

**2008 Mazda CX-9 Grand Touring**

2008 BODY & ACCESSORIES Glass/Windows/Mirrors - Mazda CX-9

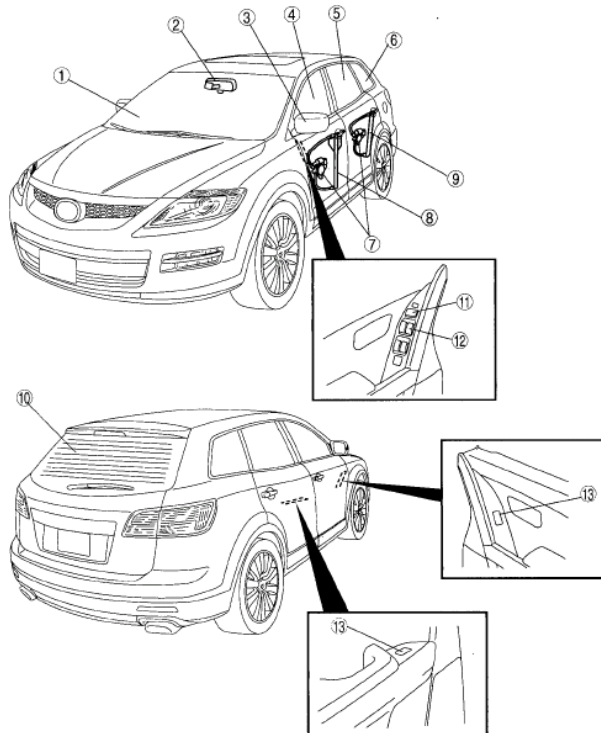
**2008 BODY & ACCESSORIES**

**Glass/Windows/Mirrors - Mazda CX-9**

**GLASS/WINDOWS/MIRRORS LOCATION INDEX**

# 2008 Mazda CX-9 Grand Touring

## 2008 BODY & ACCESSORIES Glass/Windows/Mirrors - Mazda CX-9



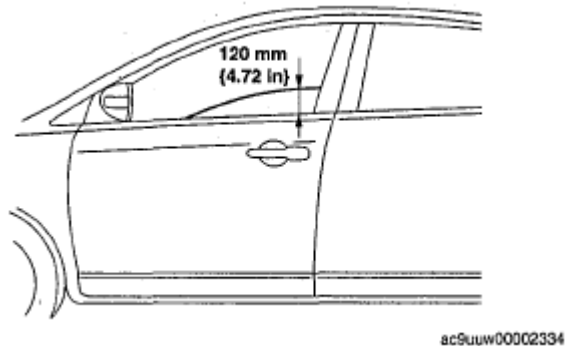
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1	Windshield (See 09-12-17 WINDSHIELD REMOVAL.) (See 09-12-19 WINDSHIELD INSTALLATION.)	6	Quarter window glass (See 09-12-25 QUARTER WINDOW GLASS REMOVAL.) (See 09-12-27 QUARTER WINDOW GLASS INSTALLATION.)
2	Rearview mirror (See 09-12-36 REARVIEW MIRROR REMOVAL [VEHICLES WITH AUTO LIGHT/WIPER SYSTEM].) (See 09-12-38 REARVIEW MIRROR INSTALLATION [VEHICLES WITH AUTO LIGHT/WIPER SYSTEM].) (See 09-12-37 REARVIEW MIRROR REMOVAL [VEHICLES WITHOUT AUTO LIGHT/WIPER SYSTEM].) (See 09-12-38 REARVIEW MIRROR INSTALLATION [VEHICLES WITHOUT AUTO LIGHT/WIPER SYSTEM].) (See 09-12-34 BASE REMOVAL.) (See 09-12-35 BASE INSTALLATION.)	7	Power window motor (See 09-12-7 POWER WINDOW MOTOR REMOVAL/INSTALLATION.) (See 09-12-8 POWER WINDOW MOTOR INSPECTION.)
3	Power outer mirror (See 09-12-31 POWER OUTER MIRROR REMOVAL/INSTALLATION.) (See 09-12-31 OUTER MIRROR GLASS REMOVAL.) (See 09-12-32 OUTER MIRROR GLASS INSTALLATION.) (See 09-12-32 OUTER MIRROR GARNISH REMOVAL.) (See 09-12-32 OUTER MIRROR GARNISH INSTALLATION.) (See 09-12-32 POWER OUTER MIRROR INSPECTION.)	8	Front power window regulator (See 09-12-5 FRONT POWER WINDOW REGULATOR REMOVAL/INSTALLATION.)
4	Front door glass (See 09-12-3 FRONT DOOR GLASS REMOVAL/INSTALLATION.)	9	Rear power window regulator (See 09-12-6 REAR POWER WINDOW REGULATOR REMOVAL/INSTALLATION.)
5	Rear door glass (See 09-12-4 REAR DOOR GLASS REMOVAL/INSTALLATION.)	10	Rear window glass (See 09-12-22 REAR WINDOW GLASS REMOVAL.) (See 09-12-23 REAR WINDOW GLASS INSTALLATION.) (See 09-12-30 FILAMENT INSPECTION.) (See 09-12-30 FILAMENT REPAIR.)
		11	Power outer mirror switch (See 09-12-33 POWER OUTER MIRROR SWITCH REMOVAL/INSTALLATION.) (See 09-12-34 POWER OUTER MIRROR SWITCH INSPECTION.)
		12	Power window main switch (See 09-12-9 POWER WINDOW MAIN SWITCH REMOVAL/INSTALLATION.) (See 09-12-9 POWER WINDOW MAIN SWITCH INSPECTION.) (See 09-12-14 POWER WINDOW INITIALIZATION PROCEDURE.) (See 09-12-15 TWO-STEP DOWN FUNCTION OPERATIVE/NON-OPERATIVE SWITCHING PROCEDURE.) (See 09-12-16 DOOR GLASS POSITION CHANGE PROCEDURE.)
		13	Power window subswitch (See 09-12-12 POWER WINDOW SUBSWITCH REMOVAL/INSTALLATION.) (See 09-12-13 POWER WINDOW SUBSWITCH INSPECTION.)

**Fig. 1: Identifying Glass/Windows/Mirrors Components Location**  
 Courtesy of MAZDA MOTORS CORP.

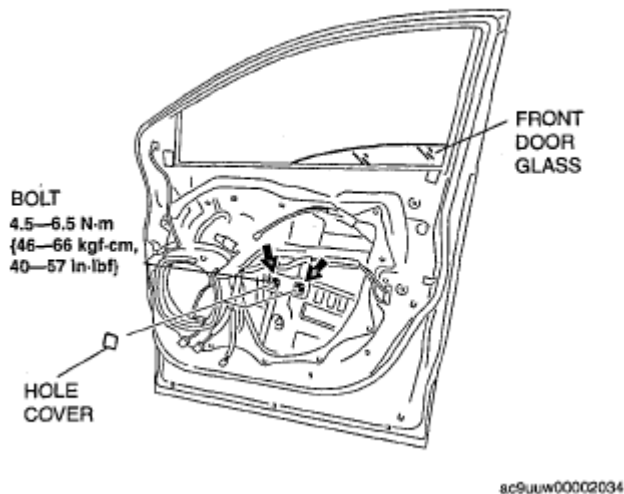
## FRONT DOOR GLASS REMOVAL/INSTALLATION

1. Adjust the door glass position as shown in the figure.
2. Disconnect the negative battery cable.
3. Remove the inner garnish. (See **INNER GARNISH REMOVAL/INSTALLATION** .)
4. Remove the front door trim. (See **FRONT DOOR TRIM REMOVAL/INSTALLATION** .)
5. Remove the front door speaker. (See **FRONT DOOR SPEAKER REMOVAL/INSTALLATION** .)



**Fig. 2: Identifying Front Door Glass Position**  
Courtesy of MAZDA MOTORS CORP.

6. Remove the hole cover.
7. Remove the bolts.

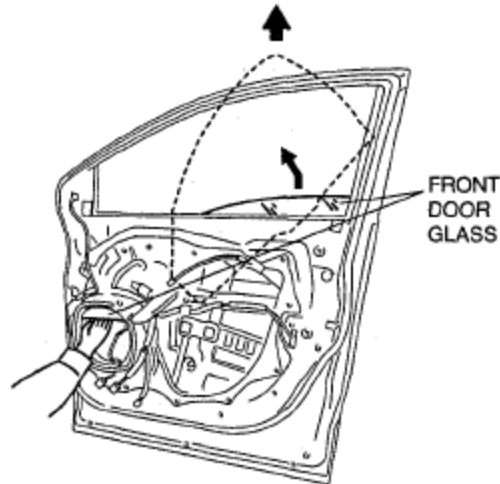


**Fig. 3: View Of Hole Cover & Torque Specifications**  
Courtesy of MAZDA MOTORS CORP.

8. Lift the front door glass up and remove it in the direction of the arrow.
9. Install in the reverse order of removal.

**NOTE:** • When installing the front door glass, align the glass edge with the

glass run channel by hand through the speaker installation hole.

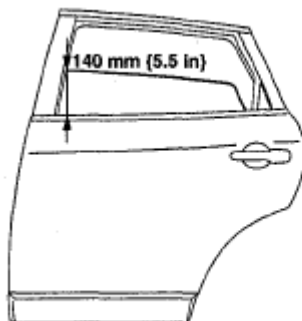


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**Fig. 4: Lifting Front Door Glass Remove Position**  
Courtesy of MAZDA MOTORS CORP.

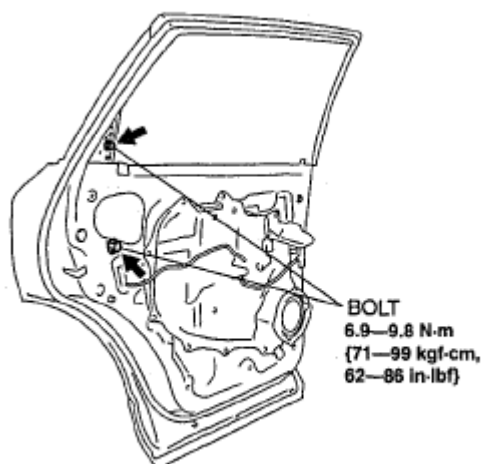
## REAR DOOR GLASS REMOVAL/INSTALLATION

1. Adjust the door glass position as shown in the figure.
2. Disconnect the negative battery cable.
3. Remove the inner sail garnish. (See INNER SAIL GARNISH REMOVAL/INSTALLATION .)
4. Remove the rear door garnish. (See REAR DOOR GARNISH REMOVAL/INSTALLATION .)
5. Remove the rear door trim. (See REAR DOOR TRIM REMOVAL/INSTALLATION .)
6. Remove the rear door speaker. (See REAR DOOR SPEAKER REMOVAL/INSTALLATION .)
7. Remove the bolts.



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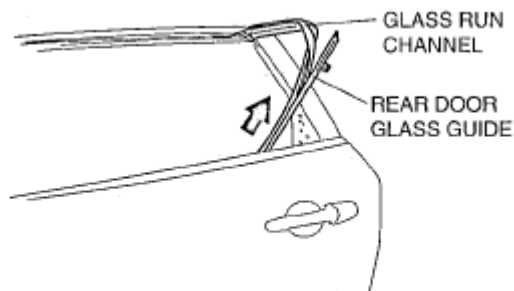
**Fig. 5: Identifying Rear Door Glass Position**  
Courtesy of MAZDA MOTORS CORP.



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**Fig. 6: View Of Bolt & Torque Specifications**  
Courtesy of MAZDA MOTORS CORP.

8. Remove the rear door glass guide and glass run channel as a single unit.



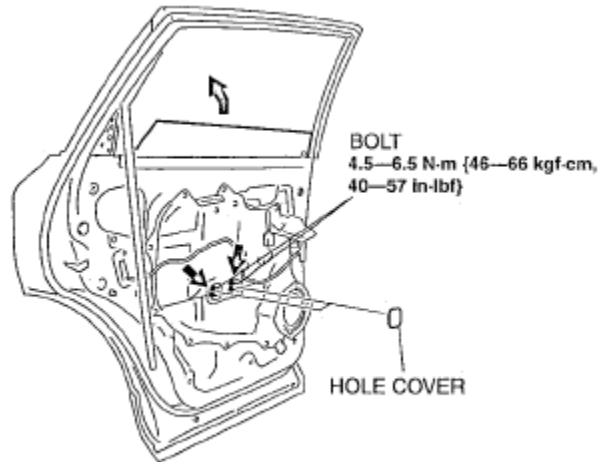
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**Fig. 7: Locating Rear Door Glass Guide & Glass Run Channel**  
Courtesy of MAZDA MOTORS CORP.

9. Remove the hole cover.
10. Remove the bolt.
11. Lift the rear door glass up and remove it in the direction of the arrow.
12. Install in the reverse order of removal.

**NOTE:**

- When installing the rear door glass, align the glass edge with the glass run channel by hand through the speaker installation hole.

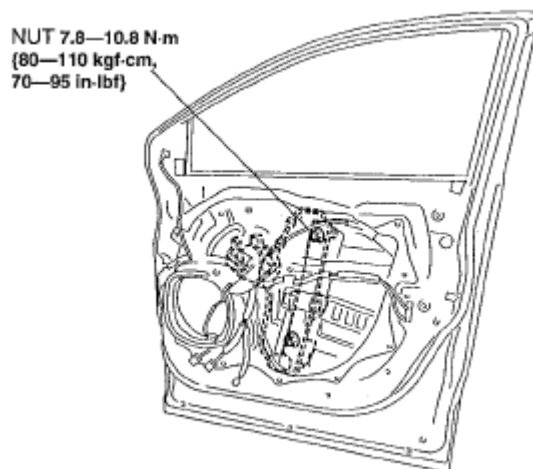


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**Fig. 8: View Of Door Glass In Removal Position & Torque Specifications**  
Courtesy of MAZDA MOTORS CORP.

## FRONT POWER WINDOW REGULATOR REMOVAL/INSTALLATION

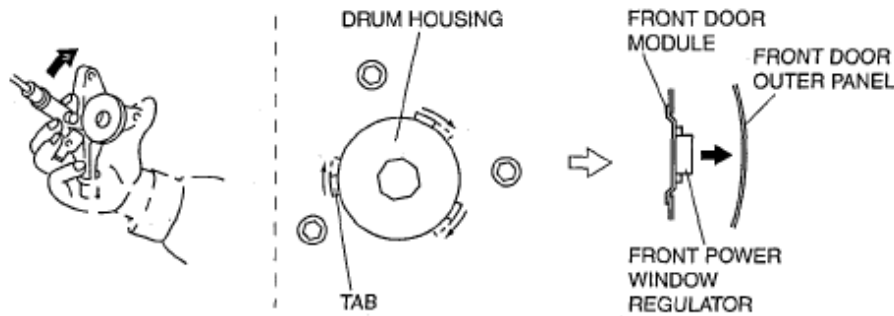
1. Disconnect the negative battery cable.
2. Remove the following parts:
  1. Inner garnish (See INNER GARNISH REMOVAL/INSTALLATION .)
  2. Front door trim (See FRONT DOOR TRIM REMOVAL/INSTALLATION .)
  3. Front door speaker (See FRONT DOOR SPEAKER REMOVAL/INSTALLATION .)
  4. Front door glass (See FRONT DOOR GLASS REMOVAL/INSTALLATION .)
  5. Power window motor (See POWER WINDOW MOTOR REMOVAL/INSTALLATION .)
3. Remove the nuts.



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**Fig. 9: Identifying Front Power Window Regulator Nuts & Torque Specifications**  
 Courtesy of MAZDA MOTORS CORP.

4. Insert a hand through the speaker installation hole, rotate the drum housing in the direction shown in the figure to detach the tabs from the front door module.



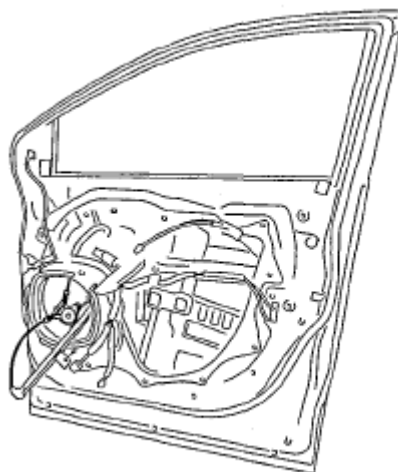
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**Fig. 10: Rotating Drum Housing**  
 Courtesy of MAZDA MOTORS CORP.

5. Move the front power window regulator in the direction of the arrow and remove it.
6. Install in the reverse order of removal.

**CAUTION:**

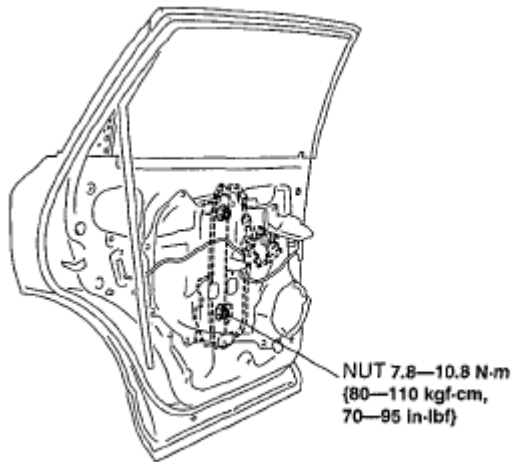
- Make sure the cable does not unspool from the drum housing when installing.



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**Fig. 11: Identifying Front Power Window Regulator**  
 Courtesy of MAZDA MOTORS CORP.

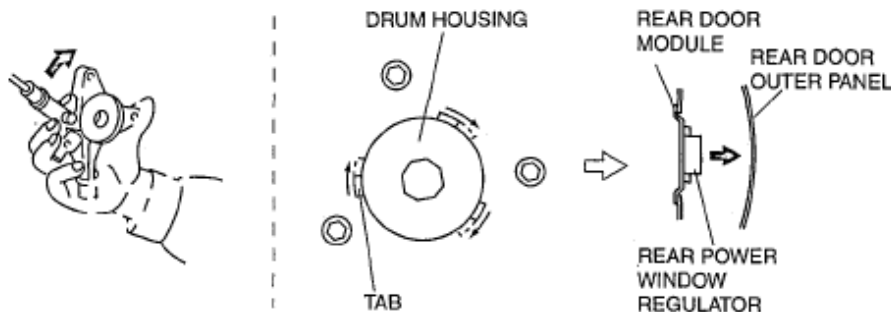
1. Disconnect the negative battery cable.
2. Remove the following parts:
  1. Inner sail garnish (See **INNER SAIL GARNISH REMOVAL/INSTALLATION** .)
  2. Rear door trim (See **REAR DOOR TRIM REMOVAL/INSTALLATION** .)
  3. Rear door speaker (See **REAR DOOR SPEAKER REMOVAL/INSTALLATION** .)
  4. Rear door glass (See **REAR DOOR GLASS REMOVAL/INSTALLATION**.)
  5. Power window motor (See **POWER WINDOW MOTOR REMOVAL/INSTALLATION**.)
3. Remove the nuts.



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**Fig. 12: Identifying Rear Power Window Regulator Nuts & Torque Specifications**  
Courtesy of MAZDA MOTORS CORP.

4. Insert a hand through the speaker installation hole, rotate the drum housing in the direction shown in the figure to detach the tabs from the rear door unit.



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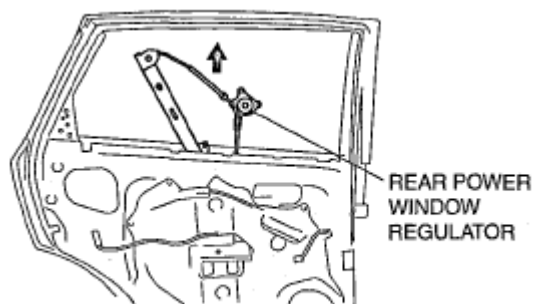
**Fig. 13: Rotating Drum Housing**  
Courtesy of MAZDA MOTORS CORP.

5. Move the rear power window regulator in the direction of the arrow and remove it.



6. Install in the reverse order of removal.

- CAUTION:**
- Make sure the cable does not unspool from the drum housing when installing.



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**Fig. 14: View Of Rear Power Window Regulator**  
Courtesy of MAZDA MOTORS CORP.

## POWER WINDOW MOTOR REMOVAL/INSTALLATION

1. Fully lower the rear door glass.
2. Disconnect the negative battery cable.
3. Remove the following parts:

### Front door

- Inner garnish (See INNER GARNISH REMOVAL/INSTALLATION )
- Front door trim (See FRONT DOOR TRIM REMOVAL/INSTALLATION )
- Front door speaker (See FRONT DOOR SPEAKER REMOVAL/INSTALLATION )

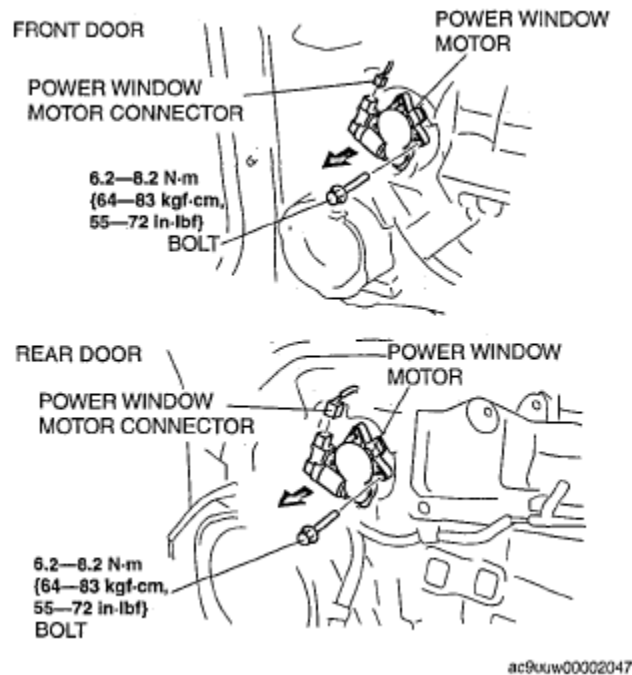
### Rear door

- Inner sail garnish (See INNER SAIL GARNISH REMOVAL/INSTALLATION )
- Rear door trim (See REAR DOOR TRIM REMOVAL/INSTALLATION )
- Rear door speaker (See REAR DOOR SPEAKER REMOVAL/INSTALLATION )

4. Remove the bolts.
5. Remove the power window motor from the power window regulator.
6. Disconnect the power window motor connector.
7. Install in the reverse order of removal.

- NOTE:**
- When installing the power window motor to the power window regulator drum, the drum housing tabs may detach from the door

module. If this happens, insert a hand through the speaker installation hole to engage the drum housing tabs, and install the power window motor to the drum while supporting the drum housing.



**Fig. 15: Identifying Power Window Motor Components & Torque Specifications**  
Courtesy of MAZDA MOTORS CORP.

## POWER WINDOW MOTOR INSPECTION

### FRONT SIDE

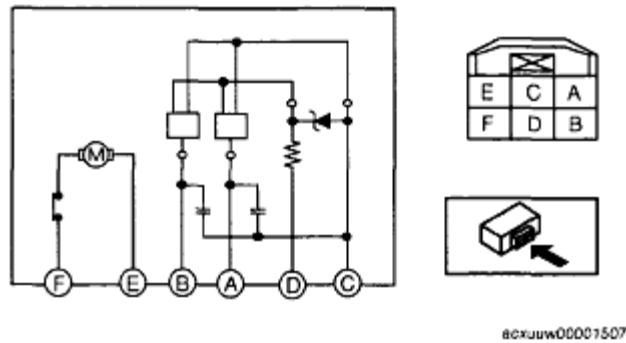
1. Apply battery positive voltage and connect the ground to power window motor terminals E and F, and then inspect the power window motor operation.
  - If the power window motor does not operate as indicated in the table, replace it.

### CAUTION:

- If the power window motor temperature is high, the motor may not rotate due to the motor internal bimetal function. Leave it untouched for about 3 min to cool it down, then reinspect.

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**Fig. 16: Power Window Motor (Front Side) - Circuit Diagram**  
Courtesy of MAZDA MOTORS CORP.

### CONNECTOR TERMINAL REFERENCE

Operation	Terminal	
	F	E
Open	B+	Ground
Close	Ground	B+

2. Connect the battery positive voltage to power window motor terminal D and connect terminal C to ground.
3. Operate the power window motor and measure the voltage at terminals A and B.
  - If there is any malfunction, replace the power window motor.

### Voltage

- Pulse: max. 12 V/min. 0 V

### REAR SIDE

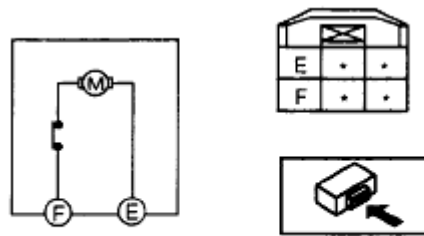
1. Apply battery positive voltage and connect the ground to the power window motor terminals, and then inspect the power window motor operation.
  - If the power window motor does not operate as indicated in the table, replace it.

### CAUTION:

- If the power window motor temperature is high, the motor may not rotate due to the motor internal bimetal function. Leave it untouched for about 3 min to cool it down, then reinspect.

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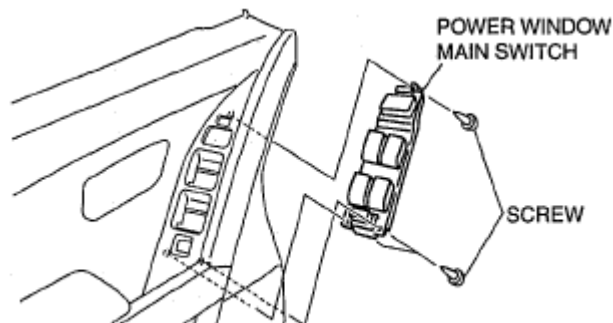
**Fig. 17: Power Window Motor (Rear Side) - Circuit Diagram**  
Courtesy of MAZDA MOTORS CORP.

### CONNECTOR TERMINAL REFERENCE

Operation	Terminal	
	F	E
Open	B+	Ground
Close	Ground	B+

## POWER WINDOW MAIN SWITCH REMOVAL/INSTALLATION

1. Disconnect the negative battery cable.
2. Remove the inner garnish. (See INNER GARNISH REMOVAL/INSTALLATION .)
3. Remove the front door trim. (See FRONT DOOR TRIM REMOVAL/INSTALLATION )
4. Remove the screw, and remove the power window main switch from inside the front door trim.
5. Install in the reverse order of removal.



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**Fig. 18: Identifying Power Window Main Switch & Screw**  
Courtesy of MAZDA MOTORS CORP.

## POWER WINDOW MAIN SWITCH INSPECTION

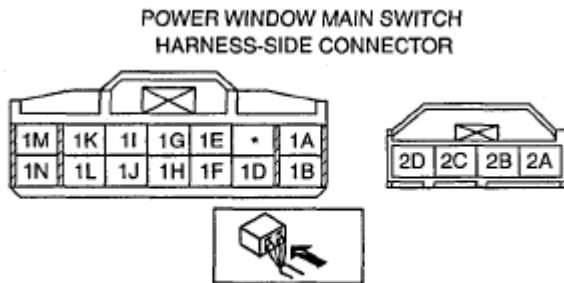
### NOTE:

- Before proceeding with diagnosis of malfunctioning power windows,

ensure the **POWER WINDOW INITIALIZATION PROCEDURE** has been performed.

**FRONT SIDE**

1. Measure the voltage at each terminal (other than terminals 1M and 2A).
  - If the voltage is not as specified in the Terminal Voltage Table, inspect the parts under "inspection item(s)" and related wiring harnesses.
2. Disconnect the negative battery cable.
3. If the system does not work properly even though the inspection items or related wiring harnesses do not have any malfunction, replace the power window main switch.



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**Fig. 19: Identifying Power Window Main Switch Connector Terminal**  
Courtesy of MAZDA MOTORS CORP.

**VOLTAGE SPECIFICATION**

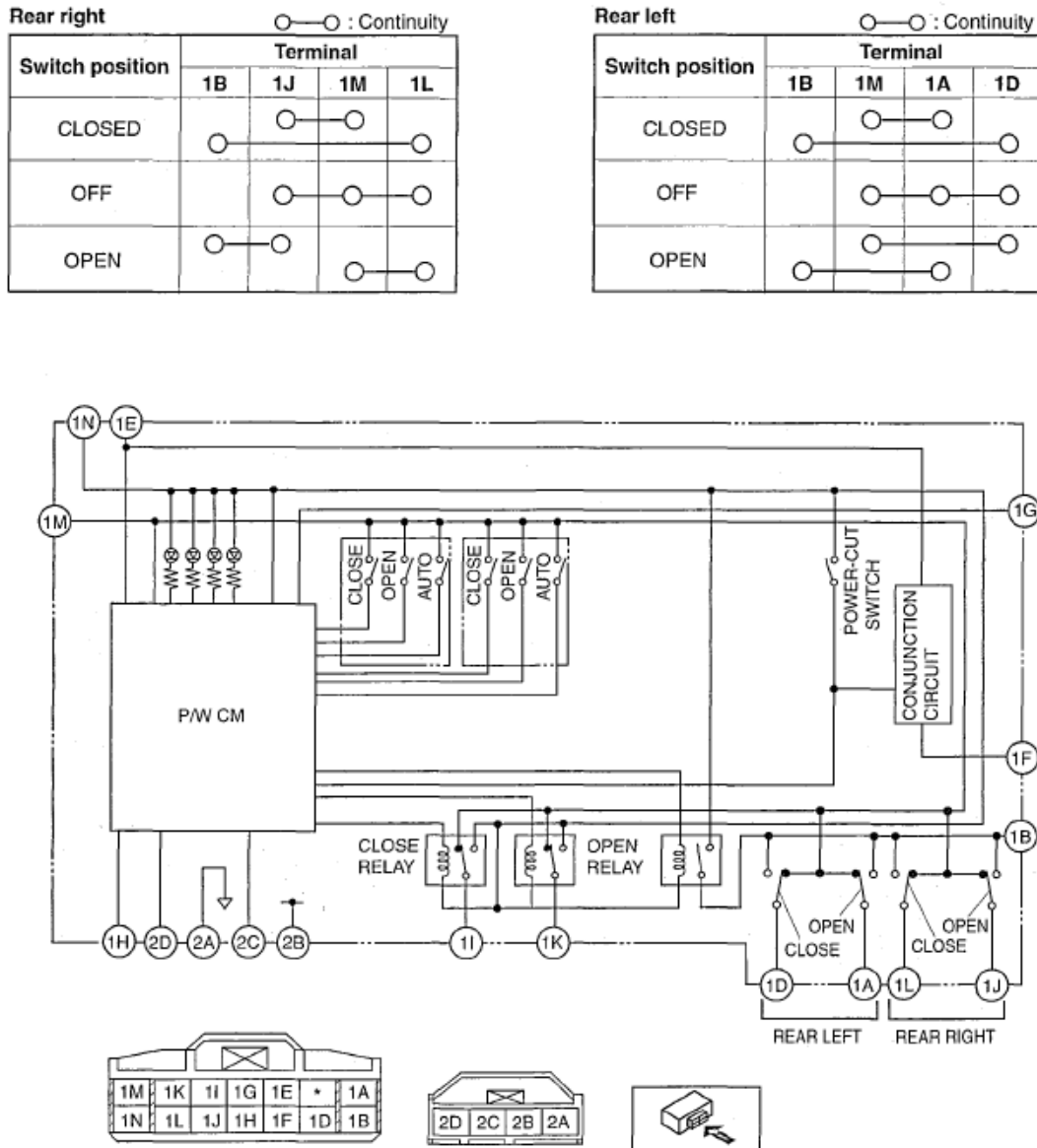
Terminal	Signal name	Connected to	Measured condition	Voltage (V)/Continuity	Inspection item (s)
1E	IG 1	METER 10 A fuse	Ignition switch is at ON position	B+	<ul style="list-style-type: none"> <li>• Inspect METER 10 A fuse</li> <li>• Related wiring harnesses</li> </ul>
			Ignition switch is at LOCK position	1.0 or less	
1F	Power-cut signal	Power window subswitch	Ignition switch at ON and power-cut switch at UNLOCK	B+	<ul style="list-style-type: none"> <li>• Power window subswitch (See <b><u>POWER WINDOW SUBSWITCH INSPECTION</u></b>)</li> <li>• Related wiring harnesses</li> </ul>
1G	Communication	Power window subswitch	Because this terminal is for communication, good/no good judgment by terminal voltage is not possible.		<ul style="list-style-type: none"> <li>• Power window subswitch (See <b><u>POWER WINDOW SUBSWITCH INSPECTION</u></b>)</li> </ul>

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					<ul style="list-style-type: none"> <li>• Related wiring harnesses</li> </ul>
1H	Communication	BCM	Because this terminal is for communication, good/no good judgment by terminal voltage is not possible.		<ul style="list-style-type: none"> <li>• BCM (See <b><u>BODY CONTROL MODULE (BCM) INSPECTION</u></b>)</li> <li>• Related wiring harnesses</li> </ul>
1I	Close output	Power window motor	While door glass is opening	1.0 or less	<ul style="list-style-type: none"> <li>• Power window motor (See <b><u>POWER WINDOW MOTOR INSPECTION.</u></b>)</li> <li>• Related wiring harnesses</li> </ul>
			While door glass is closing	B+	
1K	Open output	Power window motor	While door glass is opening	B+	<ul style="list-style-type: none"> <li>• Power window motor (See <b><u>POWER WINDOW MOTOR INSPECTION.</u></b>)</li> <li>• Related wiring harnesses</li> </ul>
			While door glass is closing	1.0 or less	
1M	GND	Body ground	Under any condition	1.0 or less	<ul style="list-style-type: none"> <li>• Related wiring harnesses</li> </ul>
1N	Power supply	P/W 30 A fuse	Under any condition	B+	<ul style="list-style-type: none"> <li>• P/W 30 A fuse</li> <li>• Related wiring harnesses</li> </ul>
2A	Sensor ground	Power window motor	Under any condition	1.0 or less	<ul style="list-style-type: none"> <li>• Power window motor (See <b><u>POWER WINDOW MOTOR INSPECTION.</u></b>)</li> <li>• Related wiring harnesses</li> </ul>
2B	Power supply	Power window motor	While IG ON or IG OFF timer works	B+	<ul style="list-style-type: none"> <li>• Power window motor (See <b><u>POWER WINDOW MOTOR INSPECTION.</u></b>)</li> <li>• Related wiring harnesses</li> </ul>
2C	Pulse 1	Power window motor	Door glass is not in motion	0 or 5.0	<ul style="list-style-type: none"> <li>• Power window motor (See <b><u>POWER WINDOW MOTOR INSPECTION.</u></b>)</li> <li>• Related wiring harnesses</li> </ul>
			Door glass is in motion	Alternates between 0 and 5.0	
2D	Pulse 2	Power window motor	Door glass is in motion	Alternates between 0 and 5.0	<ul style="list-style-type: none"> <li>• Power window motor (See <b><u>POWER WINDOW MOTOR INSPECTION.</u></b>)</li> <li>• Related wiring harnesses</li> </ul>
			Door glass is not in motion	0 or 5.0	

1. Remove the power window main switch. (See **POWER WINDOW MAIN SWITCH REMOVAL/INSTALLATION.**)
2. When inspecting the rear, turn the power-cut switch UNLOCK.
3. Inspect for continuity between the power window main switch terminals.
  - If not as specified, replace the power window main switch.



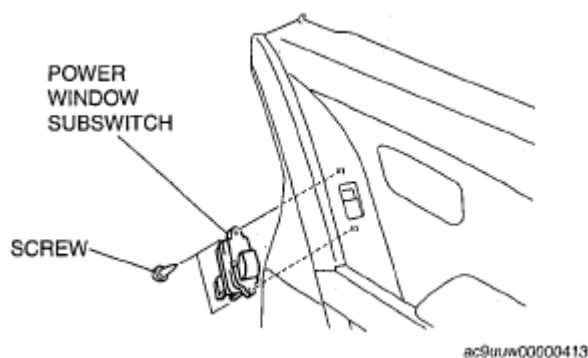
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**Fig. 20: Power Window Main Switch (Rear Side) - Circuit Diagram**  
 Courtesy of MAZDA MOTORS CORP.

## POWER WINDOW SUBSWITCH REMOVAL/INSTALLATION

## PASSENGER SIDE

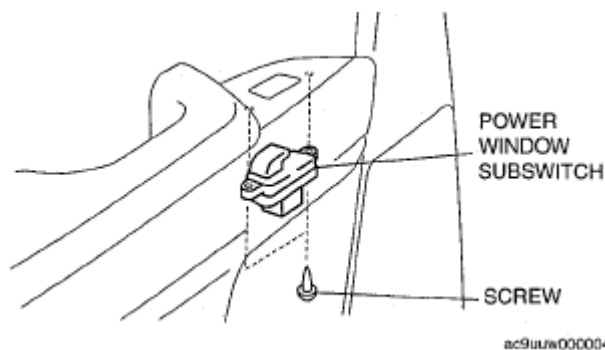
1. Disconnect the negative battery cable.
2. Remove the inner garnish. (See INNER GARNISH REMOVAL/INSTALLATION .)
3. Remove the front door trim. (See FRONT DOOR TRIM REMOVAL/INSTALLATION )
4. Remove the screw, and remove the power window subswitch from inside the front door trim.
5. Install in the reverse order of removal.



**Fig. 21: Identifying Power Window Subswitch & Screw (Passenger Side)**  
Courtesy of MAZDA MOTORS CORP.

## REAR SIDE

1. Disconnect the negative battery cable.
2. Remove the inner sail garnish. (See INNER SAIL GARNISH REMOVAL/INSTALLATION .)
3. Remove the rear door trim. (See REAR DOOR TRIM REMOVAL/INSTALLATION )
4. Remove the screw, and remove the power window subswitch from inside the front door trim.
5. Install in the reverse order of removal.



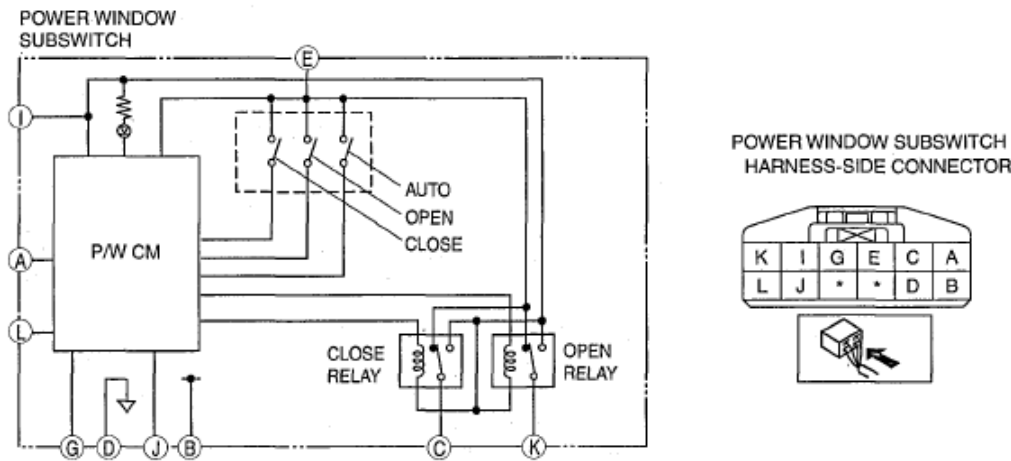
**Fig. 22: Identifying Power Window Subswitch & Screw (Rear Side)**  
Courtesy of MAZDA MOTORS CORP.

## POWER WINDOW SUBSWITCH INSPECTION



**PASSENGER SIDE**

1. Measure the voltage at each terminal (other than terminals I).
  - If the voltage is not as specified in the Terminal Voltage Table, inspect the parts under "Inspection item(s)" and related wiring harnesses.
2. Disconnect the negative battery cable.
3. If the system does not work properly even though the inspection items or related wiring harnesses do not have any malfunction, replace the power window subswitch.



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**Fig. 23: Power Window Subswitch (Passenger Side) - Circuit Diagram**  
 Courtesy of MAZDA MOTORS CORP.

**VOLTAGE SPECIFICATION**

Terminal	Signal name	Connected to	Measured condition	Voltage (V)/ Continuity	Inspection item (s)
A	Communication	Power window main switch	Because this terminal is for communication, good/no good judgment by terminal voltage is not possible.		<ul style="list-style-type: none"> <li>• Power window motor (See <b><u>POWER WINDOW MAIN SWITCH INSPECTION.</u></b>)</li> <li>• Related wiring harnesses</li> </ul>
B	Power supply	Power window motor	Ignition switch at ON or during IG-OFF timer	B+	<ul style="list-style-type: none"> <li>• Power window motor (See <b><u>POWER WINDOW MOTOR INSPECTION.</u></b>)</li> <li>• Related wiring harnesses</li> </ul>
C	Close output	Power window motor	While door glass is opening	1.0 or less	<ul style="list-style-type: none"> <li>• Power window motor (See <b><u>POWER WINDOW MOTOR INSPECTION.</u></b>)</li> </ul>
			While door		

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			glass is closing	B+	<ul style="list-style-type: none"> <li>• Related wiring harnesses</li> </ul>
D	Sensor ground	Power window motor	Under any condition	1.0 or less	<ul style="list-style-type: none"> <li>• Power window motor (See <b><u>POWER WINDOW MOTOR INSPECTION.</u></b>)</li> <li>• Related wiring harnesses</li> </ul>
E	GND	Body ground	Under any condition	1.0 or less	<ul style="list-style-type: none"> <li>• Related wiring harnesses</li> </ul>
G	Pulse 2	Power window motor	Door glass moving	Alternates between 1.0 or less and 5.0	<ul style="list-style-type: none"> <li>• Power window motor (See <b><u>POWER WINDOW MOTOR INSPECTION.</u></b>)</li> <li>• Related wiring harnesses</li> </ul>
			Door glass stopped	1.0 or less or 5.0	
I	Power supply	P/W 30 A fuse	Under any condition	B+	<ul style="list-style-type: none"> <li>• P/W 30 A fuse</li> <li>• Related wiring harnesses</li> </ul>
J	Pulse 1	Power window motor	Door glass moving	Alternates between 1.0 and 5.0	<ul style="list-style-type: none"> <li>• Power window motor (See <b><u>POWER WINDOW MOTOR INSPECTION.</u></b>)</li> <li>• Related wiring harnesses</li> </ul>
			Door glass stopped	1.0 or less or 5.0	
K	Open output	Power window motor	While door glass is opening	B+	<ul style="list-style-type: none"> <li>• Power window motor (See <b><u>POWER WINDOW MOTOR INSPECTION.</u></b>)</li> <li>• Related wiring harnesses</li> </ul>
			While door glass is closing	1.0 or less	
L	Power-cut signal	Power window main switch	Ignition switch at ON and power-cut switch at UNLOCK	B+	<ul style="list-style-type: none"> <li>• Power window main switch (See <b><u>POWER WINDOW MAIN SWITCH INSPECTION</u></b>)</li> <li>• Related wiring harnesses</li> </ul>

### REAR SIDE

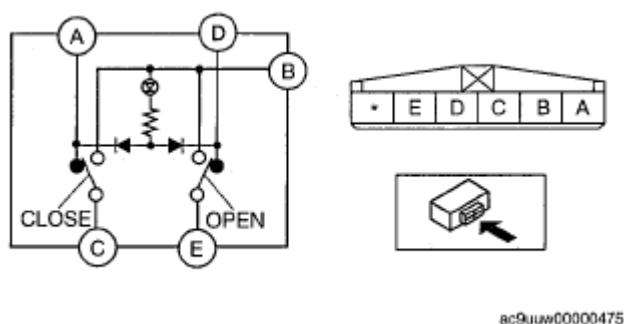
1. Inspect for continuity between the power window subswitch terminals.
  - If not as specified, replace the power window subswitch.

○—○ : Continuity

Switch position	Terminal				
	B	C	A	D	E
Close	○—○			○—○	
OFF		○—○		○—○	
Open	○—○	○—○			○—○

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**Fig. 24: Rear Side Power Window Subswitch Continuity Chart**  
 Courtesy of MAZDA MOTORS CORP.



**Fig. 25: Power Window Subswitch - Circuit Diagram**  
 Courtesy of MAZDA MOTORS CORP.

## POWER WINDOW INITIALIZATION PROCEDURE

**NOTE:**

- If the following operations have been performed, initial setting is reset, and auto up/down and two-step down operation are disabled. Therefore, performing initial setting is necessary.
  - Negative battery cable disconnected or power window system power supply fuse removed, (perform initial setting for the switches of all seats.)
  - Power window switch connector disconnected. (Perform initial setting for the switch connected with the connector.)
  - Prolonged open/close operation of the power window main or sub switches causes the circuit breaker to activate and automatic operation is disabled.
- The driver-side power window initialization procedure can be performed only using the power window main switch.
- The passenger-side power window initialization procedure can be performed using the power window main switch and subswitch (Passenger side).
- If the power window initialization procedure is not completed, the power

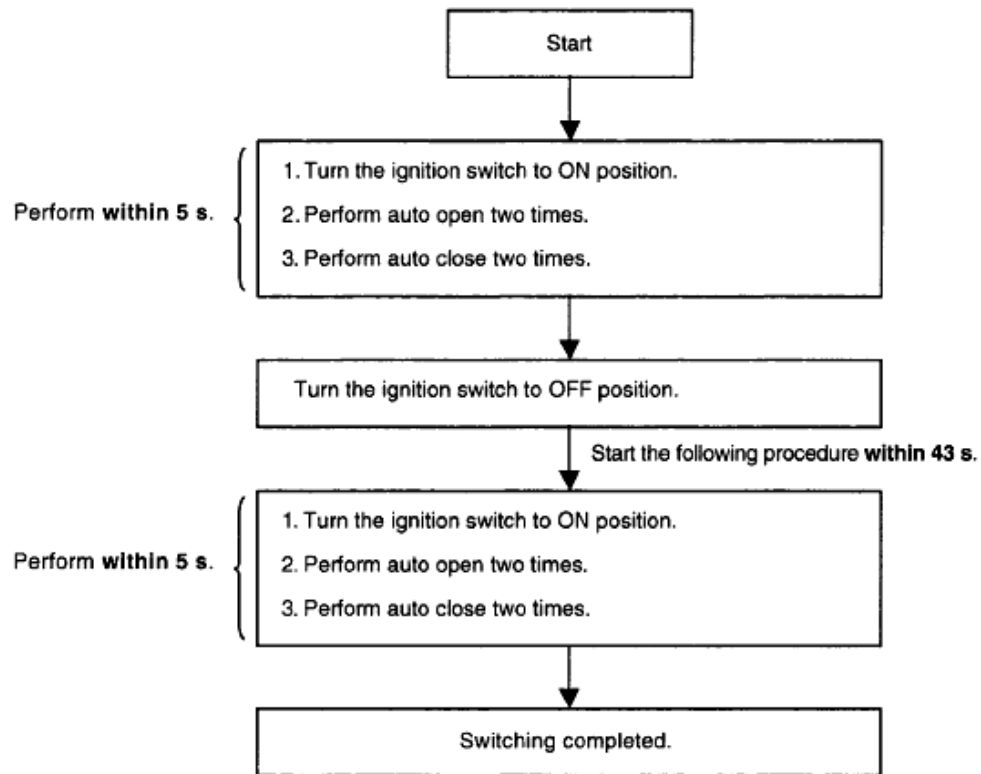
**window (Driver and passenger sides) does not operate automatically. Each power window can be operated only in manual operation.**

1. Turn the ignition switch to the ON position.
2. Press the switch of each window and fully open the door glass.
3. Pull the switch of each window to the manual-up position to fully close the door glass, and keep holding the switch up at the position for **approx. 2 s.**

## TWO-STEP DOWN FUNCTION OPERATIVE/NON-OPERATIVE SWITCHING PROCEDURE

**NOTE:**

- By following the procedure below, the two-step down function is switched to non-operative when it is operative, and to operative when it is non-operative.



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**Fig. 26: View Of Flow Chart**  
**Courtesy of MAZDA MOTORS CORP.**

## DOOR GLASS POSITION CHANGE PROCEDURE

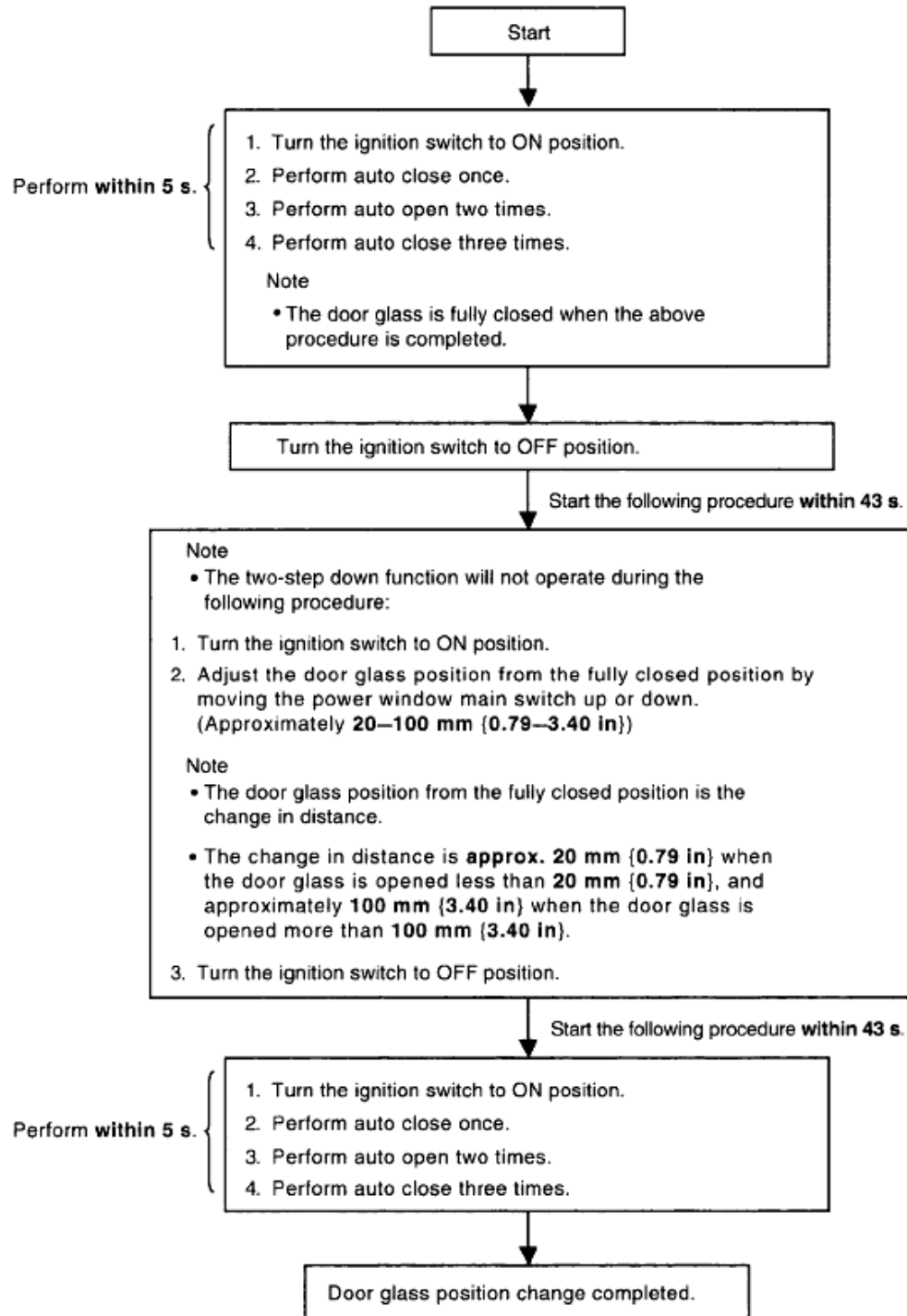
**NOTE:**

- After performing the following procedure, verify that the two-step down

## 2008 Mazda CX-9 Grand Touring

2008 BODY & ACCESSORIES Glass/Windows/Mirrors - Mazda CX-9

function operates normally and the door glass position has changed. If the two-step down function does not operate or the door glass position has not changed, the procedure was not performed properly. Repeat the procedure from the beginning.



**Fig. 27: Door Glass Position Change Procedure Flow Chart**  
**Courtesy of MAZDA MOTORS CORP.**

## WINDSHIELD REMOVAL

1. Disconnect the negative battery cable.
2. Remove the following parts:
  1. Windshield wiper arm and blade (See WINDSHIELD WIPER ARM AND BLADE REMOVAL/INSTALLATION .)
  2. Cowl grille (See COWL GRILLE REMOVAL/INSTALLATION .)
  3. Rain sensor (Vehicles with auto light/wiper system)(See RAIN SENSOR REMOVAL/INSTALLATION .)
  4. Rearview mirror (See REARVIEW MIRROR REMOVAL [VEHICLES WITH AUTO LIGHT/WIPER SYSTEM]) (See REARVIEW MIRROR REMOVAL [VEHICLES WITHOUT AUTO LIGHT/WIPER SYSTEM])
  5. Sunvisor (See SUNVISOR REMOVAL/INSTALLATION .)
  6. Front map light (See FRONT MAP LIGHT REMOVAL/INSTALLATION .)
  7. A-pillar trim (See A-PILLAR TRIM REMOVAL/INSTALLATION .)
  8. Assist handle (See ASSIST HANDLE REMOVAL/INSTALLATION .)
3. Set the headliner out of the way.
4. Apply protective tape along the edge of the body.

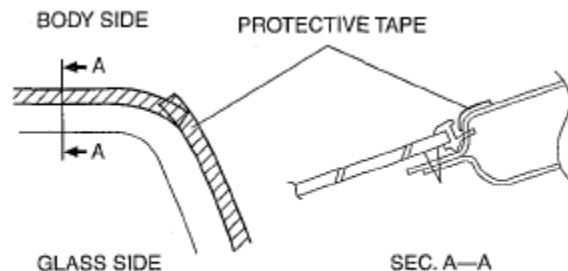
**NOTE:**

- **Overlap and adhere the protective tape to the corners to prevent damage.**

5. Remove the windshield molding by pulling it outward.

**NOTE:**

- **If the windshield molding is difficult to remove, warm the windshield molding using a hot air blower.**
- **The windshield molding is a replacement part.**



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**Fig. 28: Applying Protective Tape Of Body**

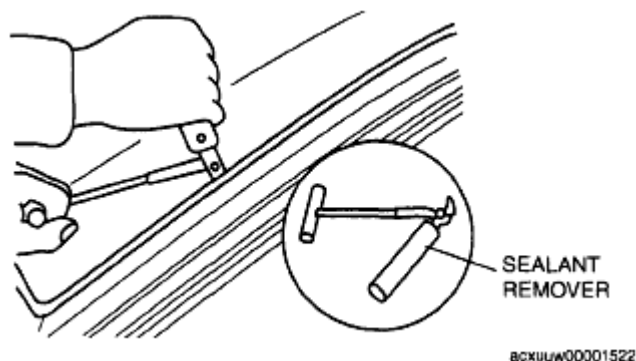
Courtesy of MAZDA MOTORS CORP.

## NOT REUSING WINDSHIELD

### NOTE:

- For the areas of the sealant that are difficult to cut, use the piano wire and follow the procedure under "Reusing Windshield".

1. Cut out the sealant all around the glass using a sealant remover.
2. Remove the windshield.



**Fig. 29: Cutting Sealant Around Glass**  
Courtesy of MAZDA MOTORS CORP.

## REUSING WINDSHIELD

### WARNING:

- Using the piano wire with bare hands can cause injury. Always wear gloves when using the piano wire.

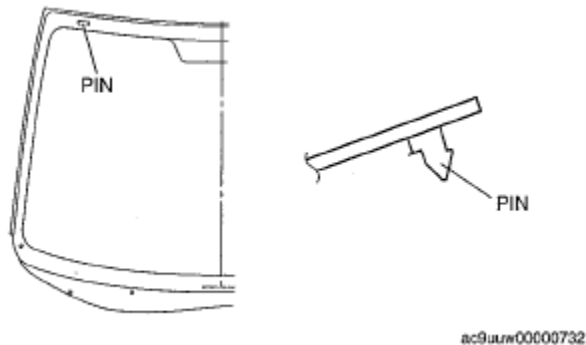
### NOTE:

- Before removing the windshield from the body, mark the position of the windshield by affixing tape to the windshield and body panel.

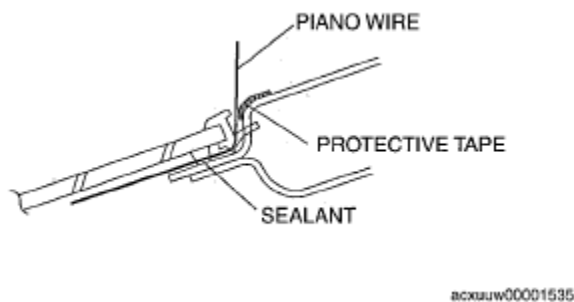
1. Avoiding the pin on the inside of the vehicle, insert the piano wire which has been cut to sufficient length.
2. Wind each end of the piano wire around a bar.

### NOTE:

- Use a long sawing action to spread the work over the whole length of the piano wire to prevent it from breaking due to localized heating.



**Fig. 30: Identifying Pin**  
Courtesy of MAZDA MOTORS CORP.

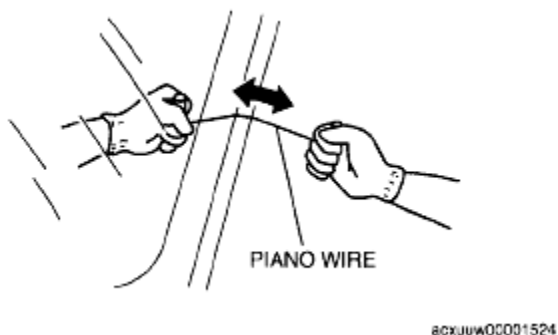


**Fig. 31: Identifying Sealant Applying Area**  
Courtesy of MAZDA MOTORS CORP.

3. Secure one end of the piano wire, and while pulling the other end, cut the sealant around the windshield.
4. Pinch the pin from the inside of the vehicle and detach it.
5. Remove the windshield.
6. If the pin is damaged, remove the pin.

**NOTE:**

- Before removing the pin from the windshield glass, place an alignment mark on the windshield.



**Fig. 32: Pulling Piano Wire**



Courtesy of MAZDA MOTORS CORP.

## WINDSHIELD INSTALLATION

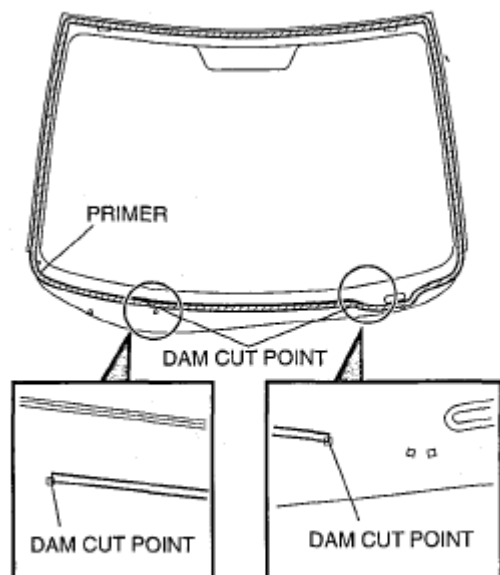
### WARNING:

- Using a razor with bare hands can cause injury. Always wear gloves when using a razor.

### CAUTION:

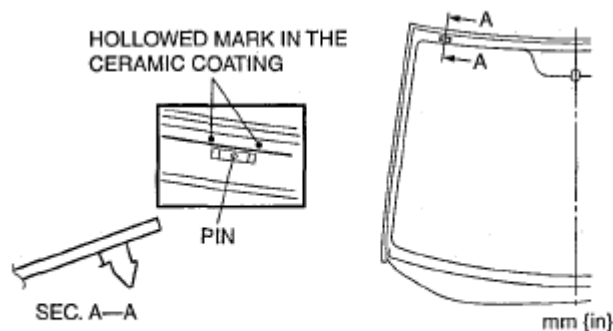
- If a door is opened or closed when all the window glass is closed, the resulting change in air pressure could cause the sealant to crack preventing the proper installation of the glass. Keep the door glass opened until the windshield installation is completed.
- On vehicles with the auto wiper system, when the ignition switch is turned to the ON position after replacing the rain sensor with a new one, the windshield condition is verified and the initial setting is stored. Before installing a rain sensor, always remove water or dirt from the windshield. Perform the initial setting again in the following cases: (See RAIN SENSOR REINITIALIZATION SETTING )
  - The windshield is replaced and the rain sensor is reused.
  - The auto wiper system operates incorrectly.

1. Remove the sealant along the perimeter of the glass using a cutting a razor. (When reusing the glass)
2. Clean and degrease an **approx. 50 mm {1.97 in}** wide strip along the perimeter of the windshield.
3. If the existing windshield is to be reinstalled, attach the dam along the ceramic voids.
4. Inspect the glass for cracks. If it is cracked, chamfer it using sandpaper.



**Fig. 33: Identifying Dam Cut Point**  
 Courtesy of MAZDA MOTORS CORP.

5. Align the marks made before removal and install the pin to the windshield referring to the figure, (when reusing the glass, and the pin was removed)
6. Install the windshield molding.



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**Fig. 34: Identifying Hollowed Mark In Ceramic Coating**  
 Courtesy of MAZDA MOTORS CORP.

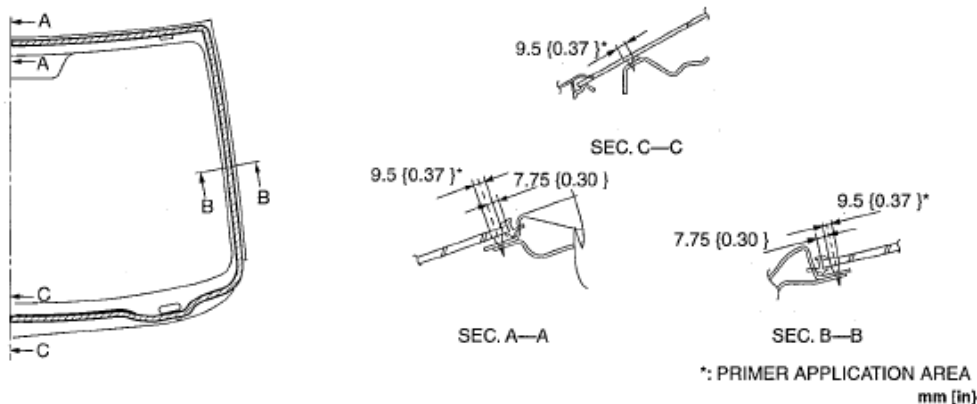
7. Use glass primer on the glass, then allow it to dry for **approx. 30 min.**

**CAUTION:**

- To prevent weakening of the primer adhesion, keep the bonding surface free of dirt, moisture, and grease. Do not touch the surface with your hand.

**NOTE:**

- Make sure to apply primer to the hollowed marks in the ceramic coating.



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**Fig. 35: Identifying Primer Applying Area**

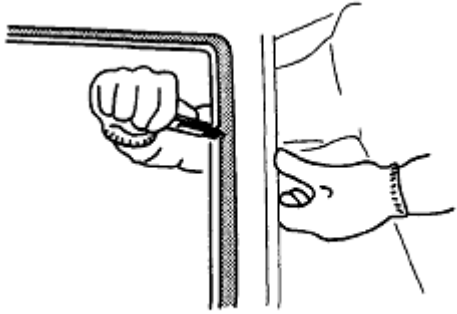
**Courtesy of MAZDA MOTORS CORP.**

8. Cut away the old sealant using a razor or scraper so that **1-2 mm {0.04-0.07 in}** thickness of sealant remains along the perimeter of the frame.
9. If the sealant has come off completely in any one place, apply some primer after degreasing, and allow it **approx. 30 min** to dry. Then apply **2 mm {0.08 in}** thickness of new sealant.

**CAUTION:**

- To prevent weakening of the primer adhesion, keep the bonding surface free of dirt, moisture, and grease. Do not touch the surface with your hand.

10. Clean and degrease along the perimeter of the bonding area on the body.



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**Fig. 36: Cutting Old Sealant With Razor**  
Courtesy of MAZDA MOTORS CORP.

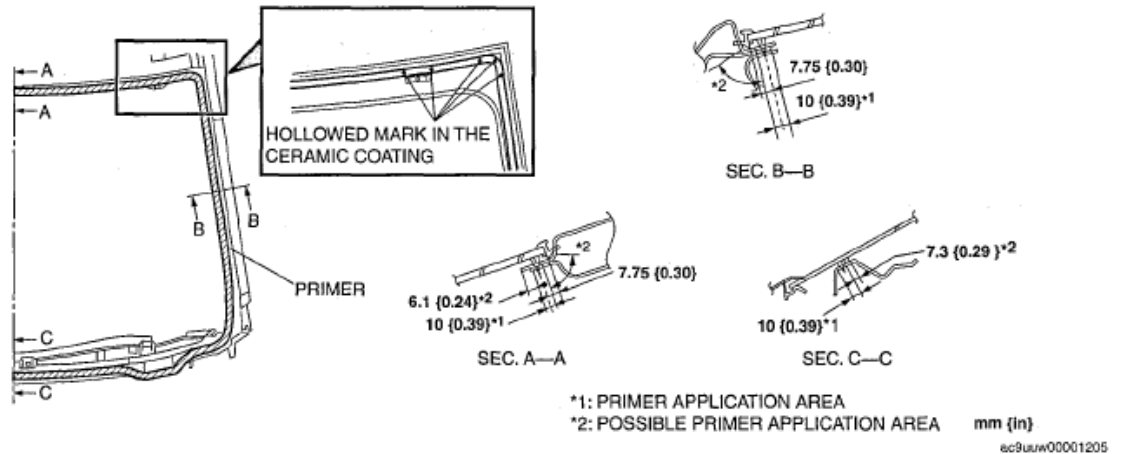
11. Apply body primer on the body as shown in the figure, then allow it to dry for **approx. 30 min**.

**CAUTION:**

- To prevent weakening of the primer adhesion, keep the bonding surface free of dirt, moisture, and grease. Do not touch the surface with your hand.

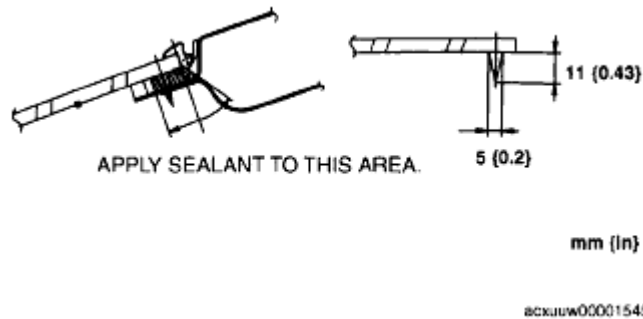
**NOTE:**

- Apply primer to the hollowed marks in the ceramic coating.



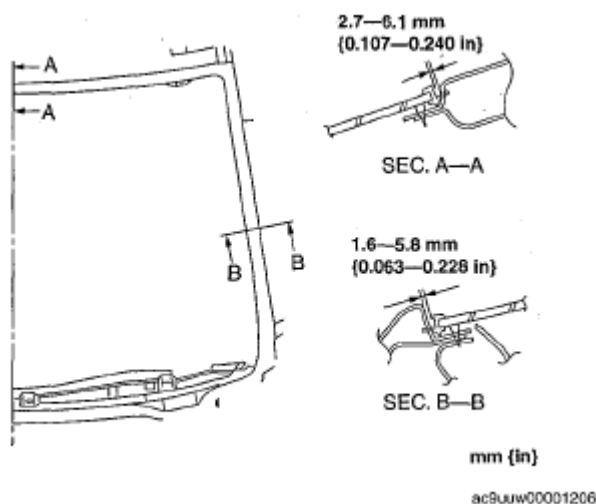
**Fig. 37: Identifying Primer Applying Area**  
Courtesy of MAZDA MOTORS CORP.

12. Apply sealant to the area of the glass surface as shown in the figure.
13. Insert the windshield locator pins to the body and install the windshield.



**Fig. 38: Applying Sealant To Area Of Glass Surface**  
Courtesy of MAZDA MOTORS CORP.

14. Verify that the clearance of the A-pillar is within the range shown in the figure, and press along the perimeter of the glass.
15. Install the headliner.
16. Install the following parts:
  1. Assist handle (See **ASSIST HANDLE REMOVAL/INSTALLATION** .)
  2. A-pillar trim (See **A-PILLAR TRIM REMOVAL/INSTALLATION** .)
  3. Map light (See **FRONT MAP LIGHT REMOVAL/INSTALLATION** .)
  4. Sunvisor (See **SUNVISOR REMOVAL/INSTALLATION** .)
  5. Rearview mirror (See **REARVIEW MIRROR INSTALLATION [VEHICLES WITH AUTO LIGHT/WIPER SYSTEM]**.) (See **REARVIEW MIRROR INSTALLATION [VEHICLES WITHOUT AUTO LIGHT/WIPER SYSTEM]**)



**Fig. 39: Identifying Sealant Applying Area & Torque Specifications**  
 Courtesy of MAZDA MOTORS CORP.

6. Rain sensor (Vehicles with auto light/wiper system)(See **RAIN SENSOR REMOVAL/INSTALLATION** )
  7. Cowl grille (See **COWL GRILLE REMOVAL/INSTALLATION** .)
  8. Windshield wiper arm and blade (See **WINDSHIELD WIPER ARM AND BLADE REMOVAL/INSTALLATION** .)
17. Allow the sealant to harden completely.

**Sealant hardening time: 24 h**

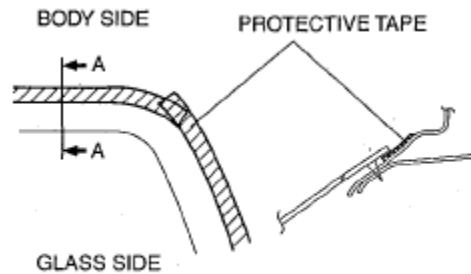
## REAR WINDOW GLASS REMOVAL

1. Disconnect the negative battery cable.
2. Remove the rear wiper arm and blade. (See **REAR WIPER ARM AND BLADE REMOVAL/INSTALLATION** .)
3. Remove the liftgate upper trim. (See **LIFTGATE UPPER TRIM REMOVAL/INSTALLATION** .)
4. Remove the liftgate side trim. (See **LIFTGATE SIDE TRIM REMOVAL/INSTALLATION** )
5. Remove the liftgate lower trim. (See **LIFTGATE LOWER TRIM REMOVAL/INSTALLATION** .)
6. Remove the rear wiper motor. (See **REAR WIPER MOTOR REMOVAL/INSTALLATION** .)
7. Remove the rear spoiler. (See **REAR SPOILER REMOVAL/INSTALLATION** .)
8. Remove the high-mount brake light. (See **HIGH-MOUNT BRAKE LIGHT REMOVAL/INSTALLATION** .)
9. Disconnect the filament connector.
10. Apply protective tape along the edge of the body.

**NOTE:**

- Overlap and adhere the protective tape to the corners to prevent

damage.



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**Fig. 40: Applying Protective Tape Of Body**  
Courtesy of MAZDA MOTORS CORP.

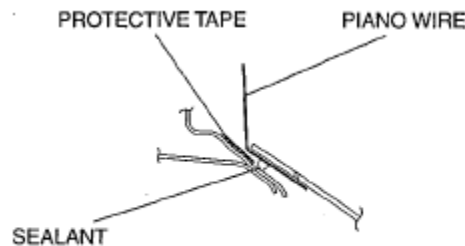
11. Insert the piano wire, which has been cut to sufficient length from inside the vehicle.

**WARNING:**

- Using the piano wire with bare hands can cause injury. Always wear gloves when using the piano wire.

**NOTE:**

- Before removing the rear window glass from the body, mark the position of the glass by affixing tape to the glass and body panel.



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**Fig. 41: Identifying Protective Tape, Piano Wire & Sealant**  
Courtesy of MAZDA MOTORS CORP.

12. Wind each end of the piano wire around a bar.

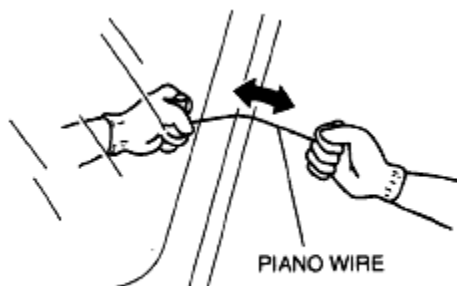
**NOTE:**

- Use a long sawing action to spread the work over the whole length of the piano wire to prevent it from breaking due to localized heating.

13. Secure one end of the piano wire, and while pulling the other end, cut the sealant around the rear window glass.
14. Remove the rear window glass.
15. Remove the fasteners from the rear window glass.

**NOTE:**

- Place alignment marks on the rear window glass before removing the fasteners from the rear window glass.



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**Fig. 42: Pulling Piano Wire**  
Courtesy of MAZDA MOTORS CORP.

## REAR WINDOW GLASS INSTALLATION

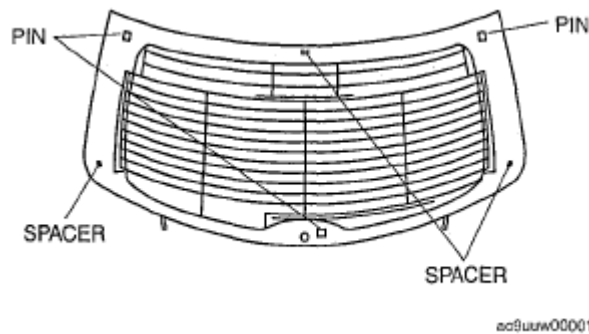
**WARNING:**

- Using a razor with bare hands can cause injury. Always wear gloves when using a razor.

**CAUTION:**

- If a door is opened or closed when all the window glass is closed, the resulting change in air pressure could cause the sealant to crack preventing the proper installation of the glass. Keep the door glass open until the rear window glass installation is completed.
- Leave the power liftgate (PLG) unoperated for two days after the rear window glass installation. If the power liftgate (PLG) is operated automatically with the sealant not hardened after the rear window glass installation, the liftgate may deform. It is recommended that you refrain from operating the power liftgate (PLG) for seven days after the rear window glass installation. Manual opening/closing will not cause liftgate deformation.

1. Remove the sealant along the perimeter of the glass using a razor or scraper, (when reusing the glass)
2. Clean and degrease an **approx. 50 mm {1.97 in}** wide strip along the perimeter of the glass.
3. Inspect the glass for cracks. If it is cracked, chamfer it using sandpaper.
4. Install the spacers and pin to the glass as shown in the figure. When reusing the glass, align with the alignment mark marked before removing.



**Fig. 43: Identifying Spacer And Pin**  
 Courtesy of MAZDA MOTORS CORP.

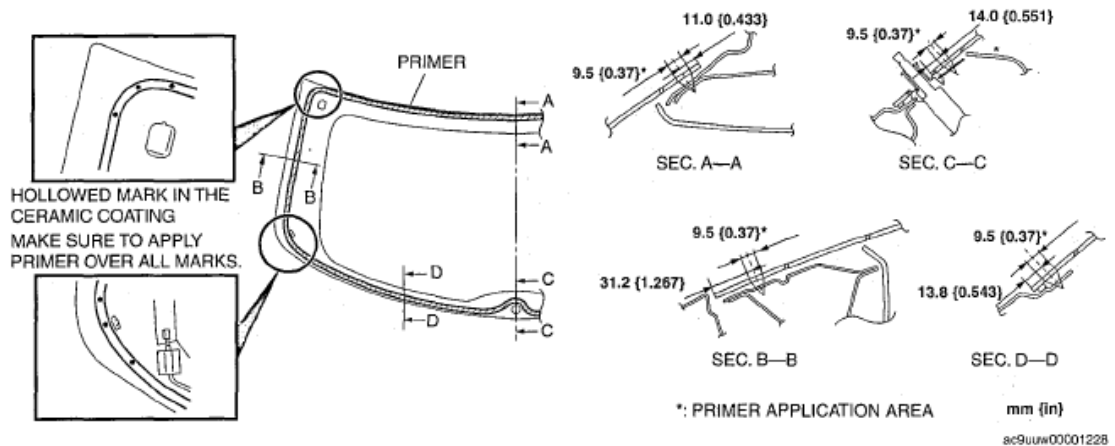
- Apply glass primer on the glass as shown in the figure then allow it to dry for **approx. 30 min.**

**CAUTION:**

- To prevent weakening of the primer adhesion, keep the bonding surface free of dirt, moisture, and grease. Do not touch the surface with your hand.

**NOTE:**

- Apply primer to the hollowed marks in the ceramic coating.



**Fig. 44: Applying Glass Primer On Glass**  
 Courtesy of MAZDA MOTORS CORP.

- Cut away the old sealant using a razor or scraper so that **1-2 mm {0.04-0.07 in}** thickness of sealant remains along the perimeter of the frame.
- Clean and degrease the bonding area along the perimeter of the body.
- When reusing the liftgate, apply primer to the area where the sealant has come off completely and allow it to dry for **approx. 30 min.**

**CAUTION:**

- To prevent weakening of the primer adhesion, keep the bonding



surface free of dirt, moisture, and grease. Do not touch the surface with your hand.

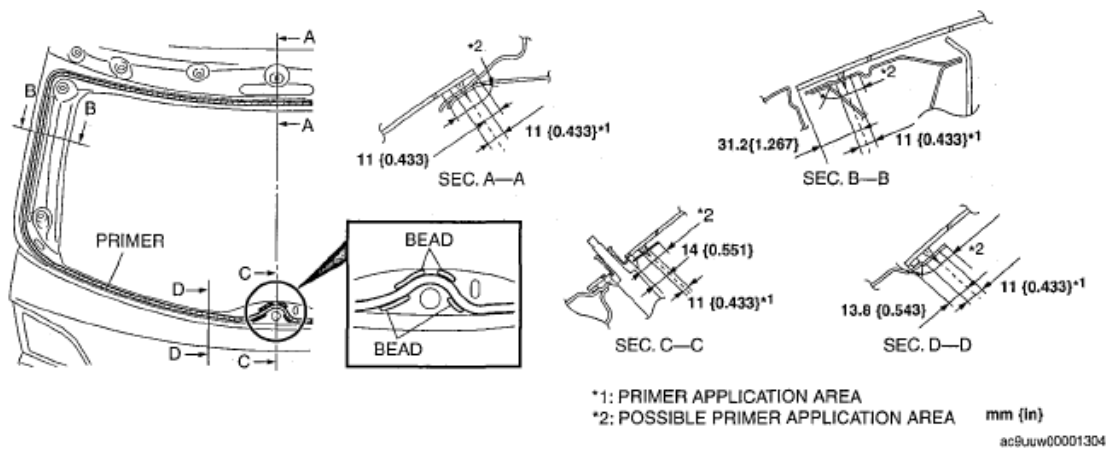
9. Apply body primer on the body as shown in the figure, then allow it to dry for **30 min.**

**CAUTION:**

- To prevent weakening of the primer adhesion, keep the bonding surface free of dirt, moisture, and grease. Do not touch the surface with your hand.

**NOTE:**

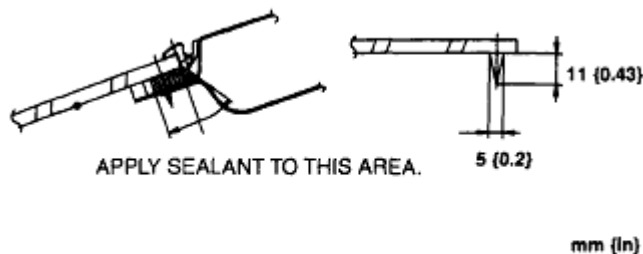
- Apply primer to the hollowed marks in the ceramic coating.



**Fig. 45: Applying Body Primer On Body**  
Courtesy of MAZDA MOTORS CORP.

10. Apply sealant to the area of the glass surface as shown in the figure.

11. Install the rear window glass.



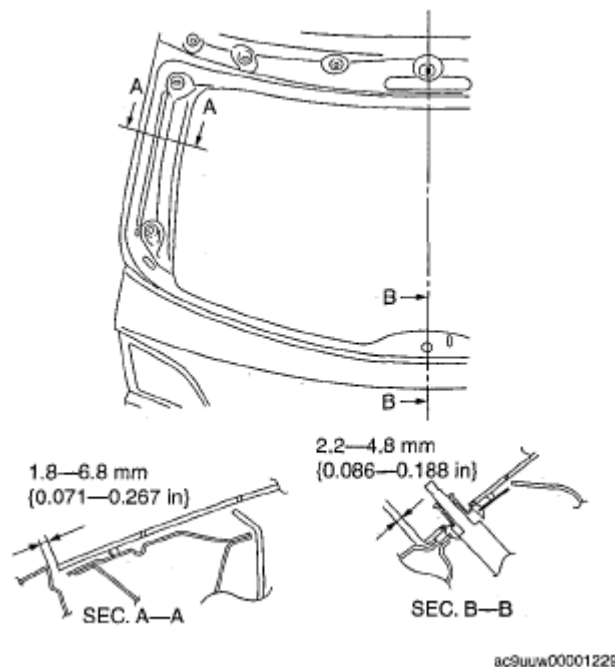
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**Fig. 46: Applying Sealant To Area Of Glass Surface**  
Courtesy of MAZDA MOTORS CORP.

12. Verify that the gap at the upper and lower parts of the glass is within the standard value shown in the figure, then press along the perimeter of the glass.

13. Connect the filament connector.
14. Install the high-mount brake light. (See **HIGH-MOUNT BRAKE LIGHT REMOVAL/INSTALLATION** .)
15. Install the rear spoiler. (See **REAR SPOILER REMOVAL/INSTALLATION** .)
16. Install the rear wiper motor. (See **REAR WIPER MOTOR REMOVAL/INSTALLATION** .)
17. Install the liftgate lower trim. (See **LIFTGATE LOWER TRIM REMOVAL/INSTALLATION** .)
18. Install the liftgate side trim. (See **LIFTGATE SIDE TRIM REMOVAL/INSTALLATION** .)
19. Install the liftgate upper trim. (See **LIFTGATE UPPER TRIM REMOVAL/INSTALLATION** .)
20. Install the rear wiper arm and blade. (See **REAR WIPER ARM AND BLADE REMOVAL/INSTALLATION** .)
21. Connect the negative battery cable.
22. Allow the sealant to harden completely.

**Sealant hardening time: 48 h**

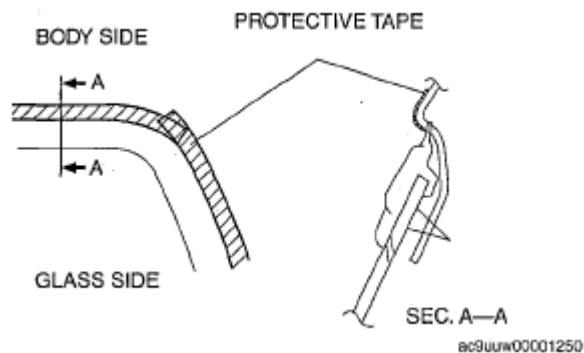


**Fig. 47: Identifying Sealant Applying Area**  
 Courtesy of MAZDA MOTORS CORP.

## QUARTER WINDOW GLASS REMOVAL

1. Remove the following parts:
  1. Trunk box (See **TRUNK BOX REMOVAL/INSTALLATION** .)
  2. Seat side box (See **SEAT SIDE BOX REMOVAL/INSTALLATION** .)
  3. Trunk end trim (See **TRUNK END TRIM REMOVAL/INSTALLATION** .)

4. Third-row seat (See **THIRD-RROW SEAT REMOVAL/INSTALLATION** .)
  5. Third-row seat belt lower anchor installation bolt (See **REAR SCUFF PLATE REMOVAL/INSTALLATION** .)
  6. Rear scuff plate inner (See **REAR SCUFF PLATE REMOVAL/INSTALLATION** .)
  7. Trunk side trim (See **TRUNK SIDE TRIM REMOVAL/INSTALLATION** .)
  8. Second-row seat belt upper anchor installation bolt (See **SECOND-ROW SEAT BELT REMOVAL/INSTALLATION** .)
  9. Roof side trim (See **ROOF SIDE TRIM REMOVAL/INSTALLATION** .)
  10. C-pillar trim (See **D-PILLAR TRIM REMOVAL/INSTALLATION** .)
  11. Third-row seat belt upper anchor installation bolt (See **REAR SCUFF PLATE REMOVAL/INSTALLATION** .)
  12. D-pillar trim (See **D-PILLAR TRIM REMOVAL/INSTALLATION** .)
2. Set the headliner out of the way.
  3. Apply protective tape along the edge of the body and the quarter window glass.



**Fig. 48: Applying Protective Tape Of Body**  
 Courtesy of MAZDA MOTORS CORP.

## NOT REUSING WINDSHIELD

### NOTE:

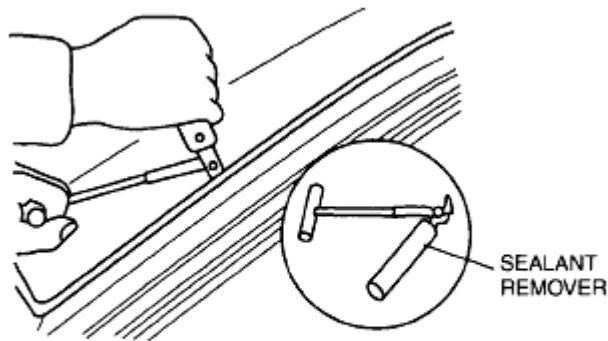
- For the areas of the sealant that are difficult to cut, use the piano wire and follow the procedure under "Reusing Windshield".

1. Cut out the sealant all around the glass from inside the vehicle using a sealant remover.

### WARNING:

- Using a razor with bare hands can cause injury. Always wear gloves when using a razor.

2. Remove the quarter window glass.



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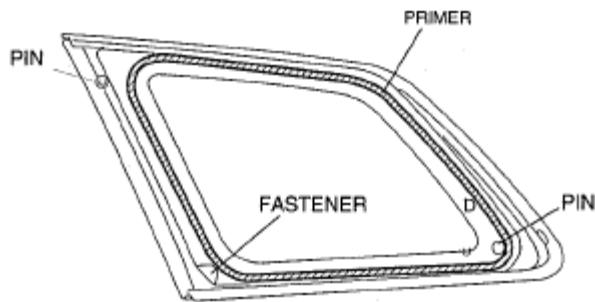
**Fig. 49: Cutting Sealant Around Glass**  
Courtesy of MAZDA MOTORS CORP.

## REUSING WINDSHIELD

**WARNING:**

- Using the piano wire with bare hands can cause injury. Always wear gloves when using the piano wire.

1. Avoiding the pin on the inside of the vehicle, insert the piano wire which has been cut to sufficient length.



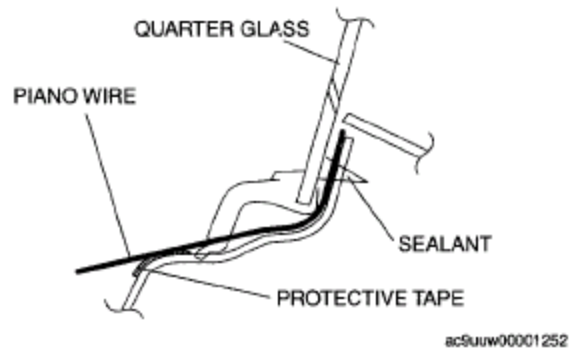
ac3uuw0001251

**Fig. 50: Identifying Pin And Fastener**  
Courtesy of MAZDA MOTORS CORP.

2. Wind each end of the piano wire around a bar.

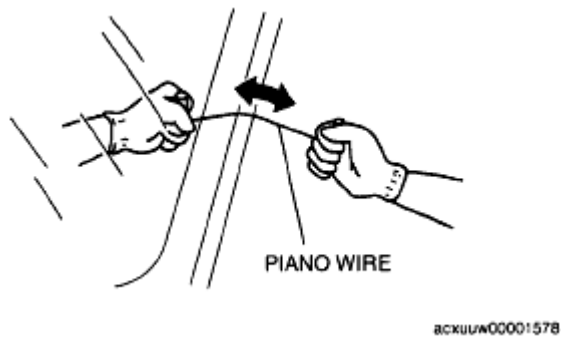
**NOTE:**

- Use a long sawing action to spread the work over the whole length of the piano wire to prevent it from breaking due to localized heating.



**Fig. 51: Identifying Quarter Glass, Piano Wire, Sealant And Protective Tape**  
Courtesy of MAZDA MOTORS CORP.

3. Secure one end of the piano wire, and while pulling the other end, cut the sealant around the quarter window glass.

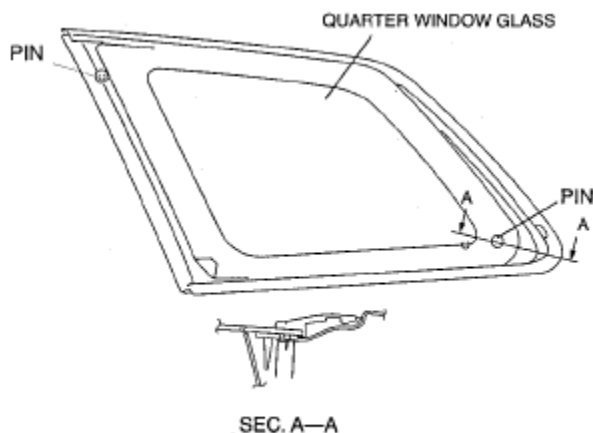


**Fig. 52: Pulling Piano Wire**  
Courtesy of MAZDA MOTORS CORP.

4. Pull the quarter window glass outward and detach the pins from the body.
5. If a pin or spacer is damaged, remove it.

**NOTE:**

- Before removing the pins or spacers from the quarter window glass, place alignment marks on the quarter window glass.



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**Fig. 53: Identifying Quarter Window Glass And Pin**  
 Courtesy of MAZDA MOTORS CORP.

## QUARTER WINDOW GLASS INSTALLATION

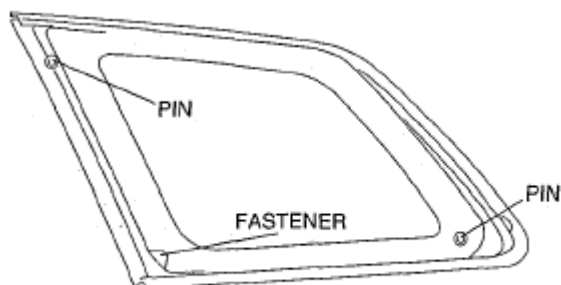
**WARNING:**

- Using a razor with bare hands can cause injury. Always wear gloves when using a razor.

**CAUTION:**

- If a door is opened or closed when all the window glass is closed, the resulting change in air pressure could cause the sealant to crack preventing the proper installation of the glass. Keep the door glass open until the quarter window glass installation is completed.

1. Remove sealant along the perimeter of the glass using a razor or scraper, (when reusing the glass)
2. Clean and degrease the ceramic part along the perimeter of the glass.
3. Inspect the glass for cracks. If it is cracked, chamfer it using sandpaper.
4. If the glass is reused, attach the pins and fastener to the glass as shown in the figure. Align with the alignment marks marked before removing the glass.



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**Fig. 54: Identifying Pin & Fastener**  
 Courtesy of MAZDA MOTORS CORP.

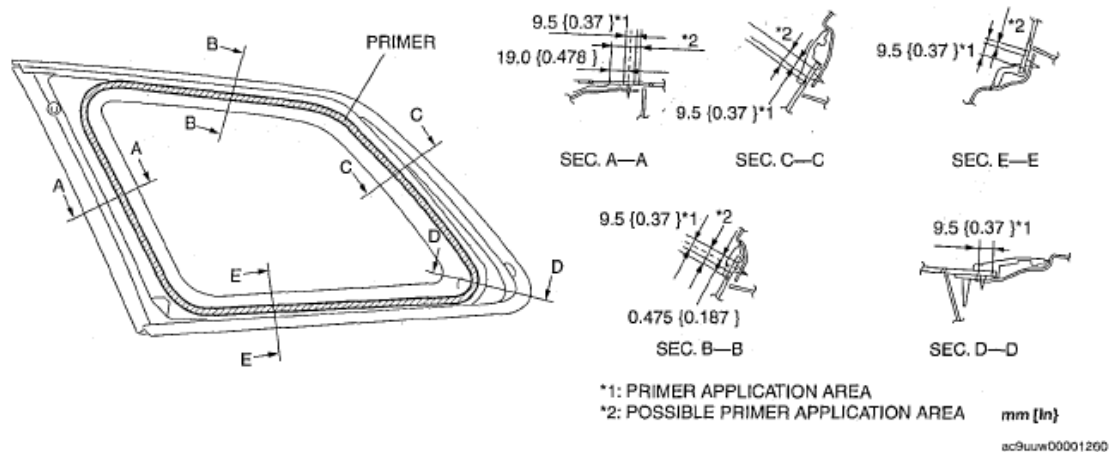
- Apply glass primer along the hollowed marks in the ceramic coating on the new glass, along the sealant tracks on the reused glass, then allow it to dry for **approx. 30 min.**

**CAUTION:**

- To prevent weakening of the primer adhesion, keep the bonding surface free of dirt, moisture, and grease. Do not touch the surface with your hand.

**NOTE:**

- Apply primer to the hollowed marks in the ceramic coating.

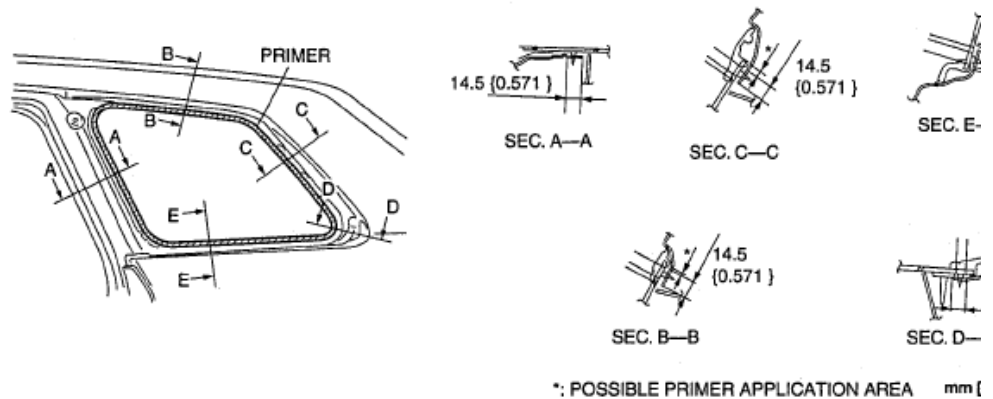


**Fig. 55: Applying Primer To Hollowed Marks In Ceramic Coating**  
 Courtesy of MAZDA MOTORS CORP.

- Cut away the old sealant using a razor or scraper so that **1-2 mm {0.04-0.079 in}** thickness of sealant remains along the perimeter of the frame.
- If the sealant has come off completely in any one place, apply some primer after degreasing, and allow it **approx. 30 min** to dry. Then apply **2 mm {0.079 in}** thickness of new sealant.
- Clean and degrease the bonding surface along the perimeter of the body.
- Apply body primer on the body as shown in the figure, then allow it to dry for **approx. 30 min.**

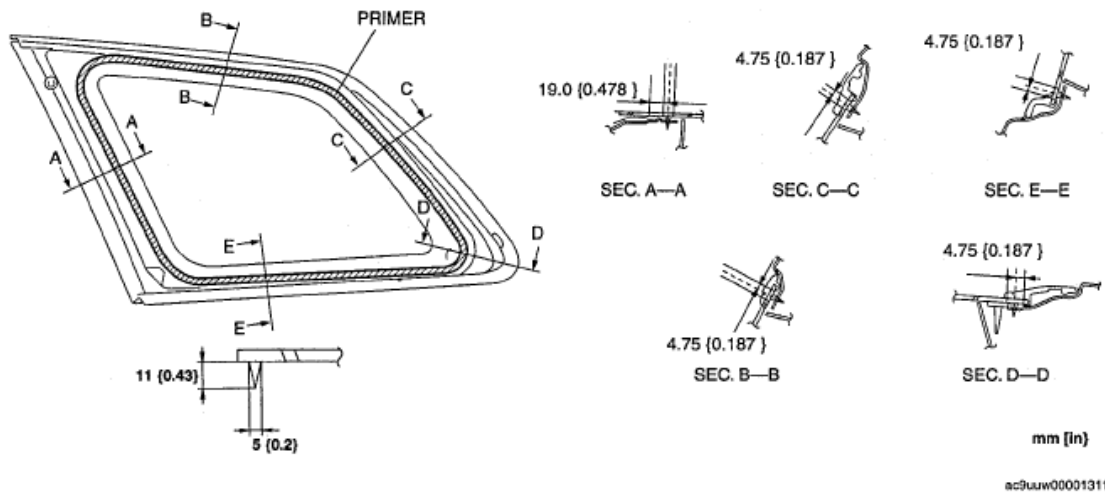
**CAUTION:**

- To prevent weakening of the primer adhesion, keep the bonding surface free of dirt, moisture, and grease. Do not touch the surface with your hand.



**Fig. 56: Applying Body Primer On Body**  
 Courtesy of MAZDA MOTORS CORP.

10. After the primer has dried, apply **11 mm {0.43 in}** in thickness, **5 mm {0.20 in}** in width of sealant using a sealant gun. Where it is not applied properly, correctly apply it using a spatula.

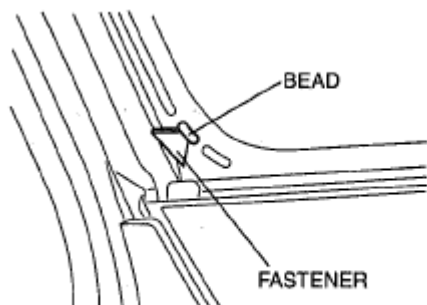


**Fig. 57: Applying In Thickness In Width Of Sealant**  
 Courtesy of MAZDA MOTORS CORP.

11. Align the window side fastener with the bead on the body and adhere.
12. Press the quarter window glass until the quarter window glass fastener and stud pin are locked, and then install the quarter window glass.
13. Install the following parts:
  1. D-pillar trim (See **D-PILLAR TRIM REMOVAL/INSTALLATION** .)
  2. Third-row seat belt upper anchor installation bolt (See **REAR SCUFF PLATE REMOVAL/INSTALLATION** .)
  3. C-pillar trim (See **D-PILLAR TRIM REMOVAL/INSTALLATION** .)



4. Roof side trim (See **ROOF SIDE TRIM REMOVAL/INSTALLATION** .)



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**Fig. 58: Identifying Bead And Fastener**  
Courtesy of MAZDA MOTORS CORP.

5. Second-row seat belt upper anchor installation bolt (See **SECOND-ROW SEAT BELT REMOVAL/INSTALLATION** .)
  6. Trunk side trim (See **TRUNK SIDE TRIM REMOVAL/INSTALLATION** .)
  7. Rear scuff plate inner (See **REAR SCUFF PLATE REMOVAL/INSTALLATION** .)
  8. Third-row seat belt lower anchor installation bolt (See **REAR SCUFF PLATE REMOVAL/INSTALLATION** .)
  9. Third-row seat (See **THIRD-ROW SEAT REMOVAL/INSTALLATION** .)
  10. Trunk end trim (See **TRUNK END TRIM REMOVAL/INSTALLATION** .)
  11. Seat side box (See **SEAT SIDE BOX REMOVAL/INSTALLATION** .)
  12. Trunk box (See **TRUNK BOX REMOVAL/INSTALLATION** .)
14. Allow the sealant to harden completely.

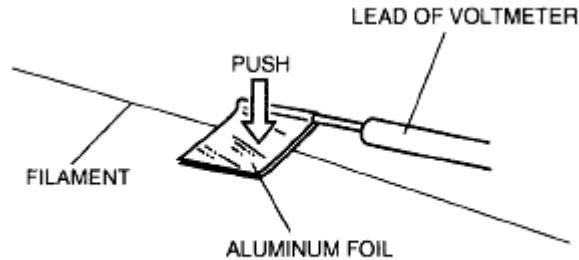
**Sealant hardening time: 24 h**

## FILAMENT INSPECTION

1. Turn the ignition switch to the ON position.
2. Turn the rear window defroster switch on.

### CAUTION:

- Directly touching the rear window defroster filament with the lead of the tester could damage it. Wrap aluminum foil around the end of the lead and inspect the filament by touching it with the foil.



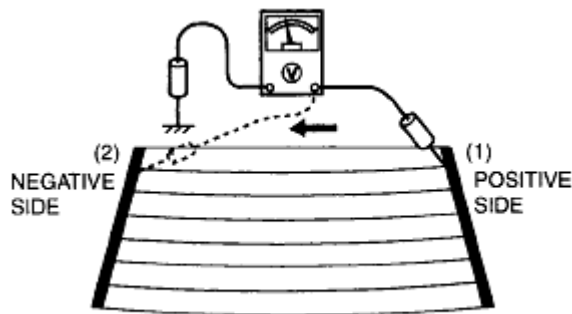
acxuuw00001514

**Fig. 59: Checking Rear Window Defroster Filament**  
 Courtesy of MAZDA MOTORS CORP.

3. Connect the positive lead of the tester to the positive side of each filament and the negative lead to ground.
4. Gradually slide the positive lead from the positive side to the negative side and verify that the voltage decreases accordingly.
  - If the voltage changes rapidly, the filament has a malfunction. Repair the filament.

**VOLTAGE SPECIFICATION**

Measured part	Voltage (Reference)
(1) to (2)	Approx. 11 V to 0 V



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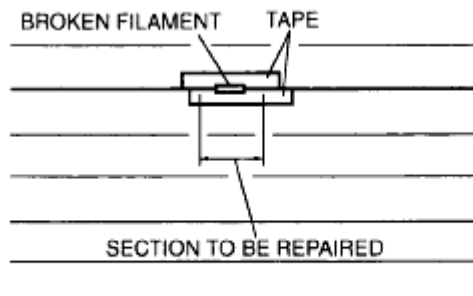
**Fig. 60: Connecting Positive Lead Of Tester To Positive Side Of Filament & Negative Lead To Ground**  
 Courtesy of MAZDA MOTORS CORP.

**FILAMENT REPAIR**

1. Clean the filament using isopropyl alcohol.
2. Attach tape to both sides of the filament.
3. Using a small brush or marking pen, apply silver paint.
4. After **2-3 min** , carefully remove the tape without damaging the applied area.

- CAUTION:**
- Do not operate the rear window defroster until the paint is completely dry. It may cause other malfunctions if it is used before the paint is dry.

5. Dry the repaired part according to the following procedure.
- When the room temperature is **25°C {77°F}** , leave it as it is for **24 h.**
  - When a hot air blower is used, dry with the **150°C {302°F}** air for **30 min.**

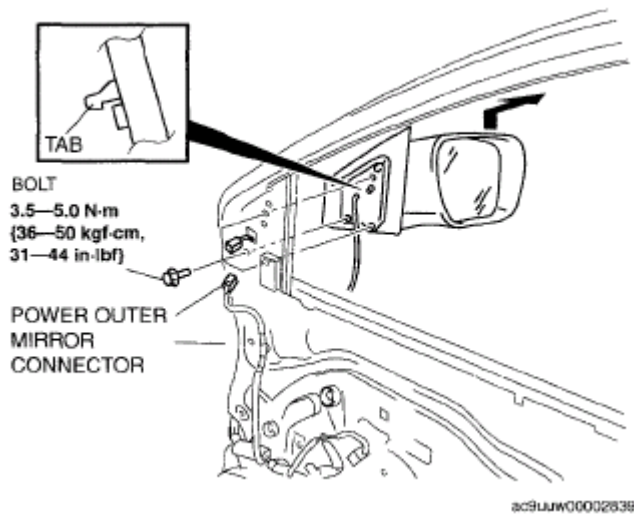


8CXUW00001516

**Fig. 61: Attaching Tape To Both Sides Of Filament**  
Courtesy of MAZDA MOTORS CORP.

## POWER OUTER MIRROR REMOVAL/INSTALLATION

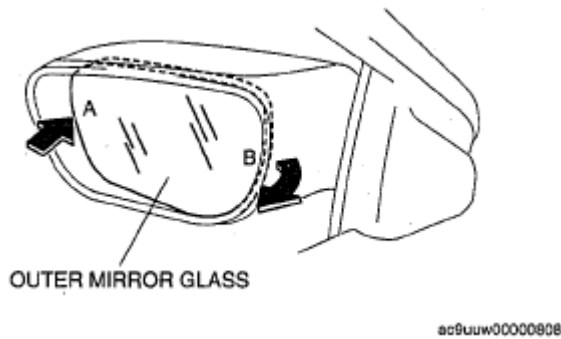
1. Disconnect the negative battery cable.
2. Remove the inner garnish. (See INNER GARNISH REMOVAL/INSTALLATION .)
3. Remove the front door trim. (See FRONT DOOR TRIM REMOVAL/INSTALLATION .)
4. Disconnect the power outer mirror connector.
5. Remove the bolts.
6. Push the power outer mirror against the vehicle and detach the tab while lifting the mirror up to remove.
7. Install in the reverse order of removal.



**Fig. 62: Identifying Power Outer Mirror Components & Torque Specifications**  
Courtesy of MAZDA MOTORS CORP.

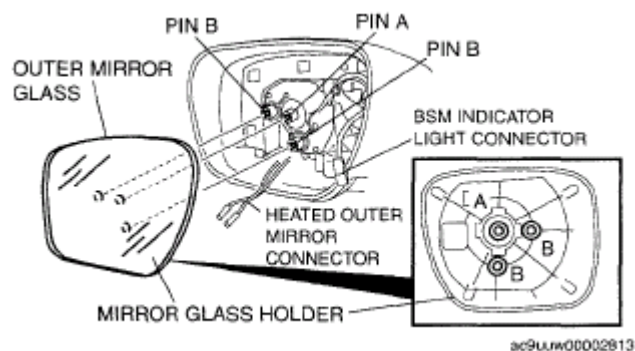
## OUTER MIRROR GLASS REMOVAL

1. Press area A of the mirror glass so that area B moves outward.



**Fig. 63: Pressing Area Of Mirror Glass**  
Courtesy of MAZDA MOTORS CORP.

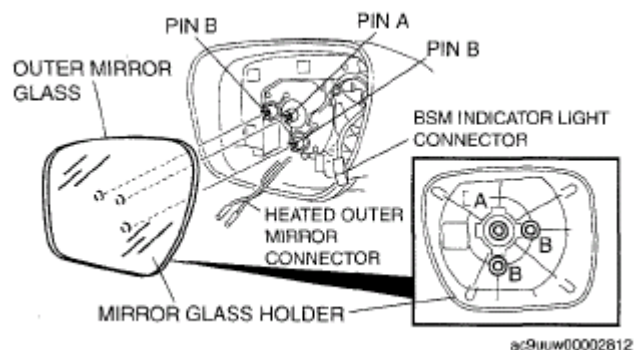
2. Detach pin A while lifting up the inside of the mirror glass holder.
3. Pull the mirror glass holder and remove pins B.
4. Disconnect the heated outer mirror connectors, (vehicles with heated outer mirrors)
5. Disconnect the BSM indicator light connector, (vehicles with BSM)
6. Remove the mirror glass holder and the outer mirror glass as a single unit.



**Fig. 64: Identifying Mirror Glass Holder & Outer Mirror Glass**  
 Courtesy of MAZDA MOTORS CORP.

## OUTER MIRROR GLASS INSTALLATION

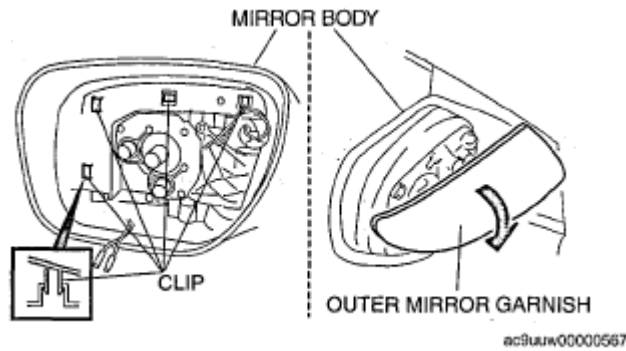
1. Connect the heated outer mirror connectors, (vehicles with heated outer mirrors)
2. Connect the BSM indicator light connector, (vehicles with BSM)
3. Press part A on the outer mirror glass and install pin A.
4. Press part B on the outer mirror glass and install pins B.



**Fig. 65: Identifying BSM Indicator Light Connector, Outer Mirror Glass & Mirror Glass Holder**  
 Courtesy of MAZDA MOTORS CORP.

## OUTER MIRROR GARNISH REMOVAL

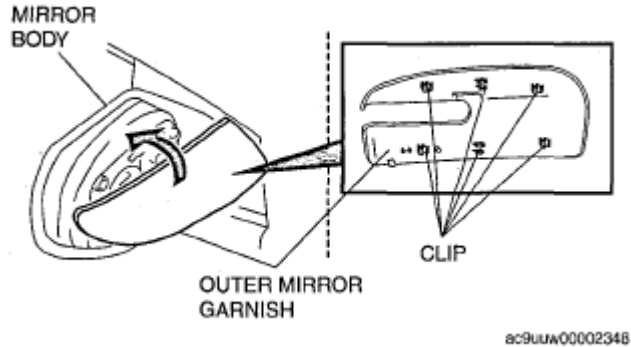
1. Remove the outer mirror glass from the outer mirror. (See **OUTER MIRROR GLASS REMOVAL**.)
2. Pinch the ends of the visible clips (4 locations) shown in the figure, and detach them by pressing them towards the vehicle front.
3. Grasp the upper side of the outer mirror garnish and remove it by pulling it in the direction of the arrow.



**Fig. 66: View Of Outer Mirror Garnish**  
 Courtesy of MAZDA MOTORS CORP.

## OUTER MIRROR GARNISH INSTALLATION

1. Position the outer mirror garnish against the mirror body in the direction of the arrow shown in the figure, and insert the outer mirror garnish clips (6 locations) into the mirror body.
2. Install the outer mirror garnish so that there are no gaps around the component.



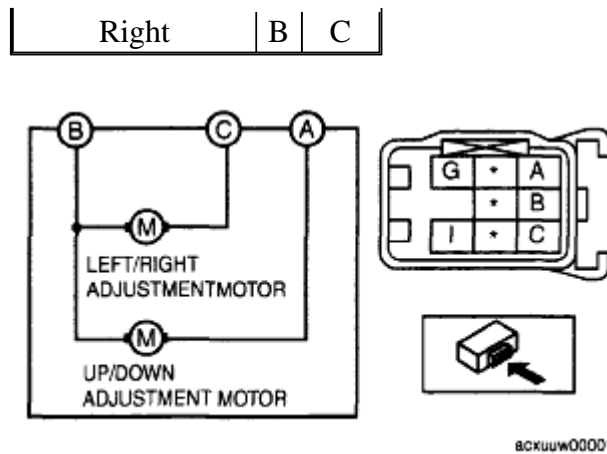
**Fig. 67: View Of Outer Mirror Garnish**  
 Courtesy of MAZDA MOTORS CORP.

## POWER OUTER MIRROR INSPECTION

1. Apply battery positive voltage to the power outer mirror terminals and inspect the operation of the power outer mirror.
  - If not as specified, replace the power outer mirror.

### MIRROR OPERATION CHART

Mirror operation	terminal	
	B+	GND
Up	A	B
Down	B	A
Left	C	B



**Fig. 68: Power Outer Mirror - Circuit Diagram**  
 Courtesy of MAZDA MOTORS CORP.

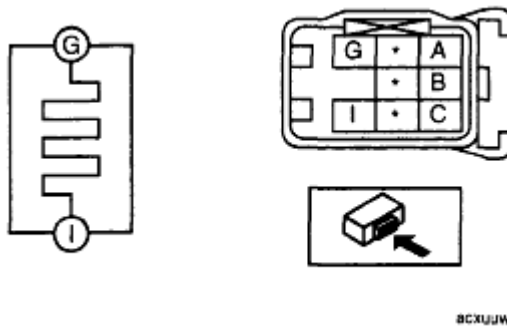
2. Inspect for continuity between the power outer mirror heater terminals.
  - If not as specified, replace the power outer mirror.

○—○ : Continuity

Mirror operation	Terminal	
	G	I
Heater	○—○	○—○

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**Fig. 69: Power Outer Mirror Heater Continuity Chart**  
 Courtesy of MAZDA MOTORS CORP.



**Fig. 70: Power Outer Mirror Heater - Circuit Diagram**  
 Courtesy of MAZDA MOTORS CORP.

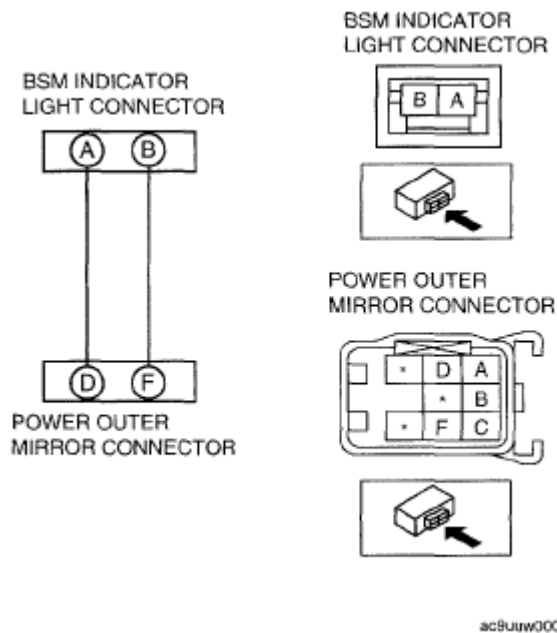
3. Verify that the continuity is as indicated in the table.
  - If not as indicated, replace the power outer mirror.

○—○ : Continuity

	Terminal			
	BSM Indicator light connector		Power outer mirror connector	
	A	B	D	F
Under any condition	○	—	○	
		○	—	○

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**Fig. 71: BSM Indicator Light Connector Continuity Chart**  
 Courtesy of MAZDA MOTORS CORP.

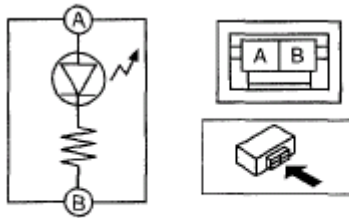


**Fig. 72: BSM Indicator Light Connector - Circuit Diagram**  
 Courtesy of MAZDA MOTORS CORP.

## BLIND SPOT MONITORING (BSM) INDICATOR LIGHT INSPECTION

1. Apply battery voltage to BSM indicator light terminal A, and connect terminal B to ground.
2. Verify that the BSM indicator light illuminates.
  - If there is any malfunction, replace the outer mirror glass.





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**Fig. 73: Blind Spot Monitoring Indicator Light - Circuit Diagram**  
 Courtesy of MAZDA MOTORS CORP.

## POWER OUTER MIRROR SWITCH REMOVAL/INSTALLATION

**NOTE:**

- The power outer mirror switch is integrated with the power window main switch. (See POWER WINDOW MAIN SWITCH REMOVAL/INSTALLATION)

## POWER OUTER MIRROR SWITCH INSPECTION

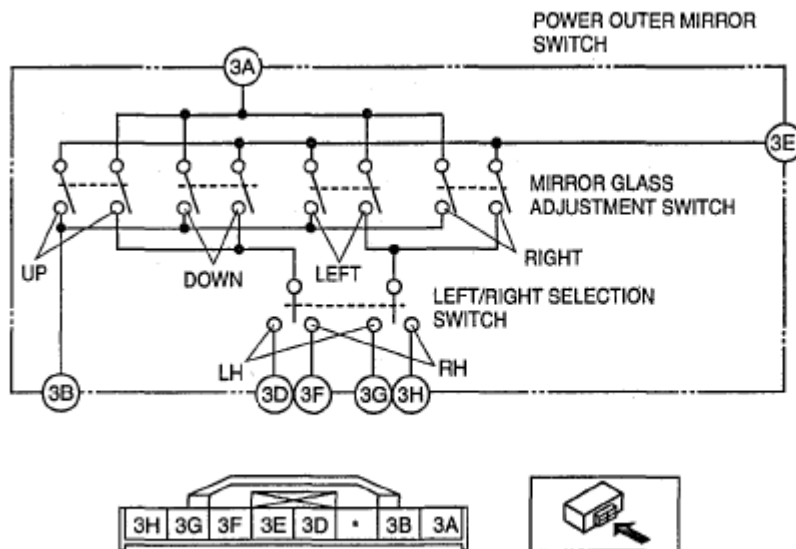
1. Inspect for continuity between the power outer mirror switch terminals using an ohmmeter.
  - If not as indicated in the table, replace the power outer mirror switch.

○—○: Continuity

OPERATION	3A	3B	3D	3E	3F	3G	3H
LH	UP	○	○	○			
	DOWN	○	○	○			
	LEFT	○	○	○	○	○	
	RIGHT	○	○		○	○	
RH	UP	○	○	○	○		
	DOWN	○	○		○	○	
	LEFT	○	○	○			○
	RIGHT	○	○		○	○	

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**Fig. 74: Power Outer Mirror Switch Continuity Chart**  
 Courtesy of MAZDA MOTORS CORP.



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**Fig. 75: Power Outer Mirror Switch - Circuit Diagram**  
 Courtesy of MAZDA MOTORS CORP.

## BASE REMOVAL

1. Remove the rearview mirror. (See REARVIEW MIRROR REMOVAL [VEHICLES WITH AUTO LIGHT/WIPER SYSTEM].) (See REARVIEW MIRROR REMOVAL [VEHICLES WITHOUT AUTO LIGHT/WIPER SYSTEM].)
2. Wind each end of a wire around a bar.

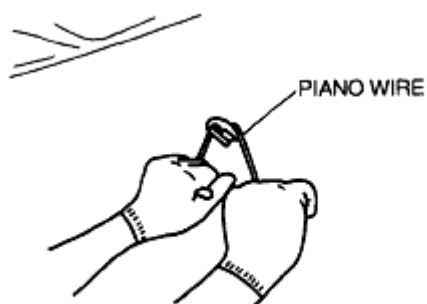
**WARNING:**

- Using the piano wire with bare hands can cause injury. Always wear gloves when using the piano wire.

**NOTE:**

- Use a long sawing action to spread the work over the whole length of the piano wire to prevent it from breaking.

3. Fix one end of the piano wire, and while pulling the other end, cut the sealant to remove the base.



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**Fig. 76: Pulling Piano Wire**  
 Courtesy of MAZDA MOTORS CORP.

## BASE INSTALLATION

1. Cut away all of the original sealant using a razor.

**WARNING:**

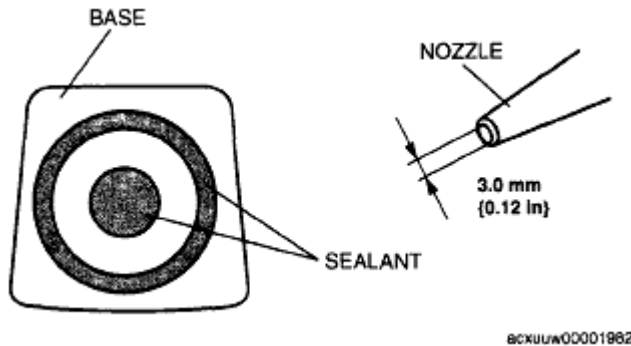
- Using a razor with bare hands can cause injury. Always wear gloves when using a razor.

2. Clean and degrease the ceramic coating on the glass and the base.

**CAUTION:**

- Keep the area free of dirt and grease, and do not touch the surface. Otherwise, the primer may not properly bond to the surface of the glass.

3. Apply primer to the bonding area of the glass and the base.
4. Use only glass primer on the glass, and body primer on the base. Allow the primer to dry for **approx. 30 min.**
5. Apply **3.0 mm {0.12 in}** layer of sealant to the base.



**Fig. 77: Identifying Sealant Applying Area**  
 Courtesy of MAZDA MOTORS CORP.

6. Center the base in the ceramic coating and press it onto the glass.
7. Use isopropyl alcohol to remove any excess repair sealant.

### Hardening time of sealant

#### TEMPERATURE SPECIFICATION

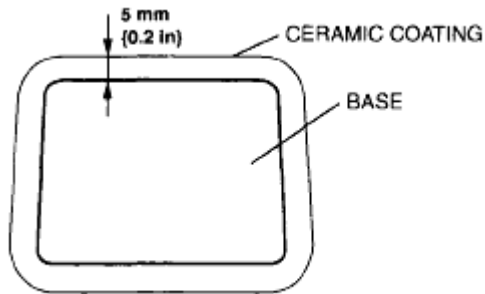
Temperature	Surface hardening time	Time required until car can be put into service
5°C {41°F}	Approx. 1.5 h	Approx. 12h
20°C {68°F}	Approx. 1 h	Approx. 4 h

35°C {95°F}

Approx. 10 min

Approx. 2 h

8. Install the rearview mirror.

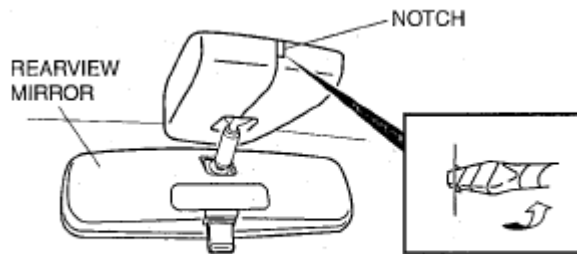


acxuuw00001983

**Fig. 78: Identifying Ceramic Coating On Glass**  
Courtesy of MAZDA MOTORS CORP.

## REARVIEW MIRROR REMOVAL [VEHICLES WITH AUTO LIGHT/WIPER SYSTEM]

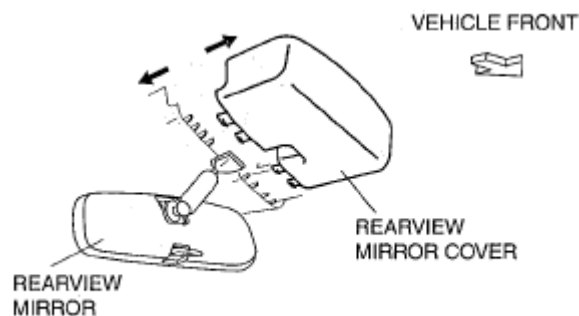
1. Insert a tape-wrapped flathead screwdriver into the notch and pry with the screwdriver in the direction shown by the arrow to remove the covers.



ac9uuw00002382

**Fig. 79: View Of Mirror Cover Notch**  
Courtesy of MAZDA MOTORS CORP.

2. Remove the covers.
3. Remove the rain sensor. (See **RAIN SENSOR REMOVAL/INSTALLATION** .)



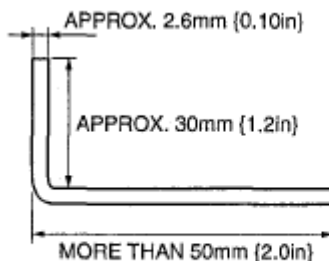
ac9uuw00002330

**Fig. 80: Identifying Rearview Mirror And Rearview Mirror Cover**  
 Courtesy of MAZDA MOTORS CORP.

4. Make a tool as shown in the figure using wire.

**CAUTION:**

- Using the tool with bare hands can cause injury. Always wear gloves when using the tool.
- To prevent damage to the lens sensor, do not use a screwdriver.



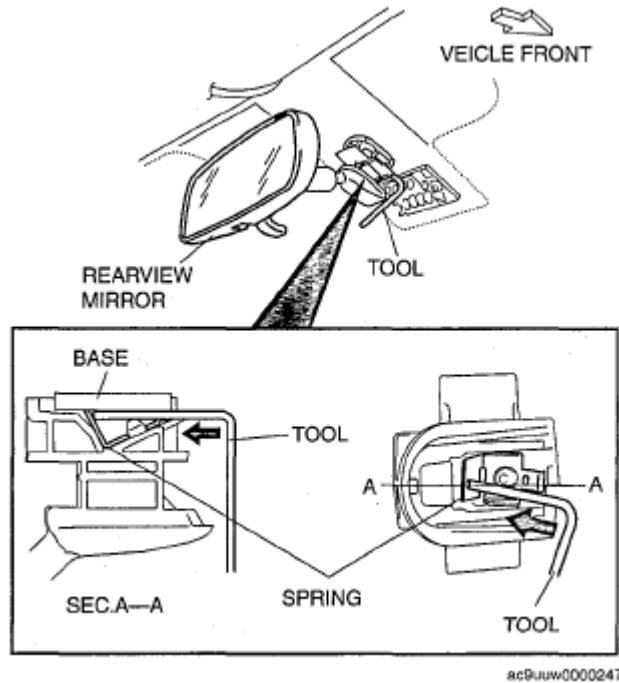
ac9uuw00002472

**Fig. 81: Identifying Rearview Mirror Removal Tool**  
 Courtesy of MAZDA MOTORS CORP.

5. Insert the tool to the position shown in the figure and push the center part of the spring.

**CAUTION:**

- Perform the procedure while being careful not to damage the lens sensor.

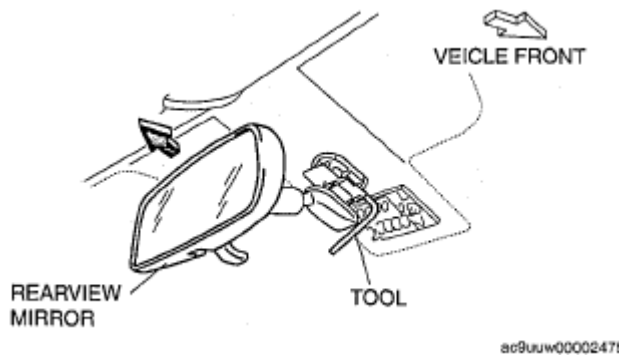


**Fig. 82: Inserting Tool To Position**  
Courtesy of MAZDA MOTORS CORP.

6. Remove the rearview mirror in the direction of the arrow.

**CAUTION:**

- When removing the rearview mirror, the mirror may hit the top sealing, possibly damaging it. Therefore, hold the mirror body securely by hand when removing the rear view mirror so that the mirror does not contact it.

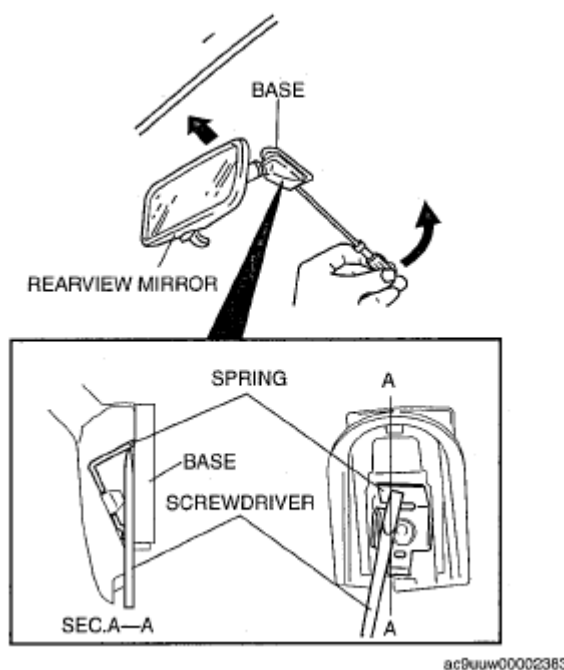


**Fig. 83: Removing Rearview Mirror**  
Courtesy of MAZDA MOTORS CORP.

1. Insert a flathead screwdriver between the mirror and the base.
2. Insert the flathead screwdriver to the position shown in the figure and press the center part of the spring.
3. Remove the rearview mirror in the direction of the arrow.

**CAUTION:**

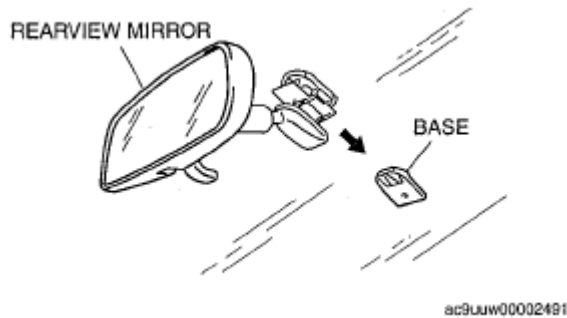
- When removing the rearview mirror, the mirror may hit the top sealing, possibly damaging it. Therefore, hold the mirror body securely by hand when removing the rear view mirror so that the mirror does not contact it.



**Fig. 84: Inserting Flathead Screwdriver Between Mirror & Base**  
Courtesy of MAZDA MOTORS CORP.

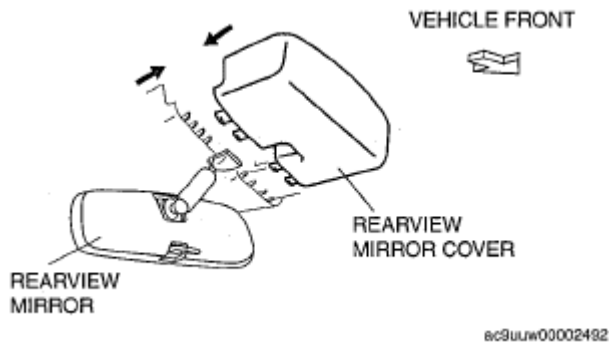
## REARVIEW MIRROR INSTALLATION [VEHICLES WITH AUTO LIGHT/WIPER SYSTEM]

1. Install the rearview mirror onto the base.
2. Install the rain sensor.(See RAIN SENSOR REMOVAL/INSTALLATION .)



**Fig. 85: View Of Rearview Mirror & Base (Vehicles With Auto Light/Wiper System)**  
Courtesy of MAZDA MOTORS CORP.

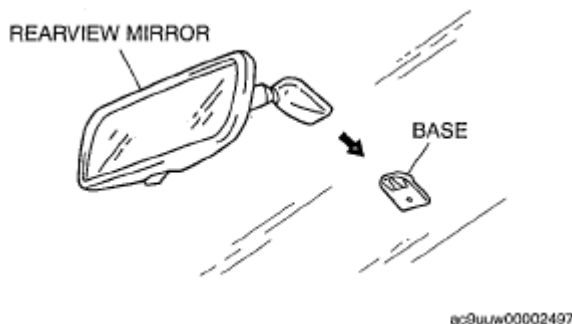
3. Install the covers.



**Fig. 86: Identifying Rearview Mirror & Rearview Mirror Cover**  
Courtesy of MAZDA MOTORS CORP.

## REARVIEW MIRROR INSTALLATION [VEHICLES WITHOUT AUTO LIGHT/WIPER SYSTEM]

1. Install the rearview mirror onto the base.



**Fig. 87: View Of Rearview Mirror & Base (Vehicles Without Auto Light/Wiper System)**  
Courtesy of MAZDA MOTORS CORP.