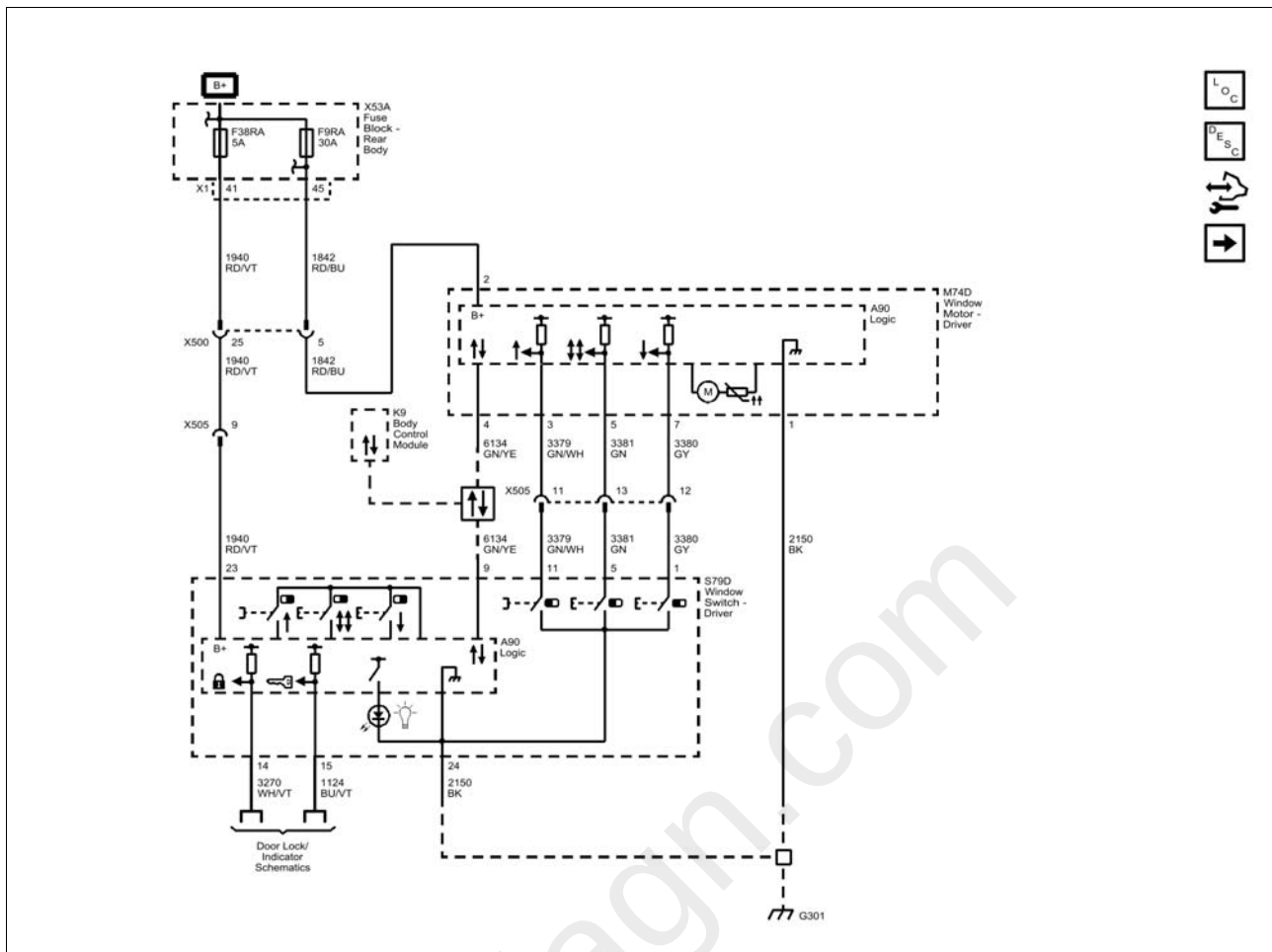


SPECIFICATIONS > FASTENER SPECIFICATIONS

Application	Specification	
	Metric	Metric (English)
Front Side Door Window Belt Reveal Molding Screw	1 N.m	9 lb in
Front Side Door Window Regulator Fastener	10 N.m	89 lb in
Front Side Door Window Regulator Motor Bolt	5 N.m	44 lb in
Front Side Door Window Regulator Upper and Lower Nut	10 N.m	89 lb in
Folding Top Quarter Window Bolt	10 N.m	89 lb in
Quarter Window Regulator Motor Screw	8 N.m	71 lb in
Quarter Window Regulator Nut	10 N.m	89 lb in
Quarter Window Regulator Upper Side Bracket Screw	10 N.m	89 lb in

SCHEMATIC WIRING DIAGRAMS > MOVEABLE WINDOW WIRING SCHEMATICS > DRIVER

Fig 1: Driver

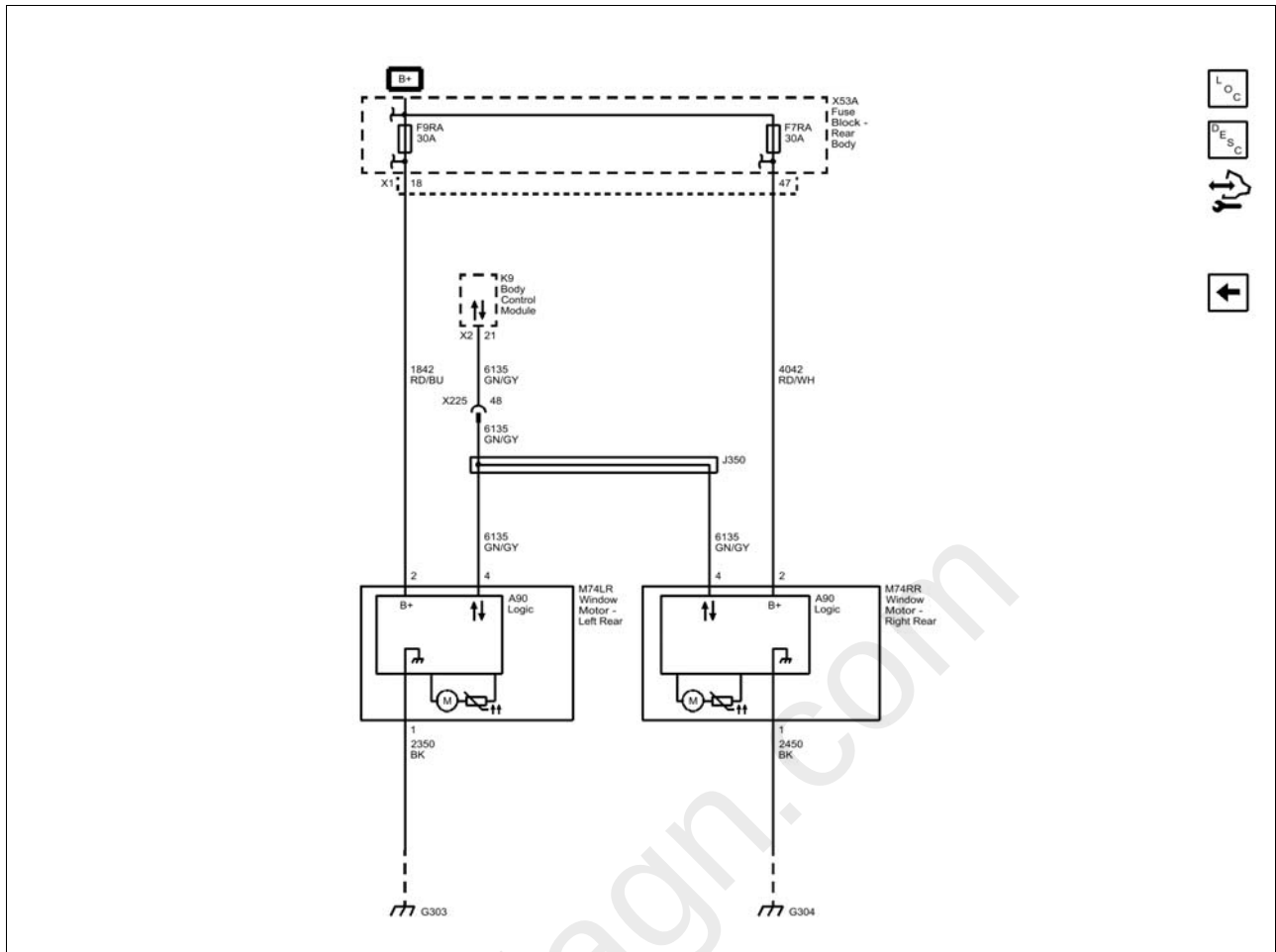


Courtesy of GENERAL MOTORS COMPANY

SCHEMATIC WIRING DIAGRAMS > MOVEABLE WINDOW WIRING SCHEMATICS > PASSENGER

SCHEMATIC WIRING DIAGRAMS > MOVEABLE WINDOW WIRING SCHEMATICS > REAR WINDOWS (CM8)

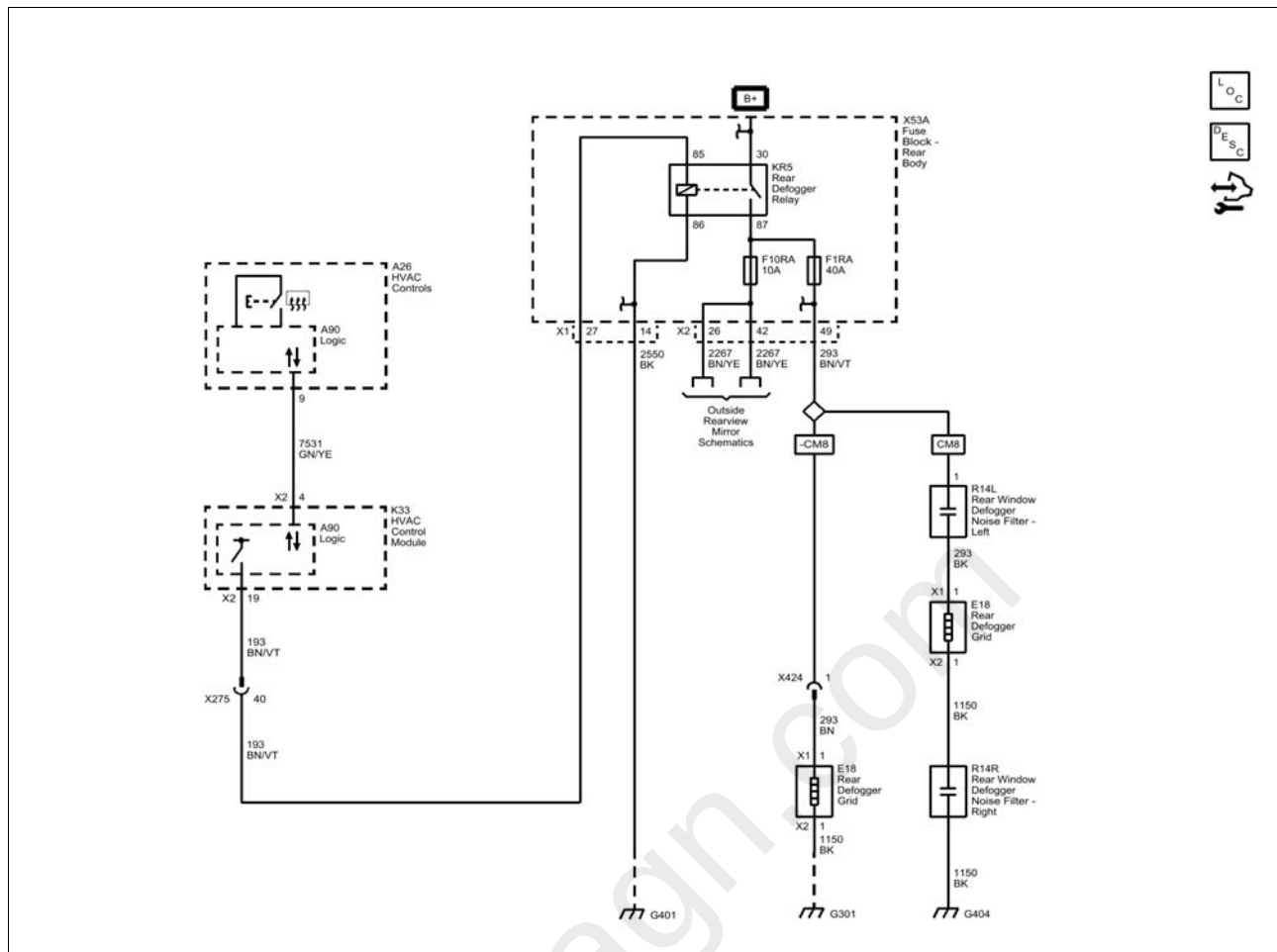
Fig 1: Rear Windows (CM8)



Courtesy of GENERAL MOTORS COMPANY

SCHEMATIC WIRING DIAGRAMS > DEFOGGER WIRING SCHEMATICS > REAR WINDOW DEFOGGER

Fig 1: Rear Window Defogger



Courtesy of GENERAL MOTORS COMPANY

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B0283: REAR DEFOGGER CIRCUIT > DIAGNOSTIC INSTRUCTIONS

- Perform the prior to Diagnostic System Check - Vehicle 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 INFORMATION AND PROCEDURES > DTC B0283: REAR DEFOGGER CIRCUIT > DTC DESCRIPTORS

DTC B0283

Rear Defogger Circuit

For symptom byte information refer to: Symptom Byte List

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B0283: REAR DEFOGGER CIRCUIT > DIAGNOSTIC FAULT INFORMATION

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

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B0283: REAR DEFOGGER CIRCUIT > CIRCUIT/SYSTEM DESCRIPTION

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

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B0283: REAR DEFOGGER CIRCUIT > CONDITIONS FOR RUNNING THE DTC

When the relay is being actively commanded by the HVAC control module

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B0283: REAR DEFOGGER CIRCUIT > 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.

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B0283: REAR DEFOGGER CIRCUIT > ACTION TAKEN WHEN THE DTC SETS

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

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B0283: REAR DEFOGGER CIRCUIT > 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.

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B0283: REAR DEFOGGER CIRCUIT > REFERENCE INFORMATION

Schematic Reference

Defogger Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Rear Window Defogger Description and Operation

Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B0283: REAR DEFOGGER CIRCUIT > CIRCUIT/SYSTEM VERIFICATION

1. Engine Running.
2. Verify the E18 Rear Defogger Grid turns ON and OFF when commanding the Rear Defogger On and Off with a scan tool.

1. If the E18 Rear Defogger Grid does not turn ON or OFF

Refer to Circuit/System Testing

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

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B0283: REAR DEFOGGER CIRCUIT > CIRCUIT/SYSTEM TESTING

1. Ignition OFF and all vehicle systems OFF, disconnect the KR5 Rear Defogger Relay. It may take up to 2 minutes for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 86 and ground.

1. If 10 Ω or greater

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

1. If less than 10 Ω

3. Connect a test lamp between the control circuit terminal 85 and the ground circuit terminal 86, Engine Running.
4. Verify the test lamp turns ON and OFF when commanding the rear window defogger ON and OFF with a scan tool.

1. If the test lamp is always OFF

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

1. If the test lamp is always ON

1. Ignition OFF, disconnect the harness connector at the K33 HVAC Control Module, Engine Running.
2. Test for less than 1 V between the control circuit and ground.
 1. If 1 V or greater, repair the short to voltage on the circuit.

2. If less than 1 V, replace the K33 HVAC Control Module.

1. If the test lamp turns ON and OFF

5. Test or replace the KR5 Rear Defogger Relay.

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B0283: REAR DEFOGGER CIRCUIT > COMPONENT TESTING

Relay Test

1. Ignition OFF, disconnect the KR5 Rear Defogger Relay.

2. Test for 60-180 Ω between terminals 85 and 86.

1. If less than 60 Ω or greater than 180 Ω

Replace the KR5 Rear Defogger Relay.

1. If between 60-180 Ω

3. Test for infinite resistance between the terminals listed below:

1. 30 and 86

2. 30 and 87

3. 30 and 85

4. 85 and 87

1. If less than infinite resistance

Replace the KR5 Rear Defogger Relay.

1. If infinite resistance

4. Install a 3 A fused jumper wire between relay terminal 85 and 12 V. Install a jumper wire between relay terminal 86 and ground.

5. Test for less than 2 Ω between terminals 30 and 87.

1. If 2 Ω or greater

Replace the KR5 Rear Defogger Relay.

1. If less than 2 Ω

6. All OK

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B0283: REAR DEFOGGER CIRCUIT > REPAIR INSTRUCTIONS

Perform the Diagnostic Repair Verification after completing the repair.

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

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B316B OR B317A (COUPE): WINDOW SWITCH > DIAGNOSTIC INSTRUCTIONS

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

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B316B OR B317A (COUPE): WINDOW SWITCH > DTC DESCRIPTORS

DTC B316B

Driver Window Switch

DTC B317A

Passenger Window Switch

For symptom byte information refer to: Symptom Byte List

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B316B OR B317A (COUPE): WINDOW SWITCH > DIAGNOSTIC FAULT INFORMATION

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

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B316B OR B317A (COUPE): WINDOW SWITCH > CIRCUIT/SYSTEM DESCRIPTION

The driver and passenger window motors supply 12V signal circuits to their respective window switches,

when a window switch has been activated, a switch closes providing a ground to the appropriate signal circuit causing the voltage to drop to 0V. The window motor will detect the voltage drop in the signal circuit and will command the window to move in the desired direction.

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

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B316B OR B317A (COUPE): WINDOW SWITCH > CONDITIONS FOR RUNNING THE DTC

Battery voltage must be between 9-16 V.

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B316B OR B317A (COUPE): WINDOW SWITCH > CONDITIONS FOR SETTING THE DTC

B316B 00

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

B316B 02

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

B316B 39

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

B317A 02

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

B317A 39

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

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B316B OR B317A (COUPE): WINDOW SWITCH > ACTION TAKEN WHEN THE DTC SETS

The affected power window will malfunction.

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B316B OR B317A (COUPE): WINDOW SWITCH > CONDITIONS FOR CLEARING THE DTC

B316B 00, B316B 02, B317A 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

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

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B316B OR B317A (COUPE): WINDOW SWITCH > REFERENCE INFORMATION

Schematic Reference

Moveable Window Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Power Windows Description and Operation

Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B316B OR B317A (COUPE): WINDOW SWITCH > CIRCUIT/SYSTEM VERIFICATION

1. Ignition ON.
2. Verify the scan tool parameters listed below change when pressing and pulling the switches for the passenger window on the S79D Window Switch-Driver:

1. Front Passenger Main Control Down Switch - Inactive and Active
2. Front Passenger Main Control Express Switch - Inactive and Active
3. Front Passenger Main Control Up Switch - Inactive and Active

1. If any parameter does not change

Replace the S79D Window Switch-Driver.

1. If the parameters change

3. Verify the scan tool parameters listed below change when pressing and pulling the driver window control switch on the S79D Window Switch-Driver:

1. Driver Window Main Control Down Switch - Inactive and Active
2. Driver Window Main Control Up Switch - Inactive and Active
3. Driver Window Main Control Express Switch - Inactive and Active

1. If any parameter does not change

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

1. If all the parameters change

4. Verify the scan tool Passenger Window Switch at Door parameters change to Inactive, Up, Express Up, Down, Express Down when pressing and pulling the S79P Window Switch-Passenger.

1. If any parameter does not change

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

1. If all the parameters change

5. All OK.

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B316B OR B317A (COUPE): WINDOW SWITCH > CIRCUIT/SYSTEM TESTING

Driver Window Switch Malfunction

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the S79D Window Switch-Driver. It may take up to 2 minutes for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 24 and ground.
 1. **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 1. If 2 Ω or greater, repair the open/high resistance in the circuit.

2. If less than 2 Ω , repair the open/high resistance in the ground connection.

1. If less than 10 Ω

3. Ignition ON.

4. Verify a test lamp illuminates between the B+ circuit terminal 23 and ground.

1. If the test lamp does not illuminate and the circuit fuse is good

1. Ignition OFF.

2. Test for less than 2 Ω in the B+ circuit end to end.

1. If 2 Ω or greater, repair the open/high resistance in the circuit.

2. If less than 2 Ω , verify the fuse is not open and there is voltage at the fuse.

1. If the test lamp does not illuminate and the circuit fuse is open

1. Ignition OFF.

2. Test for infinite resistance between the B+ circuit and ground.

1. If less than infinite resistance, repair the short to ground on the circuit.

2. If infinite resistance, replace the S79D Window Switch-Driver.

1. If the test lamp illuminates

5. Verify the scan tool Driver Window Main Control Down Switch parameter is Inactive.

1. If not Inactive

1. Ignition OFF, disconnect the harness connector at the M74D Window Motor-Driver.

2. Test for infinite resistance between the S79D Window Switch-Driver signal circuit terminal 1 and ground.

1. If less than infinite resistance, repair the short to ground on the circuit.

2. If infinite resistance, replace the M74D Window Motor-Driver.

1. If Inactive

6. Install a 3 A fused jumper wire between the signal circuit terminal 1 and the ground circuit terminal 24.

7. Verify the scan tool Driver Window Main Control Down Switch parameter is Active

1. If not Active

1. Ignition OFF, remove the 3 A fused jumper wire, disconnect the harness connector at the M74D Window Motor-Driver, ignition ON.

2. Test for less than 1 V between the S79D Window Switch-Driver signal circuit terminal 1 and ground.

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

1. If less than 1 V

3. Test for less than 2 Ω in the signal circuit end to end.

1. If 2 Ω or greater, repair the open/high resistance in the circuit.

2. If less than 2 Ω , replace the M74D Window Motor-Driver.

1. If Active

8. Verify the scan tool Driver Window Main Control Up Switch parameter is Inactive.

1. If not Inactive

1. Ignition OFF, disconnect the harness connector at the M74D Window Motor-Driver.

2. Test for infinite resistance between the S79D Window Switch-Driver signal circuit terminal 11 and ground.

1. If less than infinite resistance, repair the short to ground on the circuit.

2. If infinite resistance, replace the M74D Window Motor-Driver.

1. If Inactive

9. Install a 3 A fused jumper wire between the signal circuit terminal 11 and the ground circuit terminal 24.

10. Verify the scan tool Driver Window Main Control Up Switch parameter is Active

1. If not Active

1. Ignition OFF, remove the 3 A fused jumper wire, disconnect the harness connector at the M74D Window Motor-Driver, ignition ON.

2. Test for less than 1 V between the S79D Window Switch-Driver signal circuit 11 and ground.

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

1. If less than 1 V

3. Test for less than 2 Ω in the signal circuit end to end.

1. If 2 Ω or greater, repair the open/high resistance in the circuit.

2. If less than 2 Ω , replace the M74D Window Motor-Driver.

1. If Active

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

1. If not Inactive

1. Ignition OFF, disconnect the harness connector at the M74D Window Motor-Driver.

2. Test for infinite resistance between the S79D Window Switch-Driver signal circuit terminal 5 and ground.

1. If less than infinite resistance, repair the short to ground on the circuit.
2. If infinite resistance, replace the M74D Window Motor-Driver.

1. If Inactive

12. Install a 3 A fused jumper wire between the signal circuit terminal 5 and the ground circuit terminal 24.

13. Verify the scan tool Driver Window Main Control Express Switch parameter is Active

1. If not Active

1. Ignition OFF, remove the 3 A fused jumper wire, disconnect the harness connector at the M74D Window Motor-Driver, ignition ON.
2. Test for less than 1 V between the S79D Window Switch-Driver signal circuit 5 and ground.
 1. If 1 V or greater, repair the short to voltage on the circuit.
 1. If less than 1 V
3. Test for less than 2 Ω in the signal circuit end to end.
 1. If 2 Ω or greater, repair the open/high resistance in the circuit.
 2. If less than 2 Ω , replace the M74D Window Motor-Driver.

1. If Active

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

Passenger Window Switch Malfunction

1. Ignition OFF, and all vehicle systems OFF, disconnect the harness connector at the S79P Window Switch-Passenger. It may take up to 2 minutes for all vehicle systems to power down
2. Test for less than 10 Ω between the ground circuit terminal 24 and ground.

1. If 10 Ω or greater

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

1. If less than 10 Ω

3. Ignition ON.
4. Verify the scan tool Passenger Window Switch at Door parameter is Inactive.

1. If not Inactive

1. Ignition OFF, disconnect the harness connector at the M74P Window Motor-

Passenger

2. Test for infinite resistance between the signal circuit terminal listed below and ground:

1. S79P Window Switch-Passenger - signal circuit terminal 1
2. S79P Window Switch-Passenger - signal circuit terminal 11
 1. If less than infinite resistance, repair the short to ground on the circuit.
 2. If infinite resistance, replace the M74P Window Motor-Passenger.

1. If Inactive

5. Install a 3 A fused jumper wire between the signal circuit terminal 11 and ground:

6. Verify the scan tool Passenger Window Switch at Door parameter is Up

1. If not Up

1. Ignition OFF, remove the fused jumper wire, disconnect the harness connector at the M74P Window Motor-Passenger, ignition ON.
2. Test for less than 1 V between the S79P Window Switch-Passenger signal circuit terminal 11 and ground.
 1. If 1 V or greater, repair the short to voltage on the circuit.
 1. If less than 1 V
3. Ignition OFF, test for less than 2 Ω in the signal circuit end to end.
 1. If 2 Ω or greater, repair the open/high resistance in the circuit.
 2. If less than 2 Ω , replace the M74P Window Motor-Passenger.

1. If Up

7. Install a 3 A fused jumper wire between the signal circuit terminal 1 and ground.

8. Verify the scan tool Passenger Window Switch at Door parameter is Down

1. If not Down

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

1. If Down

9. Test for greater than 10 V between the signal circuit terminal 13 and ground

1. If less than 10 V

1. Ignition OFF, disconnect the harness connector at the M74P Window Motor-Passenger.
2. Test for infinite resistance between the S79P Window Switch-Passenger signal circuit 6 and ground.

1. If less than infinite resistance, repair the short to ground on the circuit.

1. If infinite resistance

3. Test for less than 2 Ω in the signal circuit end to end.

1. If 2 Ω or greater, repair the open/high resistance on the circuit.

2. If less than 2 Ω , replace the M74P Window Motor-Passenger.

1. If greater than 10 V

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

**DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B316B OR B317A (COUPE):
WINDOW SWITCH > REPAIR INSTRUCTIONS**

Perform the Diagnostic Repair Verification after completing the repair.

- Front Side Door Window Control Switch Replacement
- Front Side Door Window Switch Replacement - Right Side
- Front Side Door Window Regulator Motor Replacement

**DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B316B OR B317A
(CONVERTIBLE): WINDOW SWITCH > DIAGNOSTIC INSTRUCTIONS**

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

**DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B316B OR B317A
(CONVERTIBLE): WINDOW SWITCH > DTC DESCRIPTORS**

DTC B316B

Driver Window Switch

DTC B317A

Passenger Window Switch

For symptom byte information refer to: Symptom Byte List

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B316B OR B317A (CONVERTIBLE): WINDOW SWITCH > DIAGNOSTIC FAULT INFORMATION

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

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B316B OR B317A (CONVERTIBLE): WINDOW SWITCH > CIRCUIT/SYSTEM DESCRIPTION

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

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

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B316B OR B317A (CONVERTIBLE): WINDOW SWITCH > CONDITIONS FOR RUNNING THE DTC

Battery voltage must be between 9-16 V.

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B316B OR B317A (CONVERTIBLE): WINDOW SWITCH > CONDITIONS FOR SETTING THE DTC

B316B 00

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

B316B 02

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

B316B 39

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

B317A 02

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

B317A 39

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

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B316B OR B317A (CONVERTIBLE): WINDOW SWITCH > ACTION TAKEN WHEN THE DTC SETS

The affected power window will malfunction.

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B316B OR B317A (CONVERTIBLE): WINDOW SWITCH > CONDITIONS FOR CLEARING THE DTC

B316B 00, B316B 02, B317A 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

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

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B316B OR B317A (CONVERTIBLE): WINDOW SWITCH > REFERENCE INFORMATION

Schematic Reference

Moveable Window Schematics

Connector End View Reference

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Power Windows Description and Operation

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

Scan Tool Reference

Control Module References for scan tool information

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B316B OR B317A (CONVERTIBLE): WINDOW SWITCH > CIRCUIT/SYSTEM VERIFICATION

1. Ignition ON.
2. Verify the scan tool parameters listed below change when pressing and pulling the switches for the passenger, left rear and right rear window on the S79D Window Switch-Driver:
 1. Left Rear Main Control Down Switch - Inactive and Active
 2. Left Rear Main Control Express Switch - Inactive and Active
 3. Left Rear Main Control Up Switch - Inactive and Active
 4. Right Rear Main Control Down Switch - Inactive and Active
 5. Right Rear Main Control Express Switch - Inactive and Active
 6. Right Rear Main Control Up Switch - Inactive and Active
 7. Front Passenger Main Control Down Switch - Inactive and Active
 8. Front Passenger Main Control Express Switch - Inactive and Active
 9. Front Passenger Main Control Up Switch - Inactive and Active
 1. **If any parameter does not change**
Replace the S79D Window Switch-Driver.
 1. **If the parameters change**
3. Verify the scan tool parameters listed below change when pressing and pulling the driver window control switch on the S79D Window Switch-Driver:

1. Driver Window Main Control Down Switch - Inactive and Active
2. Driver Window Main Control Up Switch - Inactive and Active
3. Driver Window Main Control Express Switch - Inactive and Active

1. If any parameter does not change

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

1. If all the parameters change

4. Verify the scan tool Passenger Window Switch at Door parameters change to Inactive, Up, Express Up, Down, Express Down when pressing and pulling the S79P Window Switch-Passenger.

1. If any parameter does not change

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

1. If all the parameters change

5. All OK.

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B316B OR B317A (CONVERTIBLE): WINDOW SWITCH > CIRCUIT/SYSTEM TESTING

Driver Window Switch Malfunction

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the S79D Window Switch-Driver. It may take up to 2 minutes for all vehicle systems to power down.

2. Test for less than 10 Ω between the ground circuit terminal 24 and ground.

1. If 10 Ω or greater

1. Ignition OFF.

2. Test for less than 2 Ω in the ground circuit end to end.

1. If 2 Ω or greater, repair the open/high resistance in the circuit.

2. If less than 2 Ω , repair the open/high resistance in the ground connection.

1. If less than 10 Ω

3. Ignition ON.

4. Verify a test lamp illuminates between the B+ circuit terminal 23 and ground.

1. If the test lamp does not illuminate and the circuit fuse is good

1. Ignition OFF.

2. Test for less than 2 Ω in the B+ circuit end to end.

1. If $2\ \Omega$ or greater, repair the open/high resistance in the circuit.
2. If less than $2\ \Omega$, verify the fuse is not open and there is voltage at the fuse.

1. If the test lamp does not illuminate and the circuit fuse is open

1. Ignition OFF.
2. Test for infinite resistance between the B+ circuit and ground.
 1. If less than infinite resistance, repair the short to ground on the circuit.
 2. If infinite resistance, replace the S79D Window Switch-Driver.

1. If the test lamp illuminates

5. Verify the scan tool Driver Window Main Control Down Switch parameter is Inactive.

1. If not Inactive

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

1. If Inactive

6. Install a 3 A fused jumper wire between the signal circuit terminal 1 and the ground circuit terminal 24.

7. Verify the scan tool Driver Window Main Control Down Switch parameter is Active

1. If not Active

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

1. If Active

8. Verify the scan tool Driver Window Main Control Up Switch parameter is Inactive.

1. If not Inactive

1. Ignition OFF, disconnect the harness connector at the M74D Window Motor-Driver.
2. Test for infinite resistance between the S79D Window Switch-Driver signal circuit terminal 11 and ground.
 1. If less than infinite resistance, repair the short to ground on the circuit.
 2. If infinite resistance, replace the M74D Window Motor-Driver.

1. If Inactive

9. Install a 3 A fused jumper wire between the signal circuit terminal 11 and the ground circuit terminal 24.
10. Verify the scan tool Driver Window Main Control Up Switch parameter is Active

1. If not Active

1. Ignition OFF, remove the 3 A fused jumper wire, disconnect the harness connector at the M74D Window Motor-Driver, ignition ON.
2. Test for less than 1 V between the S79D Window Switch-Driver signal circuit 11 and ground.
 1. If 1 V or greater, repair the short to voltage on the circuit.
 1. If less than 1 V
3. Test for less than 2 Ω in the signal circuit end to end.
 1. If 2 Ω or greater, repair the open/high resistance in the circuit.
 2. If less than 2 Ω , replace the M74D Window Motor-Driver.

1. If Active

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

1. If not Inactive

1. Ignition OFF, disconnect the harness connector at the M74D Window Motor-Driver.
2. Test for infinite resistance between the S79D Window Switch-Driver signal circuit terminal 5 and ground.
 1. If less than infinite resistance, repair the short to ground on the circuit.
 2. If infinite resistance, replace the M74D Window Motor-Driver.

1. If Inactive

12. Install a 3 A fused jumper wire between the signal circuit terminal 5 and the ground circuit terminal 24.
13. Verify the scan tool Driver Window Main Control Express Switch parameter is Active

1. If not Active

1. Ignition OFF, remove the 3 A fused jumper wire, disconnect the harness connector at

the M74D Window Motor-Driver, ignition ON.

2. Test for less than 1 V between the S79D Window Switch-Driver signal circuit 5 and ground.

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

1. If less than 1 V

3. Test for less than 2 Ω in the signal circuit end to end.

1. If 2 Ω or greater, repair the open/high resistance in the circuit.

2. If less than 2 Ω , replace the M74D Window Motor-Driver.

1. If Active

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

Passenger Window Switch Malfunction

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

2. Test for less than 10 Ω between the ground circuit terminal 24 and ground.

1. If 10 Ω or greater

1. Ignition OFF.

2. Test for less than 2 Ω in the ground circuit end to end.

1. If 2 Ω or greater, repair the open/high resistance in the circuit.

2. If less than 2 Ω , repair the open/high resistance in the ground connection.

1. If less than 10 Ω

3. Ignition ON.

4. Verify the scan tool Passenger Window Switch at Door parameter is Inactive.

1. If not Inactive

1. Ignition OFF, disconnect the harness connector at the M74P Window Motor-Passenger

2. Test for infinite resistance between the signal circuit terminal listed below and ground:

1. S79P Window Switch-Passenger - signal circuit terminal 1

2. S79P Window Switch-Passenger - signal circuit terminal 11

1. If less than infinite resistance, repair the short to ground on the circuit.

2. If infinite resistance, replace the M74P Window Motor-Passenger.

1. If Inactive

5. Install a 3 A fused jumper wire between the signal circuit terminal 11 and ground:

6. Verify the scan tool Passenger Window Switch at Door parameter is Up

1. If not Up

1. Ignition OFF, remove the fused jumper wire, disconnect the harness connector at the M74P Window Motor-Passenger, ignition ON.

2. Test for less than 1 V between the S79P Window Switch-Passenger signal circuit terminal 11 and ground.

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

1. If less than 1 V

3. Ignition OFF, test for less than 2 Ω in the signal circuit end to end.

1. If 2 Ω or greater, repair the open/high resistance in the circuit.

2. If less than 2 Ω , replace the M74P Window Motor-Passenger.

1. If Up

7. Install a 3 A fused jumper wire between the signal circuit terminal 1 and ground.

8. Verify the scan tool Passenger Window Switch at Door parameter is Down

1. If not Down

1. Ignition OFF, remove the fused jumper wire, disconnect the harness connector at the M74P Window Motor-Passenger, ignition ON.

2. Test for less than 1 V between the S79P Window Switch-Passenger signal circuit terminal 1 and ground.

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

1. If less than 1 V

3. Ignition OFF, test for less than 2 Ω in the signal circuit end to end.

1. If 2 Ω or greater, repair the open/high resistance in the circuit.

2. If less than 2 Ω , replace the M74P Window Motor-Passenger.

1. If Down

9. Test for greater than 10 V between the signal circuit terminal 13 and ground

1. If less than 10 V

1. Ignition OFF, disconnect the harness connector at the M74P Window Motor-Passenger.

2. Test for infinite resistance between the S79P Window Switch-Passenger signal circuit 6 and ground.

1. If less than infinite resistance, repair the short to ground on the circuit.

1. If infinite resistance
3. Test for less than 2 Ω in the signal circuit end to end.
 1. If 2 Ω or greater, repair the open/high resistance on the circuit.
 2. If less than 2 Ω , replace the M74P Window Motor-Passenger.

1. If greater than 10 V

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

**DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B316B OR B317A
(CONVERTIBLE): WINDOW SWITCH > REPAIR INSTRUCTIONS**

Perform the Diagnostic Repair Verification after completing the repair.

- Front Side Door Window Control Switch Replacement
- Front Side Door Window Switch Replacement - Right Side
- Front Side Door Window Regulator Motor Replacement

**DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B3205, B3210, B3215, OR
B3220: WINDOW MOTOR > DIAGNOSTIC INSTRUCTIONS**

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

**DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B3205, B3210, B3215, OR
B3220: WINDOW MOTOR > DTC DESCRIPTORS**

DTC B3205

Driver Window Motor

DTC B3210

Passenger Window Motor

DTC B3215

Left Rear Window Motor

DTC B3220

Right Rear Window Motor

For symptom byte information, refer to Symptom Byte List .

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B3205, B3210, B3215, OR B3220: WINDOW MOTOR > CIRCUIT/SYSTEM DESCRIPTION

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

The BCM monitors the status of the driver and passenger door ajar switches, when the driver or passenger door is opened, the BCM will send a serial data message to the appropriate window motor to lower the window approximately 13 mm (1/2 inch) to prevent damage to the door window seal as the door is opened. The BCM will also send a serial data message to the window motor when it detects that the door has been completely closed so that the window motor can command the window to index to the fully up position.

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B3205, B3210, B3215, OR B3220: WINDOW MOTOR > CONDITIONS FOR RUNNING THE DTC

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

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B3205, B3210, B3215, OR B3220: WINDOW MOTOR > CONDITIONS FOR SETTING THE DTC

B3205 00, B3210 00, B3215 00, B3220 00

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

B3205 39, B3210 39, B3215 39, B3220 39

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

B3205 42, B3210 42, B3215 42, B3220 42

The BCM will automatically attempt to download the calibration program into the appropriate window motor module (As will occur when the window motor module 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, B3215 4B, B3220 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 module has been disconnected

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B3205, B3210, B3215, OR B3220: WINDOW MOTOR > ACTION TAKEN WHEN THE DTC SETS

B3205 00, B3205 39, B3205 42, B3210 00, B3210 39, B3210 42, B3215 39, B3220 39

The affected window motor will be inoperative.

B3205 4B, B3210 4B, B3215 4B, B3220 4B

The affected power window may exhibit the following symptoms:

- The affected power window may not perform the express up or express down functions
- The driver or passenger window may not index to the fully up position
- The driver information center will display Open, then Close Driver Window or will display Open, then Close Passenger Window

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B3205, B3210, B3215, OR B3220: WINDOW MOTOR > CONDITIONS FOR CLEARING THE DTC

B3205 00, B3210 00, B3215 00, B3220 00

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

B3205 39, B3210 39, B3215 39, B3220 39

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

B3205 42, B3210 42, B3215 42, B3220 42

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

B3205 4B, B3210 4B, B3215 4B, B3220 4B

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

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B3205, B3210, B3215, OR B3220: WINDOW MOTOR > DIAGNOSTIC AIDS

When the battery has been disconnected or replaced, all windows may need to be normalized in order to restore the express functions. For vehicles equipped with a folding convertible top, you must normalize

the left rear and right rear windows first before attempting to normalize the driver and passenger windows.

The front windows will not accept the normalization procedure if the rear windows have not been normalized and may result in replacement of functional front window motors.

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B3205, B3210, B3215, OR B3220: WINDOW MOTOR > REFERENCE INFORMATION

Schematic Reference

Moveable Window Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Power Windows Description and Operation

Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B3205, B3210, B3215, OR B3220: WINDOW MOTOR > CIRCUIT/SYSTEM VERIFICATION

1. Ignition ON.
2. Verify the driver, passenger, left rear and right rear window functions while commanding each window Up and Down with the S79D Window Switch-Driver.

1. If the Up and Down does not work

Replace the appropriate M74 Window Motor.

1. If the Up and Down works

3. Verify the driver, passenger, left rear and right rear window performs the Express Up and Express Down functions with the S79D Window Switch-Driver.

1. If a window does not Express Up and Express Down

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

1. If the window performs the Express Up and Express Down functions

4. Ignition OFF and all vehicle systems OFF. It may take up to 2 minutes for all vehicle systems to power down.
5. Ignition ON
6. Verify the driver, passenger, left rear and right rear window performs the Express Up and Express Down functions with the S79D Window Switch-Driver.

1. If a window does not Express Up and Express Down

Replace the M74 Window Motor

1. If all windows perform the Express Up and Express Down functions

7. All OK.

DIAGNOSTIC INFORMATION AND PROCEDURES > DTC B3205, B3210, B3215, OR B3220: WINDOW MOTOR > REPAIR INSTRUCTIONS

Perform the Diagnostic Repair Verification after completing the repair.

Front Side Door Window Regulator Motor Replacement

Quarter Window Regulator Motor Replacement

DIAGNOSTIC INFORMATION AND PROCEDURES > 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:
 1. There are no DTCs set.
 2. 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:
 1. Rear Window Defogger Description and Operation
 2. Power Windows Description and Operation

DIAGNOSTIC INFORMATION AND PROCEDURES > SYMPTOMS - FIXED AND

MOVEABLE WINDOWS > 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.

DIAGNOSTIC INFORMATION AND PROCEDURES > SYMPTOMS - FIXED AND MOVEABLE WINDOWS > 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.

DIAGNOSTIC INFORMATION AND PROCEDURES > SYMPTOMS - FIXED AND MOVEABLE WINDOWS > 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) Power Windows Malfunction (Front)

DIAGNOSTIC INFORMATION AND PROCEDURES > 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 INFORMATION AND PROCEDURES > REAR WINDOW DEFOGGER MALFUNCTION > DIAGNOSTIC FAULT INFORMATION

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

DIAGNOSTIC INFORMATION AND PROCEDURES > REAR WINDOW DEFOGGER MALFUNCTION > CIRCUIT/SYSTEM DESCRIPTION

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

DIAGNOSTIC INFORMATION AND PROCEDURES > REAR WINDOW DEFOGGER MALFUNCTION > 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).

DIAGNOSTIC INFORMATION AND PROCEDURES > REAR WINDOW DEFOGGER MALFUNCTION > REFERENCE INFORMATION

Schematic Reference

Defogger Schematics

Connector End View Reference

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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

DIAGNOSTIC INFORMATION AND PROCEDURES > REAR WINDOW DEFOGGER MALFUNCTION > CIRCUIT/SYSTEM VERIFICATION

1. Engine running.
2. Verify the scan tool Rear Defogger Switch parameter changes between On and Off when pressing the rear window defogger switch.

1. If the parameter does not change between On and Off

Replace the A26 HVAC controls.

1. If the parameter changes between On and Off

3. Verify the E18 Rear Defogger Grid turns ON and OFF when commanding the Rear Defogger On and Off with a scan tool.

1. If the E18 Rear Defogger Grid does not turn ON and OFF

Refer to Circuit/System Testing

1. **If the E18 Rear Defogger Grid turns ON and OFF**
4. Verify the rear defogger indicator turns ON and OFF when pressing the rear window defogger switch.
 1. **If the rear defogger indicator does not turn ON and OFF**

Replace the A26 HVAC controls.
 1. **If the rear defogger indicator turns ON and OFF**
5. All OK.

DIAGNOSTIC INFORMATION AND PROCEDURES > REAR WINDOW DEFOGGER MALFUNCTION > CIRCUIT/SYSTEM TESTING

1. Ignition OFF and all vehicle systems OFF, disconnect the KR5 Rear Defogger Relay. It may take up to 2 minutes for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 86 and ground.
 1. **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 1. If 2 Ω or greater, repair the open/high resistance in the circuit.
 2. If less than 2 Ω , repair the open/high resistance in the ground connection.
 1. **If less than 10 Ω**
3. Engine Running
4. Verify a test lamp illuminates between the B+ circuit terminal 30 and ground.
 1. **If the test lamp does not illuminate**
 2. Replace the X50A Fuse Block-Underhood
 1. **If the test lamp illuminates**
5. Connect a test lamp between the control circuit terminal 85 and the ground circuit terminal 86.
6. Verify the test lamp turns ON and OFF when commanding the Rear Defogger On and Off with a scan tool.
 1. **If the test lamp is always OFF**
 1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K33 HVAC Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 1. If less than infinite resistance, repair the short to ground on the circuit.

1. If infinite resistance

3. Test for less than 2 Ω in the control circuit end to end.

1. If 2 Ω or greater, repair the open/high resistance in the circuit.

2. If less than 2 Ω , replace the K33 HVAC Control Module.

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

1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K33 HVAC Control Module, ignition ON.

2. Test for less than 1 V between the control circuit and ground.

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

2. If less than 1 V, replace the K33 HVAC Control Module.

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

7. Verify that a test lamp does not illuminate between the control circuit terminal 87 and ground.

- 1. If the test lamp illuminates**

Repair the short to voltage on the control circuit

- 1. If the test lamp does not illuminate**

8. Ignition OFF and all vehicle systems OFF, disconnect the X2 harness connector at the E18 Rear Defogger Grid. It may take up to 2 minutes for all vehicle systems to power down.

9. Test for less than 10 Ω between the ground circuit terminal 1 and ground.

- 1. If 10 Ω or greater**

1. Ignition OFF.

2. Test for less than 2 Ω in the ground circuit end to end.

1. If 2 Ω or greater, repair the open/high resistance in the circuit.

2. If less than 2 Ω , repair the open/high resistance in the ground connection.

- 1. If less than 10 Ω**

10. Connect the X2 harness connector at the E18 Rear Defogger Grid.

11. Ignition ON, connect a 40 A fused jumper wire between the B+ circuit terminal 30 and the control circuit terminal 87.

12. Verify the E18 Rear Defogger Grid is activated.

- 1. If the E18 Rear Defogger Grid does not activate**

1. Ignition OFF, remove the fused jumper wire, disconnect the X1 harness connector at the E18 Rear Defogger Grid.

2. Test for infinite resistance between the control circuit and ground.

1. If less than infinite resistance, repair the short to ground on the circuit.

1. If infinite resistance

3. Test for less than 2 Ω in the control circuit end to end.

1. If 2 Ω or greater, repair the open/high resistance in the circuit.

2. If less than 2 Ω , test or replace the E18 Rear Defogger Grid.

1. If the E18 Rear Defogger Grid activates

13. Test or replace the KR5 Rear Defogger Relay.

DIAGNOSTIC INFORMATION AND PROCEDURES > REAR WINDOW DEFOGGER MALFUNCTION > COMPONENT TESTING

Relay Test

1. Ignition OFF, disconnect the KR5 Rear Defogger Relay.

2. Test for 60-180 Ω between terminals 85 and 86.

1. If less than 60 Ω or greater than 180 Ω

Replace the KR5 Rear Defogger Relay.

1. If between 60-180 Ω

3. Test for infinite resistance between the terminals listed below:

1. 30 and 86

2. 30 and 87

3. 30 and 85

4. 85 and 87

1. If less than infinite resistance

Replace the KR5 Rear Defogger Relay.

1. If infinite resistance

4. Install a 3 A fused jumper wire between relay terminal 85 and 12 V. Install a jumper wire between relay terminal 86 and ground.

5. Test for less than 2 Ω between terminals 30 and 87.

1. If 2 Ω or greater

Replace the KR5 Rear Defogger Relay.

1. If less than 2 Ω

6. All OK

Rear Defogger Grid Test



NOTE:

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

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

1. If the test lamp remains bright at the middle of the grid line.

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

Replace the rear window

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

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

Replace the rear window

1. If the test lamp remains dim at the middle of each grid line.

3. All OK

DIAGNOSTIC INFORMATION AND PROCEDURES > REAR WINDOW DEFOGGER MALFUNCTION > REPAIR INSTRUCTIONS

Perform the Diagnostic Repair Verification after completing the repair.

- Rear Window Replacement
- Relay Replacement (Attached to Wire Harness) Relay Replacement (Within an Electrical Center)
- Control Module References for HVAC Control Module and HVAC controls replacement, setup, and programming

DIAGNOSTIC INFORMATION AND PROCEDURES > POWER WINDOWS MALFUNCTION (REAR) > 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 INFORMATION AND PROCEDURES > POWER WINDOWS MALFUNCTION (REAR) > DIAGNOSTIC FAULT INFORMATION

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Driver Window Switch Ignition	1, 2	1, 2	-	-
Left Rear Window Motor B+	U154A 00	U154A 00	-	-
Right Rear Window Motor B+	U154A 00	U154A 00	-	-
Left Rear Window Motor Serial Data	U1530 00, U1534 00	U1534 00	U1534 00	-
Right Rear Window Motor Serial Data	U1530 00, U1534 00	U1534 00	U1534 00	-
Left Rear Window Motor Ground	-	U154A 00	-	-
Right Rear Window Motor Ground	-	U154A 00	-	-
1. Left Rear Window Malfunction 2. Right Rear Window Malfunction				

DIAGNOSTIC INFORMATION AND PROCEDURES > POWER WINDOWS MALFUNCTION (REAR) > CIRCUIT/SYSTEM DESCRIPTION

The front power windows can be controlled by the driver window switch. The driver window switch contains window switches that control all power window operations. When a power window switch is activated to a desired position, power window switch will send a serial data message to the body control module (BCM) which will send the command to the appropriate window motor to move the window to the desired position. The window motors will also receive a signal from the BCM to globally express down while lowering the convertible top.

DIAGNOSTIC INFORMATION AND PROCEDURES > POWER WINDOWS MALFUNCTION (REAR) > DIAGNOSTIC AIDS

The loss of the express up and express down functions for the driver, passenger and rear windows may have occurred for the following reasons:

- The battery was disconnected

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

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

DIAGNOSTIC INFORMATION AND PROCEDURES > POWER WINDOWS MALFUNCTION (REAR) > REFERENCE INFORMATION

Schematic Reference

Moveable Window Schematics

Connector End View Reference

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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

DIAGNOSTIC INFORMATION AND PROCEDURES > POWER WINDOWS MALFUNCTION (REAR) > CIRCUIT/SYSTEM VERIFICATION

1. Ignition ON.
2. Verify 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 and Right Rear Main Control Up Switch parameter changes between Inactive and Active when pressing and pulling appropriate switches on the S79D Window Switch-Driver.

1. If any parameter does not change

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

1. **If all the parameters change**
3. Verify the left rear and right rear window moves while commanding the window UP and DOWN with a scan tool.
 1. **If a rear window does not move UP and DOWN as commanded**

Refer to Circuit/System Testing - Rear Power Window Inoperative.
 1. **If the rear window moves UP and DOWN as commanded**
4. All OK.

DIAGNOSTIC INFORMATION AND PROCEDURES > POWER WINDOWS MALFUNCTION (REAR) > CIRCUIT/SYSTEM TESTING

Driver Window Switch Malfunction

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

3. Test for infinite resistance between the signal circuit and ground.

1. If less than infinite resistance, repair the short to ground on the circuit.

2. If infinite resistance, replace the S79D Window Switch-Driver

1. If the test lamp illuminates

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

Rear Power Window Inoperative

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the appropriate M74 Window Motor-Rear. It may take up to 2 minutes for all vehicle systems to power down.

2. Test for less than 10 Ω between the ground circuit terminal 1 and ground.

1. If 10 Ω or greater

1. Ignition OFF.

2. Test for less than 2 Ω in the ground circuit end to end.

1. If 2 Ω or greater, repair the open/high resistance in the circuit.

2. If less than 2 Ω , repair the open/high resistance in the ground connection.

1. If less than 10 Ω

3. Ignition ON.

4. Verify a test lamp illuminates between the B+ circuit terminal 2 and ground.

1. If the test lamp does not illuminate and the circuit fuse is good

1. Ignition OFF.

2. Test for less than 2 Ω in the B+ circuit end to end.

1. If 2 Ω or greater, repair the open/high resistance in the circuit.

2. If less than 2 Ω , verify the fuse is not open and there is voltage at the fuse.

1. If the test lamp does not illuminate and the circuit fuse is open

1. Ignition OFF.

2. Test for infinite resistance between the B+ circuit and ground.

1. If less than infinite resistance, repair the short to ground on the circuit.

1. If infinite resistance

3. Test for infinite resistance between the signal circuit and ground.

1. If less than infinite resistance, repair the short to ground on the circuit.

2. If infinite resistance, replace the M74 Window Motor-Rear.

1. If the test lamp illuminates

5. Replace the M74 Window Motor-Rear.

**DIAGNOSTIC INFORMATION AND PROCEDURES > POWER WINDOWS
MALFUNCTION (REAR) > REPAIR INSTRUCTIONS**

Perform the Diagnostic Repair Verification after completing the repair.

Front Side Door Window Control Switch Replacement

Quarter Window Regulator Motor Replacement

**DIAGNOSTIC INFORMATION AND PROCEDURES > POWER WINDOWS
MALFUNCTION (FRONT) > 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 INFORMATION AND PROCEDURES > POWER WINDOWS
MALFUNCTION (FRONT) > DIAGNOSTIC FAULT INFORMATION**

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Driver Window Motor B+	U1530 00, U1534 00	U1534 00	-	-
Driver Window Motor Serial Data	U1530 00, U1534 00	U1534 00	U1534 00	-
Driver Window Motor Down Signal	B316B 02	1	1	-
Driver Window Motor Express Signal	B316B 02	1	1	-
Driver Window Motor Up Signal	B316B 02	1	1	-
Driver Window Motor Ground	-	U1534 00	-	-
Driver Window Switch Ground	-	1, 2	-	-
Passenger Window Motor B+	U1530 00, U1534 00	U1530 00	-	-

Passenger Window Motor Serial Data	U1530 00, U1534 00	U1534 00	U1534 00	-
Passenger Window Motor Down Signal	B317A 02	2	1	-
Passenger Window Motor Express Signal	B317A 02	2	1	-
Passenger Window Motor Up Signal	B317A 02	2	1	-
Passenger Window Motor Ground	-	U1530 00	-	-
Passenger Window Switch Ground	-	2	-	-
1. Driver Window Malfunction 2. Passenger Window Malfunction				

DIAGNOSTIC INFORMATION AND PROCEDURES > POWER WINDOWS

MALFUNCTION (FRONT) > CIRCUIT/SYSTEM DESCRIPTION

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

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

DIAGNOSTIC INFORMATION AND PROCEDURES > POWER WINDOWS

MALFUNCTION (FRONT) > DIAGNOSTIC AIDS

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

- The battery was disconnected
- The battery was replaced
- A door wiring harness was disconnected
- A window motor was disconnected
- If the convertible top has not been completely closed and firmly latched
- The driver and passenger windows express up functions will be disabled if the rear windows are

not fully closed

The window motors may need to be normalized in order to restore the express functions, refer to Window Motor Programming - Express Function for the proper procedure.

DIAGNOSTIC INFORMATION AND PROCEDURES > POWER WINDOWS MALFUNCTION (FRONT) > REFERENCE INFORMATION

Schematic Reference

Moveable Window Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Power Windows Description and Operation

Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

DIAGNOSTIC INFORMATION AND PROCEDURES > POWER WINDOWS MALFUNCTION (FRONT) > CIRCUIT/SYSTEM VERIFICATION

1. Ignition ON.
2. Verify the driver window functions while commanding the Driver Window Motor Up and Down with a scan tool.

1. If the driver window does not move UP and DOWN as commanded

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

1. If the driver window moves UP and DOWN as commanded

3. Verify the driver window moves while commanding the window UP, express UP, DOWN and express DOWN with the S79D Window Switch-Driver.

1. If the driver window does not move UP or DOWN as commanded

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

1. If the driver window does not express UP or express DOWN

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

1. If after normalization, the driver window does not express UP or express DOWN

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

1. If the driver window moves UP, express UP, DOWN and express DOWN as commanded

4. Verify the scan tool parameters listed below change when pressing and pulling the switches for the passenger window on the driver window master control;

1. Front Passenger Main Control Down Switch - Inactive and Active
2. Front Passenger Main Control Express Switch - Inactive and Active
3. Front Passenger Main Control Up Switch - Inactive and Active

1. If the parameters do not change

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

1. If the parameters changes

5. Verify the passenger window moves while commanding the Passenger Window Motor Up and Down with a scan tool.

1. If the passenger window does not move UP and DOWN as commanded

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

1. If the passenger window moves UP and DOWN as commanded

6. Verify the passenger window moves while commanding the window UP, express UP, DOWN and express DOWN with the S79P Window Switch-Passenger.

1. If the passenger window does not move UP or DOWN as commanded

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

1. If the passenger window does not express UP or express DOWN

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

1. If after normalization, the passenger window does not express UP or express DOWN

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

1. If the passenger window moves UP, express UP, DOWN and express DOWN as commanded

7. All OK.

DIAGNOSTIC INFORMATION AND PROCEDURES > POWER WINDOWS MALFUNCTION (FRONT) > CIRCUIT/SYSTEM TESTING

Driver/Passenger Window Motor Malfunction

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the appropriate driver or passenger M74 Window Motor. It may take up to 2 minutes for all vehicle systems to power down.

2. Test for less than 10 Ω between the ground circuit terminal 1 and ground.

1. If 10 Ω or greater

1. Ignition OFF.

2. Test for less than 2 Ω in the ground circuit end to end.

1. If 2 Ω or greater, repair the open/high resistance in the circuit.

2. If less than 2 Ω , repair the open/high resistance in the ground connection.

1. If less than 10 Ω

3. Ignition ON.

4. Verify a test lamp illuminates between the B+ circuit terminal 2 and ground.

1. If the test lamp does not illuminate and the circuit fuse is good

1. Ignition OFF.

2. Test for less than 2 Ω in the B+ circuit end to end.

1. If 2 Ω or greater, repair the open/high resistance in the circuit.

2. If less than 2 Ω , verify the fuse is not open and there is voltage at the fuse.

1. If the test lamp does not illuminate and the circuit fuse is open

1. Ignition OFF.

2. Test for infinite resistance between the B+ circuit and ground.

1. If less than infinite resistance, repair the short to ground on the circuit.

2. If infinite resistance, replace the M74 Window Motor.

1. If the test lamp illuminates

5. Test or replace the M74 Window Motor.

Driver Window Switch Malfunction

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the S79D

Window Switch-Driver. It may take up to 2 minutes for all vehicle systems to power down.

2. Test for less than 10 Ω between the ground circuit terminal 24 and ground.

1. If 10 Ω or greater

1. Ignition OFF.

2. Test for less than 2 Ω in the ground circuit end to end.

1. If 2 Ω or greater, repair the open/high resistance in the circuit.

2. If less than 2 Ω , repair the open/high resistance in the ground connection.

1. If less than 10 Ω

3. Ignition ON.

4. Verify a test lamp illuminates between the B+ circuit terminal 23 and ground.

1. If the test lamp does not illuminate and the circuit fuse is good

1. Ignition OFF.

2. Test for less than 2 Ω in the B+ circuit end to end.

1. If 2 Ω or greater, repair the open/high resistance in the circuit.

2. If less than 2 Ω , verify the fuse is not open and there is voltage at the fuse.

1. If the test lamp does not illuminate and the circuit fuse is open

1. Ignition OFF.

2. Test for infinite resistance between the B+ circuit and ground.

1. If less than infinite resistance, repair the short to ground on the circuit.

2. If infinite resistance, replace the S79D Window Switch-Driver.

1. If the test lamp illuminates

5. Verify the scan tool Driver Window Main Control Down Switch parameter is Inactive.

1. If not Inactive

1. Ignition OFF, disconnect the harness connector at the M74D Window Motor-Driver.

2. Test for infinite resistance between the S79D Window Switch-Driver signal circuit terminal 1 and ground.

1. If less than infinite resistance, repair the short to ground on the circuit.

2. If infinite resistance, replace the M74D Window Motor-Driver.

1. If Inactive

6. Install a 3 A fused jumper wire between the signal circuit terminal 1 and the ground circuit terminal 24.

7. Verify the scan tool Driver Window Main Control Down Switch parameter is Active

1. If not Active

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

1. If Active

8. Verify the scan tool Driver Window Main Control Up Switch parameter is Inactive.

1. If not Inactive

1. Ignition OFF, disconnect the harness connector at the M74D Window Motor-Driver.
2. Test for infinite resistance between the S79D Window Switch-Driver signal circuit terminal 11 and ground.
 1. If less than infinite resistance, repair the short to ground on the circuit.
 2. If infinite resistance, replace the M74D Window Motor-Driver.

1. If Inactive

9. Install a 3 A fused jumper wire between the signal circuit terminal 11 and the ground circuit terminal 24.

10. Verify the scan tool Driver Window Main Control Up Switch parameter is Active

1. If not Active

1. Ignition OFF, remove the 3 A fused jumper wire, disconnect the harness connector at the M74D Window Motor-Driver, ignition ON.
2. Test for less than 1 V between the S79D Window Switch-Driver signal circuit 11 and ground.
 1. If 1 V or greater, repair the short to voltage on the circuit.
 1. If less than 1 V
3. Test for less than 2 Ω in the signal circuit end to end.
 1. If 2 Ω or greater, repair the open/high resistance in the circuit.
 2. If less than 2 Ω , replace the M74D Window Motor-Driver.

1. If Active

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

1. If not Inactive

1. Ignition OFF, disconnect the harness connector at the M74D Window Motor-Driver.
2. Test for infinite resistance between the S79D Window Switch-Driver signal circuit terminal 5 and ground.
 1. If less than infinite resistance, repair the short to ground on the circuit.
 2. If infinite resistance, replace the M74D Window Motor-Driver.

1. If Inactive

12. Install a 3 A fused jumper wire between the signal circuit terminal 5 and the ground circuit terminal 24.

13. Verify the scan tool Driver Window Main Control Express Switch parameter is Active

1. If not Active

1. Ignition OFF, remove the 3 A fused jumper wire, disconnect the harness connector at the M74D Window Motor-Driver, ignition ON.
2. Test for less than 1 V between the S79D Window Switch-Driver signal circuit 5 and ground.
 1. If 1 V or greater, repair the short to voltage on the circuit.
 1. If less than 1 V
3. Test for less than 2 Ω in the signal circuit end to end.
 1. If 2 Ω or greater, repair the open/high resistance in the circuit.
 2. If less than 2 Ω , replace the M74D Window Motor-Driver.

1. If Active

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

Passenger Window Switch Malfunction

1. Ignition OFF, and all vehicle systems OFF, disconnect the harness connector at the S79P Window Switch-Passenger. It may take up to 2 minutes for all vehicle systems to power down
2. Test for less than 10 Ω between the ground circuit terminal 24 and ground.

1. If 10 Ω or greater

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

2. If less than 2 Ω , repair the open/high resistance in the ground connection.

1. If less than 10 Ω

3. Ignition ON.

4. Verify the scan tool Passenger Window Switch at Door parameter is Inactive.

1. If not Inactive

1. Ignition OFF, disconnect the harness connector at the M74P Window Motor-Passenger

2. Test for infinite resistance between the signal circuit terminal listed below and ground:

1. S79P Window Switch-Passenger - signal circuit terminal 1

2. S79P Window Switch-Passenger - signal circuit terminal 11

1. If less than infinite resistance, repair the short to ground on the circuit.

2. If infinite resistance, replace the M74P Window Motor-Passenger.

1. If Inactive

5. Install a 3 A fused jumper wire between the signal circuit terminal 11 and ground:

6. Verify the scan tool Passenger Window Switch at Door parameter is Up

1. If not Up

1. Ignition OFF, remove the fused jumper wire, disconnect the harness connector at the M74P Window Motor-Passenger, ignition ON.

2. Test for less than 1 V between the S79P Window Switch-Passenger signal circuit terminal 11 and ground.

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

1. If less than 1 V

3. Ignition OFF, test for less than 2 Ω in the signal circuit end to end.

1. If 2 Ω or greater, repair the open/high resistance in the circuit.

2. If less than 2 Ω , replace the M74P Window Motor-Passenger.

1. If Up

7. Install a 3 A fused jumper wire between the signal circuit terminal 1 and ground.

8. Verify the scan tool Passenger Window Switch at Door parameter is Down

1. If not Down

1. Ignition OFF, remove the fused jumper wire, disconnect the harness connector at the M74P Window Motor-Passenger, ignition ON.

2. Test for less than 1 V between the S79P Window Switch-Passenger signal circuit

terminal 1 and ground.

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

1. If less than 1 V

3. Ignition OFF, test for less than 2 Ω in the signal circuit end to end.

1. If 2 Ω or greater, repair the open/high resistance in the circuit.

2. If less than 2 Ω , replace the M74P Window Motor-Passenger.

1. If Down

9. Test for greater than 10 V between the signal circuit terminal 13 and ground

1. If less than 10 V

1. Ignition OFF, disconnect the harness connector at the M74P Window Motor-Passenger.

2. Test for infinite resistance between the S79P Window Switch-Passenger signal circuit 6 and ground.

1. If less than infinite resistance, repair the short to ground on the circuit.

1. If infinite resistance

3. Test for less than 2 Ω in the signal circuit end to end.

1. If 2 Ω or greater, repair the open/high resistance on the circuit.

2. If less than 2 Ω , replace the M74P Window Motor-Passenger.

1. If greater than 10 V

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

DIAGNOSTIC INFORMATION AND PROCEDURES > POWER WINDOWS MALFUNCTION (FRONT) > REPAIR INSTRUCTIONS

Perform the Diagnostic Repair Verification after completing the repair.

- Front Side Door Window Control Switch Replacement
- Front Side Door Window Switch Replacement - Right Side
- Front Side Door Window Regulator Motor Replacement

DIAGNOSTIC INFORMATION AND PROCEDURES > SIDE DOOR WINDOW MECHANICAL DIAGNOSIS

Cause	Correction
DEFINITION: A mechanical condition that requires a correction for proper operation of the side door window. Refer to Symptoms - Fixed and Moveable Windows prior to beginning this table.	
Intermittent Operation	Check proper glass alignment/attachment and door seal installation.
	Check switch and switch bezel to see if sticking.
	Check wire harness for pinched/shorted wire.
	THIS STEP APPLIES TO ALL TWO PIN MOTOR CONNECTORS ONLY. Perform electrical diagnostics, by first applying 12 volt power supply to the regulator motor to verify motor function.
Glass Binds	Check proper glass alignment/attachment.
	Check for defective seal and/or proper seal installation.
	Check for debris in glass run channel.
	Check for glass run channel position.
Regulator/Glass Rattles	Check for loose fasteners and retorque if required.
	Check that the glass is in the channel and reinstall if not positioned correctly.
Noisy Operation	Check for other components in the glass path such as wire harness, impact foam, lock rods, or cables.
	Check for proper glass alignment/attachment and door seal installation.
Windnoise	Check seals, mirror patch, and glass alignment.
False glass reversal, the glass goes down unexpectedly.	Check seals, reinitialize the glass and/or realign the glass.
	Check for debris in the glass run channel.

REPAIR INSTRUCTIONS > WINDSHIELD REPLACEMENT

Special Tools

- **BO-24402-A** Glass Sealant Remover (Cold Knife).
- **BO-39032** Stationary Glass Removal Tool, or equivalent in order to remove the window.
- Use a urethane adhesive systems which meet GM Specification GM 3651G

For equivalent regional tools, refer to Special Tools .

REPAIR INSTRUCTIONS > WINDSHIELD REPLACEMENT > REMOVAL PROCEDURE

 NOTE:

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

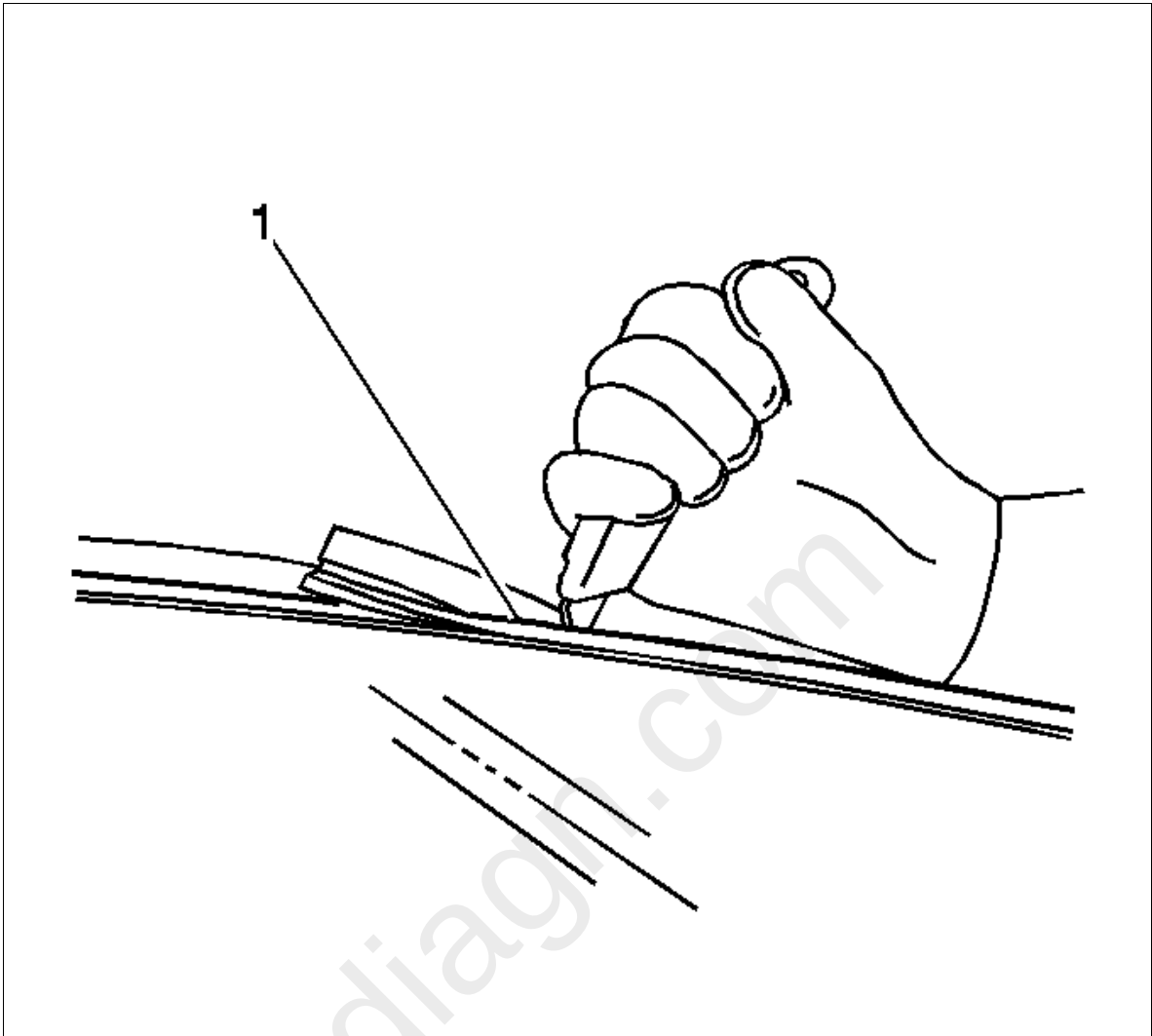
1. Open the hood.
2. Remove the windshield wiper arms. Refer to Windshield Wiper Arm Replacement .
3. Remove the air inlet grille. Refer to Air Inlet Grille Panel Replacement .
4. Remove the inside rearview mirror. Refer to Inside Rearview Mirror Replacement .

 WARNING:

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

5. Cover to protect the following parts from broken glass:
 1. The upper dash pad
 2. The defroster outlets and A/C outlets
 3. The seats and carpeting
6. Remove the lower windshield supports from the cowl panel, if equipped.

Fig 1: Utility Knife To Remove Reveal Molding



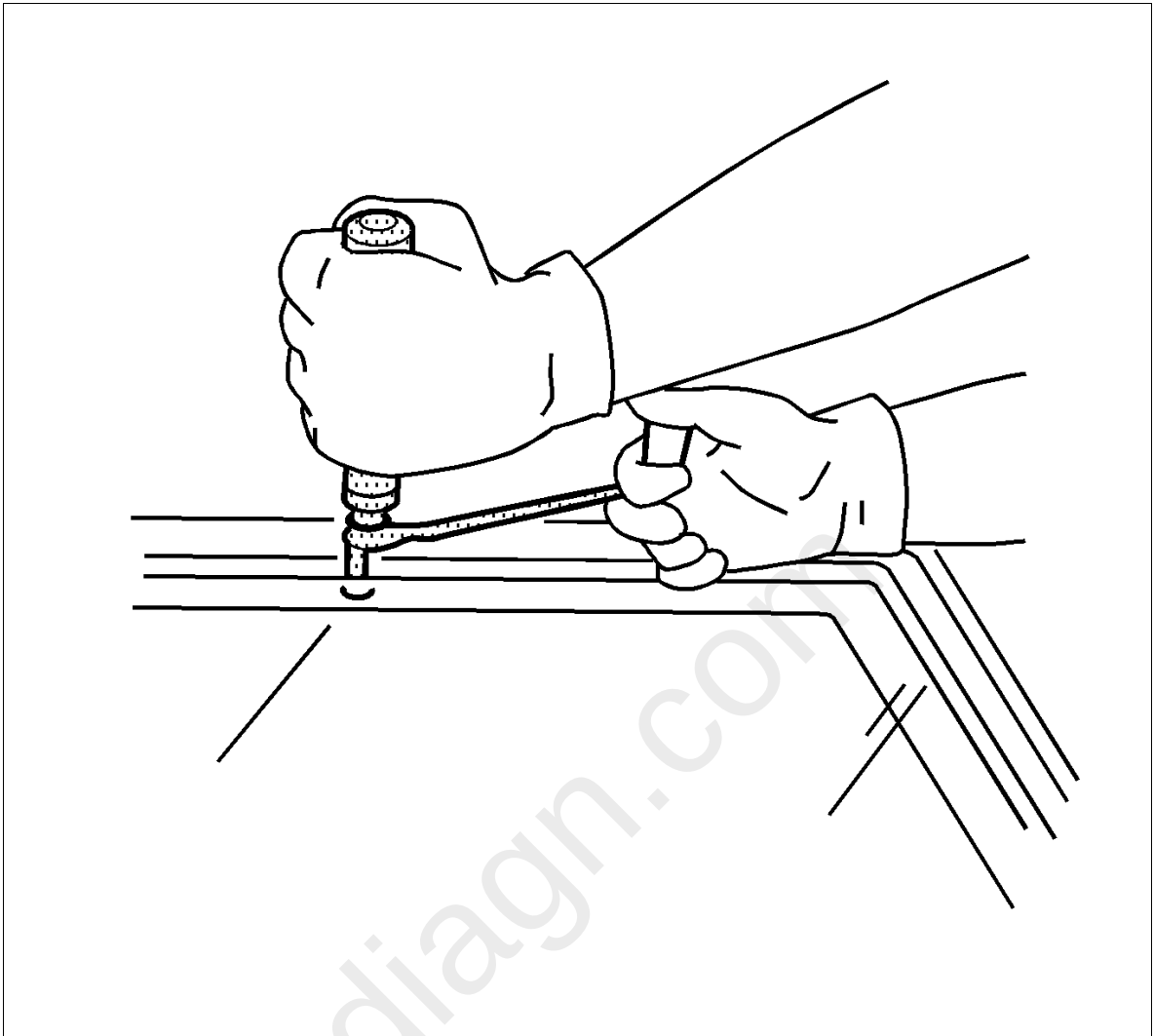
Courtesy of GENERAL MOTORS COMPANY

 WARNING:

When working with any type of glass or sheet metal with exposed or rough edges, wear approved safety glasses and gloves in order to reduce the chance of personal injury.

7. Using the appropriate tool, carefully cut around the lace (1), start in the center working from side to side of the window to access the urethane adhesive bead, if equipped.

Fig 2: Urethane Adhesive From Window



Courtesy of GENERAL MOTORS COMPANY

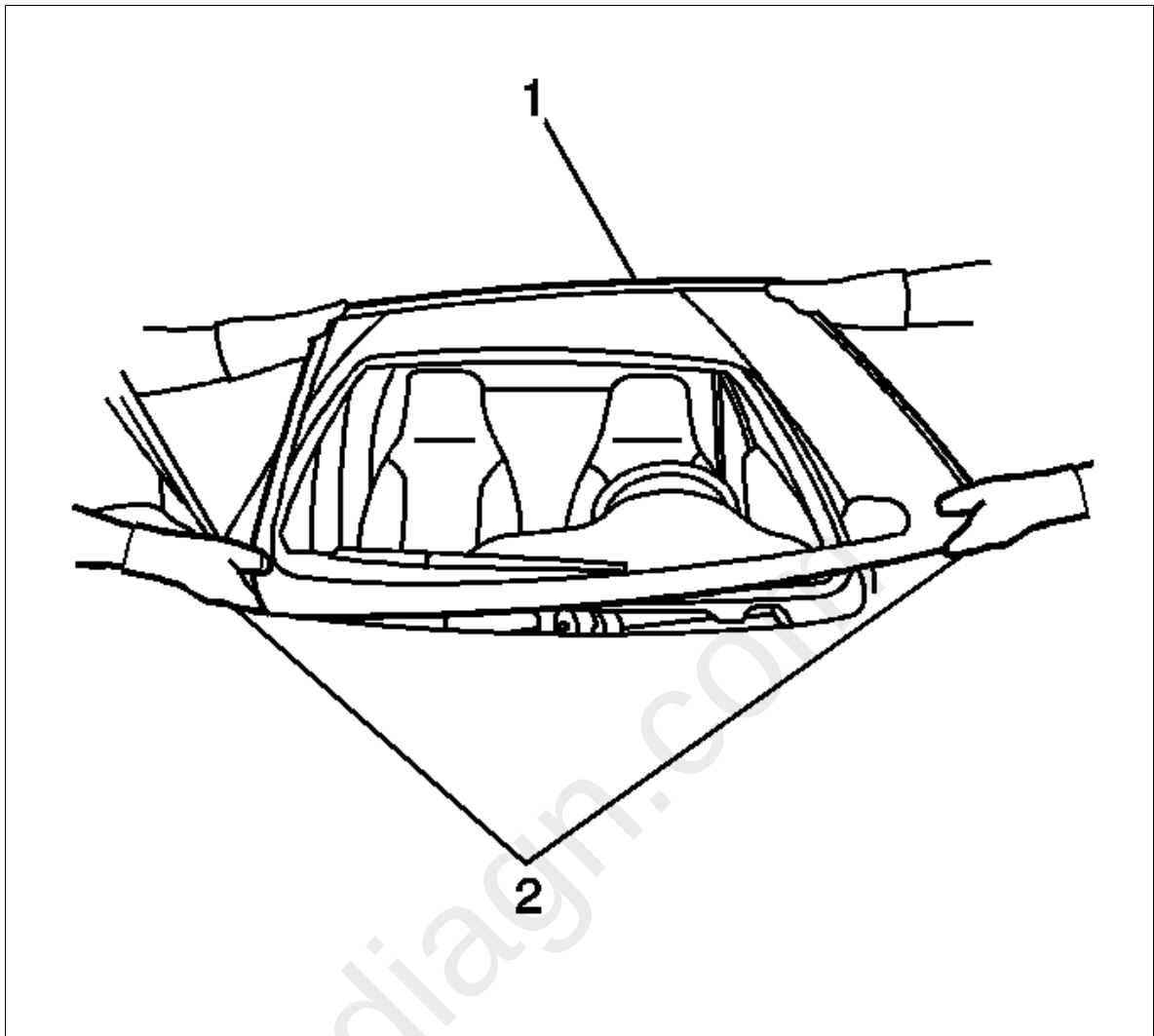


NOTE:

Keep the cutting edge of the tool against the window.

8. This will allow the urethane adhesive to be separated from the windshield.
 1. Leave a base of urethane on the pinchweld flange.
 2. The only suitable lubrication is clear water.
 3. **BO-24402-A** Glass Sealant Remover (Cold Knife).
 4. **BO-39032** Stationary Glass Removal Tool, or equivalent in order to remove the window.

Fig 3: Removing/Installing Windshield



Courtesy of GENERAL MOTORS COMPANY

9. Remove the windshield (1) from the vehicle with the aid of an assistant (2).

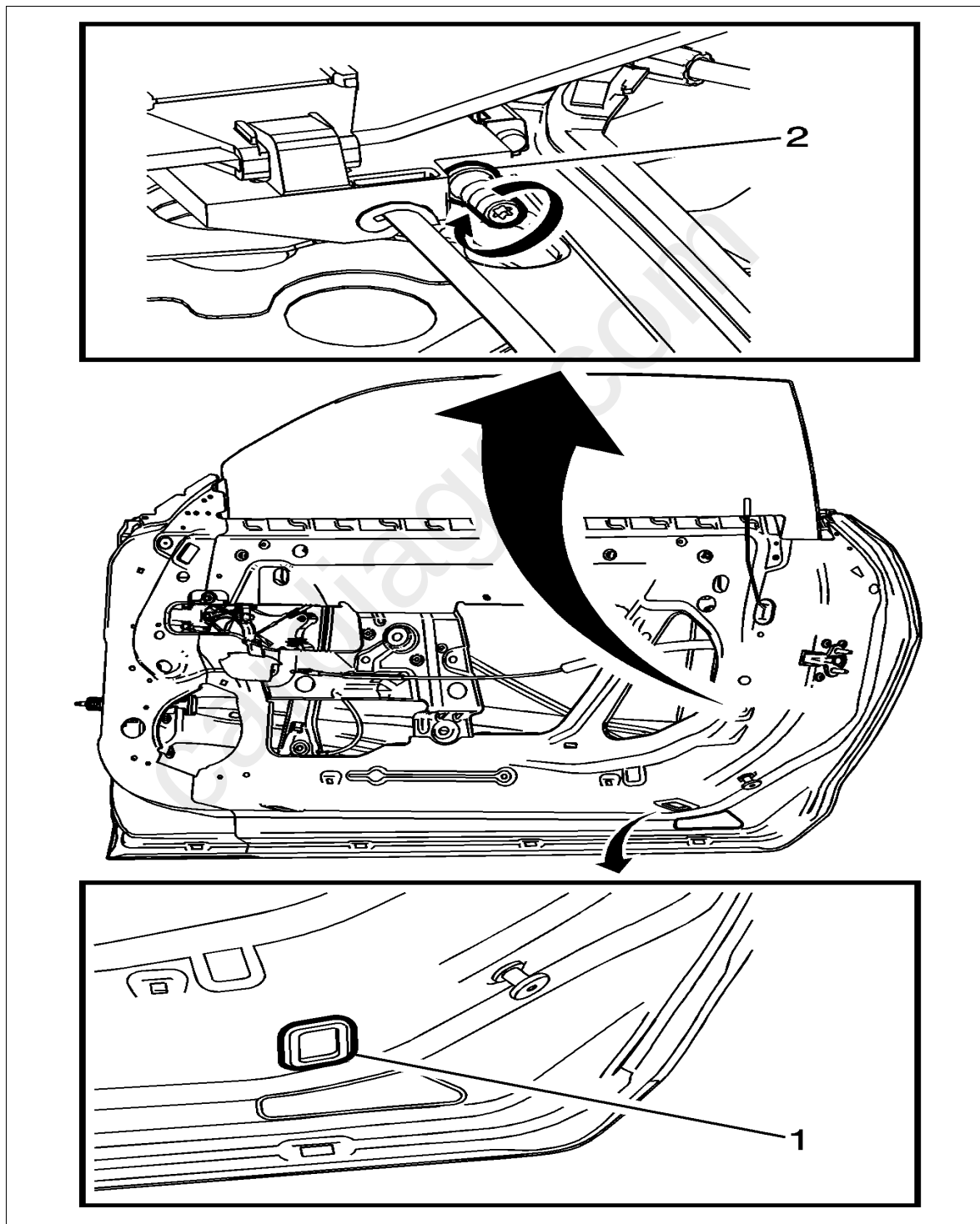
REPAIR INSTRUCTIONS > WINDSHIELD REPLACEMENT > INSTALLATION PROCEDURE

1. Install a stationary window into the opening. Refer to Adhesive Installation of Windshields .
2. Install the remote control door receiver antenna. Refer to Remote Control Door Lock Receiver Replacement (Coupe)Remote Control Door Lock Receiver Replacement (Convertible) .
3. Install the inside rearview mirror. Refer to Inside Rearview Mirror Replacement .
4. Install the air inlet grille. Refer to Air Inlet Grille Panel Replacement .
5. Install the windshield wiper arms. Refer to Windshield Wiper Arm Replacement .
6. Close the hood.

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

REPAIR INSTRUCTIONS > FRONT SIDE DOOR WINDOW ADJUSTMENT > REMOVAL PROCEDURE

Fig 1: Door Plug And TORX Set/Adjust Screw





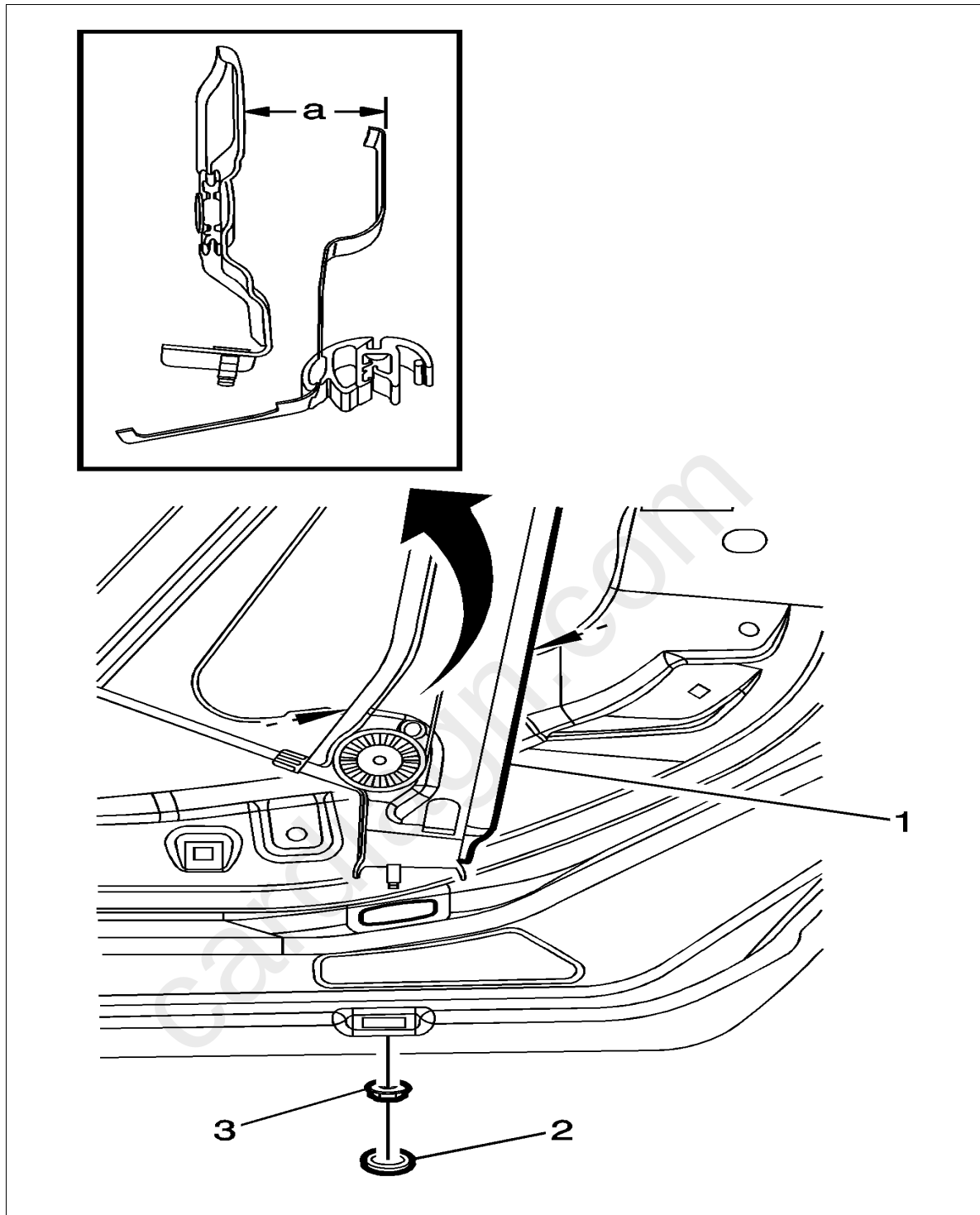
NOTE:

Do steps 1-6 if the door window hits weatherstrip when the door is opening.

1. Do Not removal the door trim panel, lower window to full down position.
2. Remove the plug (1) from the lower rear bottom of the door.
3. Locate the internal Torx set/adjust screw (2) at bottom of the window clamp assembly.
4. Using a long 80 mm (3.1 lb in) hand driver with a Torx T25 bit turn the set screw (2) a minimum of one full turn clockwise but no more then two full turns to raise rear of window approximately 1mm.
5. Close the door and place the door window in the full up position.
6. Open the door from the inside and outside of vehicle to check index of window clears weather strip during door opening event. If, after two turns of the adjustment screw, the window stills hits weather strip while door is opening, go through complete window adjust procedure as listed below.
7. Remove the front side door trim panel. Refer to .
8. Remove the water deflector.
9. Remove the door window switch from the door trim panel.

Reinstall the door window switch to the door harness to be able to operate the door window.

Fig 2: Inner Panel To Rear Regulator Rail



Courtesy of GENERAL MOTORS COMPANY

10. Verify that the measurement from the inboard surface of the inner panel to the rear regulator rail (1) is 57.5 mm (2.3 in), if correct go to next step. If not do the following:
 1. Remove the access plug (2) in the lower inside edge of the door.
 2. Loosen the nut (3) that secures the bottom of the regulator rail (3) to the door.
 3. Adjust the regulator rail (1) to achieve 57.5 mm (2.3 in).

 **CAUTION:**

Refer to Fastener Caution .

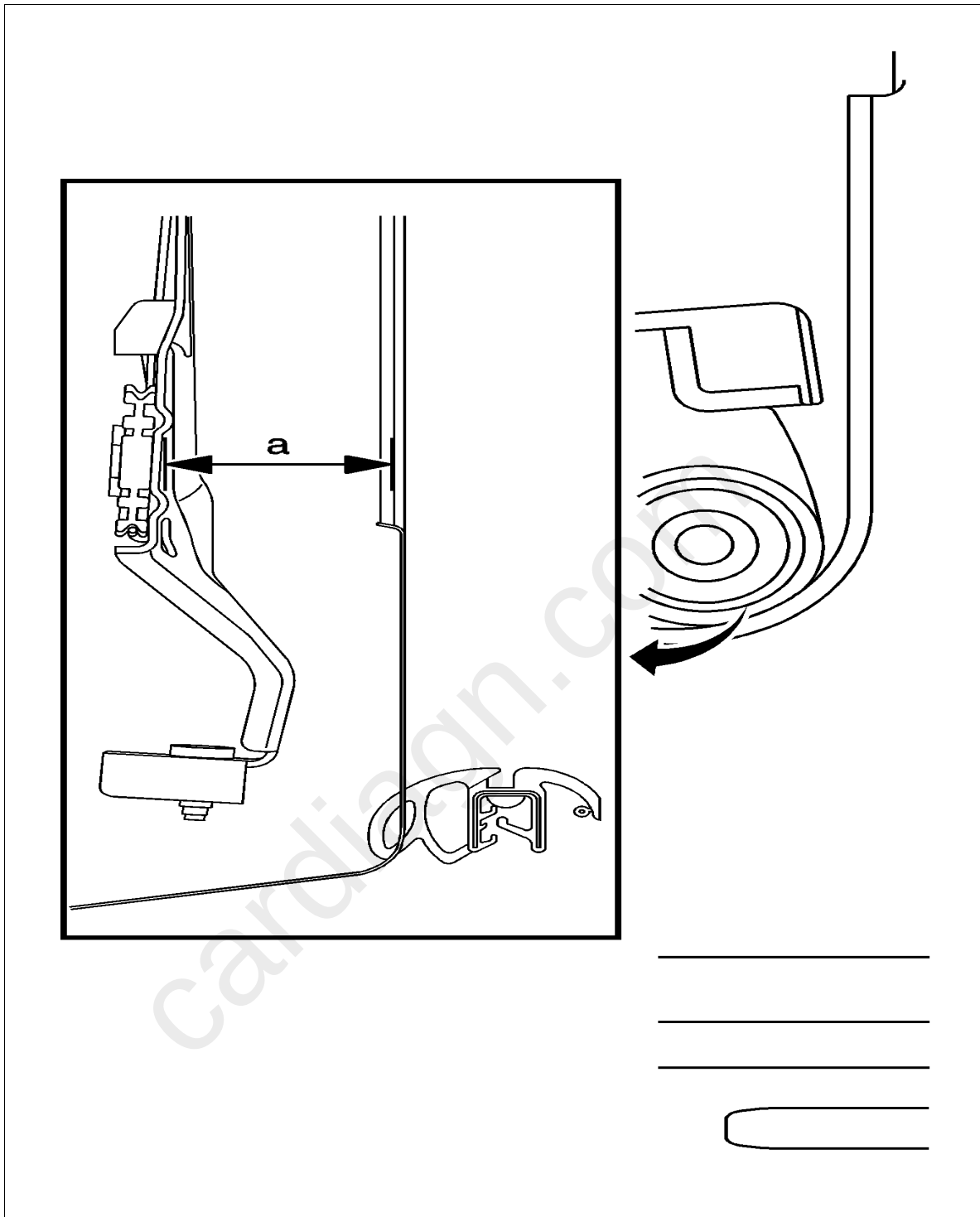
4. Re-torque the nut (2).

Tighten

Tighten the nut to 11 N.m (97 lb in).

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Fig 3: Inner Panel To Front Regulator Rail



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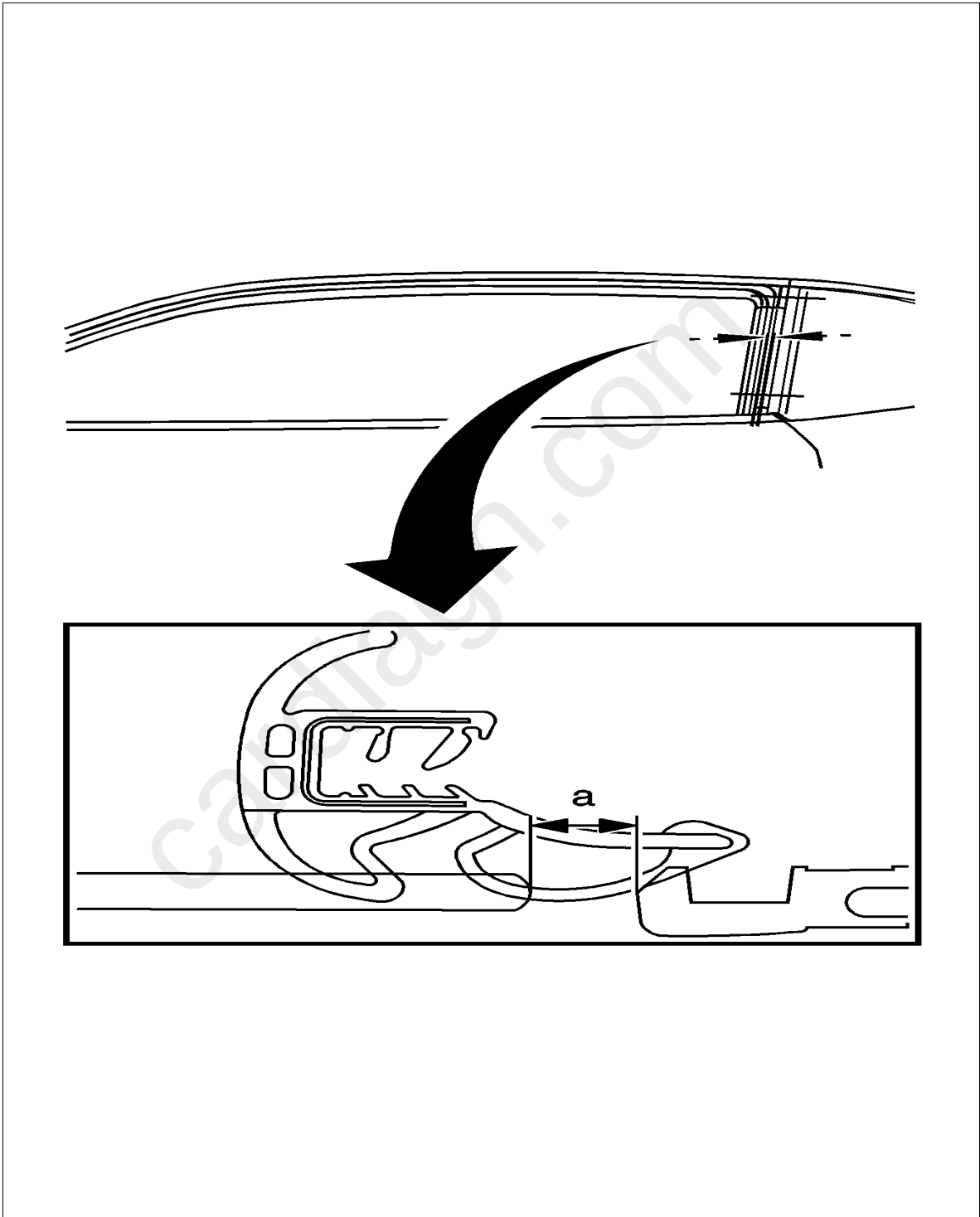
11. Verify that the measurement (a) from the inboard surface of the inner panel to the front regulator rail is 51 mm (2 in), if correct go to the next step. If not do the following:
 1. Remove the access plug.
 2. Loosen the nut that secures the bottom of the regulator rail to the door.
 3. Adjust the regulator rail to achieve 51 mm (2 in).

4. Re-torque the nut.

Tighten

Tighten the nut to 11 N.m (97 lb in).

Fig 4: Gap Between Door Window & 1/4 Window

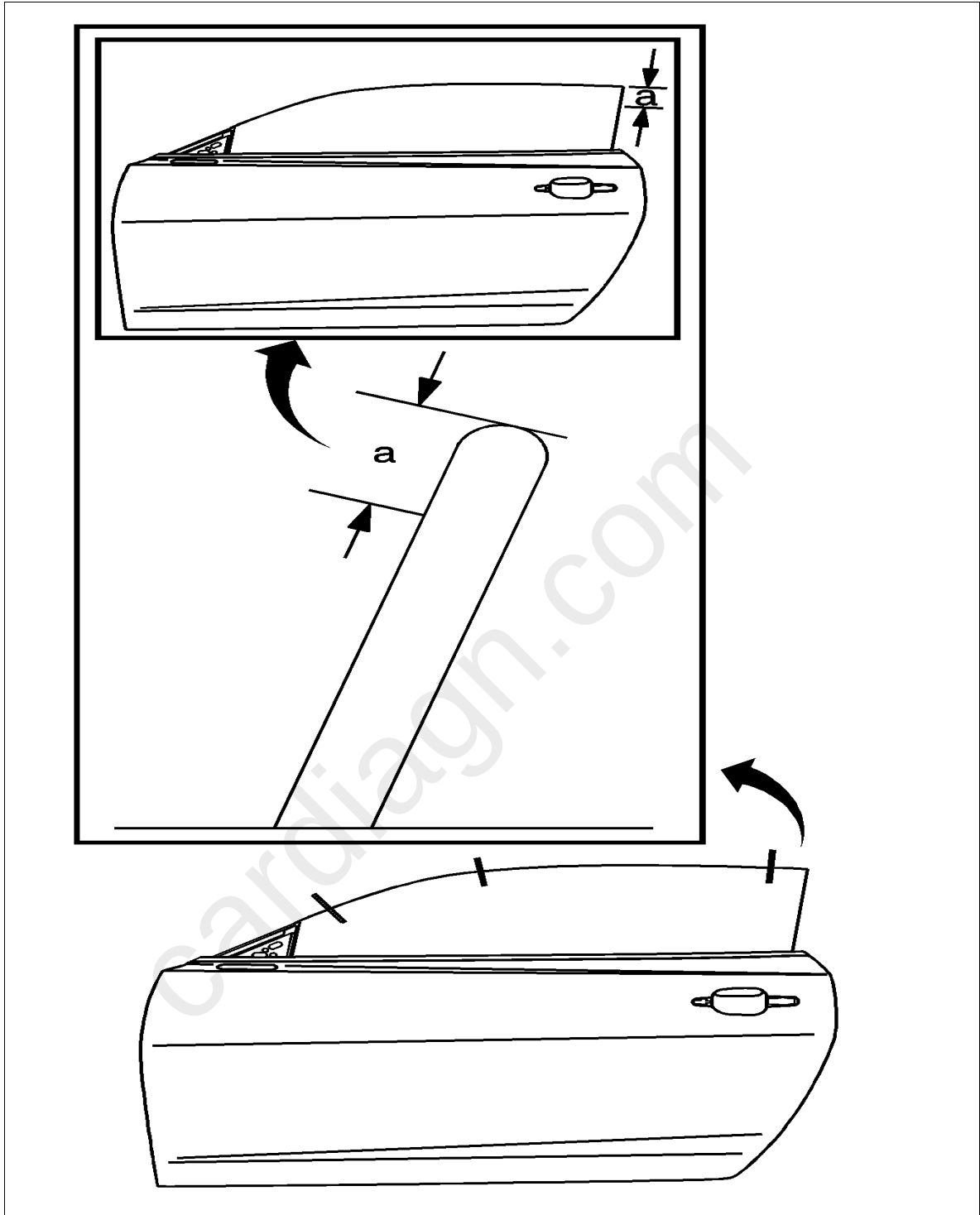


Courtesy of GENERAL MOTORS COMPANY

12. Measure the gap (a) between door window and the 1/4 window, at 2 locations. 10 mm (0.39 in) +/-1.5 mm (0.06 in) and parallel within 1.5 mm (0.060 in), go to the next step.

13. Record the measurements on the repair order for future reference.

Fig 5: Window Seal Penetration



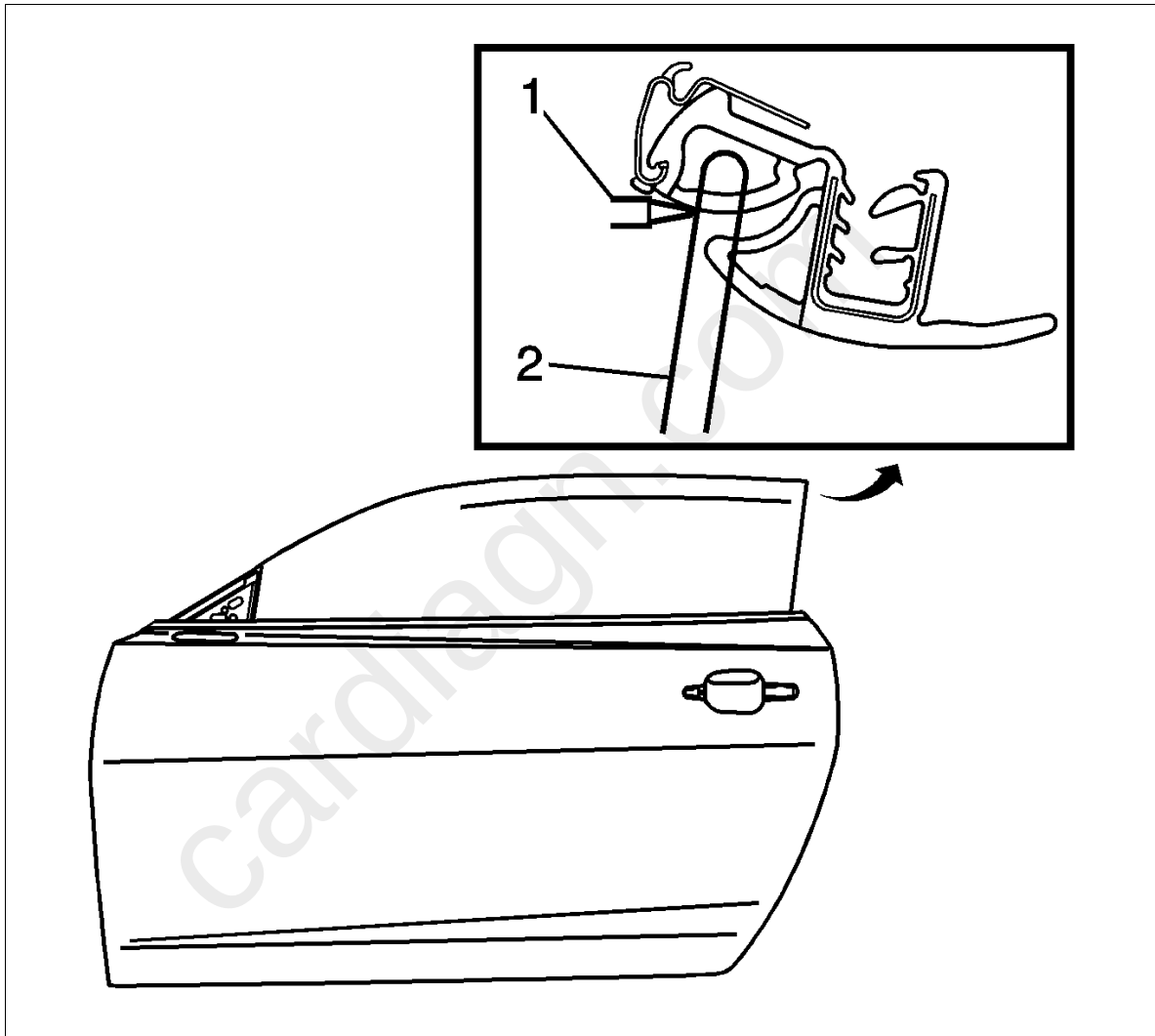
Courtesy of GENERAL MOTORS COMPANY

 **NOTE:**

Record and save the measurement on the repair order for warranty/engineering request.

14. Measure the door window for proper seal penetration (a), at three locations. Record the measurements future reference. Adjust the door window seal for penetration.

Fig 6: Marking Window



Courtesy of GENERAL MOTORS COMPANY

15. Adjust the door window seal for penetration, Do the following:

1. Using a felt tip pen (1) to mark the window is preferred, this washes off easily and does not scratch the window.

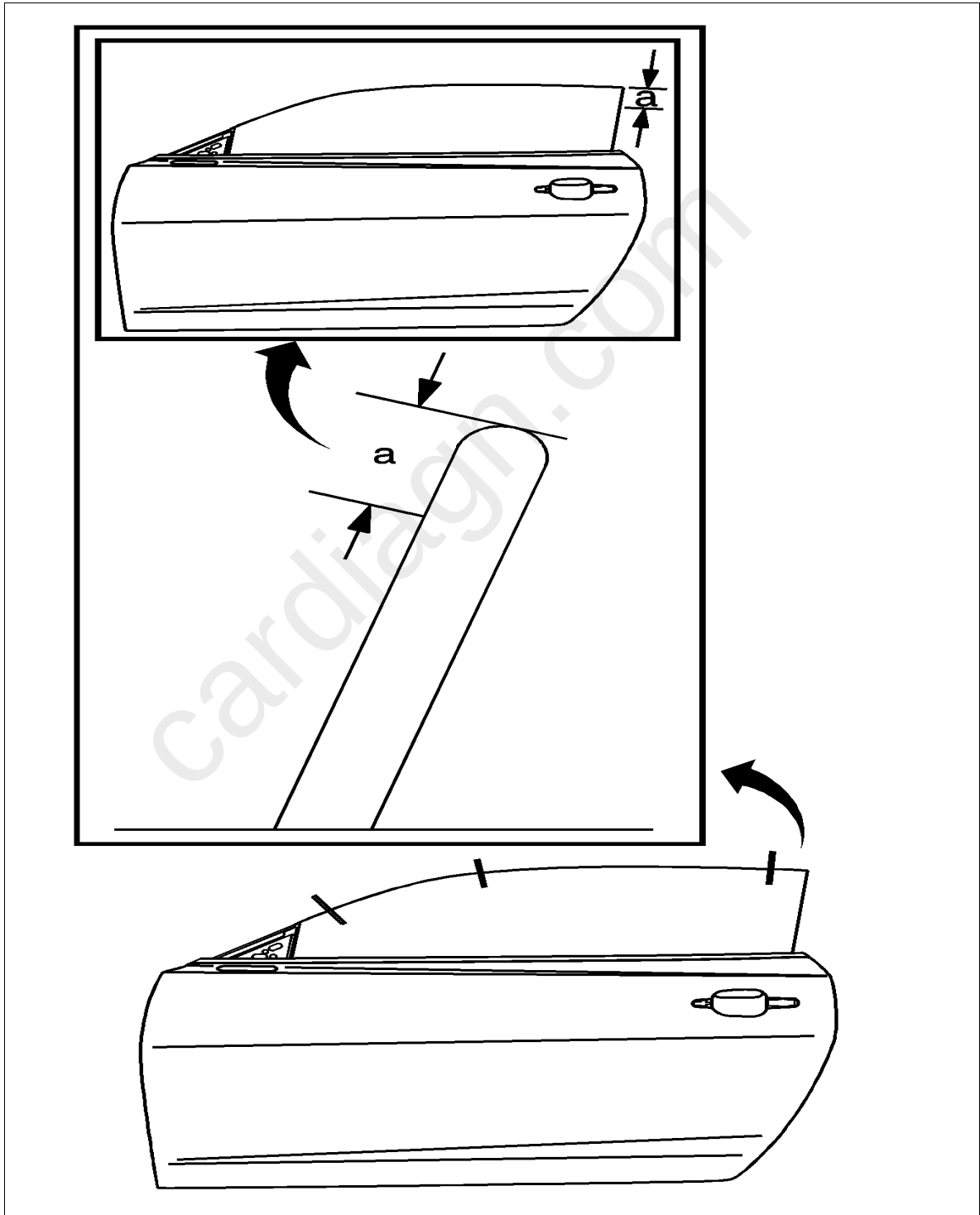
 **NOTE:**

Ensure that the parking brake is set and the right door is unlocked do the

following.

2. With the window in the full up position and engine running close the door and mark the window as follows:
3. Mark the window along the top edge and the seal (1), where the window contact.
4. Mark the window (2) in three locations.

Fig 7: Window Seal Penetration



16. Open the door, measure window for seal penetration in three locations above to 4.5 mm (0.18 in) +/-1.5 mm (0.06 in).

All three 3 locations must be within 1.5 mm (0.06 in) of each other.



NOTE:

If all measurements meet the requirements, no additional repair is required.

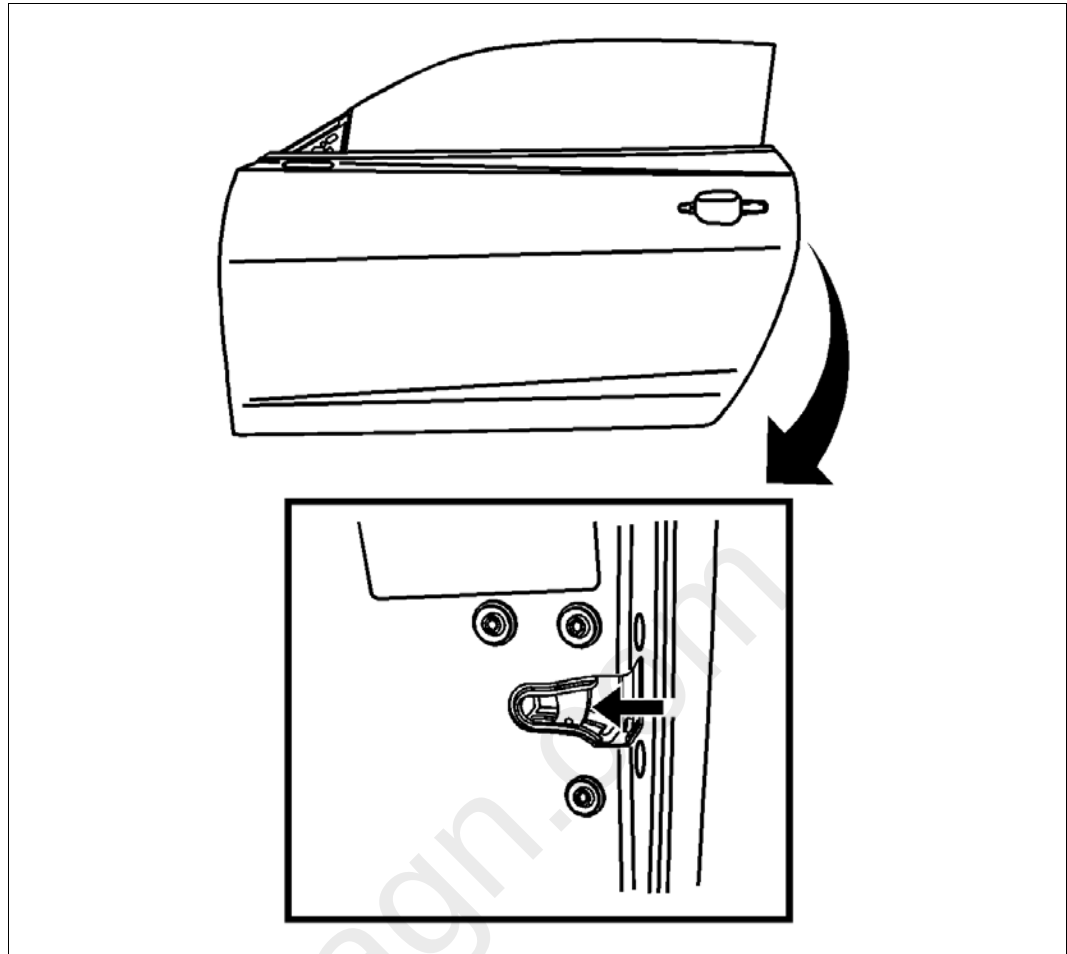
17. The door window will need to be adjusted if any of the previous measurements were out of the specification: Do the following:

1. If the door window to 1/4 window gap measured in step 12 is not 10 mm (0.39 in) +/-1.5 mm (0.06 in) and parallel within 1.5 mm (0.06 in) (this step may not be needed).
2. If the window penetration measured in step 16 is less than 3mm (0.19 in).

18. This will require loosening the regulator clamps bolts to adjust the window. Do the following:

1. Before the regulator clamp bolts are loosened to adjust the window, the following should be performed.
2. With the door open, run the window to the full up position.
3. Place the door window in the service position.

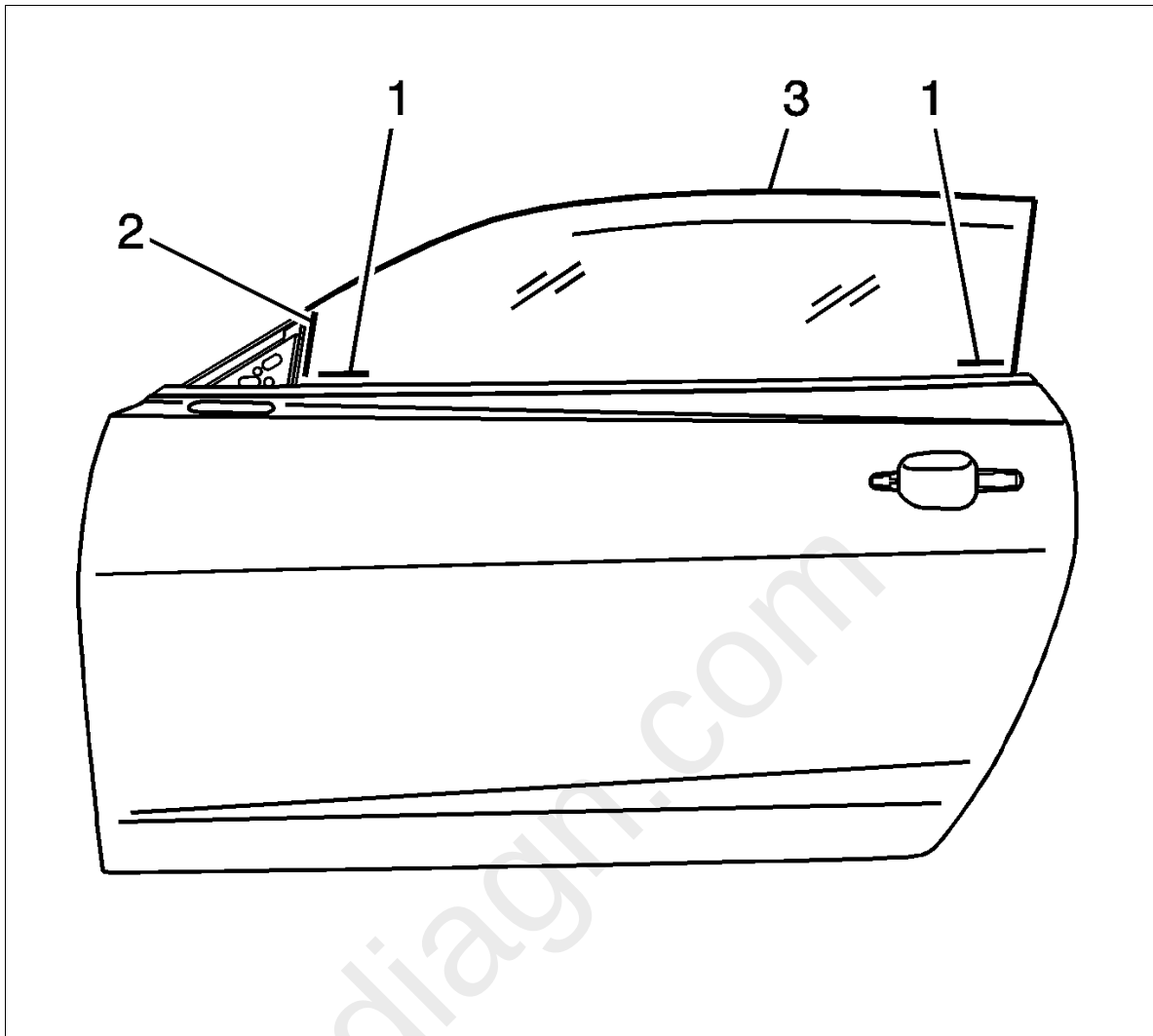
Fig 8: Door Latch Bolt



Courtesy of GENERAL MOTORS COMPANY

4. Locate the door latch bolt.
5. Push the latch bolt until it reaches the second detent or full lock position.
6. The window will automatically move up to the full close position.
7. Leave the window in this position during all adjustments while the regulator clamps are loose.

Fig 9: Outer Reveal Belt Seal & Mirror Patch



Courtesy of GENERAL MOTORS COMPANY

19. Locate the outer reveal belt seal (1) and mirror patch (2), mark the window (3) in 3 places for the initial window position before adjustments are performed. These marks will aid in positioning the window to the desired location during adjustment.
 20. Loosen the regulator clamp bolts and adjust the window as required to achieve the dimensions in step 6.
 21. Tighten the regulator clamps bolts to the window.
- Tighten**
- Tighten the regulator clamp bolts to the window to 11 N.m (97 lb in).
22. After all adjustments are complete, and the regulator clamps are torqued, pull the outside door handle to release the latch bolt before closing the door.
 23. After all adjustments are complete and verified, do the following:
 1. This step is only required if the regulator clamp bolts were loosened and the window was adjusted).

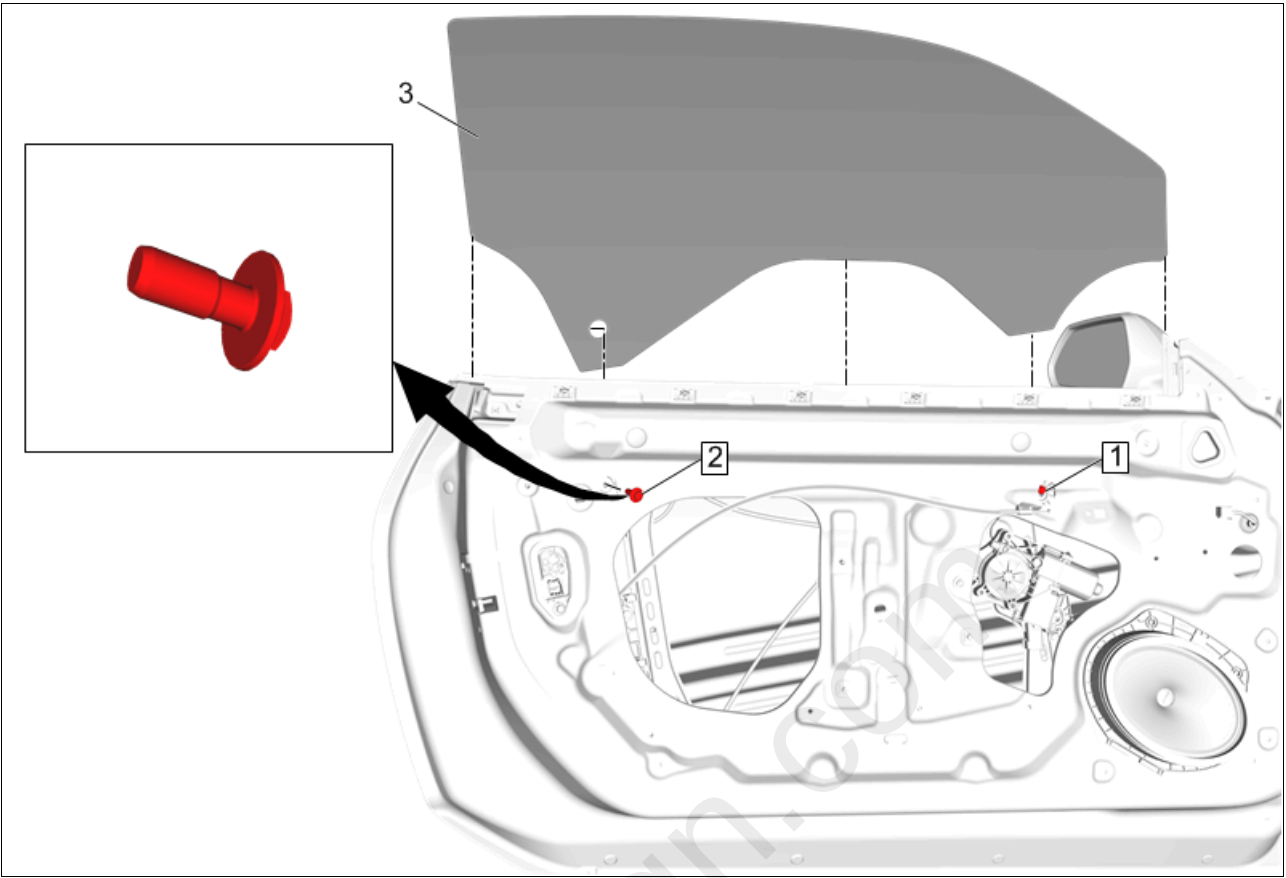
2. Access under hood fuse box. Remove fuse #26 and reinstall. Close hood.
 3. Get inside vehicle with both doors closed. Start the engine and follow the instructions on the DIC (Driver Information Center).
 4. The DIC should instruct to run the window down and up on both sides.
24. Verify both windows have express up function and no DIC message exists. If the DIC does not instruct you to operate the windows to re-normalize, the following Must be done:
1. This will require 2 people while the window is in motion.
 2. Pull the fuse as described above in #23.2
 3. The windows will stop, release the window switch.
 4. Reinstall the fuse and redo steps #23.3 and 23.4 above.

REPAIR INSTRUCTIONS > FRONT SIDE DOOR WINDOW ADJUSTMENT > INSTALLATION PROCEDURE

1. Inspect the window for proper operation with the door opened and closed.
2. Install the window switch to the door trim panel.
3. Install the water deflector.
4. Install the front side door trim panel. Refer to .
5. Clear all current and historical DTCs.
6. Clean the door window.

REPAIR INSTRUCTIONS > FRONT SIDE DOOR WINDOW REPLACEMENT

Fig 1: Front Side Door Window



Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Front Side Door Window Weatherstrip Replacement 2. Raise window in the full up position.	
1	Front Side Door Window Regulator Fastener Tighten 10 N.m (89 lb in)  NOTE: <i>Mark location of the front window retainer adjuster bolt before loosening to aid in installation.</i> Using an appropriate tool, disengage window clip.

2	Front Side Door Window Regulator Fastener Procedure 1. Remove the fastener. 2. Using an appropriate tool, disengage window clip. Tighten 10 N.m (89 lb in)
3	Remove front side door window.

REPAIR INSTRUCTIONS > QUARTER WINDOW REPLACEMENT (COUPE)

Special Tools

- **BO-24402-A** Glass Sealant Remover (Cold Knife).
- **BO-39032** Stationary Glass Removal Tool, or equivalent in order to remove the window.
- Use a urethane adhesive systems which meet GM Specification GM 3651G

Special Tools

REPAIR INSTRUCTIONS > QUARTER WINDOW REPLACEMENT (COUPE) > REMOVAL PROCEDURE



WARNING:

If a window is cracked but still intact, crisscross the window with masking tape in order to reduce the risk of damage or personal injury.



NOTE:

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

1. Quarter Lower Rear Trim Panel Replacement (Coupe) » Remove

 WARNING:

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

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

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

 WARNING:

Refer to Glass and Sheet Metal Handling Warning .

 NOTE:

Keep the cutting edge of the tool against the window. Do this from inside the vehicle to protect the outer painted surface.

3. Carefully cut around the inside of the quarter modular window to expose the urethane adhesive bead.

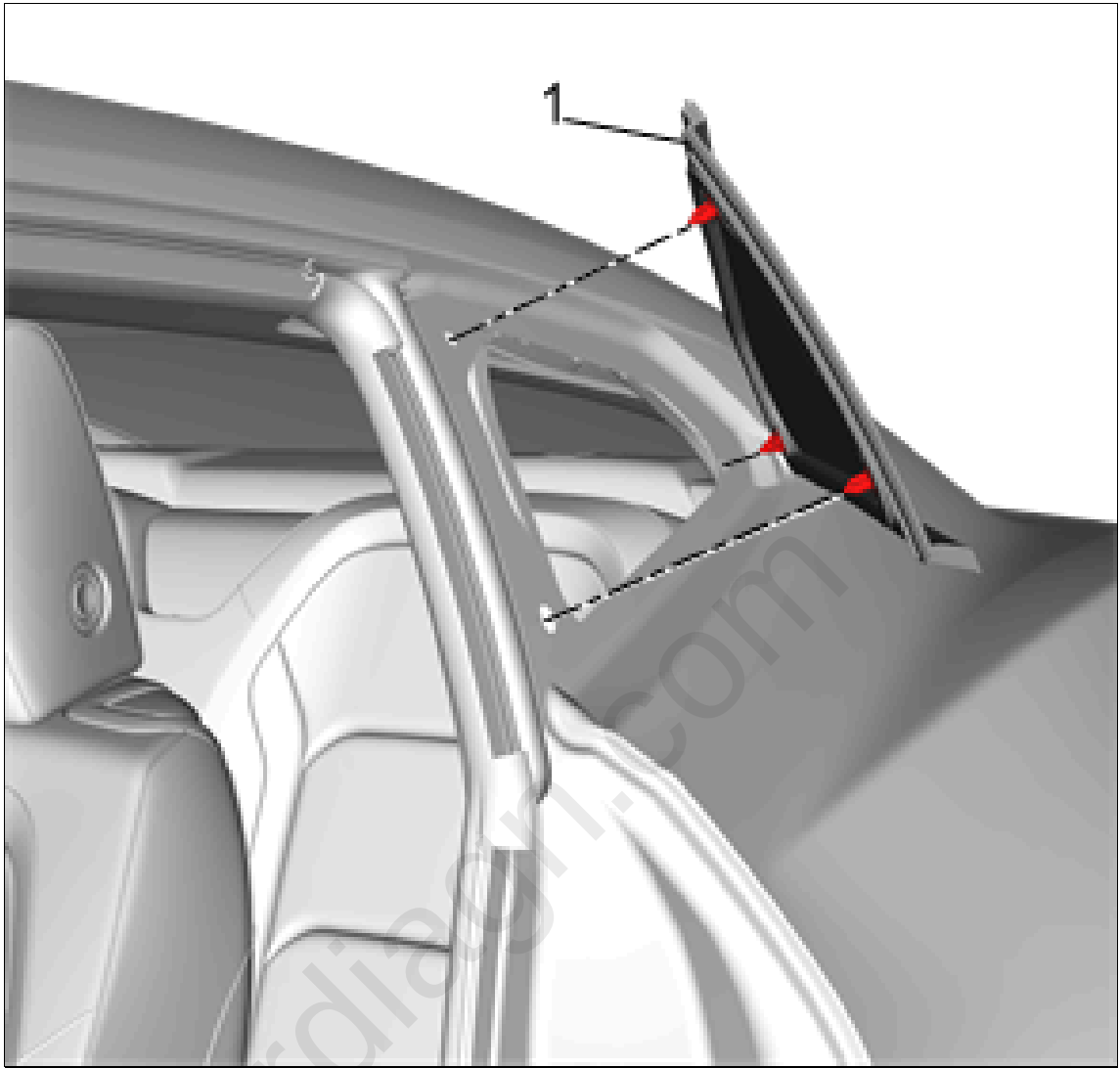
Use care not to damage the retainers. If the retainer get damaged it will be necessary to use mask tape to tape it in place while curing.

4. Keep the cutting edge of the tool against the inside of the window.

This will allow the urethane adhesive to be separated from the window.

1. Leave a base of urethane on the pinch-weld flange.
2. The only suitable lubrication is clear water.
3. **BO-24402-A** Glass Sealant Remover (Cold Knife).
4. **BO-39032** Stationary Glass Removal Tool, or equivalent in order to remove the window.

Fig 1: Quarter Modular Window



Courtesy of GENERAL MOTORS COMPANY

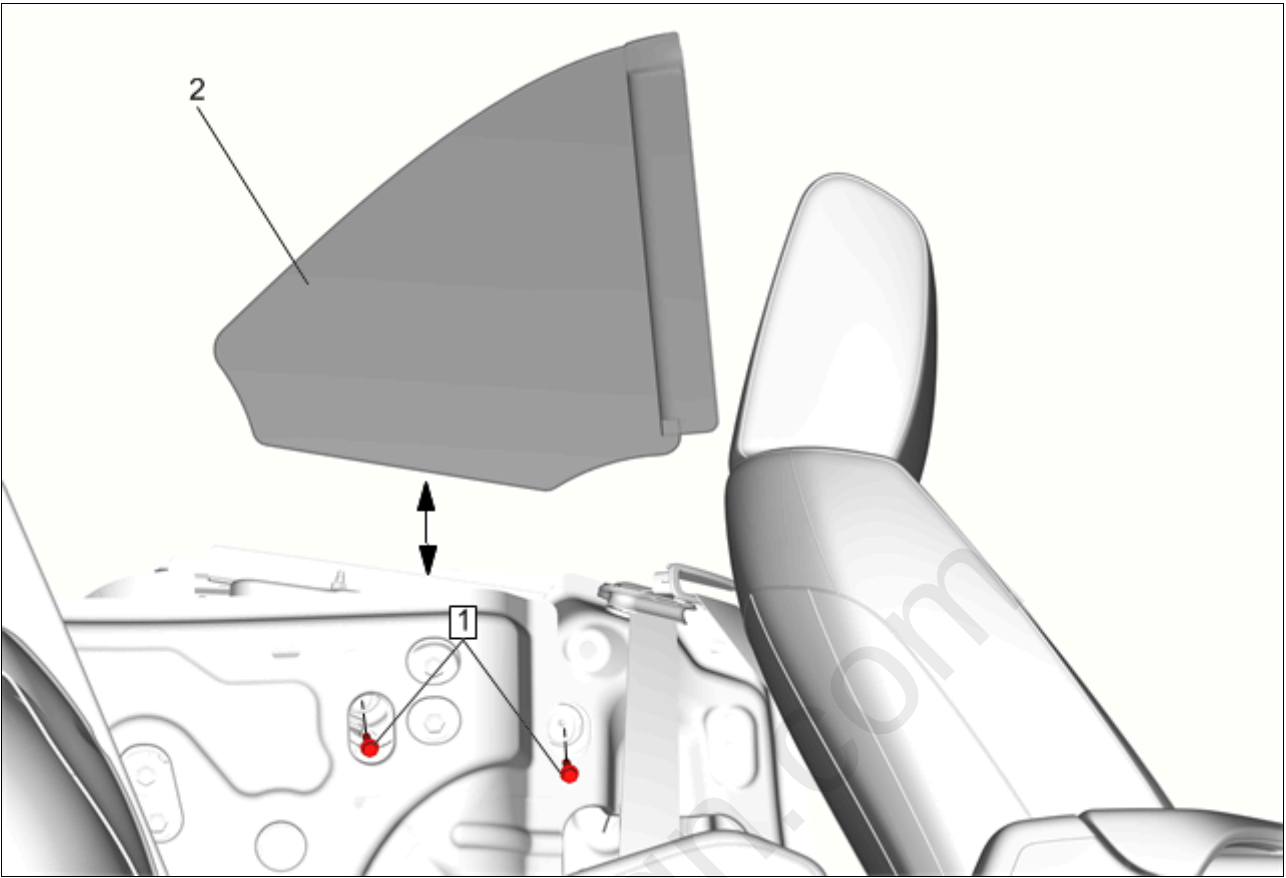
5. Remove the quarter modular window (1) from the pinch-weld flange.

REPAIR INSTRUCTIONS > QUARTER WINDOW REPLACEMENT (COUPE) > INSTALLATION PROCEDURE

1. Quarter modular window » Install
2. Quarter Lower Rear Trim Panel Replacement (Coupe) » Install
3. Masking tape around the perimeter of the painted surfaces and the interior trim » Remove

REPAIR INSTRUCTIONS > QUARTER WINDOW REPLACEMENT (CONVERTIBLE)

Fig 1: Quarter Window (Convertible)



Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
WARNING: <i>Refer to Glass and Sheet Metal Handling Warning .</i>	
Preliminary Procedure 1. Quarter Lower Rear Trim Panel Replacement (Convertible) 2. Front Side Door Weatherstrip Replacement - Body Side (Convertible) 3. Quarter Window Outer Belt Sealing Strip Replacement 4. Folding Top Stowage Compartment Lid Weatherstrip Replacement	
1	Folding Top Quarter Window Bolt (Qty: 2) CAUTION:

Refer to Fastener Caution .

Procedure

It is not necessary to completely remove the quarter window bolts, just loosen the bolts enough to remove the quarter window from the window regulator.

Tighten

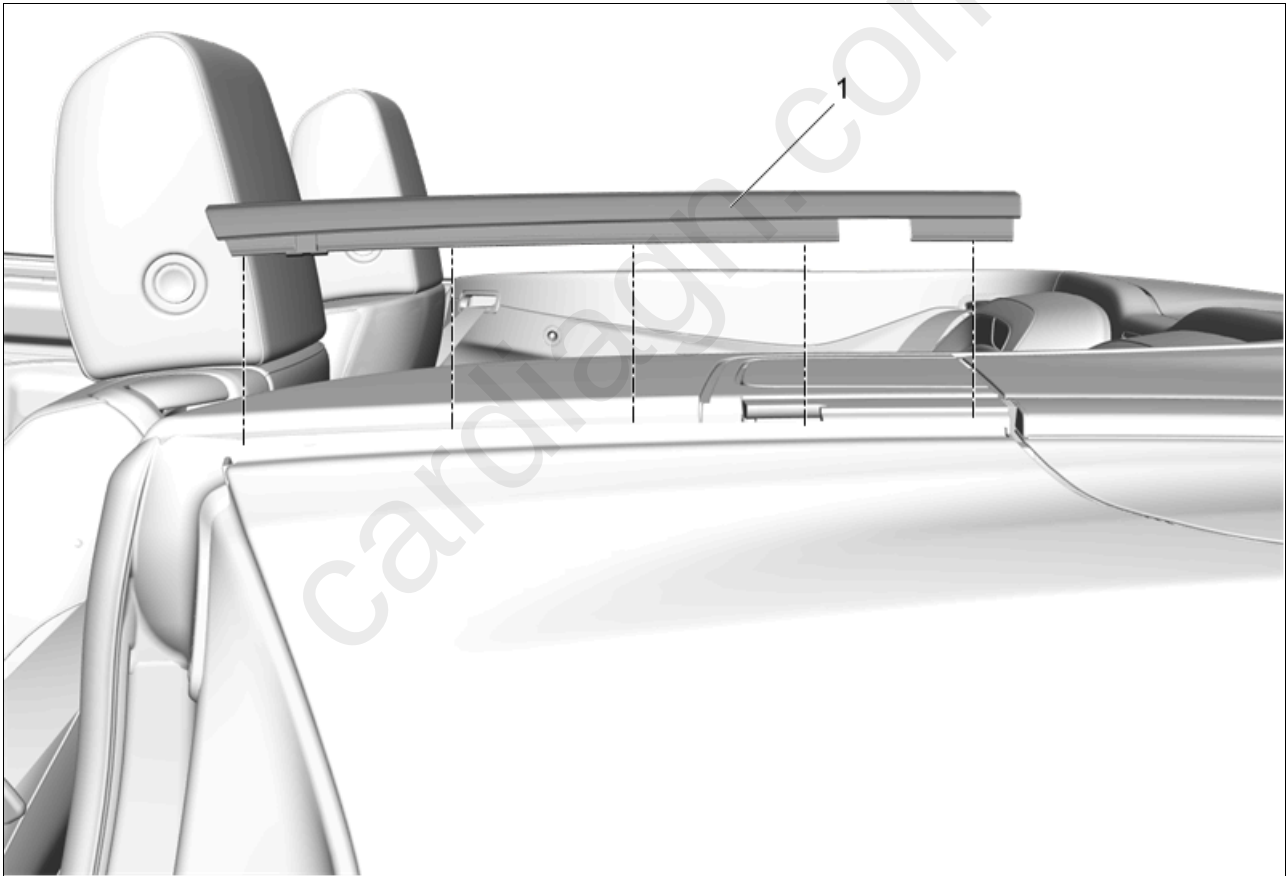
10 N.m (89 lb in)

2

Folding Top Quarter Window

REPAIR INSTRUCTIONS > QUARTER WINDOW OUTER BELT SEALING STRIP REPLACEMENT

Fig 1: Quarter Window Outer Belt Sealing Strip



Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Quarter Window Outer Belt Sealing Strip Procedure Using a suitable tool, lift the molding releasing it from the body outer panel.

REPAIR INSTRUCTIONS > REAR WINDOW REPLACEMENT

Special Tools

- **BO-24402-A** Glass Sealant Remover (Cold Knife).
- **BO-39032** Stationary Glass Removal Tool, or equivalent in order to remove the window.
- Use a urethane adhesive systems which meet GM Specification GM 3651G

Special Tools

REPAIR INSTRUCTIONS > REAR WINDOW REPLACEMENT > REMOVAL PROCEDURE



WARNING:

If a window is cracked but still intact, crisscross the window with masking tape in order to reduce the risk of damage or personal injury.



NOTE:

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

1. Rear Compartment Lid » Open
2. Remove Rear window lower seal.
3. Disconnect Electrical connectors.



WARNING:

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

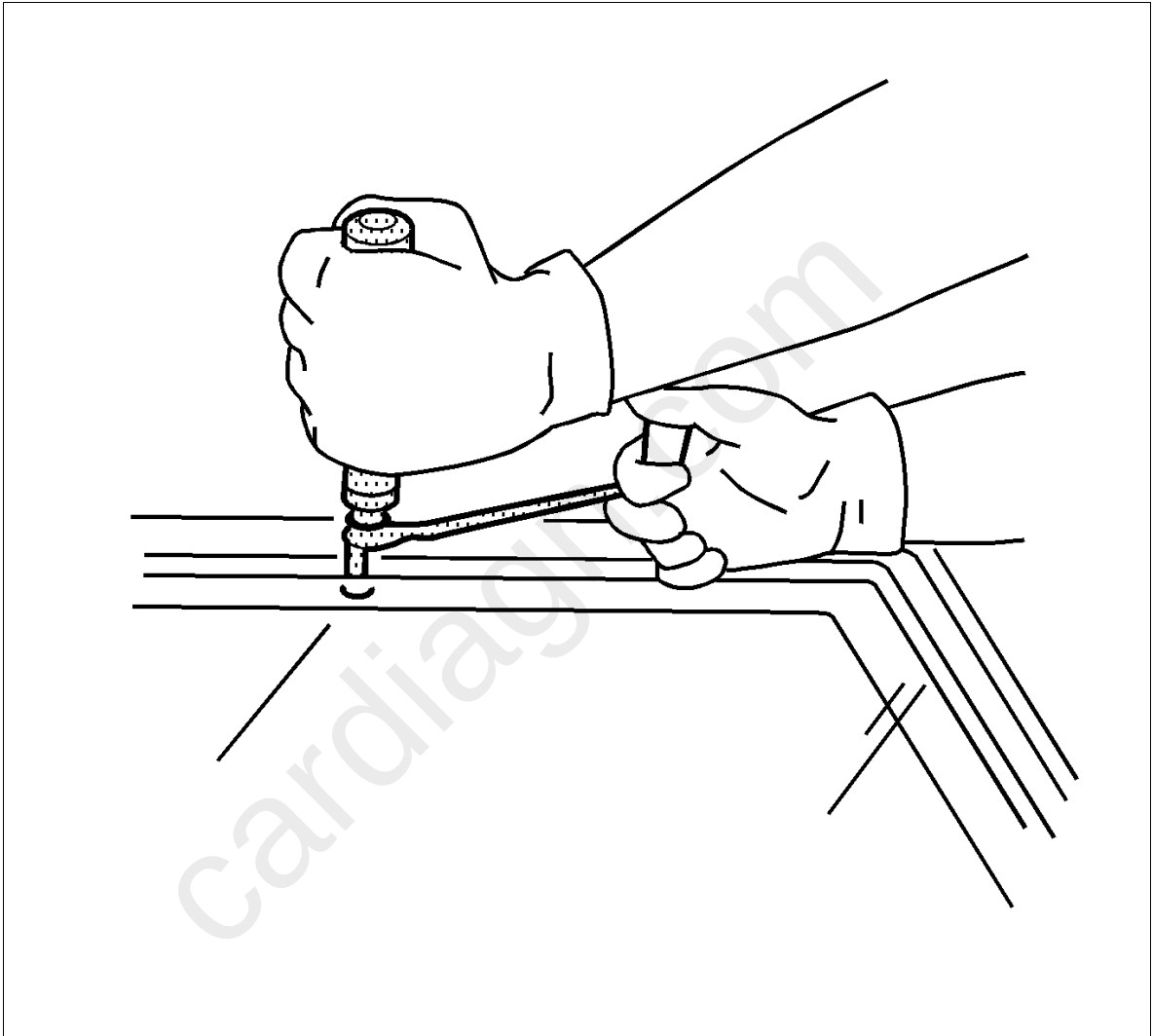
4. Cover to protect the following parts from broken glass:
 1. Upper dash pad
 2. Defroster outlets and A/C outlets
 3. Seats and carpeting

 WARNING:

Refer to Glass and Sheet Metal Handling Warning .

5. Using the appropriate tool, carefully cut around the lace, start in the center working from side to side of the window to access the urethane adhesive bead, if equipped.

Fig 1: Urethane Adhesive From Window



Courtesy of GENERAL MOTORS COMPANY

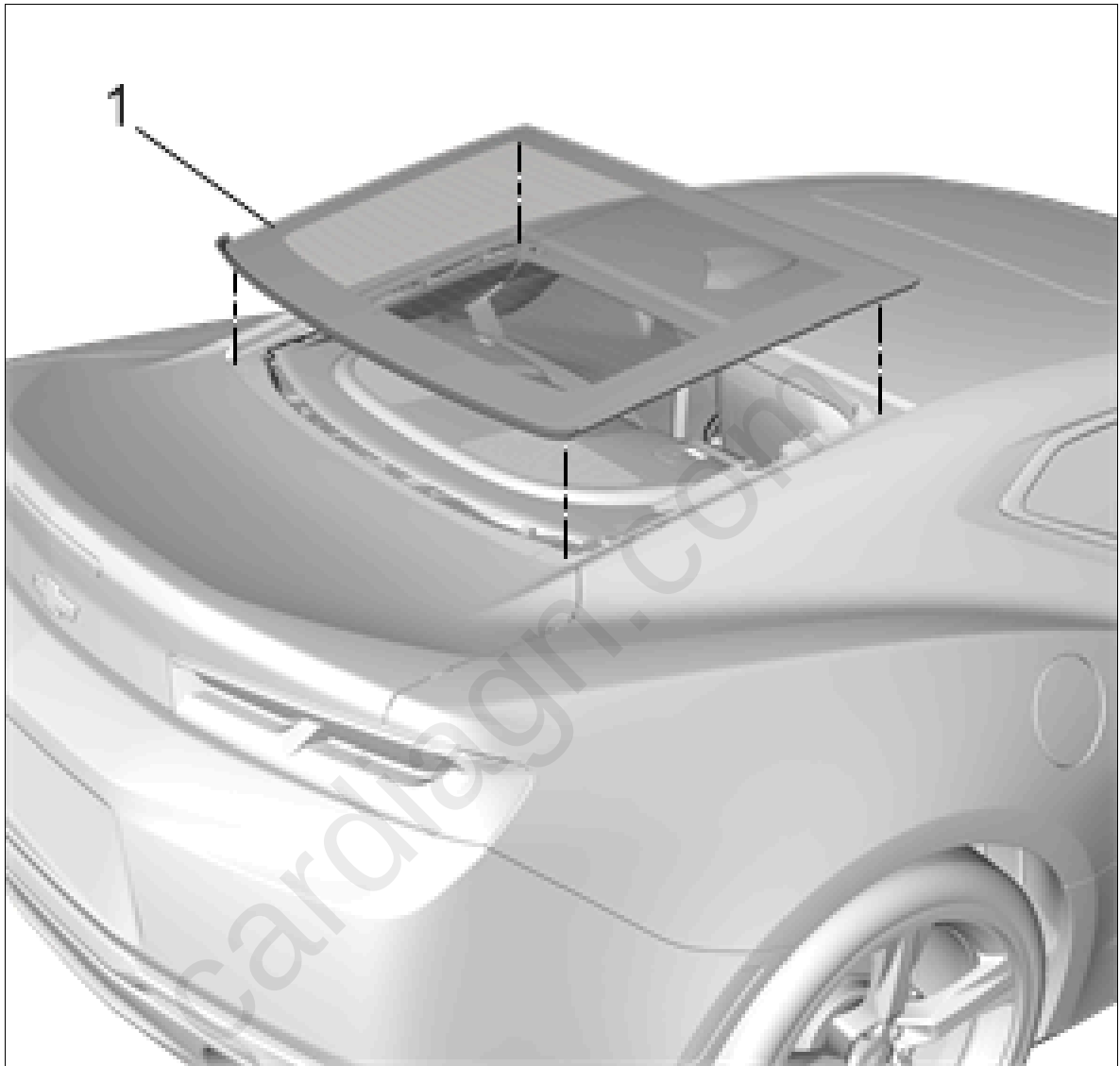
 NOTE:

Keep the cutting edge of the tool against the window.

6. This will allow the urethane adhesive to be separated from the window.
 1. Leave a base of urethane on the pinchweld flange.

2. The only suitable lubrication is clear water.
3. **BO-24402-A** Glass Sealant Remover (Cold Knife).
4. **BO-39032** Stationary Glass Removal Tool, or equivalent in order to remove the window.

Fig 2: Rear Window



Courtesy of GENERAL MOTORS COMPANY

7. With the aid of an assistant lift the rear window (1) from the opening.

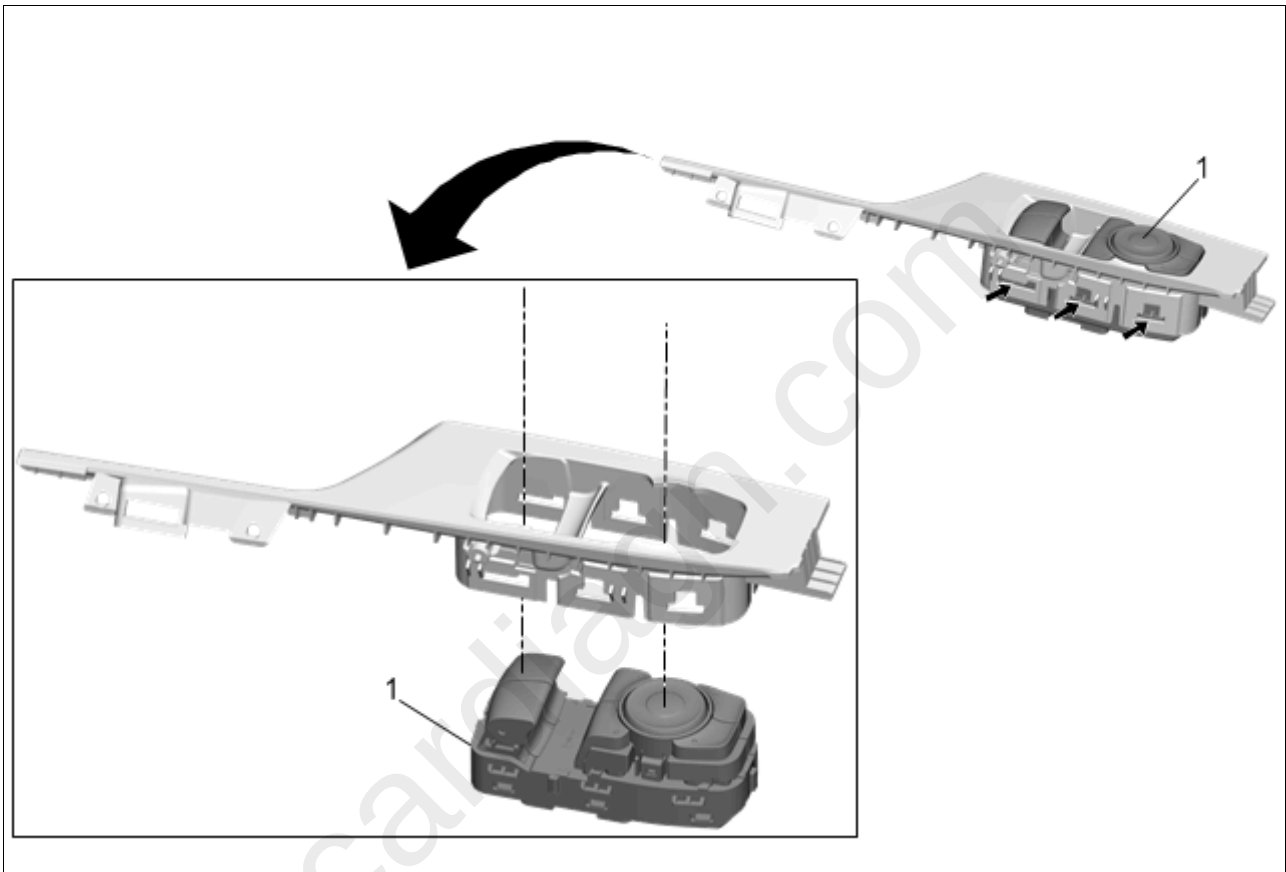
REPAIR INSTRUCTIONS > REAR WINDOW REPLACEMENT > INSTALLATION PROCEDURE

1. Install Rear window.
2. Install Rear window lower seal.
3. Connect Electrical connectors.

4. Close Rear compartment lid.
5. Remove Double layer of masking tape around the perimeter of the painted surfaces and the interior trim.

REPAIR INSTRUCTIONS > FRONT SIDE DOOR WINDOW CONTROL SWITCH REPLACEMENT

Fig 1: Front Side Door Window Control Switch

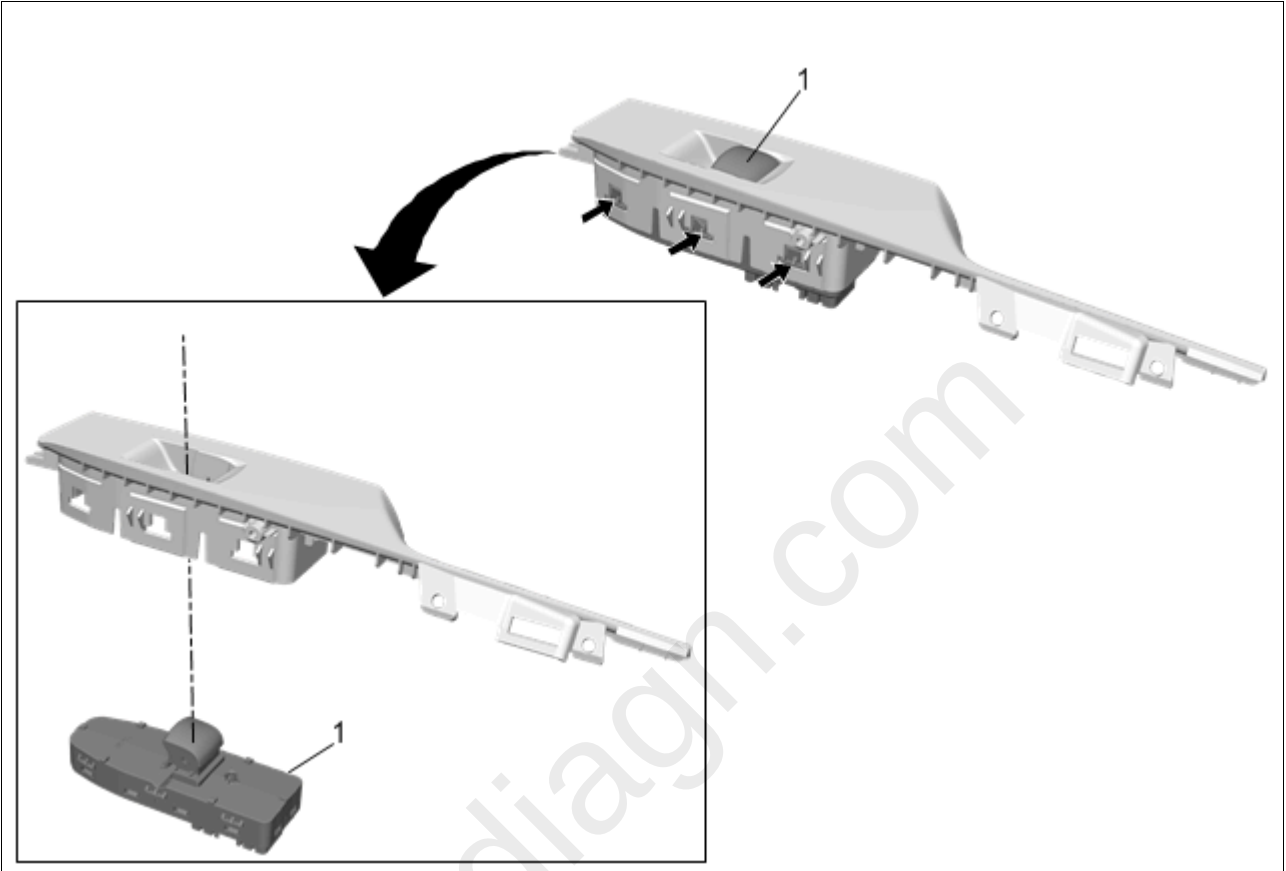


Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Front Side Door Armrest Switch Mount Plate Replacement	
1	Front Side Door Window Control Switch Procedure 1. Release the switch assembly from the switch mount plate by depressing the tabs along each side of the switch. 2. Control Module References for programming and setup information, if required.

REPAIR INSTRUCTIONS > FRONT SIDE DOOR WINDOW SWITCH REPLACEMENT - RIGHT SIDE

Fig 1: Front Side Door Window Switch - Right Side



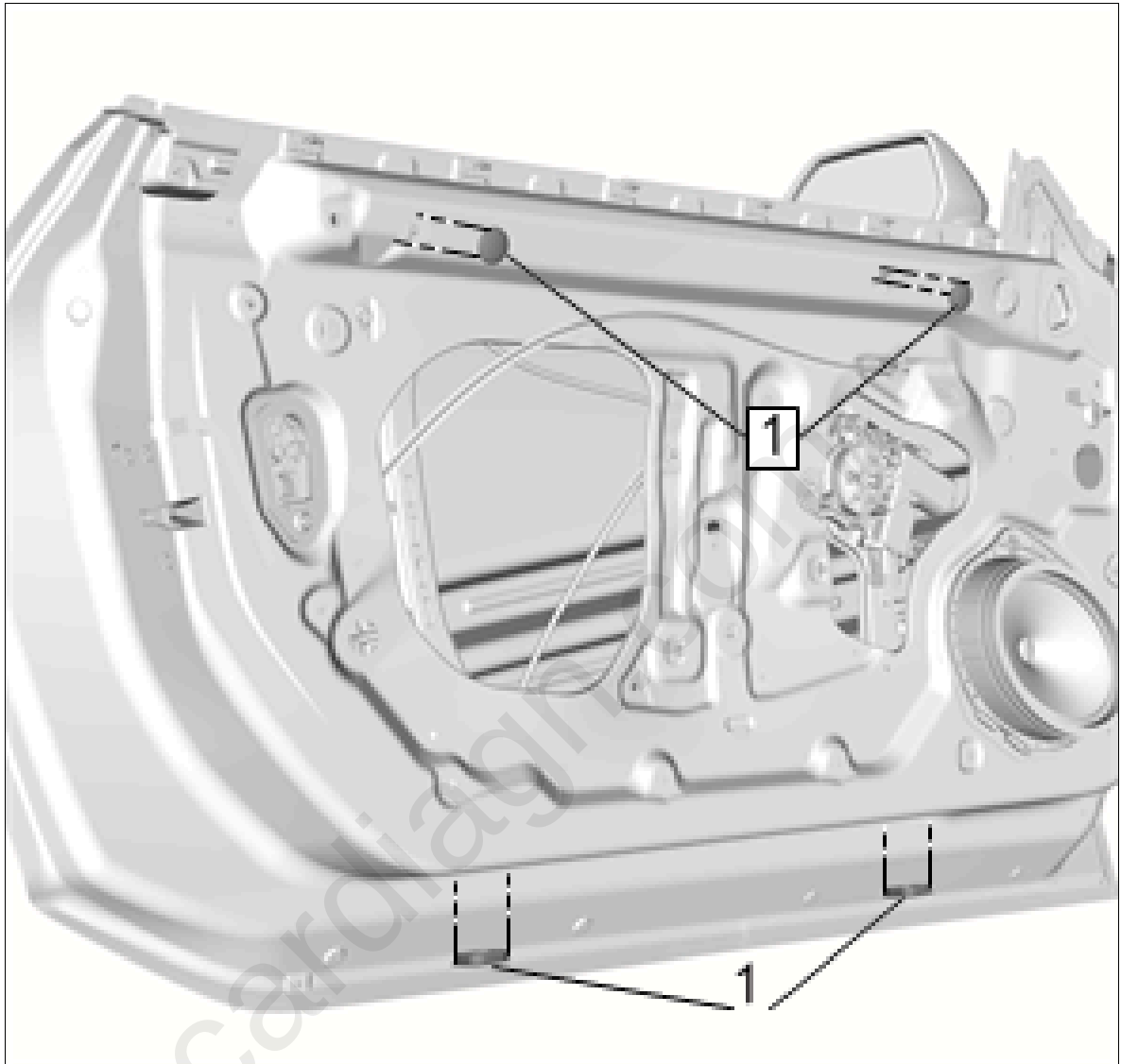
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Front Side Door Armrest Switch Mount Plate Replacement	
1	Front Side Door Window Switch Procedure 1. Release the switch assembly from the switch mount plate by depressing the tabs along each side of the switch. 2. Control Module References for programming and setup information, if required.

REPAIR INSTRUCTIONS > FRONT SIDE DOOR WINDOW REGULATOR REPLACEMENT > REMOVAL PROCEDURE

1. Remove Front Side Door Window Replacement .
2. Disconnect the electrical connector.

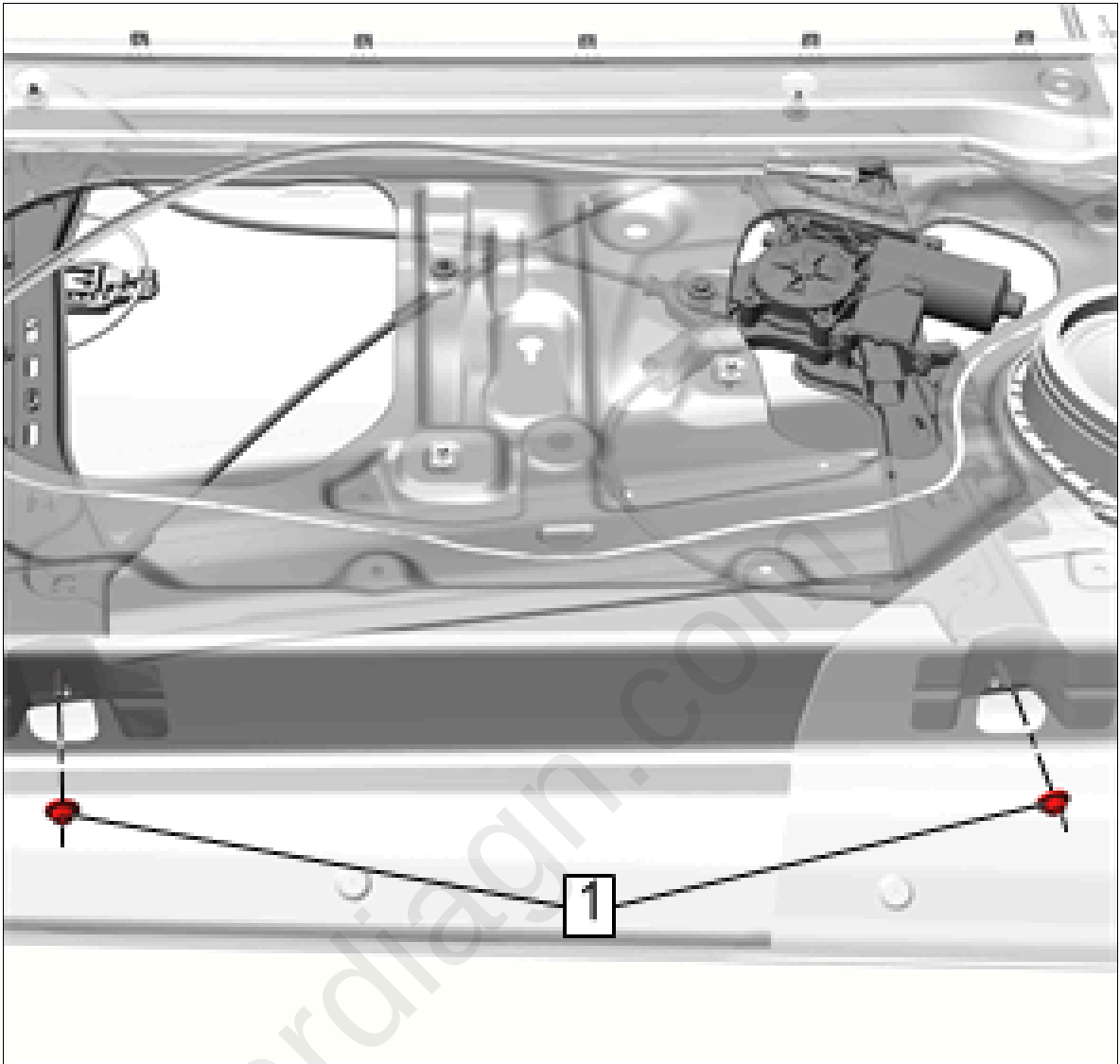
Fig 1: Door Plug



Courtesy of GENERAL MOTORS COMPANY

3. Remove Door Plug (1) (Qty: 4)

Fig 2: Front Side Door Window Regulator Lower Nut



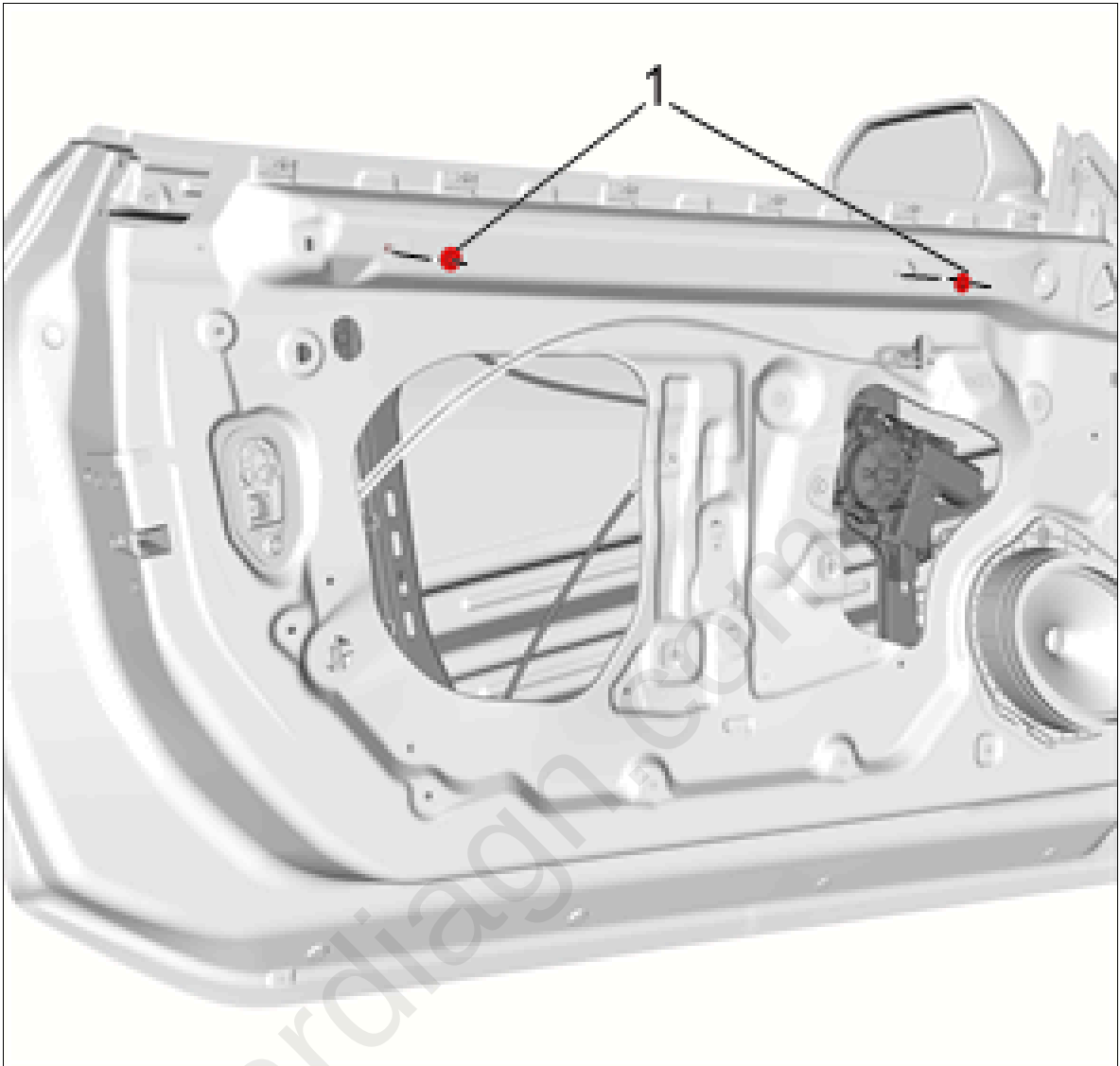
Courtesy of GENERAL MOTORS COMPANY

 NOTE:

Mark location of the lower regulator adjusting nuts before removal to aid in installation.

4. Remove Front Side Door Window Regulator Lower Nut (1) (Qty: 2)

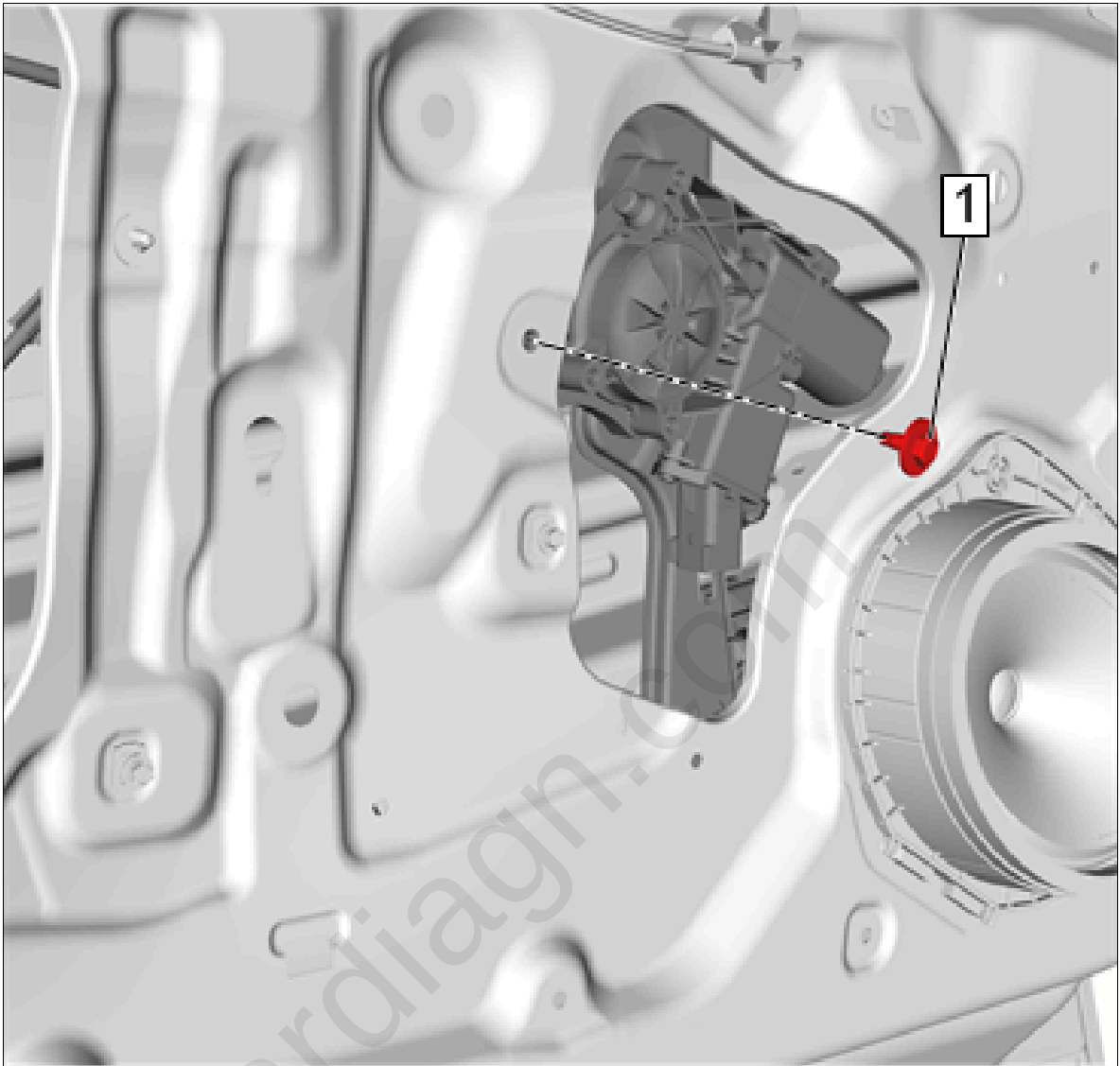
Fig 3: Front Side Door Window Regulator Upper Nut



Courtesy of GENERAL MOTORS COMPANY

5. Remove Front Side Door Window Regulator Upper Nut (1) (Qty: 2)

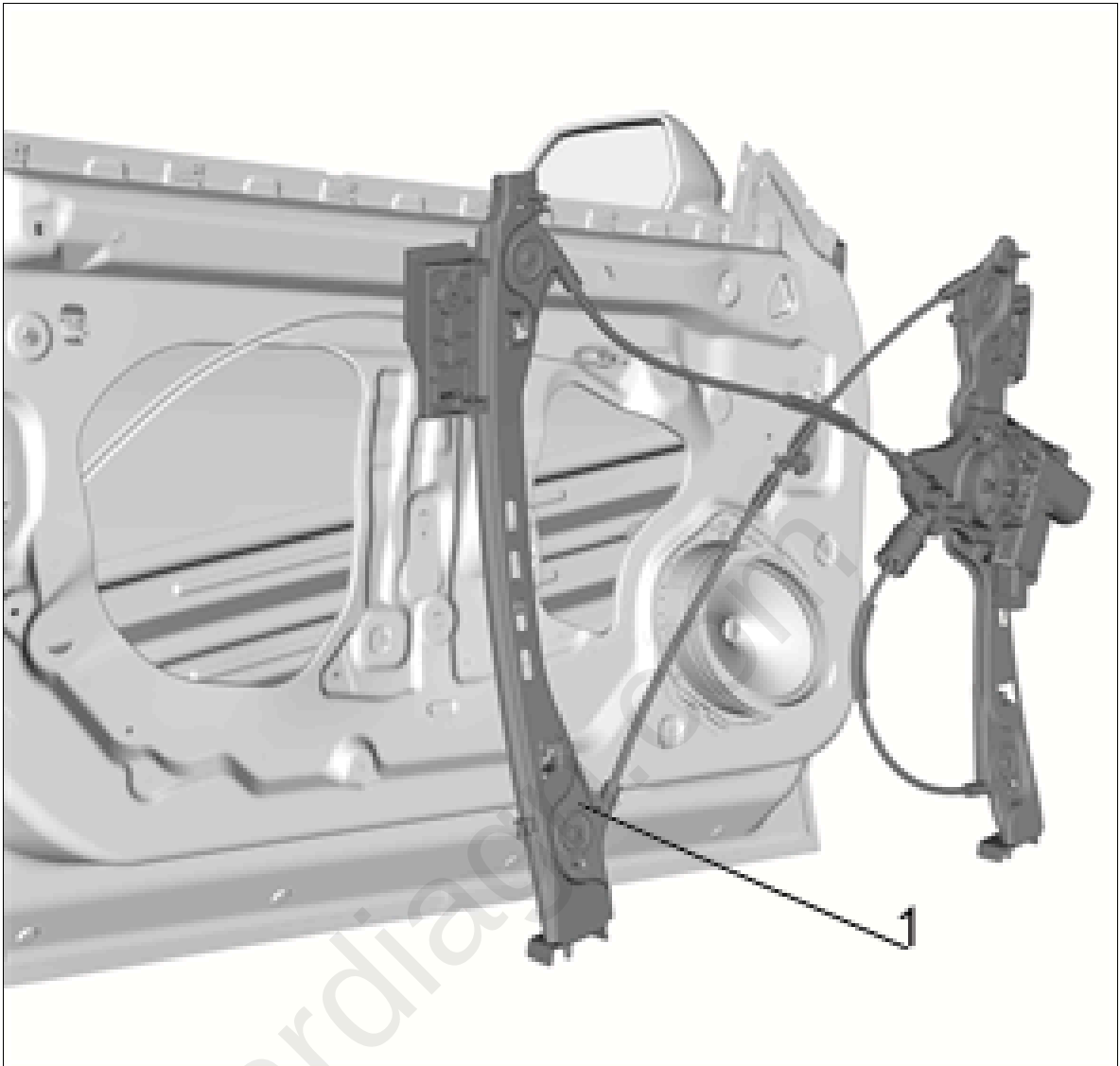
Fig 4: Front Side Door Window Regulator Bolt



Courtesy of GENERAL MOTORS COMPANY

6. Remove Front Side Door Window Regulator Bolt (1)

Fig 5: Front Side Door Window Regulator

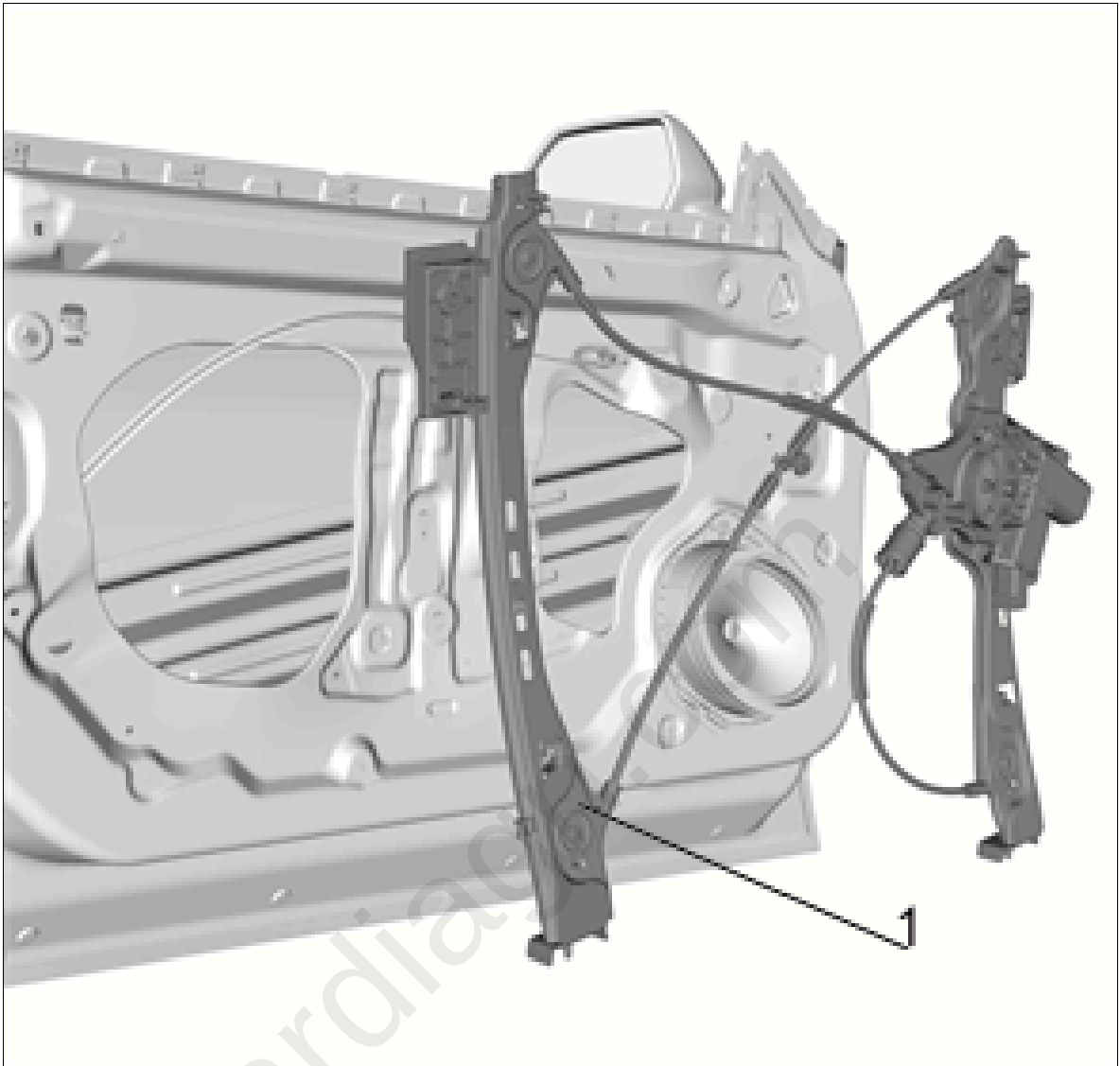


Courtesy of GENERAL MOTORS COMPANY

7. Remove Front Side Door Window Regulator (1)

**REPAIR INSTRUCTIONS > FRONT SIDE DOOR WINDOW REGULATOR
REPLACEMENT > INSTALLATION PROCEDURE**

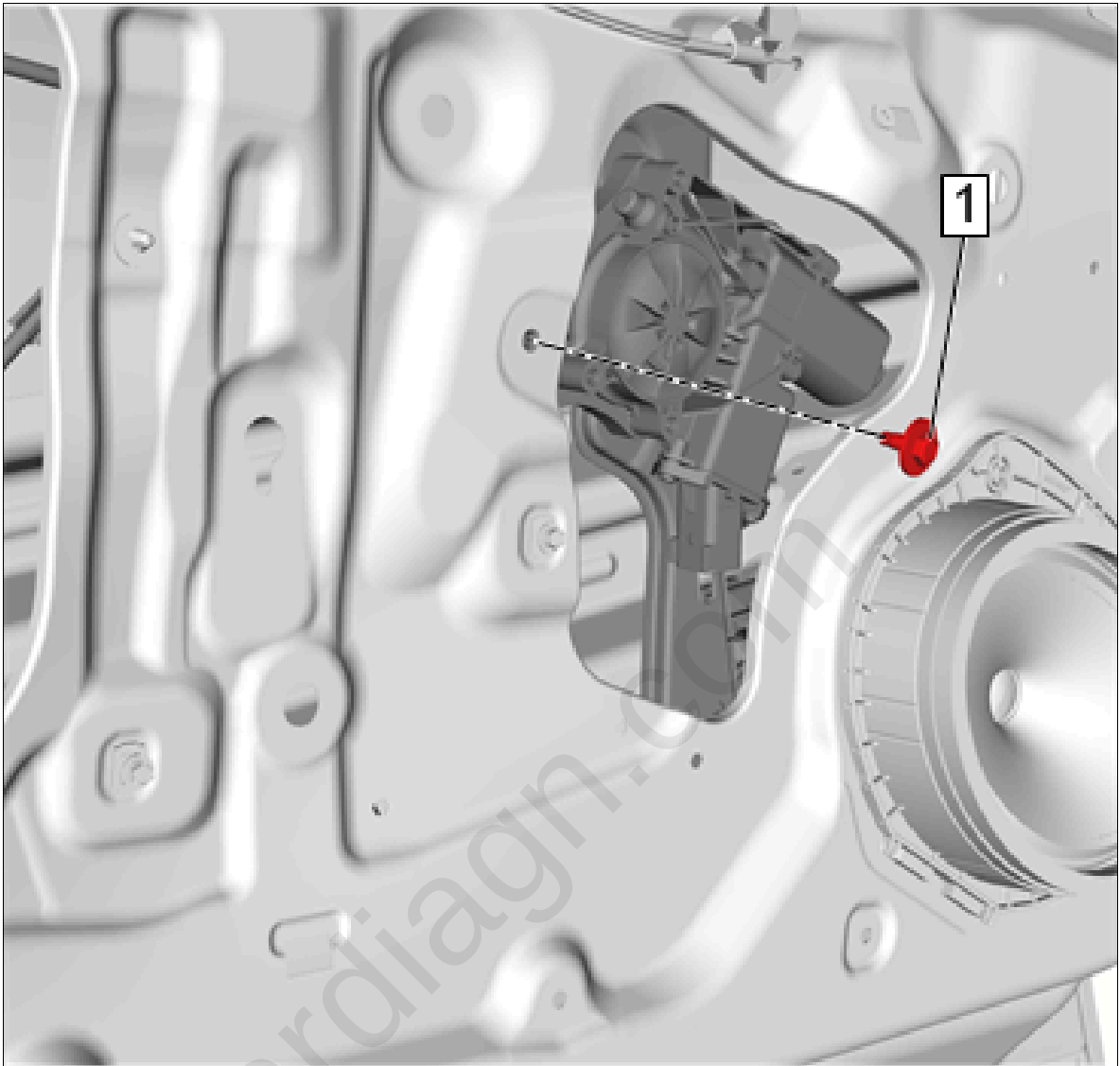
Fig 1: Front Side Door Window Regulator



Courtesy of GENERAL MOTORS COMPANY

1. Install Front Side Door Window Regulator (1)

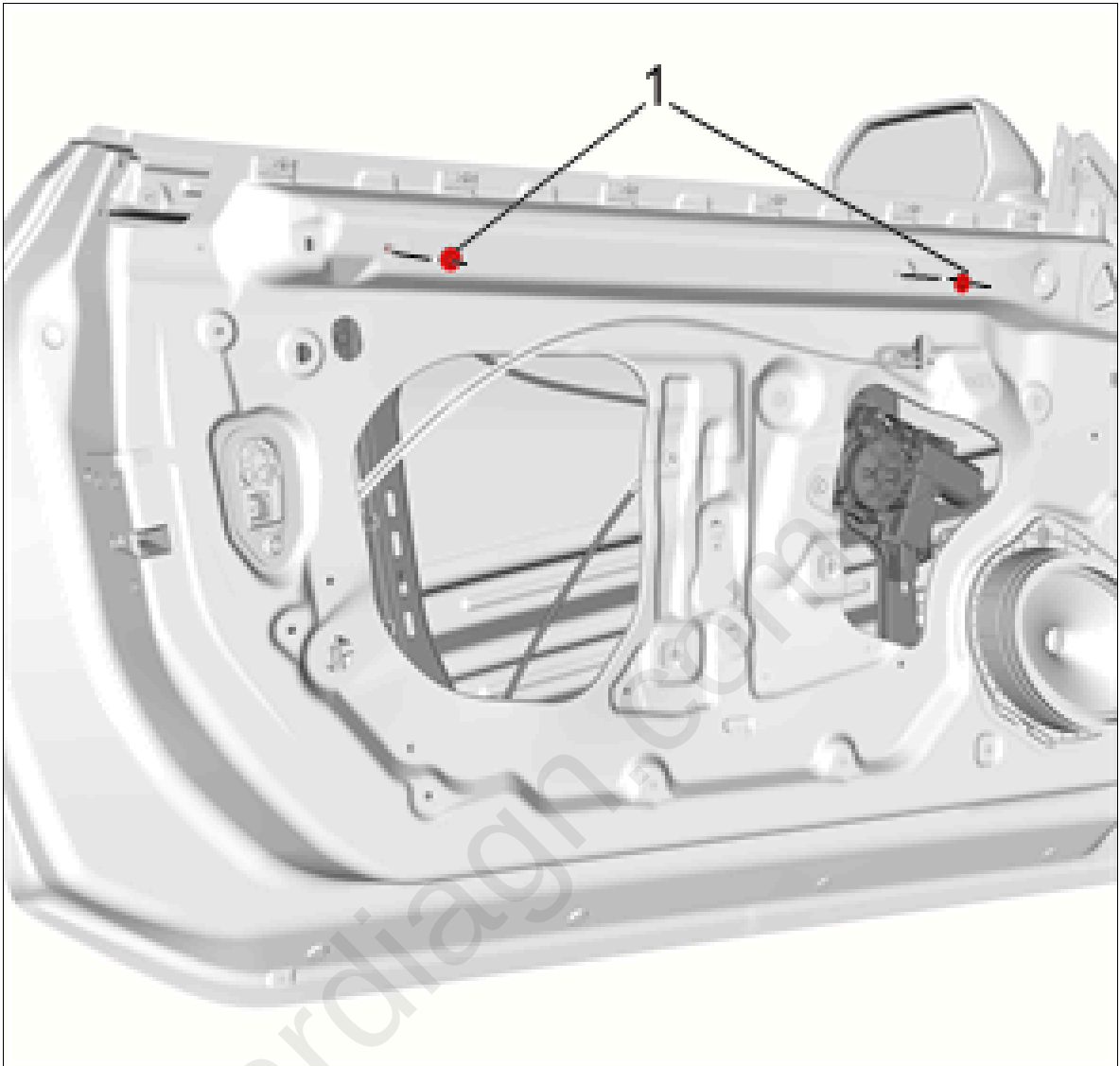
Fig 2: Front Side Door Window Regulator Bolt



Courtesy of GENERAL MOTORS COMPANY

2. Install Front Side Door Window Regulator Bolt (1) and tighten to 10 N.m (89 lb in)

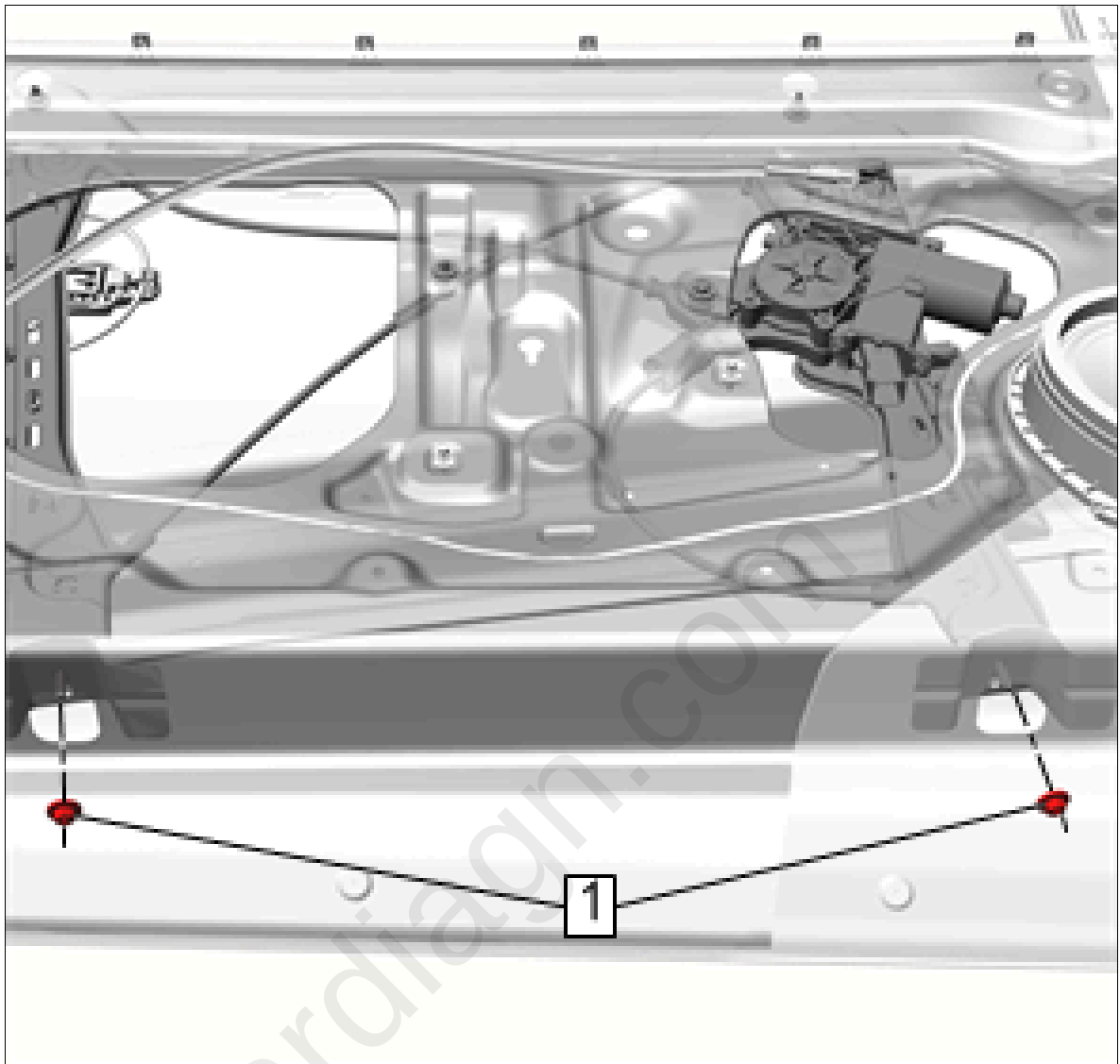
Fig 3: Front Side Door Window Regulator Upper Nut



Courtesy of GENERAL MOTORS COMPANY

3. Install Front Side Door Window Regulator Upper Nut (1) (Qty: 2) and tighten to 10 N.m (89 lb in)

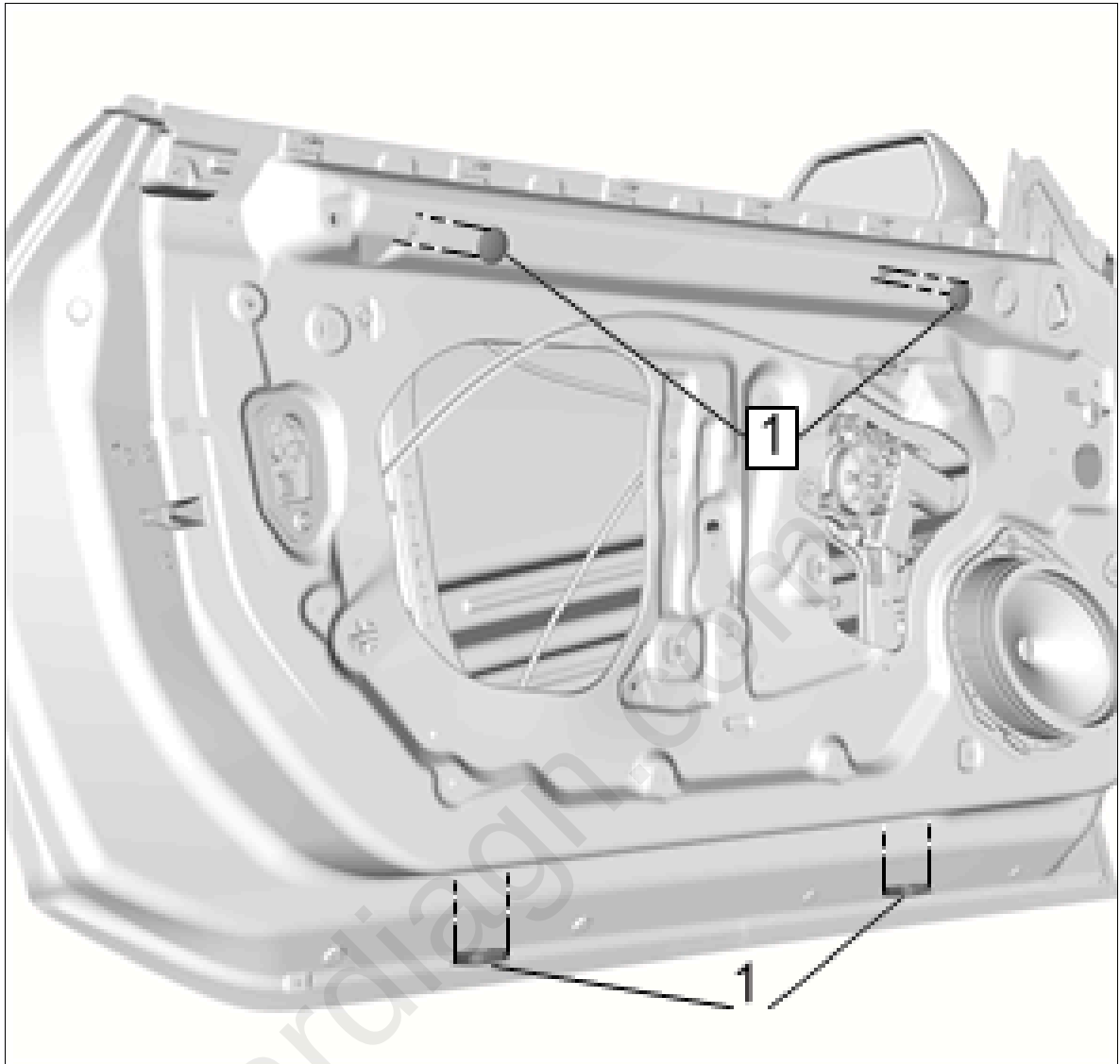
Fig 4: Front Side Door Window Regulator Lower Nut



Courtesy of GENERAL MOTORS COMPANY

4. Install Front Side Door Window Regulator Lower Nut (1) (Qty: 2) and tighten to 10 N.m (89 lb in)

Fig 5: Door Plug



Courtesy of GENERAL MOTORS COMPANY

5. Install Door Plug (1) (Qty: 4)
6. Connect the electrical connector.
7. Install Front Side Door Window Replacement .

REPAIR INSTRUCTIONS > WINDOW MOTOR PROGRAMMING - EXPRESS FUNCTION

A window motor that has not been normalized may no longer perform the express up, express down functions or may not index up when the door is closed, this may occur during the following conditions:

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

When the battery has been disconnected or replaced, all window motors may no longer perform the

express up, express down functions



NOTE:

When DTC B3205 4, B3210 4, B3215 04 or B3220 04 are set, the following warnings will be displayed on the driver information center:

Open, then Close Driver Window

Open, then Close Passenger Window

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

REPAIR INSTRUCTIONS > WINDOW MOTOR PROGRAMMING - EXPRESS FUNCTION > SINGLE WINDOW MOTOR NORMALIZATION PROCEDURE



NOTE:

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



NOTE:

For vehicles equipped with a folding convertible top, the top must be closed and firmly latched prior to normalizing the windows.

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

The window should now be normalized and the window should perform the express up and express down functions and should index normally when the door is opened and closed.

REPAIR INSTRUCTIONS > WINDOW MOTOR PROGRAMMING - EXPRESS FUNCTION > ALL WINDOW MOTORS NORMALIZATION PROCEDURE

 NOTE:

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

 NOTE:

For vehicles equipped with a folding convertible top, the top must be closed and firmly latched prior to normalizing the windows.

 NOTE:

For vehicles equipped with a folding convertible top, you must normalize the left rear and right rear windows first before attempting to normalize the driver and passenger windows

1. Ignition ON.
2. Starting with the left and right rear window completely UP, press and hold the appropriate power window switch until the rear windows are fully open and continue holding the switch down for approximately 5 seconds after the rear windows are completely open.
3. Pull the power window switch up until the rear windows are fully closed and continue holding the switch up for approximately 5 seconds after the rear windows are completely closed.
4. With the driver window completely UP, press and hold the appropriate power window switch until the driver window is fully open and continue holding the switch down for approximately 5 seconds after the driver window is completely open.
5. Pull the power window switch up until the driver window is fully closed and continue holding the switch up for approximately 5 seconds after the driver window is completely closed.
6. With the front passenger window completely UP, press and hold the appropriate power window switch until the front passenger window is fully open and continue holding the switch down for approximately 5 seconds after the front passenger window is completely open.
7. Pull the power window switch up until the front passenger window is fully closed and continue holding the switch up for approximately 5 seconds after the front passenger window is completely closed.

All the window motors should now be normalized and the windows should perform the express up and express down functions and should index normally when the door is opened and closed.

REPAIR INSTRUCTIONS > WINDOW MOTOR PROGRAMMING - EXPRESS FUNCTION > WINDOW MOTOR RELEARN PROCEDURE

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

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



NOTE:

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

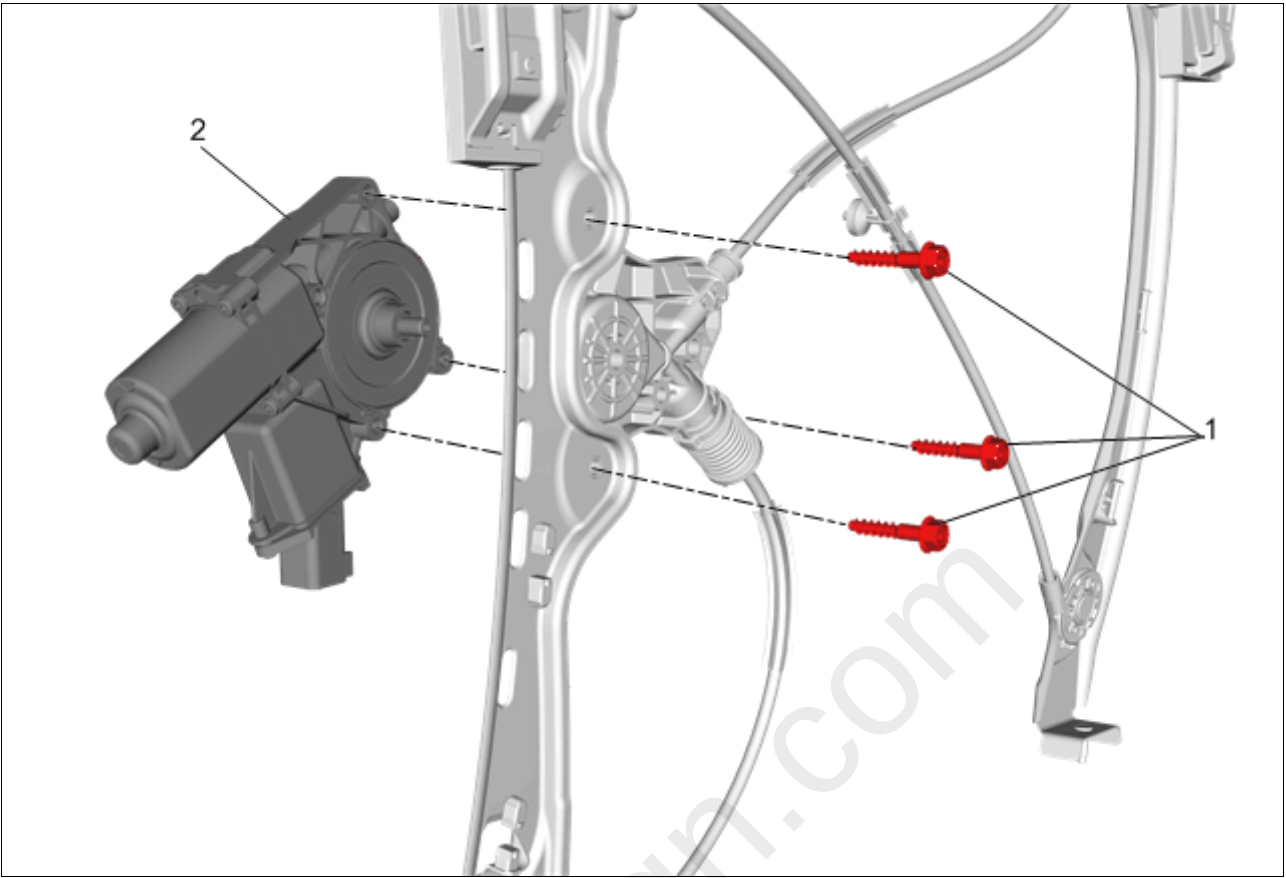
To relearn the window motor, follow these steps:

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

The window is now reprogrammed.

REPAIR INSTRUCTIONS > FRONT SIDE DOOR WINDOW REGULATOR MOTOR REPLACEMENT

Fig 1: Front Side Door Window Regulator Motor



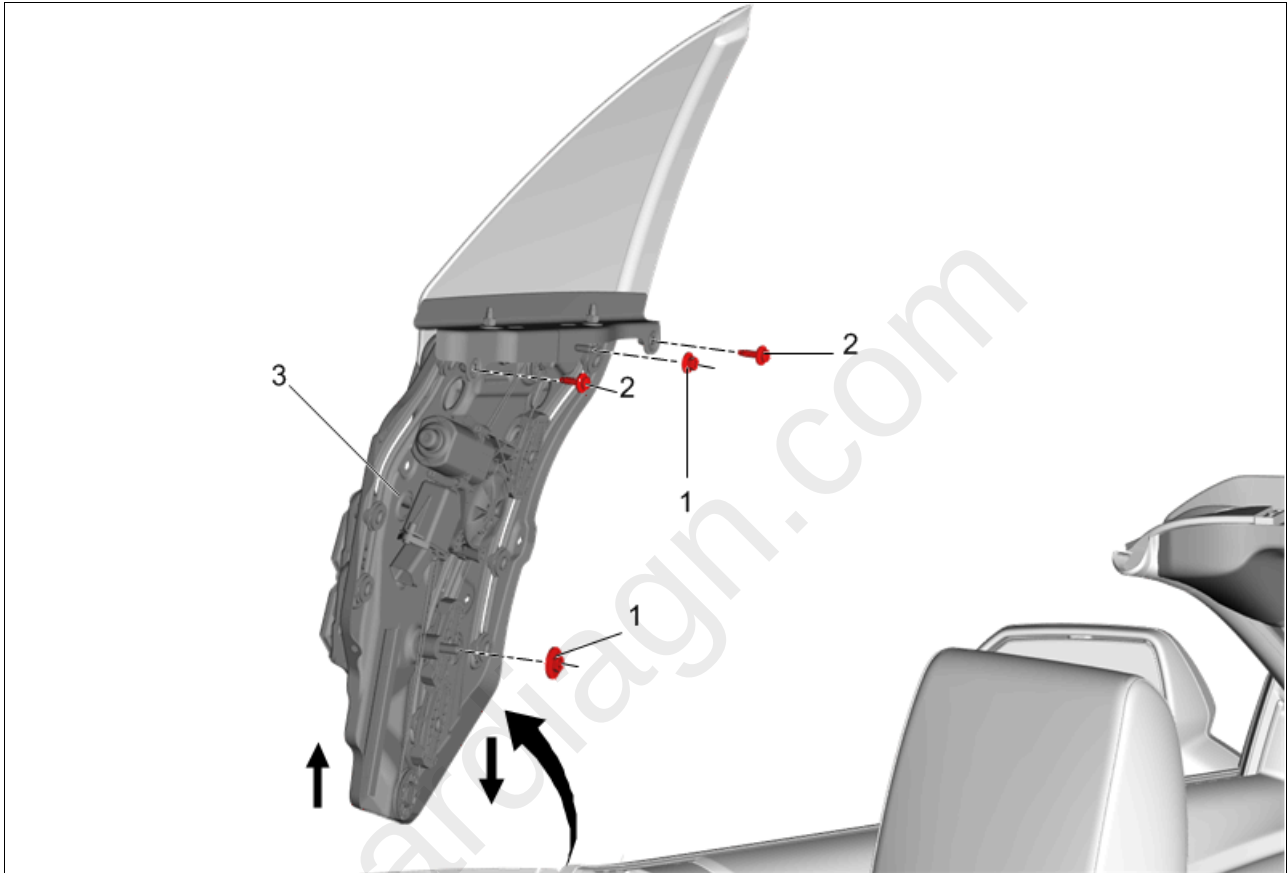
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Front Side Door Window Regulator Replacement	
1	Front Side Door Window Regulator Motor Screw (Qty: 3) <i>CAUTION:</i> <i>Refer to Fastener Caution .</i> Tighten 5 N.m (44 lb in)
2	Front Side Door Window Regulator Motor Procedure Window Motor Programming - Express Function .  <i>NOTE:</i>

Inspect the door window for proper operation before installing the door trim.

REPAIR INSTRUCTIONS > QUARTER WINDOW REGULATOR REPLACEMENT

Fig 1: Quarter Window Regulator



Courtesy of GENERAL MOTORS COMPANY

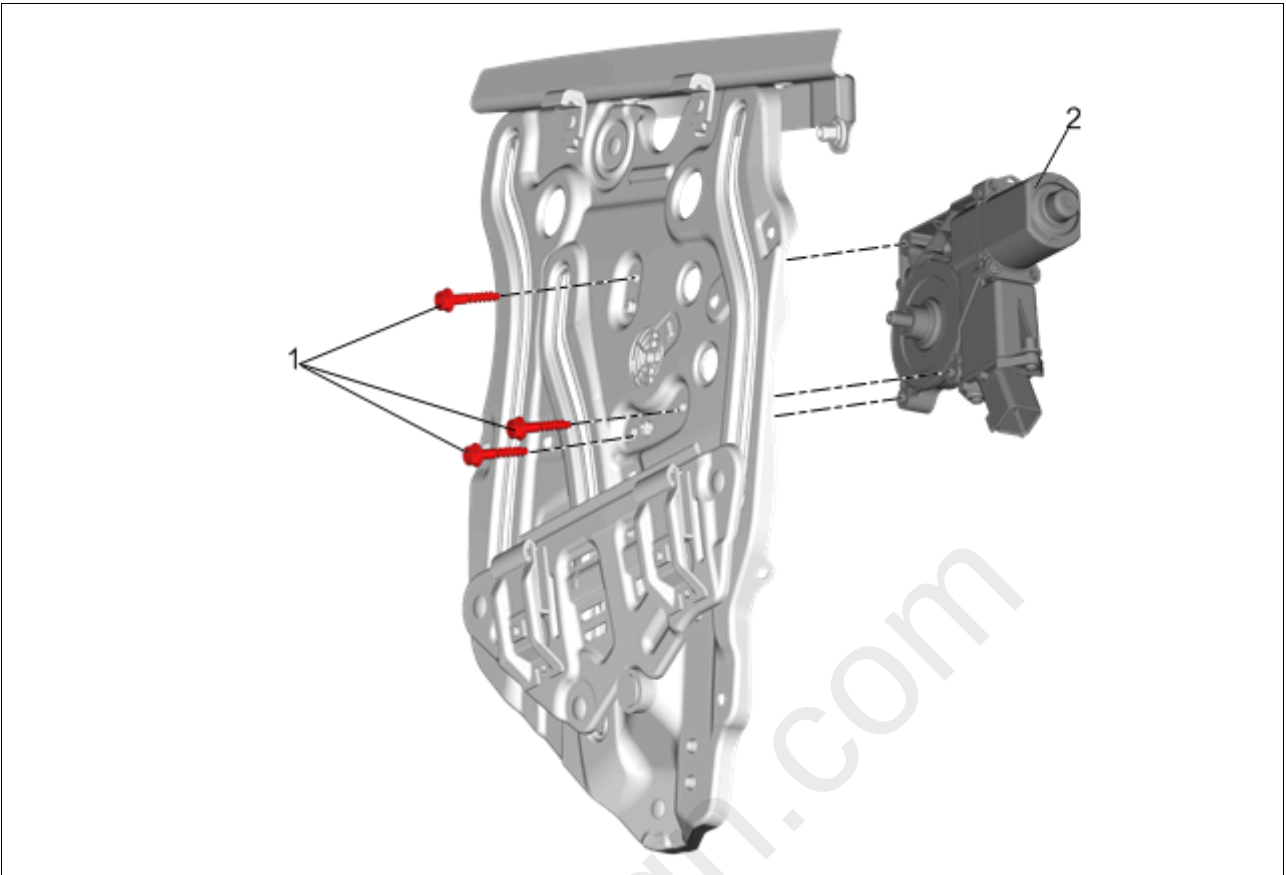
Callout	Component Name
Preliminary Procedure	
1. Quarter Lower Rear Trim Panel Replacement (Coupe) Quarter Lower Rear Trim Panel Replacement (Convertible)	
2. Front Side Door Weatherstrip Replacement - Body Side (Coupe) Front Side Door Weatherstrip Replacement - Body Side (Convertible)	
3. Quarter Window Outer Belt Sealing Strip Replacement	
4. Folding Top Stowage Compartment Lid Weatherstrip Replacement	
5. Leave the window attached to the regulator when removing. Mark the window fore/aft and up	

and down to the regulator clamps prior to transferring window.

1	Quarter Window Regulator Nut (Qty: 2) Procedure <i>CAUTION:</i> <i>Refer to Fastener Caution .</i> Loosen both window regulator nuts. Tighten 10 N.m (89 lb in)
2	Quarter Window Regulator Upper Side Bracket Screw (Qty: 2) Tighten 10 N.m (89 lb in)
3	Quarter Window Regulator Procedure 1. Disconnect the electrical connector. 2. Transfer components as necessary.

REPAIR INSTRUCTIONS > QUARTER WINDOW REGULATOR MOTOR REPLACEMENT

Fig 1: Quarter Window Regulator Motor



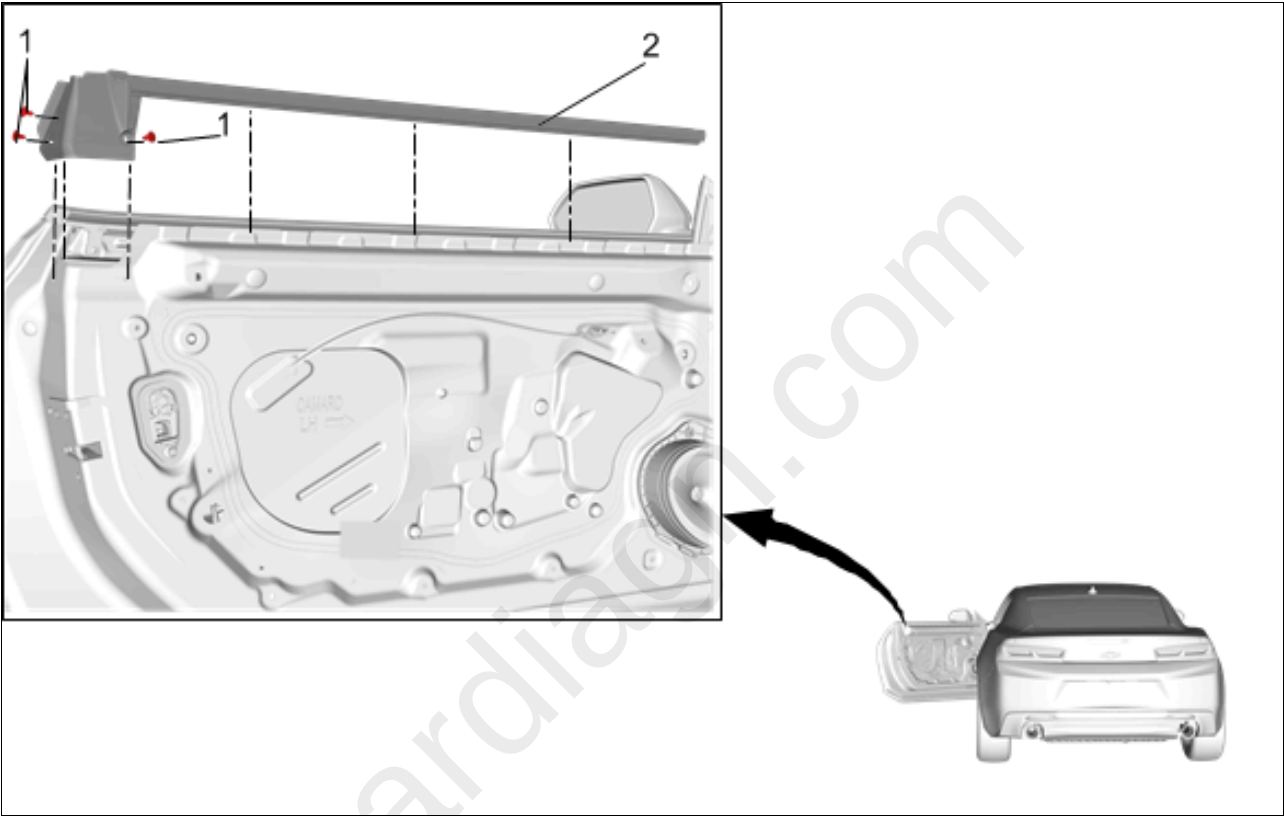
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Quarter Window Regulator Replacement	
1	Quarter Window Regulator Motor Screw (Qty: 3) <i>CAUTION:</i> <i>Refer to Fastener Caution .</i> Tighten 8 N.m (71 lb in)
2	Quarter Window Regulator Motor Procedure 1. Disconnect the electrical connector. 2. When installing the regulator motor ensure the gear washer is in place.

-
3. Window Motor Programming - Express Function
4. Inspect the quarter window for proper operation before securing the quarter trim.

REPAIR INSTRUCTIONS > FRONT SIDE DOOR WINDOW INNER SEALING STRIP REPLACEMENT

Fig 1: Front Side Door Window Inner Sealing Strip



Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Front Side Door Trim Replacement	
1	Front Side Door Window Inner Sealing Strip Retainer (Qty: 3)
2	Front Side Door Window Inner Sealing Strip Procedure Inspect the door for proper operation before installing the door trim panel.

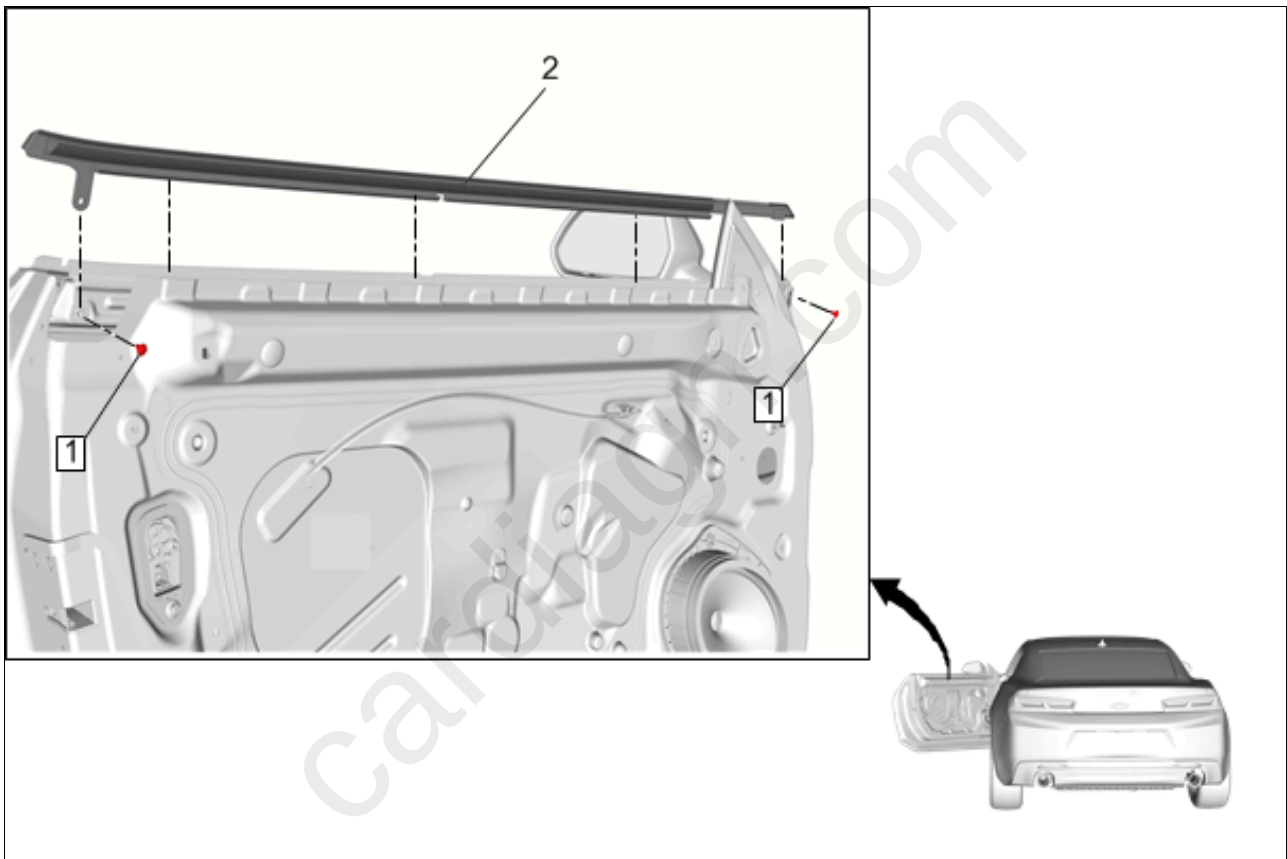


NOTE:

Pull up and away from inner panel to remove from the door.

REPAIR INSTRUCTIONS > FRONT SIDE DOOR WINDOW BELT REVEAL MOLDING REPLACEMENT

Fig 1: Front Side Door Window Belt Reveal Molding



Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures	
Front Side Door Window Inner Sealing Strip Replacement	
1	Front Side Door Window Belt Reveal Molding Screw (Qty: 2)

CAUTION:

Refer to Fastener Caution .

Procedure

Remove the retaining screws from the sealing strip.

Tighten

1 N.m (9 lb in)

2

Front Side Door Window Belt Reveal Molding

Procedure

Pull the outer sealing strip up and away from the door flange.

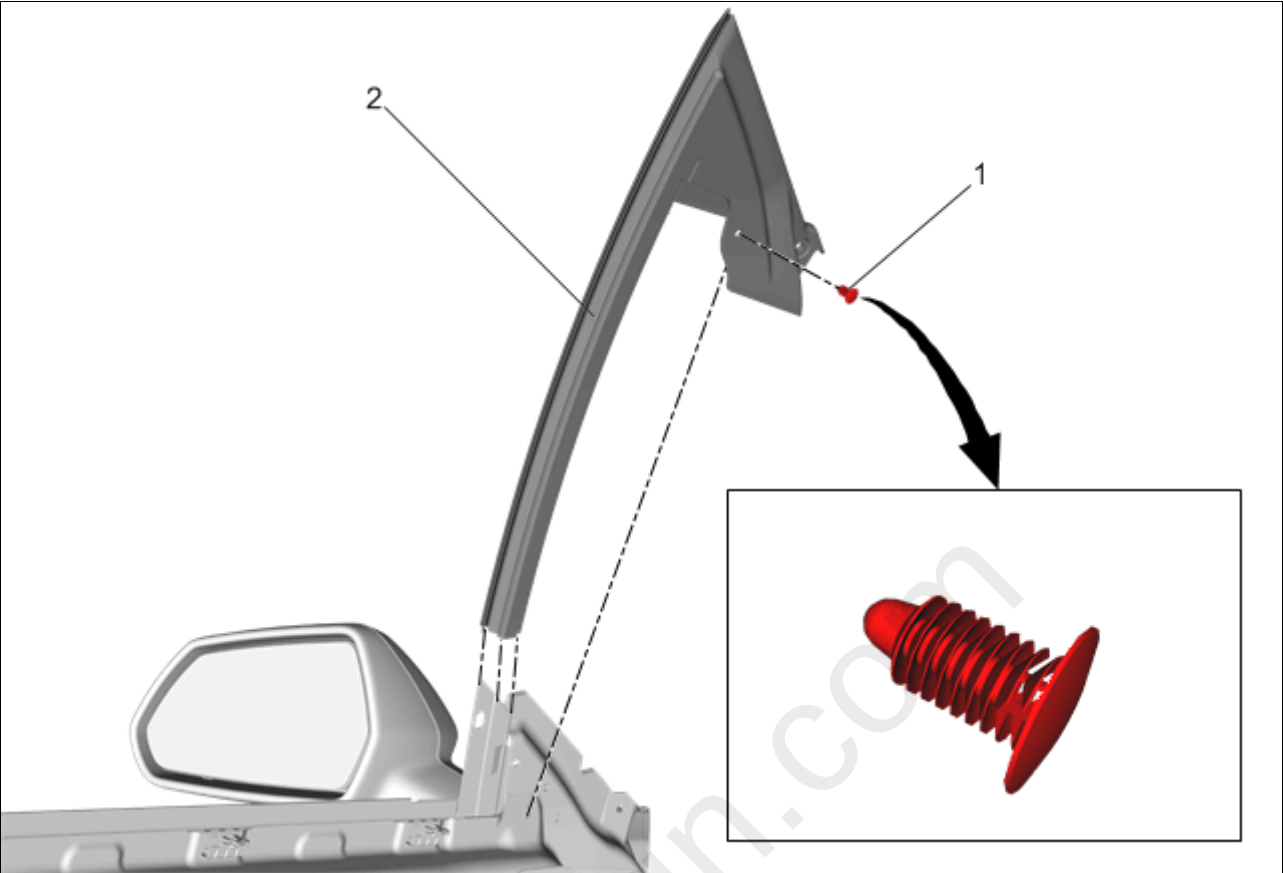


NOTE:

Inspect the door for proper operation before installing the door trim panel.

**REPAIR INSTRUCTIONS > FRONT SIDE DOOR WINDOW WEATHERSTRIP
REPLACEMENT**

Fig 1: Front Side Door Window Weatherstrip



Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure 1. Lower window all the way down. 2. Outside Rearview Mirror Applique Replacement 3. Front Side Door Window Belt Reveal Molding Replacement	
1	Weatherstrip Retainer
2	Front Side Door Weatherstrip Procedure 1. Using the appropriate tool, remove the weatherstrip retainer. 2. Pull up to remove weatherstrip from weatherstrip channel.  NOTE: Apply a soapy water solution to the outside of the glass weatherstrip run

channel prior to sliding weatherstrip in position.

REPAIR INSTRUCTIONS > ADHESIVE INSTALLATION OF WINDSHIELDS

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



WARNING:

Refer to Glass and Sheet Metal Handling Warning .

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



NOTE:

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

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

 WARNING:

Refer to Window Retention Warning .

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

 WARNING:

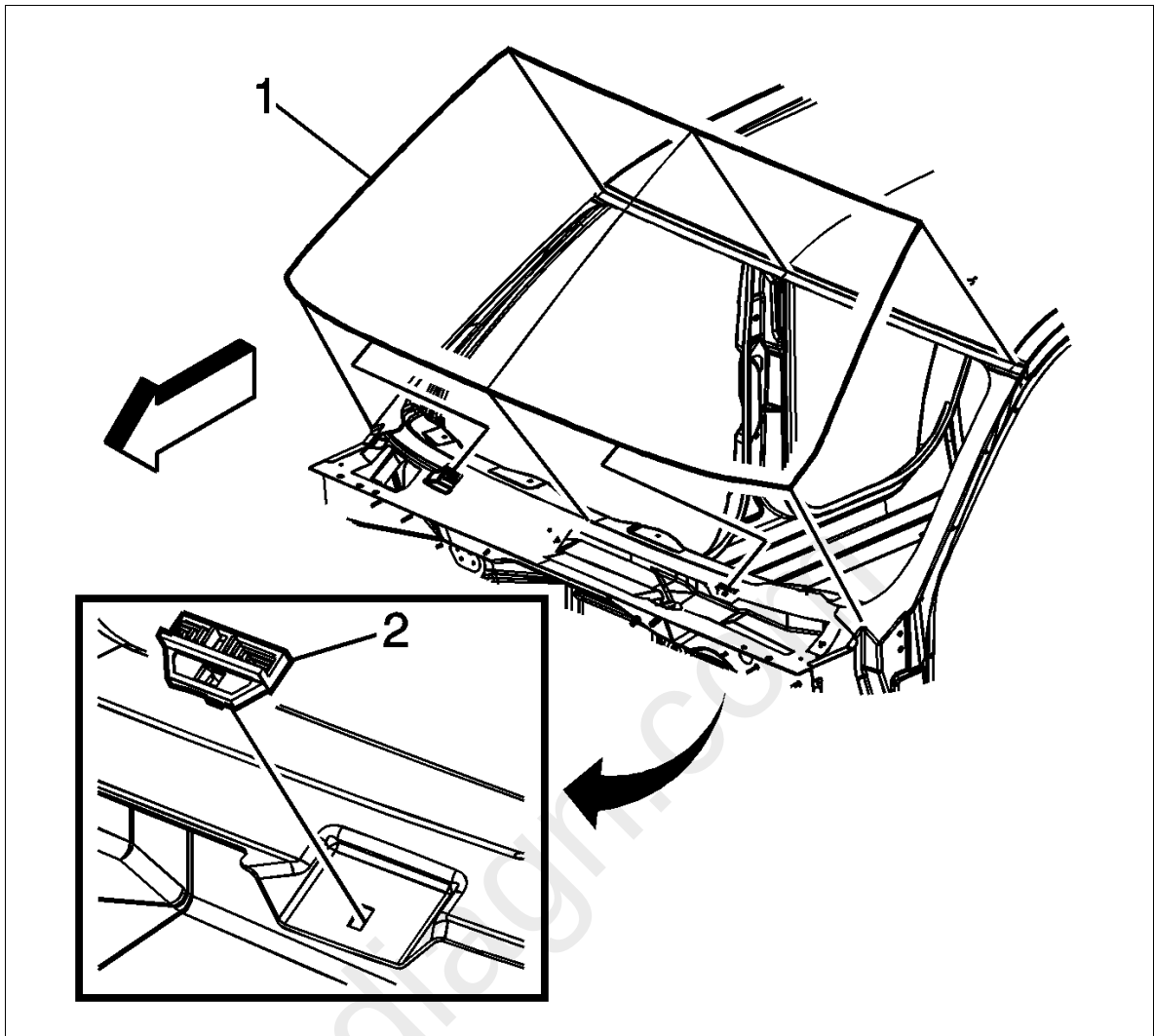
Failure to prep the area prior to the application of primer may cause insufficient bonding of urethane adhesive. Insufficient bonding of urethane adhesive may allow unrestrained occupants to be ejected from the vehicle resulting in personal injury.

 NOTE:

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

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

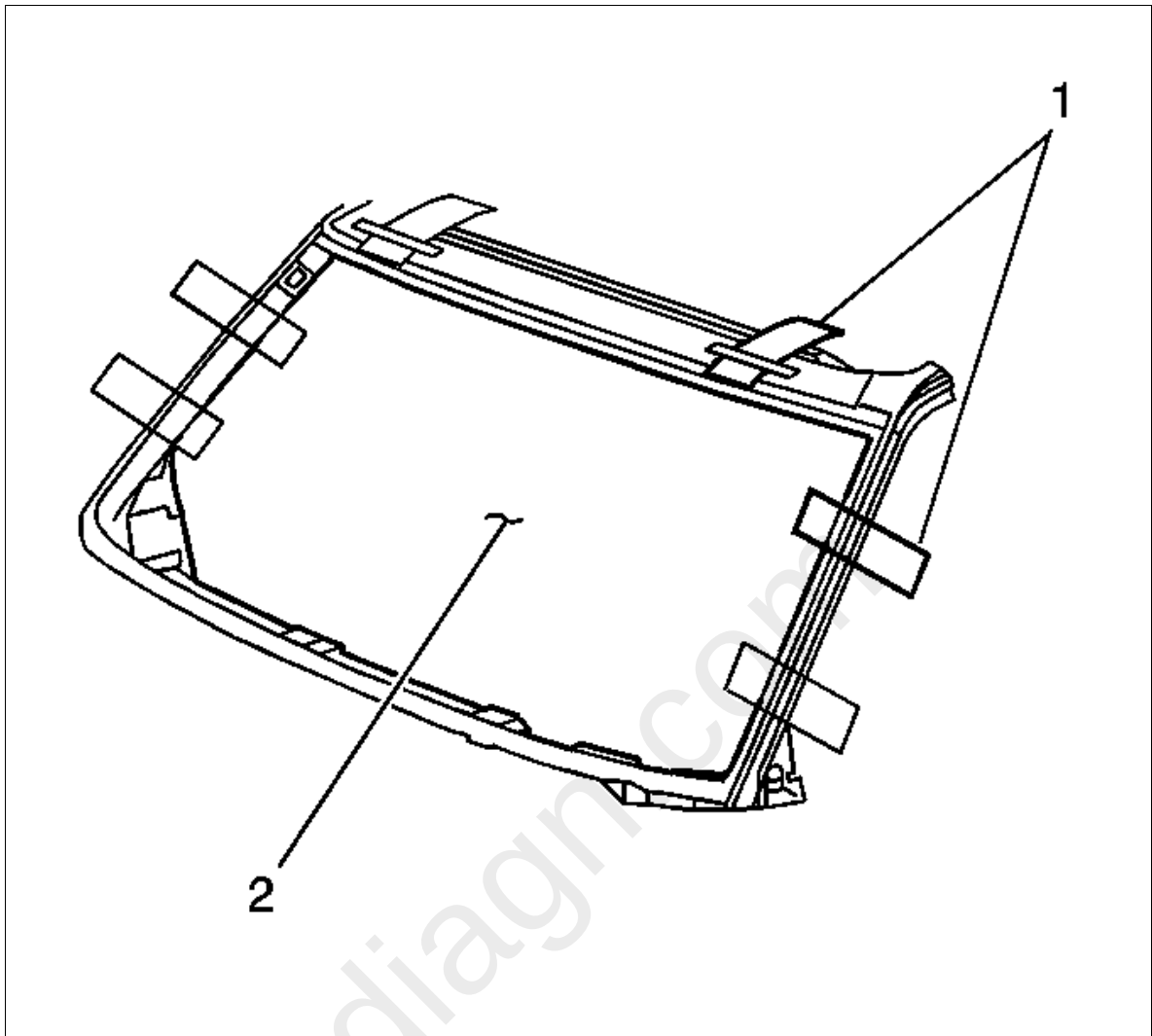
Fig 1: Dry Fitting The Window



Courtesy of GENERAL MOTORS COMPANY

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

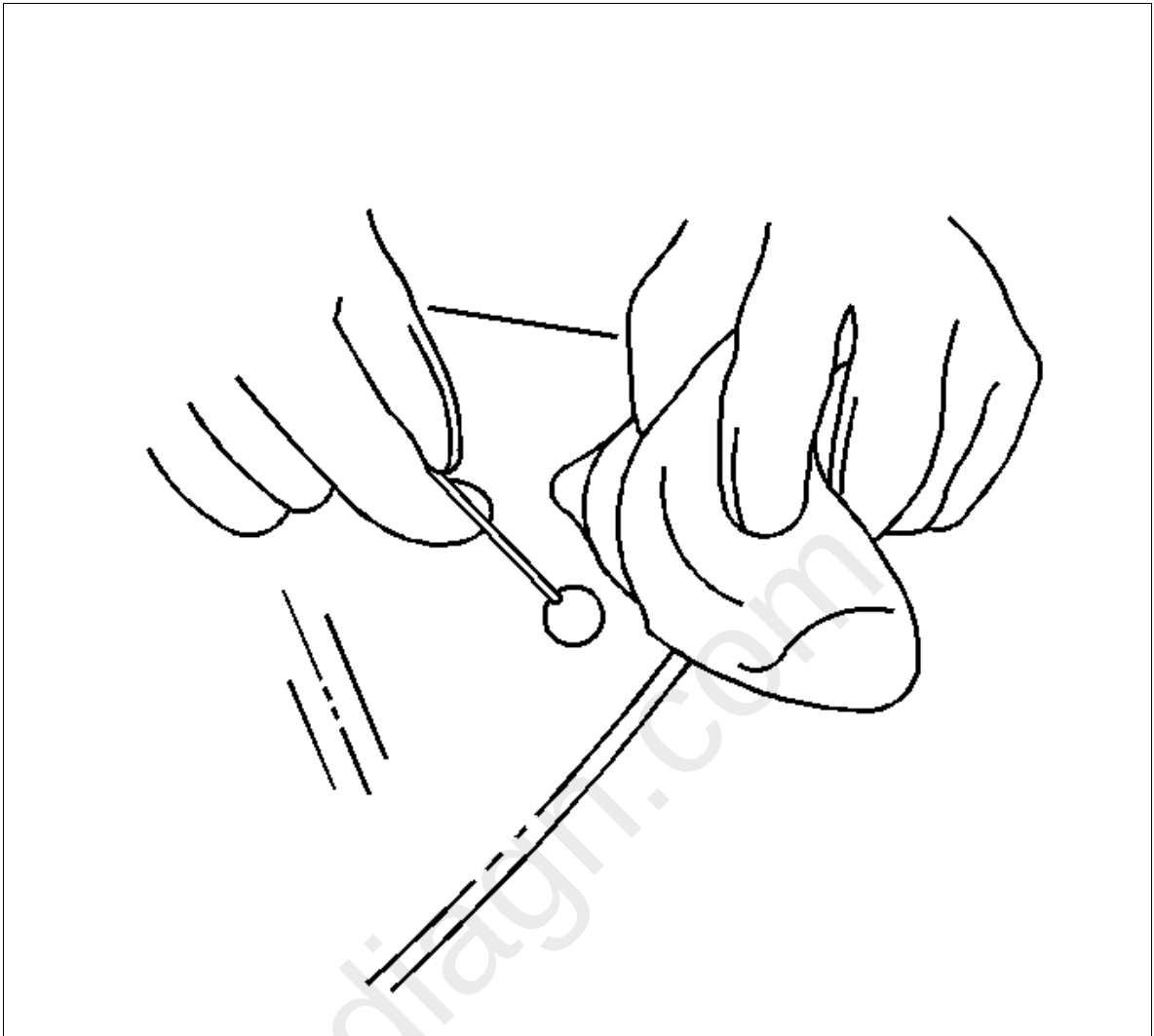
Fig 2: Tape Lines On Window To Body



Courtesy of GENERAL MOTORS COMPANY

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

Fig 3: Glass Prep



Courtesy of GENERAL MOTORS COMPANY



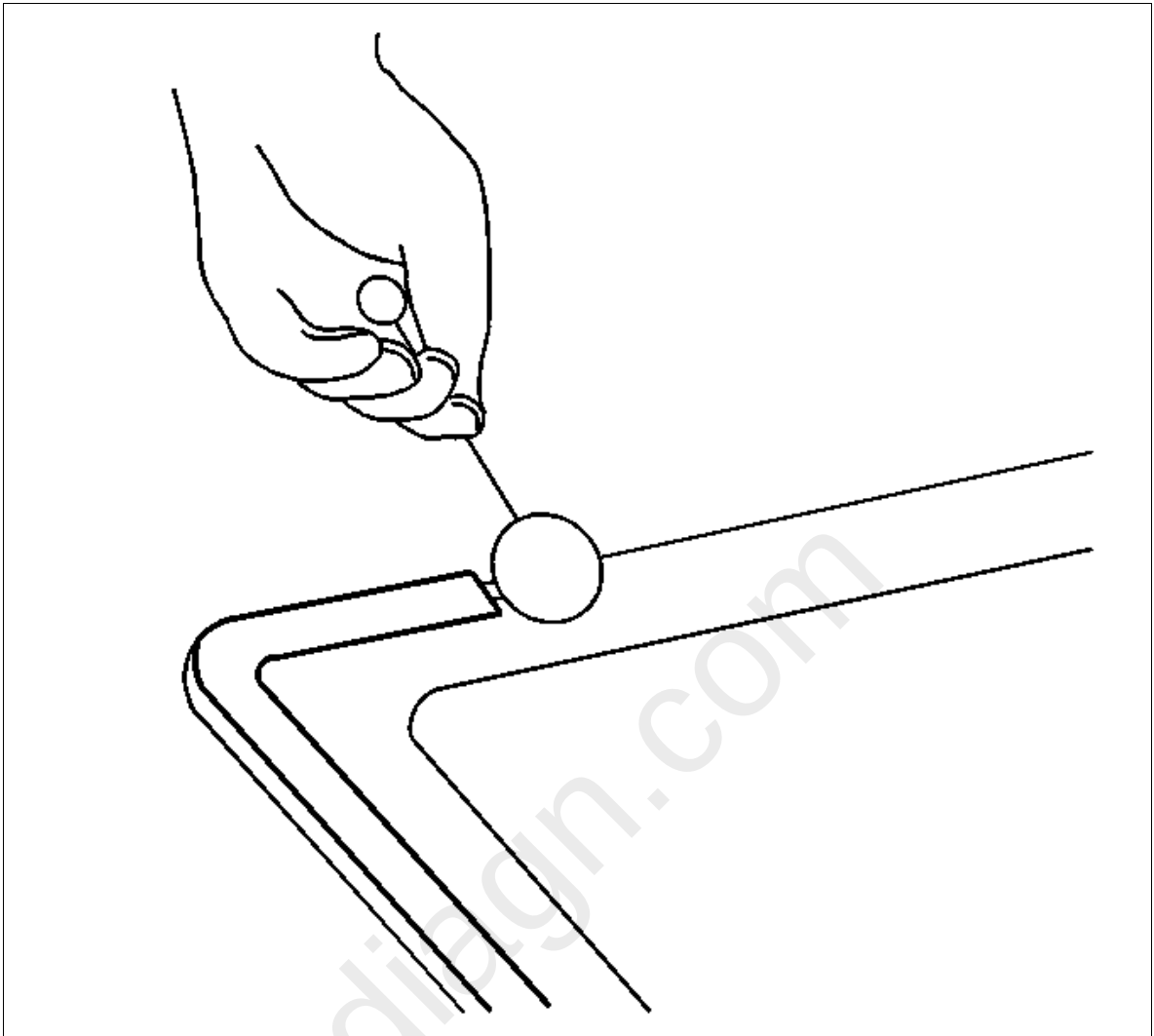
NOTE:

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

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

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

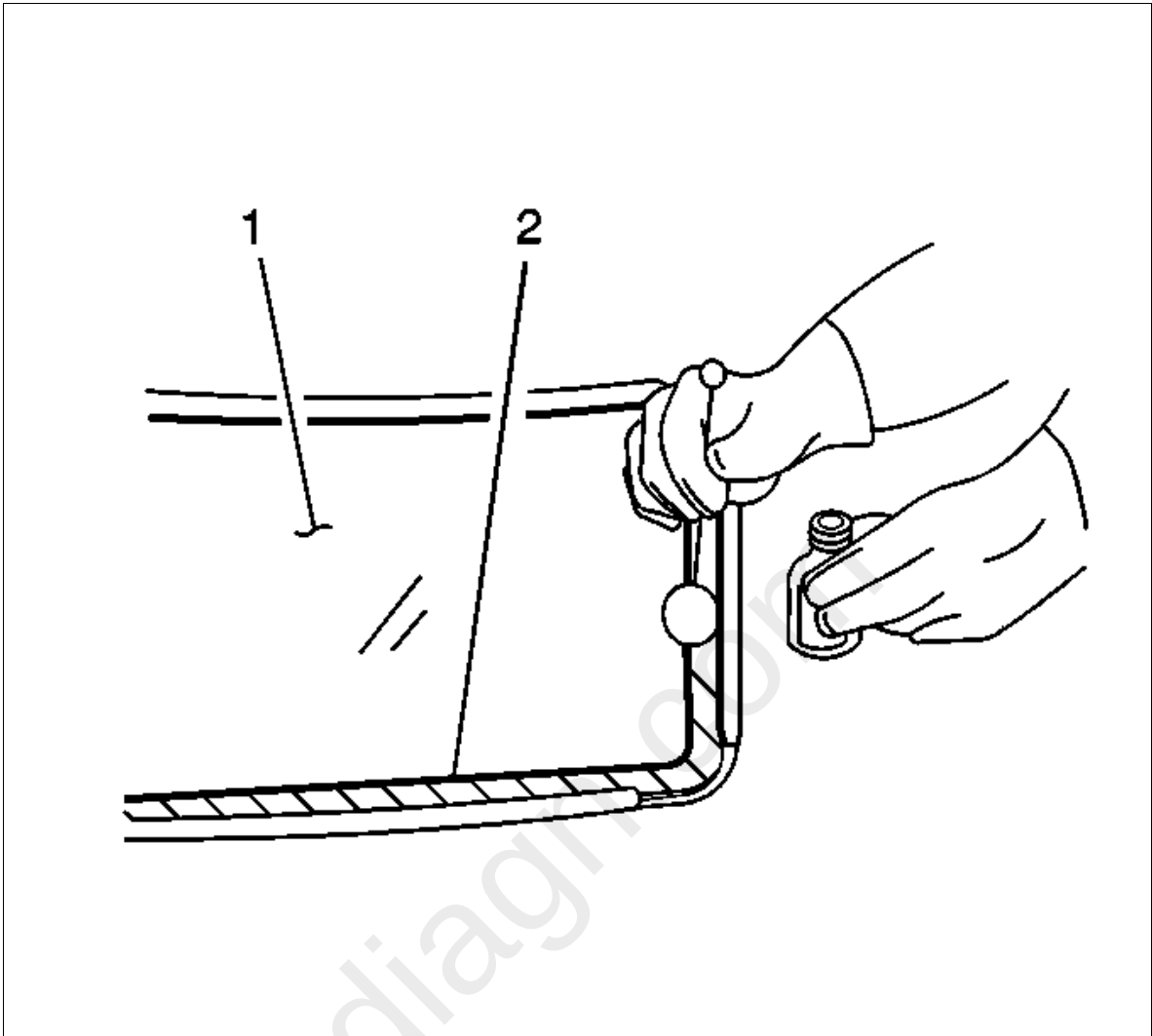
Fig 4: Glass Prep



Courtesy of GENERAL MOTORS COMPANY

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

Fig 5: Glass Primer



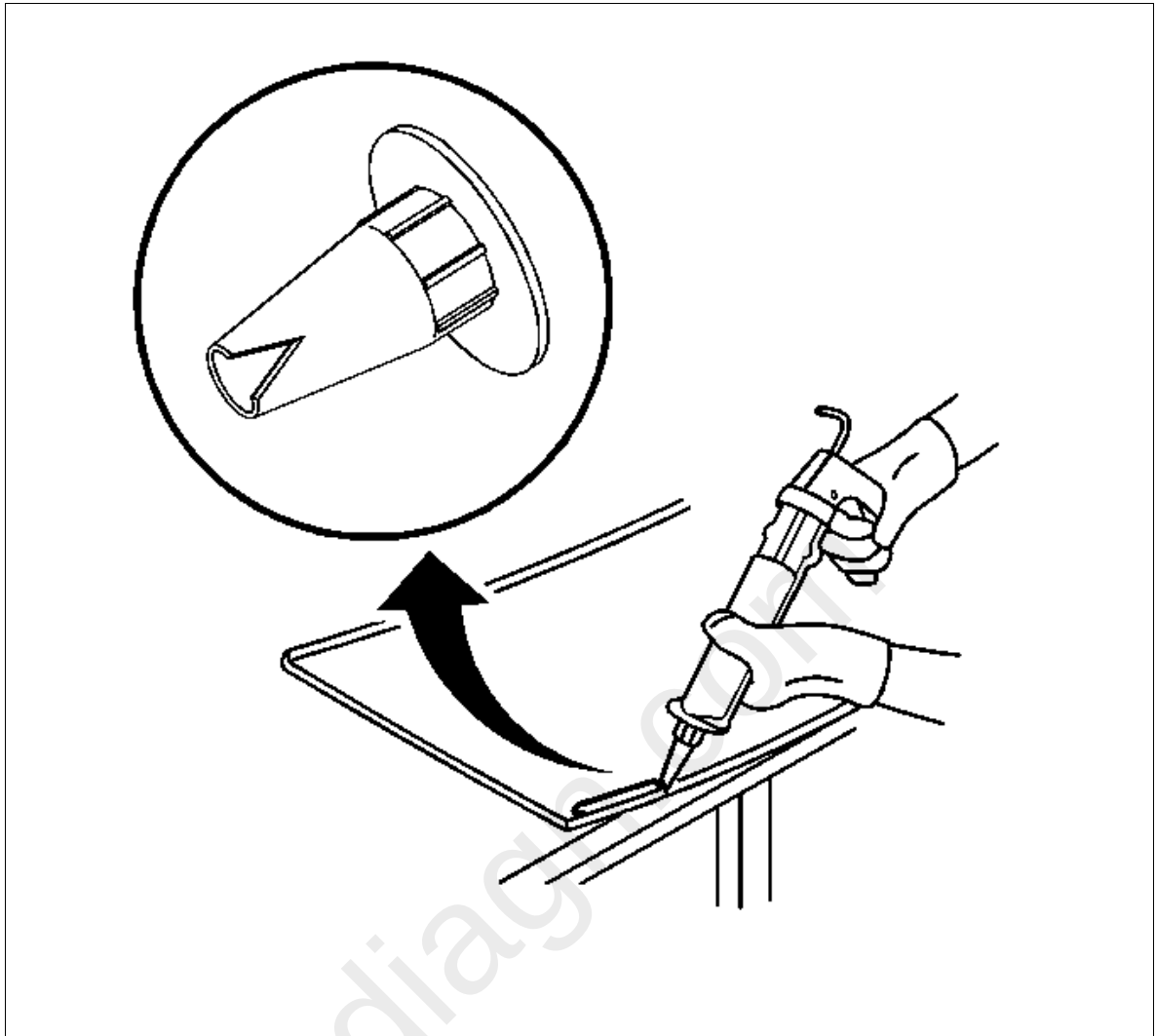
Courtesy of GENERAL MOTORS COMPANY

 NOTE:

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

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

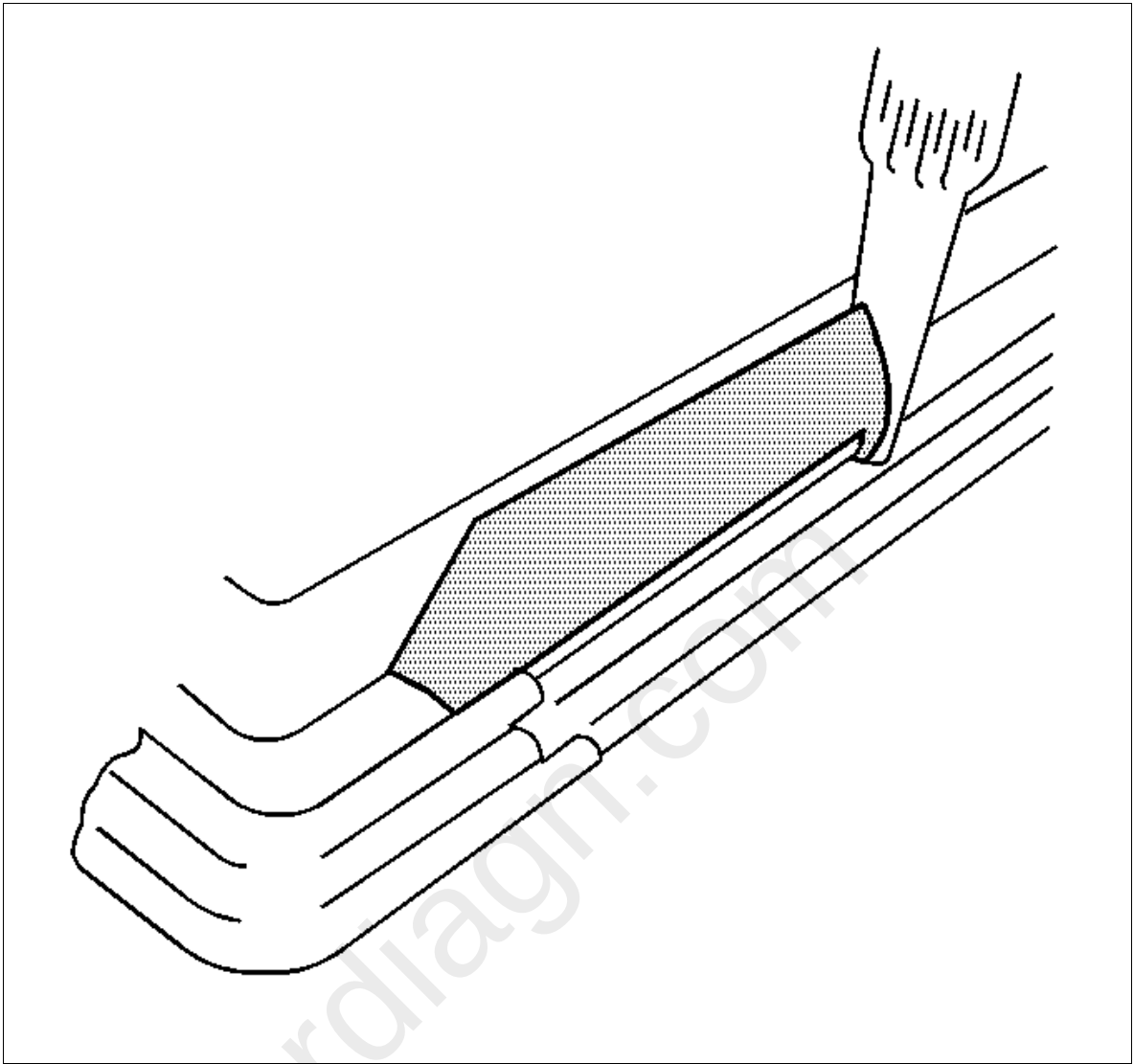
Fig 6: Modified Applicator Nozzle



Courtesy of GENERAL MOTORS COMPANY

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

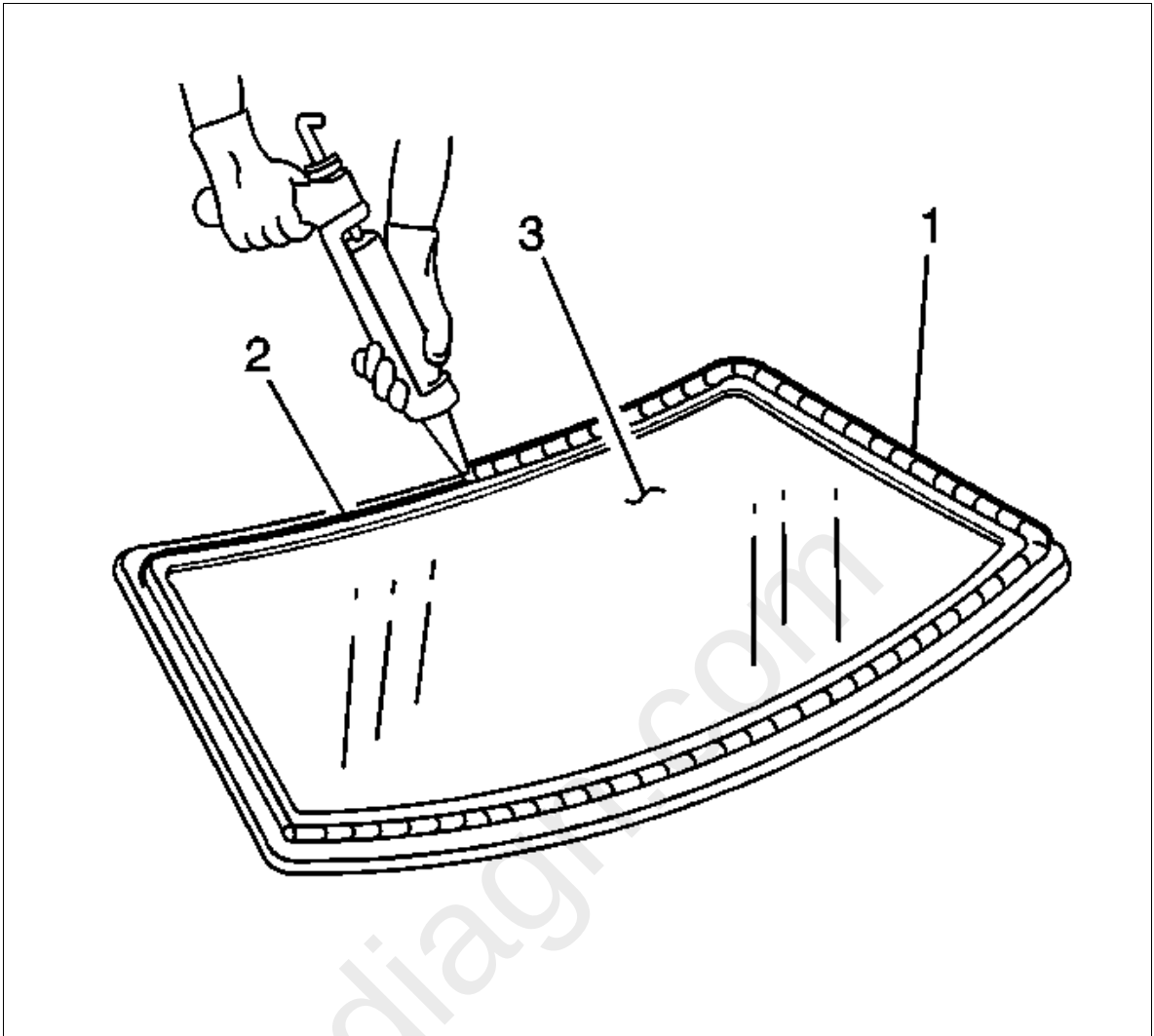
Fig 7: Continuous Bead Of Urethane Adhesive



Courtesy of GENERAL MOTORS COMPANY

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

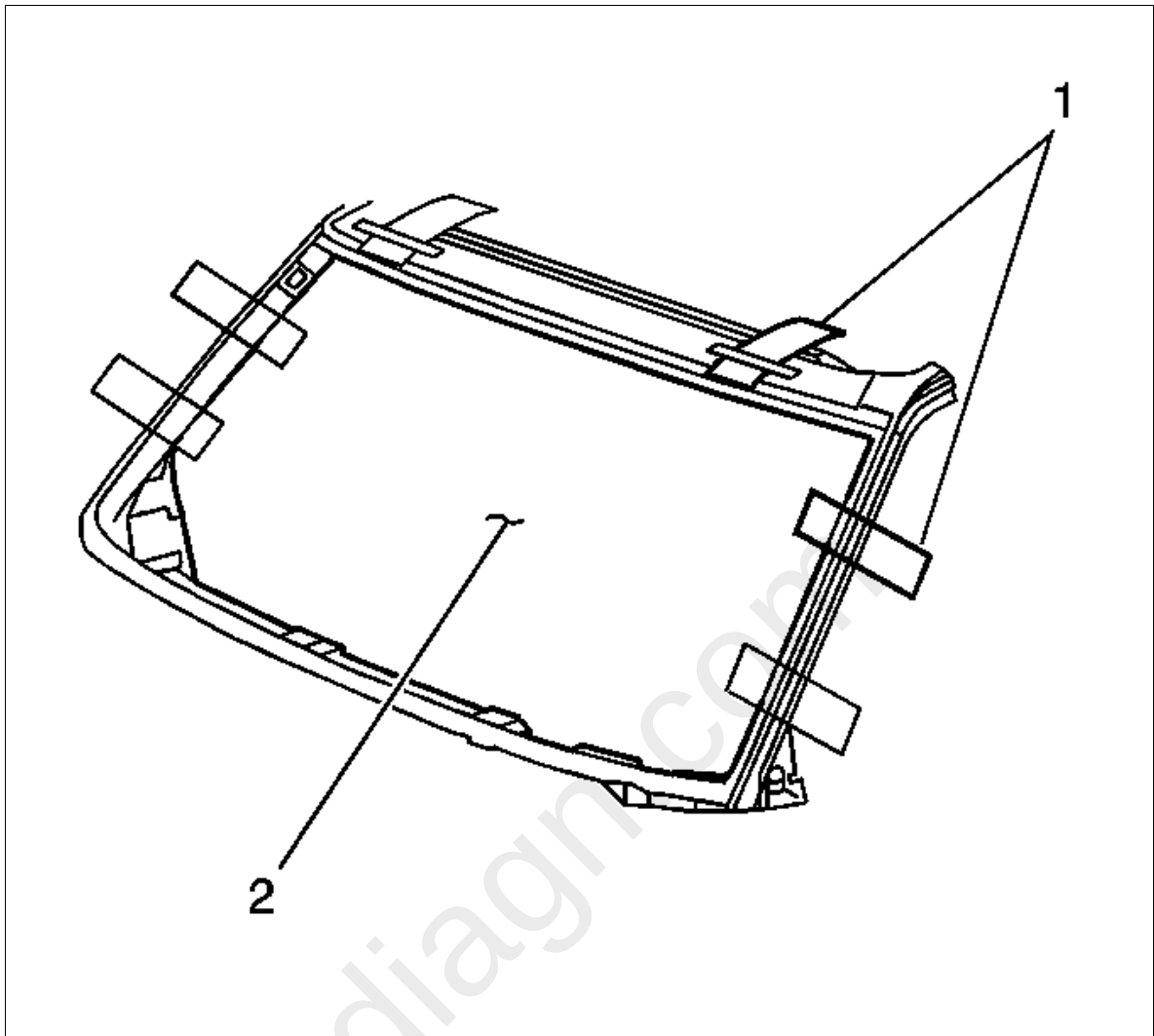
Fig 8: Urethane Adhesive To Inner Surface Of Window



Courtesy of GENERAL MOTORS COMPANY

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

Fig 9: Tape Lines On Window To Body



Courtesy of GENERAL MOTORS COMPANY

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

Fig 10: Pressing Window Into Place



Courtesy of GENERAL MOTORS COMPANY

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

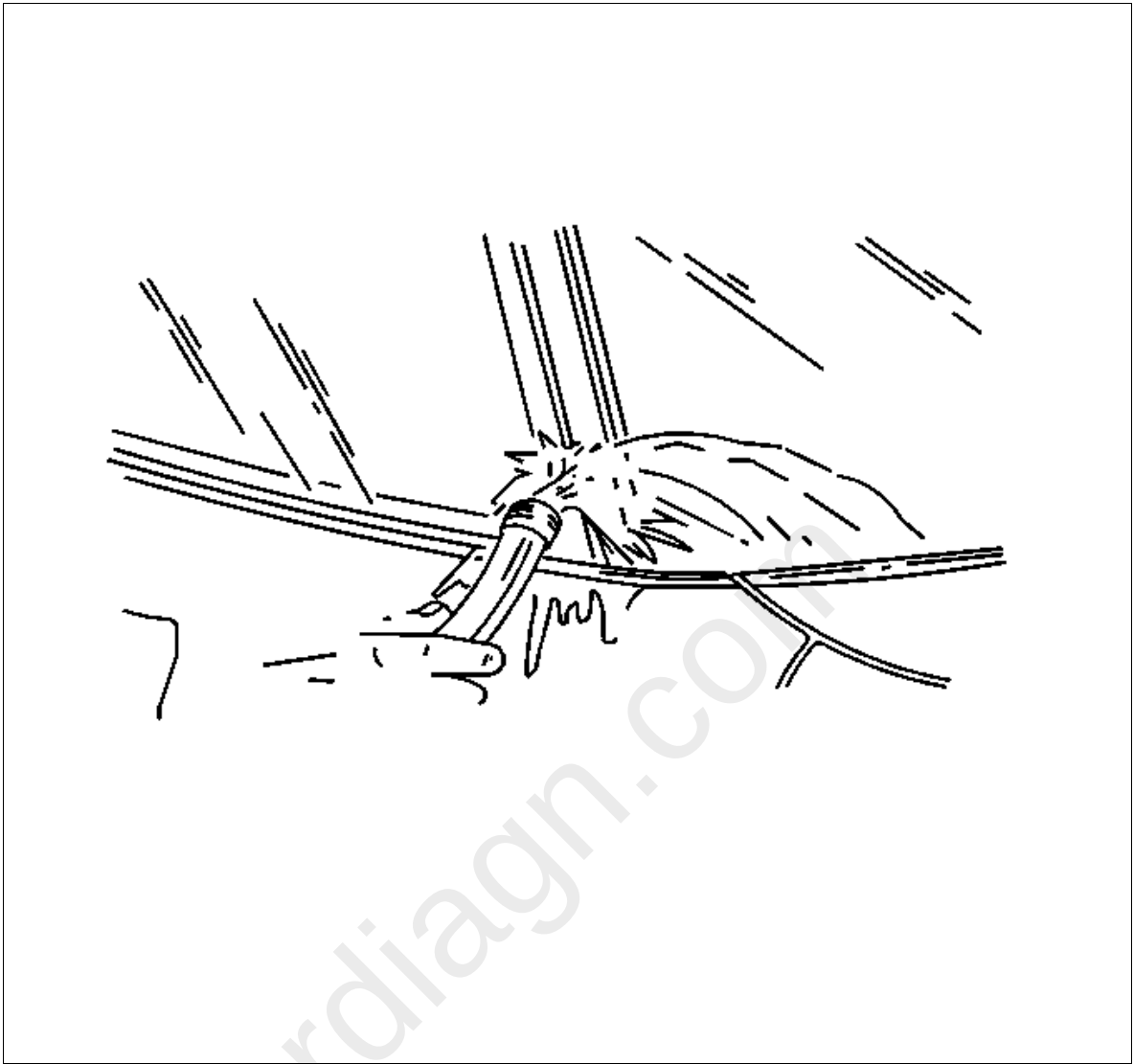
Fig 11: Excess Urethane Adhesive From Body



Courtesy of GENERAL MOTORS COMPANY

24. Clean any excess urethane adhesive from the body.

Fig 12: Water Hose Test



Courtesy of GENERAL MOTORS COMPANY



NOTE:

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

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

 WARNING:

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

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

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

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

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

30. Complete the window installation.

REPAIR INSTRUCTIONS > ADHESIVE INSTALLATION OF QUARTER WINDOWS

 WARNING:

Refer to Glass and Sheet Metal Handling Warning .

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

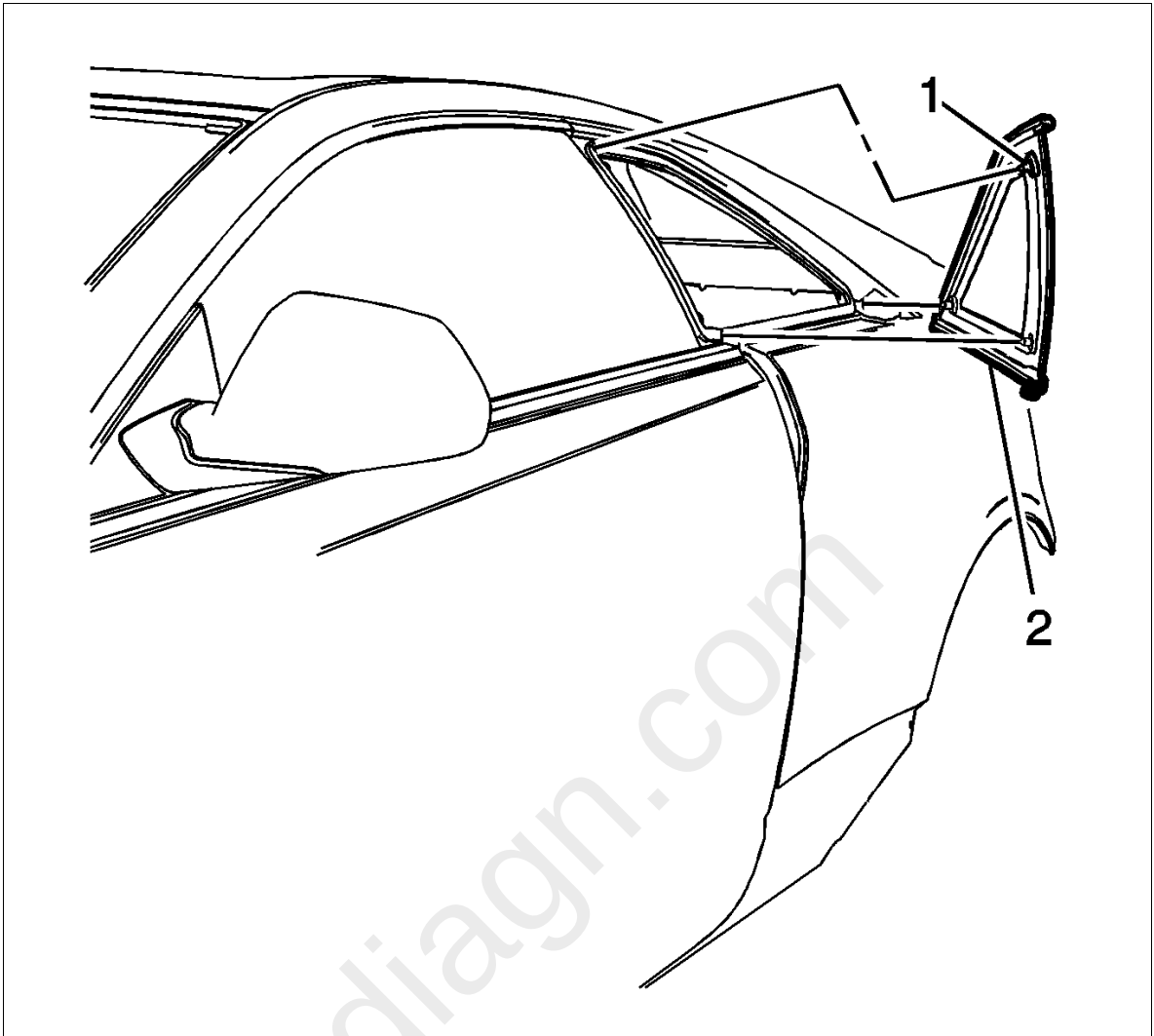
4. Hardened sealer
5. Any other obstruction or irregularity in the pinchweld flange

 NOTE:

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

5. After repairing the opening as indicated, perform the following steps:
6. Use an abrasive pad if necessary to remove mold release buildup from the encapsulated window. Use a dampened lint free cloth to remove any debris remaining on the window.

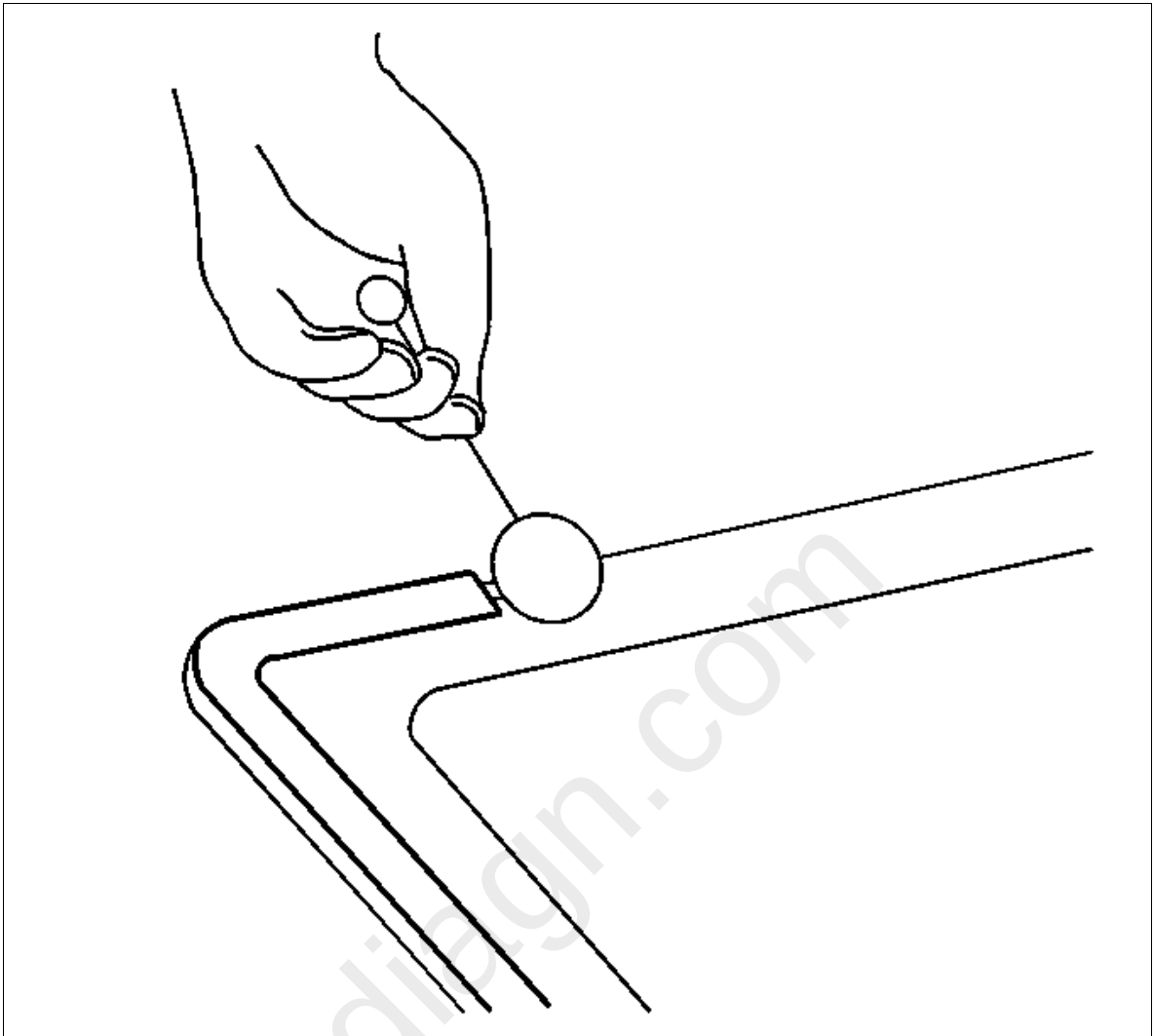
Fig 1: Quarter Window



Courtesy of GENERAL MOTORS COMPANY

7. Ensure that the window locator pins (1) are positioned to the pinch-weld flange.
8. Dry fit the window (2) to the opening in order to determine the correct position.
9. Use masking tape to mark the locations of the window in the opening.
10. Cut the masking in the center and remove the window from the opening.
11. Verify all primers and urethane adhesive are within expiration dates.

Fig 2: Glass Prep



Courtesy of GENERAL MOTORS COMPANY

 WARNING:

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

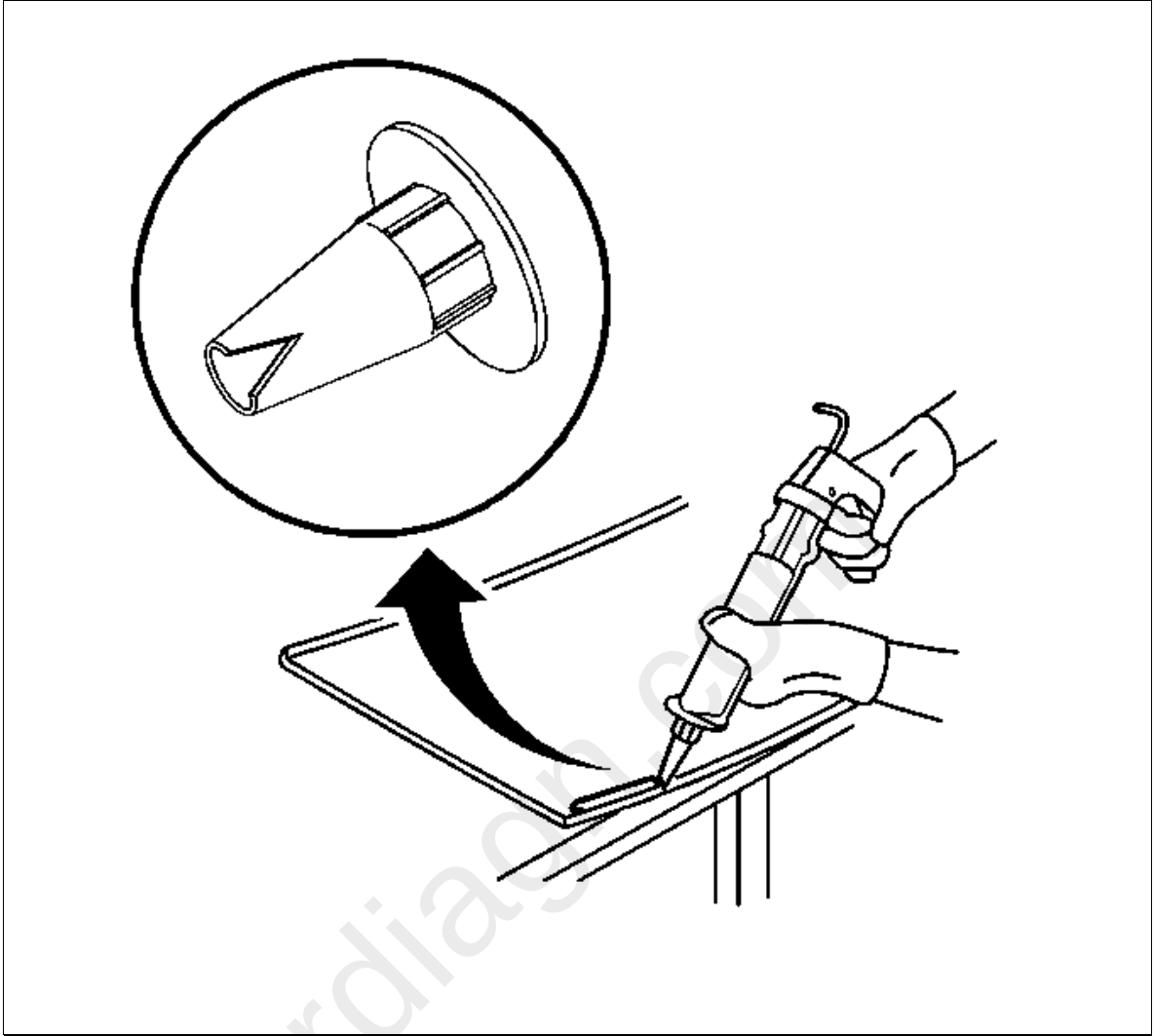
 NOTE:

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

12. Shake the primer clear for at least 1 minute.
13. Use a new dauber in order to apply the primer to the surface of the encapsulated window.

14. Allow the primer to dry for approximately 6 minutes.

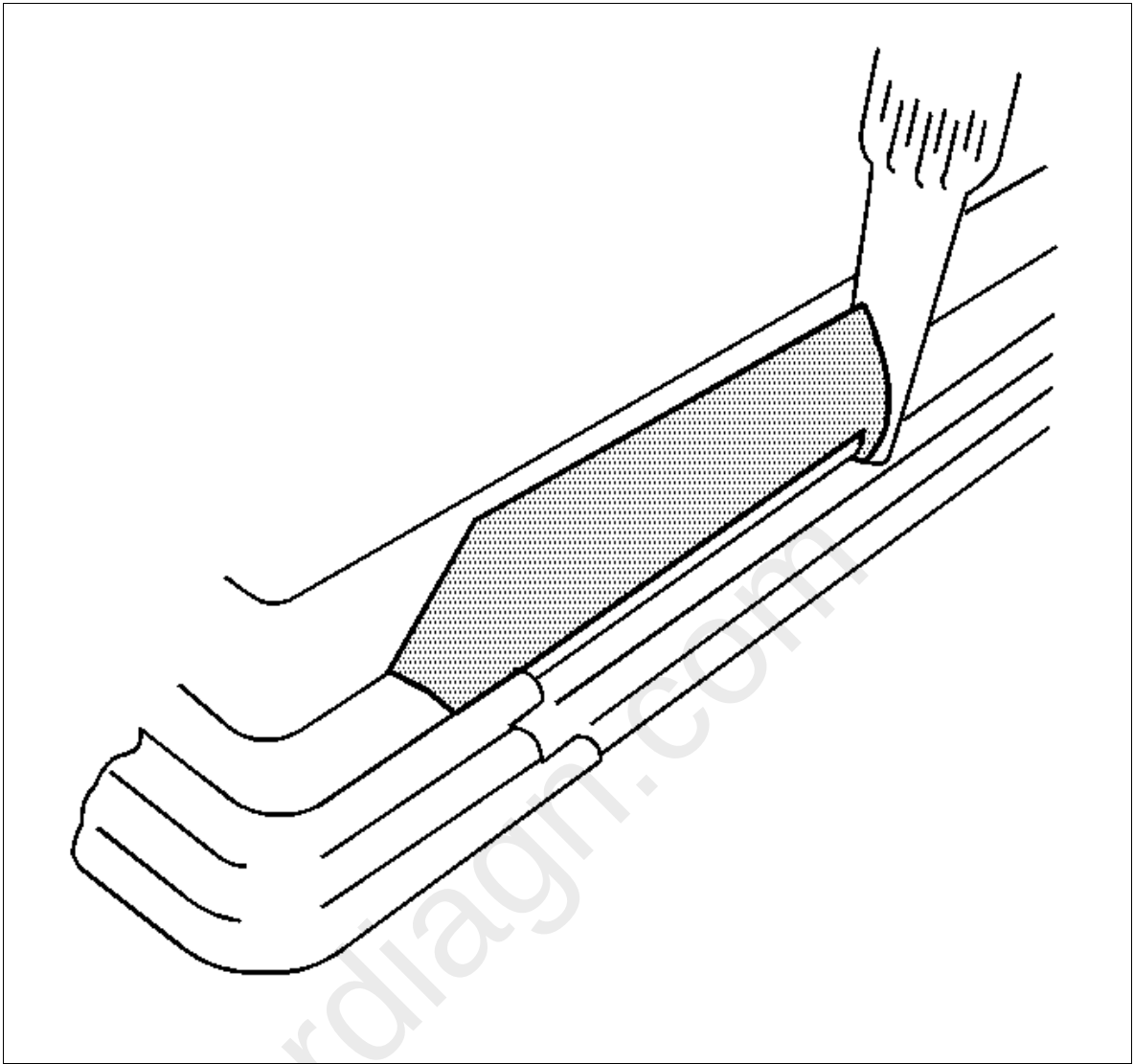
Fig 3: Modified Applicator Nozzle



Courtesy of GENERAL MOTORS COMPANY

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

Fig 4: Continuous Bead Of Urethane Adhesive



Courtesy of GENERAL MOTORS COMPANY

16. Use a cartridge-type caulking gun in order to apply a smooth, continuous bead of urethane adhesive.
17. Use the edge of the inside encapsulated window track as a guide for the nozzle in order to apply the urethane adhesive.
18. Place the window in the opening.
19. Align the masking tape lines on the window and the body.
20. Press firmly around the entire periphery of the window in order to wet-out the urethane bead.
21. Tape the window to the body in order to minimize movement until the urethane adhesive cures.
22. Clean any excess urethane adhesive from the body.



NOTE:

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

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

 WARNING:

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

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

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

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

DESCRIPTION AND OPERATION > FULL-CUT METHOD DESCRIPTION

 IMPORTANT:

- If corrosion of the pinch-weld flange is present, or if sheet metal repairs or replacements are required, refinish the pinch-weld flange in order to present a clean, primer-only surface.*
- If paint repairs are required, mask the flange bonding area, prior to applying the color coat, in order to provide a clean, primer-only surface.*

- *Appropriate materials for these primer applications are typically 2 component catalyzed products. Use materials such as BASF DE15®, DuPont 2610®, Sherwin-Williams PSE 4600 and NP70® and Martin-Semour 5120, 5130®, PPG DP90LF SPIES/HECKER 3688/8590 - 3688/5150 - 4070/5090 STANDOX 11158/13320 - 14653/14980 products are approved for this application. Follow the manufacturer's directions for the mix, the application, and the drying times.*
- *After repairing the opening as indicated, 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.*

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.

DESCRIPTION AND OPERATION > FULL-CUT METHOD DESCRIPTION - BRAZIL

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.*
- *Use appropriate solvents, approved by GM for this application.*
- *After repairing the opening as indicated, use adhesive systems.*

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

This method includes the following:

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

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

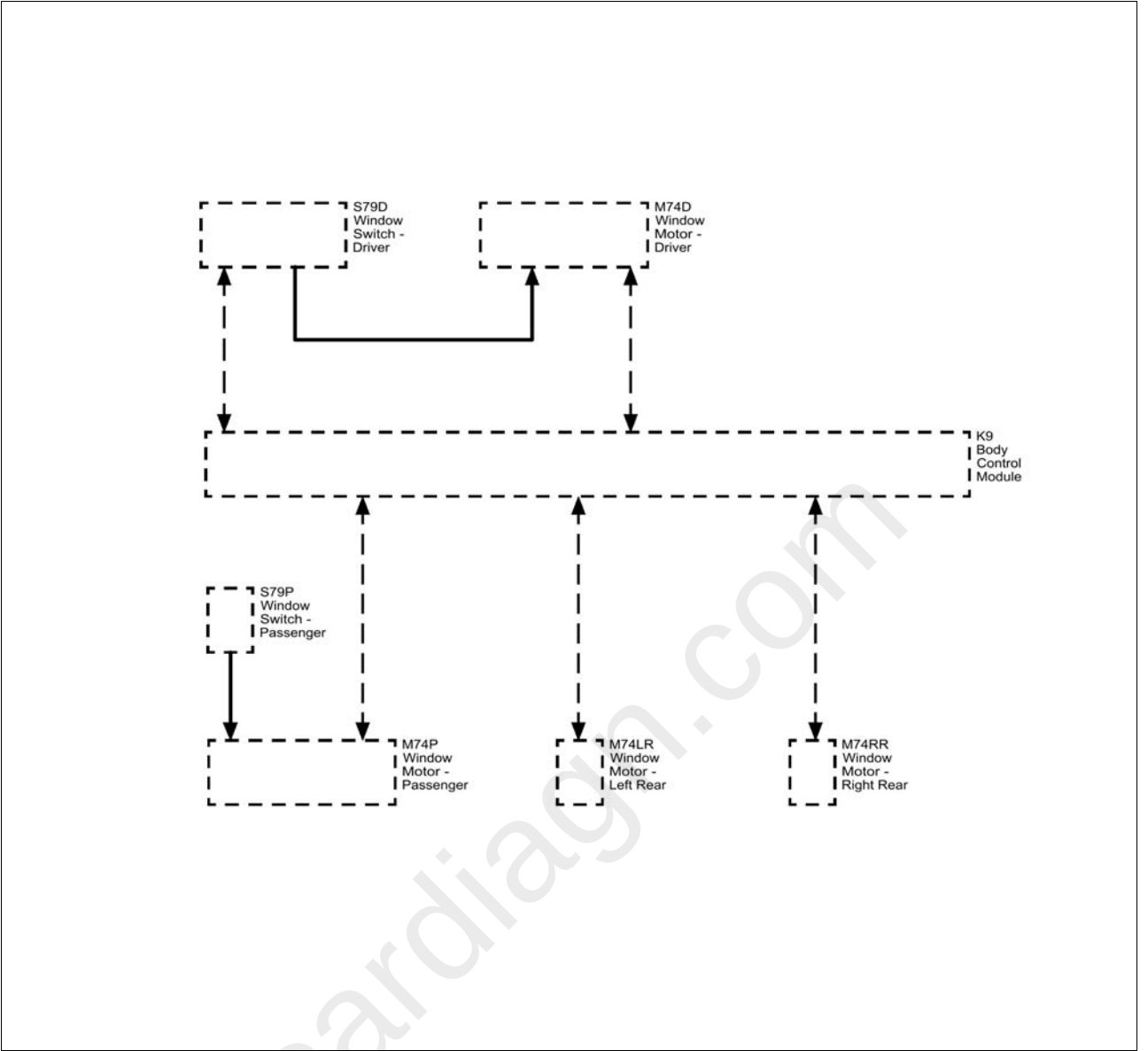
DESCRIPTION AND OPERATION > POWER WINDOWS DESCRIPTION AND OPERATION > POWER WINDOWS SYSTEM COMPONENTS

The power window system consists of the following components:

- Driver window switch
- Passenger window switch
- Window motors both doors
- Rear quarter window motors (Convertible)
- Body control module
- 30A Fuse

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Fig 1: Power Windows Block Diagram



Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
S79D	S79D Window Switch - Driver
M74D	M74D Window Motor - Driver
K9	K9 Body Control Module
S79P	S79P Window Switch - Passenger
M74P	M74P Window Motor - Passenger
M74LR	M74LR Window Motor - Left Rear
M74RR	M74RR Window Motor - Right Rear

DESCRIPTION AND OPERATION > POWER WINDOWS DESCRIPTION AND OPERATION > DRIVER AND PASSENGER EXPRESS UP AND EXPRESS DOWN POWER WINDOWS

The driver and passenger doors contain smart motors 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 motors monitor the up, down and express signal circuits which are normally equal to B+ voltage. When a switch is used on the driver or passenger 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 passenger window motor communicates with the body control module (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 a 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.

DESCRIPTION AND OPERATION > POWER WINDOWS DESCRIPTION AND OPERATION > CONVERTIBLE WINDOW OPERATION

All power windows can be commanded by the driver window switch, the passenger window switch only controls its respective window, the rear power windows do not have local rear window switches. The driver window switch contains the master power window switches that commands the rear power window operations. When the left rear or right rear switch is activated to a desired position, driver window switch will send a serial data message to the BCM to command the desired rear window. The BCM will then send a serial data message to rear window motor to move the window to the desired position. The all the window motors may also receive a command from the BCM to globally express down while lowering the convertible top.

DESCRIPTION AND OPERATION > POWER WINDOWS DESCRIPTION AND OPERATION > WINDOW INDEXING

The window indexing feature is used to lower the driver and passenger power windows approximately 4 mm when the door is opened. This is necessary to allow the top edge of the window to clear the window weatherstrip. This feature will also raise the window to the fully seated position once the door is closed

For vehicles that may be exposed to icy conditions, the body control module will detect when the window will not index due to ice accumulation, when this occurs, the body control module will command the affected window to perform the index function three more times to free the window to allow normal indexing functions.

The window switch monitors the status of the door ajar switch, when the window switch detects that the door is open, the window switch will command the window motor to lower the window.

The window switch monitors the status of the door ajar switch, when the window switch detects that the

door is closed, the window switch will command the window motor to fully close the window.

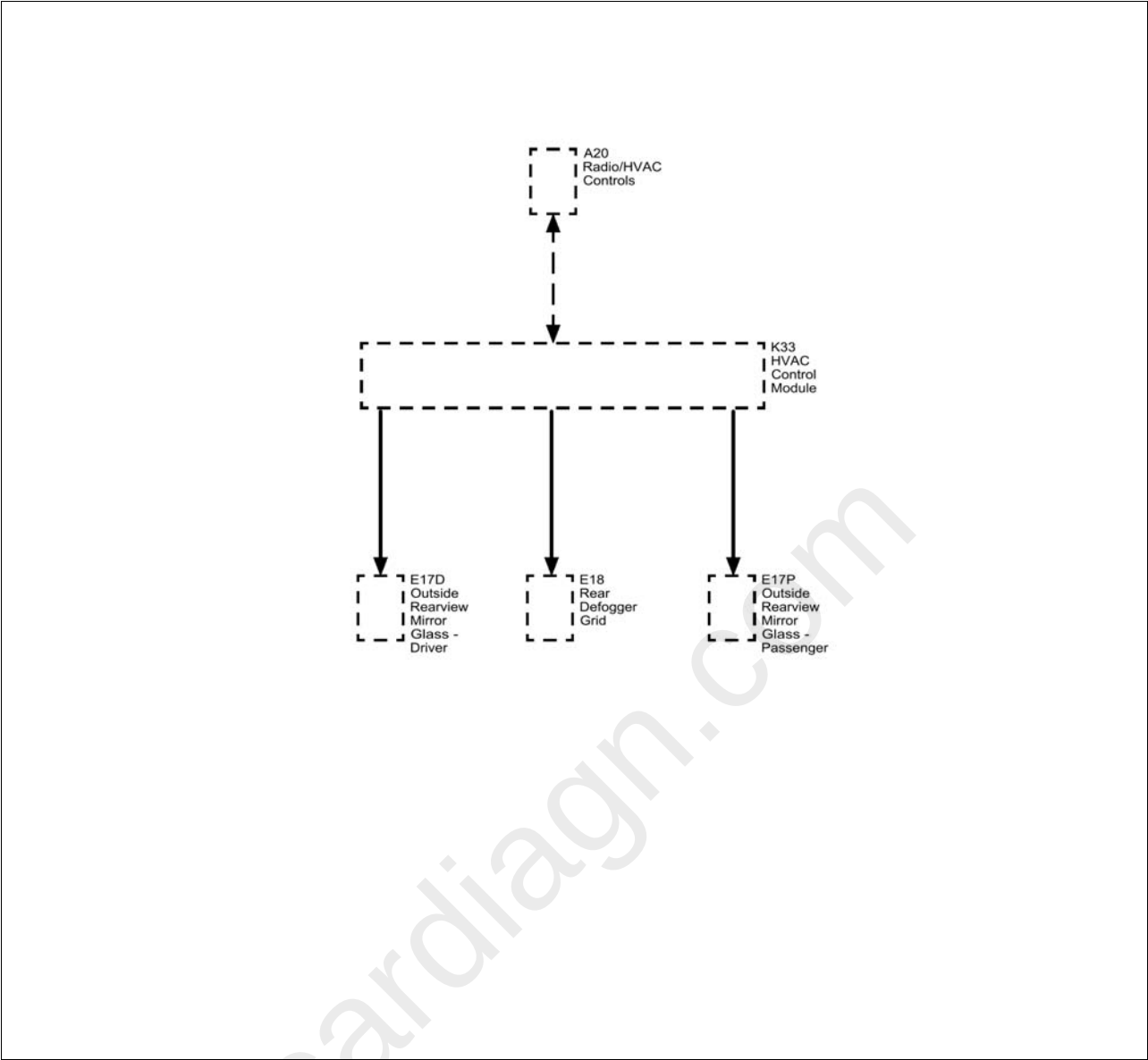
DESCRIPTION AND OPERATION > REAR WINDOW DEFOGGER DESCRIPTION AND OPERATION > REAR WINDOW DEFOGGER SYSTEM COMPONENTS

The rear window defogger system consists of the following components:

- HVAC Control Module
- Radio/HVAC Controls
- Rear Defogger Relay
- Rear Defogger Grid
- Driver Outside Rearview Mirror
- Passenger Outside Rearview Mirror
- 40A Fuse

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Fig 1: Defogger Block System Diagram



Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
E17D	E17D Outside Rearview Mirror Glass - Driver
E18	E18 Rear Defogger Grid
E17P	E17P Outside Rearview Mirror Glass - Passenger
A20	A20 Radio/HVAC Controls
K33	K33 HVAC Control Module

DESCRIPTION AND OPERATION > REAR WINDOW DEFOGGER DESCRIPTION AND OPERATION > 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 radio/HVAC controls. Also included in the radio/HVAC controls 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 causes the radio/HVAC controls 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 defogger relay, this will energize the relay causing the relay switch contacts to close allowing B+ voltage to flow through the rear defogger grid control circuit to the rear defogger grid.

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

DESCRIPTION AND OPERATION > REAR WINDOW DEFOGGER DESCRIPTION AND OPERATION > HEATED MIRRORS

The heated mirrors are also controlled through the rear defogger relay. Whenever the rear window defogger is turned on battery voltage is supplied to the mirror heater elements through the left and right mirror heater element control circuits.

DESCRIPTION AND OPERATION > 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. All stationary windows must use a urethane adhesive systems which meet GM Specification GM 3651G

DESCRIPTION AND OPERATION > STATIONARY WINDOW DESCRIPTION - BRAZIL

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.

DESCRIPTION AND OPERATION > URETHANE ADHESIVE DESCRIPTION

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

In the United States or Canada, you may 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.

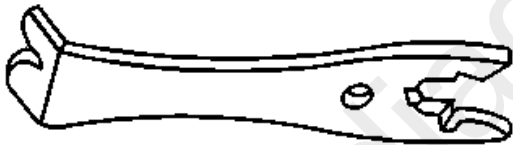
DESCRIPTION AND OPERATION > URETHANE ADHESIVE DESCRIPTION - BRAZIL

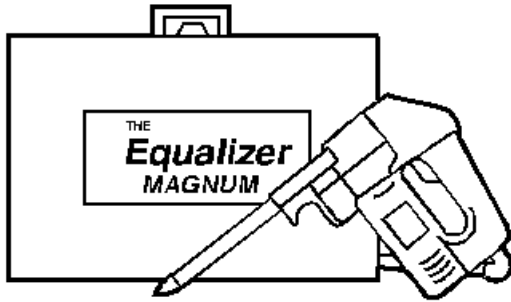
For replacement of any adhesive-installed window, the full cut method must be used.

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

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

SPECIAL TOOLS AND EQUIPMENT > SPECIAL TOOLS

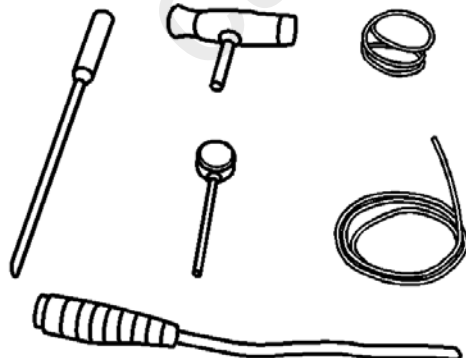
Illustration	Tool Number/ Description
	BO-38778-2 J-38778-2 Door Trim Pad Clip Remover



BO-39032
J-39032
Stationary Glass Removal Tool



BO-39040
J-39040
Quarter Window Remover



BO-0201964
S-0201964
Bonded-Glass Removing Device
Brazil-Use local equivalent