

2008 Scion xD

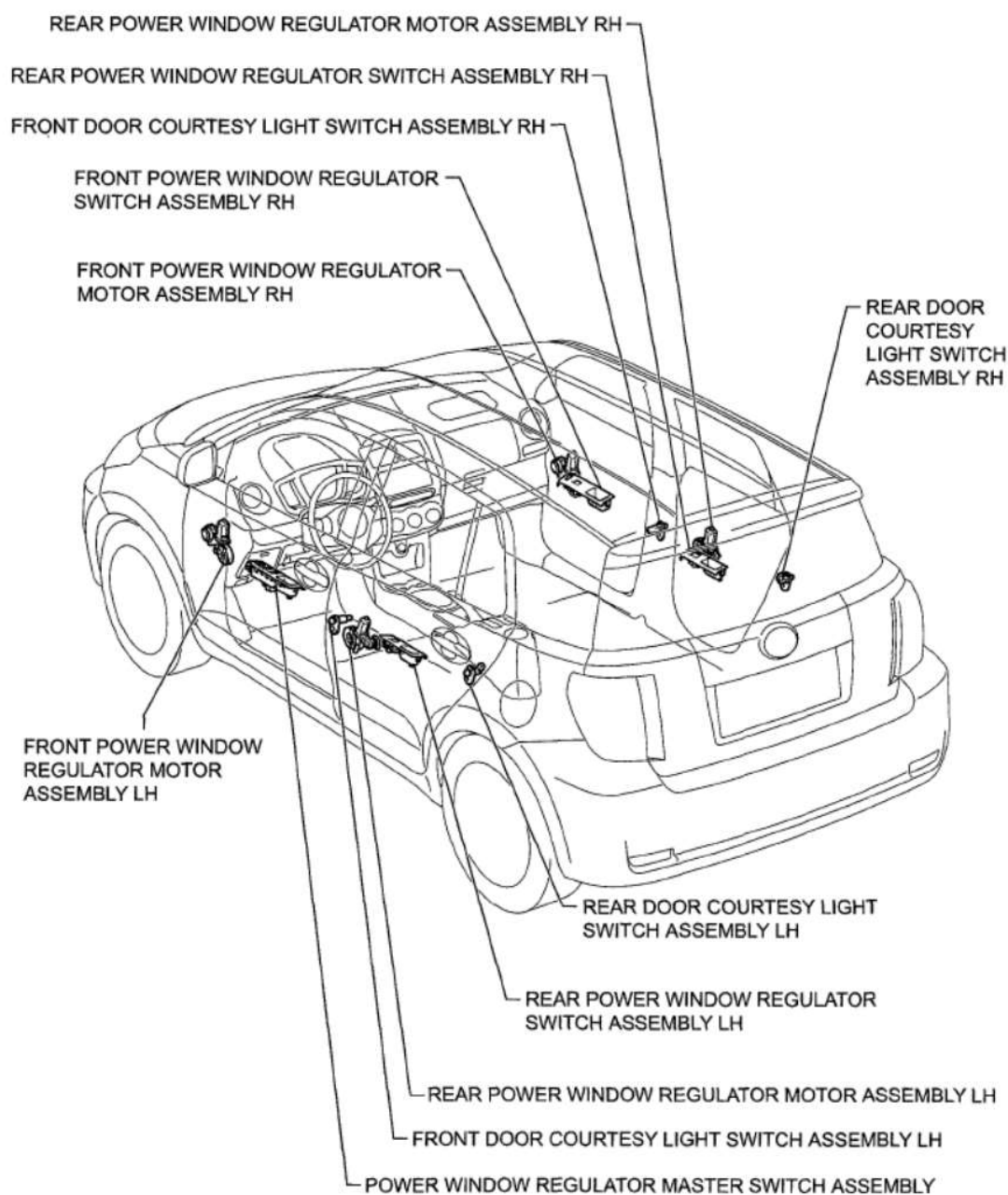
2008 ACCESSORIES AND EQUIPMENT Windshield/WindowGlass - xD

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POWER WINDOW CONTROL SYSTEM

PARTS LOCATION

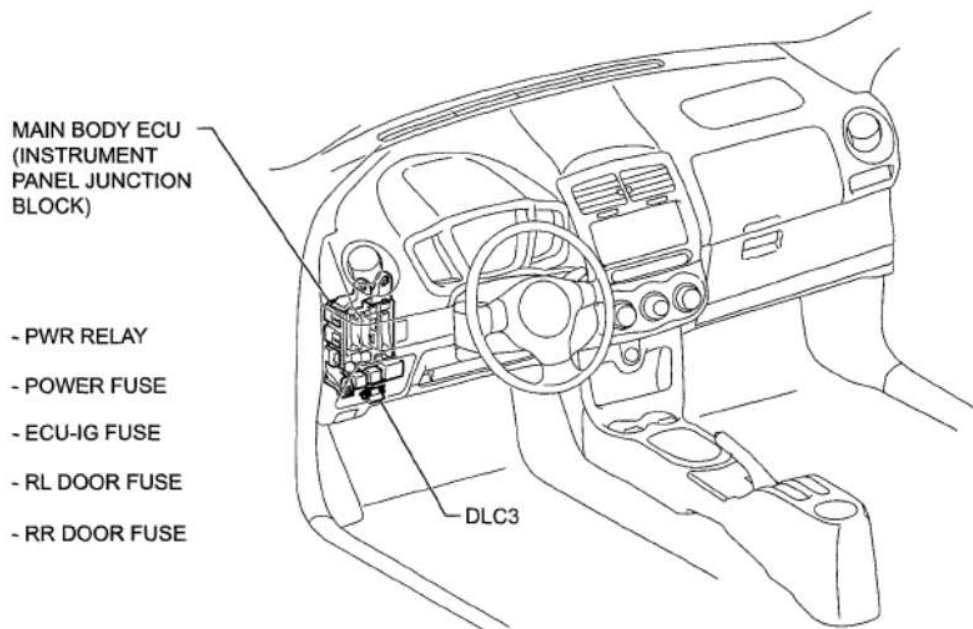
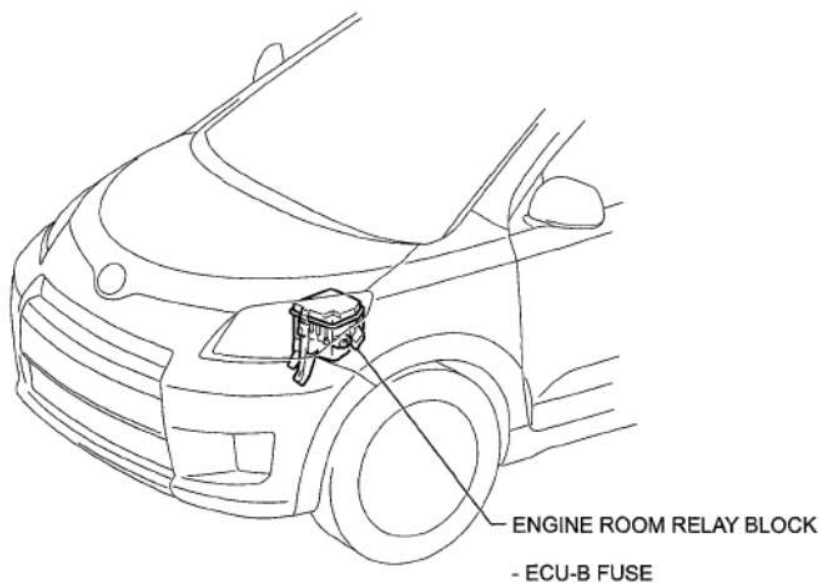


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Fig. 1: Identifying Power Window Control System Components (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.



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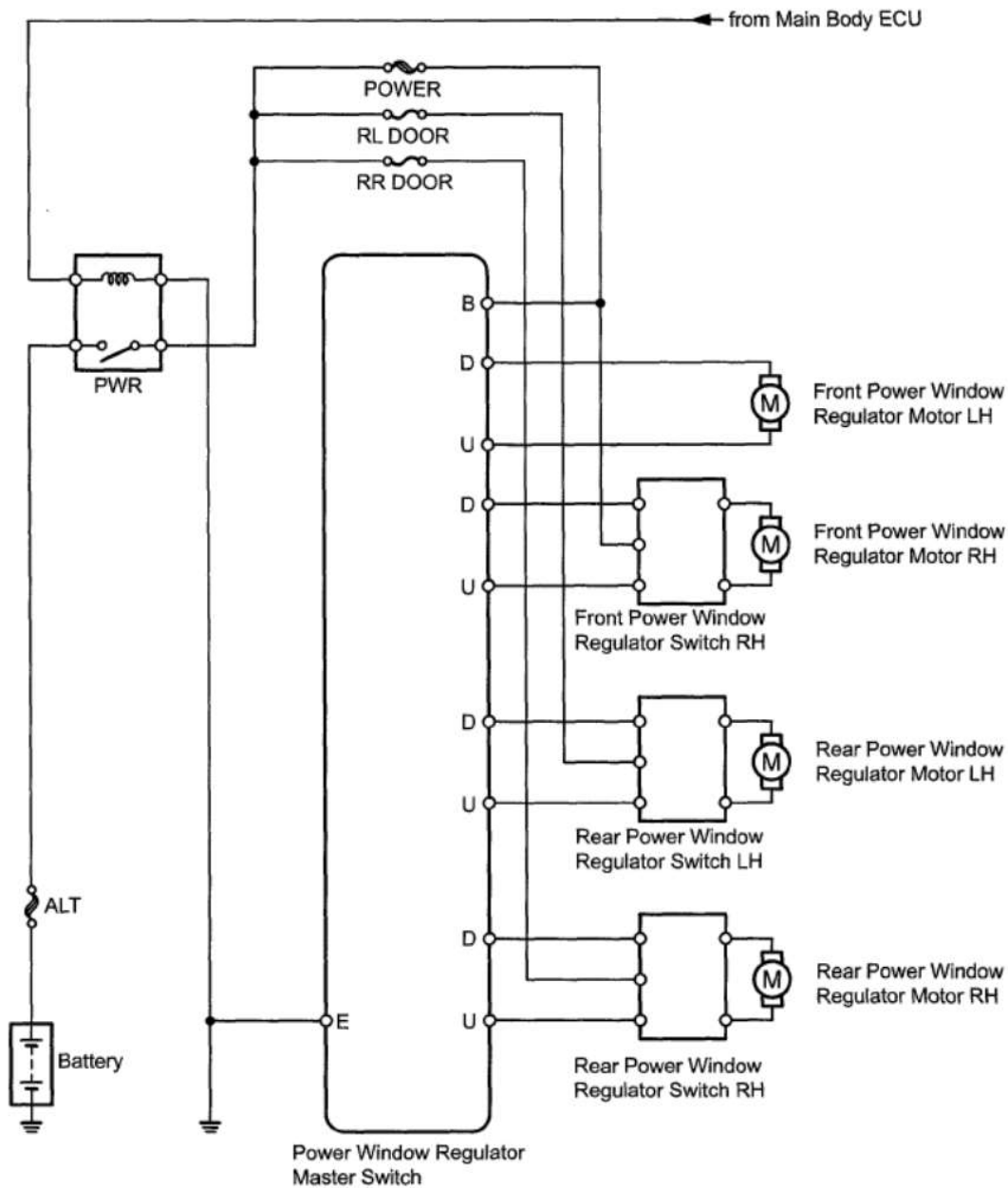
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Fig. 2: Identifying Power Window Control System Components (2 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SYSTEM DIAGRAM

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Fig. 3: Power Window Control System Diagram (1 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

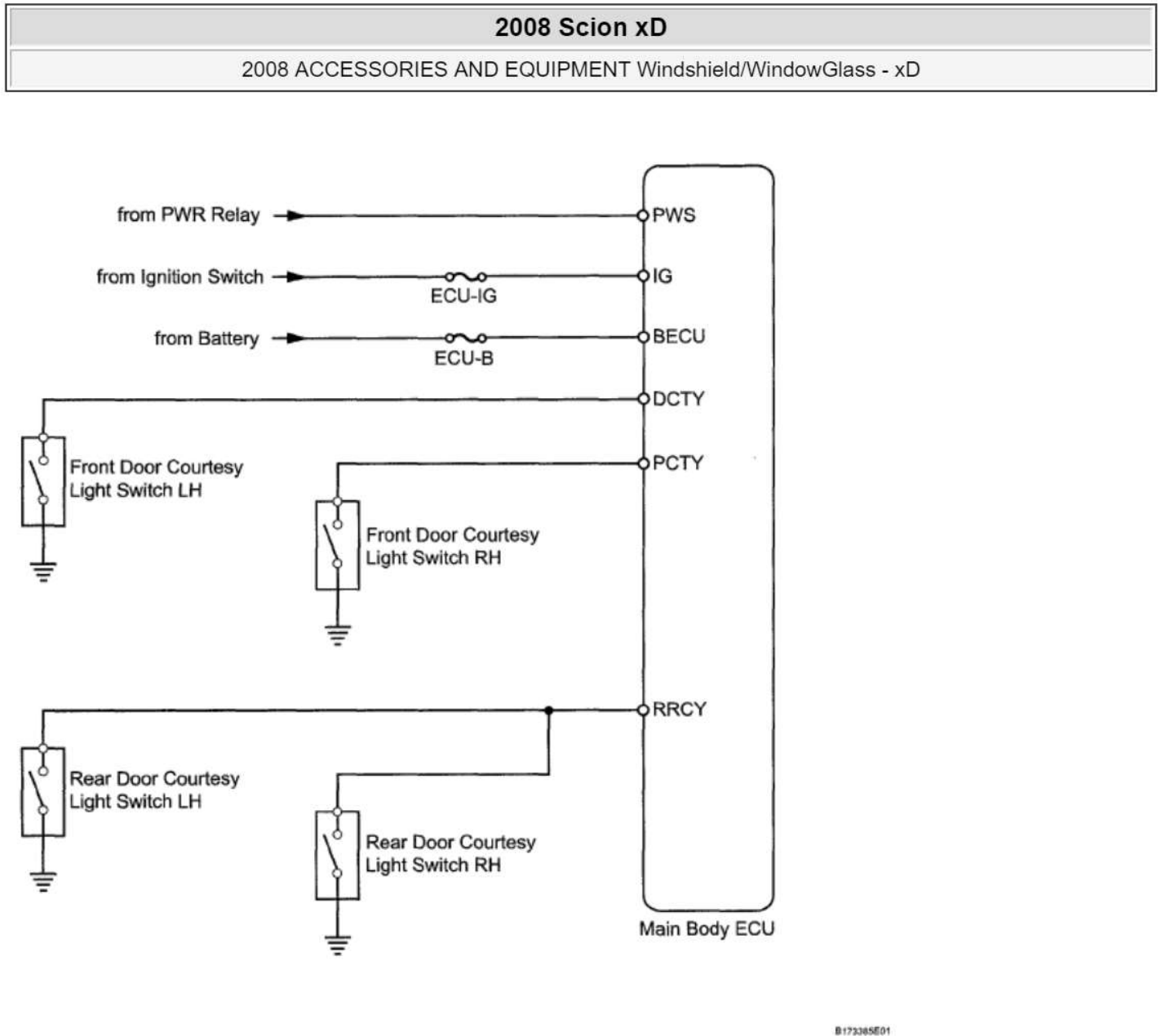


Fig. 4: Power Window Control System Diagram (2 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SYSTEM DESCRIPTION

1. POWER WINDOW CONTROL SYSTEM DESCRIPTION

The power window control system controls the power window 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 the regulator switch or any of the switches on the master switch transmits an UP / DOWN signal to the corresponding power window regulator motor.

2. FUNCTION OF MAIN COMPONENT

2008 Scion xD**2008 ACCESSORIES AND EQUIPMENT** Windshield/WindowGlass - xD**FUNCTION OF MAIN COMPONENT**

Component	Outline
Power Window Regulator Master Switch Assembly	- Controls window operations for all windows - When window lock switch is set to lock position, window operation is only possible with master switch
Power Window Regulator Switch Assembly	- Located on passenger side door and rear doors - Each regulator switch controls window operations for its respective window
Power Window Regulator Motor Assembly	Receives switch signals and changes signals into motor activation to change window position

3. SYSTEM FUNCTION

The power window control system has the following functions.

SYSTEM FUNCTION

Function	Outline
Manual UP / DOWN function	- Driver side power window Function that raises window while power window switch is pulled up, and lowers window while pushed halfway down (window stops as soon as switch is released) - Other power windows. Function that raises window while power window switch is pulled up, and lowers window while pushed down (window stops as soon as switch is released)
AUTO DOWN function	Function that enables driver side door window to be fully opened by one full push downward on power window switch
Remote UP / DOWN function	Function that allows power window master switch to control manual UP / DOWN operation of passenger side power window and rear power windows
Key-off operation function	- Function that makes it possible to operate all power windows for approximately 43 seconds after ignition switch is turned OFF and driver side door, front passenger side door and rear doors have not been opened - If 43 seconds have passed or a driver side door, front passenger side door or rear side door is opened while the MANUAL function is operating, window operation stops
Window lock function	- Function where passenger side power window and rear power window operation is disabled when window lock switch of master switch is pressed - Passenger side power window and rear power windows can be operated when window lock switch is pressed again

HOW TO PROCEED WITH TROUBLESHOOTING

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HINT:

- Use these procedures to troubleshoot the power window control system.
- *: Use a Techstream.

1. **VEHICLE BROUGHT TO WORKSHOP**
2. **INSPECT BATTERY VOLTAGE**

Standard voltage: 11 to 14 V

If the voltage is below 11V, recharge or replace the battery before proceeding.

3. **PROBLEM SYMPTOMS TABLE**

Result

PROBLEM SYMPTOMS CHART

Result	Proceed to
Fault is not listed in problem symptoms table	A
Fault is listed in problem symptoms table	B

B: Go to step 5

A: Go to Next Step

4. **OVERALL ANALYSIS AND TROUBLESHOOTING***
 - a. Terminals of ECU (See **TERMINALS OF ECU**)
 - b. Operation check (See **OPERATION CHECK**)
 - c. DATA LIST / ACTIVE TEST (See **DATA LIST / ACTIVE TEST**)
5. **REPAIR OR REPLACE**
6. **CONFIRMATION TEST**

NEXT : END

OPERATION CHECK

1. **CHECK POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY (WINDOW LOCK SWITCH)**
 - a. Check that the passenger side power window and rear windows cannot be operated when the window lock switch of the power window regulator master switch is pressed.

OK: Passenger side power window and rear window operation is disabled.

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Fig. 5: Identifying Window Lock Switch

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Check that the passenger side power window and rear windows can be operated when the window lock switch is pressed again.

OK: Passenger side power window and rear windows can be operated.

2. CHECK MANUAL UP/DOWN FUNCTION

- a. Check that the driver side power window operates as follows:

OK

MANUAL UP/DOWN FUNCTION

Condition	Master Switch	Switch Operation	Power Window
Ignition switch ON	Driver side	Pulled up	UP (Closes)
		Pushed halfway down	DOWN (Opens)

- b. Check that the passenger side power window operates as follows:

OK

PASSENGER SIDE POWER WINDOW DESCRIPTION

Condition	Regulator Switch	Switch Operation	Power Window
- Ignition switch ON - Window lock switch OFF	Passenger side	Pulled up	UP (Closes)
		Pushed down	DOWN (Opens)

- c. Check that the rear LH power window operates as follows:

OK

REAR LH POWER WINDOW DESCRIPTION

Condition	Regulator Switch	Switch Operation	Power Window
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• Ignition switch ON • Window lock switch OFF	Rear LH	Pulled up	UP (Closes)
		Pushed down	DOWN (Opens)

- d. Check that the rear RH power window operates as follows:

OK

REAR RH POWER WINDOW DESCRIPTION

Condition	Regulator Switch	Switch Operation	Power Window
• Ignition switch ON • Window lock switch OFF	Rear RH	Pulled up	UP (Closes)
		Pushed down	DOWN (Opens)

3. CHECK AUTO DOWN FUNCTION

- a. Check that the driver side power window operates as follows:

OK

DRIVER SIDE POWER WINDOW DESCRIPTION

Condition	Master Switch	Switch Operation	Power Window
Ignition switch ON	Driver side	Fully pushed down	AUTO DOWN (Fully opens)

4. CHECK REMOTE MANUAL UP/DOWN FUNCTION

- a. Check that the passenger side power window operates as follows:

OK

PASSENGER SIDE POWER WINDOW DESCRIPTION

Condition	Master Switch	Switch Operation	Power Window
• Ignition switch ON • Window lock switch OFF	Passenger side	Pulled up	UP (Closes)
		Pushed down	DOWN (Opens)

- b. Check that the rear LH power window operates as follows:

OK

REAR LH POWER WINDOW DESCRIPTION

Condition	Master Switch	Switch Operation	Power Window
• Ignition switch ON • Window lock switch OFF	Rear LH	Pulled up	UP (Closes)
		Pushed down	DOWN (Opens)

- c. Check that the rear RH power window operates as follows:

2008 Scion xD**2008 ACCESSORIES AND EQUIPMENT** Windshield/WindowGlass - xD**OK****REAR RH POWER WINDOW DESCRIPTION**

Condition	Master Switch	Switch Operation	Power Window
• Ignition switch ON	Rear RH	Pulled up	UP (Closes)
• Window lock switch OFF		Pushed down	DOWN (Opens)

5. CHECK POWER WINDOW OPERATION FUNCTION AFTER IGNITION SWITCH IS TURNED OFF

- Check that all the power windows can be operated with the power window regulator master switch after the ignition switch has been turned OFF.
- Check that the key-off operation function does not operate after the driver, passenger or rear side door is closed and opened.
- Check that the driver door power window cannot be operated after more than approximately 43 seconds have elapsed since the ignition switch was turned OFF.

6. CHECK POWER WINDOW OPERATION FUNCTION AFTER IGNITION SWITCH IS TURNED OFF (DRIVER DOOR POWER WINDOW)**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.

- Pull up and hold the power window regulator switch for more than 90 seconds. Then release the switch.
- Check that pressing the switch does not move the window.
- 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.

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.
- Inspect the fuses and relays related to the system before inspecting the suspected areas below.

Power window control system**POWER WINDOW CONTROL SYSTEM DESCRIPTION**

Symptom	Suspected Area	See
Power Window Switches on Each Door	Power window	

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Operate, but Remote Operation from Power Window Master Switch is not Possible	regulator master switch assembly	<u>POWER WINDOW MASTER SWITCH</u>
	Wire harness	-
Driver Side Power Window does not Operate with Power Window Master Switch	Power window regulator master switch assembly	<u>DRIVER SIDE POWER WINDOW DOES NOT OPERATE WITH POWER WINDOW MASTER SWITCH</u>
	Front power window regulator motor assembly LH	<u>DRIVER SIDE POWER WINDOW DOES NOT OPERATE WITH POWER WINDOW MASTER SWITCH</u>
	Wire harness	-
Front Passenger Side Power Window does not Operate with Front Passenger Side Power Window Switch	Front power window regulator switch assembly RH	<u>FRONT PASSENGER SIDE POWER WINDOW SWITCH</u>
	Front power window regulator motor assembly RH	<u>POWER WINDOW REGULATOR MOTOR</u>
	Wire harness	-
Rear Power Window LH does not Operate with Rear Power Window Switch LH	Rear power window regulator switch assembly LH	<u>REAR POWER WINDOW SWITCH</u>
	Rear power window regulator motor assembly LH	<u>POWER WINDOW REGULATOR MOTOR</u>
	Wire harness	-
Rear Power Window RH does not Operate with Rear Power Window Switch RH	Rear power window regulator switch assembly RH	<u>REAR POWER WINDOW SWITCH</u>
	Rear power window regulator motor assembly RH	<u>POWER WINDOW REGULATOR MOTOR</u>
	Wire harness	-
Power Windows do not Operate at All	ECU-B and POWER fuse	<u>POWER WINDOWS DO NOT OPERATE AT ALL</u>
	ECU-IG fuse	<u>POWER WINDOWS DO NOT OPERATE AT ALL</u>
	Power relay	<u>POWER WINDOWS DO NOT OPERATE AT ALL</u>
	Power window regulator master switch assembly	<u>POWER WINDOWS DO NOT OPERATE AT ALL</u>
	Wire harness	-
	Front door courtesy	

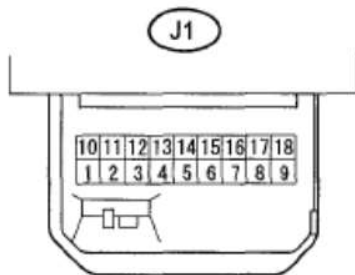
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Key-off Operation Function Operates even if Operating Conditions are not Satisfied	light switch assembly	<u>INSPECTION</u>
	Rear door courtesy light switch assembly	<u>INSPECTION</u>
	Main body ECU	-
	Wire harness or connector	-

TERMINALS OF ECU

1. CHECK POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY



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Fig. 6: Identifying ECU Connector Terminals

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the J1 power window regulator master switch assembly connector.
- b. Measure the voltage and resistance of the wire harness side connector.

Standard:

VOLTAGE AND RESISTANCE SPECIFICATIONS

Terminal No. (Symbols)	Wiring Color	Terminal Description	Condition	Specified Condition
J1-6 (B) - Body ground	GR - Body ground	Ignition power supply	Ignition switch OFF	Below 1 V
J1-6 (B) - Body ground	GR - Body ground	Ignition power supply	Ignition switch ON	11 to 14 V
J1-1 (E) - Body ground	W-B - Body ground	Ground	Always	Below 1 ohms

If the result is not as specified, there may be a malfunction on the wire harness side.

- c. Reconnect the J1 power window regulator master switch assembly connector.
- d. Measure the voltage of the connector.

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Standard voltage:

STANDARD VOLTAGE SPECIFICATIONS

Terminal No. (Symbols)	Wiring Color	Terminal Description	Condition	Specified Condition
J1-3 (U) - J1-1 (E)	R - W-B	Power window motor UP output (driver side)	Ignition switch ON, driver side power window switch OFF --> UP (manual operation)	Below 1 V --> 11 to 14 V
J1-4 (D) - J1-1 (E)	G - W-B	Power window motor DOWN output (driver side)	Ignition switch ON, driver side power window switch OFF --> DOWN (manual operation)	Below 1 V --> 11 to 14 V
J1-4 (D) - J1-1 (E)	G - W-B	Power window motor DOWN output (driver side)	Ignition switch ON, driver side power window fully closed --> driver side power window switch DOWN (AUTO operation) --> driver side power window fully open	Below 1 V --> 11 to 14 V --> Below 1 V
J1-16 (U) - J1-1 (E)	W - W-B	Power window motor UP output (passenger side)	Ignition switch ON, passenger side power window switch OFF --> UP	Below 1 V --> 11 to 14 V
J1-15 (D) - J1-1 (E)	P - W-B	Power window motor DOWN output (passenger side)	Ignition switch ON, passenger side power window switch OFF --> DOWN	Below 1 V --> 11 to 14 V
J1-12 (U) - J1-1 (E)	Y - W-B	Power window motor UP output (rear LH)	Ignition switch ON, rear LH side power window switch OFF --> UP	Below 1 V --> 11 to 14 V
J1-13 (D) - J1-1 (E)	B - W-B	Power window motor DOWN output (rear LH)	Ignition switch ON, rear LH side power window switch OFF --> DOWN	Below 1 V --> 11 to 14 V
J1-10 (U) - J1-1 (E)	R - W-B	Power window motor UP output (rear RH)	Ignition switch ON, rear RH side power window switch OFF --> UP	Below 1 V --> 11 to 14 V
J1-18 (D) - J1-1 (E)	G - W-B	Power window motor DOWN output (rear RH)	Ignition switch ON, rear RH side power window switch OFF --> DOWN	Below 1 V --> 11 to 14 V

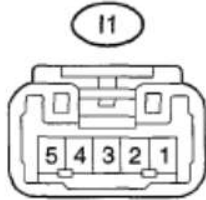
If the result is not as specified, the master switch may have a malfunction.

e. Check the AUTO light illumination.

1. After turning the ignition switch ON, check that the AUTO light illuminates (green).

2. CHECK FRONT POWER WINDOW REGULATOR SWITCH ASSEMBLY RH

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Fig. 7: Identifying Front Power Window Regulator Switch Assembly RH Connector Terminals
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- Disconnect the I1 front power window regulator switch assembly RH connector.
- Measure the voltage of the wire harness side connector.

Standard voltage:

STANDARD VOLTAGE SPECIFICATIONS

Terminal No. (Symbols)	Wiring Color	Terminal Description	Condition	Specified Condition
I1-3 (B) - Body ground	L - Body ground	Ignition power supply	Ignition switch OFF	Below 1 V
I1-3 (B) - Body ground	L - Body ground	Ignition power supply	Ignition switch ON	11 to 14 V
I1-1 (D) - Body ground	G - Body ground	Power window motor DOWN output	Ignition switch ON, power window switch OFF --> DOWN	Below 1 V --> 11 to 14 V
I1-2 (SD) - Body ground	P - Body ground	Power window motor DOWN input (Remote)	Ignition switch ON, power window master switch OFF --> DOWN (Remote)	Below 1 V --> 11 to 14 V
I1-4 (U) - Body ground	R - Body ground	Power window motor UP output	Ignition switch ON, power window switch OFF --> UP	Below 1 V --> 11 to 14 V
I1-5 (SU) - Body ground	W - Body ground	Power window motor UP input (Remote)	Ignition switch ON, power window master switch OFF --> UP (Remote)	Below 1 V --> 11 to 14 V

If the result is not as specified, there may be a malfunction on the wire harness side.

- Reconnect the I1 front power window regulator switch assembly RH connector.

3. CHECK REAR POWER WINDOW REGULATOR SWITCH ASSEMBLY LH

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Fig. 8: Identifying Rear Power Window Regulator Switch Assembly LH Connector Terminals
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- Disconnect the H1 rear power window regulator switch assembly LH connector.
- Measure the voltage of the wire harness side connector.

Standard voltage:

STANDARD VOLTAGE SPECIFICATIONS

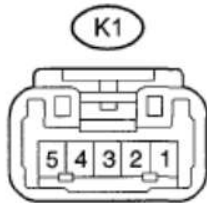
Terminal No. (Symbols)	Wiring Color	Terminal Description	Condition	Specified Condition
H1-3 (B) - Body ground	SB - Body ground	Ignition power supply	Ignition switch OFF	Below 1 V
H1-3 (B) - Body ground	SB - Body ground	Ignition power supply	Ignition switch ON	11 to 14 V
H1-4 (U) - Body ground	Y - Body ground	Power window motor UP output	Ignition switch ON, power window switch OFF --> UP	Below 1 V --> 11 to 14 V
H1-1 (D) - Body ground	B - Body ground	Power window motor DOWN output	Ignition switch ON, power window switch OFF --> DOWN	Below 1 V --> 11 to 14 V
H1-5 (SU) - Body ground	R - Body ground	Power window motor UP input (Remote)	Ignition switch ON, power window master switch OFF --> UP (Remote)	Below 1 V --> 11 to 14 V
H1-2 (SD) - Body ground	G - Body ground	Power window motor DOWN input (Remote)	Ignition switch ON, power window master switch OFF --> DOWN (Remote)	Below 1 V --> 11 to 14 V

If the result is not as specified, there may be a malfunction on the wire harness side.

- Reconnect the H1 rear power window regulator switch assembly LH connector.

4. CHECK REAR POWER WINDOW REGULATOR SWITCH ASSEMBLY RH

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Fig. 9: Identifying Rear Power Window Regulator Switch Assembly RH Connector Terminals
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- Disconnect the K1 rear power window regulator switch assembly RH connector.
- Measure the voltage of the wire harness side connector.

Standard voltage:

STANDARD VOLTAGE SPECIFICATIONS

Terminal No. (Symbols)	Wiring Color	Terminal Description	Condition	Specified Condition
K1-3 (B) - Body ground	SB - Body ground	Ignition power supply	Ignition switch OFF	Below 1 V
K1-3 (B) - Body ground	SB - Body ground	Ignition power supply	Ignition switch ON	11 to 14 V
K1-4 (U) - Body ground	Y - Body ground	Power window motor UP output	Ignition switch ON, power window switch OFF --> UP	Below 1 V --> 11 to 14 V
K1-1 (D) - Body ground	B - Body ground	Power window motor DOWN output	Ignition switch ON, power window switch OFF --> DOWN	Below 1 V --> 11 to 14 V
K1-5 (SU) - Body ground	R - Body ground	Power window motor UP input (Remote)	Ignition switch ON, power window master switch OFF --> UP (Remote)	Below 1 V --> 11 to 14 V
K1-2 (SD) - Body ground	G - Body ground	Power window motor DOWN input (Remote)	Ignition switch ON, power window master switch OFF --> DOWN (Remote)	Below 1 V --> 11 to 14 V

If the result is not as specified, there may be a malfunction on the wire harness side.

- Reconnect the K1 rear power window regulator switch assembly RH connector.

DATA LIST / ACTIVE TEST

1. READ DATA LIST

HINT:

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Using a Techstream to read the DATA LIST allows the values and states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the DATA LIST information early in troubleshooting is one way to save diagnostic time.

NOTE: In the table below, the values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

- a. Connect the Techstream to the DLC3.
- b. Turn the ignition switch ON and turn the tester ON.
- c. Enter the following menus: Body Electrical / Main Body / Data List.
- d. According to the display on the tester, read the "Data List".

Main Body:

MEASUREMENT ITEM/RANGE AND DIAGNOSTIC NOTE

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
D Door Courtesy SW	Driver side door courtesy light switch signal / ON or OFF	ON Driver door open OFF Driver door closed	-
P Door Courtesy SW	Front passenger side door courtesy light switch signal / ON or OFF	ON Front passenger door open OFF Front passenger door closed	-
RR Door Courtesy SW	Rear RH side door courtesy light switch signal / ON or OFF	ON Rear RH side door open OFF: Rear RH side door closed	-
RL Door Courtesy SW	Rear LH side door courtesy light switch signal / ON or OFF	ON Rear LH side door open OFF. Rear LH side door closed	-

2. PERFORM ACTIVE TEST

HINT:

Using a Techstream to perform ACTIVE TESTs allows relays, VSVs, actuators and other items to be operated without removing any parts. This non-intrusive functional inspection can be very useful because intermittent operation may be discovered before parts or wiring is disturbed. Performing ACTIVE TESTs early in troubleshooting is one way to save diagnostic time. DATA LIST information can be displayed while performing ACTIVE TESTs.

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- a. Connect the Techstream to the DLC3.
- b. Turn the ignition switch ON and turn the tester ON.
- c. Enter the following menus: Body Electrical / Main Body / Active Test.
- d. According to the display on the tester, perform the "Active Test".

Main Body:

MEASUREMENT ITEM/RANGE AND DIAGNOSTIC NOTE

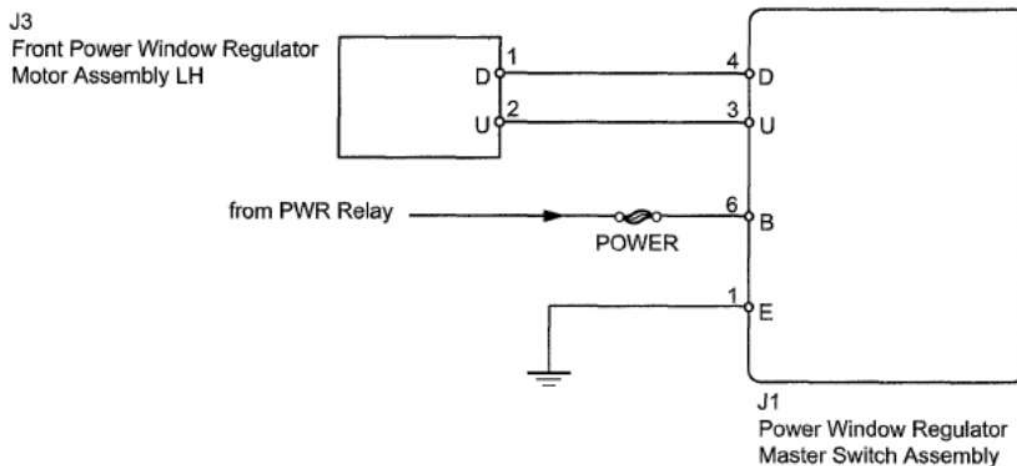
Tester Display	Test Part	Control Range	Diagnostic Note
IG OFF P/W Control Permission Output	Power window control permission output	ON or OFF	-

DRIVER SIDE POWER WINDOW DOES NOT OPERATE WITH POWER WINDOW MASTER SWITCH

DESCRIPTION

If the manual UP / DOWN and AUTO DOWN functions do not operate, a malfunction may exist in the power window regulator master switch, power window regulator motor or wire harness.

WIRING DIAGRAM



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Fig. 10: Driver Side Power Window Does Not Operate With Power Window Master Switch - Wiring Diagram

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

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1. CHECK HARNESS AND CONNECTOR (SWITCH INPUT POWER SUPPLY)

- a. Disconnect the J1 power window regulator master switch assembly connector.
- b. Turn the ignition switch ON.
- c. Measure the voltage of the wire harness side connector.

Standard voltage

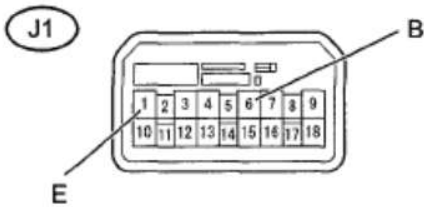
STANDARD VOLTAGE SPECIFICATIONS

Tester Connection	Switch Condition	Specified Condition
J1-6 (B) - J1-1 (E)	Ignition switch ON	11 to 14 V

- d. Reconnect the power window regulator master switch assembly connector.

NG: CHECK AND REPLACE POWER SOURCE AND WIRE HARNESS

Front view of wire harness connector:
(to Power Window Regulator Master
Switch Assembly)



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Fig. 11: Identifying J1 Power Window Regulator Master Switch Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

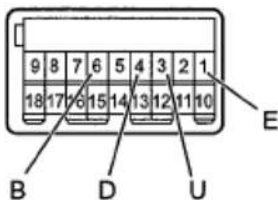
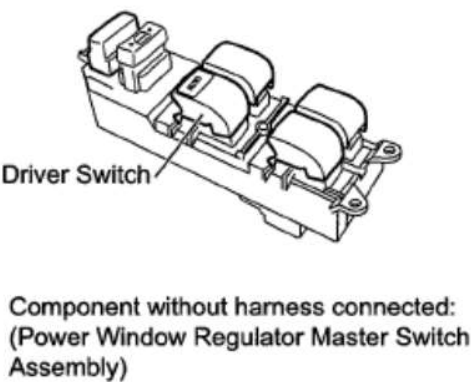
OK: Go to Next Step

2. INSPECT POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY

- a. Remove the power window regulator master switch assembly.
- b. Measure the resistance of the switch when the switch is operated.

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Fig. 12: Identifying Power Window Regulator Master Switch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard resistance

STANDARD VOLTAGE SPECIFICATIONS

Tester Connection	Window Lock Switch Condition	Power Window Switch Condition	Specified Condition
1 (E) - 4 (D) 3 (U) - 6 (B)	Always (ON / OFF)	UP	Below 1 ohms
1 (E) - 3 (U) 1 (E) - 4 (D)	Always (ON / OFF)	OFF	Below 1 ohms
1 (E) - 3 (U) 6 (B) - 4 (D)	Always (ON / OFF)	DOWN	Below 1 ohms
1 (E) - 3 (U) 6 (B) - 4 (D)	Always (ON / OFF)	AUTO DOWN	Below 1 ohms

- c. Reinstall the power window regulator master switch assembly.

NG: REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY (See REMOVAL)

OK: Go to Next Step

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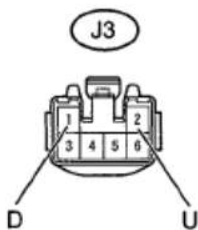
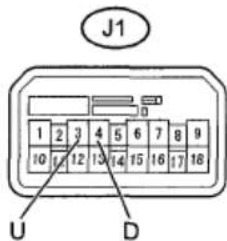
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3. CHECK HARNESS AND CONNECTOR (MASTER SWITCH - MOTOR (FRONT LH))

- a. Disconnect the J1 power window regulator master switch assembly connector.
- b. Disconnect the J3 front power window regulator motor assembly LH connector.

Front view of wire harness connector:
(to Power Window Regulator Master
Switch Assembly)

Front view of wire harness connector:
(to Front Power Window Regulator
Motor Assembly LH)



8163046E02

Fig. 13: Identifying J1 And J3 Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Measure the resistance of the wire harness side connectors.

Standard resistance

TESTER CONNECTION AND SPECIFIED CONDITION

Tester Connection	Condition	Specified Condition
J1-4 (D) - J3-1 (D)	Always	Below 1 ohms
J1-3 (U) - J3-2 (U)	Always	Below 1 ohms
J1-4 (D) or J3-1 (D) - Body ground	Always	10 kohms or higher
J1-3 (U) or J3-2 (U) - Body ground	Always	10 kohms or higher

- d. Reconnect the J1 power window regulator master switch assembly connector.
- e. Reconnect the J3 front power window regulator motor assembly LH connector.

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

OK : REPLACE FRONT POWER WINDOW REGULATOR MOTOR ASSEMBLY LH (See REMOVAL)

POWER WINDOWS DO NOT OPERATE AT ALL

DESCRIPTION

If none of the power windows operates, the power window regulator master switch may have no power or may be malfunctioning.

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WIRING DIAGRAM

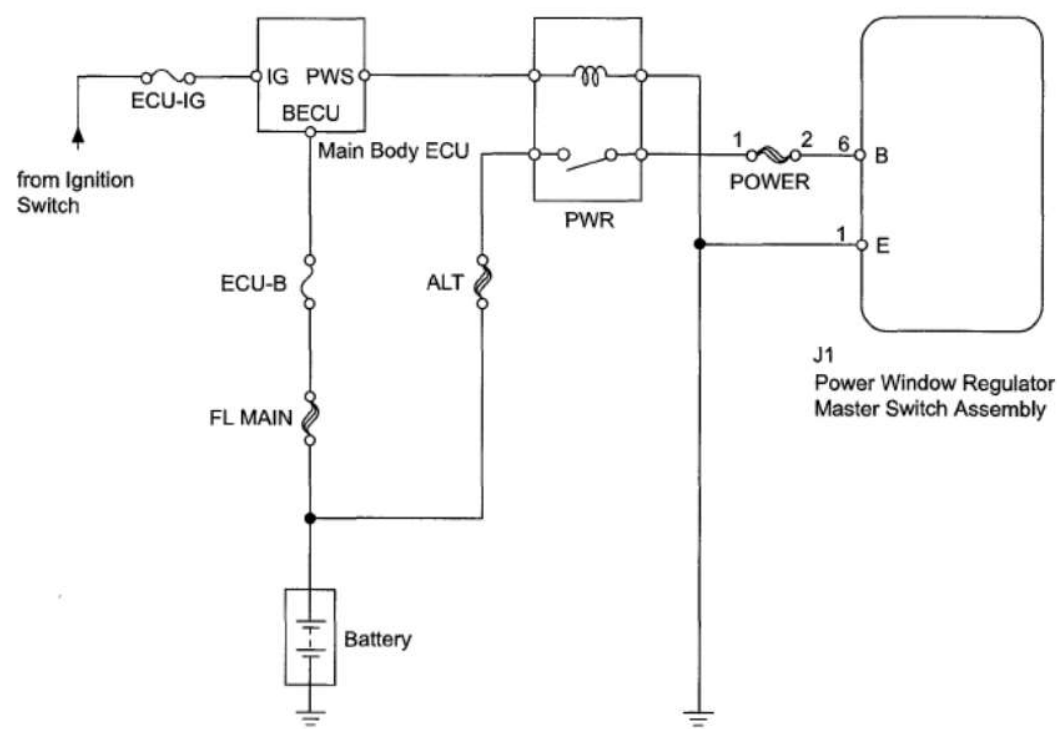


Fig. 14: Power Windows Do Not Operate At All - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

1. INSPECT FUSES (ECU-B, ECU-IG)
- a. Remove the ECU-B fuse from the engine room relay block.

b. Remove the ECU-IG fuse from the main body ECU.

c. Measure the resistance.

Standard resistance

TESTER CONNECTION AND SPECIFIED CONDITION

Tester Connection	Condition	Specified Condition
ECU-B fuse	Always	Below 1 ohms
ECU-IG fuse	Always	Below 1 ohms

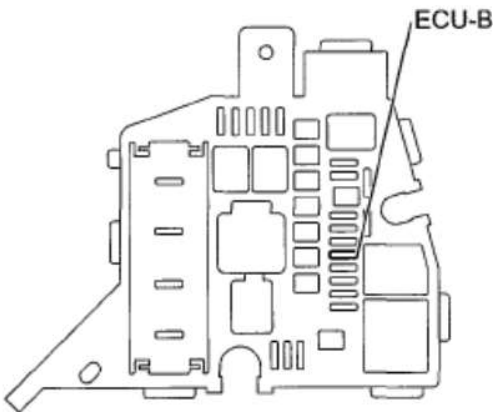
- d. Reinstall the fuses.

NG: REPLACE FUSE

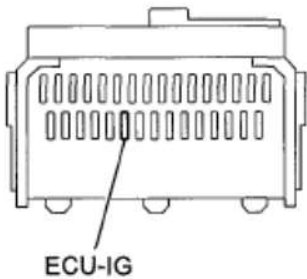
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Engine Room Relay Block:



Main Body ECU.



0 B128295E02

Fig. 15: Identifying ECU-B Fuse In Engine Room Relay Block
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to Next Step

2. INSPECT MAIN BODY ECU (PWR RELAY)
- a. Remove the POWER fuse from the main body ECU.

b. Turn the ignition switch ON.

c. Measure the voltage between the POWER fuse terminal of the main body ECU and body ground.

Standard voltage

TESTER CONNECTION AND SPECIFIED CONDITION

Tester Connection	Condition	Specified Conditions
POWER fuse terminal (1) - Body ground	Ignition switch ON	11 to 14 V

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d. Reinstall the POWER fuse.

NG: REPLACE MAIN BODY ECU (PWR RELAY)

Rear View of Main Body ECU:

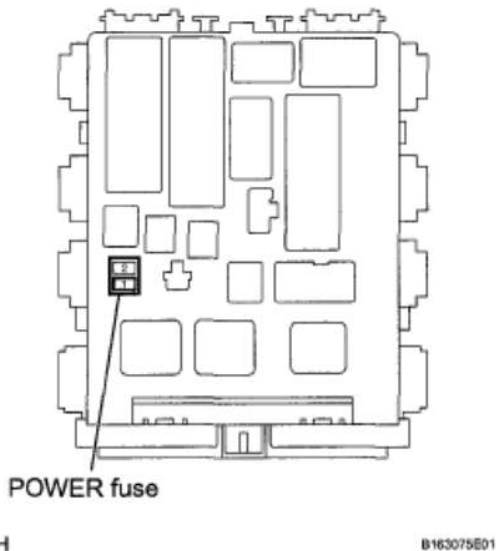


Fig. 16: Identifying POWER Fuse
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to Next Step

3. CHECK HARNESS AND CONNECTOR (POWER WINDOW MASTER SWITCH - BATTERY AND BODY GROUND)
- a. Disconnect the J1 power window regulator master switch assembly connector.
 - b. Measure the voltage of the wire harness side connector.

Standard voltage

TESTER CONNECTION AND SPECIFIED CONDITION		
Tester Connection	Switch Condition	Specified Condition
J1-6 (B) - Body ground	Ignition switch ON	11 to 14 V

- c. Measure the resistance of the wire harness side connector.

Standard resistance

TESTER CONNECTION AND SPECIFIED CONDITION	

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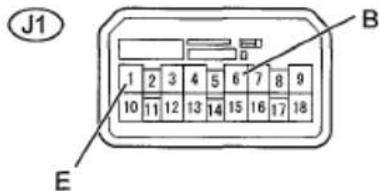
2008 ACCESSORIES AND EQUIPMENT Windshield/WindowGlass - xD

Tester Connection	Condition	Specified Condition
J1-1 (E) - Body ground	Always	Below 1 ohms

- d. Reconnect the J1 power window regulator master switch assembly connector.

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

Front view of wire harness connector:
(to Power Window Regulator Master
Switch Assembly)



B119966E08

Fig. 17: Identifying J1 Power Window Regulator Master Switch Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

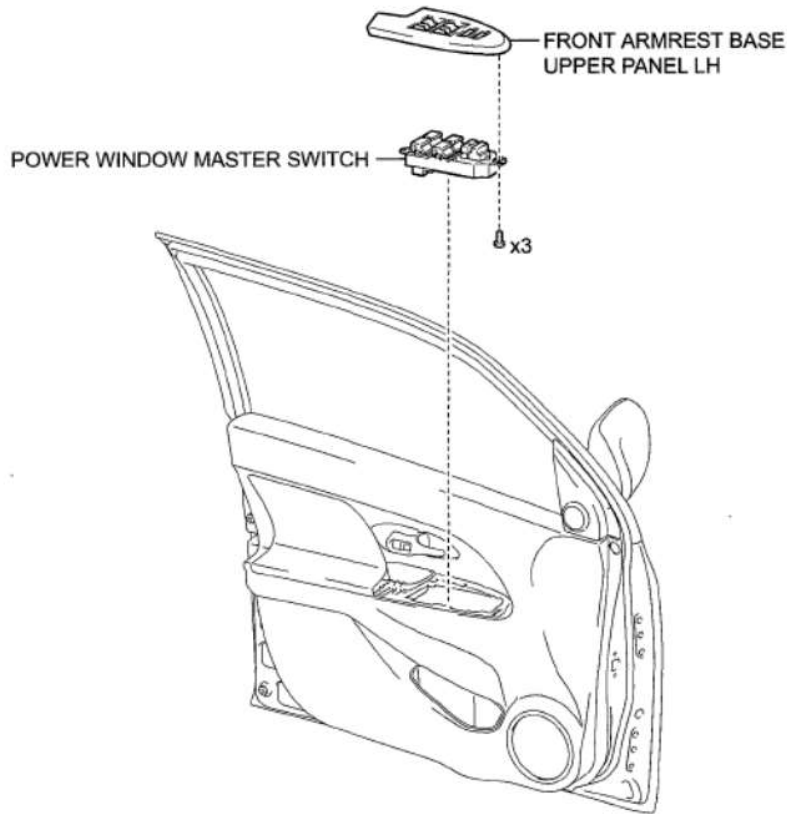
OK : REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY (See REMOVAL)

POWER WINDOW MASTER SWITCH

COMPONENTS

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Fig. 18: Identifying Power Window Master Switch Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. REMOVE FRONT ARMREST BASE UPPER PANEL LH

HINT:

Use the same procedure as for the RH side (See **DISASSEMBLY**).

2. REMOVE POWER WINDOW MASTER SWITCH

- Remove the 3 screws and the power window master switch.

INSPECTION

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2008 ACCESSORIES AND EQUIPMENT Windshield/WindowGlass - xD

1. INSPECT POWER WINDOW MASTER SWITCH
- a. Check the resistance.

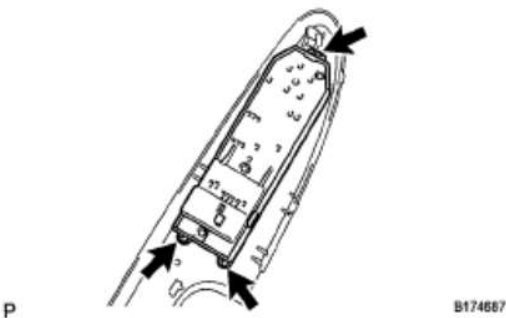


Fig. 19: Identifying Power Window Master Switch Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

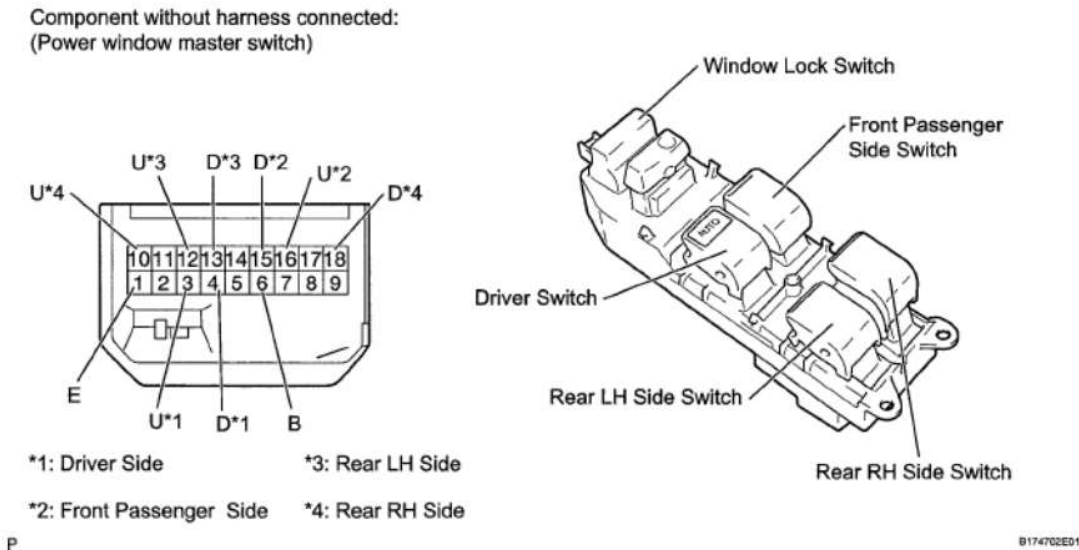


Fig. 20: Inspecting Power Window Master Switch
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. Measure the resistance according to the value(s) in the table below.

Standard resistance: Driver switch

TESTER CONNECTION AND SPECIFIED CONDITION

Tester Connection	Window Lock Switch Condition	Power Window Switch Condition	Specified Condition
3 (U) - 6 (B) 1 (E) - 4 (D)	Always (ON / OFF)	UP	Below 1 ohms
1 (E) - 3 (U)	Always (ON / OFF)	OFF	Below 1 ohms

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1 (E) - 4 (D)			
4 (D) - 6 (B) 1 (E) - 3 (U)	Always (ON / OFF)	DOWN MANUAL	Below 1 ohms
1 (E) - 3 (U) 4 (D) - 6 (B)	Always (ON / OFF)	DOWN AUTO	Below 1 ohms

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

Standard resistance: Front passenger side switch**TESTER CONNECTION AND SPECIFIED CONDITION**

Tester Connection	Window Lock Switch Condition	Power Window Switch Condition	Specified Condition
6 (B) - 16 (U) 1 (E) - 15 (D)	OFF	UP	Below 1 ohms
1 (E) - 16 (U) 1 (E) - 15 (D)	OFF	OFF	Below 1 ohms
6 (B) - 15 (D) 1 (E) - 16 (U)	OFF	DOWN	Below 1 ohms
6 (B) - 16 (U)	ON	UP	Below 1 ohms
1 (E) - 15 (D)	ON	UP	10 kohms or higher
15 (D) - 16 (U)	ON	OFF	Below 1 ohms
6 (B) - 15 (D)	ON	DOWN	Below 1 ohms
1 (E) - 15 (D)	ON	DOWN	10 kohms or higher

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

Standard resistance: Rear LH side switch**TESTER CONNECTION AND SPECIFIED CONDITION**

Tester Connection	Window Lock Switch Condition	Power Window Switch Condition	Specified Condition
6 (B) - 12 (U) 1 (E) - 13 (D)	OFF	UP	Below 1 ohms
1 (E) - 12 (U) 1 (E) - 13 (D)	OFF	OFF	Below 1 ohms
6 (B) - 13 (D) 1 (E) - 12 (U)	OFF	DOWN	Below 1 ohms
6 (B) - 12 (U)	ON	UP	Below 1 ohms
1 (E) - 13 (D)	ON	UP	10 kohms or higher
12 (U) - 13 (D)	ON	OFF	Below 1 ohms

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6 (B) - 13 (D)	ON	DOWN	Below 1 ohms
1 (E) - 12 (U)	ON	DOWN	10 kohms or higher

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

Standard resistance: Rear RH side switch**TESTER CONNECTION AND SPECIFIED CONDITION**

Tester Connection	Window Lock Switch Condition	Power Window Switch Condition	Specified Condition
6 (B) - 10 (U) 1 (E) - 18 (D)	OFF	UP	Below 1 ohms
1 (E) - 10 (U) 1 (E) - 18 (D)	OFF	OFF	Below 1 ohms
6 (B) - 18 (D) 1 (E) - 10 (U)	OFF	DOWN	Below 1 ohms
6 (B) - 10 (U)	ON	UP	Below 1 ohms
1 (E) - 18 (D)	ON	UP	10 kohms or higher
10 (U) - 18 (D)	ON	OFF	Below 1 ohms
6 (B) - 18 (D)	ON	DOWN	Below 1 ohms
1 (E) - 10 (U)	ON	DOWN	10 kohms or higher

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

b. Check the illumination operation.

1. Apply battery voltage to the power window master switch and check that the illumination comes on.

OK

MEASUREMENT CONDITION AND SPECIFIED CONDITION

Measurement Condition	Specified Condition
Battery positive (+) --> Terminal 6 (B) Battery negative (-) --> Terminal 1 (E)	Illumination comes on

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

INSTALLATION**1. INSTALL POWER WINDOW MASTER SWITCH**

- a. Install the power window master switch with the 3 screws.

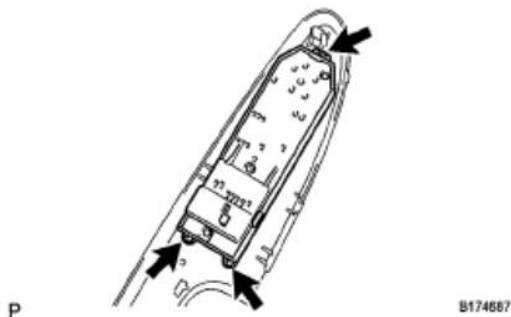
2008 Scion xD**2008 ACCESSORIES AND EQUIPMENT Windshield/WindowGlass - xD**

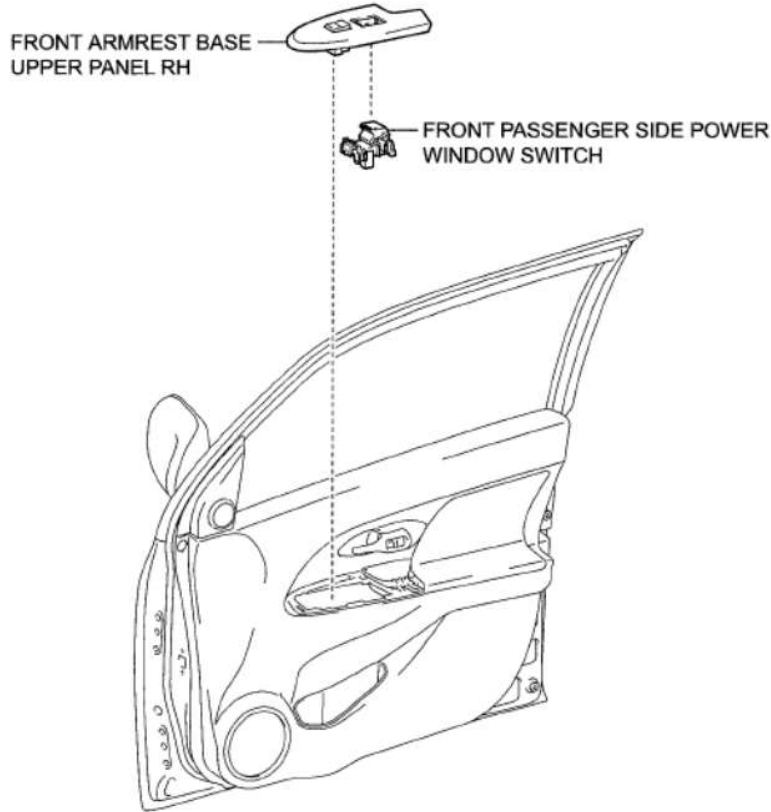
Fig. 21: Locating Power Window Master Switch Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. INSTALL FRONT ARMREST BASE UPPER PANEL LH

HINT:

Use the same procedure as for the RH side (See **REASSEMBLY**).

FRONT PASSENGER SIDE POWER WINDOW SWITCH**COMPONENTS**

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Fig. 22: Identifying Front Passenger Side Power Window Switch Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. **REMOVE FRONT ARMREST BASE UPPER PANEL RH** (See **DISASSEMBLY**)
2. **REMOVE FRONT PASSENGER SIDE POWER WINDOW SWITCH**
 - a. Using a screwdriver with its tip wrapped in protective tape, disengage the 2 claws and remove the power window switch.

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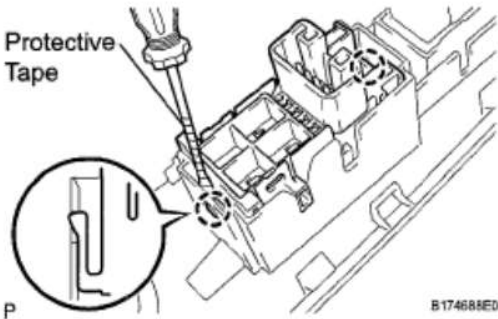


Fig. 23: Removing Power Window Switch
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

1. INSPECT FRONT PASSENGER SIDE POWER WINDOW SWITCH

- a. Check the resistance.
 - 1. Measure the resistance according to the value(s) in the table below.

Standard resistance

TESTER CONNECTION AND SPECIFIED CONDITION

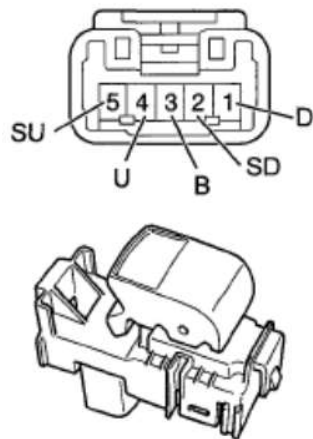
Tester Connection	Switch Connection	Specified Condition
1 (D) - 2 (SD) 3 (B) - 4 (U)	UP	Below 1 ohms
1 (D) - 2 (SD) 4 (U) - 5 (SU)	OFF	Below 1 ohms
1 (D) - 3 (B) 4 (U) - 5 (SU)	DOWN	Below 1 ohms

If the result is not as specified, replace the power window switch.

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Component without harness connected:
(Front passenger side power window switch)



Y

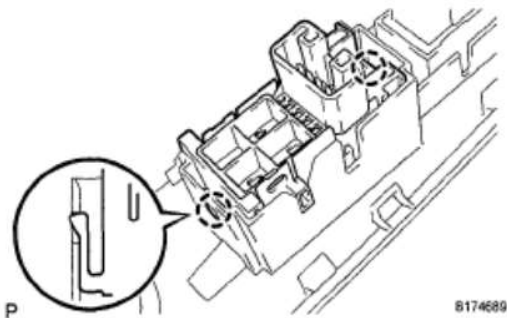
B171597E01

Fig. 24: Identifying Front Passenger Side Power Window Switch Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. INSTALL FRONT PASSENGER SIDE POWER WINDOW SWITCH

- Engage the 2 claws and install the power window switch.



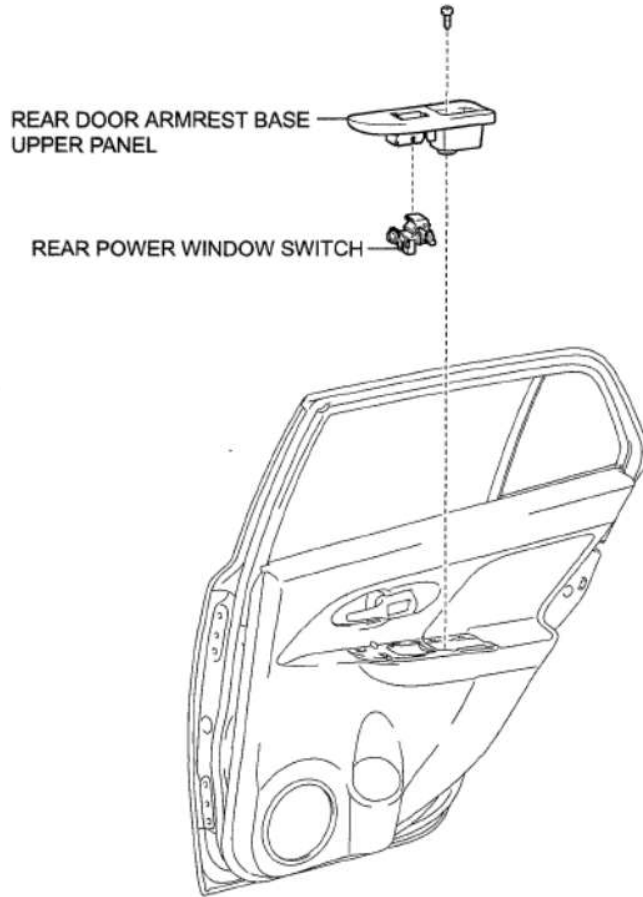
B174689

Fig. 25: Identifying Power Window Switch Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. INSTALL FRONT ARMREST BASE UPPER PANEL RH (See REASSEMBLY)

REAR POWER WINDOW SWITCH

COMPONENTS

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P

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Fig. 26: Identifying Rear Power Window Switch Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL**HINT:**

- Use the same procedure for both the RH and LH side.
- The procedure described below is for the RH side.

1. **REMOVE REAR DOOR ARMREST BASE UPPER PANEL** (See **DISASSEMBLY**)
2. **REMOVE REAR POWER WINDOW SWITCH**
 - a. Using a screwdriver with its tip wrapped in protective tape, disengage the 2 claws and remove the

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rear power window switch.

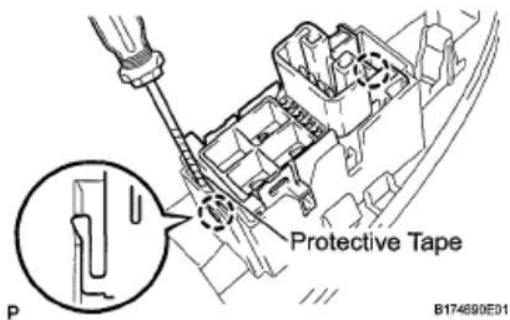


Fig. 27: Removing Rear Power Window Switch
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

1. INSPECT REAR POWER WINDOW SWITCH

- a. Check the resistance.
 - 1. Measure the resistance according to the value(s) in the table below.

Standard resistance

TESTER CONNECTION AND SPECIFIED CONDITION

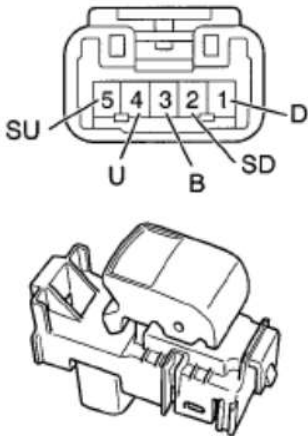
Tester Connection	Switch Connection	Specified Condition
1 (D) - 2 (SD) 3 (B) - 4 (U)	UP	Below 1 ohms
1 (D) - 2 (SD) 4 (U) - 5 (SU)	OFF	Below 1 ohms
1 (D) - 3 (B) 4 (U) - 5 (SU)	DOWN	Below 1 ohms

If the result is not as specified, replace the rear power window switch.

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Component without harness connected
(Rear power window switch)



Y

8171697E02

Fig. 28: Identifying Rear Power Window Switch Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

- 1. INSTALL REAR POWER WINDOW SWITCH
 - a. Engage the 2 claws and install the rear power window switch.

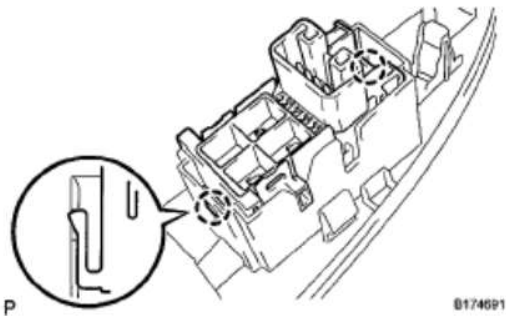


Fig. 29: Identifying Rear Power Window Switch Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- 2. INSTALL REAR DOOR ARMREST BASE UPPER PANEL (See **REASSEMBLY**)

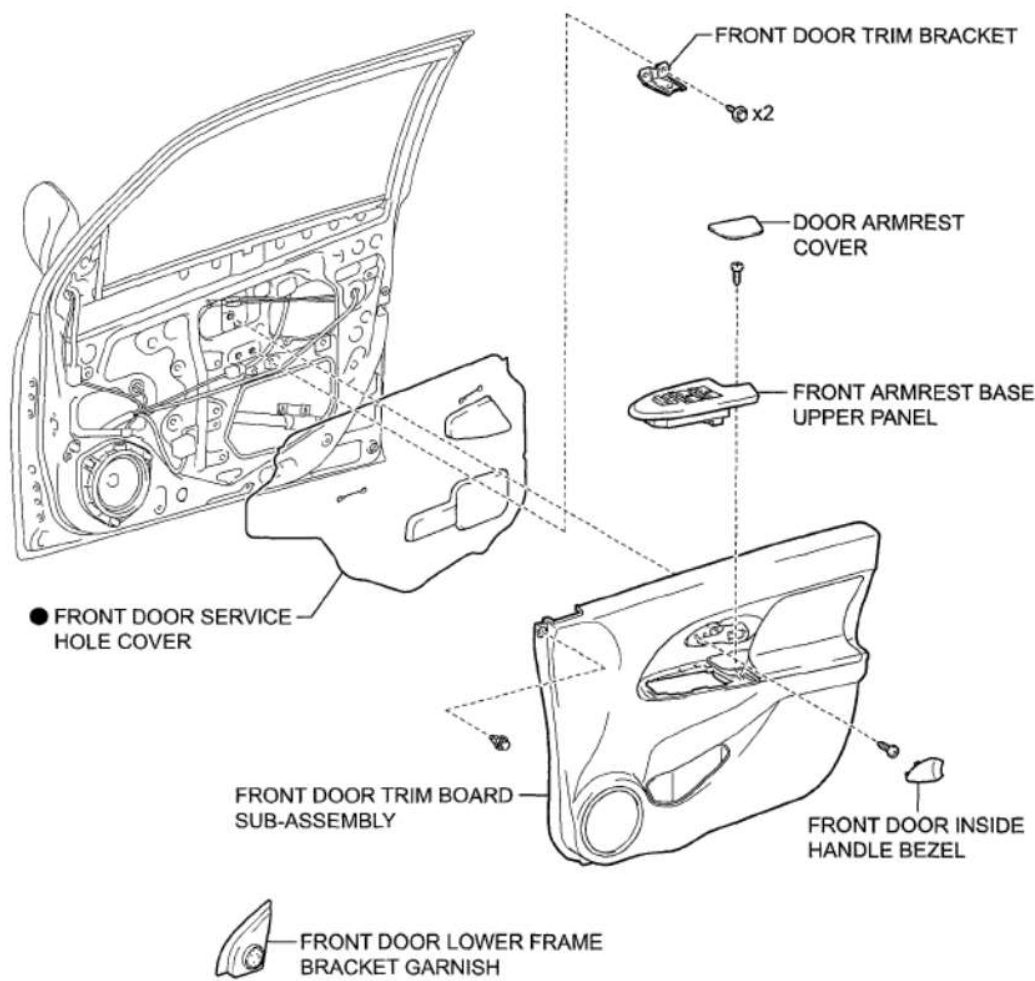
POWER WINDOW REGULATOR MOTOR

COMPONENTS

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2008 ACCESSORIES AND EQUIPMENT Windshield/WindowGlass - xD

for Front Side:



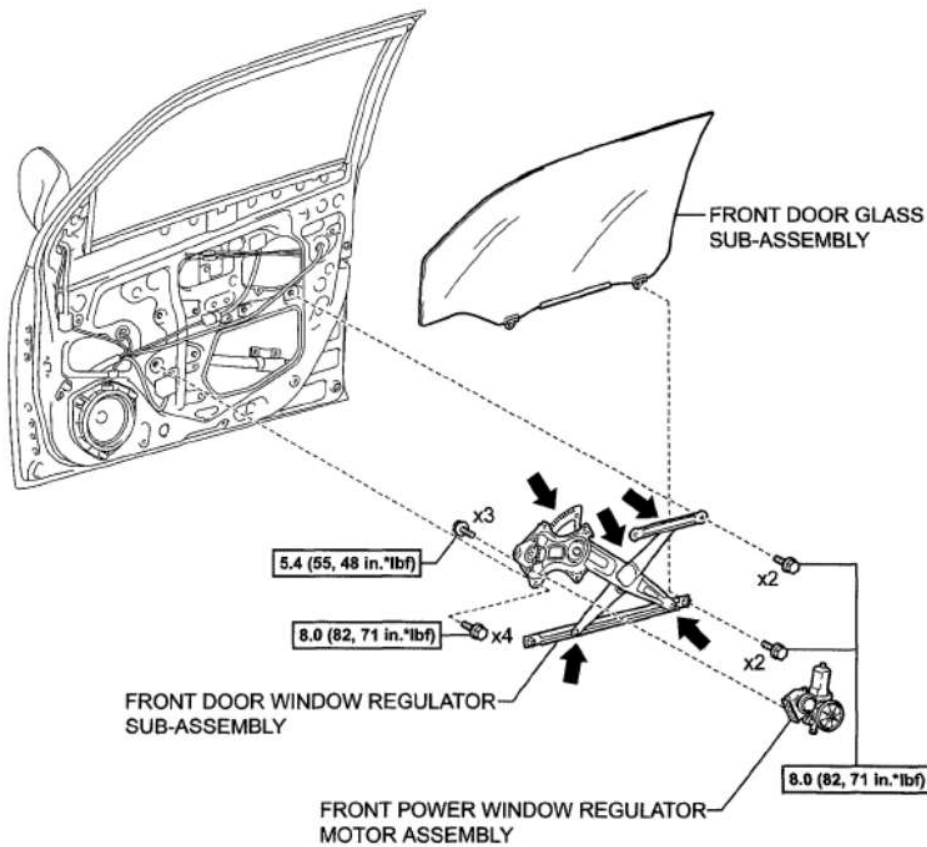
P B174083E01

Fig. 30: Identifying Power Window Regulator Motor Components (1 Of 4)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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2008 ACCESSORIES AND EQUIPMENT Windshield/WindowGlass - xD

for Front Side:



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

← MP Grease

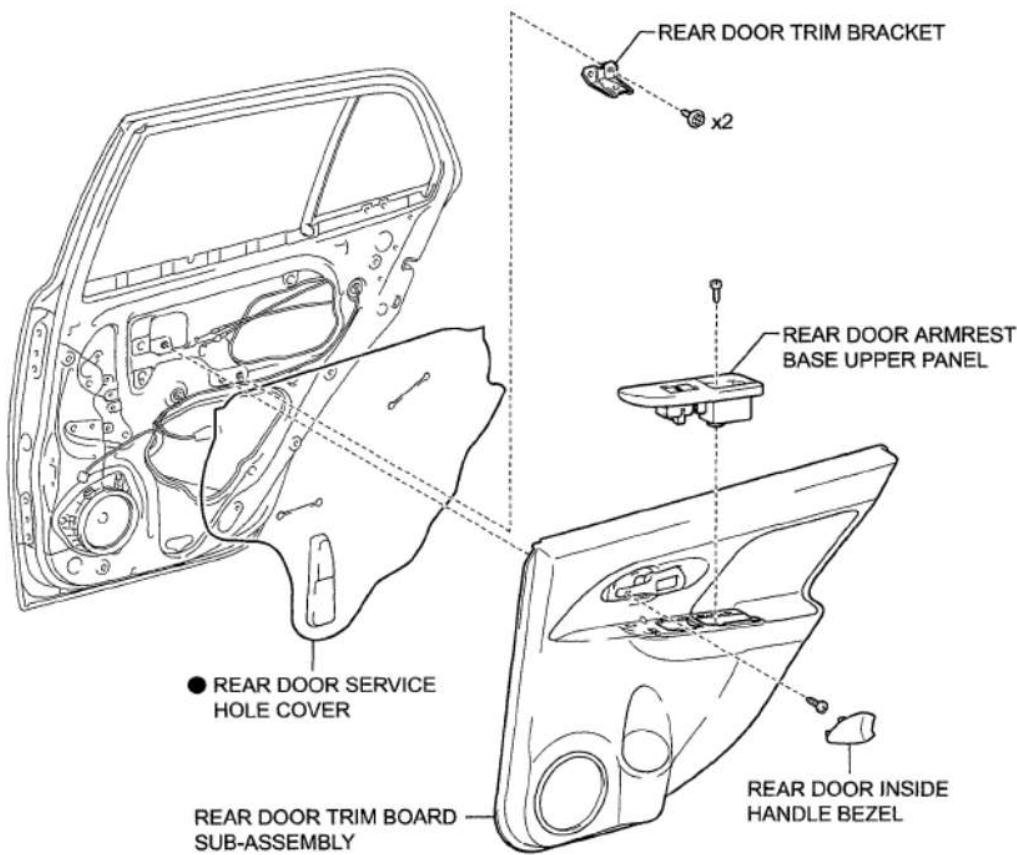
P 8176684E01

Fig. 31: Identifying Power Window Regulator Motor Components With Torque Specifications (2 Of 4)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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for Rear Side:



● Non-reusable part

P B174065E01

Fig. 32: Identifying Power Window Regulator Motor Components (3 Of 4)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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for Rear Side:

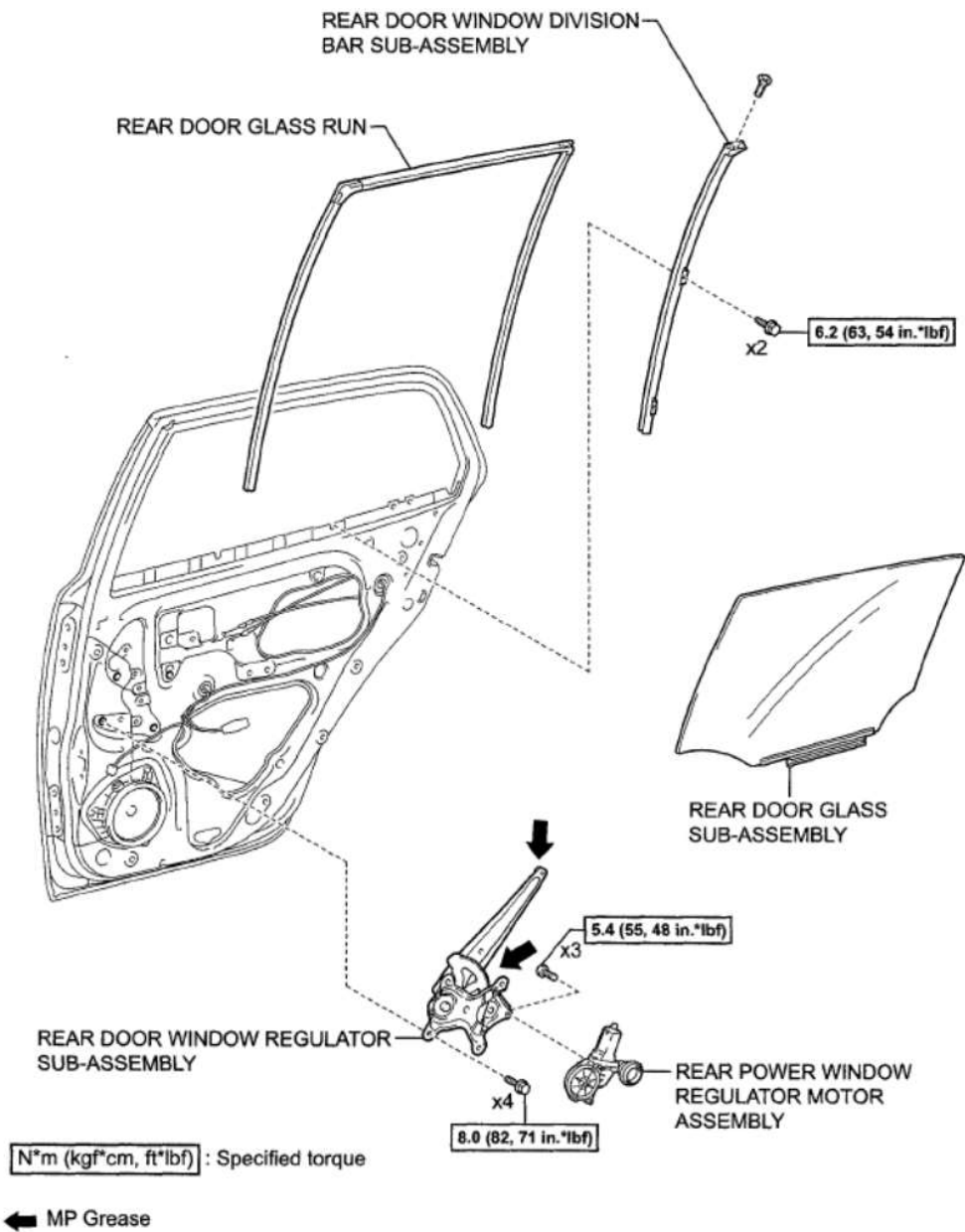


Fig. 33: Identifying Power Window Regulator Motor Components With Torque Specifications (4 Of 4)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ON-VEHICLE INSPECTION

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1. INSPECT FRONT POWER WINDOW REGULATOR MOTOR ASSEMBLY LH

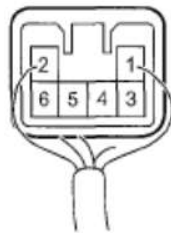
- a. Inspect PTC operation inside the power window regulator motor.

NOTE: The work must be performed with the power window regulator and door glass installed on the vehicle.

1. Connect an electrical tester DC 400 A probe to the wire harness of terminal 1.

NOTE: Match the arrow mark on the probe with the direction of the current flow.

Component with harness connected
(Front power window regulator motor
assembly LH)



B194428E08

Fig. 34: Identifying Front Power Window Regulator Motor Assembly LH Connector Terminals

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. Fully close the door glass by pressing the power window UP switch. Wait for approximately 60 seconds.
3. Continue to press the power window UP switch and measure how long it takes for the electrical current to change from a range of 16 to 28 A to approximately 1 A (Inspection of current shut-off).

Standard: 4 to 90 seconds

4. Check that the door glass moves downward when the power window DOWN switch is pressed.

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

2. INSPECT FRONT POWER WINDOW REGULATOR MOTOR ASSEMBLY RH

- a. Inspect PTC operation inside the power window regulator motor.

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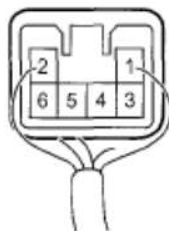
2008 ACCESSORIES AND EQUIPMENT Windshield/WindowGlass - xD

NOTE: The work must be performed with the power window regulator and door glass installed on the vehicle.

1. Connect an electrical tester DC 400 A probe to the wire harness of terminal 2.

NOTE: Match the arrow mark on the probe with the direction of the current flow.

Component with harness connected:
(Front power window regulator motor assembly RH)



B1B4428E09

Fig. 35: Identifying Front Power Window Regulator Motor Assembly RH Connector Terminals

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. Fully close the door glass by pressing the power window UP switch. Wait for approximately 60 seconds.
3. Continue to press the power window UP switch and measure how long it takes for the electrical current to change from a range of 16 to 28 A to approximately 1 A (Inspection of current shut-off).

Standard: 4 to 90 seconds

4. Check that the door glass moves downward when the power window DOWN switch is pressed.

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

3. INSPECT REAR POWER WINDOW REGULATOR MOTOR ASSEMBLY LH

- a. Inspect PTC operation inside the power window regulator motor.

NOTE: The work must be performed with the power window regulator and door glass installed on the vehicle.

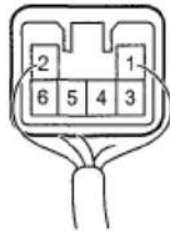
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2008 ACCESSORIES AND EQUIPMENT Windshield/WindowGlass - xD

1. Connect an electrical tester DC 400 A probe to the wire harness of terminal 1.

NOTE: Match the arrow mark of the probe with the direction of the current flow.

Component with harness connected:
(Rear power window regulator motor
assembly LH)



B164428E10

Fig. 36: Identifying Rear Power Window Regulator Motor Assembly LH Connector Terminals

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. Fully close the door glass by pressing the power window UP switch. Wait for approximately 60 seconds.
3. Continue to press the power window UP switch and measure how long it takes for the electrical current to change from a range of 16 to 28 A to approximately 1 A (Inspection of current shut-off).

Standard: 4 to 90 seconds

4. Check that the door glass moves downward when the power window DOWN switch is pressed.

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

4. INSPECT REAR POWER WINDOW REGULATOR MOTOR ASSEMBLY RH

- a. Inspect PTC operation inside the power window regulator motor.

NOTE: The work must be performed with the power window regulator and door glass installed on the vehicle.

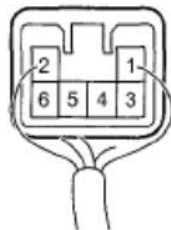
1. Connect an electrical tester DC 400 A probe to the wire harness of terminal 2.

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NOTE: Match the arrow mark of the probe with the direction of the current flow.

Component with harness connected:
(Rear power window regulator motor assembly RH)



B164428E11

Fig. 37: Identifying Rear Power Window Regulator Motor Assembly RH Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. Fully close the door glass by pressing the power window UP switch. Wait for approximately 60 seconds.
3. Continue to press the power window UP switch and measure how long it takes for the electrical current to change from a range of 16 to 28 A to approximately 1 A (Inspection of current shut-off).

Standard: 4 to 90 seconds

4. Check that the door glass moves downward when the power window DOWN switch is pressed.

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

REMOVAL

HINT:

- Use the same procedure for both the RH and LH sides.
- The procedure described below is for the RH side.

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
2. **REMOVE FRONT ARMREST BASE UPPER PANEL** (See **DISASSEMBLY**)
3. **REMOVE FRONT DOOR LOWER FRAME BRACKET GARNISH** (See **DISASSEMBLY**)

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2008 ACCESSORIES AND EQUIPMENT Windshield/WindowGlass - xD

4. REMOVE FRONT DOOR INSIDE HANDLE BEZEL (See DISASSEMBLY)
5. REMOVE FRONT DOOR TRIM BOARD SUB-ASSEMBLY (See DISASSEMBLY)
6. REMOVE FRONT DOOR TRIM BRACKET (See DISASSEMBLY)
7. REMOVE FRONT DOOR SERVICE HOLE COVER (See DISASSEMBLY)
8. REMOVE FRONT DOOR GLASS SUB-ASSEMBLY (See DISASSEMBLY)
9. REMOVE FRONT DOOR WINDOW REGULATOR SUB-ASSEMBLY (See DISASSEMBLY)
10. REMOVE FRONT POWER WINDOW REGULATOR MOTOR ASSEMBLY
 - a. Using "TORX" socket wrench T25, remove the 3 screws and the power window regulator motor.

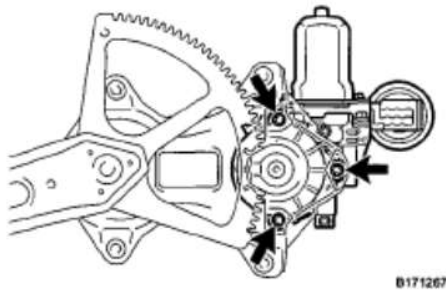


Fig. 38: Locating Power Window Regulator Motor Screws
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. REMOVE REAR DOOR ARMREST BASE UPPER PANEL (See DISASSEMBLY)
12. REMOVE REAR DOOR INSIDE HANDLE BEZEL (See DISASSEMBLY)
13. REMOVE REAR DOOR TRIM BOARD SUB-ASSEMBLY (See DISASSEMBLY)
14. REMOVE REAR DOOR TRIM BRACKET (See DISASSEMBLY)
15. REMOVE REAR DOOR SERVICE HOLE COVER (See DISASSEMBLY)
16. REMOVE REAR DOOR GLASS RUN (See DISASSEMBLY)
17. REMOVE REAR DOOR WINDOW DIVISION BAR SUB-ASSEMBLY
 - a. Detach the rear window weatherstrip so that the screw can be removed from the upper section of the rear door window division bar.

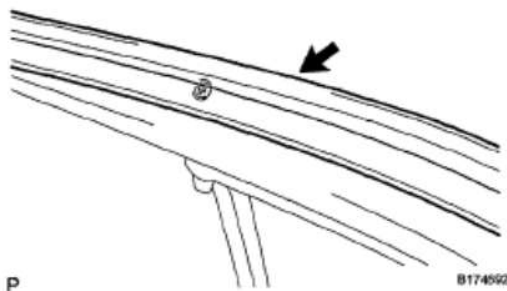


Fig. 39: Locating Upper Section Of Rear Door Window Division Bar
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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- b. Remove the 2 bolts, screw and rear door window division bar.

NOTE: Do not drop or damage the rear door window division bar when removing the bolts and screw.

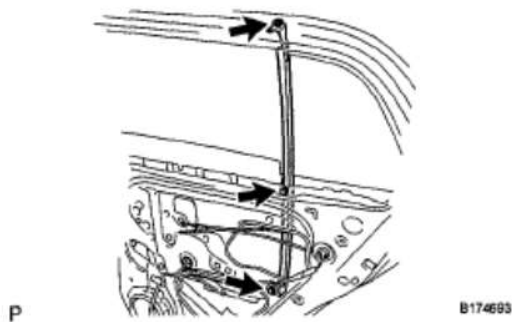


Fig. 40: Locating Bolts, Screw And Rear Door Window Division Bar
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

18. REMOVE REAR DOOR GLASS SUB-ASSEMBLY (See DISASSEMBLY)
19. REMOVE REAR DOOR WINDOW REGULATOR SUB-ASSEMBLY (See DISASSEMBLY)
20. REMOVE REAR POWER WINDOW REGULATOR MOTOR ASSEMBLY
 - a. Using "TORX" socket wrench T25, remove the 3 screws and the power window regulator motor.

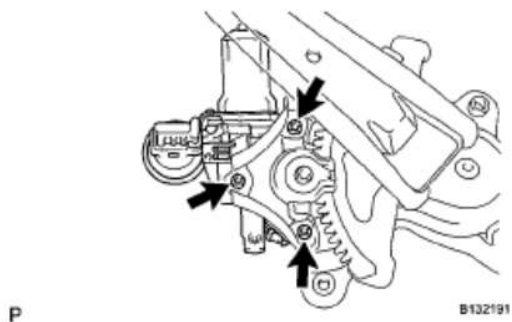


Fig. 41: Locating Power Window Regulator Motor Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

1. INSPECT FRONT POWER WINDOW REGULATOR MOTOR ASSEMBLY LH

- a. Check the operation of the regulator motor.
 1. Apply battery voltage to the regulator motor and check the operation of the regulator motor.

OK

MEASUREMENT CONDITION AND SPECIFIED CONDITION

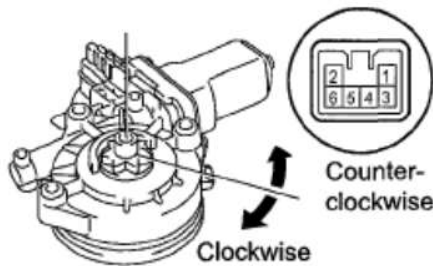
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Measurement condition	Specified Condition
Battery positive (+) --> Terminal 2 Battery negative (-) --> Terminal 1	Motor gear rotates clockwise
Battery positive (+) --> Terminal 1 Battery negative (-) --> Terminal 2	Motor gear rotates counterclockwise

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

Component without harness connected:
(Front power window regulator motor
assembly LH)



B171735E04

Fig. 42: Inspecting Front Power Window Regulator Motor Assembly LH
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. INSPECT FRONT POWER WINDOW REGULATOR MOTOR ASSEMBLY RH
- a. Check the operation of the regulator motor.
1. Apply battery voltage to the regulator motor and check the operation of the regulator motor.

OK

MEASUREMENT CONDITION AND SPECIFIED CONDITION

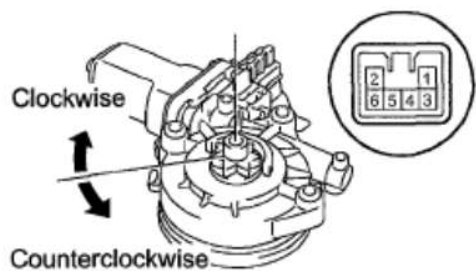
Measurement Condition	Specified Condition
Battery position (+) --> Terminal 1 Battery negative (-) --> Terminal 2	Motor gear rotates clockwise
Battery position (+) --> Terminal 2 Battery negative (-) --> Terminal 1	Motor gear rotates counterclockwise

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

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Componet without harness connected:
(Front power window regulator motor
assembly RH)



B171738E04

Fig. 43: Inspecting Front Power Window Regulator Motor Assembly RH
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. INSPECT REAR POWER WINDOW REGULATOR MOTOR ASSEMBLY LH

- a. Check the operation of the regulator motor.
 - 1. Apply battery voltage to the regulator motor and check the operation of the regulator motor.

OK

MEASUREMENT CONDITION AND SPECIFIED CONDITION

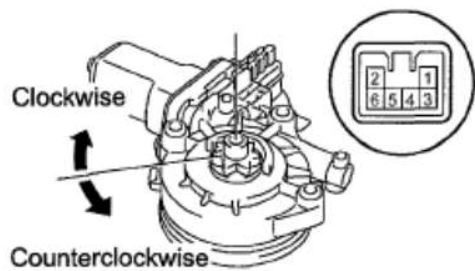
Measurement Condition	Specified Condition
Battery position (+) --> Terminal 1 Battery negative (-) --> Terminal 2	Motor gear rotates clockwise
Battery position (+) --> Terminal 2 Battery negative (-) --> Terminal 1	Motor gear rotates counterclockwise

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

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Componet without harness connected:
(Rear power window regulator motor
assembly LH)



B17173BE05

Fig. 44: Inspecting Rear Power Window Regulator Motor Assembly LH
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. INSPECT REAR POWER WINDOW REGULATOR MOTOR ASSEMBLY RH
- a. Check the operation of the regulator motor.
1. Apply battery voltage to the regulator motor and check the operation of the regulator motor.

OK

MEASUREMENT CONDITION AND SPECIFIED CONDITION

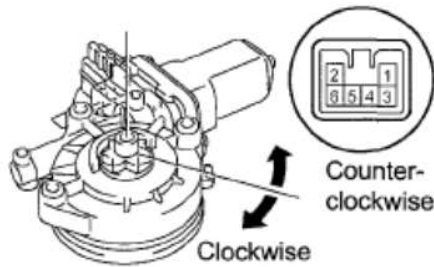
Measurement condition	Specified Condition
Battery positive (+) --> Terminal 2 Battery negative (-) --> Terminal 1	Motor gear rotates clockwise
Battery positive (+) --> Terminal 1 Battery negative (-) --> Terminal 2	Motor gear rotates counterclockwise

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

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Component without harness connected:
(Rear power window regulator motor
assembly RH)



B171736E05

Fig. 45: Inspecting Rear Power Window Regulator Motor Assembly RH
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. INSTALL REAR POWER WINDOW REGULATOR MOTOR ASSEMBLY

- Apply MP grease to the sliding and rotating areas of the regulator motor.
- Using "TORX" socket wrench T25, install the front power window regulator motor assembly with the 3 screws.

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

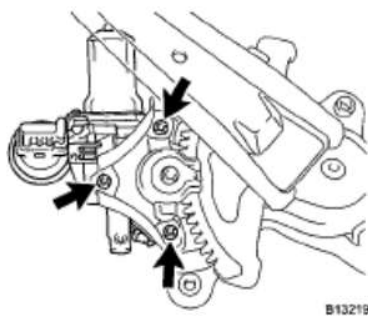


Fig. 46: Locating Front Power Window Regulator Motor Assembly Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- INSTALL REAR DOOR WINDOW REGULATOR SUB-ASSEMBLY (See REASSEMBLY)
- INSTALL REAR DOOR GLASS SUB-ASSEMBLY (See REASSEMBLY)
- INSTALL REAR DOOR WINDOW DIVISION BAR SUB-ASSEMBLY
 - Install the rear door window division bar with the 2 bolts and screw.

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Torque: 6.2 N*m (63 kgf*cm, 54 in.*lbf)

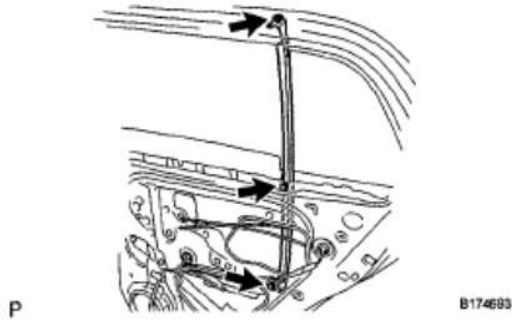


Fig. 47: Locating Rear Door Window Division Bar With Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Install the rear door weatherstrip.

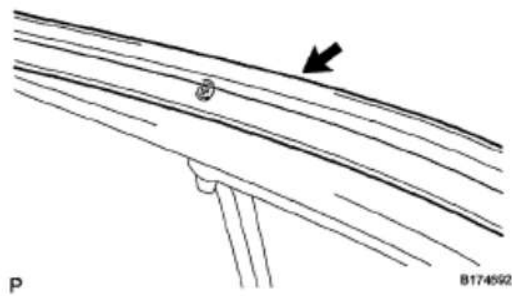


Fig. 48: Locating Rear Door Weatherstrip
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **INSTALL REAR DOOR GLASS RUN** (See **REASSEMBLY**)
6. **INSTALL REAR DOOR SERVICE HOLE COVER** (See **REASSEMBLY**)
7. **INSTALL REAR DOOR TRIM BRACKET** (See **REASSEMBLY**)
8. **INSTALL REAR DOOR TRIM BOARD SUB-ASSEMBLY** (See **REASSEMBLY**)
9. **INSTALL REAR DOOR INSIDE HANDLE BEZEL** (See **REASSEMBLY**)
10. **INSTALL REAR DOOR ARMREST BASE UPPER PANEL** (See **REASSEMBLY**)
11. **INSTALL FRONT POWER WINDOW REGULATOR MOTOR ASSEMBLY**
 - a. Apply MP grease to the sliding and rotating areas of the regulator motor.
 - b. Using "TORX" socket wrench T25, install the front power window regulator motor assembly with the 3 screws.

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

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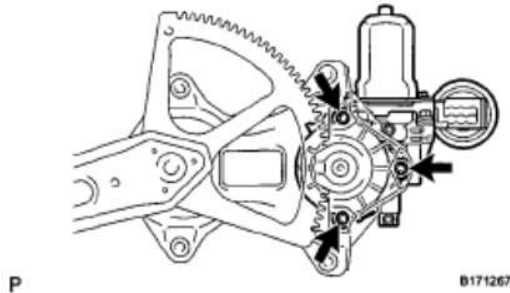


Fig. 49: Installing Front Power Window Regulator Motor Assembly With Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. INSTALL FRONT DOOR WINDOW REGULATOR SUB-ASSEMBLY (See REASSEMBLY)
13. INSTALL FRONT DOOR GLASS SUB-ASSEMBLY (See REASSEMBLY)
14. INSTALL FRONT DOOR SERVICE HOLE COVER (See REASSEMBLY)
15. INSTALL FRONT DOOR TRIM BRACKET (See REASSEMBLY)
16. INSTALL FRONT DOOR TRIM BOARD SUB-ASSEMBLY (See REASSEMBLY)
17. INSTALL FRONT DOOR INSIDE HANDLE BEZEL (See REASSEMBLY)
18. INSTALL FRONT DOOR LOWER FRAME BRACKET GARNISH (See REASSEMBLY)
19. INSTALL FRONT ARMREST BASE UPPER PANEL (See REASSEMBLY)
20. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

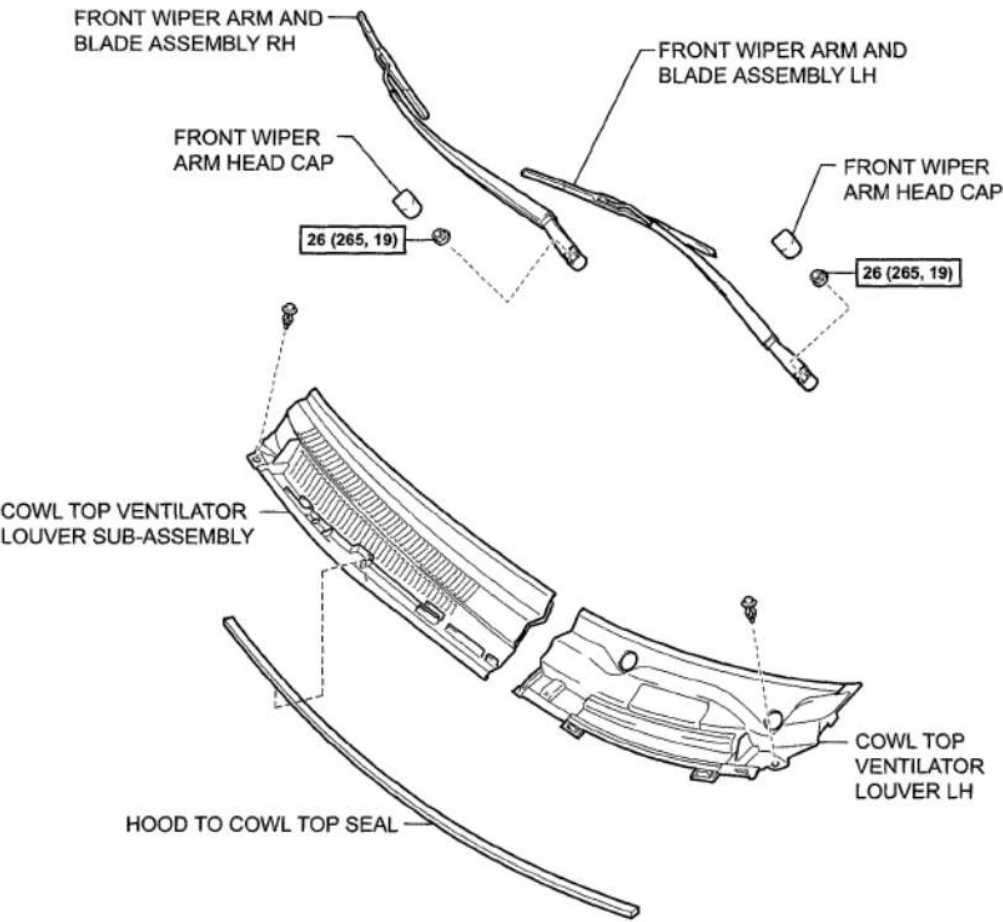
Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

WINDSHIELD GLASS

COMPONENTS

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[N*m (kgf*cm, ft*lb)] : Specified torque

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Fig. 50: Identifying Windshield Glass Components With Torque Specifications (1 Of 4)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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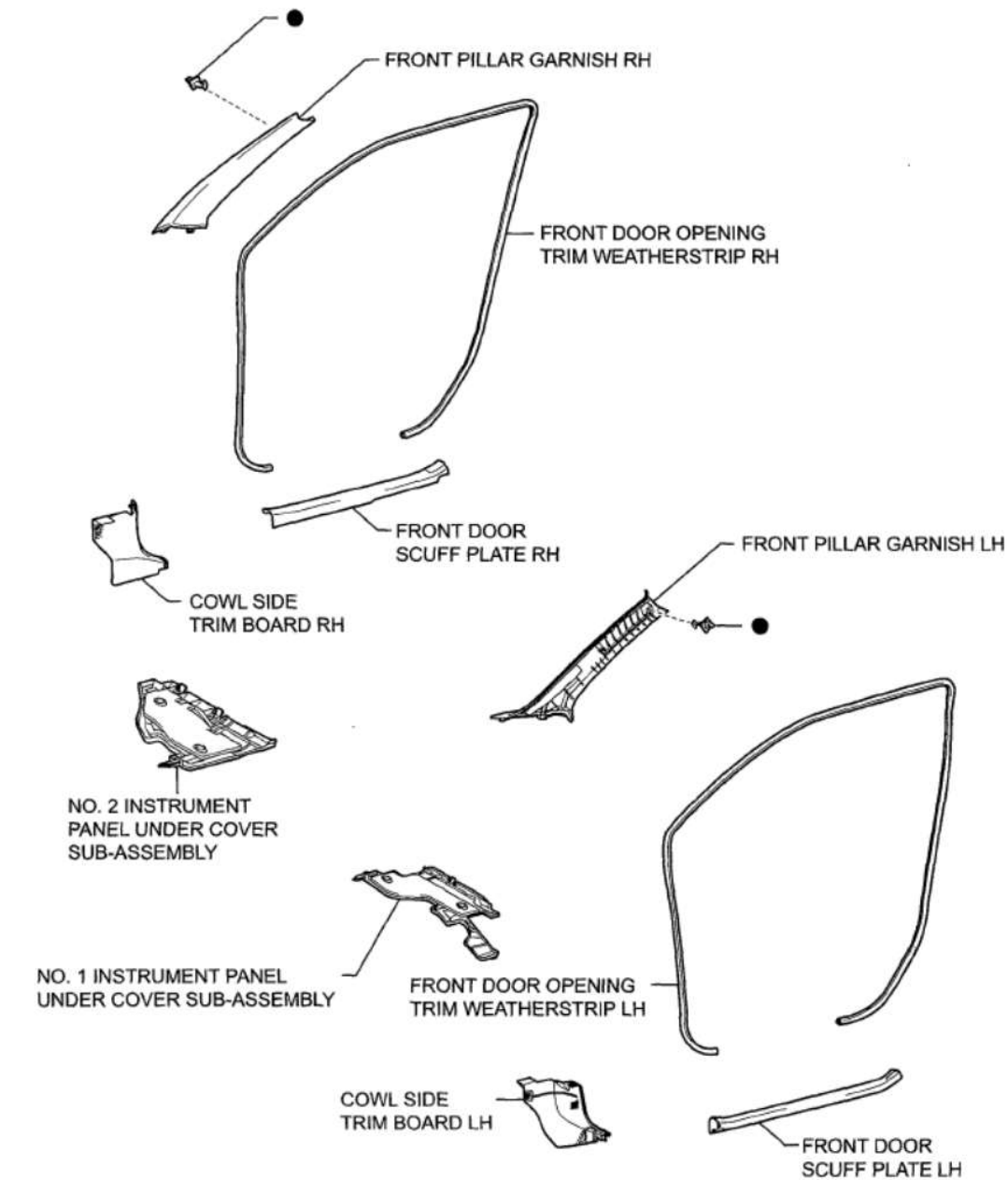
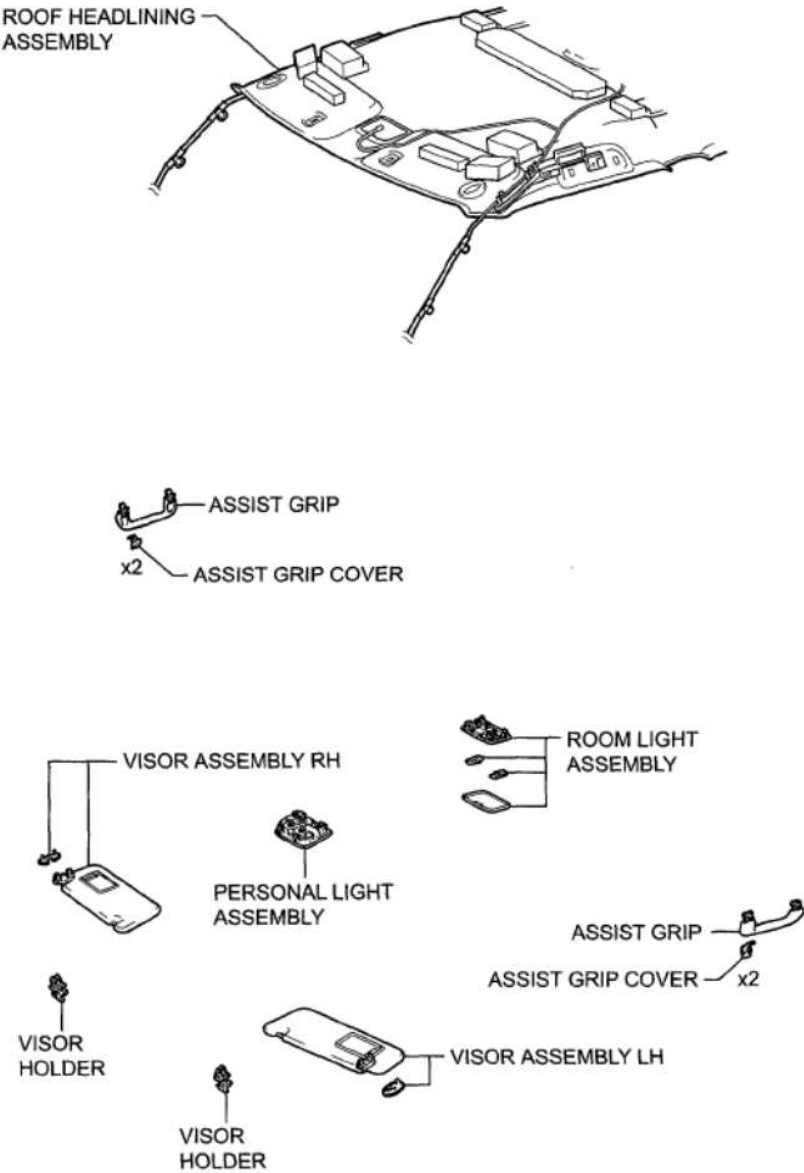


Fig. 51: Identifying Windshield Glass Components (2 Of 4)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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Fig. 52: Identifying Windshield Glass Components (3 Of 4)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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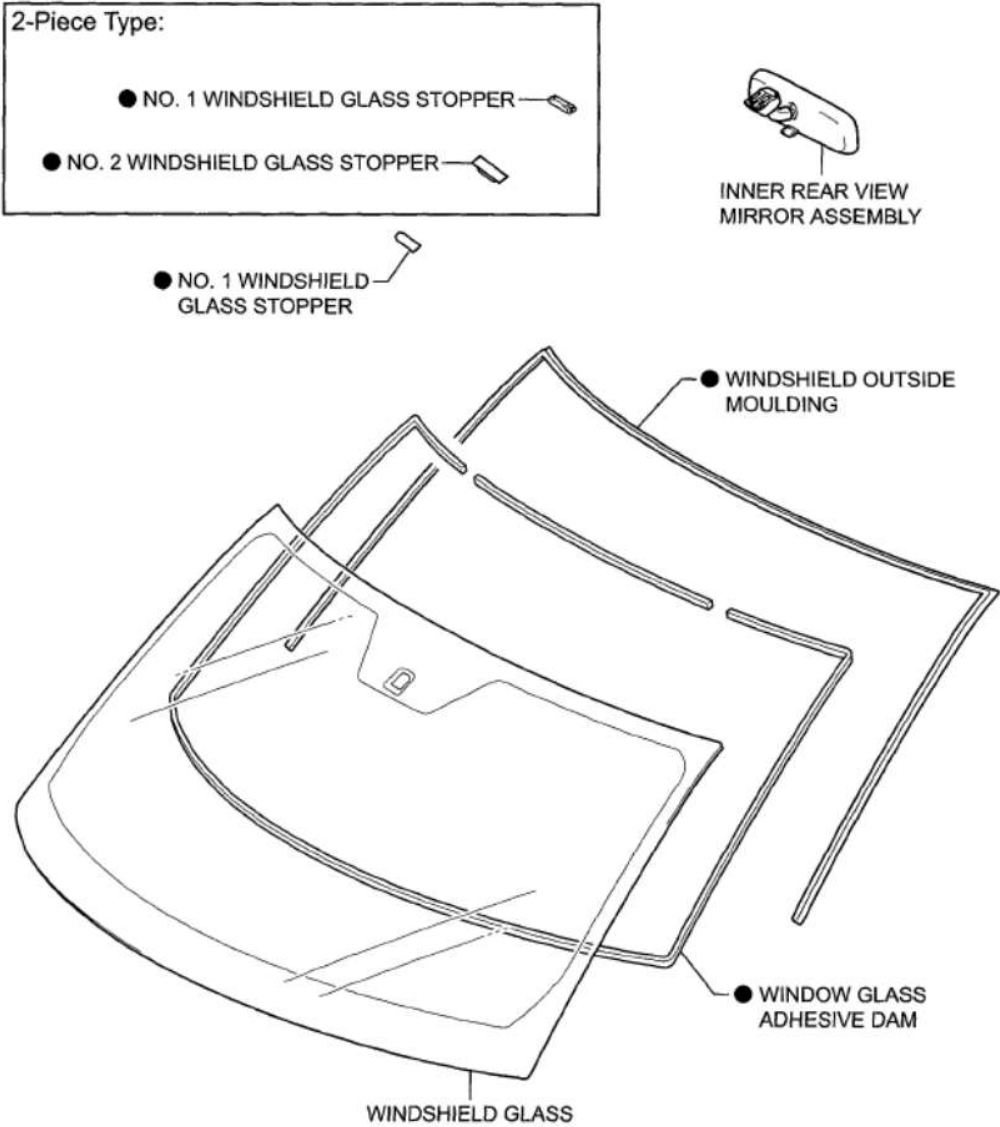


Fig. 53: Identifying Windshield Glass Components (4 Of 4)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

CAUTION: Some of these service operations affect the SRS airbag system. Read the precautionary notices concerning the SRS airbag system before servicing (See PRECAUTION).

2008 Scion xD**2008 ACCESSORIES AND EQUIPMENT Windshield/WindowGlass - xD****1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**

CAUTION: Wait for at least 90 seconds after disconnecting the cable to prevent the airbag from working.

2. REMOVE FRONT WIPER ARM HEAD CAP (See REMOVAL)
3. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY LH (See REMOVAL)
4. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY RH (See REMOVAL)
5. REMOVE HOOD TO COWL TOP SEAL (See REMOVAL)
6. REMOVE COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY (See REMOVAL)
7. REMOVE COWL TOP VENTILATOR LOUVER LH (See REMOVAL)
8. REMOVE FRONT DOOR SCUFF PLATE RH (See REMOVAL)
9. REMOVE FRONT DOOR SCUFF PLATE LH (See REMOVAL)
10. REMOVE NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (See REMOVAL)
11. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (See REMOVAL)
12. REMOVE COWL SIDE TRIM BOARD RH (See REMOVAL)
13. REMOVE COWL SIDE TRIM BOARD LH (See REMOVAL)
14. REMOVE FRONT DOOR OPENING TRIM WEATHERSTRIP RH (See REMOVAL)
15. REMOVE FRONT DOOR OPENING TRIM WEATHERSTRIP LH (See REMOVAL)
16. REMOVE FRONT PILLAR GARNISH RH (See REMOVAL)
17. REMOVE FRONT PILLAR GARNISH LH (See REMOVAL)
18. REMOVE ASSIST GRIP (See REMOVAL)
19. REMOVE VISOR ASSEMBLY RH (See REMOVAL)
20. REMOVE VISOR ASSEMBLY LH (See REMOVAL)
21. REMOVE VISOR HOLDER (See REMOVAL)
22. REMOVE PERSONAL LIGHT ASSEMBLY (See REMOVAL)
23. REMOVE ROOM LIGHT ASSEMBLY (See REMOVAL)
24. REMOVE ROOF HEADLINING ASSEMBLY

HINT:

It is not necessary to remove the roof headlining completely. Slightly lower the front section of the roof headlining.

25. REMOVE INNER REAR VIEW MIRROR ASSEMBLY (See REMOVAL)
26. REMOVE WINDSHIELD OUTSIDE MOULDING
 - a. Using a knife, cut off the windshield outside moulding, as shown in the illustration.

NOTE: Do not damage the vehicle body with the knife.

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2008 ACCESSORIES AND EQUIPMENT Windshield/WindowGlass - xD

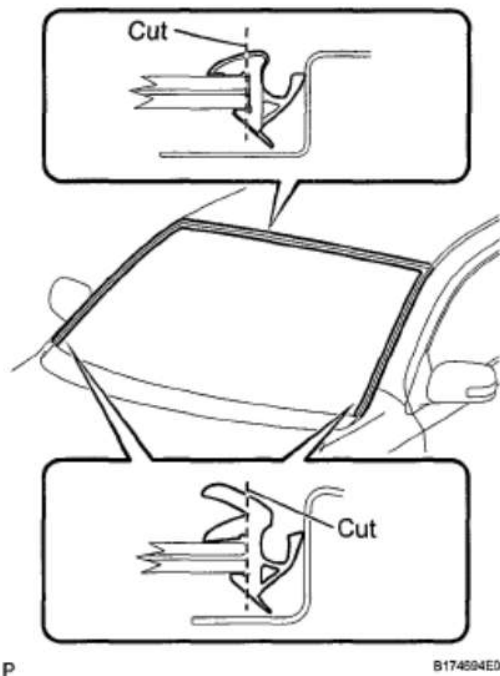


Fig. 54: Cutting Off Windshield Outside Moulding
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the windshield outside moulding.

HINT:

Make a partial cut in the windshield outside moulding. Then pull and remove it by hand.

27. REMOVE WINDSHIELD GLASS

- a. Disconnect the stoppers.

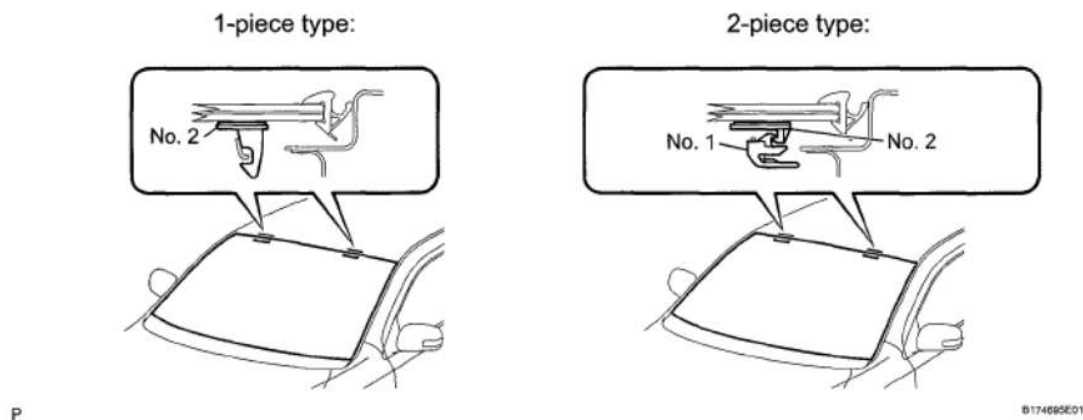


Fig. 55: Removing Windshield Glass
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2008 Scion xD**2008 ACCESSORIES AND EQUIPMENT Windshield/WindowGlass - xD****NOTE:**

- There are No. 1 and No. 2 stoppers on the windshield glass, as shown in the illustration. Be careful not to damage the windshield glass when cutting off the adhesive.
- To prevent the windshield glass from dropping when performing this operation, be sure to hold the windshield glass using suction cups.

HINT:

Depending on vehicles, a 1-piece or 2-piece type stopper is used.

- b. Apply protective tape to the installation area on the windshield glass on the vehicle body.

HINT:

Apply protective tape to the installation surface to prevent it from being scratched.

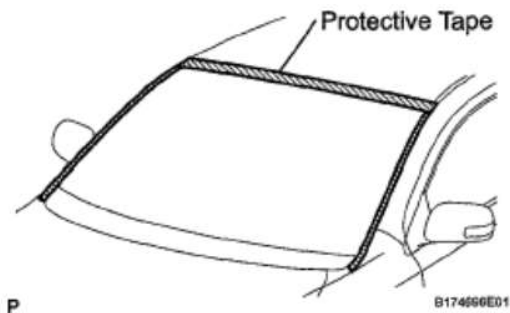


Fig. 56: Applying Protective Tape To Installation Area On Windshield Glass On Vehicle Body

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Pass a piano wire between the vehicle body and glass from the interior.

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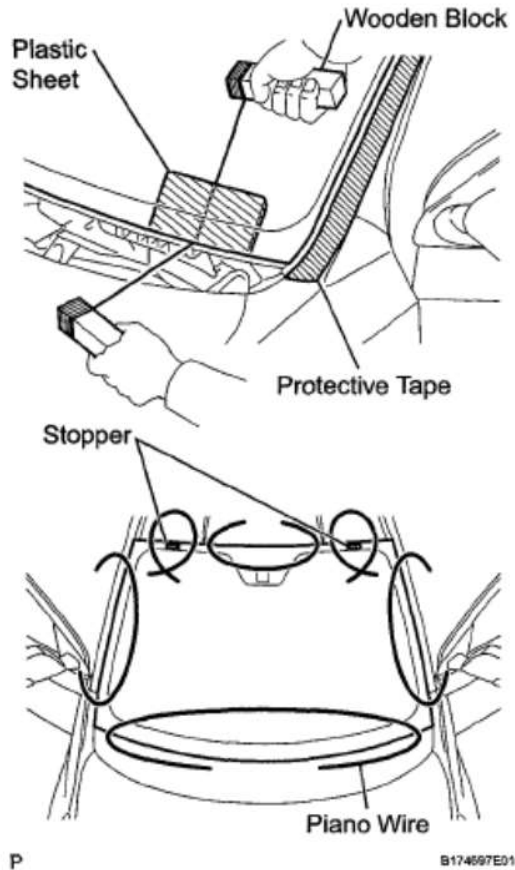


Fig. 57: Passing Piano Wire Between Vehicle Body And Glass From Interior
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- d. Tie both wire ends to wooden blocks or similar objects.
- e. Cut off the adhesive by pulling the piano wire around the windshield glass.

NOTE:

- When separating the windshield glass, take care not to damage the paint or the interior and exterior ornaments.
- To prevent the safety pad from being scratched when removing the windshield glass, place a plastic sheet between the piano wire and safety pad.

- f. Place matchmarks on the windshield glass and vehicle body on the locations indicated in the illustration.

HINT:

Matchmarks do not need to be placed if the windshield glass is not going to be reused.

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2008 ACCESSORIES AND EQUIPMENT Windshield/WindowGlass - xD

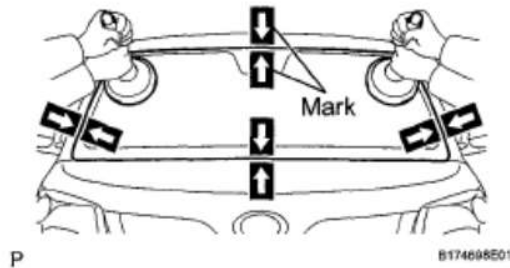


Fig. 58: Placing Matchmarks On Windshield Glass And Vehicle Body
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- g. Using suction cups, remove the windshield glass.

NOTE:

- Be careful not to drop the windshield glass.
- Leave as much adhesive on the vehicle body as possible when removing the windshield glass.

28. REMOVE WINDOW GLASS ADHESIVE DAM

- a. Using a scraper, remove the adhesive dam.

NOTE:

- Be careful not to damage the windshield glass.
- Be sure to replace the adhesive dam with a new one.

29. REMOVE NO. 2 WINDSHIELD GLASS STOPPER

- a. Using a scraper, remove the 2 No. 2 stoppers.

NOTE:

- Be careful not to damage the windshield glass.
- Be sure to replace the No. 2 stoppers with new ones.

30. REMOVE NO. 1 WINDSHIELD GLASS STOPPER (for 2-piece Type)

- a. Remove the 2 No. 1 stoppers.

NOTE:

Be sure to replace the No. 1 stoppers with new ones.

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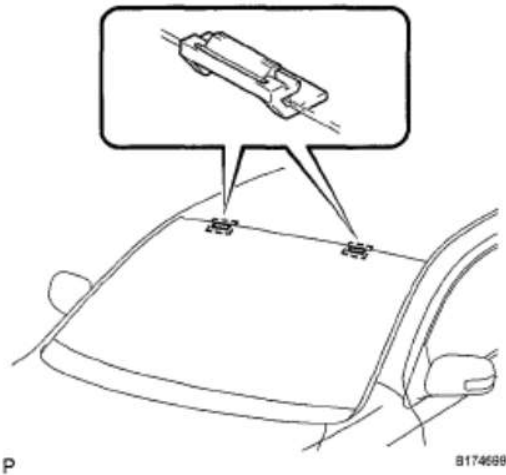


Fig. 59: Removing No. 1 Stoppers

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. CLEAN WINDSHIELD GLASS

- Using a scraper, remove the damaged stoppers, dam and adhesive from the windshield glass.

NOTE: Be careful not to damage the windshield glass.

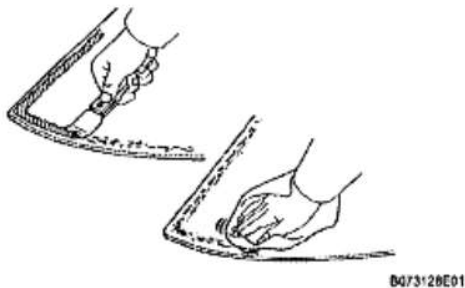


Fig. 60: Cleaning Outer Circumference Of Back Door Glass

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- Clean the outer edge of the windshield glass with a non-residue solvent.

NOTE:

- Do not touch the windshield glass surface after cleaning it.
- Even if using a new windshield glass, clean the windshield glass with a non-residue solvent.

2. CLEAN VEHICLE BODY

- Clean and shape the contact surface of the vehicle body.

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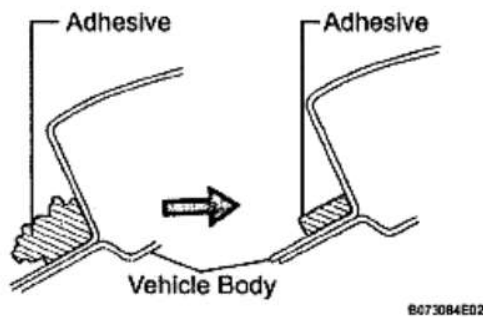
2008 ACCESSORIES AND EQUIPMENT Windshield/WindowGlass - xD

1. Using a knife, cut away any rough adhesive on the contact surface of the vehicle body to ensure the appropriate surface shape.

NOTE: Do not damage the vehicle body.

HINT:

Leave as much adhesive on the vehicle body as possible.



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Fig. 61: Identifying Adhesive On Vehicle Body Contact Surface
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. Clean the contact surface of the vehicle body with a shop rag or piece of cloth saturated with cleaner.

HINT:

Clean the vehicle body even if all the adhesive has been removed.

3. INSTALL NO. 2 WINDSHIELD GLASS STOPPER

- a. Using a brush or sponge, coat the application area of the No. 2 stoppers with Primer G.

NOTE:

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

HINT:

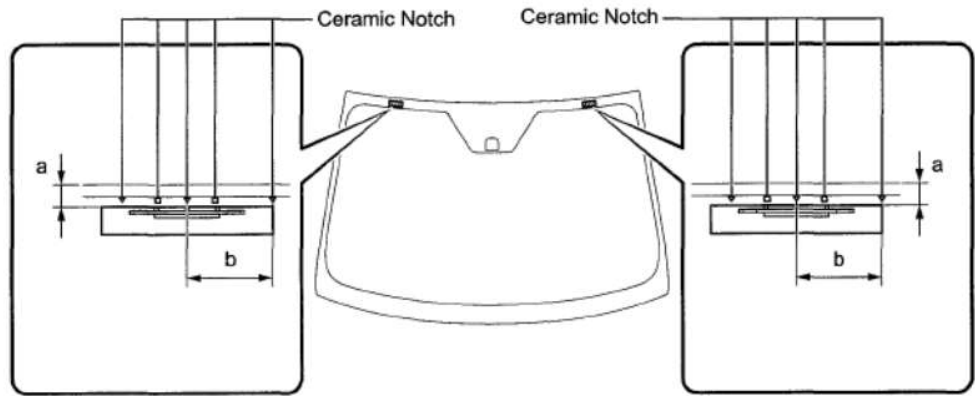
If an area other than that specified is coated by accident, wipe off the primer with a clean piece of cloth before it dries.

- b. Install 2 new No. 2 stoppers onto the windshield glass, as shown in the illustration.

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Back Side:



P

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Fig. 62: Installing No. 2 Stoppers Onto Windshield Glass
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard dimension

STANDARD DIMENSION

Area	Dimension
a	9.0 mm (0.354 in.)
b	40 mm (1.575 in.)

HINT:

Only 2-piece type No. 2 stoppers are supplied. Use the 2-piece type stoppers even if a 1-piece type was used.

4. INSTALL NO. 1 WINDSHIELD GLASS STOPPER

- a. Install 2 new No. 1 stoppers to the vehicle body, as shown in the illustration.

HINT:

Only 2-piece type No. 1 stoppers are supplied. Use the 2-piece type stoppers even if a 1-piece type was used.

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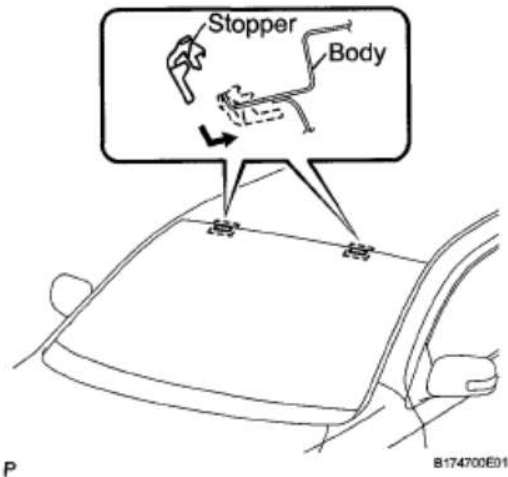


Fig. 63: Installing No. 1 Stoppers To Vehicle Body
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. INSTALL WINDSHIELD OUTSIDE MOULDING

- Using a brush or sponge, coat the application area of the moulding with Primer G.

NOTE:

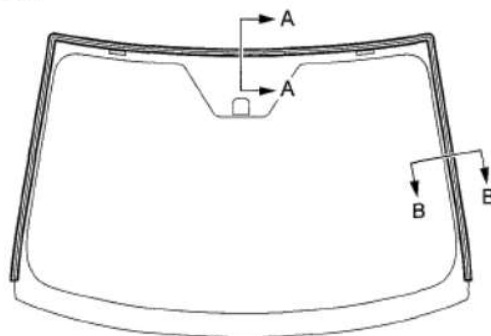
- Do not apply too much primer.
- Allow the primer coating to dry for 3 minutes or more.
- Throw away any leftover primer.

HINT:

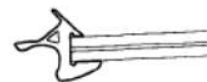
If an area other than that specified is coated by accident, wipe off the primer with a clean piece of cloth before it dries.

- Install a new moulding onto the windshield glass, as shown in the illustration.

Back Side:



A-A



B-B



P

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Fig. 64: Installing Moulding Onto Windshield Glass

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Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. INSTALL WINDOW GLASS ADHESIVE DAM

- a. Using a brush or sponge, coat the application area of adhesive dam with Primer G.

NOTE:

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

HINT:

If an area other than that specified is coated by accident, wipe off the primer with a clean piece of cloth before it dries.

- b. Install a new adhesive dam onto the windshield glass, as shown in the illustration.

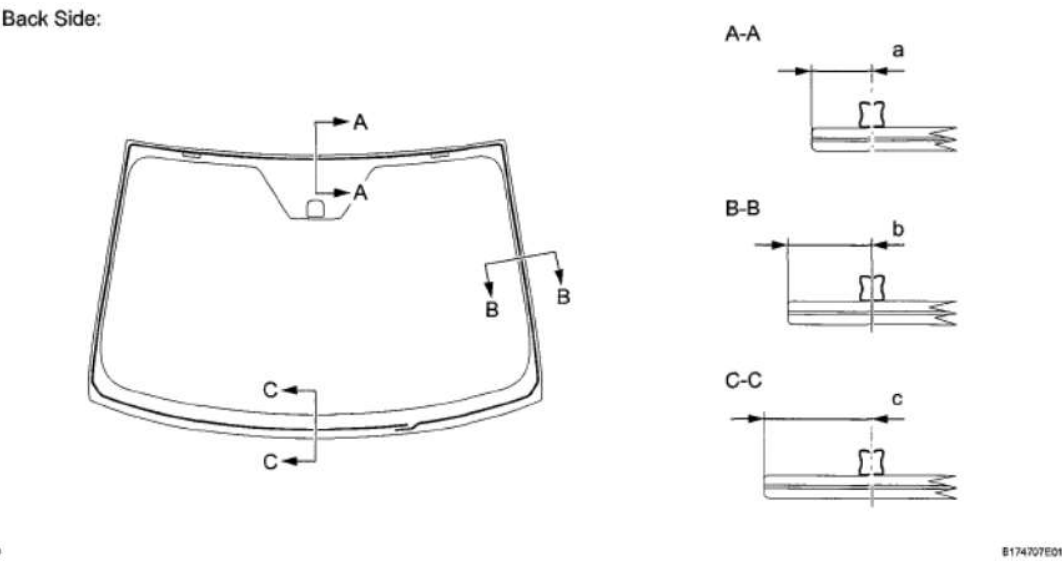


Fig. 65: Installing Adhesive Dam Onto Windshield Glass
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard dimension

STANDARD DIMENSION	
Area	Dimension
a	10.6 mm (0.417 in.)
b	9.6 mm (0.378 in.)
c	32.3 mm (1.272 in.)

NOTE: Install the new adhesive dam along the ceramic notches.

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7. INSTALL WINDSHIELD GLASS

- a. Position the windshield glass.
 1. Using suction cups, place the windshield glass in the correct position.
 2. Check that the whole contact surface of the windshield glass rim is perfectly even.
 3. Align the matchmarks on the windshield glass and vehicle body.

NOTE: Check that the windshield glass stoppers are attached to the vehicle body correctly.

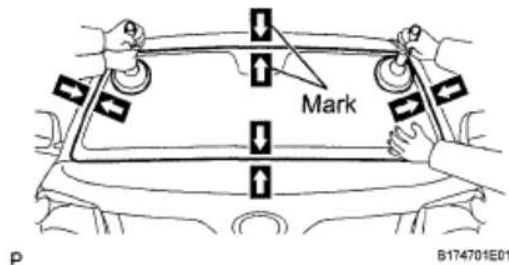


Fig. 66: Identifying Matchmarks On Windshield Glass And Vehicle Body
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Using a brush, coat the installation surface on the vehicle body with Primer M.

NOTE:

- Do not coat the adhesive with Primer M.
- Do not apply too much primer.
- Allow the primer coating to dry for 3 minutes or more.
- Throw away any leftover primer.

HINT:

If an area other than that specified is coated by accident, wipe off the primer with a clean piece of cloth before it dries

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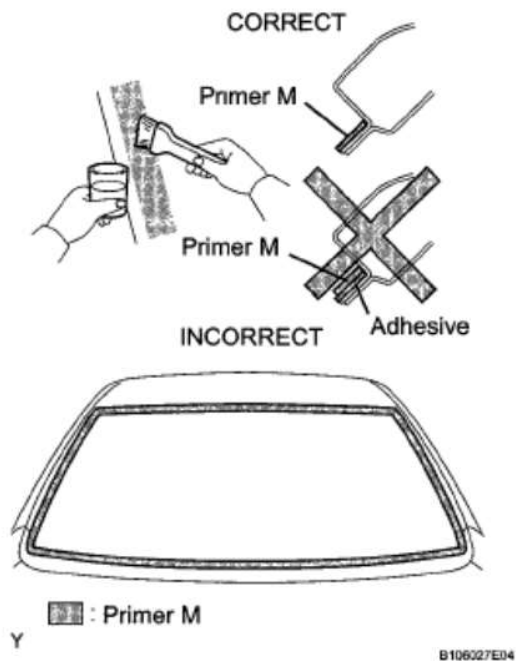


Fig. 67: Coating Installation Surface On Vehicle Body With Primer M
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Using a brush or sponge, coat the application areas that still have adhesive attached with Primer G.

Back Side:

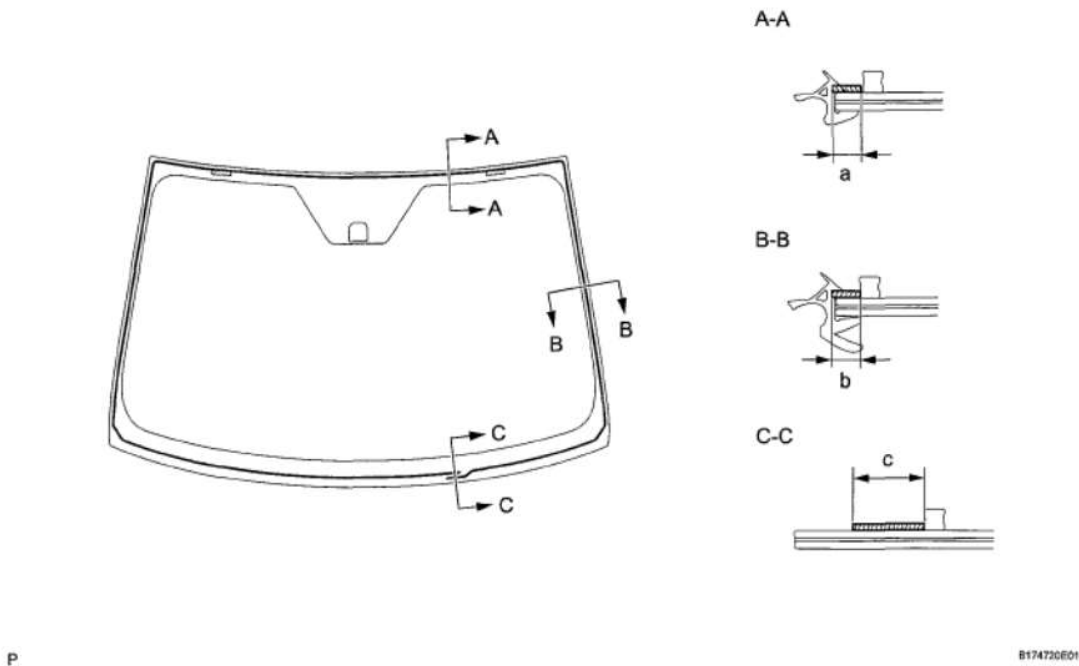


Fig. 68: Identifying Coating Application Areas

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Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard dimension

STANDARD DIMENSION

Area	Dimension
a	8 mm or more (0.315 in. or more)
b	8 mm or more (0.315 in. or more)
c	19 mm or more (0.748 in. or more)

NOTE:

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

HINT:

- Apply Primer G onto the ceramic notches.
 - If an area other than that specified is coated by accident, wipe off the primer with a clean piece of cloth before it dries.
- 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.

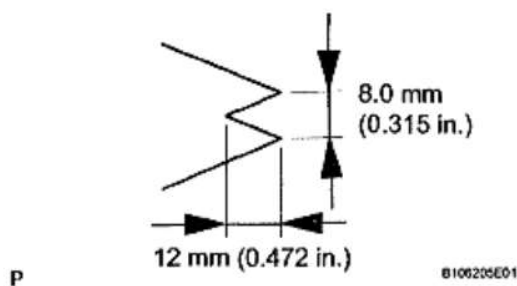


Fig. 69: Identifying Cartridge Nozzle Cutting Dimensions
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

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

Usage time frame

TEMPERATURE SPECIFICATIONS

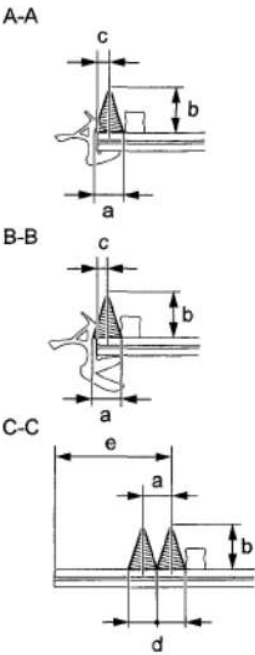
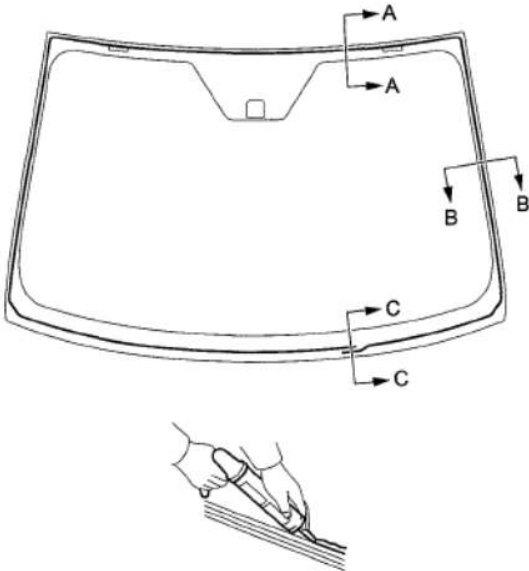
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Temperature	Tack-free Time
35°C (95°F)	15 minutes
20°C (68°F)	1 hour and 40 minutes
5°C (41°F)	8 hours

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

Back Side:



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Fig. 70: Applying Adhesive To Windshield Glass
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard dimension

STANDARD DIMENSION

Area	Dimension
a	8.0 mm (0.315 in.)
b	12.0 mm (0.472 in.)
c	3.0 mm (0.118 in.)
d	16.0 mm (0.630 in.)
e	25.5 mm (1.004 in.)

- e. Install the windshield glass.
1. Using suction cups, position the windshield glass so that the matchmarks are aligned, and

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press it in gently along the rim.

NOTE:

- Check that the windshield glass stoppers are attached to the vehicle body correctly.
- Check the clearance between the vehicle body and windshield glass.

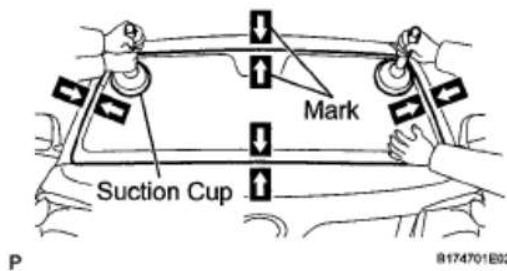


Fig. 71: Identifying Matchmarks

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. Lightly press the front surface of the windshield glass to ensure a close fit.

HINT:

Press the glass with force of 98 N (10 kgf, 22 lb) or more.

3. If necessary, use a scraper to correct the level or position of adhesive that has been applied.

HINT:

Apply adhesive onto the windshield glass rim.

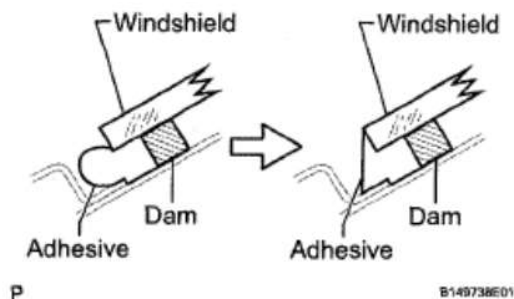


Fig. 72: Applying Adhesive Onto Windshield Glass Rim

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. Hold the windshield glass using protective tape until applied adhesive hardens.

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NOTE: Do not drive the vehicle within the time limits described in the table below.

Minimum time

TEMPERATURE SPECIFICATIONS

Temperature	Minimum time prior to driving vehicle
35°C (95°F)	1 hour and 30 minutes
20°C (68°F)	5 hours
5°C (41°F)	24 hours

8. CHECK FOR LEAKAGE AND REPAIR

- a. After the adhesive has hardened, apply water from the outside of the vehicle. Check that no water leaks into the cabin.
- b. If water leaks into the cabin, allow the water to dry and add adhesive.
- c. Remove the protective tape.

9. INSTALL INNER REAR VIEW MIRROR ASSEMBLY (See INSTALLATION)

10. INSTALL ROOF HEADLINING ASSEMBLY

HINT:

Return the front section of the roof headlining assembly to the original position.

11. INSTALL ROOM LIGHT ASSEMBLY (See INSTALLATION)

12. INSTALL PERSONAL LIGHT ASSEMBLY (See INSTALLATION)

13. INSTALL VISOR HOLDER (See INSTALLATION)

14. INSTALL VISOR ASSEMBLY RH (See INSTALLATION)

15. INSTALL VISOR ASSEMBLY LH (See INSTALLATION)

16. INSTALL ASSIST GRIP (See INSTALLATION)

17. INSTALL FRONT PILLAR GARNISH RH (See INSTALLATION)

18. INSTALL FRONT PILLAR GARNISH LH (See INSTALLATION)

19. INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP RH (See INSTALLATION)

20. INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP LH (See INSTALLATION)

21. INSTALL COWL SIDE TRIM BOARD RH (See INSTALLATION)

22. INSTALL COWL SIDE TRIM BOARD LH (See INSTALLATION)

23. INSTALL NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (See INSTALLATION)

24. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (See INSTALLATION)

25. INSTALL FRONT DOOR SCUFF PLATE RH (See INSTALLATION)

26. INSTALL FRONT DOOR SCUFF PLATE LH (See INSTALLATION)

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27. **INSTALL COWL TOP VENTILATOR LOUVER LH** (See **INSTALLATION**)
28. **INSTALL COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY** (See **INSTALLATION**)
29. **INSTALL HOOD TO COWL TOP SEAL** (See **INSTALLATION**)
30. **INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY LH** (See **INSTALLATION**)
31. **INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY RH** (See **INSTALLATION**)
32. **INSTALL FRONT WIPER ARM HEAD CAP** (See **INSTALLATION**)
33. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

34. **INSPECT SRS WARNING LIGHT**

(See **DIAGNOSIS SYSTEM**).

BACK DOOR GLASS

COMPONENTS

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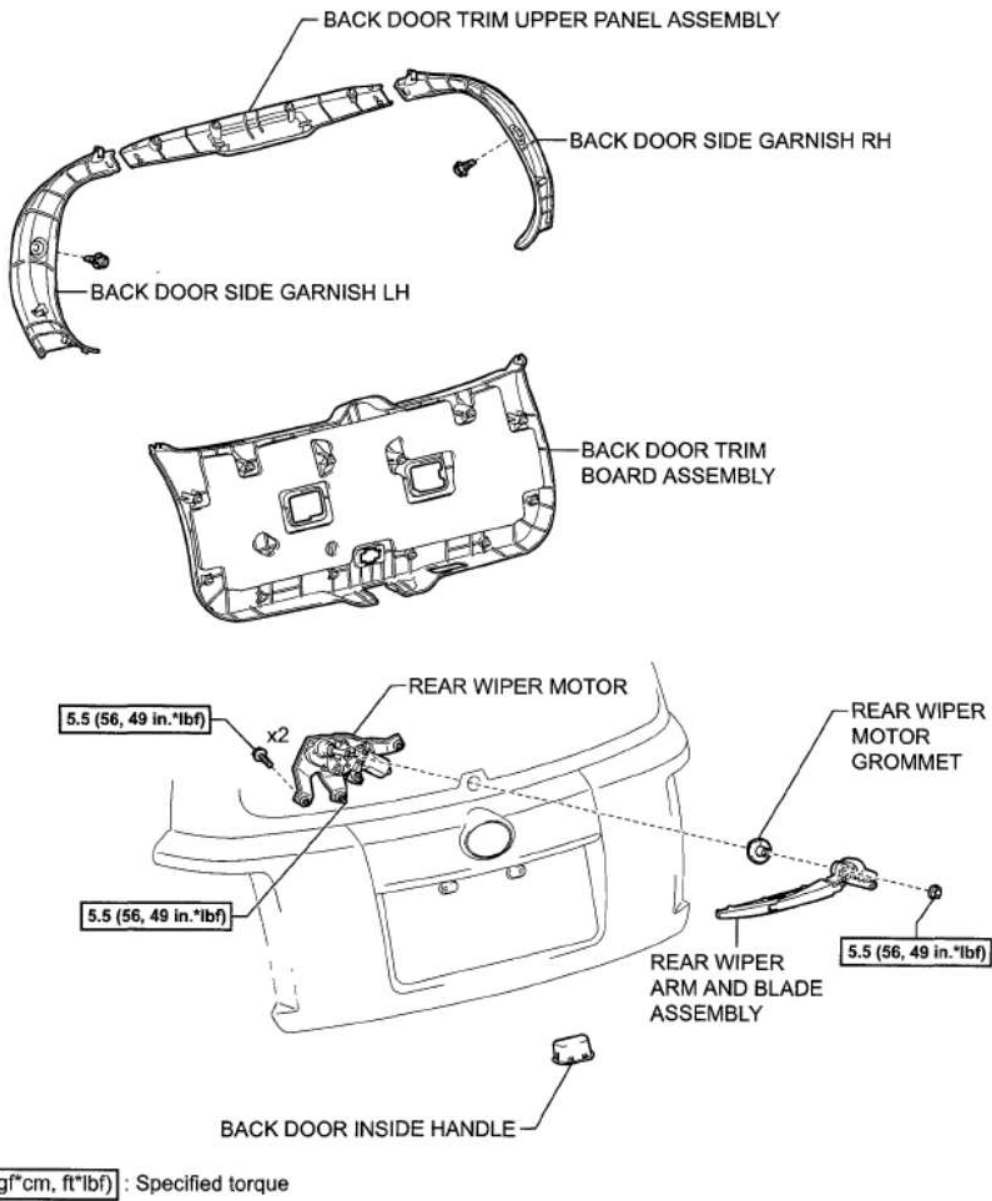
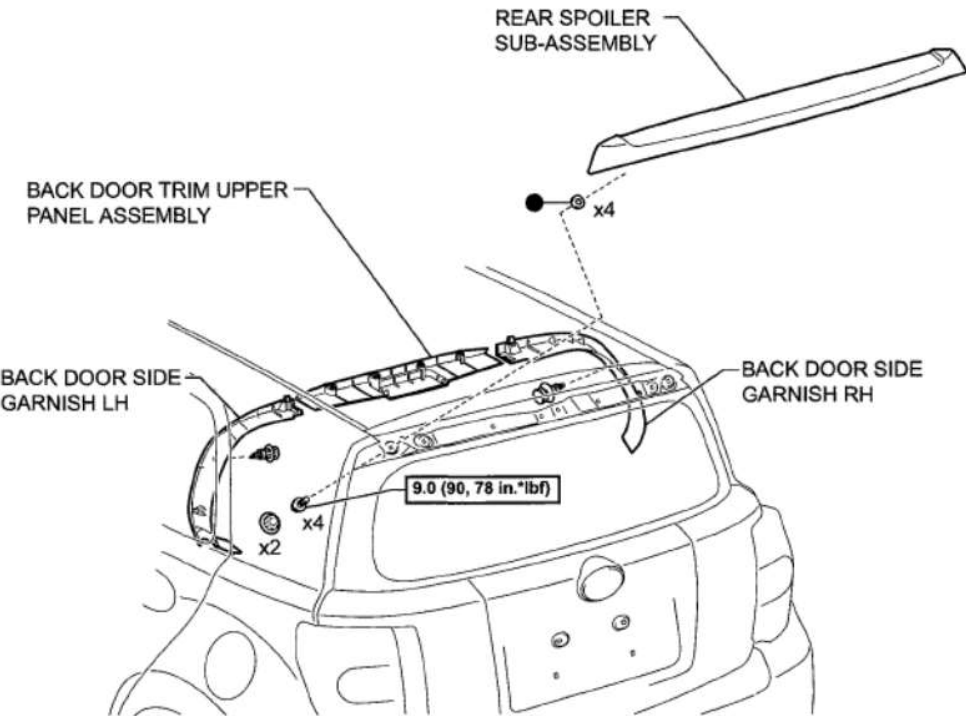


Fig. 73: Identifying Back Door Glass Components With Torque Specifications (1 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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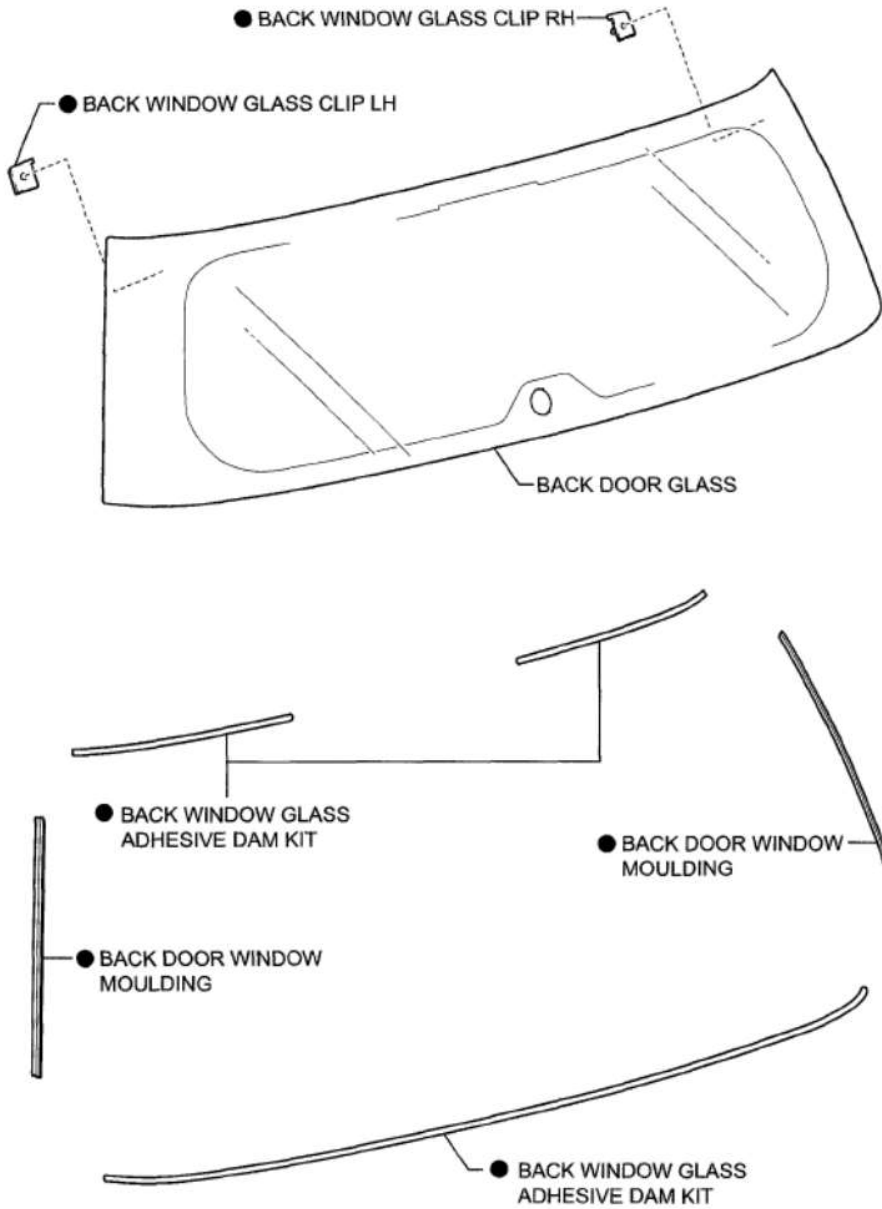
N*m (kgf*cm, ft*lbf) : Specified torque

● Non-reusable part

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Fig. 74: Identifying Back Door Glass Components With Torque Specification (2 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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● Non-reusable part

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Fig. 75: Identifying Back Door Glass Components (3 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. REMOVE BACK DOOR TRIM UPPER PANEL ASSEMBLY (See DISASSEMBLY)
2. REMOVE BACK DOOR SIDE GARNISH LH (See DISASSEMBLY)

2008 Scion xD**2008 ACCESSORIES AND EQUIPMENT Windshield/WindowGlass - xD****3. REMOVE BACK DOOR SIDE GARNISH RH**

HINT:

Use the same procedure as for the LH side.

4. **REMOVE BACK DOOR INSIDE HANDLE** (See DISASSEMBLY)
5. **REMOVE BACK DOOR TRIM BOARD ASSEMBLY** (See DISASSEMBLY)
6. **REMOVE REAR WIPER ARM AND BLADE ASSEMBLY** (See REMOVAL)
7. **REMOVE REAR WIPER MOTOR** (See REMOVAL)
8. **REMOVE REAR WIPER MOTOR GROMMET** (See REMOVAL)
9. **REMOVE REAR SPOILER SUB-ASSEMBLY** (See REMOVAL)
10. **REMOVE BACK DOOR WINDOW MOULDING**
 - a. Using a knife, cut off the back door window moulding, as shown in the illustration.

NOTE: Do not damage the vehicle body with the knife.

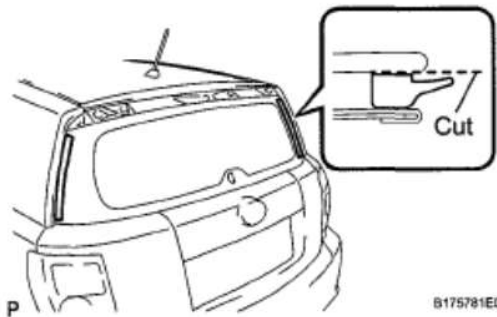


Fig. 76: Cutting Off Back Door Window Moulding
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the back door window moulding.

HINT:

Make a partial cut in the back door window moulding. Then pull and remove it by hand.

11. REMOVE BACK DOOR GLASS

- a. Disconnect the 2 back door defogger connectors.
 - b. Apply protective tape to the outer edge of the back door glass, as shown in the illustration.

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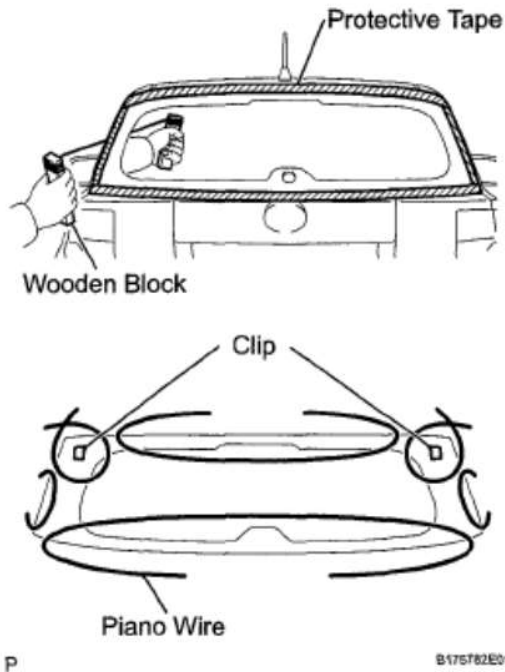


Fig. 77: Applying Protective Tape To Outer Edge Of Back Door Glass
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. From the interior, insert piano wires between the vehicle body and back door glass, as shown in the illustration.
- d. Tie objects that can serve as handles (for example, wooden blocks) to all wire ends.

NOTE: When separating the back door glass from the vehicle, do not damage the vehicle's paint or exterior/interior ornaments.

- e. Cut through the adhesive by pulling the piano wire around the back door glass.
- f. Place matchmarks on the back door glass and vehicle body on the locations indicated in the illustration.

HINT:

Matchmarks do not need to be placed if the back door glass is not going to be reused.

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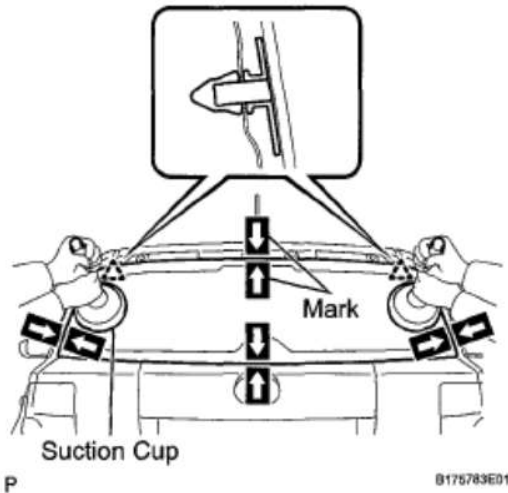


Fig. 78: Removing Back Window Glass Clip
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- g. Disengage the 2 clips.
- h. Using suction cups, remove the back door glass.

NOTE: Leave as much adhesive on the vehicle body as possible when removing the back door glass.

12. REMOVE BACK WINDOW GLASS CLIP LH

- a. Using a scraper, remove the back window glass clip.

NOTE:

- Be careful not to damage the back window glass clip.
- Be sure to replace the back window glass clip with a new one.

13. REMOVE BACK WINDOW GLASS CLIP RH

- a. Using a scraper, remove the back window glass clip.

NOTE:

- Be careful not to damage the back window glass clip.
- Be sure to replace the back window glass clip with a new one.

INSTALLATION

1. CLEAN BACK DOOR GLASS

- a. Using a scraper, remove the clips, dam and adhesive sticking to the back door glass.

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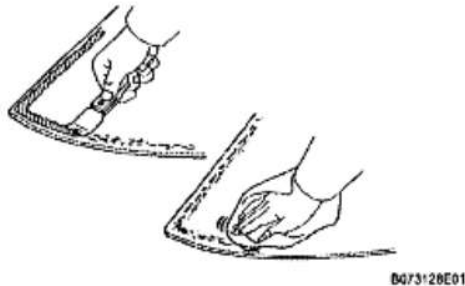


Fig. 79: Cleaning Outer Circumference Of Back Door Glass
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Clean the outer edge of the back door glass with a non-residue solvent.

NOTE:

- Do not touch the back door glass surface after cleaning it.
- Even if using a new back door glass, clean the back door glass with a non-residue solvent.

HINT:

Since the pin is for positioning the glass, there is no need to replace it with a new one when reusing the glass, even if damaged.

2. CLEAN VEHICLE BODY

- a. Clean and shape the contact surface of the vehicle body.
 1. Using a knife, cut away any rough adhesive on the contact surface of the vehicle body to ensure the appropriate surface shape.

NOTE: Do not damage the vehicle body.

HINT:

Leave as much adhesive on the vehicle body as possible.

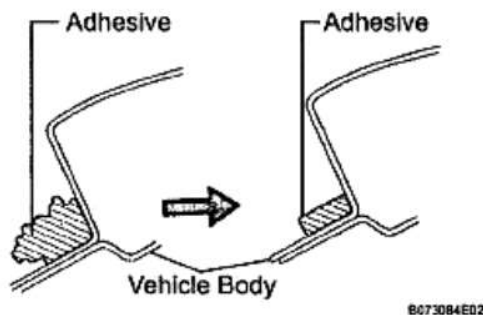


Fig. 80: Identifying Adhesive On Vehicle Body Contact Surface

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Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. Clean the contact surface of the vehicle body with a shop rag or piece of cloth saturated with cleaner.

HINT:

Clean the vehicle body even if all the adhesive has been removed.

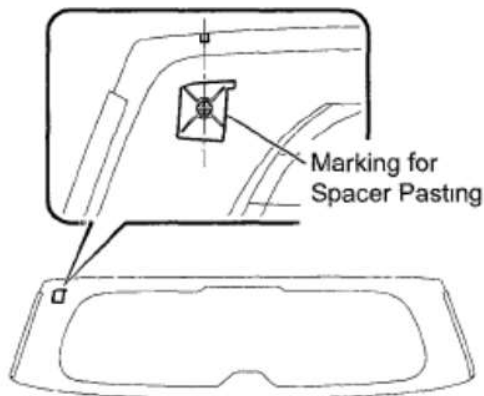
3. INSTALL BACK WINDOW GLASS CLIP LH

- a. Apply Primer G to the installation part of the back window glass clip.

HINT:

If primer is applied to an area that is not specified, wipe off the primer with a non-residue solvent before it dries.

Back Side:



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Fig. 81: Applying Primer G To Installation Part Of Back Window Glass Clip
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Install the new clip onto the glass, as shown in the illustration.

NOTE:

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

4. INSTALL BACK WINDOW GLASS CLIP RH

- a. Apply Primer G to the installation part of the back window glass clip.

HINT:

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If primer is applied to an area that is not specified, wipe off the primer with a non-residue solvent before it dries.

- b. Install the new clip onto the glass, as shown in the illustration.

NOTE:

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

Back Side:

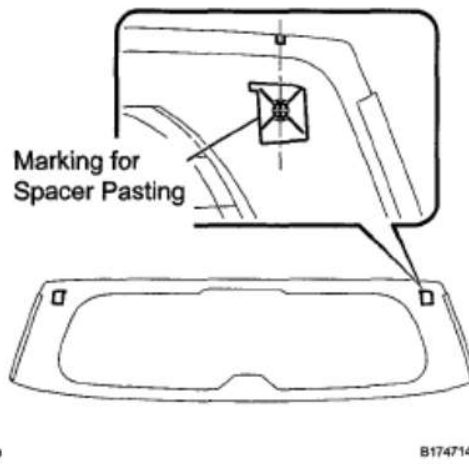


Fig. 82: Applying Primer G To Installation Part Of Back Door Glass Adhesive Dam

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. INSTALL BACK WINDOW GLASS ADHESIVE DAM KIT

- a. Apply Primer G to the installation part of the back door glass adhesive dam.

NOTE:

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

HINT:

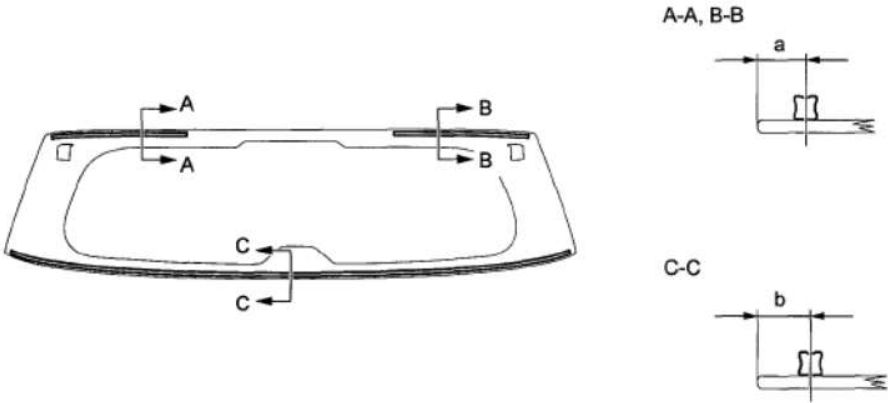
If primer is applied to an area that is not specified, wipe off the primer with a non-residue solvent before it dries.

- b. Install 2 new back door glass adhesive dams, as shown in the illustration.

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Back Side:



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Fig. 83: Installing Back Door Glass Adhesive Dams
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Specification

AREA SPECIFICATIONS

Area	Measurement
a	7.4 mm (0.291 in.)
b	6.9 mm (0.273 in.)

6. INSTALL BACK DOOR WINDOW MOULDING

- a. Apply Primer G to the installation part of the back door window moulding.

NOTE:

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

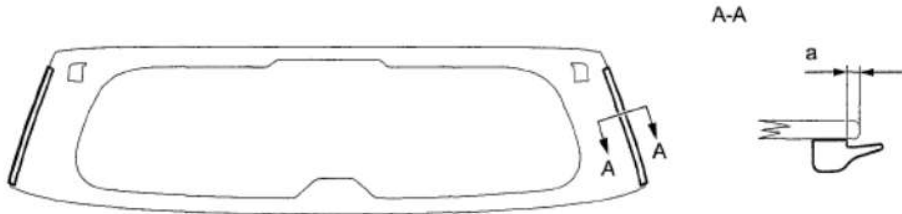
HINT:

If an area other than that specified is coated by accident, wipe off the primer with a clean piece of cloth before it dries.

- b. Install a new back door window moulding, as shown in the illustration.

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Back Side:



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Fig. 84: Installing Back Door Window Moulding
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Specification

AREA SPECIFICATIONS

Area	Measurement
a	3.5 mm (0.138 in.)

7. INSTALL BACK DOOR GLASS

- a. Position the back door glass.
 - 1. Using suction cups, place the back door glass in the correct position.
 - 2. Check that the whole contact surface of the back door glass rim is perfectly even.
 - 3. Place matchmarks on the back door glass and vehicle body.

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

HINT:

When reusing the back door glass, check and correct the matchmark positions.

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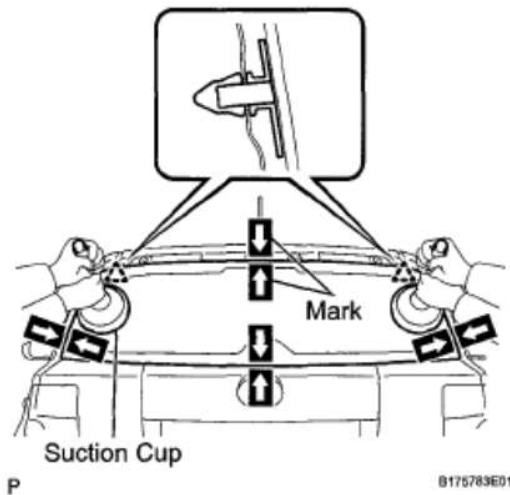


Fig. 85: Identifying Matchmarks On Back Door Glass And Vehicle Body
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. Using suction cups, remove the back door glass.
- b. Using a brush, apply Primer M to the exposed part of the vehicle body.

NOTE:

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

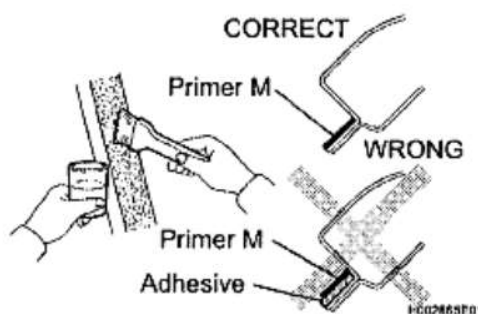


Fig. 86: Applying Primer M To Exposed Part Of Vehicle Body
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Using a brush or sponge, apply Primer G to the edge of the back door glass and contact surface.

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Back Side:

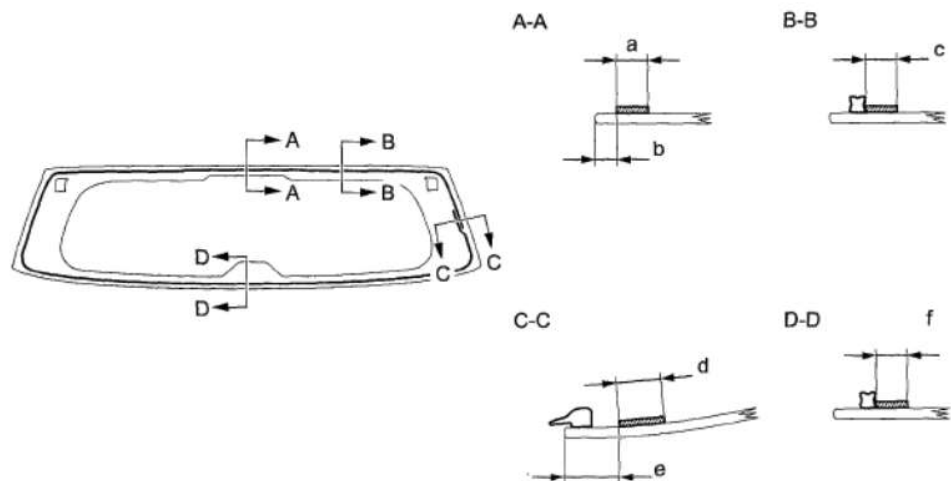


Fig. 87: Applying Primer G To Edge Of Back Door Glass And Contact Surface
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

HINT:

If Primer G is applied to any areas other than those specified, wipe off the primer with a clean shop rag or piece of cloth before it dries.

Specification

AREA SPECIFICATIONS

Area	Measurement
a	14.0 mm (0.551 in.)
b	6.9 mm (0.272 in.)
c	14.0 mm (0.551 in.)
d	14.0 mm (0.551 in.)
e	20.3 mm (0.799 in.)
f	14.0 mm (0.551 in.)

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d. Apply adhesive.

Adhesive: Toyota Genuine Windshield Glass Adhesive or equivalent

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

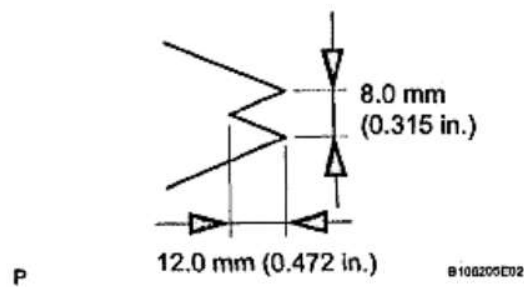


Fig. 88: Cutting Off Tip Of Cartridge Nozzle
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

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

Usage time frame

TEMPERATURE SPECIFICATIONS

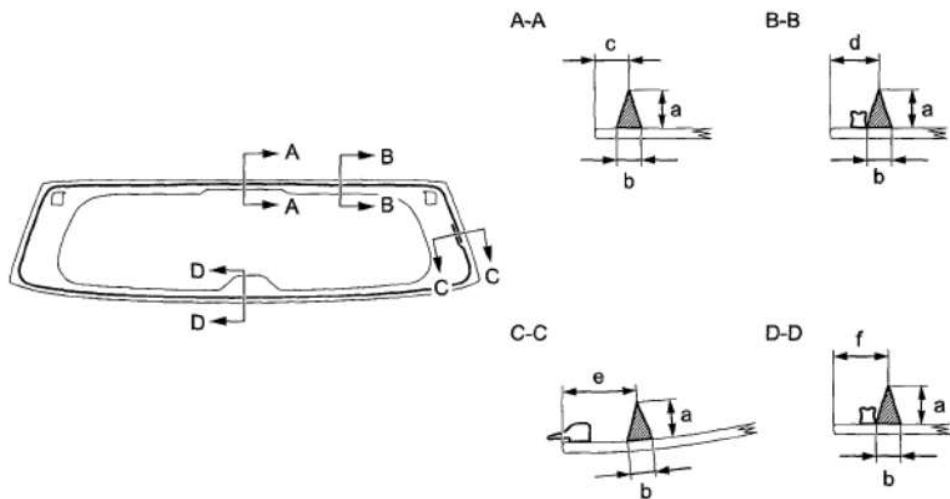
Temperature	Usage Time Frame
35°C (95°F)	15 minutes
20°C (68°F)	1 hour 40 minutes
5°C (41°F)	8 hours

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

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Back Side:



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Fig. 89: Applying Adhesive To Back Door Glass
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Specification

AREA SPECIFICATIONS

Area	Measurement
a	12.0 mm (0.472 in.)
b	8.0 mm (0.315 in.)
c	10.9 mm (0.429 in.)
d	14.0 mm (0.551 in.)
e	24.3 mm (0.957 in.)
f	14.0 mm (0.551 in.)

- e. Install the back door glass onto the vehicle body.
1. Using suction cups, position the back door glass so that the matchmarks are aligned. Press it in gently along the rim.

NOTE:

- Allow the primer to dry for 3 minutes or more.
- Check that the stoppers are attached to the vehicle body correctly.
- Check that the vehicle body and back door glass have a small gap between them.

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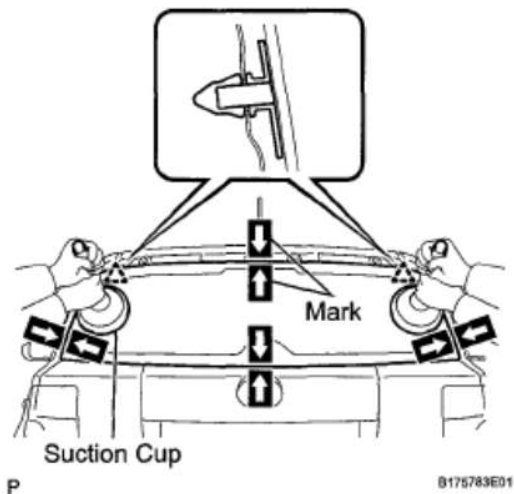


Fig. 90: Identifying Matchmarks
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- 2. Gently press the front surface of the back door glass to ensure that the back door glass is securely fitted to the vehicle body.
- 3. Using a scraper, remove any excessive or protruding adhesive.

HINT:

Apply adhesive onto the back door glass rim.

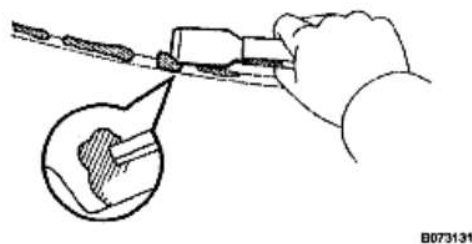


Fig. 91: Removing Excessive Or Protruding Adhesive
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Do not drive the vehicle within the time limits described in the table below.

Minimum time

TEMPERATURE SPECIFICATIONS

Temperature	Minimum time prior to driving vehicle
35°C (95°F)	1 hour 30 minutes

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20°C (68°F)	5 hours
5°C (41°F)	24 hours

8. **CHECK FOR LEAKAGE AND REPAIR**

- a. After the adhesive has hardened, apply water from the outside of the vehicle. Check that no water leaks into the cabin.
- b. If water leaks into the cabin, allow the water to dry and add adhesive.
- c. Remove the protective tape.

9. **INSTALL REAR SPOILER SUB-ASSEMBLY** (See **INSTALLATION**)

10. **INSTALL REAR WIPER MOTOR GROMMET** (See **INSTALLATION**)

11. **INSTALL REAR WIPER MOTOR** (See **INSTALLATION**)

12. **INSTALL REAR WIPER ARM AND BLADE ASSEMBLY** (See **INSTALLATION**)

13. **INSTALL BACK DOOR TRIM BOARD ASSEMBLY** (See **REASSEMBLY**)

14. **INSTALL BACK DOOR INSIDE HANDLE** (See **REASSEMBLY**)

15. **INSTALL BACK DOOR SIDE GARNISH LH** (See **REASSEMBLY**)

16. **INSTALL BACK DOOR SIDE GARNISH RH**

HINT:

Use the same procedure as for the LH side.

17. **INSTALL BACK DOOR TRIM UPPER PANEL ASSEMBLY** (See **REASSEMBLY**)

WINDOW DEFOGGER SYSTEM

PARTS LOCATION

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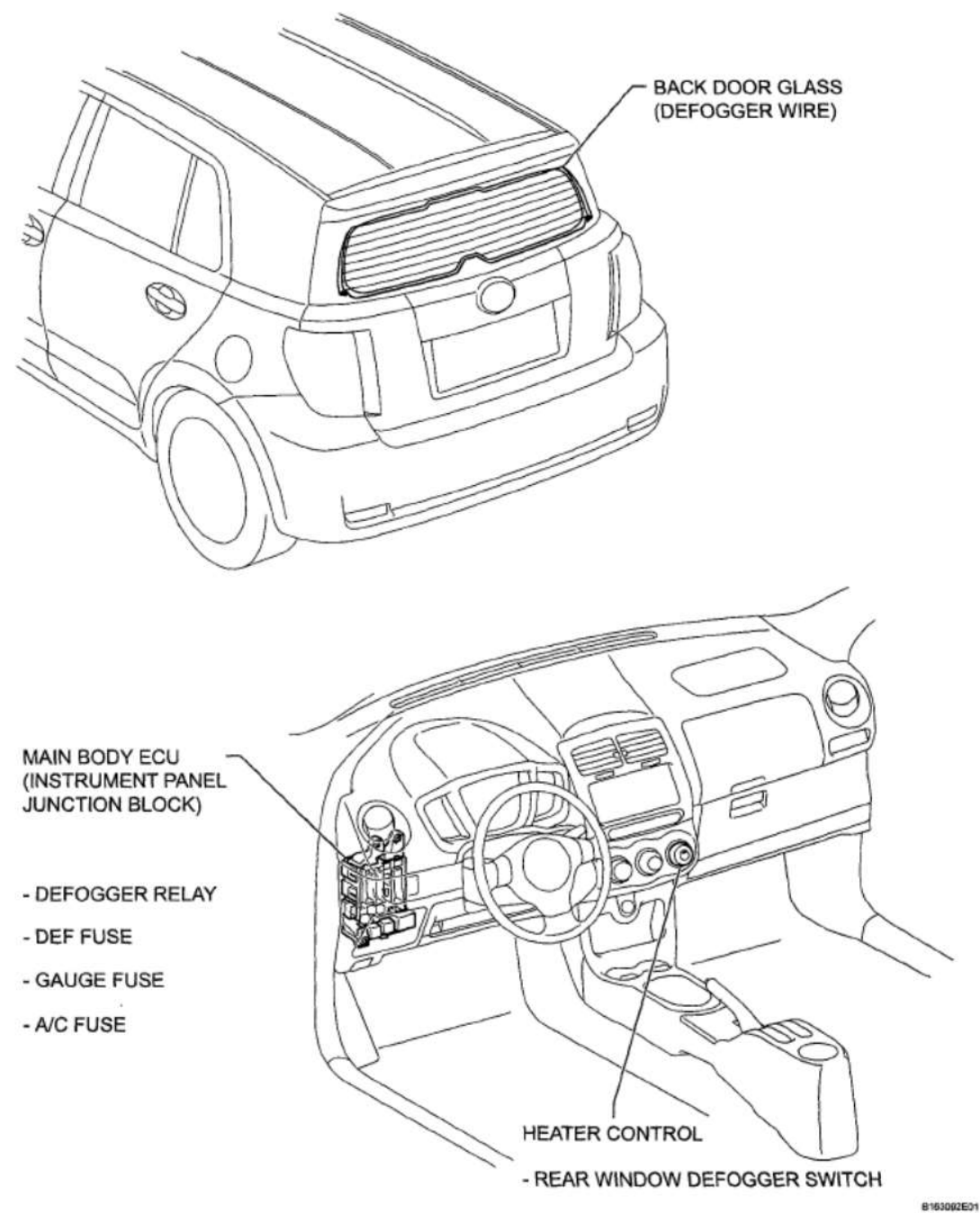


Fig. 92: Identifying Window Defogger System Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SYSTEM DIAGRAM

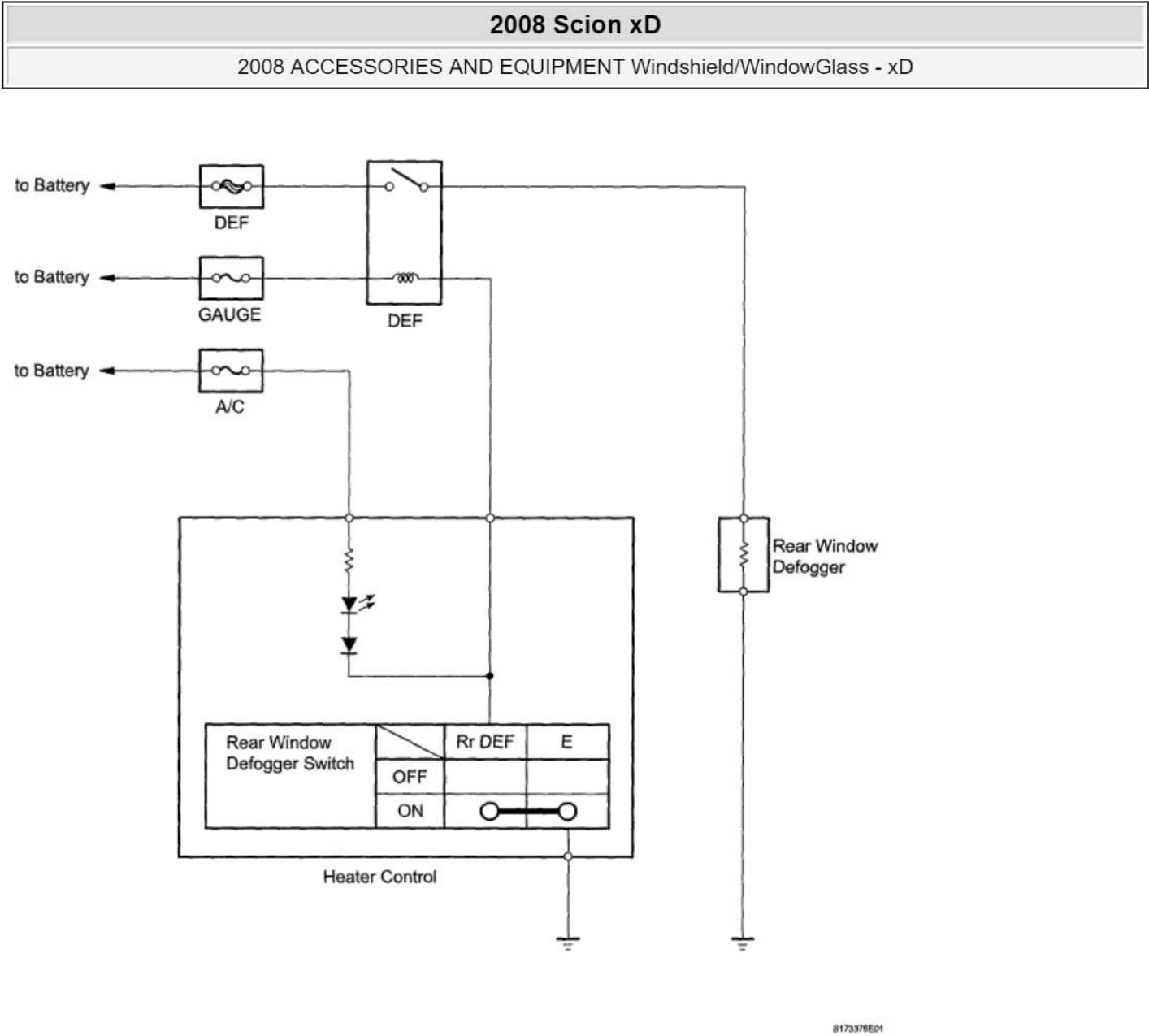


Fig. 93: Window Defogger System Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SYSTEM DESCRIPTION

1. GENERAL

The defogger system's thin heater wires are attached to the inside of the rear window and defog the window surface quickly. The indicator light illuminates while the system is operating. The system automatically turns off after approximately 15 minutes.

2. FUNCTION OF MAIN COMPONENT

FUNCTION OF MAIN COMPONENT

Component	Outline
-----------	---------

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--

RR DEF Relay	Receives rear defogger activation request signals from the heater control and supplies power to the rear window defogger
Rear Window Defogger	Receives power from the DEF relay and heats the defogger wire

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

Use the following procedure to troubleshoot the defogger system.

1. **VEHICLE BROUGHT TO WORKSHOP**
2. **CUSTOMER PROBLEM ANALYSIS CHECK**

HINT:

- In troubleshooting, confirm that the problem symptoms have been accurately identified. Preconceptions should be discarded in order to make an accurate judgment. To clearly understand what the problem symptoms are, it is extremely important to ask the customer about the problem and the conditions at the time the malfunction occurred.
- Gather as much information as possible for reference. Past problems that seem unrelated may also help in some cases.
- The following 5 items are important points in the problem analysis:

CUSTOMER PROBLEM ANALYSIS

What	Vehicle model, system name
When	Date, time, occurrence frequency
Where	Road conditions
Under what conditions?	Driving conditions, weather conditions
How did it happen?	Problem symptoms

3. INSPECT BATTERY VOLTAGE

- a. Measure the battery voltage.

Standard voltage: 11 to 14 V

If the voltage is below 11V, recharge or replace the battery before proceeding to the next step.

4. PROBLEM SYMPTOMS TABLE

Result

PROBLEM SYMPTOMS CHART

Result	Proceed to
--------	------------

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Fault is not listed in problem symptoms table	A
Fault is listed in problem symptoms table	B

B: Go to STEP 6

A: Go to Next Step

5. OVERALL ANALYSIS AND TROUBLESHOOTING

- a. Terminals of ECU (See TERMINALS OF ECU)
- b. On-vehicle inspection (See ON-VEHICLE INSPECTION)

6. REPAIR OR REPLACE

7. CONFIRMATION TEST

NEXT : END

PROBLEM SYMPTOMS TABLE

Window defogger system

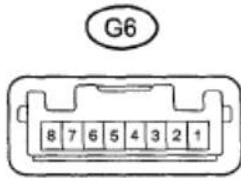
PROBLEM SYMPTOMS CHART

Symptom	Suspected Area	See
Rear Window Defogger System does not Operate	DEF fuse	<u>REAR WINDOW DEFOGGER SYSTEM DOES NOT OPERATE</u>
	GAUGE fuse	<u>REAR WINDOW DEFOGGER SYSTEM DOES NOT OPERATE</u>
	A/C fuse	<u>REAR WINDOW DEFOGGER SYSTEM DOES NOT OPERATE</u>
	Rear window defogger wire	<u>WINDOW DEFOGGER WIRE</u>
	Main Body ECU (defogger relay)	<u>REAR WINDOW DEFOGGER SYSTEM DOES NOT OPERATE</u>
	Wire harness	-

TERMINALS OF ECU

1. CHECK HEATER CONTROL

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Fig. 94: Identifying ECU Connector Terminals
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Measure the voltage and resistance according to the value(s) in the table below.

Standard voltage:

STANDARD VOLTAGE SPECIFICATIONS

Terminal No. (Symbols)	Wiring Color	Terminal Description	Condition	Specified Condition
G6-2 (RDEF) - G6-1 (E)	B - W-B	Rear defogger signal	Ignition switch ON, Rear defogger switch OFF	11 to 14 V
			Ignition switch ON, Rear defogger switch ON	Below 1 V
G6-3 (IG+) - G6-1 (E)	P - W-B	Power source	Ignition switch ON	11 to 14 V
			Ignition switch OFF	Below 1 V

Standard resistance:

STANDARD RESISTANCE SPECIFICATIONS

Terminal No. (Symbols)	Wiring Color	Terminal Description	Condition	Specified Condition
G6-1 (E) - Body ground	W-B - Body ground	Ground	Always	Below 1 ohms

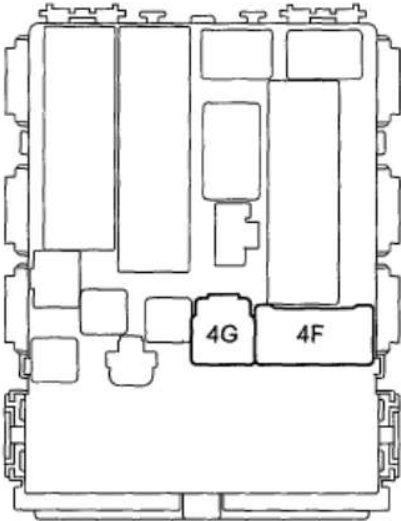
If the result is not as specified, there may be a malfunction in the wire harness.

2. CHECK MAIN BODY ECU

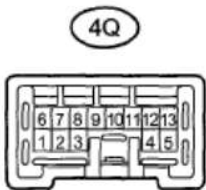
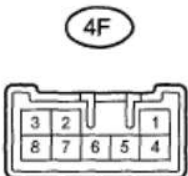
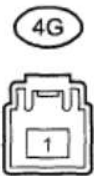
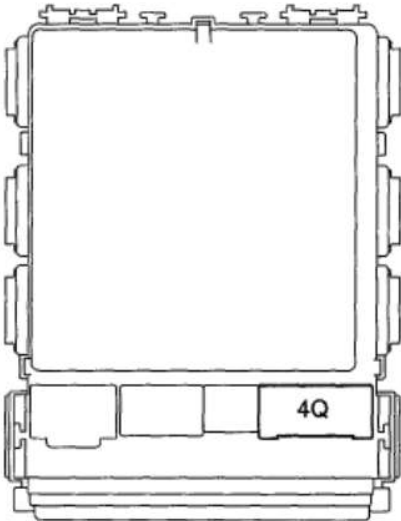
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Rear View of Main Body ECU:



Front View of Main Body ECU:



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Fig. 95: Identifying Main Body ECU Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Measure the voltage according to the value(s) in the table below.

Standard voltage:

STANDARD VOLTAGE SPECIFICATIONS

Terminal No. (Symbols)	Wiring Color	Terminal Description	Condition	Specified Condition
4G-1 - Body ground	B - Body ground	Power source	Always	11 to 14 V
4Q-12 - Body ground	B - Body ground	DEF relay operation signal	Ignition switch ON, Rear defogger switch OFF	11 to 14 V
			Ignition switch ON, Rear defogger switch ON	Below 1 V

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4F-2 - Body ground	B - Body ground	Defogger wire operation signal	Ignition switch ON, Rear defogger switch OFF	Below 1 V
			Ignition switch ON, Rear defogger switch ON	11 to 14 V

If the result is not as specified, there may be a malfunction in the wire harness or main body ECU.

REAR WINDOW DEFOGGER SYSTEM DOES NOT OPERATE

DESCRIPTION

When the rear defogger switch, which is built into the heater control, is operated, the operation signals are transmitted to the DEF relay (coil side). When the DEF relay (coil side) receives the signals, it turns on the DEF relay (switch side) to operate the rear window defogger.

WIRING DIAGRAM

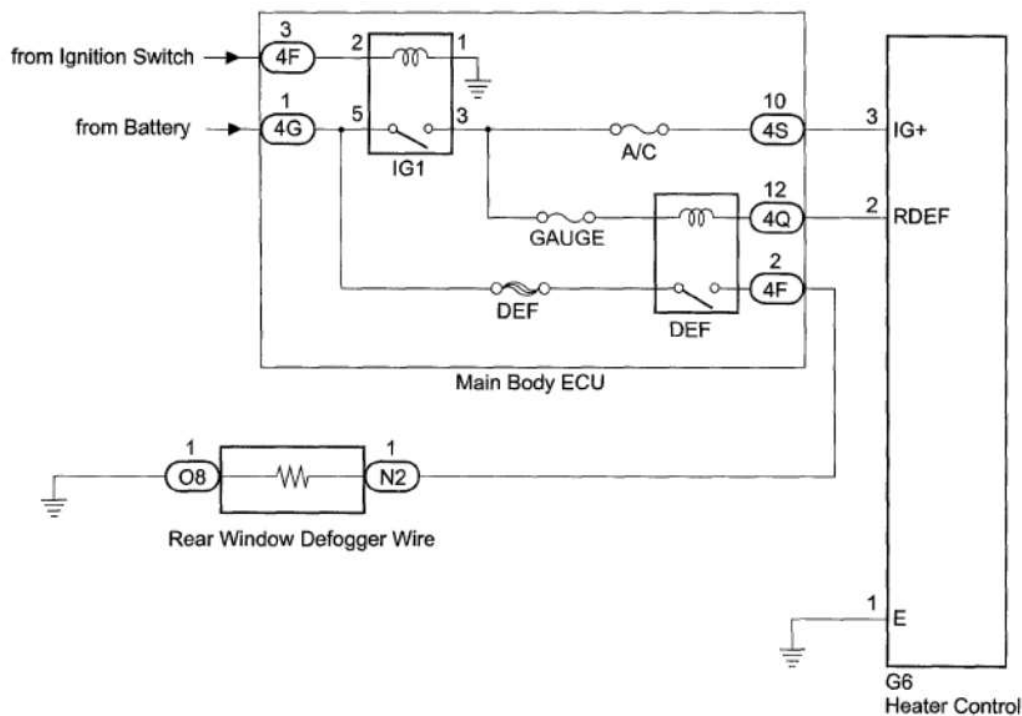


Fig. 96: Rear Window Defogger System Does Not Operate - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

1. INSPECT FUSES (DEF, GAUGE, A/C)

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- a. Remove the DEF, GAUGE and A/C fuses from the main body ECU.
- b. Measure the resistance according to the value(s) in the table below.

Standard resistance

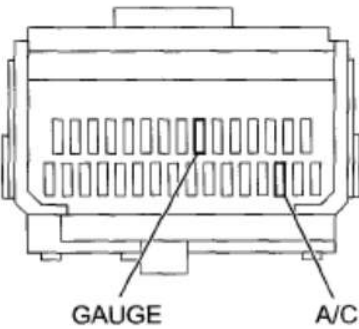
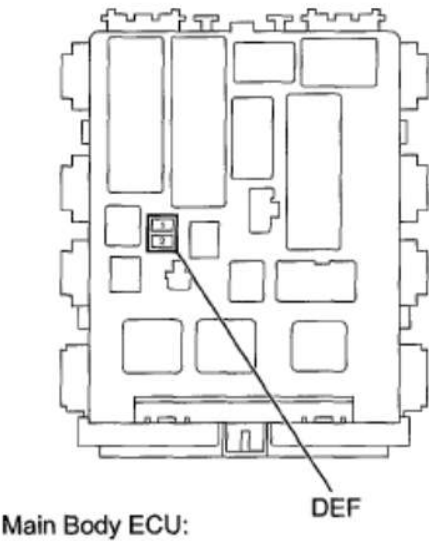
STANDARD RESISTANCE SPECIFICATIONS

Item	Condition	Specified Condition
DEF fuse	Always	Below 1 ohms
GAUGE fuse	Always	Below 1 ohms
A/C fuse	Always	Below 1 ohms

- c. Reinstall the fuses.

NG: REPLACE FUSE

Rear View of Main Body ECU:



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Fig. 97: Identifying DEF, GAUGE And A/C Fuses
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to Next Step

2. **CHECK HARNESS AND CONNECTOR (REAR WINDOW DEFOGGER WIRE BATTERY POSITIVE)**
- a. Measure the voltage according to the value(s) in the table below.

Standard voltage

TESTER CONNECTION AND SPECIFIED CONDITION

Tester Connection	Switch Condition	Specified Condition
N2-1 - Body ground	Ignition switch ON Rear defogger switch ON	11 to 14 V

NG: Go to step 4

Front view of wire harness connector:
(to Rear Window Defogger Wire)



B173355E01

Fig. 98: Identifying N2 Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to Next Step

3. **CHECK HARNESS AND CONNECTOR (REAR WINDOW DEFOGGER WIRE CONNECTOR - BODY GROUND)**
- a. Disconnect the O8 rear window defogger wire connector.
- b. Measure the resistance according to the value(s) in the table below.

Standard resistance

TESTER CONNECTION AND SPECIFIED CONDITION

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Tester Connection	Condition	Specified Condition
O8-1 - Body ground	Always	Below 1 ohms

- c. Reconnect the rear window defogger wire connector.

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

Front view of wire harness connector:
(to Rear Window Defogger Wire)



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Fig. 99: Identifying O8 Rear Window Defogger Wire Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK : REPAIR REAR WINDOW DEFOGGER WIRE (See REPAIR)

4. **CHECK HARNESS AND CONNECTOR (REAR WINDOW DEFOGGER WIRE - MAIN BODY ECU)**
- Disconnect the 4F main body ECU connector.
 - Disconnect the N2 rear window defogger wire connector.
 - Measure the resistance according to the value(s) in the table below.

Standard resistance

TESTER CONNECTION AND SPECIFIED CONDITION

Tester Connection	Condition	Specified Condition
N2-1 - 4F-2	Always	Below 1 ohms
N2-1 - Body ground	Always	10 kohms or higher

- Reconnect the main body ECU connector.
- Reconnect the rear window defogger connector.

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

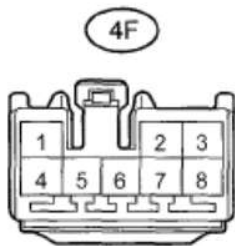
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Front view of wire harness connector:
(to Rear Window Defogger Wire)



Front view of wire harness connector:
(to Main Body ECU)



B173377E01

Fig. 100: Identifying N2 Rear Window Defogger Wire Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to Next Step

5. **CHECK HARNESS AND CONNECTOR (REAR WINDOW DEFOGGER SYSTEM POWER SOURCE)**
- a. Disconnect the 4G main body ECU connector.
 - b. Measure the voltage according to the value(s) in the table below.

Standard voltage

TESTER CONNECTION AND SPECIFIED CONDITION

Tester Connection	Switch Condition	Specified Condition
4G-1 - Body ground	Ignition switch ON	11 to 14 V

- c. Reconnect the main body ECU connector.

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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Front view of wire harness connector.
(to Main Body ECU)



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Fig. 101: Identifying 4G Main Body ECU Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

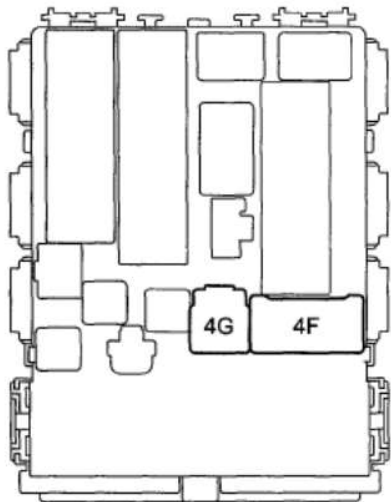
OK: Go to Next Step

6. INSPECT MAIN BODY ECU (DEF RELAY)

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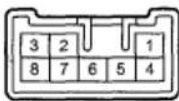
Rear View of Main Body ECU:



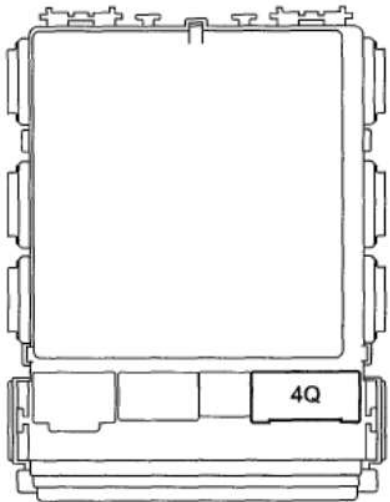
4G



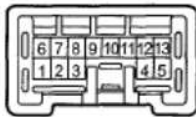
4F



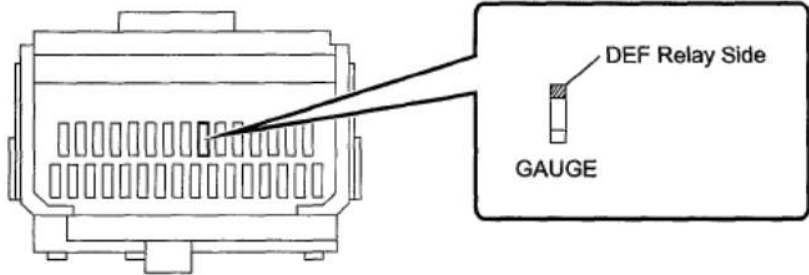
Front View of Main Body ECU:



4Q



Main Body ECU:



B173360E01

Fig. 102: Inspecting Main Body ECU (DEF Relay)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the main body ECU.
- b. Remove the GAUGE fuse from the main body ECU.
- c. Measure the resistance of the DEF relay.

Standard resistance

TESTER CONNECTION AND SPECIFIED CONDITION

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Tester Connection	Condition	Specified Condition
4G-1 - 4F-2	When battery voltage absent	10 kohms or higher
4G-1 - 4F-2	When battery voltage applied to terminals 4Q-12 and GAUGE fuse (DEF relay side)	Below 1 ohms

- d. Reinstall the fuse.
- e. Reinstall the main body ECU.

NG: REPLACE MAIN BODY ECU**OK: Go to Next Step****7. CHECK HARNESS AND CONNECTOR (REAR WINDOW DEFOGGER SWITCH - MAIN BODY ECU)**

- a. Disconnect the G6 heater control connector.
- b. Disconnect the 4Q, 4S main body ECU connector.
- c. Measure the resistance according to the value(s) in the table below.

Standard resistance**TESTER CONNECTION AND SPECIFIED CONDITION**

Tester Connection	Condition	Specified Condition
G6-2 (RDEF) - 4Q-12	Always	Below 1 ohms
G6-3 (IG+) - 4S-10	Always	Below 1 ohms
G6-2 (RDEF) - Body ground	Always	10 kohms or higher
G6-3 (IG+) - Body ground	Always	10 kohms or higher

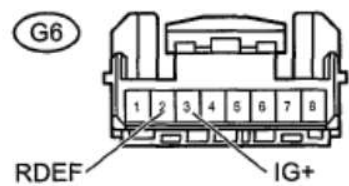
- d. Reconnect the heater control connector.
- e. Reconnect the main body ECU connector.

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

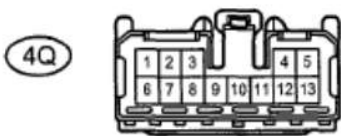
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Front view of wire harness connector:
(to Heater Control)



Front view of wire harness connector:
(to Main Body ECU)



Front view of wire harness connector:
(to Main Body ECU)



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Fig. 103: Identifying 4Q, 4S Main Body ECU Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to Next Step

8. **CHECK HARNESS AND CONNECTOR (HEATER CONTROL - BODY GROUND)**
- a. Measure the resistance according to the value(s) in the table below.

Standard resistance

TESTER CONNECTION AND SPECIFIED CONDITION

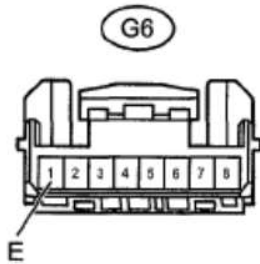
Tester Connection	Condition	Specified Condition
G6-1 (E) - Body ground	Always	Below 1 ohms

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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Front view of wire harness connector:
(to Heater Control)



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Fig. 104: Identifying G6 Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK : REPLACE HEATER CONTROL (See **REMOVAL**)

DEFOGGER RELAY

ON-VEHICLE INSPECTION

1. INSPECT MAIN BODY ECU (DEFOGGER RELAY)

- Remove the DEF fuse.
- Using an ohmmeter, measure the resistance between the terminals of the DEF fuse.

Standard resistance: Below 1 ohms

- Install the DEF fuse.
- Using an ohmmeter, measure the resistance between terminals 4Q-12 and 4Q-4 of the main body ECU connector.

Standard resistance: Below 1 ohms

- Turn the ignition switch ON.
- Turn the defogger switch ON.
- Using a voltmeter, measure the voltage between terminal 4F-2 of the main body ECU connector and body ground.

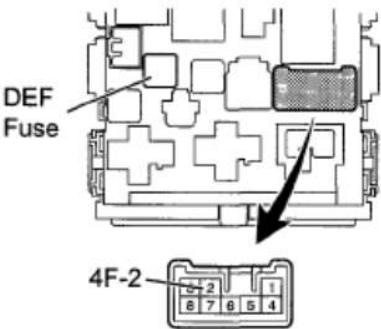
Standard voltage: 11 to 14 V

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Components Side:

Main Body ECU (Vehicle Front Side)



Main Body ECU (Vehicle Rear Side)

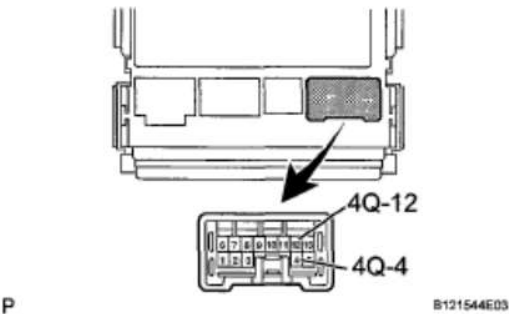


Fig. 105: Inspecting Main Body ECU (Defogger Relay)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

WINDOW DEFOGGER WIRE

ON-VEHICLE INSPECTION

1. INSPECT BACK DOOR GLASS (DEFOGGER WIRE)
- a. Turn the ignition switch ON.

b. Turn the defogger switch ON.

c. Check the voltage.

1. Using a voltmeter, measure the voltage at the center of each defogger wire as shown in the illustration.

Standard

VOLTAGE SPECIFICATIONS

Voltage	Condition
Approximately 5 V	Wire not broken

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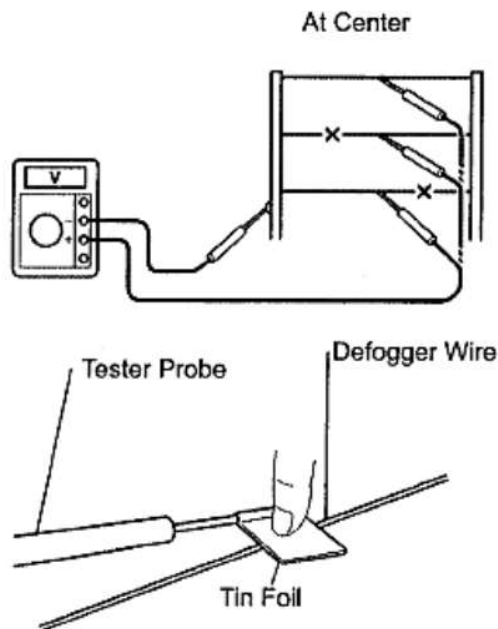
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Approximately 10 or 0 V | Wire broken

NOTE: When measuring the 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.

HINT:

If there is approximately 10 V, the wire may be faulty between the center of the wire and the battery. If there is no voltage, the wire may be faulty between the center of the wire and the ground.



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Fig. 106: Measuring Voltage At Center Of Each Defogger Wire
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- Place the positive (+) voltmeter probe against the defogger wire on the battery side.
- Place the foil strip on the negative (-) voltmeter probe against the wire on the ground side.
- Slide the positive (+) probe from the battery side to the ground side.
- 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 should indicate 0 V at the positive (+) end of the defogger wire but the indicated voltage gradually increases to approximately 12 V as the meter

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probe moves toward the other end.

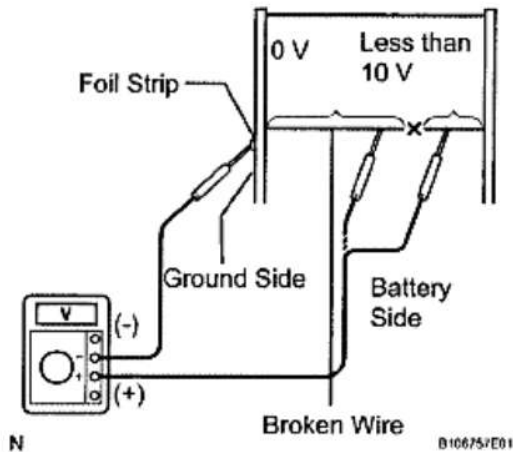


Fig. 107: Checking Voltage Between Center Of Defogger Wire
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. INSPECT REAR WINDOW DEFOGGER

- Check the operation.
- Check that the indicator illuminates and the rear window defogger becomes warm when the rear defogger switch is pressed.
- Check that the indicator turns off and the rear window defogger operation terminates after approximately 15 minutes.

REPAIR

1. IF NECESSARY, REPAIR DEFOGGER WIRE

- Clean the broken wire tips with grease, wax and silicone remover.
- Place masking tape along both sides of the wire.

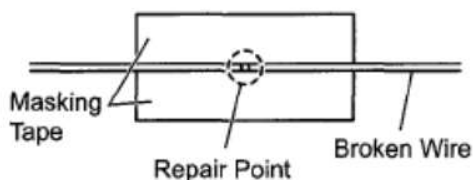


Fig. 108: Placing Masking Tape Along Both Sides Of Wire
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- Thoroughly stir the repair agent ("DuPont" paste No. 4817 or the equivalent).
- Using a fine tip brush, apply a small amount of the agent to the wire.

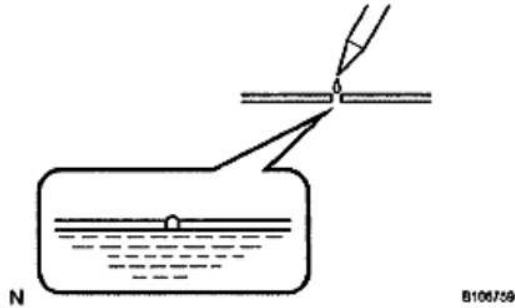
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Fig. 109: Applying Amount Of Agent To Wire
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- e. After a few minutes, remove the masking tape.

NOTE: Do not repair the defogger wire again for at least 24 hours.