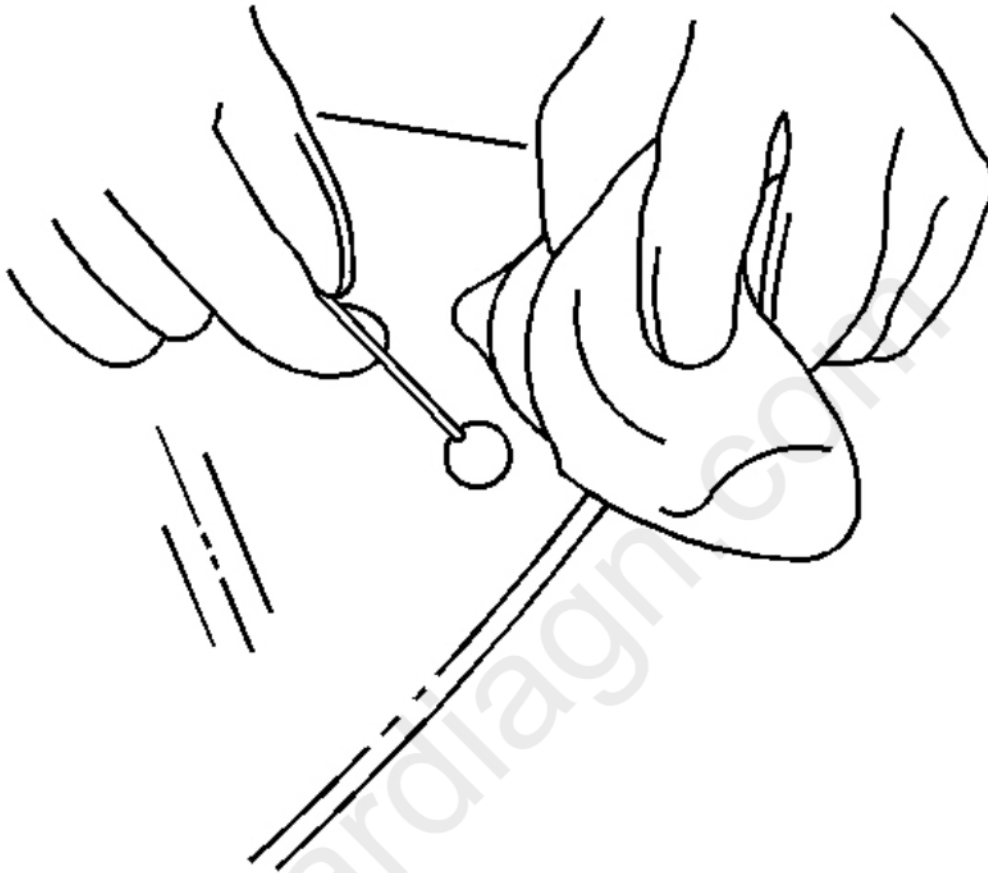


Fig. 39: Identifying Applying Glass Prep
Courtesy of GENERAL MOTORS CORP.

NOTE

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

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

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

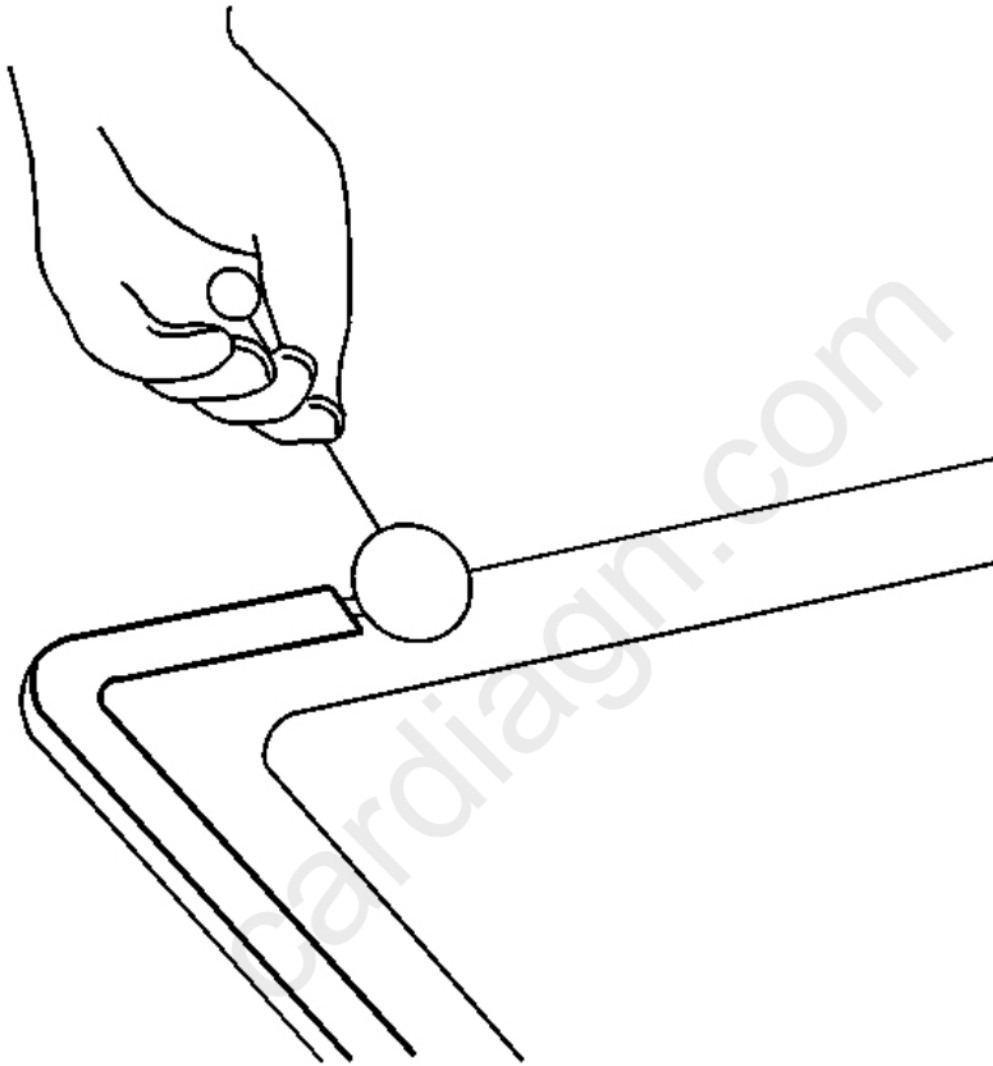


Fig. 40: View of Applying Glass Prep
Courtesy of GENERAL MOTORS CORP.

16. Apply a second coat of the window prep clear #1 to the same area of the window.

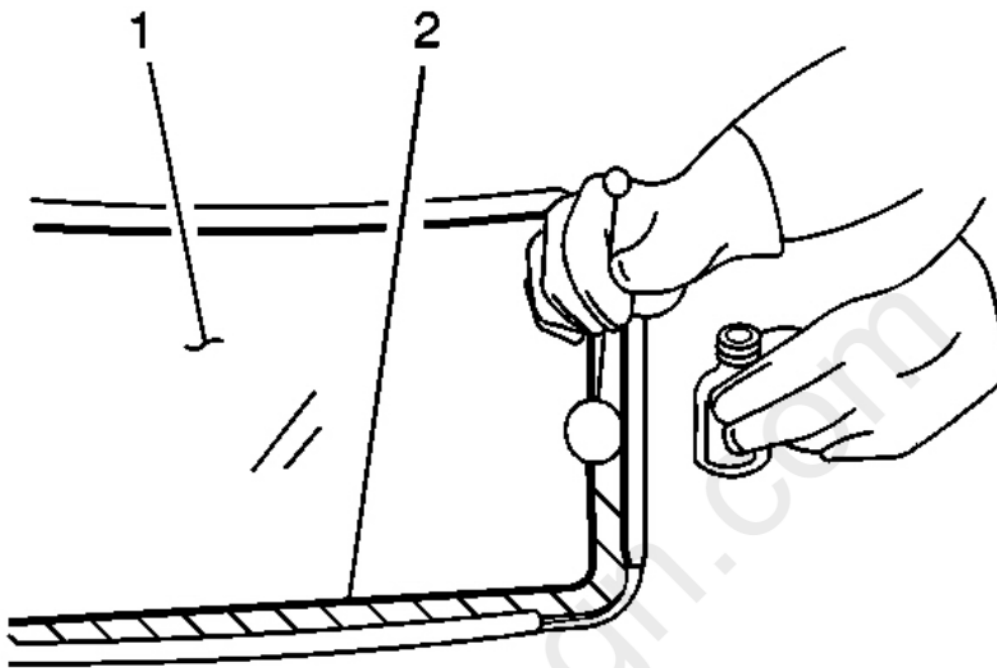


Fig. 4 : View of Applying Glass Primer
Courtesy of GENERAL MOTORS CORP.

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

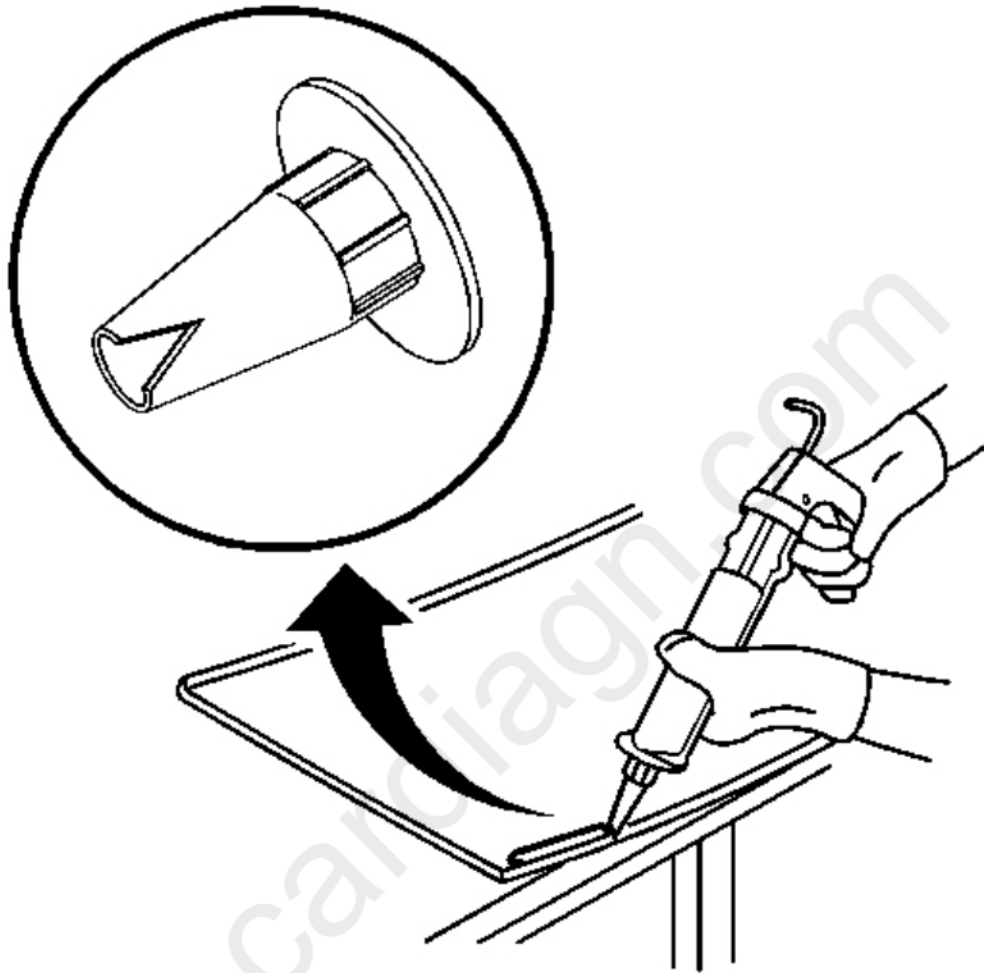


Fig. 4 : View Of Modified Applicator Nozzle
Courtesy of GENERAL MOTORS CORP.

20. Cut the applicator nozzle in order to provide a minimum urethane bead of 14 mm (0.55 in) wide and 14 mm (0.55 in) high.

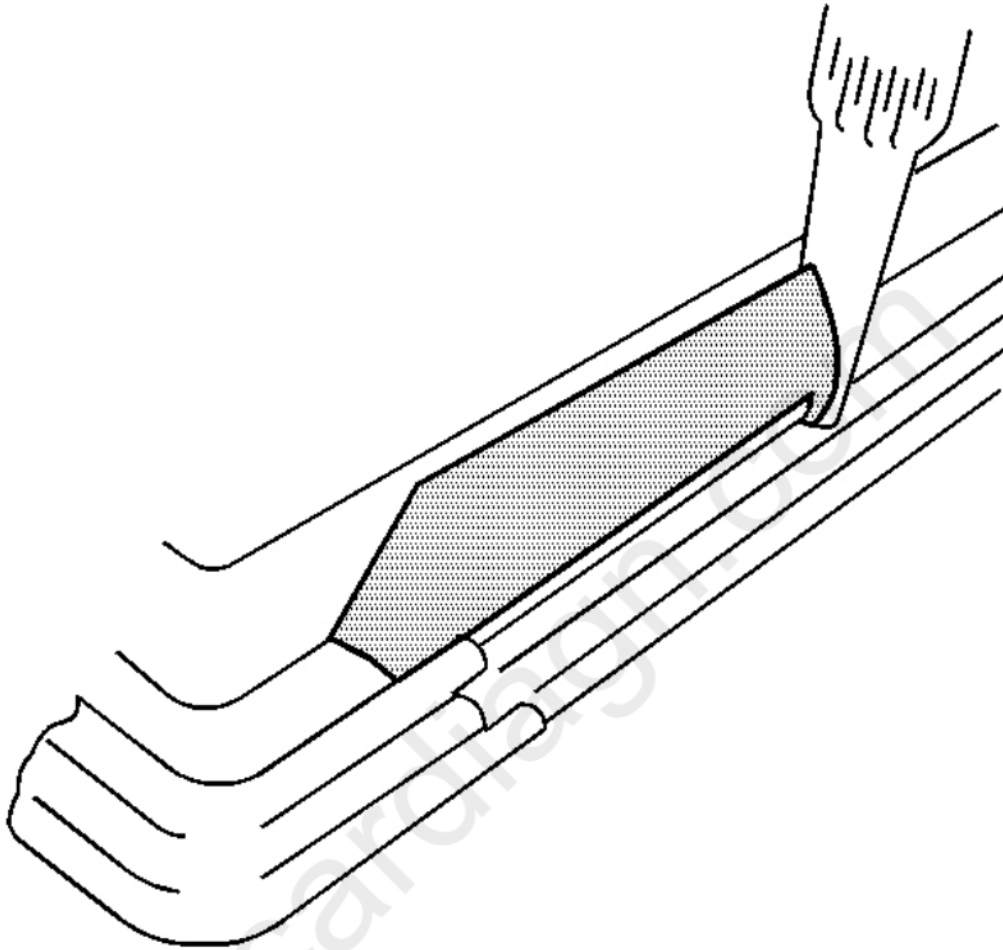


Fig. 4 : Applying Bead Of Urethane Adhesive
Courtesy of GENERAL MOTORS CORP.

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

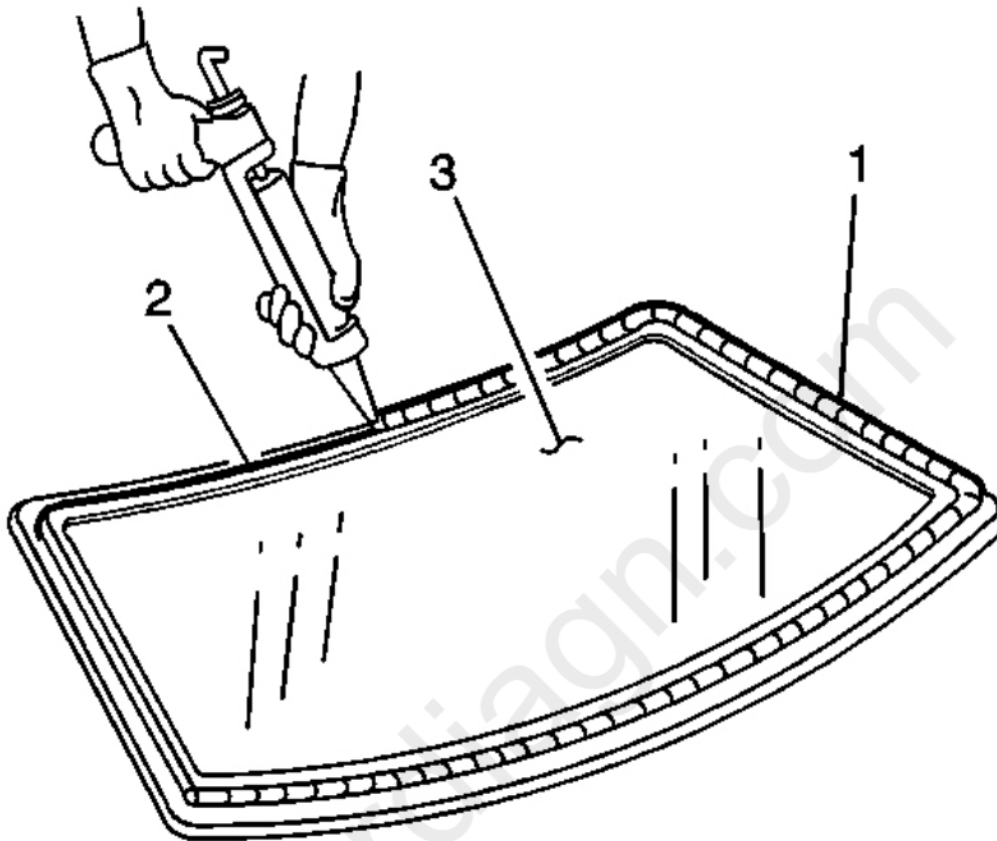


Fig. 44: View of Applying Urethane Adhesive To Inner Surface Of Window
Courtesy of GENERAL MOTORS CORP.

22. 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).

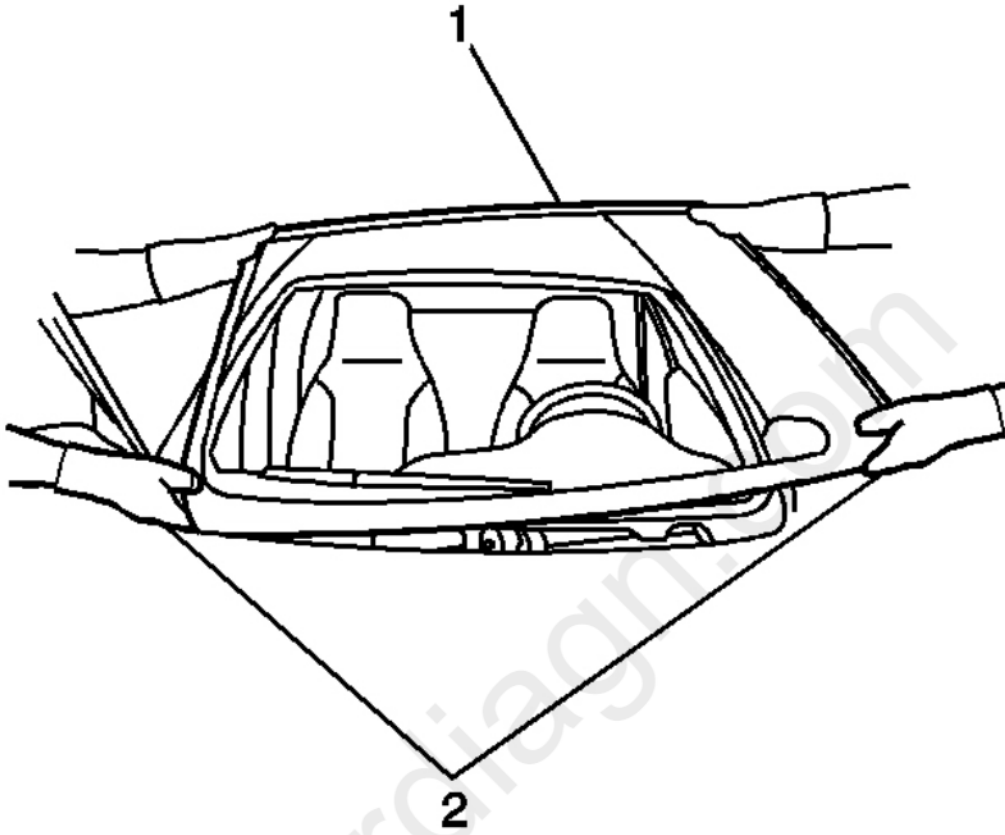


Fig. 4 : Identifying Assistant Windshield
Courtesy of GENERAL MOTORS CORP.

23. With the aid of an assistant, place the window (1) in the opening.

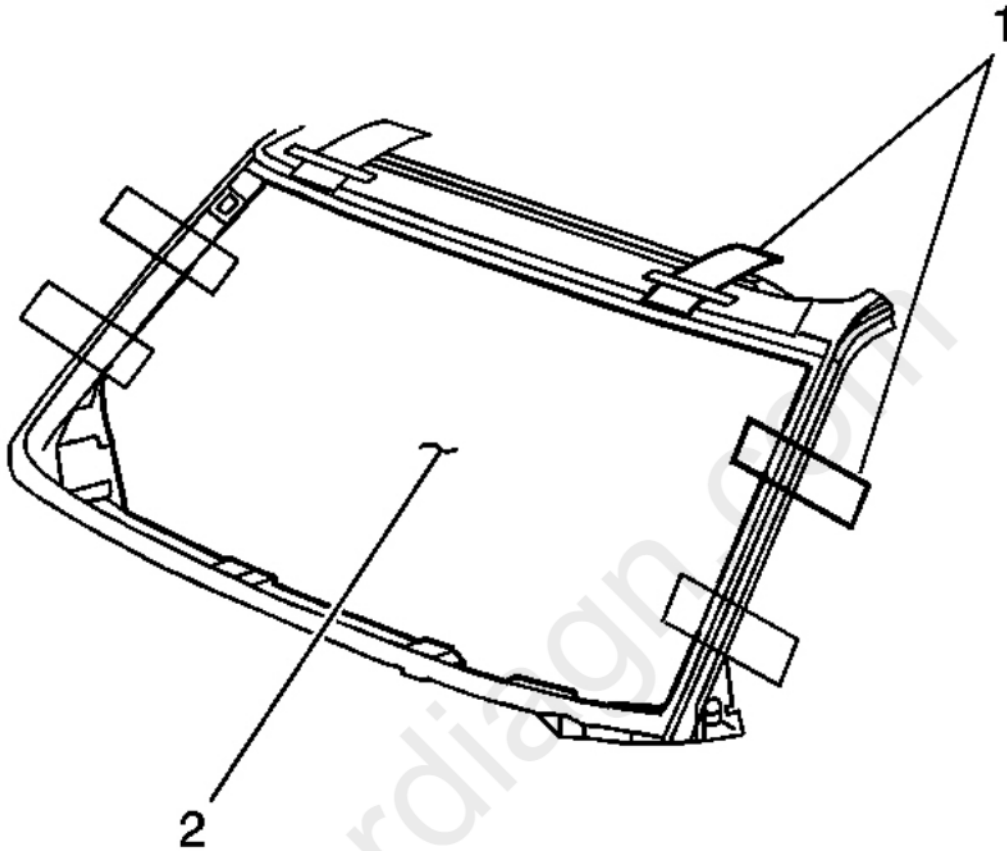
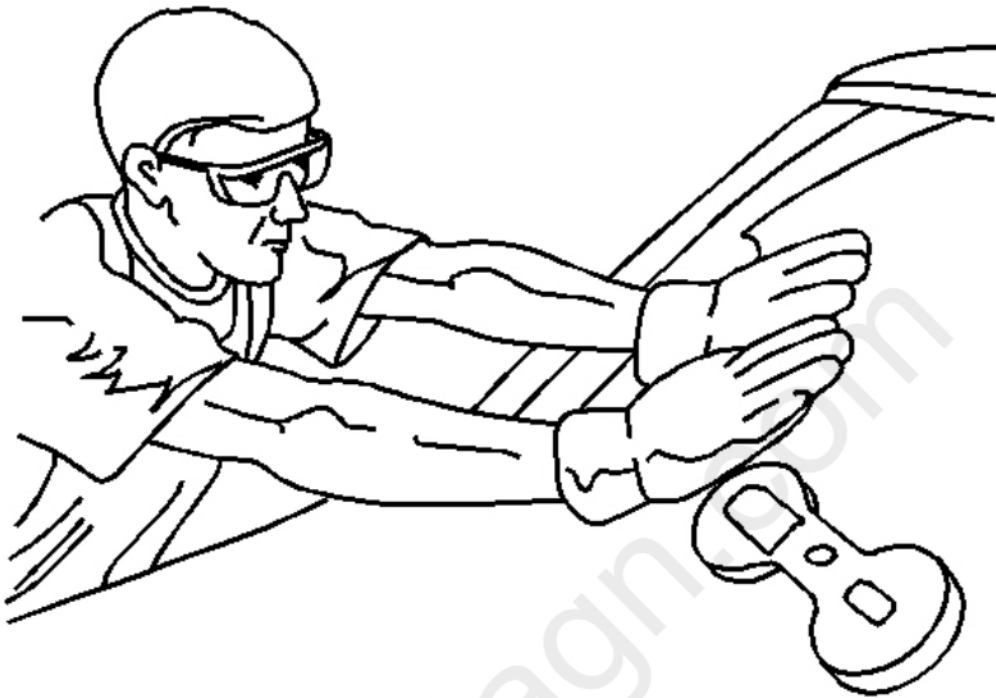


Fig. 46: View Of Aligning Tape Lines On Window To Body
Courtesy of GENERAL MOTORS CORP.

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



NOTE T da a i d d c i ac i a d
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25. Press firmly around the entire periphery of the windshield in order to wet-out the urethane bead.
26. Tape the window to the body in order to minimize movement until the urethane adhesive cures.

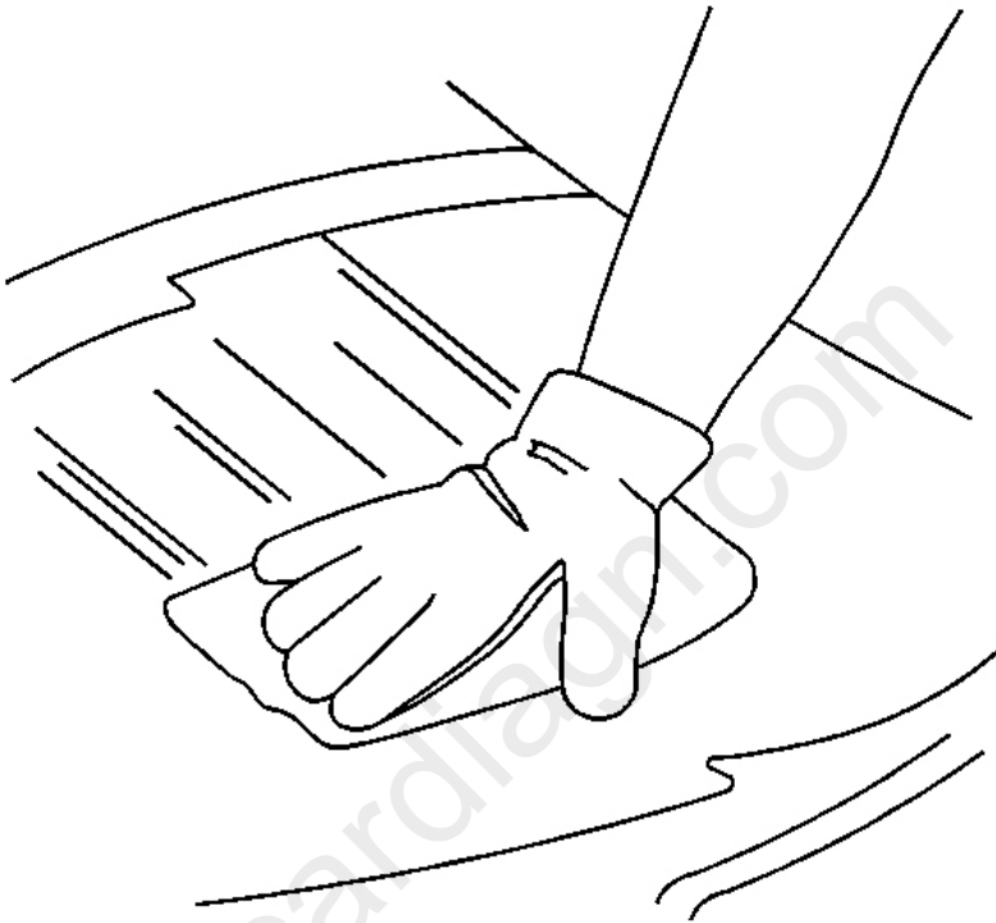


Fig. 48: View Of Cleaning Window

Courtesy of GENERAL MOTORS CORP.

27. Clean any excess urethane adhesive from the body.



Fig. 49: View Of Water Leak Test
Courtesy of GENERAL MOTORS CORP.

NOTE Do not use a plastic paddle to apply extra urethane adhesive at the leak point.

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

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32. 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.
33. Complete the window installation. Refer to **Windshield Replacement**.

ADHESIVE INSTALLATION OF QUARTER WINDOWS

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1. Use a urethane adhesive systems which meet GM Specification GM 3651G.
2. Remove all mounds or loose pieces of urethane adhesive from pinch-weld flange areas.
3. If the original window assembly is being reused, remove all but 2 mm (3/64 in) of the existing urethane adhesive from the pinch-weld flange and the window frame surface by using a clean utility knife or razor blade scraper.

NOTE

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4. Clean around the inside edge of the window assembly with a 50/50 mixture of isopropyl alcohol and water on a dampened lint-free cloth.
5. Verify all primers and urethane adhesives are within expiration dates.

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6. Failure to prepare the area prior to 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

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7. Shake the black #3 primer for at least 1 minute.
8. Use a 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.
10. With an assistant, dry fit the window assembly into the opening to determine correct position.
11. Using masking tape, mark the location of the window assembly to the opening.
12. Apply window Prep #1 followed by window Primer #2 on the encapsulation material. Allow to dry for 6-10 minutes.
13. Cut the applicator nozzle in order to provide a bead of 10 mm (0.39 in) high and 6 mm (0.24 in) wide.

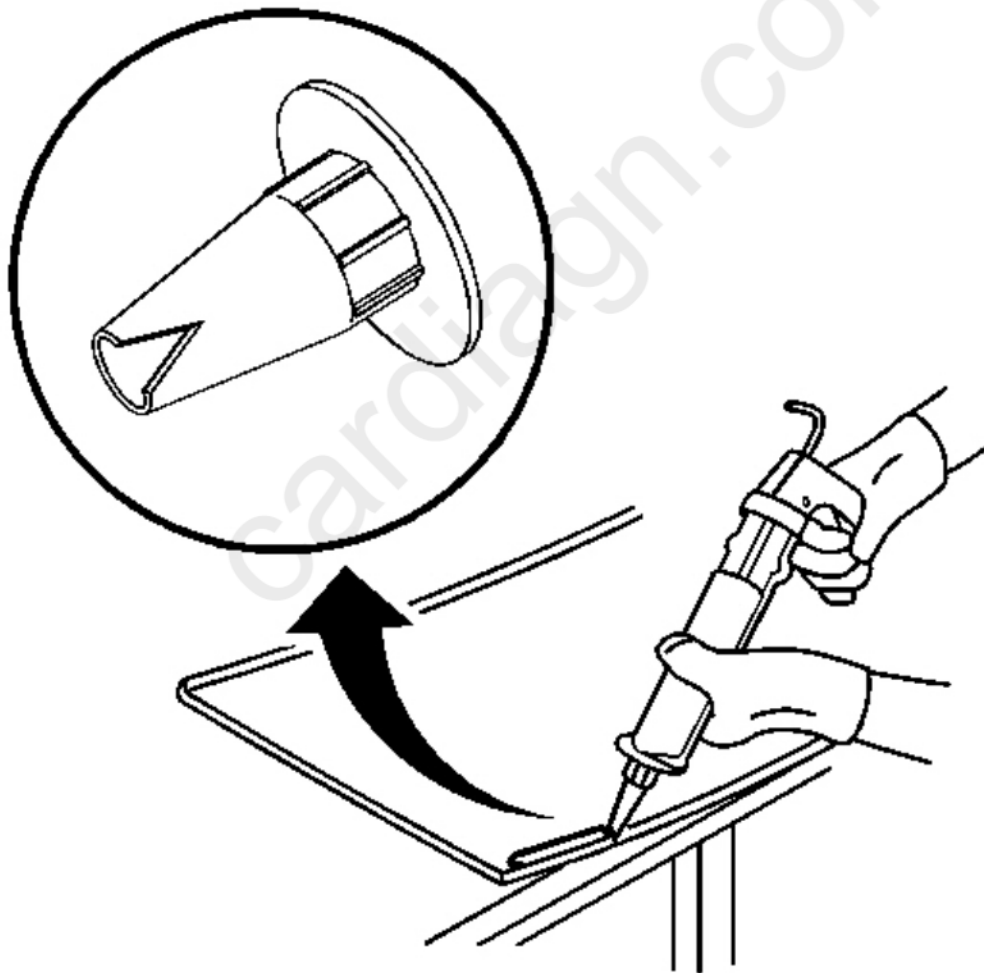


Fig. 5 : View Of Modified Applicator Nozzle
Courtesy of GENERAL MOTORS CORP.

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

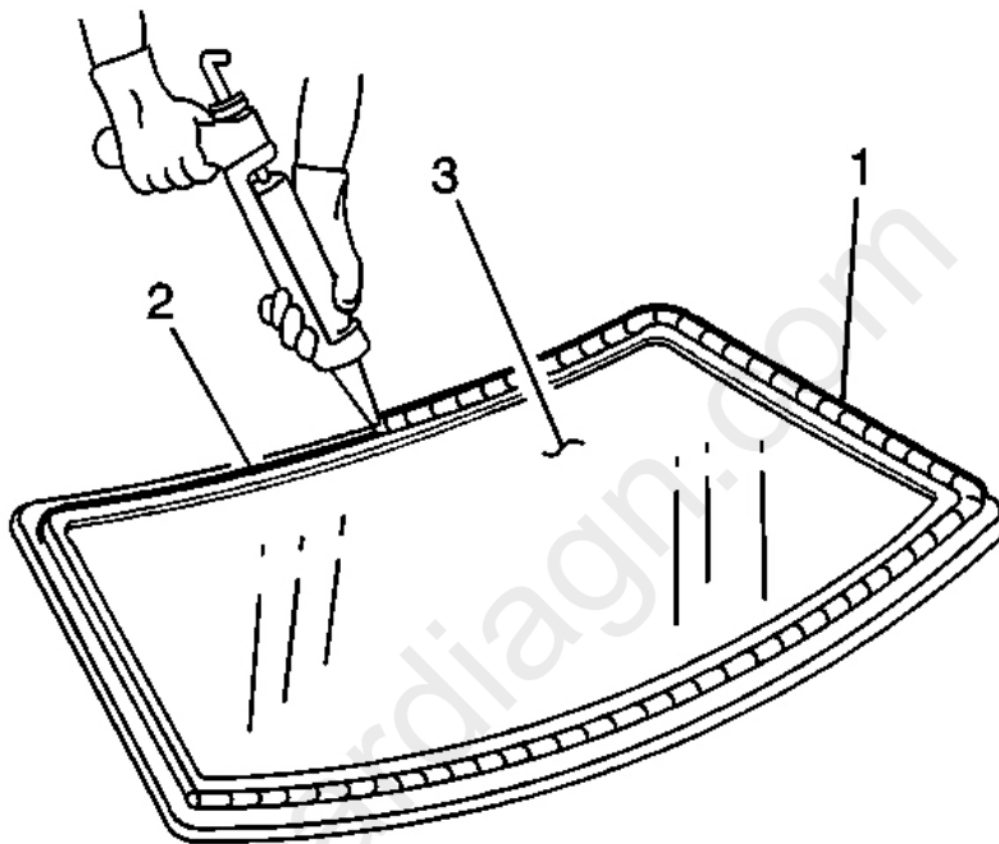


Fig. 5 : View of Applying Urethane Adhesive To Inner Surface Of Window
Courtesy of GENERAL MOTORS CORP.

15. Use the inside edge of the window frame (1) as a guide for the nozzle in order to apply the urethane adhesive bead (2) to the window frame (3) bonding surface.

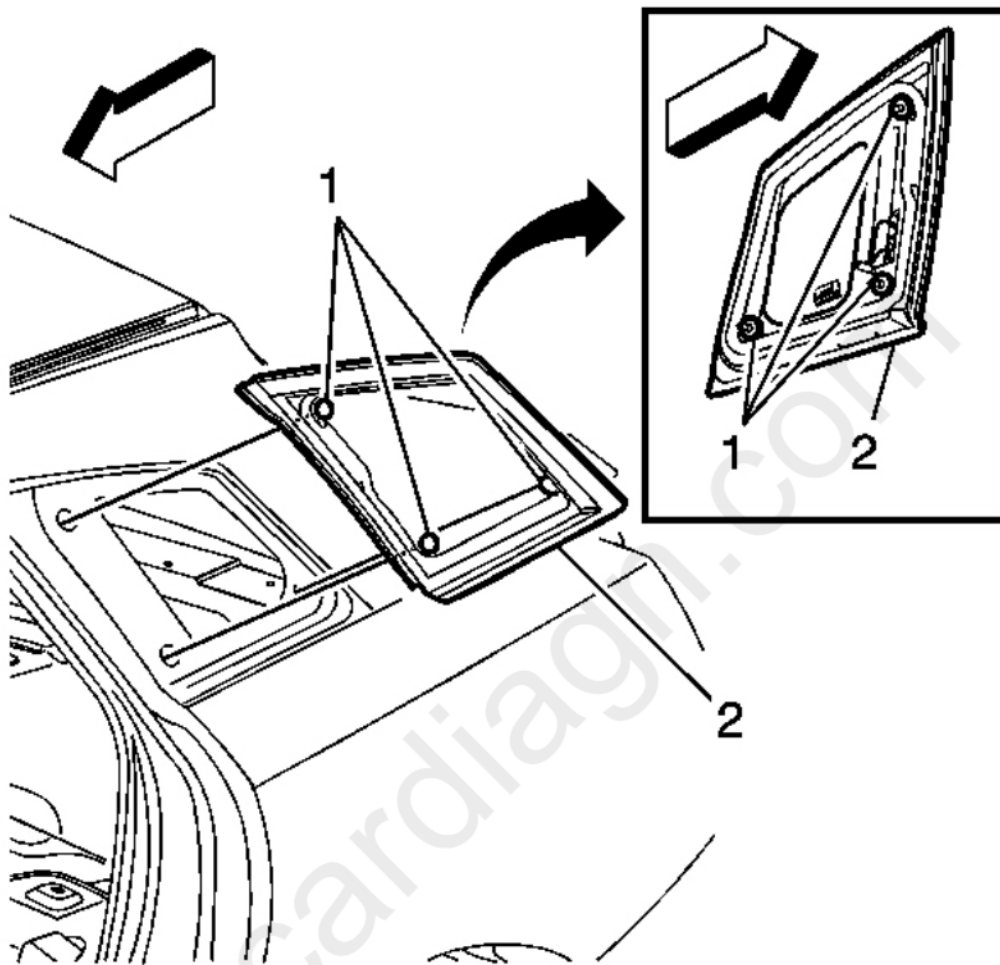


Fig. 5 : View Of Quarter Window Alignment Pins
Courtesy of GENERAL MOTORS CORP.

16. Place the window into the opening. Make sure the window frame alignment pins (1) are properly located.
17. Press the window (2) firmly into place.
18. Tape the window to the body in order to minimize movement until the urethane adhesive cures.
19. Clean any excess urethane adhesive from the body.

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

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21. Inspect the window for leaks.
22. If any leaks are found, use a plastic paddle in order to apply extra urethane adhesive at the leak point.
23. Retest the window for leaks.

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24. 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 cures.
 - Do not drive the vehicle until the urethane adhesive is cured. Refer to above curing times.
 - Do not use compressed air in order to dry urethane adhesive.

ADHESIVE INSTALLATION OF LIFTGATE WINDOWS

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1. Use a urethane adhesive systems which meet GM Specification GM 3651G.
2. Remove all mounds or loose pieces of urethane adhesive from pinch-weld flange areas.
3. If the original window assembly is being reused, remove all but 2 mm (3/64 in) of the existing urethane adhesive from the pinch-weld flange and the window frame surface by using a clean utility knife or razor blade scraper.

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4. Clean around the inside edge of the window assembly with a 50/50 mixture of isopropyl alcohol and water on a dampened lint-free cloth.
5. Verify all primers and urethane adhesives are within expiration dates.

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

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7. Shake the black #3 primer for at least 1 minute.
8. Use a 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.
10. With an assistant, dry fit the window assembly into the opening to determine correct position.
11. Using masking tape, mark the location of the window assembly to the opening.
12. Apply window Prep #1 followed by window Primer #2 on the encapsulation material. Allow to dry for 6-10 minutes.
13. Cut the applicator nozzle in order to provide a bead of 10 mm (0.39 in) high and 6 mm (0.24 in) wide.

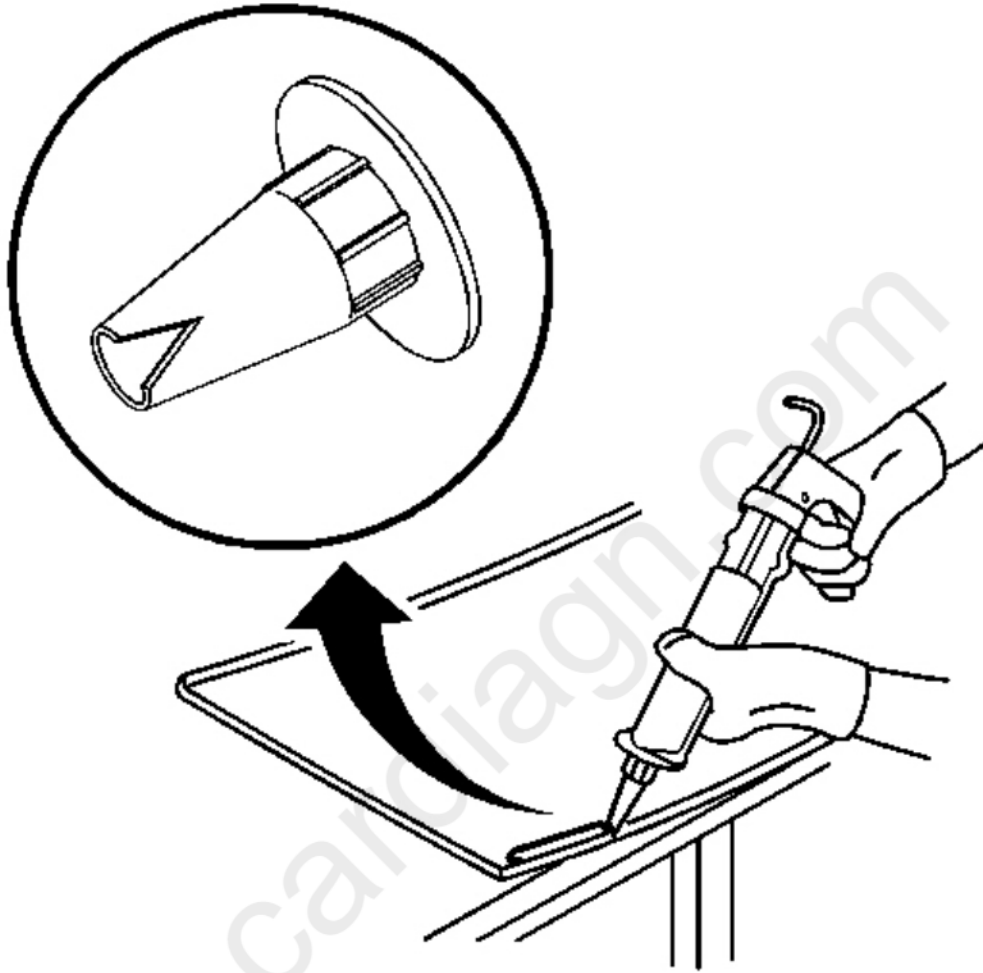


Fig. 53: View Of Modified Applicator Nozzle
Courtesy of GENERAL MOTORS CORP.

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

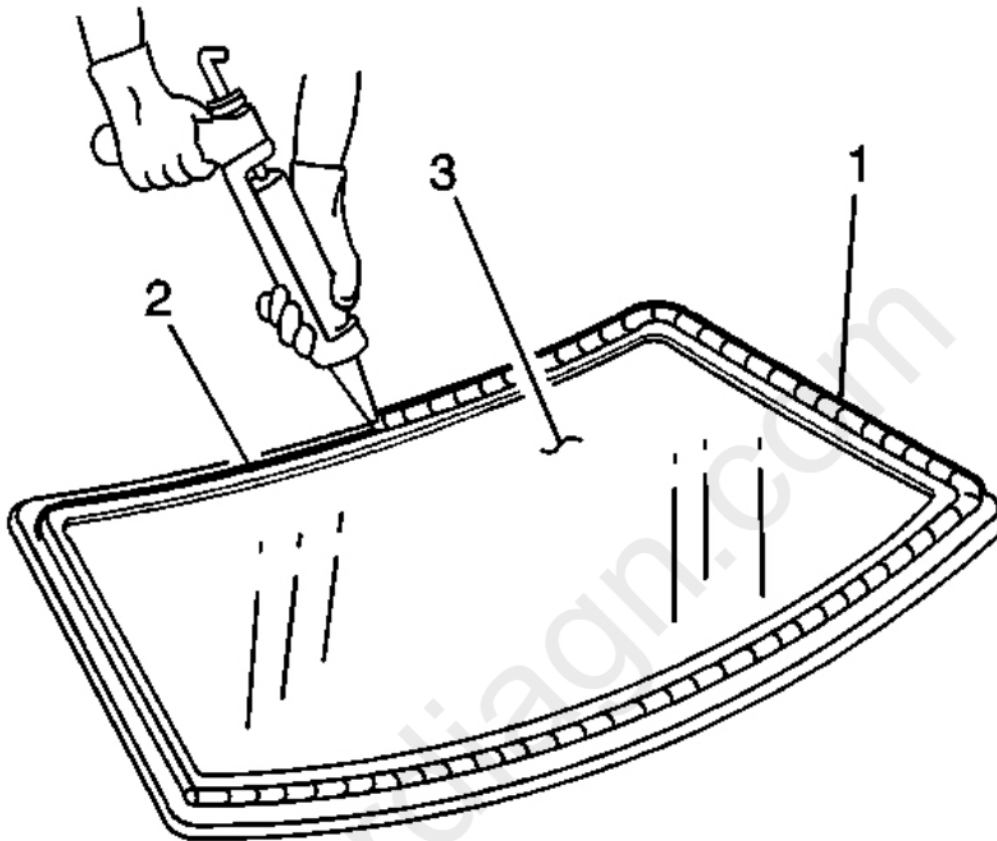


Fig. 54: View of Applying Urethane Adhesive To Inner Surface Of Window
Courtesy of GENERAL MOTORS CORP.

15. Use the inside edge of the window frame (1) as a guide for the nozzle in order to apply the urethane adhesive bead (2) to the window frame (3) bonding surface.

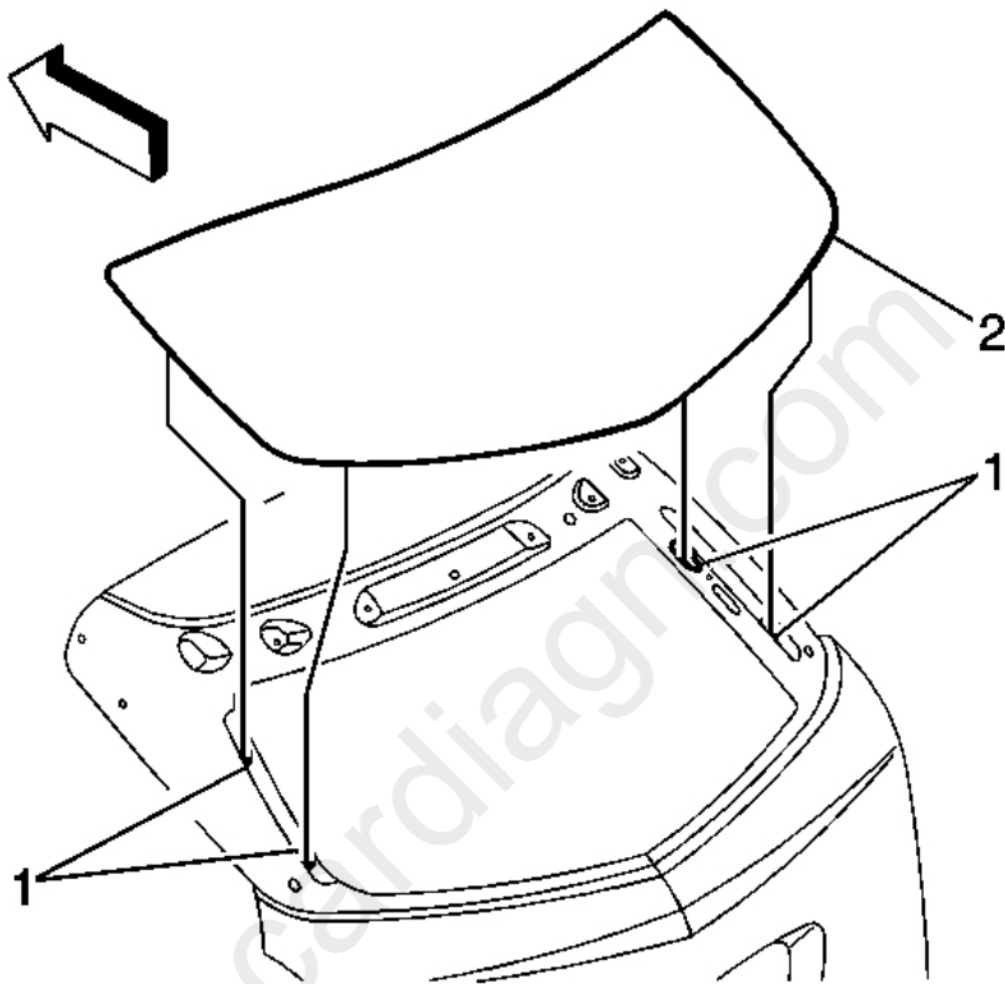


Fig. 55: View Of Liftgate Window
Courtesy of GENERAL MOTORS CORP.

16. Place the window into the opening. ensure that the window frame alignment pins (1) are properly located.
17. Press the window (2) firmly into place.
18. Tape the window to the body in order to minimize movement until the urethane adhesive cures.
19. Clean any excess urethane adhesive from the body.

NOTE D d i c a a i a l a l i d
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20. Use a soft spray of warm water in order to immediately water test the window.

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21. Inspect the window for leaks.
22. If any leaks are found, use a plastic paddle in order to apply extra urethane adhesive at the leak point.
23. Retest the window for leaks.

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24. 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 cures.
 - Do not drive the vehicle until the urethane adhesive is cured. Refer to above curing times.
 - Do not use compressed air in order to dry urethane adhesive.
25. Install the liftgate trim. Refer to **Liftgate Window Replacement**.

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

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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
- T WDO 30A Fuse
- M R WDO MD 5A Fuse
- RT WDO 30A Fuse
- Body control module (BCM)

Driver and Passenger Express Up and Express Down Power Window Motors

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

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

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

Left Rear, Right Rear Express Down Window Motors

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

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

Lockout Switch Feature

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.

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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.

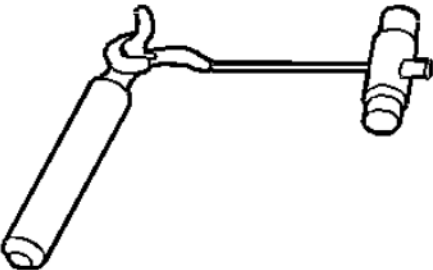
Use adhesive systems which meet GM Specification GM 3651G.

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

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BO-39032
J-39032
Stationary Glass Removal Tool



BO-39040
J-39040
Quarter Window Remover

