

# **Component Procedures: Windows**

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# Component Procedures: Windows

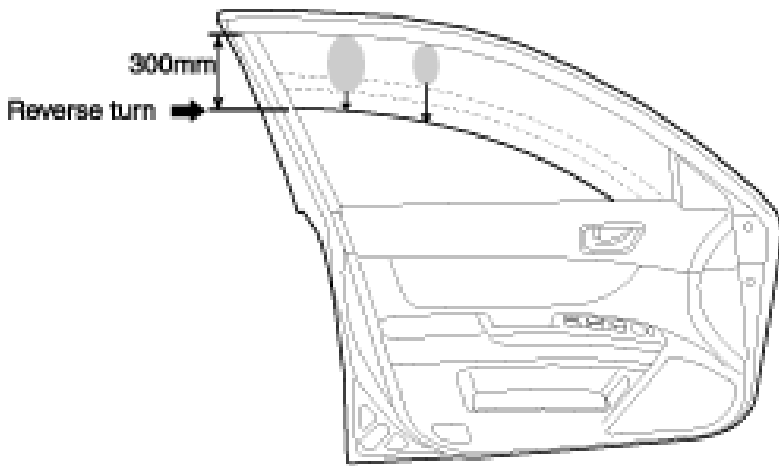
## Power Window System - Service Tips (Article 42542)

Power Window System	Service Tips (1)																																																																																																																																																				
<p><b>Circuit Description</b></p> <p>To operate a power window, the ignition switch must be in the IG2 position or higher. Even when the ignition switch is in the Lock or ACC mode after ignition, the window can be opened or closed for around 30 seconds.</p> <p>However, the window cannot be opened or closed even during that 30 seconds if the driver's or passenger's door is opened. If the window lock switch of the power window main switch is in the Lock position, rear power window cannot be opened or closed by rear power window switch.</p> <p>If the upward movement of the window is blocked by an object or part of the body, the window will detect the resistance and will stop upward movement.</p> <p>■ <b>Power Window Operation</b> (With Safety Power Window)</p> <ol style="list-style-type: none"> <li>Operating characteristic of safety power window is identical.</li> <li>In order to detect voltage changes of switches, Safety power window module applies 12v (Full-up) to up/down switches of power window switch.</li> <li>To power window up, When pull back the window switch, terminal pin No.2 of safety power window module connects to ground via power window main switch. So voltage of pin No.2 in safety power window module drops from 12v to 0v. In case of power window down, voltage of pin No.1 in safety power window module changes from 12v to 0v.</li> <li>To power window up with Auto-Up function, ground of power window main switch connects with terminal pin No.2 and 5 of safety power window module. Then, voltage of pin No.2 &amp; 5 in safety power window module drops from 12v to 0v.</li> </ol> <p>And in case of window auto-down, voltage of pin No.1 &amp; 5 in safety power window module drops from 12v to 0v. (To operate power window auto-up/down, both signals of up/down switch and auto switch must input to ECU of safety power window module.)</p>	<p>■ <b>Power Window Main Switch Inspection</b> (Without IMS)</p> <p>Check the continuity between terminals from each switch position as shown in the table below and renew it if it doesn't have continuity.</p> <p>[Auto Down Power Window]</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Position</th> <th colspan="4">Driver</th> <th colspan="4">Passenger</th> </tr> <tr> <th>10</th> <th>2</th> <th>A</th> <th>15</th> <th>12</th> <th>11</th> <th>10</th> </tr> </thead> <tbody> <tr> <td>UP</td> <td>○</td> <td>○</td> <td></td> <td>○</td> <td>○</td> <td></td> <td>○</td> </tr> <tr> <td>OFF</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>DOWN</td> <td>○</td> <td></td> <td></td> <td>○</td> <td></td> <td></td> <td>○</td> </tr> <tr> <td>AUTO DOWN</td> <td>○</td> <td></td> <td></td> <td>○</td> <td></td> <td></td> <td>○</td> </tr> </tbody> </table> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Position</th> <th colspan="4">Rear LH</th> <th colspan="4">Rear RH</th> </tr> <tr> <th>15</th> <th>4</th> <th>8</th> <th>10</th> <th>15</th> <th>17</th> <th>15</th> <th>10</th> </tr> </thead> <tbody> <tr> <td>UP</td> <td>○</td> <td>○</td> <td>○</td> <td>○</td> <td>○</td> <td>○</td> <td>○</td> <td>○</td> </tr> <tr> <td>OFF</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>DOWN</td> <td>○</td> <td></td> <td></td> <td>○</td> <td>○</td> <td></td> <td></td> <td>○</td> </tr> </tbody> </table> <p>[Driver Safety Power Window]</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Position</th> <th colspan="4">Driver</th> <th colspan="4">Passenger</th> </tr> <tr> <th>10</th> <th>2</th> <th>3</th> <th>15</th> <th>12</th> <th>11</th> <th>10</th> </tr> </thead> <tbody> <tr> <td>UP</td> <td>○</td> <td>○</td> <td></td> <td>○</td> <td>○</td> <td></td> <td>○</td> </tr> <tr> <td>AUTO UP</td> <td>○</td> <td></td> <td></td> <td>○</td> <td></td> <td></td> <td>○</td> </tr> <tr> <td>OFF</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>DOWN</td> <td>○</td> <td></td> <td></td> <td>○</td> <td></td> <td></td> <td>○</td> </tr> <tr> <td>AUTO DOWN</td> <td>○</td> <td></td> <td></td> <td>○</td> <td></td> <td></td> <td>○</td> </tr> </tbody> </table>	Position	Driver				Passenger				10	2	A	15	12	11	10	UP	○	○		○	○		○	OFF								DOWN	○			○			○	AUTO DOWN	○			○			○	Position	Rear LH				Rear RH				15	4	8	10	15	17	15	10	UP	○	○	○	○	○	○	○	○	OFF									DOWN	○			○	○			○	Position	Driver				Passenger				10	2	3	15	12	11	10	UP	○	○		○	○		○	AUTO UP	○			○			○	OFF								DOWN	○			○			○	AUTO DOWN	○			○			○
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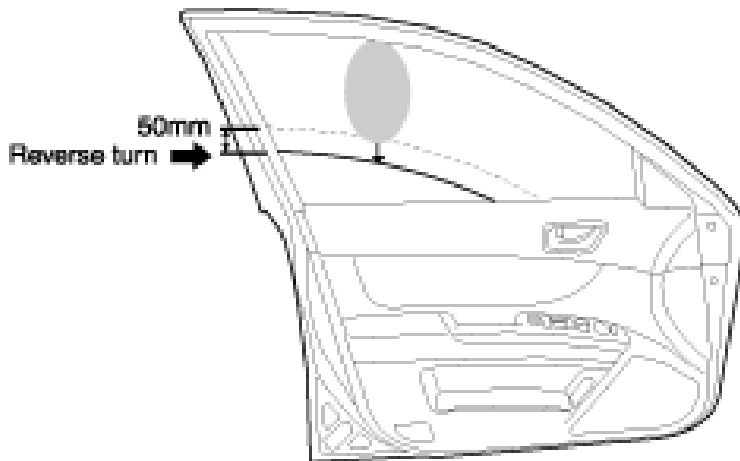
## Power Windows - Description and Operation (Article 44605)

- Function Of Safety Power Window
- Safety function condition When detect the force of 100N (using the 10N/mm spring) during the window rising, window is reversed.
- Length of window reversing (except holding the auto-up switch) When detect the jamming during the 4mm - 250mm from top of the door. → Window is reversed until 300mm from top of the door. When detect the jamming over the 250mm from top of the door. → Window is reversed until 50mm from jamming position.
- When detect the jamming during the 4mm - 250mm from top of the door. → Window is reversed until 300mm from top of the door.



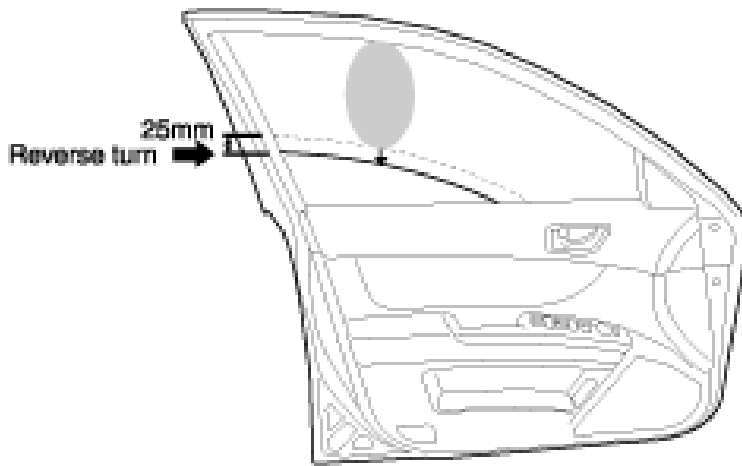
**When detect the jamming during the 4mm~250mm from top of the door**

- When detect the jamming over the 250mm from top of the door. → Window is reversed until 50mm from jamming position.



**When detect the jamming over the 250mm from top of the door**

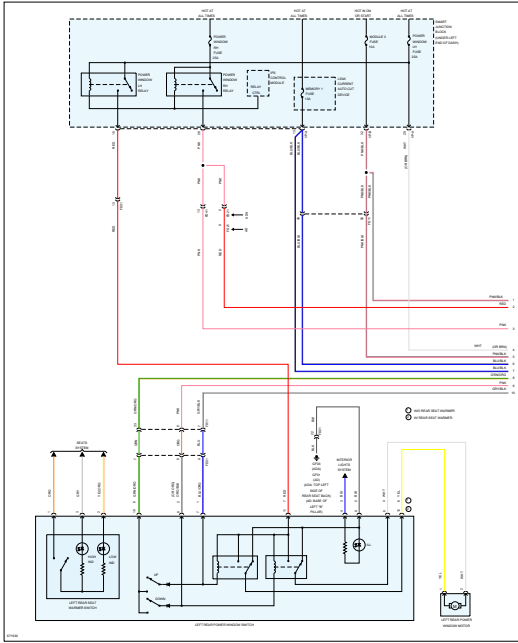
- Length of window reversing (holding the auto-up switch) When detect the jamming during holding the auto-up switch. → Window is reverse until 25mm from jamming position. Auto-up function is not available during the 5 seconds from above condition. → When holding the auto-up switch, window is operated as a manual-up function. (Safety function is not activated.) When holding the auto-up switch after 5 seconds from above condition. → Window is reverse until 25mm from jamming position.
- When detect the jamming during holding the auto-up switch. → Window is reverse until 25mm from jamming position.
- Auto-up function is not available during the 5 seconds from above condition. → When holding the auto-up switch, window is operated as a manual-up function. (Safety function is not activated.)
- When holding the auto-up switch after 5 seconds from above condition. → Window is reverse until 25mm from jamming position.



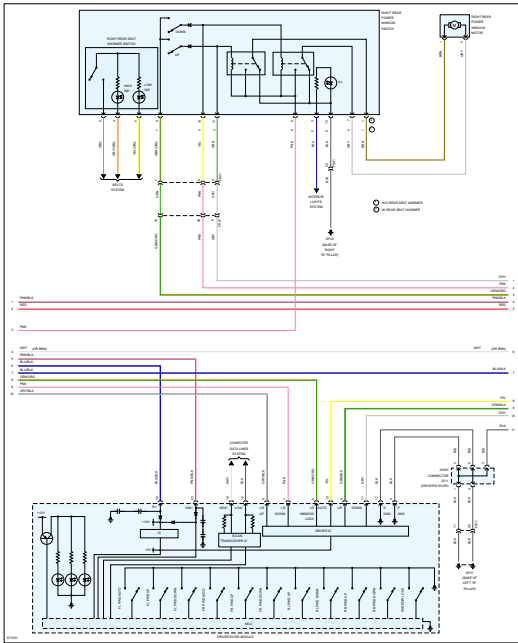
**When holding the auto-up switch**

- Safety function is not available area Safety function is not available during the 4mm from top of the door.
- Initializing Method of the Safety Power Window
- Initializing of Battery Connection When the battery power is removed for over 5 minutes, safety power window switch need the initializing. Power window operation before initializing Manual-Up/Down function is available Auto-Up function is not available (When holding the auto-up/down switch, window is operated as a manual-up/down.) Initializing method Close the window in window open position, and holding the switch in window full close position over the 0.2 second. (If start the closing the window in window full close position, initializing could be failed.) If initialize the safety power window in jamming status, could occur below conditions. Safety function is not available
- Power window operation before initializing Manual-Up/Down function is available Auto-Up function is not available (When holding the auto-up/down switch, window is operated as a manual-up/down.)
- Manual-Up/Down function is available
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- If initialize the safety power window in jamming status, could occur below conditions. Safety function is not available
- Safety function is not available
- Initializing of fail safe mode If the window moved by compulsion and motor have a problem, power window switch could be entering the fail safe mode for user's safety. Power window operation in fail mode Auto/Manual-Down function is available Auto/Manual-Up function is not available (When auto/manual-up is operated, window is rising 20mm and is stopped the moving.)
- If the window moved by compulsion and motor have a problem, power window switch could be entering the fail safe mode for user's safety.
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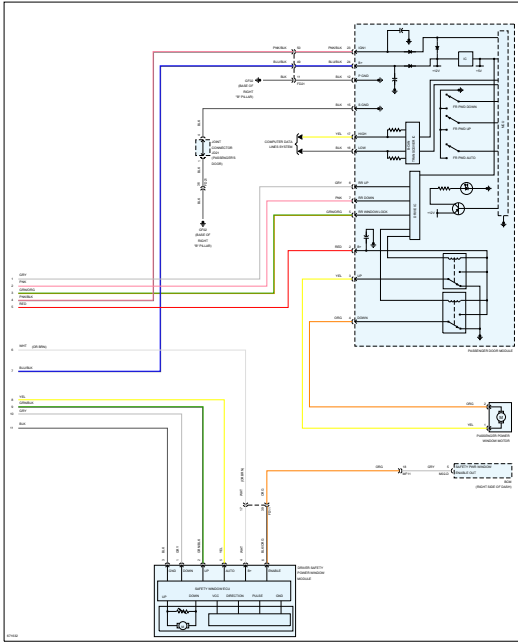
## **Power Windows - W/ IMS (Article 10361)**



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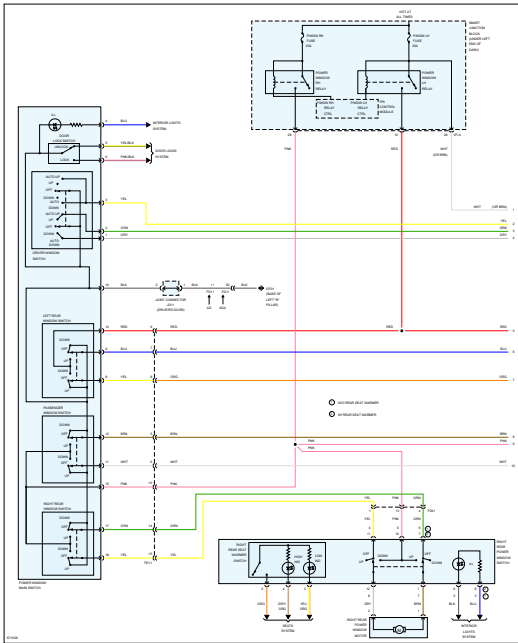
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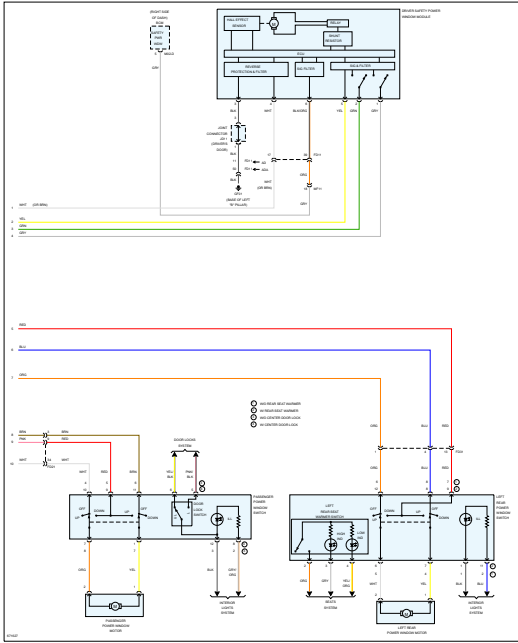
## Power Windows - W/O IMS W/ Auto Up/Down Power Windows (Article 10426)

Power Windows - W/O IMS W/ Auto Up/Down Power Windows

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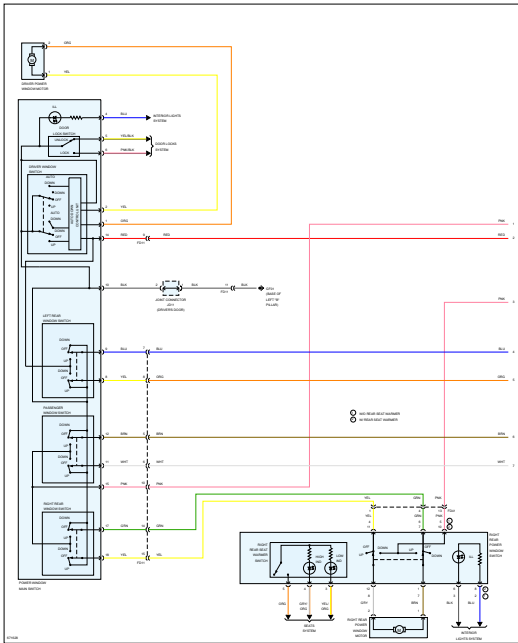
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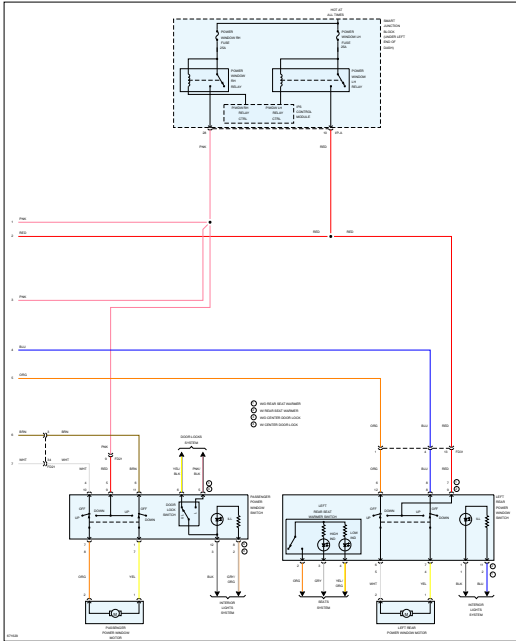
**Power Windows - W/O IMS W/O Auto Up/Down Power Windows (Article 10369)**

Power Windows - W/O IMS W/O Auto Up/Down Power Windows

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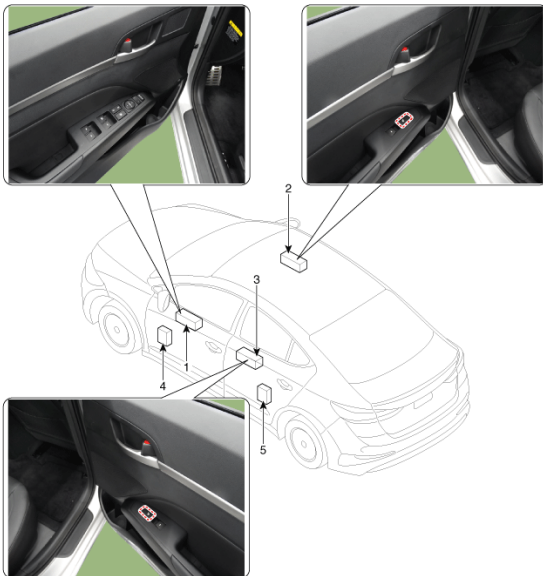


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## Power Windows - Components and Components Location (Article 44604)

- Component Location



1. DDM (Driver Door Module) 2. ADM (Assistant Door Module) 3. RRDM / RLDM (Rear Door Module) 4. Front window motor 5. Rear window motor

## Power Window System - Service Tips (Article 42543)

**Circuit Description**

To operate a power window, the ignition switch must be in the IG2 position or higher. Even when the ignition switch is in the Lock or ACC mode after ignition, the window can be opened or closed for around 30 seconds.

However, the window cannot be opened or closed even during that 30 seconds if the driver's or passenger's door is opened. If the window lock switch of the power window main switch is in the Lock position, rear power window cannot be opened or closed by rear power window switch.

If the upward movement of the window is blocked by an object or part of the body, the window will detect the resistance and will stop upward movement.

**Power Window Operation** (With Safety Power Window)

- Operating characteristic of safety power window is identical.
  - In order to detect voltage changes of switches, Safety power window module applies 12v (Full-up) to up/down switches of power window switch.
  - To power window up, When pull back the window switch, terminal pin No.2 of safety power window module connects to ground via power window main switch. So voltage of pin No.2 in safety power window module drops from 12v to 0v. In case of power window down, voltage of pin No.1 in safety power window module changes from 12v to 0v.
  - To power window up with Auto-Up function, ground of power window main switch connects with terminal pin No.2 and 5 of safety power window module. Then, voltage of pin No.2 & 5 in safety power window module drops from 12v to 0v.
- And in case of window auto-down, voltage of pin No.1 & 5 in safety power window module drops from 12v to 0v. (To operate power window auto-up/down, both signals of up/down switch and auto switch must input to ECU of safety power window module.)

**Power Window Main Switch Inspection** (Without IMS)

Check the continuity between terminals from each switch position as shown in the table below and renew it if it doesn't have continuity.

**[Auto Down Power Window]**

Position	Driver				Passenger			
	10	2	1	A	15	12	11	10
UP	○	○	○	○	○	○	○	○
OFF	○	○	○	○	○	○	○	○
DOWN	○	○	○	○	○	○	○	○
AUTO DOWN	○	○	○	○	○	○	○	○

Position	Rear LH				Rear RH			
	15	4	8	10	15	17	15	10
UP	○	○	○	○	○	○	○	○
OFF	○	○	○	○	○	○	○	○
DOWN	○	○	○	○	○	○	○	○

**[Driver Safety Power Window]**

Position	Driver				Passenger			
	10	2	1	3	15	12	11	10
UP	○	○	○	○	○	○	○	○
AUTO UP	○	○	○	○	○	○	○	○
OFF	○	○	○	○	○	○	○	○
DOWN	○	○	○	○	○	○	○	○
AUTO DOWN	○	○	○	○	○	○	○	○

Position	Rear LH				Rear RH			
	15	4	8	10	15	17	15	10
UP	○	○	○	○	○	○	○	○
OFF	○	○	○	○	○	○	○	○
DOWN	○	○	○	○	○	○	○	○

**Passenger Power Window Switch Inspection** (Without IMS)

Check for continuity between the terminals in each switch position according to the table. If the continuity condition is not normal, replace the switch.

Position	Terminal 9 (5)	Terminal 11 (6)	Terminal 1 (7)	Terminal 10 (4)	Terminal 7 (8)
	UP	○	○	○	○
OFF	○	○	○	○	○
DOWN	○	○	○	○	○

( ) : W/O Center Door Lock

**Rear Power Window Switch LH Inspection** (Without IMS)

Check for continuity between the terminals in each switch position according to the table. If the continuity condition is not normal, replace the switch.

**[Without Rear Seat Warmer]**

Position	Terminal 7	Terminal 8	Terminal 4	Terminal 6	Terminal 5
	UP	○	○	○	○
OFF	○	○	○	○	○
DOWN	○	○	○	○	○

**[With Rear Seat Warmer]**

Position	Terminal 9	Terminal 8	Terminal 7	Terminal 12	Terminal 6
	UP	○	○	○	○
OFF	○	○	○	○	○
DOWN	○	○	○	○	○

**Rear Power Window Switch RH Inspection** (Without IMS)

Check for continuity between the terminals in each switch position according to the table. If the continuity condition is not normal, replace the switch.

Position	Terminal 5	Terminal 6	Terminal 7	Terminal 4	Terminal 8
	UP	○	○	○	○
OFF	○	○	○	○	○
DOWN	○	○	○	○	○

**[With Rear Seat Warmer]**

Position	Terminal 10	Terminal 7	Terminal 1	Terminal 11	Terminal 12
	UP	○	○	○	○
OFF	○	○	○	○	○
DOWN	○	○	○	○	○

**Safety Power Window Motor Inspection**

Connect the motor terminals No.4 and No.6 directly to battery voltage and check that the motor operates smoothly. If the operation is abnormal, replace the motor.

Position	Terminal 2	Terminal 3(GND)	Terminal 1
	Front/UP	○	○
Rear/DOWN	○	○	○