

2018 ACCESSORIES & EQUIPMENT

Fixed And Moveable Windows - Traverse

SPECIFICATIONS

FASTENER SPECIFICATIONS

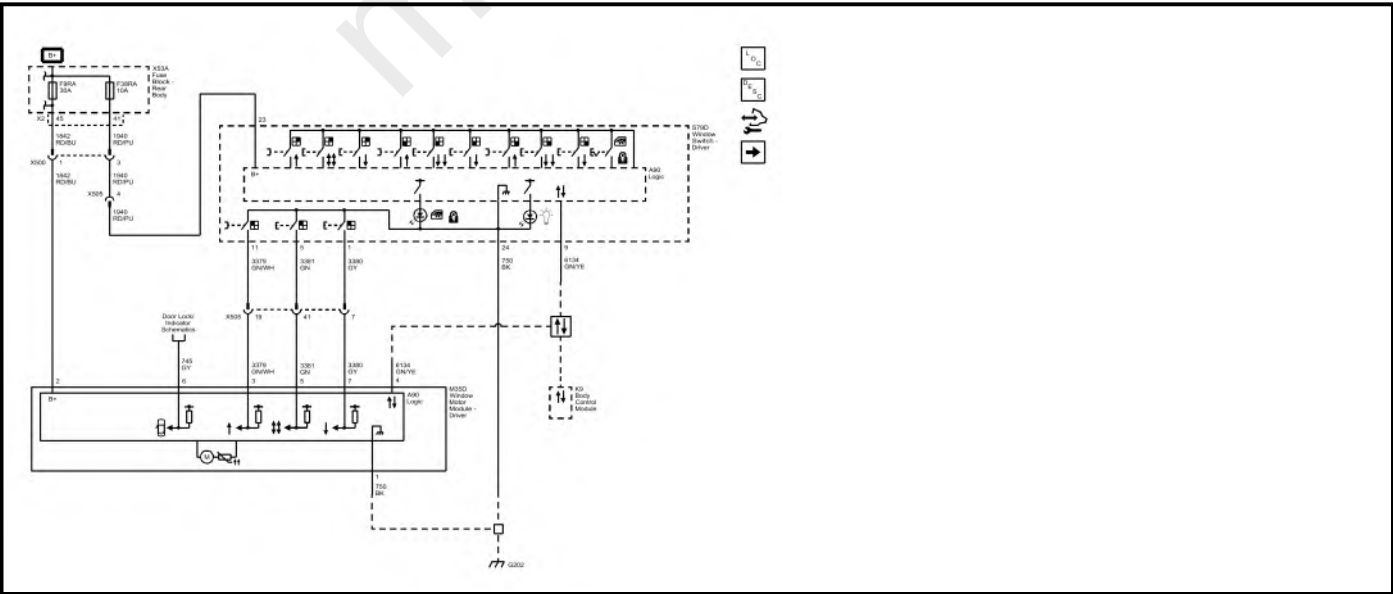
Reusable Threaded Fastener Tightening Specifications

NOTE: <i>All fasteners listed in this table can be reused after removal.</i>	
Application	Specification
	Metric (English)
Front Side Door Window Channel Retainer Bolt	9 N.m (80 lb in)
Front Side Door Window Frame Inner Upper Screw	2.5 N.m (22 lb in)
Front Side Door Window Frame Rear Applique Outer Screw	2.5 N.m (22 lb in)
Front Side Door Window Regulator Motor Screw	10 N.m (89 lb in)
Front Side Door Window Regulator Nut	10 N.m (89 lb in)
Front Side Door Window Upper Reveal Molding Bolt	2.5 N.m (22 lb in)
Rear Side Door Window Channel Bolt	9 N.m (80 lb in)
Rear Side Door Window Frame Applique Screw	2.5 N.m (22 lb in)
Rear Side Door Window Regulator Bolt	11 N.m (97 lb in)
Rear Side Door Window Regulator Motor Screw	10 N.m (89 lb in)
Rear Side Door Window Regulator Nut	10 N.m (89 lb in)
Rear Side Door Window Weatherstrip Fastener	11 N.m (97 lb in)

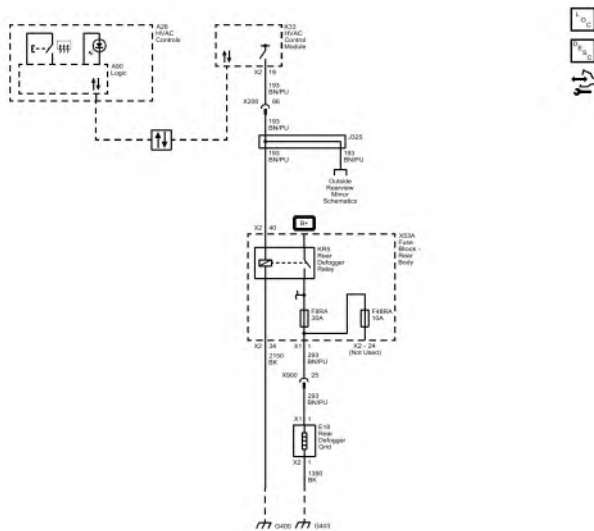
SCHEMATIC WIRING DIAGRAMS

MOVEABLE WINDOW WIRING SCHEMATICS

Driver Door (Without DR9)



Defogger



DIAGNOSTIC INFORMATION AND PROCEDURES

DTC B0283

Diagnostic Instructions

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

DTC Descriptor

DTC B0283

Rear Defogger Circuit

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

Diagnostic Fault Information

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

Circuit/System Description

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

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

Component	Description
X53A Fuse Block - Rear Body	The fuse block houses various fuses and relays.
E18 Rear Defogger Grid	Window defoggers are parallel resistive conductors in or on the glass that heat up when electric power is applied.

Component	Description
K33 HVAC Control Module	The control module controls a series of actuators to ensure optimal heating, ventilation and air conditioning of the passenger compartment. The control module does this by reading values from a variety of sensors and interprets the data and adjusts the actuators accordingly.
P17 Info Display Module	This device is the user interface to control the HVAC system. Some buttons and indicators are hardwired, some functions use serial data communication.

Conditions for Running the DTC

Ignition - On/Vehicle - In Service Mode

Conditions for Setting the DTC

- B0283 02 Control Circuit = Short to Ground
- B0283 05 Control Circuit = Open or Short to Battery

Actions Taken When the DTC Sets

- B0283 02 E18 Rear Defogger Grid = Disabled
- B0283 05 E18 Rear Defogger Grid = Disabled or Always On

Conditions for Clearing the DTC

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

Reference Information

Schematic Reference

Defogger Wiring Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Component View Reference

Luggage Compartment/Rear of Vehicle Component Views

Electrical Information Reference

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

Scan Tool Reference

Control Module References

Circuit/System Verification

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

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

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

- **Go to next step: If the component turns On and Off**

3. All OK.

Circuit/System Testing

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

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the electrical connector: X2 @ X53A Fuse Block - Rear Body
3. Test for less than 10 ohms between the test points: Ground circuit terminal 34 X2 & Ground
 - **If 10 ohms or greater**
 1. Ground Connection - Disconnect
 2. Test for less than 2 ohms between the test points: Ground circuit terminal 34 X2 & Ground Connection
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Repair the open/high resistance in the ground connection.
 - **Go to next step: If less than 10 ohms**
4. Connect the electrical connector: X2 @ X53A Fuse Block - Rear Body
5. Disconnect the electrical connector: X2 @ K33 HVAC Control Module
6. Ignition - On/Vehicle - In Service Mode
7. Momentarily connect a 3 A fused jumper wire between the test points: Control circuit terminal 19 X2 & B+

Verify the component turns On and Off when connecting and disconnecting the jumper wire: E18 Rear Defogger Grid

- **If the component does not turn On and Off**
 1. Ignition/Vehicle - Off & Remove - Jumper wire(s)
 2. Disconnect the electrical connector: X2 @ X53A Fuse Block - Rear Body
 3. Ignition - On/Vehicle - In Service Mode
 4. Test for less than 1 V between the test points: Control circuit terminal 19 X2 @ Control module harness & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - Go to next step: If less than 1 V
 5. Ignition/Vehicle - Off
 6. Test for infinite resistance between the test points: Control circuit terminal 19 X2 @ Control module harness & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - Go to next step: If infinite resistance
 7. Test for less than 2 ohms between the test points: Control circuit terminal 19 X2 @ Control module harness & Terminal 40 X2 @ Fuse Block Harness
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Test or replace the component: X53A Fuse Block - Rear Body
 - **Go to next step: If the component turns On and Off**
8. Replace the component: K33 HVAC Control Module

Repair Instructions

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

For control module replacement, programming, and setup refer to: [Control Module References](#)

DTC B316B, B317A, B318A, OR B319A (WITHOUT EXPRESS UP/DOWN WINDOWS)

Diagnostic Instructions

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

DTC Descriptor

DTC B316B

Driver Window Switch

DTC B317A

Passenger Window Switch

DTC B318A

Left Rear Window Switch

DTC B319A

Right Rear Window Switch

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

Circuit/System Description

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

Circuit	Description
B+ - S79 Window Switch	Supplied from a fuse.
Control - Up @ M74 Window Motor	The output circuit is switched from ground to 12 V to activate the component.
Control - Down @ M74 Window Motor	The output circuit is switched from ground to 12 V to activate the component.
Ground	Chassis Ground

Component	Description
S79D Window Switch - Driver	The S79D sends a serial data message to the K9 indicating the M74 function that has been requested.
M74 Window Motor	An electric DC motor.
S79P Window Switch - Passenger	The switch has a normally open contact.
S79LR Window Switch - Left Rear	The switch has a normally open contact.
S79RR Window Switch - Right Rear	The switch has a normally open contact.
K9 Body Control Module	The module controls various vehicle functions like lighting, central door locking, power windows, etc.

Conditions for Running the DTC

Ignition/Vehicle = On

Conditions for Setting the DTC

B316B 00

- Control module K9 detects: Right Front Window Switch @ M74D Window Motor - Driver = Switch Stuck - For greater than 60 s
- Control module K9 detects: Left Rear Window Switch @ M74D Window Motor - Driver = Switch Stuck - For greater than 60 s
- Control module K9 detects: Right Rear Window Switch @ M74D Window Motor - Driver = Switch Stuck - For greater than 60 s

B316B 02

Control module K9 detects: Driver Left Front Window Switch = Switch Stuck - For greater than 60 s

B316B 39

Control module K9 detects: S79D Window Switch - Driver = Signal Erratic

B317A 02

Control module K9 detects: S79P Window Switch - Passenger = Switch Stuck - For greater than 60 s

B318A 02

Control module K9 detects: S79LR Window Switch - Left Rear = Switch Stuck - For greater than 60 s

B319A 02

Control module K9 detects: S79RR Window Switch - Right Rear = Switch Stuck - For greater than 60 s

Actions Taken When the DTC Sets

Window Switch - Malfunction

Conditions for Clearing the DTC

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

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

B316B 39

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

Reference Information

Schematic Reference

Moveable Window Wiring Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Component View Reference

Door Component Views

Electrical Information Reference

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

Scan Tool Reference

Control Module References

Circuit/System Verification

1. Ignition - On/Vehicle - In Service Mode
2. S79D Window Switch - Driver - No Button Pressed

Verify the scan tool parameter:

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

Test or replace the component: S79D Window Switch - Driver

- **Go to next step: If the specified state**

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

Verify the scan tool parameter:

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

Test or replace the component: S79D Window Switch - Driver

- **Go to next step: If the specified state**

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

Verify the scan tool parameter:

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

Test or replace the component: S79D Window Switch - Driver

- **Go to next step: If the specified state**

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

Verify the scan tool parameter:

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

Test or replace the component: S79D Window Switch - Driver

- **Go to next step: If the specified state**

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

Verify the scan tool parameter:

- Front Passenger Window Main Control Down Switch = Active

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

Test or replace the component: S79D Window Switch - Driver

- **Go to next step: If the specified state**

7. S79LR Window Switch - Left Rear - Not Pressed

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

- **If not the specified state**

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

- **Go to next step: If the specified state**

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

Verify the scan tool parameter:

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

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

- **Go to next step: If the specified state**

9. S79P Window Switch - Passenger - Not Pressed

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

- **If not the specified state**

Test or replace the component: S79P Window Switch - Passenger

- **Go to next step: If the specified state**

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

Verify the scan tool parameter:

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

Test or replace the component: S79P Window Switch - Passenger

- **Go to next step: If the specified state**

11. S79RR Window Switch - Right Rear - Not Pressed

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

- **If not the specified state**

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

- **Go to next step: If the specified state**

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

Verify the scan tool parameter:

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

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

- **Go to next step: If the specified state**

13. All OK.

Repair Instructions

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

- [Front Side Door Window Control Switch Replacement](#)
- [Front Side Door Window Switch Replacement - Right Side](#)
- [Rear Side Door Window Switch Replacement](#)

DTC B316B, B317A, B318A, OR B319A (WITH DRIVER EXPRESS UP/DOWN WINDOW)

Diagnostic Instructions

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

DTC Descriptor

DTC B316B

Driver Window Switch

DTC B317A

Passenger Window Switch

DTC B318A

Left Rear Window Switch

DTC B319A

Right Rear Window Switch

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

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal - Down @ M35D Window Motor Module - Driver	B316B 02	1	1	B316B 39
Signal - Up @ M35D Window Motor Module - Driver	B316B 02	2	2	B316B 39
Signal - Express @ M35D Window Motor Module - Driver	3	3	3	3
1. Driver Left Front Window Switch - Down = Inoperative 2. Driver Left Front Window Switch - Up = Inoperative 3. Driver Left Front Window Switch - Express = Inoperative				

Circuit/System Description

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

Circuit	Description
B+ - S79D Window Switch - Driver	Supplied from a fuse.
B+ - M35D Window Motor Module - Driver	Supplied from a fuse.
B+ - S79P Window Switch - Passenger	Supplied from a fuse.
B+ - S79LR Window Switch - Left Rear	Supplied from a fuse.
B+ - S79RR Window Switch - Right Rear	Supplied from a fuse.
Signal - Down @ M35D Window Motor Module - Driver	The output circuit is switched to ground to activate the component.
Signal - Up @ M35D Window Motor Module - Driver	The output circuit is switched to ground to activate the component.
Signal - Express @ M35D Window Motor Module - Driver	The output circuit is switched to ground to activate the component.
Control - Up @ M74P Window Motor - Passenger	The output circuit is switched from ground to 12 V to activate the component.
Control - Down @ M74P Window Motor - Passenger	The output circuit is switched from ground to 12 V to activate the component.
Control - Up @ M74LR Window Motor - Left Rear	The output circuit is switched from ground to 12 V to activate the component.
Control - Down @ M74LR Window Motor - Left Rear	The output circuit is switched from ground to 12 V to activate the component.
Control - Up @ M74RR Window Motor - Right Rear	The output circuit is switched from ground to 12 V to activate the component.
Control - Down @ M74RR Window Motor - Right Rear	The output circuit is switched from ground to 12 V to activate the component.
Ground	Chassis Ground

Component	Description
S79D Window Switch - Driver	The S79D sends a serial data message to the K9 indicating the M74 function that has been requested.
M35D Window Motor Module - Driver	• Power Window Control • The control module also reads various switches and sensors and makes their values available via serial data.
S79P Window Switch - Passenger	The switch has a normally open contact.
M74P Window Motor - Passenger	An electric DC motor.
S79LR Window Switch - Left Rear	The switch has a normally open contact.
M74LR Window Motor - Left Rear	An electric DC motor.
S79RR Window Switch - Right Rear	The switch has a normally open contact.
M74RR Window Motor - Right Rear	An electric DC motor.
K9 Body Control Module	The module controls various vehicle functions like lighting, central door locking, power windows, etc.

Conditions for Running the DTC

Ignition/Vehicle = On

Conditions for Setting the DTC

B316B 00

- Control module K9 detects: Right Front Window Switch @ M35D Window Motor Module - Driver = Switch Stuck - For greater than 60 s
- Control module K9 detects: Left Rear Window Switch @ M35D Window Motor Module - Driver = Switch Stuck - For greater than 60 s

- Control module K9 detects: Right Rear Window Switch @ M35D Window Motor Module - Driver = Switch Stuck - For greater than 60 s

B316B 02

- Control module K9 detects: Signal - Down @ M35D Window Motor Module - Driver = Short to Ground - For greater than 60 s
- Control module K9 detects: Signal - Up @ M35D Window Motor Module - Driver = Short to Ground - For greater than 60 s

B316B 39

Control module K9 detects: S79D Window Switch - Driver = Signal Erratic

B317A 02

Control module K9 detects: S79P Window Switch - Passenger = Switch Stuck - For greater than 60 s

B318A 02

Control module K9 detects: S79LR Window Switch - Left Rear = Switch Stuck - For greater than 60 s

B319A 02

Control module K9 detects: S79RR Window Switch - Right Rear = Switch Stuck - For greater than 60 s

Actions Taken When the DTC Sets

Window Switch - Malfunction

Conditions for Clearing the DTC

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

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

B316B 39

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

Reference Information

Schematic Reference

Moveable Window Wiring Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Component View Reference

Door Component Views

Electrical Information Reference

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

Scan Tool Reference

Control Module References

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

Verify the scan tool parameter:

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

Refer to: Circuit/System Testing

- **Go to next step: If the specified state**

3. S79D Window Switch - Driver - No Button Pressed

Verify the scan tool parameter:

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

Test or replace the component: S79D Window Switch - Driver

- **Go to next step: If the specified state**

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

Verify the scan tool parameter:

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

Refer to: Circuit/System Testing

- **Go to next step: If the specified state**

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

Verify the scan tool parameter:

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

Test or replace the component: S79D Window Switch - Driver

- **Go to next step: If the specified state**

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

Verify the scan tool parameter:

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

Test or replace the component: S79D Window Switch - Driver

- **Go to next step: If the specified state**

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

Verify the scan tool parameter:

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

Test or replace the component: S79D Window Switch - Driver

- **Go to next step: If the specified state**

8. S79P Window Switch - Passenger - Not Pressed

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

- **If not the specified state**

Test or replace the component: S79P Window Switch - Passenger

- **Go to next step: If the specified state**

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

Verify the scan tool parameter:

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

Test or replace the component: S79P Window Switch - Passenger

- **Go to next step: If the specified state**

10. S79LR Window Switch - Left Rear - Not Pressed

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

- **If not the specified state**

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

- **Go to next step: If the specified state**

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

Verify the scan tool parameter:

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

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

- **Go to next step: If the specified state**

12. S79RR Window Switch - Right Rear - Not Pressed

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

- **If not the specified state**

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

- **Go to next step: If the specified state**

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

Verify the scan tool parameter:

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

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

- **Go to next step: If the specified state**

14. All OK.

Circuit/System Testing

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

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the electrical connector: S79D Window Switch - Driver
3. Test for less than 10 ohms between the test points: Ground circuit terminal 24 & Ground
 - **If 10 ohms or greater**
 1. Ground Connection - Disconnect
 2. Test for less than 2 ohms between the test points: Ground circuit terminal 24 @ Component harness & Ground Connection
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Repair the open/high resistance in the ground connection.
 - **Go to next step: If less than 10 ohms**
4. Ignition - On/Vehicle - In Service Mode
5. Verify a test lamp turns On between the test points: B+ circuit terminal 23 & Ground
 - **If the test lamp does not turn On and the circuit fuse is OK**
 1. Ignition/Vehicle - Off & Remove - Test lamp
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Verify the fuse is OK and there is voltage at the fuse.
 - **If the test lamp does not turn On and the circuit fuse is open**
 1. Ignition/Vehicle - Off & Remove - Test lamp
 2. Test for infinite resistance between the test points: B+ circuit terminal 23 & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance - Replace the component: S79D Window Switch - Driver
 - **Go to next step: If the test lamp turns On**
6. Verify the scan tool parameter: Driver Window Main Control Down Switch = Inactive
 - **If not the specified state**
 1. Ignition/Vehicle - Off

2. Disconnect the electrical connector: M35D Window Motor Module - Driver

3. Test for infinite resistance between the test points: Signal circuit terminal 1 @ Component harness & Ground

- If less than infinite resistance - Repair the short to ground on the circuit.
- If infinite resistance - Replace the component: M35D Window Motor Module - Driver

• **Go to next step: If the specified state**

7. Momentarily connect a 3 A fused jumper wire between the test points: Signal circuit terminal 1 & Ground circuit terminal 24

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

• **If not the specified state**

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

2. Disconnect the electrical connector: M35D Window Motor Module - Driver

3. Ignition - On/Vehicle - In Service Mode

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

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

5. Ignition/Vehicle - Off

6. Test for less than 2 ohms between the test points: Signal circuit terminal 1 @ Component harness & Signal circuit terminal 7 @ M35D Window Motor Module - Driver

- If 2 ohms or greater - Repair the open/high resistance in the circuit.
- If less than 2 ohms - Replace the component: M35D Window Motor Module - Driver

• **Go to next step: If the specified state**

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

• **If not the specified state**

1. Ignition/Vehicle - Off

2. Disconnect the electrical connector: M35D Window Motor Module - Driver

3. Test for infinite resistance between the test points: Signal circuit terminal 11 @ Component harness & Ground

- If less than infinite resistance - Repair the short to ground on the circuit.
- If infinite resistance - Replace the component: M35D Window Motor Module - Driver

• **Go to next step: If the specified state**

9. Momentarily connect a 3 A fused jumper wire between the test points: Signal circuit terminal 11 & Ground circuit terminal 24

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

• **If not the specified state**

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

2. Disconnect the electrical connector: M35D Window Motor Module - Driver

3. Ignition - On/Vehicle - In Service Mode

4. Test for less than 1 V between the test points: Signal circuit terminal 11 @ Component harness & Ground

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

5. Ignition/Vehicle - Off

6. Test for less than 2 ohms between the test points: Signal circuit terminal 11 @ Component harness & Signal circuit terminal 3 @ M35D Window Motor Module - Driver

- If 2 ohms or greater - Repair the open/high resistance in the circuit.
- If less than 2 ohms - Replace the component: M35D Window Motor Module - Driver

• **Go to next step: If the specified state**

10. Test for greater than 10 V between the test points: Signal circuit terminal 5 @ Component harness & Ground

- If 10 V or less
1. Ignition/Vehicle - Off
 2. Disconnect the electrical connector: M35D Window Motor Module - Driver
 3. Test for infinite resistance between the test points: Signal circuit terminal 5 @ Component harness & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - Go to next step: If less than infinite resistance
 4. Test for less than 2 ohms between the test points: Signal circuit terminal 5 @ Component harness & Signal circuit terminal 5 @ M35D Window Motor Module - Driver
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Replace the component: M35D Window Motor Module - Driver
 - **Go to next step: If greater than 10 V**
11. Test or replace the component: S79D Window Switch - Driver

Repair Instructions

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

- [Front Side Door Window Control Switch Replacement](#)
- [Front Side Door Window Switch Replacement - Right Side](#)
- [Rear Side Door Window Switch Replacement](#)
- [Front Side Door Window Regulator Motor Replacement](#)
- [Rear Side Door Window Regulator Motor Replacement](#)

DTC B3205

Diagnostic Instructions

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

DTC Descriptor

DTC B3205

Driver Window Motor

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

Circuit/System Description

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

Circuit	Description
B+ - M35D Window Motor Module - Driver	Supplied from a fuse.
Ground	Chassis Ground

Component	Description
M35D Window Motor Module - Driver	• Power Window Control • The control module and the DC motor are one assembly.

Conditions for Running the DTC

Ignition - On/Vehicle - In Service Mode

Conditions for Setting the DTC

B3205 00

M35D Window Motor Module - Driver = Incompatible Hardware or Equipment

B3205 39

M35D Window Motor Module - Driver = Internal Malfunction

B3205 42

Calibration Update = Failed

B3205 4B

- Battery - Disconnected/Replaced
- Front Side Door Wiring Harness - Disconnected
- M35D Window Motor Module - Driver - Disconnected

Actions Taken When the DTC Sets

B3205 00, B3205 39, B3205 42

M35D Window Motor Module - Driver = Inoperative

B3205 4B

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

Conditions for Clearing the DTC

B3205 00

M35D Window Motor Module - Driver - Replaced - A current DTC can be cleared after the procedure is performed.

B3205 39, B3205 42

M35D Window Motor Module - Driver - Replaced - A current DTC can be cleared after the procedure is performed.

B3205 4B

M35D Window Motor Module - Driver - Normalized - A current DTC can be cleared after the procedure is performed.

Reference Information

Schematic Reference

Moveable Window Wiring Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Component View Reference

Door Component Views

Electrical Information Reference

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

Control Module References

Circuit/System Verification

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

Verify the component works as specified: M35D Window Motor Module - Driver = Up & Down

- **If not the specified state**

Test or replace the component: M35D Window Motor Module - Driver

- **Go to next step: If the specified state**

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

Verify the component works as specified: M35D Window Motor Module - Driver = Express Up

- **If not the specified state**

Use the following procedure: [Window Motor Programming - Express Function](#)

- **Go to next step: If the specified state**

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

Verify the component works as specified: M35D Window Motor Module - Driver = Express Up

- **If not the specified state**

Test or replace the component: M35D Window Motor Module - Driver

- **Go to next step: If the specified state**

9. All OK.

Repair Instructions

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

Front Side Door Window Regulator Motor Replacement

SYMPTOMS - FIXED AND MOVEABLE WINDOWS

Important Preliminary Checks Before Starting:

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

Visual/Physical Inspection

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

Intermittent

NOTE:

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

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

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

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

Symptom List

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

- [Rear Window Defogger Malfunction](#)
- [Power Windows Malfunction \(Without Express Up/Down Windows\)Power Windows Malfunction \(With Driver Express Up/Down Window\)](#)

REAR WINDOW DEFOGGER MALFUNCTION

Diagnostic Instructions

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

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
B+ - Relay Switch	1	1	-	-
Control - Relay Coil	B0283 02	B0283 05	B0283 05	-
Control - E18 Rear Defogger Grid	1	1	2	-
Ground - Relay Coil	-	B0283 05	-	-
Ground - E18 Rear Defogger Grid	-	1	-	-

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
1. E18 Rear Defogger Grid - Inoperative 2. E18 Rear Defogger Grid - Always On				

Circuit/System Description

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

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

Component	Description
X53A Fuse Block - Rear Body	The fuse block houses various fuses and relays.
E18 Rear Defogger Grid	Window defoggers are parallel resistive conductors in or on the glass that heat up when electric power is applied.
K33 HVAC Control Module	The control module controls a series of actuators to ensure optimal heating, ventilation and air conditioning of the passenger compartment. The control module does this by reading values from a variety of sensors and interprets the data and adjusts the actuators accordingly.
A26 HVAC Controls	The position of the defogger switch is read by the control module A26 and, via CAN bus, forwarded to the control module K33, which translates the bus message into a control signal for E18.

Reference Information

Schematic Reference

[Defogger Wiring Schematics](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX](#)

Component View Reference

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

Electrical Information Reference

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

Scan Tool Reference

[Control Module References](#)

Circuit/System Verification

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

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

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

Refer to: Circuit/System Testing

- **Go to next step: If the component turns On and Off**

3. Perform the scan tool control function: Illuminate All Indicators - On and Off

Verify the component turns On and Off: Rear Defogger Indicator

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

Replace the component: A26 HVAC Controls

- **Go to next step: If the component turns On and Off**

4. All OK.

Circuit/System Testing

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

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the electrical connector: X1 & X2 @ E18 Rear Defogger Grid
3. Test for less than 10 ohms between the test points: Ground circuit terminal 1 X2 & Ground
 - **If 10 ohms or greater**
 1. Ground Connection - Disconnect
 2. Test for less than 2 ohms between the test points: Ground circuit terminal 1 X2 @ Component harness & Ground Connection
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Repair the open/high resistance in the ground connection.
 - **Go to next step: If less than 10 ohms**
4. Verify the fuse is not open: F8RA Fuse
 - **If the fuse is open**
 1. Replace the component: F8RA Fuse
 2. Verify the fuse does not open.
 - If the fuse opens - Test or replace the component: X53A Fuse Block - Rear Body
 - If the fuse does not open, go to the next step.
 - **Go to next step: If the fuse is not open**
5. Connect a test lamp between the test points: Control circuit terminal 1 X1 & Ground circuit terminal 1 X2
6. Ignition - On/Vehicle - In Service Mode
7. Operate the component: Rear Defogger Switch - Pressed

Verify the test lamp does not turn On and Off.

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

Test or replace the component: E18 Rear Defogger Grid

- **Go to next step: If the test lamp does not turn On and Off**

8. Ignition/Vehicle - Off
9. Connect the electrical connector: X1 & X2 @ E18 Rear Defogger Grid
10. Disconnect the electrical connector: X1 @ X53A Fuse Block - Rear Body
11. Ignition - On/Vehicle - In Service Mode

12. Momentarily connect a 30 A fused jumper wire between the test points: Control circuit terminal 1 X1 & B+

Verify the component turns On and Off when connecting and disconnecting the jumper wire: E18 Rear Defogger Grid

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

1. Ignition/Vehicle - Off & Remove - Jumper wire(s)
2. Disconnect the electrical connector: X1 @ E18 Rear Defogger Grid
3. Ignition - On/Vehicle - In Service Mode
4. Test for less than 1 V between the test points: Control circuit terminal 1 X1 @ Component harness & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - Go to next step: If less than 1 V
5. Ignition/Vehicle - Off
6. Test for infinite resistance between the test points: Control circuit terminal 1 X1 @ Component harness & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - Go to next step: If infinite resistance
7. Test for less than 2 ohms between the test points: Control circuit terminal 1 X1 @ Component harness & Control circuit terminal 1 X1 @ Fuse Block Harness
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Test or replace the component: E18 Rear Defogger Grid

- **Go to next step: If the component turns On and Off**

13. Ignition/Vehicle & All vehicle systems - Off

14. Verify the fuse is not open: F8RA Fuse

- **If the fuse is open**

Test or replace the component: X53A Fuse Block - Rear Body

- **Go to next step: If the fuse is not open**

15. Test for less than 10 ohms between the test points: Ground circuit terminal 34 X2 & Ground

- **If 10 ohms or greater**

1. Ground Connection - Disconnect
2. Test for less than 2 ohms between the test points: Ground circuit terminal 34 X2 & Ground Connection
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Repair the open/high resistance in the ground connection.

- **Go to next step: If less than 10 ohms**

16. Connect the electrical connector: X53A Fuse Block - Rear Body

17. Disconnect the electrical connector: X2 @ K33 HVAC Control Module

18. Ignition - On/Vehicle - In Service Mode

19. Momentarily connect a 3 A fused jumper wire between the test points: Control circuit terminal 19 X2 & B+

Verify the component turns On and Off when connecting and disconnecting the jumper wire: E18 Rear Defogger Grid

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

1. Ignition/Vehicle - Off & Remove - Jumper wire(s)
2. Disconnect the electrical connector: X2 @ X53A Fuse Block - Rear Body
3. Ignition - On/Vehicle - In Service Mode
4. Test for less than 1 V between the test points: Control circuit terminal 19 X2 @ Control module harness & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - Go to next step: If less than 1 V
5. Ignition/Vehicle - Off

6. Test for infinite resistance between the test points: Control circuit terminal 19 X2 @ Control module harness & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - Go to next step: If infinite resistance
7. Test for less than 2 ohms between the test points: Control circuit terminal 19 X2 @ Control module harness & Terminal 40 X2 @ Fuse Block Harness
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Test or replace the component: X53A Fuse Block - Rear Body
- **Go to next step: If the component turns On and Off**
20. Replace the component: K33 HVAC Control Module

Repair Instructions

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

- [Rear Window Replacement](#)
- For control module replacement, programming, and setup refer to: [Control Module References](#)

POWER WINDOWS MALFUNCTION (WITHOUT EXPRESS UP/DOWN WINDOWS)

Diagnostic Instructions

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

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
B+ - S79D Window Switch - Driver	U1538 00, U153A 00	U1538 00	-	-
B+ - S79P Window Switch - Passenger	U1538 00, U153A 00	U153A 00	-	-
B+ - S79LR Window Switch - Left Rear	U1534 00, U154A 00	U1534 00	-	-
B+ - S79RR Window Switch - Right Rear	U1534 00, U154A 00	U153A 00	-	-
Serial Data - S79D Window Switch - Driver	U1534 00, U1538 00, U153A 00	U1538 00	U1538 00	-
Serial Data - S79P Window Switch - Passenger	U1534 00, U1538 00, U153A 00	U153A 00	U153A 00	-
Serial Data - S79LR Window Switch - Left Rear	U1534 00, U154A 00	U1534 00	U1534 00	-
Serial Data - S79RR Window Switch - Right Rear	U1534 00, U154A 00	U154A 00	U154A 00	-
Control - M74D Window Motor - Driver	1	1	1	-
Control - M74P Window Motor - Passenger	2	2	2	-
Control - M74LR Window Motor - Left Rear	3	3	3	-
Control - M74RR Window Motor - Right Rear	4	4	4	-
Ground - S79D Window Switch - Driver	-	U1538 00	-	-

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Ground - S79P Window Switch - Passenger	-	U153A 00	-	-
Ground - S79LR Window Switch - Left Rear	-	U1534 00	-	-
Ground - S79RR Window Switch - Right Rear	-	U154A 00	-	-
1. M74D Window Motor - Driver = Inoperative 2. M74P Window Motor - Passenger = Inoperative 3. M74LR Window Motor - Left Rear = Inoperative 4. M74RR Window Motor - Right Rear = Inoperative				

Circuit/System Description

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

Circuit	Description
Control - Up @ M74 Window Motor	The output circuit is switched from ground to 12 V to activate the component.
Control - Down @ M74 Window Motor	The output circuit is switched from ground to 12 V to activate the component.

Component	Description
S79D Window Switch - Driver	The S79D sends a serial data message to the K9 indicating the M74 function that has been requested.
M74 Window Motor	An electric DC motor.
S79P Window Switch - Passenger	The switch has a normally open contact.
S79LR Window Switch - Left Rear	The switch has a normally open contact.
S79RR Window Switch - Right Rear	The switch has a normally open contact.
K9 Body Control Module	The module controls various vehicle functions like lighting, central door locking, power windows, etc.

Reference Information

Schematic Reference

[Moveable Window Wiring Schematics](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX](#)

Component View Reference

[Door Component Views](#)

Electrical Information Reference

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

Scan Tool Reference

[Control Module References](#)

Circuit/System Verification

1. Ignition - On/Vehicle - In Service Mode

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

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

- **If the component does not work as specified**

Refer to: Circuit/System Testing - Test 1

- **Go to next step: If the component works as specified**

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

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

- **If the component does not work as specified**

Refer to: Circuit/System Testing - Test 2

- **Go to next step: If the component works as specified**

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

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

- **If the component does not work as specified**

Refer to: Circuit/System Testing - Test 3

- **Go to next step: If the component works as specified**

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

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

- **If the component does not work as specified**

Refer to: Circuit/System Testing - Test 4

- **Go to next step: If the component works as specified**

6. Verify the scan tool parameter:

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

Test or replace the component: S79D Window Switch - Driver

- **Go to next step: If the specified state**

7. Operate the component: S79D Window Switch - Driver - Left Rear Window Switch

Verify the scan tool parameter:

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

Test or replace the component: S79D Window Switch - Driver

- **Go to next step: If the specified state**

8. Operate the component: S79D Window Switch - Driver - Right Rear Window Switch

Verify the scan tool parameter:

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

Test or replace the component: S79D Window Switch - Driver

- **Go to next step: If the specified state**

9. Operate the component: S79D Window Switch - Driver - Right Front Window Switch

Verify the scan tool parameter:

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

Test or replace the component: S79D Window Switch - Driver

- **Go to next step: If the specified state**

10. All OK.

Circuit/System Testing

Test 1

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

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the electrical connector: S79D Window Switch - Driver
3. Test for less than 10 ohms between the test points: Ground circuit terminal 24 & Ground
 - **If 10 ohms or greater**
 1. Ground Connection - Disconnect
 2. Test for less than 2 ohms between the test points: Ground circuit terminal 24 @ Component harness & Ground Connection
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Repair the open/high resistance in the ground connection.
 - **Go to next step: If less than 10 ohms**
4. Ignition - On/Vehicle - In Service Mode
5. Verify a test lamp turns On between the test points: B+ circuit terminal 23 & Ground
 - **If the test lamp does not turn On and the circuit fuse is OK**
 1. Ignition/Vehicle - Off & Remove - Test lamp
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Verify the fuse is OK and there is voltage at the fuse.
 - **If the test lamp does not turn On and the circuit fuse is open**
 1. Ignition/Vehicle - Off & Remove - Test lamp
 2. Test for infinite resistance between the test points: B+ circuit terminal 23 & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance - Replace the component: S79D Window Switch - Driver

- **Go to next step: If the test lamp turns On**

6. Ignition/Vehicle - Off
7. Connect the electrical connector: S79D Window Switch - Driver
8. Disconnect the electrical connector: M74D Window Motor - Driver
9. Connect a test lamp between the test points: Control circuit terminal 1 & Control circuit terminal 2
10. Ignition - On/Vehicle - In Service Mode
11. Perform the scan tool control function: Driver Window Motor

Verify the test lamp state:

Driver Window Motor - Stop = Test lamp Off

Driver Window Motor - Up = Test lamp On

Driver Window Motor - Down = Test lamp On

- **If not the specified state**

1. Ignition/Vehicle - Off & Remove - Test lamp
2. Disconnect the electrical connector: S79D Window Switch - Driver
3. Ignition - On/Vehicle - In Service Mode
4. Test for less than 1 V between the test points:
 - Control circuit terminal 1 @ Component harness & Ground
 - Control circuit terminal 2 @ Component harness & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - Go to next step: If less than 1 V
5. Ignition/Vehicle - Off
6. Test for infinite resistance between the test points:
 - Control circuit terminal 1 @ Component harness & Ground
 - Control circuit terminal 2 @ Component harness & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - Go to next step: If infinite resistance
7. Test for less than 2 ohms between the test points:
 - Control circuit terminal 1 @ Component harness & Control circuit terminal 11 @ S79D Window Switch - Driver
 - Control circuit terminal 2 @ Component harness & Control circuit terminal 1 @ S79D Window Switch - Driver
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Replace the component: S79D Window Switch - Driver

- **Go to next step: If the specified state**

12. Test or replace the component: M74D Window Motor - Driver

Test 2

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

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the electrical connector: S79P Window Switch - Passenger
3. Test for less than 10 ohms between the test points: Ground circuit terminal 24 & Ground
 - **If 10 ohms or greater**
 1. Ground Connection - Disconnect
 2. Test for less than 2 ohms between the test points: Ground circuit terminal 24 @ Component harness & Ground Connection
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.

- If less than 2 ohms - Repair the open/high resistance in the ground connection.

• **Go to next step: If less than 10 ohms**

4. Ignition - On/Vehicle - In Service Mode

5. Verify a test lamp turns On between the test points: B+ circuit terminal 23 & Ground

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

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

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

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

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

2. Test for infinite resistance between the test points: B+ circuit terminal 23 & Ground

- If less than infinite resistance - Repair the short to ground on the circuit.
- If infinite resistance - Replace the component: S79P Window Switch - Passenger

• **Go to next step: If the test lamp turns On**

6. Ignition/Vehicle - Off

7. Connect the electrical connector: S79P Window Switch - Passenger

8. Disconnect the electrical connector: M74P Window Motor - Passenger

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

10. Ignition - On/Vehicle - In Service Mode

11. Perform the scan tool control function: Passenger Window Motor

Verify the test lamp state:

Passenger Window Motor - Stop = Test lamp Off

Passenger Window Motor - Up = Test lamp On

Passenger Window Motor - Down = Test lamp On

• **If not the specified state**

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

2. Disconnect the electrical connector: S79P Window Switch - Passenger

3. Ignition - On/Vehicle - In Service Mode

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

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

5. Ignition/Vehicle - Off

6. Test for infinite resistance between the test points:

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

7. Test for less than 2 ohms between the test points:

- Control circuit terminal 1 @ Component harness & Control circuit terminal 11 @ S79P Window Switch - Passenger
- Control circuit terminal 2 @ Component harness & Control circuit terminal 1 @ S79P Window Switch - Passenger
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Replace the component: S79P Window Switch - Passenger

• **Go to next step: If the specified state**

12. Test or replace the component: M74P Window Motor - Passenger

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

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the electrical connector: S79LR Window Switch - Left Rear
3. Test for less than 10 ohms between the test points: Ground circuit terminal 7 & Ground
 - **If 10 ohms or greater**
 1. Ground Connection - Disconnect
 2. Test for less than 2 ohms between the test points: Ground circuit terminal 7 @ Component harness & Ground Connection
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Repair the open/high resistance in the ground connection.
 - **Go to next step: If less than 10 ohms**
4. Ignition - On/Vehicle - In Service Mode
5. Verify a test lamp turns On between the test points: B+ circuit terminal 8 & Ground
 - **If the test lamp does not turn On and the circuit fuse is OK**
 1. Ignition/Vehicle - Off & Remove - Test lamp
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Verify the fuse is OK and there is voltage at the fuse.
 - **If the test lamp does not turn On and the circuit fuse is open**
 1. Ignition/Vehicle - Off & Remove - Test lamp
 2. Test for infinite resistance between the test points: B+ circuit terminal 8 & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance - Replace the component: S79LR Window Switch - Left Rear
 - **Go to next step: If the test lamp turns On**
6. Ignition/Vehicle - Off
7. Connect the electrical connector: S79LR Window Switch - Left Rear
8. Disconnect the electrical connector: M74LR Window Motor - Left Rear
9. Connect a test lamp between the test points: Control circuit terminal 1 & Control circuit terminal 2
10. Ignition - On/Vehicle - In Service Mode
11. Perform the scan tool control function: Left Rear Window Motor

Verify the test lamp state:

Left Rear Window Motor - Stop = Test lamp Off

Left Rear Window Motor - Up = Test lamp On

Left Rear Window Motor - Down = Test lamp On

- **If not the specified state**
 1. Ignition/Vehicle - Off & Remove - Test lamp
 2. Disconnect the electrical connector: S79LR Window Switch - Left Rear
 3. Ignition - On/Vehicle - In Service Mode
 4. Test for less than 1 V between the test points:
 - Control circuit terminal 1 @ Component harness & Ground
 - Control circuit terminal 2 @ Component harness & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - Go to next step: If less than 1 V
 5. Ignition/Vehicle - Off
 6. Test for infinite resistance between the test points:

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

7. Test for less than 2 ohms between the test points:

- Control circuit terminal 1 @ Component harness & Control circuit terminal 9 @ S79LR Window Switch - Left Rear
- Control circuit terminal 2 @ Component harness & Control circuit terminal 10 @ S79LR Window Switch - Left Rear
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Replace the component: S79LR Window Switch - Left Rear

• **Go to next step: If the specified state**

12. Test or replace the component: M74LR Window Motor - Left Rear

Test 4

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

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the electrical connector: S79RR Window Switch - Right Rear
3. Test for less than 10 ohms between the test points: Ground circuit terminal 7 & Ground
 - **If 10 ohms or greater**
 1. Ground Connection - Disconnect
 2. Test for less than 2 ohms between the test points: Ground circuit terminal 7 @ Component harness & Ground Connection
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Repair the open/high resistance in the ground connection.
 - **Go to next step: If less than 10 ohms**
4. Ignition - On/Vehicle - In Service Mode
5. Verify a test lamp turns On between the test points: B+ circuit terminal 8 & Ground
 - **If the test lamp does not turn On and the circuit fuse is OK**
 1. Ignition/Vehicle - Off & Remove - Test lamp
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Verify the fuse is OK and there is voltage at the fuse.
 - **If the test lamp does not turn On and the circuit fuse is open**
 1. Ignition/Vehicle - Off & Remove - Test lamp
 2. Test for infinite resistance between the test points: B+ circuit terminal 8 & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance - Replace the component: S79RR Window Switch - Right Rear
 - **Go to next step: If the test lamp turns On**
6. Ignition/Vehicle - Off
7. Connect the electrical connector: S79RR Window Switch - Right Rear
8. Disconnect the electrical connector: M74RR Window Motor - Right Rear
9. Connect a test lamp between the test points: Control circuit terminal 1 & Control circuit terminal 2
10. Ignition - On/Vehicle - In Service Mode
11. Perform the scan tool control function: Right Rear Window Motor

Verify the test lamp state:

Right Rear Window Motor - Stop = Test lamp Off

Right Rear Window Motor - Up = Test lamp On

- **If not the specified state**

1. Ignition/Vehicle - Off & Remove - Test lamp
2. Disconnect the electrical connector: S79RR Window Switch - Right Rear
3. Ignition - On/Vehicle - In Service Mode
4. Test for less than 1 V between the test points:
 - Control circuit terminal 1 @ Component harness & Ground
 - Control circuit terminal 2 @ Component harness & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - Go to next step: If less than 1 V
5. Ignition/Vehicle - Off
6. Test for infinite resistance between the test points:
 - Control circuit terminal 1 @ Component harness & Ground
 - Control circuit terminal 2 @ Component harness & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - Go to next step: If infinite resistance
7. Test for less than 2 ohms between the test points:
 - Control circuit terminal 1 @ Component harness & Control circuit terminal 9 @ S79RR Window Switch - Right Rear
 - Control circuit terminal 2 @ Component harness & Control circuit terminal 10 @ S79RR Window Switch - Right Rear
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Replace the component: S79RR Window Switch - Right Rear

- **Go to next step: If the specified state**

12. Test or replace the component: M74RR Window Motor - Right Rear

Component Testing

1. Ignition/Vehicle - Off
2. Disconnect the appropriate electrical connector: M74 Window Motor
3. Connect a 25 A fused jumper wire between the test points: Control terminal 1 & B+
4. Momentarily connect a jumper wire between the test points: Control terminal 2 & Ground

Reverse the jumper wires 2 times between the terminals.

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

- **If not the specified state**

Replace the component: M74 Window Motor

- **Go to next step: If the specified state**

5. All OK.

Repair Instructions

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

- [Front Side Door Window Control Switch Replacement](#)
- [Front Side Door Window Switch Replacement - Right Side](#)
- [Rear Side Door Window Switch Replacement](#)
- [Front Side Door Window Regulator Motor Replacement](#)
- [Rear Side Door Window Regulator Motor Replacement](#)

Diagnostic Instructions

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

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
B+ - S79D Window Switch - Driver	U1538 00	U1538 00	-	-
B+ - M35D Window Motor Module - Driver	U1534 00	U1534 00	-	-
B+ - S79P Window Switch - Passenger	U153A 00	U153A 00	-	-
B+ - S79RR Window Switch - Right Rear	U1534 00, U154A 00	U154A 00	-	-
B+ - S79LR Window Switch - Left Rear	U1534 00, U154A 00	U1534 00	-	-
Serial Data - S79D Window Switch - Driver	U1534 00, U1538 00, U153A 00	U1538 00	U1538 00	-
Serial Data - M35D Window Motor Module - Driver	U1534 00, U1538 00, U153A 00	U1534 00	U1534 00	-
Serial Data - S79P Window Switch - Passenger	U1534 00, U1538 00, U153A 00	U153A 00	U153A 00	-
Serial Data - S79LR Window Switch - Left Rear	U1534 00, U154A 00	U1534 00	U1534 00	-
Serial Data - S79RR Window Switch - Right Rear	U1534 00, U154A 00	U154A 00	U154A 00	-
Signal - Down @ M35D Window Motor Module - Driver	B316B 02	1	1	B316B 39
Signal - Express @ M35D Window Motor Module - Driver	1	1	1	B316B 39
Signal - Up @ M35D Window Motor Module - Driver	B316B 02	1	1	B316B 39
Control - M74P Window Motor - Passenger	2	2	2	-
Control - M74LR Window Motor - Left Rear	3	3	3	-
Control - M74RR Window Motor - Right Rear	4	4	4	-
Ground - S79D Window Switch - Driver	-	U1538 00	-	-
Ground - M35D Window Motor Module - Driver	-	U1534 00	-	-
Ground - S79P Window Switch - Passenger	-	U153A 00	-	-
Ground - S79LR Window Switch - Left Rear	-	U1534 00	-	-
Ground - S79RR Window Switch - Right Rear	-	U154A 00	-	-

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
1. M35D Window Motor Module - Driver = Inoperative 2. M74P Window Motor - Passenger = Inoperative 3. M74LR Window Motor - Left Rear = Inoperative 4. M74RR Window Motor - Right Rear = Inoperative				

Circuit/System Description

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

Circuit	Description
B+ - M35D Window Motor Module - Driver	Supplied from a fuse.
B+ - S79P Window Switch - Passenger	Supplied from a fuse.
B+ - S79LR Window Switch - Left Rear	Supplied from a fuse.
B+ - S79RR Window Switch - Right Rear	Supplied from a fuse.
Signal - Down @ M35D Window Motor Module - Driver	The output circuit is switched to ground to activate the component.
Signal - Up @ M35D Window Motor Module - Driver	The output circuit is switched to ground to activate the component.
Signal - Express @ M35D Window Motor Module - Driver	The output circuit is switched to ground to activate the component.
Control - Up @ M74P Window Motor - Passenger	The output circuit is switched from ground to 12 V to activate the component.
Control - Down @ M74P Window Motor - Passenger	The output circuit is switched from ground to 12 V to activate the component.
Control - Up @ M74LR Window Motor - Left Rear	The output circuit is switched from ground to 12 V to activate the component.
Control - Down @ M74LR Window Motor - Left Rear	The output circuit is switched from ground to 12 V to activate the component.
Control - Up @ M74RR Window Motor - Right Rear	The output circuit is switched from ground to 12 V to activate the component.
Control - Down @ M74RR Window Motor - Right Rear	The output circuit is switched from ground to 12 V to activate the component.
Ground	Chassis Ground

Component	Description
S79D Window Switch - Driver	The S79D sends a serial data message to the K9 indicating the M74 function that has been requested.
M35D Window Motor Module - Driver	- Power Window Control - The control module and the DC motor are one assembly.
S79P Window Switch - Passenger	The switch has a normally open contact.
M74P Window Motor - Passenger	An electric DC motor.
S79LR Window Switch - Left Rear	The switch has a normally open contact.
M74LR Window Motor - Left Rear	An electric DC motor.
S79RR Window Switch - Right Rear	The switch has a normally open contact.
M74RR Window Motor - Right Rear	An electric DC motor.
K9 Body Control Module	The module controls various vehicle functions like lighting, central door locking, power windows, etc.

Reference Information

Schematic Reference

[Moveable Window Wiring Schematics](#)

COMPONENT CONNECTOR END VIEWS - INDEX

Component View Reference

Door Component Views

Electrical Information Reference

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

Scan Tool Reference

Control Module References

Circuit/System Verification

1. Ignition - On/Vehicle - In Service Mode
2. Operate the component: Left Rear Window Switch @ S79D Window Switch - Driver - Pressed & Pulled

Verify the scan tool parameter:

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

Replace the component: S79D Window Switch - Driver

- **Go to next step: If the specified state**

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

Verify the scan tool parameter:

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

Replace the component: S79D Window Switch - Driver

- **Go to next step: If the specified state**

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

Verify the scan tool parameter:

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

Replace the component: S79D Window Switch - Driver

- **Go to next step: If the specified state**

5. Verify DTC B3205 4B is not set.

- **If DTC B3205 4B is set**

- **Go to next step: If the DTC is not set**

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

Verify the component works as specified:

- M35D Window Motor Module - Driver = Up
- M35D Window Motor Module - Driver = Express Up
- M35D Window Motor Module - Driver = Down
- M35D Window Motor Module - Driver = Express Down
- **If the component does not work as specified**

Refer to: Circuit/System Testing - Test 1

- **Go to next step: If the component works as specified**

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

Verify the component works as specified:

- M74P Window Motor - Passenger = Up
- M74P Window Motor - Passenger = Down
- M74P Window Motor - Passenger = Express Down
- **If the component does not work as specified**

Refer to: Circuit/System Testing - Test 2

- **Go to next step: If the component works as specified**

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

Verify the component works as specified:

- M74LR Window Motor - Left Rear = Up
- M74LR Window Motor - Left Rear = Down
- M74LR Window Motor - Left Rear = Express Down
- **If the component does not work as specified**

Refer to: Circuit/System Testing - Test 3

- **Go to next step: If the component works as specified**

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

Verify the component works as specified:

- M74RR Window Motor - Right Rear = Up
- M74RR Window Motor - Right Rear = Down
- M74RR Window Motor - Right Rear = Express Down
- **If the component does not work as specified**

Refer to: Circuit/System Testing - Test 4

- **Go to next step: If the component works as specified**

10. All OK.

Circuit/System Testing

Test 1

NOTE: It may take up to 2 min for all vehicle systems to power down before an

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the electrical connector: S79D Window Switch - Driver
3. Test for less than 10 ohms between the test points: Ground circuit terminal 24 & Ground
 - **If 10 ohms or greater**
 1. Ground Connection - Disconnect
 2. Test for less than 2 ohms between the test points: Ground circuit terminal 24 @ Component harness & Ground Connection
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Repair the open/high resistance in the ground connection.
 - **Go to next step: If less than 10 ohms**
4. Ignition - On/Vehicle - In Service Mode
5. Verify a test lamp turns On between the test points: B+ circuit terminal 23 & Ground
 - **If the test lamp does not turn On and the circuit fuse is OK**
 1. Ignition/Vehicle - Off & Remove - Test lamp
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Verify the fuse is OK and there is voltage at the fuse.
 - **If the test lamp does not turn On and the circuit fuse is open**
 1. Ignition/Vehicle - Off & Remove - Test lamp
 2. Test for infinite resistance between the test points: B+ circuit terminal 23 & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance - Replace the component: S79D Window Switch - Driver
 - **Go to next step: If the test lamp turns On**
6. Verify the scan tool parameter: Driver Window Main Control Down Switch = Inactive
 - **If not the specified state**
 1. Ignition/Vehicle - Off
 2. Disconnect the electrical connector: M35D Window Motor Module - Driver
 3. Test for infinite resistance between the test points: Signal circuit terminal 1 @ Component harness & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance - Replace the component: M35D Window Motor Module - Driver
 - **Go to next step: If the specified state**
7. When in the following mode/position: M35D Window Motor Module - Driver = Up
8. Momentarily connect a 3 A fused jumper wire between the test points: Signal circuit terminal 1 & Ground circuit terminal 24

Verify the function: M35D Window Motor Module - Driver = Down

- **If not the specified state**
 1. Ignition/Vehicle - Off & Remove - Jumper wire(s)
 2. Disconnect the electrical connector: M35D Window Motor Module - Driver
 3. Ignition - On/Vehicle - In Service Mode
 4. Test for less than 1 V between the test points: Signal circuit terminal 1 @ Component harness & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - Go to next step: If less than 1 V
 5. Ignition/Vehicle - Off
 6. Test for less than 2 ohms between the test points: Signal circuit terminal 1 @ Component harness & Signal circuit terminal 7 @ M35D Window Motor Module - Driver
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Replace the component: M35D Window Motor Module - Driver
 - **Go to next step: If the specified state**

9. Verify the scan tool parameter: Driver Window Main Control Up Switch = Inactive

- **If not the specified state**

1. Ignition/Vehicle - Off
2. Disconnect the electrical connector: M35D Window Motor Module - Driver
3. Test for infinite resistance between the test points: Signal circuit terminal 11 @ Component harness & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance - Replace the component: M35D Window Motor Module - Driver

- **Go to next step: If the specified state**

10. When in the following mode/position: M35D Window Motor Module - Driver = Down

11. Momentarily connect a 3 A fused jumper wire between the test points: Signal circuit terminal 11 & Ground circuit terminal 24

Verify the function: M35D Window Motor Module - Driver = Up

- **If not the specified state**

1. Ignition/Vehicle - Off & Remove - Jumper wire(s)
2. Disconnect the electrical connector: M35D Window Motor Module - Driver
3. Ignition - On/Vehicle - In Service Mode
4. Test for less than 1 V between the test points: Signal circuit terminal 11 @ Component harness & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - Go to next step: If less than 1 V
5. Ignition/Vehicle - Off
6. Test for less than 2 ohms between the test points: Signal circuit terminal 11 @ Component harness & Signal circuit terminal 3 @ M35D Window Motor Module - Driver
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Replace the component: M35D Window Motor Module - Driver

- **Go to next step: If the specified state**

12. Test for greater than 10 V between the test points: Signal circuit terminal 5 @ Component harness & Ground

- **If 10 V or less**

1. Ignition/Vehicle - Off
2. Disconnect the electrical connector: M35D Window Motor Module - Driver
3. Test for infinite resistance between the test points: Signal circuit terminal 5 @ Component harness & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - Go to next step: If less than infinite resistance
4. Test for less than 2 ohms between the test points: Signal circuit terminal 5 @ Component harness & Signal circuit terminal 5 @ M35D Window Motor Module - Driver
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Replace the component: M35D Window Motor Module - Driver

- **Go to next step: If greater than 10 V**

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

Test 2

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

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the electrical connector: S79P Window Switch - Passenger
3. Test for less than 10 ohms between the test points: Ground circuit terminal 24 & Ground

- **If 10 ohms or greater**

1. Ground Connection - Disconnect
2. Test for less than 2 ohms between the test points: Ground circuit terminal 24 @ Component harness & Ground Connection
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Repair the open/high resistance in the ground connection.
- **Go to next step: If less than 10 ohms**
4. Ignition - On/Vehicle - In Service Mode
5. Verify a test lamp turns On between the test points: B+ circuit terminal 23 & Ground
 - **If the test lamp does not turn On and the circuit fuse is OK**
 1. Ignition/Vehicle - Off & Remove - Test lamp
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Verify the fuse is OK and there is voltage at the fuse.
 - **If the test lamp does not turn On and the circuit fuse is open**
 1. Ignition/Vehicle - Off & Remove - Test lamp
 2. Test for infinite resistance between the test points: B+ circuit terminal 23 & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance - Replace the component: S79P Window Switch - Passenger
 - **Go to next step: If the test lamp turns On**
6. Ignition/Vehicle - Off
7. Connect the electrical connector: S79P Window Switch - Passenger
8. Disconnect the electrical connector: M74P Window Motor - Passenger
9. Connect a test lamp between the test points: Control circuit terminal 1 & Control circuit terminal 2
10. Ignition - On/Vehicle - In Service Mode
11. Perform the scan tool control function: Passenger Window Motor

Verify the test lamp state:

Passenger Window Motor - Stop = Test lamp Off

Passenger Window Motor - Up = Test lamp On

Passenger Window Motor - Down = Test lamp On

- **If not the specified state**
 1. Ignition/Vehicle - Off & Remove - Test lamp
 2. Disconnect the electrical connector: S79P Window Switch - Passenger
 3. Ignition - On/Vehicle - In Service Mode
 4. Test for less than 1 V between the test points:
 - Control circuit terminal 1 @ Component harness & Ground
 - Control circuit terminal 2 @ Component harness & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - Go to next step: If less than 1 V
 5. Ignition/Vehicle - Off
 6. Test for infinite resistance between the test points:
 - Control circuit terminal 1 @ Component harness & Ground
 - Control circuit terminal 2 @ Component harness & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - Go to next step: If infinite resistance
 7. Test for less than 2 ohms between the test points:
 - Control circuit terminal 1 @ Component harness & Control circuit terminal 11 @ S79P Window Switch - Passenger
 - Control circuit terminal 2 @ Component harness & Control circuit terminal 1 @ S79P Window Switch - Passenger

- If 2 ohms or greater - Repair the open/high resistance in the circuit.
- If less than 2 ohms - Replace the component: S79P Window Switch - Passenger

• **Go to next step: If the specified state**

12. Test or replace the component: M74P Window Motor - Passenger

Test 3

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

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the electrical connector: S79LR Window Switch - Left Rear
3. Test for less than 10 ohms between the test points: Ground circuit terminal 7 & Ground
 - **If 10 ohms or greater**
 1. Ground Connection - Disconnect
 2. Test for less than 2 ohms between the test points: Ground circuit terminal 7 @ Component harness & Ground Connection
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Repair the open/high resistance in the ground connection.
 - **Go to next step: If less than 10 ohms**
4. Ignition - On/Vehicle - In Service Mode
5. Verify a test lamp turns On between the test points: B+ circuit terminal 8 & Ground
 - **If the test lamp does not turn On and the circuit fuse is OK**
 1. Ignition/Vehicle - Off & Remove - Test lamp
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Verify the fuse is OK and there is voltage at the fuse.
 - **If the test lamp does not turn On and the circuit fuse is open**
 1. Ignition/Vehicle - Off & Remove - Test lamp
 2. Test for infinite resistance between the test points: B+ circuit terminal 8 & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance - Replace the component: S79LR Window Switch - Left Rear
 - **Go to next step: If the test lamp turns On**
6. Ignition/Vehicle - Off
7. Connect the electrical connector: S79LR Window Switch - Left Rear
8. Disconnect the electrical connector: M74LR Window Motor - Left Rear
9. Connect a test lamp between the test points: Control circuit terminal 1 & Control circuit terminal 2
10. Ignition - On/Vehicle - In Service Mode
11. Perform the scan tool control function: Left Rear Window Motor

Verify the test lamp state:

Left Rear Window Motor - Stop = Test lamp Off

Left Rear Window Motor - Up = Test lamp On

Left Rear Window Motor - Down = Test lamp On

• **If not the specified state**

1. Ignition/Vehicle - Off & Remove - Test lamp
2. Disconnect the electrical connector: S79LR Window Switch - Left Rear
3. Ignition - On/Vehicle - In Service Mode
4. Test for less than 1 V between the test points:
 - Control circuit terminal 1 @ Component harness & Ground
 - Control circuit terminal 2 @ Component harness & Ground

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

5. Ignition/Vehicle - Off

6. Test for infinite resistance between the test points:

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

7. Test for less than 2 ohms between the test points:

- Control circuit terminal 1 @ Component harness & Control circuit terminal 9 @ S79LR Window Switch - Left Rear
- Control circuit terminal 2 @ Component harness & Control circuit terminal 10 @ S79LR Window Switch - Left Rear
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Replace the component: S79LR Window Switch - Left Rear

• **Go to next step: If the specified state**

12. Test or replace the component: M74LR Window Motor - Left Rear

Test 4

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

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the electrical connector: S79RR Window Switch - Right Rear
3. Test for less than 10 ohms between the test points: Ground circuit terminal 7 & Ground
 - **If 10 ohms or greater**
 1. Ground Connection - Disconnect
 2. Test for less than 2 ohms between the test points: Ground circuit terminal 7 @ Component harness & Ground Connection
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Repair the open/high resistance in the ground connection.
 - **Go to next step: If less than 10 ohms**
4. Ignition - On/Vehicle - In Service Mode
5. Verify a test lamp turns On between the test points: B+ circuit terminal 8 & Ground
 - **If the test lamp does not turn On and the circuit fuse is OK**
 1. Ignition/Vehicle - Off & Remove - Test lamp
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Verify the fuse is OK and there is voltage at the fuse.
 - **If the test lamp does not turn On and the circuit fuse is open**
 1. Ignition/Vehicle - Off & Remove - Test lamp
 2. Test for infinite resistance between the test points: B+ circuit terminal 8 & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance - Replace the component: S79RR Window Switch - Right Rear
 - **Go to next step: If the test lamp turns On**
 - 6. Ignition/Vehicle - Off
 - 7. Connect the electrical connector: S79RR Window Switch - Right Rear
 - 8. Disconnect the electrical connector: M74RR Window Motor - Right Rear
 - 9. Connect a test lamp between the test points: Control circuit terminal 1 & Control circuit terminal 2
 - 10. Ignition - On/Vehicle - In Service Mode
 - 11. Perform the scan tool control function: Right Rear Window Motor

Verify the test lamp state:

Right Rear Window Motor - Stop = Test lamp Off

Right Rear Window Motor - Up = Test lamp On

Right Rear Window Motor - Down = Test lamp On

- **If not the specified state**

1. Ignition/Vehicle - Off & Remove - Test lamp
2. Disconnect the electrical connector: S79RR Window Switch - Right Rear
3. Ignition - On/Vehicle - In Service Mode
4. Test for less than 1 V between the test points:
 - Control circuit terminal 1 @ Component harness & Ground
 - Control circuit terminal 2 @ Component harness & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - Go to next step: If less than 1 V
5. Ignition/Vehicle - Off
6. Test for infinite resistance between the test points:
 - Control circuit terminal 1 @ Component harness & Ground
 - Control circuit terminal 2 @ Component harness & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - Go to next step: If infinite resistance
7. Test for less than 2 ohms between the test points:
 - Control circuit terminal 1 @ Component harness & Control circuit terminal 9 @ S79RR Window Switch - Right Rear
 - Control circuit terminal 2 @ Component harness & Control circuit terminal 10 @ S79RR Window Switch - Right Rear
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Replace the component: S79RR Window Switch - Right Rear

- **Go to next step: If the specified state**

12. Test or replace the component: M74RR Window Motor - Right Rear

Component Testing

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

1. Ignition/Vehicle - Off
2. Disconnect the appropriate electrical connector:
 - M74P Window Motor - Passenger
 - M74LR Window Motor - Left Rear
 - M74RR Window Motor - Right Rear
3. Connect a 25 A fused jumper wire between the test points: Control terminal 1 & B+

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

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

Reverse the jumper wires 2 times between the terminals.

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

- **If not the specified state**

Replace the component:

- M74P Window Motor - Passenger
- M74LR Window Motor - Left Rear
- M74RR Window Motor - Right Rear
- **Go to next step: If the specified state**

5. All OK.

Repair Instructions

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

- [Front Side Door Window Control Switch Replacement](#)
- [Front Side Door Window Switch Replacement - Right Side](#)
- [Rear Side Door Window Switch Replacement](#)
- [Front Side Door Window Regulator Motor Replacement](#)
- [Rear Side Door Window Regulator Motor Replacement](#)

SIDE DOOR WINDOW MECHANICAL DIAGNOSIS

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

Equivalent regional tools: [Special Tools](#)

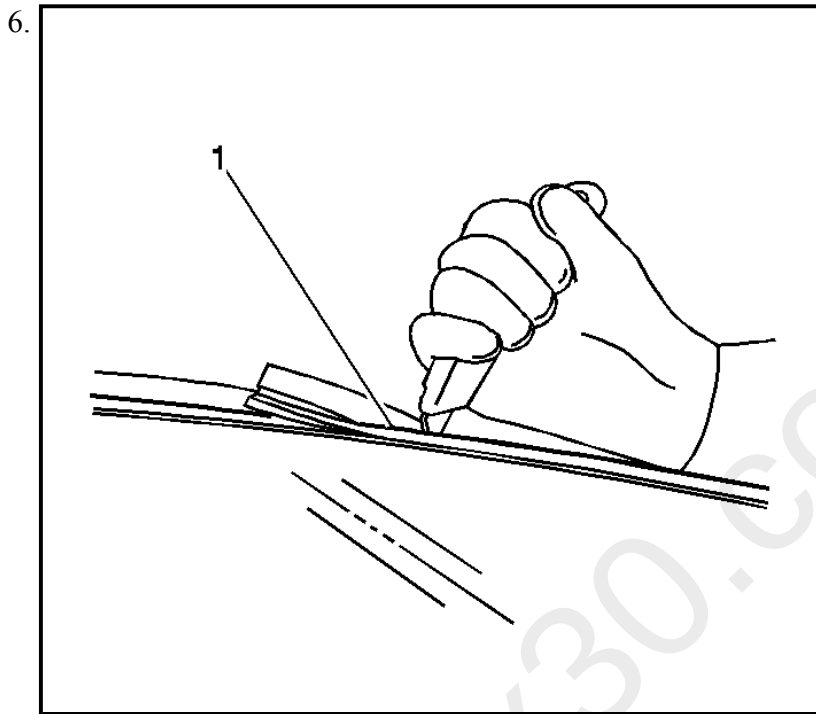
Removal Procedure

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 - [Air Inlet Grille Panel Replacement](#)
3. Remove - [Inside Rearview Mirror Replacement](#)

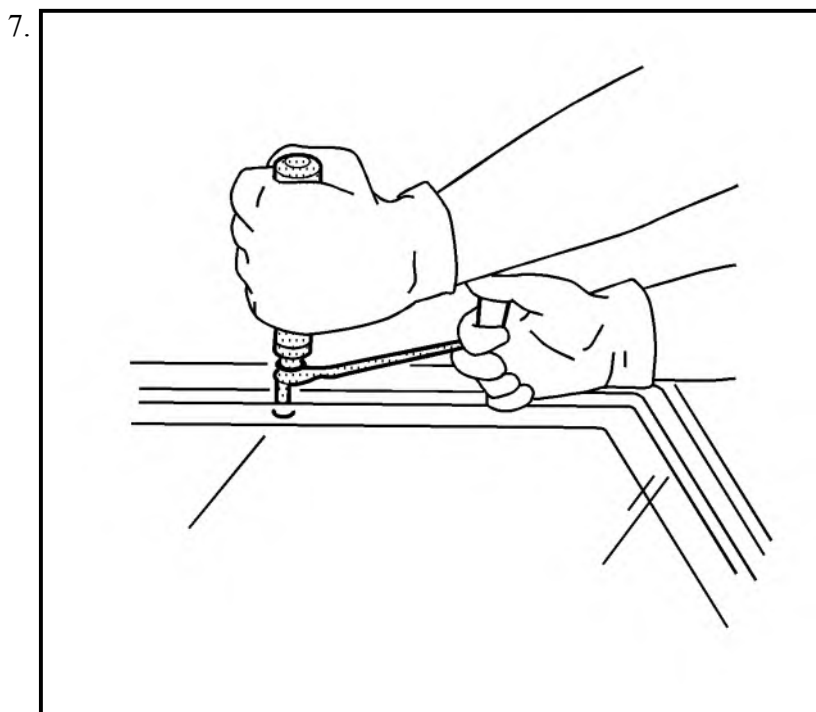
WARNING: If broken glass falls into the defroster outlets, it can be blown into the passenger compartment and cause personal injury.

4. Cover to protect the following parts from broken glass:
 - Upper Dash Pad
 - The defroster outlets and A/C outlets
 - The seats and carpeting
5. Remove the lower windshield supports from the cowl panel, if equipped.



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.

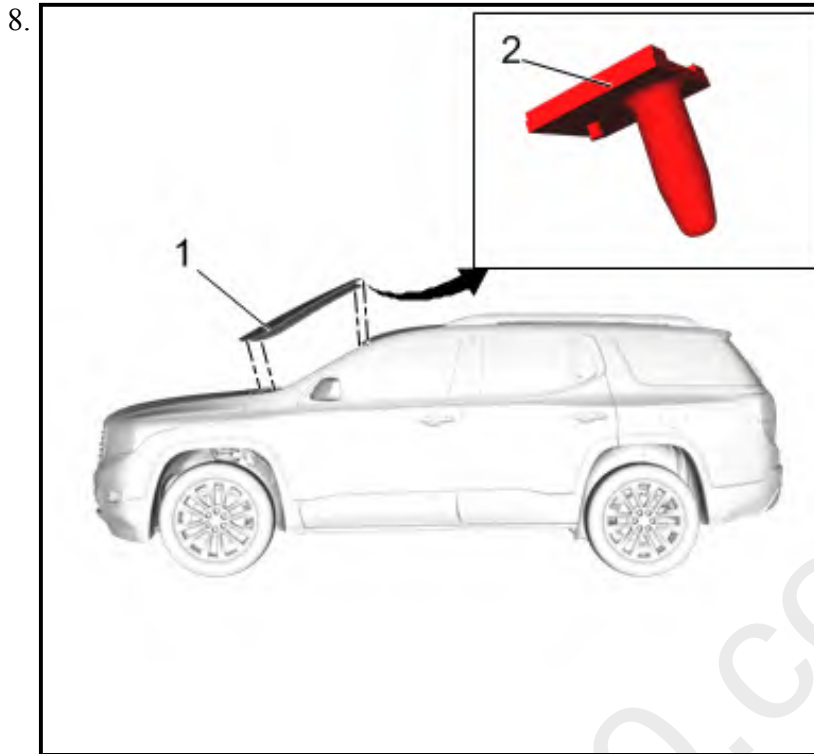
Using the appropriate tool, carefully cut around the lace (1), start in the center working from side to side of the window to access the urethane adhesive bead, if equipped.



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

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

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

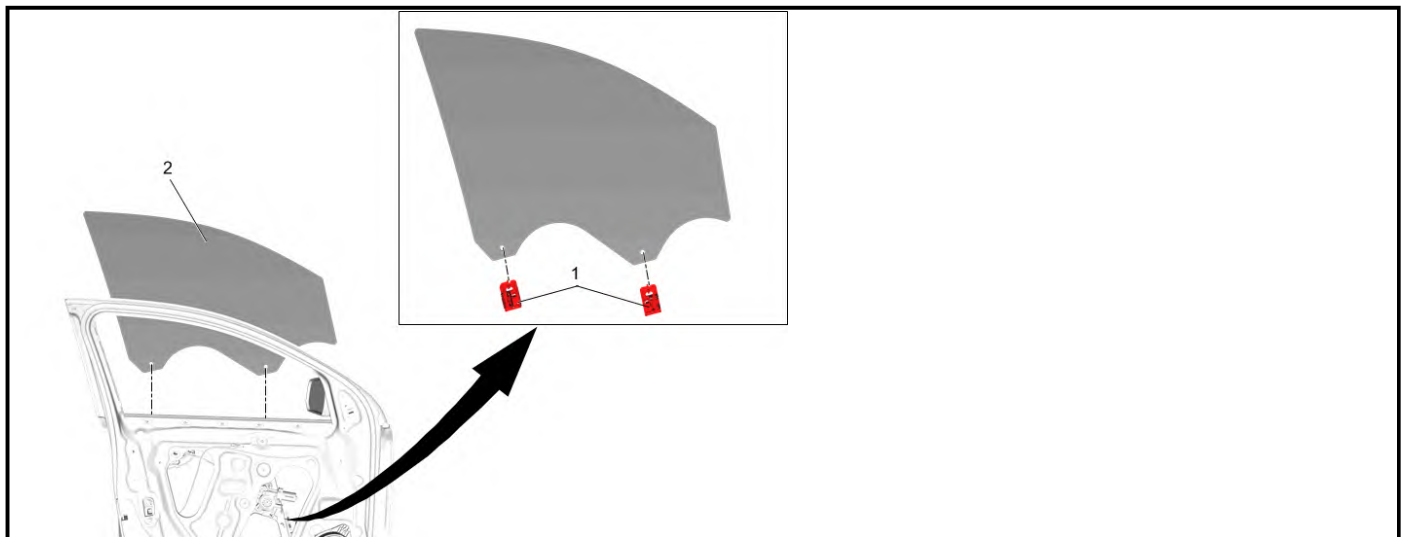


With the aid of an assistant, remove the windshield (1) and locating pin (2) from the vehicle.

Installation Procedure

1. With the aid of an assistant, install the windshield (2) and locating pins (1) to the vehicle. [Adhesive Installation of Windshields](#)
2. Install - [Inside Rearview Mirror Replacement](#)
3. Install - [Air Inlet Grille Panel Replacement](#)
4. Close the hood.
5. Remove the double layer of masking tape around the perimeter of the painted surfaces.

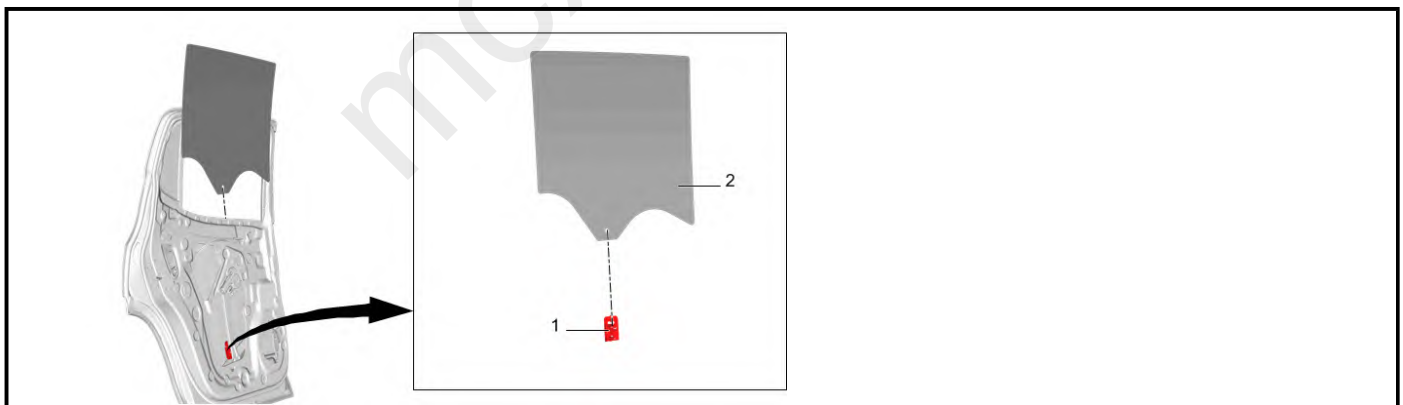
FRONT SIDE DOOR WINDOW REPLACEMENT



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

Callout	Component Name
WARNING: Refer to Glass and Sheet Metal Handling Warning .	
WARNING: Disconnect the power window switch when working inside the door. When operated, the Express Up/Down Feature allows the door window to move very quickly, without stopping, which could cause personal injury.	
Preliminary Procedures Front Side Door Window Channel Retainer Replacement Front Side Door Window Inner Sealing Strip Replacement Front Side Door Window Belt Reveal Molding Replacement	
1	Front Side Door Window Regulator Guide [2x] Procedure - Use masking tape to tape the window in the full up position to the door frame. - Using the proper tool, release the window regulator guide from the window sash.
2	Front Side Door Window Procedure - Lower the window regulator guide full down. - Remove the masking tape from the window. - Tilt the window downward in the front, pull up on the back and pull the window out from the door frame. - Inspect the door window for proper operation before installing the door trim panel.

REAR SIDE DOOR WINDOW REPLACEMENT



Callout	Component Name

Callout	Component Name
WARNING: Refer to Glass and Sheet Metal Handling Warning .	
WARNING: Disconnect the power window switch when working inside the door. When operated, the Express Up/Down Feature allows the door window to move very quickly, without stopping, which could cause personal injury.	
Preliminary Procedures 1. Rear Side Door Window Channel Rear Retainer Replacement 2. Rear Side Door Window Inner Sealing Strip Replacement 3. Rear Side Door Window Belt Reveal Molding Replacement	
1	Rear Side Door Window Regulator Guide Procedure 1. Use masking tape to tape the window in the full up position to the door frame. 2. Using the proper tool, release the window regulator guide from the window sash.
2	Rear Side Door Window 1. Lower the window regulator guide full down. 2. Remove the masking tape from the window. 3. Tilt the window downward in the front, pull up on the back and pull the window out from the door frame. 4. Inspect the door window for proper operation before installing the door trim panel.

BODY SIDE WINDOW REPLACEMENT

Special Tools

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

Removal Procedure

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

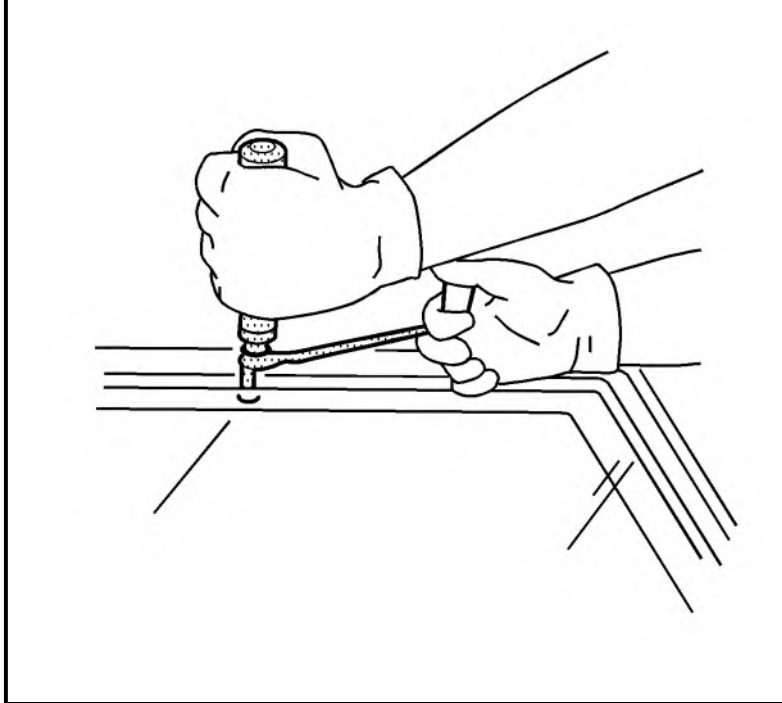
WARNING: Refer to [Glass and Sheet Metal Handling Warning](#) .

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

- 1.
2. Quarter Lower Rear Trim Panel - Remove - [Quarter Lower Rear Trim Panel Replacement \(Right Side\)](#)
[Quarter Lower Rear Trim Panel Replacement \(Left Side\)](#)

3.



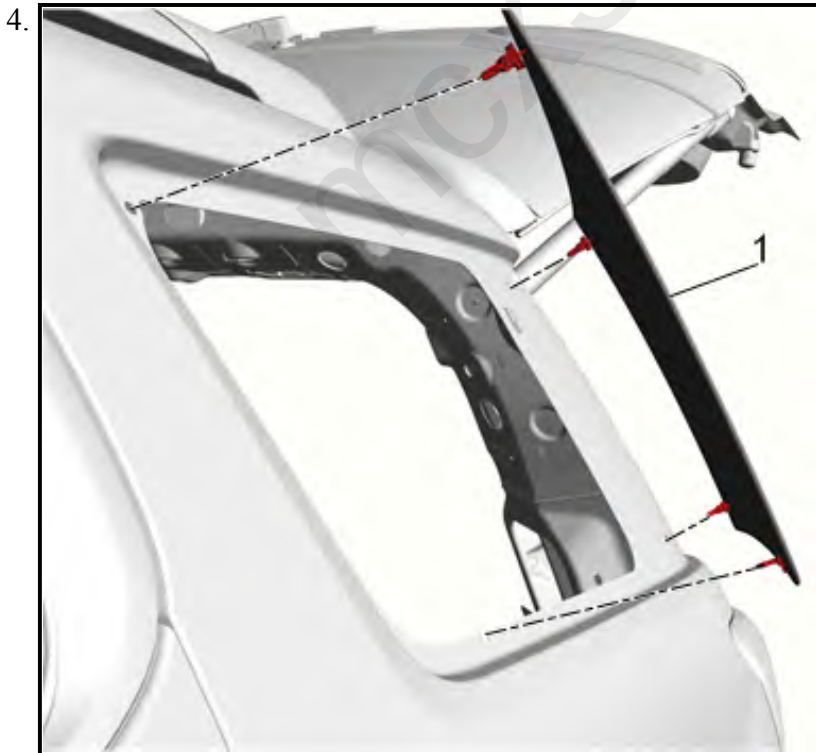


NOTE: Keep the cutting edge of the knife/tool against the window. Do this from inside the vehicle.

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

Remove the window from the urethane adhesive.

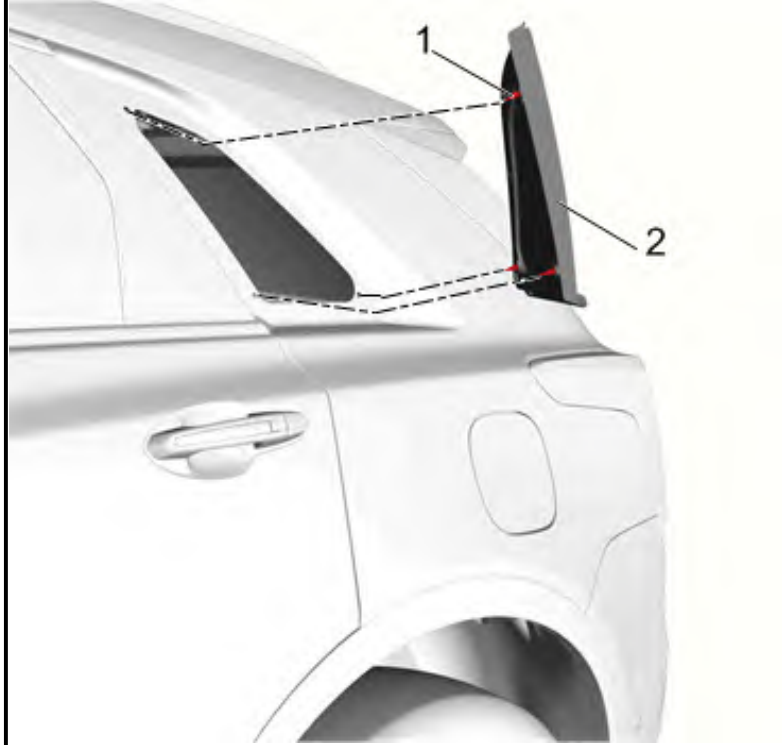
- Leave a base of urethane approximately 2 mm (0.078 in) on the pinch-weld flange.
- The only suitable lubrication is clear water.
- Use **J 24402-A** glass sealant (cold knife) remover, **J 39032** stationary glass removal tool, or equivalent to remove the window.



Body Side Window (1) - Remove

Installation Procedure





Body Side Window (2) - Install - [Adhesive Installation of Bodyside Stationary Windows](#)

2. Quarter Lower Rear Trim Panel - Install - [Quarter Lower Rear Trim Panel Replacement \(Right Side\)](#)
[Quarter Lower Rear Trim Panel Replacement \(Left Side\)](#)
3. Remove the double layer of masking tape around the perimeter of the painted surfaces and the interior trim.

REAR WINDOW REPLACEMENT

Special Tools

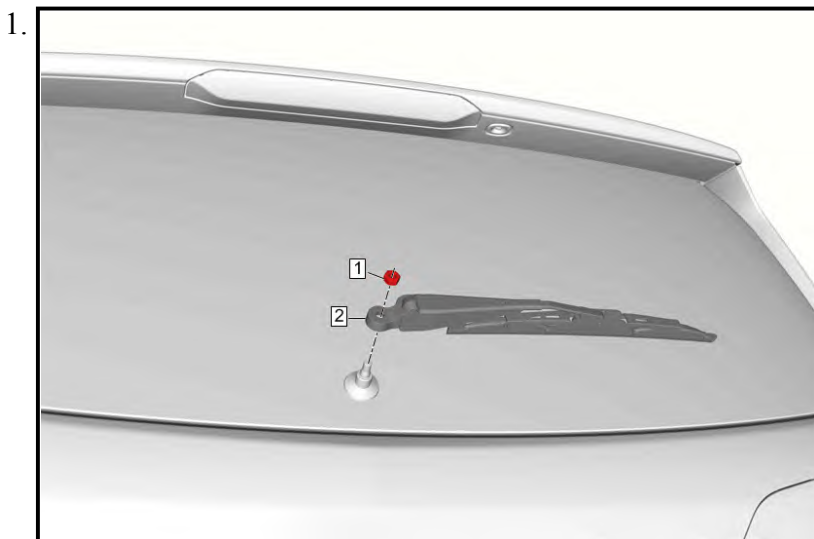
- **BO 39032** Stationary Glass Removal Tool
- Use a urethane adhesive systems which meet GM Specification GMW 15672

Removal Procedure

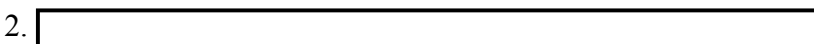
WARNING: Refer to [Glass and Sheet Metal Handling Warning](#) .

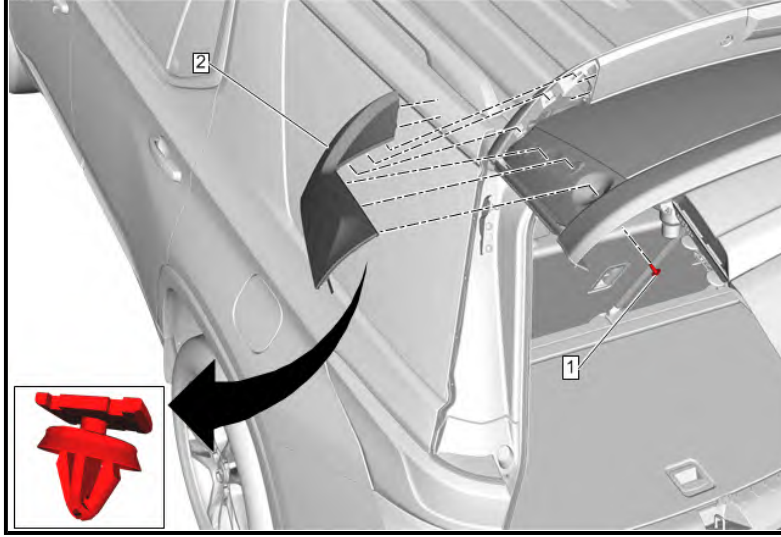
WARNING: Refer to [Cracked Window Warning](#) .

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

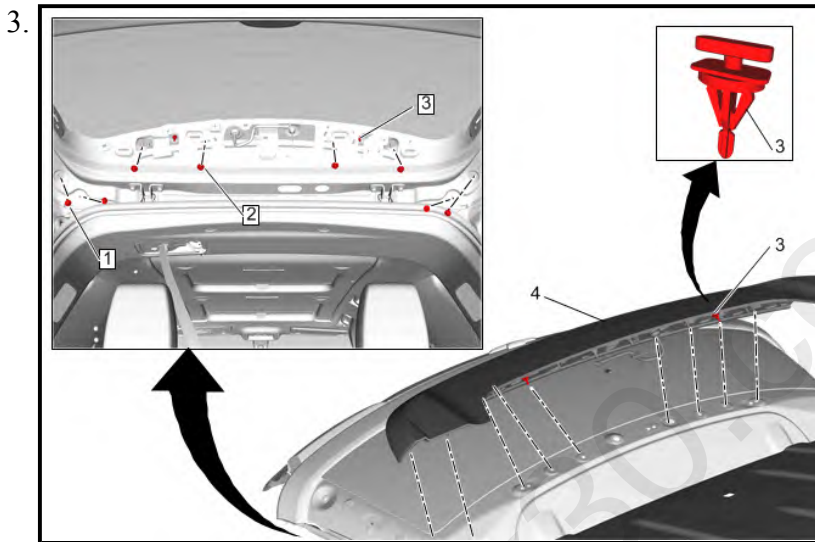


Rear Window Wiper Arm (2) - Remove - [Rear Window Wiper Arm Replacement](#)

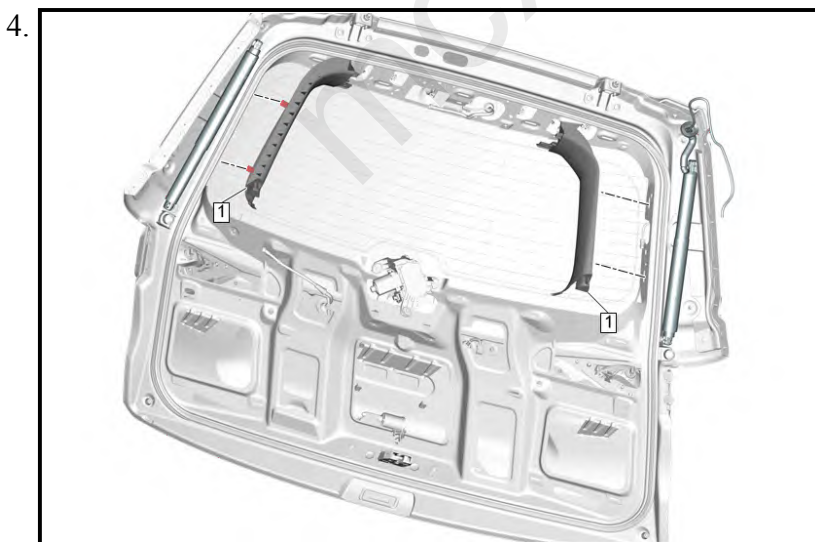




Liftgate Side Applique (2) - Remove - [Liftgate Side Applique Replacement \(Left Side\)](#) [Liftgate Side Applique Replacement \(Right Side\)](#)



Rear End Spoiler (4) - Remove - [Rear End Spoiler Replacement](#)



Liftgate Upper Side Trim Finish Panel (1) - Remove - [Liftgate Upper Side Trim Finish Panel Replacement](#)

5. Cover the seats and carpeting to protect from broken glass.

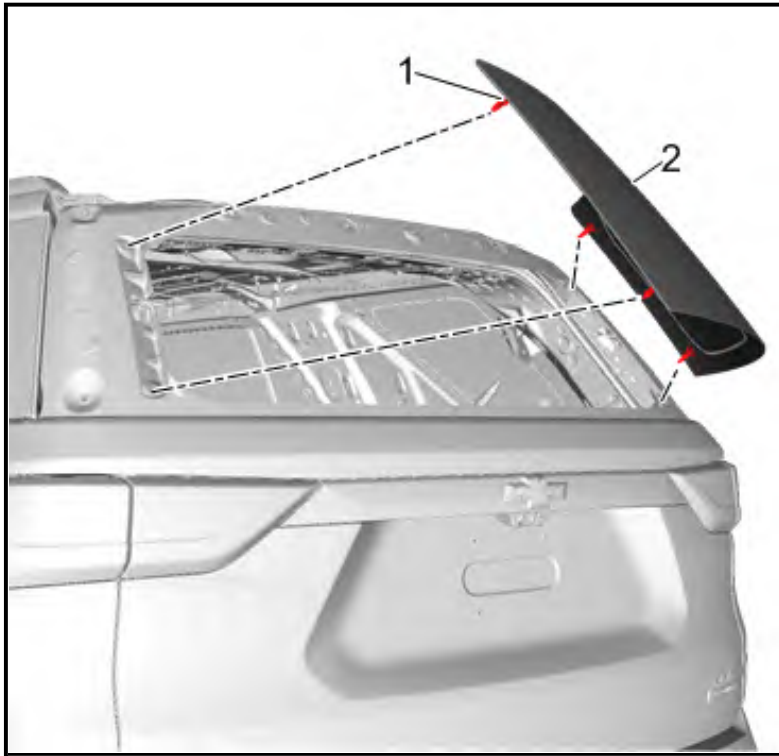
6. Disconnect the electrical connectors.

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

7. Use **BO 39032** stationary glass removal tool or equivalent in order to remove the window.

- Leave a base of urethane on the pinchweld flange.
- The only suitable lubrication is clear water.

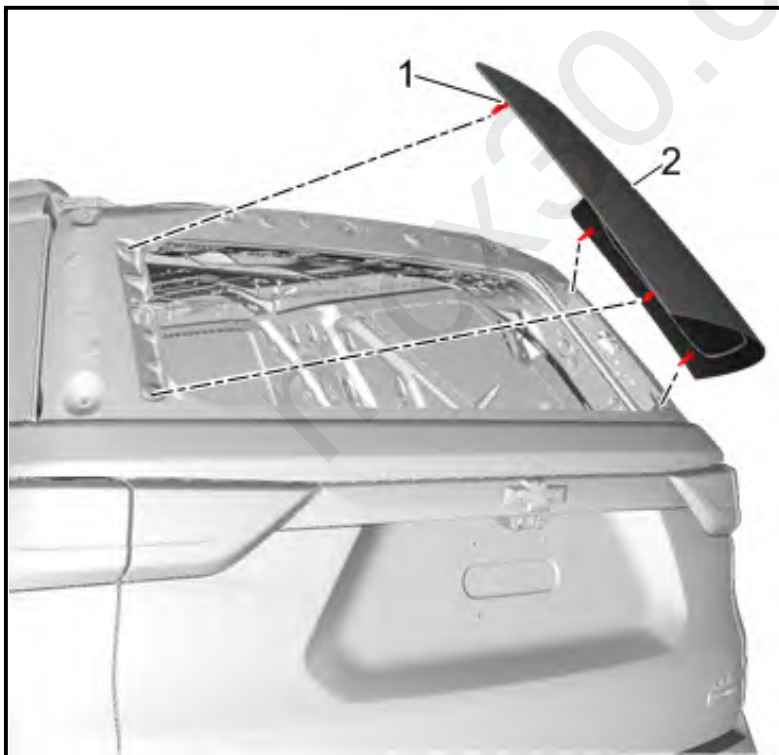
8.



Rear Window (2) - Remove

Installation Procedure

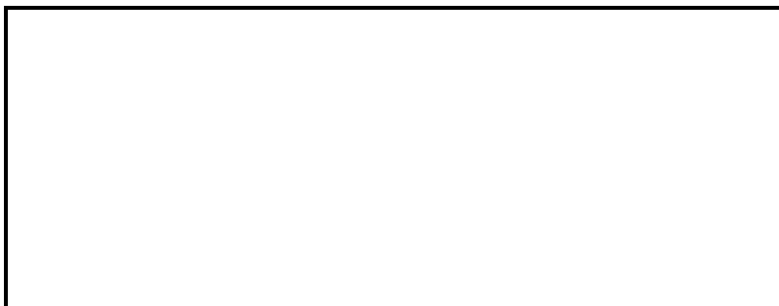
1.



Rear Window (2) - Install - [Adhesive Installation of Rear Windows](#)

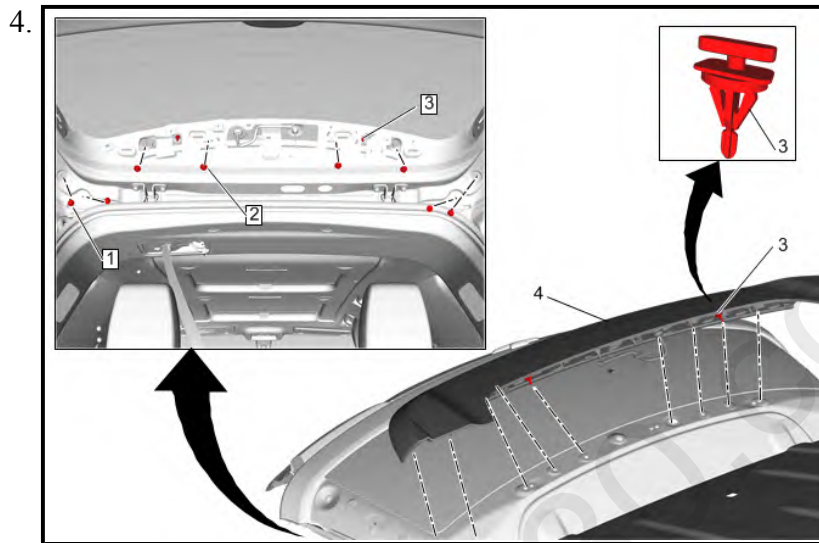
2. Connect the electrical connectors.

3.

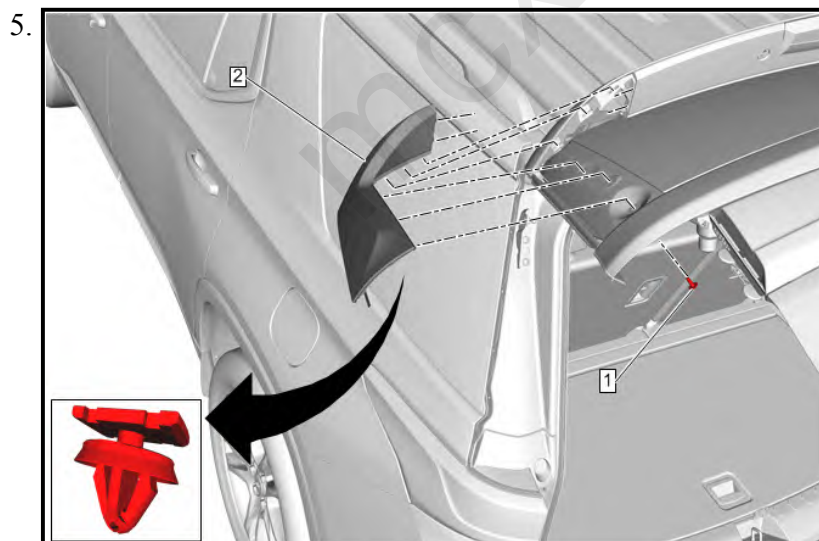




Liftgate Upper Side Trim Finish Panel (1) - Install - [Liftgate Upper Side Trim Finish Panel Replacement](#)

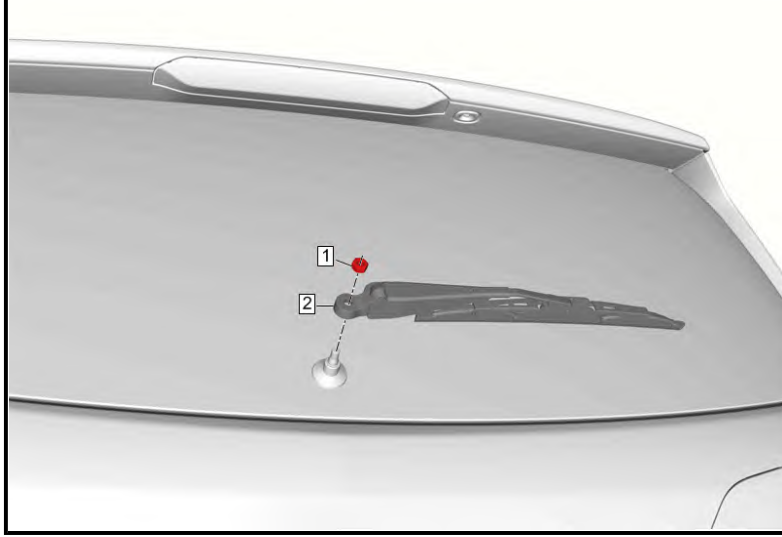


Rear End Spoiler (4) - Install - [Rear End Spoiler Replacement](#)



Liftgate Side Applique (2) - Install - [Liftgate Side Applique Replacement \(Left Side\)](#) [Liftgate Side Applique Replacement \(Right Side\)](#)

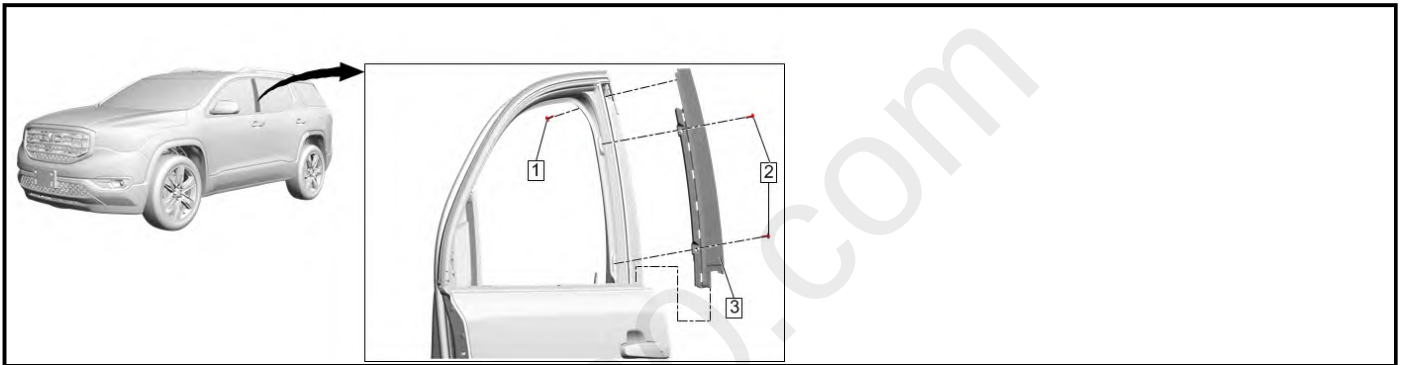




Rear Window Wiper Arm (2) - Install - [Rear Window Wiper Arm Replacement](#)

7. Remove the tape.

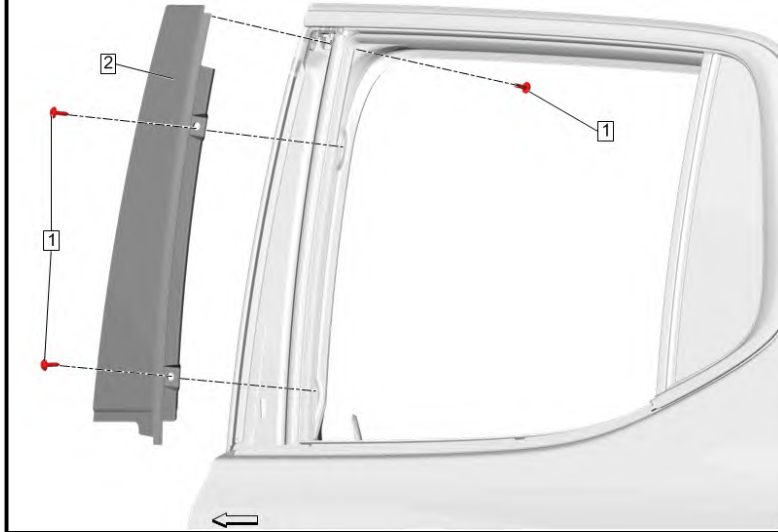
FRONT SIDE DOOR WINDOW FRAME REAR APPLIQUE REPLACEMENT



Callout	Component Name
Preliminary Procedures Front Side Door Window Garnish Molding Replacement Front Side Door Window Belt Reveal Molding Replacement - It is not necessary to completely remove the weatherstrip. Reposition the upper rear edge of the front side door weatherstrip. Front Side Door Window Weatherstrip Replacement	
1	Front Side Door Window Frame Inner Upper Screw CAUTION: Refer to Fastener Caution . Tighten 2.5 N.m (22 lb in)
2	Front Side Door Window Frame Rear Applique Outer Screw [2x] Tighten 2.5 N.m (22 lb in)
3	Front Side Door Window Frame Rear Applique 1. Use a solution of 50/50 isopropyl alcohol and water to clean the adhesive surface. 2. Peel the protective film from the foam tape and install the rear applique to the vehicle.

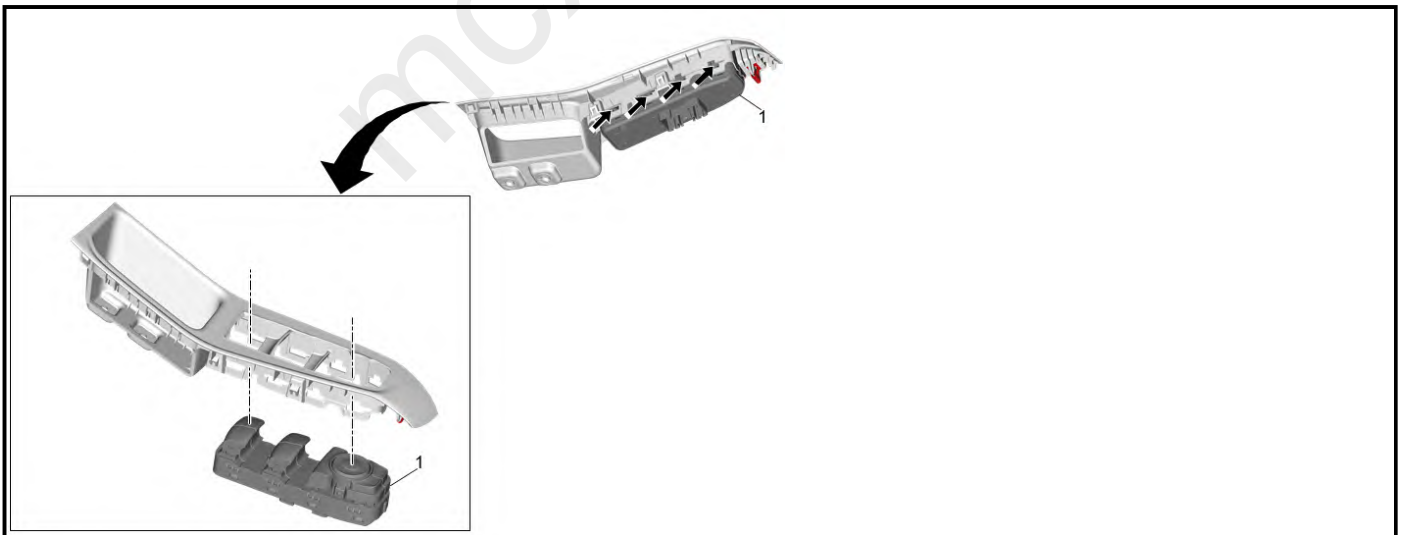
REAR SIDE DOOR WINDOW FRAME FRONT APPLIQUE REPLACEMENT





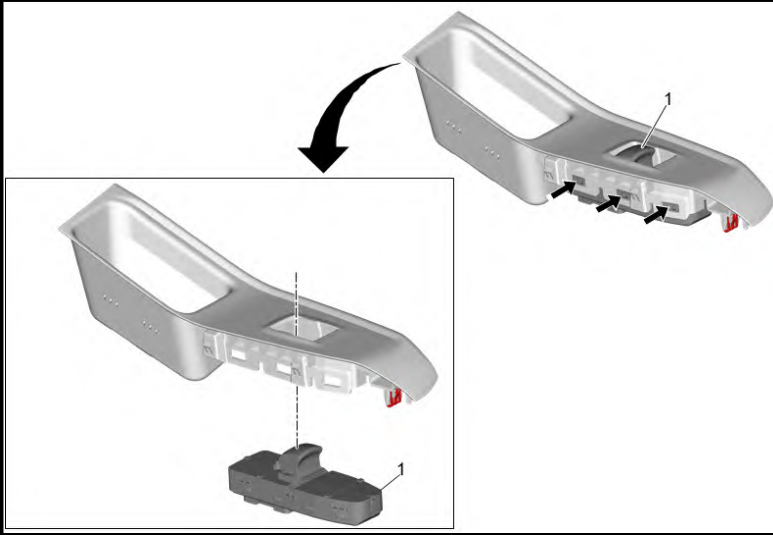
Callout	Component Name
Preliminary Procedures 1. Rear Side Door Window Garnish Molding Replacement 2. Rear Side Door Window Belt Reveal Molding Replacement	
1	Rear Side Door Window Frame Applique Screw [3x] CAUTION: Refer to Fastener Caution . Procedure Pull weatherstrip away from the applique to access the screws. Tighten 2.5 N.m (22 lb in)
2	Rear Side Door Window Frame Front Applique

FRONT SIDE DOOR WINDOW CONTROL SWITCH REPLACEMENT



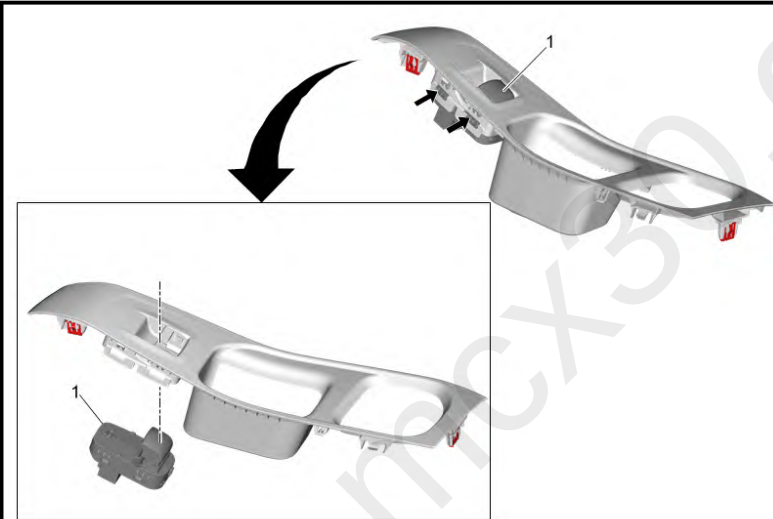
Callout	Component Name
Preliminary Procedure Front Side Door Accessory Switch Mount Plate Replacement - Driver Side	
1	Front Side Door Window Control Switch Procedure Release the switch assembly from the switch mount plate by depressing the tabs along each side of the switch.

FRONT SIDE DOOR WINDOW SWITCH REPLACEMENT - RIGHT SIDE



Callout	Component Name
Preliminary Procedure <u>Front Side Door Accessory Switch Mount Plate Replacement - Passenger Side</u>	
1	Front Side Door Window Switch - Right Side Procedure Release the switch assembly from the switch mount plate by depressing the tabs along each side of the switch.

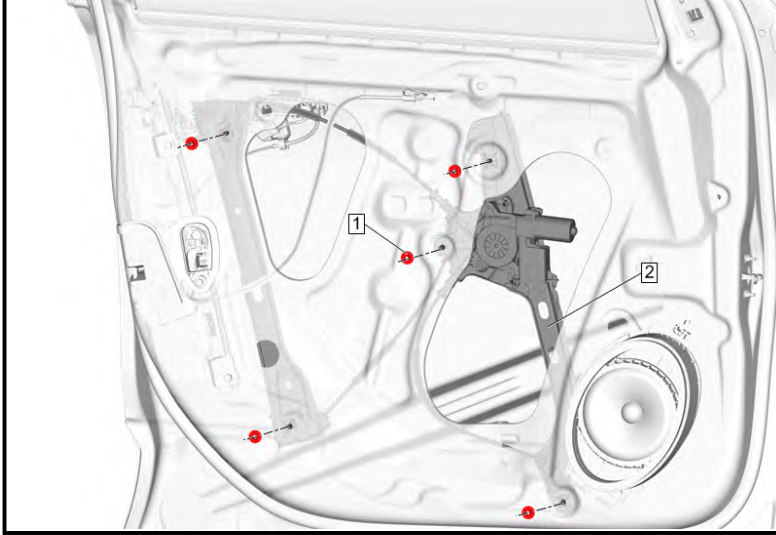
REAR SIDE DOOR WINDOW SWITCH REPLACEMENT



Callout	Component Name
Preliminary Procedure <u>Rear Side Door Accessory Switch Mount Plate Replacement</u>	
1	Rear Side Door Window Switch Procedure Release the switch assembly from the switch mount plate by depressing the tabs along each side of the switch.

FRONT SIDE DOOR WINDOW REGULATOR REPLACEMENT





Callout	Component Name
WARNING: Disconnect the power window switch when working inside the door. When operated, the Express Up/Down Feature allows the door window to move very quickly, without stopping, which could cause personal injury.	
Preliminary Procedures Front Side Door Water Deflector Replacement - Place the front side door window in the halfway position to gain access to window regulator guides. - Using the proper tool, release the window regulator guide from the window sash. - Tape the window to the upper door frame.	
1	Front Side Door Window Regulator Nut [5x] CAUTION: Refer to Fastener Caution . Tighten 10 N.m (89 lb in)
2	Front Side Door Window Regulator Procedure - Disconnect the electrical connector. - Transfer all parts as necessary. - Inspect the door window for proper operation before installing the door trim panel.

WINDOW MOTOR PROGRAMMING - EXPRESS FUNCTION

Window Motor Normalized Procedure

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

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

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

Open, then Close Driver Window

Open, then Close Passenger Window

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

To normalize the window motor, follow these steps:

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

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

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

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

Window Motor Relearn Procedure

A relearn procedure may need to be performed after the following repair procedures have been completed:

- When the window glass had to be realigned
- When the window glass has been replaced
- When the door has been replaced and the original window motor has been reused
- When the window regulator has been replaced and the original window motor has been reused

The technician may experience the following symptoms when performing the express up function:

- The glass may stop before reaching the top of the window frame
- The window may auto-reverse when reaching the top of the window frame

This is caused by the window motor still retaining the original travel settings prior to being reinstalled with the new components

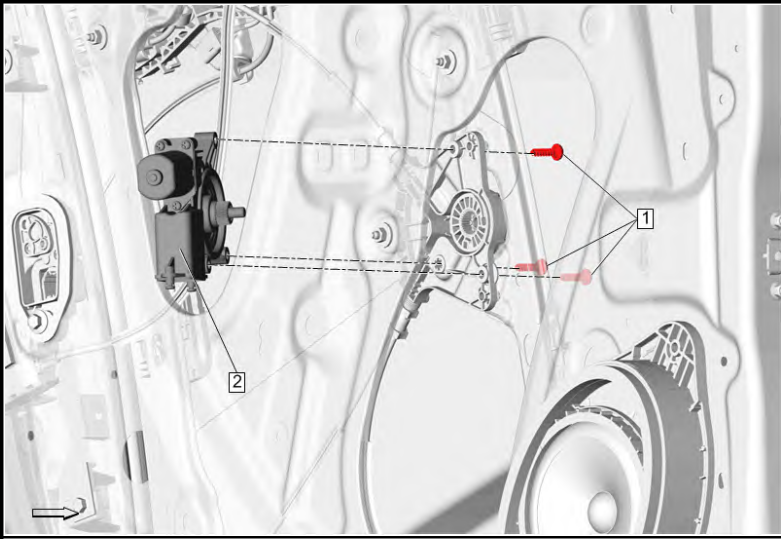
NOTE: Prior to performing the relearn procedure the vehicle must have all 4 wheels properly inflated and mounted, the vehicle must be sitting on a level surface and all doors must be completely closed.

To relearn the window motor, follow these steps:

1. Ignition ON.
2. With a scan tool, select Module Diagnosis, K9 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.

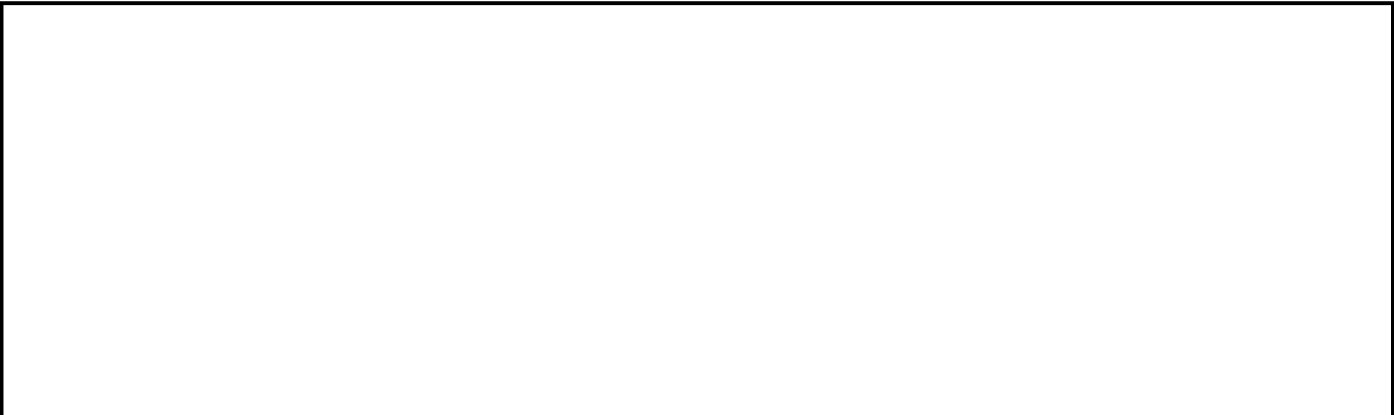
The window motor has now been calibrated to the new travel settings and will function normally.

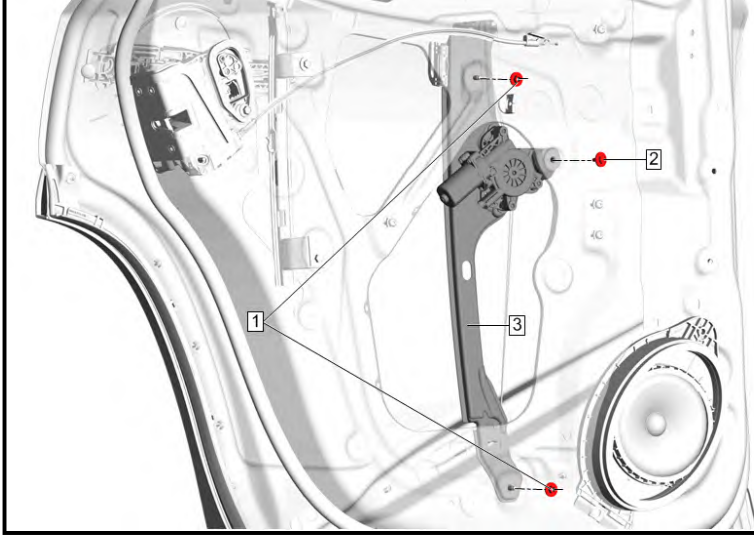
FRONT SIDE DOOR WINDOW REGULATOR MOTOR REPLACEMENT



Callout	Component Name
WARNING: Refer to Glass and Sheet Metal Handling Warning . WARNING: Disconnect the power window switch when working inside the door. When operated, the Express Up/Down Feature allows the door window to move very quickly, without stopping, which could cause personal injury. Preliminary Procedure Front Side Door Water Deflector Replacement - Use masking tape to tape the window in the full up position to the door frame.	
1	Front Side Door Window Regulator Motor Screw [3x] CAUTION: Refer to Fastener Caution . Tighten 10 N.m (89 lb in)
2	Front Side Door Window Regulator Motor Procedure - Disconnect the electrical connector. - Inspect the door window for proper operation before installing the door trim panel.

REAR SIDE DOOR WINDOW REGULATOR REPLACEMENT

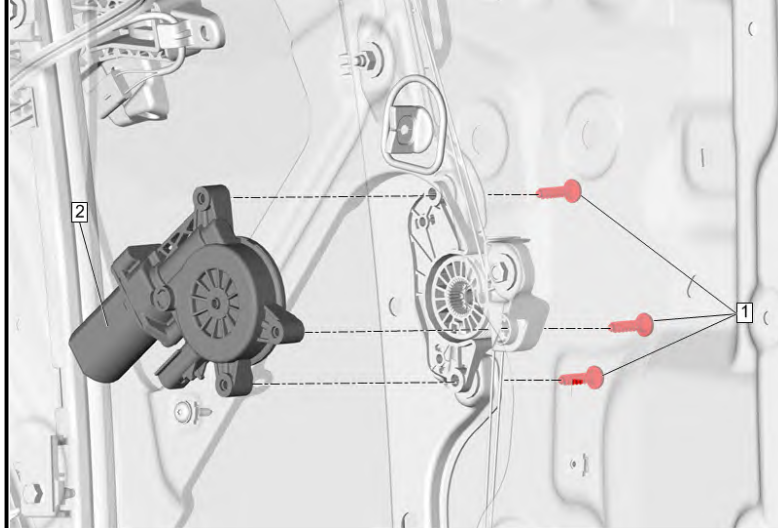




Callout	Component Name
WARNING: Refer to Glass and Sheet Metal Handling Warning .	
WARNING: Disconnect the power window switch when working inside the door. When operated, the Express Up/Down Feature allows the door window to move very quickly, without stopping, which could cause personal injury.	
Preliminary Procedures Rear Side Door Water Deflector Replacement - Place the front side door window in the halfway position to gain access to window regulator guides. - Using the proper tool, release the window regulator guide from the window sash. - Tape the window to the upper door frame.	
1	Rear Side Door Window Regulator Nut [2x] CAUTION: Refer to Fastener Caution . Tighten 10 N.m (89 lb in)
2	Rear Side Door Window Regulator Bolt Tighten 11 N.m (97 lb in)
3	Rear Side Door Window Regulator Procedure - Release the window from the sash retaining clip. - Disconnect the electrical connector. - Transfer all parts as necessary. - Inspect the door window for proper operation before installing the door trim panel.

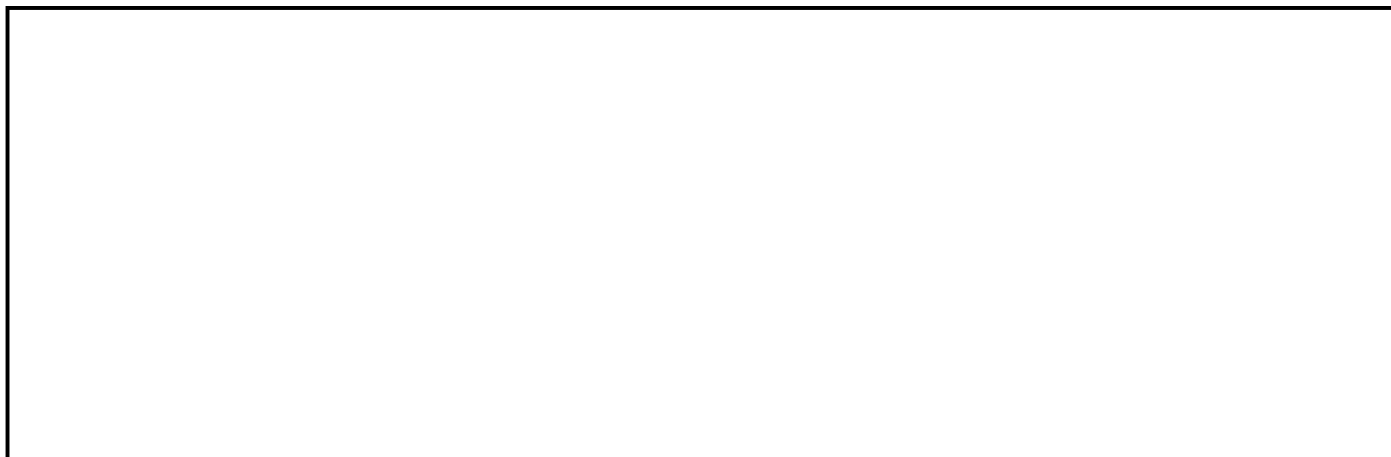
REAR SIDE DOOR WINDOW REGULATOR MOTOR REPLACEMENT





Callout	Component Name
WARNING: Refer to Glass and Sheet Metal Handling Warning .	
WARNING: Disconnect the power window switch when working inside the door. When operated, the Express Up/Down Feature allows the door window to move very quickly, without stopping, which could cause personal injury.	
Preliminary Procedure Rear Side Door Water Deflector Replacement - Use masking tape to tape the window in the full up position to the door frame.	
1	Rear Side Door Window Regulator Motor Screw [3x] CAUTION: Refer to Fastener Caution . Procedure Tighten 10 N.m (89 lb in)
2	Rear Side Door Window Regulator Motor Procedure - Disconnect the electrical connector. - Inspect the door window for proper operation before installing the door trim panel.

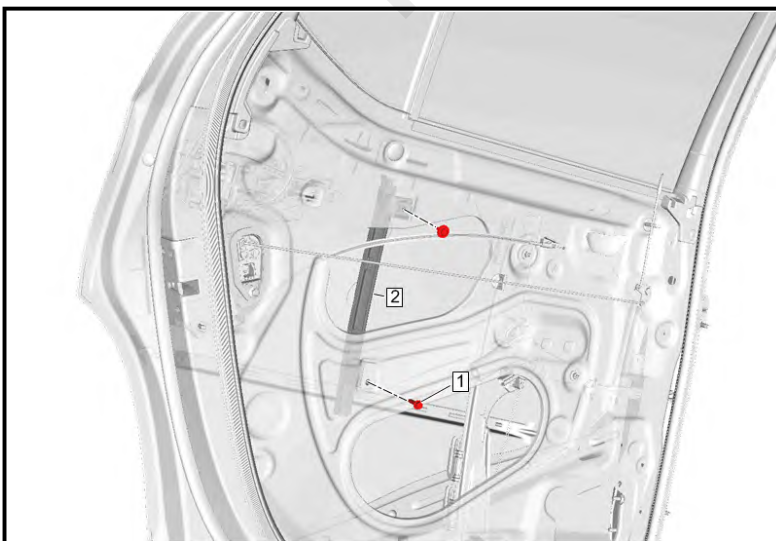
FRONT SIDE DOOR WINDOW CHANNEL RETAINER REPLACEMENT





Callout	Component Name
WARNING: Refer to Glass and Sheet Metal Handling Warning .	
WARNING: Disconnect the power window switch when working inside the door. When operated, the Express Up/Down Feature allows the door window to move very quickly, without stopping, which could cause personal injury.	
Preliminary Procedure Front Side Door Water Deflector Replacement	
1	Front Side Door Window Channel Retainer Bolt [2x] CAUTION: Refer to Fastener Caution . Tighten 9 N.m (80 lb in)
2	Front Side Door Window Channel Retainer Procedure Remove the wiring harness retainer from the front side door window channel retainer, if needed.

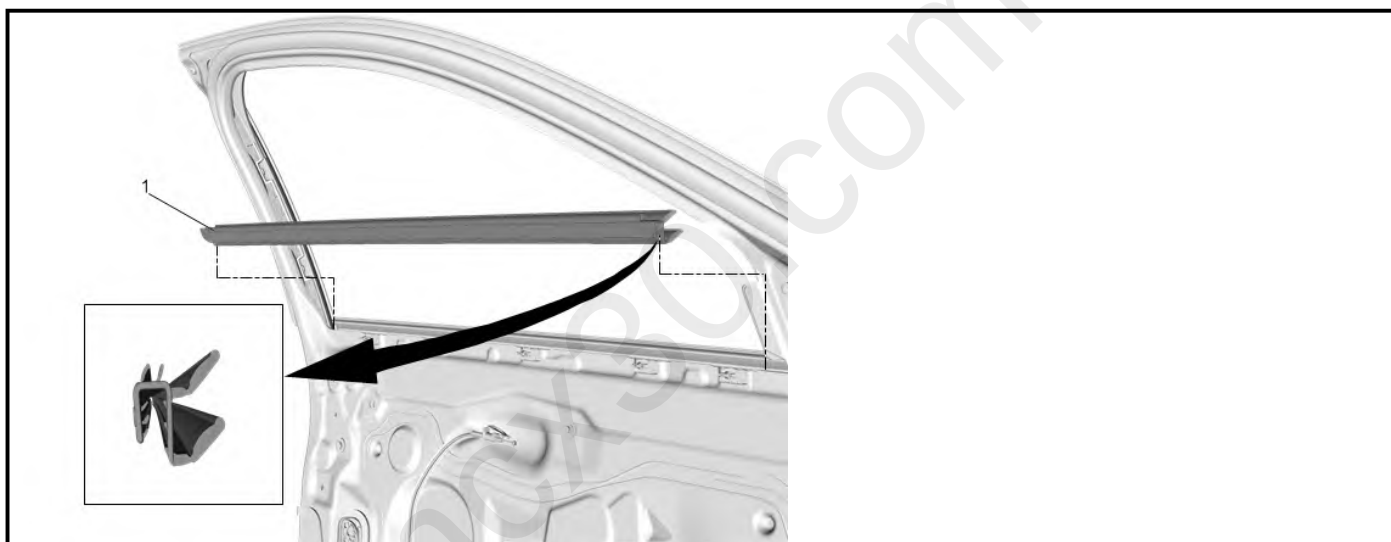
REAR SIDE DOOR WINDOW CHANNEL REAR RETAINER REPLACEMENT



Callout	Component Name

Callout	Component Name
WARNING: Refer to Glass and Sheet Metal Handling Warning .	
WARNING: Disconnect the power window switch when working inside the door. When operated, the Express Up/Down Feature allows the door window to move very quickly, without stopping, which could cause personal injury.	
Preliminary Procedure Rear Side Door Water Deflector Replacement	
1	Rear Side Door Window Channel Bolt [2x] CAUTION: Refer to Fastener Caution . Tighten 9 N.m (80 lb in)
2	Rear Side Door Window Channel Retainer

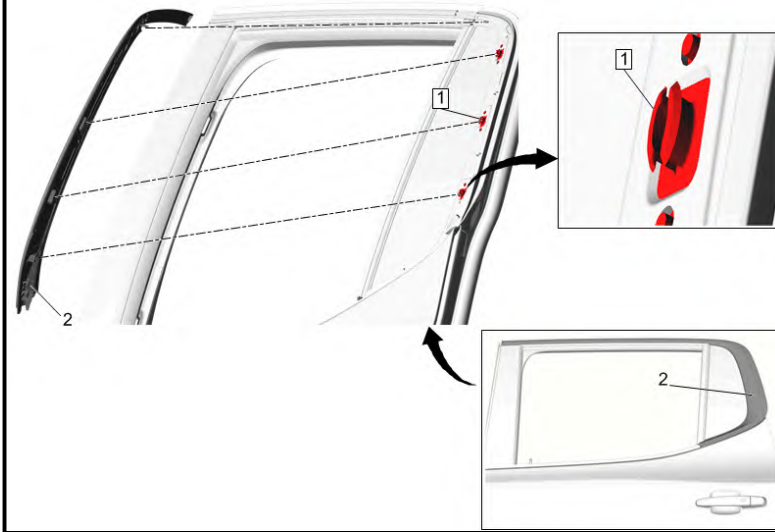
FRONT SIDE DOOR WINDOW INNER SEALING STRIP REPLACEMENT



Callout	Component Name
Preliminary Procedures 1. Place the front door window in the full down position. 2. Front Side Door Window Garnish Molding Replacement	
1	Front Side Door Window Inner Sealing Strip Procedure 1. Lift the front side door window inner strip off the pinch-weld flange. 2. Press firmly to insert the front side door window inner strip back on the door flange. 3. Inspect the door window for proper operation before installing the door trim panel.

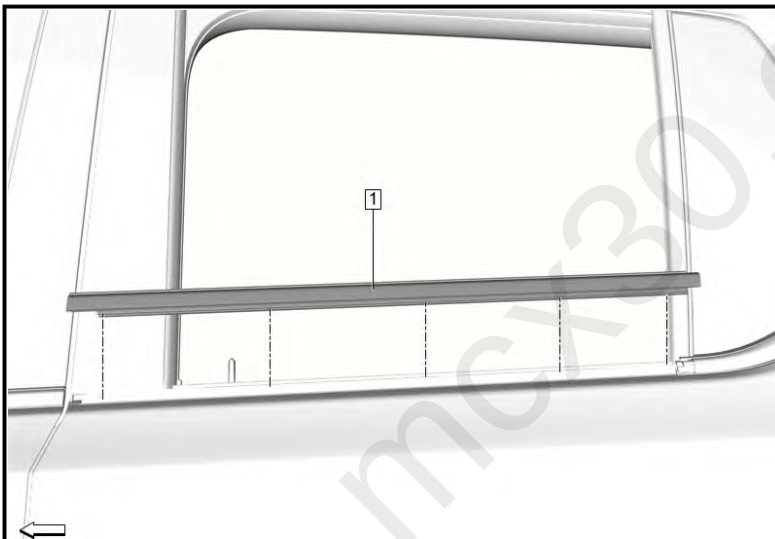
REAR SIDE DOOR WINDOW UPPER REVEAL MOLDING REPLACEMENT





Callout	Component Name
Preliminary Procedure Rear Side Door Window Belt Reveal Molding Replacement	
1	Rear Side Door Window Upper Reveal Molding Retainer [3x] Procedure Using the appropriate tool, release the upper reveal molding starting at the rear of the rear door.
2	Rear Side Door Window Upper Reveal Molding

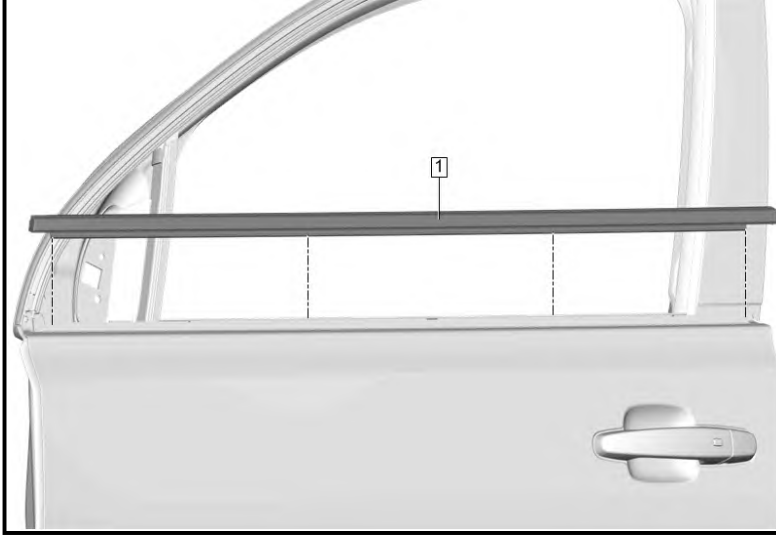
REAR SIDE DOOR WINDOW BELT REVEAL MOLDING REPLACEMENT



Callout	Component Name
1	Rear Side Door Window Belt Reveal Molding Procedure 1. Place the rear side door window in the down position. 2. Tape off the lower window frame to prevent damage to the door. 3. Using the appropriate tool, lift upward on one end of the reveal molding. Work the reveal molding down the door flange until it fully releases. 4. Install the sealing strip to the flange of the door and push downward until fully seated. 5. Inspect the door window for proper operation.

FRONT SIDE DOOR WINDOW BELT REVEAL MOLDING REPLACEMENT





Callout	Component Name
Preliminary Procedure Outside Rearview Mirror Replacement	
1	Front Side Door Window Belt Reveal Molding Procedure 1. Place the front door window in the full down position. 2. Apply masking tape to the outer applique and door frame. 3. Using the appropriate tool, lift the belt molding up to remove from the door flange. 4. Press firmly to insert the front side door window belt reveal molding back on the door flange. 5. Inspect the window for proper operation.

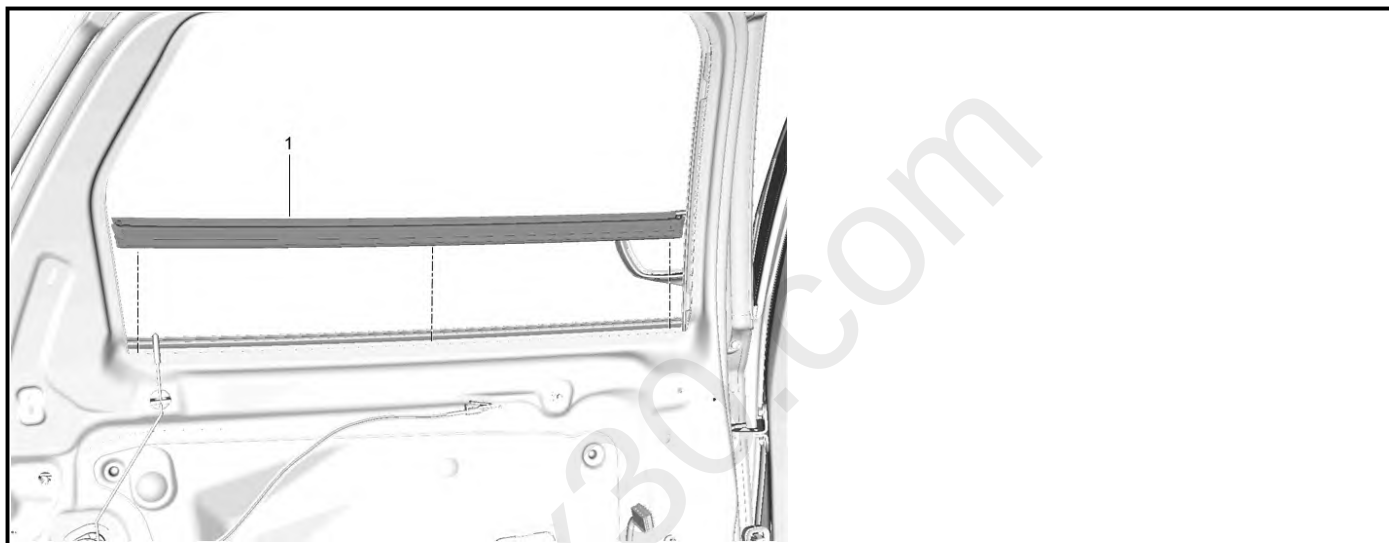
FRONT SIDE DOOR WINDOW UPPER REVEAL MOLDING REPLACEMENT



Callout	Component Name

Callout	Component Name
Preliminary Procedure Open the front side door.	
1	Front Side Door Window Upper Reveal Molding Bolt CAUTION: Refer to Fastener Caution . Tighten 2.5 N.m (22 lb in)
2	Front Side Door Window Upper Reveal Molding Procedure Using the appropriate tool, release the upper reveal molding starting at the front working to the rear of the front door. Slide molding rearward to release the hook clip from the rear of the front door.

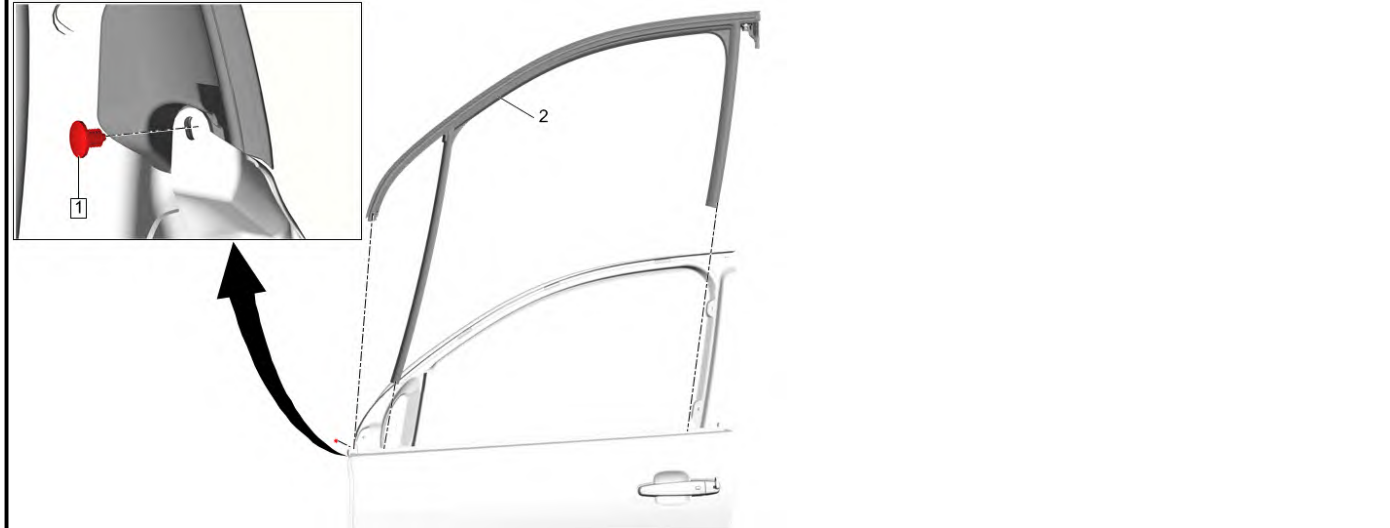
REAR SIDE DOOR WINDOW INNER SEALING STRIP REPLACEMENT



Callout	Component Name
Preliminary Procedures 1. Place the rear door window in the full down position. 2. Rear Side Door Window Garnish Molding Replacement	
1	Rear Side Door Window Inner Sealing Strip Procedure 1. Lift the rear side door window inner sealing strip off the pinch-weld flange. 2. Press firmly to insert the rear side door window inner sealing strip back on the door flange. 3. Inspect the door window for proper operation before installing the door trim panel.

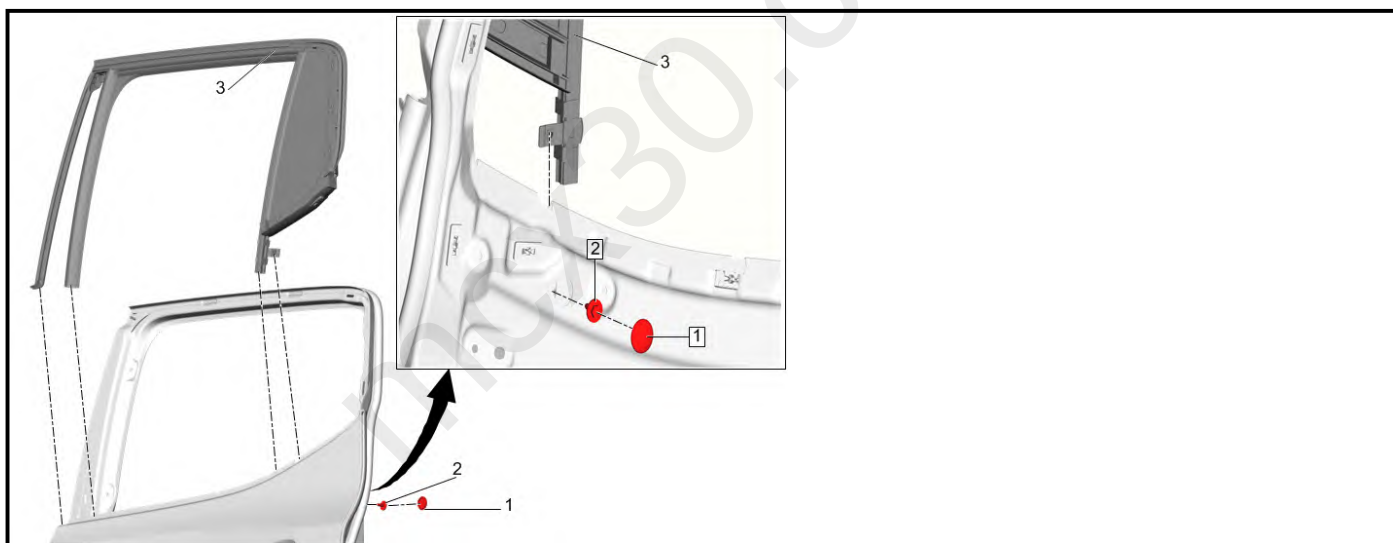
FRONT SIDE DOOR WINDOW WEATHERSTRIP REPLACEMENT





Callout	Component Name
Preliminary Procedures 1. Front Side Door Window Replacement 2. Radio Front Side Door Speaker Replacement 3. Front Side Door Window Frame Rear Applique Replacement	
1	Front Side Door Window Weatherstrip Fastener
2	Front Side Door Window Weatherstrip

REAR SIDE DOOR WINDOW WEATHERSTRIP REPLACEMENT



Callout	Component Name
Preliminary Procedures 1. Rear Side Door Window Replacement 2. Rear Side Door Window Frame Front Applique Replacement 3. Rear Side Door Window Upper Reveal Molding Replacement	
1	Door Plug
2	Rear Side Door Window Weatherstrip Fastener CAUTION: Refer to Fastener Caution . Tighten 11 N.m (97 lb in)

Callout	Component Name
3	Rear Side Door Window Weatherstrip

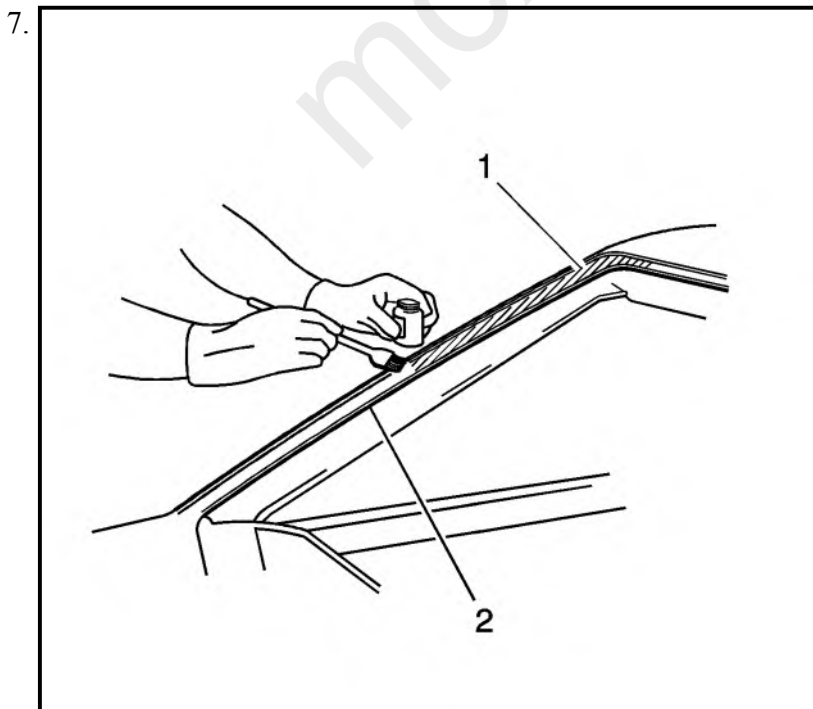
ADHESIVE INSTALLATION OF WINDSHIELDS

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

1. Use a urethane adhesive systems which meet GM Specification GMW 15672.
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 pinchweld flange by using a clean utility knife or razor blade scraper.
4. Inspect for any of the following problems in order to help prevent future breakage of the window:
 - The flange of the window opening
 - High weld
 - Solder spots
 - Hardened sealer
 - Any other obstruction or irregularity in the pinchweld flange

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

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



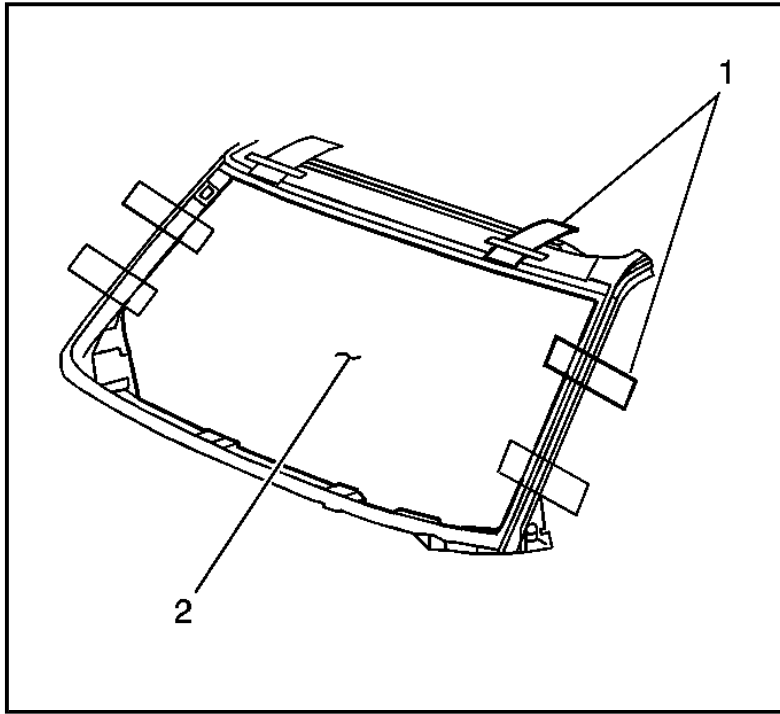
WARNING: Failure to prep the area prior to the application of primer may cause insufficient bonding of urethane adhesive. Insufficient bonding of urethane adhesive may allow unrestrained occupants to be ejected from the vehicle resulting in personal injury.

Apply the primer to the surface of the pinch-weld flange (1).

8. Allow the pinch-weld primer to dry per auto-adhesive instructions by the manufacturer's.

9. With an assistant, dry fit the window (2) to the opening in order to determine the correct position.

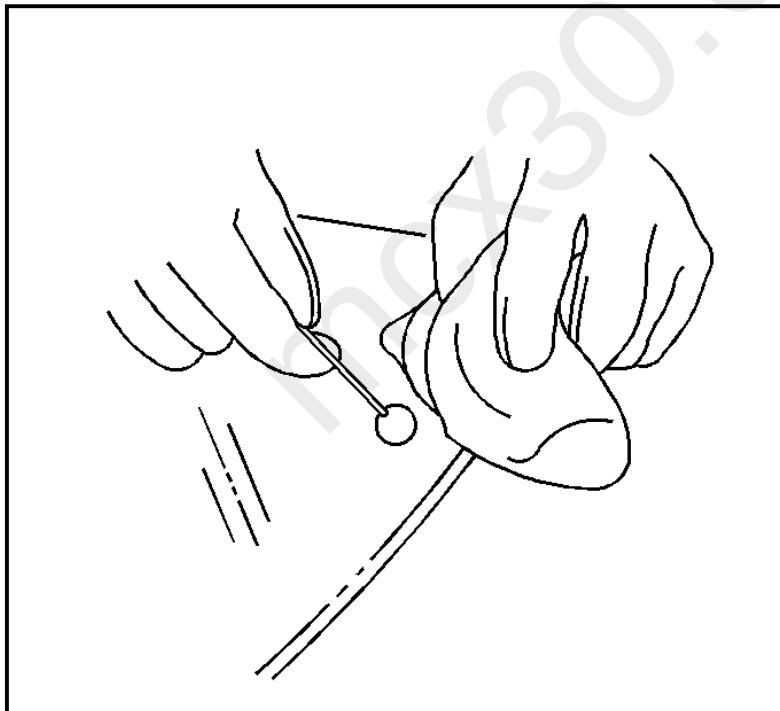
10.



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

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

12.

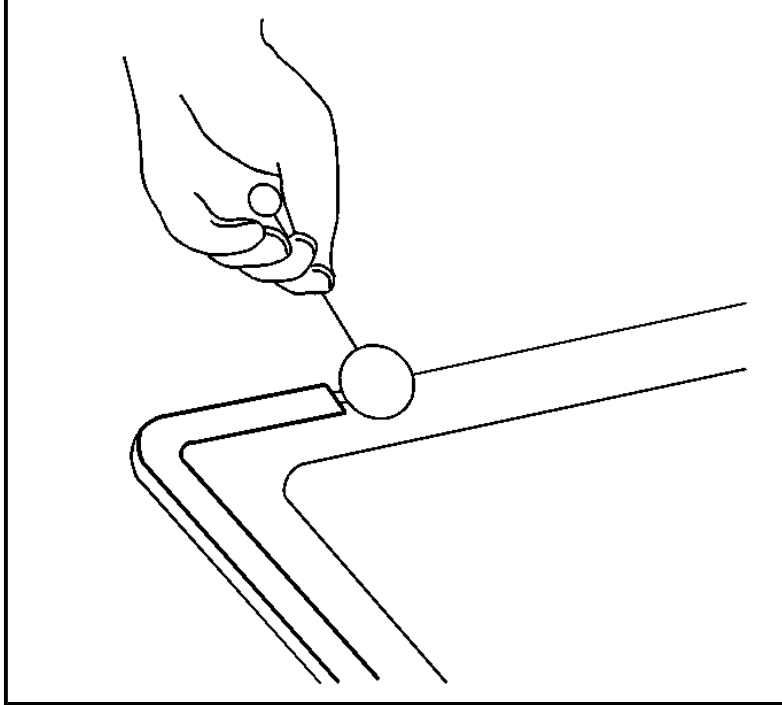


Apply glass prep clear to the area approximately 10 - 16 mm (3/8 - 5/8 in) around the entire perimeter of the window inner surface.

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

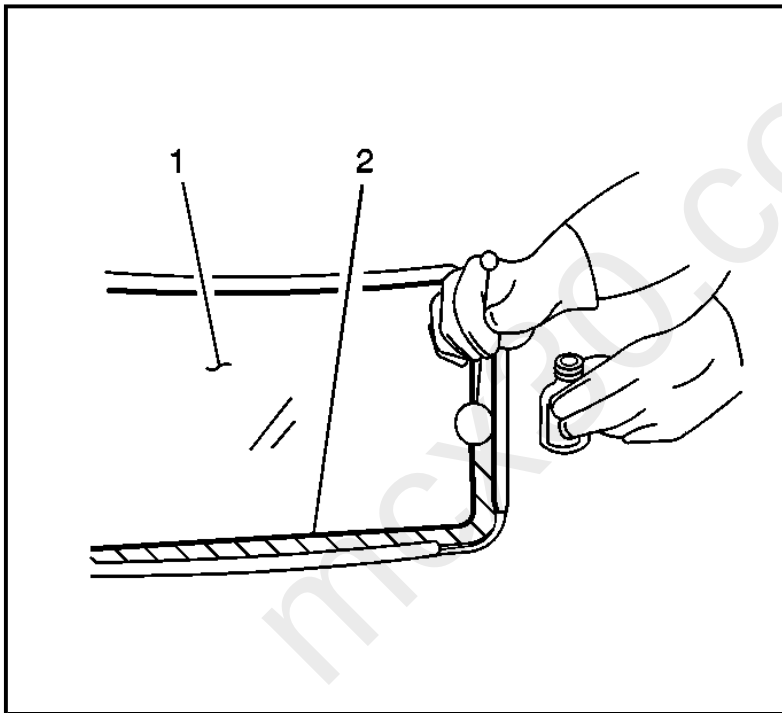
13.





Apply bonded-glass primer and let dry per auto-adhesive instructions by the manufacturer's.

14.



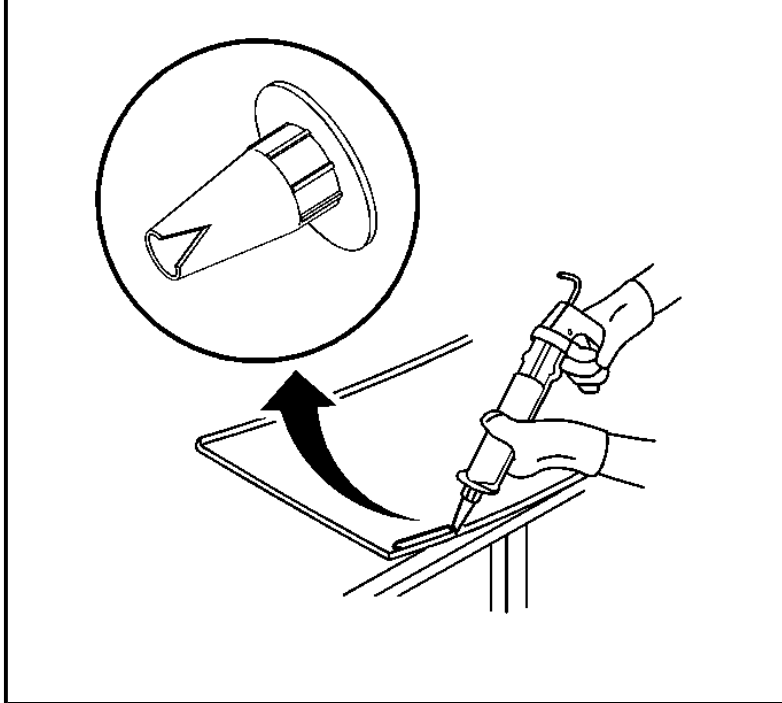
Apply the auto-adhesive primer-application (2) around the perimeter of the window (1) per auto-adhesive instructions by the manufacturer's.

15. Apply the glass primer black to the same areas that glass prep clear was applied.

16. Allow the glass primer to dry per auto-adhesive instructions by the manufacturer's.

17.

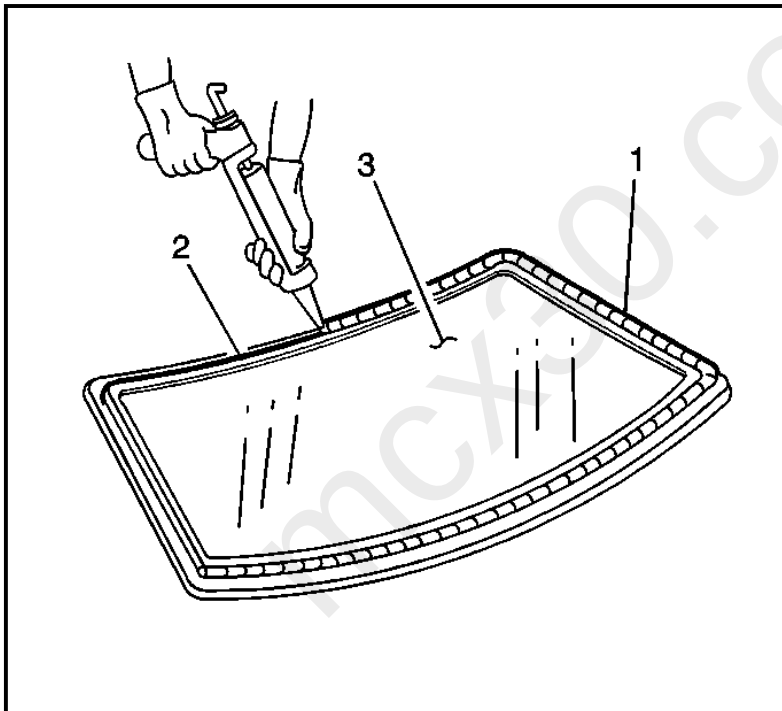




Use a cartridge-type caulking gun in order to apply a smooth, continuous bead of urethane adhesive.

Cut the applicator nozzle to provided a V cut to apply the auto-adhesive.

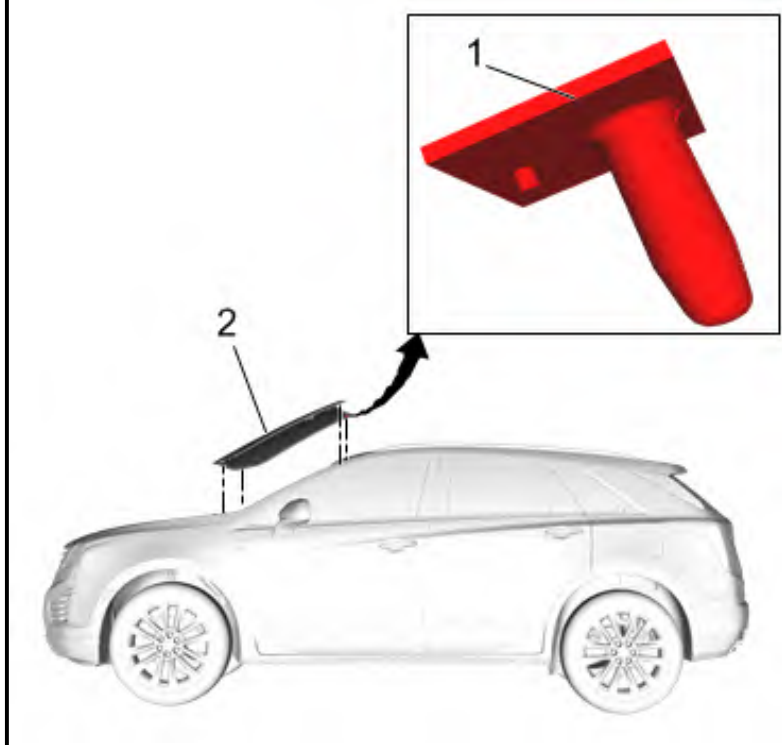
18.



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).

19.





NOTE: If the locating pins were cut off it will be necessary to tape the window in place until the auto-adhesive cures per auto-adhesive instructions by the manufacturer's.

With an assistant, align the window locating pins (1) to the slots located in each corner of the pinch-weld flange. Lower the window (2) to touch the auto-adhesive.

20. Gently depress the window on the auto-adhesive bead until the window reveal molding is seated.
21. Tape the window to the body in order to minimize movement and until the auto-adhesive cures per auto-adhesive instructions by the manufacturer's.
22. Ensure all excess urethane adhesive is cleaned from the body before water test.

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

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

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

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

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

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

28. Complete the window installation.

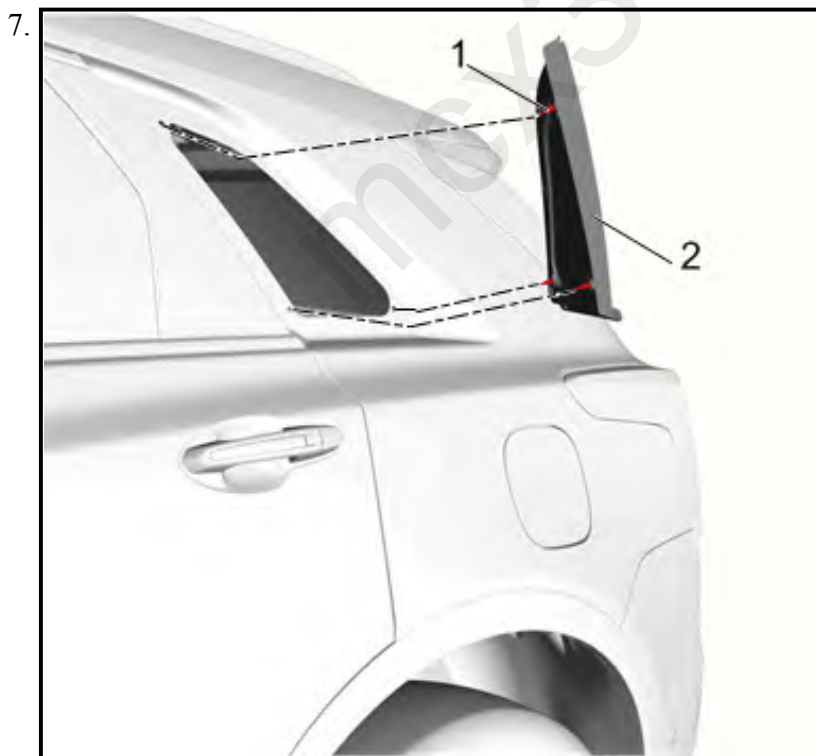
ADHESIVE INSTALLATION OF BODYSIDE STATIONARY WINDOWS

WARNING: Refer to Glass and Sheet Metal Handling Warning .

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

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

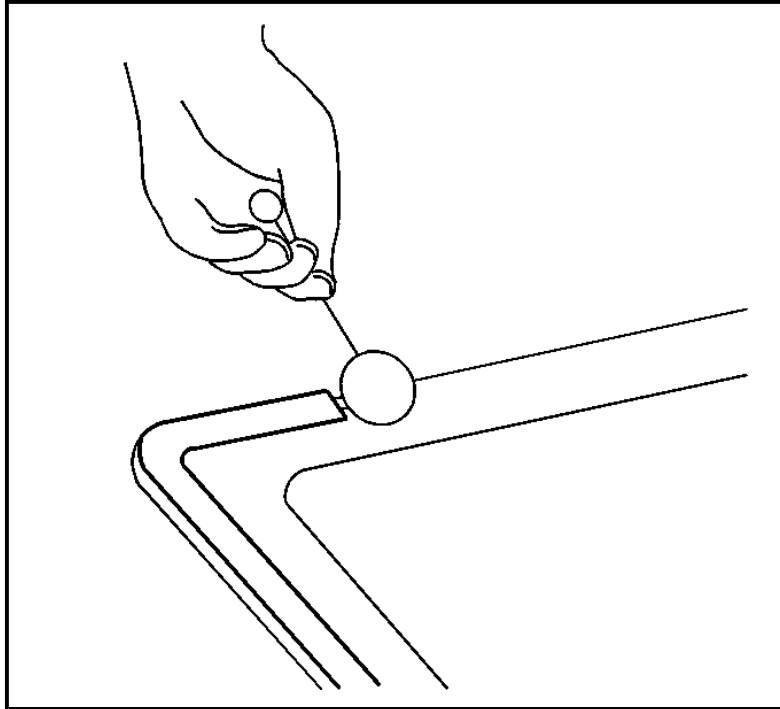
5. After repairing the opening as indicated, perform the following steps:
6. Use an abrasive pad if necessary to remove mold release buildup from the encapsulated window. Use a dampened lint free cloth to remove any debris remaining on the window.



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.

12.



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.

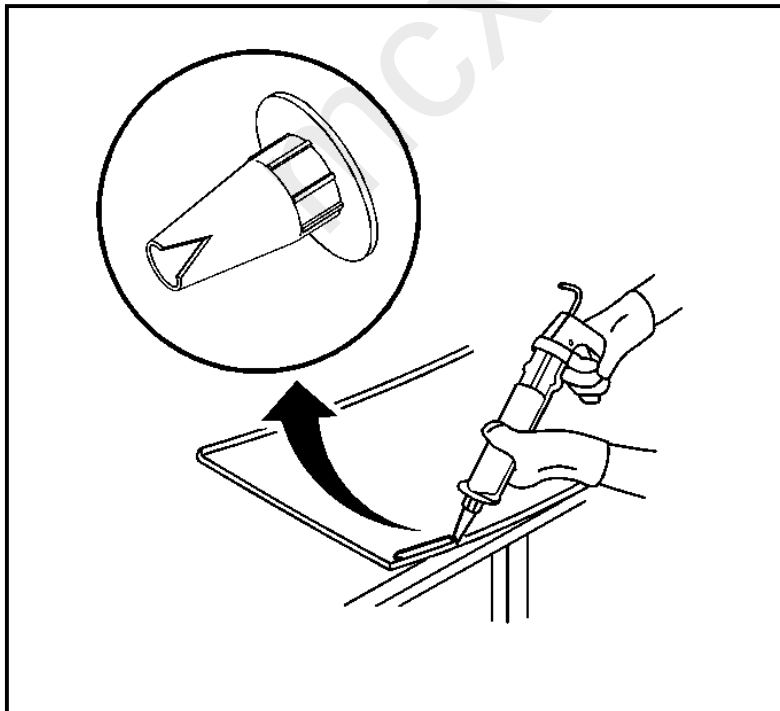
NOTE: Do not apply the black primer to the existing bead of the urethane adhesive on the pinch-weld flange. Apply the primer only to nicks, scratches or the primed surfaces.

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.

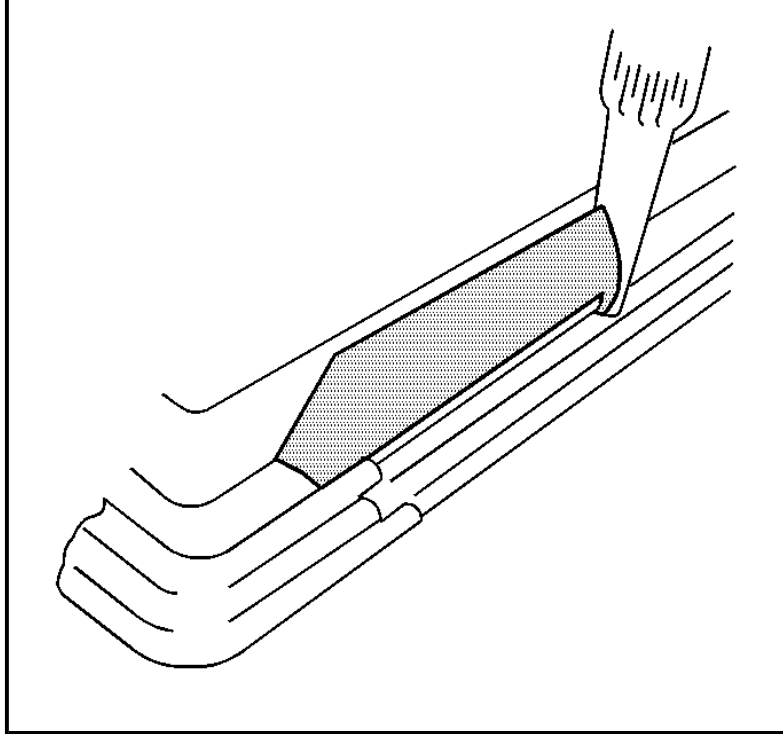
15.



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

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.

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

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

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

ADHESIVE INSTALLATION OF REAR WINDOWS

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 surface by using a clean utility knife or razor blade scraper.
4. Inspect for any of the following conditions in order to help prevent future breakage of the window:
 - High weld
 - Solder spots
 - Hardened sealer
 - Any other obstruction or irregularity in the 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 STANDEX 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.

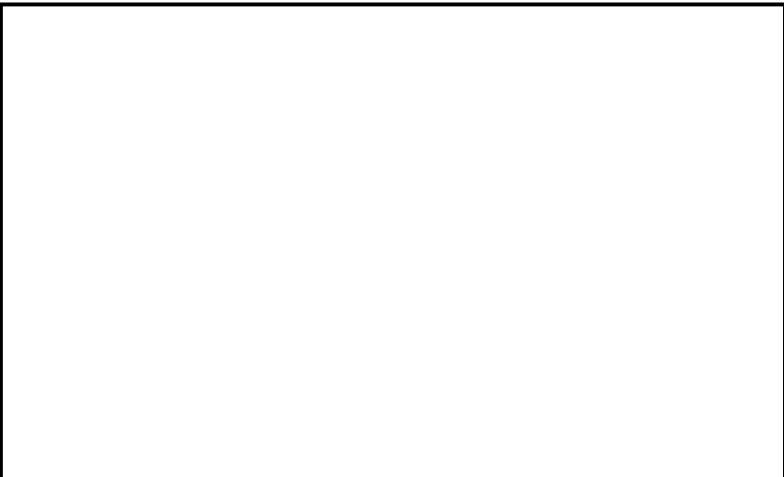
WARNING: Refer to [Window Retention Warning](#) .

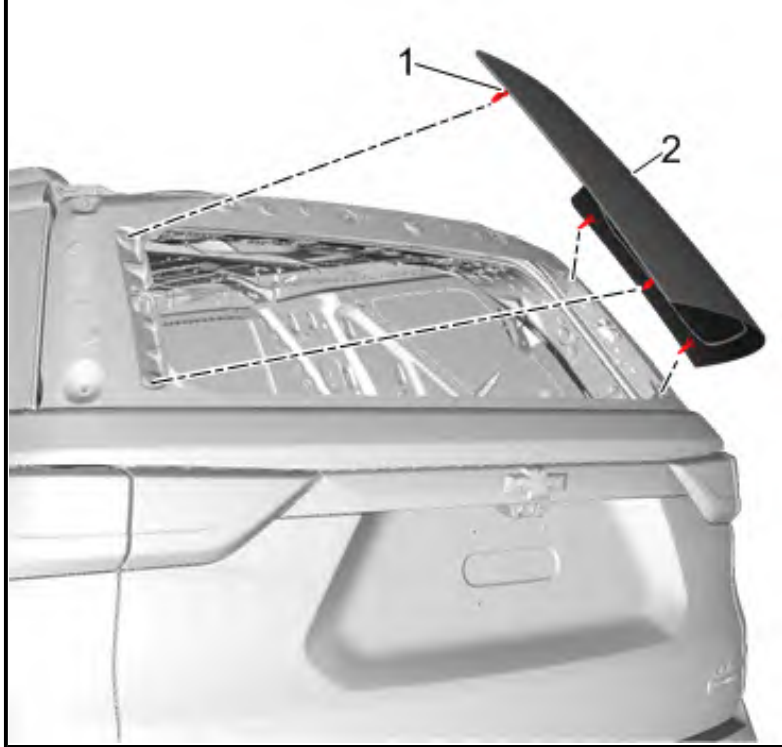
WARNING: Failure to prep the area prior to the application of primer may cause insufficient bonding of urethane adhesive. Insufficient bonding of urethane adhesive may allow unrestrained occupants to be ejected from the vehicle resulting in personal injury.

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

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.

7. Shake the pinch-weld primer black 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.

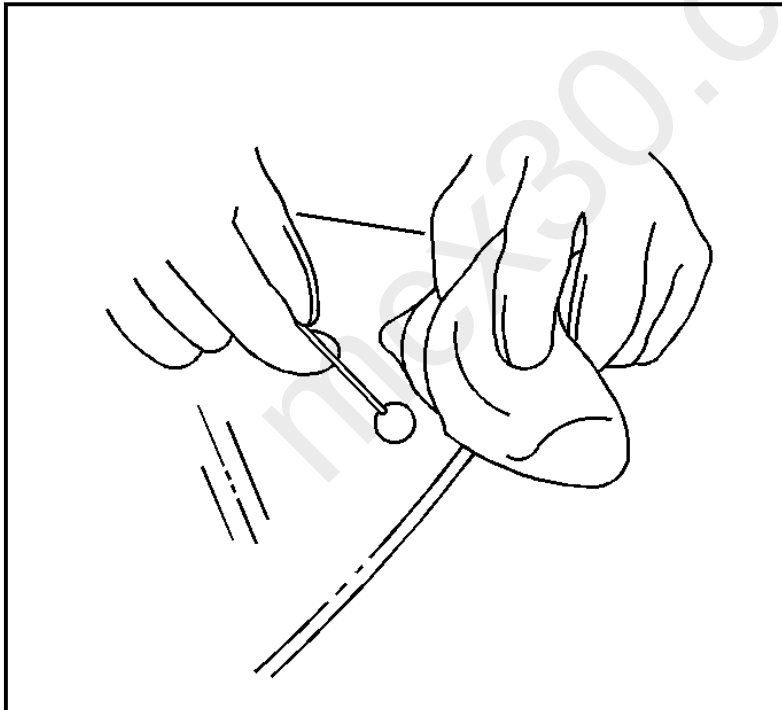
10. 



With an assistant, dry fit the window (2) to the opening in order to determine the correct position.

11. Ensure the window locator pins (1) are positioned into the locator slots in the pinch-weld flange.
12. Use masking tape to mark the locations of the window in the opening.
13. Cut the masking in the center and remove the window from the opening.

14.



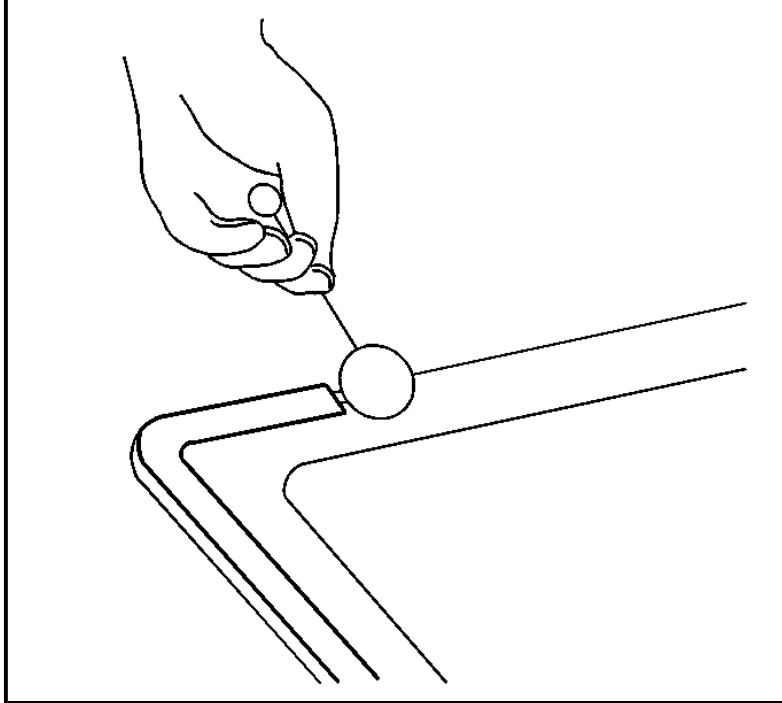
NOTE: Use care when applying glass prep clear on the window. This primer dries almost instantly, and may stain the viewing area of the window if not applied evenly.

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

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

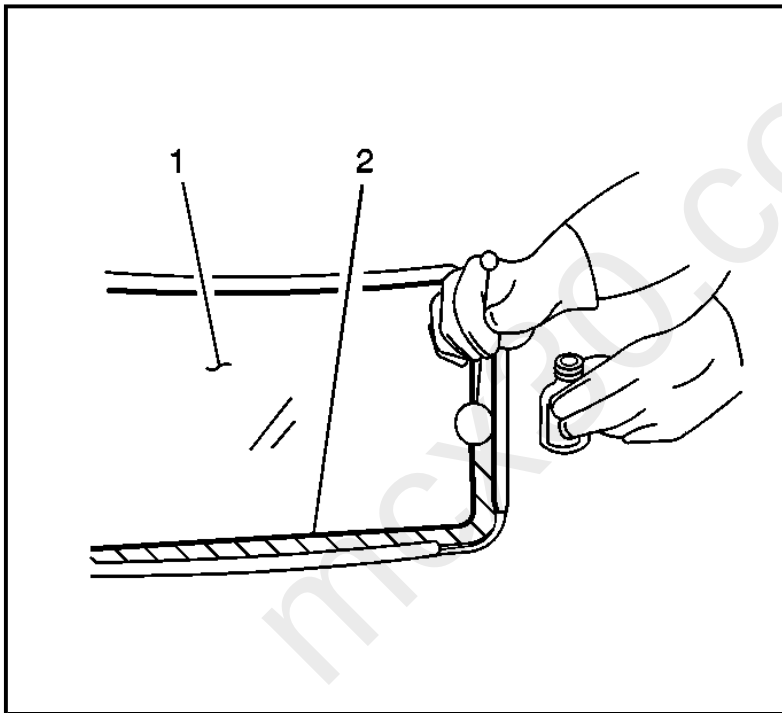
15.





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

16.



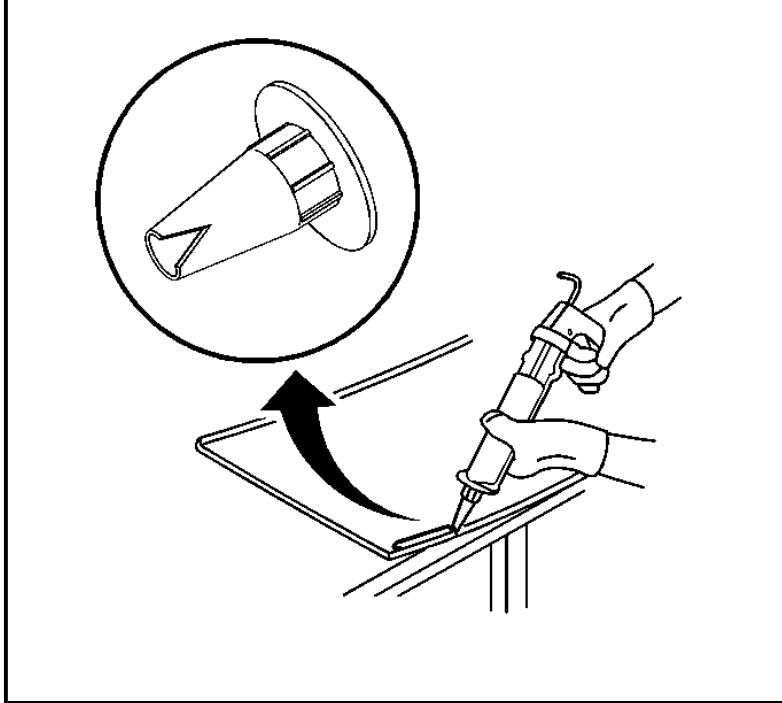
NOTE: The glass primer black is effective up to 8 hours after applying it to the glass. The primed surface of the glass must be kept clean.

Shake the glass primer black for at least 1 minute.

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

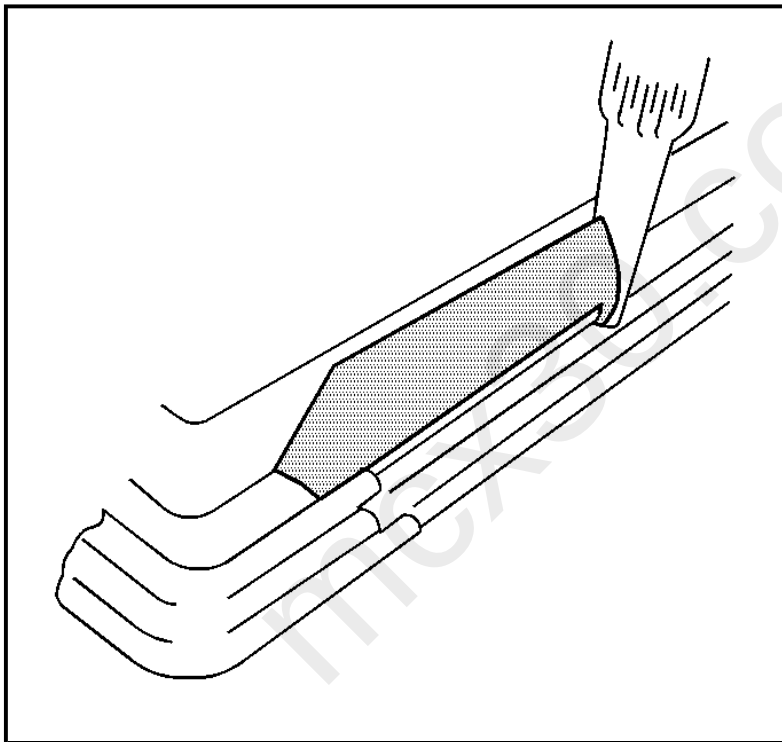
19.





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

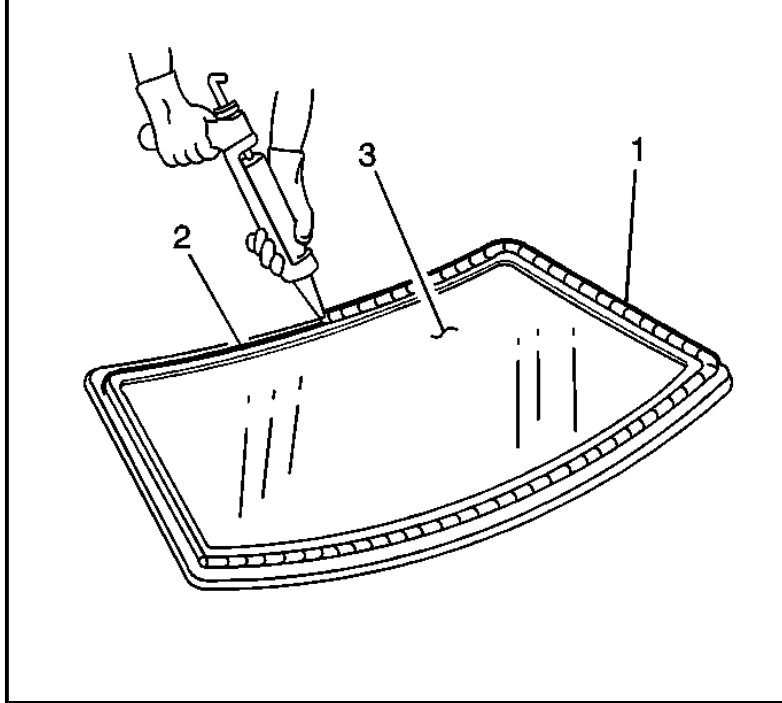
20.



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

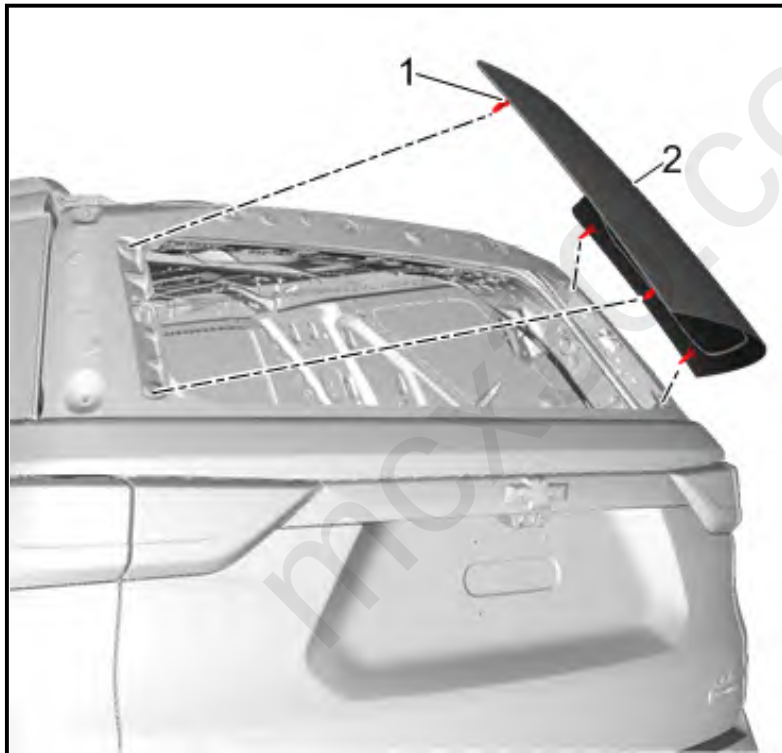
21.





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

22.



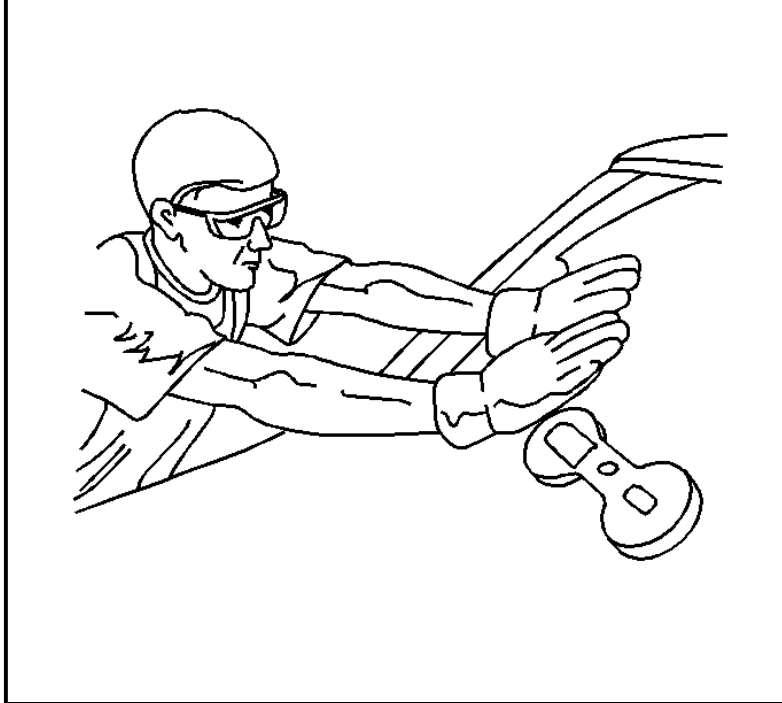
NOTE: There are window locating pins (1), one in each upper corner of the window. If the window locator pins are cut, it will be necessary to tape the window in place.

With an assistant, place the window (2) in the opening.

23. Align the masking tape with the lines on the window and the body.

24.



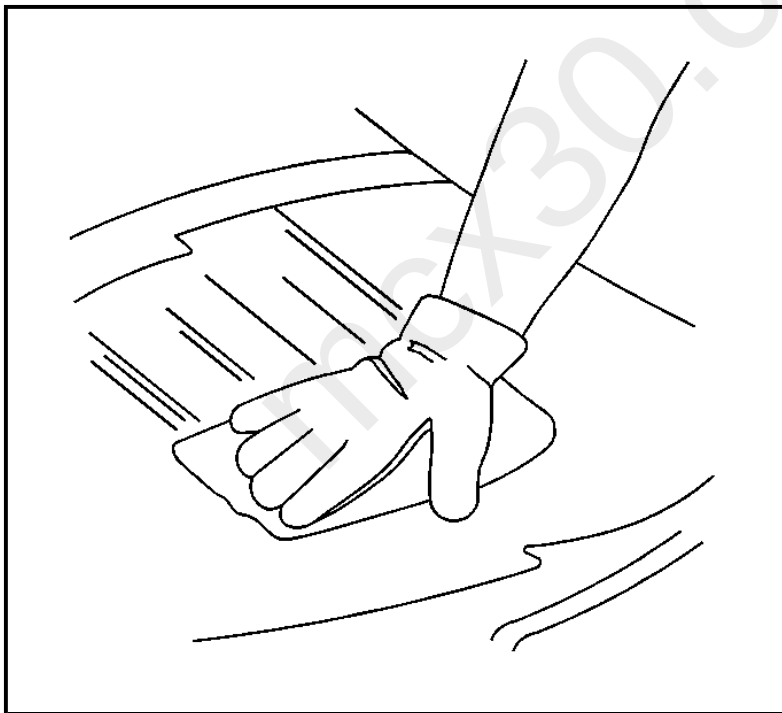


NOTE: To prevent damage to the window due to objects impacting an exposed edge, upon installation, the window must rest 1 mm (0.040 in) below the surface of the sheet metal.

Press firmly around the entire periphery of the window in order to wet-out the urethane bead.

25. Tape the window to the body in order to minimize movement until the urethane adhesive cures.

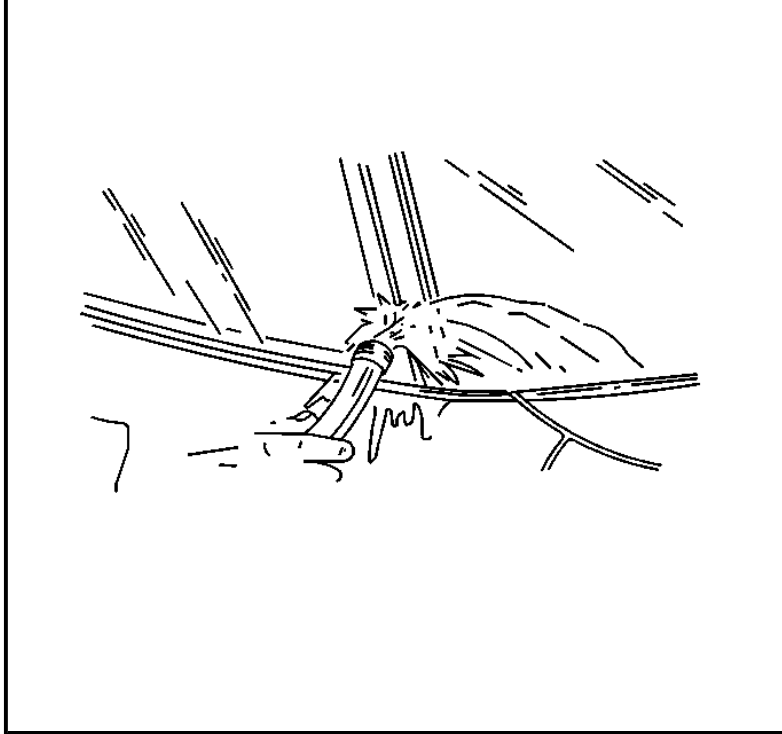
26.



Clean any excess urethane adhesive from the body.

27.





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

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

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

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

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

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

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

DESCRIPTION AND OPERATION

FULL-CUT METHOD DESCRIPTION

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

This method includes the following:

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

- Apply pinch-weld primer to any exposed painted areas on the pinch-weld flange.

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

IMPORTANT:

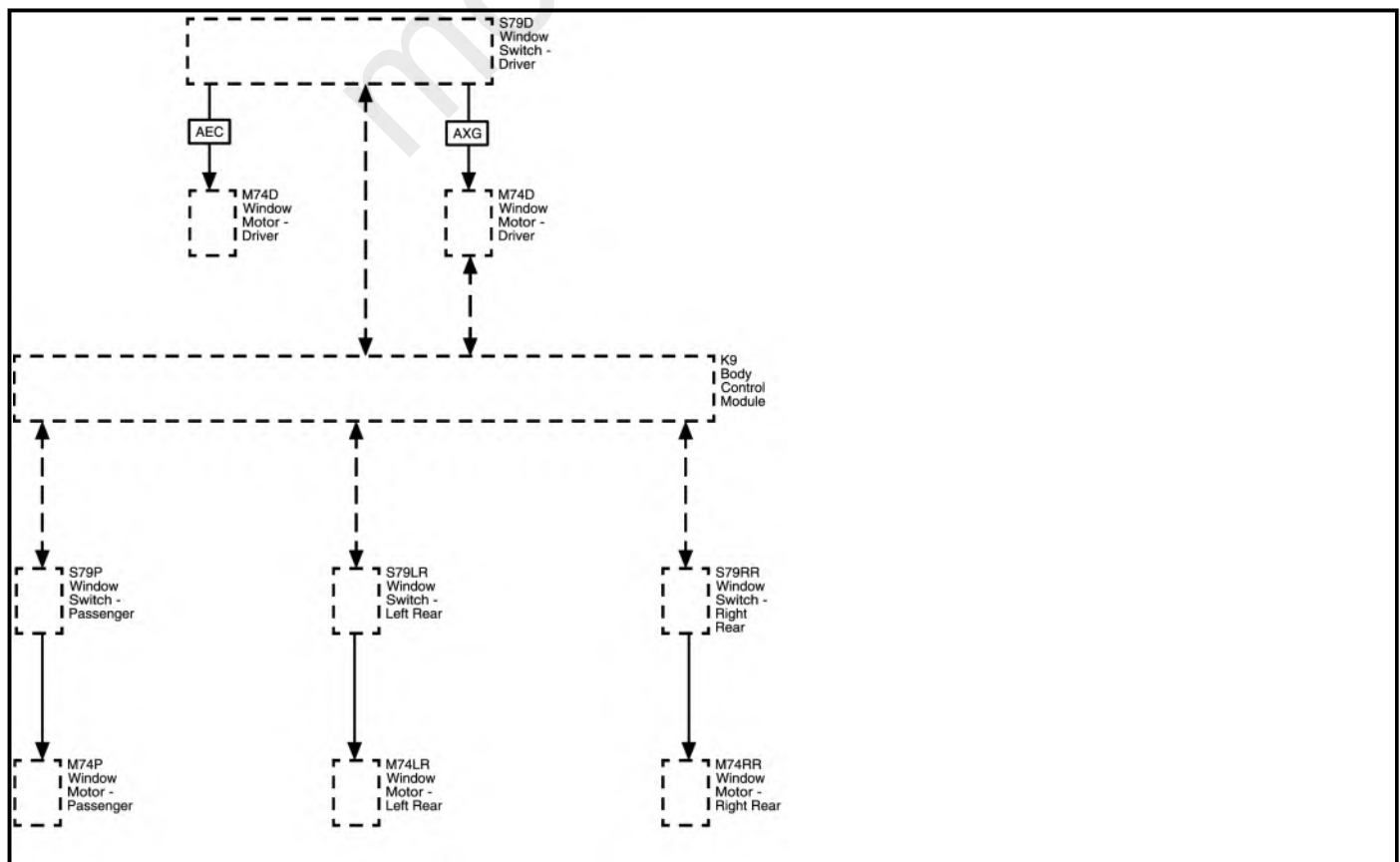
- If corrosion of the pinch-weld flange is present, or if sheet metal repairs or replacements are required, refinish the pinch-weld flange in order to present a clean, primer-only surface.
- If paint repairs are required, mask the flange bonding area, prior to applying the color coat, in order to provide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

POWER WINDOWS DESCRIPTION AND OPERATION

Power Windows System Components

The power window system consists of the following components:

- Driver window switch
- Passenger window switch
- Left rear window switch
- Right rear window switch
- Window motors in each of the doors
- 30A Fuse
- 7.5A Fuse
- Body control module (BCM)



Callout	Component Name
AEC	WINDOW REG DRVR DR: POWER OPERATED, EXPRESS DOWN
AXG	WINDOW REG DRVR DR: POWER OPERATED, EXPRESS UP/DOWN
S79D	S79D Window Switch - Driver
M74D	M74D Window Motor - Driver
M74D	M74D Window Motor - Driver
K9	K9 Body Control Module
S79RR	S79RR Window Switch - Right Rear
S79LR	S79LR Window Switch - Left Rear
S79P	S79P Window Switch - Passenger
M74P	M74P Window Motor - Passenger
M74LR	M74LR Window Motor - Left Rear
M74RR	M74RR Window Motor - Right Rear

Power Window System

This vehicle can be configured as follows:

- Driver door with express up and express down power window motor (Optional)
- All doors with express down only window motors (Standard)

Driver Express Up and Express Down Window Motor

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

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

All Doors with Express Down Window Motors

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

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

Lockout Switch Feature

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

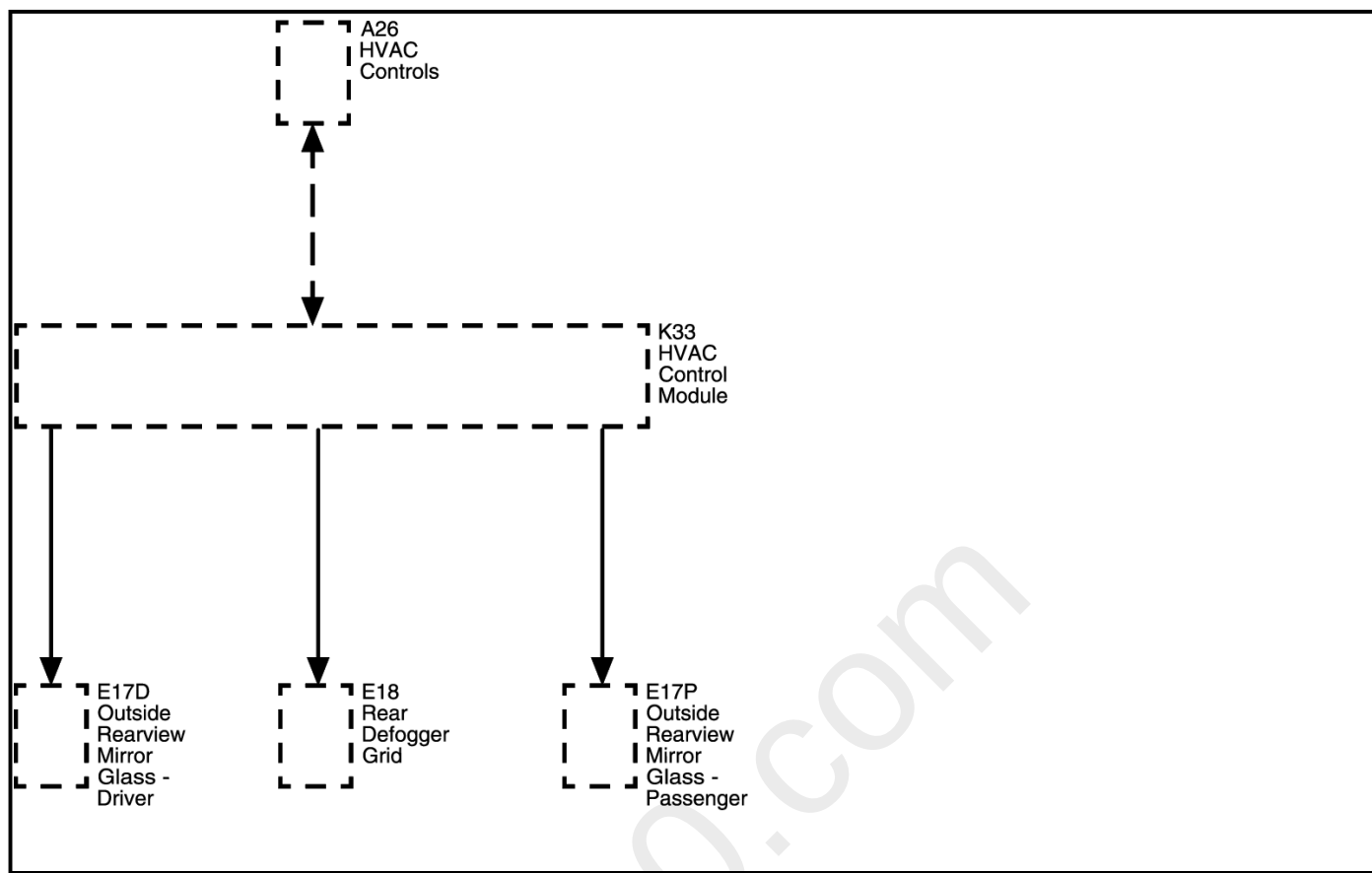
REAR WINDOW DEFOGGER DESCRIPTION AND OPERATION

Rear Window Defogger System Components

The rear window defogger system consists of the following components:

- HVAC Control Module
- HVAC Controls

- Rear Defogger Relay
- Rear Defogger Grid
- Driver Outside Rearview Mirror
- Passenger Outside Rearview Mirror
- 40A Fuse



Callout	Component Name
E17D	E17D Outside Rearview Mirror Glass - Driver
E18	E18 Rear Defogger Grid
E17P	E17P Outside Rearview Mirror Glass - Passenger
A26	A26 HVAC Controls
K33	K33 HVAC Control Module

Rear Window Defogger Operation

The rear defog control system utilizes a single zone backlight design, driven with a single relay configuration. Additionally, up to two outside rear view mirrors can be heated if required. A switch for the customer to control the system is provided within the HVAC controls. Also included in the 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 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 rear window switch is pressed and the engine is running, the rear window defogger grid will activate and will turn off automatically depending upon the vehicle speed (refer to owner's manual for rear window defogger operation cycles)

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.

STATIONARY WINDOW DESCRIPTION

Most stationary windows, specifically windshields, are retained to the body with adhesive which adheres the window to the body, increasing structural integrity. The reinstallation of the windows with adhesive requires complete replacement of the adhesive bead, and is known as the full cut method. All stationary windows must use a adhesive systems which meet GM Specification GMW-15672.

URETHANE ADHESIVE DESCRIPTION

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

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

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

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

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

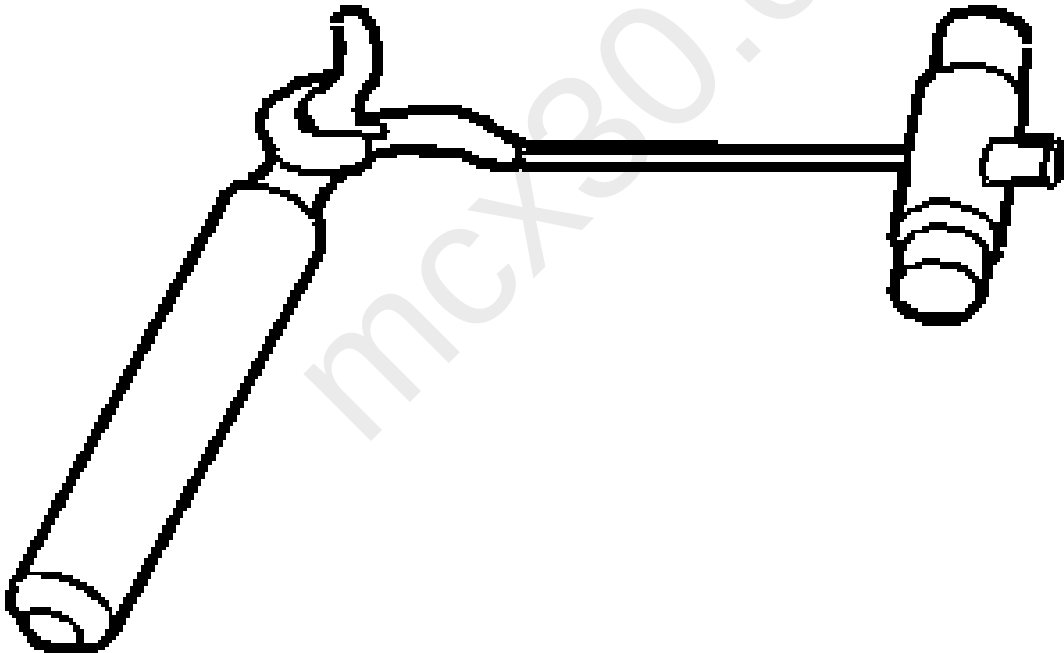
Illustration	Tool Number/Description
	BO-24402-A J-24402-A Glass Sealant Cold Knife Remover

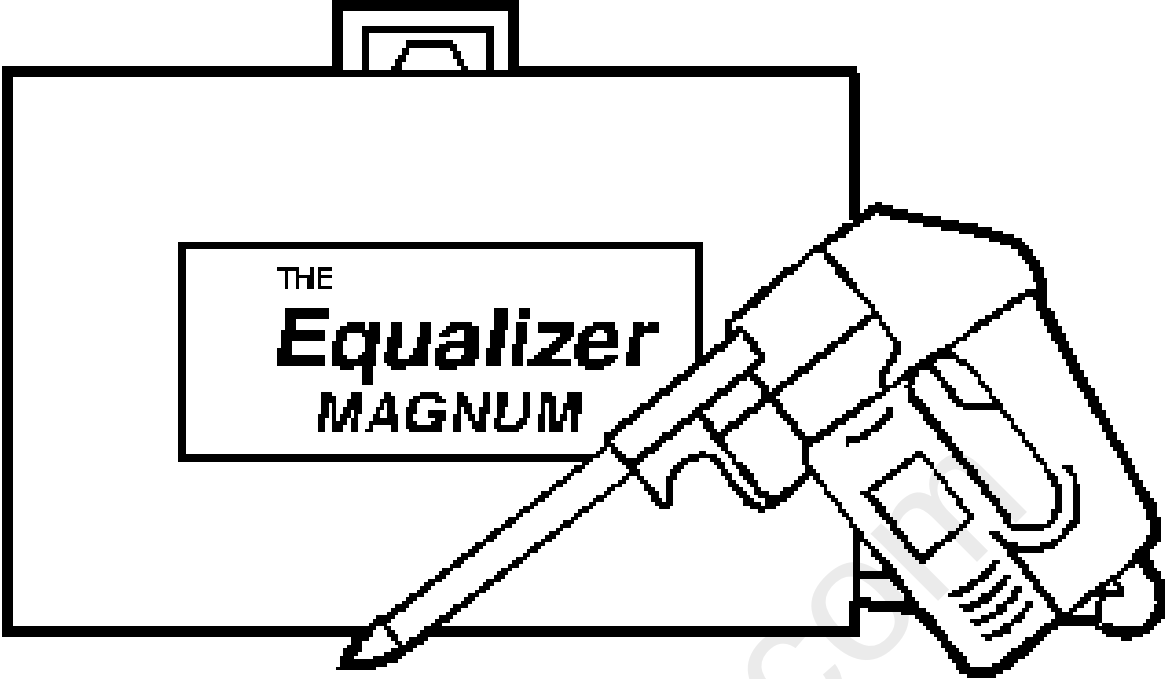
Illustration	Tool Number/Description
 A line drawing of a hand holding a stationary glass removal tool. The tool has a long, thin, pointed tip and a handle with a trigger mechanism. A label on the tool reads "THE <i>Equalizer</i> MAGNUM". The background is a simple rectangle with a small handle on top.	BO-39032 J-39032 Stationary Glass Removal Tool

Illustration	Tool Number/Description
	BO-39040 J-39040 Quarter Window Remover