POWER WINDOW CONTROL SYSTEM

PRECAUTION

NOTICE:
FOR INITIALIZATION:
When disconnecting the cable from the negative (-) battery terminal, initialize the following system after the cable is reconnected.

FOR HYBRID SYSTEM ACTIVATION:
When the warning light is illuminated or the battery has been disconnected and reconnected, pressing the power switch may not start the system on the first try. If so, press the power switch again.

<table>
<thead>
<tr>
<th>System Name</th>
<th>See Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Window Control System</td>
<td>IN-32</td>
</tr>
</tbody>
</table>
HOW TO PROCEED WITH TROUBLESHOOTING

HINT:
• Use this procedure to troubleshoot the power window control system.
• *: Use the intelligent tester.

1 VEHICLE BROUGHT TO WORKSHOP

2 INSPECT BATTERY VOLTAGE

Standard voltage:
11 to 14 V
If the voltage is below 11 V, recharge or replace the battery before proceeding.

3 CHECK COMMUNICATION FUNCTION OF LARGE-SCALE BODY MULTIPLEX COMMUNICATION SYSTEM (BEAN)*

(a) Using the intelligent tester, check if the Multiplex Communication System (MPX) is functioning normally.

Result

<table>
<thead>
<tr>
<th>Result</th>
<th>Proceed to</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPX DTC is not output</td>
<td>A</td>
</tr>
<tr>
<td>MPX DTC is output</td>
<td>B</td>
</tr>
</tbody>
</table>

B Go to MULTIPLEX COMMUNICATION SYSTEM

A

4 PROBLEM SYMPTOMS TABLE

Result

<table>
<thead>
<tr>
<th>Result</th>
<th>Proceed to</th>
</tr>
</thead>
<tbody>
<tr>
<td>If the fault is not listed in the problem symptoms table</td>
<td>A</td>
</tr>
<tr>
<td>If the fault is listed in the problem symptoms table</td>
<td>B</td>
</tr>
</tbody>
</table>

B Go to step 7

A

5 OVERALL ANALYSIS AND TROUBLESHOOTING*

(a) Terminals of ECU (see page WS-9)
If the power window switch AUTO light is blinking, reset the power window (see page WS-7).
PARTS LOCATION
ENGINE ROOM JUNCTION BLOCK
- AM2 FUSE

CENTER CONNECTOR NO. 1

DRIVER SIDE JUNCTION BLOCK
- MAIN BODY ECU
- IG1 RELAY
- PWR RELAY
- PWR H-FUSE
- GAUGE FUSE
- FR DOOR FUSE
- ECU-IG FUSE

CENTER CONNECTOR NO. 2
SYSTEM DESCRIPTION

1. POWER WINDOW CONTROL SYSTEM DESCRIPTION

The power window control system controls the power windows' UP / DOWN function using the regulator motors.

The main controls of this system are: the power window regulator master switch, which is built into the driver side door, and the power window regulator switches, which are built into the passenger side door and rear doors. Pressing each regulator switch or any of the switches on the master switch transmits an UP / DOWN signal to the corresponding power window regulator motor.

The jammed window detection mechanism consists of a magnet on the worm gear of the power window motor and the Hall ICs on the connector.

2. FUNCTION OF MAIN COMPONENT

3. SYSTEM FUNCTION

The power window control system has the following functions.

<table>
<thead>
<tr>
<th>Function</th>
<th>Outline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual UP / DOWN function</td>
<td>Driver side power window: Function that causes window to rise while power window switch is pulled halfway up, and lower while pushed halfway down. Window stops as soon as switch is released. Other power windows: Function that causes window to rise while power window switch is pulled up and to lower while pushed down. Window stops as soon as switch is released.</td>
</tr>
<tr>
<td>AUTO UP / DOWN function</td>
<td>Function that enables window of driver side door to be fully opened or fully closed by one full push downward or one full pull upward on power window switch, respectively. AUTO UP / DOWN function is only available on driver side power window.</td>
</tr>
<tr>
<td>Jam protection function</td>
<td>Function that automatically stops driver side power window and moves it downward if object is jammed in driver side power window during AUTO UP operation. During key-off operation function, jam protection function works for manual UP and AUTO UP operation. Jam protection function is only available on driver side power window.</td>
</tr>
<tr>
<td>Remote UP / DOWN function</td>
<td>Function that allows power window master switch to control manual UP / DOWN operations of passenger side power window and rear power windows.</td>
</tr>
<tr>
<td>Key-off operation function</td>
<td>Function where power window operation can be performed approximately 43 seconds even if power switch is turned OFF (either front door must not be opened).</td>
</tr>
<tr>
<td>Window lock function</td>
<td>Function where passenger side power window and rear power windows' operations are disabled when window lock switch of the master switch is pressed. Passenger side power window and rear power windows can be operated when window lock switch is pressed again.</td>
</tr>
</tbody>
</table>
### Function Outline

<table>
<thead>
<tr>
<th>Function</th>
<th>Outline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnosis</td>
<td>Function where power window switch can detect malfunctions in power window system and make diagnoses. Power window switch light (AUTO light) illuminates or starts blinking to inform driver.</td>
</tr>
<tr>
<td>Fail-safe</td>
<td>Function that disables driver side power window AUTO UP / DOWN function if pulse sensor (Hall IC) in power window regulator motor has malfunction. Manual operation is possible through power window switches.</td>
</tr>
</tbody>
</table>
INITIALIZATION

1. RESET (INITIALIZE) POWER WINDOW REGULATOR MOTOR (for Driver Side)

NOTICE:
Resetting the power window regulator motor (initializing the pulse sensor) is necessary if: 1) the battery terminal cable is disconnected; 2) the power window regulator master switch assembly, wire harness, power window regulator switch, power window regulator assembly and power window regulator motor are replaced or removed / installed; or 3) the PWR H-fuse, FR DOOR fuse, GAUGE fuse and ECU-IG fuse are replaced. If resetting is not performed, the master switch assembly will not be able to operate the AUTO operation function, jam protection function and remote UP / DOWN function.

(a) *1: Turn the power switch ON (IG).
(b) *2: Open the power window halfway by pressing the power window switch.
(c) *3: Fully pull up on the switch until the power window is fully closed and continue to hold the switch for at least 1 second.
(d) *4: Check that the AUTO UP / DOWN function operates normally.
   If the AUTO UP / DOWN function operates normally, reset operations are complete. If abnormal, follow steps below.
(e) Disconnect the negative (-) battery terminal cable for 10 seconds.
(f) Connect the battery terminal cable.
(g) Perform steps *1 to *4 again.
## PROBLEM SYMPTOMS TABLE

**HINT:**
Use the table below to help determine the cause of the problem symptom. The potential causes of the symptoms are listed in order of probability in the "Suspected area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

### Power window control system

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Suspected area</th>
<th>See page</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTO UP / DOWN function does not operate</td>
<td>1. Power window regulator motor front LH</td>
<td>WS-20</td>
</tr>
<tr>
<td></td>
<td>2. Wire harness</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Power window regulator master switch</td>
<td></td>
</tr>
<tr>
<td>Remote UP / DOWN function does not operate</td>
<td>1. Power window regulator master switch</td>
<td>WS-23</td>
</tr>
<tr>
<td></td>
<td>2. Wire harness</td>
<td></td>
</tr>
<tr>
<td>Manual UP / DOWN function does not operate on driver side</td>
<td>1. FR DOOR fuse</td>
<td>WS-47</td>
</tr>
<tr>
<td></td>
<td>2. Power window regulator master switch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Power window regulator motor front LH</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Wire harness</td>
<td></td>
</tr>
<tr>
<td>Manual UP / DOWN function does not operate on passenger side only</td>
<td>1. Power window regulator switch front RH</td>
<td>WS-25</td>
</tr>
<tr>
<td></td>
<td>2. Power window regulator motor front RH</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Wire harness</td>
<td></td>
</tr>
<tr>
<td>Manual UP / DOWN function does not operate on rear LH side only</td>
<td>1. Power window regulator switch rear LH</td>
<td>WS-29</td>
</tr>
<tr>
<td></td>
<td>2. Power window regulator motor rear LH</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Wire harness</td>
<td></td>
</tr>
<tr>
<td>Manual UP / DOWN function does not operate on rear RH side only</td>
<td>1. Power window regulator switch rear RH</td>
<td>WS-33</td>
</tr>
<tr>
<td></td>
<td>2. Power window regulator motor rear RH</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Wire harness</td>
<td></td>
</tr>
<tr>
<td>Jam protection function does not operate</td>
<td>1. Power window regulator master switch</td>
<td>WS-46</td>
</tr>
<tr>
<td>Power windows do not operate at all</td>
<td>1. AM2 fuse</td>
<td>WS-37</td>
</tr>
<tr>
<td></td>
<td>2. GAUGE fuse</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. PWR H-fuse</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. ECU-IG fuse</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. FR DOOR fuse</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. PWR relay</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. IG1 relay</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Power window regulator master switch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9. Wire harness</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10. Driver side junction block (Body ECU)</td>
<td></td>
</tr>
<tr>
<td>Power window can be operated after power switch is turned OFF even if</td>
<td>1. Power window regulator master switch</td>
<td>WS-41</td>
</tr>
<tr>
<td>operative conditions are not met</td>
<td>2. Front door courtesy light switch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Wire harness</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Driver side junction block (Body ECU)</td>
<td></td>
</tr>
<tr>
<td>AUTO UP operate does not fully close power window (jam protection</td>
<td>1. Front door window regulator</td>
<td>WS-44</td>
</tr>
<tr>
<td>function is activated)</td>
<td>2. Power window regulator motor front LH</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Power window regulator master switch</td>
<td></td>
</tr>
</tbody>
</table>
1. **CHECK POWER WINDOW REGULATOR MASTER SWITCH**

(a) Disconnect the P17 switch connector.
(b) Measure the voltage and resistance of the wire harness side connector.

<table>
<thead>
<tr>
<th>Symbols (Terminal No.)</th>
<th>Wiring Color</th>
<th>Terminal Description</th>
<th>Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>E (P17-1) - Body ground</td>
<td>W-B</td>
<td>Body ground</td>
<td>Always</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>BW (P17-7) - E (P17-1)</td>
<td>W - W-B</td>
<td>Regulator motor power supply</td>
<td>Always</td>
<td>10 to 14 V</td>
</tr>
<tr>
<td>B (P17-6) - E (P17-1)</td>
<td>L - W-B</td>
<td>Master switch power supply</td>
<td>Power switch ON (IG)</td>
<td>10 to 14 V</td>
</tr>
<tr>
<td>BDR (P17-11) - E (P17-1)</td>
<td>V - W-B</td>
<td>Master switch power supply</td>
<td>Power switch ON (IG)</td>
<td>10 to 14 V</td>
</tr>
</tbody>
</table>

If the result is not as specified, there may be a malfunction on the wire harness side.
(c) Reconnect the P17 switch connector.
(d) Reset the power window motor (see page WS-7).
(e) Measure the voltage of the connector.

<table>
<thead>
<tr>
<th>Symbols (Terminal No.)</th>
<th>Wiring Color</th>
<th>Terminal Description</th>
<th>Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>DU (P17-4) - E (P17-1)</td>
<td>Y - W-B</td>
<td>Power window motor UP output</td>
<td>Power switch ON (IG), driver side power window switch OFF</td>
<td>Below 1 V</td>
</tr>
<tr>
<td>DU (P17-4) - E (P17-1)</td>
<td>Y - W-B</td>
<td>Power window motor UP output</td>
<td>Power switch ON (IG), driver side power window switch UP (manual operation)</td>
<td>10 to 14 V</td>
</tr>
<tr>
<td>DU (P17-4) - E (P17-1)</td>
<td>Y - W-B</td>
<td>Power window motor UP output</td>
<td>Power switch ON (IG), driver side power window fully open</td>
<td>Below 1 V</td>
</tr>
<tr>
<td>DU (P17-4) - E (P17-1)</td>
<td>Y - W-B</td>
<td>Power window motor UP output</td>
<td>Power switch ON (IG), driver side power window switch UP (AUTO operation)</td>
<td>10 to 14 V</td>
</tr>
<tr>
<td>DU (P17-4) - E (P17-1)</td>
<td>Y - W-B</td>
<td>Power window motor UP output</td>
<td>Power switch ON (IG), driver side power window fully closed</td>
<td>Below 1 V</td>
</tr>
<tr>
<td>DD (P17-9) - E (P17-1)</td>
<td>G - W-B</td>
<td>Power window motor DOWN output</td>
<td>Power switch ON (IG), driver side power window switch OFF</td>
<td>Below 1 V</td>
</tr>
<tr>
<td>DD (P17-9) - E (P17-1)</td>
<td>G - W-B</td>
<td>Power window motor DOWN output</td>
<td>Power switch ON (IG), driver side power window switch DOWN (manual operation)</td>
<td>10 to 14 V</td>
</tr>
</tbody>
</table>
If the result is not as specified, the master switch may have a malfunction.

(f) Check the AUTO light illumination.
   (1) When turning the power switch ON (IG), check that the AUTO light illuminates (green).
2. CHECK DRIVER SIDE JUNCTION BLOCK (MAIN BODY ECU)

(a) Disconnect the 1A, 1D, 1E and 1B junction block connectors.

(b) Measure the voltage and resistance of the wire harness side connectors.

<table>
<thead>
<tr>
<th>Symbols (Terminal No.)</th>
<th>Wiring Color</th>
<th>Terminal Description</th>
<th>Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECUB (1A-30) - Body ground</td>
<td>R - Body ground</td>
<td>+B (ECUB) power supply</td>
<td>Always</td>
<td>10 to 14 V</td>
</tr>
</tbody>
</table>
If the result is not as specified, there may be a malfunction on the wire harness side.

(c) Reconnect the 1A, 1D, 1E and 1B junction block connectors.

(d) Measure the voltage of the connector.

If the result is not as specified, the junction block (main body ECU) may have a malfunction.

### DIAGNOSIS SYSTEM

#### 1. CHECK DLC3

**HINT:**
The vehicle uses the ISO 15765-4 communication protocol. The terminal arrangement of the DLC3 complies with SAE J1962 and matches the ISO 15765-4 format.
NOTICE:
*: Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the power switch, any other switches or the doors. If the result is not as specified, the DLC3 may have a malfunction. Repair or replace the harness and connector.

HINT:
Connect the cable of the intelligent tester (with CAN VIM) to the DLC3, turn the power switch ON (IG) and attempt to use the intelligent tester. If the display informs that a communication error has occurred, there is a problem either with the vehicle or with the tester.
- If communication is normal when the tester is connected to another vehicle, inspect the DLC3 of the original vehicle.
- If communication is still impossible when the tester is connected to another vehicle, the problem is probably in the tester itself. Consult the Service Department listed in the tester’s instruction manual.

2. INSPECT BATTERY VOLTAGE
Standard:
 11 to 14 V
If the voltage is below 11 V, replace the battery before proceeding.
DATA LIST / ACTIVE TEST

1. READ DATA LIST

HINT:
Using the intelligent tester's DATA LIST allows switch, sensor, actuator and other item values to be read without removing any parts. Reading the DATA LIST early in troubleshooting is one way to save time.

(a) Connect the intelligent tester (with CAN VIM) to the DLC3.
(b) Turn the power switch ON (IG).
(c) Read the DATA LIST according to the display on the tester.

<table>
<thead>
<tr>
<th>Item</th>
<th>Measurement Item / Display (Range)</th>
<th>Normal Condition</th>
<th>Diagnostic Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>D DOR CTY SW</td>
<td>Driver side door courtesy switch signal / ON or OFF</td>
<td>ON: Driver side door is open OFF: Driver side door is closed</td>
<td>-</td>
</tr>
<tr>
<td>P DOR CTY SW</td>
<td>Passenger side door courtesy switch signal / ON or OFF</td>
<td>ON: Passenger side door is open OFF: Passenger side door is closed</td>
<td>-</td>
</tr>
</tbody>
</table>

ON-VEHICLE INSPECTION

1. CHECK WINDOW LOCK SWITCH

(a) Check that the passenger side power window and rear power window operation are disabled when the window lock switch of the power window regulator master switch is pressed.
(b) Check that the passenger side power window and rear power windows can be operated when the window lock switch is pressed again.

2. CHECK MANUAL UP / DOWN FUNCTION

(a) Check that the driver side power window operates as follows:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Master Switch</th>
<th>Switch Operation</th>
<th>Power Window</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power switch ON (IG)</td>
<td>Driver side</td>
<td>Pulled halfway up</td>
<td>UP (closed)</td>
</tr>
<tr>
<td>Power switch ON (IG)</td>
<td>Driver side</td>
<td>Pulled halfway down</td>
<td>DOWN (open)</td>
</tr>
</tbody>
</table>

(b) Check that the passenger side power window operates as follows:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Regulator Switch</th>
<th>Switch Operation</th>
<th>Power Window</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passenger side</td>
<td>Pulled up</td>
<td>UP (closed)</td>
<td></td>
</tr>
<tr>
<td>Passenger side</td>
<td>Pushed down</td>
<td>DOWN (open)</td>
<td></td>
</tr>
</tbody>
</table>

(c) Check that the rear LH power window operates as follows:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Regulator Switch</th>
<th>Switch Operation</th>
<th>Power Window</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rear LH</td>
<td>Pulled up</td>
<td>UP (closed)</td>
<td></td>
</tr>
<tr>
<td>Rear LH</td>
<td>Pushed down</td>
<td>DOWN (open)</td>
<td></td>
</tr>
</tbody>
</table>
(d) Check that the rear RH power window operates as follows:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Switch Operation</th>
<th>Power Window</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power switch ON (IG)</td>
<td>Rear RH</td>
<td>Pulled up</td>
</tr>
<tr>
<td>Window lock switch OFF</td>
<td></td>
<td>UP (closed)</td>
</tr>
<tr>
<td>Power switch ON (IG)</td>
<td>Rear RH</td>
<td>Pushed down</td>
</tr>
<tr>
<td>Window lock switch OFF</td>
<td></td>
<td>DOWN (open)</td>
</tr>
</tbody>
</table>

3. CHECK AUTO UP / DOWN FUNCTION

(a) Check that the driver side power window operates as follows:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Switch Operation</th>
<th>Power Window</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power switch ON (IG)</td>
<td>Driver side</td>
<td>Pulled fully up</td>
</tr>
<tr>
<td>Window lock switch OFF</td>
<td></td>
<td>AUTO UP (fully closed)</td>
</tr>
<tr>
<td>Power switch ON (IG)</td>
<td>Driver side</td>
<td>Pushed fully down</td>
</tr>
<tr>
<td>Window lock switch OFF</td>
<td></td>
<td>AUTO DOWN (fully open)</td>
</tr>
</tbody>
</table>

4. CHECK REMOTE UP / DOWN FUNCTION

(a) Check that the passenger side power window operates as follows:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Switch Operation</th>
<th>Power Window</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power switch ON (IG)</td>
<td>Passenger side</td>
<td>Pulled up</td>
</tr>
<tr>
<td>Window lock switch OFF</td>
<td></td>
<td>UP (closed)</td>
</tr>
<tr>
<td>Power switch ON (IG)</td>
<td>Passenger side</td>
<td>Pushed down</td>
</tr>
<tr>
<td>Window lock switch OFF</td>
<td></td>
<td>DOWN (open)</td>
</tr>
</tbody>
</table>

(b) Check that the rear LH power window operates as follows:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Switch Operation</th>
<th>Power Window</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power switch ON (IG)</td>
<td>Rear LH</td>
<td>Pulled up</td>
</tr>
<tr>
<td>Window lock switch OFF</td>
<td></td>
<td>UP (closed)</td>
</tr>
<tr>
<td>Power switch ON (IG)</td>
<td>Rear LH</td>
<td>Pushed down</td>
</tr>
<tr>
<td>Window lock switch OFF</td>
<td></td>
<td>DOWN (open)</td>
</tr>
</tbody>
</table>

(c) Check that the rear RH power window operates as follows:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Switch Operation</th>
<th>Power Window</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power switch ON (IG)</td>
<td>Rear RH</td>
<td>Pulled up</td>
</tr>
<tr>
<td>Window lock switch OFF</td>
<td></td>
<td>UP (closed)</td>
</tr>
<tr>
<td>Power switch ON (IG)</td>
<td>Rear RH</td>
<td>Pushed down</td>
</tr>
<tr>
<td>Window lock switch OFF</td>
<td></td>
<td>DOWN (open)</td>
</tr>
</tbody>
</table>
5. **CHECK JAM PROTECTION FUNCTION**  
**HINT:**  
- The jam protection function helps prevent any part of your body from getting caught by accident between the door frame and the door glass during power window operation.  
- The jam protection function is only available on the driver side power window.  
**NOTICE:**  
If the power window motor has just been reset, raise and lower the door glass several times manually before performing the check.  
(a) Check that the door glass lowers by approximately 50 mm (1.97 in.) when something is caught between the door frame and door glass during power window operation. However, when the opening between the door frame and the door glass is less than 200 mm (7.87 in.), the door glass continues to lower and does not stop until an opening of 200 mm (7.87 in.) is achieved. Operative conditions:  
- AUTO UP  
- AUTO UP function after turning power switch OFF  
- MANUAL UP function after turning power switch OFF

6. **CHECK POWER WINDOW FAIL-SAFE FUNCTION**  
(a) The power window regulator motor’s pulse sensors detect when an object has been jammed in the window. If a pulse sensor has a malfunction, the fail-safe function starts operating and the AUTO UP / DOWN function will be disabled.

7. **CHECK PTC OPERATION**  
**HINT:**  
PTC operation is a function that prevents overloading of the power window regulator by stopping the motor. PTC operation activates when the power window regulator switch is operated for a predetermined amount of time.  
(a) Pull up and hold the power window regulator switch for more than 90 seconds. Then release the switch.  
(b) Check that pressing the switch does not move the window.  
(c) Wait until 60 seconds have passed since the switch was released in the first step. Check that pressing the switch results in normal window movement.
INSPECTION

1. INSPECT POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY
   (a) Measure the resistance of the switch when the switch is operated.

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Window Lock Switch Condition</th>
<th>Power Window Switch Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (E) - 9 (DD)</td>
<td>Always (ON / OFF)</td>
<td>UP</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>4 (DU) - 7 (BW)</td>
<td></td>
<td>AUTO UP</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>1 (E) - 4 (DU)</td>
<td>Always (ON / OFF)</td>
<td>OFF</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>1 (E) - 9 (DD)</td>
<td></td>
<td>DOWN</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>7 (BW) - 9 (DD)</td>
<td>Always (ON / OFF)</td>
<td>AUTO DOWN</td>
<td>Below 1 Ω</td>
</tr>
</tbody>
</table>

Passenger switch

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Window Lock Switch Condition</th>
<th>Power Window Switch Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (E) - 15 (PD)</td>
<td>OFF</td>
<td>UP</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>6 (B) - 13 (PU)</td>
<td></td>
<td>OFF</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>1 (E) - 13 (PU)</td>
<td></td>
<td>OFF</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>1 (E) - 15 (PD)</td>
<td></td>
<td>DOWN</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>6 (B) - 15 (PD)</td>
<td></td>
<td>UP</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>1 (E) - 15 (PD)</td>
<td>ON</td>
<td>OFF</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>6 (B) - 13 (PU)</td>
<td></td>
<td>DOWN</td>
<td>10 kΩ or higher</td>
</tr>
</tbody>
</table>

Rear LH switch

Standard resistance:

Driver switch

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Window Lock Switch Condition</th>
<th>Power Window Switch Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (E) - 9 (DD)</td>
<td>Always (ON / OFF)</td>
<td>UP</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>4 (DU) - 7 (BW)</td>
<td></td>
<td>AUTO UP</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>1 (E) - 4 (DU)</td>
<td>Always (ON / OFF)</td>
<td>OFF</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>1 (E) - 9 (DD)</td>
<td></td>
<td>DOWN</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>7 (BW) - 9 (DD)</td>
<td>Always (ON / OFF)</td>
<td>AUTO DOWN</td>
<td>Below 1 Ω</td>
</tr>
</tbody>
</table>
If the result is not as specified, replace the master switch assembly.

(b) Apply battery voltage to the master switch and check that the AUTO light illuminates.
OK

If the result is not as specified, replace the master switch assembly.

2. **INSPECT POWER WINDOW REGULATOR SWITCH ASSEMBLY**
   (a) Measure the resistance of the switch when the switch is operated.
   **Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Switch Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 2 3 - 4</td>
<td>UP</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>1 - 2 3 - 5</td>
<td>OFF</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>1 - 4 3 - 5</td>
<td>DOWN</td>
<td>Below 1 Ω</td>
</tr>
</tbody>
</table>

   If the result is not as specified, replace the regulator switch assembly.

3. **INSPECT POWER WINDOW REGULATOR MOTOR ASSEMBLY** *(for Front LH and Rear LH)*
   (a) Apply battery voltage to connector terminals 1 and 2.
   **NOTICE:**
   Do not apply battery voltage to any terminals except terminals 1 and 2.
   (b) Check that the motor gear rotates smoothly as follows.
   **OK**

<table>
<thead>
<tr>
<th>Measurement Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery positive (+) → Terminal 2</td>
<td>Motor gear rotates clockwise</td>
</tr>
<tr>
<td>Battery negative (-) → Terminal 1</td>
<td>Motor gear rotates counterclockwise</td>
</tr>
</tbody>
</table>

   If the result is not as specified, replace the regulator motor assembly.

4. **INSPECT POWER WINDOW REGULATOR MOTOR ASSEMBLY** *(for Front RH and Rear RH)*
   (a) Apply battery voltage to connector terminals 1 and 2.
   **NOTICE:**
   Do not apply battery voltage to any terminals except terminals 1 and 2.
   (b) Check that the motor gear rotates smoothly as follows.
   **OK**

<table>
<thead>
<tr>
<th>Measurement Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery positive (+) → Terminal 1</td>
<td>Motor gear rotates clockwise</td>
</tr>
<tr>
<td>Battery negative (-) → Terminal 2</td>
<td>Motor gear rotates clockwise</td>
</tr>
</tbody>
</table>
If the result is not as specified, replace the regulator motor assembly.

<table>
<thead>
<tr>
<th>Measurement Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery positive (+) → Terminal 2</td>
<td>Motor gear rotates counterclockwise</td>
</tr>
<tr>
<td>Battery negative (-) → Terminal 1</td>
<td></td>
</tr>
</tbody>
</table>
Auto Up / Down Function does not Operate

DESCRIPTION
If the AUTO UP / DOWN function does not operate, the cause may be one or more of the following:
- The recorded power window fully closed position, which is stored in the power window regulator master switch, was erased as a result of: 1) the PWR H-fuse or the power window relay (PWR) being replaced; or 2) the battery cable and the master switch's connector being disconnected.
- The master switch has a malfunction.
- The pulse sensors in the driver side power window regulator motor have a malfunction.
- The wiring between the master switch and the driver side power window regulator motor is open or short circuited.

WIRING DIAGRAM

INSPECTION PROCEDURE

1 CHECK MANUAL UP / DOWN FUNCTION (for Driver Side)

(a) Check if the manual UP / DOWN function operates normally.

OK:
Manual UP / DOWN function operates normally.

NG OTHER PROBLEM
2 CHECK POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY (for AUTO Light)

(a) Turn the power switch ON (IG).
(b) Operate the master switch assembly’s driver side switch for 2 seconds or more.
(c) Check the blinking pattern of the AUTO light. Compare the blinking pattern with the illustration below.

Blinking Pattern of AUTO Light

1: Fully closed position is misaligned
2: Pulse sensor circuit malfunction
3: Both 1 and 2
4: Normal

<table>
<thead>
<tr>
<th>ON</th>
<th>OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>0.5</td>
</tr>
</tbody>
</table>

Result

<table>
<thead>
<tr>
<th>Blinking Pattern</th>
<th>Proceed to</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 or 3</td>
<td>A</td>
</tr>
<tr>
<td>2</td>
<td>B</td>
</tr>
<tr>
<td>4</td>
<td>C</td>
</tr>
</tbody>
</table>

**A**

3 RESET POWER WINDOW REGULATOR MOTOR ASSEMBLY FRONT LH

(a) Check if the power window operates normally after the reset.

OK:

Power window operates normally.

**OK**

END
Check Wire Harness (Master Switch - Regulator Motor)

(a) Disconnect the P17 switch connector.
(b) Disconnect the P18 motor connector.
(c) Measure the resistance of the wire harness side connectors.

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>P17-3 (VCC) - P18-4 (SSRB)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>P17-14 (PLS) - P18-5 (PLS)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>P17-17 (PLS2) - P18-3 (PLS2)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>P17-2 (GND) - P18-6 (E)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>P17-3 (VCC) or P18-4 (SSRB) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>P17-14 (PLS) or P18-5 (PLS) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>P17-17 (PLS2) or P18-3 (PLS2) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
</tbody>
</table>

- **NG** Repair or replace harness and connector
- **OK**

Replace Power Window Regulator Motor Assembly Front LH
Remote Up / Down Function does not Operate

DESCRIPTION
With the power switch ON (IG), the power window regulator master switch transmits remote switch signals to the regulator switches of the passenger door power window and rear door power windows. Then, the regulator switches drive the power window regulator motors.

WIRING DIAGRAM

From Battery (B) to Body Ground (E)
INSPECTION PROCEDURE

1 CHECK POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY (for Window Lock Switch)

(a) Turn the window lock switch OFF and operate the switches on the master switch. Check that the remote UP / DOWN function operates normally.

OK: Remote UP / DOWN function operates normally.

OK END

NG

2 CHECK MANUAL UP / DOWN FUNCTION

(a) Check that the passenger door power window and rear door power windows' manual UP / DOWN functions operate normally.

OK: Manual UP / DOWN functions operate normally.

NG OTHER PROBLEM

OK

REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY
**DESCRIPTION**

If the passenger side manual UP / DOWN function does not operate, a malfunction may be present in the power window regulator motor, the power window regulator switch, power window regulator master switch or the wire harness.

**WIRING DIAGRAM**
INSPECTION PROCEDURE

1. CHECK POWER WINDOW REGULATOR SWITCH ASSEMBLY FRONT RH (POWER SOURCE VOLTAGE)
   (a) Disconnect the P14 switch connector.
   (b) Measure the voltage of the wire harness side connector.

   **Standard voltage**
   - **OK**
   - **NG**
     - **REPAIR OR REPLACE HARNESS AND CONNECTOR (DRIVER SIDE JUNCTION BLOCK - REGULATOR SWITCH)**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>P14-4 - Body ground</td>
<td>Power switch ON (IG)</td>
<td>10 to 14 V</td>
</tr>
</tbody>
</table>

2. INSPECT POWER WINDOW REGULATOR SWITCH ASSEMBLY FRONT RH
   (a) Check the regulator switch (see page WS-52).

   **NG**
   **REPLACE POWER WINDOW REGULATOR SWITCH ASSEMBLY FRONT RH**
3 CHECK WIRE HARNESS (REGULATOR SWITCH - REGULATOR MOTOR)

(a) Disconnect the P14 switch connector.
(b) Disconnect the P19 motor connector.
(c) Measure the resistance of the wire harness side connectors.

Standard resistance

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>P14-1 - P19-1</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>P14-3 - P19-2</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>P14-1 or P19-1 - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>P14-3 or P19-2 - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
</tbody>
</table>

NG REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

4 INSPECT POWER WINDOW REGULATOR MOTOR ASSEMBLY FRONT RH

(a) Check the regulator motor (see page WS-54).

NG REPLACE POWER WINDOW REGULATOR MOTOR

OK
5 CHECK WIRE HARNESS (MASTER SWITCH - REGULATOR SWITCH)

(a) Disconnect the P17 switch connector.
(b) Disconnect the P14 switch connector.
(c) Measure the resistance of the wire harness side connectors.

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>P17-13 (PU) - P14-5</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>P17-15 (PD) - P14-2</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>P17-13 (PU) or P14-5 - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>P17-15 (PD) or P14-2 - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
</tbody>
</table>

NG  REPAIR OR REPLACE HARNESS AND CONNECTOR

OK  REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY
Manual Up / Down Function does not Operate on Rear LH Only

DESCRIPTION
If the rear LH side manual UP / DOWN function does not operate, a malfunction may be present in the power window regulator motor, power window regulator switch, power window regulator master switch or wire harness.

WIRING DIAGRAM
INSPECTION PROCEDURE

1. CHECK POWER WINDOW REGULATOR SWITCH ASSEMBLY REAR LH (POWER SOURCE VOLTAGE)

   (a) Disconnect the P15 switch connector.
   (b) Measure the voltage of the wire harness side connector.

   **Standard voltage**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>P15-4 - Body ground</td>
<td>Power switch ON (IG)</td>
<td>10 to 14 V</td>
</tr>
</tbody>
</table>

   **NG**
   REPAIR OR REPLACE HARNESS AND CONNECTOR (DRIVER SIDE JUNCTION BLOCK - REGULATOR SWITCH)

   **OK**

2. INSPECT POWER WINDOW REGULATOR SWITCH ASSEMBLY REAR LH

   (a) Check the regulator switch (see page WS-53).

   **NG**
   REPLACE POWER WINDOW REGULATOR SWITCH ASSEMBLY REAR LH

   **OK**
(a) Disconnect the P15 switch connector.
(b) Disconnect the P20 motor connector.
(c) Measure the resistance of the wire harness side connectors.

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>P15-1 - P20-1</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>P15-3 - P20-2</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>P15-1 or P20-1 - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>P15-3 or P20-2 - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
</tbody>
</table>

NG REPAIR OR REPLACE HARNESS AND CONNECTOR

(a) Check the regulator motor (see page WS-54).

NG REPLACE POWER WINDOW REGULATOR MOTOR

OK
5  CHECK WIRE HARNESS (MASTER SWITCH - REGULATOR SWITCH)

(a) Disconnect the P17 switch connector.
(b) Disconnect the P15 switch connector.
(c) Measure the resistance of the wire harness side connectors.

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>P17-12 (RLU) - P15-5</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>P17-10 (RLD) - P15-2</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>P17-12 (RLU) or P15-5 - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>P17-10 (RLD) or P15-2 - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
</tbody>
</table>

NG  REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY
Manual Up / Down Function does not Operate on Rear RH Only

DESCRIPTION
If the rear RH side manual UP / DOWN function does not operate, a malfunction may be present in the power window regulator motor, power window regulator switch, power window regulator master switch or wire harness.

WIRING DIAGRAM

```
<table>
<thead>
<tr>
<th>Power Window Regulator Motor Rear RH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Window Regulator Switch Rear RH</td>
</tr>
<tr>
<td>from PWR Relay</td>
</tr>
<tr>
<td>Power Window Regulator Master Switch</td>
</tr>
<tr>
<td>RRU</td>
</tr>
<tr>
<td>RRD</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
```
INSPECTION PROCEDURE

1. CHECK POWER WINDOW REGULATOR SWITCH ASSEMBLY REAR RH (POWER SOURCE VOLTAGE)

   (a) Disconnect the P16 switch connector.
   (b) Measure the voltage of the wire harness side connector.

   **Standard voltage**
   - **OK**
   - **NG**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>P16-4 - Body ground</td>
<td>Power switch ON (IG)</td>
<td>10 to 14 V</td>
</tr>
</tbody>
</table>

   **NG** REPAIR OR REPLACE HARNESS AND CONNECTOR (DRIVER SIDE JUNCTION BLOCK - REGULATOR SWITCH)

   **OK**

2. INSPECT POWER WINDOW REGULATOR SWITCH ASSEMBLY REAR RH

   (a) Check the regulator switch (see page WS-53).

   **NG** REPLACE POWER WINDOW REGULATOR SWITCH ASSEMBLY REAR RH

   **OK**
3 CHECK WIRE HARNESS (REGULATOR SWITCH - REGULATOR MOTOR)

(a) Disconnect the P16 switch connector.
(b) Disconnect the P21 motor connector.
(c) Measure the resistance of the wire harness side connectors.

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>P16-1 - P21-1</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>P16-3 - P21-2</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>P16-1 or P21-1 - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>P16-3 or P21-2 - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
</tbody>
</table>

NG REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

4 INSPECT POWER WINDOW REGULATOR MOTOR ASSEMBLY REAR RH

(a) Check the regulator motor (see page WS-54).

NG REPLACE POWER WINDOW REGULATOR MOTOR

OK
5 CHECK WIRE HARNESS (REGULATOR MASTER SWITCH - REGULATOR SWITCH)

(a) Disconnect the P17 switch connector.
(b) Disconnect the P16 switch connector.
(c) Measure the resistance of the wire harness side connectors.

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>P17-18 (RRU) - P16-5</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>P17-16 (RRD) - P16-2</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>P17-18 (RRU) or P16-5 - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>P17-16 (RRD) or P16-2 - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
</tbody>
</table>

NG REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY
Power Windows do not Operate at All

DESCRIPTION
If all of the power windows do not operate, the power window regulator master switch may have no power or may be malfunctioning.

WIRING DIAGRAM

[Diagram showing the wiring for power windows, including connections from Battery to Power Source, Control ECU, Driver Side Junction Block, Power Window Regulator Master Switch, and Body ECU.]
INSPECTION PROCEDURE

1  INSPECT FUSE (AM2, GAUGE, FR DOOR, ECU-IG)

(a) Remove the AM2 fuse from the engine room junction block.
(b) Remove the GAUGE, FR DOOR and ECU-IG fuses from the driver side junction block.
(c) Measure the resistance of the fuses.

Standard resistance:
Below 1 Ω

NG → REPLACE FUSE

2  INSPECT IG1 RELAY

(a) Remove the IG1 relay from the driver side junction block.
(b) Measure the resistance of the relay.

Standard resistance

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 - 5</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>3 - 5</td>
<td>Below 1 Ω (when battery voltage is applied to terminals 1 and 2)</td>
</tr>
</tbody>
</table>

NG → REPLACE IG1 RELAY

3  CHECK WIRE HARNESS (MASTER SWITCH - BATTERY AND BODY GROUND)

(a) Disconnect the P17 switch connector.
(b) Measure the voltage or resistance of the wire harness side connector.

Standard voltage

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>P17-6 (B) - Body ground</td>
<td>Power switch ON (IG)</td>
<td>10 to 14 V</td>
</tr>
<tr>
<td>P17-7 (BW) - Body ground</td>
<td>Always</td>
<td>10 to 14 V</td>
</tr>
<tr>
<td>P17-11 (BDR) - Body ground</td>
<td>Power switch ON (IG)</td>
<td>10 to 14 V</td>
</tr>
</tbody>
</table>

Standard resistance

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>P17-1 (E) - Body ground</td>
<td>Always</td>
<td>Below 1 Ω</td>
</tr>
</tbody>
</table>

OK → REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY
4 CHECK WIRE HARNESS (MASTER SWITCH - JUNCTION BLOCK)

- Disconnect the P17 switch connector.
- Disconnect the 1G and 1H junction block connectors.
- Measure the resistance of the wire harness side connectors.

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>P17-11 (BDR) - 1G-6</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>P17-7 (BW) - 1H-10</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>P17-6 (B) - 1H-11</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>P17-11 (BDR) or 1G-6 - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>P17-7 (BW) or 1H-10 - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>P17-6 (B) or 1H-11 - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
</tbody>
</table>

NG REPAIR OR REPLACE HARNESS AND CONNECTOR
5 CHECK WIRE HARNESS (JUNCTION BLOCK - BODY GROUND)

(a) Disconnect the 1B and 1E junction block connectors.
(b) Measure the voltage and resistance of the wire harness side connectors.

**Standard voltage**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1B-1 - Body ground</td>
<td>10 to 14 V</td>
</tr>
</tbody>
</table>

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1E-17 - Body ground</td>
<td>Below 1 Ω</td>
</tr>
</tbody>
</table>

NG ➤ REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

6 CHECK BASIC FUNCTION OF PUSH BUTTON START SYSTEM

(a) Check that the push button start system operates normally.

OK:
- Push button start system operates normally.

NG ➤ GO TO PUSH BUTTON START SYSTEM

OK

REPLACE DRIVER SIDE JUNCTION BLOCK ASSEMBLY
Power Window can be Operated After Power Switch is Turned OFF Even if Operative Conditions are not Met

DESCRIPTION
The body ECU keeps power supplied to the power window regulator master switch and the regulator switch for 43 seconds after the power switch is turned OFF. However, the body ECU will cut power to the master switch if: 1) either front door is opened, 2) a signal from either of the front door courtesy light switches is input to the ECU within the 43 seconds, or 3) 43 seconds have passed.

WIRING DIAGRAM
INSPECTION PROCEDURE

1 CHECK OPERATION FUNCTION AFTER POWER SWITCH IS TURNED OFF

(a) After turning the power switch OFF:
   (1) If either front door is opened within 43 seconds but
       the power window can still operate, proceed to A.
   (2) If 43 seconds pass but the power window can still
       operate, proceed to B.

   B REPLACE POWER WINDOW REGULATOR
   MASTER SWITCH ASSEMBLY

   A

2 READ DATA LIST OF INTELLIGENT TESTER (COURTESY LIGHT SWITCH)

(a) Connect the intelligent tester (with CAN VIM) to the
    DLC3.
(b) Turn the power switch ON (IG) and press the intelligent
    tester main switch ON.
(c) Read the DATA LIST according to the displays on the
    tester.

Multiplex network body ECU

<table>
<thead>
<tr>
<th>Item</th>
<th>Measurement Item/Range (Display)</th>
<th>Normal Condition</th>
<th>Diagnostic Note</th>
</tr>
</thead>
</table>
| D DOR CTY SW | Driver side door courtesy light switch signal / ON or OFF | ON: Driver side door is open
                                      | OFF: Driver side door is closed | -               |
| P DOR CTY SW | Passenger side door courtesy light switch signal / ON or OFF | ON: Passenger side door is open
                                      | OFF: Passenger side door is closed | -               |

OK:
ON (door is open) appears on the screen.

OK REPLACE DRIVER SIDE JUNCTION BLOCK ASSEMBLY

NG

3 INSPECT FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY

(a) Measure the resistance.

Standard voltage

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Switch Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Switch body</td>
<td>Pushed</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>1 - Switch body</td>
<td>Not pushed</td>
<td>Below 1 Ω</td>
</tr>
</tbody>
</table>

NG REPLACE FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY
4 CHECK WIRE HARNESS (COURTESY LIGHT SWITCH - JUNCTION BLOCK)

(a) Disconnect the D7*1 or D8*2 switch connector.
(b) Disconnect the 1D junction block connector.
(c) Measure the resistance of the wire harness side connectors.

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>D7-1 - 1D-21 (DCTY)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>D8-1 - 1D-24 (PCTY)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>D7-1 - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>D8-1 - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
</tbody>
</table>

NG REPAIR OR REPLACE HARNESS AND CONNECTOR

REPLACE DRIVER SIDE JUNCTION BLOCK (BODY ECU)
Auto Up Operation does not Fully Close Power Window (Jam Protection Function is Activated)

DESCRIPTION
If the door glass or the power window regulator motor does not operate smoothly, the jam protection function may trigger automatically, resulting in the AUTO UP function being unable to fully close the window.

HINT:
The jam protection function is only available on the driver side power window.

WIRING DIAGRAM

INSPECTION PROCEDURE

1  RESET POWER WINDOW REGULATOR MOTOR FRONT LH
   (a) Reset the power window regulator motor (see page WS-7).
   (b) Check that the power window AUTO UP / DOWN function operates normally.
       OK:
       AUTO UP / DOWN function operates normally.

2  CHECK POWER WINDOW REGULATOR ASSEMBLY LH
   (a) Remove the door glass (see page ED-10).
(b) Operate the front door window regulator using the switch.
(c) Check that the power window regulator operates smoothly.

**OK:**
Power window regulator operates smoothly.

NG
REPLACE POWER WINDOW REGULATOR ASSEMBLY LH

OK

REPLACE DOOR GLASS RUN
**DESCRIPTION**

The power window regulator master switch controls the driver side power window regulator motor. The jam protection function only operates within a specified range during AUTO UP operation or key-off manual UP operation.

**HINT:**

The jam protection function is only available on the driver side power window.

**INSPECTION PROCEDURE**

1. **RESET POWER WINDOW REGULATOR MOTOR FRONT LH (DRIVER SIDE)**
   - (a) Reset the power window regulator motor (see page WS-7).
   - (b) Check if the power window AUTO UP / DOWN function operates normally.
     - **OK:** AUTO UP / DOWN function operates normally.
     - **NG:** OTHER PROBLEM

2. **CHECK JAM PROTECTION FUNCTION OPERATING RANGE**
   - (a) Check that the jam protection function operates normally (see page WS-14).
     - **HINT:**
       The jam protection function does not operate from the fully closed position of the door glass to 4 mm (0.16 in.) below that.
     - **OK:** Jam protection function operates normally.
     - **NG:** REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY
Manual Up / Down Function does not Operate on Driver Side

DESCRIPTION
If the manual UP / DOWN function does not operate, a malfunction may be present in the power window regulator master switch assembly, the power window regulator motor or the wire harness.

WIRING DIAGRAM

Power Window Regulator
Motor Front LH

Power Window Regulator
Master Switch

from IG1 Relay
from Battery
to Body Ground

INSPECTION PROCEDURE

1 CHECK POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY (BW, BDR VOLTAGE)

(a) Disconnect the P17 switch connector.
(b) Measure the voltage of the wire harness side connector.

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>P17-7 (BW) - P17-1 (E)</td>
<td>Always</td>
<td>10 to 14 V</td>
</tr>
<tr>
<td>P17-11 (BDR) - P17-1 (E)</td>
<td>Power switch ON (IG)</td>
<td>10 to 14 V</td>
</tr>
</tbody>
</table>

NG REPAIR OR REPLACE HARNESS AND CONNECTOR (BATTERY - MASTER SWITCH)

OK
2 CHECK POWER WINDOW REGULATOR MOTOR ASSEMBLY FRONT LH

(a) Disconnect the P17 switch connector.
(b) Using a service wire, connect the terminals according to the table below.
(c) Check operation of the power window regulator motor.

<table>
<thead>
<tr>
<th>Wire Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>P17-4 (DU) - P17-7 (BW)</td>
<td>Power window moves UP</td>
</tr>
<tr>
<td>P17-9 (DD) - Body ground</td>
<td>Power window moves DOWN</td>
</tr>
</tbody>
</table>

NG

OK > REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY

3 CHECK WIRE HARNESS (MASTER SWITCH - REGULATOR MOTOR)

(a) Disconnect the P17 switch connector.
(b) Disconnect the P18 motor connector.
(c) Measure the resistance of the wire harness side connectors.

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>P17-9 (DD) - P18-1 (D)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>P17-4 (DU) - P18-2 (U)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>P17-9 (DD) or P18-1 (D) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>P17-4 (DU) or P18-2 (U) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
</tbody>
</table>

NG > REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

REPLACE POWER WINDOW REGULATOR MOTOR ASSEMBLY FRONT LH
POWER WINDOW MASTER SWITCH

INSPECTION

1. INSPECT POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY
   (a) Measure the resistance of the switch when the switch is operated.

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Window Lock Switch Condition</th>
<th>Power Window Switch Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (E) - 9 (DD)</td>
<td>Always (ON / OFF)</td>
<td>UP</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>4 (DU) - 7 (BW)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 (E) - 9 (DD)</td>
<td>Always (ON / OFF)</td>
<td>AUTO UP</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>4 (DU) - 7 (BW)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 (E) - 4 (DU)</td>
<td>Always (ON / OFF)</td>
<td>OFF</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>1 (E) - 9 (DD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 (E) - 4 (DU)</td>
<td>Always (ON / OFF)</td>
<td>DOWN</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>7 (BW) - 9 (DD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 (E) - 4 (DU)</td>
<td>Always (ON / OFF)</td>
<td>AUTO DOWN</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>7 (BW) - 9 (DD)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Passenger switch

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Window Lock Switch Condition</th>
<th>Power Window Switch Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (E) - 15 (PD)</td>
<td>OFF</td>
<td>UP</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>6 (B) - 13 (PU)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 (E) - 13 (PU)</td>
<td>OFF</td>
<td>OFF</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>1 (E) - 15 (PD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 (E) - 13 (PU)</td>
<td>OFF</td>
<td>DOWN</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>6 (B) - 15 (PD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 (E) - 15 (PD)</td>
<td>ON</td>
<td>UP</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>6 (B) - 13 (PU)</td>
<td></td>
<td></td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>13 (PU) - 15 (PD)</td>
<td>ON</td>
<td>OFF</td>
<td>Below 1 Ω</td>
</tr>
</tbody>
</table>
If the result is not as specified, replace the master switch assembly.
(b) Apply battery voltage to the master switch and check that the AUTO light illuminates.

<table>
<thead>
<tr>
<th>Measurement Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery positive (+) → Terminal 11 (BDR)</td>
<td>AUTO light illuminates</td>
</tr>
<tr>
<td>Battery negative (-) → Terminal 1(E)</td>
<td></td>
</tr>
</tbody>
</table>

If the result is not as specified, replace the master switch assembly.
FRONT PASSENGER SIDE POWER WINDOW SWITCH

INSPECTION

1. **INSPECT POWER WINDOW REGULATOR SWITCH ASSEMBLY**
   
   (a) Measure the resistance of the switch when the switch is operated.
   
   **Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Switch Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
</table>
| 1 - 2  
3 - 4           | UP               | Below 1 Ω           |
| 1 - 2  
3 - 5           | OFF              | Below 1 Ω           |
| 1 - 4  
3 - 5           | DOWN             | Below 1 Ω           |

If the result is not as specified, replace the regulator switch assembly.
REAR POWER WINDOW SWITCH

INSPECTION

1. INSPECT POWER WINDOW REGULATOR SWITCH ASSEMBLY
   (a) Measure the resistance of the switch when the switch is operated.
   **Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Switch Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 2</td>
<td>UP</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>3 - 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - 2</td>
<td>OFF</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>3 - 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - 4</td>
<td>DOWN</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>3 - 5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If the result is not as specified, replace the regulator switch assembly.
POWER WINDOW REGULATOR MOTOR

INSPECTION

1. INSPECT POWER WINDOW REGULATOR MOTOR ASSEMBLY (for Front LH and Rear LH)
   (a) Apply battery voltage to connector terminals 1 and 2.
   NOTICE: Do not apply battery voltage to any terminals except terminals 1 and 2.
   (b) Check that the motor gear rotates smoothly as follows.
   OK
   If the result is not as specified, replace the regulator motor assembly.

<table>
<thead>
<tr>
<th>Measurement Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery positive (+)</td>
<td>Terminal 2</td>
</tr>
<tr>
<td>Battery negative (-)</td>
<td>Terminal 1</td>
</tr>
<tr>
<td>Battery positive (+)</td>
<td>Terminal 1</td>
</tr>
<tr>
<td>Battery negative (-)</td>
<td>Terminal 2</td>
</tr>
</tbody>
</table>

   Motor gear rotates clockwise
   Motor gear rotates counterclockwise

2. INSPECT POWER WINDOW REGULATOR MOTOR ASSEMBLY (for Front RH and Rear RH)
   (a) Apply battery voltage to connector terminals 1 and 2.
   NOTICE: Do not apply battery voltage to any terminals except terminals 1 and 2.
   (b) Check that the motor gear rotates smoothly as follows.
   OK
   If the result is not as specified, replace the regulator motor assembly.

<table>
<thead>
<tr>
<th>Measurement Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery positive (+)</td>
<td>Terminal 1</td>
</tr>
<tr>
<td>Battery negative (-)</td>
<td>Terminal 2</td>
</tr>
<tr>
<td>Battery positive (+)</td>
<td>Terminal 2</td>
</tr>
<tr>
<td>Battery negative (-)</td>
<td>Terminal 1</td>
</tr>
</tbody>
</table>

   Motor gear rotates clockwise
   Motor gear rotates counterclockwise
WINDSHIELD GLASS

COMPONENTS

- WINDSHIELD GLASS
- WINDSHIELD MOULDING OUTSIDE
- Non-reusable part

w/ EC Mirror
INNER REAR VIEW MIRROR COVER

w/o EC Mirror
INNER REAR VIEW MIRROR ASSEMBLY

NO. 1 WINDSHIELD GLASS STOPPER

NO. 2 WINDSHIELD GLASS STOPPER

WINDOW GLASS ADHESIVE DAM
WS–56

WINDSHIELD / WINDOWGLASS – WINDSHIELD GLASS

COWL TOP VENTILATOR LOUVER RH

FRONT WIPER ARM RH

21 (214, 15)

COWL TOP VENTILATOR LOUVER LH

FRONT WIPER ARM LH

HOOD TO COWL TOP SEAL

FRONT WIPER ARM HEAD CAP

N*m (kgf*cm, ft.*lbf) : Specified torque
REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
   CAUTION: Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to prevent airbag and seat belt pretensioner activation.

2. REMOVE FRONT DOOR SCUFF PLATE LH (See page IR-7)

3. REMOVE FRONT DOOR SCUFF PLATE RH (See page IR-7)

4. REMOVE COWL SIDE TRIM BOARD LH (See page IR-7)

5. REMOVE COWL SIDE TRIM BOARD RH (See page IR-7)

6. REMOVE FRONT DOOR OPENING TRIM LH
   (a) Partially remove the front door opening trim weatherstrip LH so that the front pillar garnish LH can be removed (see page IR-7).

7. REMOVE FRONT DOOR OPENING TRIM RH
   HINT: Use the same procedures described for the LH side.

8. REMOVE FRONT PILLAR GARNISH CORNER PIECE LH (See page IR-7)

9. REMOVE FRONT PILLAR GARNISH CORNER PIECE RH (See page IR-7)

10. REMOVE FRONT PILLAR GARNISH LH (See page IR-8)

11. REMOVE FRONT PILLAR GARNISH RH (See page IR-8)

12. REMOVE VISOR ASSEMBLY LH (See page IR-13)

13. REMOVE VISOR ASSEMBLY RH (See page IR-13)

14. REMOVE VISOR HOLDER (See page IR-13)

15. REMOVE ASSIST GRIP COVER (See page IR-12)

16. REMOVE ASSIST GRIP SUB-ASSEMBLY (See page IR-13)

17. REMOVE MAP LIGHT ASSEMBLY (See page IR-12)

18. REMOVE ROOF HEADLINING ASSEMBLY
   HINT: It is not necessary to completely remove the roof headlining. Slightly lower the front section of the roof headlining.
   (a) Partially remove the roof headlining (see page IR-13).

19. REMOVE INNER REAR VIEW MIRROR ASSEMBLY (w/o EC Mirror) (See page MI-5)
20. REMOVE INNER REAR VIEW MIRROR ASSEMBLY (w/ EC Mirror) (See page MI-5)

21. REMOVE HOOD TO COWL TOP SEAL (See page WW-13)

22. REMOVE FRONT WIPER ARM HEAD CAP

23. REMOVE FRONT WIPER ARM LH (See page WW-13)

24. REMOVE FRONT WIPER ARM RH (See page WW-13)

25. REMOVE COWL TOP VENTILATOR LOUVER LH (See page WW-13)

26. REMOVE COWL TOP VENTILATOR LOUVER RH (See page WW-13)

27. REMOVE WINDSHIELD MOULDING OUTSIDE
   (a) Using a knife, cut off the moulding as shown in the illustration.
   NOTICE:
   Be careful not to damage the vehicle body.
   (b) Remove the remaining moulding.
   HINT:
   Make a partial cut in the moulding. Then pull and remove it by hand.

28. REMOVE WINDSHIELD GLASS
   (a) Apply protective tape to the outer surface of the vehicle body to prevent scratches.

   (b) From the interior, insert a piano wire between the vehicle body and glass as shown in the illustration.
   (c) Tie objects that can serve as handles (for example, wooden blocks) to both wire ends.
   NOTICE:
   • When separating the glass from the vehicle, be careful not to damage the vehicle’s paint or interior/exterior ornaments.
   • To prevent the instrument panel from being scratched when removing the glass, place a plastic sheet between the piano wire and instrument panel.
(d) Place matchmarks over the glass and vehicle body on the locations indicated in the illustration.
   HINT:
   Matchmarks do not need to be placed if not reusing the glass.

(e) Cut through the adhesive by pulling the piano wire around the glass.
   NOTICE:
   Leave as much adhesive on the vehicle body as possible when cutting through the adhesive.

(f) Disengage the stoppers.

(g) Using suction cups, remove the glass.

29. CLEAN WINDSHIELD GLASS
(a) Using a scraper, remove the damaged stoppers, dams and adhesive sticking to the glass.

(b) Clean the outer edges of the glass with white gasoline.
   NOTICE:
   Do not touch the glass surface after cleaning it. Even if using new glass, clean it with white gasoline.

30. CLEAN VEHICLE BODY
(a) Clean and shape the contact surface of the vehicle body.
   (1) On the contact surface of the vehicle body, use a knife to cut away excess adhesive as shown in the illustration.
   HINT:
   Leave as much adhesive on the vehicle body as possible.
   NOTICE:
   Be careful not to damage the vehicle body.

(b) Clean the contact surface of the vehicle body with cleaner.
   HINT:
   Even if all the adhesive has been removed, clean the vehicle body.
INSTALLATION

1. INSTALL NO. 2 WINDSHIELD GLASS STOPPER
   (a) Apply Primer G to the glass where the stoppers will be installed.
   NOTICE:
   • Allow the primer to dry for 3 minutes or more.
   • Throw away any leftover primer.
   • Do not apply too much primer.
   (b) Install 2 new stoppers onto the glass as shown in the illustration.

   Standard measurement

<table>
<thead>
<tr>
<th>Area</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>40.0 mm (1.575 in.)</td>
</tr>
<tr>
<td>b</td>
<td>7.7 mm (0.303 in.)</td>
</tr>
<tr>
<td>c</td>
<td>12.5 mm (0.492 in.)</td>
</tr>
</tbody>
</table>

2. INSTALL NO. 1 WINDSHIELD GLASS STOPPER
   (a) Install 2 new stoppers to the vehicle body as shown in the illustration.

3. INSTALL WINDOW GLASS ADHESIVE DAM
   (a) Apply Primer G to the glass where the glass adhesive dams will be installed.
   NOTICE:
   • Allow the primer to dry for 3 minutes or more.
   • Throw away any leftover primer.
   • Do not apply too much primer.
(b) Remove the peeling paper from the adhesive part of the dam. Install the dam (adhesive side) to the glass (Primer G area), but exclude the spacer area A as shown in the illustration.

4. INSTALL WINDSHIELD GLASS
   (a) Position the glass.
      (1) Using suction cups, place the glass in the correct position.
      (2) Check that the entire contact surface of the glass rim is perfectly even.
      (3) Place matchmarks on the glass and vehicle body on the locations indicated in the illustration.

   **HINT:**
   - Placing matchmarks is only necessary when installing new glass. If it is the reused glass, matchmarks should already be present.
   - When reusing the glass, check and correct the matchmark positions.

   **NOTICE:**
   Check that the stoppers are attached to the vehicle body correctly.

**Standard measurement**

<table>
<thead>
<tr>
<th>Area</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>7.0 mm (0.276 in.)</td>
</tr>
<tr>
<td>b</td>
<td>27.5 mm (1.083 in.)</td>
</tr>
</tbody>
</table>
4) Using suction cups, remove the glass.

(b) Using a brush, apply Primer M to the exposed part of the vehicle body.

**NOTICE:**
- Allow the primer to dry for 3 minutes or more.
- Do not apply primer to the adhesive.
- Throw away any leftover primer.
- Do not apply too much primer.

(c) Using a brush or sponge, apply Primer G to the contact surface of the glass.

**HINT:**
If the primer is applied to an area that is not specified, apply white gasoline to a clean cloth and wipe off the excess primer.

**NOTICE:**
- Allow the primer to dry for 3 minutes or more.
- Throw away any leftover primer.
- Do not apply too much primer.
(d) Apply adhesive to the glass.

**Adhesive:**
Toyota Genuine Windshield Glass Adhesive or Equivalent

1. Cut off the tip of the cartridge nozzle as shown in the illustration.

**HINT:**
After cutting off the tip, use all adhesive within the time written in the table below.

**Usage time frame**

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Usage Time Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>35°C (95°F)</td>
<td>15 minutes</td>
</tr>
<tr>
<td>20°C (68°F)</td>
<td>1 hour 40 minutes</td>
</tr>
<tr>
<td>5°C (41°F)</td>
<td>8 hours</td>
</tr>
</tbody>
</table>

2. Load the sealer gun with the cartridge.
3. Apply adhesive to the glass as shown in the illustration.

**Standard measurement**

<table>
<thead>
<tr>
<th>Area</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>12.5 mm (0.492 in.)</td>
</tr>
<tr>
<td>b</td>
<td>8.0 mm (0.315 in.)</td>
</tr>
<tr>
<td>c</td>
<td>3.0 mm (0.118 in.)</td>
</tr>
</tbody>
</table>

(e) Install the glass to the vehicle body.

1. Using suction cups, position the glass so that the matchmarks are aligned. Press it in gently along the rim.
2. Lightly press the outer surface of the glass to ensure that it is securely fit to the vehicle body.

**NOTICE:**
- Check that the stoppers are attached to the vehicle body correctly.
- Check that the vehicle body and glass have a small gap between them.
3. Hold the glass in place securely with protective tape or equivalent until the adhesive hardens.

5. INSTALL WINDSHIELD MOULDING OUTSIDE

(a) Using a brush or sponge, apply Primer G to the glass where a new moulding will be installed.

**NOTICE:**
- Allow the primer to dry for 3 minutes or more.
- Throw away any leftover primer.
- Do not apply too much primer.

(b) Align the moulding's marks with glass notches and install the moulding before the adhesive dries.

**NOTICE:**
Do not drive the vehicle for the amount of time written in the table below.

**Minimum time**

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Minimum time prior to driving vehicle</th>
</tr>
</thead>
<tbody>
<tr>
<td>35°C (95°F)</td>
<td>1 hour 30 minutes</td>
</tr>
</tbody>
</table>
6. INSTALL COWL TOP VENTILATOR LOUVER RH
7. INSTALL COWL TOP VENTILATOR LOUVER LH
8. INSTALL FRONT WIPER ARM LH (See page WW-16)
9. INSTALL FRONT WIPER ARM RH (See page WW-16)
10. INSTALL FRONT WIPER ARM HEAD CAP
11. INSTALL HOOD TO COWL TOP SEAL
12. INSTALL INNER REAR VIEW MIRROR ASSEMBLY (w/o EC Mirror) (See page MI-6)
13. REMOVE INNER REAR VIEW MIRROR ASSEMBLY (w/ EC Mirror) (See page MI-7)
14. INSTALL ROOF HEADLINING ASSEMBLY (See page IR-13)
15. INSTALL MAP LIGHT ASSEMBLY (See page IR-15)
16. INSTALL ASSIST GRIP SUB-ASSEMBLY (See page IR-14)
17. INSTALL ASSIST GRIP COVER (See page IR-14)
18. INSTALL VISOR HOLDER (See page IR-14)
19. INSTALL VISOR ASSEMBLY LH (See page IR-14)
20. INSTALL VISOR ASSEMBLY RH (See page IR-14)
21. INSTALL FRONT PILLAR GARNISH LH (See page IR-18)
22. INSTALL FRONT PILLAR GARNISH RH (See page IR-18)
23. INSTALL FRONT PILLAR GARNISH CORNER PIECE LH (See page IR-19)
24. INSTALL FRONT PILLAR GARNISH CORNER PIECE RH (See page IR-19)
25. INSTALL FRONT DOOR OPENING TRIM LH
26. INSTALL FRONT DOOR OPENING TRIM RH
27. INSTALL COWL SIDE TRIM BOARD LH (See page IR-19)
28. REMOVE COWL SIDE TRIM BOARD RH (See page IR-19)
29. REMOVE FRONT DOOR SCUFF PLATE LH (See page IR-19)
30. INSTALL FRONT DOOR SCUFF PLATE RH (See page IR-19)

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Minimum time prior to driving vehicle</th>
</tr>
</thead>
<tbody>
<tr>
<td>20°C (68°F)</td>
<td>5 hours</td>
</tr>
<tr>
<td>5°C (41°F)</td>
<td>24 hours</td>
</tr>
</tbody>
</table>
31. **CHECK FOR LEAKS AND REPAIR**  
   (a) Conduct a leak test after the adhesive has completely hardened.  
   (b) Seal any leaks with auto glass sealer.

32. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

33. **PERFORM INITIALIZATION**  
   (a) Perform initialization (see page IN-32).  
   **NOTICE:**  
   Certain systems need to be initialized after disconnecting and reconnecting the cable from the negative (-) battery terminal.
FRONT SIDE FIX WINDOW GLASS

COMPONENTS

- FRONT PILLAR GARNISH LH
- FRONT DOOR OPENING TRIM LH
- FRONT PILLAR GARNISH CORNER PIECE LH
- COWL SIDE TRIM BOARD LH
- FRONT DOOR SCUFF PLATE LH
- FRONT SIDE FIX WINDOW ASSEMBLY LH
- QUARTER PANEL SPACER
- HOOK FASTENER

● Non-reusable part
REMOVAL

HINT:
• Use the same procedures for the LH side and RH side.
• The procedures listed below are for the RH side.

1. REMOVE FRONT DOOR SCUFF PLATE LH (See page IR-7)

2. REMOVE COWL SIDE TRIM BOARD LH (See page IR-7)

3. REMOVE FRONT DOOR OPENING TRIM LH
   (a) Partially remove the front door opening trim weatherstrip LH so that the front pillar garnish LH can be removed (see page IR-7).

4. REMOVE FRONT PILLAR GARNISH CORNER PIECE LH (See page IR-7)

5. REMOVE FRONT PILLAR GARNISH LH (See page IR-8)

6. REMOVE FRONT SIDE FIX WINDOW ASSEMBLY LH

NOTICE:
When removing the quarter window glass from the vehicle, be careful not to damage the vehicle's paint or interior/exterior ornaments.
(a) Apply protective tape to the outer surface of the vehicle body to prevent scratches.

(b) Using a knife, cut off the moulding as shown in the illustration.

   NOTICE:
   Be careful not to damage the vehicle body with the knife.

(c) Remove the remaining moulding.

   HINT:
   Make a partial cut in the moulding. Then pull and remove it by hand.
(d) From the interior, insert a piano wire between the vehicle body and glass as shown in the illustration.

(e) Tie objects that can serve as handles (for example, wooden blocks) to both wire ends.

**NOTICE:**
To prevent the instrument panel from being scratched when removing the glass, place a plastic sheet between the piano wire and instrument panel.

(f) Cut through the adhesive by pulling the piano wire around the glass.

**NOTICE:**
Leave as much adhesive on the vehicle body as possible when cutting through the adhesive.

(g) Disengage the stoppers.

(h) Using suction cup, remove the glass.

7. **CLEAN VEHICLE BODY**

(a) Clean and shape the contact surface of the vehicle body.

(1) On the contact surface of the vehicle body, use a knife to cut away excess adhesive as shown in the illustration.

**HINT:**
Leave as much adhesive on the vehicle body as possible.

**NOTICE:**
Be careful not to damage the vehicle body.

(b) Clean the contact surface of the vehicle body with cleaner.

**HINT:**
Even if all the adhesive has been removed, clean the vehicle body.
INSTALLATION

HINT:
• Use the same procedures for the LH side and RH side.
• The procedures listed below are for the LH side.
• A bolt without a torque specification is shown in the standard bolt chart (see page SS-2).

1. INSTALL QUARTER PANEL SPACER
   (a) Install a new spacer to the vehicle body as shown in the illustration.

2. INSTALL HOOK FASTENER
   (a) Apply Primer G to the glass where the fastener will be installed.
   NOTICE:
   • Allow the primer to dry for 3 minutes or more.
   • Throw away any leftover primer.
   • Do not apply too much primer.
   (b) Install a new hook fastener onto the glass as shown in the illustration.

3. INSTALL WINDSHIELD GLASS
   (a) Using a brush, apply Primer M to the exposed part of the vehicle body.
   NOTICE:
   • Allow the primer to dry for 3 minutes or more.
   • Do not apply primer to the adhesive.
   • Throw away any leftover primer.
   • Do not apply too much primer.
(b) Using a brush or sponge, apply Primer G to the contact surface of the glass.

HINT:
If the primer is applied to an area that is not specified, apply white gasoline to a clean cloth and wipe off the excess primer.

NOTICE:
• Allow the primer to dry for 3 minutes or more.
• Throw away any leftover primer.
• Do not apply too much primer.

(c) Apply adhesive to the glass.

Adhesive:
Part No. 08850-00801 or equivalent
(1) Cut off the tip of the cartridge nozzle as shown in the illustration.

HINT:
After cutting off the tip, use all adhesive within the time written in the table below.

Usage time frame

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Usage Time Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>35°C (95°F)</td>
<td>15 minutes</td>
</tr>
<tr>
<td>20°C (68°F)</td>
<td>1 hour 40 minutes</td>
</tr>
<tr>
<td>5°C (41°F)</td>
<td>8 hours</td>
</tr>
</tbody>
</table>

(2) Load the sealer gun with the cartridge.

(3) Apply adhesive to the glass as shown in the illustration.

Standard measurement

<table>
<thead>
<tr>
<th>Area</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>8.0 mm (0.315 in.)</td>
</tr>
<tr>
<td>b</td>
<td>6.0 mm (0.236 in.)</td>
</tr>
</tbody>
</table>

(d) Install the front side fix window to the vehicle body.

(1) Hold the front side fix window in place securely with protective tape or equivalent until the adhesive hardens.

NOTICE:
• Check that the spacer is attached to the vehicle body correctly.
• Check that the vehicle body and glass have a small gap between them.

(2) Lightly press the front surface of the glass to ensure that the glass is securely fit to the vehicle body.

NOTICE:
Do not drive the vehicle for the amount of time written in the table below.

Minimum time

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Minimum time prior to driving vehicle</th>
</tr>
</thead>
<tbody>
<tr>
<td>35°C (95°F)</td>
<td>1 hour 30 minutes</td>
</tr>
<tr>
<td>20°C (68°F)</td>
<td>5 hours</td>
</tr>
<tr>
<td>5°C (41°F)</td>
<td>24 hours</td>
</tr>
</tbody>
</table>

4. INSTALL FRONT PILLAR GARNISH LH (See page IR-18)

5. INSTALL FRONT PILLAR GARNISH CORNER PIECE LH (See page IR-19)

6. INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP LH

7. INSTALL COWL SIDE TRIM BOARD LH (See page IR-19)

8. INSTALL FRONT DOOR SCUFF PLATE LH (See page IR-19)
9. **CHECK FOR LEAKS AND REPAIR**
   
   (a) Conduct a leak test after the adhesive has completely hardened.
   
   (b) Seal any leaks with auto glass sealer.
BACK DOOR GLASS

COMPONENTS

- BACK DOOR GLASS ADHESIVE DAM
- BACK WINDOW MOULDING OUTSIDE
- BACK WINDOW GLASS SPACER
- BACK DOOR GLASS ADHESIVE DAM
- BACK WINDOW MOULDING OUTSIDE

- Non-reusable part
BACK DOOR TRIM UPPER PANEL ASSEMBLY

BACK DOOR SIDE GARNISH RH

BACK DOOR SIDE GARNISH LH

BACK DOOR UPPER TRIM BOARD ASSEMBLY

BACK DOOR LOWER TRIM BOARD ASSEMBLY

REAR WIPER ARM ASSEMBLY

REAR WIPER MOTOR ASSEMBLY

Grommet

5.5 (56, 49 in.*lbf)

5.5 (56, 49 in.*lbf)

N*m (kgf*cm, ft.*lbf) - Specified torque
REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
   CAUTION:
   Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to prevent airbag and seat belt pretensioner activation.

2. REMOVE REAR WIPER ARM ASSEMBLY (w/ Rear wiper) (See page WW-22)

3. REMOVE BACK DOOR LOWER TRIM BOARD ASSEMBLY (See page ED-43)

4. REMOVE BACK DOOR UPPER TRIM BOARD ASSEMBLY (See page ED-44)

5. REMOVE BACK DOOR TRIM UPPER PANEL ASSEMBLY (See page ED-44)

6. REMOVE BACK DOOR SIDE GARNISH LH (See page ED-44)

7. REMOVE BACK DOOR SIDE GARNISH RH (See page ED-44)

8. REMOVE REAR WIPER MOTOR ASSEMBLY (w/ Rear wiper) (See page WW-22)

9. REMOVE REAR SPOILER SUB-ASSEMBLY (See page ET-17)

10. REMOVE BACK DOOR GLASS
   (a) Apply protective tape to the outer surface of the vehicle body to prevent scratches.
   NOTICE:
   When separating the back door glass from the vehicle, be careful not to damage the vehicle's paint or interior/exterior ornaments.

   (b) From the interior, insert a piano wire between the vehicle body and back door glass as shown in the illustration.

   (c) Tie objects that can serve as handles (for example, wooden blocks) to both wire ends.

   (d) Cut through the adhesive by pulling the piano wire around the back door glass.
   NOTICE:
   Leave as much adhesive on the vehicle body as possible when removing the back door glass.

   (e) Using suction cups, remove the back door glass.
11. CLEAN BACK DOOR GLASS  
(a) Clean the outer edge of the back door glass with white gasoline.  
**NOTICE:**  
- Do not touch the back door glass surface after cleaning it.  
- Be careful not to damage the glass.  
- Even if using new back door glass, clean the back door glass with white gasoline.

12. CLEAN VEHICLE BODY  
(a) Using a scraper, remove the moulding and adhesive from the back door glass.  
(b) Clean and shape the contact surface of the vehicle body.  
   (1) On the contact surface of the vehicle body, use a knife to cut away excess adhesive as shown in the illustration.  
      **HINT:**  
      Leave as much adhesive on the vehicle body as possible.  
      **NOTICE:**  
      **Be careful not to damage the vehicle body.**  
   (2) Clean the contact surface of the vehicle body with cleaner.  
      **HINT:**  
      Even if all the adhesive has been removed, clean the vehicle body.
INSTALLATION

HINT:
A bolt without a torque specification is shown in the standard bolt chart (see page SS-2).

1. INSTALL BACK WINDOW GLASS SPACER
   (a) Apply Primer G to the installation part of the spacers.
   HINT:
   If primer is applied to an area that is not specified, wipe off the primer with white gasoline before it dries.
   NOTICE:
   • Allow the primer to dry for 3 minutes or more.
   • Throw away any leftover primer.
   • Do not apply too much primer.
   (b) Install 2 new spacers onto the glass as shown in the illustration.

2. INSTALL BACK DOOR GLASS ADHESIVE DAM
   (a) Apply Primer G to the glass where the adhesive dam will be installed.
   NOTICE:
   • Allow the primer to dry for 3 minutes or more.
   • Throw away any leftover primer.
   • Do not apply too much primer.
   (b) Remove the peeling paper from the adhesive part of the dam. Install the dam (adhesive side) to the glass (Primer G area) as shown in the illustration.

3. INSTALL BACK WINDOW MOULDING OUTSIDE
   (a) Using a brush or sponge, apply Primer G to the contact surface of the back door glass.
**NOTICE:**
- Allow the primer to dry for 3 minutes or more.
- Throw away any leftover primer.
- Do not apply too much primer.

**Standard measurement**

<table>
<thead>
<tr>
<th>Area</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>10.0 mm (0.394 in.)</td>
</tr>
</tbody>
</table>

(b) Install the moulding.

**Standard measurement**

<table>
<thead>
<tr>
<th>Area</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>4.5 mm (0.177 in.)</td>
</tr>
<tr>
<td>b</td>
<td>1.5 mm (0.059 in.)</td>
</tr>
<tr>
<td>c</td>
<td>24.2 mm (0.953 in.)</td>
</tr>
</tbody>
</table>

4. **INSTALL BACK DOOR GLASS**

(a) Using a brush, coat the exposed part of the vehicle body with Primer M.

**NOTICE:**
- Allow the primer to dry for 3 minutes or more.
- Do not coat the adhesive with Primer.
- Throw away any leftover primer.
- Do not apply too much primer.
(b) Using a brush or sponge, coat the edge of the glass and the contact surface with Primer G.

![Diagram of back door glass with markings and notches]

**HINT:**
If Primer G is applied to an area other than that which is specified, wipe off the primer with cloth before it dries.

**NOTICE:**
- Allow the primer to dry for 3 minutes or more.
- Throw away any leftover primer.
- Do not apply too much primer.

(c) Apply adhesive to the back door glass.

![Diagram of back door glass with markings and notches]
Adhesive:
Toyota Genuine Windshield Glass Adhesive or Equivalent

(1) Cut off the tip of the cartridge nozzle as shown in the illustration.
HINT:
After cutting off the tip, use all adhesive within the time written in the table below.

Usage time frame

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Usage Time Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>35°C (95°F)</td>
<td>15 minutes</td>
</tr>
<tr>
<td>20°C (68°F)</td>
<td>1 hour 40 minutes</td>
</tr>
<tr>
<td>5°C (41°F)</td>
<td>8 hours</td>
</tr>
</tbody>
</table>

(2) Load the sealer gun with the cartridge.
(3) Apply adhesive to the back door glass as shown in the illustration.

Standard measurement

<table>
<thead>
<tr>
<th>Area</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>12.0 mm (0.472 in.)</td>
</tr>
<tr>
<td>b</td>
<td>8.0 mm (0.315 in.)</td>
</tr>
<tr>
<td>c</td>
<td>14.5 mm (0.571 in.)</td>
</tr>
</tbody>
</table>

(d) Install the back door glass to the vehicle body.
(1) Hold the back window glass in place securely with tape or equivalent until the adhesive has hardened.
NOTICE:
• Check that the spacers are attached to the vehicle body correctly.
• Check that the vehicle body and glass have a small gap between them.
(2) Lightly press the front surface of the back door glass to ensure that the back door glass is securely fit to the vehicle body.
(3) Using a scraper, remove any excess or protruding adhesive.
HINT:
Apply adhesive onto the glass rim.
NOTICE:
Do not drive the vehicle within the time written in the table below.

Minimum time

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Minimum time prior to driving vehicle</th>
</tr>
</thead>
<tbody>
<tr>
<td>35°C (95°F)</td>
<td>1 hour 30 minutes</td>
</tr>
<tr>
<td>20°C (68°F)</td>
<td>5 hours</td>
</tr>
<tr>
<td>5°C (41°F)</td>
<td>24 hours</td>
</tr>
</tbody>
</table>

5. INSTALL REAR SPOILER SUB-ASSEMBLY (See page ET-17)

6. INSTALL REAR WIPER MOTOR ASSEMBLY (See page WW-22)
7. INSTALL BACK DOOR SIDE GARNISH LH (See page ED-47)
8. INSTALL BACK DOOR SIDE GARNISH RH (See page ED-47)
9. INSTALL BACK DOOR TRIM UPPER PANEL ASSEMBLY (See page ED-47)
10. INSTALL BACK DOOR UPPER TRIM BOARD ASSEMBLY (See page ED-48)
11. INSTALL BACK DOOR LOWER TRIM BOARD ASSEMBLY (See page ED-48)
12. INSTALL REAR WIPER ARM ASSEMBLY (w/ Rear wiper) (See page WW-22)
13. CHECK FOR LEAKS AND REPAIR
   (a) Conduct a leak test after the adhesive has completely hardened.
   (b) Seal any leaks with auto glass sealer.
14. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL
15. PERFORM INITIALIZATION
   (a) Perform initialization (see page IN-32).
   NOTICE:
   Certain systems need to be initialized after disconnecting and reconnecting the cable from the negative (-) battery terminal.
BACK WINDOW FIX GLASS

COMPONENTS

- BACK DOOR UPPER TRIM BOARD ASSEMBLY
- REAR SPOILER SUB-ASSEMBLY
- BACK DOOR GLASS ADHESIVE DAM
- BACK WINDOW MOULDING OUTSIDE
- BACK WINDOW GLASS SPACER
- BACK WINDOW GLASS SPACER
- BACK DOOR OUTSIDE GARNISH SUB-ASSEMBLY
- BACK DOOR LOWER TRIM BOARD ASSEMBLY

Non-reusable part

w/ Rear Wiper
REMOVAL

1. REMOVE BACK DOOR LOWER TRIM BOARD ASSEMBLY (See page ED-43)

2. REMOVE BACK DOOR UPPER TRIM BOARD ASSEMBLY (See page ED-44)

3. REMOVE BACK DOOR OUTSIDE GARNISH SUB-ASSEMBLY (See page ET-37)

4. REMOVE REAR SPOILER SUB-ASSEMBLY (See page ET-17)

5. REMOVE BACK DOOR GLASS
   (a) Apply protective tape to the outer surface of the vehicle body to prevent scratches.
   NOTICE:
   When separating the back door glass from the vehicle, be careful not to damage the vehicle's paint or interior/exterior ornaments.

   (b) From the interior, insert a piano wire between the vehicle body and back door glass as shown in the illustration.
   (c) Tie objects that can serve as handles (for example, wooden blocks) to both wire ends.
   (d) Cut through the adhesive by pulling the piano wire around the back door glass.
   NOTICE:
   Leave as much adhesive on the vehicle body as possible when removing the back door glass.
   (e) Using suction cups, remove the back door glass.

6. CLEAN BACK DOOR GLASS
   (a) Clean the outer edge of the back door glass with white gasoline.
   NOTICE:
   • Do not touch the back door glass surface after cleaning it.
   • Be careful not to damage the glass.
   • Even if using new back door glass, clean the back door glass with white gasoline.
7. CLEAN VEHICLE BODY
(a) Using a scraper, remove the moulding and adhesive from the back door glass.
(b) Clean and shape the contact surface of the vehicle body.
   (1) On the contact surface of the vehicle body, use a knife to cut away excess adhesive as shown in the illustration.
   HINT:
   Leave as much adhesive on the vehicle body as possible.
   NOTICE:
   Be careful not to damage the vehicle body.
   (2) Clean the contact surface of the vehicle body with cleaner.
   HINT:
   Even if all the adhesive has been removed, clean the vehicle body.
INSTALLATION

HINT:
A bolt without a torque specification is shown in the standard bolt chart (see page SS-2).

1. INSTALL BACK WINDOW GLASS SPACER
   (a) Apply Primer G to the installation part of the spacers.
       HINT:
       If primer is applied to an area that is not specified, wipe off the primer with white gasoline before it dries.
   (b) Install 2 new spacers onto the glass as shown in the illustration.
       NOTICE:
       • Allow the primer to dry for 3 minutes or more.
       • Throw away any leftover primer.
       • Do not apply too much primer.

2. INSTALL BACK DOOR GLASS ADHESIVE DAM
   (a) Apply Primer G to the glass where the adhesive dam will be installed.
       NOTICE:
       • Allow the primer to dry for 3 minutes or more.
       • Throw away any leftover primer.
       • Do not apply too much primer.
   (b) Remove the peeling paper from the adhesive part of the dam. Install the dam (adhesive side) to the glass (Primer G area) as shown in the illustration.
3. INSTALL BACK WINDOW MOULDING OUTSIDE

(a) Using a brush or sponge, apply Primer G to the contact surface of the back door glass.

**NOTICE:**
- Allow the primer to dry for 3 minutes or more.
- Throw away any leftover primer.
- Do not apply too much primer.

Standard measurement

<table>
<thead>
<tr>
<th>Area</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>10.0 mm (0.394 in.)</td>
</tr>
<tr>
<td>b</td>
<td>9.0 mm (0.354 in.)</td>
</tr>
</tbody>
</table>

(b) Install the moulding as shown in the illustration.

4. INSTALL BACK DOOR OUTSIDE GARNISH SUB-ASSEMBLY (See page ET-38)
5. INSTALL BACK WINDOW FIX GLASS
(a) Using a brush or sponge, apply Primer M to the exposed part of the vehicle body.
**NOTICE:**
- Allow the primer to dry for 3 minutes or more.
- Do not apply primer to the adhesive.
- Throw away any leftover primer.
- Do not apply too much primer.
(b) Using a brush or sponge, apply Primer G to the contact surface of the back door glass.

**HINT:**
If primer is applied to an area that is not specified, wipe off the primer with white gasoline before it dries.
**NOTICE:**
- Allow the primer to dry for 3 minutes or more.
- Throw away any leftover primer.
- Do not apply too much primer.
(c) Apply adhesive to the back door glass.

Adhesive:

Toyota Genuine Windshield Glass Adhesive or Equivalent

(1) Cut off the tip of the cartridge nozzle as shown in the illustration.

HINT:

After cutting off the tip, use all adhesive within the time written in the table below.

**Usage time frame**

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Usage Time Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>35°C (95°F)</td>
<td>15 minutes</td>
</tr>
<tr>
<td>20°C (68°F)</td>
<td>1 hour 40 minutes</td>
</tr>
<tr>
<td>5°C (41°F)</td>
<td>8 hours</td>
</tr>
</tbody>
</table>

(2) Load the sealer gun with the cartridge.

(3) Apply adhesive to the back door glass as shown in the illustration.

**Standard measurement**

<table>
<thead>
<tr>
<th>Area</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>12.0 mm (0.472 in.)</td>
</tr>
<tr>
<td>b</td>
<td>8.0 mm (0.315 in.)</td>
</tr>
</tbody>
</table>

(d) Install the back window fix glass to the vehicle body.

(1) Hold the back window glass in place securely with tape or equivalent until the adhesive has hardened.

**NOTICE:**

- Check that the clips are attached to the vehicle body correctly.
- Check the clearance between the vehicle body and glass.
(2) Lightly press the front surface of the back door glass to ensure that the back door glass is securely fit to the vehicle body.

(3) Using a scraper, remove any excess or protruding adhesive.

**HINT:**
Apply adhesive onto the glass rim.

**NOTICE:**
Do not drive the vehicle within the time written in the table below.

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Minimum time prior to driving vehicle</th>
</tr>
</thead>
<tbody>
<tr>
<td>35°C (95°F)</td>
<td>1 hour 30 minutes</td>
</tr>
<tr>
<td>20°C (68°F)</td>
<td>5 hours</td>
</tr>
<tr>
<td>5°C (41°F)</td>
<td>24 hours</td>
</tr>
</tbody>
</table>

6. **INSTALL REAR SPOILER SUB-ASSEMBLY** (See page ET-17)

7. **INSTALL BACK DOOR UPPER TRIM BOARD ASSEMBLY** (See page ED-48)

8. **INSTALL BACK DOOR LOWER TRIM BOARD ASSEMBLY** (See page ED-48)

9. **CHECK FOR LEAKS AND REPAIR**
   (a) Conduct a leak test after the adhesive has completely hardened.
   (b) Seal any leaks with auto glass sealer.

10. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

11. **PERFORM INITIALIZATION**
   (a) Perform initialization (see page IN-32).

   **NOTICE:**
   Certain systems need to be initialized after disconnecting and reconnecting the cable from the negative (-) battery terminal.
WINDOW DEFOGGER SYSTEM

PARTS LOCATION

- Steering Wheel (Steering Pad Switch)
- W/ Rear Wiper
- Outer Rear View Mirror LH
- Mirror Heater Relay
- Driver Side Junction Block
  - DEF Relay
  - DEF H-Fuse
  - A/C (HTR) Fuse
  - Gauge Fuse
  - M/HTR Fuse
  - ECU-B Fuse
- Multi-display
- Rear Defogger Switch
- Window Defogger Wire
ENGINE ROOM JUNCTION BLOCK, RELAY BLOCK
- DOME FUSE
SYSTEM DIAGRAM

Outer Rear View Mirror LH

Mirror Heater

Mirror Heater Relay

Defog Relay

Rear Defogger

Air Conditioning ECU

Combination Meter

Meter ECU

Rear DEF Indicator Light

Gateway ECU

Multi-display

Steering Pad Switch

Rear Defogger Switch

Outer Rear View Mirror RH

Mirror Heater

Mirror Heater Relay

Defog Relay

Rear Defogger

BEAN

Rear Defogger Switch
SYSTEM DESCRIPTION

The defogger system uses the heater wire in the rear windshield glass to defog the rear windshield glass. The circuit of this system is shared with the outside rear view mirror heater system, which operates in the same manner.
PROBLEM SYMPTOMS TABLE

HINT:
The window defogger system is part of the large-scale multiplex communication system. This system features shared communication wiring that reduces the wiring complexity of the communication lines. The first step in any repair is to confirm the proper operation of the communication system. Proceed with troubleshooting after the communication has been verified (see the multiplex communication system).

<table>
<thead>
<tr>
<th>Window defogger system</th>
<th>Symptom</th>
<th>Suspected area</th>
<th>See page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rear window defogger does not operate (Indicator ON)</td>
<td>1. DEF H-fuse</td>
<td>WS-89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. A/C (HTR) fuse</td>
<td>WS-89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. GAUGE fuse</td>
<td>WS-89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. DOME fuse</td>
<td>WS-55</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. ECU-B fuse</td>
<td>WS-55</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. DEF relay</td>
<td>WS-94</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. Rear window defogger wire</td>
<td>WS-95</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Wire harness</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rear window defogger does not operate (Indicator OFF)</td>
<td>1. DEF H-fuse</td>
<td>WS-89</td>
</tr>
<tr>
<td></td>
<td>2. A/C (HTR) fuse</td>
<td>WS-89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. GAUGE fuse</td>
<td>WS-89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. DOME fuse</td>
<td>WS-89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. ECU-B fuse</td>
<td>WS-89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. DEF relay</td>
<td>WS-94</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. Combination meter</td>
<td>ME-14</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Steering pad switch</td>
<td>WS-93</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9. Multi-display assembly</td>
<td>AC-26</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10. Rear window defogger wire</td>
<td>WS-95</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11. Wire harness</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Mirror heater does not operate (Indicator ON)</td>
<td>1. M/HTR fuse</td>
<td>WS-89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. A/C (HTR) fuse</td>
<td>WS-89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. GAUGE fuse</td>
<td>WS-89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. DOME fuse</td>
<td>WS-89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. ECU-B fuse</td>
<td>WS-89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Mirror heater relay</td>
<td>MI-15</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. Outer rear view mirror assembly</td>
<td>MI-10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Wire harness</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Mirror heater does not operate (Indicator OFF)</td>
<td>1. M/HTR fuse</td>
<td>WS-89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. A/C (HTR) fuse</td>
<td>WS-89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. GAUGE fuse</td>
<td>WS-89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. DOME fuse</td>
<td>WS-89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. ECU-B fuse</td>
<td>WS-89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Mirror heater relay</td>
<td>MI-15</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. Combination meter</td>
<td>AC-26</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Steering pad switch</td>
<td>WS-93</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9. Multi-display assembly</td>
<td>AC-23</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10. Outer rear view mirror assembly</td>
<td>MI-10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11. Wire harness</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>
INSPECTION

1. CHECK STEERING PAD SWITCH
   (a) Remove the horn button (see page SR-8).
   (b) Disconnect the connector as shown in the illustration.

   (c) Measure the resistance of the switch.

   **Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Switch Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 (AC1) - 7 (EAC)</td>
<td>OFF</td>
<td>29 to 31 kΩ</td>
</tr>
<tr>
<td>3 (AC1) - 7 (EAC)</td>
<td>ON</td>
<td>290 to 305 Ω</td>
</tr>
</tbody>
</table>

   If the result is not as specified, replace the switch.
DEFOGGER RELAY

ON-VEHICLE INSPECTION

1. CHECK DEFOGGER (DEF) RELAY
   (a) Remove the instrument panel lower (see page IP-17).
   (b) Measure the voltage.

   **Standard voltage**

<table>
<thead>
<tr>
<th>Terminal Connection</th>
<th>Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1J-2 - Body ground</td>
<td>Power switch ON (IG) Defogger switch ON</td>
<td>10 to 14 V</td>
</tr>
<tr>
<td>1J-2 - Body ground</td>
<td>Power switch ON (IG) Defogger switch OFF</td>
<td>0 V</td>
</tr>
</tbody>
</table>

   If the result is not as specified, the driver side junction block may have a malfunction.
**WINDOW DEFOGGER WIRE**

**ON-VEHICLE INSPECTION**

1. **INSPECT BACK DOOR GLASS (DEFOGGER WIRE)**

   **NOTICE:**
   - When cleaning the glass, wipe the glass along the wire using a soft, dry cloth. Take care not to damage the defogger wires.
   - Do not use detergents or glass cleaners that have abrasive ingredients.
   - When measuring voltage, wrap a piece of tin foil around the tip of the negative (-) tester probe and press the foil against the wire with your finger, as shown in the illustration.

   (a) Turn the power switch ON (IG).
   (b) Press the defogger switch ON.
   (c) Measure the voltage at the center of each defogger wire as shown in the illustration.

   **Standard voltage**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approx. 5 V</td>
<td>Wire is not broken</td>
</tr>
<tr>
<td>Approx. 10 or 0 V</td>
<td>Wire is broken</td>
</tr>
</tbody>
</table>

   **HINT:**
   - If there is approximately 10 V, the wire may be faulty between the center of the wire and the wire end on the battery side. If there is no voltage, the wire may be faulty between the center of the wire end and the wire end on the ground side.

   (d) Place the voltmeter's positive (+) lead against the defogger wire on the battery side.
   (e) Place the voltmeter's negative (-) lead with the foil strip against the wire on the ground side.
   (f) Slide the positive (+) lead from the battery side to the ground side.
   (g) The point where the voltage drops from approximately 10 V to 0 V is where the defogger wire is broken.

   **HINT:**
   - If the defogger wire is not broken, the voltmeter indicates 0 V at the positive (+) end of the defogger wire and gradually increases to approximately 12 V as the meter probe moves to the other end.
REPAIR

1. REPAIR DEFOGGER WIRE
   (a) Clean the broken wire tips with grease, wax and silicone remover.
   (b) Place masking tape along both sides of the wire.
   (c) Thoroughly mix the repair agent.
       Dupont paste:
       No. 4817 or equivalent
   (d) Using a fine tip brush, apply a small amount of the agent to the wire.
   (e) After a few minutes, remove the masking tape.
       NOTICE:
       Do not repair the defogger wire again for at least 24 hours.
QUARTER WINDOW GLASS

COMPONENTS

- Rear Side Seatback Frame LH
- Rear Side Seatback Frame RH
- Rear Seat Cushion Assembly
- Rear Door Opening Trim Weatherstrip LH
- Tonneau Cover Assembly
- Quarter Window Assembly RH
- Rear Door Opening Trim Weatherstrip LH
- Back Door Weatherstrip
- Roof Side Inner Garnish Assembly RH
- Roof Side Inner Garnish Assembly LH
- Non-reusable part
REMOVAL

HINT:
• Use the same procedures for the LH side and RH side.
• The procedures listed below are for the LH side.

1. REMOVE REAR SEAT CUSHION ASSEMBLY (See page SE-15)
2. REMOVE REAR SIDE SEATBACK FRAME LH (See page IR-9)
3. REMOVE REAR DOOR OPENING TRIM WEATHERSTRIP LH
4. REMOVE BACK DOOR WEATHERSTRIP
5. REMOVE TONNEAU COVER ASSEMBLY
6. REMOVE REAR NO. 2 FLOOR BOARD
7. REMOVE REAR NO. 3 FLOOR BOARD
8. REMOVE REAR NO. 4 FLOOR BOARD
9. REMOVE REAR DECK FLOOR BOX
10. REMOVE DECK FLOOR BOX LH
11. REMOVE REAR NO. 1 FLOOR BOARD (See page IR-10)
12. REMOVE REAR DECK TRIM COVER (See page IR-10)
13. REMOVE DECK TRIM SIDE PANEL ASSEMBLY LH (See page IR-11)
14. REMOVE ROOF SIDE INNER GARNISH ASSEMBLY LH (See page IR-11)
15. REMOVE QUARTER WINDOW ASSEMBLY LH
   (a) Apply protective tape to the outer surface of the vehicle body to prevent scratches.

NOTICE:
When removing the quarter window glass from the vehicle, be careful not to damage the vehicle’s paint or interior/exterior ornaments.
(b) Using a knife, cut off the moulding as shown in the illustration.

**NOTICE:**
Be careful not to damage the vehicle body with the knife.

(c) Remove the remaining moulding.

**HINT:**
Make a partial cut in the moulding. Then pull and remove it by hand.

(d) From the interior, insert a piano wire between the vehicle body and the quarter window glass as shown in the illustration.

(e) Tie objects that can serve as handles (for example, wooden blocks) to both wire ends.

(f) Cut through the adhesive by pulling the piano wire around the quarter window glass.

**NOTICE:**
Leave as much adhesive on the vehicle body as possible when removing the quarter window glass.

(g) Using suction cups, remove the quarter window glass.

**16. CLEAN VEHICLE BODY**

(a) Clean and shape the contact surface of the vehicle body.

(1) On the contact surface of the vehicle body, use a knife to cut away excess adhesive as shown in the illustration.

**HINT:**
Leave as much adhesive on the vehicle body as possible.

**NOTICE:**
Be careful not to damage the vehicle body.

(2) Clean the contact surface of the vehicle body with cleaner.

**HINT:**
Even if all the adhesive has been removed, clean the vehicle body.
INSTALLATION

HINT:
• Use the same procedures for the LH side and RH side.
• The procedures listed below are for the LH side.
• A bolt without a torque specification is shown in the standard bolt chart (see page SS-2).

1. INSTALL QUARTER WINDOW ASSEMBLY LH
(a) Using a brush or sponge, apply primer M to the exposed part of the vehicle body.

NOTICE:
• Allow the primer coating to dry for 3 minutes or more.
• Throw away any leftover primer.
• Do not apply too much primer.

(b) Using a brush or sponge, apply primer G to the contact surface of the glass.

HINT:
If primer is applied to an area that is specified, wipe off the primer with white gasoline before it dries.

NOTICE:
• Allow the primer to dry for 3 minutes or more.
• Throw away any leftover primer.
• Do not apply too much primer.
(c) Apply adhesive to the quarter window glass.

**Adhesive:**
- Toyota Genuine Windshield Glass Adhesive or Equivalent

(1) Cut off the tip of the cartridge nozzle as shown in the illustration.

(2) Load the sealer gun with the cartridge.
(3) Apply adhesive to the quarter window glass as shown in the illustration.

(4) Install the quarter window glass to the vehicle body.

(1) Hold the quarter window glass in place securely with protective tape or equivalent until the adhesive hardens.

**NOTICE:**
- Allow the primer coating to dry for 3 minutes or more.
- Check that the clips are attached to the body correctly.

### Standard measurement

<table>
<thead>
<tr>
<th>Area</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>12.0 mm (0.472 in.)</td>
</tr>
<tr>
<td>b</td>
<td>8.0 mm (0.315 in.)</td>
</tr>
</tbody>
</table>

**HINT:**
After cutting off the tip, use all adhesive within the time written in the table below.

**Usage time frame**

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Usage Time Frame</th>
</tr>
</thead>
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</tr>
<tr>
<td>5°C (41°F)</td>
<td>8 hours</td>
</tr>
</tbody>
</table>

---

8073868E03
• Check the clearance between the body and glass.
(2) Lightly press the front surface of the glass to ensure a close fit.
(3) Using a scraper, remove any excess or protruding adhesive.
HINT: Apply adhesive onto the glass rim.
NOTICE: Do not drive the vehicle within the time written in the table below.
Minimum time

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Minimum time prior to driving vehicle</th>
</tr>
</thead>
<tbody>
<tr>
<td>35°C (95°F)</td>
<td>1 hour 30 minutes</td>
</tr>
<tr>
<td>20°C (68°F)</td>
<td>5 hours</td>
</tr>
<tr>
<td>5°C (41°F)</td>
<td>24 hours</td>
</tr>
</tbody>
</table>

2. INSTALL ROOF SIDE INNER GARNISH ASSEMBLY LH (See page IR-15)
3. INSTALL DECK TRIM SIDE PANEL ASSEMBLY LH (See page IR-15)
4. INSTALL REAR DECK TRIM COVER (See page IR-16)
5. INSTALL REAR NO. 1 FLOOR BOARD (See page IR-16)
6. INSTALL DECK FLOOR BOX LH
7. INSTALL REAR DECK FLOOR BOX
8. INSTALL REAR NO. 4 FLOOR BOARD
9. INSTALL REAR NO. 3 FLOOR BOARD
10. INSTALL REAR NO. 2 FLOOR BOARD
11. INSTALL TONNEAU COVER ASSEMBLY
12. INSTALL BACK DOOR WEATHERSTRIP
13. INSTALL REAR DOOR OPENING TRIM WEATHERSTRIP LH
14. INSTALL REAR SIDE SEATBACK FRAME LH (See page IR-17)
15. INSTALL REAR SEAT CUSHION ASSEMBLY (See page SE-23)
16. CHECK FOR LEAKS AND REPAIR
   (a) Conduct a leak test after the adhesive has completely hardened.
   (b) Seal any leaks with auto glass sealer.