

2004 ACCESSORIES & EQUIPMENT

Stationary Windows - C/K SUV

SCHEMATIC AND ROUTING DIAGRAMS

DEFOGGER SCHEMATICS

Refer to Defoggers in System Wiring Diagrams .

INSIDE REARVIEW MIRROR SCHEMATICS

Refer to Power Mirrors in System Wiring Diagrams .

COMPONENT LOCATOR

STATIONARY WINDOWS COMPONENT VIEWS

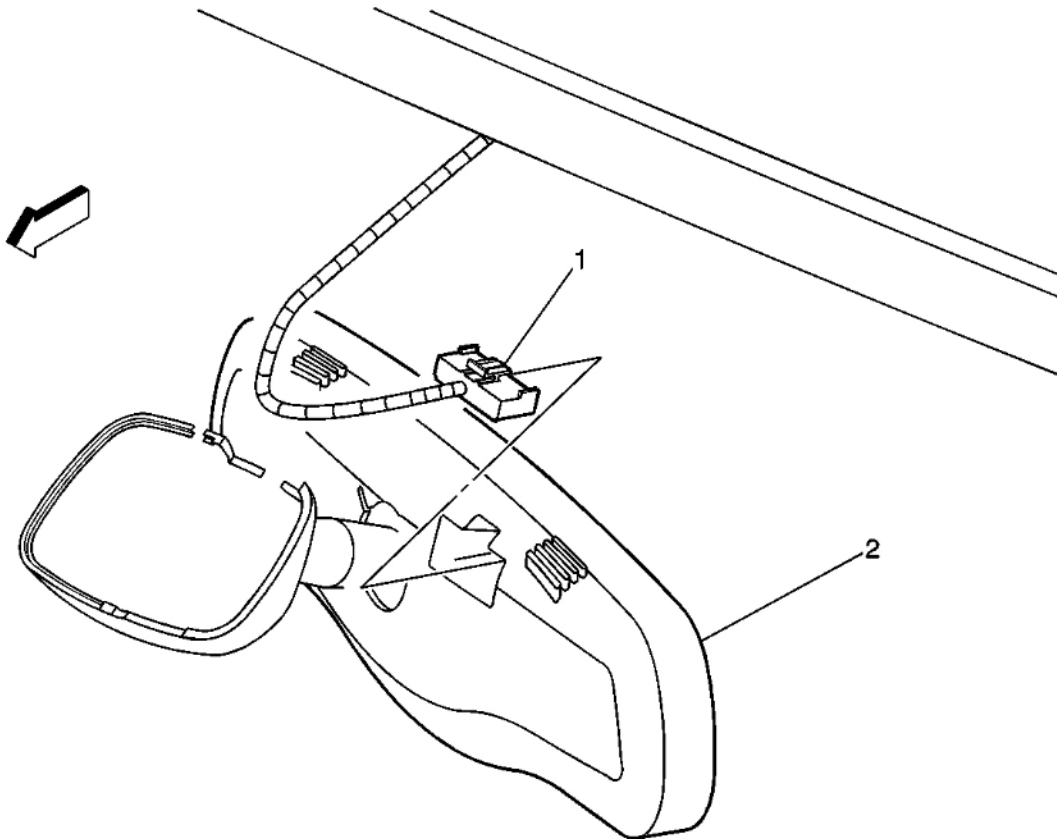


Fig. 1: Inside Rearview Mirror Component View

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Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 1

Callout	Component Name
1	Inside Rearview Mirror Connector
2	Inside Rearview Mirror

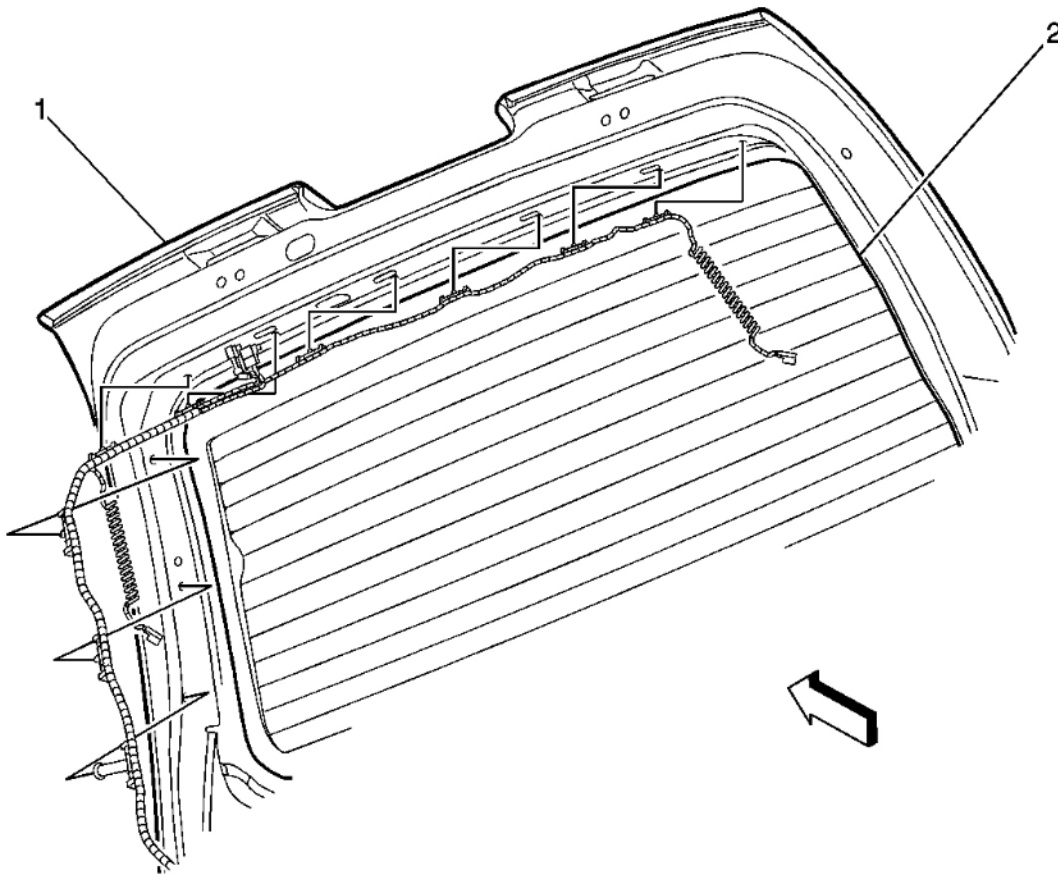


Fig. 2: Liftgate Defogger Grid Component View
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Callouts For Fig. 2

Callout	Component Name
1	Liftgate
2	Rear Window Defogger Grid

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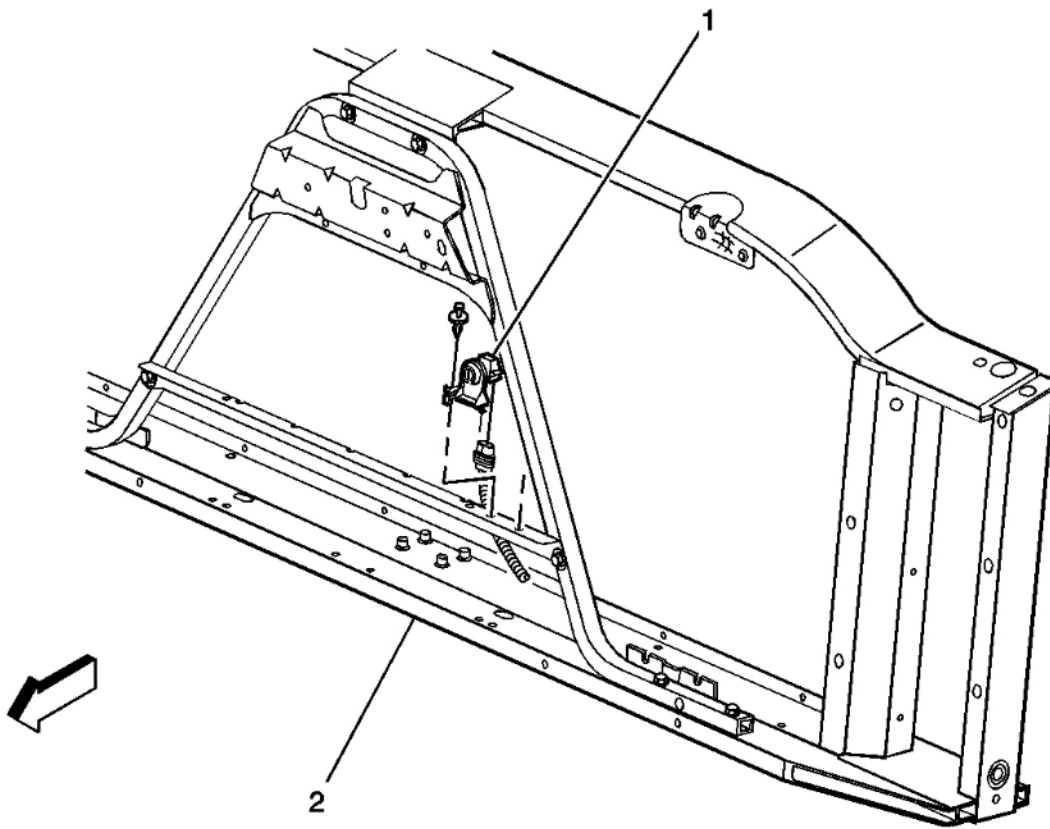


Fig. 3: Air Temperature Sensor - Outside Component View
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 3

Callout	Component Name
1	Air Temperature Sensor - Outside
2	Radiator Core Support

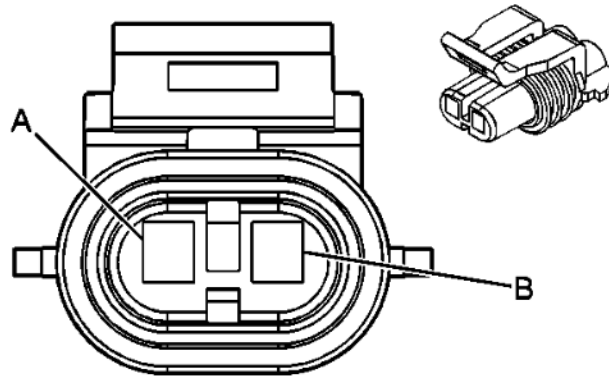
STATIONARY WINDOWS CONNECTOR END VIEWS

Air Temperature Sensor - Outside Connector End View



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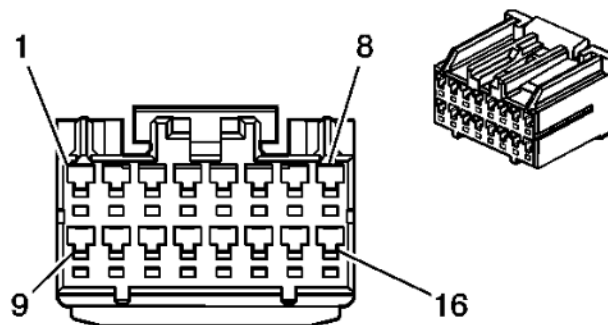


Connector Part Information

- 12052642
- 2-Way F Metri-Pack 150 Series Sealed (LT GRN)

Pin	Wire Color	Circuit No.	Function
A	DK GRN/ WHT	636	Outside Air Temperature Sensor Signal
B	BLK/WHT	1704	Low Reference

Inside Rearview Mirror Connector End View



Connector Part Information

- 15324871
- 16-Way F (BLK)

Pin	Wire Color	Circuit No.	Function
1-2	-	-	Not Used
3	DK BLU	2307	Passenger Air Bag ON Indicator Control
4	DK GRN	2308	Passenger Air Bag OFF Indicator Control
5	GRY	1690	Automatic Day/Night Mirror Signal

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6	DK GRN/ WHT	636	Ambient Air Temperature Sensor Signal
7	BLK/WHT	1704	Low Reference
8	BLK	1050	Ground
9	LT GRN	24	Backup Lamp Supply Voltage
10	-	-	Not Used
11	DK GRN/ WHT	2514	Keypad Signal (UE1)
12	LT GRN/ BLK	2515	Keypad Supply Voltage (UE1)
13	YEL	1139	Ignition 1 Voltage
14	YEL/BLK	2516	Keypad Green LED Signal (UE1)
15	BRN/WHT	2517	Keypad Red LED Signal (UE1)
16	PNK	1691	Automatic Day/Night Mirror Low Reference

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC STARTING POINT - STATIONARY WINDOWS

For the inside rearview mirror with the automatic day-night feature, begin the diagnosis by reviewing the system Description and Operation. Reviewing the Description and Operation information will help you determine the correct symptom diagnostic procedure when a malfunction exists. Reviewing the Description and Operation information will also help you determine if the condition described by the customer is normal operation. Refer to **Symptoms - Stationary Windows** in order to identify the correct procedure for diagnosing the system and where the procedure is located.

For the rear window defogger, begin the diagnosis with the **Diagnostic System Check - Defogger**. The Diagnostic System Check will provide the following information:

- The identification of the control modules which command the system
- The ability of the control modules to communicate through the serial data circuit
- The identification of any stored diagnostic trouble codes (DTCs) and their status

The use of the Diagnostic System Check will identify the correct procedure for diagnosing the system and where the procedure is located.

DIAGNOSTIC SYSTEM CHECK - DEFOGGER

Test Description

The numbers below refer to the step numbers on the diagnostic table.

2: Lack of communication may be due to a partial malfunction of the class 2 serial data circuit. The specified procedure will determine the particular condition.

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4: The Symptom Table will determine the correct diagnostic procedure to use.

5: The presence of DTCs which begin with "U" indicate some other module is not communicating. The specified procedure will compile all the available information before tests are performed.

Diagnostic System Check - Defogger

Step	Action	Yes	No
1	Install a scan tool. Does the scan tool power up?	Go to Step 2	Go to <u>Scan Tool Does Not Power Up</u> in Data Link Communications
2	1. Turn ON the ignition, with the engine OFF. 2. Attempt to establish communication with the following: • HVAC Control Module • Body Control Module (BCM) Does the scan tool communicate with the modules?	Go to Step 3	Go to <u>Scan Tool Does Not Communicate with Class 2 Device</u> in Data Link Communications
3	IMPORTANT: The engine may start during the following step. Turn OFF the engine as soon as you have observed the Crank power mode. 1. Access the Class 2 Power Mode in the Diagnostic Circuit Check on the scan tool. 2. Rotate the ignition switch through all positions while observing the Class 2 Power Mode on the Scan Tool. Refer to the Serial Data Power Mode table within the <u>Body Control System Description and Operation</u> in Body Control System, for a list of the power mode states that correspond to each ignition switch position. Does the Class 2 Power Mode parameter reading match the ignition switch position for all the selected positions?	Go to Step 4	Go to <u>Power Mode Mismatch</u> in Body Control System
4	Select the display DTCs function on the scan tool for the following modules. • HVAC Control Module. • BCM Does the scan tool display any DTCs?	Go to Step 5	Go to <u>Symptoms - Stationary Windows</u>
	Does the scan tool display DTCs that begin with "U"?	Go to <u>Diagnostic Trouble Code</u>	

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5		(DTC) List in Data Link Communications	Go to Step 6
6	Does the scan tool display DTC B1000 or B1440?	Go to <u>Diagnostic Trouble Code (DTC) List</u> in Body Control System	Go to Step 7
7	Does the scan tool display DTC B0283?	Go to <u>Diagnostic Trouble Code (DTC) List</u>	Go to <u>Symptoms - Stationary Windows</u>

SCAN TOOL OUTPUT CONTROLS

Body Control Module (BCM) Scan Tool Output Controls

Scan Tool Output Control	Additional Menu Selection(s)	Description
Rear Defogger	-	The BCM actuates the rear window defogger relay when you select ON. The rear window defogger grid should become warm.

SCAN TOOL DATA LIST

Body Control Module (BCM) Scan Tool Data List

Scan Tool Parameter	Data List	Units Displayed	Typical Data Value
Ignition On/Engine Off			
Rear Defog Relay	Outputs	On/Off	Off

HVAC Control Module Scan Tool Data List

Scan Tool Parameter	Data List	Units Displayed	Typical Data Value
Ignition On/Engine Off			
Rear Defrost Switch	Input/Output	On/Off	Off

SCAN TOOL DATA DEFINITIONS

Body Control Module (BCM)

Rear Defog Relay

When the BCM energizes the RR DEFOG relay, the scan tool will display On. When the BCM de-energizes the RR DEFOG relay, the scan tool will display Off.

Rear Defrost Switch

When rear defrost switch is pressed the scan tool displays On.

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DIAGNOSTIC TROUBLE CODE (DTC) LIST

Diagnostic Trouble Code (DTC) List

DTC	Diagnostic Procedure	Module(s)
B0283	<u>DTC B0283</u>	BCM

DTC B0283

Circuit Description

The body control module (BCM) monitors the voltage level on the control circuit of the DEFOG relay. The voltage level should be near system voltage while the DEFOG relay is de-energized. The voltage will be pulled low when the BCM energizes the DEFOG relay. The BCM tests the control circuit of the DEFOG relay every 125 milliseconds.

Conditions for Running the DTC

The ignition is ON.

Conditions for Setting the DTC

One of the following conditions will cause this DTC to set:

- The BCM detects a high voltage level on the control circuit of the DEFOG relay, while the relay is energized.
- The BCM detects a low voltage level or an open on the control circuit of the DEFOG relay, while the relay is not energized.

Conditions for Clearing the DTC

- A current DTC clears when the malfunction is no longer present.
- A history DTC clears when the module ignition cycle counter reaches the reset threshold, without a repeat of the malfunction.

Test Description

The numbers below refer to the step numbers on the diagnostic table.

- 2:** Tests for voltage at the coil side of the DEFOG relay. The HVAC fuse supplies power to the coil side of the DEFOG relay.
- 3:** Verifies that the BCM is providing ground to the DEFOG relay.
- 4:** Tests if ground is constantly being applied to the DEFOG relay.
- 5:** Tests for an open on the control circuit of the DEFOG relay.

DTC B0283

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Step	Action	Yes	No
Schematic Reference: <u>Defogger Schematics</u>			
Connector End View Reference: <u>Stationary Windows Connector End Views</u>			
1	Did you perform the Defogger Diagnostic System Check?	Go to Step 2	Go to <u>Diagnostic System Check - Defogger</u>
2	1. Turn OFF the ignition. 2. Disconnect the DEFOG relay. 3. Turn ON the ignition, with the engine OFF. 4. Connect a test lamp between the ignition voltage circuit of the DEFOG relay coil and a good ground. Does the test lamp illuminate?	Go to Step 3	Go to Step 9
3	1. Connect a test lamp between the control circuit of the DEFOG relay and the ignition voltage circuit of the DEFOG relay coil. 2. With a scan tool, command the DEFOG relay ON and OFF. Does the test lamp turn ON and OFF with each command?	Go to Step 7	Go to Step 4
4	Does the test lamp remain illuminated with each command?	Go to Step 6	Go to Step 5
5	Test the control circuit of the DEFOG relay for an open or a short to voltage. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 12	Go to Step 8
6	Test the control circuit of the DEFOG relay for a short to ground. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 12	Go to Step 8
7	Inspect for poor connections at the DEFOG relay. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 12	Go to Step 10
8	Inspect for poor connections at the harness connector of the body control module (BCM). Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 12	Go to Step 11
	Repair an open or high resistance in the ignition voltage circuit of the DEFOG relay coil. Refer to <u>Wiring</u>		

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9	Repairs in Wiring Systems. Did you complete the repair?	Go to Step 12	-
10	Replace the DEFOG relay. Did you complete the replacement?	Go to Step 12	-
11	IMPORTANT: Perform the set up procedure for the BCM. Refer to <u>Body Control Module (BCM) Programming/RPO Configuration</u> in Body Control System. Replace the BCM. Refer to <u>Body Control Module Replacement</u> in Body Control System. Did you complete the replacement?	Go to Step 12	-
12	1. Use the scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Setting the DTC as specified in the supporting text. Does the DTC reset?	Go to Step 2	System OK

SYMPTOMS - STATIONARY WINDOWS

IMPORTANT: For the inside rearview mirror with the automatic day-night feature, review the system operation in order to familiarize yourself with the system functions. Refer to **Automatic Day-Night Mirror Description and Operation**.

For the rear window defogger system, the following steps must be performed before using the symptom tables:

1. Perform the **Diagnostic System Check - Defogger** 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 system operation in order to familiarize yourself with the system functions. Refer to **Rear Window Defogger Description and Operation**.

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the rear window defogger or the automatic day-night feature of the inside rearview mirror. Refer to **Checking Aftermarket Accessories** in Wiring Systems.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Intermittent

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Faulty electrical connections or wiring may be the cause of intermittent conditions. Refer to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems.

Symptom List

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

- **Defogger Inoperative - Rear Window (w/ Cargo Doors)** or **Defogger Inoperative - Rear Window (w/o Cargo Doors)**
- **Defogger Grid Lines Diagnosis**
- **Mirrors - Automatic Day-Night Inoperative**
- **Mirrors - Temperature Displays SC or OC**
- **Mirrors - Compass Display Inoperative or Inaccurate**
- **Mirrors - Temperature Display Inaccurate**

DEFOGGER INOPERATIVE - REAR WINDOW (W/ CARGO DOORS)

Defogger Inoperative - Rear Window (w/ Cargo Doors)

Step	Action	Yes	No
Schematic Reference: <u>Defogger Schematics</u>			
Connector End View Reference: <u>Stationary Windows Connector End Views</u>			
1	Did you perform the Defogger Diagnostic System Check?	Go to Step 2	Go to <u>Diagnostic System Check - Defogger</u>
2	1. Start the engine. 2. Depress the rear window defogger switch. 3. Observe the rear window defogger indicator on the HVAC Control Module. Does the rear window defogger indicator illuminate?	Go to Step 3	Go to Step 9
3	1. Connect a test lamp between the rear window defogger grid on the left cargo door and a good ground. 2. Connect a test lamp between the rear window defogger grid on the right cargo door and a good ground. Does the test lamp illuminate on both rear window defogger grids?	Go to Step 4	Go to Step 5
	1. Connect a test lamp between the left side of the rear window defogger grid and the right side of the rear window defogger grid on the left cargo door.		

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4	2. Connect a test lamp between the left side of the rear window defogger grid and the right side of the rear window defogger grid on the right cargo door. Does the test lamp illuminate on both rear window defogger grids?	Go to <u>Testing for Intermittent Conditions and Poor Connections</u> in Wiring Systems	Go to Step 11
5	Does the test lamp illuminate on one of the rear window defogger grids?	Go to Step 13	Go to Step 6
6	1. Turn OFF the ignition. 2. Disconnect the RR DEFOG relay. 3. Turn ON the ignition, with the engine OFF. 4. Connect a test lamp between the battery positive voltage circuit of the RR DEFOG relay switched input and a good ground. Does the test lamp illuminate?	Go to Step 7	Go to Step 8
7	1. Connect a 40-ampere fused jumper between the battery positive voltage circuit of the RR DEFOG relay switched input and the relay switched output to the supply voltage circuit of the rear window defogger. 2. Connect a test lamp between the rear window defogger grid and a good ground. Does the test lamp illuminate?	Go to Step 10	Go to Step 13
8	Test the battery positive voltage circuit of the RR DEFOG relay switched input for an open or high resistance. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 16	Go to Step 12
9	Inspect for poor connection at the harness connector of the HVAC Control Module. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 16	Go to Step 14
10	Inspect for poor connection at the RR DEFOG relay. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 16	Go to Step 15
11	Repair an open or high resistance in the ground circuit of the rear window defogger. Refer to <u>Wiring Repairs</u> in Wiring Systems.		

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	Did you complete the repair?	Go to Step 16	-
12	Repair a short to ground in the supply voltage circuit of the rear window defogger. Refer to <u>Wiring Repairs</u> in Wiring Systems. Did you complete the repair?	Go to Step 16	-
13	Repair an open or high resistance in the supply circuit of the rear window defogger. Refer to <u>Wiring Repairs</u> in Wiring Systems. Did you complete the repair?	Go to Step 16	-
14	Replace the HVAC Control Module. Refer to <u>HVAC Control Module Replacement</u> in HVAC Systems - Automatic or <u>HVAC Control Module Replacement</u> in HVAC Systems - Manual. Did you complete the replacement?	Go to Step 16	-
15	Replace the RR DEFOG relay. Did you complete the replacement?	Go to Step 16	-
16	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

DEFOGGER INOPERATIVE - REAR WINDOW (W/O CARGO DOORS)

Defogger Inoperative - Rear Window (w/o Cargo Doors)

Step	Action	Yes	No
Schematic Reference: <u>Defogger Schematics</u> Connector End View Reference: <u>Stationary Windows Connector End Views</u>			
1	Did you perform the Defogger Diagnostic System Check?	Go to Step 2	Go to <u>Diagnostic System Check - Defogger</u>
2	1. Start the engine. 2. Depress the rear window defogger switch. 3. Observe the rear window defogger indicator on the HVAC Control Module. Does the rear window defogger indicator illuminate?	Go to Step 3	Go to Step 8
3	Connect a test lamp between the rear window defogger grid and a good ground. Does the test lamp illuminate?	Go to Step 4	Go to Step 5
4	Connect a test lamp between the left side of the rear window defogger grid and the right side of the rear window defogger grid. Does the test lamp illuminate?	Go to <u>Testing for Intermittent Conditions and Poor Connections</u> in Wiring Systems	Go to Step 10
	1. Turn OFF the ignition. 2. Disconnect the RR DEFOG relay.		

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5	3. Turn ON the ignition, with the engine OFF. 4. Connect a test lamp between the battery positive voltage circuit of the RR DEFOG relay switched input and a good ground. Does the test lamp illuminate?	Go to Step 6	Go to Step 7
6	1. Connect a 40 amp fused jumper between the battery positive voltage circuit of the RR DEFOG relay switched input and the relay switched output to the supply voltage circuit of the rear window defogger. 2. Connect a test lamp between the rear window defogger grid and a good ground. Does the test lamp illuminate?	Go to Step 9	Go to Step 12
7	Test the battery positive voltage circuit of the RR DEFOG relay switched input for an open or high resistance. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 15	Go to Step 11
8	Inspect for poor connection at the harness connector of the HVAC Control Module. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 15	Go to Step 13
9	Inspect for poor connection at the RR DEFOG relay. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 15	Go to Step 14
10	Repair an open or high resistance in the ground circuit of the rear window defogger. Refer to <u>Wiring Repairs</u> in Wiring Systems. Did you complete the repair?	Go to Step 15	-
11	Repair a short to ground in the supply voltage circuit of the rear window defogger. Refer to <u>Wiring Repairs</u> in Wiring Systems. Did you complete the repair?	Go to Step 15	-
12	Repair an open or high resistance in the supply circuit of the rear window defogger. Refer to <u>Wiring Repairs</u> in Wiring Systems. Did you complete the repair?	Go to Step 15	-
13	Replace the HVAC Control Module. Refer to <u>HVAC Control Module Replacement</u> in HVAC Systems - Automatic or <u>HVAC Control Module Replacement</u>		

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	in HVAC Systems - Manual. Did you complete the replacement?	Go to Step 15	-
14	Replace the RR DEFOG relay. Did you complete the replacement?	Go to Step 15	-
15	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

DEFOGGER GRID LINES DIAGNOSIS

This test is for reference only. A grid line fault requires the rear window replacement. Refer to **Window Replacement - Liftgate** in Body Rear End.

1. Start the engine.
2. Activate the rear window defogger system.
3. Connect a test lamp to a good ground.

IMPORTANT: The test lamp brilliance will decrease proportionately to the increased resistance in the grid line as the probe is moved from the battery positive bus wire to the ground bus wire. The test lamp brilliance may vary from one window to another.

4. Move the test lamp probe from zone 5 to zone 1 along each grid line.
 - If the test lamp shows full brilliance at both ends of the grid lines, inspect for an open or poor connection in the ground circuit of the rear window defogger grid. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** in Wiring Systems.

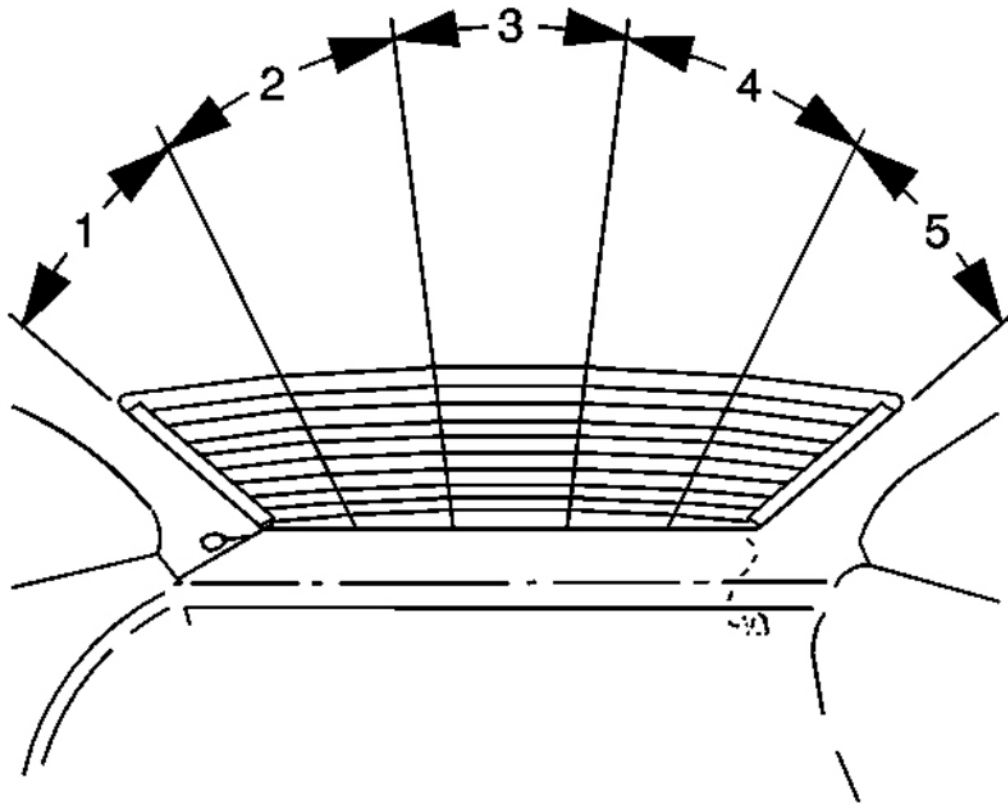


Fig. 4: Identifying Defogger Grid Line Zones

Courtesy of GENERAL MOTORS CORP.

- If the test lamp goes out, test the grid line in at least 2 places (1, 3) to eliminate the possibility of bridging the open (2) in the grid line.

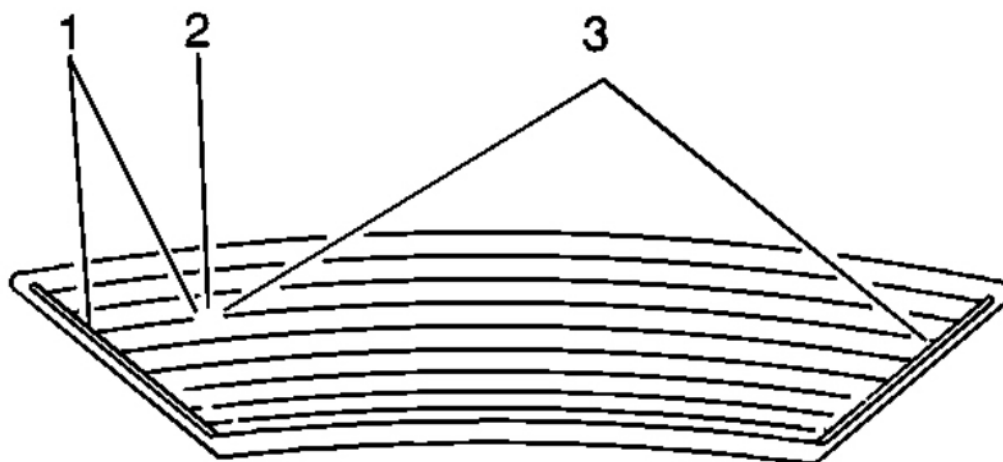


Fig. 5: Identifying Grid Line Test Locations
Courtesy of GENERAL MOTORS CORP.

MIRRORS - AUTOMATIC DAY-NIGHT INOPERATIVE

Diagnostic Aids

The automatic day-night feature of the inside rearview mirror may not operate properly or become inoperative due to an intermittent short to battery voltage in the backup lighting system.

Mirrors - Automatic Day-Night Inoperative

Step	Action	Value(s)	Yes	No
Schematic Reference: <u>Inside Rearview Mirror Schematics</u> Connector End View Reference: <u>Stationary Windows Connector End Views</u>				
1	Did you review the operation of the automatic day-night feature of the inside rearview mirror and perform the necessary inspections?	-	Go to Step 2	Go to <u>Symptoms - Stationary Windows</u>
2	1. Turn ON the ignition, with the engine OFF. 2. Turn ON the automatic day-night feature of the inside rearview mirror. 3. Cover the sensor on the inside rearview mirror back, facing the front window. 4. Shine a bright light into the sensor on the inside rearview mirror face, facing the rear	-		

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	window. Does the inside rearview mirror darken?		Go to Diagnostic Aids	Go to Step 3
3	1. Turn OFF the ignition. 2. Disconnect the harness connector of the inside rearview mirror. 3. Measure the resistance between the ground circuit of the inside rearview mirror and a good ground. Is the resistance less than the specified value?	3 ohms	Go to Step 4	Go to Step 9
4	1. Turn ON the ignition, with the engine OFF. 2. Measure the voltage between the ignition voltage circuit and the ground circuit of the inside rearview mirror. Is the voltage within the specified range?	B+	Go to Step 5	Go to Step 10
5	1. Place the transmission in PARK. 2. Measure the voltage between the backup lamp supply voltage circuit and the ground circuit of the inside rearview mirror. Is the voltage less than the specified value?	0.5 V	Go to Step 6	Go to Backup Lamps Always On in Lighting Systems
6	1. Place the transmission in REVERSE. 2. Measure the voltage between the backup lamp supply voltage circuit and the ground circuit of the inside rearview mirror. Is the voltage within the specified range?	B+	Go to Step 8	Go to Step 7
7	Test the backup lamp supply voltage circuit of the inside rearview mirror for an open or short to ground. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	-	Go to Step 12	Go to Backup Lamps Inoperative in Lighting Systems
8	Inspect for poor connections at the harness connector of the inside rearview mirror. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	-	Go to Step 12	Go to Step 11
9	Repair an open or high resistance in the ground circuit of the inside rearview mirror. Refer to	-		

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	Wiring Repairs in Wiring Systems. Did you complete the repair?		Go to Step 12	-
10	Repair an open or short to ground in the ignition voltage circuit of the inside rearview mirror. Refer to Wiring Repairs in Wiring Systems. Did you complete the repair?	-	Go to Step 12	-
11	IMPORTANT: Perform the <u>Compass Calibration and Variance Procedure</u> for the inside rearview mirror with compass. Replace the inside rearview mirror. Refer to Rearview Mirror Replacement . Did you complete the replacement?	-	Go to Step 12	-
12	Operate the system in order to verify the repair. Did you correct the condition?	-	System OK	Go to Step 2

MIRRORS - TEMPERATURE DISPLAY INACCURATE

Diagnostic Aids

- An inaccurate temperature display indicates an abnormal resistance condition within the system.
- For intermittent diagnosis, refer to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems.

The following table will be used to measure the resistance of the sensor and compare it with the actual ambient temperature. The mirror's temperature accuracy should be within 5 degrees of the actual temperature. The actual temperature should not be taken from a radio station, a sign displaying the temperature, etc. A temperature measuring tool such as a thermometer should be used. Some temperature measuring tools may be within 5 degrees of the actual temperature. Make sure to consult the manufacturer for the accuracy of the tool. This comparison can make the mirror seem off by 5-10 degrees of the actual temperature when it is not.

Ambient Air Temperature Sensor Resistance

°C	°F	Minimum Resistance K Ohms	Maximum Resistance K Ohms
-35	-31	234.81	250.59
-30	-22	171.69	182.31
-25	-13	126.82	133.99
-20	-4	94.63	99.49
-15	5	71.30	74.58
-10	14	54.21	56.43
-5	23	41.48	43.17
0	32	32.00	33.31
5	41	24.96	25.83

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10	50	19.61	20.19
15	59	15.49	15.94
20	68	12.31	12.67
25	77	9.85	10.12
30	86	7.96	8.15
35	95	6.45	6.61
40	104	5.27	5.39
45	113	4.32	4.42
50	122	3.56	3.64
55	131	2.95	3.02
60	140	2.46	2.52

Mirrors - Temperature Display Inaccurate

Step	Action	Yes	No
Schematic Reference: <u>Inside Rearview Mirror Schematics</u>			
Connector End View Reference: <u>Stationary Windows Connector End Views</u>			
1	Did you review the Automatic Day-Night Mirror Description and Operation?	Go to Step 2	Go to <u>Automatic Day-Night Mirror Description and Operation</u>
2	1. Disconnect the ambient temperature sensor connector. 2. Connect the J 33431-C Signal Generator and Instrument Panel Tester between the signal circuit of the ambient temperature sensor and the ground circuit of the ambient temperature sensor at the sensor wire harness connector. 3. Turn ON the ignition, with the engine OFF. IMPORTANT: Verify the J 33431-C resistance settings with a DMM. Disconnect one of the J 33431-C leads momentarily between the resistance settings in order to quickly update the temperature display. 4. Vary the resistance on the J 33431-C from 250 K ohms-2.52 K ohms. 5. Refer to the ambient air temperature resistance chart above to convert from resistance to temperature display.	Go to Step 5	Go to Step 3
	Does the mirror display the correct temperature?	Go to Step 5	Go to Step 3

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3	Test the signal circuit of the ambient temperature sensor for a high resistance. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 9	Go to Step 4
4	Test the ground circuit of the ambient temperature sensor for a high resistance. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 9	Go to Step 6
5	Inspect for poor connections at the harness connector of the ambient temperature sensor. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 9	Go to Step 7
6	Inspect for poor connections at the harness connector of the inside rearview mirror. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 9	Go to Step 8
7	Replace the ambient temperature sensor. Refer to <u>Ambient Air Temperature Sensor Replacement</u> . Did you complete the replacement?	Go to Step 9	-
8	Replace the inside rearview mirror. Refer to <u>Rearview Mirror Replacement</u> . Did you complete the replacement?	Go to Step 9	-
9	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

MIRRORS - TEMPERATURE DISPLAYS SC OR OC

The following table will be used to measure the resistance of the sensor and compare it with the actual ambient temperature. The mirror's temperature accuracy should be within 5 degrees of the actual temperature. The actual temperature should not be taken from a radio station, a sign displaying the temperature, etc. A temperature measuring tool such as a thermometer should be used. Some temperature measuring tools may be within 5 degrees of the actual temperature. Make sure to consult the manufacturer for the accuracy of the tool. This comparison can make the mirror seem off by 5-10 degrees of the actual temperature when it is not.

Ambient Air Temperature Sensor Resistance

°C	°F	Minimum Resistance K Ohms	Maximum Resistance K Ohms
-35	-31	234.81	250.59
-30	-22	171.69	182.31
-25	-13	126.82	133.99
-20	-4	94.63	99.49
-15	5	71.30	74.58
-10	14	54.21	56.43

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-5	23	41.48	43.17
0	32	32.00	33.31
5	41	24.96	25.83
10	50	19.61	20.19
15	59	15.49	15.94
20	68	12.31	12.67
25	77	9.85	10.12
30	86	7.96	8.15
35	95	6.45	6.61
40	104	5.27	5.39
45	113	4.32	4.42
50	122	3.56	3.64
55	131	2.95	3.02
60	140	2.46	2.52

Mirrors - Temperature Displays SC or OC

Step	Action	Yes	No
Schematic Reference: <u>Inside Rearview Mirror Schematics</u>			
Connector End View Reference: <u>Stationary Windows Connector End Views</u>			
1	Did you review the temperature display operation of the inside rearview mirror and perform the necessary inspections?	Go to Step 2	Go to Symptoms - Stationary Windows
2	1. Turn ON the ignition, with the engine OFF. 2. Turn ON the temperature display on the inside rearview mirror. Does the temperature display show a temperature reading?	Go to Step 3	Go to Step 5
3	Does the temperature display show an accurate temperature reading?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 4
4	1. Turn OFF the ignition. 2. Disconnect the ambient air temperature sensor. 3. Measure the resistance of the ambient air temperature from the sensor signal circuit to the low reference circuit of the sensor. 4. Compare the ambient air temperature sensor resistance reading with the chart above. Is the ambient air temperature sensor resistance within		

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	the range specified in the chart above?	Go to Step 12	Go to Step 13
5	Does the temperature display show SC?	Go to Step 6	Go to Step 7
6	1. Turn OFF the ignition. 2. Disconnect the ambient air temperature sensor. 3. Turn ON the ignition, with the engine OFF.		
	Does the temperature display show SC?	Go to Step 9	Go to Step 13
7	1. Turn OFF the ignition. 2. Disconnect the ambient air temperature sensor. 3. Connect a 3-amp fused jumper between the signal circuit of the ambient air temperature sensor and a good ground. 4. Turn ON the ignition, with the engine OFF.		
	Does the temperature display show SC?	Go to Step 8	Go to Step 10
8	1. Turn OFF the ignition. 2. Connect a 3-amp fused jumper between the signal circuit and the low reference circuit of the ambient air temperature sensor. 3. Turn ON the ignition, with the engine OFF.		
	Does the mirror temperature display show SC?	Go to Step 13	Go to Step 11
9	Test the signal circuit of the ambient air temperature sensor for a short to ground. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 17	Go to Step 14
10	Test the signal circuit of the ambient air temperature sensor for an open or for a short to battery positive voltage. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 17	Go to Step 14
11	Test the low reference circuit of the ambient air temperature sensor for an open or for a high resistance. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 17	Go to Step 14
12	Test the signal and low reference circuits of the ambient air temperature sensor for high resistance. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 17	Go to Step 14
	Inspect for a poor connection at the harness connector of the ambient air temperature sensor. Refer to <u>Testing</u>		

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13	for Intermittent Conditions and Poor Connections and to Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 17	Go to Step 15
14	Inspect for a poor connection at the harness connector of the inside rearview mirror. Refer to Testing for Intermittent Conditions and Poor Connections and to Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 17	Go to Step 16
15	Replace the ambient air temperature sensor. Refer to Ambient Air Temperature Sensor Replacement . Did you complete the replacement?	Go to Step 17	-
16	IMPORTANT: For the inside rearview mirror with a compass, perform <u>Compass Calibration and Variance Procedure</u>. Replace the inside rearview mirror. Refer to Rearview Mirror Replacement . Did you complete the replacement?	Go to Step 17	-
17	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

MIRRORS - COMPASS DISPLAY INOPERATIVE OR INACCURATE

Mirrors - Compass Display Inoperative or Inaccurate

Step	Action	Yes	No
Schematic Reference: <u>Inside Rearview Mirror Schematics</u> Connector End View Reference: <u>Stationary Windows Connector End Views</u>			
1	Did you review the compass operation of the inside rearview mirror and perform the necessary inspections?	Go to Step 2	Go to <u>Symptoms - Stationary Windows</u>
2	Does the automatic day-night feature of the inside rearview mirror operate correctly?	Go to Step 3	Go to <u>Mirrors - Automatic Day-Night Inoperative</u>
3	1. Turn ON the ignition, with the engine OFF. 2. Turn ON the compass. 3. Verify that the compass has one of the following conditions: • An incorrect reading on the display. • The letter "C" or "CAL" is displayed. • The compass display is blank. Does the compass have one of the conditions mentioned above?	Go to Step 4	Go to <u>Testing for Intermittent Conditions and Poor Connections</u> in Wiring Systems

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4	Is the compass display totally blank?	Go to Step 8	Go to Step 5
5	Is the letter "C" or "CAL" displayed on the mirror?	Go to Step 6	Go to Step 7
6	Perform the compass calibration procedure. Refer to <u>Compass Calibration and Variance Procedure</u> . Is the compass accurate and operating properly?	Go to Step 10	Go to Step 7
7	Perform the compass magnetic variation adjustment procedure. Refer to <u>Compass Calibration and Variance Procedure</u> . Is the compass accurate and operating properly?	Go to Step 10	Go to Step 8
8	Inspect for a poor connection at the harness connector of the inside rearview mirror. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and to <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 10	Go to Step 9
9	IMPORTANT: Perform <u>Compass Calibration and Variance Procedure</u> for the inside rearview mirror with compass. Replace the inside rearview mirror. Refer to <u>Rearview Mirror Replacement</u> . Did you complete the replacement?	Go to Step 10	-
10	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

REPAIR INSTRUCTIONS

AMBIENT AIR TEMPERATURE SENSOR REPLACEMENT

Removal Procedure

1. Remove the radiator grille from the vehicle. Refer to **Grille Replacement (Cadillac)** or **Grille Replacement (Avalanche)** or **Grille Replacement (Chevrolet)** or **Grille Replacement (GMC)** in Exterior Trim.
2. Remove the push pin retainer from the sensor mounted on the radiator support brace.
3. Disconnect the electrical connector from the sensor.

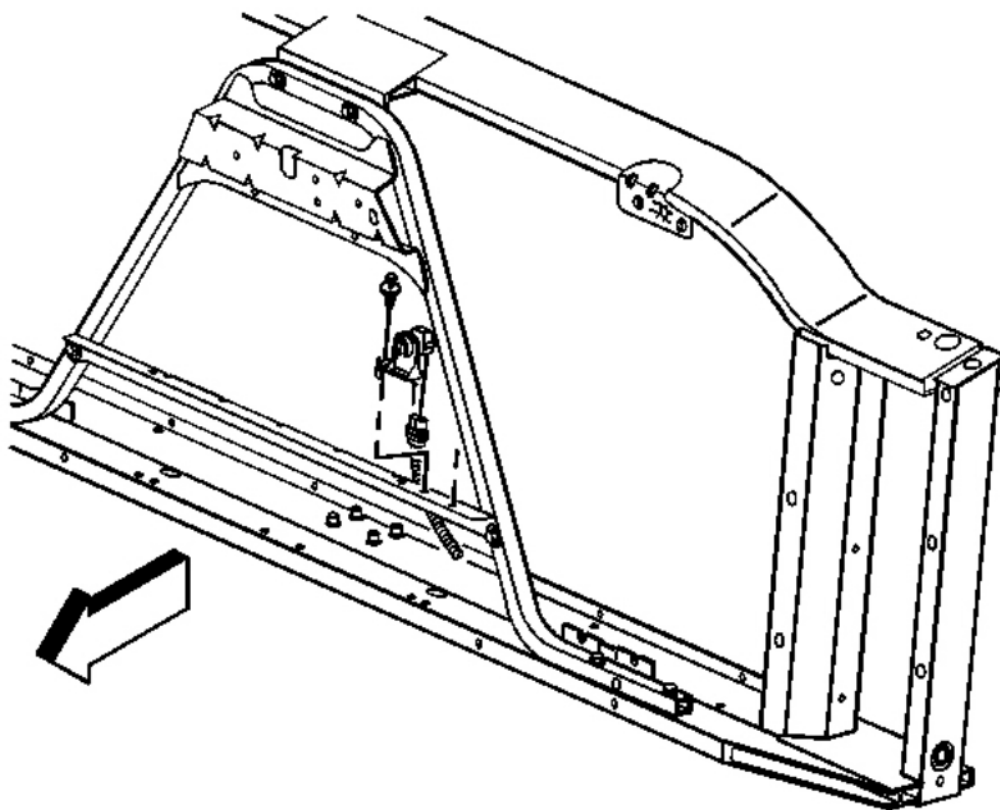


Fig. 6: View Of Ambient Air Temperature Sensor
Courtesy of GENERAL MOTORS CORP.

Installation Procedure

1. Connect the electrical connector to the sensor.
2. Install the sensor to the radiator support brace and install the push pin retainer.

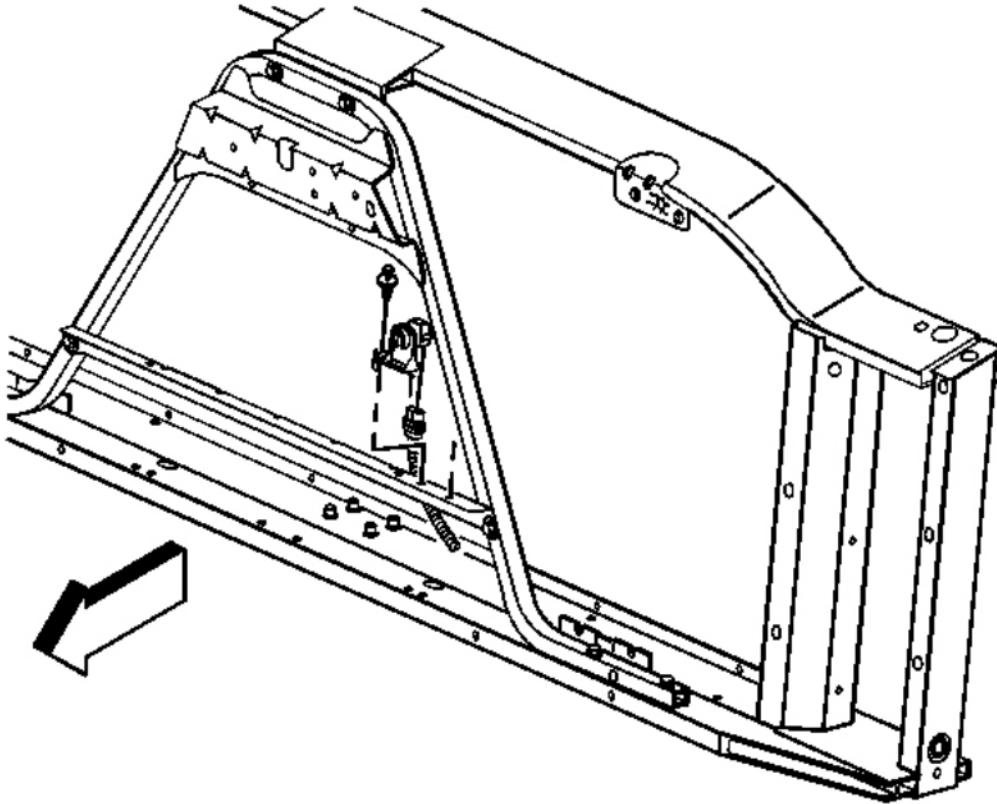


Fig. 7: View Of Ambient Air Temperature Sensor
Courtesy of GENERAL MOTORS CORP.

3. Install the radiator grille to the vehicle. Refer to **Grille Replacement (Cadillac)** or **Grille Replacement (Avalanche)** or **Grille Replacement (Chevrolet)** or **Grille Replacement (GMC)** in Exterior Trim.

STATIONARY WINDOW REVEAL MOLDING REPAIR

Removal Procedure

CAUTION: Refer to Glass and Sheet Metal Handling Caution in Cautions and Notices.

IMPORTANT: The window reveal molding fills the cavity between the body and window. If the reveal molding is stretched or damaged, it cannot be reused and it must be replaced.

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1. Lift up on the loose area of the reveal molding.

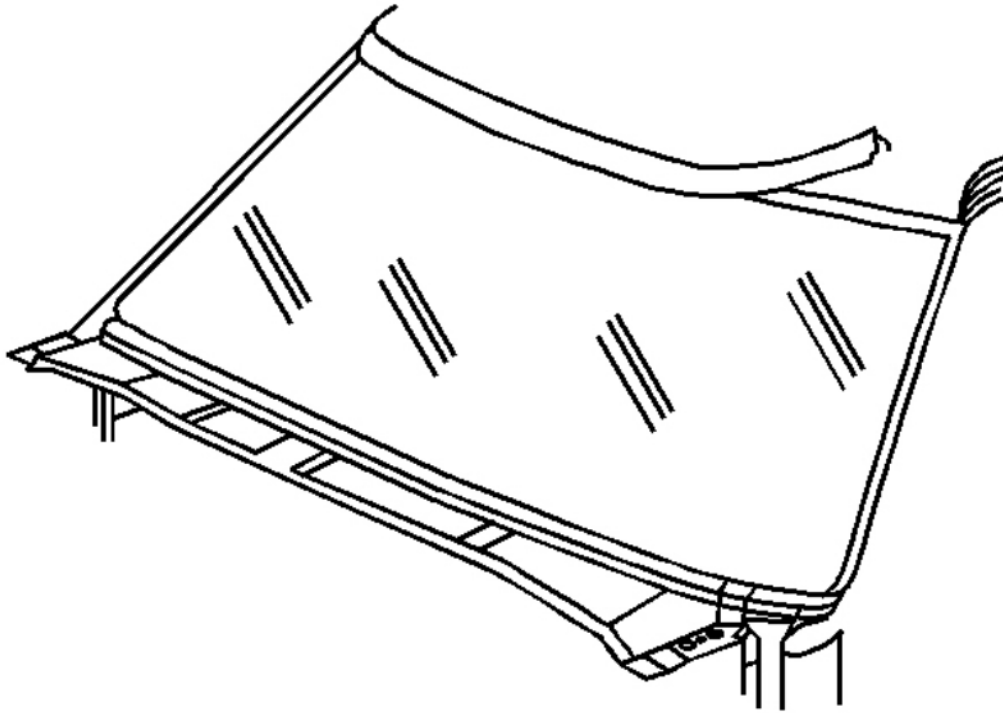


Fig. 8: View Of Window Reveal Molding
Courtesy of GENERAL MOTORS CORP.

2. Clean the top edge of the window surface and the reveal molding with a 50/50 mixture of isopropyl alcohol and water by volume on a dampened lint-free cloth.

Installation Procedure

CAUTION: Refer to Window Retention Caution in Cautions and Notices.

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

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

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2. Use a new dauber in order to apply glass prep, clear #1, to the channel area approximately 13 mm (1/2 in) to the upper edge of the window.
3. Wipe the glass primed area immediately with a clean lint-free cloth.
4. Shake the glass primer, black #2, for at least 1 minute.
5. Use a new dauber in order to apply glass primer, black #2, to the top edge of the window.

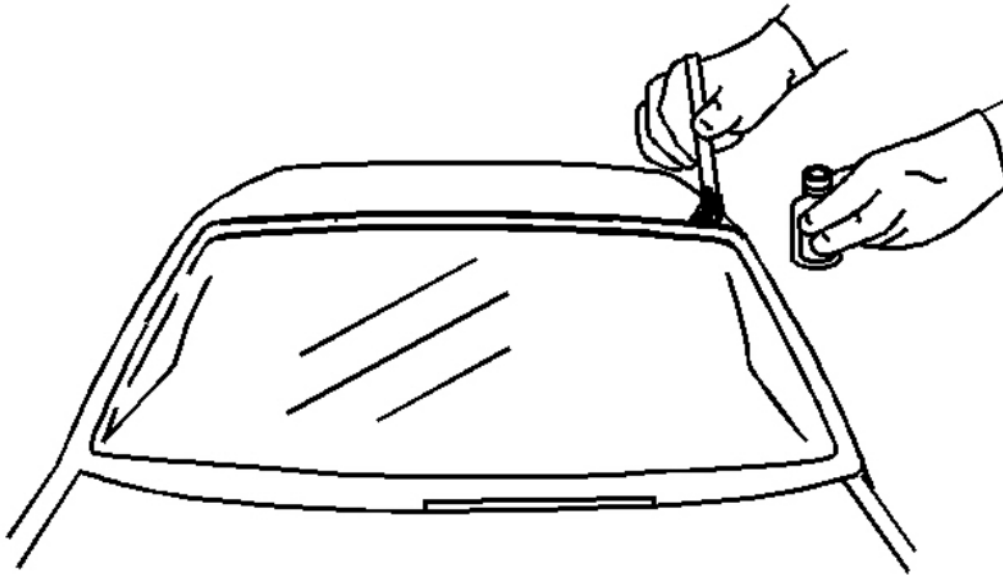


Fig. 9: Applying Glass Primer (Black #2)
Courtesy of GENERAL MOTORS CORP.

6. Apply a small bead of urethane adhesive (2) between the window (1) and the pinch-weld.

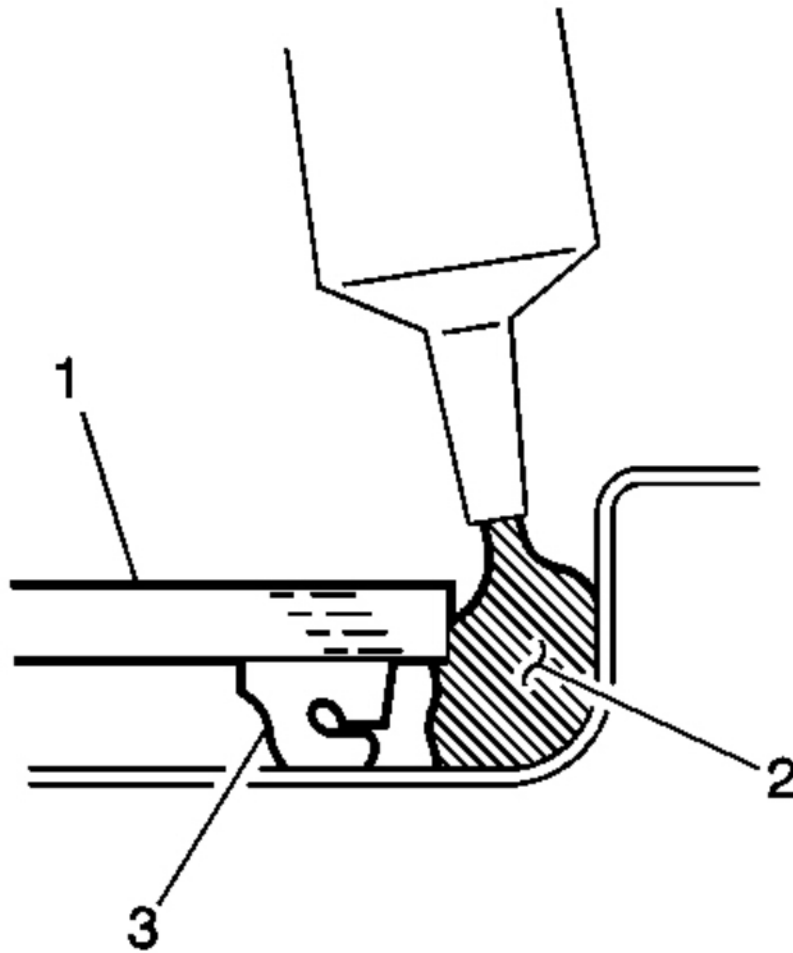


Fig. 10: Applying Urethane Adhesive Between Window & Pinch-Weld
Courtesy of GENERAL MOTORS CORP.

7. Reinstall the window reveal molding.
 1. Start from the loose area and hand-press the reveal molding into place over the edge of the window.
 2. Run warm water over the reveal molding in order to speed the setup time of the urethane adhesive.
 3. Tape should be applied in order to retain the reveal molding to the window. This will maintain a flush fit with the body.
 4. The tape is to be removed after 6 hours.

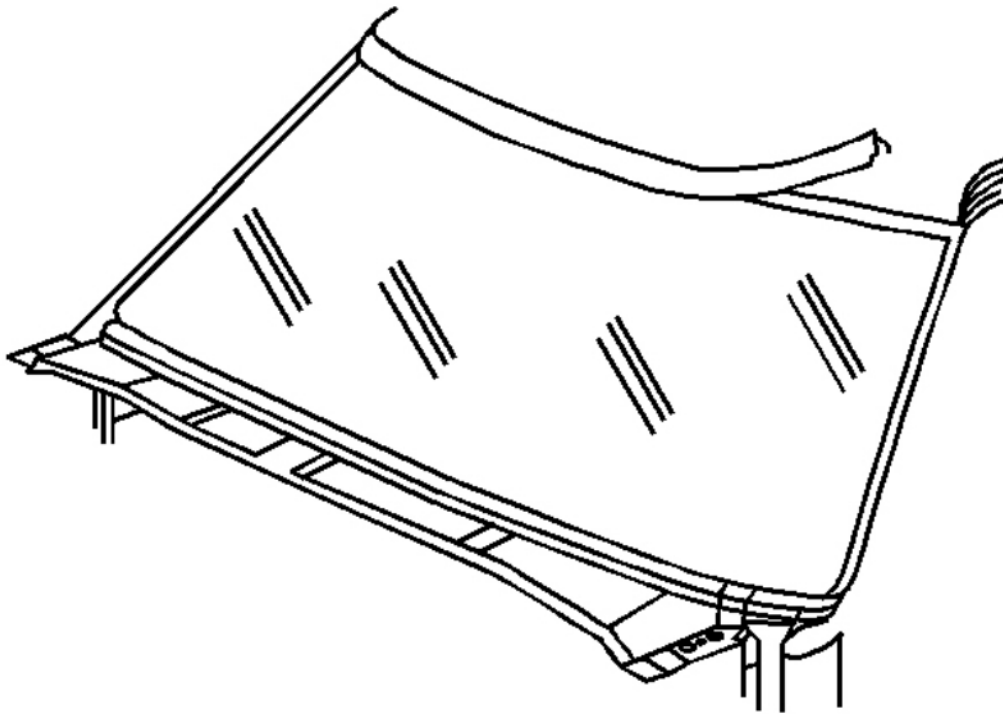


Fig. 11: View Of Window Reveal Molding
Courtesy of GENERAL MOTORS CORP.

WINDSHIELD UPPER REVEAL MOLDING REPLACEMENT

Tools Required

- Urethane Adhesive Kit GM P/N 12346392 or Equivalent
- Isopropyl Alcohol or Equivalent
- Cartridge-type Caulking Gun
- Plastic Paddle

Removal Procedure

1. Remove both right and left sides of the reveal molding. Refer to **Windshield Side Reveal Molding Replacement**.

CAUTION: Refer to Glass and Sheet Metal Handling Caution in Cautions and Notices.

IMPORTANT: The windshield reveal molding fills the cavities between the body and windshield. If the reveal molding is stretched or damaged it and cannot be reused it must be replaced.

2. Remove the upper windshield reveal molding.
 1. Use a flat-bladed tool in order to carefully pry the end of the upper reveal molding out about 76 mm (3 in).
 2. Grasp the corner of the windshield reveal molding by hand or use a suitable tool to slowly pull the reveal molding away from the windshield.
 3. If the windshield reveal molding will not release, use a utility knife to aid in the releasing of the molding.

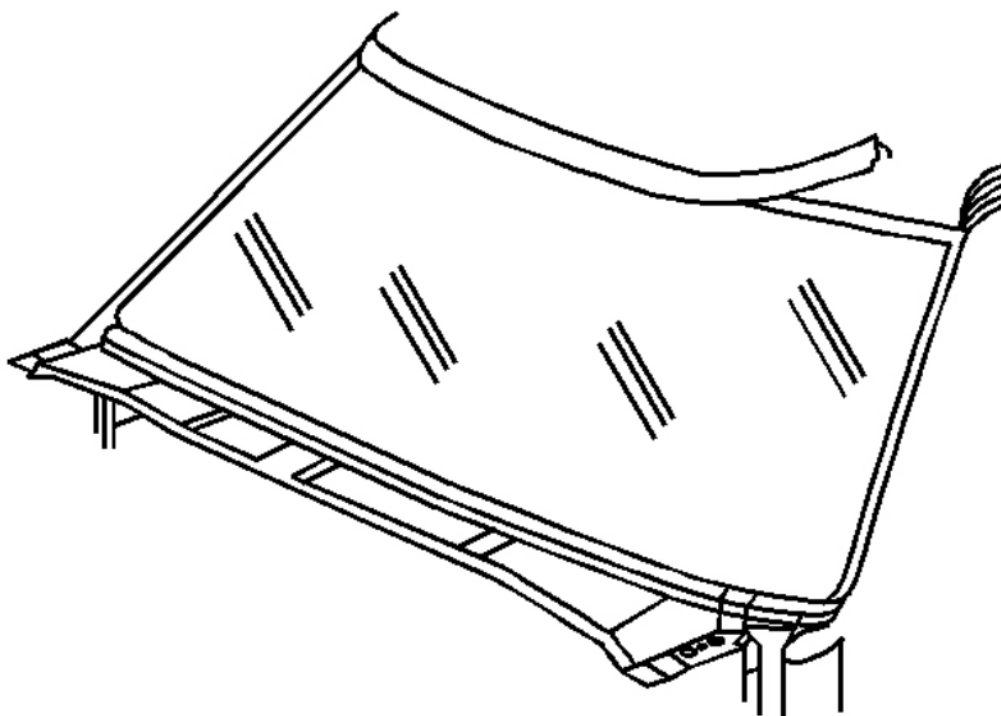


Fig. 12: View Of Window Reveal Molding
Courtesy of GENERAL MOTORS CORP.

Installation Procedure

1. Clean the top edge of the windshield surface with a 50/50 mixture of isopropyl alcohol and water by volume on a dampened lint - free cloth.

2. The new reveal molding should be fitted to the windshield prior to installation.

CAUTION: Refer to Window Retention Caution in Cautions and Notices.

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

IMPORTANT: Use care when applying the prep (clear #1) to the windshield. This primer dries almost instantly, and may stain the viewing area of the windshield if not applied evenly.

4. Use a new dauber in order to apply glass prep (clear #1) to the channel area approximately 13 mm (1/2 in) to the upper edge of the windshield.
5. Wipe the glass primed area immediately with a clean lint-free cloth.
6. Shake the glass primer (black #2) for at least one minute.

Using a new dauber in order to apply glass primer (black #2) to the top edge of the windshield.

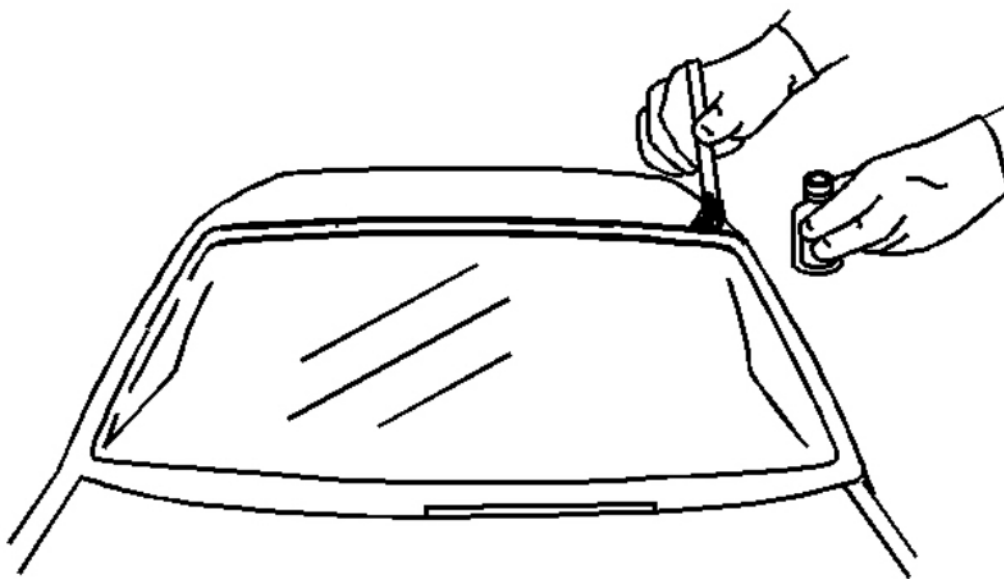


Fig. 13: Applying Glass Primer (Black #2)
Courtesy of GENERAL MOTORS CORP.

7. Apply a small bead of urethane adhesive (2) between the windshield (1) and the pinchweld.

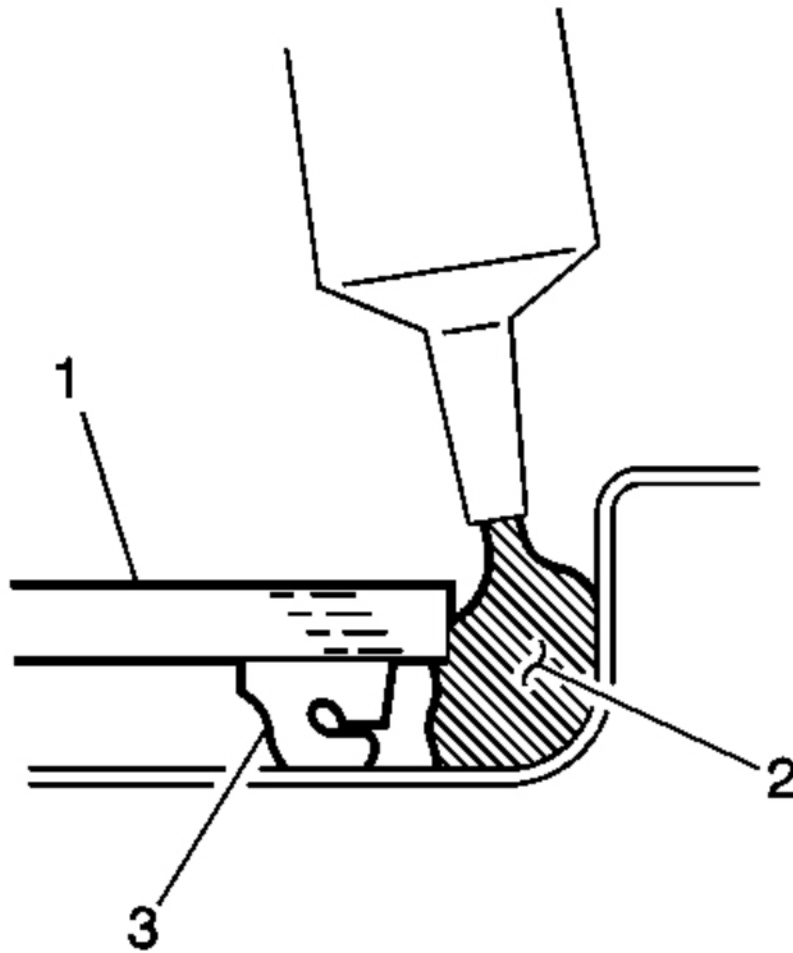


Fig. 14: Applying Urethane Adhesive Between Window & Pinch-Weld
Courtesy of GENERAL MOTORS CORP.

8. Install the upper reveal molding.
 1. Start from the center and hand-press the reveal molding into place over the edge of the windshield.
 2. Install both right and left sides of the reveal molding. Refer to **Windshield Side Reveal Molding Replacement**.
 3. Run warm water over the reveal molding in order to speed the setup time of the urethane adhesive.

Tape should be applied in order to retain the reveal molding to the windshield, this will maintain a flush fit with the body.

The tape is to be removed after 6 hours.

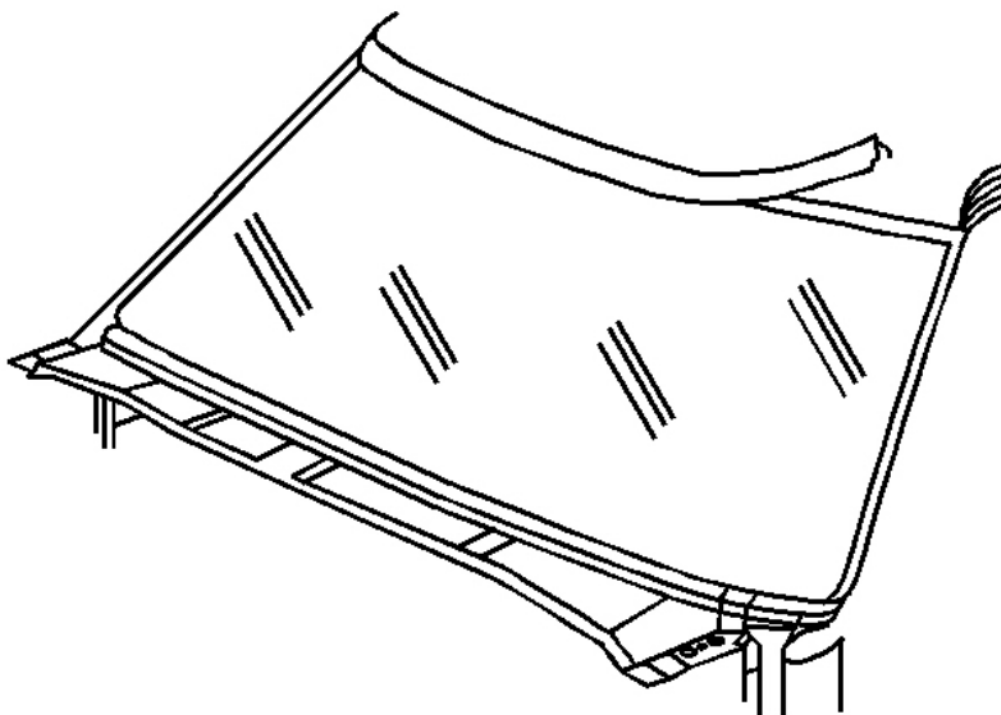


Fig. 15: View Of Window Reveal Molding
Courtesy of GENERAL MOTORS CORP.

WINDSHIELD SIDE REVEAL MOLDING REPLACEMENT

Removal Procedure

1. Pull back the front door sealing weatherstrip (1) to expose the windshield reveal molding screws.

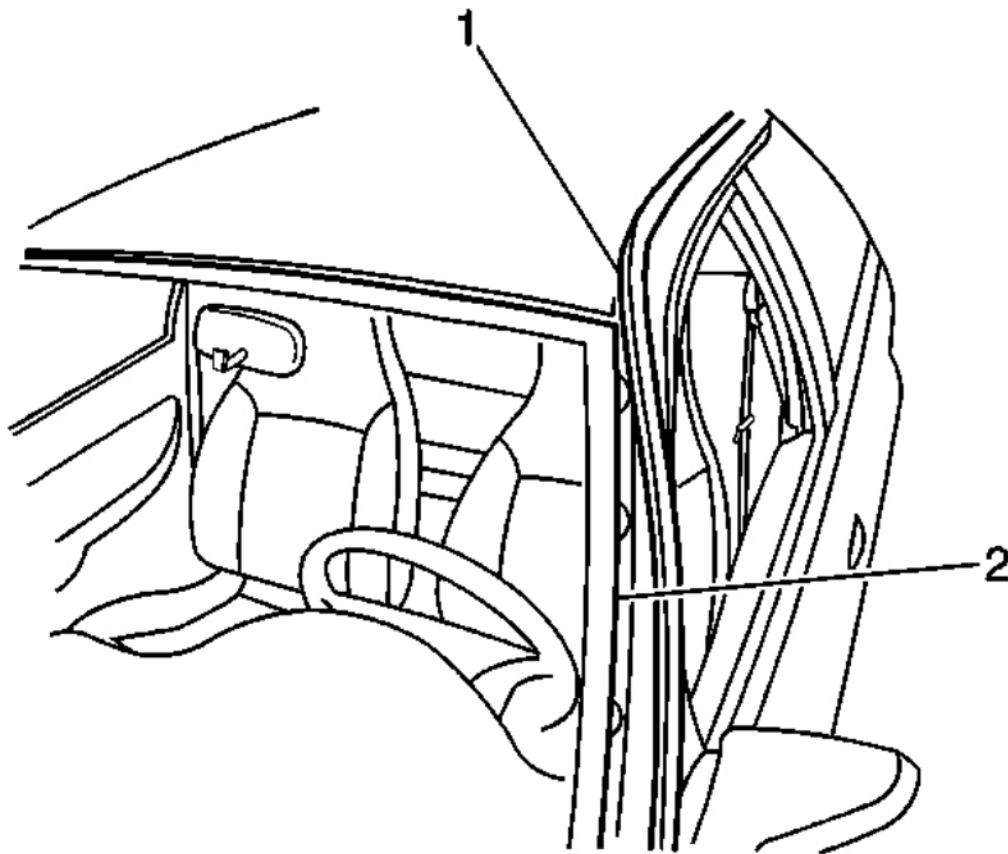


Fig. 16: View Of Front Door Sealing Weatherstrip
Courtesy of GENERAL MOTORS CORP.

2. Remove the screws from the windshield reveal molding.
3. Remove the windshield reveal molding from the windshield pillar.

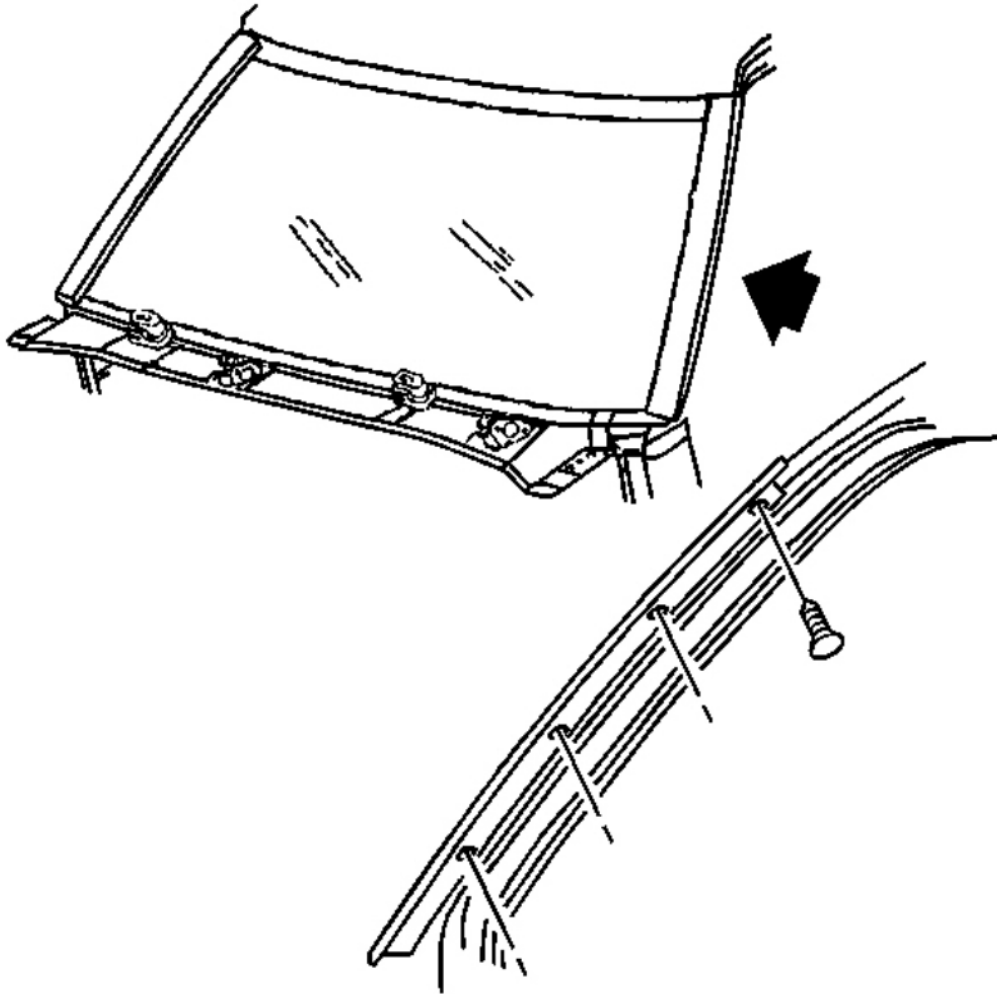


Fig. 17: Identifying Windshield Reveal Molding Screws
Courtesy of GENERAL MOTORS CORP.

Installation Procedure

1. Install the windshield reveal molding to the windshield pillar.

NOTE: Refer to **Fastener Notice** in Cautions and Notices.

2. Install the screws to the windshield reveal molding.

Tighten: Tighten the screws to the windshield reveal molding to 2 N.m (18 lb in).

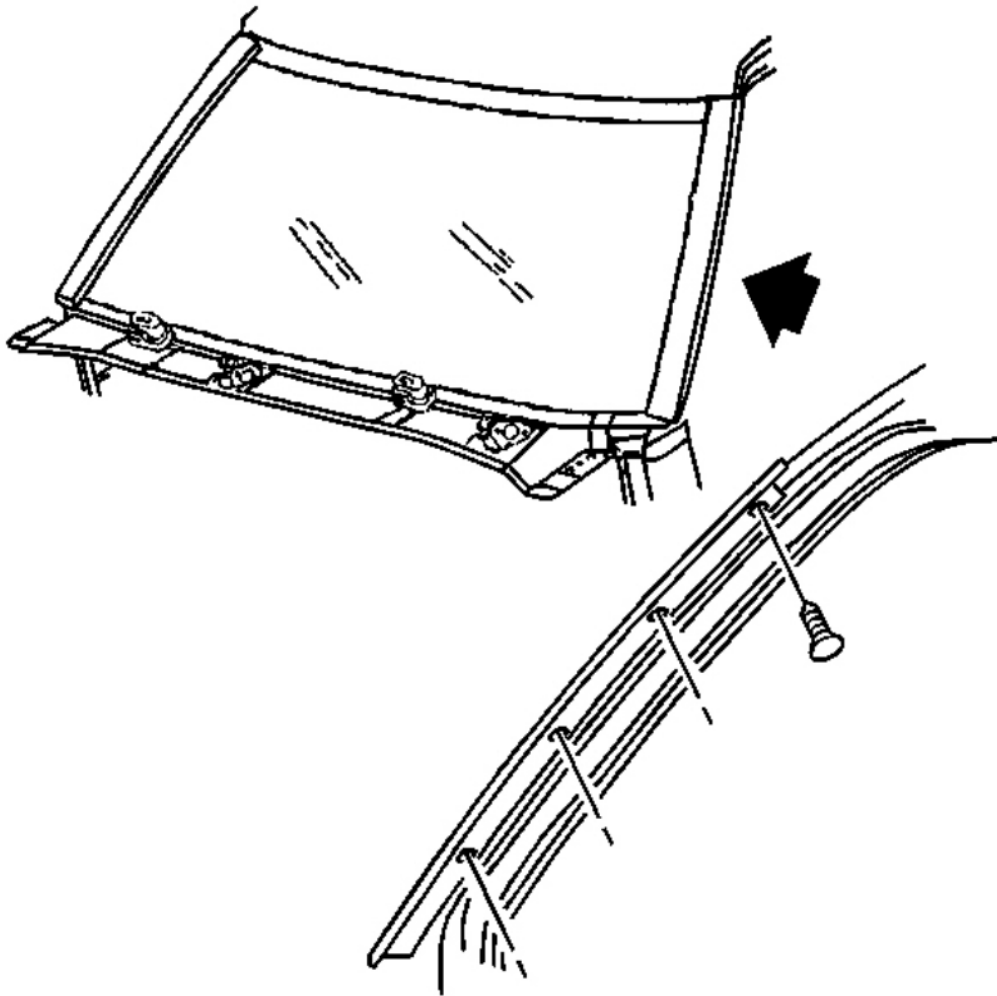


Fig. 18: Identifying Windshield Reveal Molding Screws
Courtesy of GENERAL MOTORS CORP.

3. Install the front door sealing weatherstrip (1) to the pinch-weld.

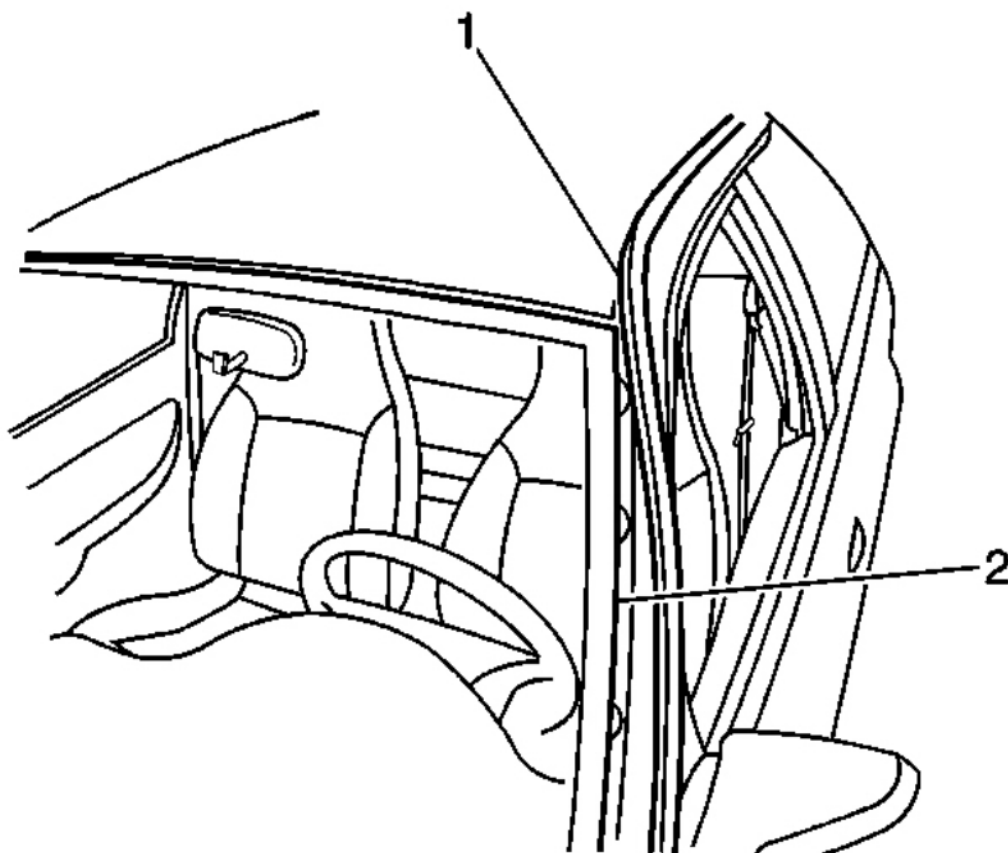


Fig. 19: View Of Front Door Sealing Weatherstrip
Courtesy of GENERAL MOTORS CORP.

4. Close the door.

REARVIEW MIRROR REPLACEMENT

Removal Procedure

1. Disconnect the electrical connector from the back of the mirror.

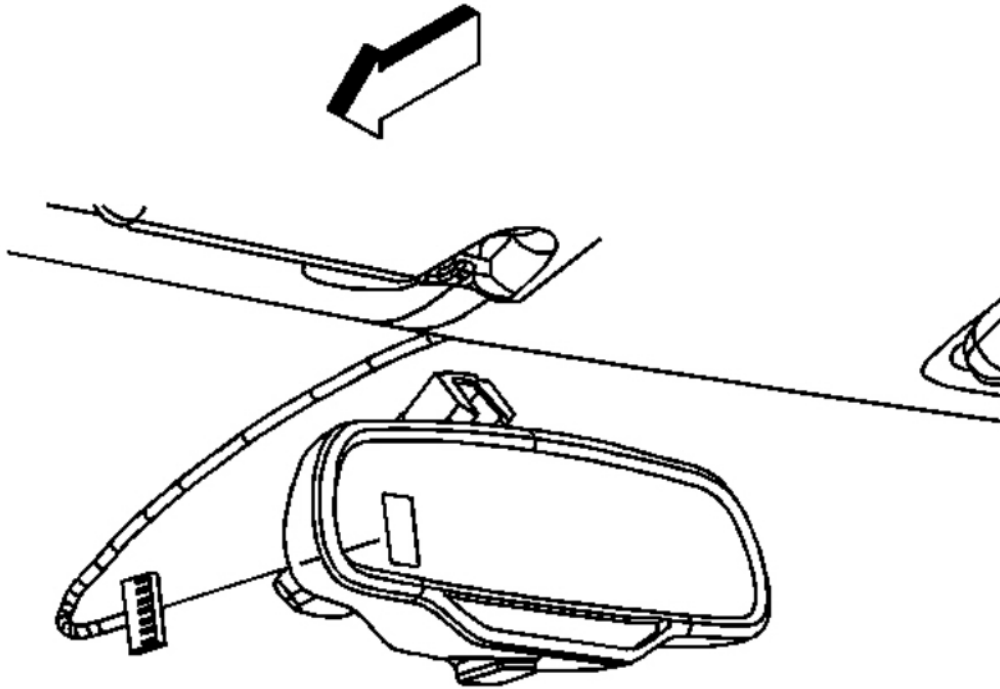


Fig. 20: Disconnecting Electrical Connector From Back Of Mirror
Courtesy of GENERAL MOTORS CORP.

2. Remove the wire cover.
3. Adjust the mirror to the full upward position.
4. Remove the base trim cover.
5. Loosen the screw (3) in order to remove the mirror (2) from the button assembly (1).

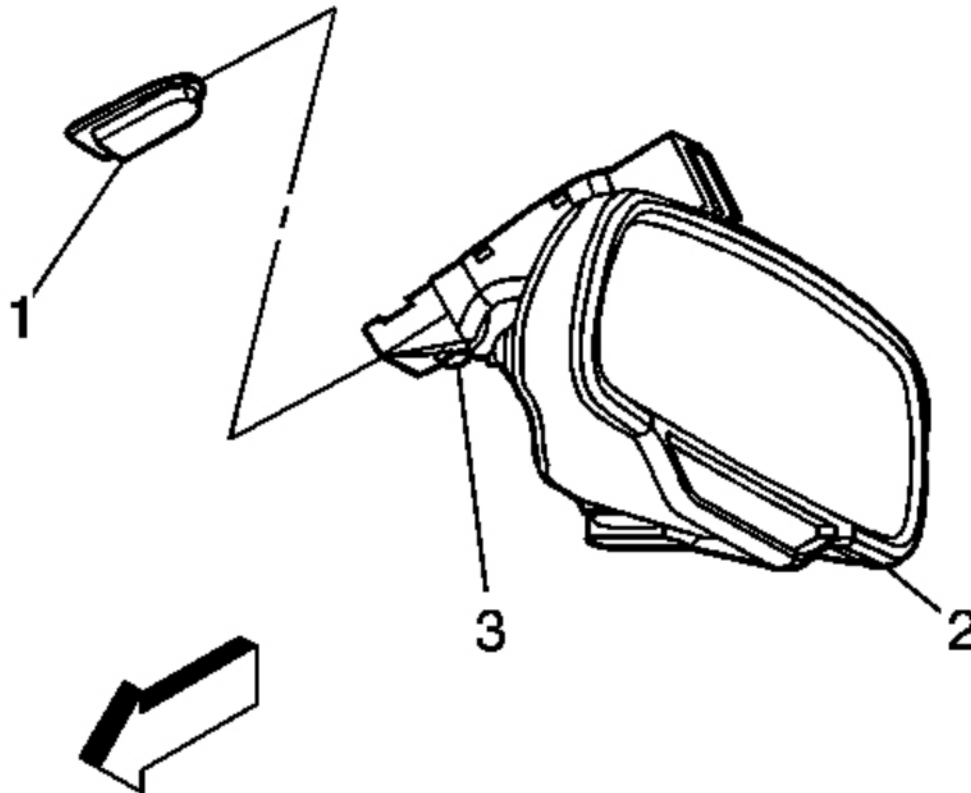


Fig. 21: View Of Rearview Mirror Mounting Components
Courtesy of GENERAL MOTORS CORP.

6. Slide the mirror assembly in an upward motion in order to remove.

Installation Procedure

1. Position the center bottom of the mirror mount against the windshield at the top of the support button (1).
2. Slide the base of the mirror onto the button.

NOTE: Refer to Fastener Notice in Cautions and Notices.

3. Make sure the mirror is firmly seated on the windshield button by pushing down on the base of the mirror.

Tighten: Tighten the screw (3) to 1.8 N.m (16 lb in) in order to secure the mirror base to the button.

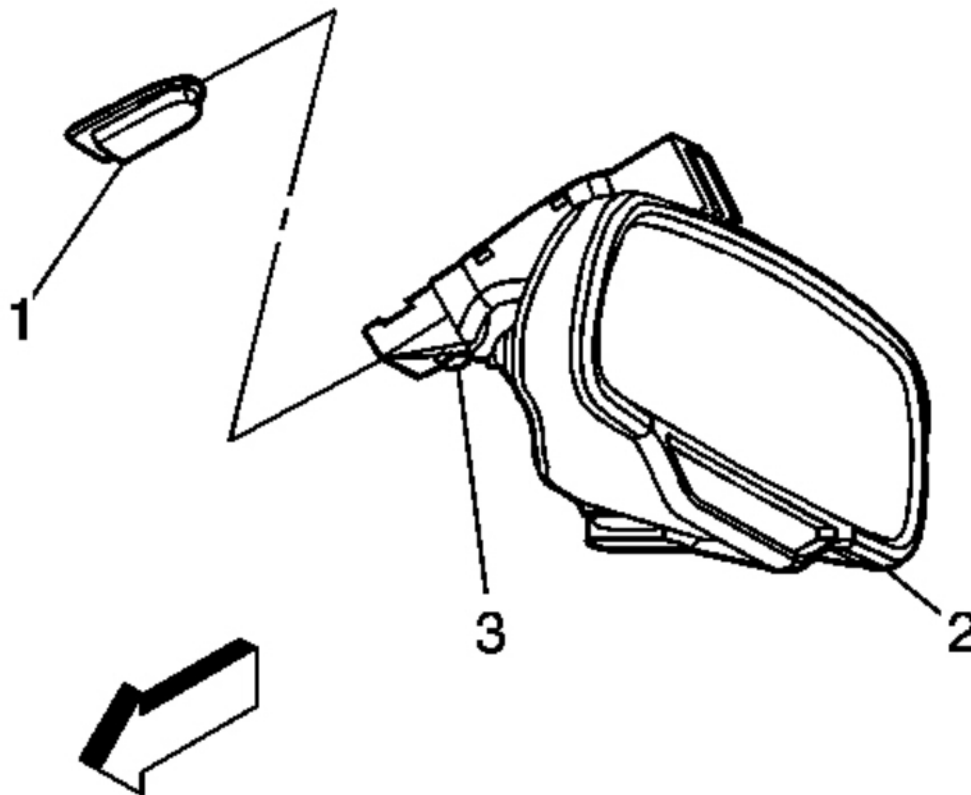


Fig. 22: View Of Rearview Mirror Mounting Components
Courtesy of GENERAL MOTORS CORP.

4. Install the base trim cover.
5. Connect the electrical connector.

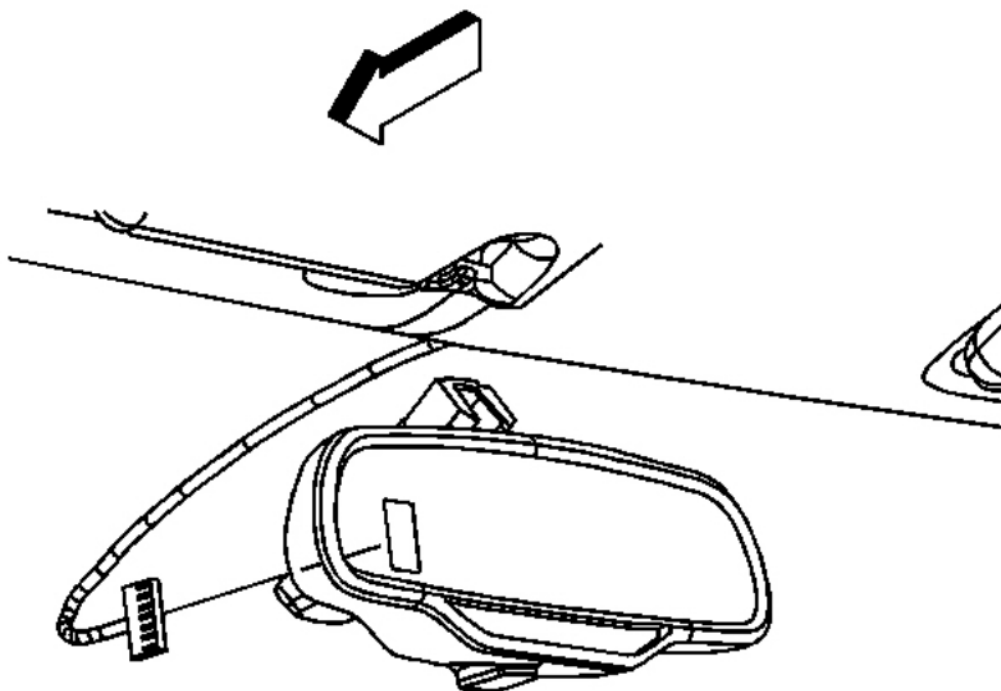


Fig. 23: Connecting Electrical Connector To Back Of Mirror
Courtesy of GENERAL MOTORS CORP.

6. Install the wire cover.
7. Reposition the mirror assembly.

REARVIEW MIRROR SUPPORT INSTALLATION

Tools Required

- Inside Mirror Adhesive Kit GM P/N 1052369 (Canadian P/N 993362), or equivalent
 - Safety Razor or Utility Knife
1. Determine the location of the mirror mounting base by marking the outside of the windshield with a marking pencil where the base was previously located. If it is not clear where the base was mounted, use the following steps to determine where the base should be installed:
 1. Using a measuring tape, measure the distance between the windshield pillars from the base of the shade line.
 2. Using a marking pencil, halfway between the windshield pillars, draw a centerline (1) on the windshield from the roof panel to the windshield base.

3. Draw a perpendicular line intersecting the centerline (2) at that location.

The top center of the mirror mounting base will be at the intersection of these lines.

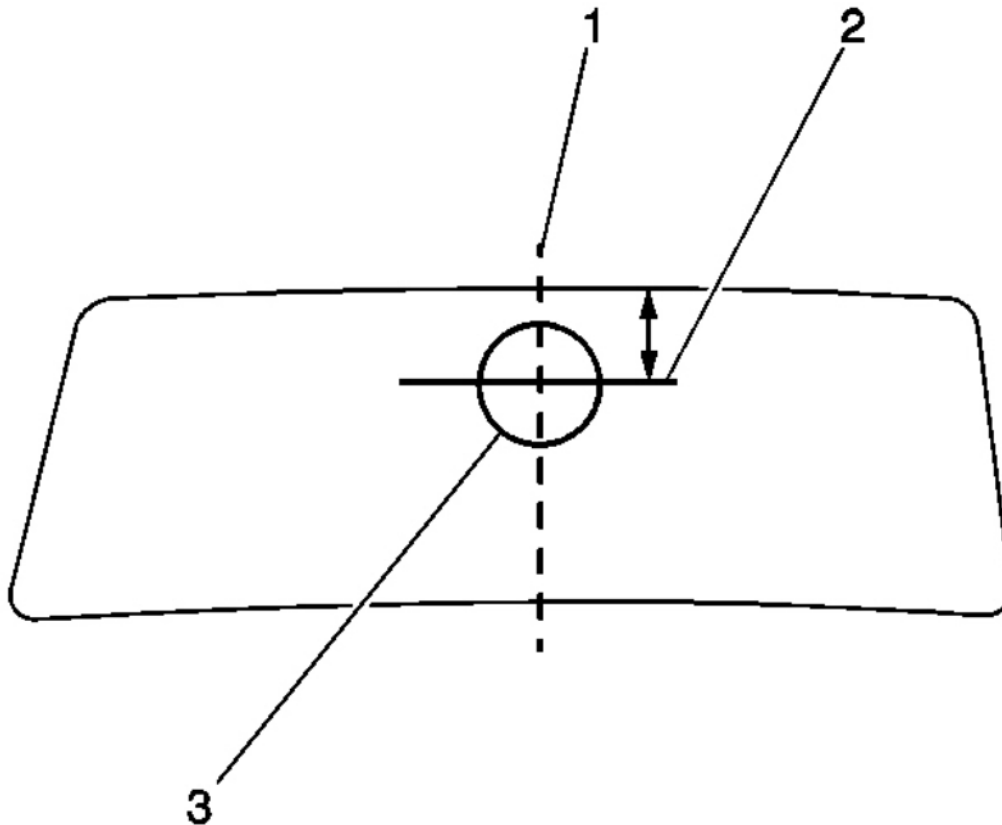


Fig. 24: Identifying Mirror Mounting Base Location
Courtesy of GENERAL MOTORS CORP.

2. Scrape the inside windshield thoroughly with a safety razor or utility knife in order to remove all old adhesive.
3. If reinstalling the original mounting base, place the mirror mounting base in a suitable holding device, such as a vise.
4. Clean the mirror mounting base thoroughly with a safety razor or utility knife in order to remove all old adhesive.
5. Clean the inside windshield and the mounting surface of the mirror mounting base thoroughly with a clean cloth saturated with naphtha or a 50/50 mixture (by volume) of clean water and isopropyl alcohol.
6. Use Inside Mirror Adhesive Kit GM P/N 1052369 (Canadian P/N 993362), or equivalent, to apply a small

amount of activator to the mounting surface of the mirror mounting base.

7. Apply a small amount of activator to the windshield where the mounting base is to be installed.
8. Allow the activator to dry 5 minutes.

IMPORTANT: Do not touch the mounting surface of the mirror mounting base or the window.

9. Apply 1 drop of adhesive to the center of the mirror mounting base.

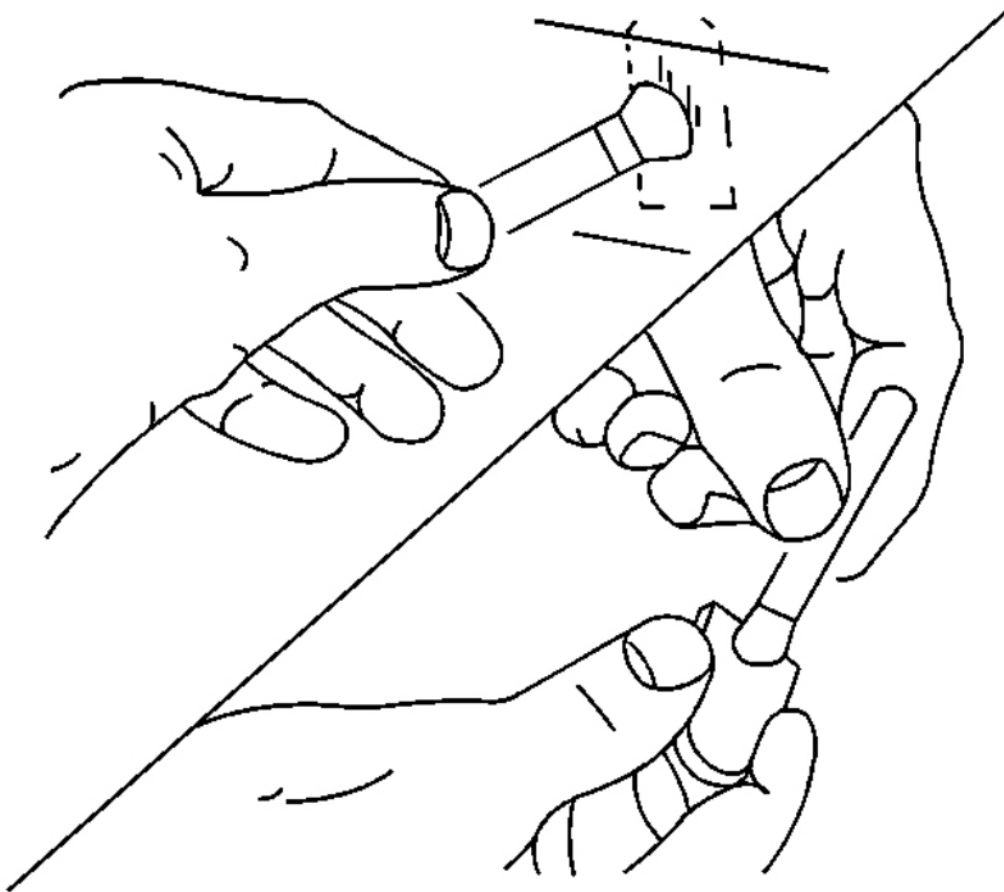


Fig. 25: Applying Adhesive To Mirror Base & Window
Courtesy of GENERAL MOTORS CORP.

10. Immediately apply the mounting base to the windshield, ensuring that the mounting base aligns correctly to the marks made on the outside of the windshield.

11. Hold the mounting base firmly in place for 1 minute.
12. Allow the adhesive to set for 15 minutes.

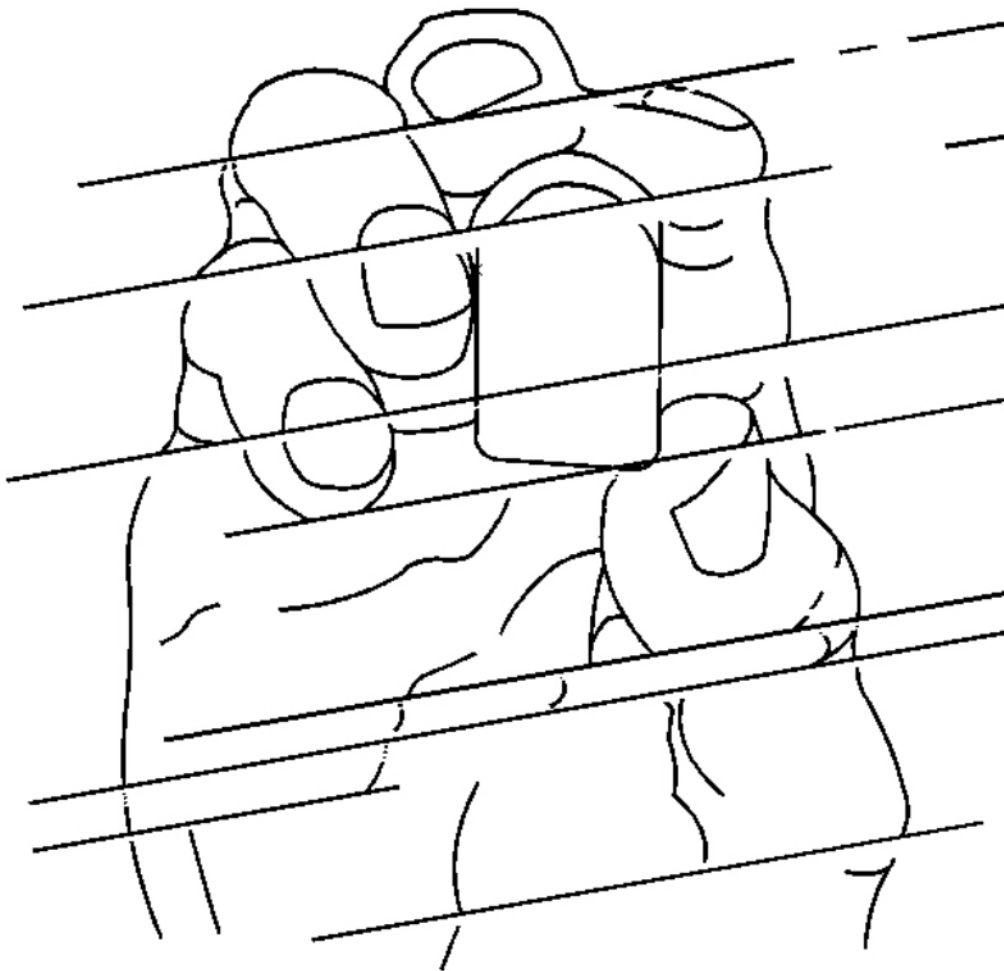


Fig. 26: Installing Mirror Mounting Base
Courtesy of GENERAL MOTORS CORP.

13. Install the mirror to the mirror mounting base and fasten, if necessary.
14. Connect the electrical connector and install the wire cover, if equipped.

WINDSHIELD REPLACEMENT

Tools Required

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- **J 24402-A** Glass Sealant Cold Knife Remover. See **Special Tools and Equipment**.
- **J 39032** Stationary Window Removal Tool. See **Special Tools and Equipment**.
- Urethane Adhesive Kit GM P/N 12346392 or Equivalent
- Isopropyl Alcohol or Equivalent
- Cartridge-type Caulking Gun
- Commercial-type Utility Knife
- Razor Blade Scraper
- Suction Cups
- Plastic Paddle

Removal Procedure

CAUTION: Refer to Glass and Sheet Metal Handling Caution in Cautions and Notices.

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

1. Remove the fixed antenna mast if equipped. Refer to **Fixed Antenna Replacement** in Entertainment.
2. Open the hood.
3. Remove the window wiper arms. Refer to **Wiper Arm Replacement** in Wipers/Washer Systems.
4. Remove the air inlet grille panel. Refer to **Air Inlet Grille Panel Replacement** in Body Front End.
5. Reposition the front door sealing weatherstrips (1) in order to access the side reveal molding screws. You do not have to remove the front door sealing weatherstrip completely from the vehicle.

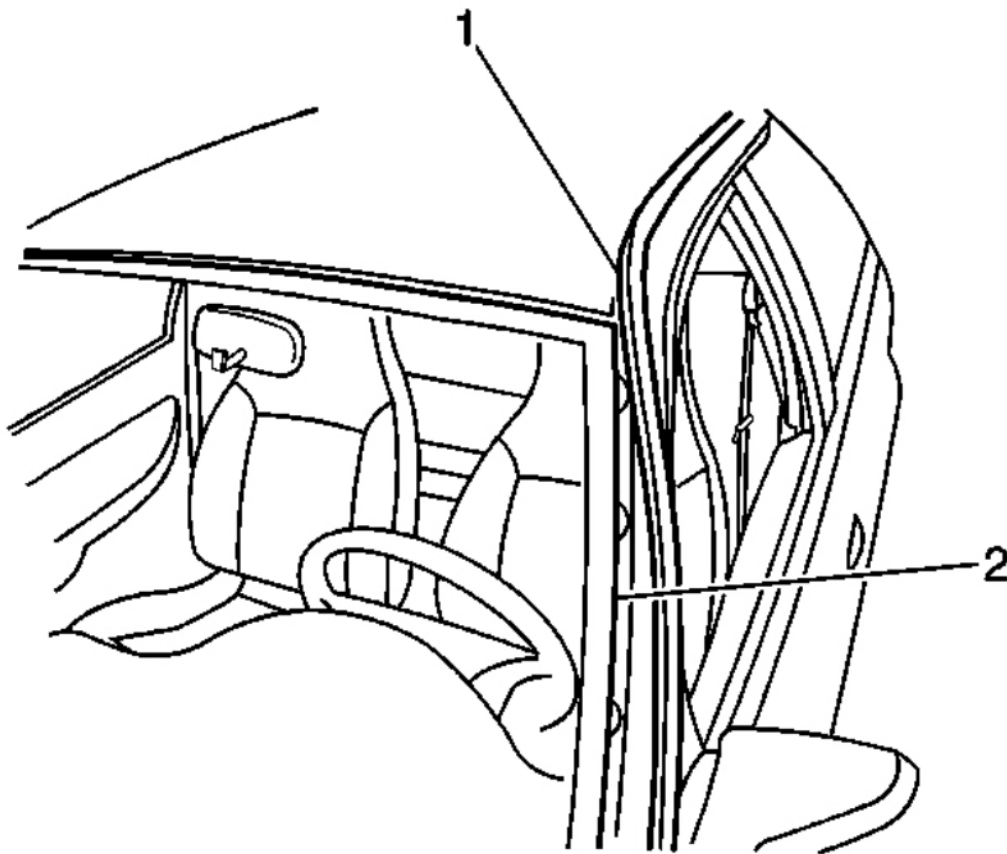


Fig. 27: View Of Front Door Sealing Weatherstrip
Courtesy of GENERAL MOTORS CORP.

CAUTION: Refer to Cracked Window Caution in Cautions and Notices.

6. Remove the screws from the left and the right sides of window side reveal moldings.

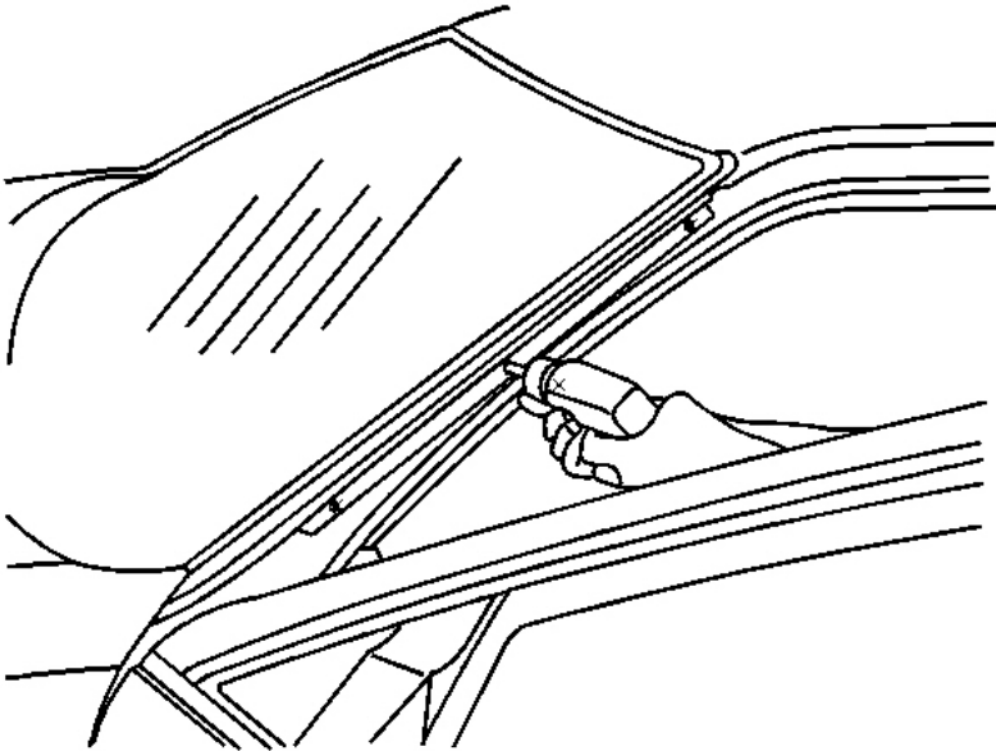


Fig. 28: Removing Screws From Window Side Reveal Moldings
Courtesy of GENERAL MOTORS CORP.

7. Remove the reveal moldings from the vehicle.

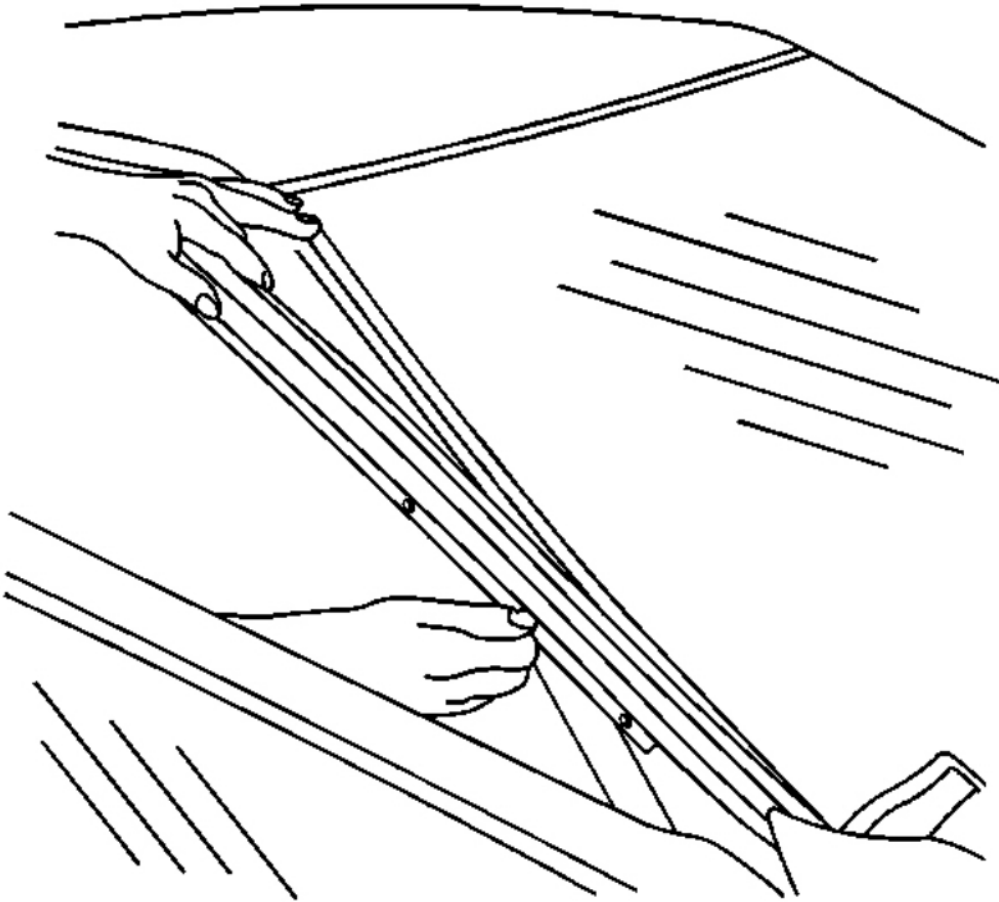


Fig. 29: Removing Window Side Reveal Molding
Courtesy of GENERAL MOTORS CORP.

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

8. Cover the following parts to protect from broken glass:
 1. The upper dash pad
 2. The defroster outlets and A/C outlets
 3. The seats and the carpeting
9. Remove the rearview mirror. Refer to **Rearview Mirror Replacement**.

IMPORTANT: The upper window reveal molding fills the cavities between the body and

window. If the reveal molding is stretched or damaged, replace the molding.

10. Remove the upper window reveal molding (1).

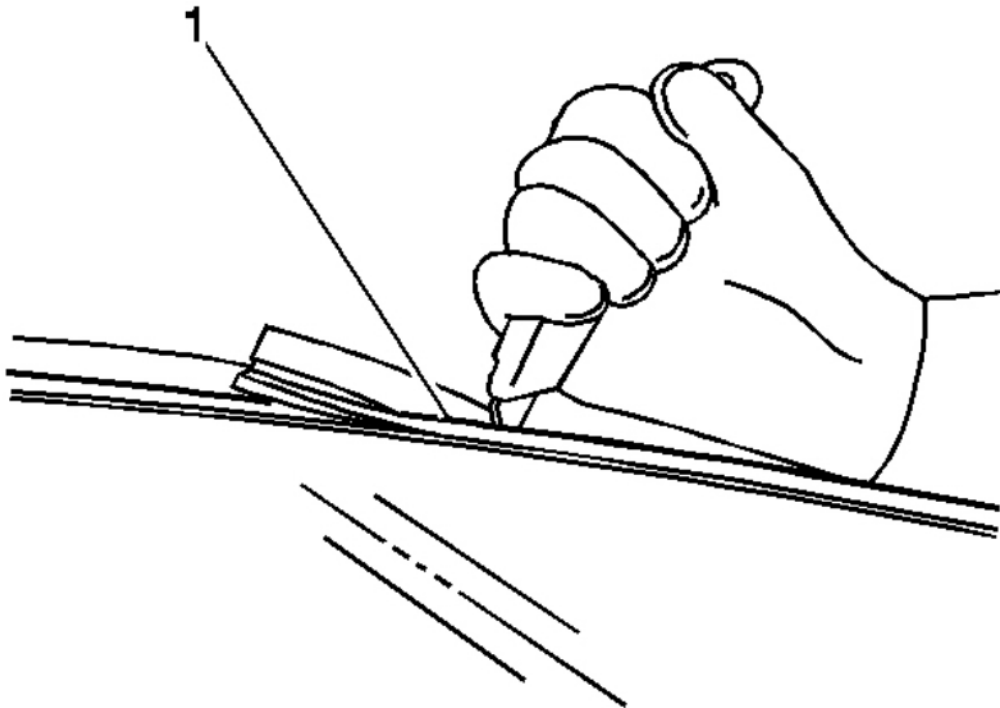


Fig. 30: Using Utility Knife To Remove Reveal Molding
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The window lower supports have molded locks with an urethane adhesive strip on the back side. Once the window lower stops have been removed, the stops must be replaced.

11. Remove the window lower supports (1) by using a flat-bladed tool, lightly prying upward in the middle until the support releases.

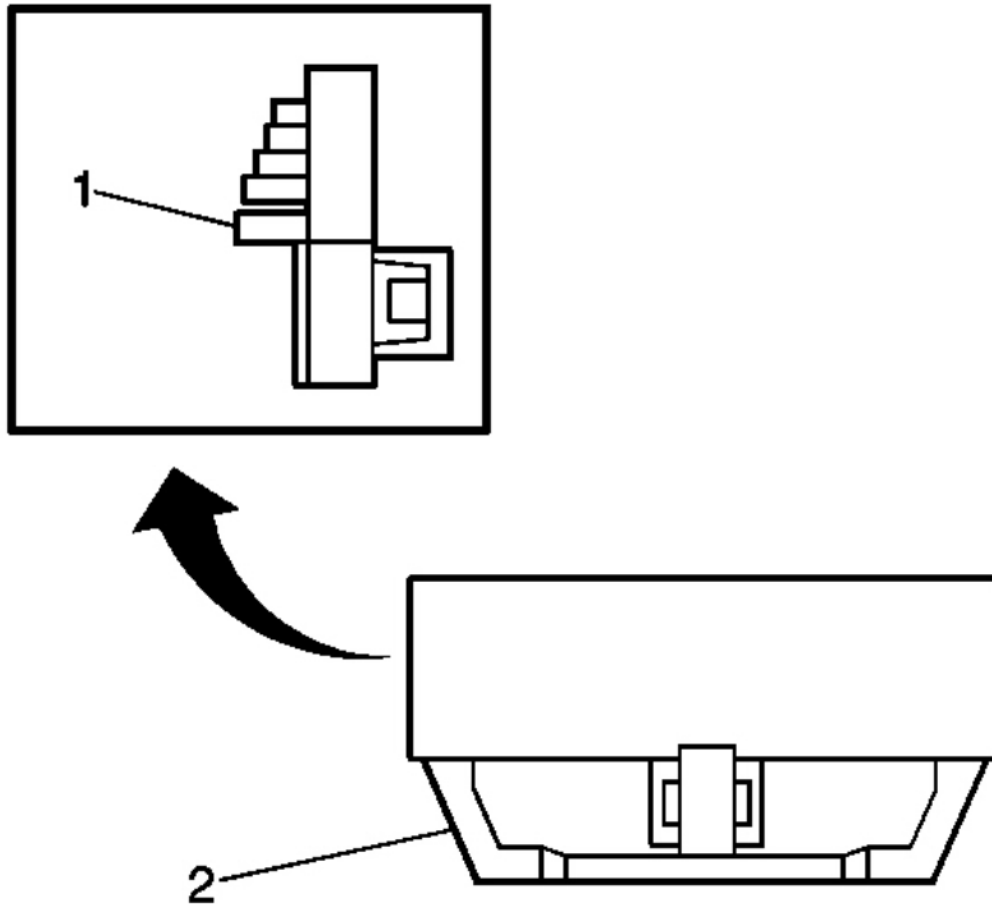


Fig. 31: View Of Window Lower Supports
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Keep the cutting edge of the tool against the window in order to properly separate the urethane adhesive from the window.

12. Use **J 24402-A** , **J 39032** , or equivalent in order to remove the window. See **Special Tools and Equipment**.
 - Leave a base of urethane on the pinchweld flange.
 - The only suitable lubrication is clear water.

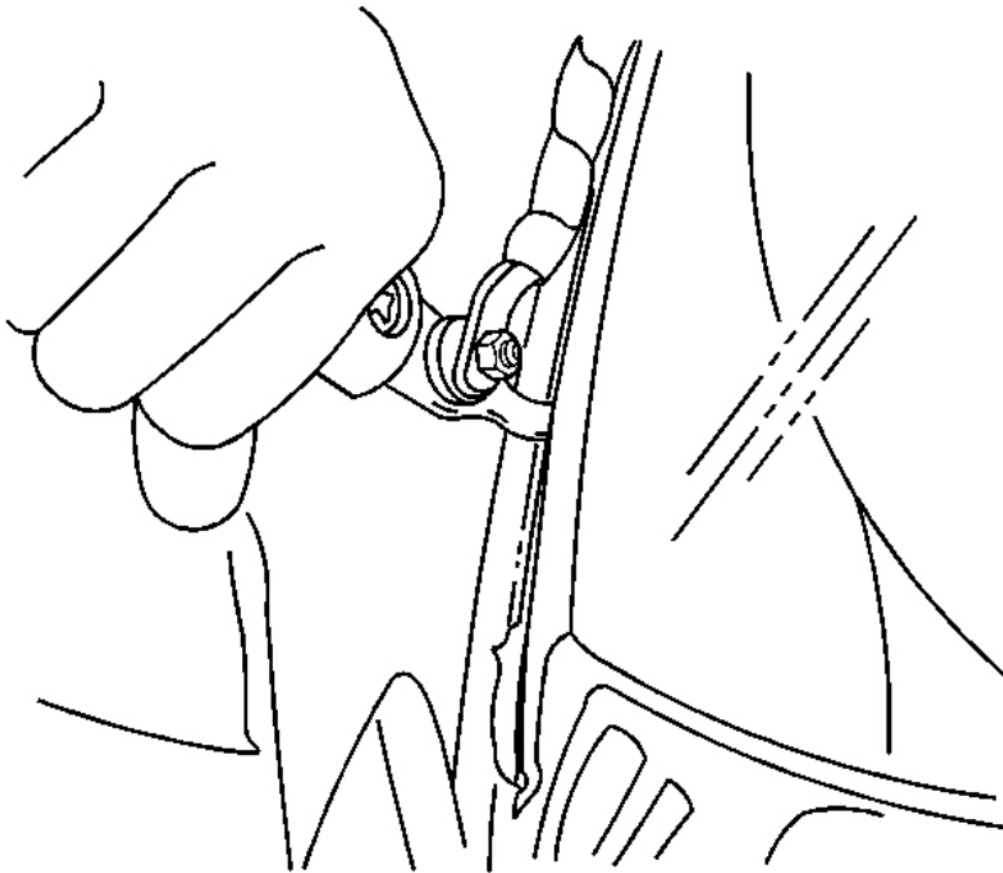


Fig. 32: Separating Urethane Adhesive From Window
Courtesy of GENERAL MOTORS CORP.

13. Remove the bottom of the window from the urethane adhesive using a long utility knife or similar tool.

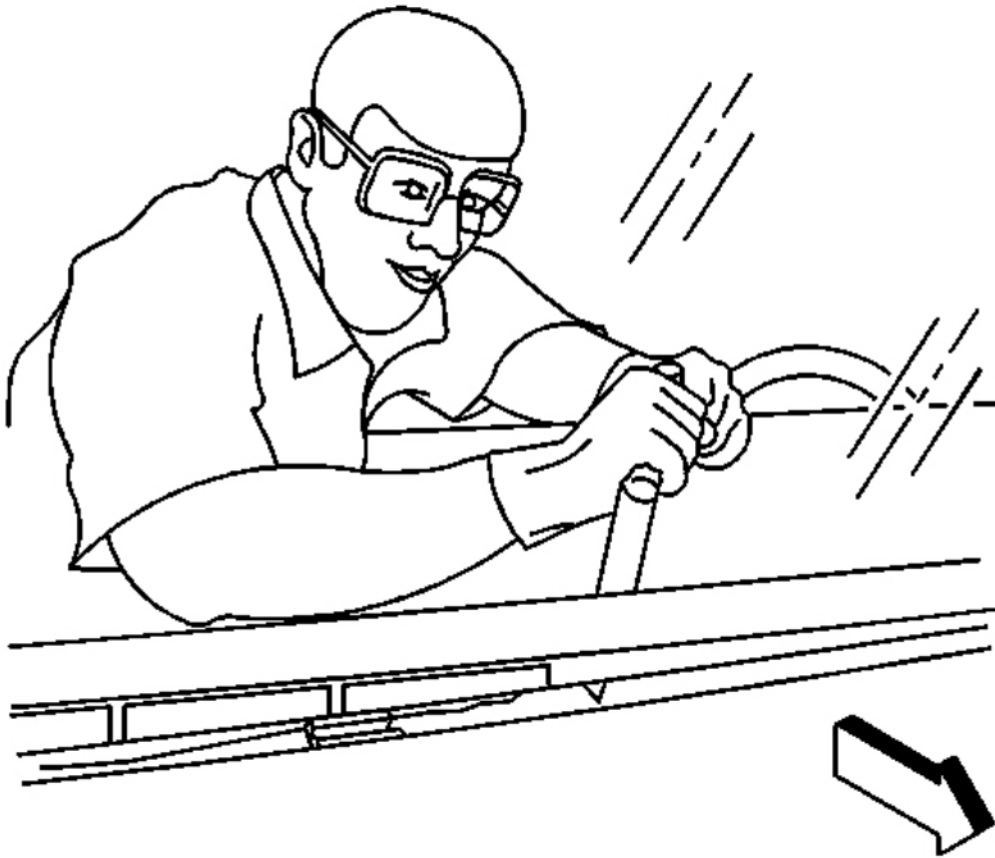


Fig. 33: Separating Bottom Of Window
Courtesy of GENERAL MOTORS CORP.

14. With the aid of an assistant (2) remove the window (1) from the vehicle.

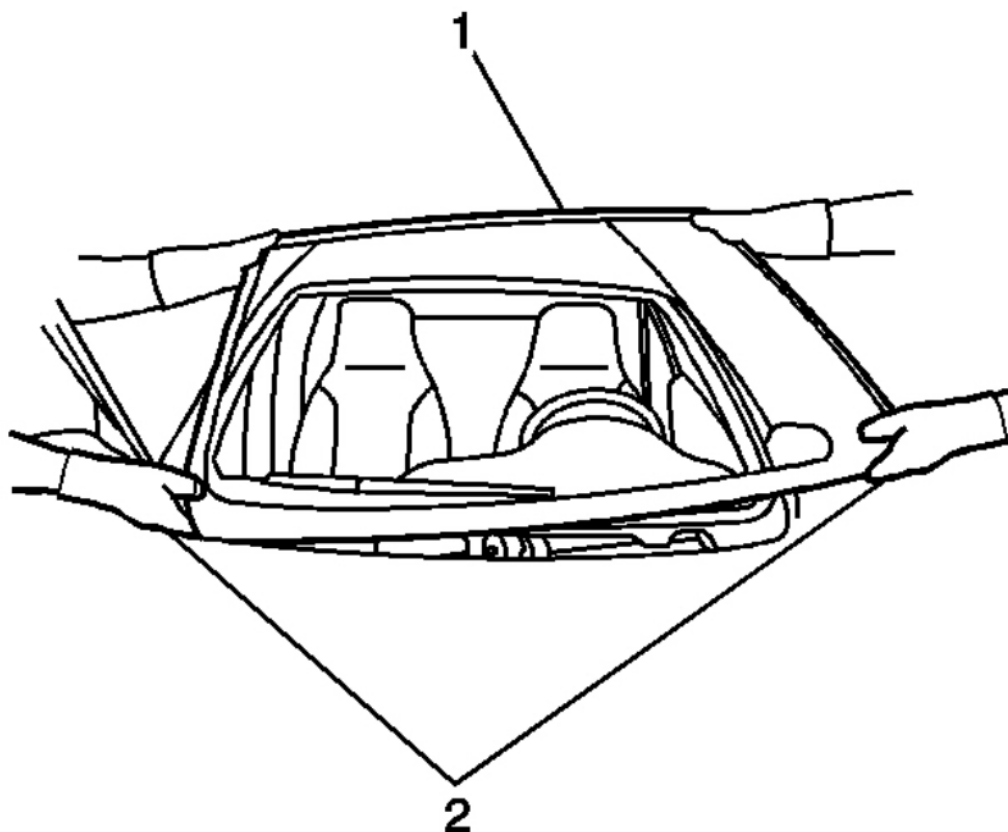


Fig. 34: Removing/Installing Windshield
Courtesy of GENERAL MOTORS CORP.

Installation Procedure

1. Install a stationary window into the opening. Refer to **Urethane Adhesive Installation of Stationary Windows**.
2. Install the window side reveal moldings to the vehicle.

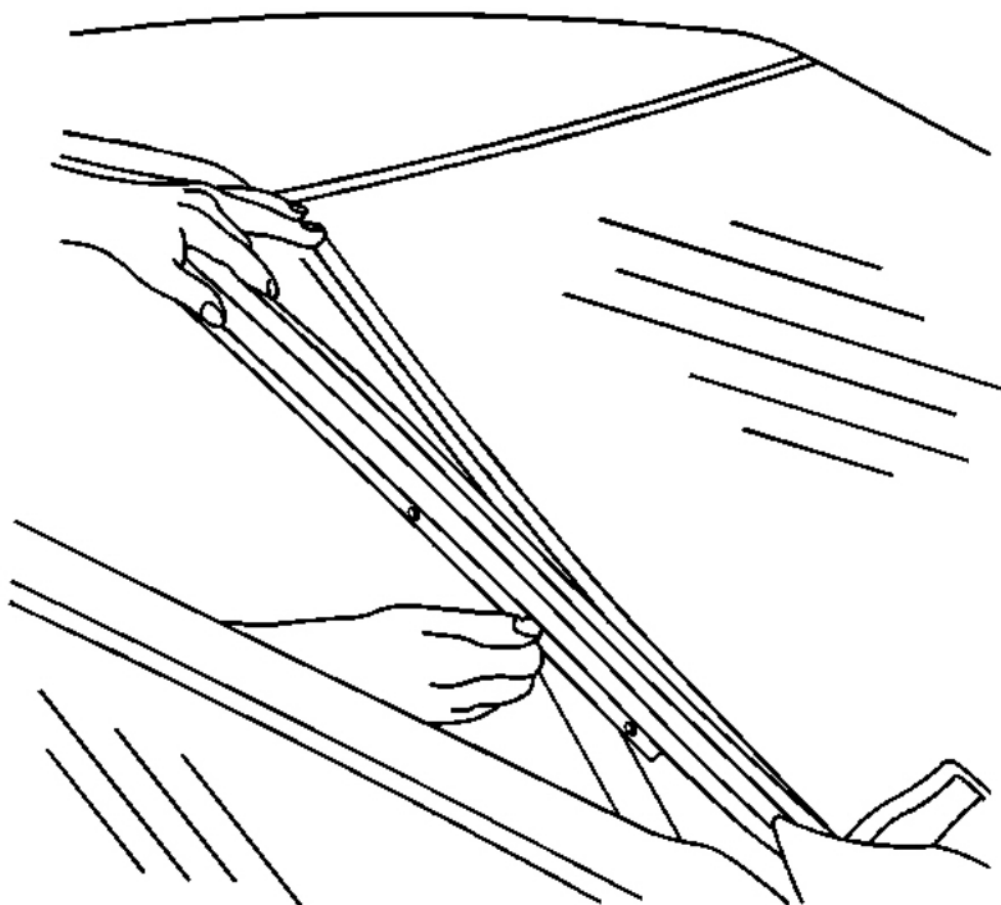


Fig. 35: Installing Window Side Reveal Molding
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

3. Install the screws to the left and the right sides of the window side reveal moldings.

Tighten: Tighten the screws to 2 N.m (18 lb in).

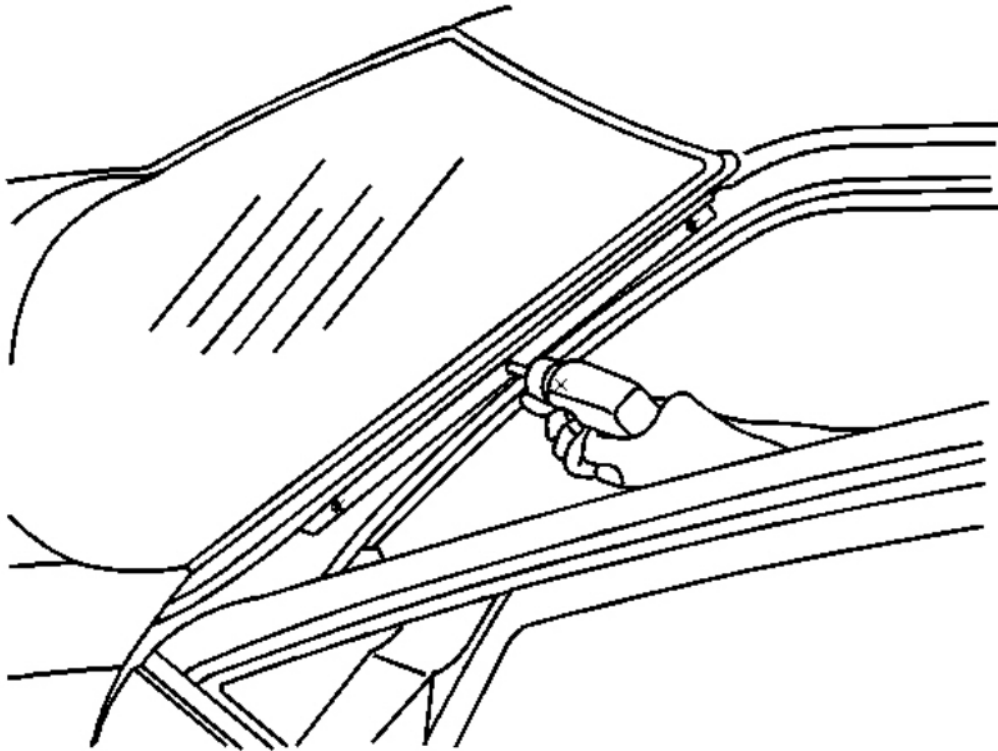


Fig. 36: Installing Screws To Window Side Reveal Moldings
Courtesy of GENERAL MOTORS CORP.

4. Install the front door sealing weatherstrips (1) to the retainer (2).

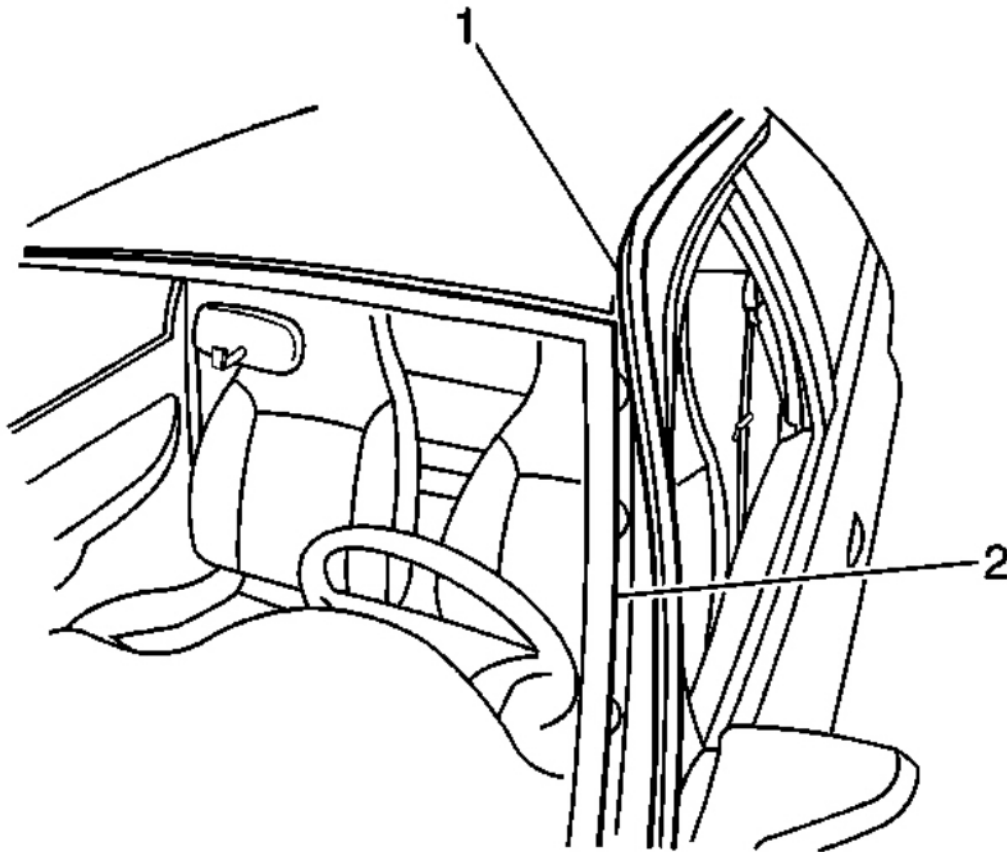


Fig. 37: View Of Front Door Sealing Weatherstrip
Courtesy of GENERAL MOTORS CORP.

5. Install the cowl air inlet grille panel. Refer to **Air Inlet Grille Panel Replacement** in Body Front End.
6. Install the window wiper arms. Refer to **Wiper Arm Replacement** in Wipers/Washer Systems.
7. Install the antenna mast, if equipped. Refer to **Fixed Antenna Replacement** in Entertainment.
8. Install the rearview mirror. Refer to **Rearview Mirror Replacement**.
9. Close the hood.
10. Remove the double layer of masking tape around the perimeter of the painted surfaces and the interior trim.

QUARTER WINDOW REPLACEMENT

Tools Required

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- **J 24402-A** Glass Sealant Cold Knife Remover. See Special Tools and Equipment.
- **J 39032** Stationary Glass Removal Tool. See Special Tools and Equipment.
- **J 34940** Rivet Gun
- Urethane Adhesive Kit GM P/N 12346392 or Equivalent
- Isopropyl Alcohol or Equivalent
- Cartridge-type Caulking Gun
- Commercial-type Utility Knife
- Razor Blade Scraper
- Suction Cups
- Plastic Paddle

Removal Procedure

1. Open the liftgate.

CAUTION: Refer to Glass and Sheet Metal Handling Caution in Cautions and Notices.

CAUTION: Refer to Cracked Window Caution in Cautions and Notices.

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

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

2. Cover the following parts to protect from broken glass.
 1. The upper dash pad
 2. The defroster outlets and A/C outlets
 3. The seats and the carpeting
3. Remove the right of left side applique.

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

4. Use **J 24402-A** , **J 39032** , or equivalent in order to remove the quarter window. See Special Tools and Equipment.
 - Leave a base of urethane on the pinchweld flange.

- The only suitable lubrication is clear water.

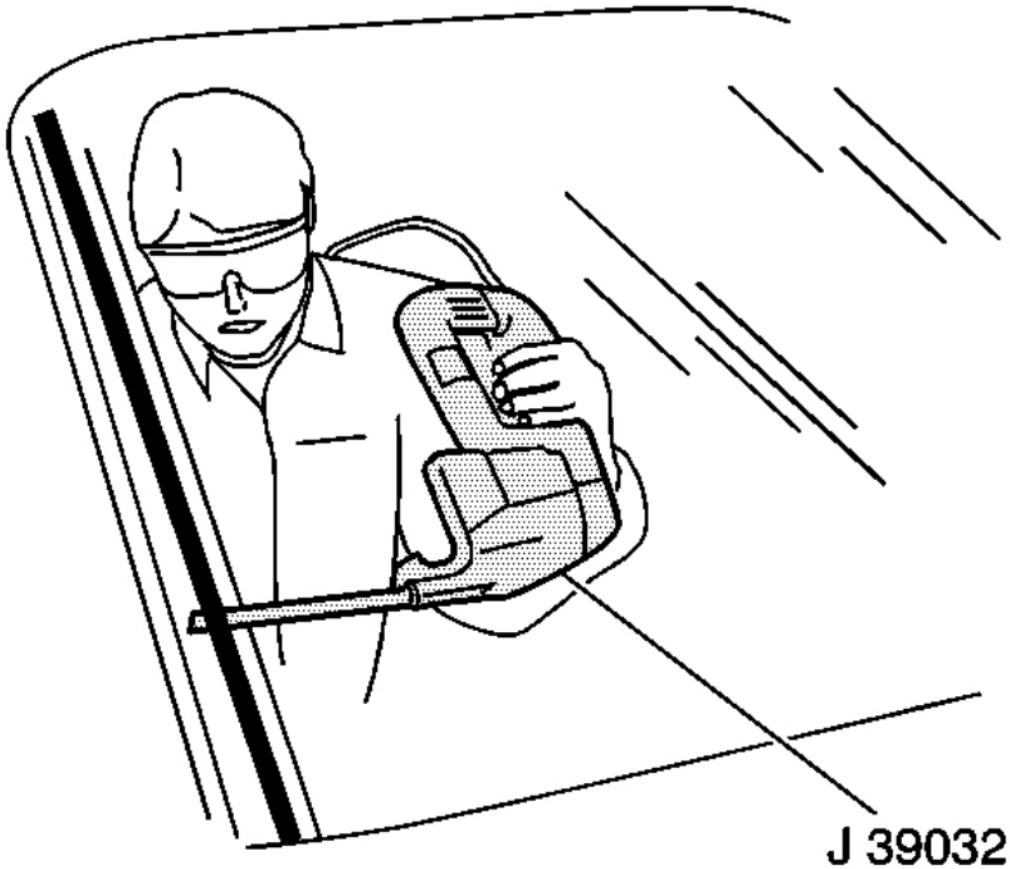


Fig. 38: Separating Urethane Adhesive From Window
Courtesy of GENERAL MOTORS CORP.

5. If the original reveal molding on the window is damaged, replace the molding.
6. With the aid of an assistant, use the suction cups to remove the window from the opening.

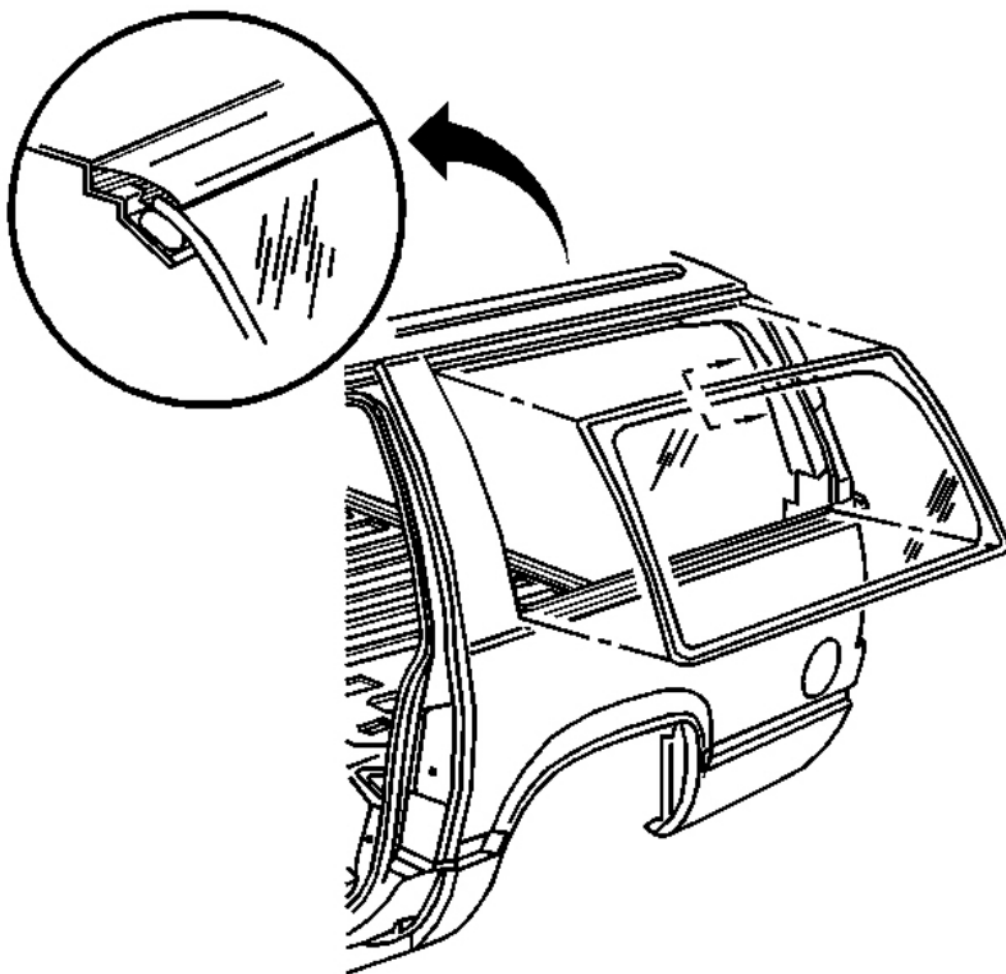


Fig. 39: View Of Quarter Window
Courtesy of GENERAL MOTORS CORP.

Installation Procedure

1. Install the quarter window into the opening. Refer to **Urethane Adhesive Installation of Stationary Windows**.

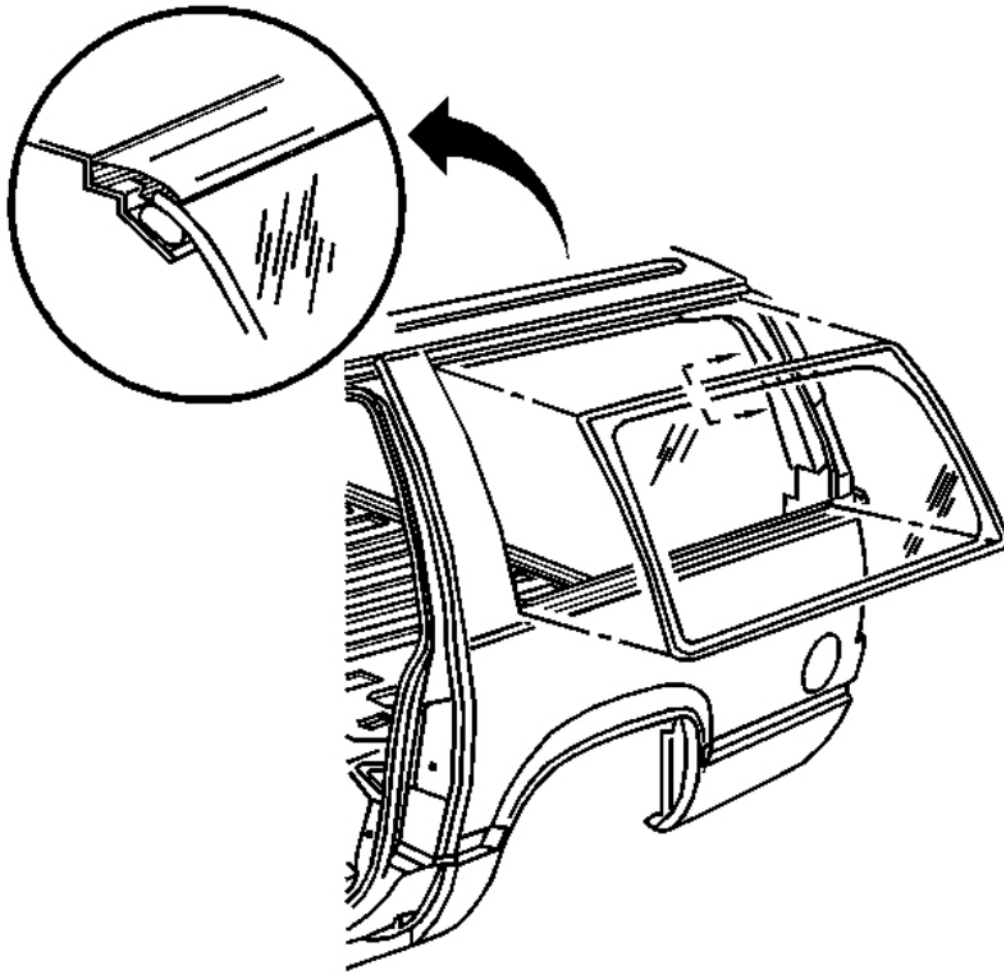


Fig. 40: View Of Quarter Window
Courtesy of GENERAL MOTORS CORP.

2. Install the right of left side applique.
3. Remove the double layer of masking tape around the perimeter of the painted surfaces and the interior trim.
4. Close the liftgate window.

URETHANE ADHESIVE INSTALLATION OF STATIONARY WINDOWS

CAUTION: Refer to Glass and Sheet Metal Handling Caution in Cautions and Notices.

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IMPORTANT: Remove all but approximately 2 mm (3/64 in) of the existing bead of urethane adhesive from the pinch-weld flange.

1. Remove all mounds or loose pieces of urethane adhesive from the pinch-weld area.
2. If the original window is being reused, remove all but a thin film of the existing urethane adhesive from the window surface by using a clean utility knife or razor blade scraper.
3. Inspect the following components for the causes of a broken window:
 - The flange of the window opening
 - The window reveal molding
4. Inspect for any of the following problems in order to help prevent future breakage of the window:
 - High weld
 - Solder spots on the pinchweld
 - Hardened sealer
 - Any other obstruction or irregularity in the pinch-weld flange

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

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

CAUTION: Refer to Window Retention Caution in Cautions and Notices.

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

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

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

scratches or the primed surfaces.

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

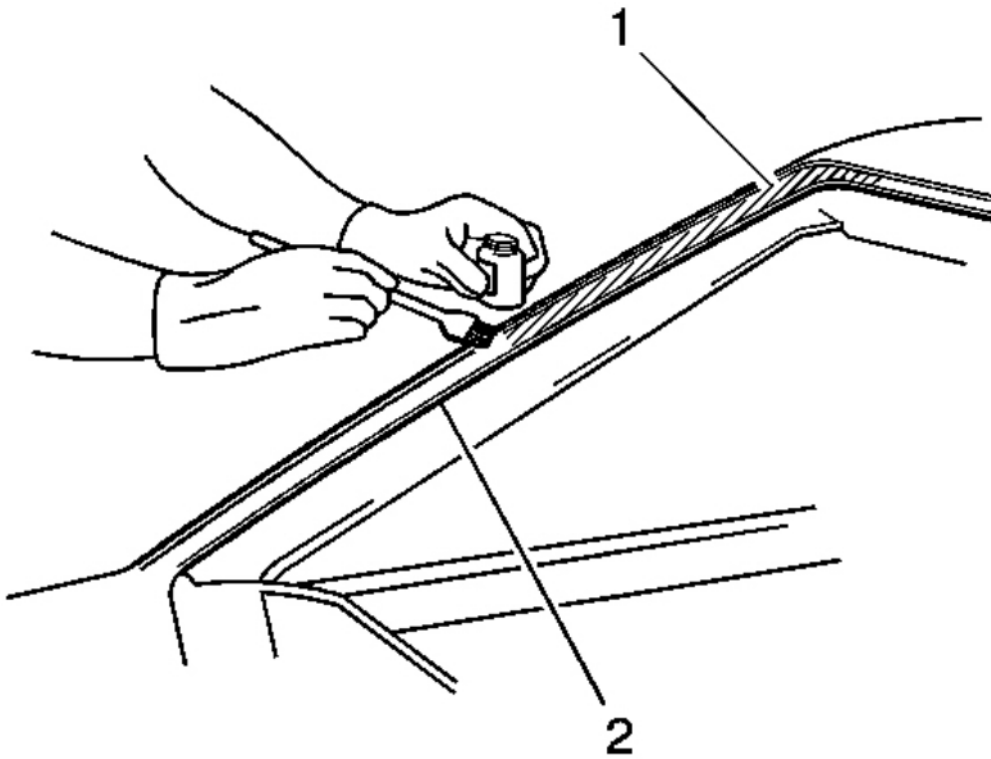


Fig. 41: Applying Pinch-Weld Primer
Courtesy of GENERAL MOTORS CORP.

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

NOTE: Do not use spacers when installing a windshield. The stress caused by the spacers may damage the windshield.

10. Install the windshield (1) and the VIN plate filler strip, if equipped.

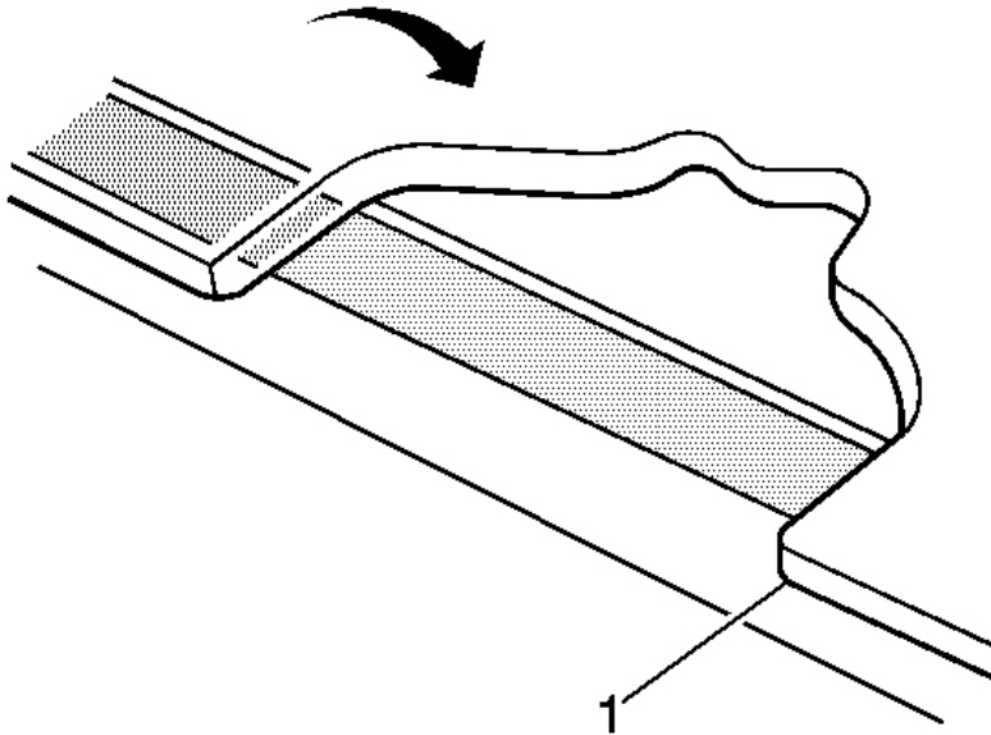


Fig. 42: Identifying Windshield & VIN Plate Filler Strip

Courtesy of GENERAL MOTORS CORP.

IMPORTANT: When installing spacers (2) and/or blocks (3) space them equally around the quarter window, back window or the liftgate window (1) to aid in the height set, if equipped.

11. Install the window to the vehicle.

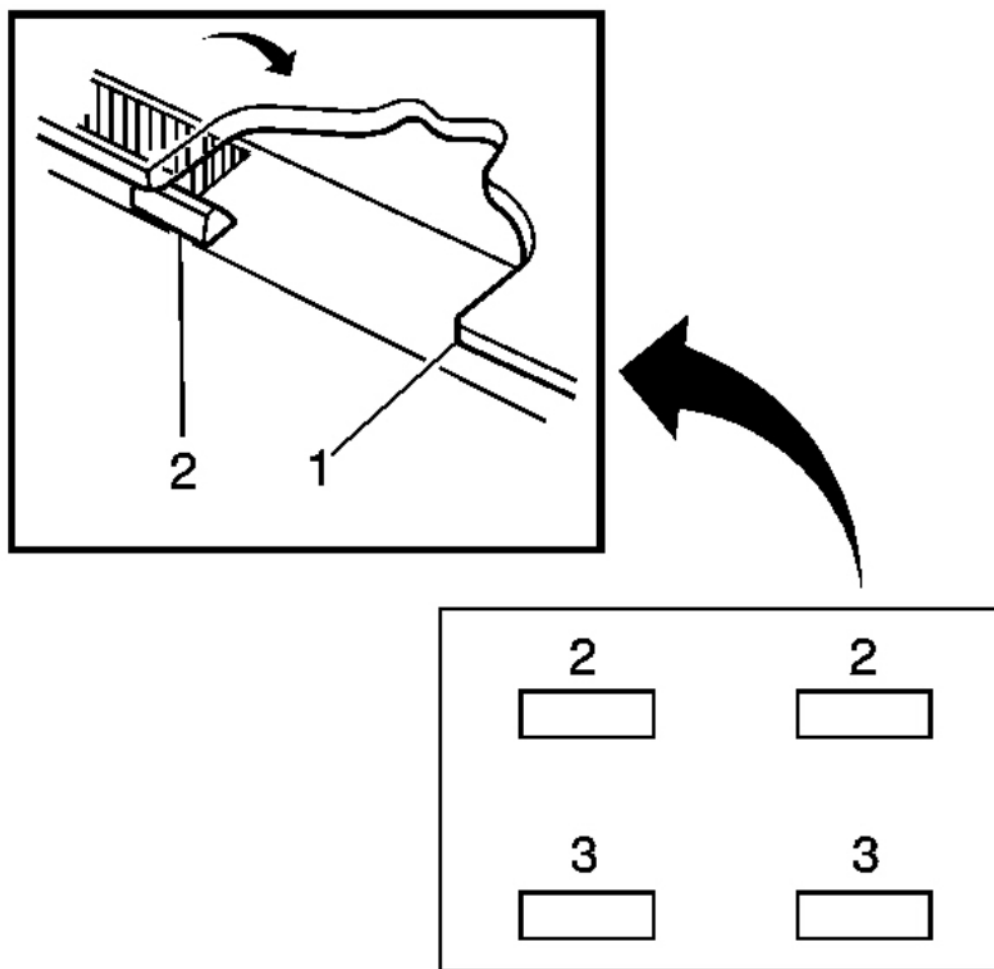


Fig. 43: Positioning Spacers & Blocks
Courtesy of GENERAL MOTORS CORP.

12. Install the new windshield acoustic strip (1) to the windshield (2), if equipped or damaged.

The acoustic strip aids in reducing noise.

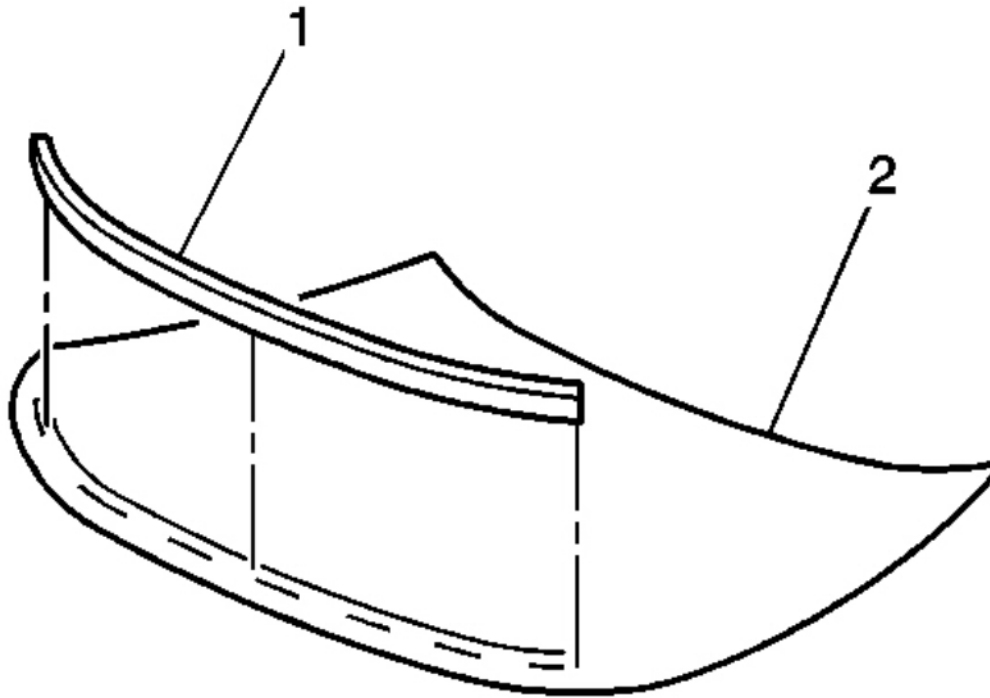


Fig. 44: Identifying Windshield Acoustic Strip
Courtesy of GENERAL MOTORS CORP.

13. If installing a new window reveal molding, start in the center and work toward each end pressing firmly into place.

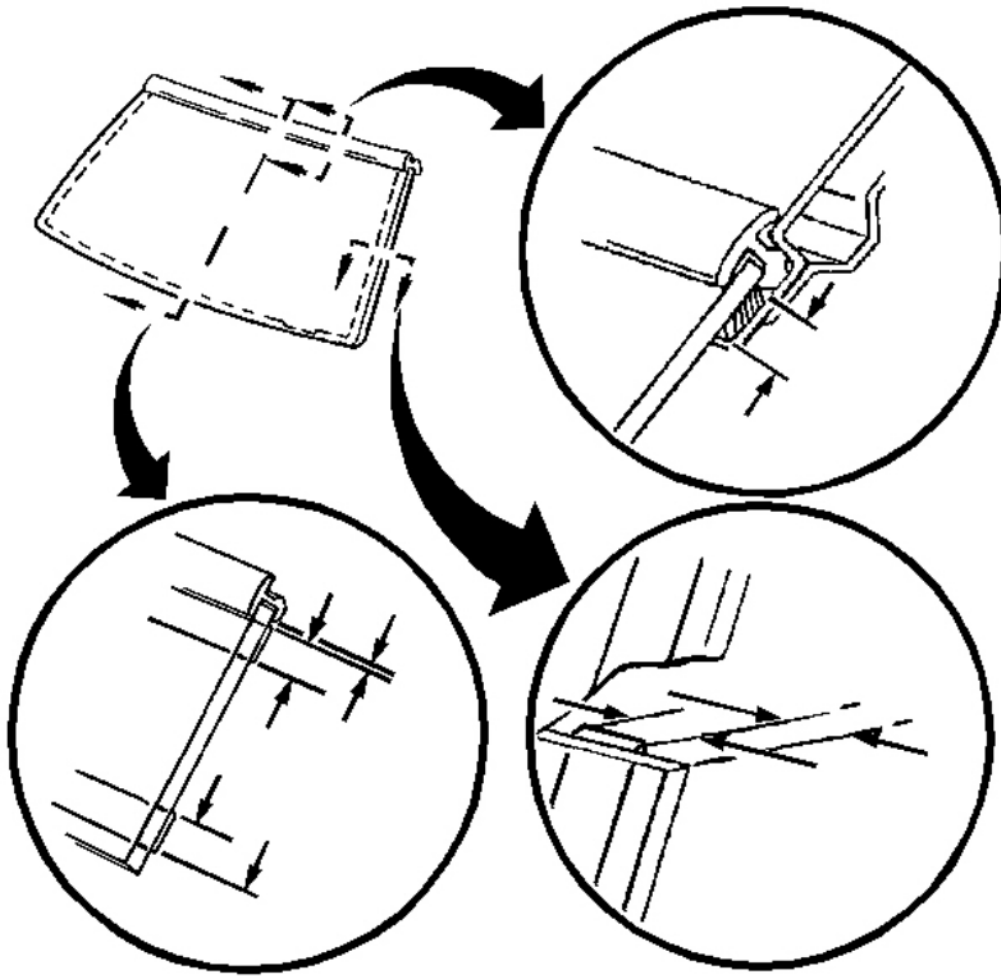


Fig. 45: Identifying Window Reveal Molding Installation Specifics
Courtesy of GENERAL MOTORS CORP.

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

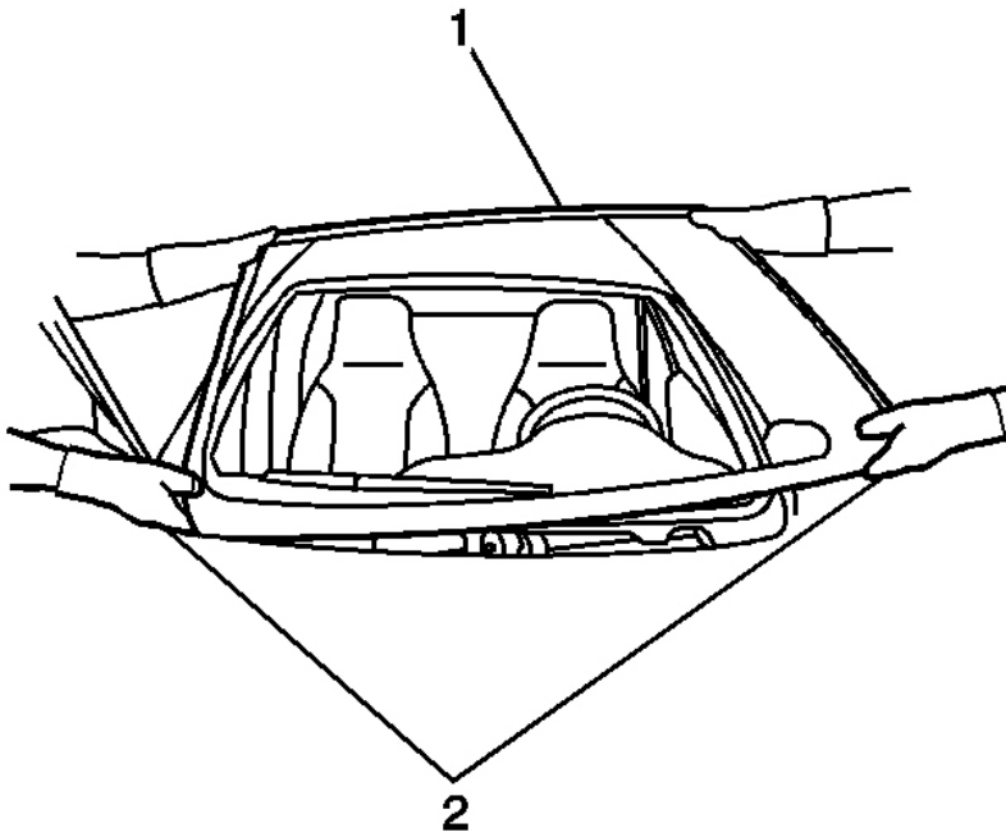


Fig. 46: Removing/Installing Windshield
Courtesy of GENERAL MOTORS CORP.

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

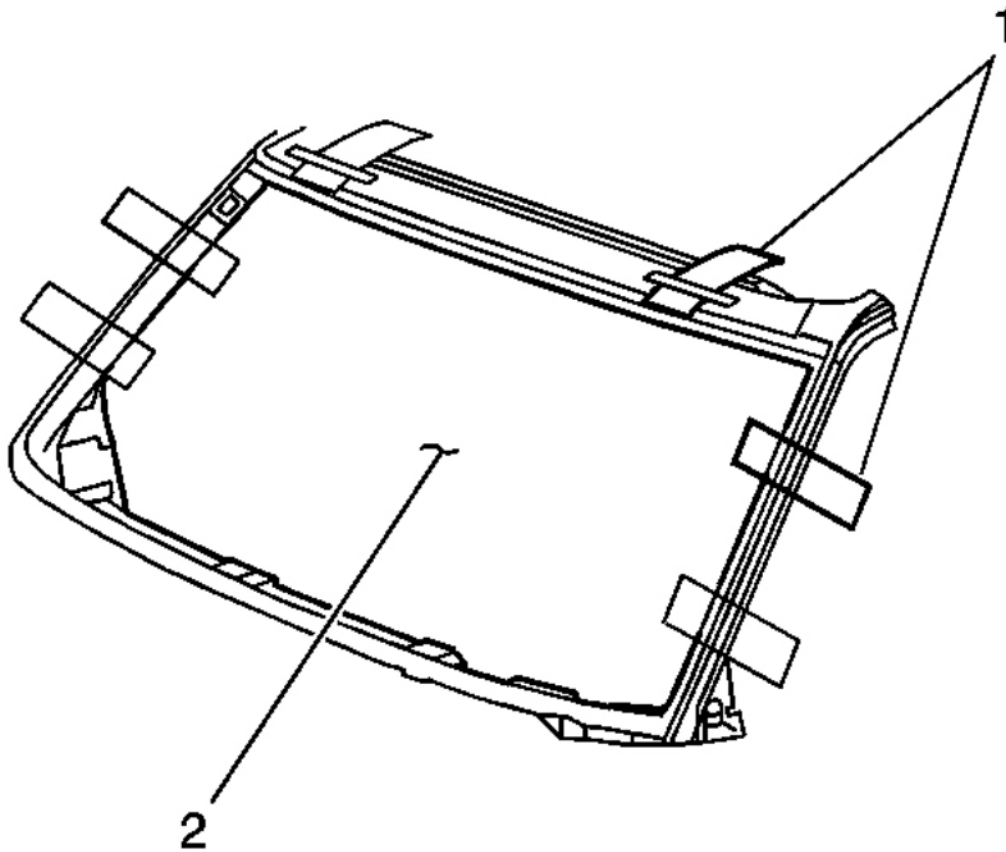


Fig. 47: Aligning Tape Lines On Window To Body
Courtesy of GENERAL MOTORS CORP.

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

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

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

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

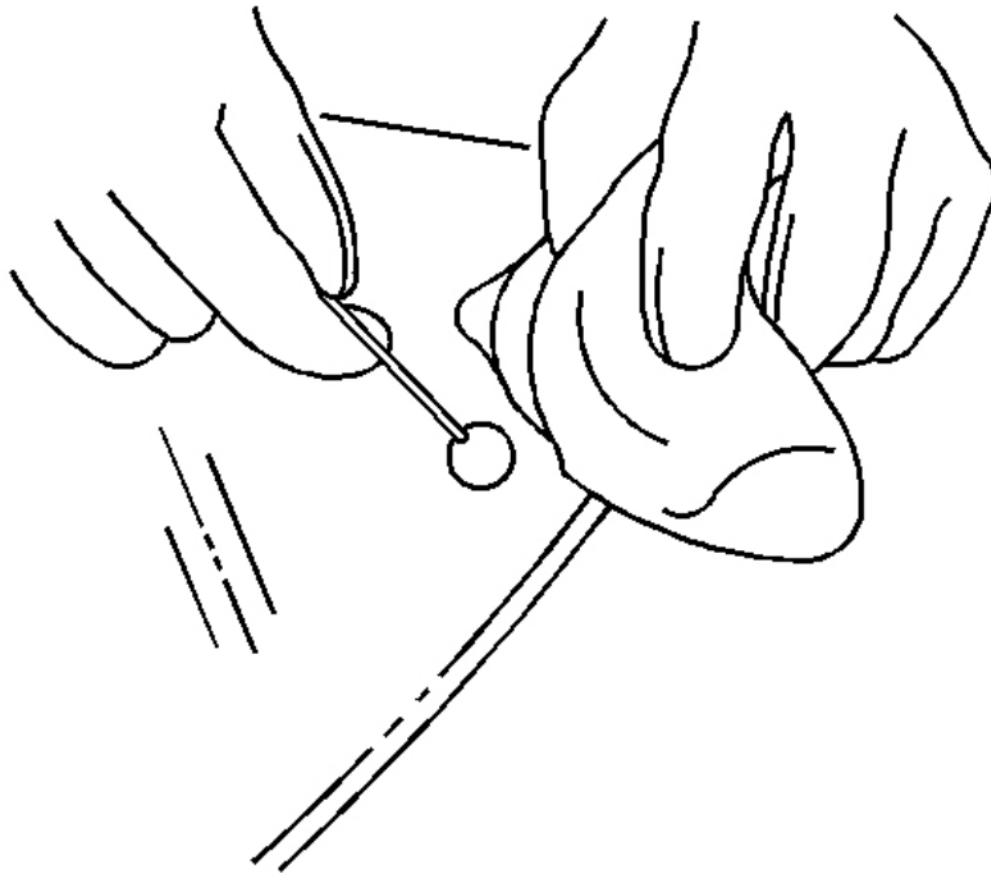


Fig. 48: Applying Glass Prep

Courtesy of GENERAL MOTORS CORP.

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

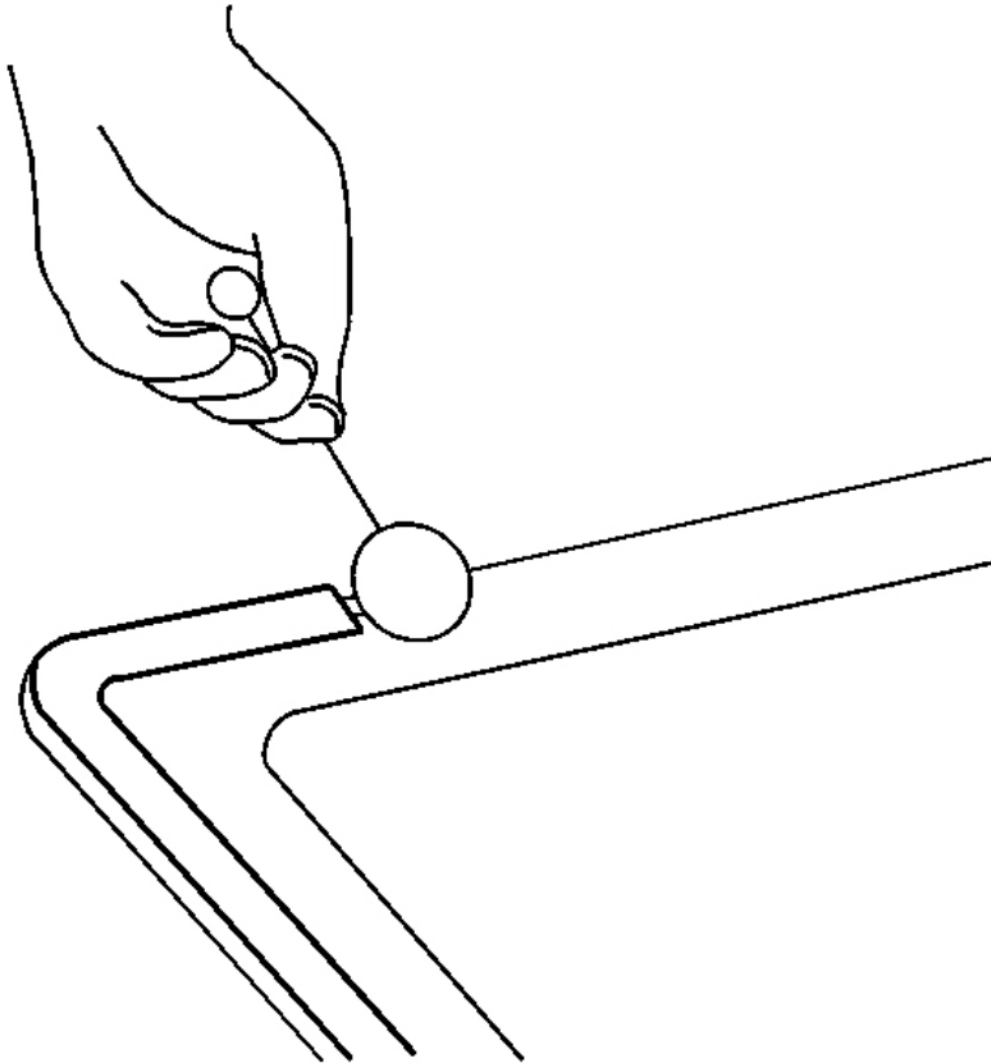


Fig. 49: Applying Glass Prep

Courtesy of GENERAL MOTORS CORP.

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

19. Shake the glass primer black #2 for at least 1 minute.
20. Use a new dauber in order to apply the glass primer black #2 to the same areas (2) that glass prep clear #1 was applied.

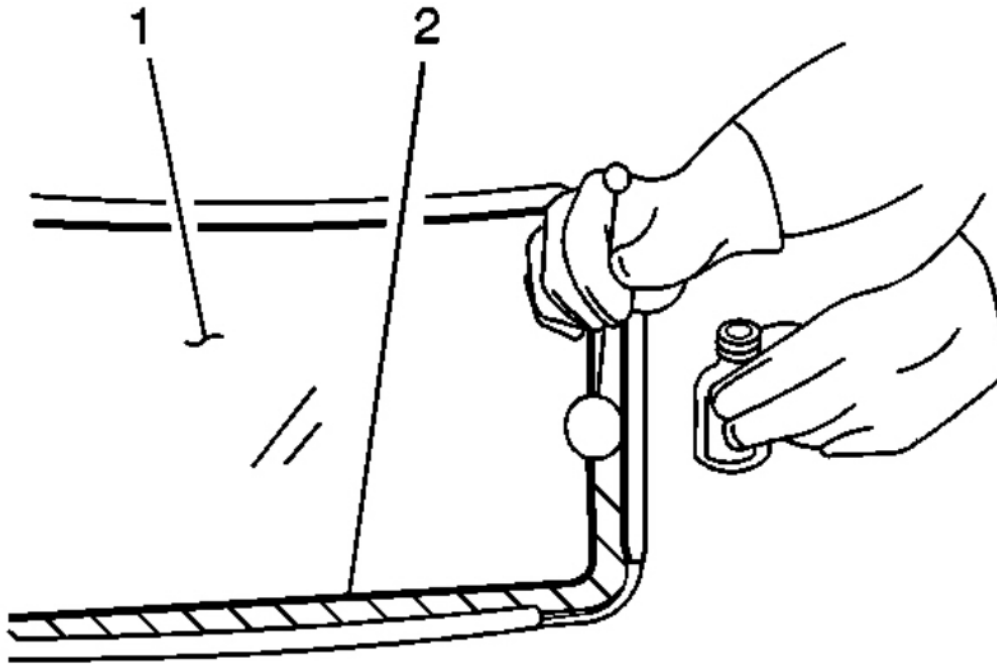


Fig. 50: Applying Glass Primer

Courtesy of GENERAL MOTORS CORP.

21. Allow the glass primer to dry for approximately 10 minutes.
22. Cut the applicator nozzle in order to provide a bead of 12.7 mm (1/2 in) wide and 12.7 mm (1/2 in) high.

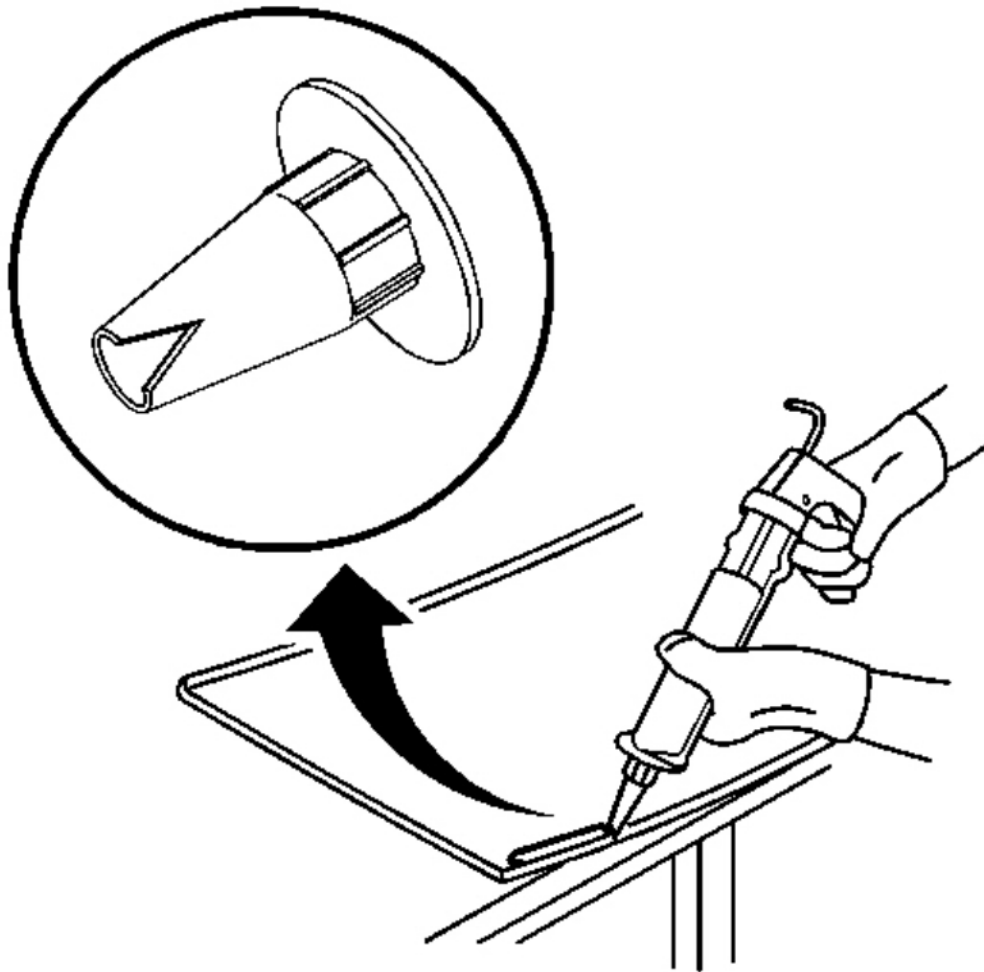


Fig. 51: View Of Modified Applicator Nozzle
Courtesy of GENERAL MOTORS CORP.

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

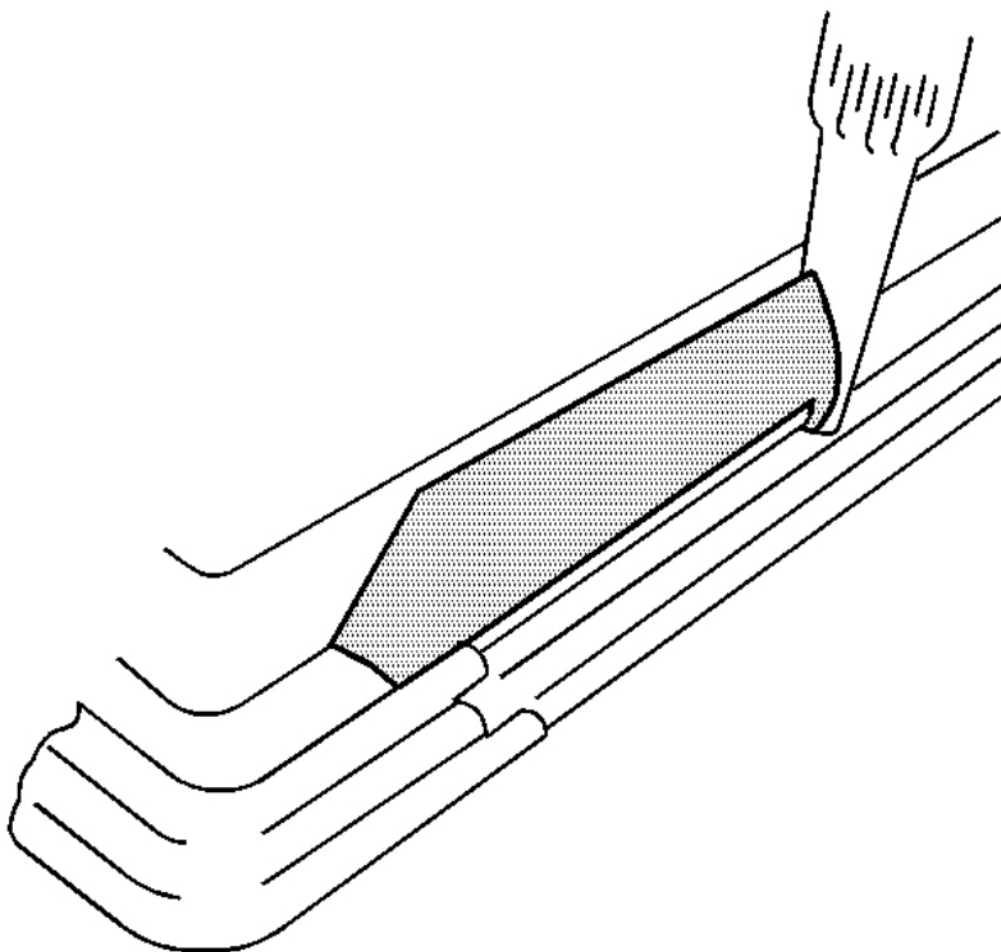


Fig. 52: Applying Bead Of Urethane Adhesive
Courtesy of GENERAL MOTORS CORP.

24. Use the edge of the window or the inside edge of the reveal molding as a guide for the nozzle in order to apply the urethane adhesive (1) to the inner surface of the window (3).

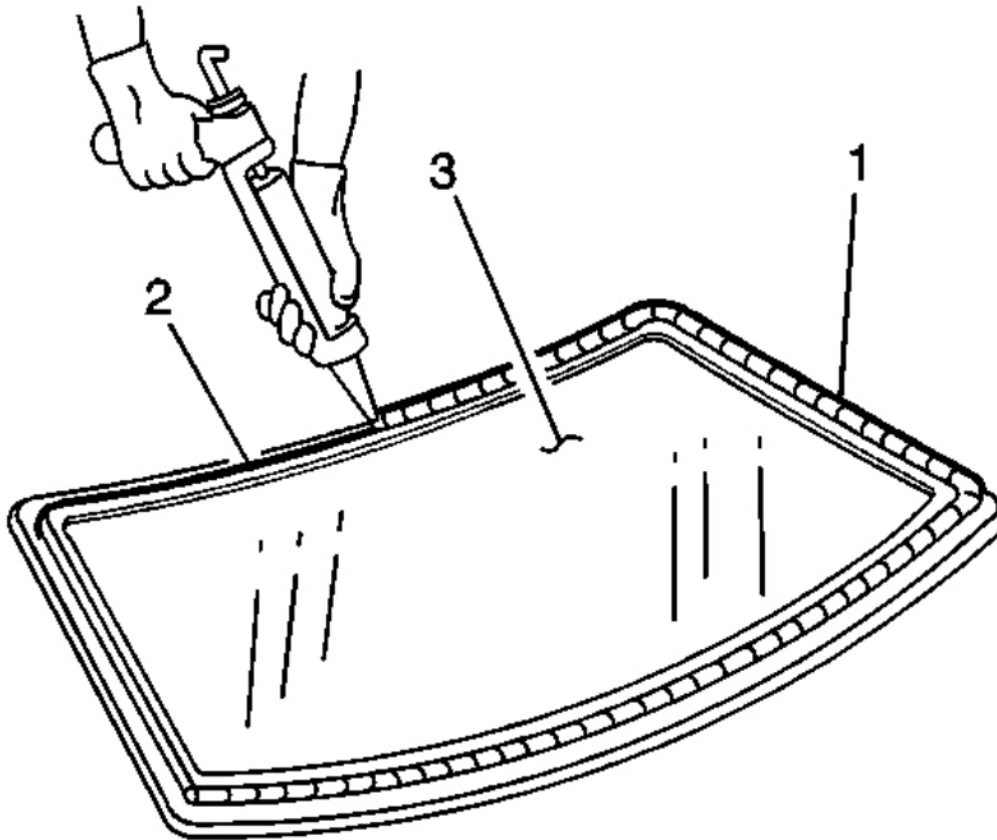


Fig. 53: Applying Urethane Adhesive To Inner Surface Of Window
Courtesy of GENERAL MOTORS CORP.

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

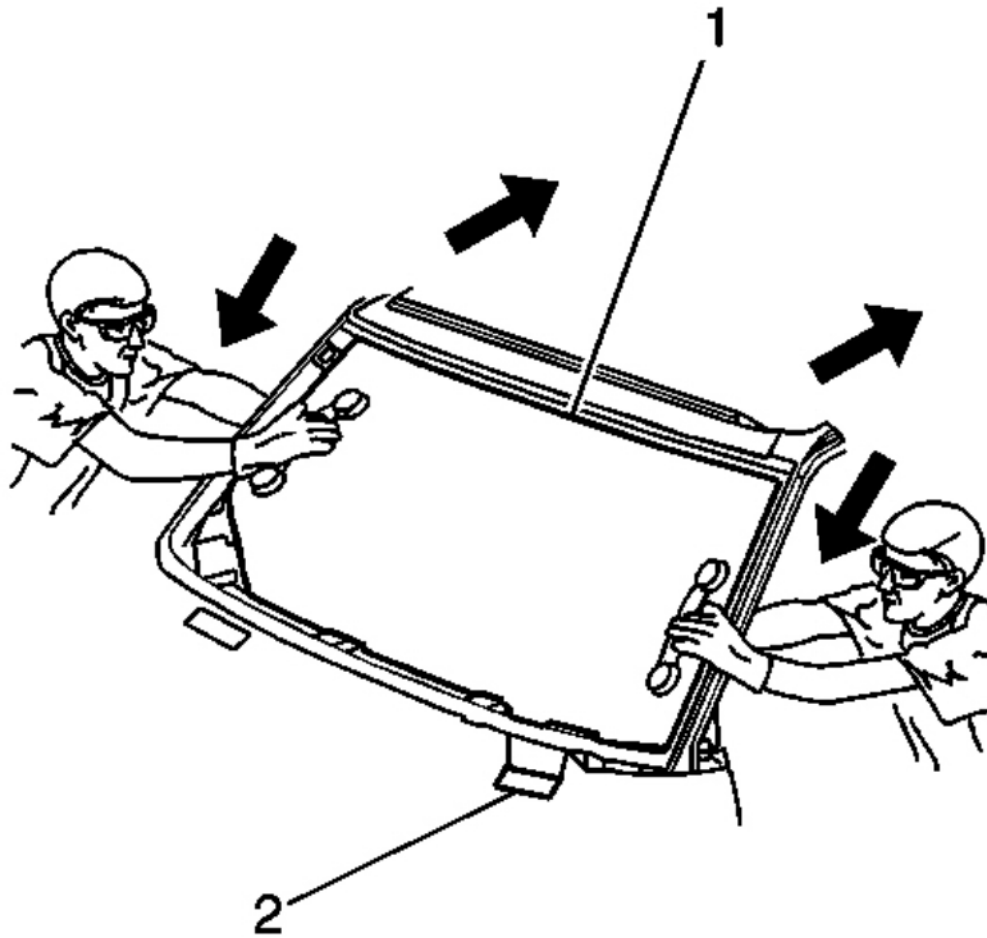


Fig. 54: Installing Windshield
Courtesy of GENERAL MOTORS CORP.

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

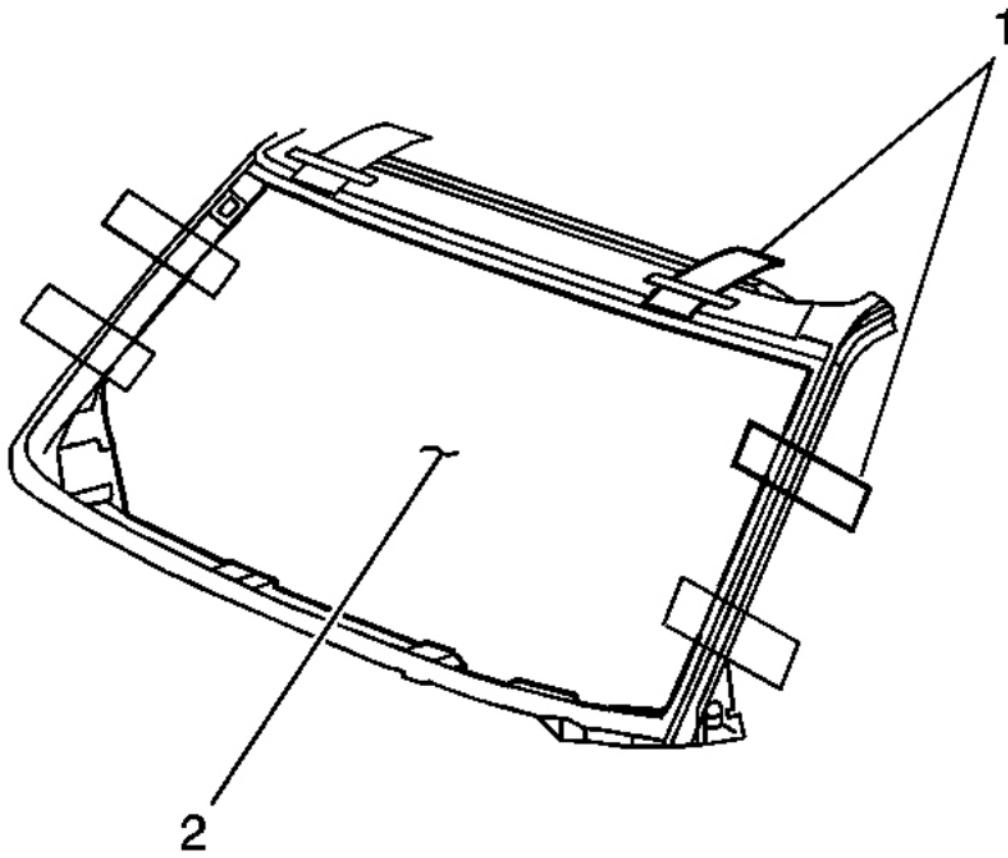


Fig. 55: Aligning Tape Lines On Window To Body
Courtesy of GENERAL MOTORS CORP.

27. Press the window firmly into place.

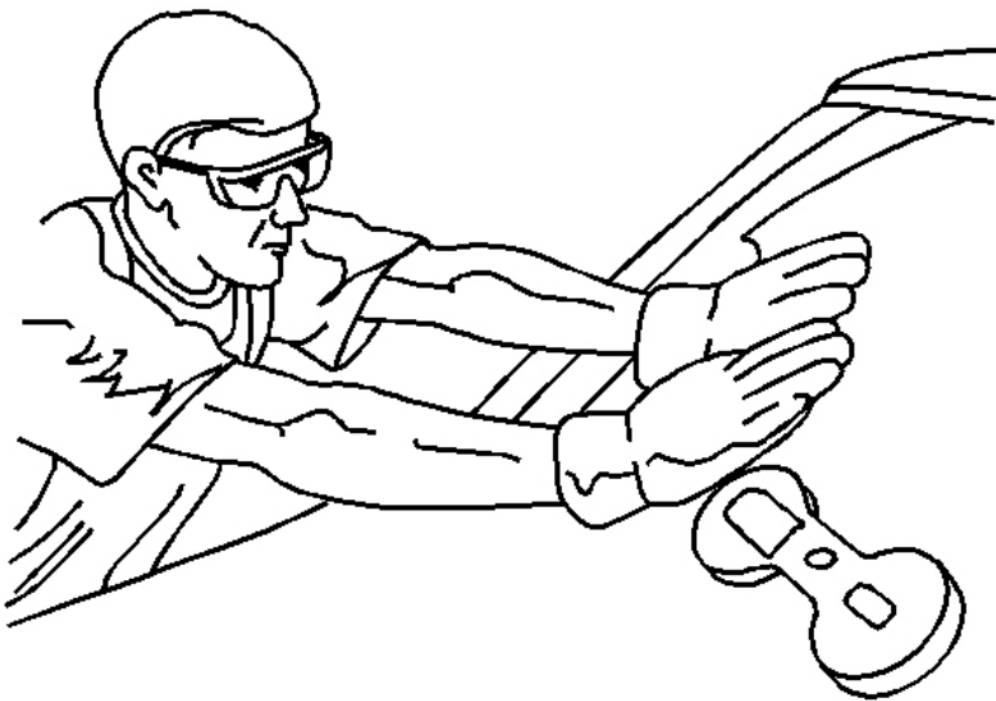


Fig. 56: Pressing Window Into Place
Courtesy of GENERAL MOTORS CORP.

28. Tape the window to the body in order to minimize movement until the urethane adhesive cures.
29. Clean any excess urethane adhesive from the body.

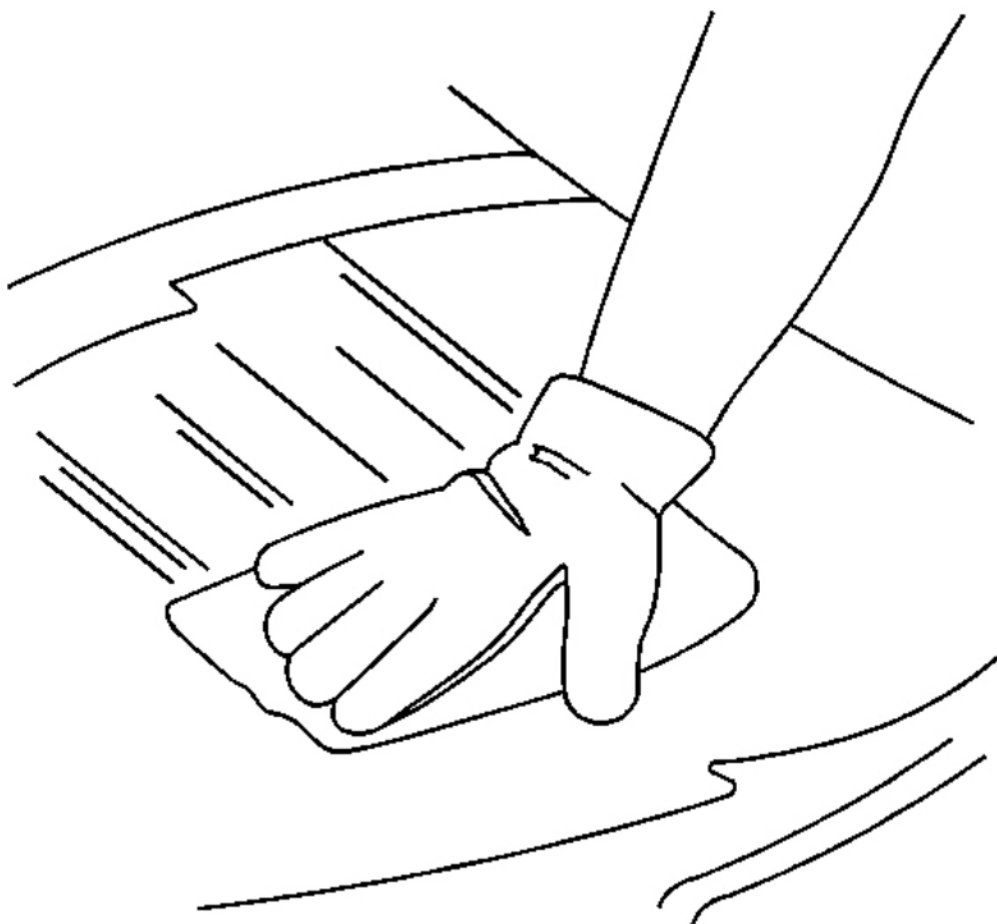


Fig. 57: Cleaning Window

Courtesy of GENERAL MOTORS CORP.

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

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

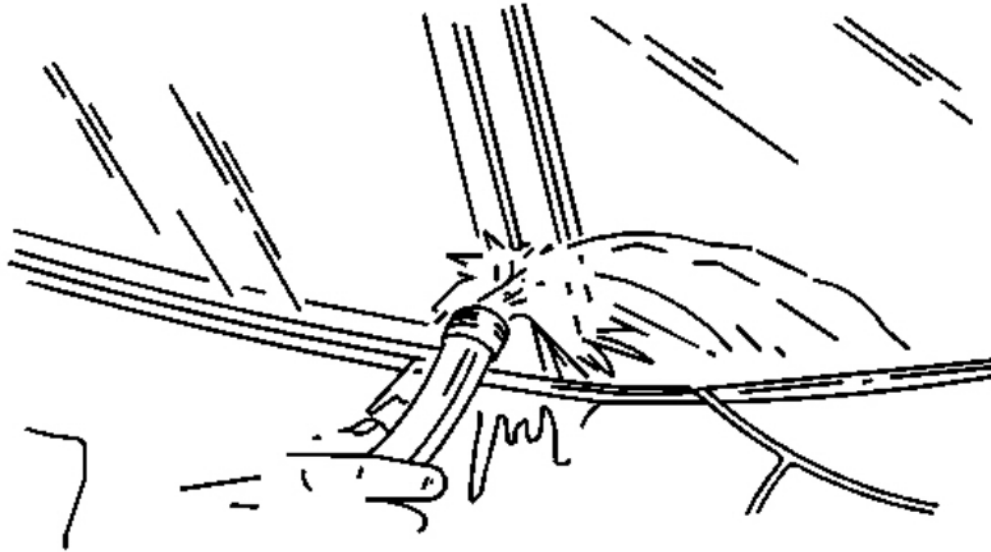


Fig. 58: Performing Water Hose Test
Courtesy of GENERAL MOTORS CORP.

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

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

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

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

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

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- 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.

35. Complete the window installation.

DESCRIPTION AND OPERATION

ADHESIVE SERVICE KIT DESCRIPTION

The GM of Canada Adhesive Caulking Kit, P/N 10952983, contains the following items:

- Four different primers
- A tube of urethane adhesive with a nozzle
- Four daubers
- Instructions with warnings

Use the urethane adhesive caulking kit for replacement of any urethane adhesive-installed window using the full cut method.

In the United States or Canada, you may use any of the following equivalent urethane adhesive systems which meet GM Specification GM 3651G:

- Dow Automotive - Essex 400HV. One part and requires associated primers.
- Dow Automotive - Essex U216. Two part and requires associated primers.

Call Dow Automotive at 1-800-453-3779 for more information.

- 3M™ "Fast Cure" Auto Glass Urethane. One part and requires associated primers.

Call 3M™ at 1-877-666-2277 for more information.

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.

AUTOMATIC DAY-NIGHT MIRROR DESCRIPTION AND OPERATION

Inside Rearview Mirror with the Automatic Day-Night Feature System Components

The inside rearview mirror with the automatic day-night feature system consists of the following components:

- Inside rearview mirror

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- Ambient air temperature sensor

Power and Ground of the Inside Rearview Mirror

- With the ignition ON, ignition voltage is supplied to the mirror from the IGN E fuse in the underhood fuse block.
- Ground for the mirror is provided by G302.

Inside Rearview Mirror with the Automatic Day-Night Feature System Operation

The inside rearview mirror uses 2 photocell sensors. One sensor is the headlight sensor, located on the face side of the mirror. The headlight sensor is used to determine light conditions present at the mirror face. The other sensor is the ambient light sensor, located on the rear of the mirror or windshield side. The ambient light sensor is used to determine the exterior light conditions. With a low exterior light condition detected, and a high light condition from behind of the car, at the headlight sensor, the inside rearview mirror will automatically darken the face of the mirror.

In the daytime, the mirror is in a normal state because of the high exterior light condition that is indicated by the ambient light sensor. With the gear selector lever in the REVERSE position, backup lamp supply voltage is supplied as an input to the inside rearview mirror. The mirror monitors this input to disable the automatic day-night feature. This allows the driver to see objects in the mirror clearly when backing up, even during the night.

Compass

The mirror uses 2 magnetic field sensors for compass direction. One sensor is for north and south, the other is for east and west. The mirror supplies a signal and low reference to each sensor. As the vehicle travels with or against the earth's magnetic pull, there will be a change in voltage on one or both sensors. As a result of the change in voltage, the mirror changes the heading on the compass display.

Temperature Display

The inside rearview mirror monitors the ambient air temperature sensor. As the outside air temperature gets warmer, the ambient air temperature sensor will lower resistance. The inside rearview mirror monitors this change and will show this as a warmer temperature on the display. Temperatures exceeding 62°C (143°F) will be out of the mirror's temperature range and SC will be shown on the temperature display. In colder outside air temperatures, the ambient air temperature sensor will raise in resistance. The inside rearview mirror will show a colder temperature on the display. Temperatures lower than -40°C (-40°F) will be out of the mirrors temperature range which OC will be shown on the temperature display. In cold temperatures such as 3°C (37°F) or below, the temperature display will show ICE when the ignition is first turned ON. The display will toggle between ICE and the actual outside temperature until the temperature update process is complete.

Temperature Display Update Process

The inside rearview mirror has a temperature program that takes in account the fact that the radiator will heat the ambient air temperature sensor if the radiator is warm and the vehicle is not moving. If the vehicle has been off for more than 2 hours, the mirror temperature program assumes that the radiator has cooled and that the temperature supplied by the ambient air temperature sensor is accurate. Because of this, if the vehicle has been

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off for more than 2 hours, the mirror displays the temperature as reported by the ambient air temperature sensor. When the ambient air temperature sensor reports a new temperature to the mirror, one of the following cases will apply:

- Ignition is OFF for more than 2 hours, then is turned ON for more than 3 minutes. The outside temperature is greater than the last temperature recorded by the mirror for 2 minutes. The mirror will increase the last temperature reading by one degree every 2 minutes for 8 consecutive times. If the outside temperature is not matched after the 8th update, the mirror will then display the current outside temperature.
- Ignition is off for more than 2 hours, then is turned ON for less than 3 minutes. The mirror will update the temperature display every 2 seconds.
- Ignition is OFF for more than 2 hours, then is turned ON for more than 3 minutes. The outside temperature is less than the last temperature recorded by the mirror. The mirror will then display the current outside temperature.
- Ignition has been OFF for less than 2 hours. The outside temperature is greater than the last temperature recorded by the mirror, but the ignition is cycled from ON to OFF within 2 minutes. The mirror will display the old temperature.
- Ignition has been OFF for less than 2 hours. The outside temperature is less than the last temperature recorded by the mirror. The mirror will then display the current outside temperature.

Switches of the Inside Rearview Mirror with the Automatic Day-Night Feature and Compass without OnStar®

The inside rearview mirror has 2 switches that perform the following functions:

- The MIRROR switch is used to enable or disable the automatic day-night feature of the mirror. With the ignition in the ON position, depress the MIRROR switch to enable the automatic day-night feature of the mirror. A green indicator will illuminate on the mirror when the automatic day-night feature is enabled. To disable the automatic day-night feature of the mirror, depress the MIRROR switch.
- The COMPASS switch is used to turn the compass ON and OFF. With the ignition in the ON position, depress the COMPASS switch to turn the compass ON. Depress the COMPASS switch again to turn the compass OFF. The COMPASS switch is also used to place the compass into a calibration or zone mode. For more information, Refer to **Compass Calibration and Variance Procedure**.

Switches of the Inside Rearview Mirror with the Automatic Day-Night Feature, Compass/Temperature Display without OnStar®

The inside rearview mirror has 2 switches that perform the following functions:

- The TEMP switch is used to turn the compass/temperature display ON or OFF, it is also used to enable or disable the automatic day-night feature of the mirror. With the ignition in the ON position, depress the TEMP switch to enable the compass/temperature display. Depress the TEMP switch again to disable the compass/temperature display. The TEMP switch can be held for 4 seconds in order to change the display from Fahrenheit (°F) to Celsius (°C), or from Celsius (°C) to Fahrenheit (°F). Depress the TEMP switch until the green indicator illuminates on the mirror. This indicates that the automatic day-night feature is enabled. To disable the automatic day-night feature of the mirror, depress the TEMP switch until the green indicator turns OFF.

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- The COMP switch is used to turn the compass/temperature display ON or OFF. With the ignition in the ON position, depress the COMP switch to turn the compass/temperature display ON. Depress the COMP switch again to turn the compass/temperature display OFF. The COMP switch is also used to place the compass into a calibration or zone mode. For more information, refer to **Compass Calibration and Variance Procedure**.

Switches of the Inside Rearview Mirror with the Automatic Day-Night Feature with Compass and OnStar®

The inside rearview mirror has 4 switches that perform the following functions:

- The ON/OFF switch located at the left side of the mirror performs the following functions:
 - To enable or disable the automatic day-night feature of the mirror - With the ignition in the ON position, depress and hold the ON/OFF switch for 4 seconds to enable the automatic day-night feature of the mirror. A green indicator will illuminate on the mirror when the automatic day-night feature is enabled. To disable the automatic day-night feature of the mirror, depress and hold the ON/OFF switch for 4 seconds.
 - To turn the compass ON and OFF - With the ignition in the ON position, depress the ON/OFF switch to turn the compass ON. Depress the ON/OFF switch again to turn the compass OFF. The ON/OFF switch is also used to place the compass into a calibration or zone mode. For more information, refer to **Compass Calibration and Variance Procedure**.
- The 3 switches on the right side of the mirror are for OnStar® operation. For more information, refer to **OnStar Description and Operation** in Cellular Communication.

Switches of the Inside Rearview Mirror with the Automatic Day-Night Feature, Compass/Temperature Display with OnStar®

The inside rearview mirror has 4 switches that perform the following functions:

- The ON/OFF switch located at the left side of the mirror performs the following functions:
 - To enable or disable the automatic day-night feature of the mirror - With the ignition in the ON position, depress and hold the ON/OFF switch for 6 seconds to enable the automatic day-night feature of the mirror. A green indicator will illuminate on the mirror when the automatic day-night feature is enabled. To disable the automatic day-night feature of the mirror, depress and hold the ON/OFF switch for 6 seconds.
 - To turn the compass/temperature display ON and OFF - With the ignition in the ON position, depress the ON/OFF switch to turn the compass/temperature display ON. Depress the ON/OFF switch again to turn the compass/temperature display OFF. The ON/OFF switch can be held for 4 seconds in order to change the display from Fahrenheit (°F) to Celsius (°C), or from Celsius (°C) to Fahrenheit (°F). The ON/OFF switch is also used to place the compass into a calibration or zone mode. For more information, refer to **Compass Calibration and Variance Procedure**.
- The 3 switches on the right side of the mirror are for OnStar® operation. For more information, refer to **OnStar Description and Operation** in Cellular Communication.

COMPASS CALIBRATION AND VARIANCE PROCEDURE

Compass Calibration

Before calibrating the compass, drive the vehicle to an open area that is magnetically clean or free of large metallic objects such as high tension power lines or large steel buildings. Verify there are no magnetized roof antennas, magnets on or hanging from the mirror, or any other magnetized objects on the inside or outside of the vehicle close to the mirror.

1. Start the engine.

IMPORTANT: Before calibrating the compass, make sure the mirror has the correct zone number. Refer to Compass Magnetic Variation Adjustment.

2. Press and hold the switch for the compass, which may be depicted as COMP, COMPASS, or on/off (w/UE1) depending on the type of mirror on the vehicle, until the letter "C" or "CAL" is displayed.
3. Drive the vehicle in circles at a speed of less than 8 km/h (5 mph) until the "C" or "CAL" is replaced by a proper vehicle heading. The calibration procedure is now complete.

Compass Magnetic Variation Adjustment

Magnetic variation adjustments are required when the compass displays a constant error in heading. Variation is the difference between magnetic north and true north due to geographical location.

1. Locate your current geographic location on the World Magnetic Variation Map.

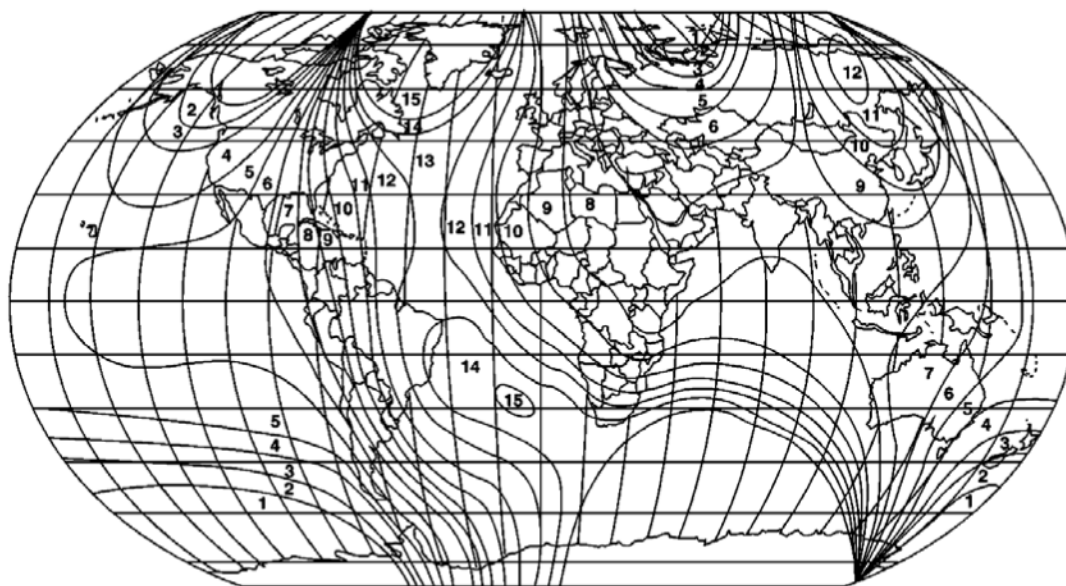


Fig. 59: World Magnetic Variation Map
Courtesy of GENERAL MOTORS CORP.

2. Turn ON the ignition, with the engine OFF.
3. Press and hold the switch for the compass, which may be depicted as COMP, COMPASS, or on/off

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(w/UE1) depending on the type of mirror on the vehicle, until a zone number appears on the compass display.

4. Depress the switch for the compass to select the desired zone number.
5. Wait 5 seconds. The display will return to a compass heading. The variance procedure is now complete.
6. Calibrate the compass. Refer to Compass Calibration mentioned above.

REAR WINDOW DEFOGGER DESCRIPTION AND OPERATION

Rear Window Defogger System Components

The rear window defogger system consist of the following components:

- Heating Ventilation Air Conditioning control module
- Body control module (BCM)
- DEFOG relay
- Rear window that has a number of grid lines

Rear Window Defogger Operation

When you turn the ignition to the ON position, ignition voltage is supplied to the DEFOG relay coil. Battery positive voltage is supplied at all times to the DEFOG relay switched input. When the rear window defogger switch is depressed, the HVAC control module illuminates the rear window defogger indicator and sends a class 2 message to the BCM. The BCM energizes the DEFOG relay by grounding the control circuit of the relay. This allows battery positive voltage from the relay switched input through the switch contacts and out the relay switched output to the rear window defogger. Ground for the rear window defogger is provided by G306. If the vehicle is equipped with cargo doors, ground for the rear window defoggers will be provided by G410.

When you turn ON the ignition and press the rear window defogger switch for the first time, the defogger cycle lasts 10 minutes. Further operation results in 5 minute defogger cycles.

STATIONARY WINDOW DESCRIPTION

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

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.

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

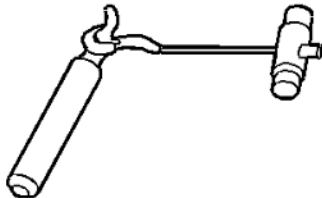
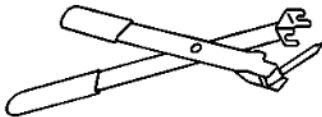
IMPORTANT:

- If corrosion of the pinch-weld flange is present, or if sheet metal repairs or replacements are required, refinish the pinch-weld flange in order to present a clean, primer-only surface.
- If paint repairs are required, mask the flange bonding area, prior to applying the color coat, in order to provide a clean, primer-only surface.
- Appropriate materials for these primer applications are typically 2 component catalyzed products. Use materials such as BASF DE15®, DuPont 2610®, Sherwin-Williams PSE 4600 and NP70® and Martin-Semour 5120,5130®, PPG DP90LF SPIES/HECKER 3688/8590 - 3688/5150 - 4070/5090 STANDOX 11158/13320 - 14653/14980 products are approved for this application. Follow the manufacturer's directions for the mix, the application, and the drying times.
- After repairing the opening as indicated, shake the pinch-weld primer black #3 well. Using a new dauber, apply the primer to the primed surface of the flange in the bonding area. Allow the primer to dry for 10 minutes.

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

Special Tools

Illustration	Tool Number/ Description
	J 24402-A Glass Sealant Cold Knife Remover
	J 34946 Window Pin Remover

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J 39032
Stationary Glass Removal Tool



J 39040
Quarter Window Remover