

POWER WINDOW CONTROL SYSTEM

PRECAUTION

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

System Name	See Page
Power Window Control System	IN-32

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

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WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

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

1 VEHICLE BROUGHT TO WORKSHOP

NEXT

2 INSPECT BATTERY VOLTAGE

Standard voltage:

11 to 14 V

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

NEXT

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

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

Result

Result	Proceed to
MPX DTC is not output	A
MPX DTC is output	B

B

Go to MULTIPLEX COMMUNICATION SYSTEM

A

4 PROBLEM SYMPTOMS TABLE

Result

Result	Proceed to
If the fault is not listed in the problem symptoms table	A
If the fault is listed in the problem symptoms table	B

B

Go to step 7

A

5 OVERALL ANALYSIS AND TROUBLESHOOTING*

- (a) Terminals of ECU (see page [WS-9](#))

WS

- (b) DATA LIST / ACTIVE TEST (see page [WS-13](#))
- (c) On-vehicle Inspection (see page [WS-14](#))
- (d) Inspection (see page [WS-16](#))

NEXT

6	ADJUST, REPAIR OR REPLACE
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NEXT

7	CONFIRMATION TEST
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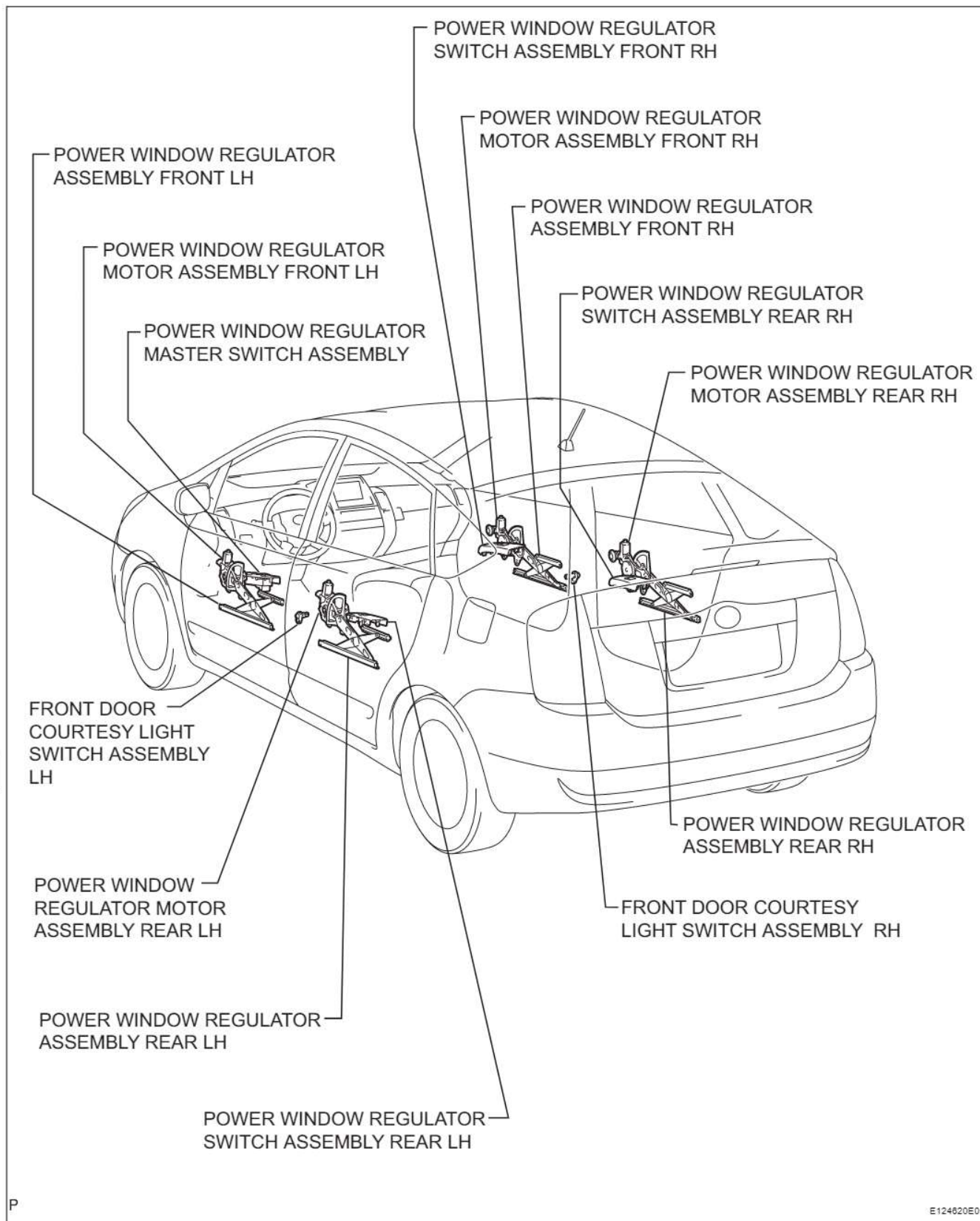
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8	RESET POWER WINDOW MOTOR
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If the power window switch AUTO light is blinking, reset the power window (see page [WS-7](#)).

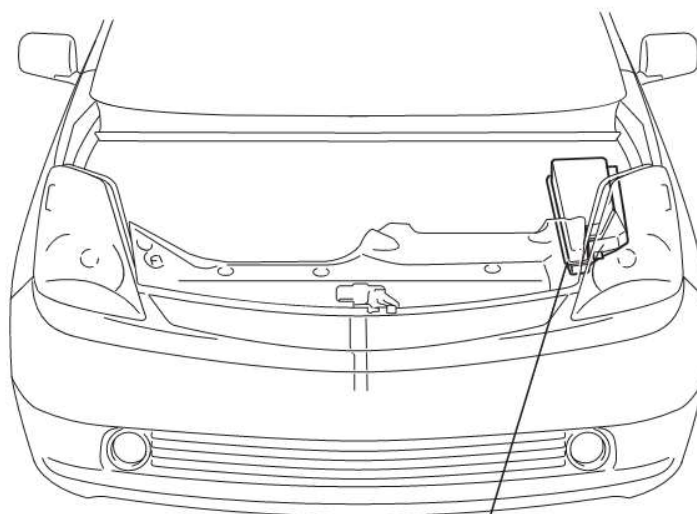
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END

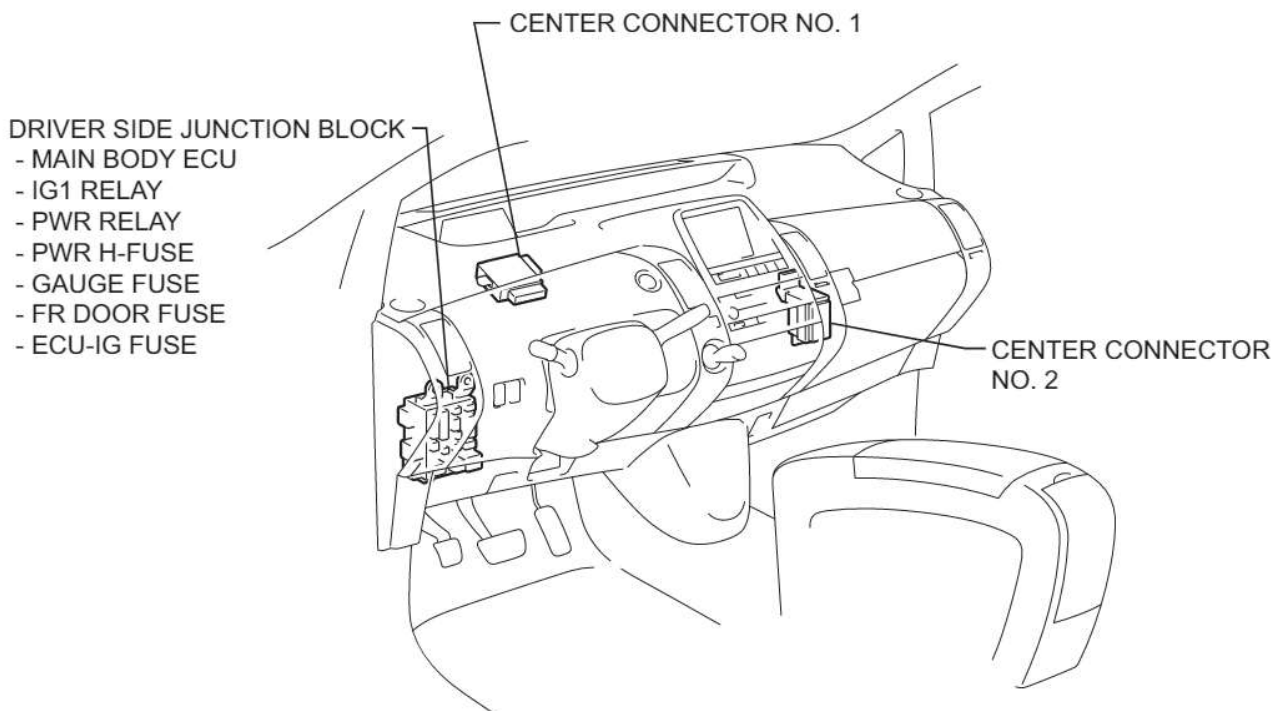
WS-4**WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM****PARTS LOCATION**

WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

WS-5



ENGINE ROOM JUNCTION BLOCK
- AM2 FUSE



WS

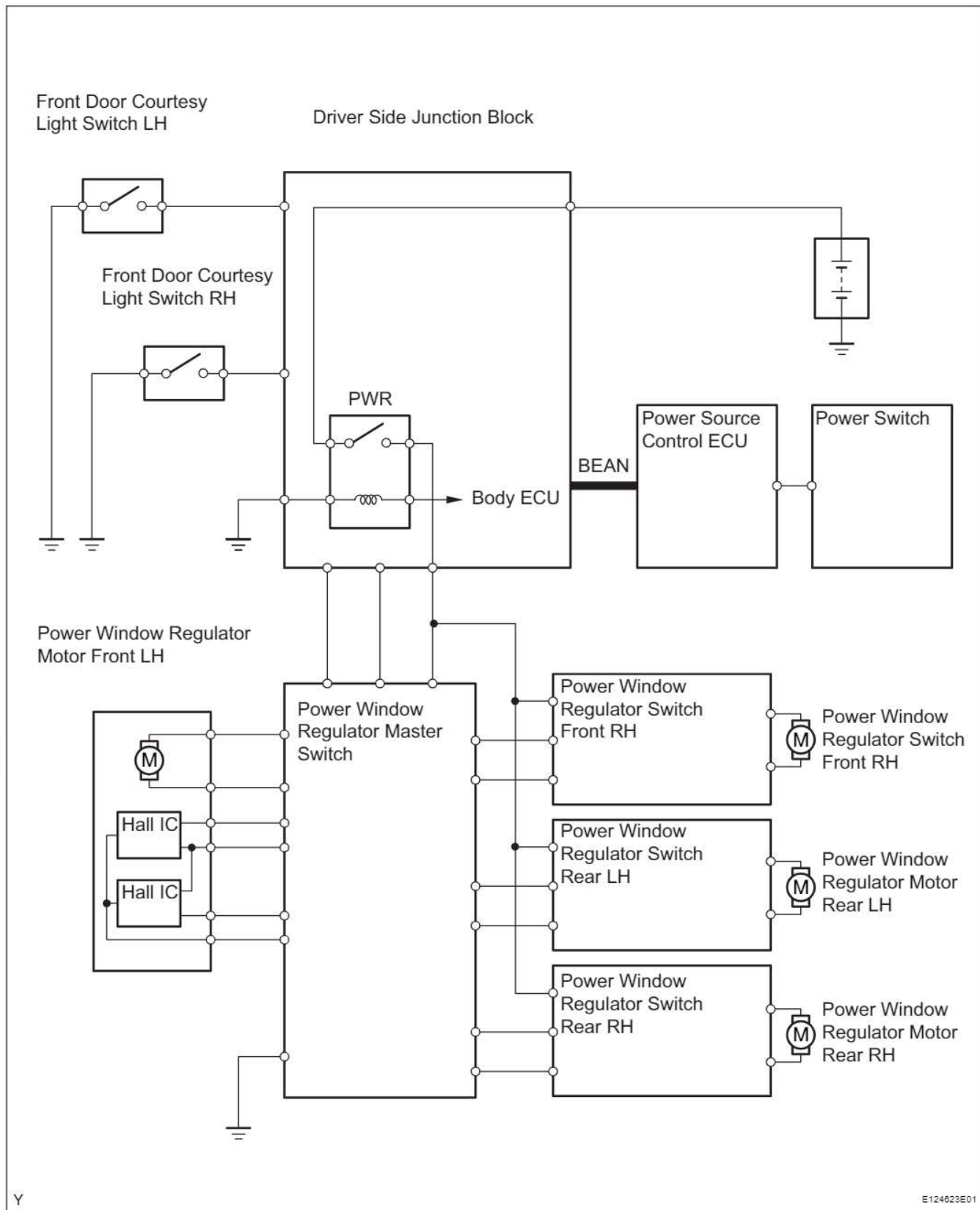
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WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

SYSTEM DIAGRAM



SYSTEM DESCRIPTION

1. POWER WINDOW CONTROL SYSTEM DESCRIPTION

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

The main controls of this system are: the power window regulator master switch, which is built into the driver side door, and the power window regulator switches, which are built into the passenger side door and rear doors.

Pressing each regulator switch or any of the switches on the master switch transmits an UP / DOWN signal to the corresponding power window regulator motor.

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

2. FUNCTION OF MAIN COMPONENT

Component	Outline
Power Window Regulator Master Switch Assembly	Controls window operations for all windows. Also, when window lock switch is set to lock position, window operation will only be possible for driver side power window.
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. As a result, window position changes. Also, driver side regulator motor uses pulse sensors to detect window position.

3. SYSTEM FUNCTION

The power window control system has the following functions.

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

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

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INITIALIZATION

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

NOTICE:

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

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

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WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

PROBLEM SYMPTOMS TABLE

HINT:

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

Power window control system

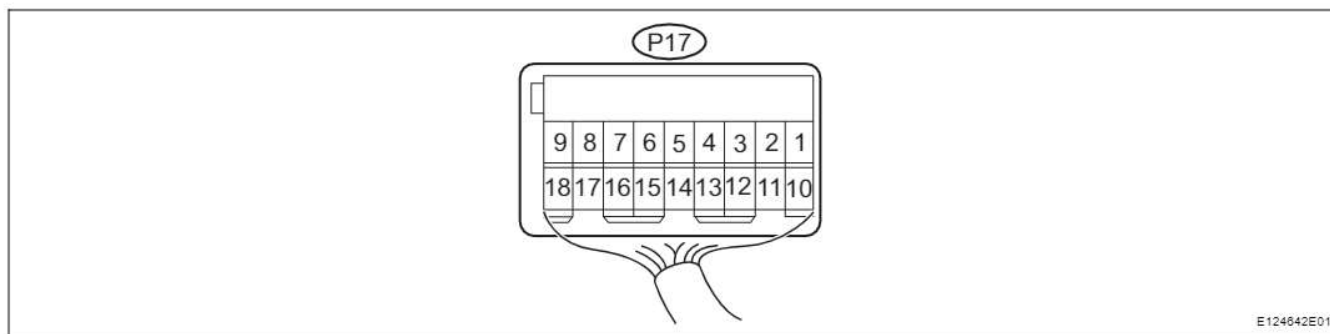
Symptom	Suspected area	See page
AUTO UP / DOWN function does not operate	1. Power window regulator motor front LH	WS-20
	2. Wire harness	
	3. Power window regulator master switch	
Remote UP / DOWN function does not operate	1. Power window regulator master switch	WS-23
	2. Wire harness	
Manual UP / DOWN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

WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

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TERMINALS OF ECU

1. CHECK POWER WINDOW REGULATOR MASTER SWITCH



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

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

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

- (c) Reconnect the P17 switch connector.
- (d) Reset the power window motor (see page [WS-7](#)).
- (e) Measure the voltage of the connector.

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
DU (P17-4) - E (P17-1)	Y - W-B	Power window motor UP output	Power switch ON (IG), driver side power window switch OFF	Below 1 V
DU (P17-4) - E (P17-1)	Y - W-B	Power window motor UP output	Power switch ON (IG), driver side power window switch UP (manual operation)	10 to 14 V
DU (P17-4) - E (P17-1)	Y - W-B	Power window motor UP output	Power switch ON (IG), driver side power window fully open	Below 1 V
DU (P17-4) - E (P17-1)	Y - W-B	Power window motor UP output	Power switch ON (IG), driver side power window switch UP (AUTO operation)	10 to 14 V
DU (P17-4) - E (P17-1)	Y - W-B	Power window motor UP output	Power switch ON (IG), driver side power window fully closed	Below 1 V
DD (P17-9) - E (P17-1)	G - W-B	Power window motor DOWN output	Power switch ON (IG), driver side power window switch OFF	Below 1 V
DD (P17-9) - E (P17-1)	G - W-B	Power window motor DOWN output	Power switch ON (IG), driver side power window switch DOWN (manual operation)	10 to 14 V

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WS-12**WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM**

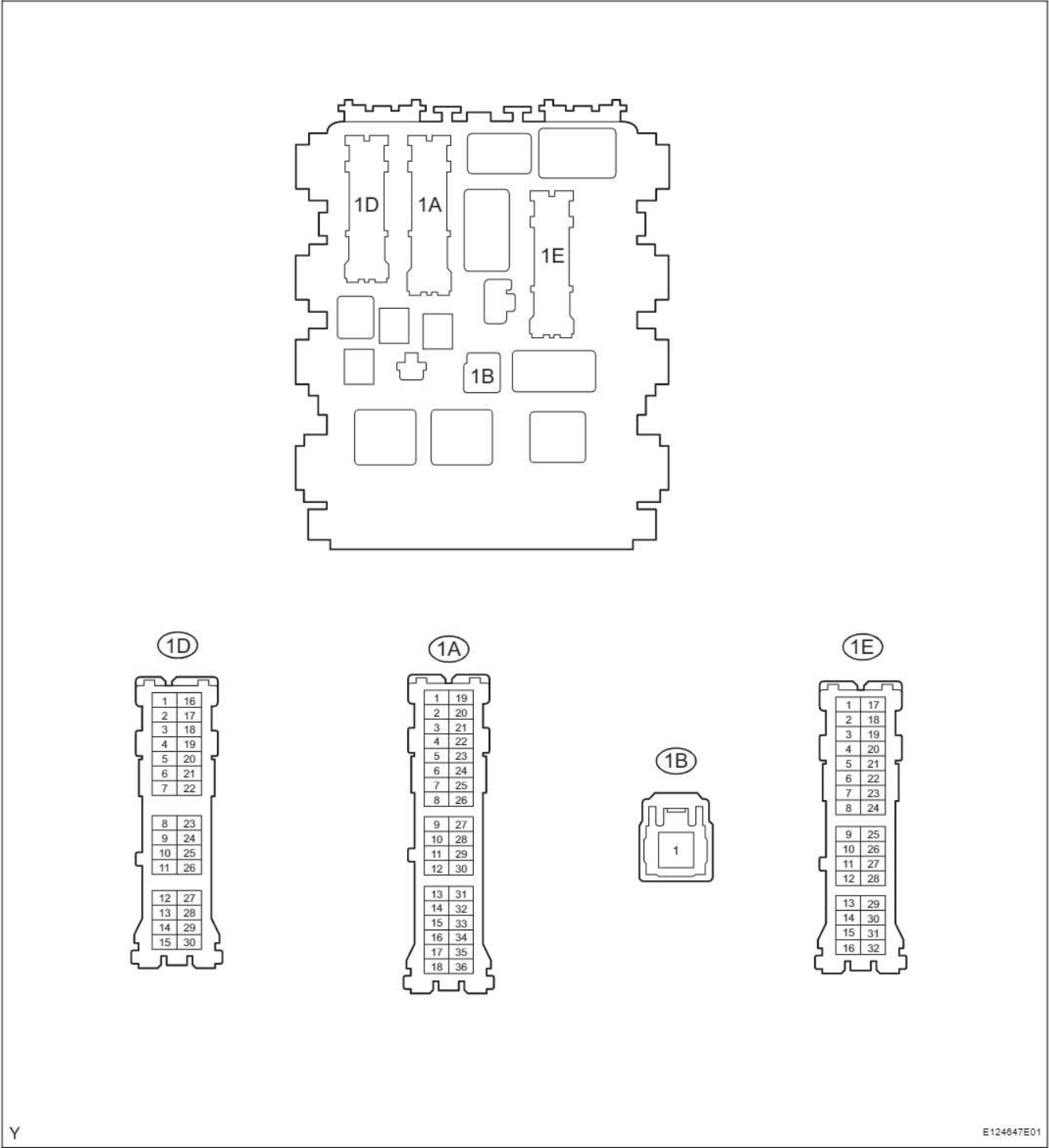
Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
DD (P17-9) - E (P17-1)	G - W-B	Power window motor DOWN output	Power switch ON (IG), driver side power window fully closed	Below 1 V
DD (P17-9) - E (P17-1)	G - W-B	Power window motor DOWN output	Power switch ON (IG), driver side power window switch DOWN (AUTO operation)	10 to 14 V
DD (P17-9) - E (P17-1)	G - W-B	Power window motor DOWN output	Power switch ON (IG), driver side power window fully open	Below 1 V
VCC (P17-3) - GND (P17-2)	G - O	- Power window motor power source - Power window motor sensor ground	Always	10 to 14 V

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

(f) Check the AUTO light illumination.

(1) When turning the power switch ON (IG), check that the AUTO light illuminates (green).

2. CHECK DRIVER SIDE JUNCTION BLOCK (MAIN BODY ECU)



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

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
ECUB (1A-30) - Body ground	R - Body ground	+B (ECUB) power supply	Always	10 to 14 V

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WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
ALTB (1B-1) - Body ground	W - Body ground	+B (power system, generator system) power supply	Always	10 to 14 V
KSW (1E-26) - Body ground	Y - Body ground	Halfway switch input	No key in key slot	10 kΩ or higher
KSW (1E-26) - Body ground	Y - Body ground	Halfway switch input	Key inserted	Below 1 Ω
DCTY (1D-21) - Body ground	V - Body ground	Driver side courtesy switch input	Driver side door closed	10 kΩ or higher
DCTY (1D-21) - Body ground	V - Body ground	Driver side courtesy switch input	Driver side door open	Below 1 Ω
PCTY (1D-24) - Body ground P	BR - Body ground	Passenger side courtesy switch input	Passenger side door closed	10 kΩ or higher
PCTY (1D-24) - Body ground	BR - Body ground	Passenger side courtesy switch input	Passenger side door open	Below 1 Ω
GND (1E-17) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

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

- (c) Reconnect the 1A, 1D, 1E and 1B junction block connectors.
- (d) Measure the voltage of the connector.

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
KSW (1E-26) - Body ground	Y - Body ground	Halfway switch input	No key in key slot	10 to 14 V
KSW (1E-26) - Body ground	Y - Body ground	Halfway switch input	Key inserted	Below 1 V

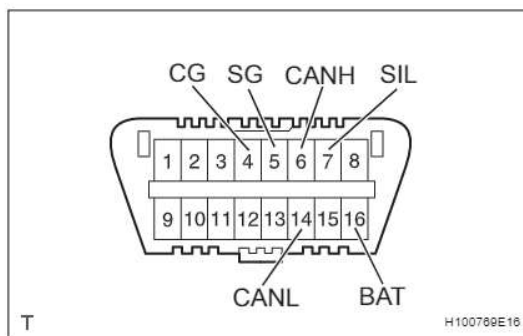
If the result is not as specified, the junction block (main body ECU) may have a malfunction.

DIAGNOSIS SYSTEM

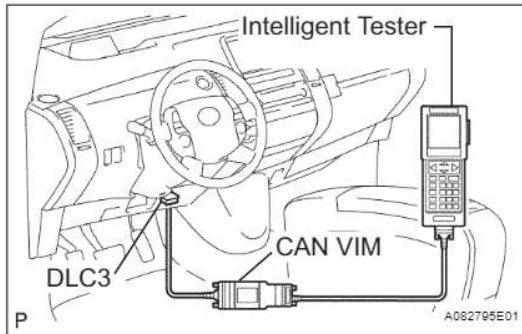
1. CHECK DLC3

HINT:

The vehicle uses the ISO 15765-4 communication protocol. The terminal arrangement of the DLC3 complies with SAE J1962 and matches the ISO 15765-4 format.



Symbols (Terminal No.)	Terminal Description	Condition	Specified Condition
SIL (7) - SG (5)	Bus '+' line	During transmission	Pulse generation
CG (4) - Body ground	Chassis ground	Always	Below 1 Ω
SG (5) - Body ground	Signal ground	Always	Below 1 Ω
BAT (16) - Body ground	Battery positive	Always	10 to 14 V
CANH (6) - CANL (14)	HIGH-level CAN bus line	Power switch OFF*	54 to 69 Ω
CANH (6) - CG (4)	HIGH-level CAN bus line	Power switch OFF*	1 kΩ or more
CANL (14) - CG(4)	HIGH-level CAN bus line	Power switch OFF*	1 kΩ or more
CANH (6) - BAT (16)	LOW-level CAN bus line	Power switch OFF*	1 kΩ or more
CANL (14) - BAT (16)	LOW-level CAN bus line	Power switch OFF*	1 kΩ or more

**NOTICE:**

***: Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the power switch, any other switches or the doors.**

If the result is not as specified, the DLC3 may have a malfunction. Repair or replace the harness and connector.

HINT:

Connect the cable of the intelligent tester (with CAN VIM) to the DLC3, turn the power switch ON (IG) and attempt to use the intelligent tester. If the display informs that a communication error has occurred, there is a problem either with the vehicle or with the tester.

- If communication is normal when the tester is connected to another vehicle, inspect the DLC3 of the original vehicle.
- If communication is still impossible when the tester is connected to another vehicle, the problem is probably in the tester itself. Consult the Service Department listed in the tester's instruction manual.

2. INSPECT BATTERY VOLTAGE**Standard:**

11 to 14 V

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

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WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

DATA LIST / ACTIVE TEST

1. READ DATA LIST

HINT:

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

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

Body ECU

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
D DOR CTY SW	Driver side door courtesy switch signal / ON or OFF	ON: Driver side door is open OFF: Driver side door is closed	-
P DOR CTY SW	Passenger side door courtesy switch signal / ON or OFF	ON: Passenger side door is open OFF: Passenger side door is closed	-



ON-VEHICLE INSPECTION

1. CHECK WINDOW LOCK SWITCH

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

2. CHECK MANUAL UP / DOWN FUNCTION

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

OK

Condition	Master Switch	Switch Operation	Power Window
Power switch ON (IG)	Driver side	Pulled halfway up	UP (closed)
Power switch ON (IG)	Driver side	Pushed halfway down	DOWN (open)

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

OK

Condition	Regulator Switch	Switch Operation	Power Window
• Power switch ON (IG) • Window lock switch OFF	Passenger side	Pulled up	UP (closed)
• Power switch ON (IG) • Window lock switch OFF	Passenger side	Pushed down	DOWN (open)

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

OK

Condition	Regulator Switch	Switch Operation	Power Window
• Power switch ON (IG) • Window lock switch OFF	Rear LH	Pulled up	UP (closed)
• Power switch ON (IG) • Window lock switch OFF	Rear LH	Pushed down	DOWN (open)

WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM**WS-17**

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

OK

Condition	Regulator Switch	Switch Operation	Power Window
- Power switch ON (IG) - Window lock switch OFF	Rear RH	Pulled up	UP (closed)
- Power switch ON (IG) - Window lock switch OFF	Rear RH	Pushed down	DOWN (open)

3. CHECK AUTO UP / DOWN FUNCTION

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

OK

Condition	Master Switch	Switch Operation	Power Window
Power switch ON (IG)	Driver side	Pulled fully up	AUTO UP (fully closed)
Power switch ON (IG)	Driver side	Pushed fully down	AUTO DOWN (fully open)

4. CHECK REMOTE UP / DOWN FUNCTION

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

OK

Condition	Regulator Switch	Switch Operation	Power Window
- Power switch ON (IG) - Window lock switch OFF	Passenger side	Pulled up	UP (closed)
- Power switch ON (IG) - Window lock switch OFF	Passenger side	Pushed down	DOWN (open)

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

OK

Condition	Regulator Switch	Switch Operation	Power Window
- Power switch ON (IG) - Window lock switch OFF	Rear LH	Pulled up	UP (closed)
- Power switch ON (IG) - Window lock switch OFF	Rear LH	Pushed down	DOWN (open)

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

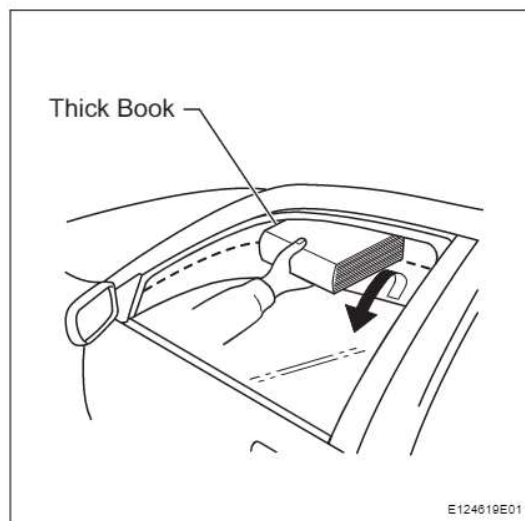
OK

Condition	Regulator Switch	Switch Operation	Power Window
- Power switch ON (IG) - Window lock switch OFF	Rear RH	Pulled up	UP (closed)
- Power switch ON (IG) - Window lock switch OFF	Rear RH	Pushed down	DOWN (open)

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WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM



5. CHECK JAM PROTECTION FUNCTION

HINT:

- The jam protection function helps prevent any part of your body from getting caught by accident between the door frame and the door glass during power window operation.
- The jam protection function is only available on the driver side power window.

NOTICE:

If the power window motor has just been reset, raise and lower the door glass several times manually before performing the check.

- (a) Check that the door glass lowers by approximately 50 mm (1.97 in.) when something is caught between the door frame and door glass during power window operation. However, when the opening between the door frame and the door glass is less than 200 mm (7.87 in.), the door glass continues to lower and does not stop until an opening of 200 mm (7.87 in.) is achieved. Operative conditions:
- AUTO UP
 - AUTO UP function after turning power switch OFF
 - MANUAL UP function after turning power switch OFF

6. CHECK POWER WINDOW FAIL-SAFE FUNCTION

- (a) The power window regulator motor's pulse sensors detect when an object has been jammed in the window. If a pulse sensor has a malfunction, the fail-safe function starts operating and the AUTO UP / DOWN function will be disabled.

7. CHECK PTC OPERATION

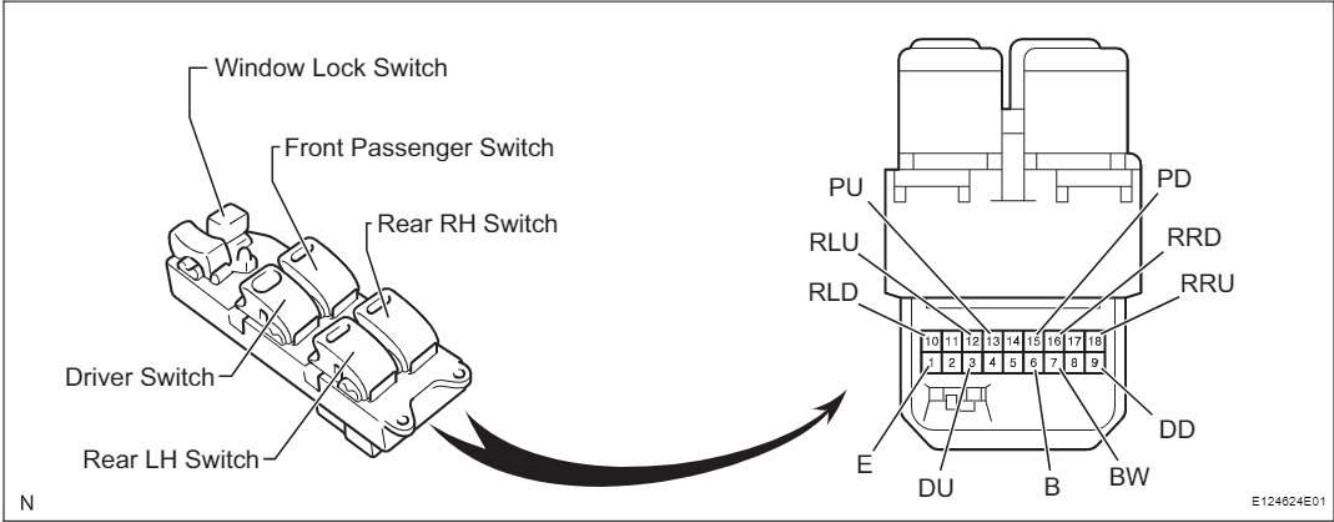
HINT:

PTC operation is a function that prevents overloading of the power window regulator by stopping the motor. PTC operation activates when the power window regulator switch is operated for a predetermined amount of time.

- (a) Pull up and hold the power window regulator switch for more than 90 seconds. Then release the switch.
- (b) Check that pressing the switch does not move the window.
- (c) Wait until 60 seconds have passed since the switch was released in the first step. Check that pressing the switch results in normal window movement.

INSPECTION

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



Standard resistance:
Driver switch

Tester Connection	Window Lock Switch Condition	Power Window Switch Condition	Specified Condition
1 (E) - 9 (DD)	Always (ON / OFF)	UP	Below 1 Ω
4 (DU) - 7 (BW)			
1 (E) - 9 (DD)	Always (ON / OFF)	AUTO UP	Below 1 Ω
4 (DU) - 7 (BW)			
1 (E) - 4 (DU)	Always (ON / OFF)	OFF	Below 1 Ω
1 (E) - 9 (DD)			
1 (E) - 4 (DU)	Always (ON / OFF)	DOWN	Below 1 Ω
7 (BW) - 9 (DD)			
1 (E) - 4 (DU)	Always (ON / OFF)	AUTO DOWN	Below 1 Ω
7 (BW) - 9 (DD)			

Passenger switch

Tester Connection	Window Lock Switch Condition	Power Window Switch Condition	Specified Condition
1 (E) - 15 (PD)	OFF	UP	Below 1 Ω
6 (B) - 13 (PU)			
1 (E) - 13 (PU)	OFF	OFF	Below 1 Ω
1 (E) - 15 (PD)			
1 (E) - 13 (PU)	OFF	DOWN	Below 1 Ω
6 (B) - 15 (PD)			
1 (E) - 15 (PD)	ON	UP	10 kΩ or higher
6 (B) - 13 (PU)			Below 1 Ω
13 (PU) - 15 (PD)	ON	OFF	Below 1 Ω
1 (E) - 13 (PU)			10 kΩ or higher
6 (B) - 15 (PD)			Below 1 Ω

Rear LH switch

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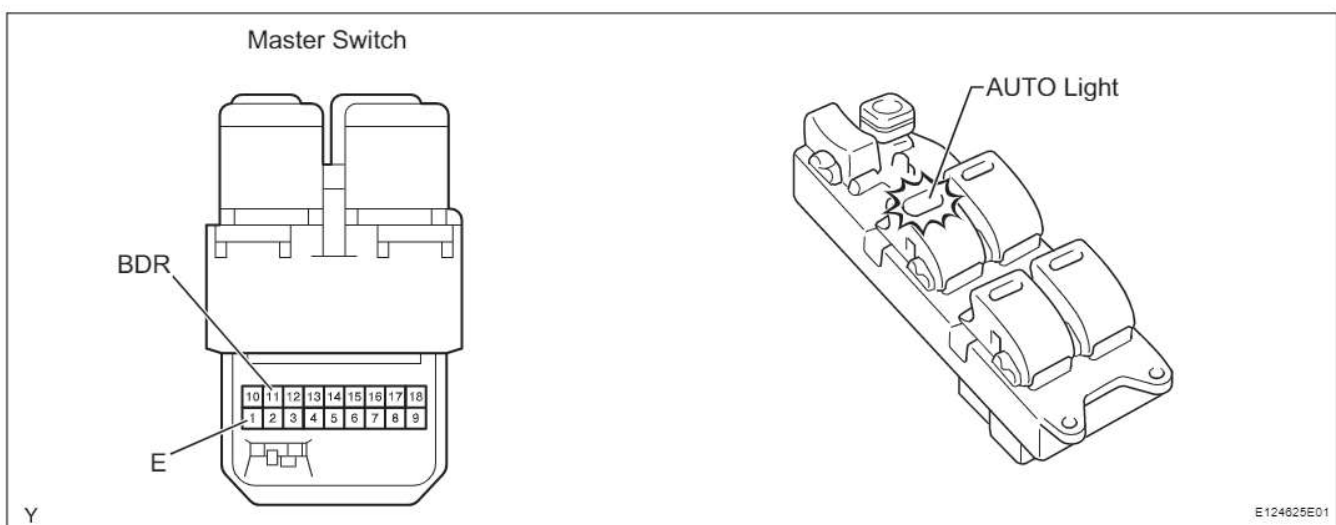
Tester Connection	Window Lock Switch Condition	Power Window Switch Condition	Specified Condition
1 (E) - 10 (RLD)	OFF	UP	Below 1 Ω
6 (B) - 12 (RLU)			
1 (E) - 12 (RLU)			
1 (E) - 10 (RLD)	OFF	OFF	Below 1 Ω
1 (E) - 12 (RLU)			
6 (B) - 10 (RLD)			
1 (E) - 10 (RLD)	ON	UP	10 k Ω or higher
6 (B) - 12 (RLU)			Below 1 Ω
12 (RLU) - 10 (RLD)			Below 1 Ω
1 (E) - 12 (RLU)	ON	DOWN	10 k Ω or higher
6 (B) - 10 (RLD)			Below 1 Ω

Rear RH switch

Tester Connection	Window Lock Switch Condition	Power Window Switch Condition	Specified Condition
1 (E) - 16 (RRD)	OFF	UP	Below 1 Ω
6 (B) - 18 (RRU)			
1 (E) - 18 (RRU)			
1 (E) - 16 (RRD)	OFF	OFF	Below 1 Ω
1 (E) - 18 (RRU)			
6 (B) - 16 (RRD)			
1 (E) - 16 (RRD)	ON	UP	10 k Ω or higher
6 (B) - 18 (RRU)			Below 1 Ω
18 (RRU) - 16 (RRD)			Below 1 Ω
1 (E) - 18 (RRU)	ON	DOWN	10 k Ω or higher
6 (B) - 16 (RRD)			Below 1 Ω

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

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



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WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

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OK

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 11 (BDR)	AUTO light illuminates
Battery negative (-) → Terminal 1 (E)	

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

2. INSPECT POWER WINDOW REGULATOR SWITCH ASSEMBLY

- (a) Measure the resistance of the switch when the switch is operated.

Standard resistance

Tester Connection	Switch Condition	Specified Condition
1 - 2 3 - 4	UP	Below 1 Ω
1 - 2 3 - 5	OFF	Below 1 Ω
1 - 4 3 - 5	DOWN	Below 1 Ω

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

3. INSPECT POWER WINDOW REGULATOR MOTOR ASSEMBLY (for Front LH and Rear LH)

- (a) Apply battery voltage to connector terminals 1 and 2.

NOTICE:

Do not apply battery voltage to any terminals except terminals 1 and 2.

- (b) Check that the motor gear rotates smoothly as follows.

OK

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 regulator motor assembly.

4. INSPECT POWER WINDOW REGULATOR MOTOR ASSEMBLY (for Front RH and Rear RH)

- (a) Apply battery voltage to connector terminals 1 and 2.

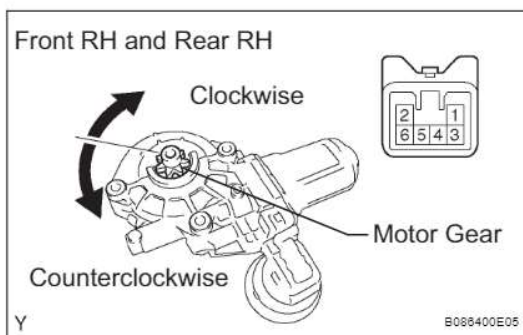
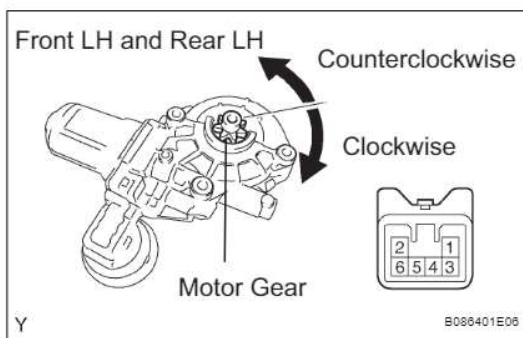
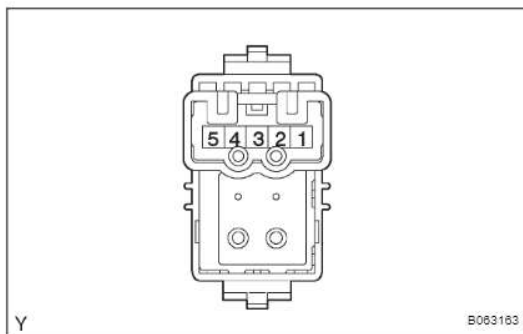
NOTICE:

Do not apply battery voltage to any terminals except terminals 1 and 2.

- (b) Check that the motor gear rotates smoothly as follows.

OK

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



WS

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WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

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

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

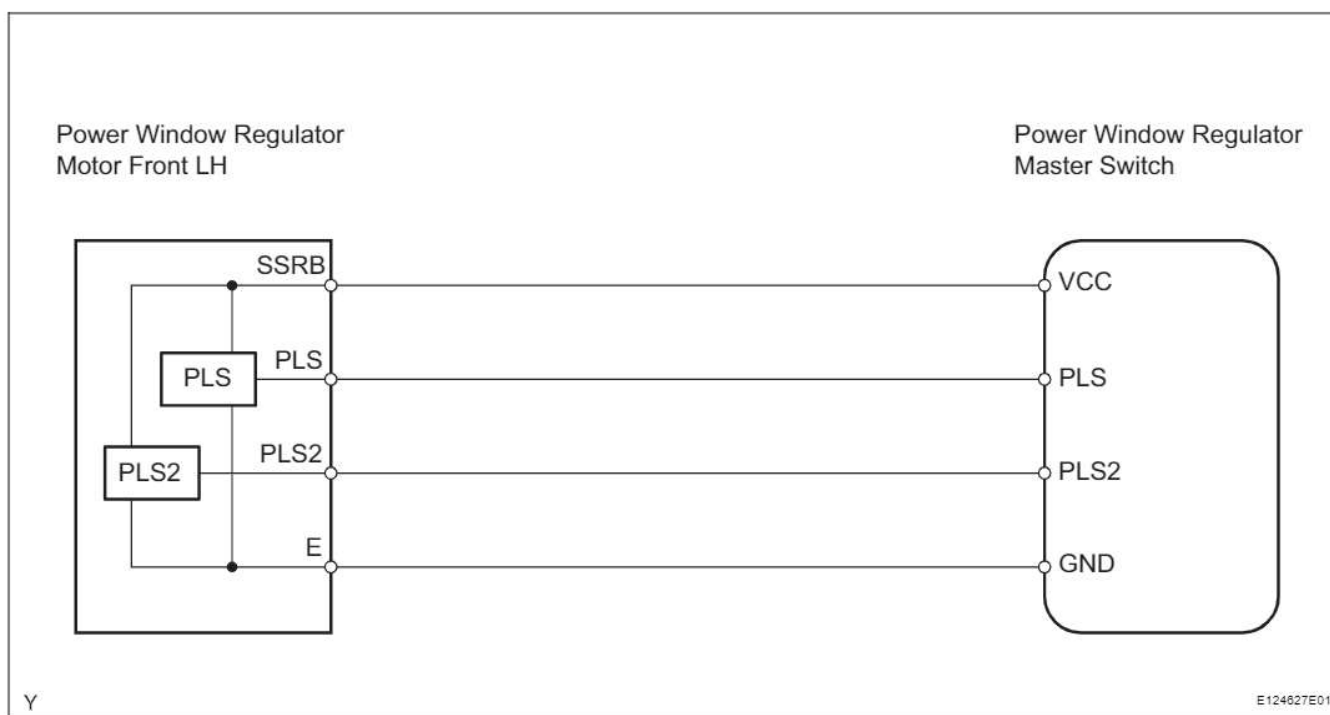
Auto Up / Down Function does not Operate

DESCRIPTION

If the AUTO UP / DOWN function does not operate, the cause may be one or more of the following:

- The recorded power window fully closed position, which is stored in the power window regulator master switch, was erased as a result of: 1) the PWR H-fuse or the power window relay (PWR) being replaced; or 2) the battery cable and the master switch's connector being disconnected.
- The master switch has a malfunction.
- The pulse sensors in the driver side power window regulator motor have a malfunction.
- The wiring between the master switch and the driver side power window regulator motor is open or short circuited.

WIRING DIAGRAM



INSPECTION PROCEDURE

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

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

OK :

Manual UP / DOWN function operates normally.

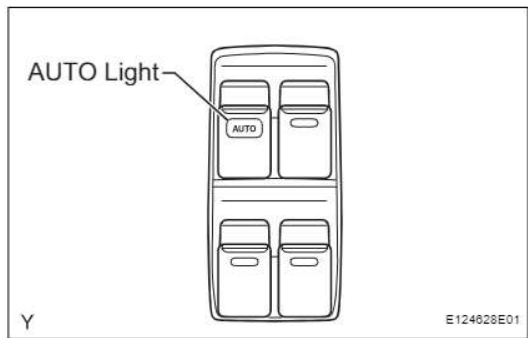
NG

OTHER PROBLEM

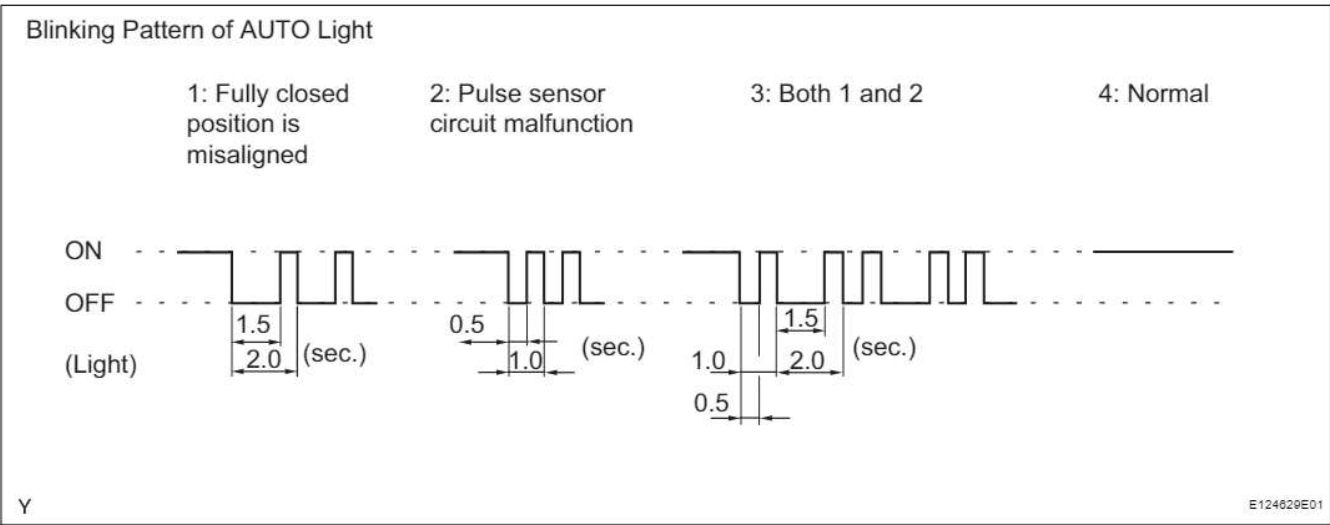
OK

WS-24 WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

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



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



Result

Blinking Pattern	Proceed to
1 or 3	A
2	B
4	C

B

Go to step 4

C

REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY

A

3 RESET POWER WINDOW REGULATOR MOTOR ASSEMBLY FRONT LH

- (a) Check if the power window operates normally after the reset.
OK:
Power window operates normally.

OK

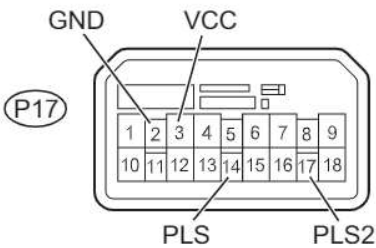
END

NG

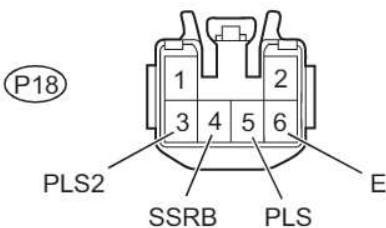
4 CHECK WIRE HARNESS (MASTER SWITCH - REGULATOR MOTOR)

Wire Harness Side

Power Window Regulator
Master Switch



Power Window Regulator
Motor Front LH



E124630E01

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

Standard resistance

Tester Connection	Specified Condition
P17-3 (VCC) - P18-4 (SSRB)	Below 1 Ω
P17-14 (PLS) - P18-5 (PLS)	Below 1 Ω
P17-17 (PLS2) - P18-3 (PLS2)	Below 1 Ω
P17-2 (GND) - P18-6 (E)	Below 1 Ω
P17-3 (VCC) or P18-4 (SSRB) - Body ground	10 kΩ or higher
P17-14 (PLS) or P18-5 (PLS) - Body ground	10 kΩ or higher
P17-17 (PLS2) or P18-3 (PLS2) - Body ground	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

WS

REPLACE POWER WINDOW REGULATOR MOTOR ASSEMBLY FRONT LH

WS-26

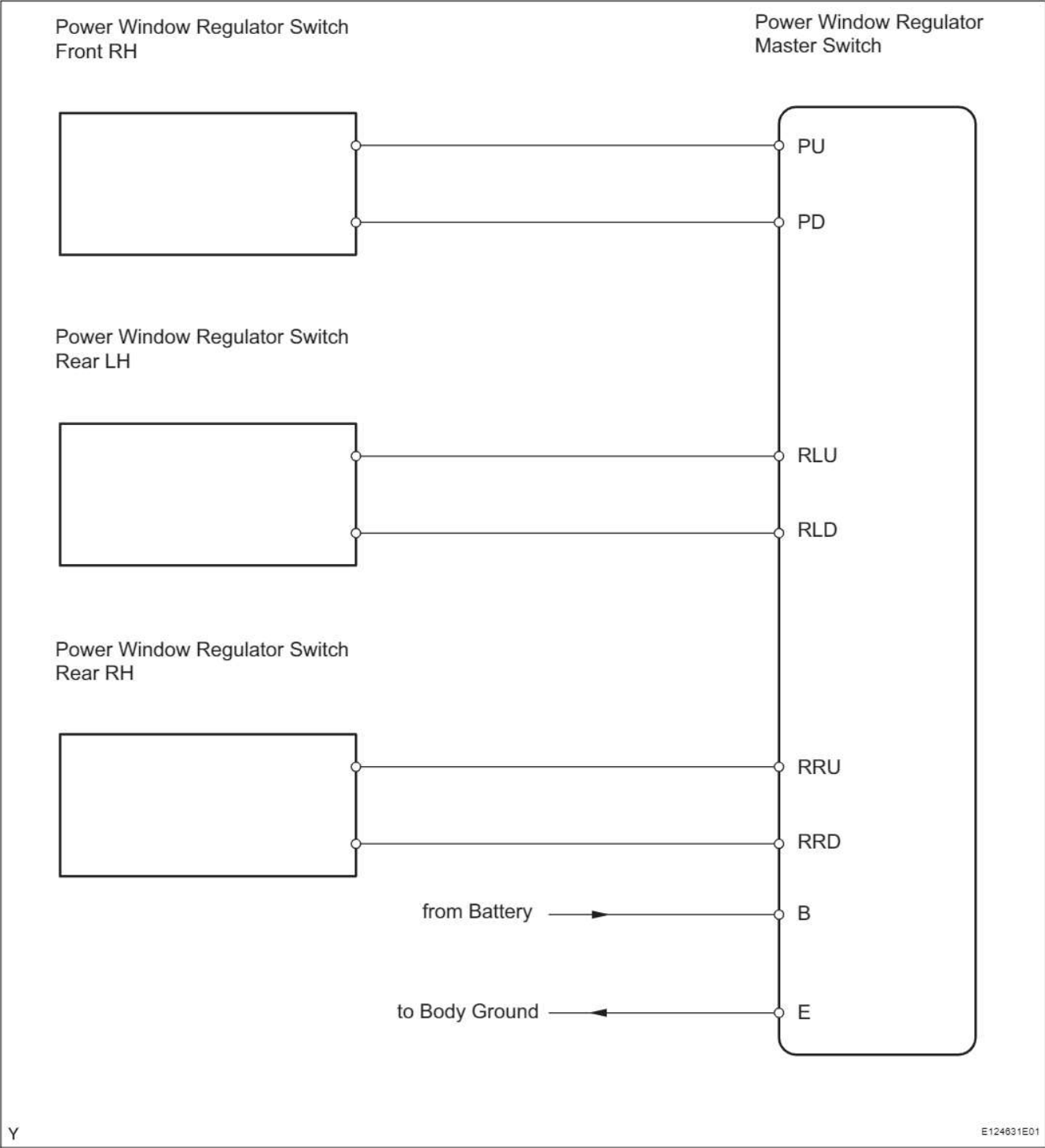
WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

Remote Up / Down Function does not Operate

DESCRIPTION

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

WIRING DIAGRAM



WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

WS-27

INSPECTION PROCEDURE

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

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

OK:**Remote UP / DOWN function operates normally.****OK****END****NG****2 CHECK MANUAL UP / DOWN FUNCTION**

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

OK:**Manual UP / DOWN functions operate normally.****NG****OTHER PROBLEM****OK****REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY****WS**

WS-28

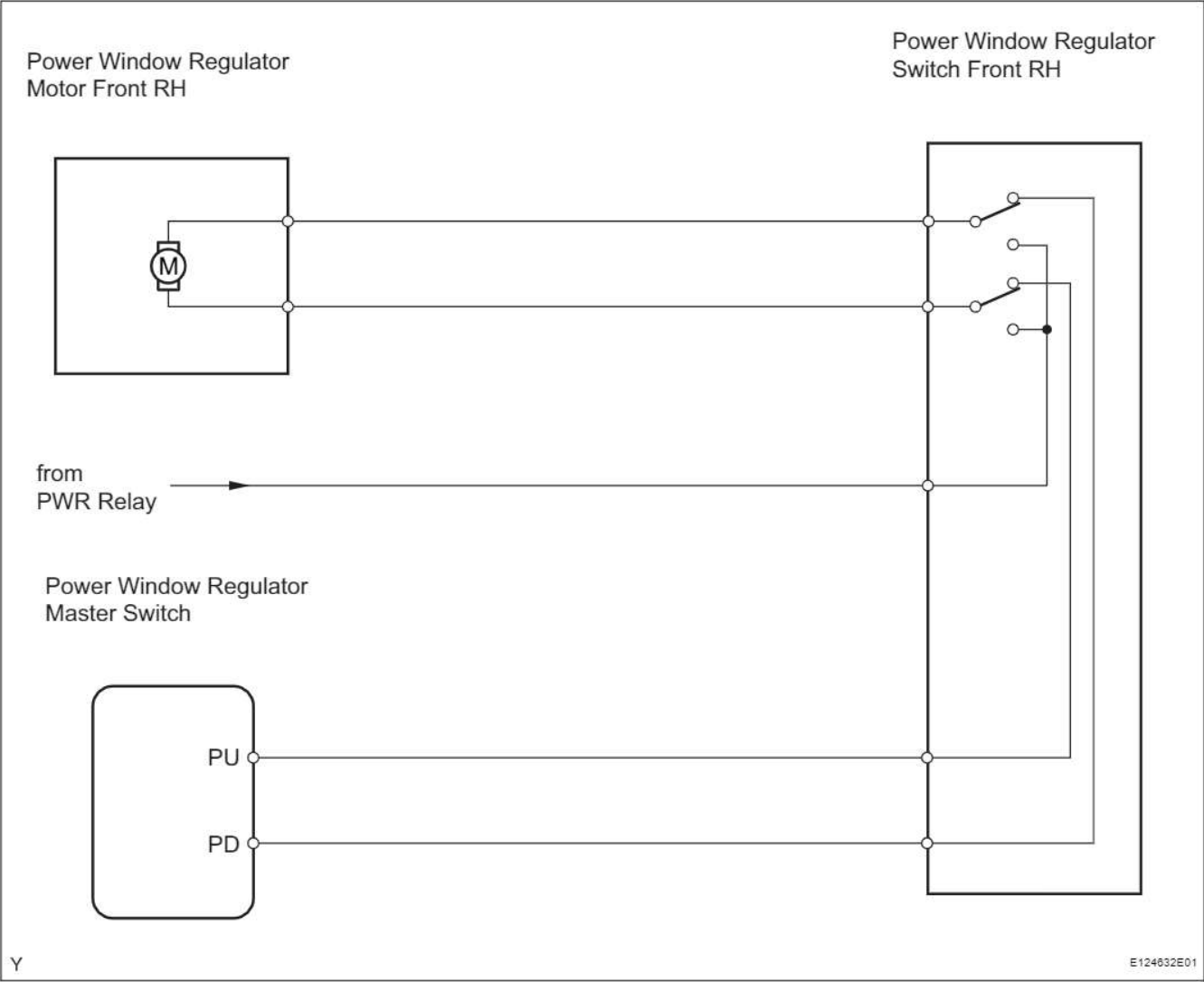
WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

Manual Up / Down Function does not Operate on Passenger Side Only

DESCRIPTION

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

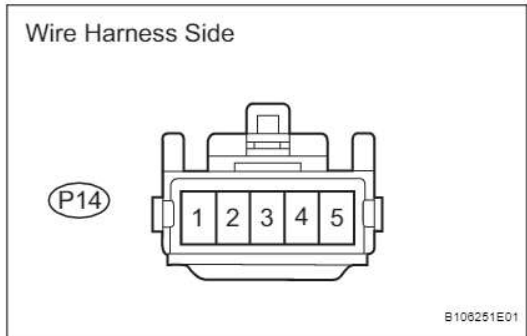
WIRING DIAGRAM



INSPECTION PROCEDURE

1

CHECK POWER WINDOW REGULATOR SWITCH ASSEMBLY FRONT RH (POWER SOURCE VOLTAGE)



- (a) Disconnect the P14 switch connector.
(b) Measure the voltage of the wire harness side connector.
- Standard voltage**

Tester Connection	Condition	Specified Condition
P14-4 - Body ground	Power switch ON (IG)	10 to 14 V

NG

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

OK

2

INSPECT POWER WINDOW REGULATOR SWITCH ASSEMBLY FRONT RH

- (a) Check the regulator switch (see page [WS-52](#)).

NG

REPLACE POWER WINDOW REGULATOR SWITCH ASSEMBLY FRONT RH

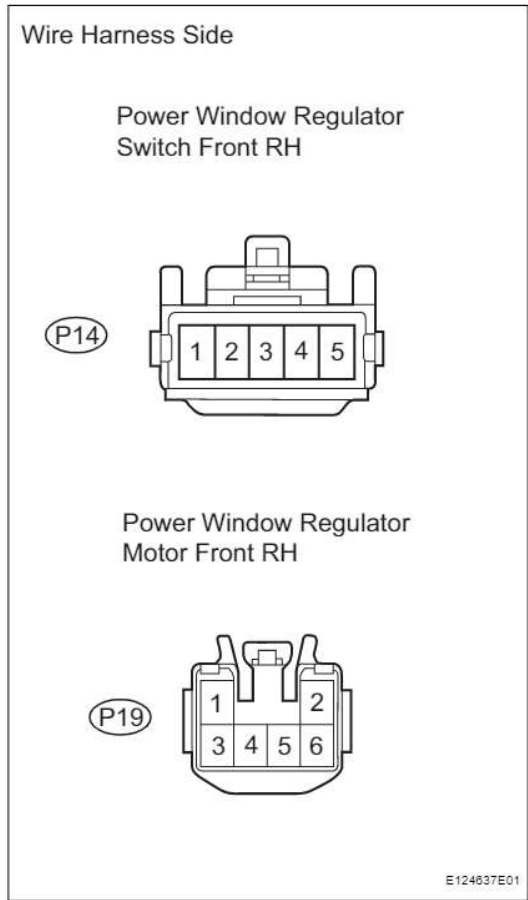
OK

WS-30

WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

3

CHECK WIRE HARNESS (REGULATOR SWITCH - REGULATOR MOTOR)



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

Standard resistance

Tester Connection	Specified Condition
P14-1 - P19-1	Below 1 Ω
P14-3 - P19-2	Below 1 Ω
P14-1 or P19-1 - Body ground	10 kΩ or higher
P14-3 or P19-2 - Body ground	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

WS

OK

4

INSPECT POWER WINDOW REGULATOR MOTOR ASSEMBLY FRONT RH

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

NG

REPLACE POWER WINDOW REGULATOR MOTOR

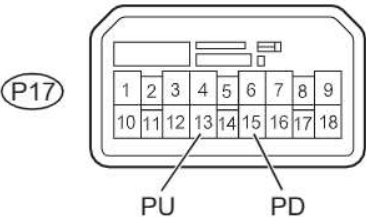
OK

5

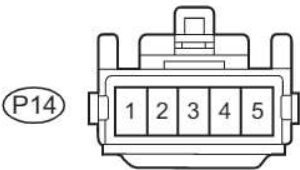
CHECK WIRE HARNESS (MASTER SWITCH - REGULATOR SWITCH)

Wire Harness Side

Power Window Regulator
Master Switch



Power Window Regulator
Switch Front RH



E124638E01

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

Standard resistance

Tester Connection	Specified Condition
P17-13 (PU) - P14-5	Below 1 Ω
P17-15 (PD) - P14-2	Below 1 Ω
P17-13 (PU) or P14-5 - Body ground	10 kΩ or higher
P17-15 (PD) or P14-2 - Body ground	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS AND
CONNECTOR

OK

WS

REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY

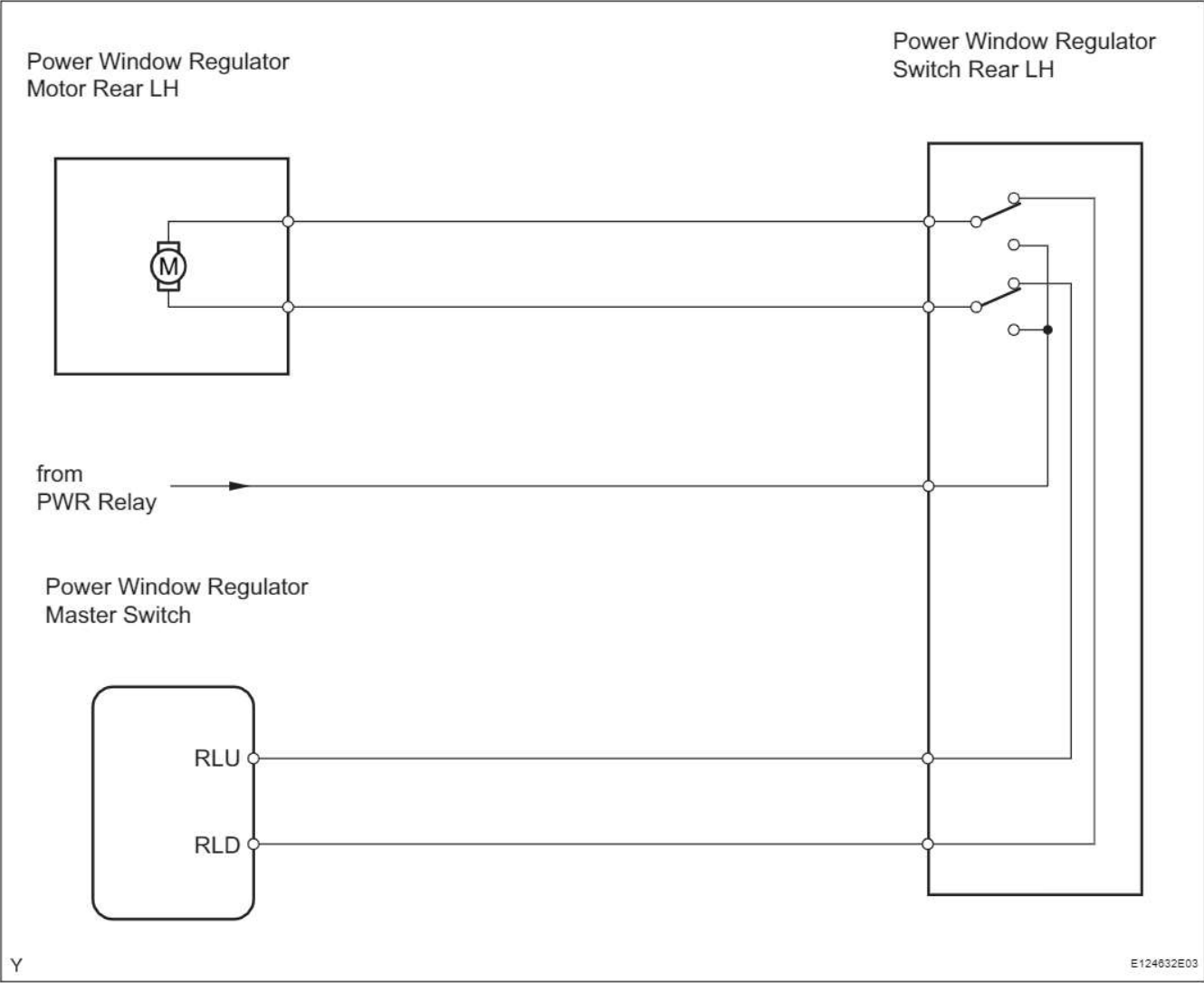
WS-32

WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

Manual Up / Down Function does not Operate on Rear LH Only

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

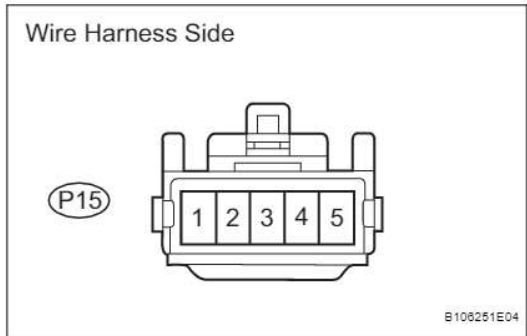
WIRING DIAGRAM



INSPECTION PROCEDURE

1

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



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

Tester Connection	Condition	Specified Condition
P15-4 - Body ground	Power switch ON (IG)	10 to 14 V

NG

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

OK

2

INSPECT POWER WINDOW REGULATOR SWITCH ASSEMBLY REAR LH

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

NG

REPLACE POWER WINDOW REGULATOR SWITCH ASSEMBLY REAR LH

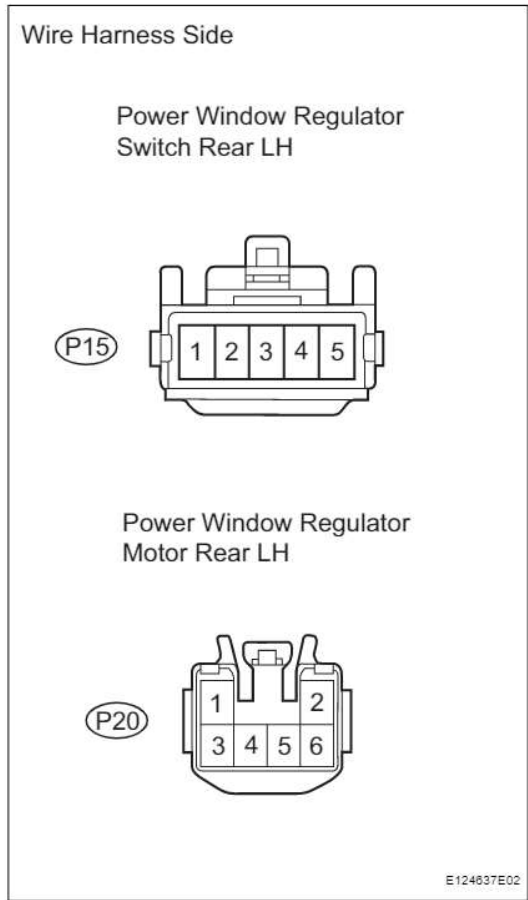
OK

WS-34

WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

3

CHECK WIRE HARNESS (REGULATOR SWITCH - REGULATOR MOTOR)



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

Standard resistance

Tester Connection	Specified Condition
P15-1 - P20-1	Below 1 Ω
P15-3 - P20-2	Below 1 Ω
P15-1 or P20-1 - Body ground	10 kΩ or higher
P15-3 or P20-2 - Body ground	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

WS

OK

4

INSPECT POWER WINDOW REGULATOR MOTOR ASSEMBLY REAR LH

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

NG

REPLACE POWER WINDOW REGULATOR MOTOR

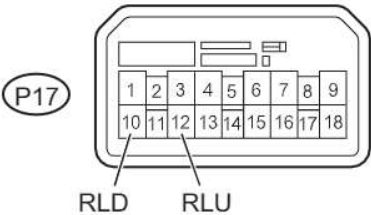
OK

5

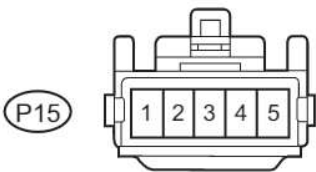
CHECK WIRE HARNESS (MASTER SWITCH - REGULATOR SWITCH)

Wire Harness Side

Power Window Regulator
Master Switch



Power Window Regulator
Switch Front LH



E124638E02

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

Standard resistance

Tester Connection	Specified Condition
P17-12 (RLU) - P15-5	Below 1 Ω
P17-10 (RLD) - P15-2	Below 1 Ω
P17-12 (RLU) or P15-5 - Body ground	10 kΩ or higher
P17-10 (RLD) or P15-2 - Body ground	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS AND
CONNECTOR

OK

WS

REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY

WS-36

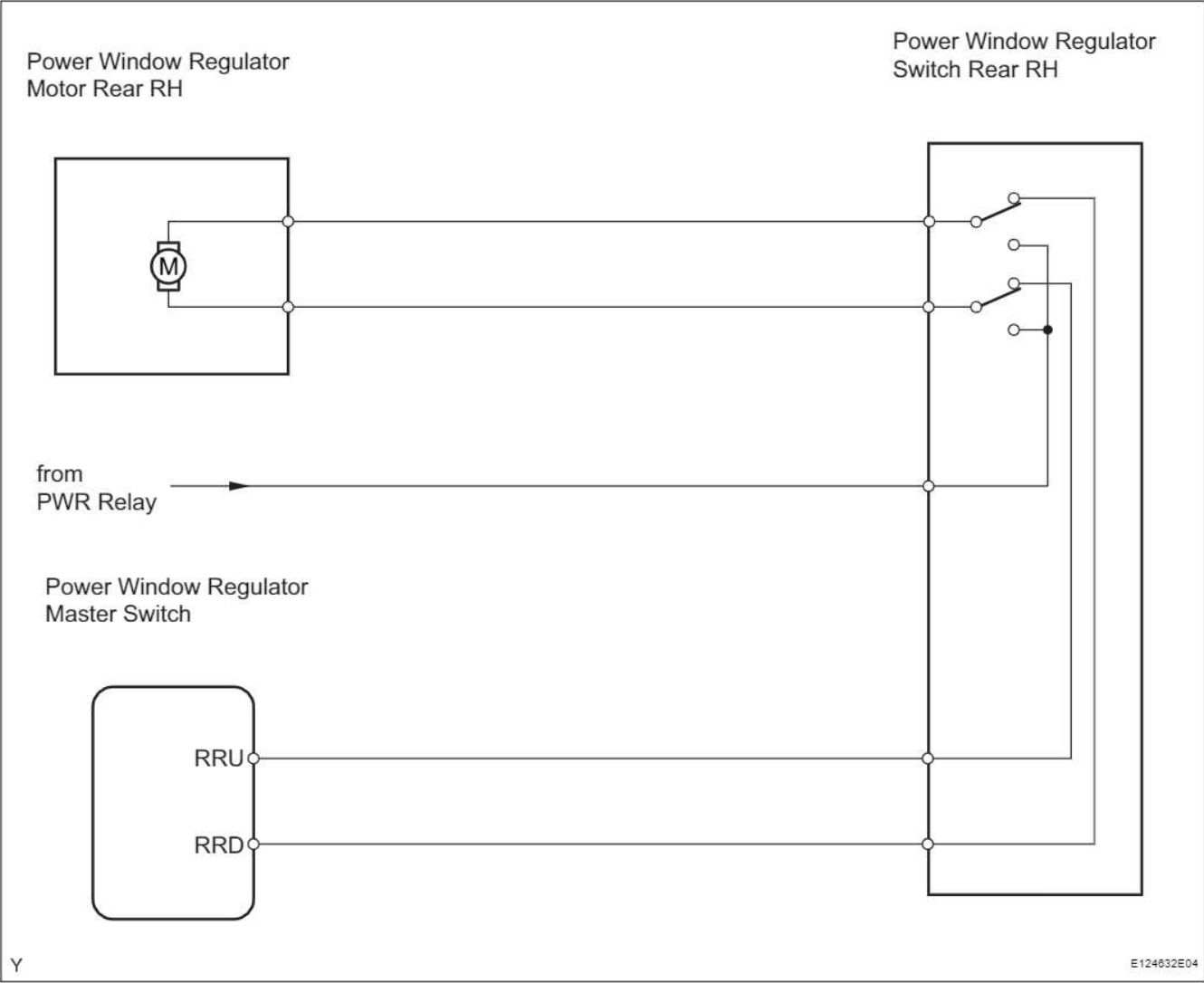
WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

Manual Up / Down Function does not Operate on Rear RH Only

DESCRIPTION

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

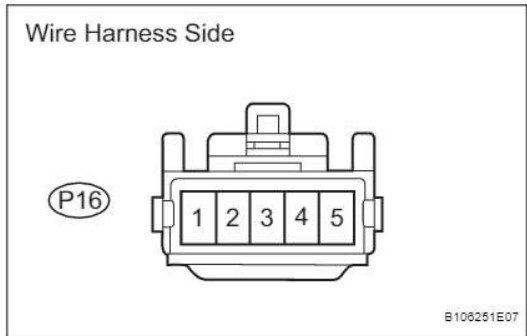
WIRING DIAGRAM



INSPECTION PROCEDURE

1

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



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

Tester Connection	Condition	Specified Condition
P16-4 - Body ground	Power switch ON (IG)	10 to 14 V

NG

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

OK

2

INSPECT POWER WINDOW REGULATOR SWITCH ASSEMBLY REAR RH

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

NG

REPLACE POWER WINDOW REGULATOR SWITCH ASSEMBLY REAR RH

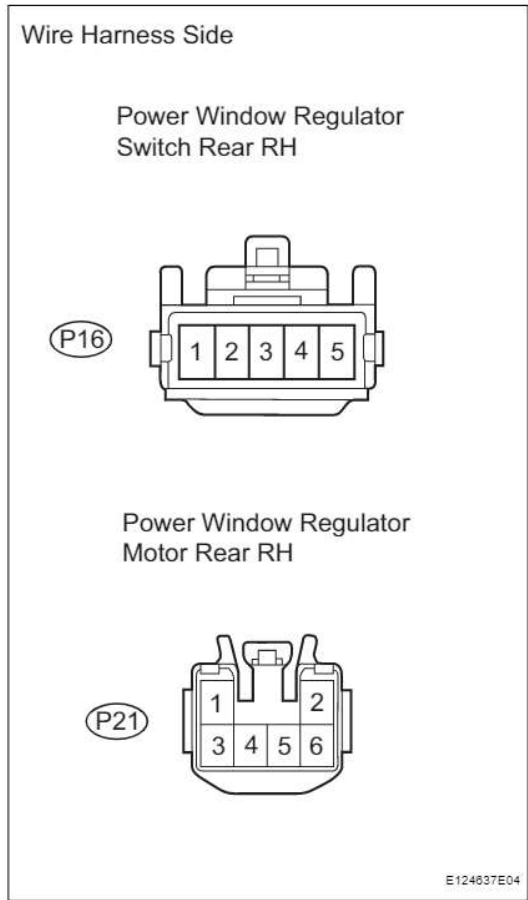
OK

WS-38

WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

3

CHECK WIRE HARNESS (REGULATOR SWITCH - REGULATOR MOTOR)



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

Standard resistance

Tester Connection	Specified Condition
P16-1 - P21-1	Below 1 Ω
P16-3 - P21-2	Below 1 Ω
P16-1 or P21-1 - Body ground	10 kΩ or higher
P16-3 or P21-2 - Body ground	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

WS

OK

4

INSPECT POWER WINDOW REGULATOR MOTOR ASSEMBLY REAR RH

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

NG

REPLACE POWER WINDOW REGULATOR MOTOR

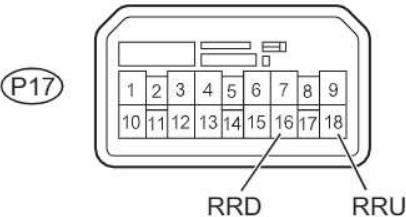
OK

5

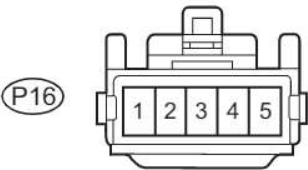
CHECK WIRE HARNESS (REGULATOR MASTER SWITCH - REGULATOR SWITCH)

Wire Harness Side

Power Window Regulator
Master Switch



Power Window Regulator
Switch Rear RH



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

Standard resistance

Tester Connection	Specified Condition
P17-18 (RRU) - P16-5	Below 1 Ω
P17-16 (RRD) - P16-2	Below 1 Ω
P17-18 (RRU) or P16-5 - Body ground	10 kΩ or higher
P17-16 (RRD) or P16-2 - Body ground	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS AND
CONNECTOR

OK

WS

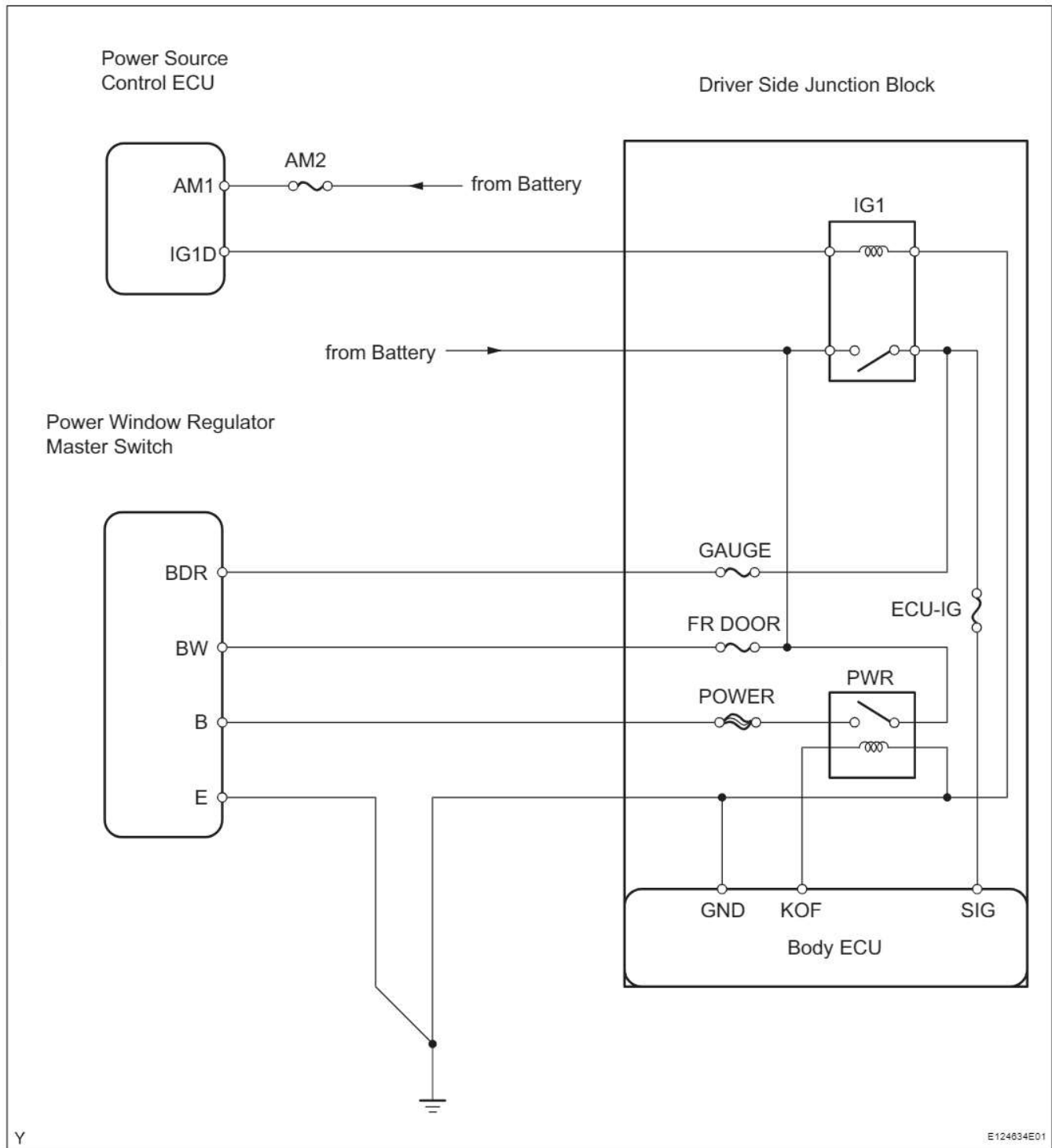
REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY

WS-40

WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

Power Windows do not Operate at All**DESCRIPTION**

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

WIRING DIAGRAM

WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

WS-41

INSPECTION PROCEDURE

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

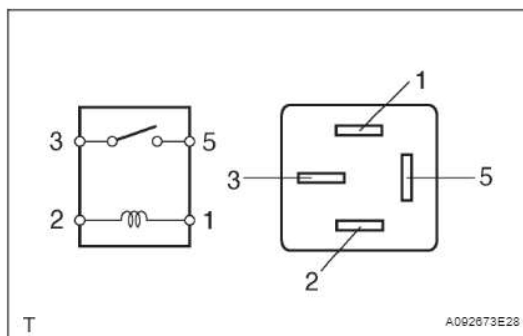
- Remove the AM2 fuse from the engine room junction block.
- Remove the GAUGE, FR DOOR and ECU-IG fuses from the driver side junction block.
- Measure the resistance of the fuses.

Standard resistance:**Below 1 Ω**

NG

REPLACE FUSE

OK

2 INSPECT IG1 RELAY

- Remove the IG1 relay from the driver side junction block.
- Measure the resistance of the relay.

Standard resistance

Tester Connection	Specified Condition
3 - 5	10 k Ω or higher
3 - 5	Below 1 Ω (when battery voltage is applied to terminals 1 and 2)

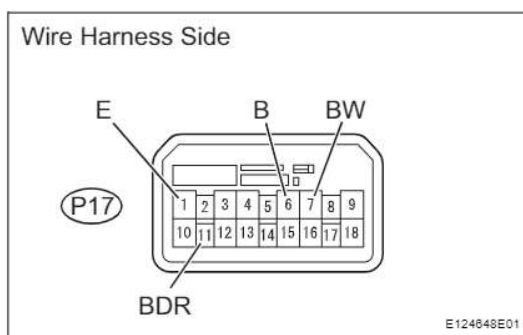
NG

REPLACE IG1 RELAY

OK

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

WS



- Disconnect the P17 switch connector.
- Measure the voltage or resistance of the wire harness side connector.

Standard voltage

Tester Connection	Condition	Specified Condition
P17-6 (B) - Body ground	Power switch ON (IG)	10 to 14 V
P17-7 (BW) - Body ground	Always	10 to 14 V
P17-11 (BDR) - Body ground	Power switch ON (IG)	10 to 14 V

Standard resistance

Tester Connection	Condition	Specified Condition
P17-1 (E) - Body ground	Always	Below 1 Ω

OK

REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY

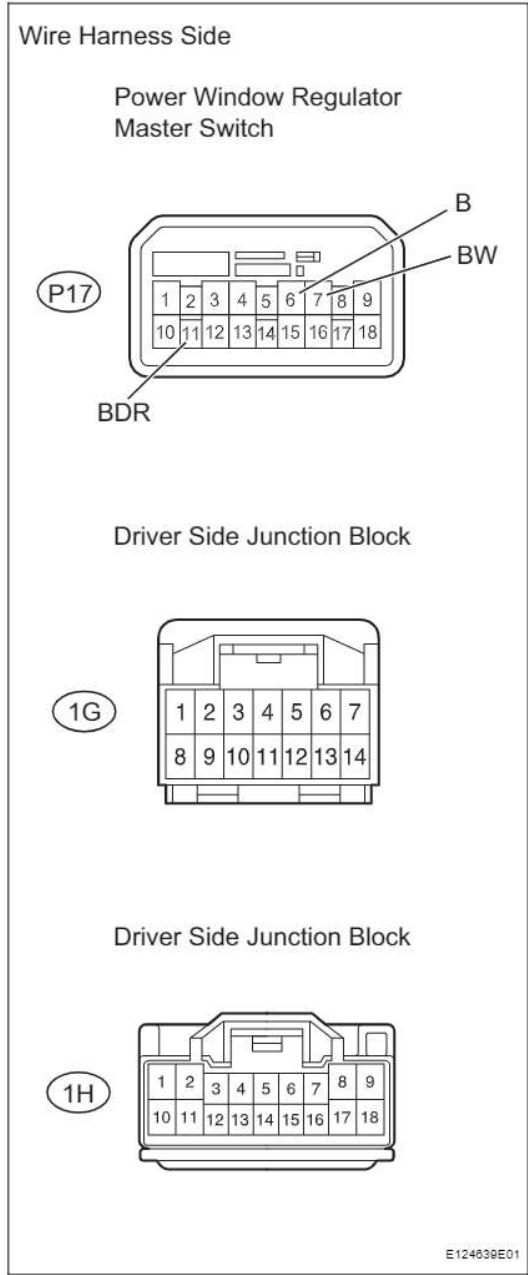
WS-42

WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

NG

4

CHECK WIRE HARNESS (MASTER SWITCH - JUNCTION BLOCK)



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

Standard resistance

Tester Connection	Specified Condition
P17-11 (BDR) - 1G-6	Below 1 Ω
P17-7 (BW) - 1H-10	Below 1 Ω
P17-6 (B) - 1H-11	Below 1 Ω
P17-11 (BDR) or 1G-6 - Body ground	10 kΩ or higher
P17-7 (BW) or 1H-10 - Body ground	10 kΩ or higher
P17-6 (B) or 1H-11 - Body ground	10 kΩ or higher

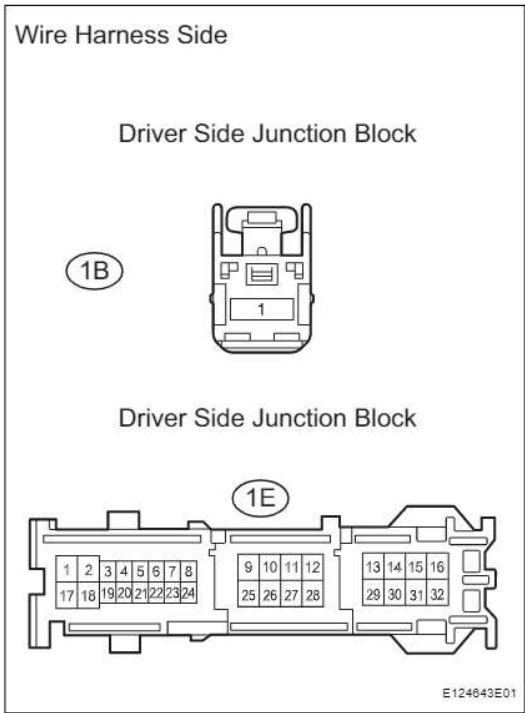
NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

5

CHECK WIRE HARNESS (JUNCTION BLOCK - BODY GROUND)



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

Standard voltage

Tester Connection	Specified Condition
1B-1 - Body ground	10 to 14 V

Standard resistance

Tester Connection	Specified Condition
1E-17 - Body ground	Below 1 Ω

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

6

CHECK BASIC FUNCTION OF PUSH BUTTON START SYSTEM

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

OK:

Push button start system operates normally.

NG

GO TO PUSH BUTTON START SYSTEM

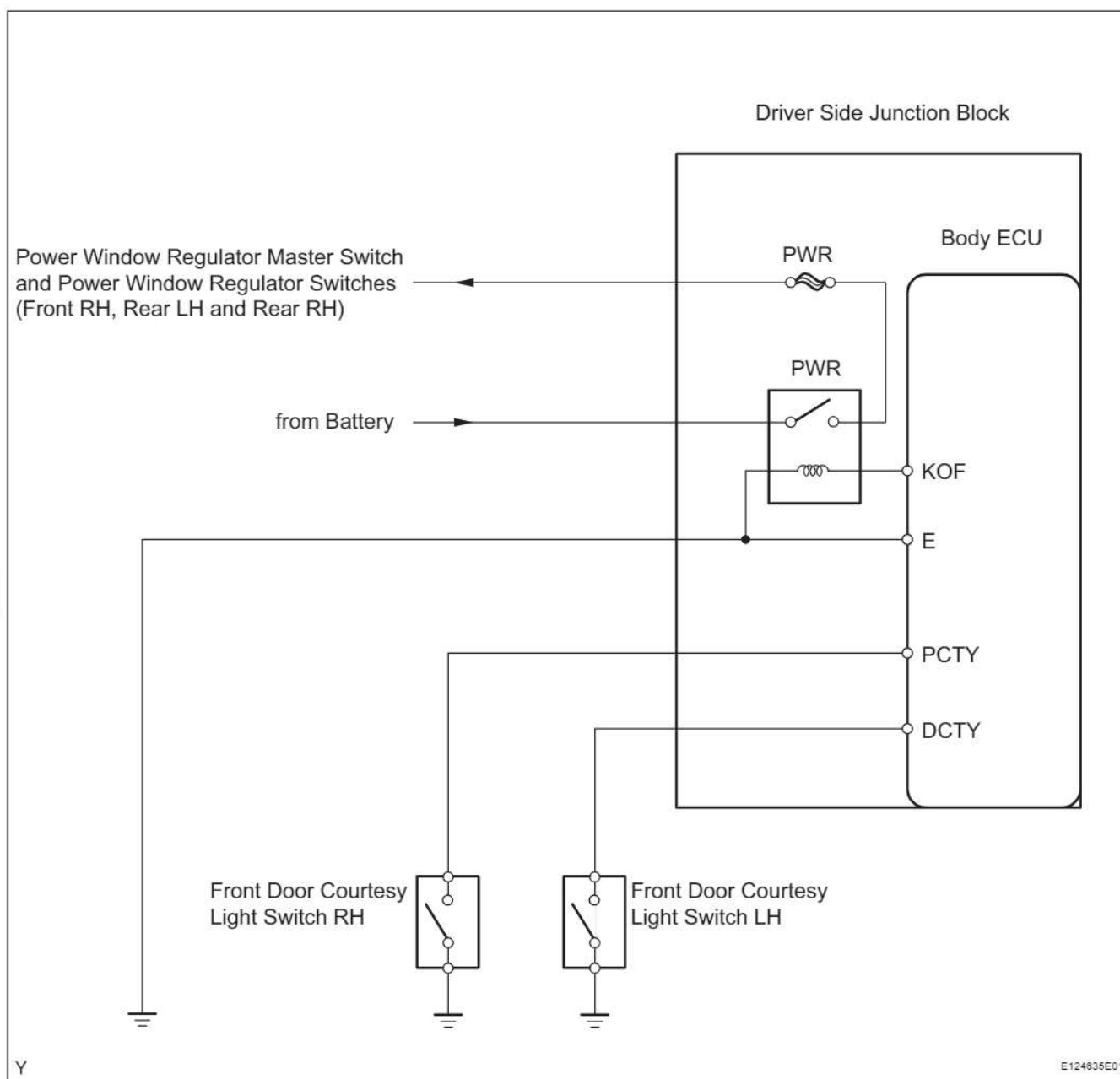
OK

REPLACE DRIVER SIDE JUNCTION BLOCK ASSEMBLY

WS

WS-44**WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM****Power Window can be Operated After Power Switch is Turned OFF
Even if Operative Conditions are not Met****DESCRIPTION**

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

WIRING DIAGRAM

WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

WS-45

INSPECTION PROCEDURE

1 CHECK OPERATION FUNCTION AFTER POWER SWITCH IS TURNED OFF

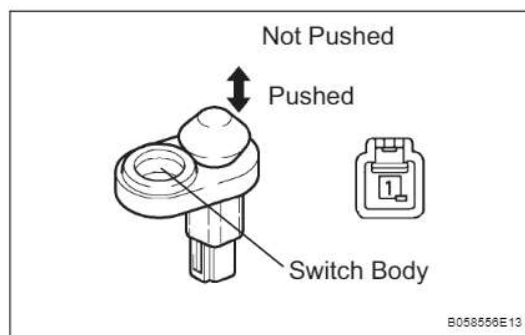
- (a) After turning the power switch OFF:
- (1) If either front door is opened within 43 seconds but the power window can still operate, proceed to A.
 - (2) If 43 seconds pass but the power window can still operate, proceed to B.

B**REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY****A****2 READ DATA LIST OF INTELLIGENT TESTER (COURTESY LIGHT SWITCH)**

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

Multiplex network body ECU

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

OK:**ON (door is open) appears on the screen.****OK****REPLACE DRIVER SIDE JUNCTION BLOCK ASSEMBLY****NG****3 INSPECT FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY**

- (a) Measure the resistance.

Standard voltage

Tester Connection	Switch Condition	Specified Condition
1 - Switch body	Pushed	10 kΩ or higher
1 - Switch body	Not pushed	Below 1 Ω

NG**REPLACE FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY**

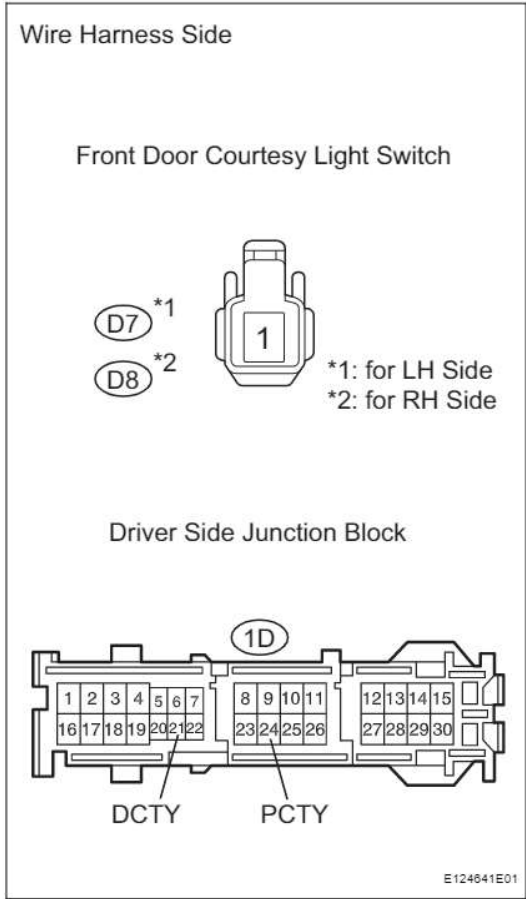
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WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

OK

4

CHECK WIRE HARNESS (COURTESY LIGHT SWITCH - JUNCTION BLOCK)



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

Tester Connection	Specified Condition
D7-1 - 1D-21 (DCTY)	Below 1 Ω
D8-1 - 1D-24 (PCTY)	Below 1 Ω
D7-1 - Body ground	10 kΩ or higher
D8-1 - Body ground	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

WS

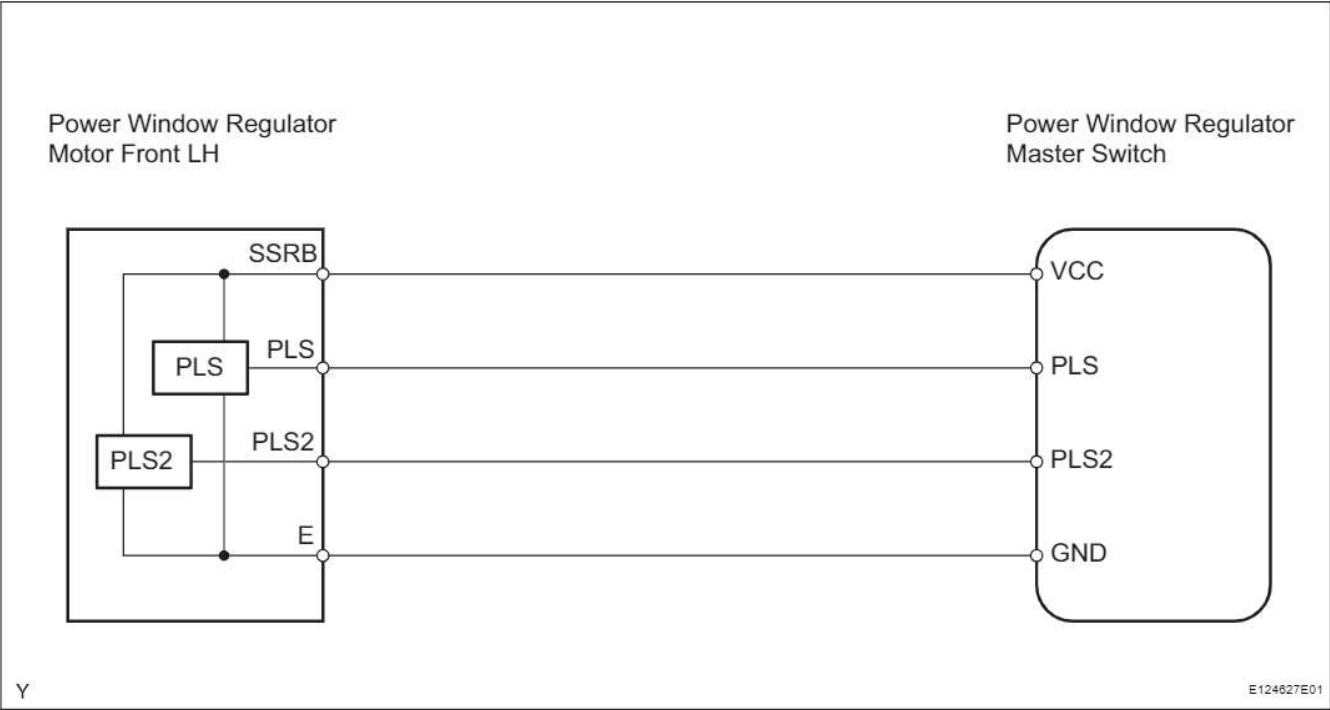
OK

REPLACE DRIVER SIDE JUNCTION BLOCK (BODY ECU)

Auto Up Operation does not Fully Close Power Window (Jam Protection Function is Activated)

DESCRIPTION
If the door glass or the power window regulator motor does not operate smoothly, the jam protection function may trigger automatically, resulting in the AUTO UP function being unable to fully close the window.
HINT:
The jam protection function is only available on the driver side power window.

WIRING DIAGRAM



INSPECTION PROCEDURE

1

RESET POWER WINDOW REGULATOR MOTOR FRONT LH

(a) Reset the power window regulator motor (see page [WS-7](#)).

(b) Check that the power window AUTO UP / DOWN function operates normally.

OK:
AUTO UP / DOWN function operates normally.

OK

END

NG

2

CHECK POWER WINDOW REGULATOR ASSEMBLY LH

(a) Remove the door glass (see page [ED-10](#)).

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- (b) Operate the front door window regulator using the switch.
- (c) Check that the power window regulator operates smoothly.

OK:**Power window regulator operates smoothly.****NG****REPLACE POWER WINDOW REGULATOR
ASSEMBLY LH****OK****REPLACE DOOR GLASS RUN****WS**

Jam Protection Function does not Operate**DESCRIPTION**

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

HINT:

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

INSPECTION PROCEDURE**1****RESET POWER WINDOW REGULATOR MOTOR FRONT LH (DRIVER SIDE)**

- (a) Reset the power window regulator motor (see page [WS-7](#)).
- (b) Check if the power window AUTO UP / DOWN function operates normally.

OK:

AUTO UP / DOWN function operates normally.

NG**OTHER PROBLEM****OK****2****CHECK JAM PROTECTION FUNCTION OPERATING RANGE**

- (a) Check that the jam protection function operates normally (see page [WS-14](#)).

HINT:

The jam protection function does not operate from the fully closed position of the door glass to 4 mm (0.16 in.) below that.

OK:

Jam protection function operates normally.

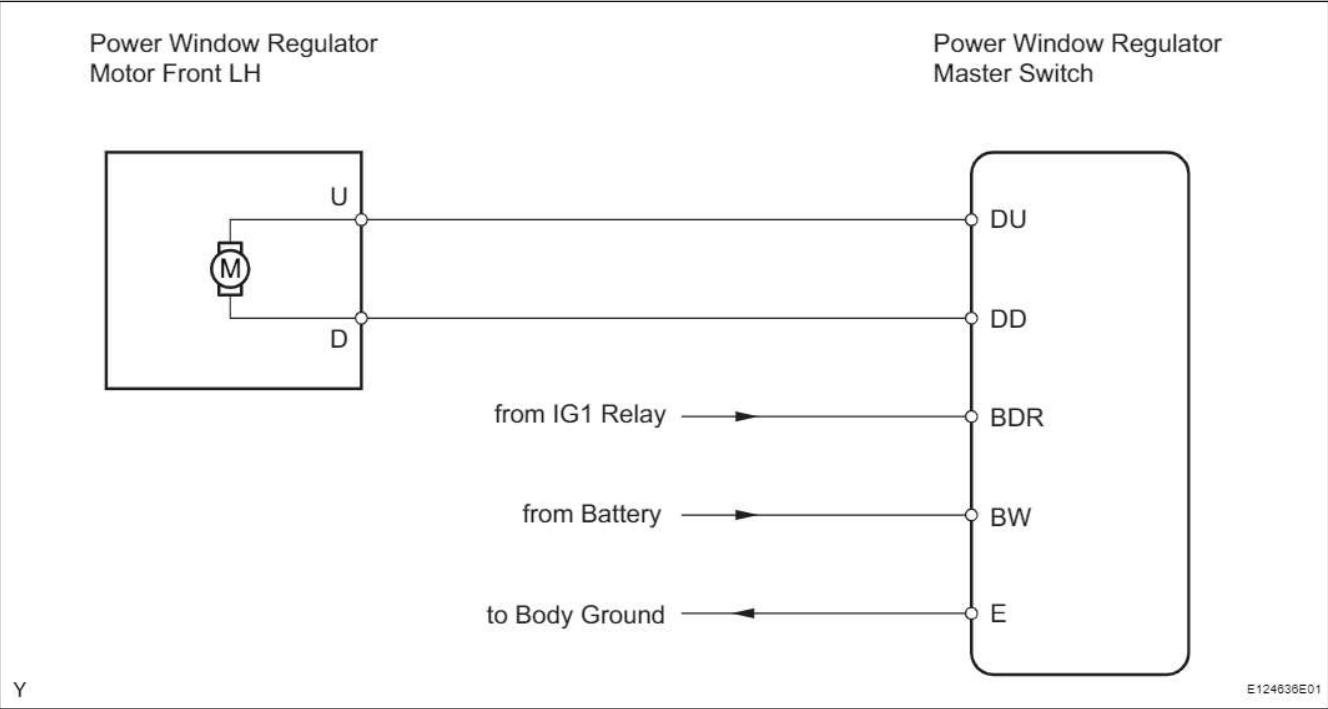
NG**REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY****OK****END****WS**

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 WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

Manual Up / Down Function does not Operate on Driver Side

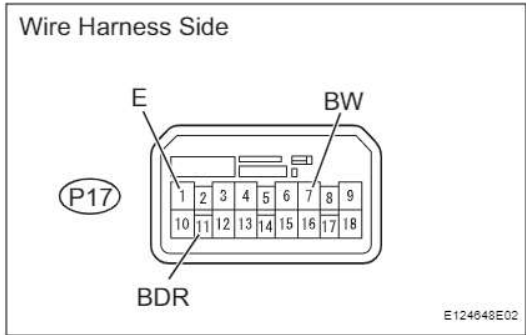
DESCRIPTION
 If the manual UP / DOWN function does not operate, a malfunction may be present in the power window regulator master switch assembly, the power window regulator motor or the wire harness.

WIRING DIAGRAM



INSPECTION PROCEDURE

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



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

Tester Connection	Condition	Specified Condition
P17-7 (BW) - P17-1 (E)	Always	10 to 14 V
P17-11 (BDR) - P17-1 (E)	Power switch ON (IG)	10 to 14 V

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

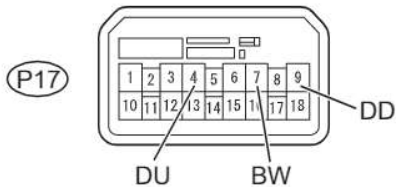
OK

2

CHECK POWER WINDOW REGULATOR MOTOR ASSEMBLY FRONT LH

Wire Harness Side

Power Window Regulator Master Switch



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

Wire Connection	Specified Condition
P17-4 (DU) - P17-7 (BW) P17-9 (DD) - Body ground	Power window moves UP
P17-4 (DU) - Body ground P17-7 (BW) - P17-9 (DD)	Power window moves DOWN

OK

REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY

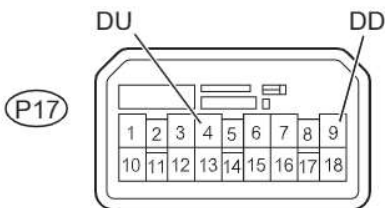
NG

3

CHECK WIRE HARNESS (MASTER SWITCH - REGULATOR MOTOR)

Wire Harness Side

Power Window Regulator Master Switch



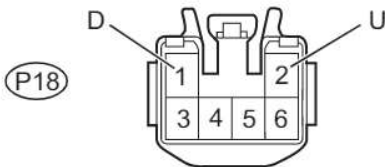
- (a) Disconnect the P17 switch connector.
- (b) Disconnect the P18 motor connector.
- (c) Measure the resistance of the wire harness side connectors.
- Standard resistance

Tester Connection	Specified Condition
P17-9 (DD) - P18-1 (D)	Below 1 Ω
P17-4 (DU) - P18-2 (U)	Below 1 Ω
P17-9 (DD) or P18-1 (D) - Body ground	10 kΩ or higher
P17-4 (DU) or P18-2 (U) - Body ground	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

Power Window Regulator Motor Front LH



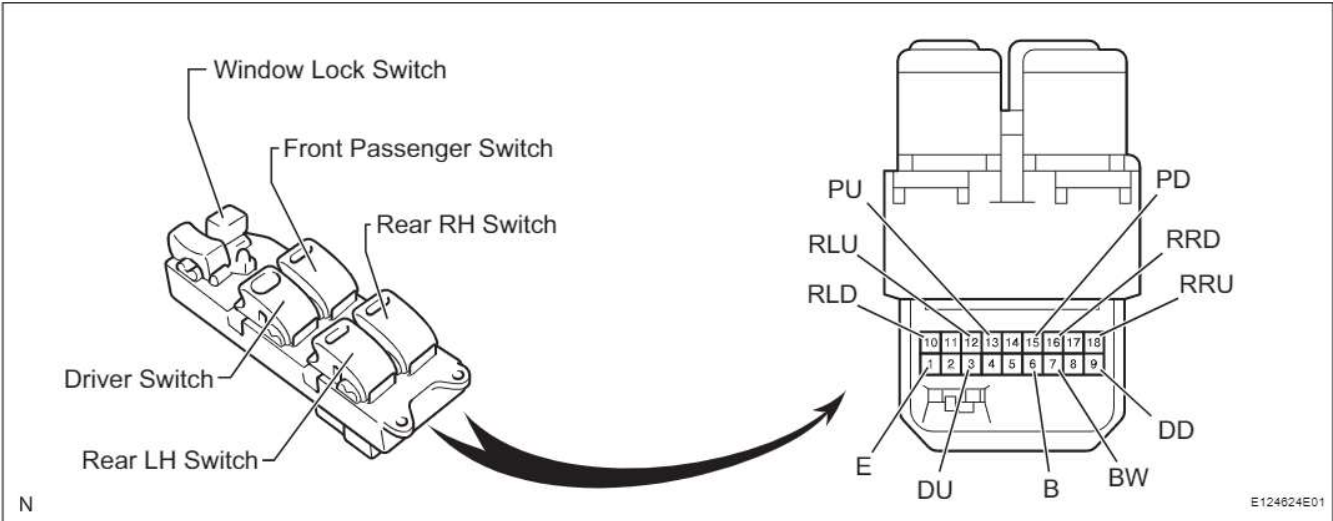
OK

REPLACE POWER WINDOW REGULATOR MOTOR ASSEMBLY FRONT LH

POWER WINDOW MASTER SWITCH

INSPECTION

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



Standard resistance:
Driver switch

Tester Connection	Window Lock Switch Condition	Power Window Switch Condition	Specified Condition
1 (E) - 9 (DD)	Always (ON / OFF)	UP	Below 1 Ω
4 (DU) - 7 (BW)			
1 (E) - 9 (DD)	Always (ON / OFF)	AUTO UP	Below 1 Ω
4 (DU) - 7 (BW)			
1 (E) - 4 (DU)	Always (ON / OFF)	OFF	Below 1 Ω
1 (E) - 9 (DD)			
1 (E) - 4 (DU)	Always (ON / OFF)	DOWN	Below 1 Ω
7 (BW) - 9 (DD)			
1 (E) - 4 (DU)	Always (ON / OFF)	AUTO DOWN	Below 1 Ω
7 (BW) - 9 (DD)			

Passenger switch

Tester Connection	Window Lock Switch Condition	Power Window Switch Condition	Specified Condition
1 (E) - 15 (PD)	OFF	UP	Below 1 Ω
6 (B) - 13 (PU)			
1 (E) - 13 (PU)	OFF	OFF	Below 1 Ω
1 (E) - 15 (PD)			
1 (E) - 13 (PU)	OFF	DOWN	Below 1 Ω
6 (B) - 15 (PD)			
1 (E) - 15 (PD)	ON	UP	10 kΩ or higher
6 (B) - 13 (PU)			Below 1 Ω
13 (PU) - 15 (PD)	ON	OFF	Below 1 Ω

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Tester Connection	Window Lock Switch Condition	Power Window Switch Condition	Specified Condition
1 (E) - 13 (PU)	ON	DOWN	10 k Ω or higher
6 (B) - 15 (PD)			Below 1 Ω

Rear LH switch

Tester Connection	Window Lock Switch Condition	Power Window Switch Condition	Specified Condition
1 (E) - 10 (RLD)	OFF	UP	Below 1 Ω
6 (B) - 12 (RLU)			
1 (E) - 12 (RLU)	OFF	OFF	Below 1 Ω
1 (E) - 10 (RLD)			
1 (E) - 12 (RLU)	OFF	DOWN	Below 1 Ω
6 (B) - 10 (RLD)			
1 (E) - 10 (RLD)	ON	UP	10 k Ω or higher
6 (B) - 12 (RLU)			Below 1 Ω
12 (RLU) - 10 (RLD)	ON	OFF	Below 1 Ω
1 (E) - 12 (RLU)	ON	DOWN	10 k Ω or higher
6 (B) - 10 (RLD)			Below 1 Ω

Rear RH switch

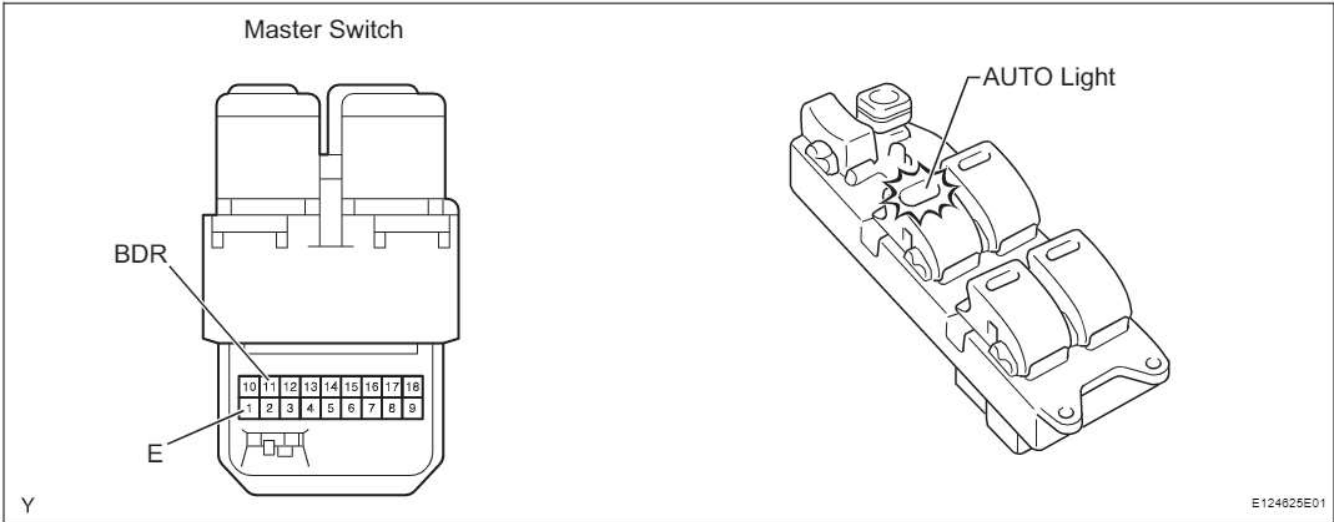
Tester Connection	Window Lock Switch Condition	Power Window Switch Condition	Specified Condition
1 (E) - 16 (RRD)	OFF	UP	Below 1 Ω
6 (B) - 18 (RRU)			
1 (E) - 18 (RRU)	OFF	OFF	Below 1 Ω
1 (E) - 16 (RRD)			
1 (E) - 18 (RRU)	OFF	DOWN	Below 1 Ω
6 (B) - 16 (RRD)			
1 (E) - 16 (RRD)	ON	UP	10 k Ω or higher
6 (B) - 18 (RRU)			Below 1 Ω
18 (RRU) - 16 (RRD)	ON	OFF	Below 1 Ω
1 (E) - 18 (RRU)	ON	DOWN	10 k Ω or higher
6 (B) - 16 (RRD)			Below 1 Ω

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

WINDSHIELD / WINDOWGLASS – POWER WINDOW MASTER SWITCH

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



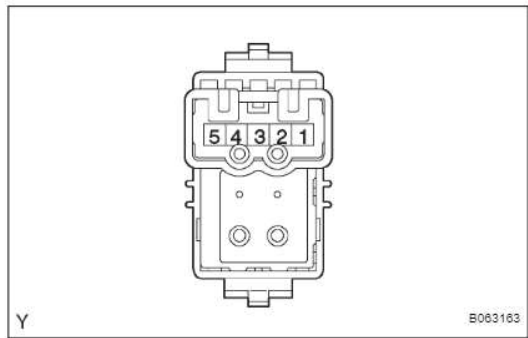
OK

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 11 (BDR)	AUTO light illuminates
Battery negative (-) → Terminal 1(E)	

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

WS

WS-52 **WINDSHIELD / WINDOWGLASS – FRONT PASSENGER SIDE POWER WINDOW SWITCH**



FRONT PASSENGER SIDE POWER WINDOW SWITCH

INSPECTION

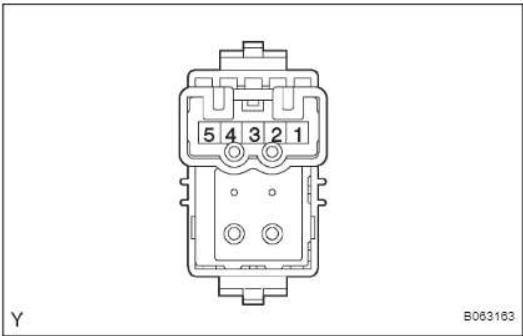
1. INSPECT POWER WINDOW REGULATOR SWITCH ASSEMBLY

- (a) Measure the resistance of the switch when the switch is operated.

Standard resistance

Tester Connection	Switch Condition	Specified Condition
1 - 2 3 - 4	UP	Below 1 Ω
1 - 2 3 - 5	OFF	Below 1 Ω
1 - 4 3 - 5	DOWN	Below 1 Ω

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

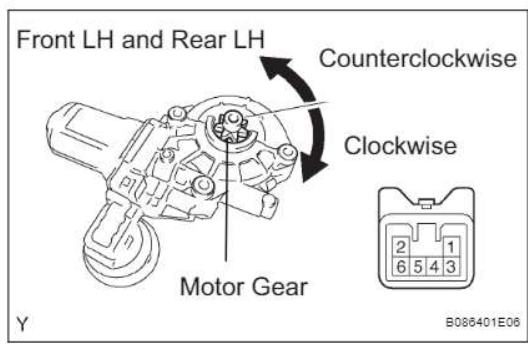


REAR POWER WINDOW SWITCH INSPECTION

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

Tester Connection	Switch Condition	Specified Condition
1 - 2 3 - 4	UP	Below 1 Ω
1 - 2 3 - 5	OFF	Below 1 Ω
1 - 4 3 - 5	DOWN	Below 1 Ω

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



POWER WINDOW REGULATOR MOTOR

INSPECTION

1. INSPECT POWER WINDOW REGULATOR MOTOR ASSEMBLY (for Front LH and Rear LH)

- (a) Apply battery voltage to connector terminals 1 and 2.

NOTICE:

Do not apply battery voltage to any terminals except terminals 1 and 2.

- (b) Check that the motor gear rotates smoothly as follows.

OK

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 regulator motor assembly.

2. INSPECT POWER WINDOW REGULATOR MOTOR ASSEMBLY (for Front RH and Rear RH)

- (a) Apply battery voltage to connector terminals 1 and 2.

NOTICE:

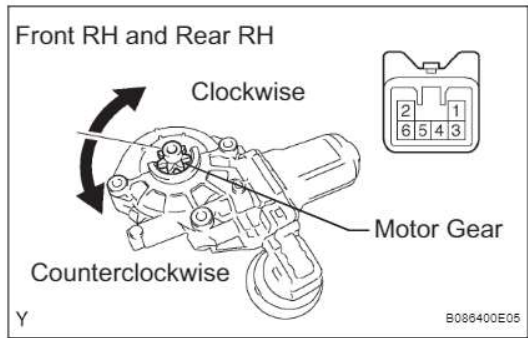
Do not apply battery voltage to any terminals except terminals 1 and 2.

- (b) Check that the motor gear rotates smoothly as follows.

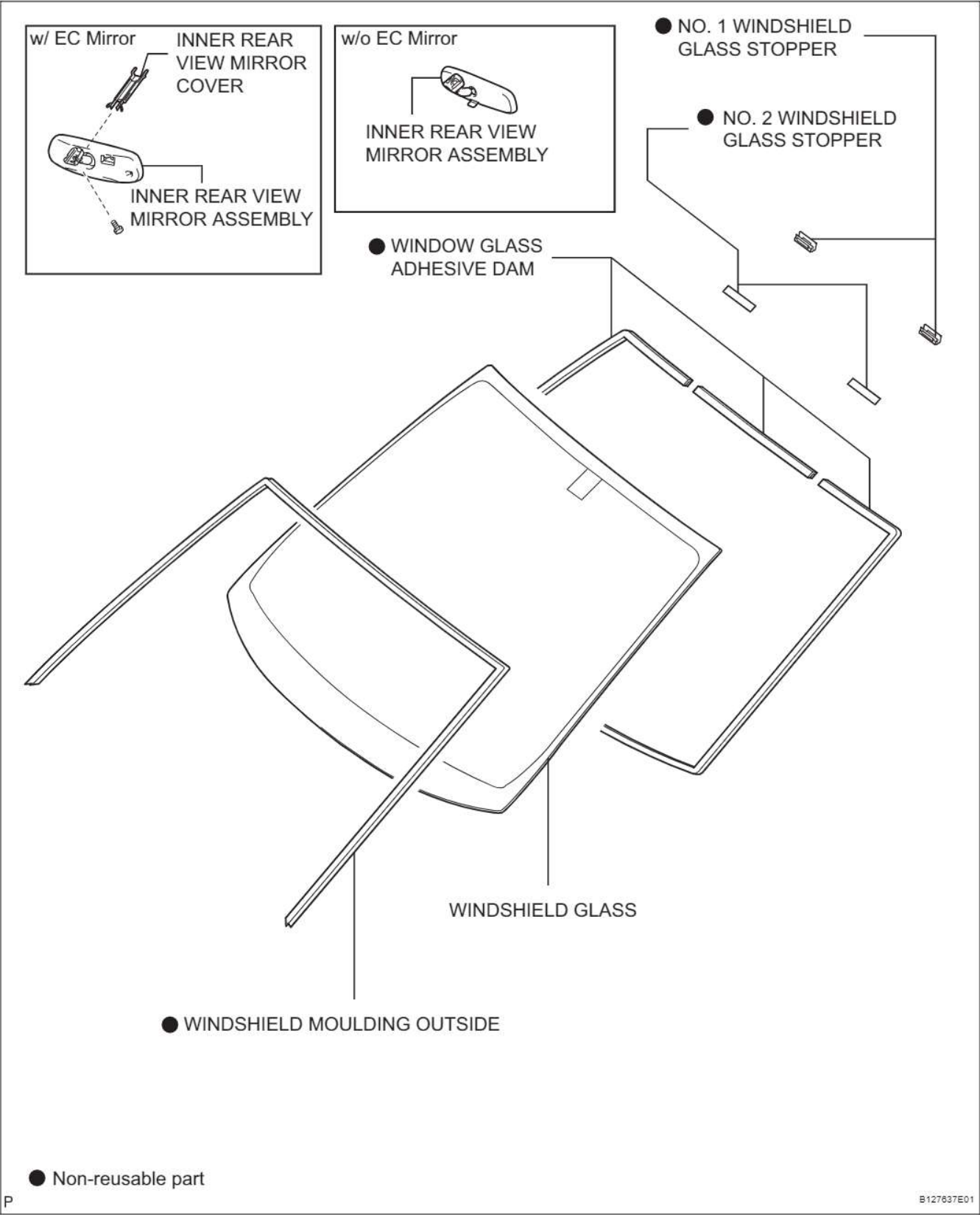
OK

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

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

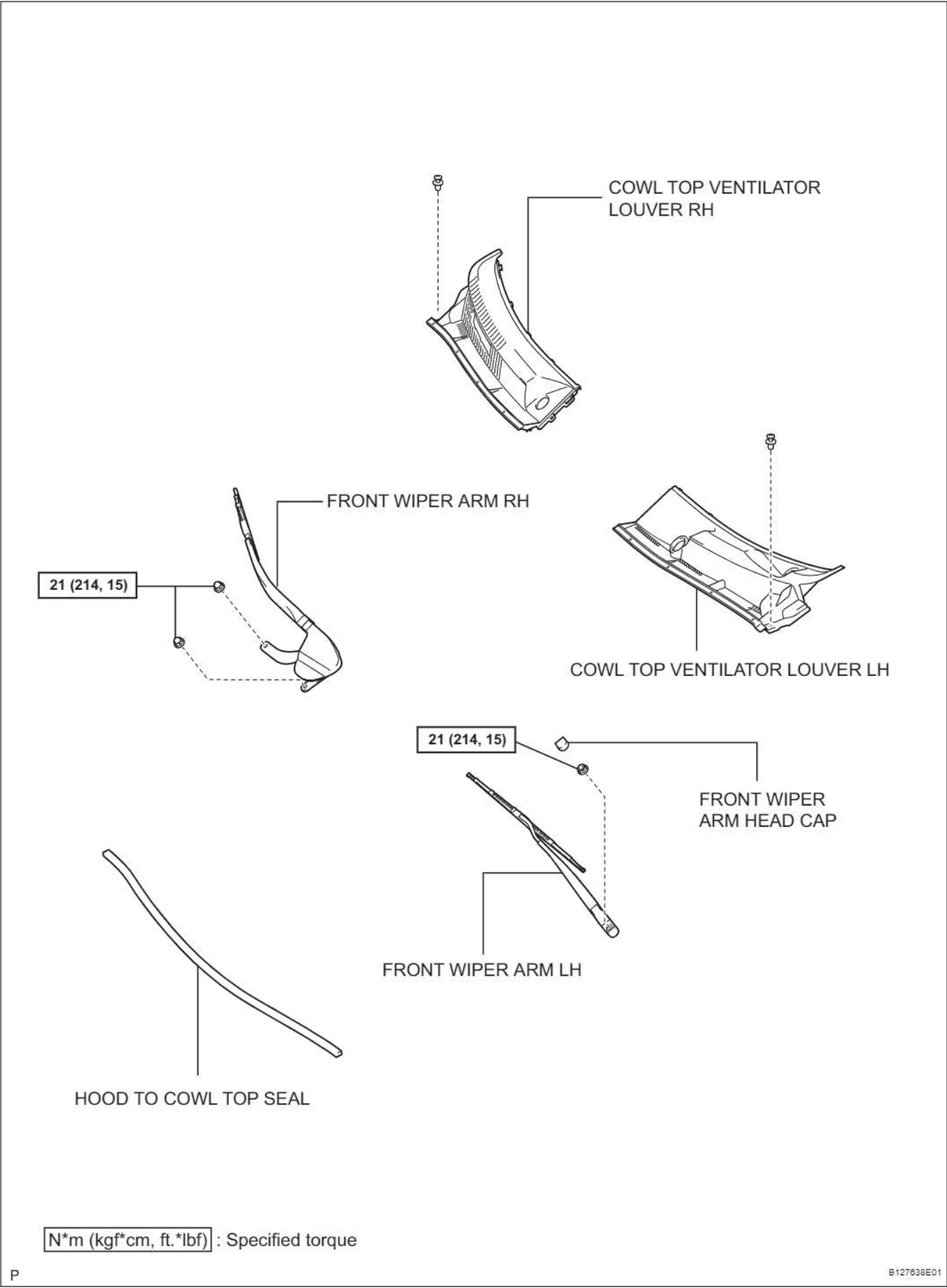


WINDSHIELD GLASS
COMPONENTS



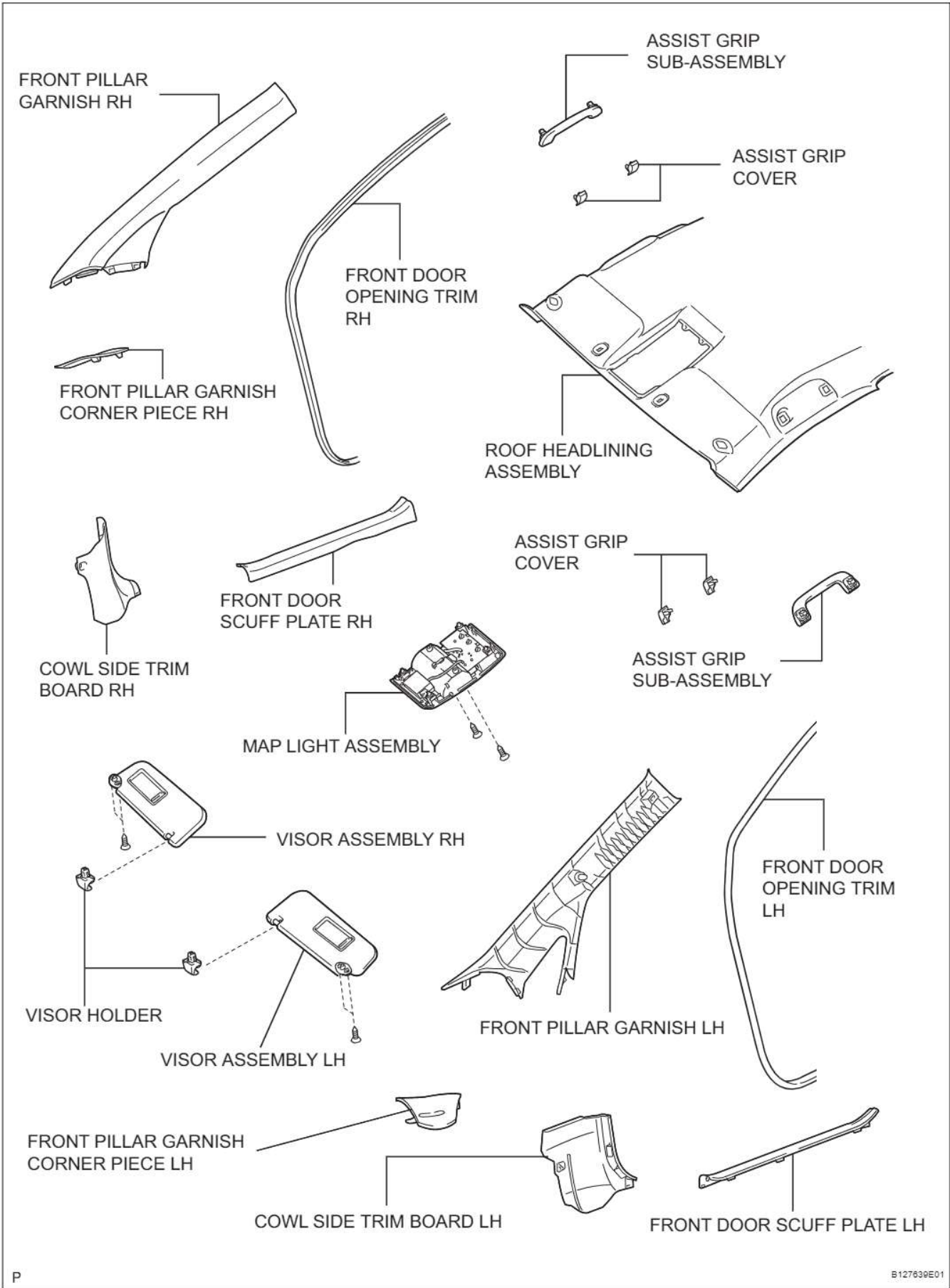
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WINDSHIELD / WINDOWGLASS – WINDSHIELD GLASS



WINDSHIELD / WINDOWGLASS – WINDSHIELD GLASS

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WS

REMOVAL

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
CAUTION:
 Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to prevent airbag and seat belt pretensioner activation.
2. **REMOVE FRONT DOOR SCUFF PLATE LH** (See page [IR-7](#))
3. **REMOVE FRONT DOOR SCUFF PLATE RH** (See page [IR-7](#))
4. **REMOVE COWL SIDE TRIM BOARD LH** (See page [IR-7](#))
5. **REMOVE COWL SIDE TRIM BOARD RH** (See page [IR-7](#))
6. **REMOVE FRONT DOOR OPENING TRIM LH**
 (a) Partially remove the front door opening trim weatherstrip LH so that the front pillar garnish LH can be removed (see page [IR-7](#)).
7. **REMOVE FRONT DOOR OPENING TRIM RH**
HINT:
 Use the same procedures described for the LH side.
8. **REMOVE FRONT PILLAR GARNISH CORNER PIECE LH** (See page [IR-7](#))
9. **REMOVE FRONT PILLAR GARNISH CORNER PIECE RH** (See page [IR-7](#))
10. **REMOVE FRONT PILLAR GARNISH LH** (See page [IR-8](#))
11. **REMOVE FRONT PILLAR GARNISH RH** (See page [IR-8](#))
12. **REMOVE VISOR ASSEMBLY LH** (See page [IR-13](#))
13. **REMOVE VISOR ASSEMBLY RH** (See page [IR-13](#))
14. **REMOVE VISOR HOLDER** (See page [IR-13](#))
15. **REMOVE ASSIST GRIP COVER** (See page [IR-12](#))
16. **REMOVE ASSIST GRIP SUB-ASSEMBLY** (See page [IR-13](#))
17. **REMOVE MAP LIGHT ASSEMBLY** (See page [IR-12](#))
18. **REMOVE ROOF HEADLINING ASSEMBLY**
HINT:
 It is not necessary to completely remove the roof headlining. Slightly lower the front section of the roof headlining.
 (a) Partially remove the roof headlining (see page [IR-13](#)).
19. **REMOVE INNER REAR VIEW MIRROR ASSEMBLY (w/o EC Mirror)** (See page [MI-5](#))

20. REMOVE INNER REAR VIEW MIRROR ASSEMBLY (w/ EC Mirror) (See page [MI-5](#))
21. REMOVE HOOD TO COWL TOP SEAL (See page [WW-13](#))
22. REMOVE FRONT WIPER ARM HEAD CAP
23. REMOVE FRONT WIPER ARM LH (See page [WW-13](#))
24. REMOVE FRONT WIPER ARM RH (See page [WW-13](#))
25. REMOVE COWL TOP VENTILATOR LOUVER LH (See page [WW-13](#))
26. REMOVE COWL TOP VENTILATOR LOUVER RH (See page [WW-13](#))
27. REMOVE WINDSHIELD MOULDING OUTSIDE

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

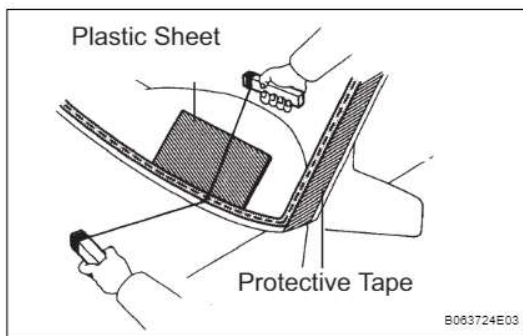
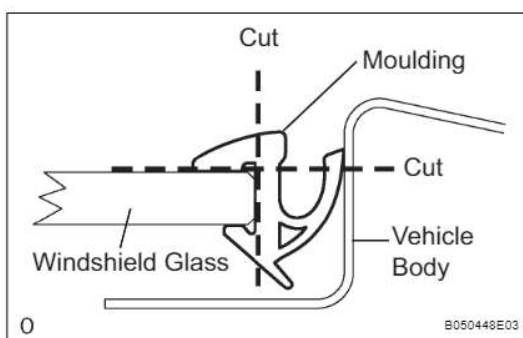
NOTICE:

Be careful not to damage the vehicle body.

- (b) Remove the remaining moulding.

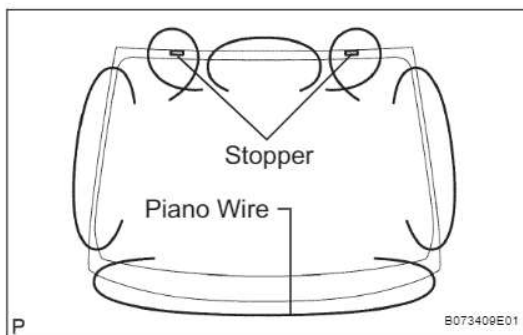
HINT:

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



28. REMOVE WINDSHIELD GLASS

- (a) Apply protective tape to the outer surface of the vehicle body to prevent scratches.



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

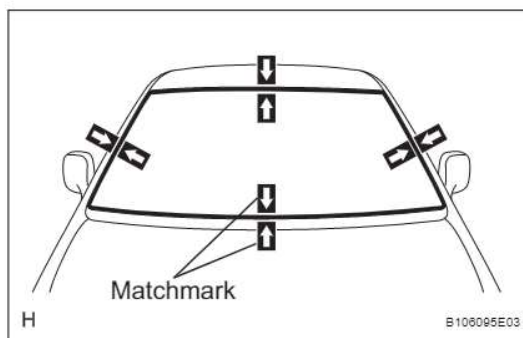
NOTICE:

- When separating the glass from the vehicle, be careful not to damage the vehicle's paint or interior/exterior ornaments.
- To prevent the instrument panel from being scratched when removing the glass, place a plastic sheet between the piano wire and instrument panel.

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WINDSHIELD / WINDOWGLASS – WINDSHIELD GLASS



- (d) Place matchmarks over the glass and vehicle body on the locations indicated in the illustration.

HINT:

Matchmarks do not need to be placed if not reusing the glass.

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

NOTICE:

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

- (f) Disengage the stoppers.

- (g) Using suction cups, remove the glass.

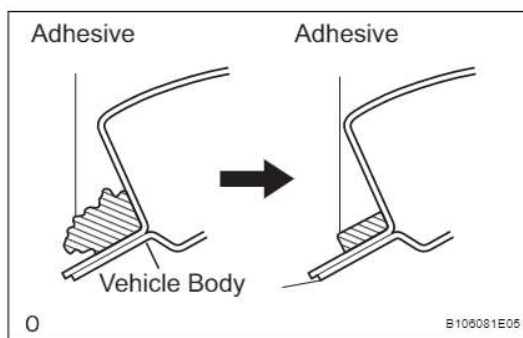
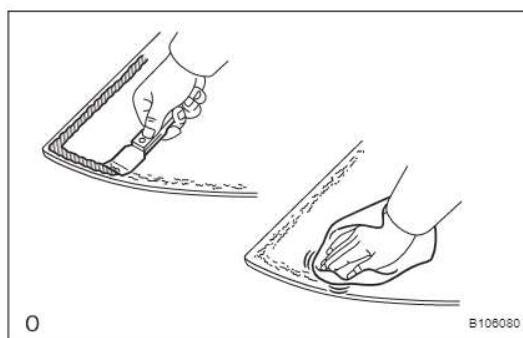
29. CLEAN WINDSHIELD GLASS

- (a) Using a scraper, remove the damaged stoppers, dams and adhesive sticking to the glass.

- (b) Clean the outer edges of the glass with white gasoline.

NOTICE:

Do not touch the glass surface after cleaning it. Even if using new glass, clean it with white gasoline.



30. CLEAN VEHICLE BODY

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

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

HINT:

Leave as much adhesive on the vehicle body as possible.

NOTICE:

Be careful not to damage the vehicle body.

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

HINT:

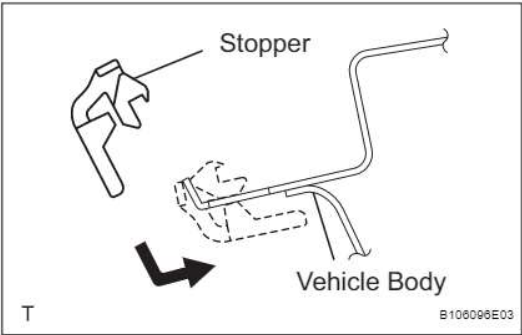
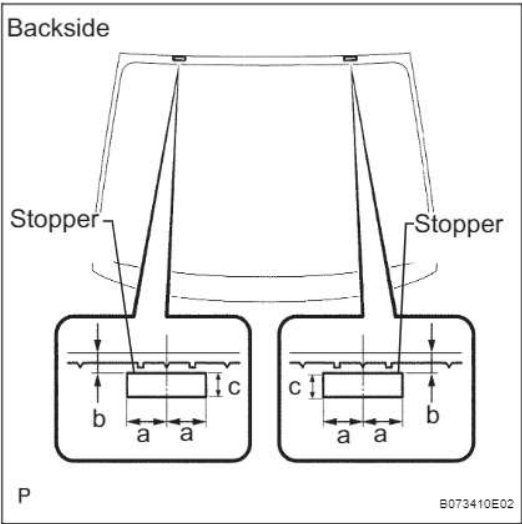
Even if all the adhesive has been removed, clean the vehicle body.

INSTALLATION

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

Standard measurement

Area	Specified Condition
a	40.0 mm (1.575 in.)
b	7.7 mm (0.303 in.)
c	12.5 mm (0.492 in.)



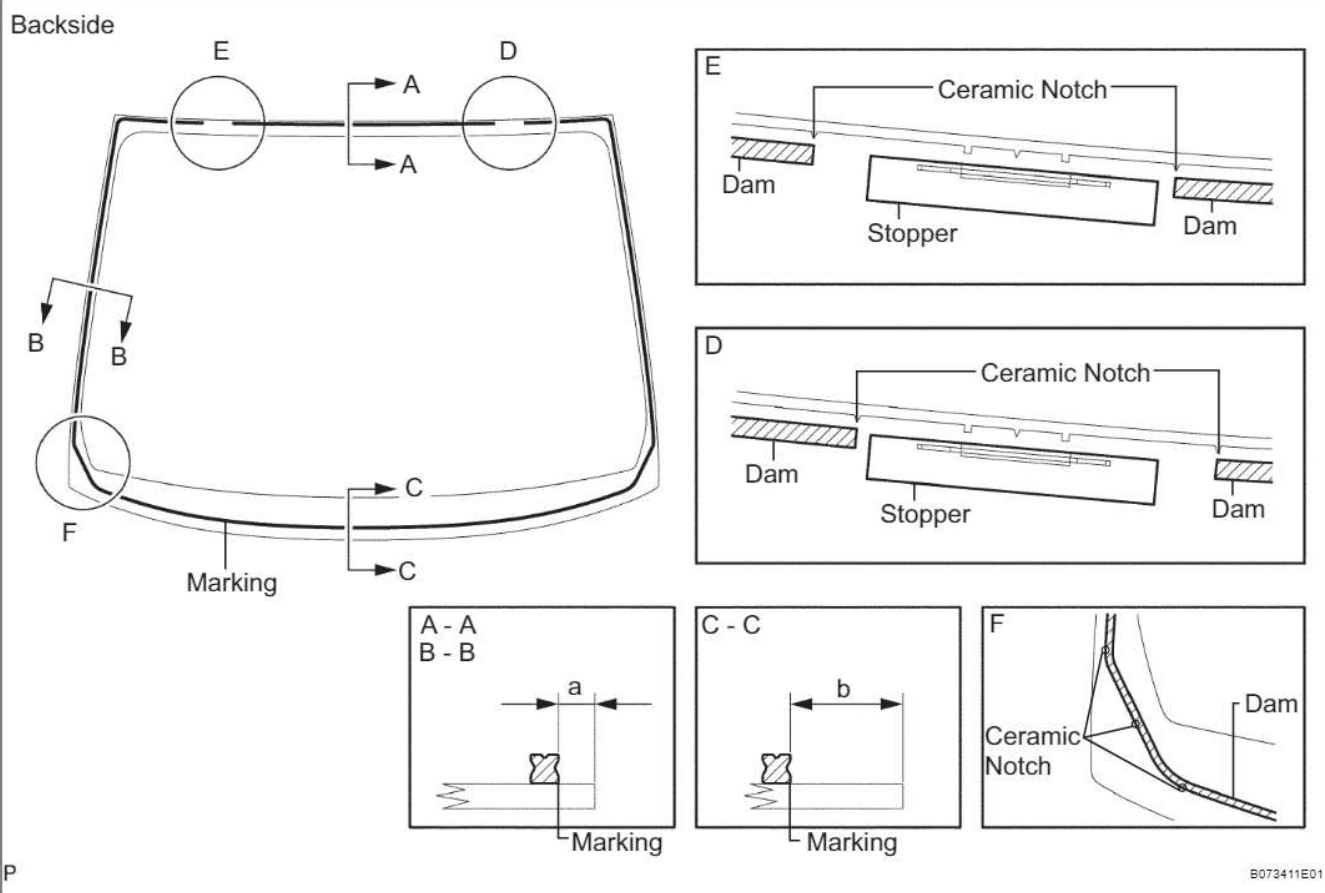
2. INSTALL NO. 1 WINDSHIELD GLASS STOPPER
- (a) Install 2 new stoppers to the vehicle body as shown in the illustration.
3. INSTALL WINDOW GLASS ADHESIVE DAM
- (a) Apply Primer G to the glass where the glass adhesive dams will be installed.
- NOTICE:
- Allow the primer to dry for 3 minutes or more.
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

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WINDSHIELD / WINDOWGLASS – WINDSHIELD GLASS

- (b) Remove the peeling paper from the adhesive part of the dam. Install the dam (adhesive side) to the glass (Primer G area), but exclude the spacer area A as shown in the illustration.



Standard measurement

Area	Specified Condition
a	7.0 mm (0.276 in.)
b	27.5 mm (1.083 in.)

4. INSTALL WINDSHIELD GLASS

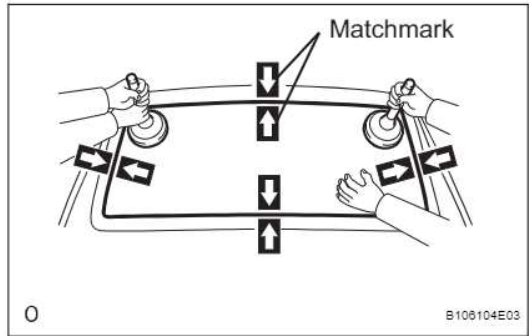
- (a) Position the glass.
- (1) Using suction cups, place the glass in the correct position.
 - (2) Check that the entire contact surface of the glass rim is perfectly even.
 - (3) Place matchmarks on the glass and vehicle body on the locations indicated in the illustration.

HINT:

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

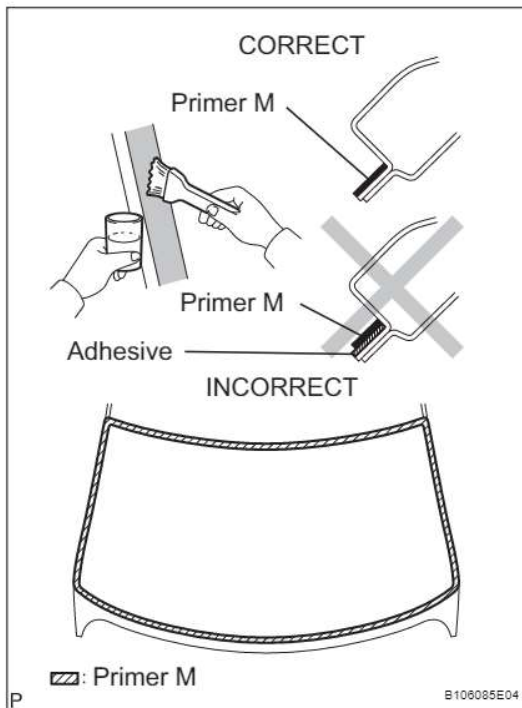
NOTICE:

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



WINDSHIELD / WINDOWGLASS – WINDSHIELD GLASS

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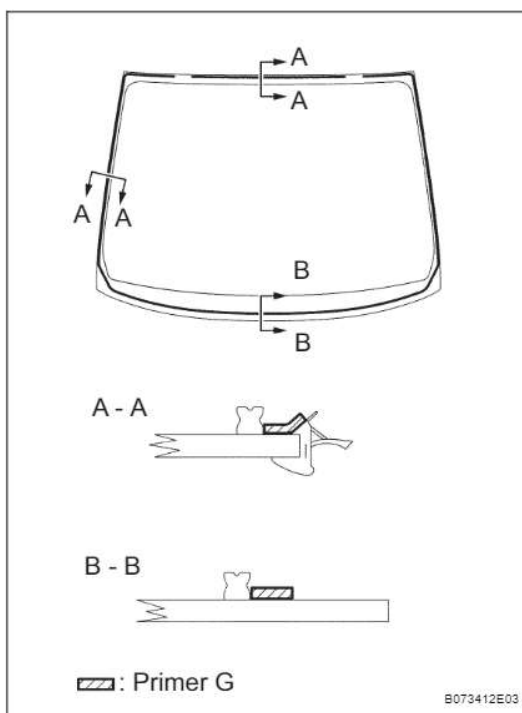


(4) Using suction cups, remove the glass.

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

NOTICE:

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



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

HINT:

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

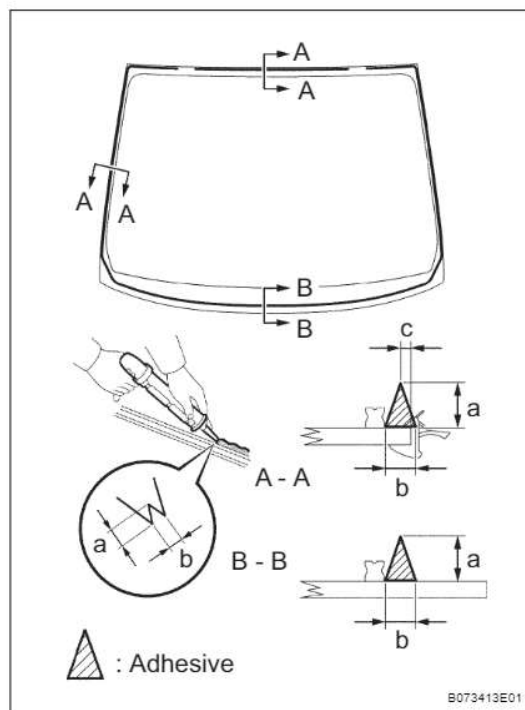
NOTICE:

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

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WINDSHIELD / WINDOWGLASS – WINDSHIELD GLASS



(d) Apply adhesive to the glass.

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

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

HINT:

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

Usage time frame

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 the cartridge.

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

Standard measurement

Area	Specified Condition
a	12.5 mm (0.492 in.)
b	8.0 mm (0.315 in.)
c	3.0 mm (0.118 in.)

(e) Install the glass to the vehicle body.

(1) Using suction cups, position the glass so that the matchmarks are aligned. Press it in gently along the rim.

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

NOTICE:

- Check that the stoppers are attached to the vehicle body correctly.
- Check that the vehicle body and glass have a small gap between them.

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

5. INSTALL WINDSHIELD MOULDING OUTSIDE

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

NOTICE:

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

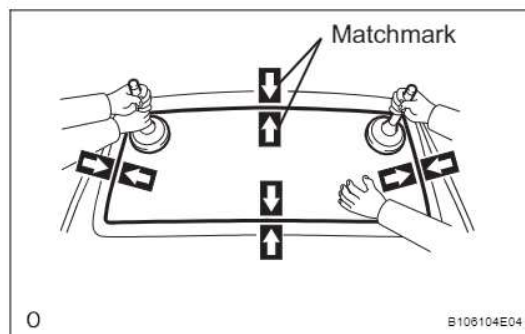
(b) Align the moulding's marks with glass notches and install the moulding before the adhesive dries.

NOTICE:

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

Minimum time

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



WINDSHIELD / WINDOWGLASS – WINDSHIELD GLASS

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Temperature	Minimum time prior to driving vehicle
20°C (68°F)	5 hours
5°C (41°F)	24 hours

6. INSTALL COWL TOP VENTILATOR LOUVER RH
7. INSTALL COWL TOP VENTILATOR LOUVER LH
8. INSTALL FRONT WIPER ARM LH (See page [WW-16](#))
9. INSTALL FRONT WIPER ARM RH (See page [WW-16](#))
10. INSTALL FRONT WIPER ARM HEAD CAP
11. INSTALL HOOD TO COWL TOP SEAL
12. INSTALL INNER REAR VIEW MIRROR ASSEMBLY (w/o EC Mirror) (See page [MI-6](#))
13. REMOVE INNER REAR VIEW MIRROR ASSEMBLY (w/ EC Mirror) (See page [MI-7](#))
14. INSTALL ROOF HEADLINING ASSEMBLY (See page [IR-13](#))
15. INSTALL MAP LIGHT ASSEMBLY (See page [IR-15](#))
16. INSTALL ASSIST GRIP SUB-ASSEMBLY (See page [IR-14](#))
17. INSTALL ASSIST GRIP COVER (See page [IR-14](#))
18. INSTALL VISOR HOLDER (See page [IR-14](#))
19. INSTALL VISOR ASSEMBLY LH (See page [IR-14](#))
20. INSTALL VISOR ASSEMBLY RH (See page [IR-14](#))
21. INSTALL FRONT PILLAR GARNISH LH (See page [IR-18](#))
22. INSTALL FRONT PILLAR GARNISH RH (See page [IR-18](#))
23. INSTALL FRONT PILLAR GARNISH CORNER PIECE LH (See page [IR-19](#))
24. INSTALL FRONT PILLAR GARNISH CORNER PIECE RH (See page [IR-19](#))
25. INSTALL FRONT DOOR OPENING TRIM LH
26. INSTALL FRONT DOOR OPENING TRIM RH
27. INSTALL COWL SIDE TRIM BOARD LH (See page [IR-19](#))
28. REMOVE COWL SIDE TRIM BOARD RH (See page [IR-19](#))
29. REMOVE FRONT DOOR SCUFF PLATE LH (See page [IR-19](#))
30. INSTALL FRONT DOOR SCUFF PLATE RH (See page [IR-19](#))

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31. CHECK FOR LEAKS AND REPAIR

- (a) Conduct a leak test after the adhesive has completely hardened.
- (b) Seal any leaks with auto glass sealer.

32. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**33. PERFORM INITIALIZATION**

- (a) Perform initialization (see page [IN-32](#)).

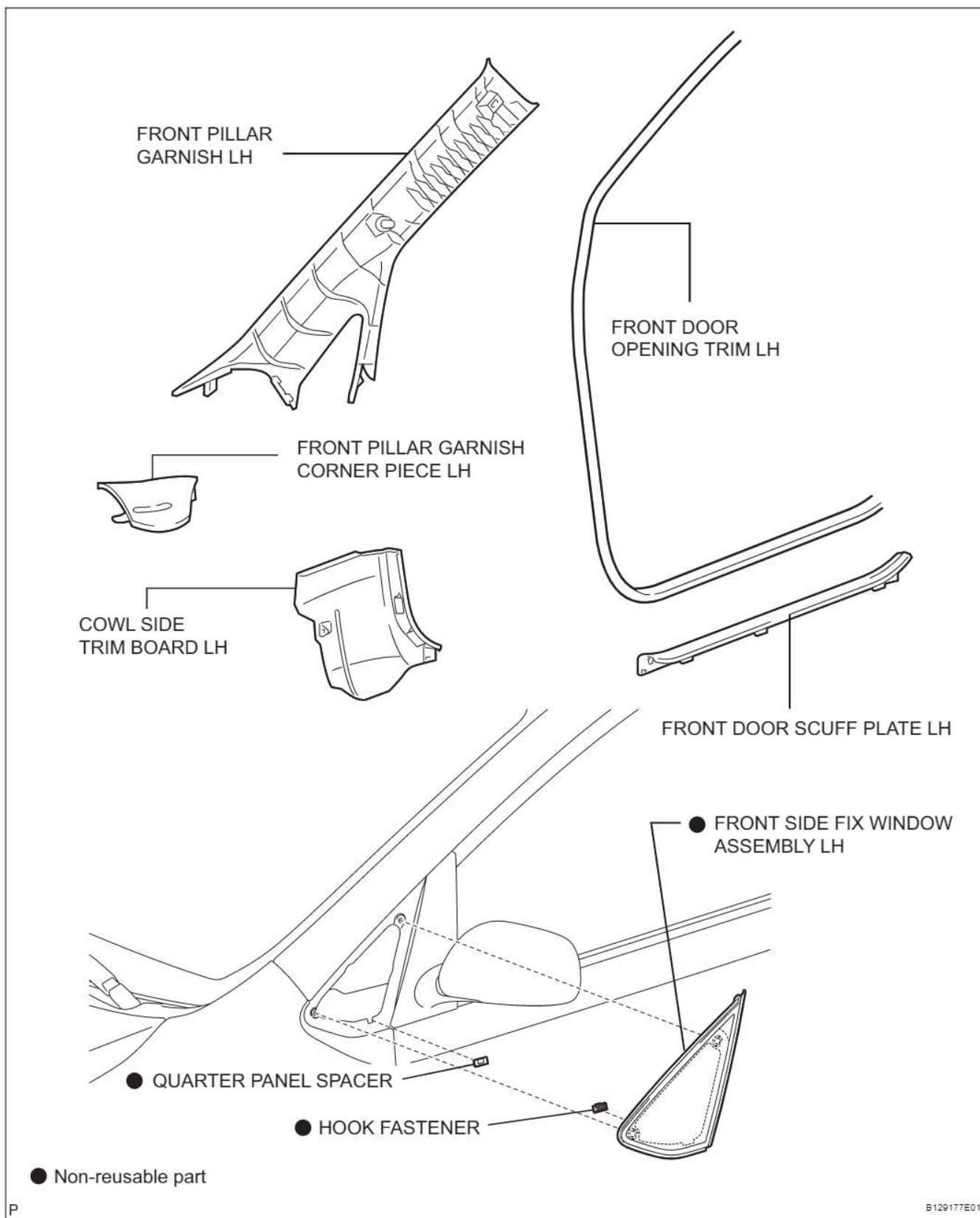
NOTICE:

Certain systems need to be initialized after disconnecting and reconnecting the cable from the negative (-) battery terminal.

WS

FRONT SIDE FIX WINDOW GLASS

COMPONENTS



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WINDSHIELD / WINDOWGLASS – FRONT SIDE FIX WINDOW GLASS

REMOVAL

HINT:

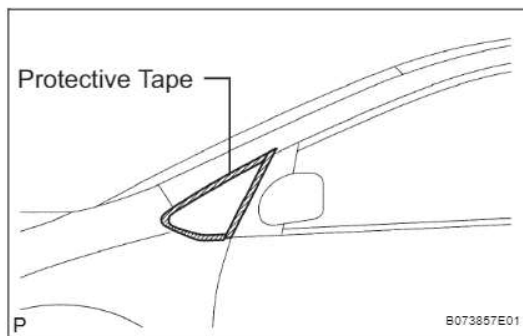
- Use the same procedures for the LH side and RH side.
- The procedures listed below are for the RH side.

1. REMOVE FRONT DOOR SCUFF PLATE LH (See page [IR-7](#))
2. REMOVE COWL SIDE TRIM BOARD LH (See page [IR-7](#))
3. REMOVE FRONT DOOR OPENING TRIM LH
 - (a) Partially remove the front door opening trim weatherstrip LH so that the front pillar garnish LH can be removed (see page [IR-7](#)).
4. REMOVE FRONT PILLAR GARNISH CORNER PIECE LH (See page [IR-7](#))
5. REMOVE FRONT PILLAR GARNISH LH (See page [IR-8](#))
6. REMOVE FRONT SIDE FIX WINDOW ASSEMBLY LH

NOTICE:

When removing the quarter window glass from the vehicle, be careful not to damage the vehicle's paint or interior/exterior ornaments.

- (a) Apply protective tape to the outer surface of the vehicle body to prevent scratches.



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

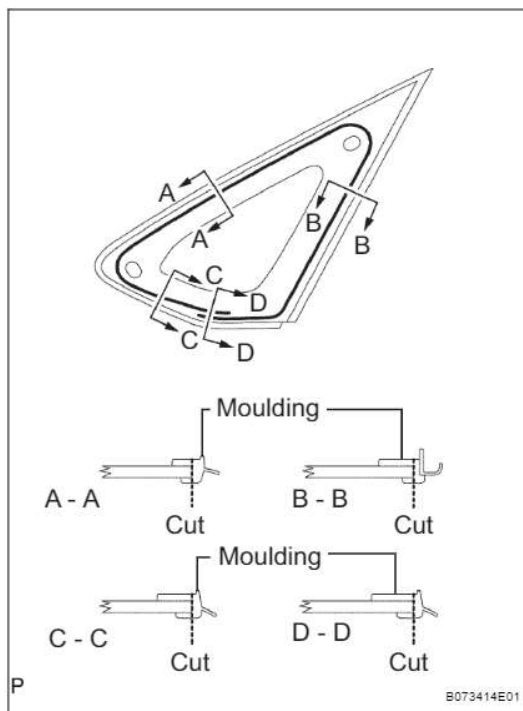
NOTICE:

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

- (c) Remove the remaining moulding.

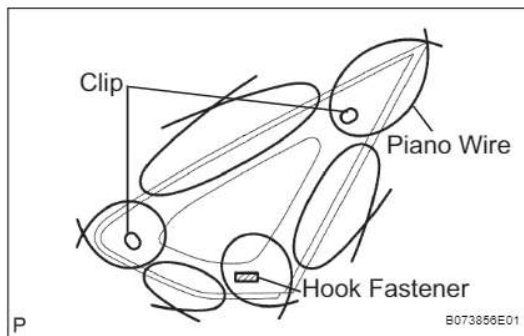
HINT:

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



WINDSHIELD / WINDOWGLASS – FRONT SIDE FIX WINDOW GLASS

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

NOTICE:

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

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

NOTICE:

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

- (g) Disengage the stoppers.
- (h) Using suction cup, remove the glass.

7. CLEAN VEHICLE BODY

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

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

HINT:

Leave as much adhesive on the vehicle body as possible.

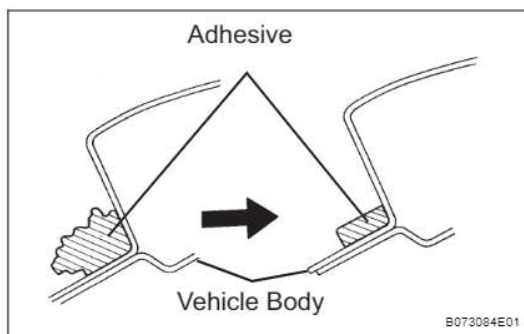
NOTICE:

Be careful not to damage the vehicle body.

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

HINT:

Even if all the adhesive has been removed, clean the vehicle body.



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WINDSHIELD / WINDOWGLASS – FRONT SIDE FIX WINDOW GLASS

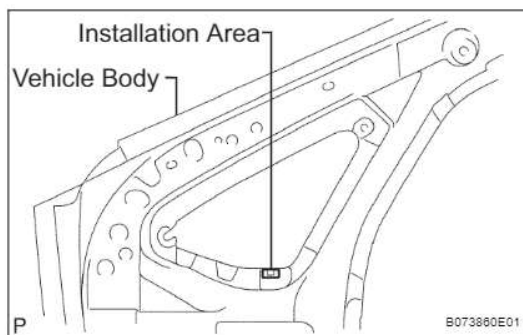
INSTALLATION

HINT:

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

1. INSTALL QUARTER PANEL SPACER

- (a) Install a new spacer to the vehicle body as shown in the illustration.



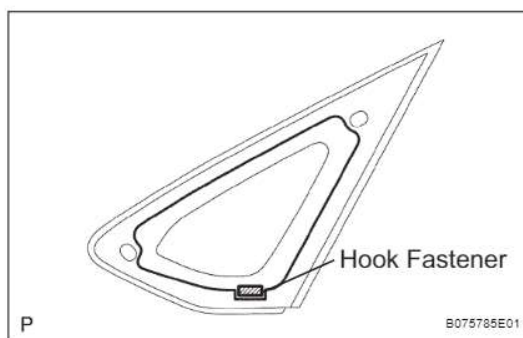
2. INSTALL HOOK FASTENER

- (a) Apply Primer G to the glass where the fastener will be installed.

NOTICE:

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

- (b) Install a new hook fastener onto the glass as shown in the illustration.

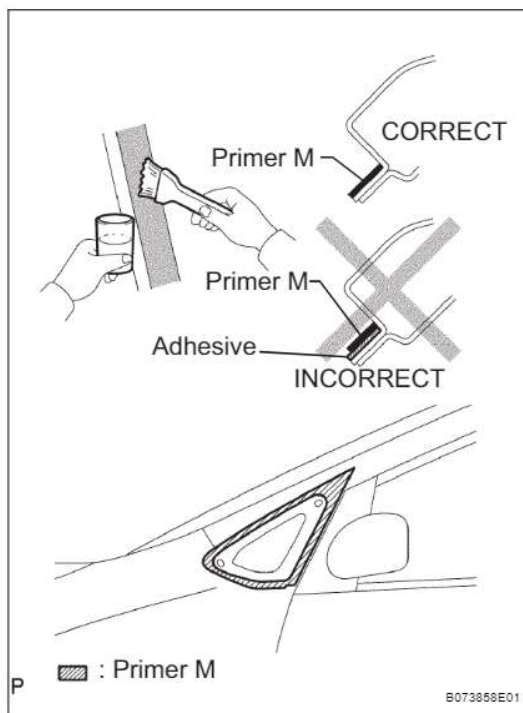


3. INSTALL WINDSHIELD GLASS

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

NOTICE:

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

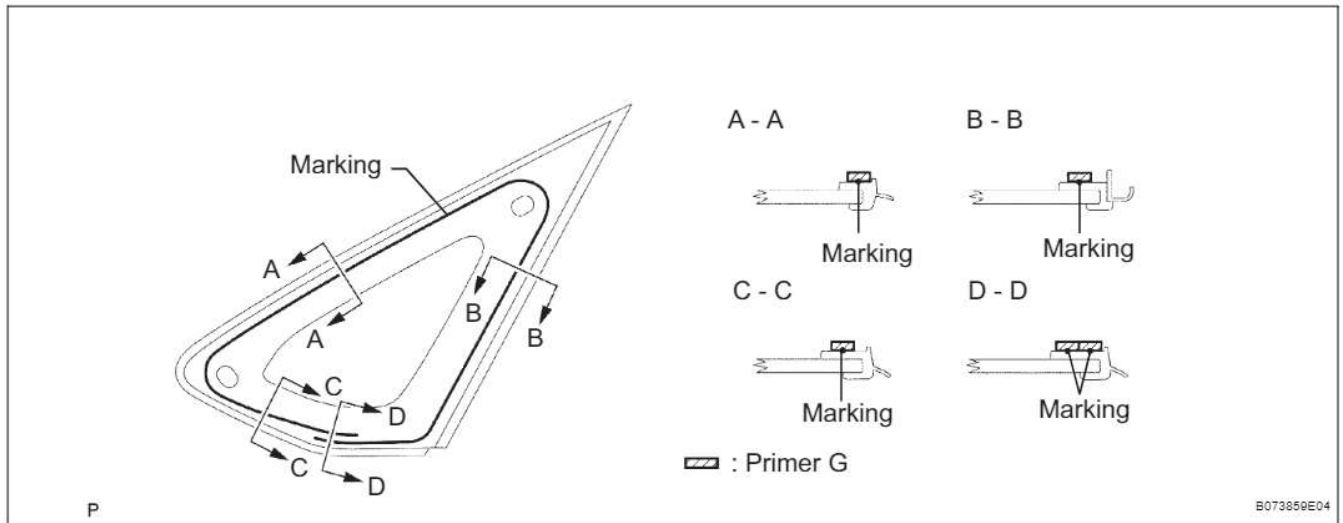


WS

WINDSHIELD / WINDOWGLASS – FRONT SIDE FIX WINDOW GLASS

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

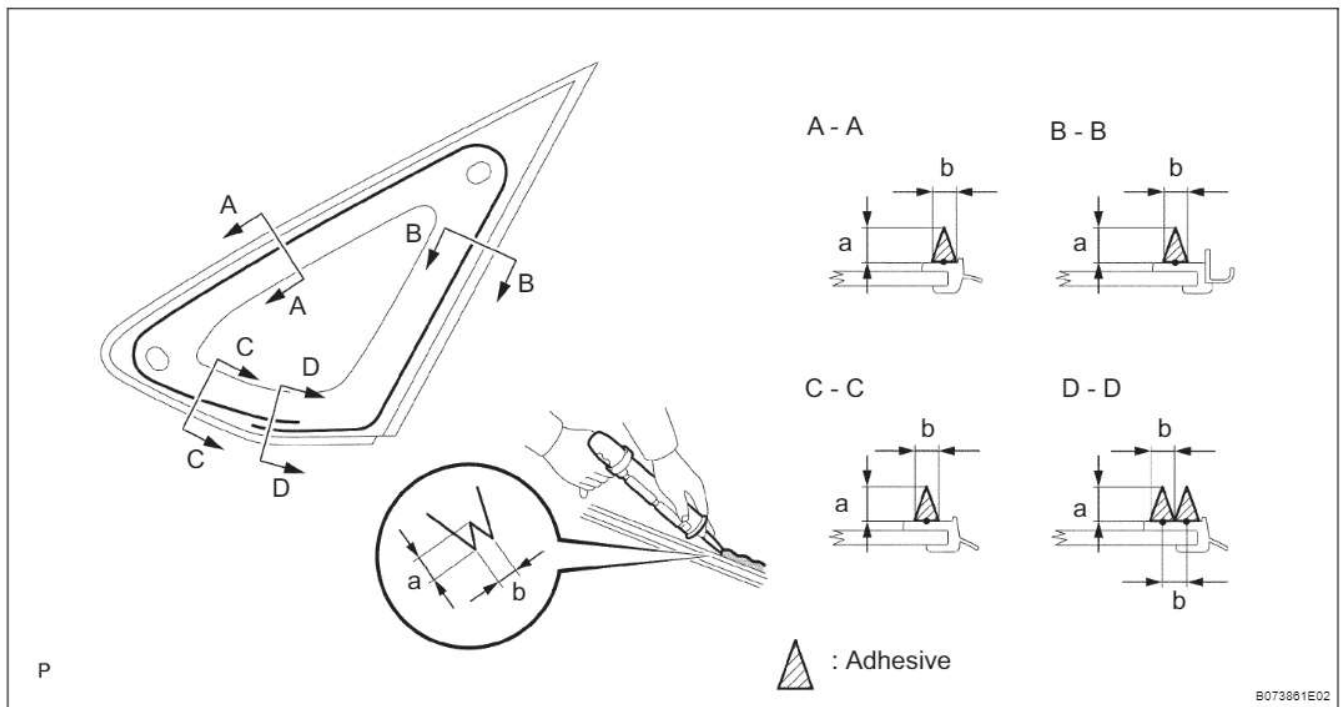
**HINT:**

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

NOTICE:

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

- (c) Apply adhesive to the glass.

**Adhesive:**

Part No. 08850-00801 or equivalent

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WINDSHIELD / WINDOWGLASS – FRONT SIDE FIX WINDOW GLASS

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

HINT:

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

Usage time frame

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

Standard measurement

Area	Specified Condition
a	8.0 mm (0.315 in.)
b	6.0 mm (0.236 in.)

- (d) Install the front side fix window to the vehicle body.
 - (1) Hold the front side fix window in place securely with protective tape or equivalent until the adhesive hardens.

NOTICE:

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

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

NOTICE:

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

Minimum time

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

4. INSTALL FRONT PILLAR GARNISH LH (See page [IR-18](#))
5. INSTALL FRONT PILLAR GARNISH CORNER PIECE LH (See page [IR-19](#))
6. INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP LH
7. INSTALL COWL SIDE TRIM BOARD LH (See page [IR-19](#))
8. INSTALL FRONT DOOR SCUFF PLATE LH (See page [IR-19](#))

WS

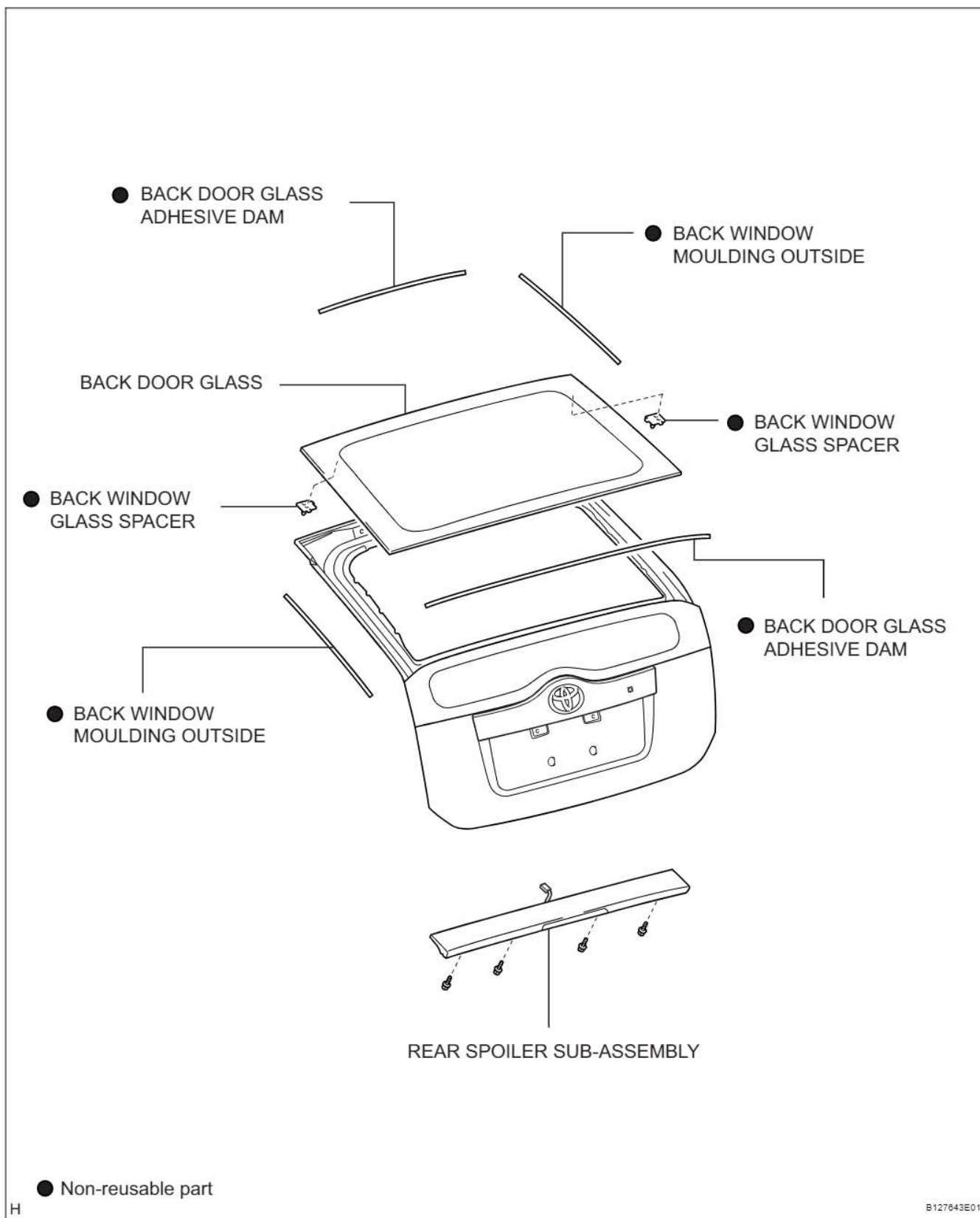
WINDSHIELD / WINDOWGLASS – FRONT SIDE FIX WINDOW GLASS**WS-73****9. CHECK FOR LEAKS AND REPAIR**

- (a) Conduct a leak test after the adhesive has completely hardened.
- (b) Seal any leaks with auto glass sealer.

WS

BACK DOOR GLASS

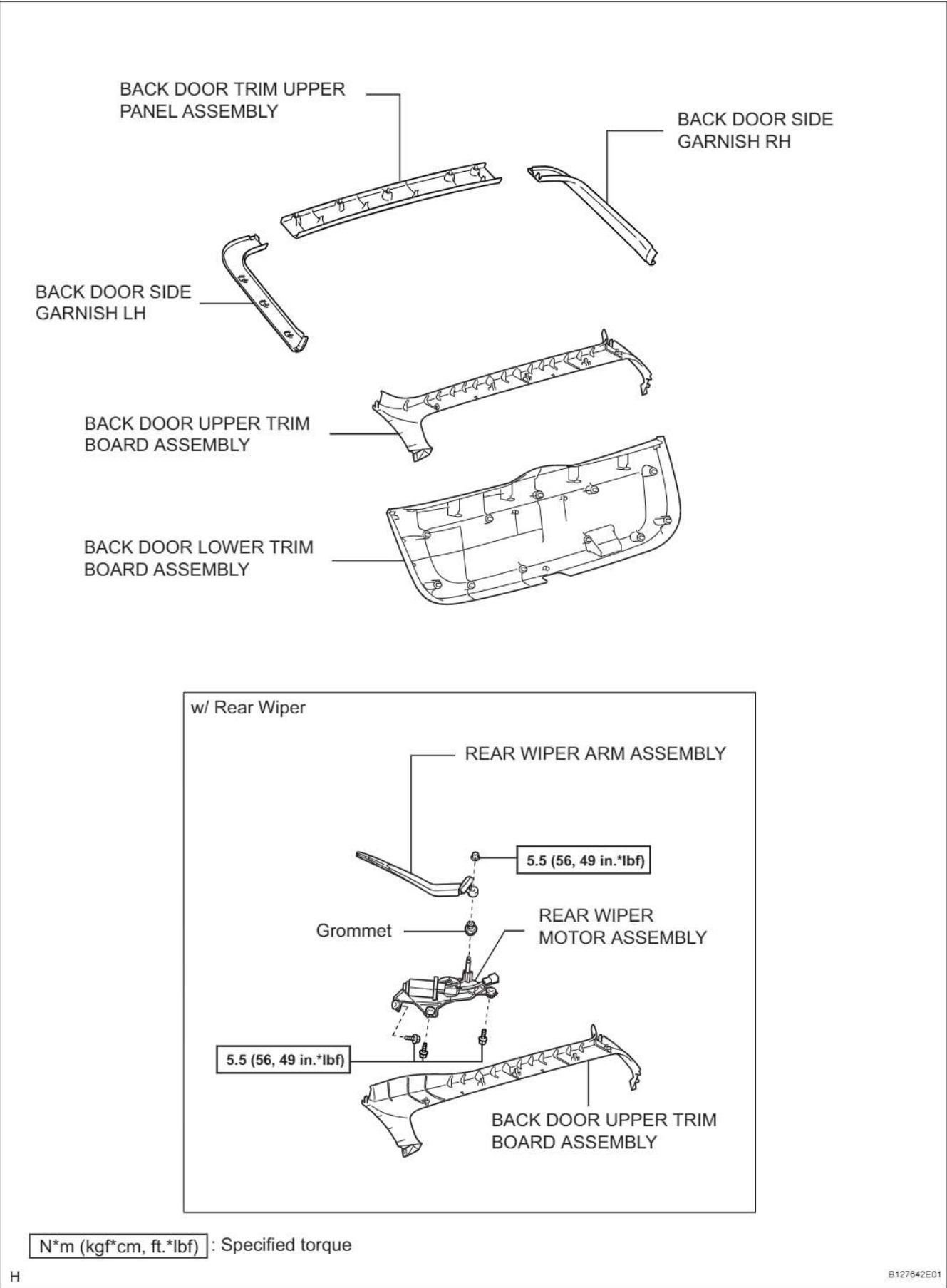
COMPONENTS



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WINDSHIELD / WINDOWGLASS – BACK DOOR GLASS



REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

CAUTION:

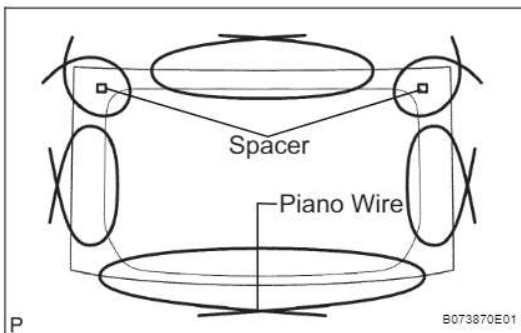
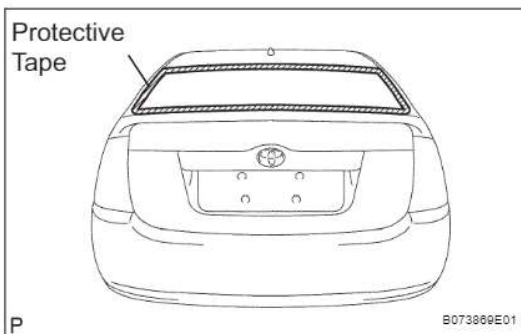
Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to prevent airbag and seat belt pretensioner activation.

2. REMOVE REAR WIPER ARM ASSEMBLY (w/ Rear wiper) (See page [WW-22](#))
3. REMOVE BACK DOOR LOWER TRIM BOARD ASSEMBLY (See page [ED-43](#))
4. REMOVE BACK DOOR UPPER TRIM BOARD ASSEMBLY (See page [ED-44](#))
5. REMOVE BACK DOOR TRIM UPPER PANEL ASSEMBLY (See page [ED-44](#))
6. REMOVE BACK DOOR SIDE GARNISH LH (See page [ED-44](#))
7. REMOVE BACK DOOR SIDE GARNISH RH (See page [ED-44](#))
8. REMOVE REAR WIPER MOTOR ASSEMBLY (w/ Rear wiper) (See page [WW-22](#))
9. REMOVE REAR SPOILER SUB-ASSEMBLY (See page [ET-17](#))
10. REMOVE BACK DOOR GLASS

- (a) Apply protective tape to the outer surface of the vehicle body to prevent scratches.

NOTICE:

When separating the back door glass from the vehicle, be careful not to damage the vehicle's paint or interior/exterior ornaments.



- (b) From the interior, insert a piano wire between the vehicle body and back door glass as shown in the illustration.
- (c) Tie objects that can serve as handles (for example, wooden blocks) to both wire ends.
- (d) Cut through the adhesive by pulling the piano wire around the back door glass.

NOTICE:

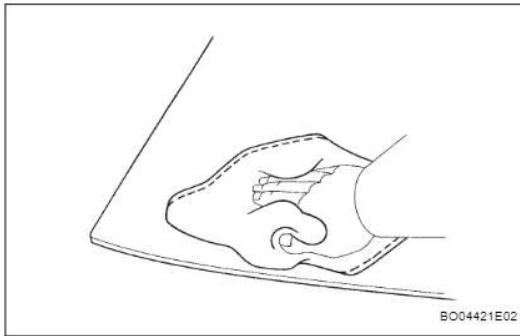
Leave as much adhesive on the vehicle body as possible when removing the back door glass.

- (e) Using suction cups, remove the back door glass.

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WINDSHIELD / WINDOWGLASS – BACK DOOR GLASS

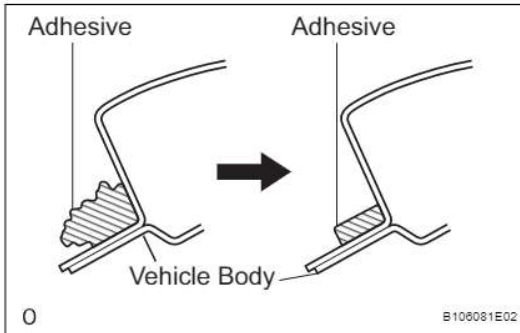


11. CLEAN BACK DOOR GLASS

- (a) Clean the outer edge of the back door glass with white gasoline.

NOTICE:

- Do not touch the back door glass surface after cleaning it.
- Be careful not to damage the glass.
- Even if using new back door glass, clean the back door glass with white gasoline.



12. CLEAN VEHICLE BODY

- (a) Using a scraper, remove the moulding and adhesive from the back door glass.
- (b) Clean and shape the contact surface of the vehicle body.

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

HINT:

Leave as much adhesive on the vehicle body as possible.

NOTICE:

Be careful not to damage the vehicle body.

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

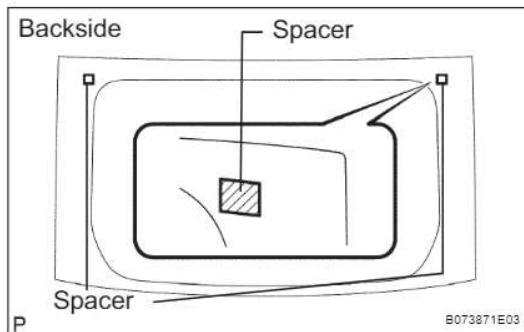
HINT:

Even if all the adhesive has been removed, clean the vehicle body.

INSTALLATION

HINT:

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



1. INSTALL BACK WINDOW GLASS SPACER

- (a) Apply Primer G to the installation part of the spacers.

HINT:

If primer is applied to an area that is not specified, wipe off the primer with white gasoline before it dries.

NOTICE:

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

- (b) Install 2 new spacers onto the glass as shown in the illustration.

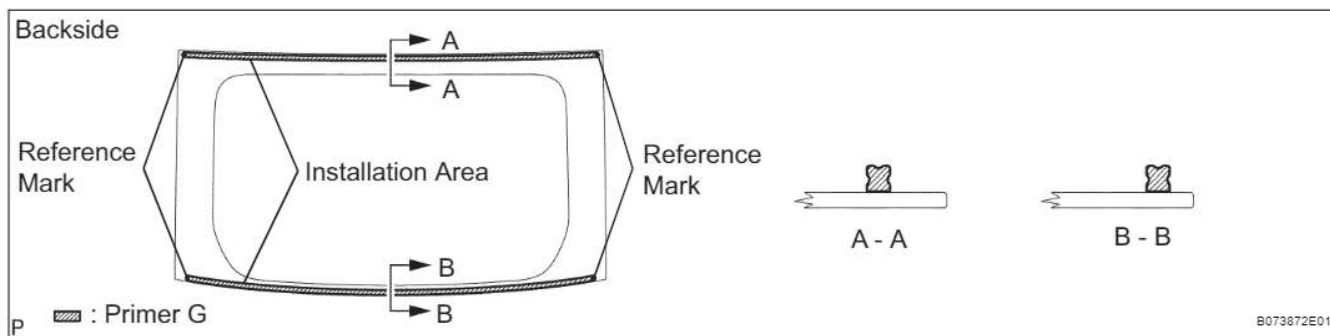
2. INSTALL BACK DOOR GLASS ADHESIVE DAM

- (a) Apply Primer G to the glass where the adhesive dam will be installed.

NOTICE:

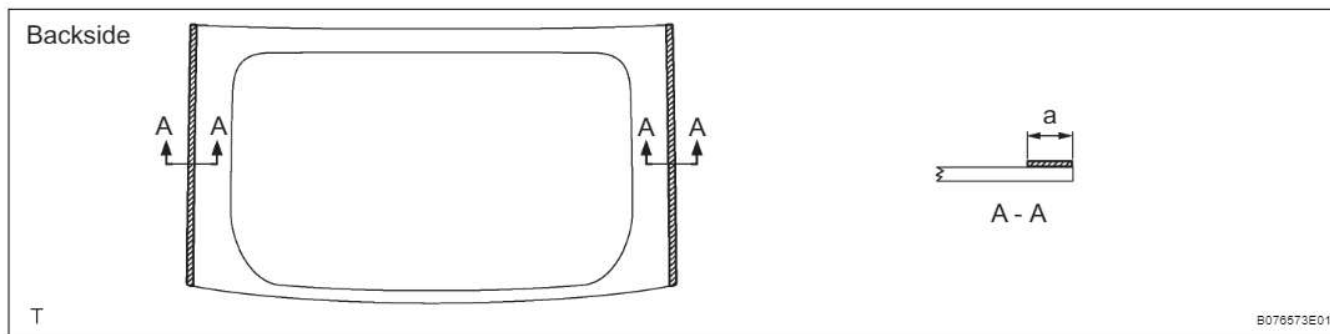
- Allow the primer to dry for 3 minutes or more.
- Throw away any leftover primer.
- Do not apply too much primer.

- (b) Remove the peeling paper from the adhesive part of the dam. Install the dam (adhesive side) to the glass (Primer G area) as shown in the illustration.



3. INSTALL BACK WINDOW MOULDING OUTSIDE

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



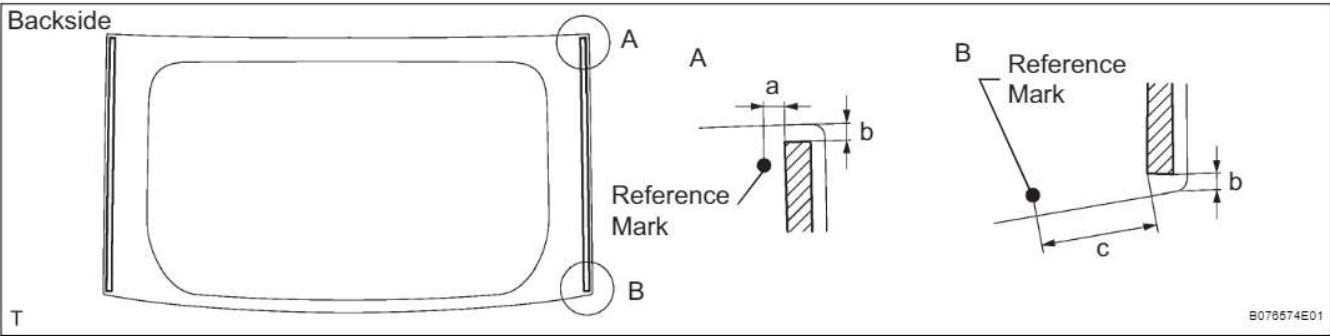
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WINDSHIELD / WINDOWGLASS – BACK DOOR GLASS

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

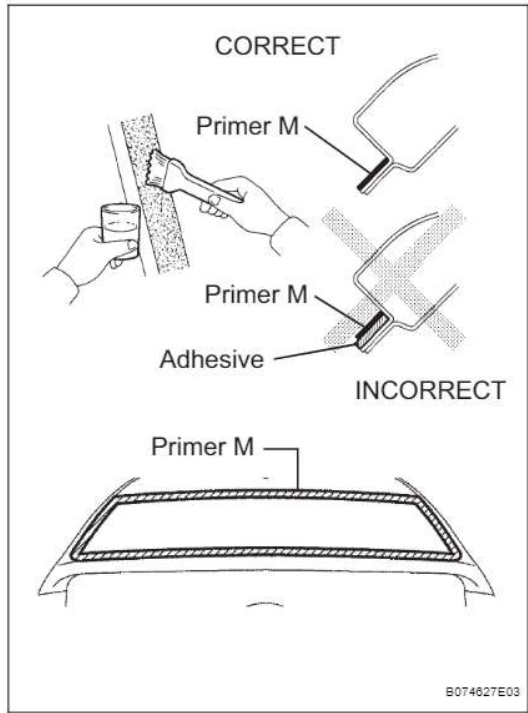
Area	Specified Condition
a	10.0 mm (0.394 in.)

(b) Install the moulding.



Standard measurement

Area	Specified Condition
a	4.5 mm (0.177 in.)
b	1.5 mm (0.059 in.)
c	24.2 mm (0.953 in.)

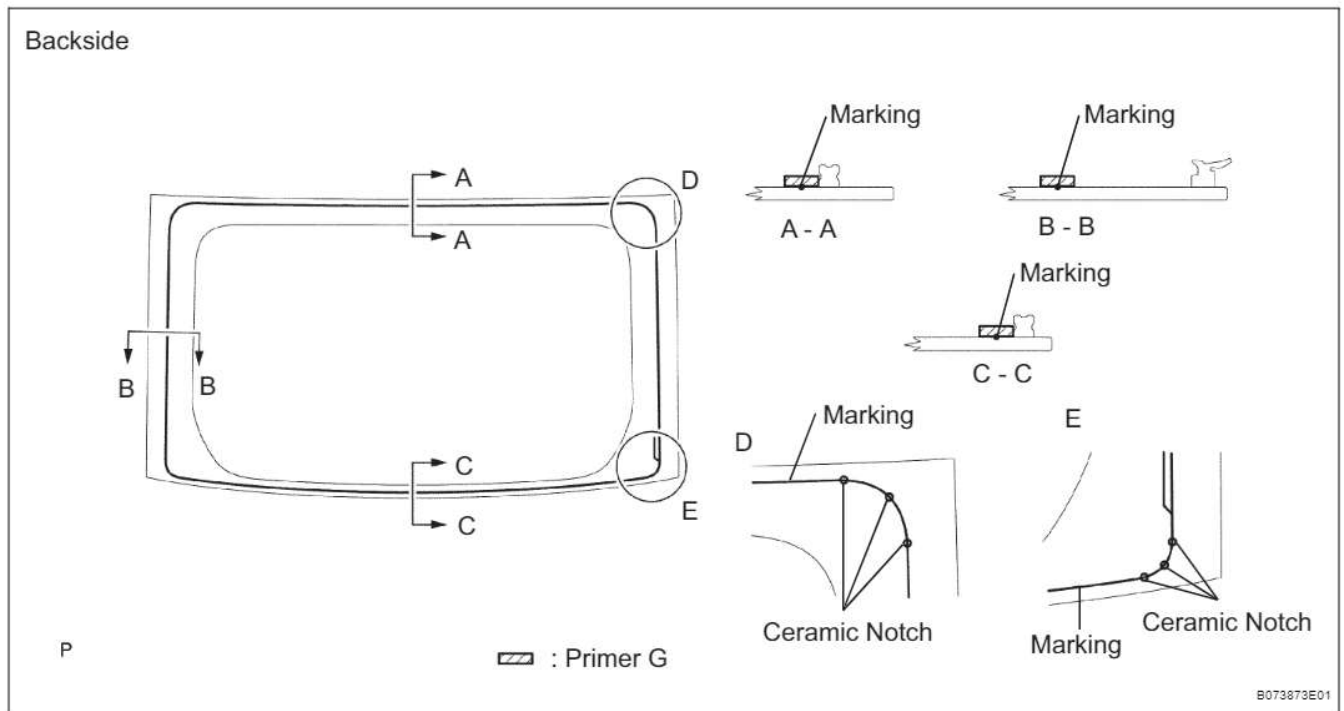


- 4. INSTALL BACK DOOR GLASS**
- (a) Using a brush, coat the exposed part of the vehicle body with Primer M.
- NOTICE:**
- Allow the primer to dry for 3 minutes or more.
 - Do not coat the adhesive with Primer.
 - Throw away any leftover primer.
 - Do not apply too much primer.

WINDSHIELD / WINDOWGLASS – BACK DOOR GLASS

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- (b) Using a brush or sponge, coat the edge of the glass and the contact surface with Primer G.

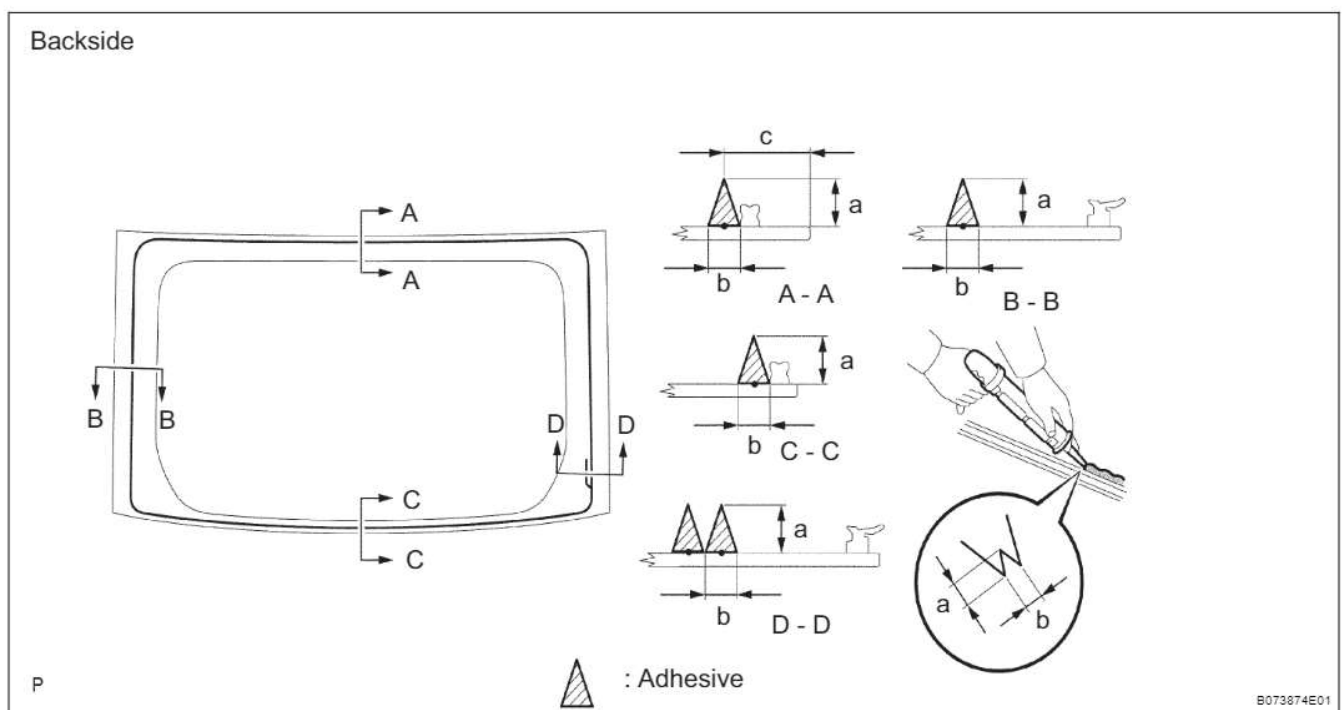
**HINT:**

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

NOTICE:

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

- (c) Apply adhesive to the back door glass.



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WINDSHIELD / WINDOWGLASS – BACK DOOR GLASS

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

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

HINT:

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

Usage time frame

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

Standard measurement

Area	Specified Condition
a	12.0 mm (0.472 in.)
b	8.0 mm (0.315 in.)
c	14.5 mm (0.571 in.)

- (d) Install the back door glass to the vehicle body.

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

NOTICE:

- Check that the spacers are attached to the vehicle body correctly.
- Check that the vehicle body and glass have a small gap between them.

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

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

HINT:

Apply adhesive onto the glass rim.

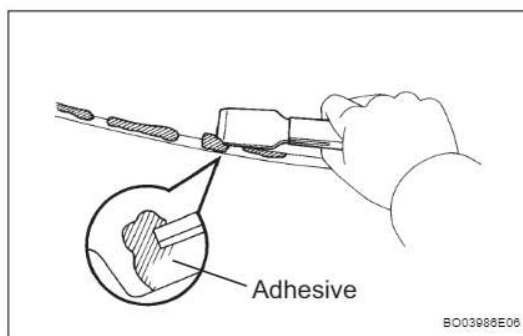
NOTICE:

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

Minimum time

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

5. INSTALL REAR SPOILER SUB-ASSEMBLY (See page [ET-17](#))
6. INSTALL REAR WIPER MOTOR ASSEMBLY (See page [WW-22](#))

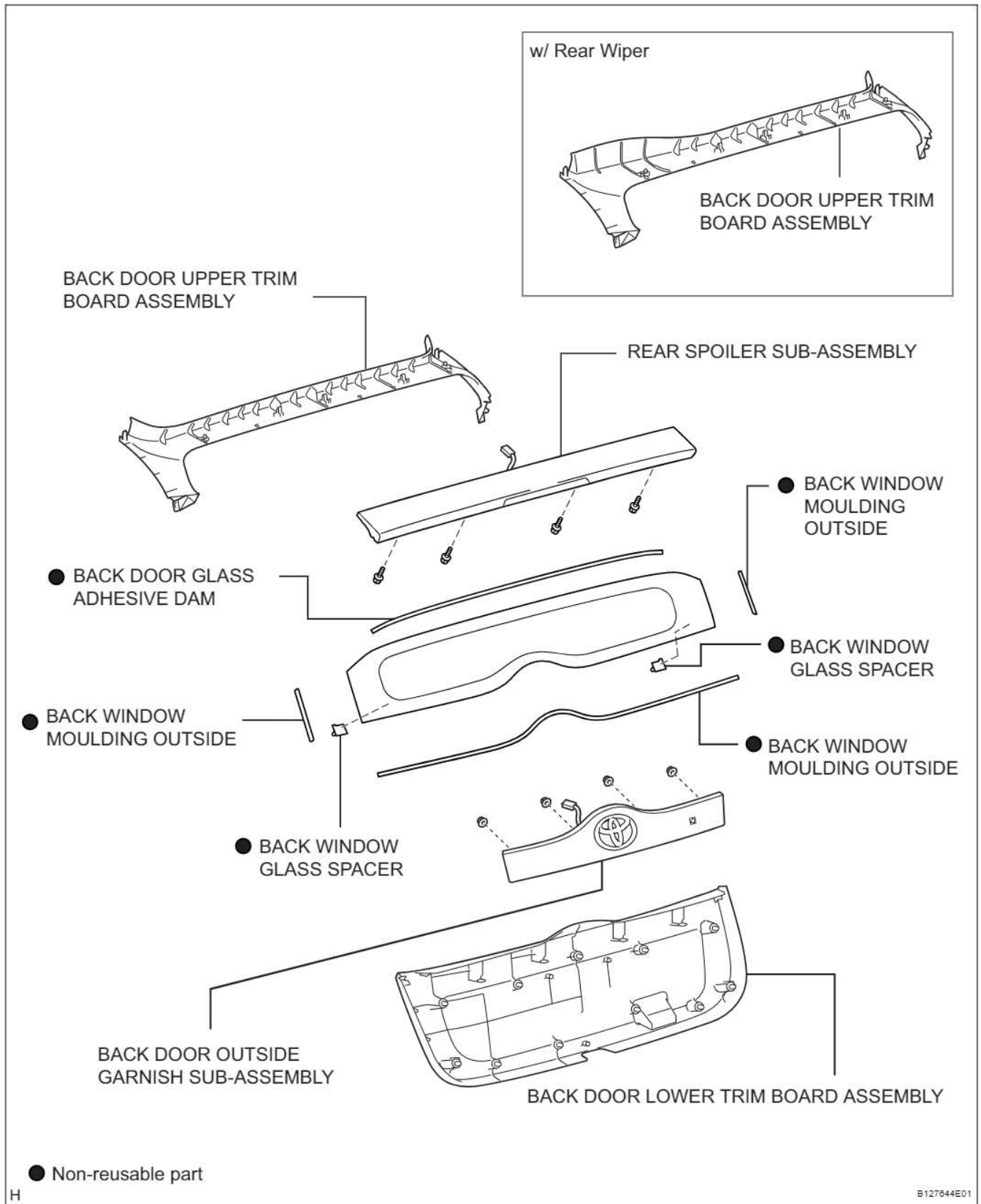


WS

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

BACK WINDOW FIX GLASS

COMPONENTS



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WINDSHIELD / WINDOWGLASS – BACK WINDOW FIX GLASS

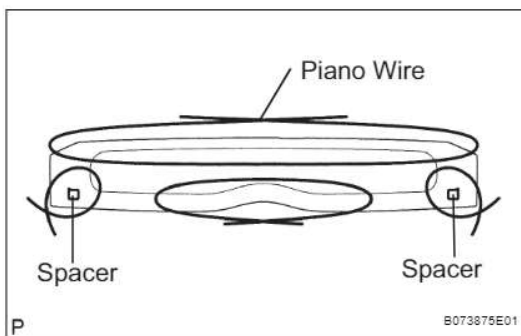
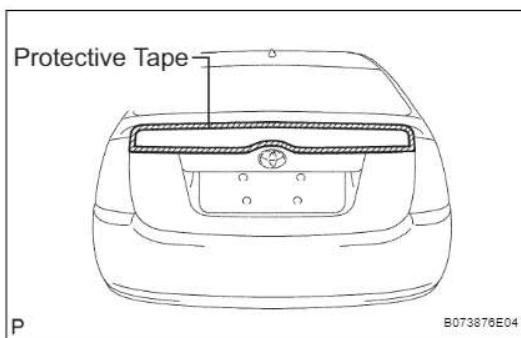
REMOVAL

1. REMOVE BACK DOOR LOWER TRIM BOARD ASSEMBLY (See page [ED-43](#))
2. REMOVE BACK DOOR UPPER TRIM BOARD ASSEMBLY (See page [ED-44](#))
3. REMOVE BACK DOOR OUTSIDE GARNISH SUB-ASSEMBLY (See page [ET-37](#))
4. REMOVE REAR SPOILER SUB-ASSEMBLY (See page [ET-17](#))
5. REMOVE BACK DOOR GLASS

- (a) Apply protective tape to the outer surface of the vehicle body to prevent scratches.

NOTICE:

When separating the back door glass from the vehicle, be careful not to damage the vehicle's paint or interior/exterior ornaments.



- (b) From the interior, insert a piano wire between the vehicle body and back door glass as shown in the illustration.
- (c) Tie objects that can serve as handles (for example, wooden blocks) to both wire ends.
- (d) Cut through the adhesive by pulling the piano wire around the back door glass.

NOTICE:

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

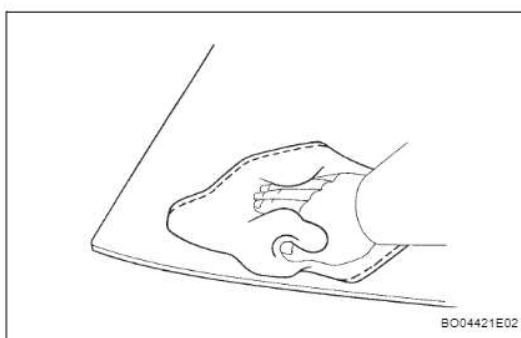
- (e) Using suction cups, remove the back door glass.

6. CLEAN BACK DOOR GLASS

- (a) Clean the outer edge of the back door glass with white gasoline.

NOTICE:

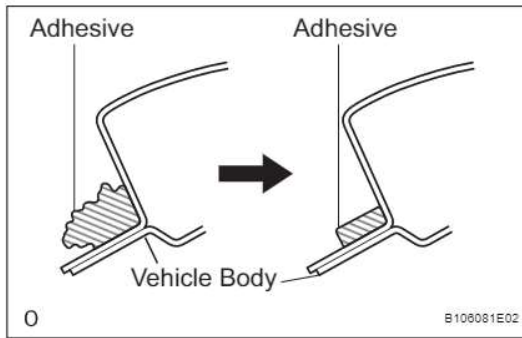
- Do not touch the back door glass surface after cleaning it.
- Be careful not to damage the glass.
- Even if using new back door glass, clean the back door glass with white gasoline.



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WINDSHIELD / WINDOWGLASS – BACK WINDOW FIX GLASS

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**7. CLEAN VEHICLE BODY**

- (a) Using a scraper, remove the moulding and adhesive from the back door glass.
- (b) Clean and shape the contact surface of the vehicle body.

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

HINT:

Leave as much adhesive on the vehicle body as possible.

NOTICE:

Be careful not to damage the vehicle body.

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

HINT:

Even if all the adhesive has been removed, clean the vehicle body.

WS

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WINDSHIELD / WINDOWGLASS – BACK WINDOW FIX GLASS

INSTALLATION

HINT:

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

1. INSTALL BACK WINDOW GLASS SPACER

- (a) Apply Primer G to the installation part of the spacers.

HINT:

If primer is applied to an area that is not specified, wipe off the primer with white gasoline before it dries.

- (b) Install 2 new spacers onto the glass as shown in the illustration.

NOTICE:

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

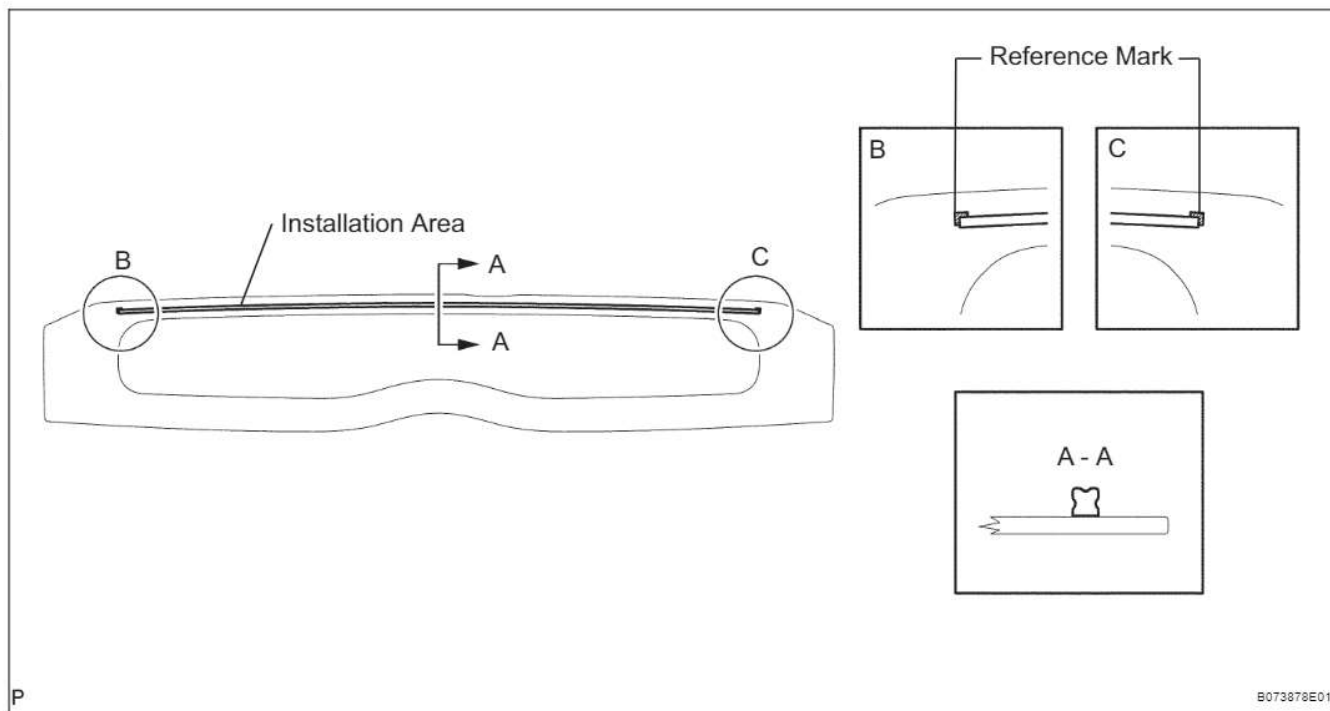
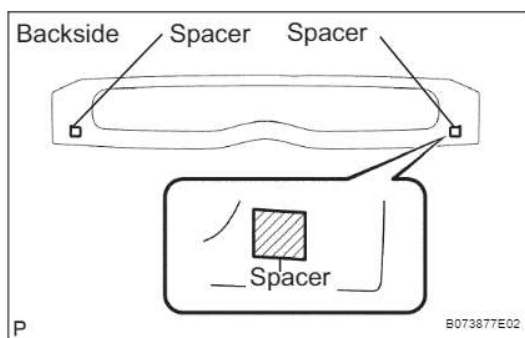
2. INSTALL BACK DOOR GLASS ADHESIVE DAM

- (a) Apply Primer G to the glass where the adhesive dam will be installed.

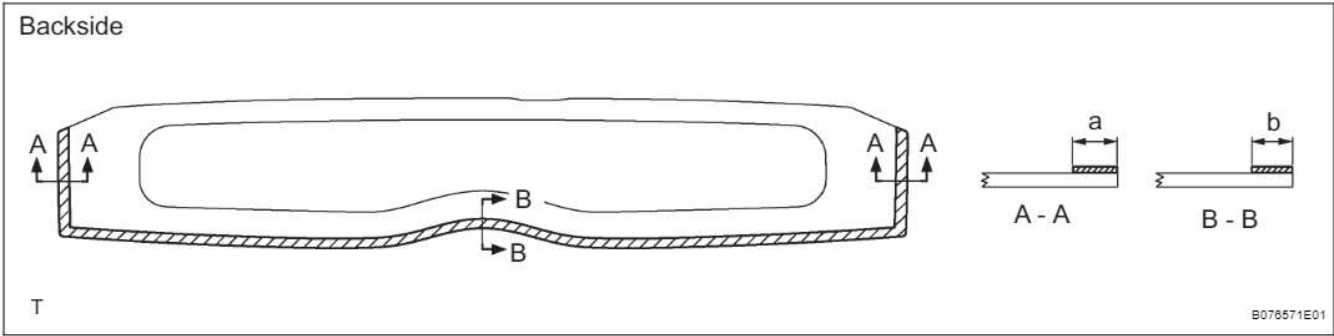
NOTICE:

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

- (b) Remove the peeling paper from the adhesive part of the dam. Install the dam (adhesive side) to the glass (Primer G area) as shown in the illustration.



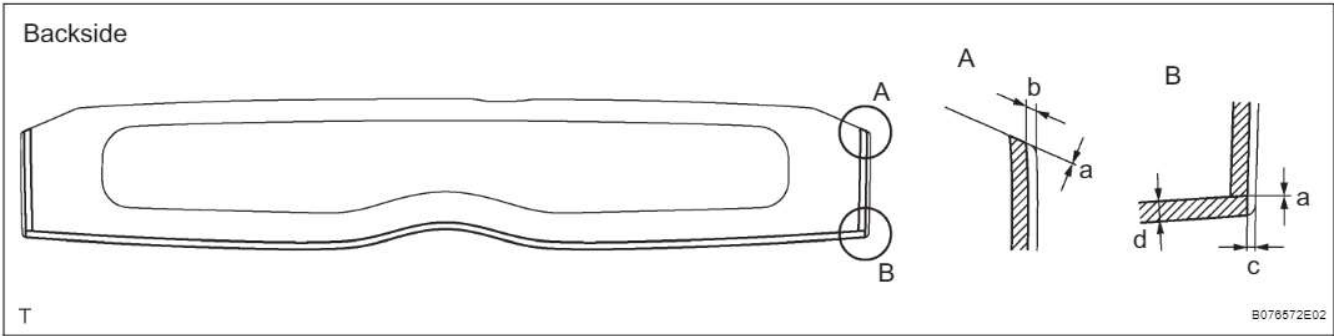
3. INSTALL BACK WINDOW MOULDING OUTSIDE



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

Area	Specified Condition
a	10.0 mm (0.394 in.)
b	9.0 mm (0.354 in.)

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



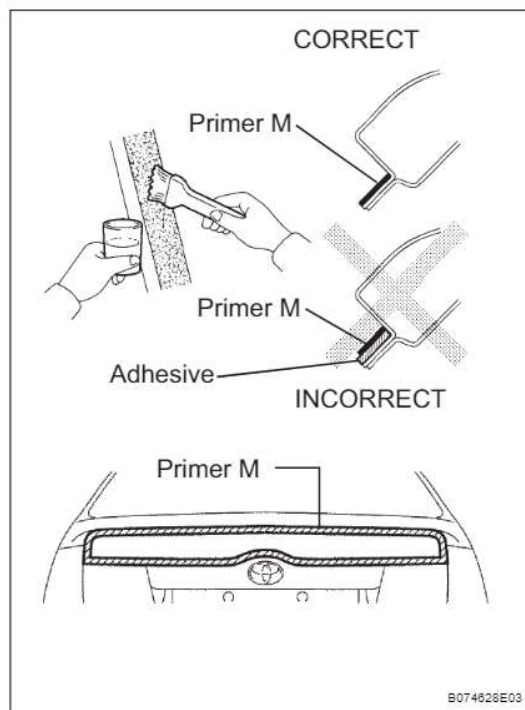
Standard measurement

Area	Specified Condition
a	0 mm (0 in.)
b	3.0 mm (0.118 in.)
c	1.5 mm (0.059 in.)
d	6.5 mm (0.256 in.)

4. INSTALL BACK DOOR OUTSIDE GARNISH SUB-ASSEMBLY (See page ET-38)

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WINDSHIELD / WINDOWGLASS – BACK WINDOW FIX GLASS



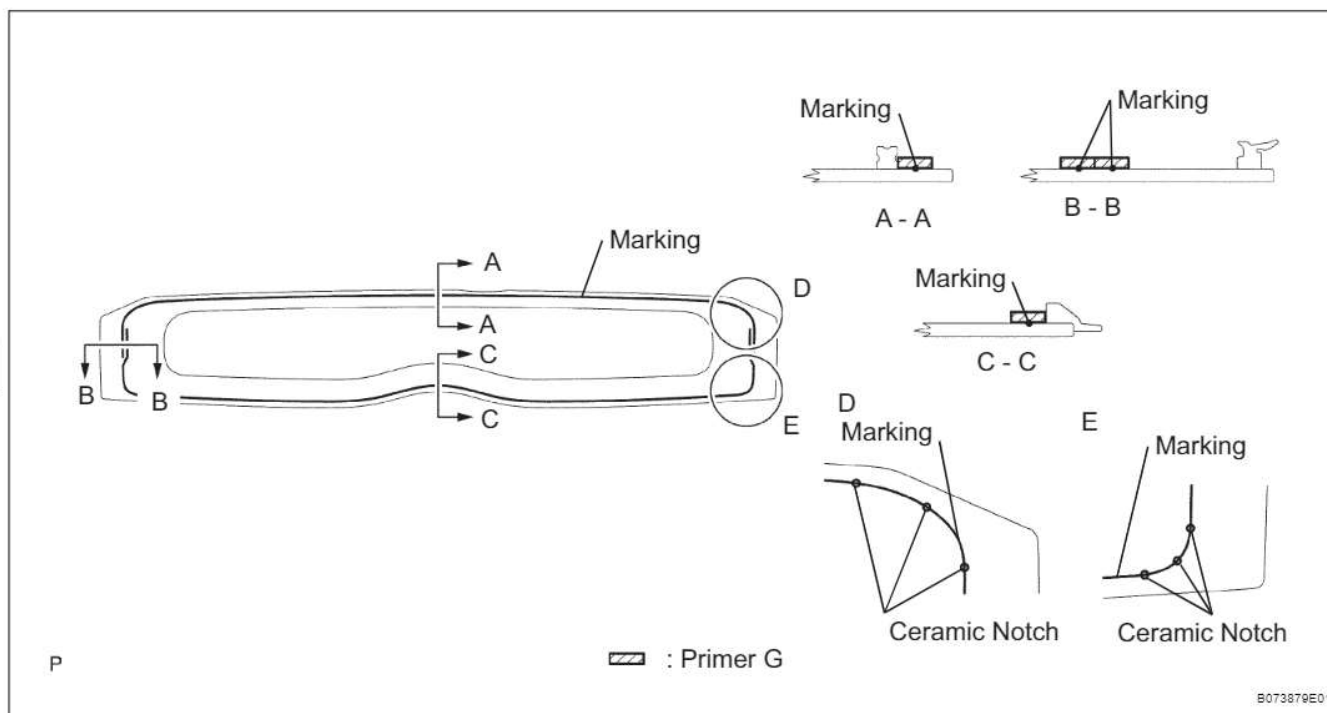
5. INSTALL BACK WINDOW FIX GLASS

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

NOTICE:

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

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

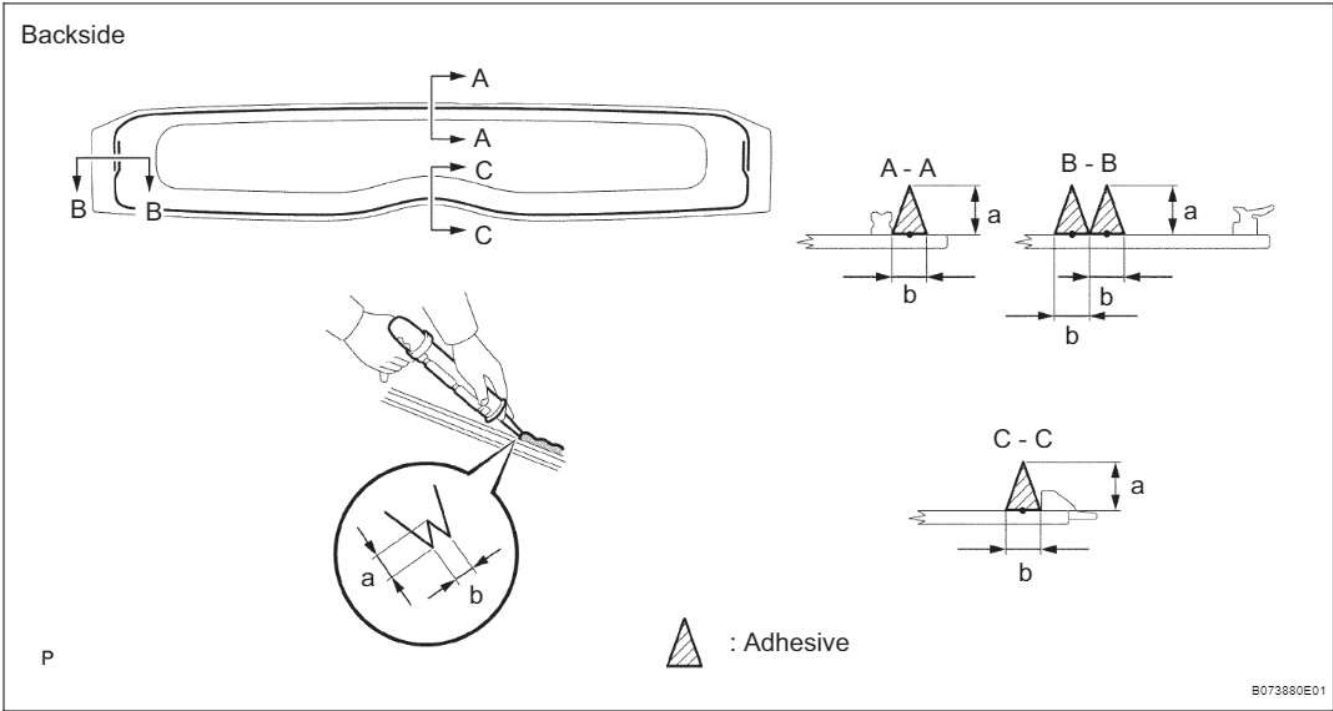
**HINT:**

If primer is applied to an area that is not specified, wipe off the primer with white gasoline before it dries.

NOTICE:

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

(c) Apply adhesive to the back door glass.



Adhesive:
Toyota Genuine Windshield Glass Adhesive or Equivalent

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

Usage time frame

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

Standard measurement

Area	Specified Condition
a	12.0 mm (0.472 in.)
b	8.0 mm (0.315 in.)

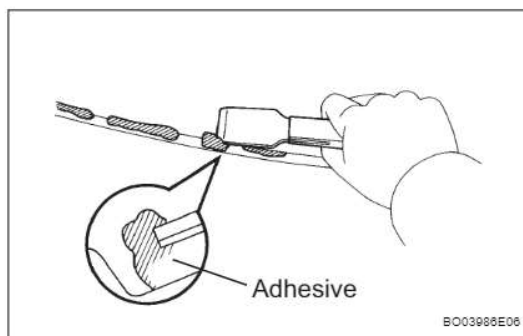
- (d) Install the back window fix glass to the vehicle body.
(1) Hold the back window glass in place securely with tape or equivalent until the adhesive has hardened.

NOTICE:

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

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WINDSHIELD / WINDOWGLASS – BACK WINDOW FIX GLASS



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

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

HINT:

Apply adhesive onto the glass rim.

NOTICE:

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

Minimum time

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

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

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

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

- 9. CHECK FOR LEAKS AND REPAIR**

- (a) Conduct a leak test after the adhesive has completely hardened.
(b) Seal any leaks with auto glass sealer.

- 10. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

- 11. PERFORM INITIALIZATION**

- (a) Perform initialization (see page [IN-32](#)).

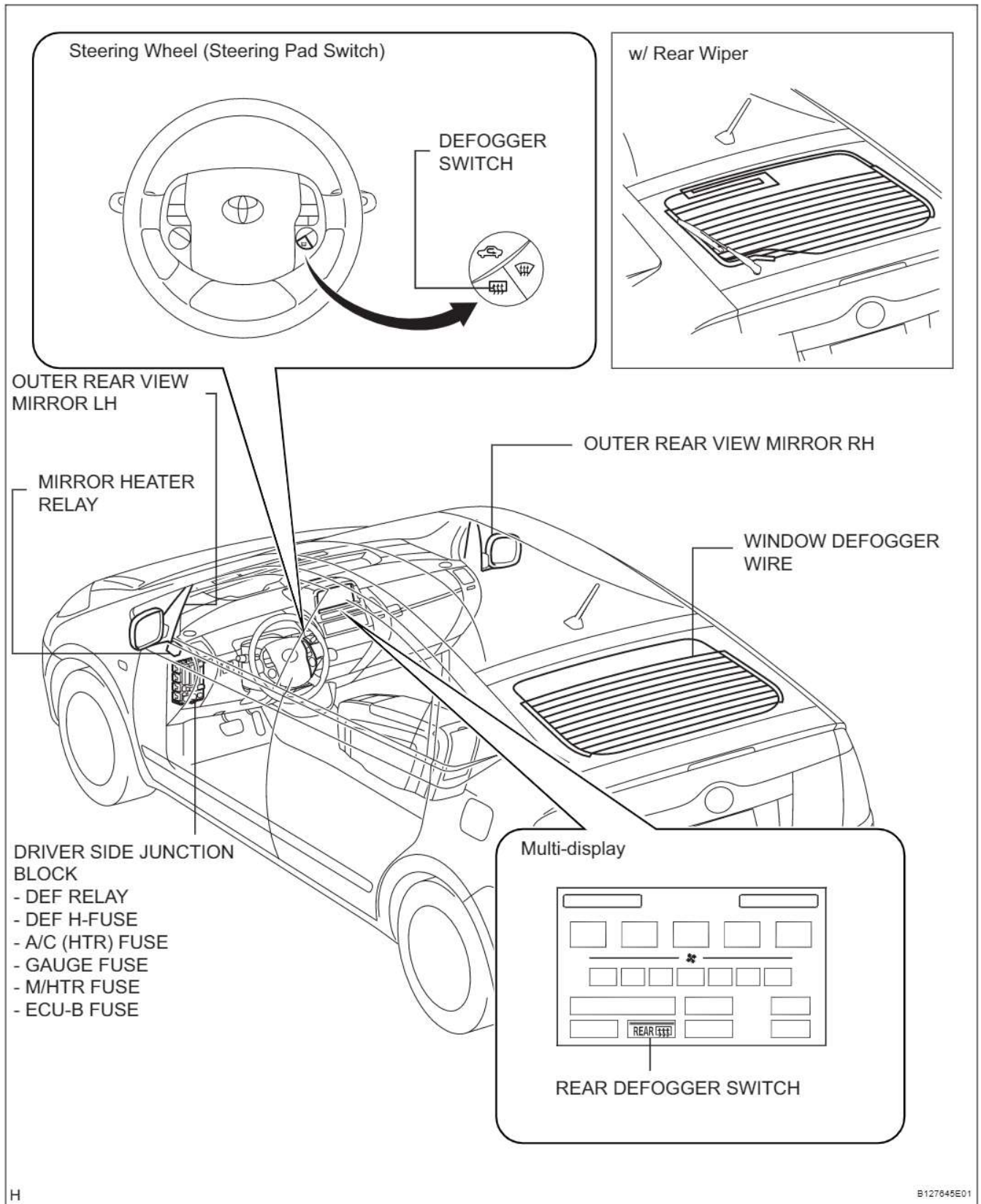
NOTICE:

Certain systems need to be initialized after disconnecting and reconnecting the cable from the negative (-) battery terminal.

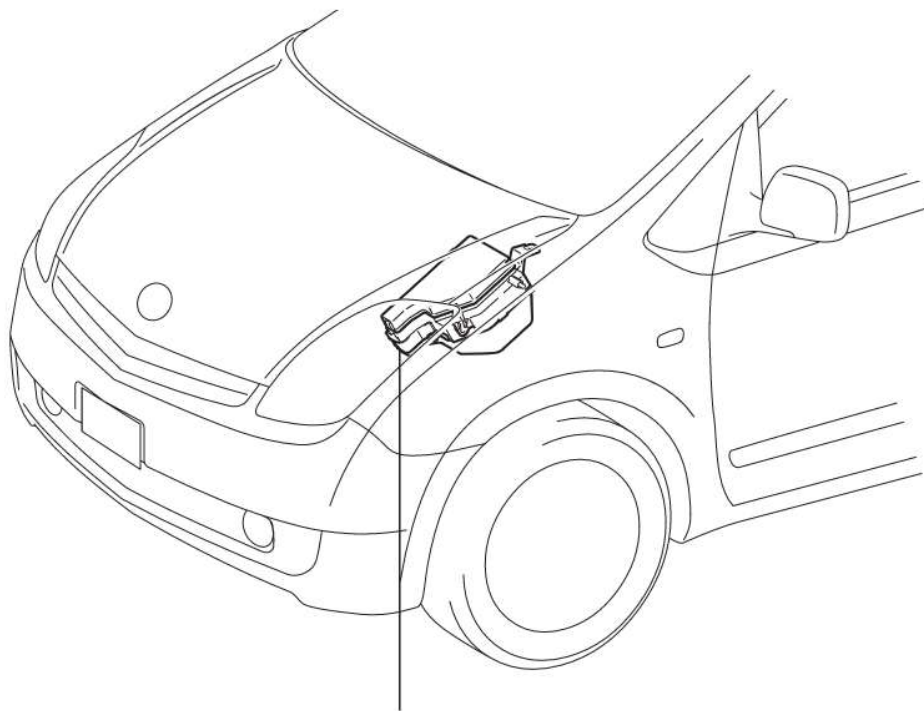
WS

WINDOW DEFOGGER SYSTEM

PARTS LOCATION

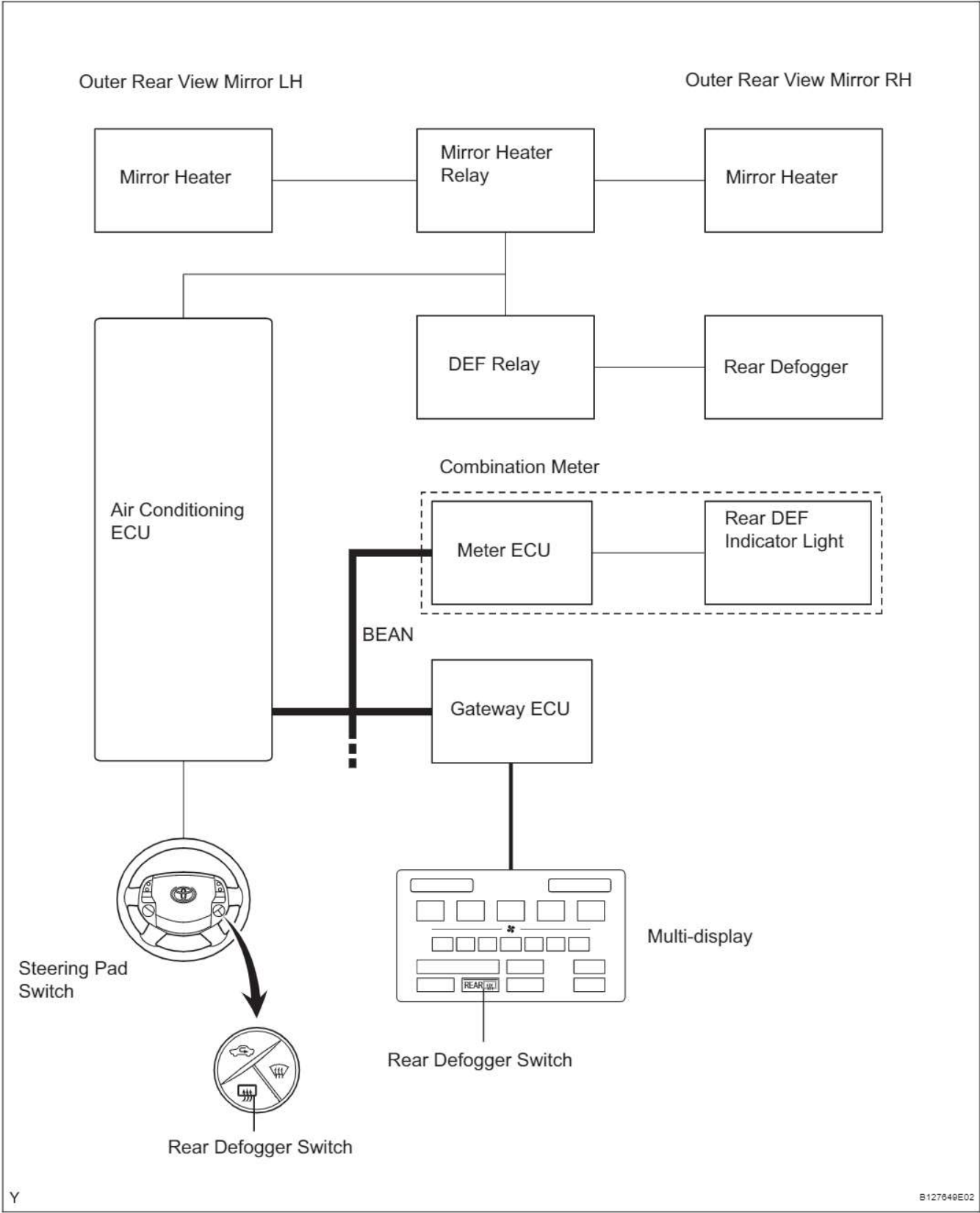


WS

WS-90**WINDSHIELD / WINDOWGLASS – WINDOW DEFOGGER SYSTEM**

ENGINE ROOM JUNCTION BLOCK, RELAY BLOCK
- DOME FUSE

SYSTEM DIAGRAM



WS-92**WINDSHIELD / WINDOWGLASS – WINDOW DEFOGGER SYSTEM**

SYSTEM DESCRIPTION

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

WS

WINDSHIELD / WINDOWGLASS – WINDOW DEFOGGER SYSTEM

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PROBLEM SYMPTOMS TABLE

HINT:

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

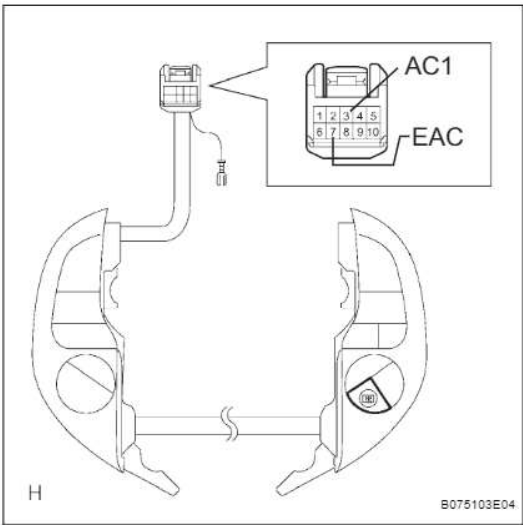
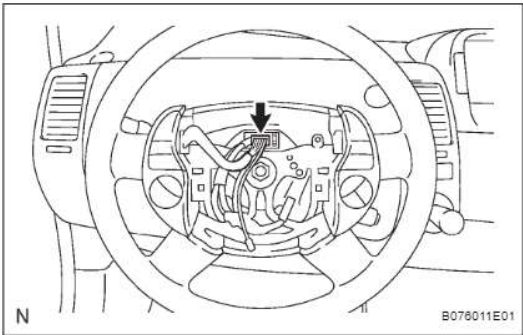
Window defogger system

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

WS

INSPECTION

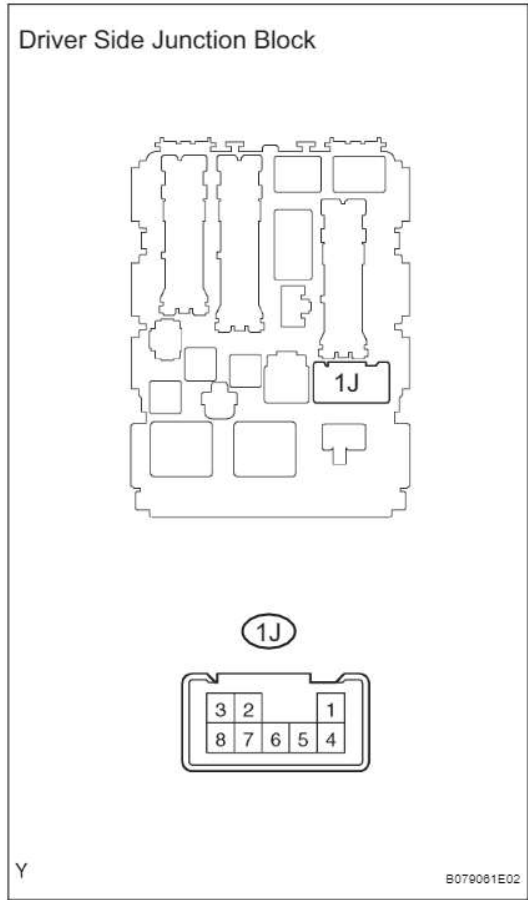
- 1. CHECK STEERING PAD SWITCH
 - (a) Remove the horn button (see page [SR-8](#)).
 - (b) Disconnect the connector as shown in the illustration.



- (c) Measure the resistance of the switch.
Standard resistance

Tester Connection	Switch Condition	Specified Condition
3 (AC1) - 7 (EAC)	OFF	29 to 31 kΩ
3 (AC1) - 7 (EAC)	ON	290 to 305 Ω

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



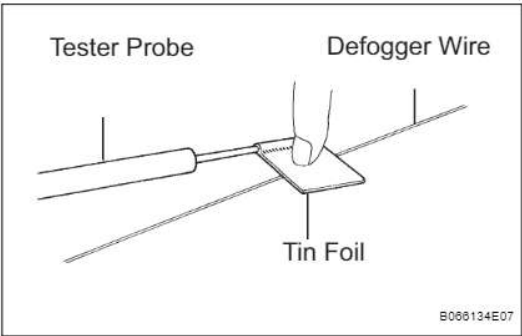
DEFOGGER RELAY

ON-VEHICLE INSPECTION

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

Terminal Connection	Condition	Specified Condition
1J-2 - Body ground	Power switch ON (IG) Defogger switch ON	10 to 14 V
1J-2 - Body ground	Power switch ON (IG) Defogger switch OFF	0 V

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



WINDOW DEFOGGER WIRE

ON-VEHICLE INSPECTION

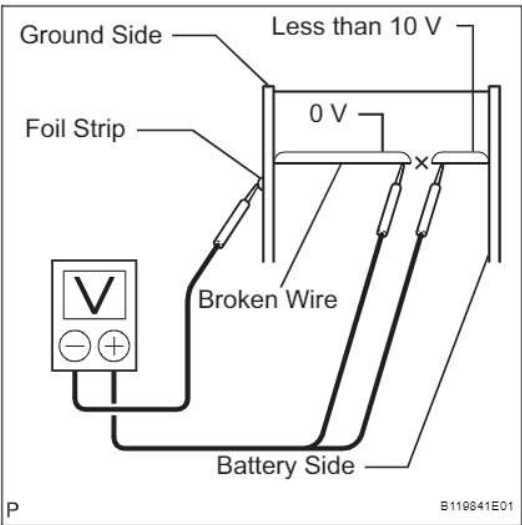
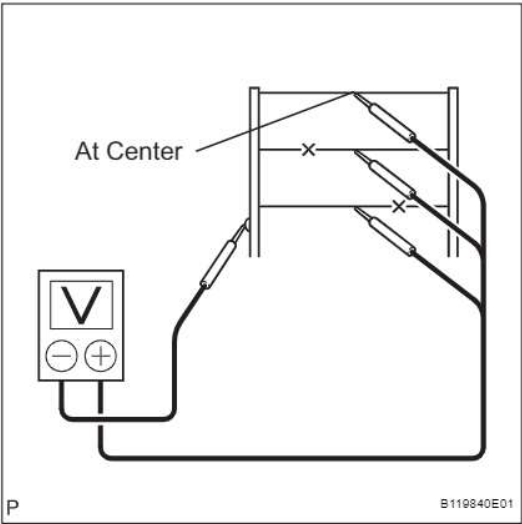
1. INSPECT BACK DOOR GLASS (DEFOGGER WIRE)
NOTICE:

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

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

Standard voltage

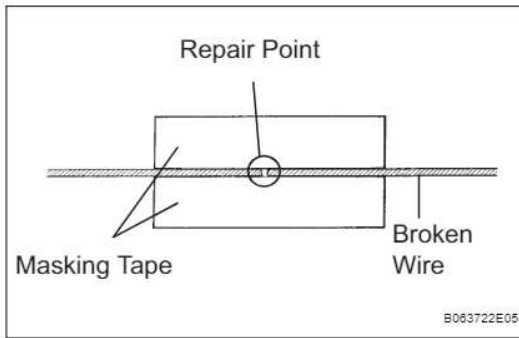
Voltage	Criteria
Approx. 5 V	Wire is not broken
Approx. 10 or 0 V	Wire is broken



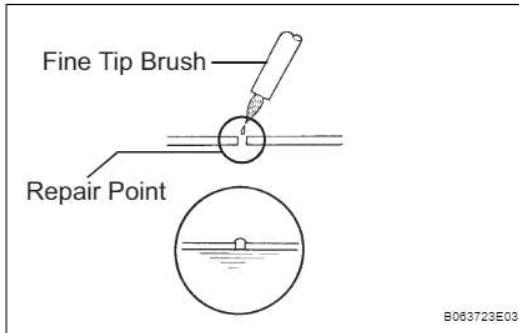
HINT:
If there is approximately 10 V, the wire may be faulty between the center of the wire and the wire end on the battery side. If there is no voltage, the wire may be faulty between the center of the wire end and the wire end on the ground side.

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

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

WS-96**WINDSHIELD / WINDOWGLASS – WINDOW DEFOGGER WIRE****REPAIR****1. REPAIR DEFOGGER WIRE**

- (a) Clean the broken wire tips with grease, wax and silicone remover.
- (b) Place masking tape along both sides of the wire.
- (c) Thoroughly mix the repair agent.

Dupont paste:**No. 4817 or equivalent**

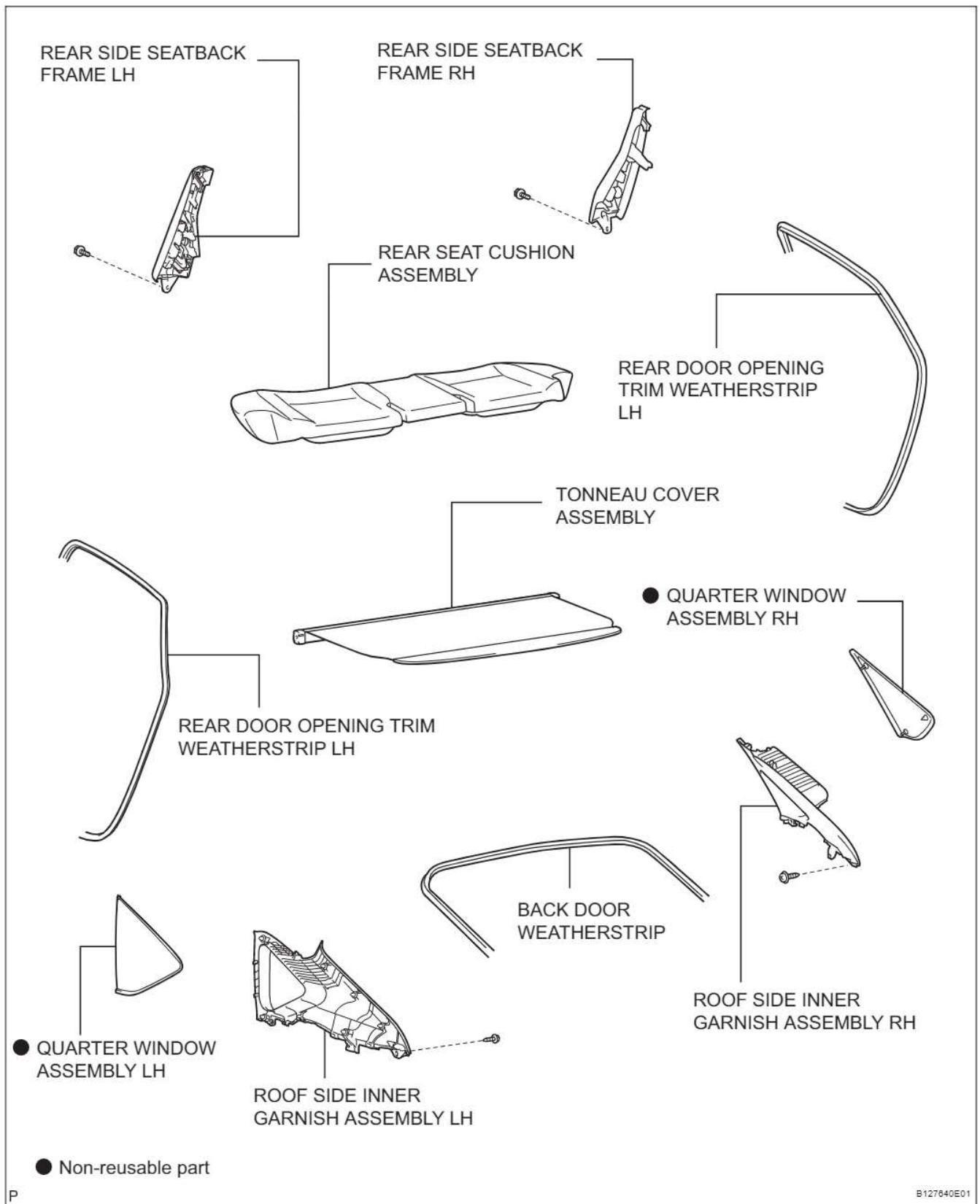
- (d) Using a fine tip brush, apply a small amount of the agent to the wire.

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

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

QUARTER WINDOW GLASS

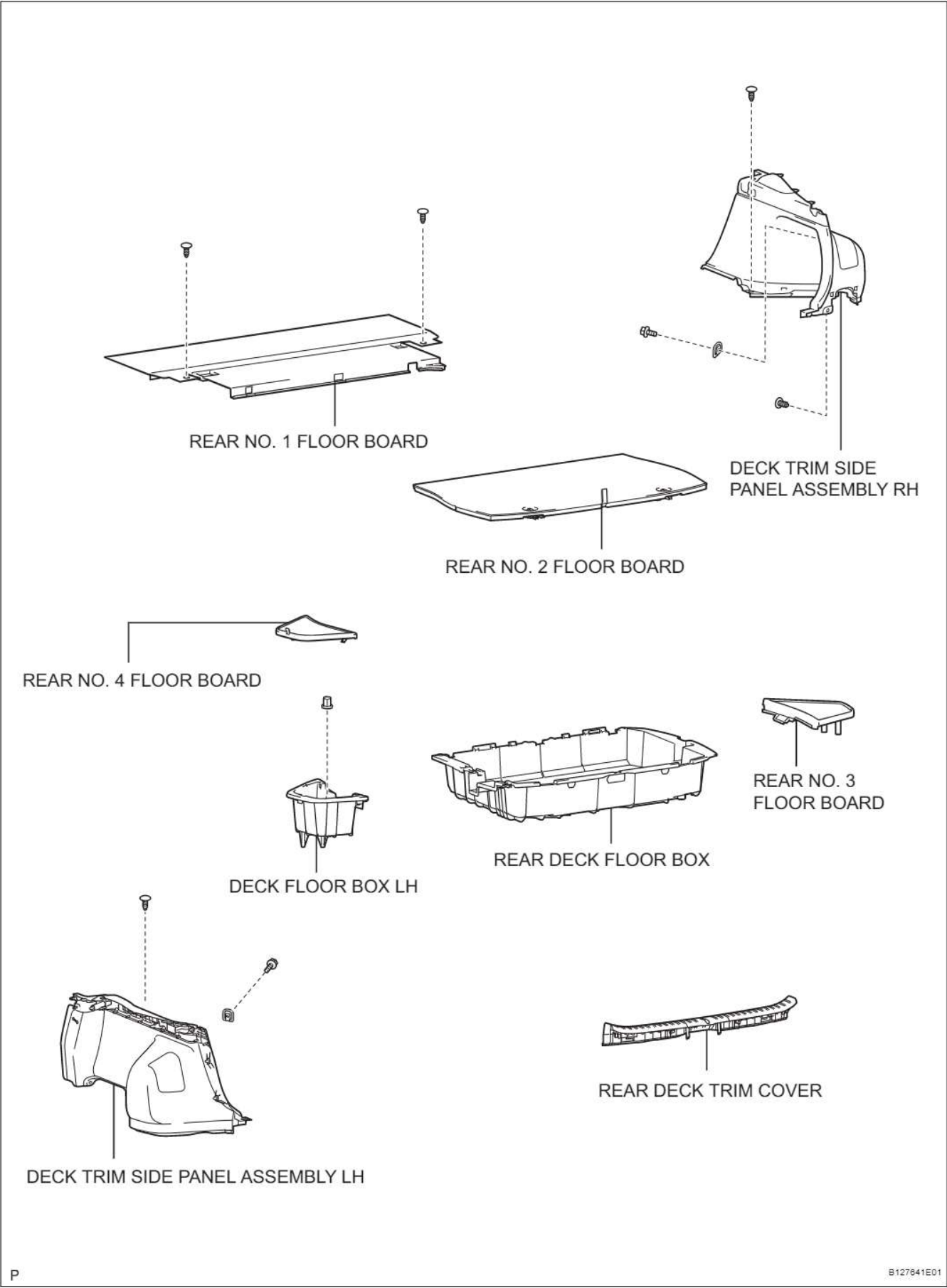
COMPONENTS



WS

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WINDSHIELD / WINDOWGLASS – QUARTER WINDOW GLASS



REMOVAL

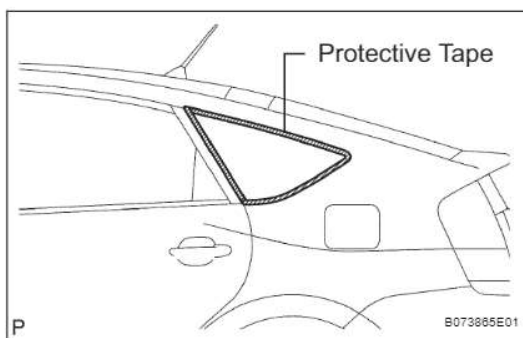
HINT:

- Use the same procedures for the LH side and RH side.
- The procedures listed below are for the LH side.

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

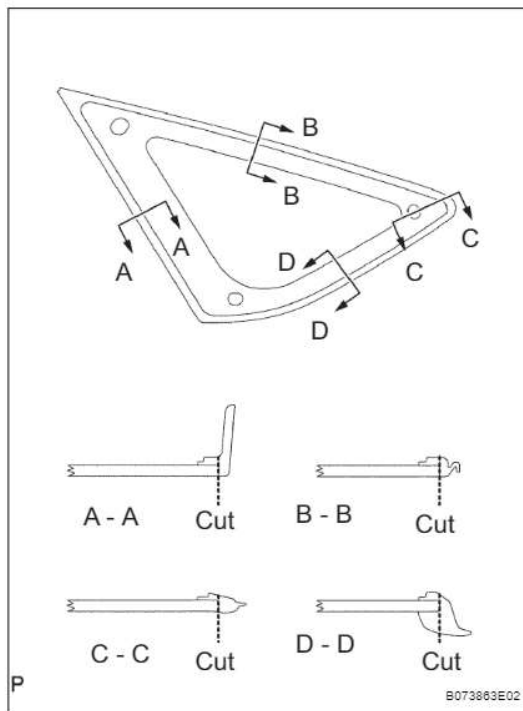
NOTICE:

When removing the quarter window glass from the vehicle, be careful not to damage the vehicle's paint or interior/exterior ornaments.

**WS**

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WINDSHIELD / WINDOWGLASS – QUARTER WINDOW GLASS



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

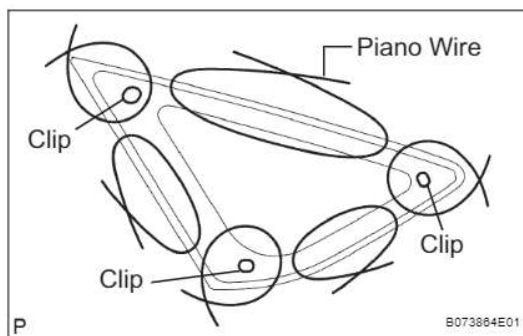
NOTICE:

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

- (c) Remove the remaining moulding.

HINT:

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



- (d) From the interior, insert a piano wire between the vehicle body and the quarter window glass as shown in the illustration.
- (e) Tie objects that can serve as handles (for example, wooden blocks) to both wire ends.
- (f) Cut through the adhesive by pulling the piano wire around the quarter window glass.

NOTICE:

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

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

16. CLEAN VEHICLE BODY

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

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

HINT:

Leave as much adhesive on the vehicle body as possible.

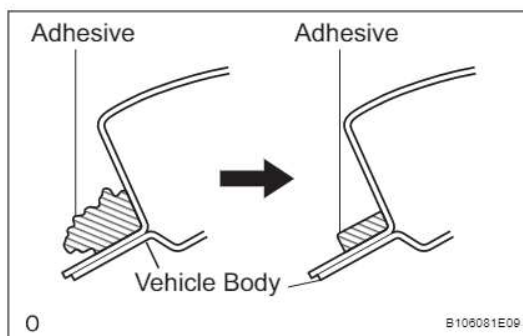
NOTICE:

Be careful not to damage the vehicle body.

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

HINT:

Even if all the adhesive has been removed, clean the vehicle body.



INSTALLATION

HINT:

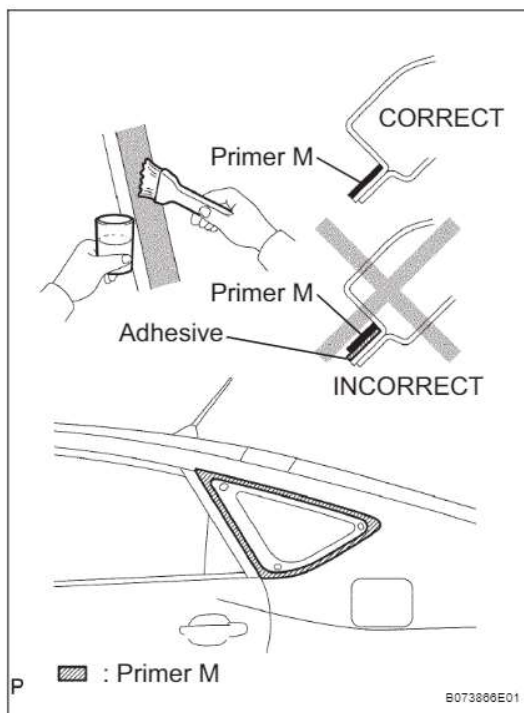
- Use the same procedures for the LH side and RH side.
- The procedures listed below are for the LH side.
- A bolt without a torque specification is shown in the standard bolt chart (see page [SS-2](#)).

1. INSTALL QUARTER WINDOW ASSEMBLY LH

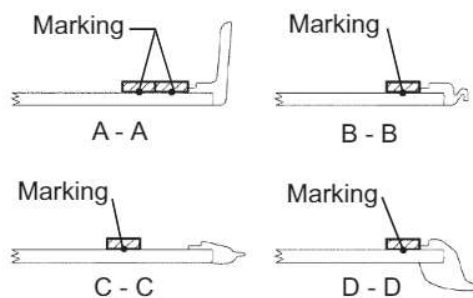
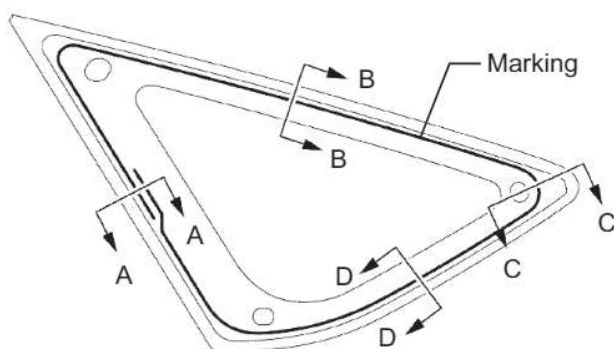
- (a) Using a brush or sponge, apply primer M to the exposed part of the vehicle body.

NOTICE:

- Allow the primer coating to dry for 3 minutes or more.
 - Throw away any leftover primer.
 - Do not apply too much primer.
- (b) Using a brush or sponge, apply primer G to the contact surface of the glass.



Backside



■ : Primer G

B073867E01

HINT:

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

NOTICE:

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

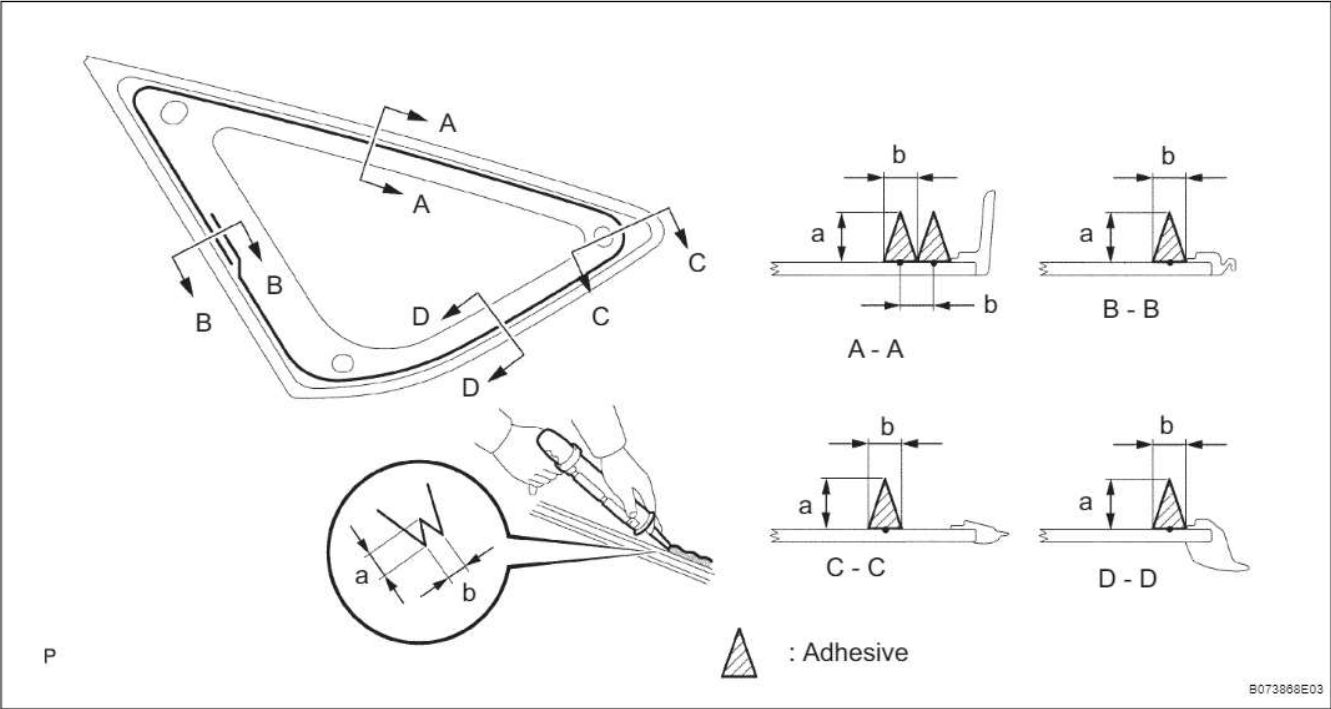
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WINDSHIELD / WINDOWGLASS – QUARTER WINDOW GLASS

(c) Apply adhesive to the quarter window glass.

Adhesive:
Toyota Genuine Windshield Glass Adhesive or Equivalent

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



Standard measurement

Area	Specified Condition
a	12.0 mm (0.472 in.)
b	8.0 mm (0.315 in.)

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

Usage time frame

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

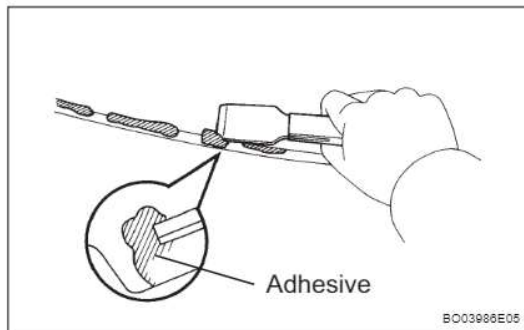
- (2) Load the sealer gun with the cartridge.
- (3) Apply adhesive to the quarter window glass as shown in the illustration.
- (d) Install the quarter window glass to the vehicle body.
- (1) Hold the quarter window glass in place securely with protective tape or equivalent until the adhesive hardens.

NOTICE:

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

WINDSHIELD / WINDOWGLASS – QUARTER WINDOW GLASS

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- Check the clearance between the body and glass.

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

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

HINT:

Apply adhesive onto the glass rim.

NOTICE:

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

Minimum time

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

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

WS