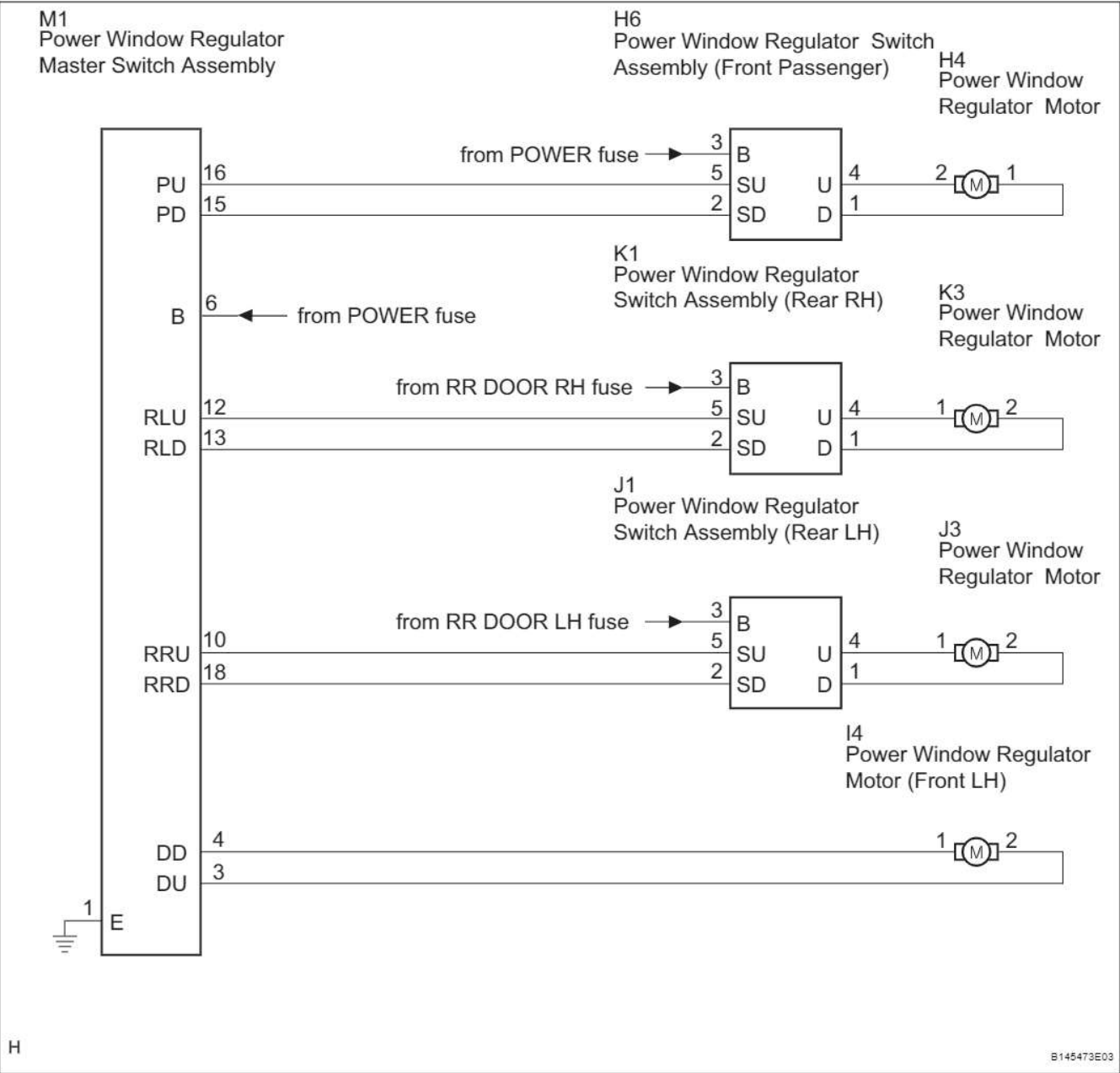


WS-4

WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

SYSTEM DIAGRAM



SYSTEM DESCRIPTION

1. POWER WINDOW CONTROL SYSTEM DESCRIPTION

- (a) The power window control system controls the power window operation using the power window regulator motors. The main controls of this system are the power window regulator master switch, which is mounted on the driver side door, and the power window regulator switches, which are mounted on the passenger side door and rear doors. Operating a window switch results in electrical power being transmitted to the corresponding power window regulator motor.
- (b) The power window control system has the following functions:

Function	Outline
Manual up-and-down function	Function that causes window to go up while power window switch is being pulled halfway up and to go down while pushed halfway down. Window stops as soon as the switch is released.
Remote control function	Function that allows power window master switch to control MANUAL up-and-down operations of front passenger door window and rear door windows.
Key-off operation function	Function that makes it possible to operate power window for approx. 43 seconds after power switch is on (ACC) or off, if either front door is not opened.

WS

HOW TO PROCEED WITH TROUBLESHOOTING

- HINT:
- Use the following procedure to troubleshoot the power window control system.
 - The intelligent tester should be used in step 4.

1

VEHICLE BROUGHT TO WORKSHOP

NEXT

2

CUSTOMER PROBLEM ANALYSIS CHECK AND SYMPTOM CHECK

NEXT

3

PROBLEM SYMPTOMS TABLE

- HINT:
- See page [WS-7](#).

NEXT

WS4

OVERALL ANALYSIS AND TROUBLESHOOTING

- (a) Circuit inspection
- (b) Terminal of ECU
- HINT:
- See page [WS-8](#).

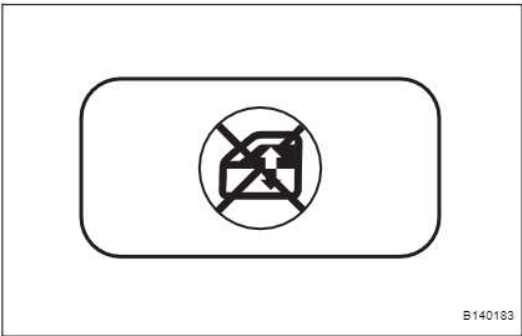
NEXT

5

ADJUST, REPAIR OR REPLACE

NEXT

END



OPERATION CHECK

1. CHECK WINDOW LOCK SWITCH
- (a) Check that the front passenger side power window and rear power windows operation are disabled when the window lock switch of the power window master switch is pressed.
- Standard:**
- Front passenger side power window and rear power windows operation are disabled.

WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM**WS-7**

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

Standard:

Front passenger side power window and rear power windows can be operated.

2. CHECK MANUAL UP/DOWN FUNCTION

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

Standard

Condition	Master Switch	Switch Operation	Power Window
Power switch on (IG)	Driver side	Pulled halfway up	UP (Closed)
		Pushed halfway down	DOWN (Open)

- (b) Check that the power windows except the driver side power window operate as follows:

Standard

Condition	Switch	Switch Operation	Power Window
- Power switch on (IG) - Window lock switch OFF	Passenger side	Pulled up	UP (Closed)
		Pushed down	DOWN (Open)
	Rear LH	Pulled up	UP (Closed)
		Pushed down	DOWN (Open)
	Rear RH	Pulled up	UP (Closed)
		Pushed down	DOWN (Open)

3. CHECK AUTO DOWN FUNCTION

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

Standard

Condition	Master Switch	Switch Operation	Power Window
Power switch on (IG)	Driver side	Pulled up fully	UP (Closed)
		Pushed down fully	DOWN (Open)

4. CHECK REMOTE MANUAL UP/DOWN FUNCTION

- (a) Check that the power windows except the driver side power window operate as follows:

Standard

Condition	Master Switch	Switch Operation	Power Window
- Power switch on (IG) - Window lock switch OFF	Passenger side	Pulled up	UP (Closed)
		Pushed down	DOWN (Open)
	Rear LH	Pulled up	UP (Closed)
		Pushed down	DOWN (Open)
	Rear RH	Pulled up	UP (Closed)
		Pushed down	DOWN (Open)

WS

WS-8

WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

PROBLEM SYMPTOMS TABLE

POWER WINDOW CONTROL SYSTEM

Symptom	Suspected Area	See page
Power window does not operate with power window regulator master switch	1. POWER, RR DOOR LH/RH fuses	-
	2. Power window master switch circuit (power source)	WS-12
	3. Power window regulator motor circuit	WS-18
	4. Power window regulator master switch	WS-27
Front passenger side power window does not operate with power window regulator switch	1. Power window switch circuit (power source)	WS-15
	2. Power window regulator motor circuit (front passenger side)	WS-20
	3. Power window regulator switch (front passenger side)	WS-15
Rear LH side power window does not operate with power window regulator switch	1. Power window switch circuit (power source)	WS-16
	2. Power window regulator motor circuit (rear LH side)	WS-22
	3. Power window regulator switch (rear LH side)	WS-32
Rear RH side power window does not operate with power window regulator switch	1. Power window switch circuit (power source)	WS-17
	2. Power window regulator motor circuit (rear RH side)	WS-24
	3. Power window regulator switch (rear RH side)	WS-32
Remote UP/DOWN function does not operate	1. Power window regulator master switch	WS-12
	2. Wire harness	-
Power window can be operated after power switch is turned off even if operated conditions are not met	1. Front door courtesy switch	LI-105
	2. Wire harness	-

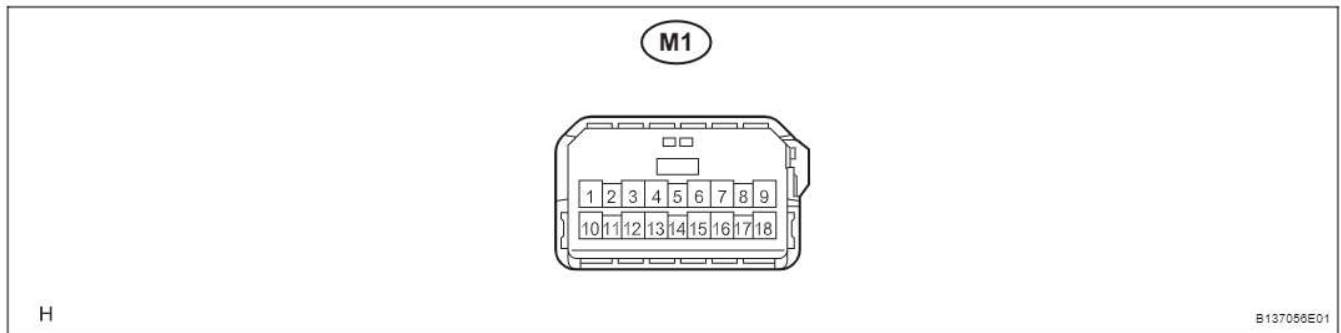
WS

WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

WS-9

TERMINALS OF ECU

1. POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY



- (a) Disconnect the M1 switch connector.
- (b) Measure the voltage and resistance of each terminal according to the value(s) in the table below.

Standard resistance

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
E (M1-1) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

Standard voltage

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
B (M1-6) - E (M1-1)	GR - W-B	Power supply	Power switch on (IG)	10 to 14 V

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

- (c) Reconnect the M1 switch connector and reset the power window motor.
- (d) Measure the voltage according to the value(s) in the table below.

Standard voltage

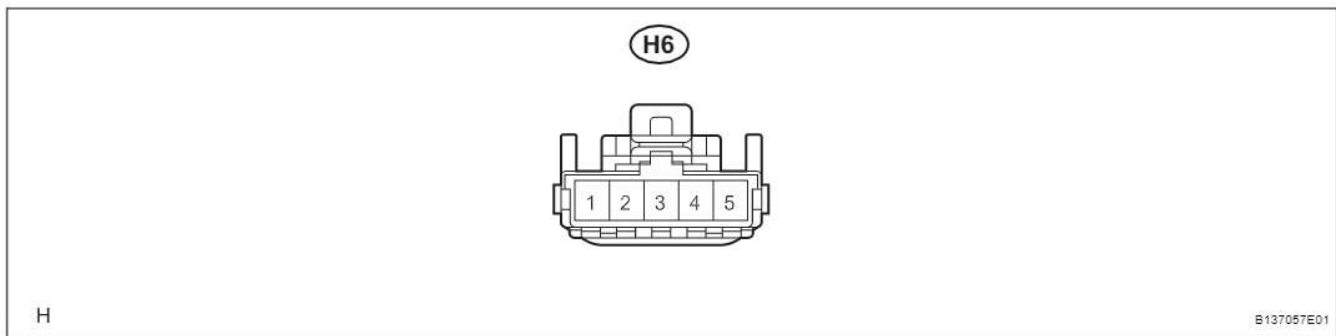
Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
DU (M1-3) - E (M1-1)	G - W-B	Power window motor UP output	Power switch on (IG), driver side power window switch OFF → UP (Manual operation)	0 V → 10 to 14 V
DD (M1-4) - E (M1-1)	BR - W-B	Power window motor DOWN output	Power switch on (IG), driver side power window switch OFF → DOWN (Manual operation)	0 V → 10 to 14 V
PU (M1-16) - E (M1-1)	W - W-B	Power window motor UP output	Power switch on (IG), front passenger side power window switch OFF → UP (Manual operation)	0 V → 10 to 14 V
PD (M1-15) - E (M1-1)	R - W-B	Power window motor DOWN output	Power switch on (IG), front passenger side power window switch OFF → DOWN (Manual operation)	0 V → 10 to 14 V
RLU (M1-12) - E (M1-1)	L - W-B	Power window motor UP output	Power switch on (IG), rear LH side power window switch OFF → UP (Manual operation)	0 V → 10 to 14 V

WS-10**WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM**

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
RLD (M1-13) - E (M1-1)	B - W-B	Power window motor DOWN output	Power switch on (IG), rear LH side power window switch OFF → DOWN (Manual operation)	0 V → 10 to 14 V
RRU (M1-10) - E (M1-1)	Y - W-B	Power window motor UP output	Power switch on (IG), rear RH side power window switch OFF → UP (Manual operation)	0 V → 10 to 14 V
RRD (M1-18) - E (M1-1)	LG - W-B	Power window motor DOWN output	Power switch on (IG), rear RH side power window switch OFF → DOWN (Manual operation)	0 V → 10 to 14 V

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

2. CHECK POWER WINDOW REGULATOR SWITCH ASSEMBLY (FRONT RH)



- (a) Disconnect the H6 switch connector.
- (b) Measure the voltage according to the value(s) in the table below.

Standard voltage

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
B (H6-3) - Body ground	GR - Body ground	Power supply	Power switch on (IG)	10 to 14 V

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

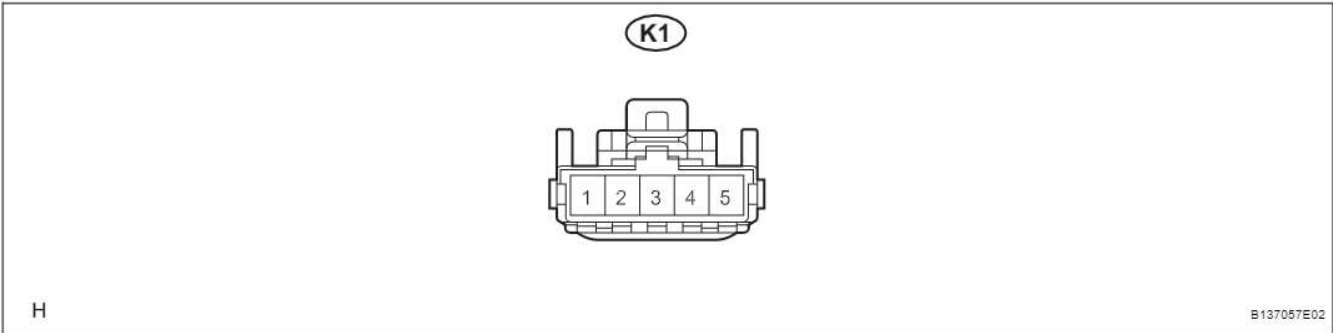
- (c) Reconnect the H6 switch connector and reset the power window motor.
- (d) Measure the voltage according to the value(s) in the table below.

Standard voltage

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
U (H6-4) - Body ground	G - Body ground	Power window motor UP output	Power switch on (IG), front passenger side power window switch OFF → UP (Manual operation)	0 V → 10 to 14 V
D (H6-1) - Body ground	Y - Body ground	Power window motor DOWN output	Power switch on (IG), front passenger side power window switch OFF → DOWN (Manual operation)	0 V → 10 to 14 V

If the result is not as specified, the power window regulator switch assembly may have a malfunction.

3. CHECK POWER WINDOW REGULATOR SWITCH ASSEMBLY (REAR LH)



- (a) Disconnect the K1 switch connector.
- (b) Measure the voltage according to the value(s) in the table below.

Standard voltage

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
B (K1-3) - Body ground	R - Body ground	Power supply	Power switch on (IG)	10 to 14 V

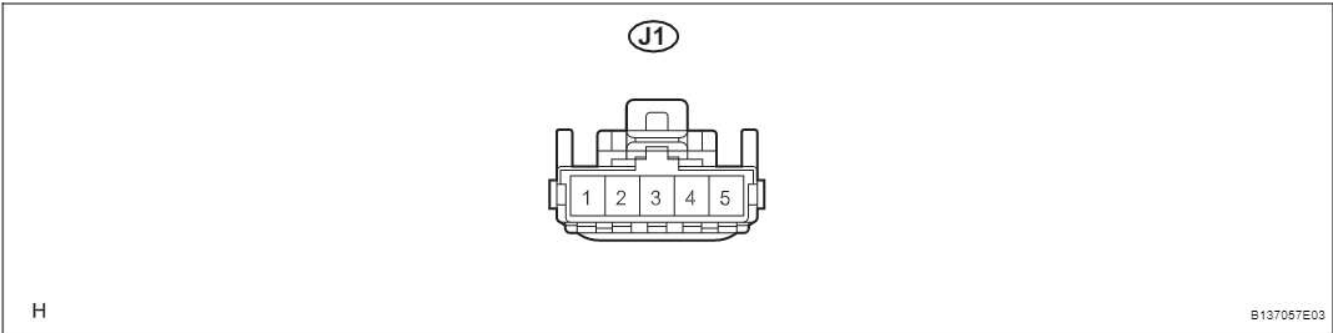
- If the result is not as specified, there may be a malfunction in the wire harness.
- (c) Reconnect the K1 switch connector and reset the power window motor.
- (d) Measure the voltage according to the value(s) in the table below.

Standard voltage

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
U (K1-4) - Body ground	V - Body ground	Power window motor UP output	Power switch on (IG), front passenger side power window switch OFF → UP (Manual operation)	0 V → 10 to 14 V
D (K1-1) - Body ground	R - Body ground	Power window motor DOWN output	Power switch on (IG), front passenger side power window switch OFF → DOWN (Manual operation)	0 V → 10 to 14 V

If the result is not as specified, the power window regulator switch assembly may have a malfunction.

4. CHECK POWER WINDOW REGULATOR SWITCH ASSEMBLY (REAR RH)



- (a) Disconnect the J1 switch connector.

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

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

Standard voltage

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
B (J1-3) - Body ground	R - Body ground	Power supply	Power switch on (IG)	10 to 14 V

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

- (c) Reconnect the J1 switch connector and reset the power window motor.
 (d) Measure the voltage according to the value(s) in the table below.

Standard voltage

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
U (J1-4) - Body ground	V - Body ground	Power window motor UP output	Power switch on (IG), front passenger side power window switch OFF → UP (Manual operation)	0 V → 10 to 14 V
D (J1-1) - Body ground	R - Body ground	Power window motor DOWN output	Power switch on (IG), front passenger side power window switch OFF → DOWN (Manual operation)	0 V → 10 to 14 V

If the result is not as specified, the power window regulator switch assembly may have a malfunction.

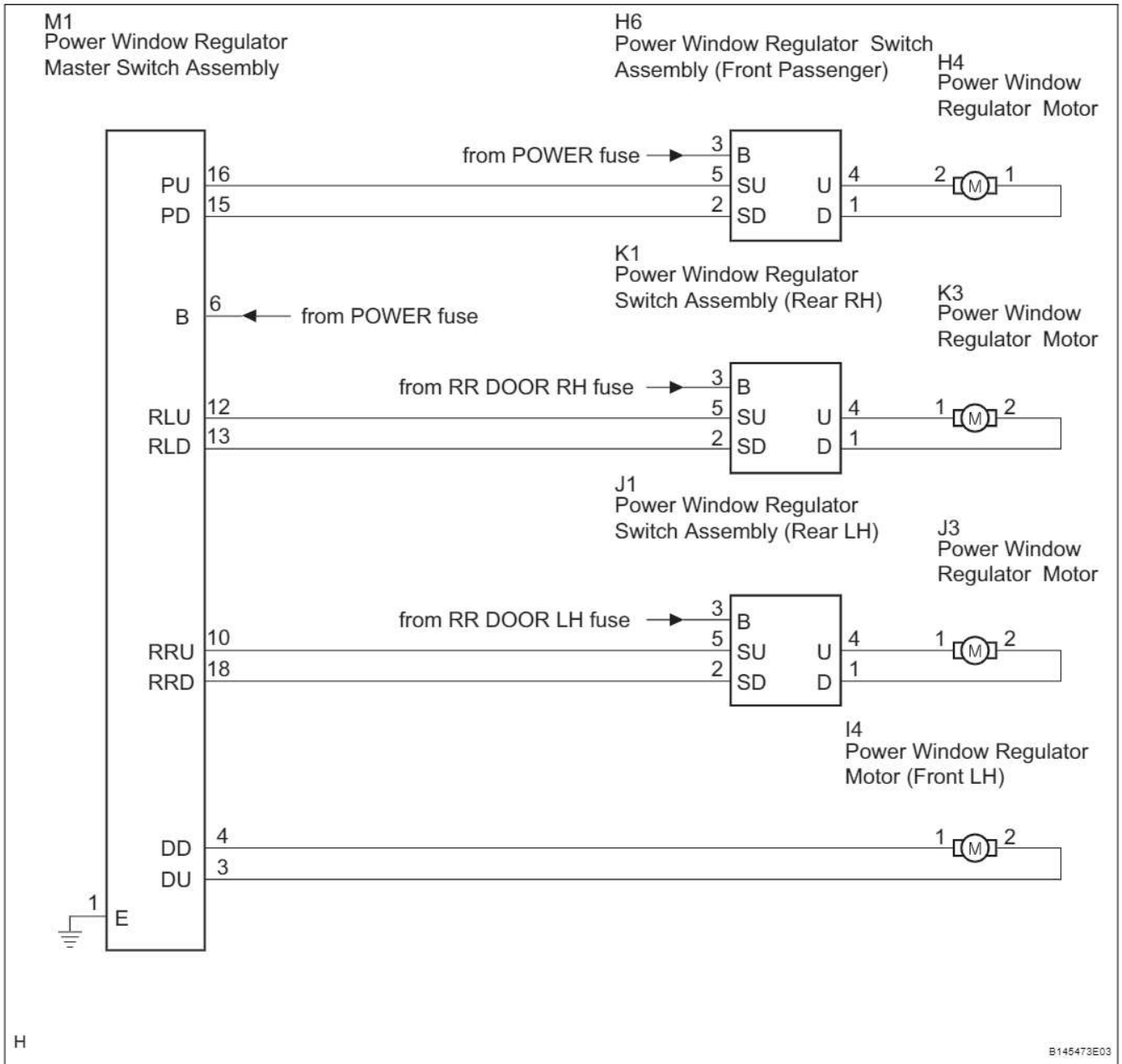
WS

Power Window Master Switch Circuit

DESCRIPTION

This circuit transmits signals from the power window regulator master switch assembly to the power window regulator switch.

WIRING DIAGRAM



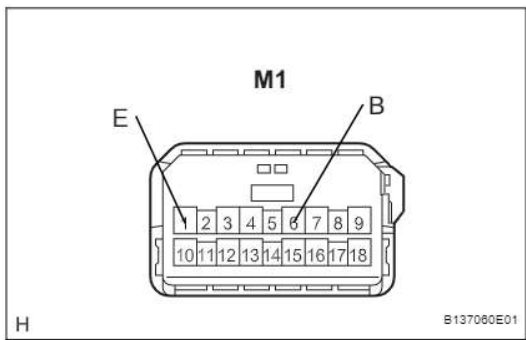
WS-14

WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

INSPECTION PROCEDURE

1

INSPECT POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY



- (a) Disconnect the M1 connector.
(b) Measure the voltage and resistance according to the value(s) in the table below.

Standard voltage

Tester Connection	Condition	Specified Condition
6 (B) - Body ground	Power switch on (IG)	10 to 14 V

Standard resistance

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

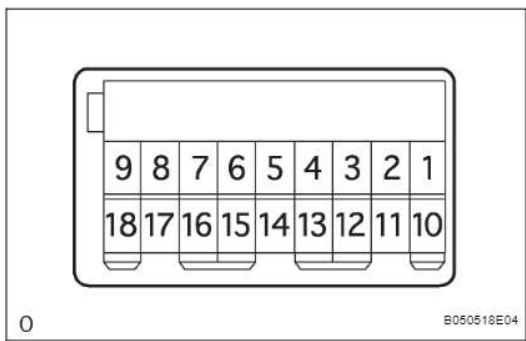
NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2

INSPECT POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY



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

Standard resistance

Tester Connection	Condition	Specified Condition
1 (E) - 3 (DU)	OFF	Below 1 Ω
1 (E) - 4 (DD)		Below 1 Ω
1 (E) - 10 (RRU)	Lock/Unlock switch	UNLOCK (Below 1 Ω) → LOCK (10 kΩ or higher)
1 (E) - 12 (RLU)		
1 (E) - 13 (RLD)		
1 (E) - 15 (PD)		
1 (E) - 16 (PU)		
1 (E) - 18 (RRD)		

NG

REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY

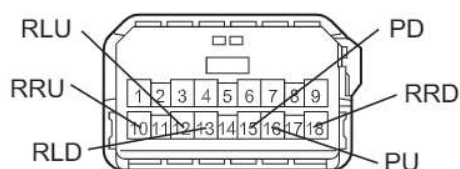
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WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

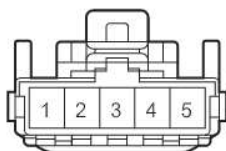
WS-15

3**CHECK WIRE HARNESS (POWER WINDOW MASTER SWITCH - FRONT LH, REAR LH/RH SWITCH)**

M1
Power Window Regulator Master
Switch Assembly:



H6 (K1, J1)
Power Window Switch
(Front RH, Rear LH/RH):



H

B137067E01

- (a) Disconnect the M1 and H6 (K1, J1) connectors.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance:**Front RH side**

Tester Connection	Condition	Specified Condition
M1-16 (PU) - H6-5 (SU)	Always	Below 1 Ω
M1-15 (PD) - H6-2 (SD)	Always	Below 1 Ω
M1-16 (PU) - Body ground	Always	10 k Ω or higher
M1-15 (PD) - Body ground	Always	10 k Ω or higher

Rear LH side

Tester Connection	Condition	Specified Condition
M1-12 (RLU) - K1-5 (SU)	Always	Below 1 Ω
M1-13 (RLD) - K1-2 (SD)	Always	Below 1 Ω
M1-12 (RLU) - Body ground	Always	10 k Ω or higher
M1-13 (RLD) - Body ground	Always	10 k Ω or higher

Rear RH side

Tester Connection	Condition	Specified Condition
M1-10 (RRU) - J1-5 (SU)	Always	Below 1 Ω
M1-18 (RRD) - J1-2 (SD)	Always	Below 1 Ω
M1-10 (RRU) - Body ground	Always	10 k Ω or higher
M1-18 (RRD) - Body ground	Always	10 k Ω or higher

NG**REPAIR OR REPLACE HARNESS OR CONNECTOR****OK****PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE****WS**

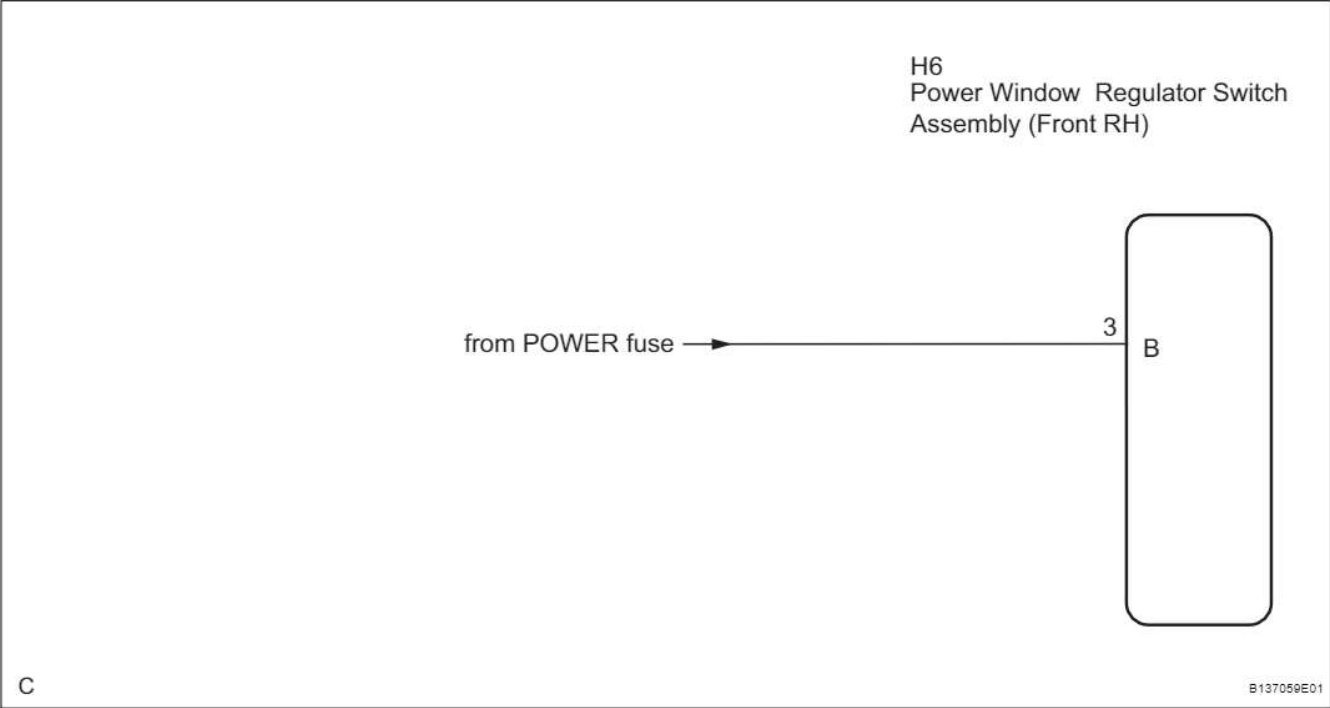
WS-16

WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

Front Passenger Side Power Window Switch Power Source Circuit

DESCRIPTION
This circuit supplies power to operate the power window regulator switch assembly (Front RH).

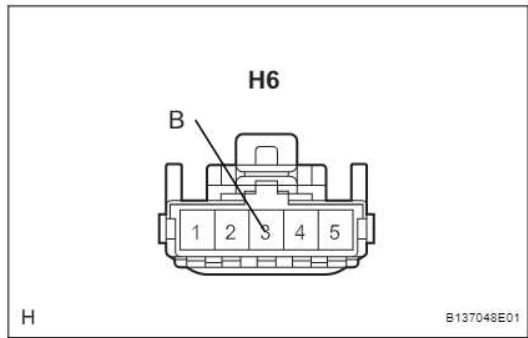
WIRING DIAGRAM



INSPECTION PROCEDURE

1

CHECK WIRE HARNESS (POWER WINDOW REGULATOR SWITCH - BATTERY AND BODY GROUND)



- (a) Disconnect the H6 connector.
- (b) Measure the voltage according to the value(s) in the table below.

Standard voltage		
Tester Connection	Condition	Specified Condition
3 (B) - Body ground	Power switch on (IG)	10 to 14 V

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

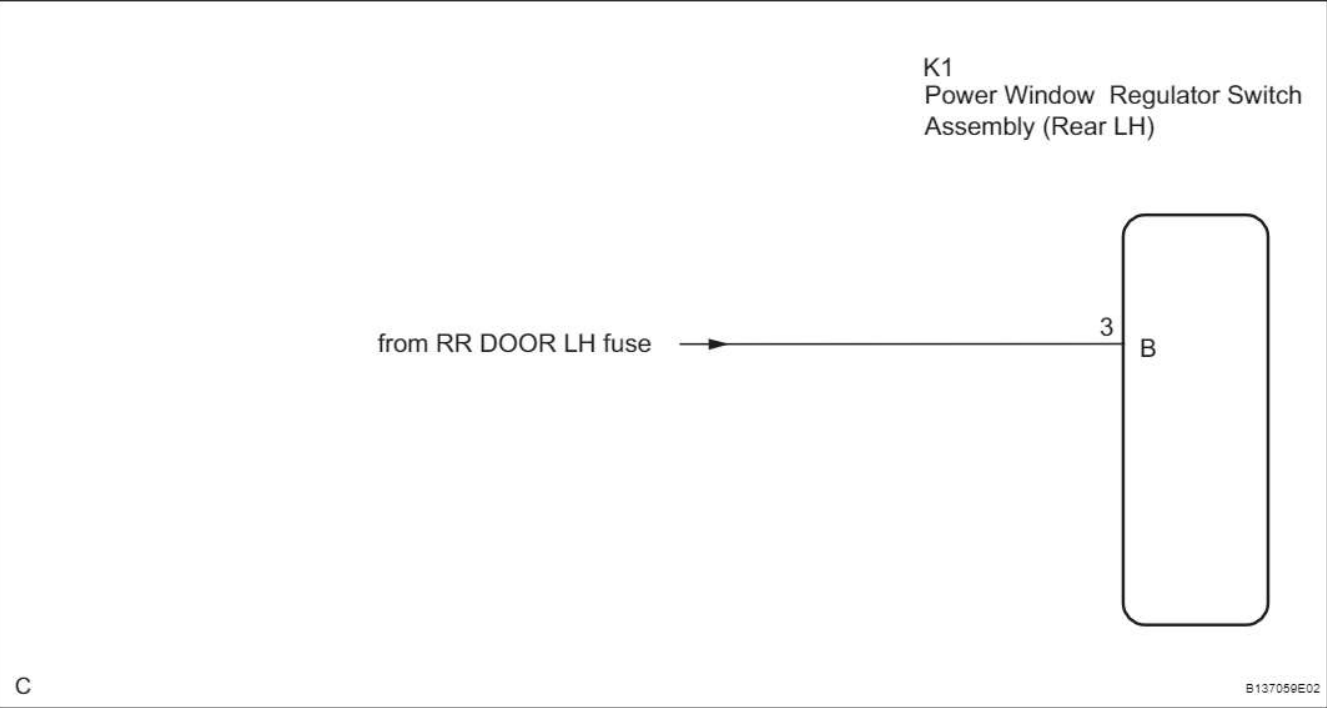
OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

Rear Power Window Switch LH Circuit

DESCRIPTION
This circuit supplies power to operate the power window regulator switch assembly (Rear LH).

WIRING DIAGRAM

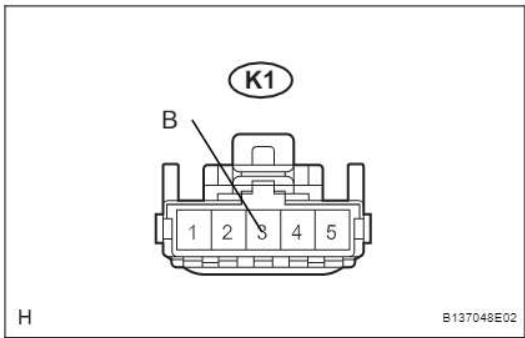


WS

INSPECTION PROCEDURE

1

CHECK WIRE HARNESS (POWER WINDOW REGULATOR SWITCH - BATTERY AND BODY GROUND)



- (a) Disconnect the K1 connector.
- (b) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester Connection	Condition	Specified Condition
3 (B) - Body ground	Power switch on (IG)	10 to 14 V

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

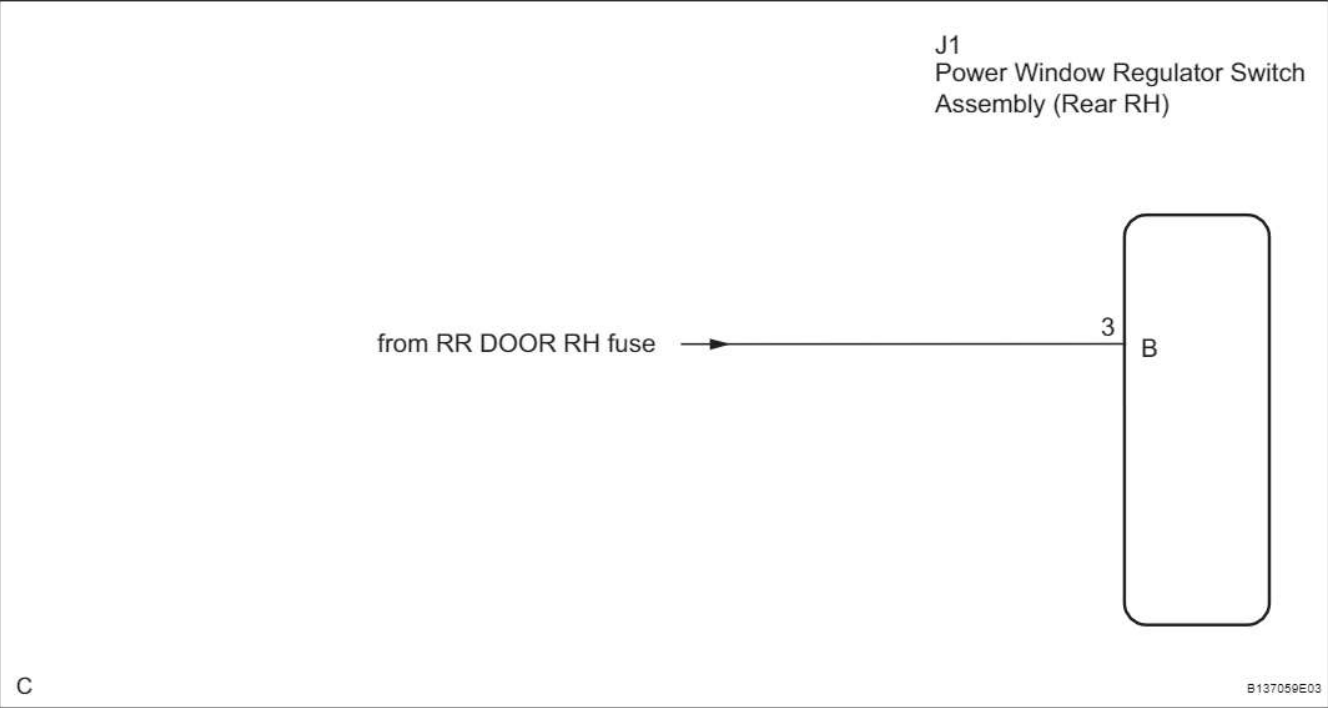
WS-18

WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

Rear Power Window Switch RH Circuit

DESCRIPTION
This circuit supplies power to operate the power window regulator switch (Rear RH).

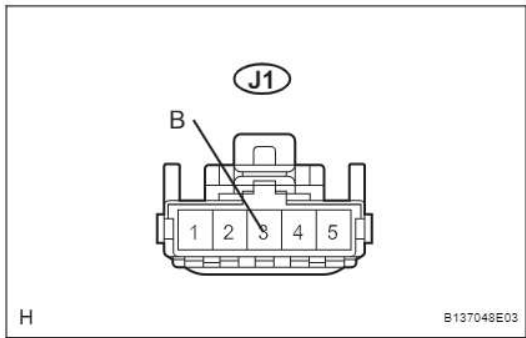
WIRING DIAGRAM



INSPECTION PROCEDURE

1

CHECK WIRE HARNESS (POWER WINDOW REGULATOR SWITCH - BATTERY AND BODY GROUND)



- (a) Disconnect the J1 connector.
- (b) Measure the voltage according to the value(s) in the table below.

Standard voltage	
Tester Connection	Condition
3 (B) - Body ground	Power switch on (IG)
Specified Condition	
10 to 14 V	

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

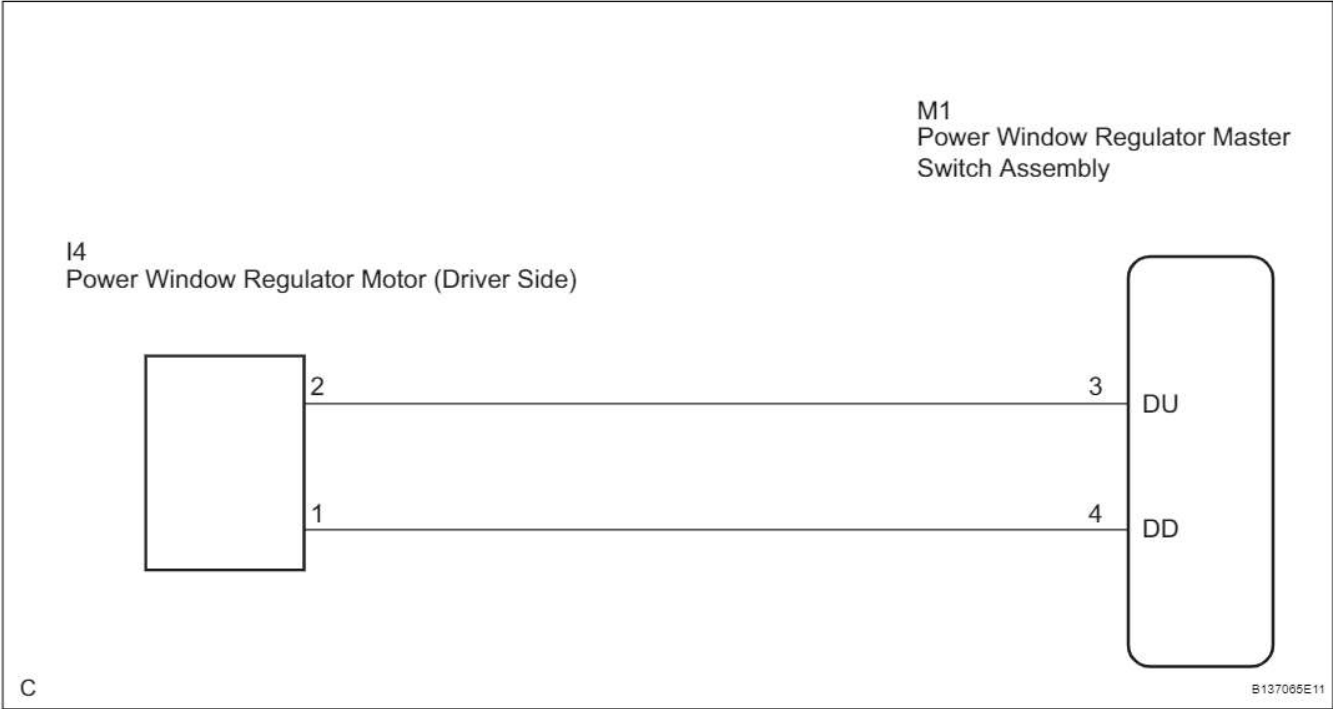
OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

Driver Side Power Window Motor Circuit

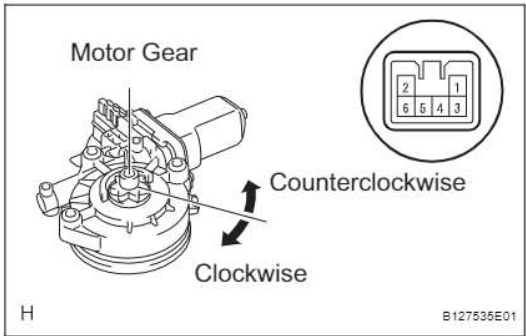
DESCRIPTION
This circuit transmits signals from the power window regulator master switch assembly to the power window regulator motor (Front LH).

WIRING DIAGRAM



INSPECTION PROCEDURE

1 INSPECT POWER WINDOW REGULATOR MOTOR



- (a) Remove the power window motor.
- (1) Apply battery voltage to the motor connector according to the table below.
- NOTICE:**
Do not apply battery voltage to any terminals except terminals 1 and 2.
- Standard**

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

NG

REPLACE POWER WINDOW REGULATOR MOTOR

OK

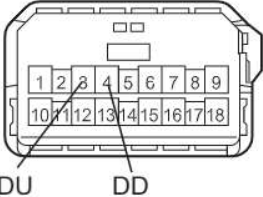
WS-20

WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

2

CHECK WIRE HARNESS (WINDOW REGULATOR MOTOR - WINDOW REGULATOR MASTER SWITCH)

M1
Power Window Regulator Master Switch Assembly:



I4
Power Window Regulator Motor (Driver Side):



B137081E02

- (a) Disconnect the M1 and I4 connectors.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
M1-3 (DU) - I4-2	Always	Below 1 Ω
M1-4 (DD) - I4-1	Always	Below 1 Ω
M1-3 (DU) - Body ground	Always	10 kΩ or higher
M1-4 (DD) - Body ground	Always	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

WS

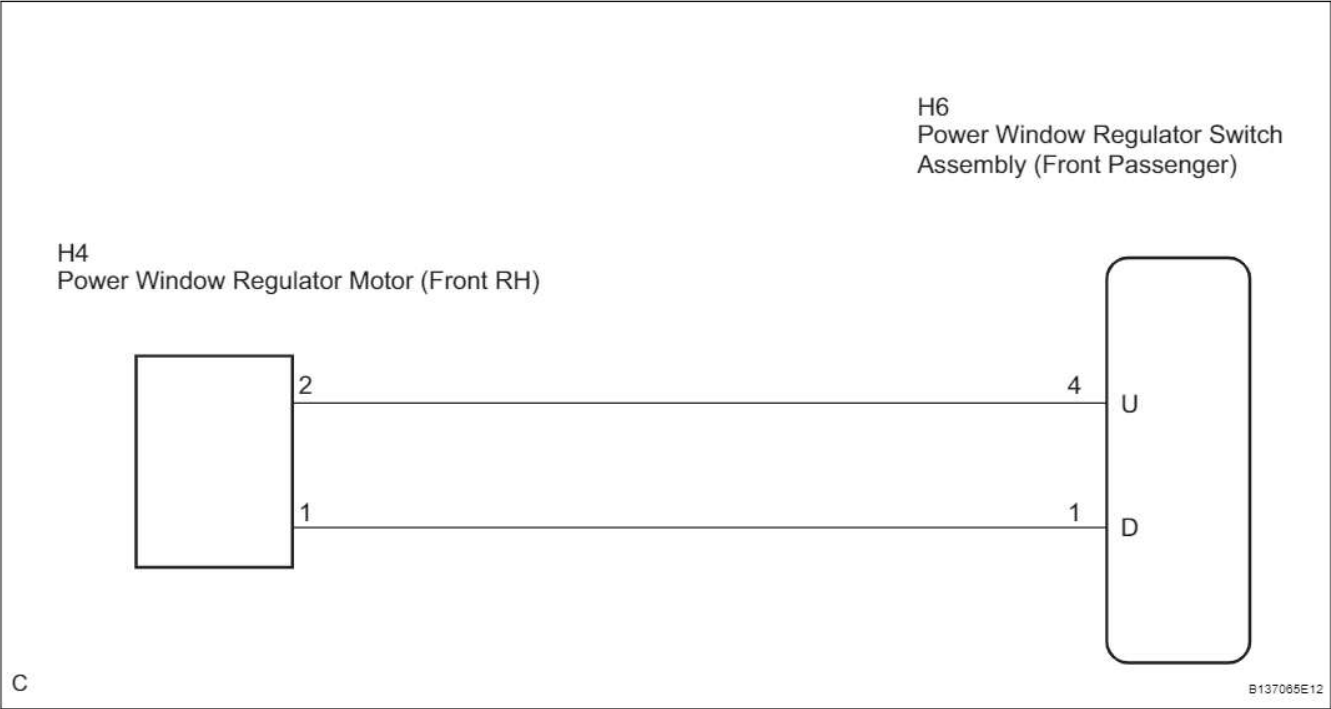
OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

Front Passenger Side Power Window Motor Circuit

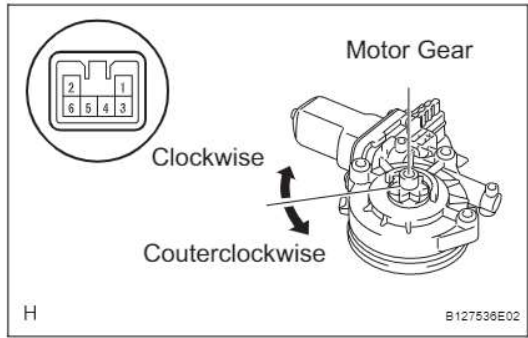
DESCRIPTION
This circuit transmits signals from the power window regulator switch assembly (Front RH) to the power window regulator motor (Front RH).

WIRING DIAGRAM



INSPECTION PROCEDURE

1INSPECT POWER WINDOW REGULATOR MOTOR



- (a) Remove the power window motor.
(b) Apply battery voltage to the motor connector according to the table below.

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

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

NG

REPLACE POWER WINDOW REGULATOR MOTOR

OK

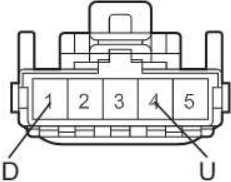
WS-22

WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

2

CHECK WIRE HARNESS (WINDOW REGULATOR MOTOR - POWER WINDOW REGULATOR SWITCH)

H6
Power Window Regulator Switch
Assembly (Front Passenger):



H4
Power Window Regulator
Motor (Front Passenger):



B137088E06

(a) Disconnect the H6 and H4 connectors.

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

Standard resistance

Tester Connection	Condition	Specified Condition
H6-4 (U) - H4-2	Always	Below 1 Ω
H6-1 (D) - H4-1	Always	Below 1 Ω
H6-4 (U) - Body ground	Always	10 kΩ or higher
H6-1 (D) - Body ground	Always	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

WS

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

https://cardiagn.com/windshield-windowglass-camry-hybrid-07/

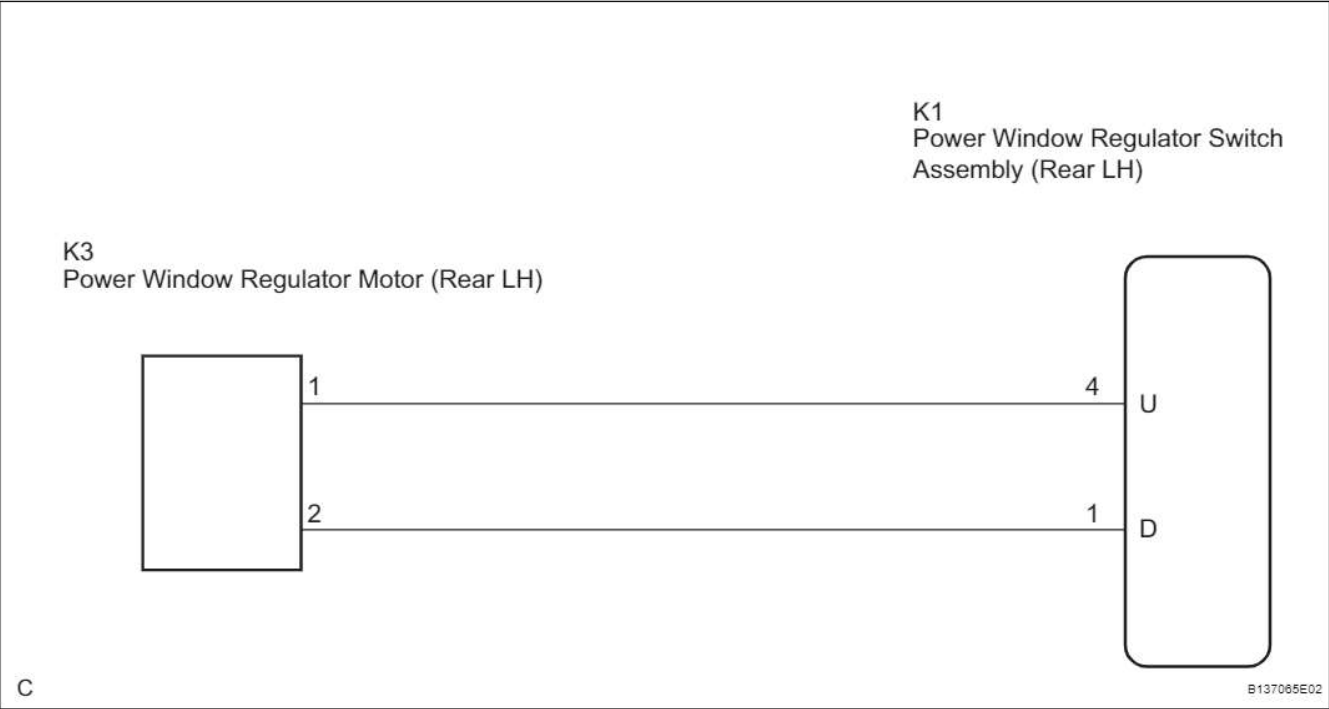
19/91

Rear Power Window Motor LH Circuit

DESCRIPTION

This circuit transmits signals from the power window regulator switch assembly (Rear LH) to the power window regulator motor (Rear LH).

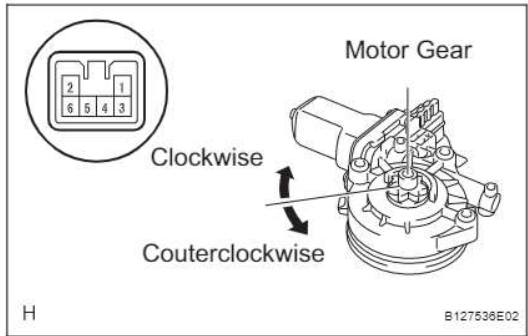
WIRING DIAGRAM



WS

INSPECTION PROCEDURE

1 INSPECT POWER WINDOW REGULATOR MOTOR



- (a) Remove the power window motor.
(b) Apply battery voltage to the motor connector according to the table below.

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

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

NG

REPLACE POWER WINDOW REGULATOR MOTOR

OK

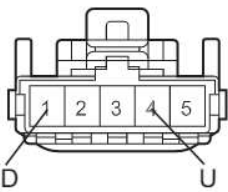
WS-24

WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

2

CHECK WIRE HARNESS (WINDOW REGULATOR MOTOR - WINDOW REGULATOR SWITCH)

K1
Power Window Regulator
Switch Assembly (Rear LH):



K3
Power Window Regulator
Motor (Rear LH):



B137088E02

- (a) Disconnect the K1 and K3 connectors.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
K1-4 (U) - K3-1	Always	Below 1 Ω
K1-1 (D) - K3-2	Always	Below 1 Ω
K1-4 (U) - Body ground	Always	10 kΩ or higher
K1-1 (D) - Body ground	Always	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

WS

OK

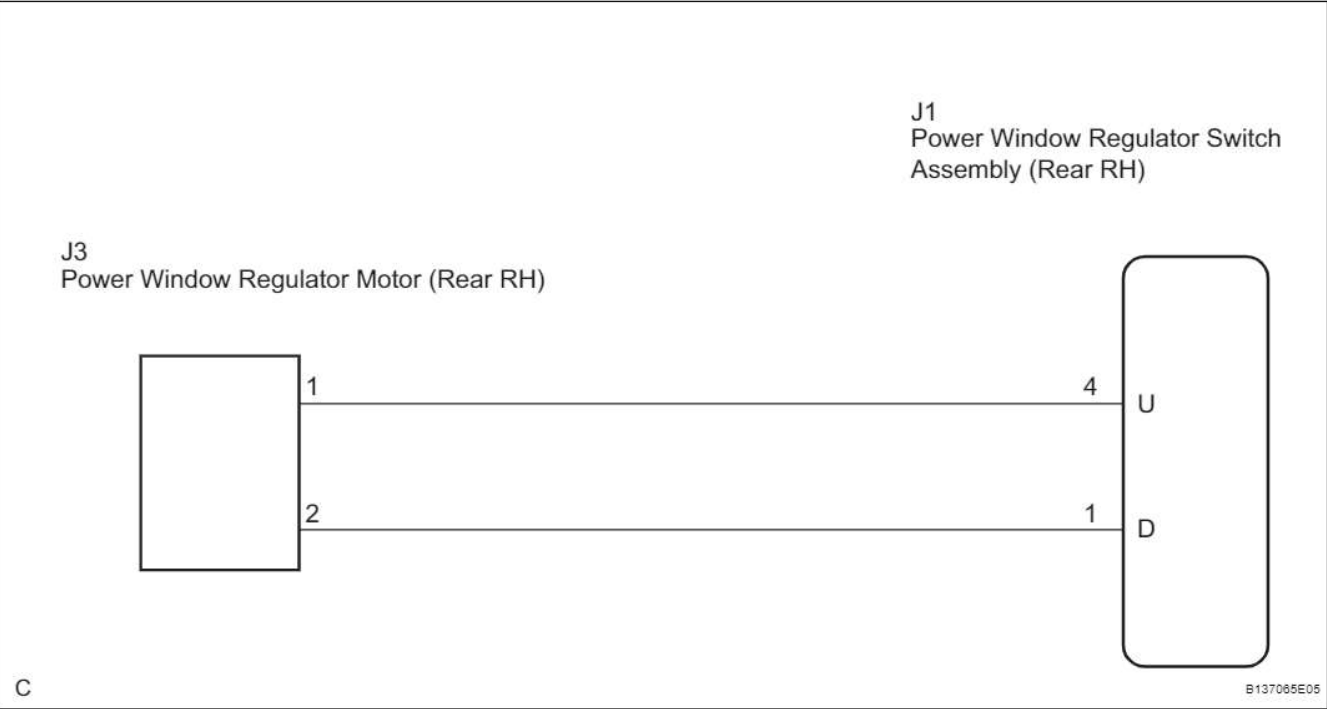
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

Rear Power Window Motor RH Circuit

DESCRIPTION

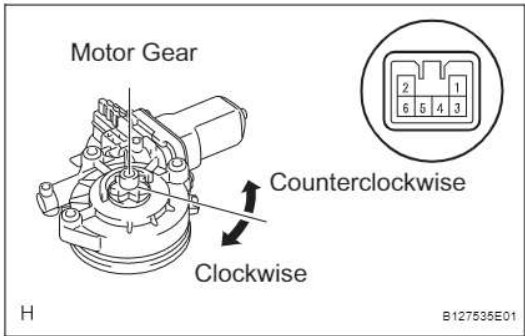
This circuit transmits signals from the power window regulator switch assembly (Rear RH) to the power window regulator motor (Rear RH).

WIRING DIAGRAM



INSPECTION PROCEDURE

1 INSPECT POWER WINDOW REGULATOR MOTOR



- (a) Remove the power window motor.
(b) Apply battery voltage to the motor connector according to the table below.

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

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

NG ➤ REPLACE POWER WINDOW REGULATOR MOTOR

OK

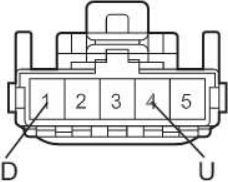
WS-26

WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

2

CHECK WIRE HARNESS (WINDOW REGULATOR MOTOR - WINDOW REGULATOR SWITCH)

J1
Power Window Regulator
Switch Assembly (Rear RH):



J3
Power Window Regulator
Motor (Rear RH):



B137088E03

(a) Disconnect the J1 and J3 connectors.

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

Standard resistance

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

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

WS

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

https://cardiagn.com/windshield-windowglass-camry-hybrid-07/

23/91

INSTALLATION

1. INSTALL POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY (See page [ED-58](#))
2. INSTALL FRONT DOOR INNER GLASS WEATHERSTRIP (See page [ED-58](#))
3. INSTALL FRONT DOOR INSIDE HANDLE SUB-ASSEMBLY (See page [ED-59](#))
4. INSTALL FRONT DOOR TRIM BOARD SUB-ASSEMBLY (See page [ED-59](#))
5. INSTALL COURTESY LIGHT ASSEMBLY (See page [ED-59](#))
6. INSTALL ASSIST GRIP COVER (See page [ED-60](#))
7. INSTALL FRONT DOOR INSIDE HANDLE BEZEL PLUG (See page [ED-60](#))
8. INSTALL FRONT DOOR LOWER FRAME BRACKET GARNISH (See page [ED-60](#))

WS

WS-30 WINDSHIELD / WINDOWGLASS – FRONT PASSENGER SIDE POWER WINDOW SWITCH

INSTALLATION

1. **INSTALL POWER WINDOW REGULATOR SWITCH ASSEMBLY**
 - (a) Engage the 2 claws and install the power window regulator switch assembly.
2. **INSTALL FRONT DOOR INNER GLASS WEATHERSTRIP** (See page [ED-58](#))
3. **INSTALL FRONT DOOR INSIDE HANDLE SUB-ASSEMBLY** (See page [ED-59](#))
4. **INSTALL FRONT DOOR TRIM BOARD SUB-ASSEMBLY** (See page [ED-59](#))
5. **INSTALL COURTESY LIGHT ASSEMBLY** (See page [ED-59](#))
6. **INSTALL ASSIST GRIP COVER** (See page [ED-60](#))
7. **INSTALL FRONT DOOR INSIDE HANDLE BEZEL PLUG** (See page [ED-60](#))
8. **INSTALL FRONT DOOR LOWER FRAME BRACKET GARNISH** (See page [ED-60](#))

WS

INSTALLATION

1. INSTALL REAR POWER WINDOW REGULATOR SWITCH ASSEMBLY (See page [ED-80](#))
2. INSTALL REAR DOOR INNER GLASS WEATHERSTRIP (See page [ED-80](#))
3. INSTALL REAR DOOR INSIDE HANDLE SUB-ASSEMBLY (See page [ED-80](#))
4. INSTALL REAR DOOR TRIM BOARD SUB-ASSEMBLY (See page [ED-81](#))
5. INSTALL DOOR ASSIST GRIP COVER (See page [ED-82](#))
6. INSTALL REAR DOOR INSIDE HANDLE BEZEL PLUG (See page [ED-82](#))

WS

REMOVAL

1. REMOVE FRONT DOOR LOWER FRAME BRACKET GARNISH (See page [ED-41](#))
2. REMOVE FRONT DOOR INSIDE HANDLE BEZEL PLUG (See page [ED-41](#))
3. REMOVE ASSIST GRIP COVER (See page [ED-42](#))
4. REMOVE COURTESY LIGHT ASSEMBLY (See page [ED-42](#))
5. REMOVE FRONT DOOR TRIM BOARD SUB-ASSEMBLY (See page [ED-42](#))
6. REMOVE FRONT DOOR INSIDE HANDLE SUB-ASSEMBLY (See page [ED-44](#))
7. REMOVE FRONT DOOR INNER GLASS WEATHERSTRIP (See page [ED-43](#))
8. REMOVE FRONT NO. 1 SPEAKER ASSEMBLY (See page [AV-145](#))
9. REMOVE FRONT DOOR SERVICE HOLE COVER (See page [ED-44](#))
10. REMOVE FRONT DOOR GLASS SUB-ASSEMBLY (See page [ED-44](#))
11. REMOVE FRONT DOOR WINDOW REGULATOR SUB-ASSEMBLY (See page [ED-45](#))
12. REMOVE FRONT POWER WINDOW REGULATOR MOTOR ASSEMBLY (See page [ED-45](#))
13. REMOVE REAR DOOR INSIDE HANDLE BEZEL PLUG (See page [ED-64](#))
14. REMOVE DOOR ASSIST GRIP COVER (See page [ED-64](#))
15. REMOVE REAR DOOR TRIM BOARD SUB-ASSEMBLY (See page [ED-65](#))
16. REMOVE REAR DOOR INSIDE HANDLE SUB-ASSEMBLY (See page [ED-66](#))
17. REMOVE REAR DOOR INNER GLASS WEATHERSTRIP (See page [ED-66](#))
18. REMOVE REAR DOOR SERVICE HOLE COVER (See page [ED-67](#))
19. REMOVE REAR DOOR GLASS RUN (See page [ED-68](#))
20. REMOVE REAR DOOR LOWER WINDOW FRAME SUB-ASSEMBLY (See page [ED-68](#))
21. REMOVE REAR DOOR QUARTER WINDOW GLASS (See page [ED-68](#))
22. REMOVE REAR DOOR GLASS SUB-ASSEMBLY (See page [ED-69](#))

WS

23. REMOVE REAR DOOR WINDOW REGULATOR SUB-ASSEMBLY (See page ED-69)
24. REMOVE REAR POWER WINDOW REGULATOR MOTOR ASSEMBLY (See page ED-69)

INSPECTION

1. INSPECT POWER WINDOW REGULATOR MOTOR (FRONT PASSENGER)

- (a) Apply battery voltage to the motor connector according to the table below.

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

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

2. INSPECT POWER WINDOW REGULATOR MOTOR (DRIVER SIDE)

- (a) Apply battery voltage to the motor connector according to the table below.

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

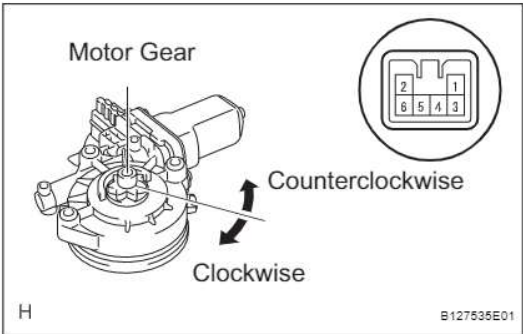
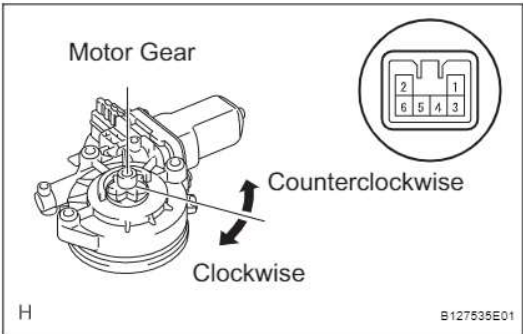
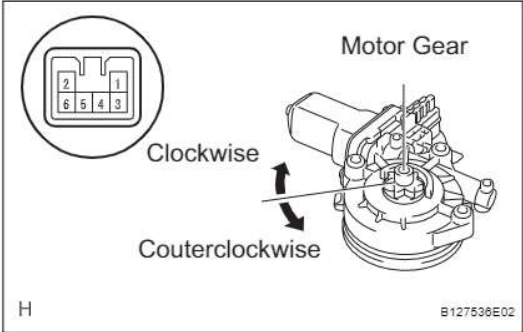
Measurement Condition	Specified Condition
Battery positive (+) → Terminal 2 Battery negative (-) → Terminal 1	Motor gear rotates clockwise
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 2	Motor gear rotates counterclockwise

3. INSPECT POWER WINDOW REGULATOR MOTOR (REAR RH)

- (a) Apply battery voltage to the motor connector according to the table below.

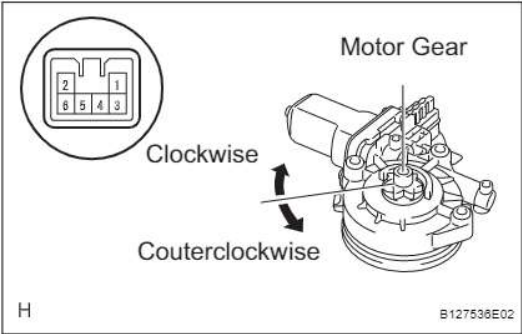
NOTICE:
Do not apply battery voltage to any terminals except terminals 1 and 2.
Standard

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



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WINDSHIELD / WINDOWGLASS – POWER WINDOW REGULATOR MOTOR



4. INSPECT POWER WINDOW REGULATOR MOTOR (REAR LH)

- (a) Apply battery voltage to the motor connector according to the table below.

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

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

INSTALLATION

1. INSTALL REAR POWER WINDOW REGULATOR MOTOR ASSEMBLY (See page [ED-77](#))
2. INSTALL REAR DOOR WINDOW REGULATOR SUB-ASSEMBLY (See page [ED-77](#))
3. INSTALL REAR DOOR GLASS RUN (See page [ED-78](#))
4. INSTALL REAR DOOR GLASS SUB-ASSEMBLY (See page [ED-78](#))
5. INSTALL REAR DOOR QUARTER WINDOW GLASS (See page [ED-78](#))
6. INSTALL REAR DOOR LOWER WINDOW FRAME SUB-ASSEMBLY (See page [ED-78](#))
7. INSTALL REAR DOOR SERVICE HOLE COVER (See page [ED-79](#))
8. INSTALL REAR DOOR INNER GLASS WEATHERSTRIP (See page [ED-80](#))
9. INSTALL REAR DOOR INSIDE HANDLE SUB-ASSEMBLY (See page [ED-80](#))
10. INSTALL REAR DOOR TRIM BOARD SUB-ASSEMBLY (See page [ED-81](#))
11. INSTALL DOOR ASSIST GRIP COVER (See page [ED-82](#))
12. INSTALL REAR DOOR INSIDE HANDLE BEZEL PLUG (See page [ED-82](#))
13. INSTALL FRONT POWER WINDOW REGULATOR MOTOR ASSEMBLY (See page [ED-56](#))
14. INSTALL FRONT DOOR WINDOW REGULATOR SUB-ASSEMBLY (See page [ED-57](#))
15. INSTALL FRONT DOOR GLASS SUB-ASSEMBLY (See page [ED-57](#))
16. INSTALL FRONT DOOR SERVICE HOLE COVER (See page [ED-57](#))
17. INSTALL FRONT NO. 1 SPEAKER ASSEMBLY (See page [AV-147](#))
18. INSTALL FRONT DOOR INNER GLASS WEATHERSTRIP (See page [ED-58](#))
19. INSTALL FRONT DOOR INSIDE HANDLE SUB-ASSEMBLY (See page [ED-59](#))
20. INSTALL FRONT DOOR TRIM BOARD SUB-ASSEMBLY (See page [ED-59](#))
21. INSTALL COURTESY LIGHT ASSEMBLY (See page [ED-59](#))
22. INSTALL ASSIST GRIP COVER (See page [ED-60](#))

WS

WS-40**WINDSHIELD / WINDOWGLASS – POWER WINDOW REGULATOR MOTOR**

23. INSTALL FRONT DOOR INSIDE HANDLE BEZEL PLUG (See page [ED-60](#))
24. INSTALL FRONT DOOR LOWER FRAME BRACKET GARNISH (See page [ED-60](#))

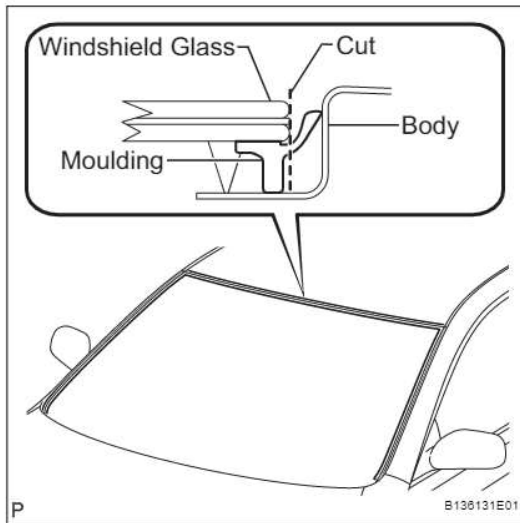
WS

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
2. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY LH (See page [WW-9](#))
3. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY RH (See page [WW-9](#))
4. REMOVE FRONT FENDER TO COWL SIDE SEAL LH (See page [WW-9](#))
5. REMOVE FRONT FENDER TO COWL SIDE SEAL RH (See page [WW-9](#))
6. REMOVE COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY (See page [WW-10](#))
7. REMOVE INNER REAR VIEW MIRROR STAY HOLDER COVER (See page [MI-10](#))
8. REMOVE INNER REAR VIEW MIRROR ASSEMBLY (See page [MI-10](#))
9. REMOVE FRONT DOOR OPENING TRIM WEATHERSTRIP LH
10. REMOVE FRONT DOOR OPENING TRIM WEATHERSTRIP RH
11. REMOVE FRONT PILLAR GARNISH LH (See page [IR-16](#))
12. REMOVE FRONT PILLAR GARNISH RH (See page [IR-16](#))
13. REMOVE ROOF CONSOLE BOX ASSEMBLY (See page [IR-17](#))
14. REMOVE VISOR ASSEMBLY LH (See page [IR-17](#))
15. REMOVE VISOR ASSEMBLY RH (See page [IR-18](#))
16. REMOVE VISOR HOLDER (See page [IR-18](#))
17. REMOVE FRONT ASSIST GRIP SUB-ASSEMBLY (See page [IR-18](#))
18. REMOVE ROOF HEADLINING ASSEMBLY (w/o Sliding Roof)
It is not necessary to completely remove the roof headlining assembly. Slightly lower the front section of the roof headlining assembly so that the windshield glass can be removed (See page [IR-20](#)).
19. REMOVE ROOF HEADLINING ASSEMBLY (w/ Sliding Roof)
It is not necessary to completely remove the roof headlining assembly. Slightly lower the front section of the roof headlining assembly so that the windshield glass can be removed (See page [IR-21](#)).

WINDSHIELD / WINDOWGLASS – WINDSHIELD GLASS

WS-43

**20. REMOVE WINDSHIELD MOULDING**

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

NOTICE:

- Do not damage the vehicle body with the knife.
- If the vehicle body is damaged, repair the damaged portion by applying an anti-rust coating after removing the windshield glass.

- (b) Remove the remaining moulding from the windshield glass.

HINT:

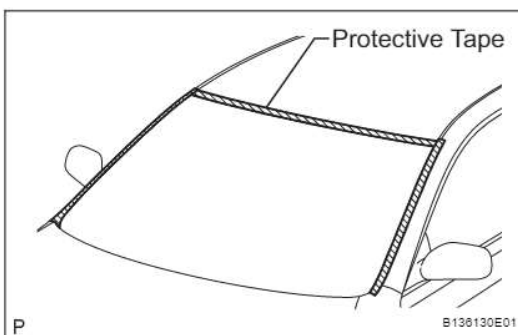
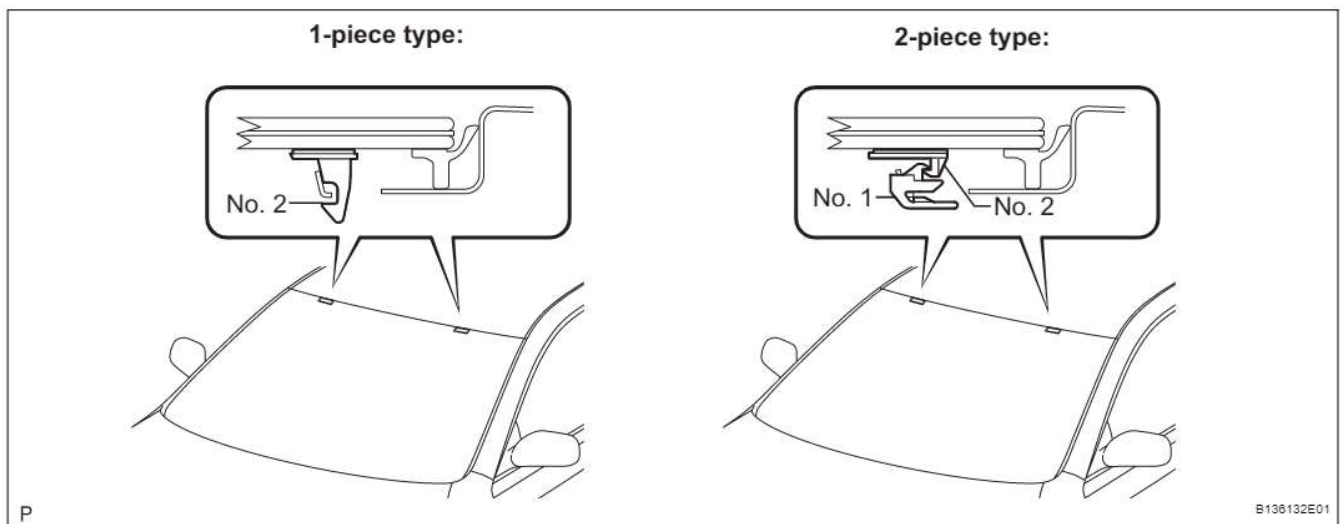
When removing the moulding, make a partial cut, then pull and remove it by hand.

21. REMOVE WINDSHIELD GLASS ASSEMBLY**NOTICE:**

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

HINT:

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



- (a) Apply protective tape to the installation position of the windshield glass assembly on the vehicle body.

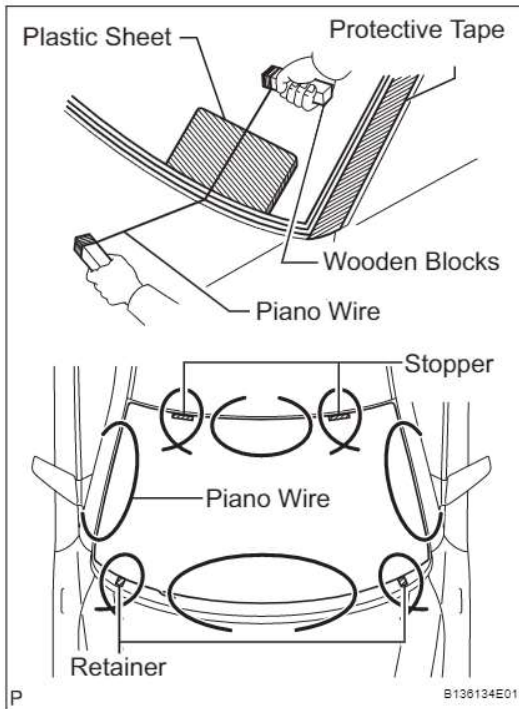
HINT:

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

WS

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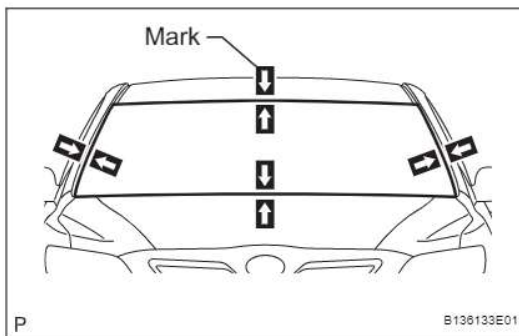
WINDSHIELD / WINDOWGLASS – WINDSHIELD GLASS



- (b) Pass a piano wire between the vehicle body and glass from the interior.
- (c) Tie both wire ends to wooden blocks or similar objects.
- (d) Cut off the adhesive by pulling the piano wire around the windshield glass.

NOTICE:

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



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

HINT:

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

- (f) Using a suction cup, remove the windshield glass assembly.

NOTICE:

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

22. REMOVE WINDOW GLASS ADHESIVE DAM

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

NOTICE:

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

23. REMOVE NO. 2 WINDSHIELD GLASS STOPPER

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

NOTICE:

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

WINDSHIELD / WINDOWGLASS – WINDSHIELD GLASS

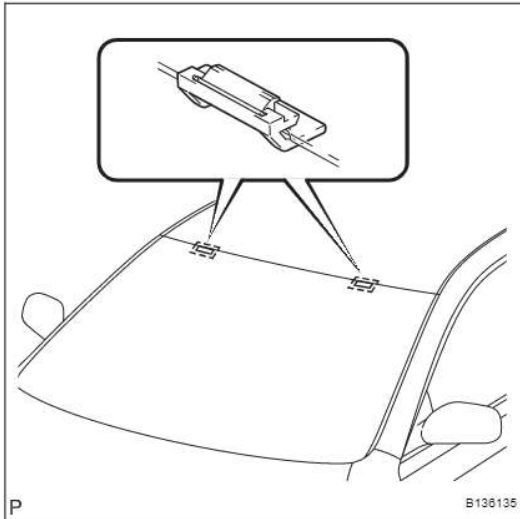
WS-45

24. REMOVE WINDSHIELD GLASS RETAINER

- (a) Using a scraper, remove the 2 retainers.

NOTICE:

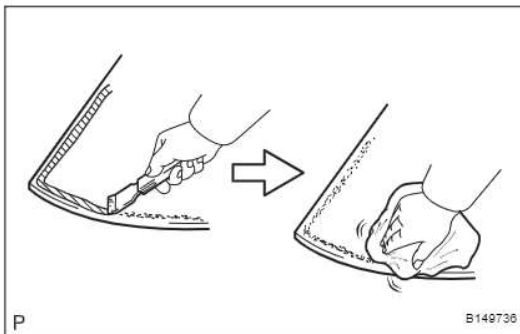
- Be careful not to damage the windshield glass.
- Be sure to replace the retainers with new ones.

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

- (a) Remove the 2 No. 1 stoppers.

NOTICE:

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

**26. CLEAN WINDSHIELD GLASS**

- (a) Using a scraper, remove the adhesive tape and adhesive sticking to the windshield glass.

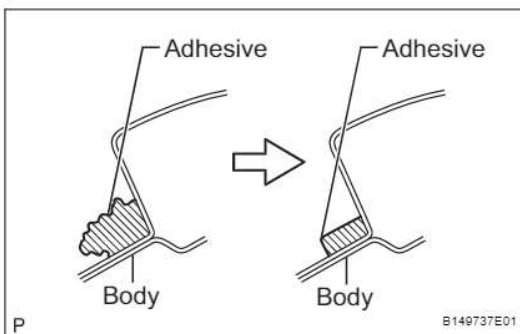
NOTICE:

Be careful not to damage the windshield glass.

- (b) Clean the outer circumference of the windshield glass with a non-residue solvent.

NOTICE:

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

**27. CLEAN VEHICLE BODY**

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

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

NOTICE:

Be careful not to damage the vehicle body.

HINT:

Leave as much adhesive on the vehicle body as possible.

- (2) Clean the contact surface of the vehicle body with a piece of cloth saturated with cleaner.

HINT:

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

WS

INSTALLATION

1. INSTALL NO. 2 WINDSHIELD GLASS STOPPER

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

NOTICE:

- Do not apply too much primer.
- Allow the primer coating to dry for 3 minutes or more.
- Do not keep any of the opened Primer G for later use.

HINT:

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

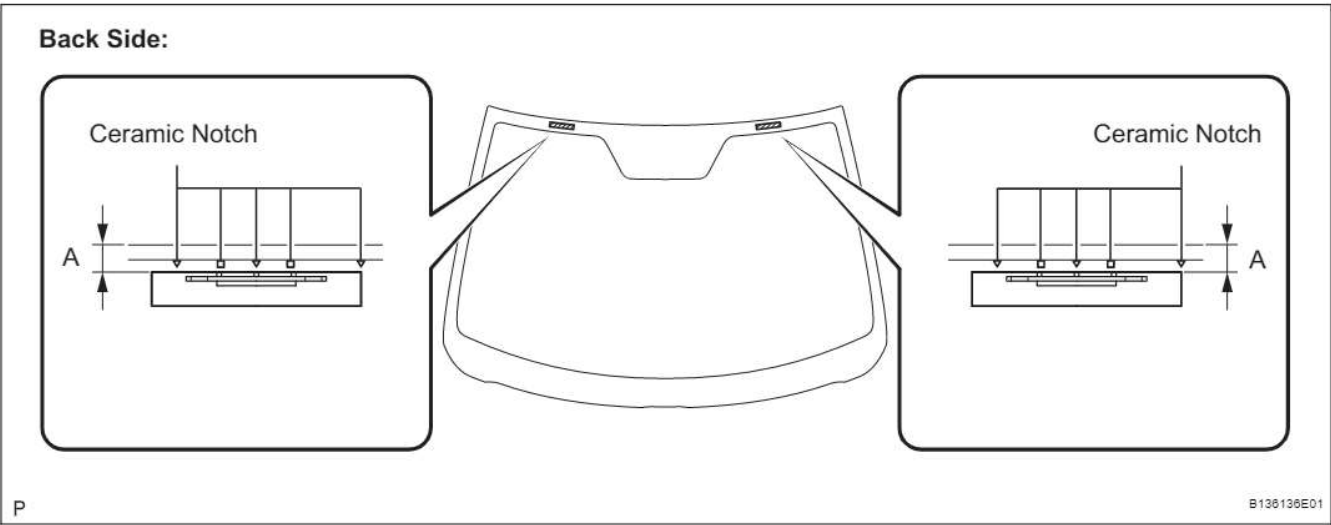
- (b) Install 2 new No. 2 stoppers onto the windshield glass, as shown in the illustration.

HINT:

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

Standard dimension

Area	Dimension
A	13.2 mm (0.519 in.)



2. INSTALL WINDSHIELD GLASS RETAINER

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

NOTICE:

- Do not apply too much primer.
- Allow the primer coating to dry for 3 minutes or more.
- Do not keep any of the opened Primer G for later use.

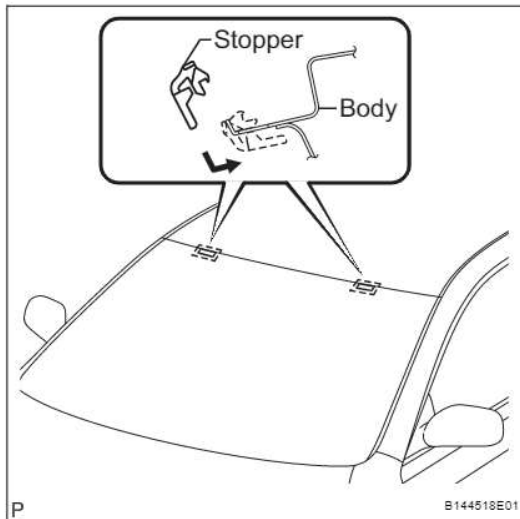
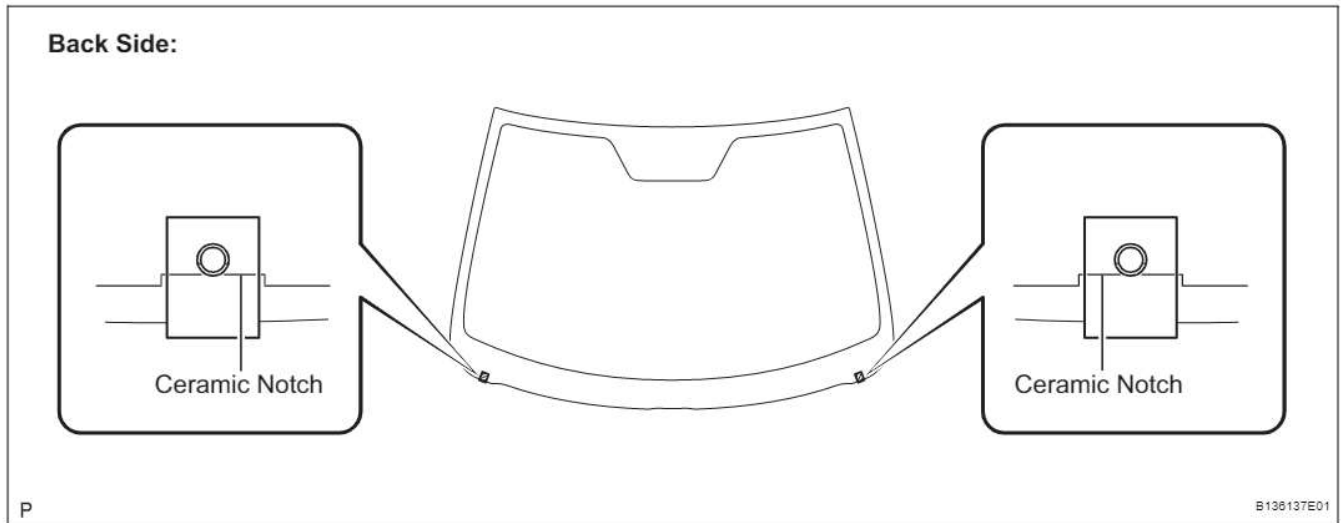
HINT:

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

WINDSHIELD / WINDOWGLASS – WINDSHIELD GLASS

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- (b) Install 2 new retainers onto the windshield glass, as shown in the illustration.



3. INSTALL NO. 1 WINDSHIELD GLASS STOPPER

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

HINT:

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

4. INSTALL WINDSHIELD MOULDING

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

NOTICE:

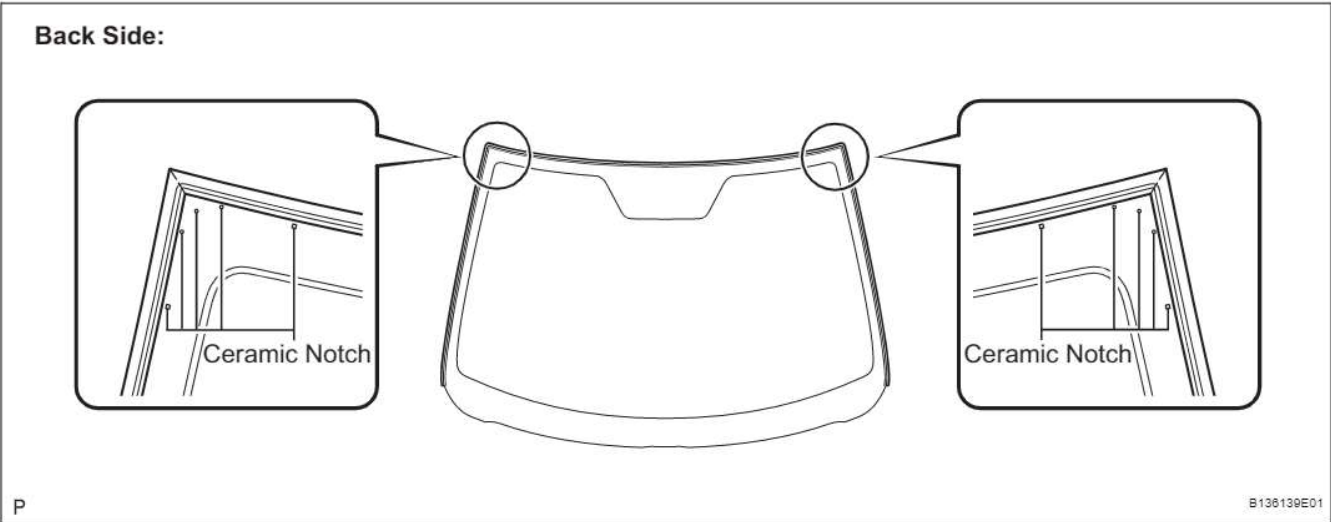
- Do not apply too much primer.
- Allow the primer coating to dry for 3 minutes or more.
- Do not keep any of the opened Primer G for later use.

HINT:

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

WS

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



5. INSTALL WINDOW GLASS ADHESIVE DAM

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

NOTICE:

- Do not apply too much primer.
- Allow the primer coating to dry for 3 minutes or more.
- Do not keep any of the opened Primer G for later use.

HINT:

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

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

NOTICE:

Install the new adhesive dam along the ceramic notches.

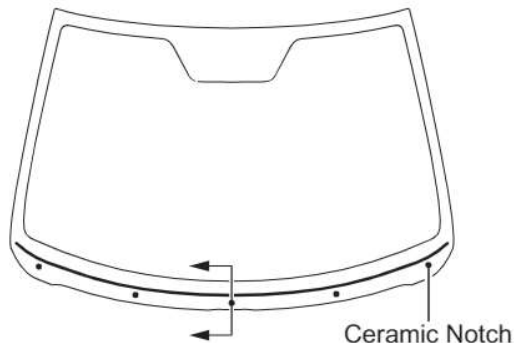
Standard dimension

Area	Dimension
A	6.5 mm (0.255 in.)

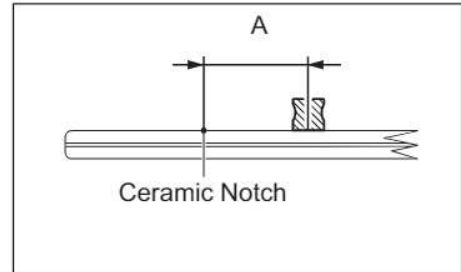
WINDSHIELD / WINDOWGLASS – WINDSHIELD GLASS

WS-49

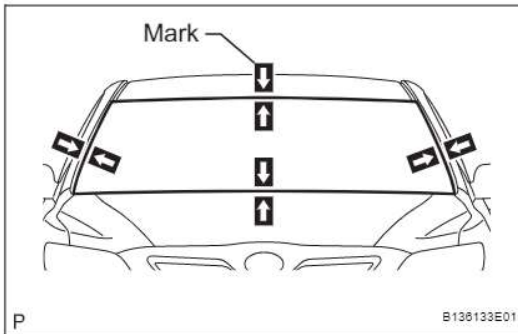
Back Side:



P



B136138E01



6. INSTALL WINDSHIELD GLASS ASSEMBLY

(a) Position the windshield glass assembly.

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

NOTICE:

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

- (4) Remove the windshield glass assembly.

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

NOTICE:

- Do not coat the adhesive with Primer M.
- Do not apply too much primer.
- Allow the primer coating to dry for 3 minutes or more.
- Do not keep any of the opened Primer M for later use.

HINT:

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

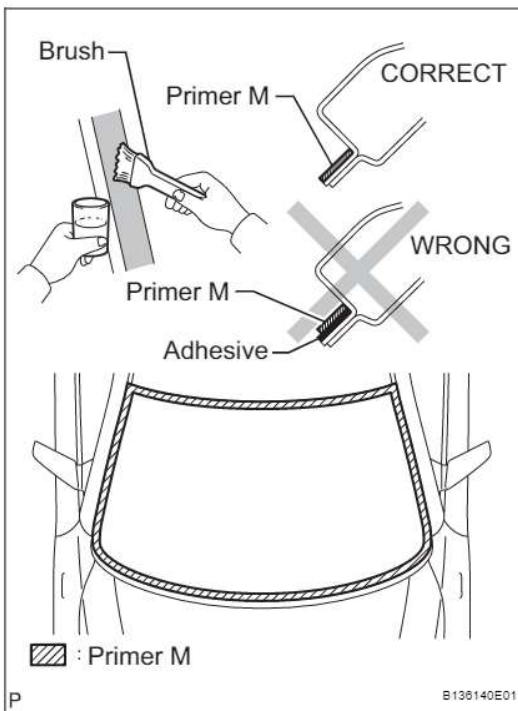
(c) Using a brush or sponge, coat the application area of adhesive with Primer G.

NOTICE:

- Do not apply too much primer.
- Allow the primer coating to dry for 3 minutes or more.
- Do not keep any of the opened Primer G for later use.

HINT:

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



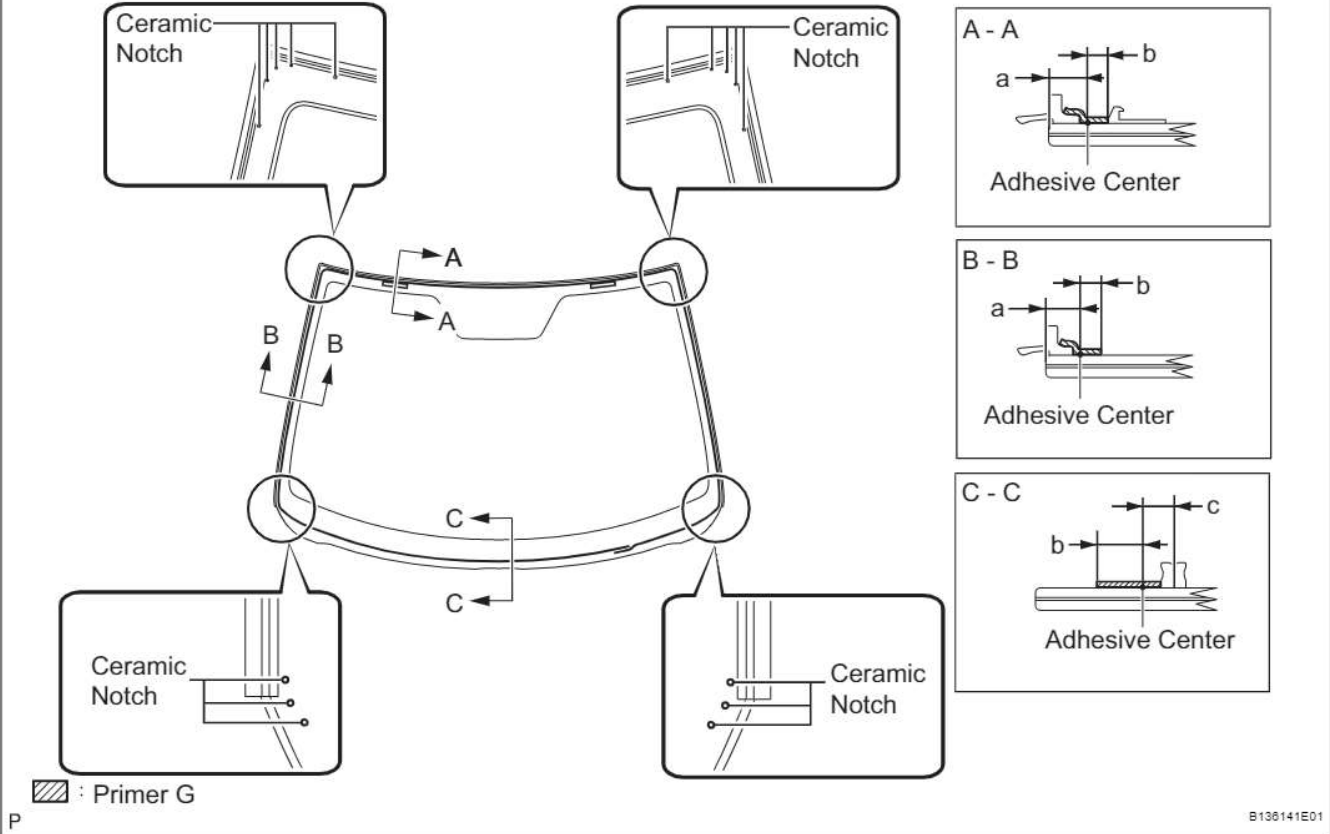
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WINDSHIELD / WINDOWGLASS – WINDSHIELD GLASS

Standard dimension

Area	Dimension
a	8.7 mm (0.342 in.)
b	7.0 mm (0.275 in.)
c	6.5 mm (0.255 in.)

Back Side:



- (d) Apply adhesive (Adhesive: TOYOTA genuine windshield glass adhesive or equivalent).
- (1) Cut off the tip of the cartridge nozzle, as shown in the illustration.
- HINT:
After cutting off the tip, use all adhesive within the time described in the table below.
- Usage time frame**

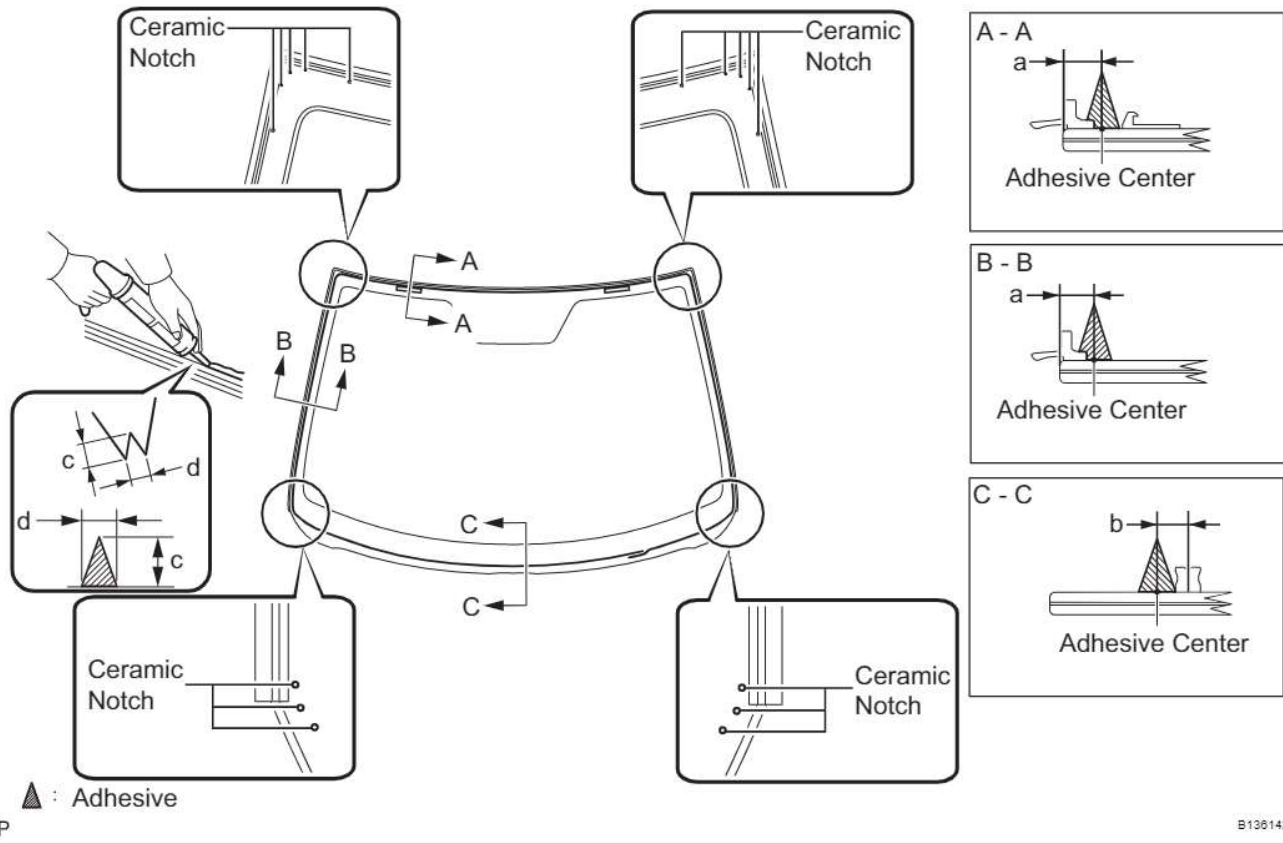
Temperature	Tack-free Time
35°C (95°F)	15 minutes
20°C (68°F)	1 hour and 40 minutes
5°C (41°F)	8 hours

- (2) Load the sealer gun with cartridge.
- (3) Apply adhesive to the windshield glass, as shown in the illustration.
- HINT:
Apply adhesive onto the ceramic notches.

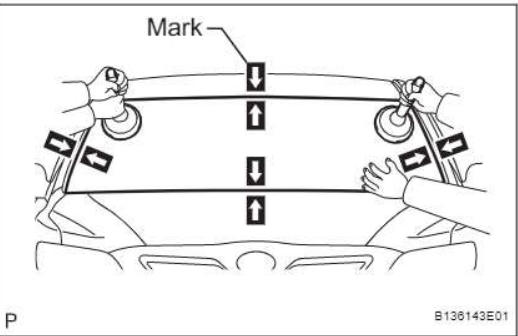
Standard dimension

Area	Dimension
a	8.7 mm (0.342 in.)
b	6.5 mm (0.255 in.)
c	12.0 mm (0.472 in.)
d	8.0 mm (0.315 in.)

Back Side:



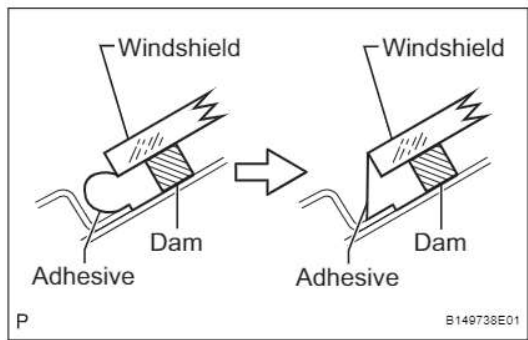
WS



- (e) Install the windshield glass assembly.
- (1) Using a suction cup, position the windshield glass so that the matchmarks are aligned, and press it in gently along the rim.
- NOTICE:**
- Check that the windshield glass stoppers are attached to the vehicle body correctly.
 - Check the clearance between the vehicle body and windshield glass.
- (2) Lightly press the front surface of the windshield glass to ensure a close fit.
- HINT:**
- Press the glass with force of 98 N (10 kgf, 22 lb) or more.

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WINDSHIELD / WINDOWGLASS – WINDSHIELD GLASS



- (3) If necessary, use a scraper to correct the level or position of adhesive that has been applied.
HINT:
Apply adhesive onto the windshield glass rim.
- (4) Hold the windshield glass using protective tape until applied adhesive becomes hard.

NOTICE:
Do not drive the vehicle for the time described in the table below.
Minimum time

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

7. **INSPECT FOR LEAKS AND REPAIR**
(a) After the adhesive has hardened, apply water from the outside of the vehicle. Check that no water leaks into the cabin.
(b) If water leaks into the cabin, allow the water to dry and add adhesive.
(c) Remove the protective tape.
8. **INSTALL ROOF HEADLINING ASSEMBLY (w/o Sliding Roof)**
Return the front section of the roof headlining assembly to the original position (See page [IR-33](#)).
9. **INSTALL ROOF HEADLINING ASSEMBLY (w/ Sliding Roof)**
Return the front section of the roof headlining assembly to the original position (See page [IR-34](#)).
10. **INSTALL FRONT ASSIST GRIP SUB-ASSEMBLY** (See page [IR-36](#))
11. **INSTALL VISOR HOLDER** (See page [IR-37](#))
12. **INSTALL VISOR ASSEMBLY LH** (See page [IR-37](#))
13. **INSTALL VISOR ASSEMBLY RH** (See page [IR-37](#))
14. **INSTALL ROOF CONSOLE BOX ASSEMBLY** (See page [IR-38](#))
15. **INSTALL FRONT PILLAR GARNISH LH** (See page [IR-38](#))
16. **INSTALL FRONT PILLAR GARNISH RH** (See page [IR-39](#))
17. **INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP LH** (See page [IR-41](#))
18. **INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP RH** (See page [IR-42](#))
19. **INSTALL INNER REAR VIEW MIRROR ASSEMBLY** (See page [MI-11](#))

20. INSTALL INNER REAR VIEW MIRROR STAY HOLDER COVER (See page [MI-11](#))
21. INSTALL COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY (See page [WW-14](#))
22. INSTALL FRONT FENDER TO COWL SIDE SEAL RH (See page [WW-14](#))
23. INSTALL FRONT FENDER TO COWL SIDE SEAL LH (See page [WW-14](#))
24. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL
25. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY LH (See page [WW-14](#))
26. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY RH (See page [WW-15](#))
27. PERFORM INITIALIZATION
NOTICE:
Some systems need initialization after reconnecting the cable to the negative battery terminal (See page [IN-43](#)).
28. INSPECT SRS WARNING LIGHT
(See page [RS-33](#))

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
2. REMOVE REAR SEAT CUSHION ASSEMBLY (See page [SE-44](#))
3. REMOVE REAR SEAT HEADREST ASSEMBLY (See page [SE-44](#))
4. REMOVE REAR CENTER SEAT HEADREST ASSEMBLY (See page [SE-44](#))
5. REMOVE SEPARATE TYPE REAR SEATBACK ASSEMBLY LH (See page [SE-44](#))
6. REMOVE SEPARATE TYPE REAR SEATBACK ASSEMBLY RH (See page [SE-44](#))
7. REMOVE REAR SIDE SEATBACK ASSEMBLY LH (See page [SE-45](#))
8. REMOVE REAR SIDE SEATBACK ASSEMBLY RH (See page [SE-45](#))
9. REMOVE REAR DOOR SCUFF PLATE LH (See page [IR-13](#))
10. REMOVE REAR DOOR OPENING TRIM WEATHERSTRIP LH
11. REMOVE REAR DOOR SCUFF PLATE RH (See page [IR-13](#))
12. REMOVE REAR DOOR OPENING TRIM WEATHERSTRIP RH
13. REMOVE ROOF SIDE INNER GARNISH LH (See page [IR-15](#))
14. REMOVE ROOF SIDE INNER GARNISH RH (See page [IR-15](#))
15. REMOVE CHILD RESTRAINT SEAT ANCHOR BRACKET SUB-ASSEMBLY LH (See page [SB-51](#))
16. DISCONNECT REAR SEAT INNER WITH CENTER BELT ASSEMBLY LH (See page [SB-33](#))
17. DISCONNECT REAR SEAT OUTER BELT ASSEMBLY (for LH Side) (See page [SB-40](#))
18. DISCONNECT REAR SEAT OUTER BELT ASSEMBLY (for RH Side) (See page [SB-41](#))
19. REMOVE REAR SEAT SHOULDER BELT COVER (See page [SB-33](#))
20. REMOVE REAR SEAT SHOULDER BELT HOLE COVER (See page [SB-33](#))
21. REMOVE PACKAGE TRAY TRIM PANEL ASSEMBLY (See page [SB-33](#))

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WINDSHIELD / WINDOWGLASS – BACK WINDOW GLASS

22. REMOVE REAR ASSIST GRIP SUB-ASSEMBLY (See page IR-18)**23. REMOVE SPOT LIGHT ASSEMBLY (w/ Sliding Roof) (See page IR-19)****24. REMOVE ROOF HEADLINING ASSEMBLY (w/o Sliding Roof)**

It is not necessary to completely remove the roof headlining. Slightly lower the rear section of the roof headlining so that the back window glass can be removed (See page IR-20).

25. REMOVE ROOF HEADLINING ASSEMBLY (w/ Sliding Roof)

It is not necessary to completely remove the roof headlining. Slightly lower the rear section of the roof headlining so that the back window glass can be removed (See page IR-21).

26. REMOVE BACK WINDOW MOULDING

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

NOTICE:

- Do not damage the vehicle body with the knife.
- If the vehicle body is damaged, repair the damaged portion by applying an anti-rust coating after removing the back window glass.

- (b) Remove the remaining moulding from the back window glass.

HINT:

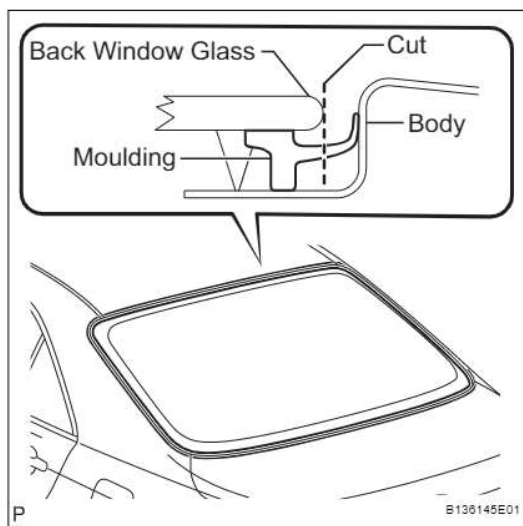
When removing the moulding, make a partial cut, then pull and remove it by hand.

27. REMOVE BACK WINDOW GLASS ASSEMBLY**NOTICE:**

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

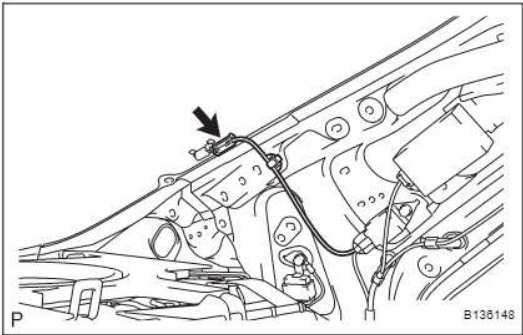
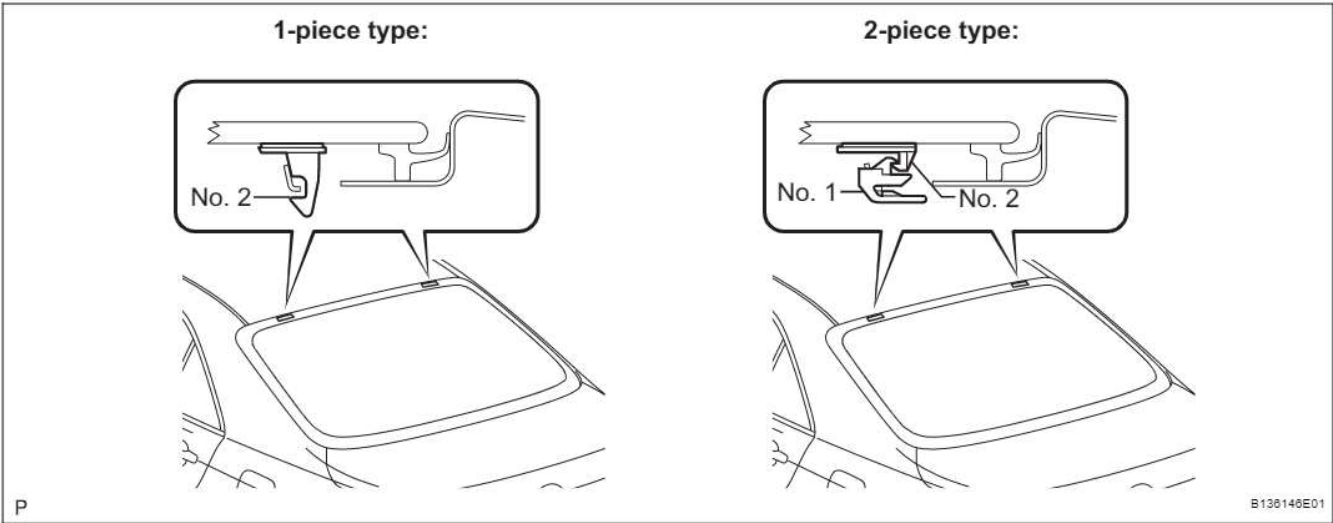
HINT:

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

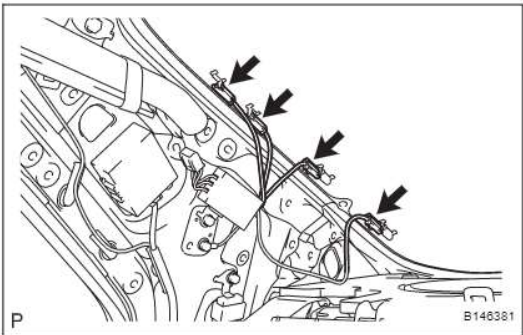


WINDSHIELD / WINDOWGLASS – BACK WINDOW GLASS

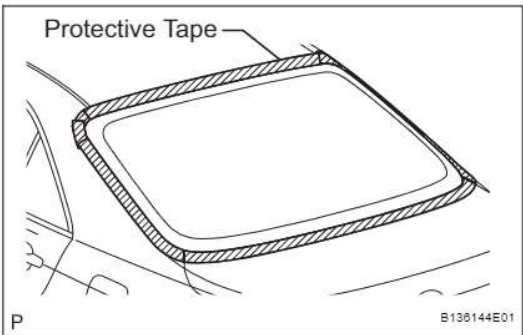
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(a) Disconnect the connector.



(b) Disconnect the connectors.

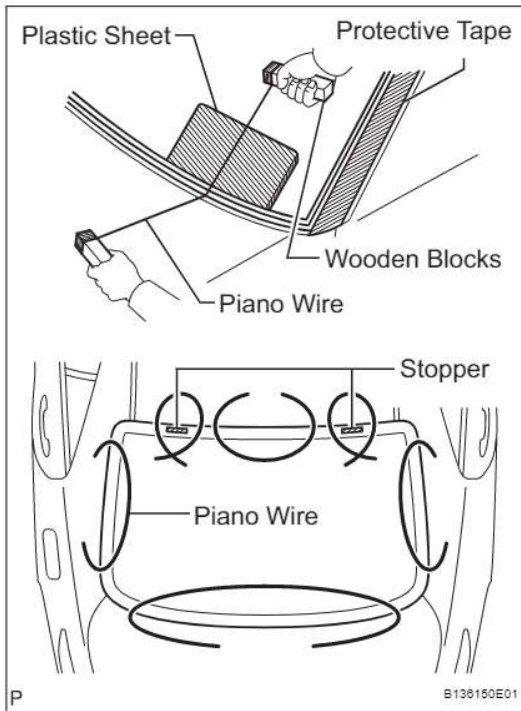


(c) Apply protective tape to the installation position of the back window glass assembly on the vehicle body.
HINT:
Apply protective tape to the installation surface to prevent it from being scratched.

WS

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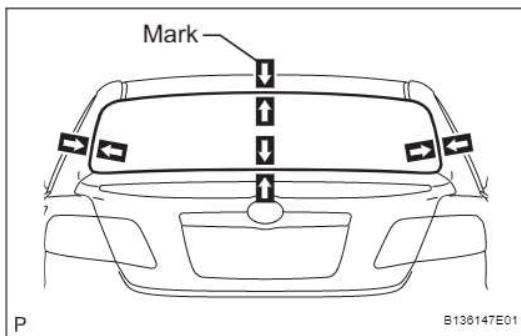
WINDSHIELD / WINDOWGLASS – BACK WINDOW GLASS



- (d) Pass a piano wire between the vehicle body and glass from the interior.
- (e) Tie both wire ends to wooden blocks or similar objects.
- (f) Cut off the adhesive by pulling the piano wire around the back window glass.

NOTICE:

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



- (g) Place matchmarks on the back window glass and vehicle body on the locations indicated in the illustration.

HINT:

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

- (h) Using a suction cup, remove the back window glass assembly.

NOTICE:

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

28. REMOVE NO. 2 BACK WINDOW GLASS STOPPER

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

NOTICE:

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

WINDSHIELD / WINDOWGLASS – BACK WINDOW GLASS

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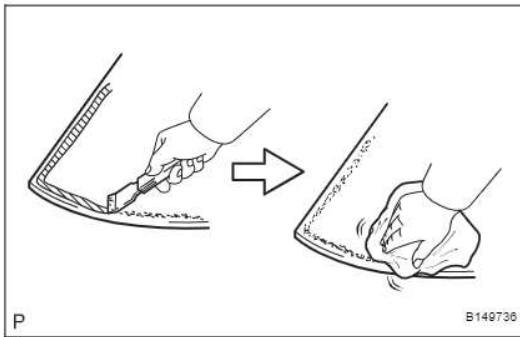


29. REMOVE NO. 1 BACK WINDOW GLASS STOPPER (for 2-piece Type)

- (a) Remove the 2 No. 1 stoppers.

NOTICE:

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



30. CLEAN BACK WINDOW GLASS

- (a) Using a scraper, remove the adhesive tape and adhesive sticking to the back window glass.

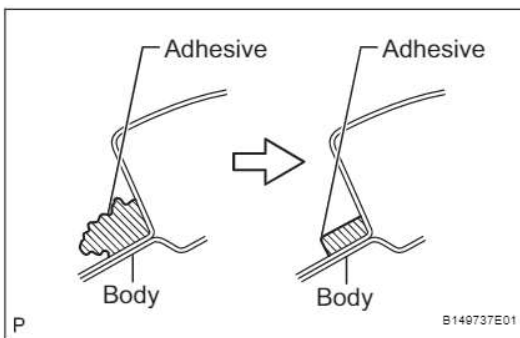
NOTICE:

Be careful not to damage the back window glass.

- (b) Clean the outer circumference of the back window glass with a non-residue solvent.

NOTICE:

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



31. CLEAN VEHICLE BODY

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

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

NOTICE:

Be careful not to damage the vehicle body.

HINT:

Leave as much adhesive on the vehicle body as possible.

- (2) Clean the contact surface of the vehicle body with a piece of cloth saturated with cleaner.

HINT:

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

WS

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WINDSHIELD / WINDOWGLASS – BACK WINDOW GLASS

INSTALLATION

1. INSTALL NO. 2 BACK WINDOW GLASS STOPPER

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

NOTICE:

- Do not apply too much primer.
- Allow the primer coating to dry for 3 minutes or more.
- Do not keep any of the opened Primer G for later use.

HINT:

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

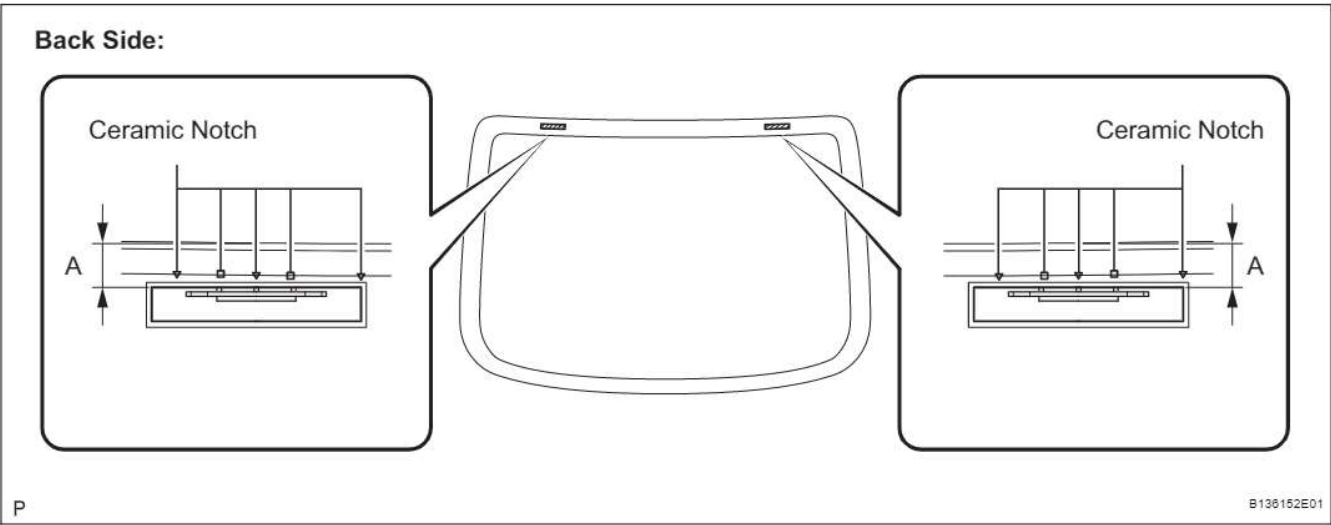
- (b) Install 2 new No. 2 stoppers onto the back window glass, as shown in the illustration.

HINT:

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

Standard dimension

Area	Dimension
A	16.4 mm (0.645 in.)



WINDSHIELD / WINDOWGLASS – BACK WINDOW GLASS

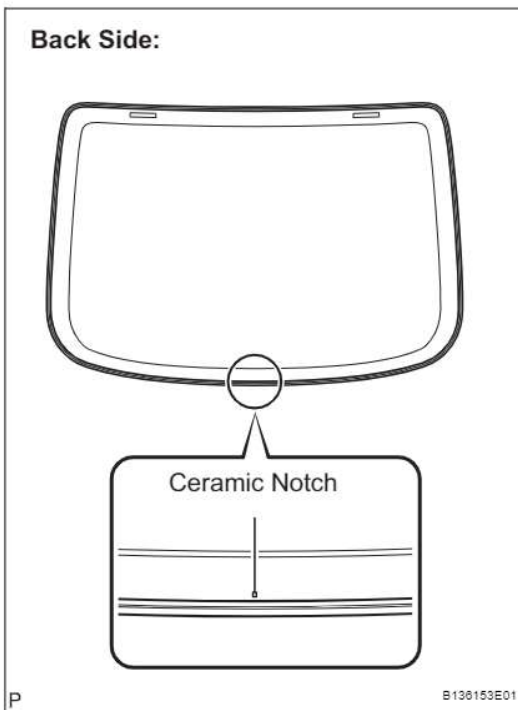
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**2. INSTALL NO. 1 BACK WINDOW GLASS STOPPER**

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

HINT:

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

**3. INSTALL BACK WINDOW MOULDING**

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

NOTICE:

- Do not apply too much primer.
- Allow the primer coating to dry for 3 minutes or more.
- Do not keep any of the opened Primer G for later use.

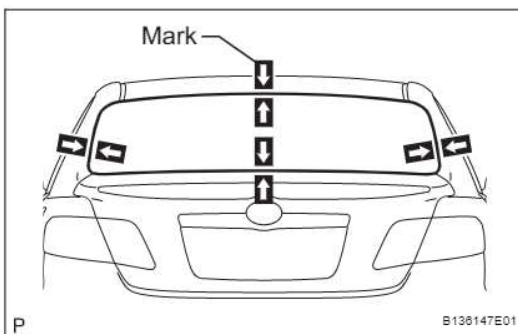
HINT:

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

- (b) Install a new moulding onto the back window glass, as shown in the illustration.

NOTICE:

Align the joint of the new moulding with the ceramic notch.

**4. INSTALL BACK WINDOW GLASS ASSEMBLY**

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

NOTICE:

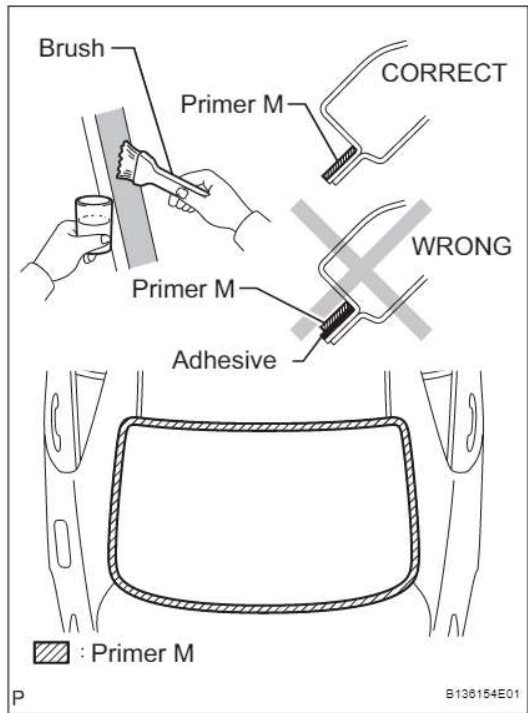
Check that the back window glass stoppers are attached to the vehicle body correctly.

- (4) Remove the back window glass assembly.

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WINDSHIELD / WINDOWGLASS – BACK WINDOW GLASS



- (b) Using a brush, coat the installation surface on the vehicle body with Primer M.
- NOTICE:**
- Do not coat the adhesive with Primer M.
 - Do not apply too much primer.
 - Allow the primer coating to dry for 3 minutes or more.
 - Do not keep any of the opened Primer M for later use.

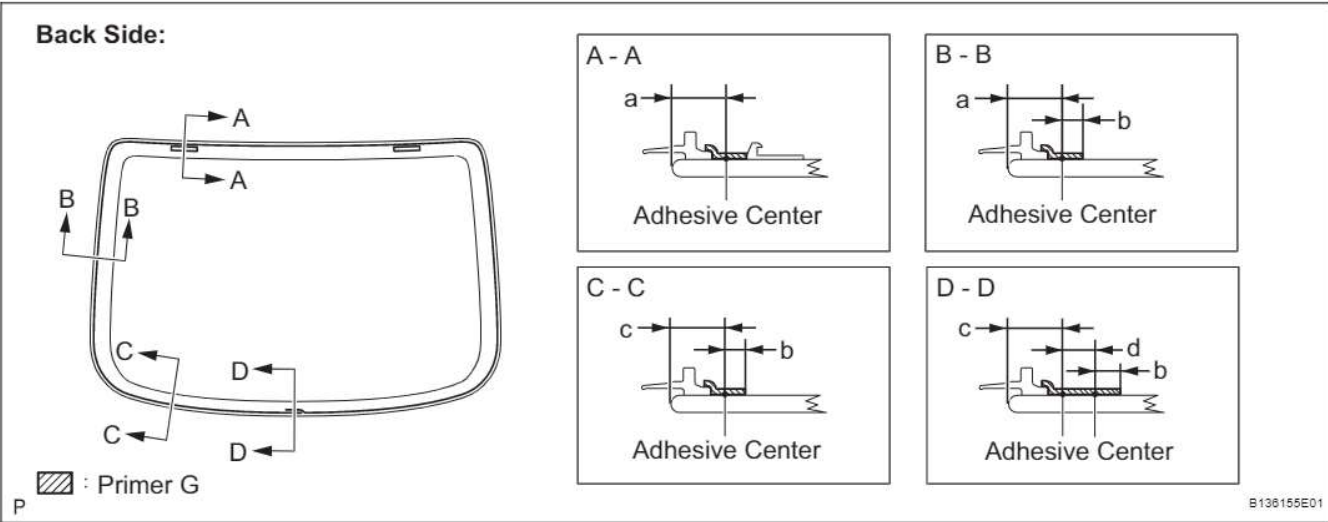
HINT:
If an area other than that specified is coated by accident, wipe off the primer with a clean piece of cloth before it dries.

- (c) Using a brush or sponge, coat the application area of adhesive with Primer G.
- NOTICE:**
- Do not apply too much primer.
 - Allow the primer coating to dry for 3 minutes or more.
 - Do not keep any of the opened Primer G for later use.

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

Standard dimension

Area	Dimension
a	10.75 mm (0.423 in.)
b	7.0 mm (0.275 in.)
c	10.25 mm (0.403 in.)
d	8.0 mm (0.315 in.)



WINDSHIELD / WINDOWGLASS – BACK WINDOW GLASS

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- (d) Apply adhesive (Adhesive: TOYOTA genuine windshield glass adhesive or equivalent).
- (1) Cut off the tip of the cartridge nozzle, as shown in the illustration.
- HINT:
- After cutting off the tip, use all adhesive within the time described in the table below.

Usage time frame

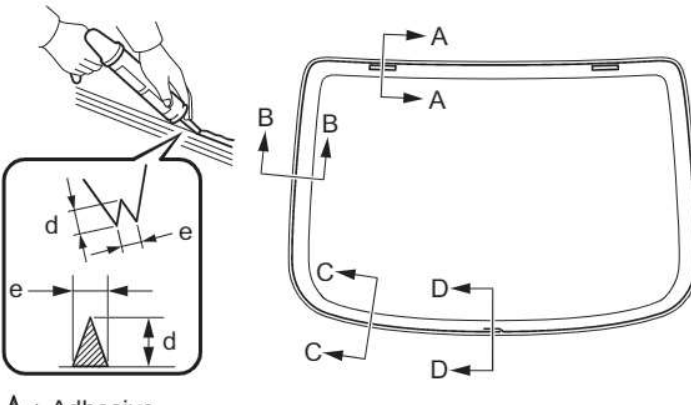
Temperature	Tack-free Time
35°C (95°F)	15 minutes
20°C (68°F)	1 hour and 40 minutes
5°C (41°F)	8 hours

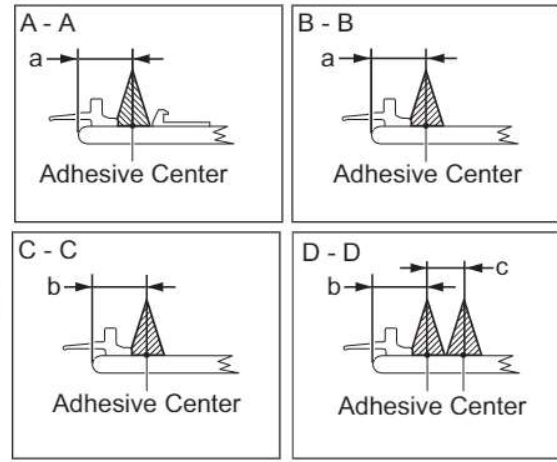
- (2) Load the sealer gun with cartridge.
- (3) Apply adhesive to the back window glass, as shown in the illustration.

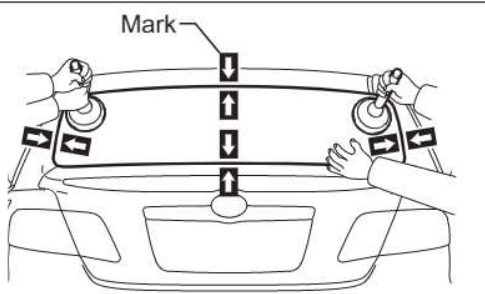
Standard dimension

Area	Dimension
a	10.75 mm (0.423 in.)
b	10.25 mm (0.403 in.)
c	8.0 mm (0.315 in.)
d	12.0 mm (0.472 in.)
e	8.0 mm (0.315 in.)

Back Side:







▲ : Adhesive

P

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- (e) Install the back window glass assembly.
- (1) Using a suction cup, position the back window glass so that the matchmarks are aligned, and press it in gently along the rim.
- NOTICE:
- Check that the back window glass stoppers are attached to the vehicle body correctly.
 - Check the clearance between the vehicle body and back window glass.

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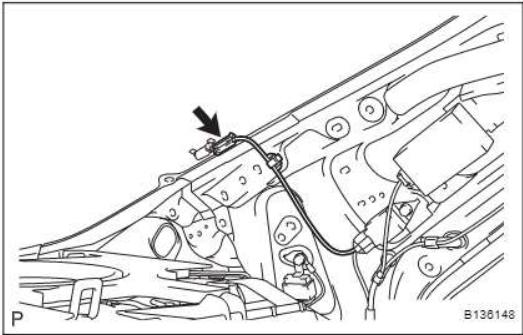
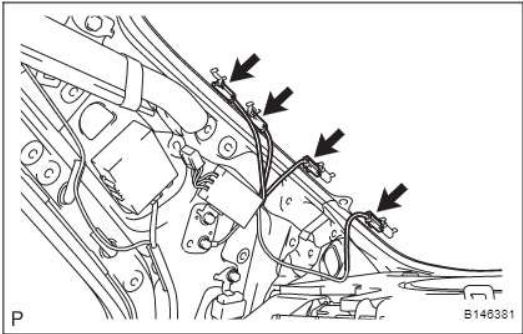
WINDSHIELD / WINDOWGLASS – BACK WINDOW GLASS

- (2) Lightly press the front surface of the back window glass to ensure a close fit.
- HINT:
Press the glass with force of 98 N (10 kgf, 22 lb) or more.
- (3) Hold the back window glass using protective tape until applied adhesive becomes hard.

NOTICE:
Do not drive the vehicle for the time described in the table below.
Minimum time

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

- (f) Connect the connectors.



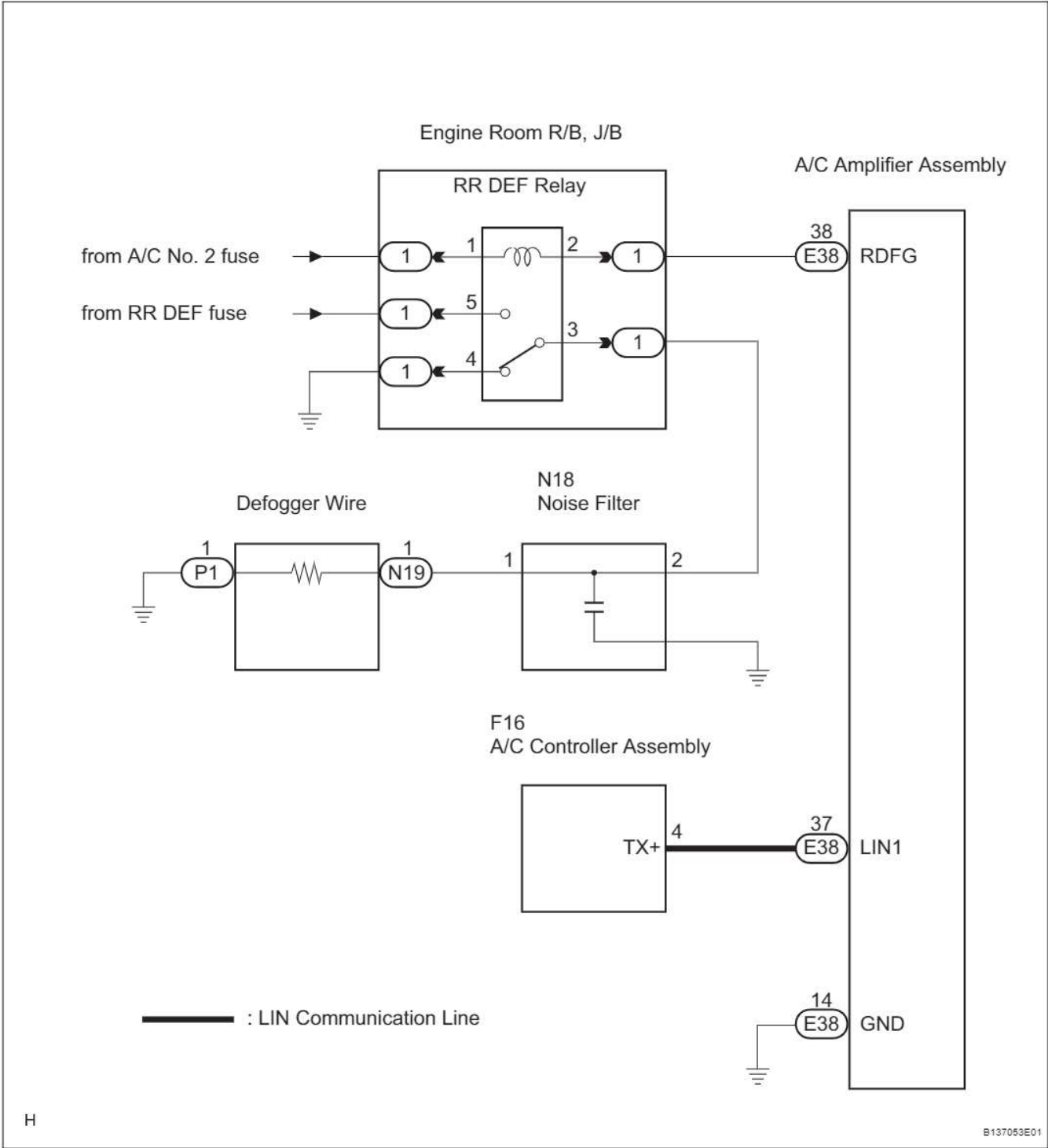
- (g) Connect the connector.

5. INSPECT FOR LEAKS AND REPAIR
- (a) After the adhesive has hardened, apply water from the outside of the vehicle. Check that no water leaks into the cabin.
- (b) If water leaks into the cabin, allow the water to dry and add adhesive.
- (c) Remove the protective tape.
6. INSTALL ROOF HEADLINING ASSEMBLY (w/o Sliding Roof)
- Return the rear section of the roof headlining assembly to the original position (See page [IR-33](#)).
7. INSTALL ROOF HEADLINING ASSEMBLY (w/ Sliding Roof)
- Return the rear section of the roof headlining assembly to the original position (See page [IR-34](#)).
8. INSTALL SPOT LIGHT ASSEMBLY (w/ Sliding Roof) (See page [IR-35](#))
9. INSTALL REAR ASSIST GRIP SUB-ASSEMBLY (See page [IR-37](#))
10. INSTALL PACKAGE TRAY TRIM PANEL ASSEMBLY (See page [SB-34](#))

11. INSTALL REAR SEAT SHOULDER BELT HOLE COVER (See page [SB-35](#))
12. INSTALL REAR SEAT SHOULDER BELT COVER (See page [SB-35](#))
13. CONNECT REAR SEAT OUTER BELT ASSEMBLY (for LH Side) (See page [SB-42](#))
14. CONNECT REAR SEAT OUTER BELT ASSEMBLY (for RH Side) (See page [SB-42](#))
15. CONNECT REAR SEAT INNER WITH CENTER BELT ASSEMBLY LH (See page [SB-35](#))
16. INSTALL CHILD RESTRAINT SEAT ANCHOR BRACKET SUB-ASSEMBLY LH (See page [SB-51](#))
17. INSTALL ROOF SIDE INNER GARNISH LH (See page [IR-39](#))
18. INSTALL ROOF SIDE INNER GARNISH RH (See page [IR-39](#))
19. INSTALL REAR DOOR OPENING TRIM WEATHERSTRIP LH (See page [IR-43](#))
20. INSTALL REAR DOOR SCUFF PLATE LH (See page [IR-43](#))
21. INSTALL REAR DOOR OPENING TRIM WEATHERSTRIP RH (See page [IR-43](#))
22. INSTALL REAR DOOR SCUFF PLATE RH (See page [IR-43](#))
23. INSTALL REAR SIDE SEATBACK ASSEMBLY LH (See page [SE-54](#))
24. INSTALL REAR SIDE SEATBACK ASSEMBLY RH
25. INSTALL SEPARATE TYPE REAR SEATBACK ASSEMBLY RH (See page [SE-54](#))
26. INSTALL SEPARATE TYPE REAR SEATBACK ASSEMBLY LH (See page [SE-54](#))
27. INSTALL REAR CENTER SEAT HEADREST ASSEMBLY
28. INSTALL REAR SEAT HEADREST ASSEMBLY
29. INSTALL REAR SEAT CUSHION ASSEMBLY (See page [SE-55](#))
30. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL
31. PERFORM INITIALIZATION
NOTICE:
Some systems need initialization after reconnecting the cable to the negative battery terminal (See page [IN-43](#)).
32. INSPECT SRS WARNING LIGHT (See page [RS-33](#))

WS

SYSTEM DIAGRAM



WS

SYSTEM DESCRIPTION

1. GENERAL

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

HINT:

The rear window defogger is linked with the mirror defogger.

2. FUNCTION OF MAIN COMPONENT

Component	Outline
RR DEF Relay	Receives rear defogger activation request signals from A/C amplifier assembly (A/C ECU) and supplies power to rear window defogger.
Rear Window Defogger	Receives power from RR DEF relay and heats defogger wire.

3. DESCRIPTION

Function	Outline
Defogs the rear window surface	- Receives rear defogger activation request signals from A/C amplifier assembly (A/C ECU) and supplies power to rear window defogger. - Receives power from DEFOG relay and heats defogger wire.

HOW TO PROCEED WITH TROUBLESHOOTING

- HINT:
- Use the following procedure to troubleshoot the defogger system.
 - The intelligent tester should be used in step 4.

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 to the next step.

NEXT

3

PROBLEM SYMPTOMS TABLE

HINT:
(See page [WS-73](#))

NEXT

4

OVERALL ANALYSIS AND TROUBLESHOOTING

- (a) Terminals of ECU (See page [WS-73](#))
- (b) Data List/Active Test (See page [WS-75](#))
- (c) On-vehicle inspection (See page [WS-76](#))

NEXT

5

REPAIR OR REPLACE

NEXT

6

CONFIRMATION TEST

NEXT

END

WS

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WINDSHIELD / WINDOWGLASS – WINDOW DEFOGGER SYSTEM

PROBLEM SYMPTOMS TABLE

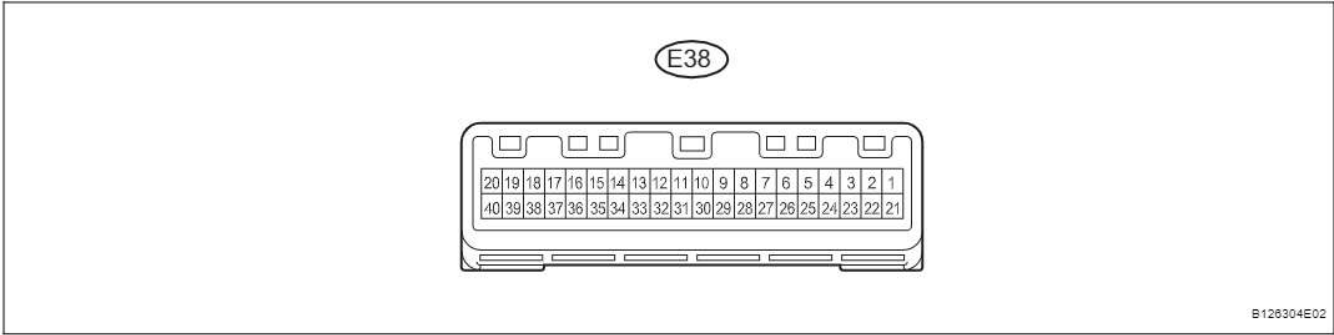
WINDOW DEFOGGER SYSTEM:

Symptom	Suspected Area	See page
Rear window defogger does not operate	1. A/C No. 2, RR DEF fuses	-
	2. RR DEF relay	WS-78
	3. A/C controller assembly	WS-78
	4. A/C amplifier assembly	WS-78
	5. Rear window defogger wire	WS-76
	6. Wire harness	-

WS

TERMINALS OF ECU

1. CHECK A/C AMPLIFIER ASSEMBLY



(a) Measure the voltage and resistance of each terminal of the connectors.

Standard voltage

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
RDFG (E38-38) - GND (E38-14)	G - W-B	Rear Defogger Signal	Power switch on (IG), Rear defogger switch OFF	10 to 14 V

Standard resistance

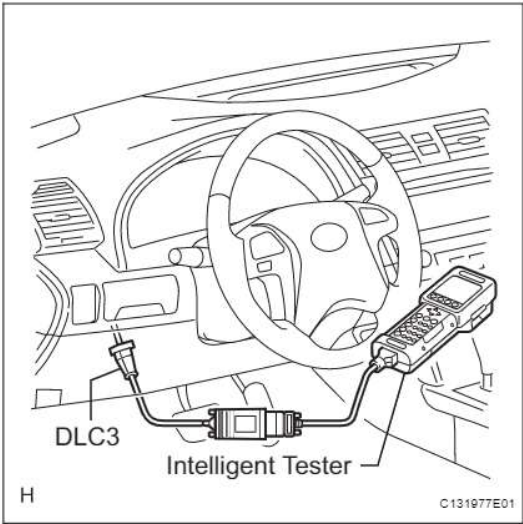
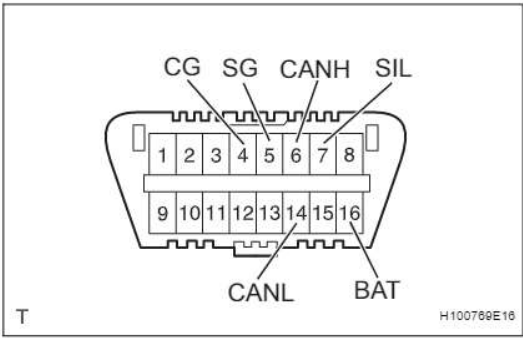
Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
GND (E38-14) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

DIAGNOSIS SYSTEM

1. DESCRIPTION

- (a) The defogger system data can be read from the Data Link Connector 3 (DLC3) of the vehicle. When the system seems to be malfunctioning, use the intelligent tester to check for malfunctions and perform repairs.

2. CHECK DLC3



- (a) The ECU uses ISO 15765-4 communication. The terminal arrangement of the DLC3 complies with SAE J 1962 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)	CAN bus line	Power switch OFF*	54 to 69 Ω
CANH (6) - CG (4)	HIGH-level CAN bus line	Power switch OFF*	200 Ω or more
CANL (14) - CG (4)	LOW-level CAN bus line	Power switch OFF*	200 Ω or more
CANH (6) - BAT (16)	HIGH-level CAN bus line	Power switch OFF*	6 kΩ or more
CANL (14) - BAT (16)	LOW-level CAN bus line	Power switch OFF*	6 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 door.

WINDSHIELD / WINDOWGLASS – WINDOW DEFOGGER SYSTEM**WS-77**

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 to the DLC3, turn the power switch on (IG) and attempt to use the tester. If the display indicates 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 not possible when the tester is connected to another vehicle, the problem may be in the tester itself. Consult the Service Department listed in the tester's instruction manual.

WS

DATA LIST / ACTIVE TEST

1. PERFORM ACTIVE TEST

- HINT:
Performing the intelligent tester's ACTIVE TEST allows a relay, VSV, actuator and other items to be operated without removing any parts. Performing the ACTIVE TEST early in troubleshooting is one way to save time. The DATA LIST can be displayed during the ACTIVE TEST.
- (a) Connect the intelligent tester (with CAN VIM) to the DLC3.
 - (b) Turn the power switch on (IG).
 - (c) Perform the ACTIVE TEST according to the display on the tester.

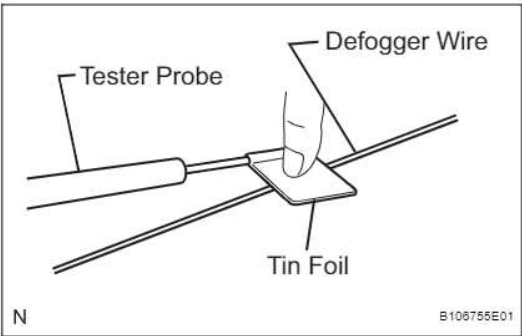
Air Conditioner:

Tester Display	Measurement Item/Range	Normal Condition
Defogger Relay (Rear)	Turns rear window defogger OFF/ON	-

ON-VEHICLE INSPECTION

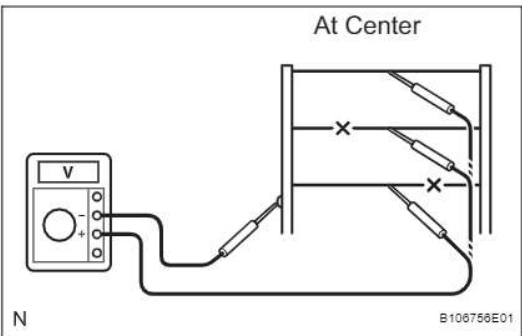
1. CHECK REAR WINDOW DEFOGGER SYSTEM OPERATION

- (a) When the power switch is turned on (IG) and the defogger switch is pressed, check that the rear window defogger operates.
- HINT:
After 15 minutes, check that the defogger automatically turns off.

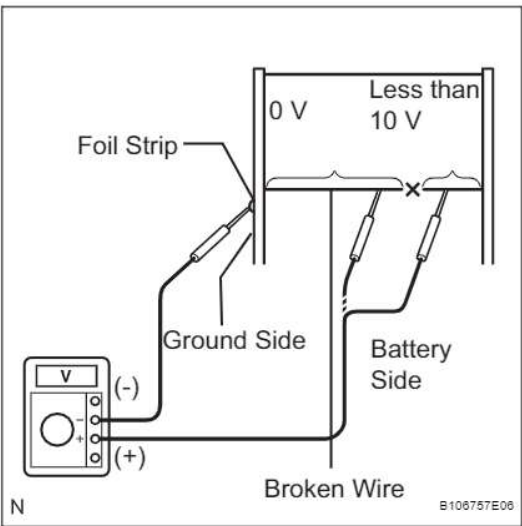


2. INSPECT BACK WINDOW (DEFOGGER WIRE) NOTICE:

- When cleaning the glass, wipe the glass along the wire using a soft and dry cloth. Take care not to damage the 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) Turn the defogger switch on.



- (c) Check 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 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.

WS

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WINDSHIELD / WINDOWGLASS – WINDOW DEFOGGER SYSTEM

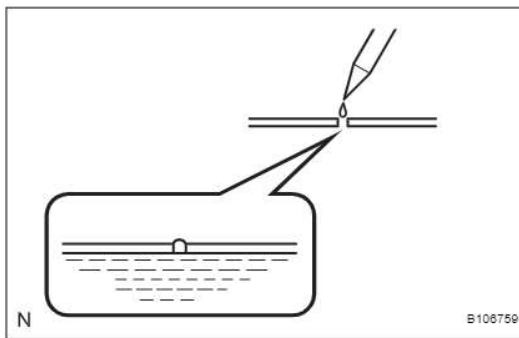
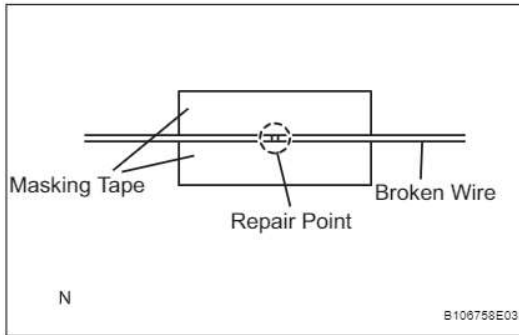
- (g) The point where the voltage drops from approximately 10 V to 0 V is the place where the defogger wire is broken.

HINT:

If the defogger wire is not broken, the voltmeter should indicate 0 V at the positive (+) end of the defogger wire but gradually increase to approximately 12 V as the meter probe moves to the other end.

REPAIR**1. REPAIR WINDOW DEFOGGER WIRE**

- (a) Clean the broken wire tips with a grease, wax and silicone remover.
- (b) Place the 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:

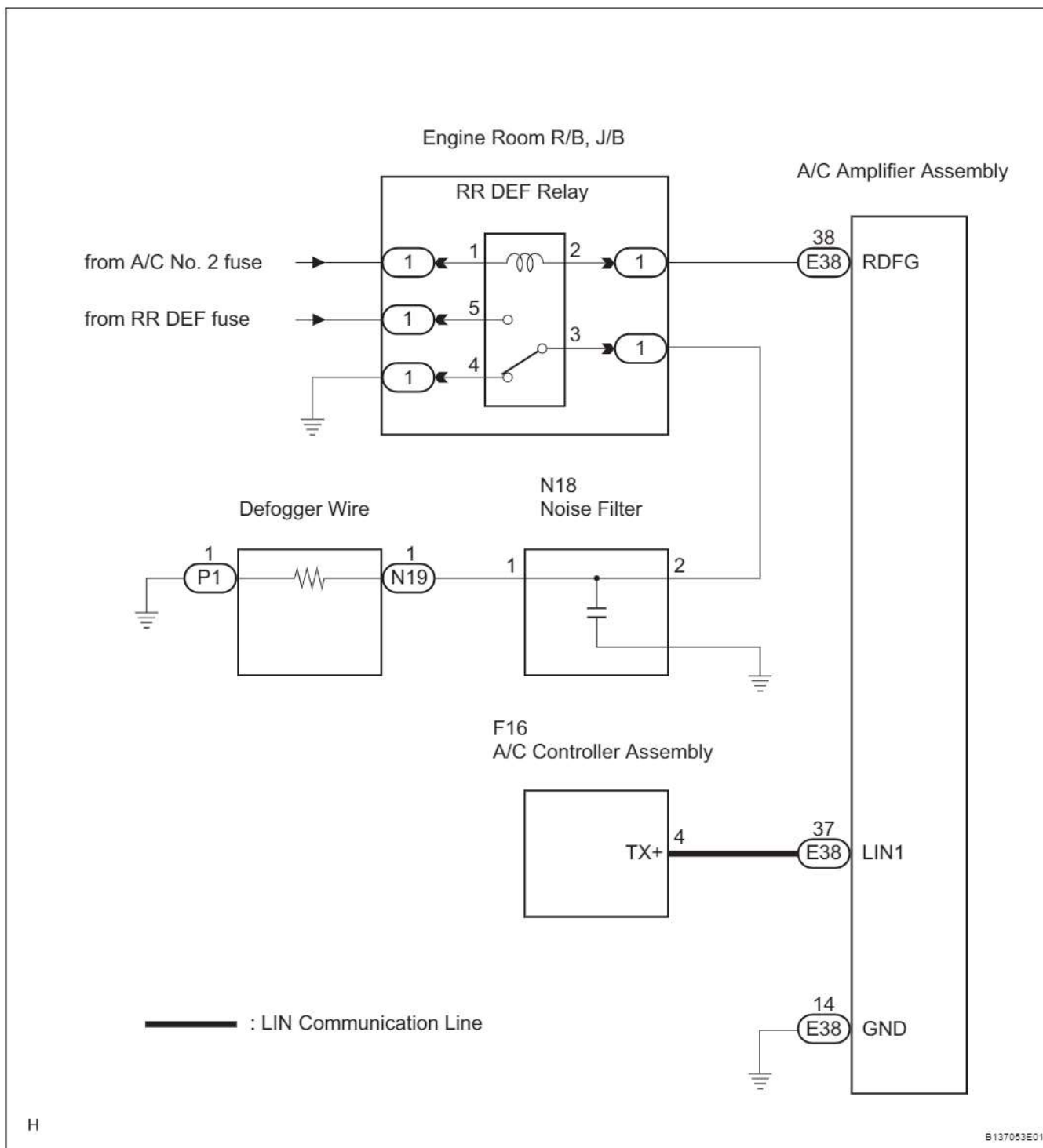
Do not repair the defogger wire again for at least 24 hours.

WINDSHIELD / WINDOWGLASS – WINDOW DEFOGGER SYSTEM

WS-81

Rear Window Defogger System does not Operate**DESCRIPTION**

When the rear window defogger switch, which is built into the heater control assembly, is operated, the operation signals are transmitted to the A/C amplifier assembly through LIN. When the A/C amplifier assembly receives the signals, it turns on the DEFOG relay to operate the rear window defogger.

WIRING DIAGRAM

WS

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WINDSHIELD / WINDOWGLASS – WINDOW DEFOGGER SYSTEM

INSPECTION PROCEDURE

1 CHECK FOR DTCs

- (a) Select the DTC check on the intelligent tester to check for communication errors.

Result

Result	Proceed to
Not output DTC codes	A
Output DTC codes (LIN communication)	B

B

GO TO MULTIPLEX COMMUNICATION SYSTEM

A

2 PERFORM ACTIVE TEST BY INTELLIGENT TESTER

- (a) Select the ACTIVE TEST, use the intelligent tester to issue a control command, and then check the window defogger operation.

Air Conditioner

Item	Test Details
Defogger Relay (Rear)	Turns rear window defogger OFF/ON

OK

Go to step 5

NG

3 REPLACE AIR CONDITIONER CONTROL ASSEMBLY

- (a) Replace the air conditioner control assembly.

NEXT

4 CONFIRM REAR WINDOW DEFOGGER OPERATION

- (a) Turn the power switch on (IG), press the defogger switch, and check that the window defogger operates.

OK:

System is normally

NG

REPLACE A/C AMPLIFIER ASSEMBLY

OK

END

WINDSHIELD / WINDOWGLASS – WINDOW DEFOGGER SYSTEM

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5 PERFORM ACTIVE TEST BY INTELLIGENT TESTER

- (a) Select the ACTIVE TEST, use the intelligent tester to issue a control command, and then check the DEFOG relay operation.
- (b) Check that operation sound of the RR DEF relay is heard.

Result	Proceed to
Relay operating sound is heard	OK
Relay operating sound is not heard	NG

OK

Go to step 9

NG

6 INSPECT RR DEF RELAYSee page [WS-84](#).

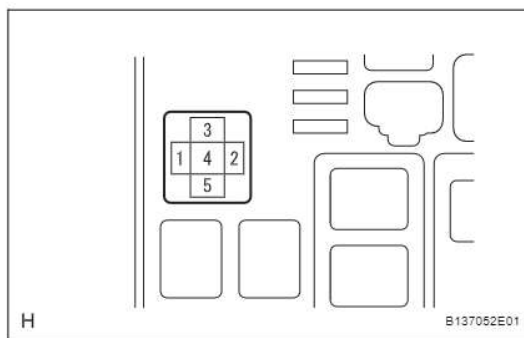
NG

REPLACE RR DEF RELAY

OK

7 CHECK WIRE HARNESS (RR DEF RELAY - BATTERY POSITIVE)

WS



- (a) Disconnect the RR DEF relay.
- (b) Measure the voltage according to the value(s) in the table below.

Standard voltage:
Engine room R/B, J/B

Tester Connection	Condition	Specified Condition
1 - Body ground	Power switch on (IG)	10 to 14 V

NG

REPAIR OR REPLACE A/C NO. 2 FUSE, HARNESS OR CONNECTOR

OK

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WINDSHIELD / WINDOWGLASS – WINDOW DEFOGGER SYSTEM

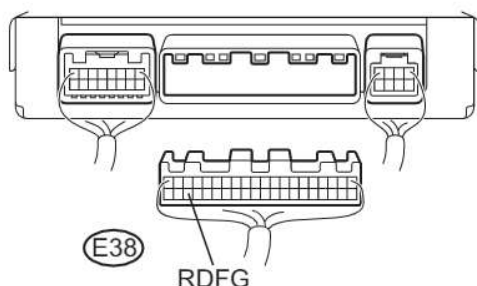
8

CHECK WIRE HARNESS (RR DEF RELAY - A/C AMPLIFIER ASSEMBLY)

Engine Room R/B, J/B:



A/C Amplifier Assembly:



B140724E02

- Disconnect the RR DEF relay and A/C amplifier assembly connector.
- Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
2 - E38-38	Always	Below 1 Ω
2 - Body ground	Always	10 k Ω or higher

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE A/C AMPLIFIER ASSEMBLY

9

INSPECT RR DEF RELAY

See page [WS-84](#).

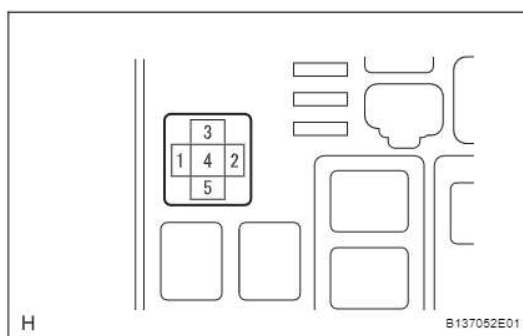
NG

REPLACE RR DEF RELAY

OK

10

CHECK WIRE HARNESS (RR DEF RELAY - BATTERY POSITIVE AND BODY GROUND)



H

B137052E01

- Disconnect the RR DEF relay.
- Measure the voltage and resistance according to the value(s) in the table below.

Standard resistance:**Engine room R/B, J/B**

Tester Connection	Condition	Specified Condition
4 - Body ground	Always	Below 1 Ω

Standard voltage:**Engine room R/B, J/B**

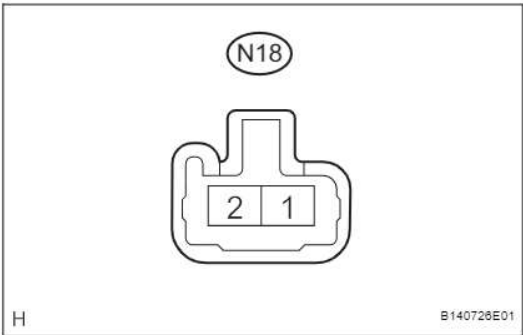
Tester Connection	Condition	Specified Condition
5 - Body ground	Always	10 to 14 V

NG

REPAIR OR REPLACE RR DEF FUSE,
HARNESS OR CONNECTOR

OK

11 INSPECT NOISE FILTER



- (a) Disconnect the noise filter connector.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

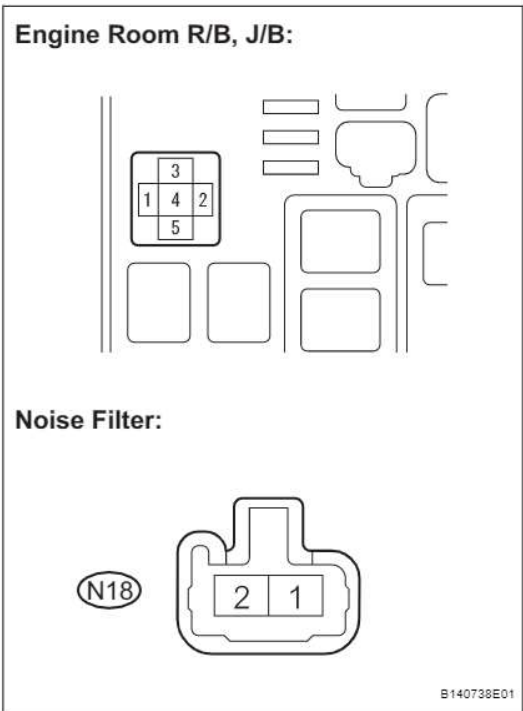
Tester Connection	Condition	Specified Condition
N18-1 - N18-2	Always	Below 1 Ω
N18-1 - Body ground	Always	10 kΩ or higher

NG

REPLACE NOISE FILTER

OK

12 CHECK WIRE HARNESS (RR DEF RELAY - NOISE FILTER)



- (a) Disconnect the RR DEF relay and defogger wire connectors.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
3 - N18-2	Always	Below 1 Ω
3 - Body ground	Always	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS OR
CONNECTOR

OK

WS

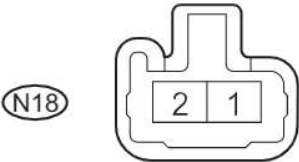
WS-86

WINDSHIELD / WINDOWGLASS – WINDOW DEFOGGER SYSTEM

13

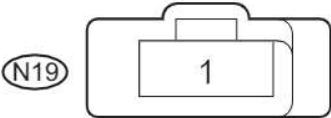
CHECK WIRE HARNESS (NOISE FILTER - DEFOGGER WIRE CONNECTOR)

Noise Filter:



N18

Defogger Wire Connector:



N19

B140737E01

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

Tester Connection	Condition	Specified Condition
N18-1 - N19-1	Always	Below 1 Ω
N18-1 - Body ground	Always	10 kΩ or higher

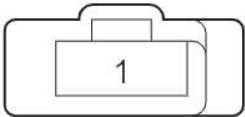
NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

14

CHECK WIRE HARNESS (DEFOGGER WIRE CONNECTOR - BODY GROUND)



P1

H

B127529E02

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

Tester Connection	Condition	Specified Condition
P1-1 - Body ground	Always	Below 1 Ω

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPAIR OR REPLACE REAR WINDOW DEFOGGER WIRE

POWER WINDOW CONTROL SYSTEM

PRECAUTION

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

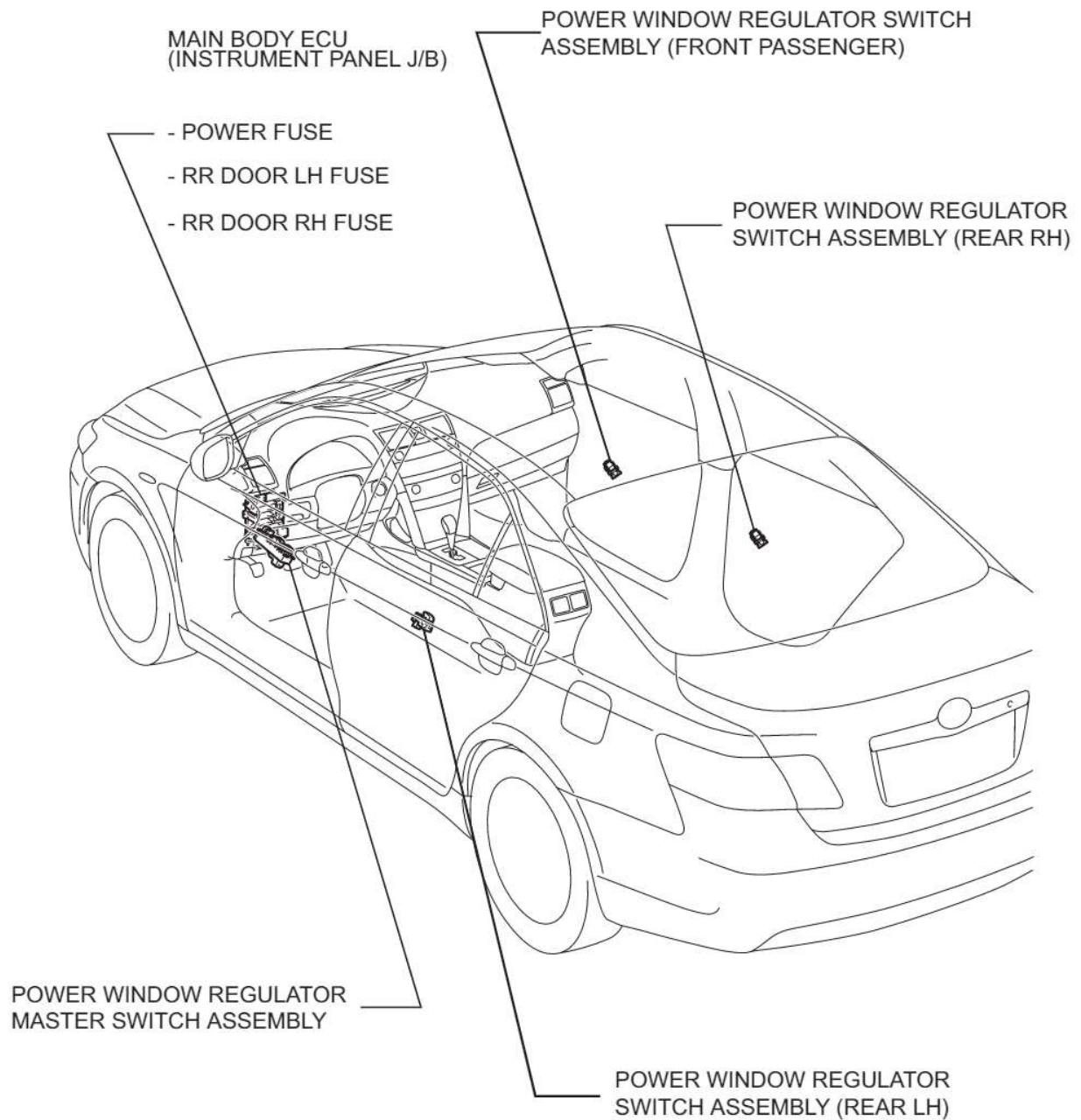
System Name	See procedure
SFI System	IN-43

WS

WS-2

WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

PARTS LOCATION

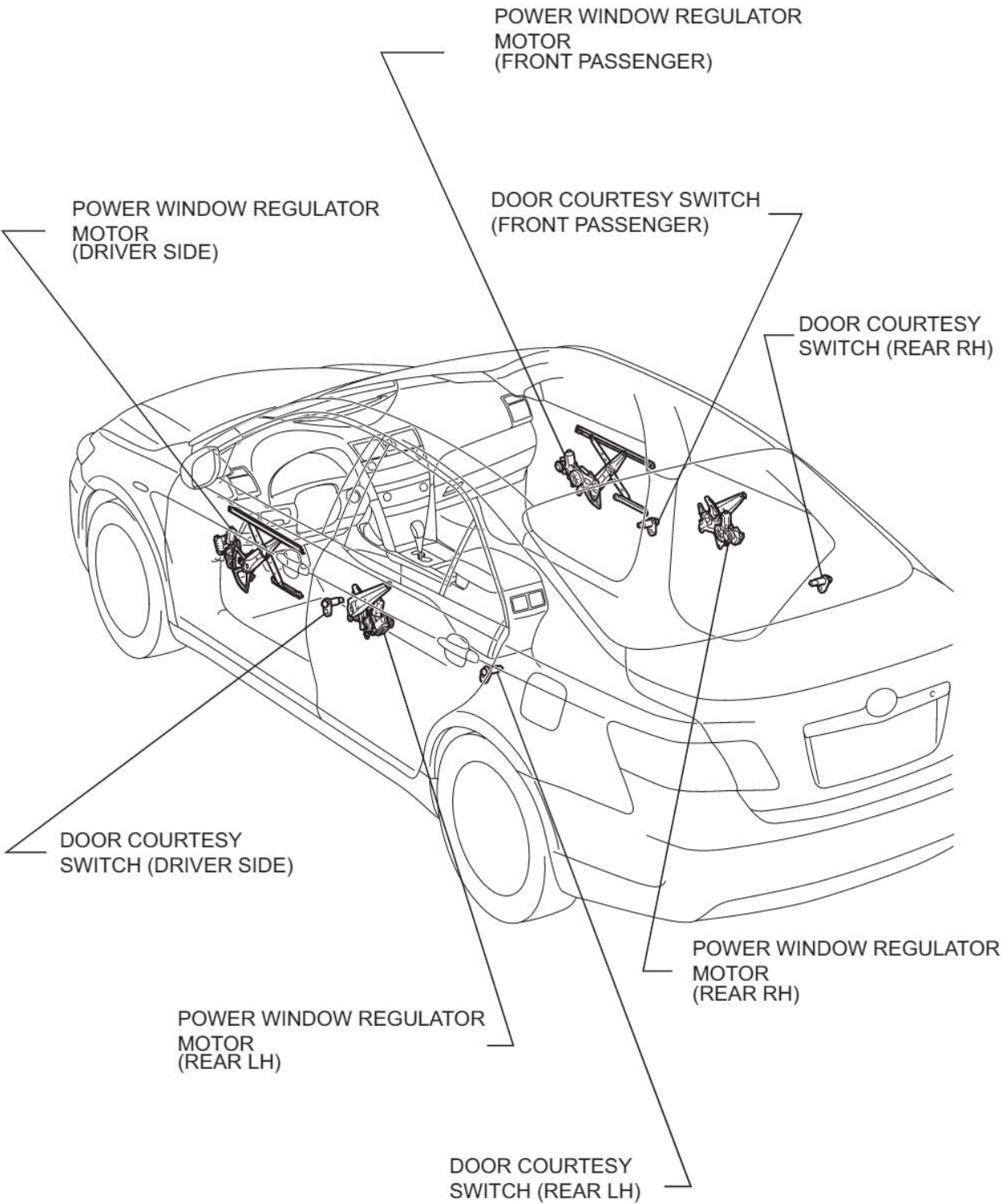


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WINDSHIELD / WINDOWGLASS – POWER WINDOW CONTROL SYSTEM

WS-3



WS

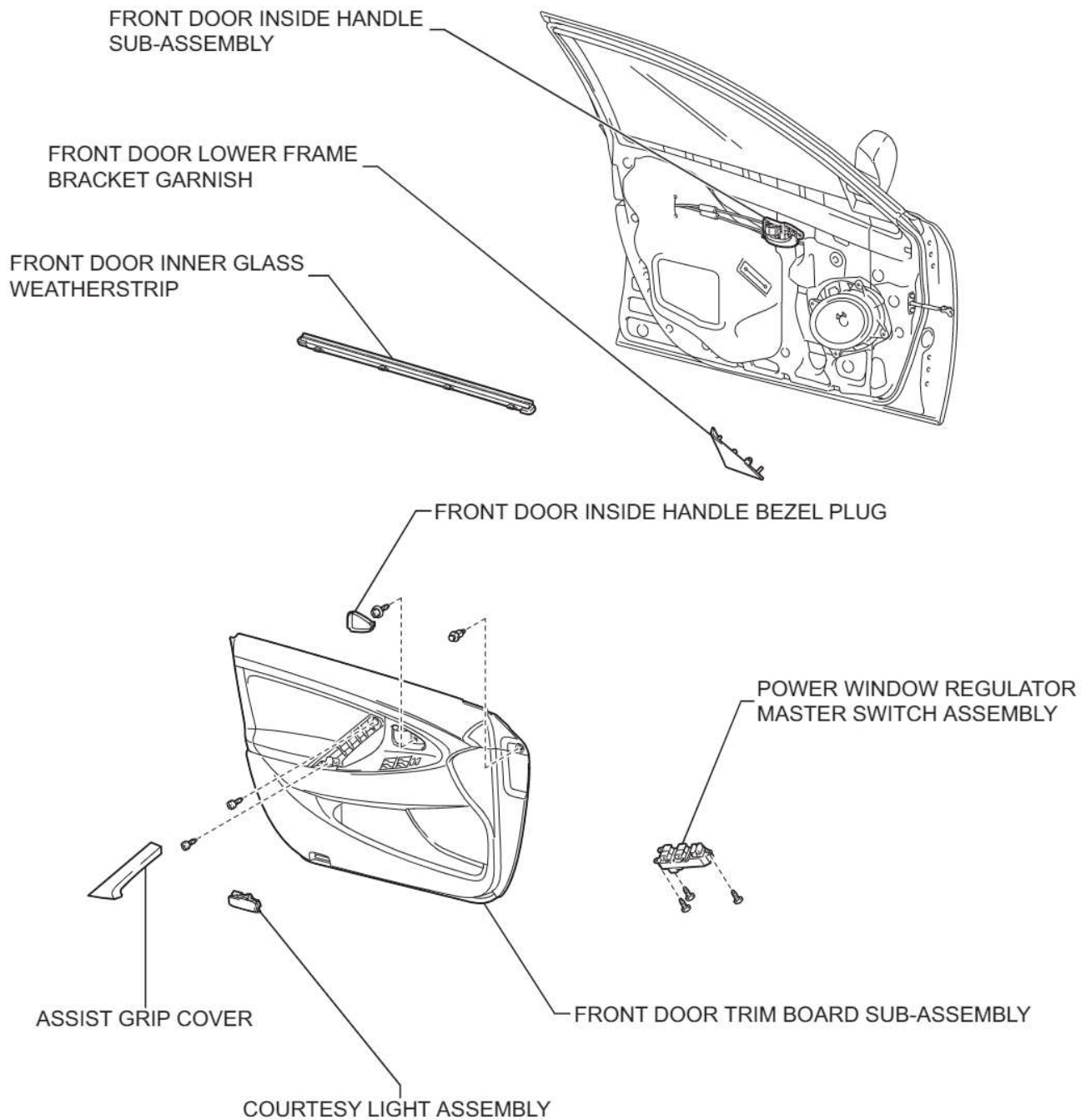
H

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WS-26

WINDSHIELD / WINDOWGLASS – POWER WINDOW MASTER SWITCH

POWER WINDOW MASTER SWITCH COMPONENTS



P

B148990E01

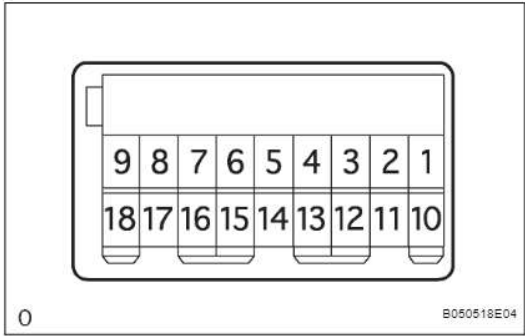
REMOVAL

- 1. REMOVE FRONT DOOR LOWER FRAME BRACKET GARNISH (See page ED-41)
- 2. REMOVE FRONT DOOR INSIDE HANDLE BEZEL PLUG (See page ED-41)
- 3. REMOVE ASSIST GRIP COVER (See page ED-42)
- 4. REMOVE COURTESY LIGHT ASSEMBLY (See page ED-42)
- 5. REMOVE FRONT DOOR TRIM BOARD SUB-ASSEMBLY (See page ED-42)
- 6. REMOVE FRONT DOOR INNER GLASS WEATHERSTRIP (See page ED-43)
- 7. REMOVE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY (See page ED-43)

INSPECTION

- 1. INSPECT POWER WINDOW MASTER SWITCH
 - (a) Measure the resistance when the switch is operated according to the value(s) in the table below.
- Standard resistance

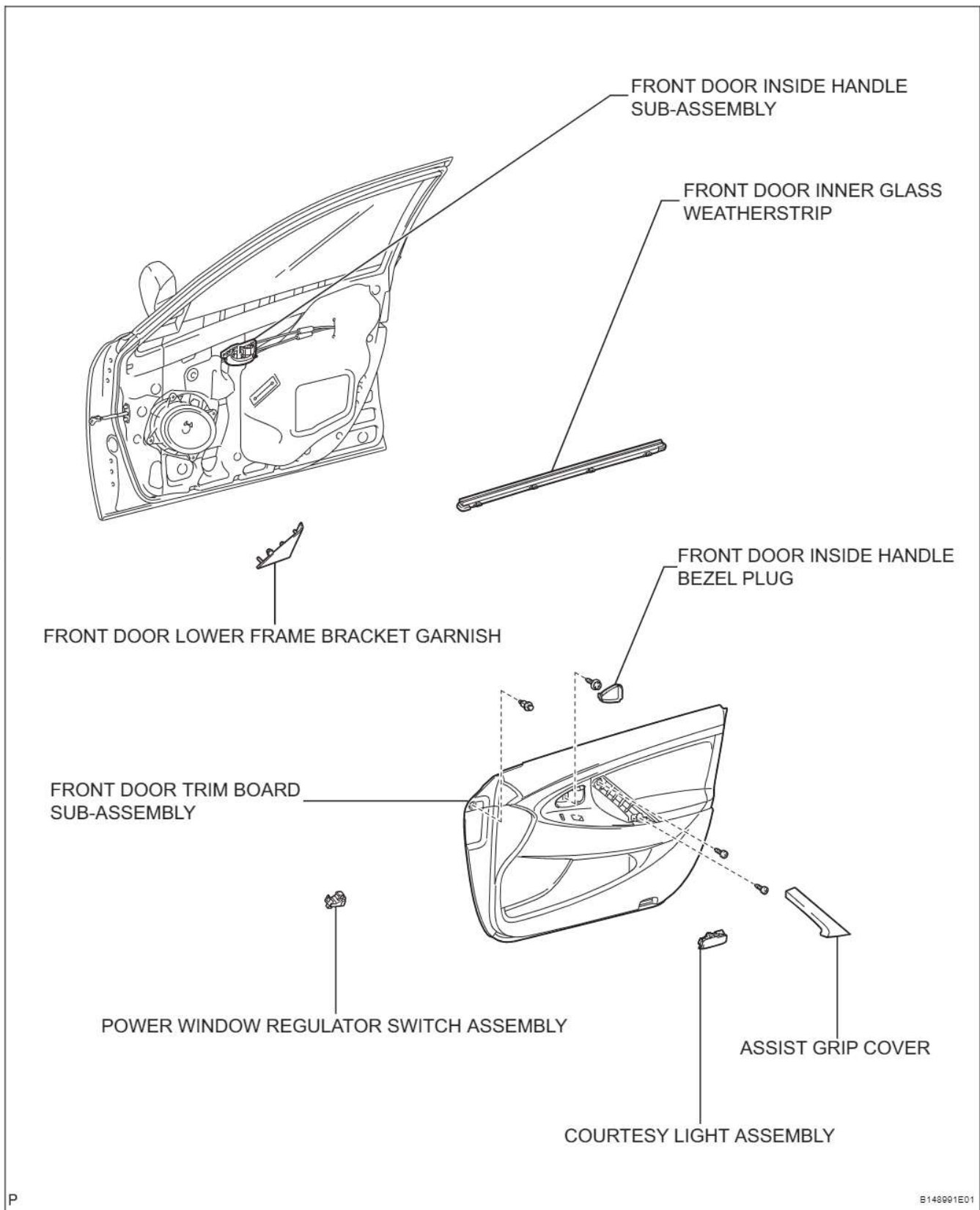
Tester Connection	Switch Condition	Specified Condition
1 (E) - 3 (DU)	OFF	Below 1 Ω
1 (E) - 4 (DD)		Below 1 Ω
1 (E) - 10 (RRU)	Lock/Unlock switch	UNLOCK (Below 1 Ω) → LOCK (10 kΩ or higher)
1 (E) - 12 (RLU)		
1 (E) - 13 (RLD)		
1 (E) - 15 (PD)		
1 (E) - 16 (PU)		
1 (E) - 18 (RRD)		



WS

WS-28 WINDSHIELD / WINDOWGLASS – FRONT PASSENGER SIDE POWER WINDOW SWITCH

FRONT PASSENGER SIDE POWER WINDOW SWITCH COMPONENTS



REMOVAL

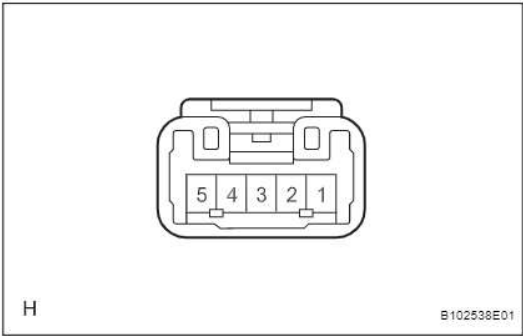
- 1. REMOVE FRONT DOOR LOWER FRAME BRACKET GARNISH (See page ED-41)
- 2. REMOVE FRONT DOOR INSIDE HANDLE BEZEL PLUG (See page ED-41)
- 3. REMOVE ASSIST GRIP COVER (See page ED-42)
- 4. REMOVE COURTESY LIGHT ASSEMBLY (See page ED-42)
- 5. REMOVE FRONT DOOR TRIM BOARD SUB-ASSEMBLY (See page ED-42)
- 6. REMOVE FRONT DOOR INNER GLASS WEATHERSTRIP (See page ED-43)
- 7. REMOVE POWER WINDOW REGULATOR SWITCH ASSEMBLY
 - (a) Disengage the 2 claws and remove the power window regulator switch assembly.

INSPECTION

- 1. INSPECT POWER WINDOW SWITCH
 - (a) Remove the power window switch.
 - (b) Measure the resistance when the switch is operated according to the value(s) in the table below.

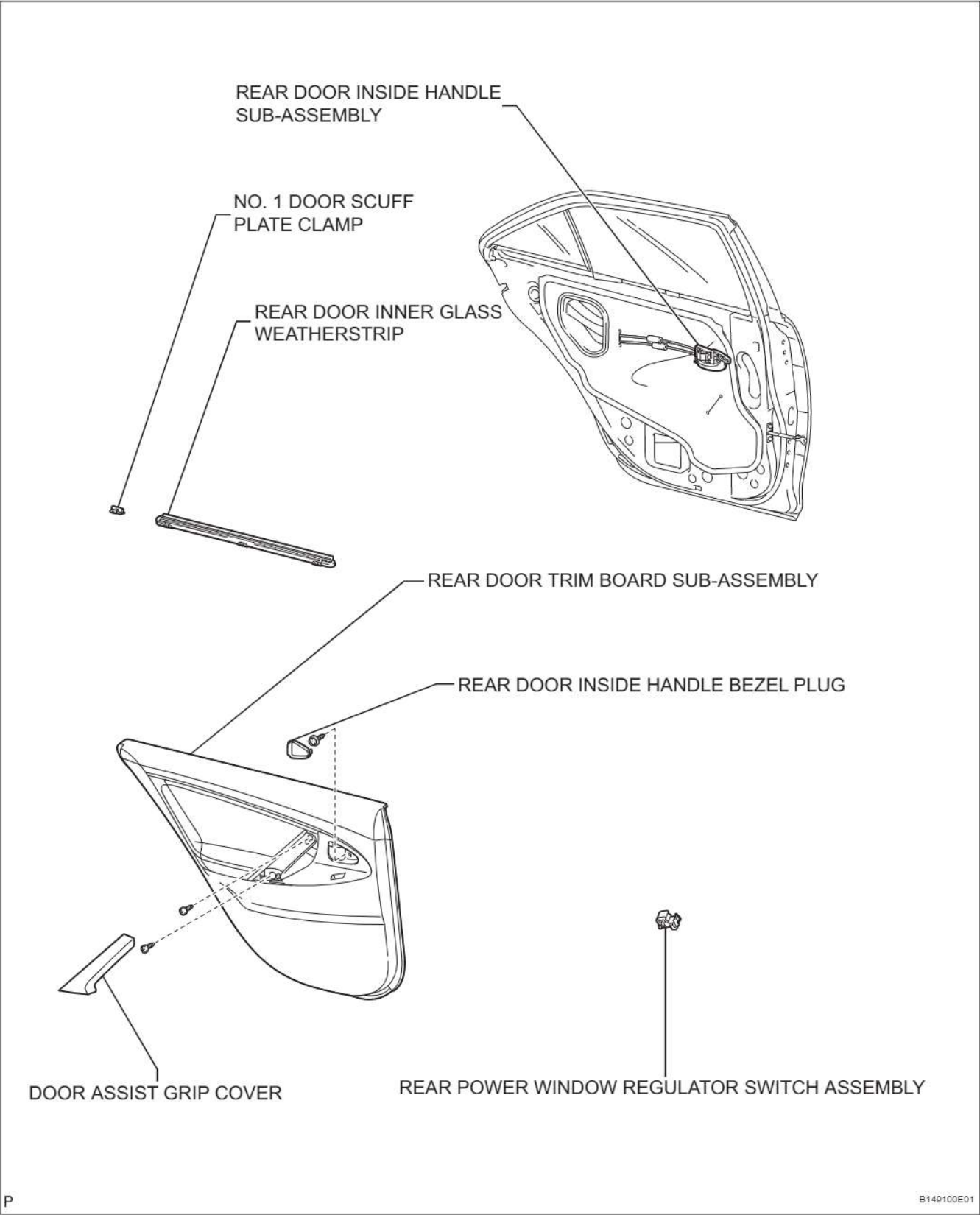
Standard resistance

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



REAR POWER WINDOW SWITCH

COMPONENTS



WS

REMOVAL

- 1. REMOVE REAR DOOR INSIDE HANDLE BEZEL PLUG (See page ED-64)
- 2. REMOVE DOOR ASSIST GRIP COVER (See page ED-64)
- 3. REMOVE REAR DOOR TRIM BOARD SUB-ASSEMBLY (See page ED-65)
- 4. REMOVE REAR DOOR INNER GLASS WEATHERSTRIP (See page ED-66)
- 5. REMOVE REAR POWER WINDOW REGULATOR SWITCH ASSEMBLY (See page ED-65)

INSPECTION

- 1. INSPECT POWER WINDOW SWITCH (for Rear RH)
 - (a) Remove the power window switch.
 - (b) Measure the resistance when the switch is operated according to the value(s) in the table below.

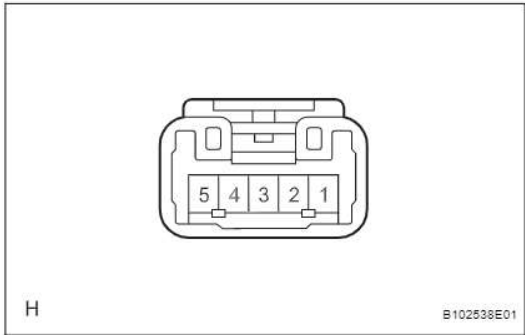
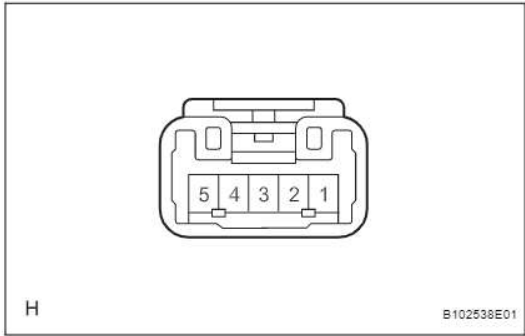
Standard resistance

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

- 2. REMOVE POWER WINDOW SWITCH (for Rear LH)
 - (a) Remove the power window switch.
 - (b) Measure the resistance when the switch is operated according to the value(s) in the table below.

Standard resistance

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



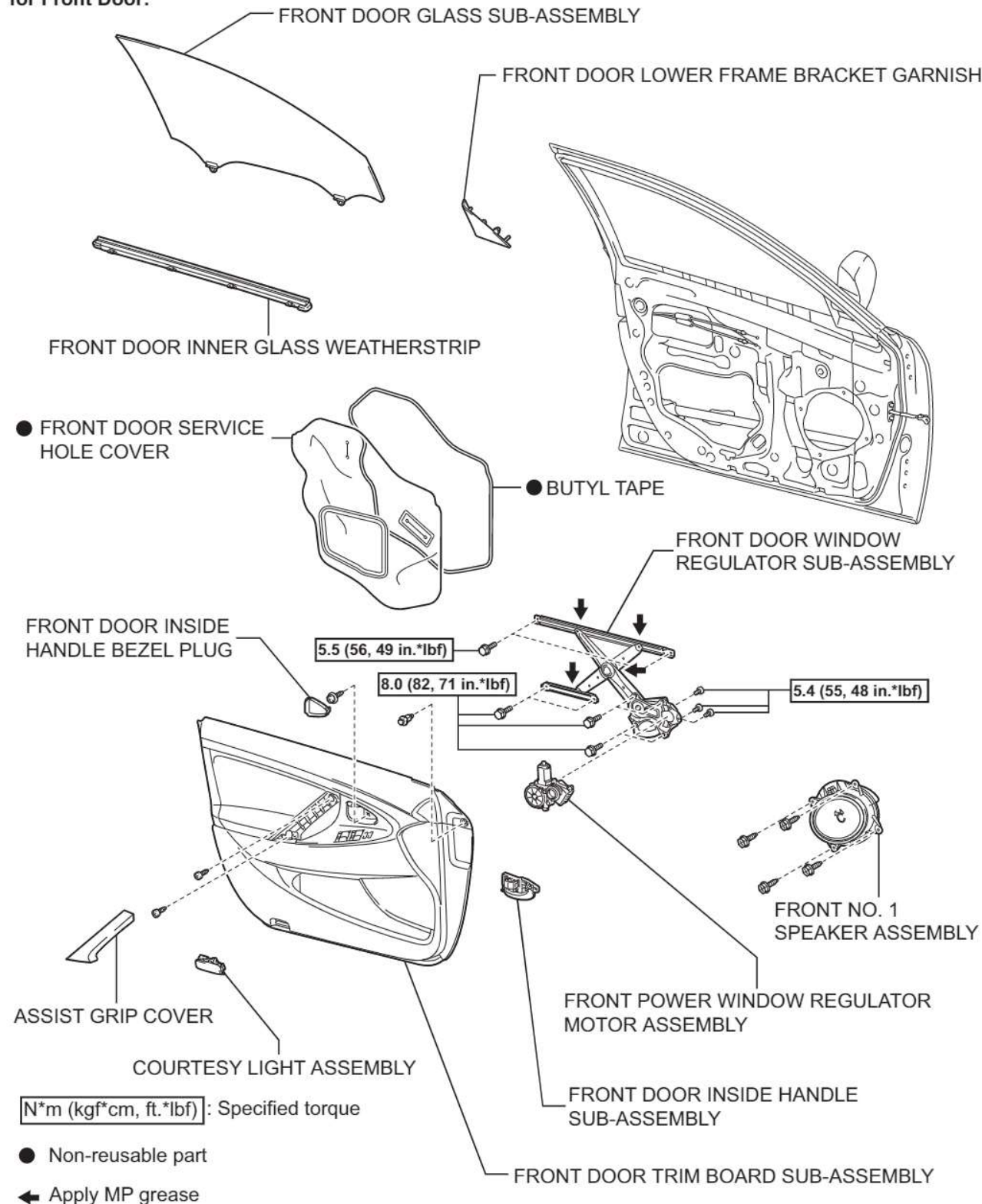
WS-34

WINDSHIELD / WINDOWGLASS – POWER WINDOW REGULATOR MOTOR

POWER WINDOW REGULATOR MOTOR

COMPONENTS

for Front Door:



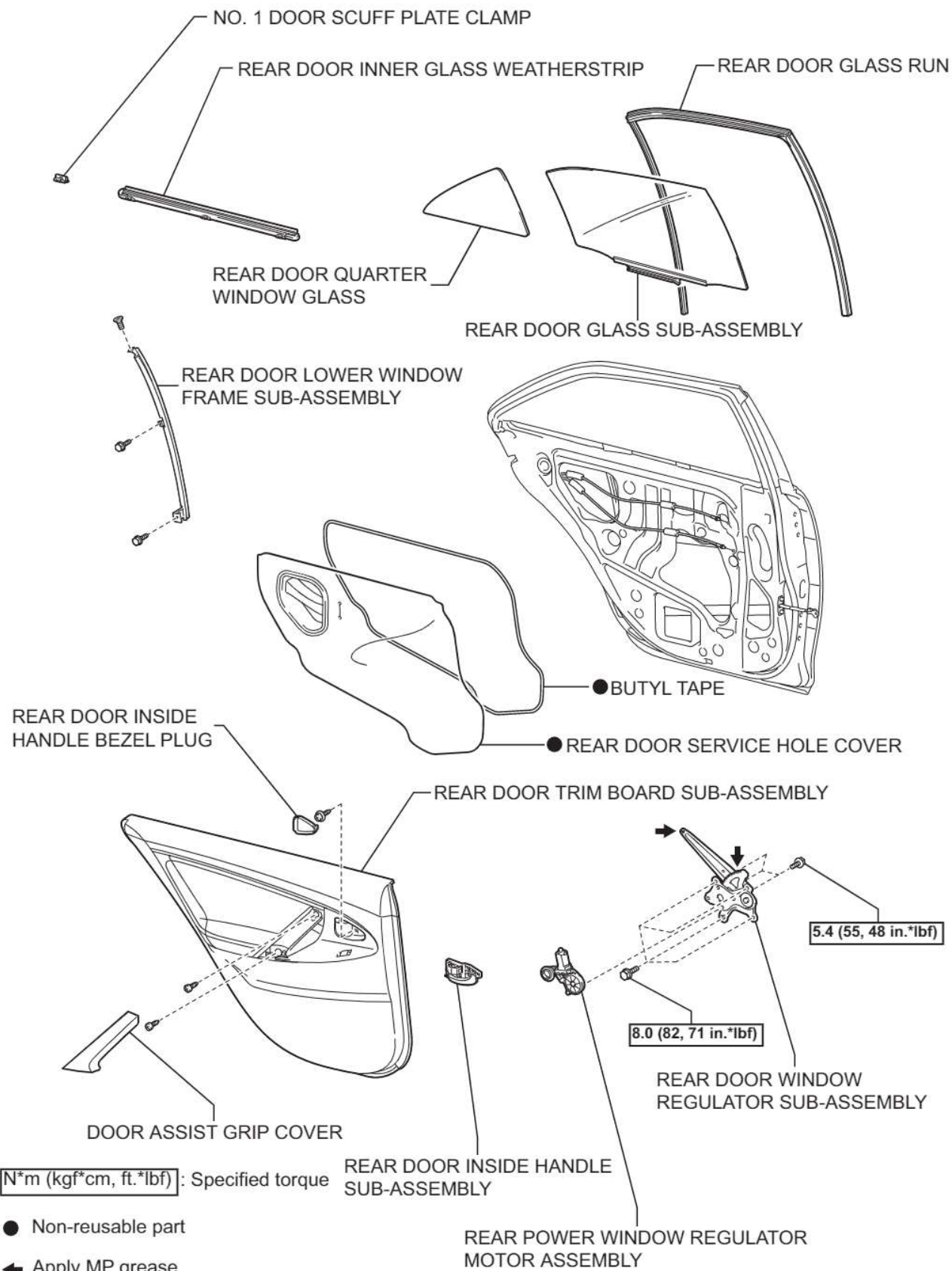
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WINDSHIELD / WINDOWGLASS – POWER WINDOW REGULATOR MOTOR

WS-35

for Rear Door:



WS

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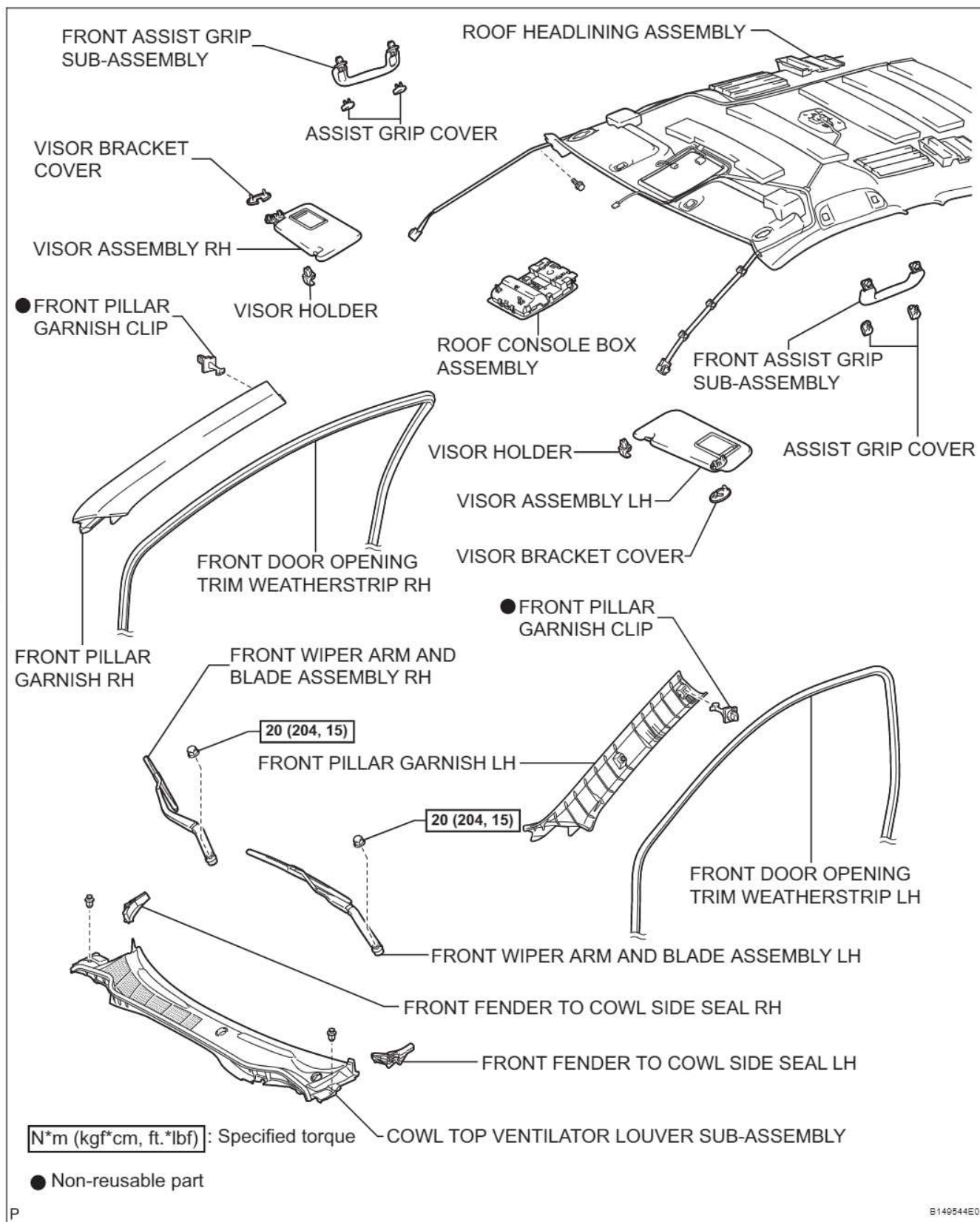
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WS-40

WINDSHIELD / WINDOWGLASS – WINDSHIELD GLASS

WINDSHIELD GLASS

COMPONENTS



WINDSHIELD / WINDOWGLASS – WINDSHIELD GLASS

WS-41

INNER REAR VIEW MIRROR
STAY HOLDER COVER

1.8 (18, 16 in.*lbf)

INNER REAR VIEW MIRROR
ASSEMBLY

● NO. 1 WINDSHIELD GLASS STOPPER *2

- NO. 2 WINDSHIELD GLASS STOPPER *1
- NO. 2 WINDSHIELD GLASS STOPPER *2

WINDSHIELD GLASS

● WINDSHIELD MOULDING

● WINDOW GLASS ADHESIVE DAM

● WINDSHIELD GLASS RETAINER

● WINDSHIELD GLASS RETAINER

WINDSHIELD GLASS ASSEMBLY

*1: 1-Piece type

*2: 2-Piece type

● Non-reusable part

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

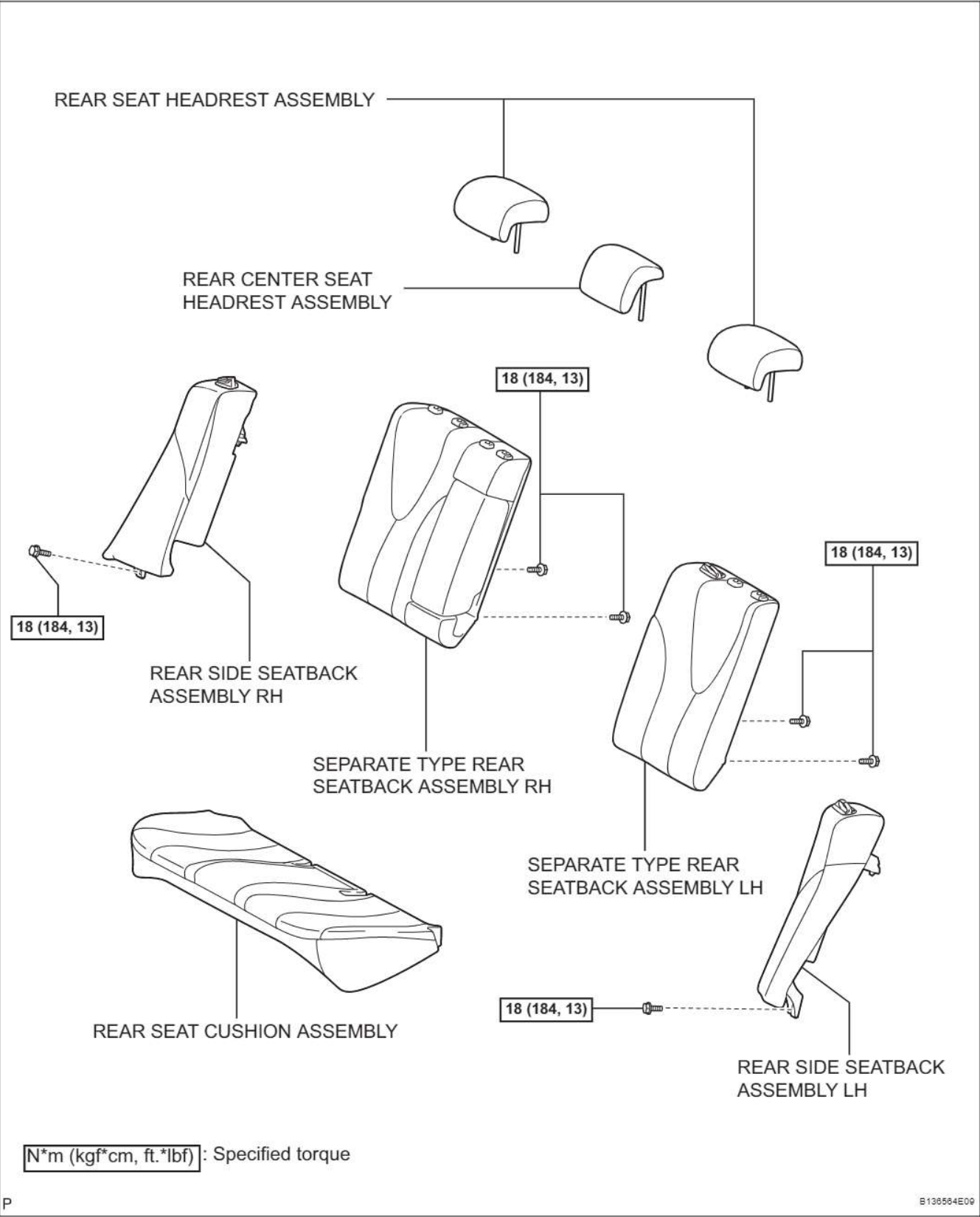
WS

P

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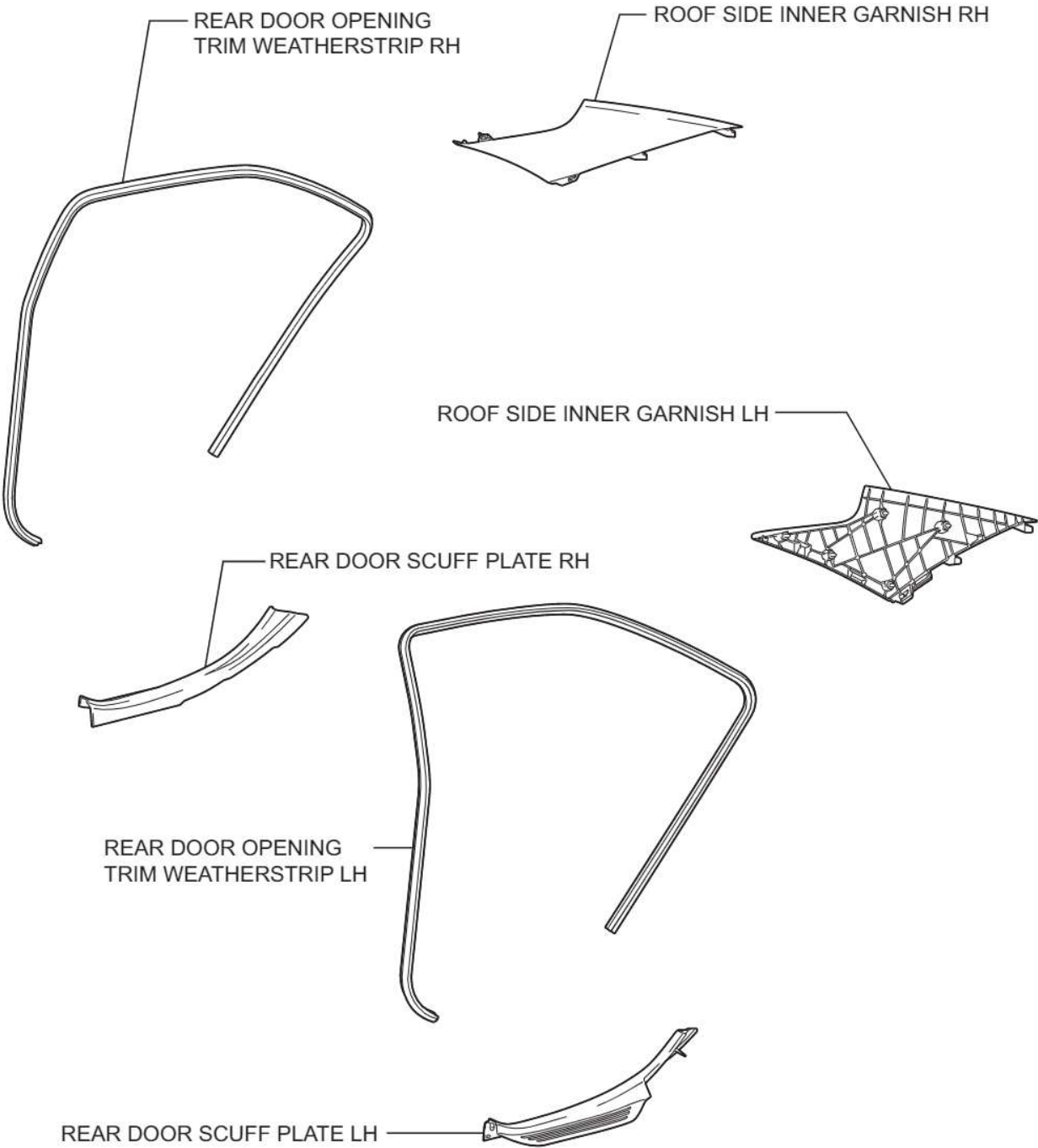
BACK WINDOW GLASS

COMPONENTS



WINDSHIELD / WINDOWGLASS – BACK WINDOW GLASS

WS-55



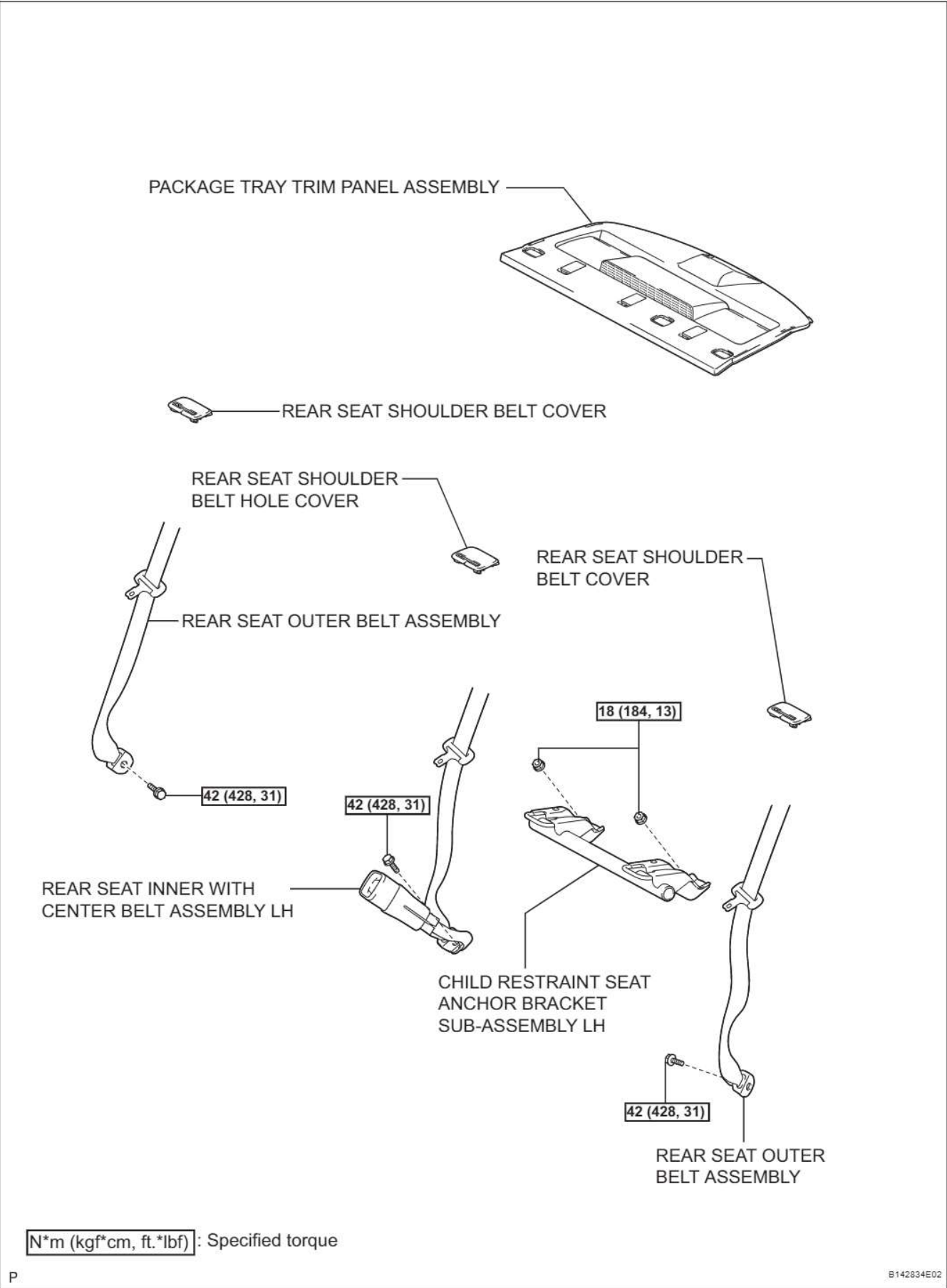
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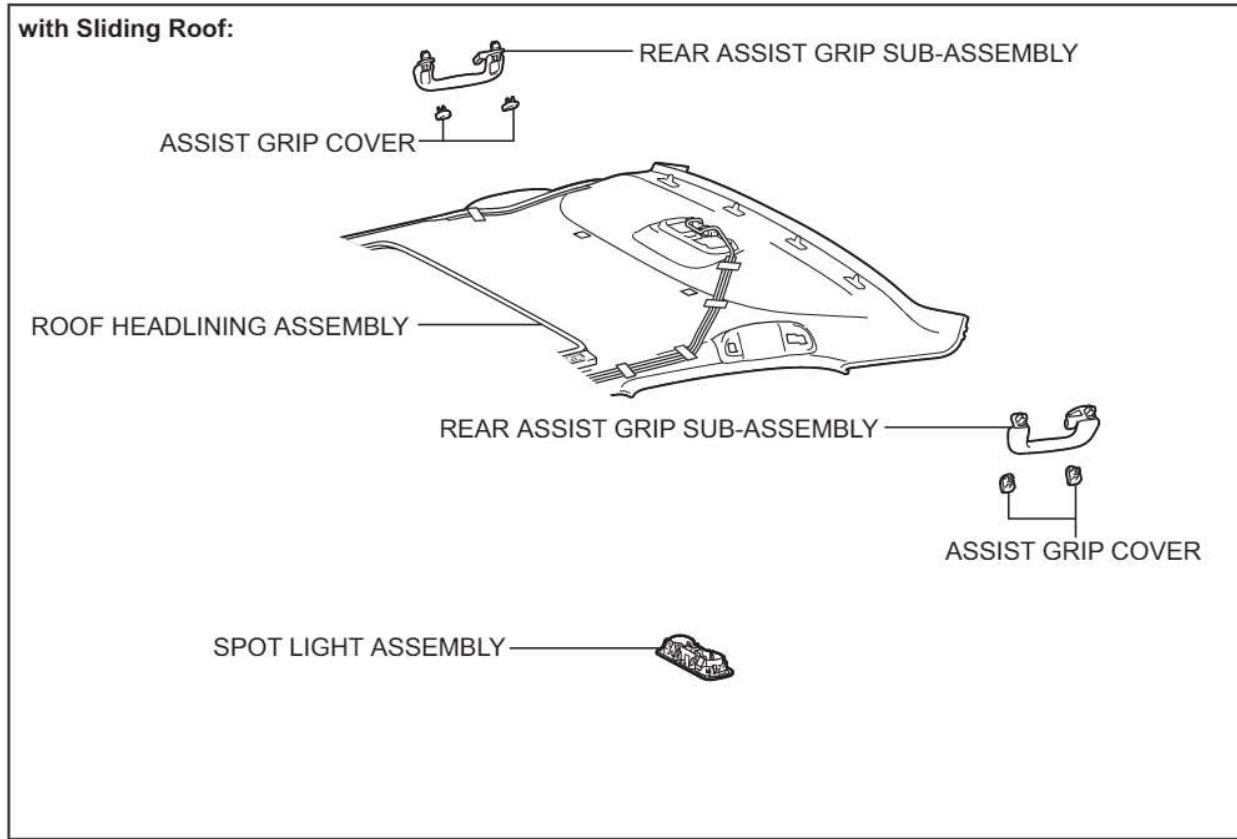
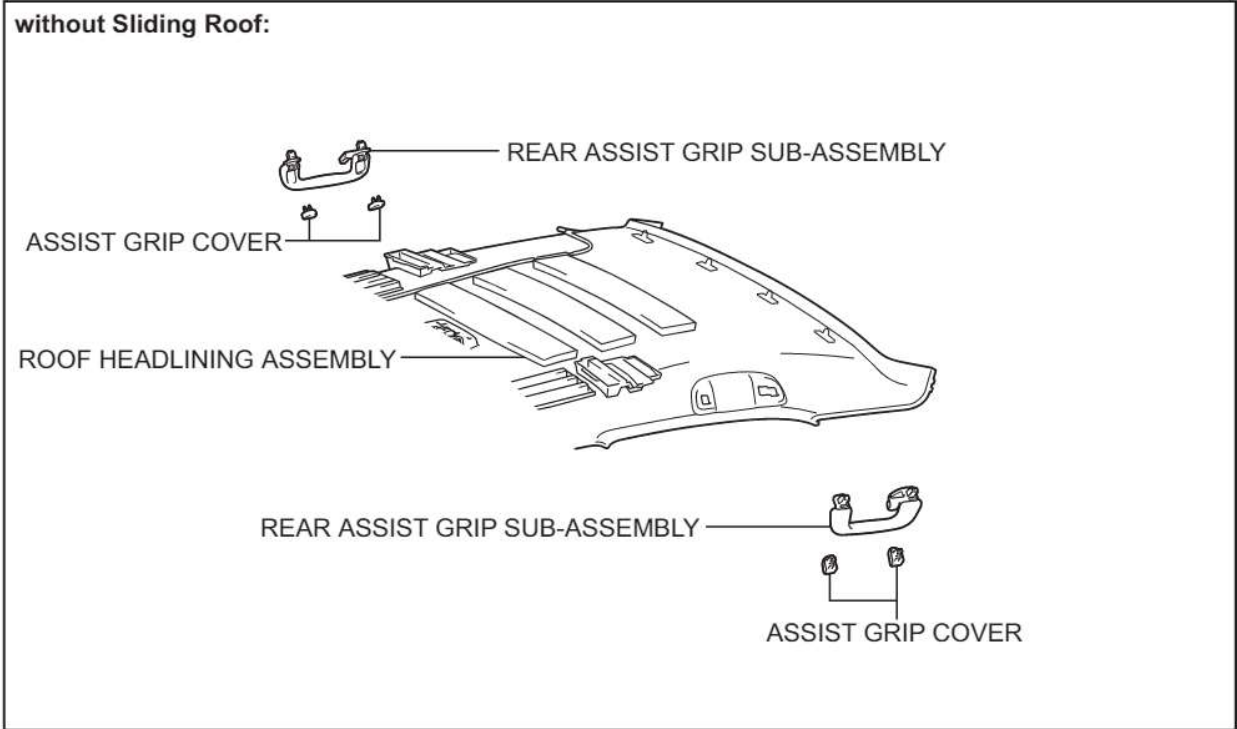
WS-56

WINDSHIELD / WINDOWGLASS – BACK WINDOW GLASS



WINDSHIELD / WINDOWGLASS – BACK WINDOW GLASS

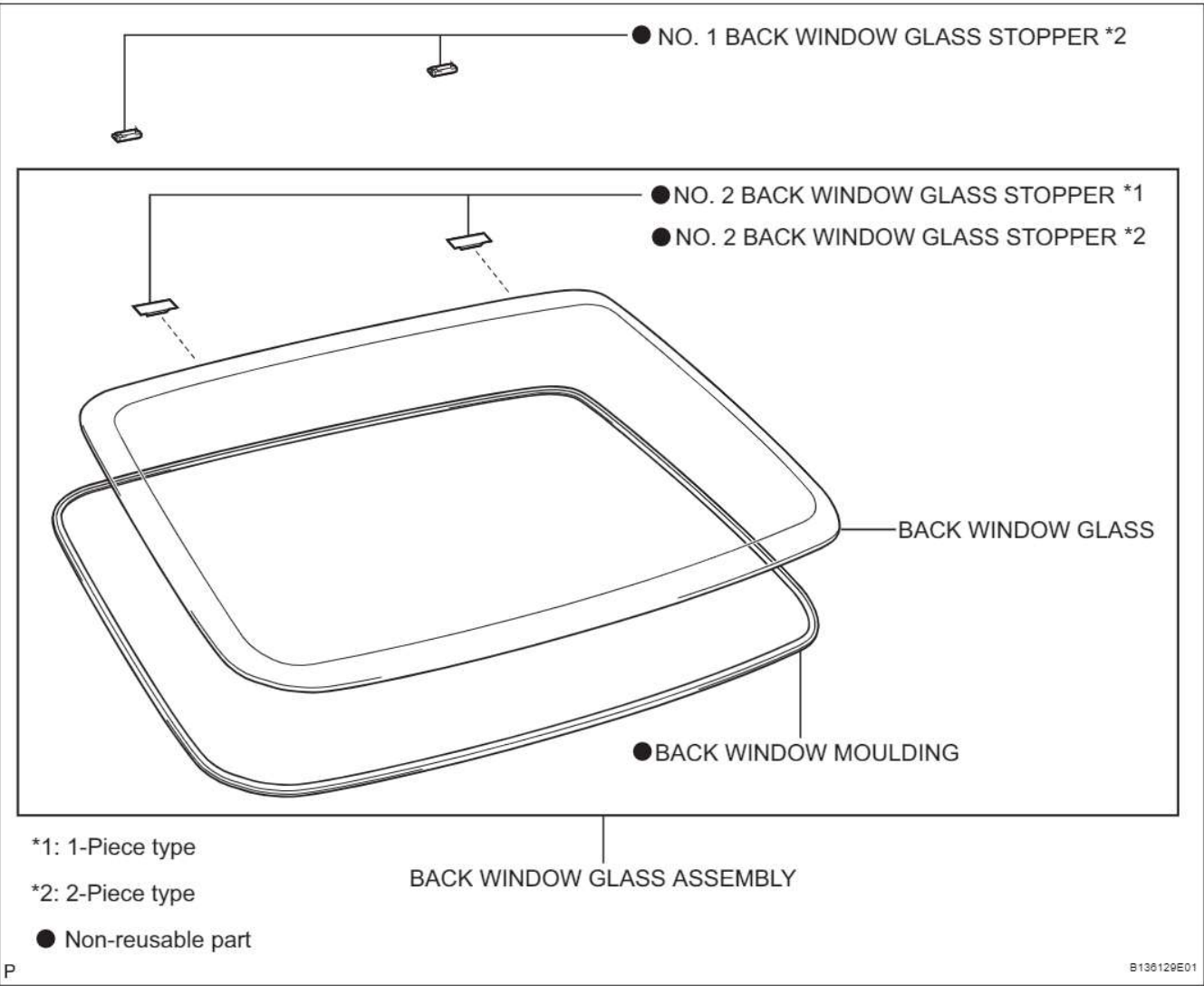
WS-57



WS

WS-58

WINDSHIELD / WINDOWGLASS – BACK WINDOW GLASS



WINDOW DEFOGGER SYSTEM

PRECAUTION

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

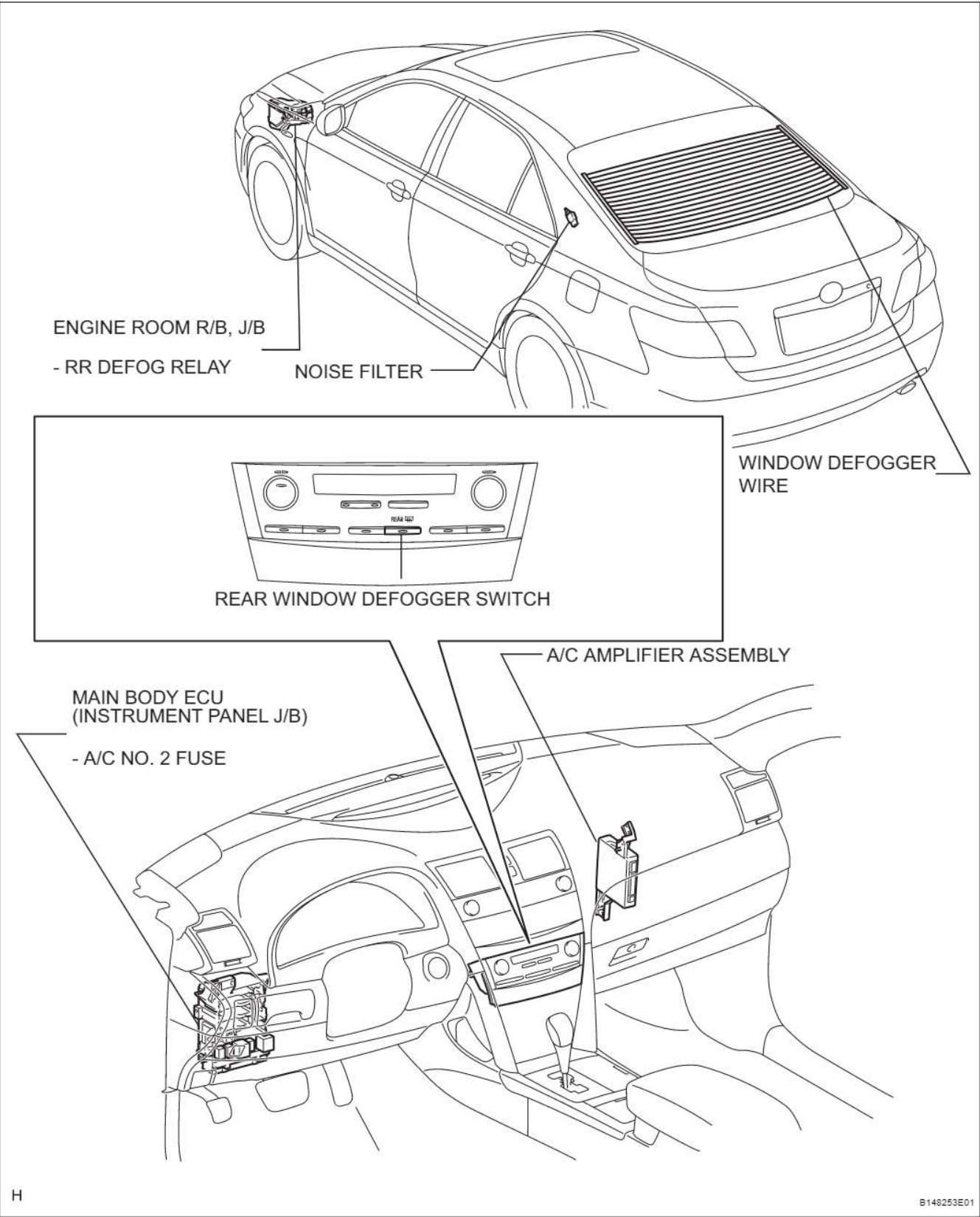
System Name	See procedure
SFI System	IN-43

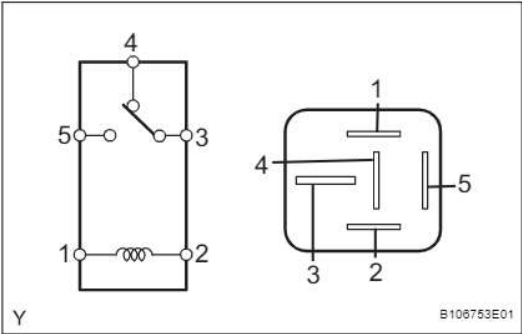
WS

WS-70

WINDSHIELD / WINDOWGLASS – WINDOW DEFOGGER SYSTEM

PARTS LOCATION





DEFOGGER RELAY

ON-VEHICLE INSPECTION

1. **INSPECT DEFOGGER RELAY (Marking: DEFOG)**
- (a) Measure the resistance according to the value(s) in the table below.
- Standard resistance**

Tester Condition	Specified Condition
3 - 4	Below 1 Ω (when battery voltage is not applied between terminals)
3 - 5	10 kΩ or higher (when battery voltage is not applied between terminals)
3 - 5	Below 1 Ω (when battery voltage is applied to terminals 1 and 2)

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