

2008 Lexus RX 350

2008 ACCESSORIES AND EQUIPMENT Engine Hood/Door - RX350

2008 ACCESSORIES AND EQUIPMENT

Engine Hood/Door - RX350

BACK DOOR CLOSER SYSTEM

PRECAUTION

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

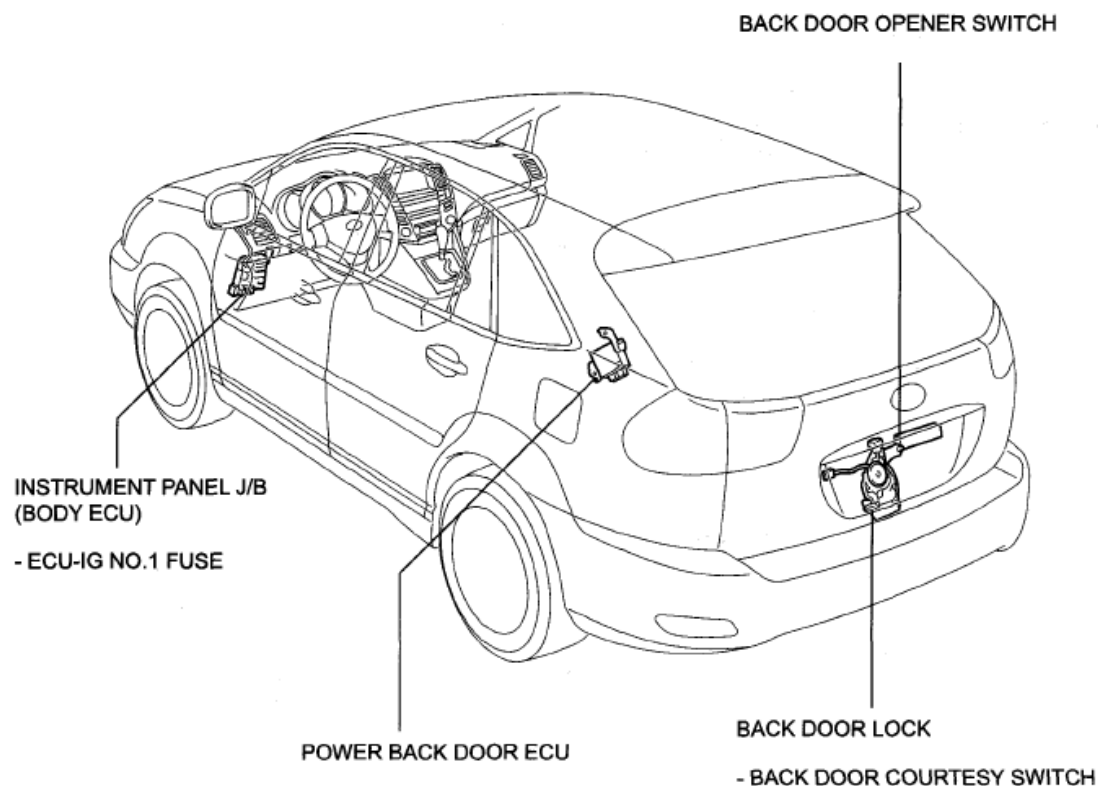
SYSTEM REFERENCE

System Name	See Procedure
Lighting System	See <u>INITIALIZATION</u>
Power Door Lock Control System	
Power Window Control System	
Back Door Closer System	
Power Back Door System	
Electrical Back Door Outside Handle System	
Sliding Roof System (for Multi-panel Moon Roof)	
Sliding Roof System (for Standard)	

PARTS LOCATION

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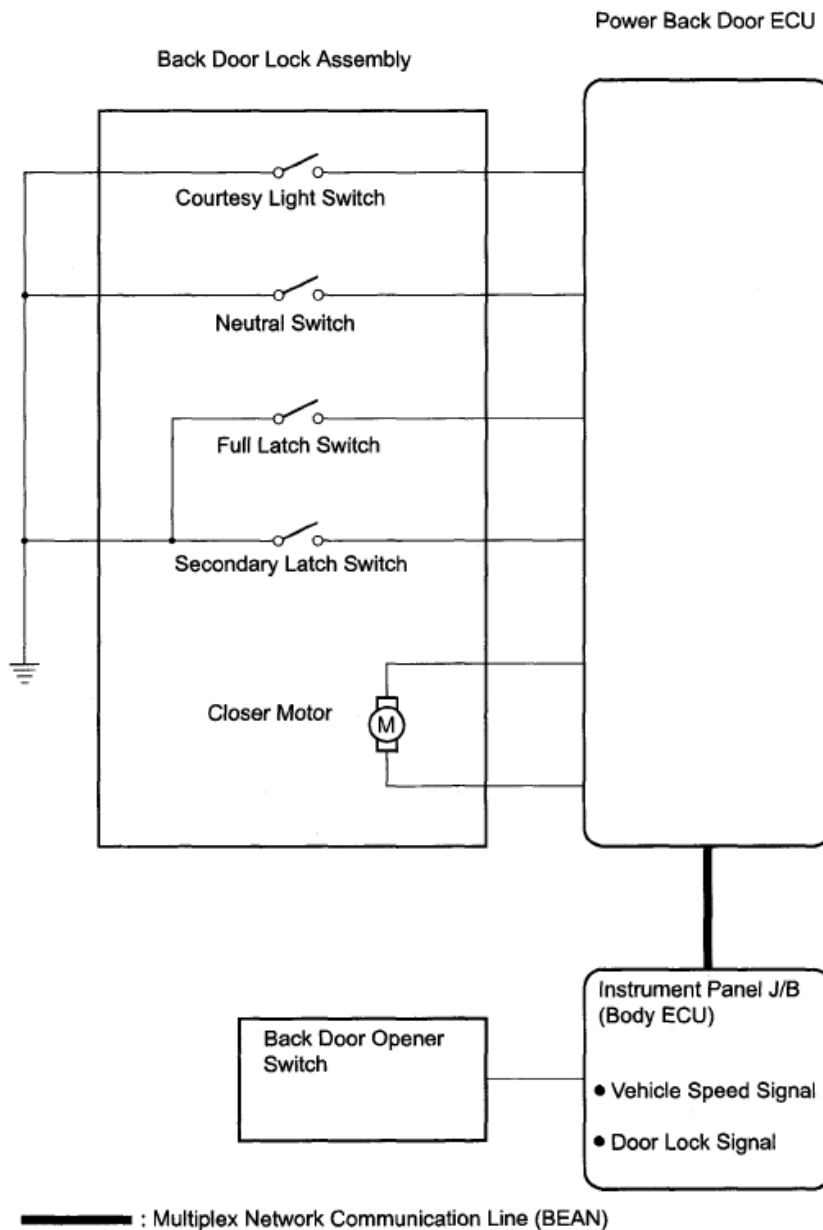


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Fig. 1: Identifying Back Door Closer System Components Location
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SYSTEM DIAGRAM



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Fig. 2: Back Door Closer System Diagram

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

SYSTEM DESCRIPTION

1. **The back door closer system releases/closes the latch of the back door lock using a motor.**
 - a. The back door closer system is used in the RX330 with the power back door system.
 - b. Operating any power back door switch when the back door is fully closed inputs a request signal to the power back door ECU. The power back door ECU then outputs a "latch release" command to the back door lock in response to the input.

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- c. The latch can be released only when the back door is unlocked.
- d. 4 switches are built into the back door lock, and the power back door ECU monitors each switch status. The power back door ECU controls latch "release / close" operations in response to the inputs from each switch.

SWITCHES FUNCTION DESCRIPTION

Switch	Function
Back door courtesy switch	Detects whether the back door is open or closed. This switch turns ON when back door is open or ajar and turns OFF when it is fully closed.
Neutral switch	Detects whether driven gear of back door lock is in open position or closed position. This switch turns ON when back door lock moves to open position and turns OFF when it moves to close position.
Full-latch switch	Detects the fully closed position of latch. This switch turns ON when latch is in over-latch position.
Secondary-latch switch	Detects the "ajar" position of latch. This switch turns ON when latch is in open-latch position.

- e. When any battery, fuse or the back door lock has been removed/installed, the back door lock is in the "lock" status. Therefore, it is necessary to unlock the back door using the transmitter switch or door control switch on the driver side door or passenger's door before opening the back door.

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use the following procedures to troubleshoot the back door closer system.
- The intelligent tester should be used in steps 3, 4 and 6.

1. VEHICLE BROUGHT TO WORKSHOP

2. INSPECT BATTERY VOLTAGE

Standard Voltage: 11 to 14 V

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

3. INSPECT COMMUNICATION FUNCTION OF MULTIPLEX COMMUNICATION SYSTEM (BEAN)

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

Result

RESULT REFERENCE

Result	Proceed to

MPX DTC is not output	A
MPX DTC is output	B

B: GO TO MULTIPLEX COMMUNICATION SYSTEM

A: Go to Next Step

4. CHECK FOR DTC

- a. Check for DTC and note any codes that are output.
- b. Delete DTC.
- c. Recheck DTC.

Result

RESULT REFERENCE

Result	Proceed to
DTC does not reoccur	A
DTC reoccurs	B

B: Go to DIAGNOSTIC TROUBLE CODE CHART

A: Go to Next Step

5. PROBLEM SYMPTOMS TABLE

Result

RESULT REFERENCE

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

B: After repair, go to step 8

A: Go to Next Step

6. OVERALL ANALYSIS AND TROUBLESHOOTING

- a. Terminals of ECU

(See TERMINALS OF ECU)

- b. DATA LIST/ACTIVE TEST

(See DATA LIST / ACTIVE TEST)

7. **REPAIR OR REPLACE**
8. **CONFIRMATION TEST**

NEXT: END

OPERATION CHECK

1. INSPECT BASIC OPERATION

- a. When the back door is partially closed, check that the motor operates so that the back door is fully closed (locked).
- b. Check that the back door can be opened.
- c. When the back door is partially closed and then the motor starts normal operation, push the back door opener switch and pull up the back door to open it. At this time, check that the motor starts reverse operation and then stops.
- d. Immediately after the back door is partially closed (the motor has not started operation yet), push the back door opener switch to open the back door. Check that the motor does not operate at this time.

INITIALIZATION

1. BACK DOOR LOCK

- a. When the battery cable is reconnected:

If the back door is locked and therefore cannot be opened, it is necessary to unlock the back door using the door control switch or transmitter switch.

- b. When the back door lock is replaced:

The power back door ECU cannot receive a switch signal from the lock. This may cause the power back door system to enter fail-safe mode and DTC B2215 to set, as well as make the system disabled. When the lock is replaced, be sure to perform the following: first properly connect the lock, second clear the DTC from memory using the intelligent tester and finally recheck that no DTC is output.

2. RESET (INITIALIZE)

- a. Resetting the power back door system:

The power back door ECU records the fully open position and the fully closed position of the power back door in its memory and the power back door fully opens and fully closes based on this memory. In the case where any of the batteries, fuses, power back door ECU or power back door drive unit are removed and then reinstalled, the power back door ECU loses the memory of the door positions. In such cases, resetting the system is necessary. However the back door closer system has no effect on ECU memory. Reset the power back door system as follows:

1. Fully close the power back door if opened.

2. Activate the transmitter switch or power back door opener/closer switch to open the power back door.
3. Check that the drive unit for the power back door stops operating at a predetermined position and that the damper stay allows the back door to move to the fully open position from the position where the drive unit stops. The power back door ECU records the fully open position at this time and the system has been reset.

PROBLEM SYMPTOMS TABLE

BACK DOOR CLOSER SYSTEM

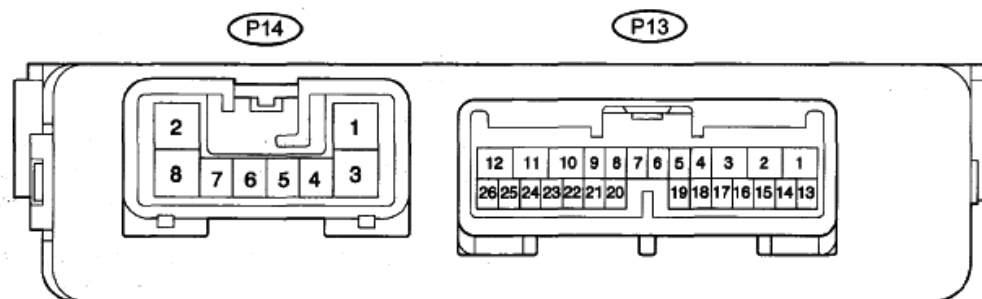
BACK DOOR CLOSER SYSTEM

Symptom	Suspected area	Refer to
Back door closer does not operate	PBD, ECU-B NO.1, ECU-IG NO.1 fuse	-
	Back door lock motor circuit	<u>BACK DOOR LOCK MOTOR CIRCUIT</u>
	Back door courtesy switch circuit	<u>BACK DOOR COURTESY SWITCH</u>
	Back door latch switch circuit	<u>BACK DOOR LOCK LATCH SWITCH CIRCUIT</u>
	Instrument panel J/B (Body ECU)	-
	Power back door ECU	-

TERMINALS OF ECU

1. CHECK POWER BACK DOOR ECU

- a. Disconnect the P13 and P14 ECU connectors and measure the voltage and resistance according to the value(s) in the table below.



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Fig. 3: Identifying Power Back Door ECU Connector Terminals
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard voltage and resistance

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VOLTAGE AND RESISTANCE SPECIFICATION

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
ECUB (P13-10) - Body ground	BR - Body ground	ECU (ECUB) power supply	Constant	10 to 14 V
B (P14-2) - Body ground	Y - Body ground	+B (ECUB) power supply	Constant	10 to 14 V
GND (P14-8) - Body ground	W-B - Body ground	Ground	Constant	Below 1 ohms
IG (P13-9) - Body ground	GR - Body ground	Ignition switch input	Ignition switch OFF --> ON	Below 1V --> 10 to 14 V
CTYE (P13-7) - Body ground	P - Body ground	Back door courtesy switch input	Back door CLOSED --> OPEN	10 kohms or higher --> Below 1 ohms
CTYO (P13-19) - Body ground	BR - Body ground	Back door courtesy switch output	Back door CLOSED --> OPEN	10 kohms or higher --> Below 1 ohms
HSW (P13-3) - Body ground	GR - Body ground	Power back door opener switch (outside handle switch) input	Power back door opener switch OFF -> ON	10 kohms or higher --> Below 1 ohms

HINT:

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

- b. Reconnect the ECU connectors and measure the voltage according to the value (s) in the table below.

Standard voltage

VOLTAGE SPECIFICATION

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
POS (P13-21) - Body ground	LG - Body ground	Back door lock position switch input	Back door OPEN --> Closer in operation --> CLOSED	Below 1 V --> 10 to 14V --> Below 1 V
FUL (P13-18) - Body ground	V - Body ground	Back door lock full-latch switch input	Back door CLOSED --> OPEN	10 to 14 V --> Below 1 V
HAF (P13-8) - Body ground	R - Body ground	Back door lock Secondary-latch switch input	Back door OPEN --> Closer in operation --> CLOSED	Below 1V --> 10 to 14 V --> Below 1 V
			Back door OPEN --> Not completely closed -	

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DC+ (P13-12) - Body ground	G - Body ground	Back door lock closer motor drive output (Close)	-> Motor in normal rotation --> Motor in reverse rotation --> Operation completed (Back door CLOSED)	Below 1 V --> Below 1 V --> 10 to 14 V --> Below 1 V --> Below 1 V
DC- (P13-11) - Body ground	B - Body ground	Back door lock closer motor drive output (Release)	Back door OPEN --> Not completely closed - -> Motor in normal rotation --> Motor in reverse rotation --> Operation completed (Back door CLOSED)	Below 1 V --> Below 1V --> Below 1 V --> 10 to 14 V --> Below 1 V

HINT:

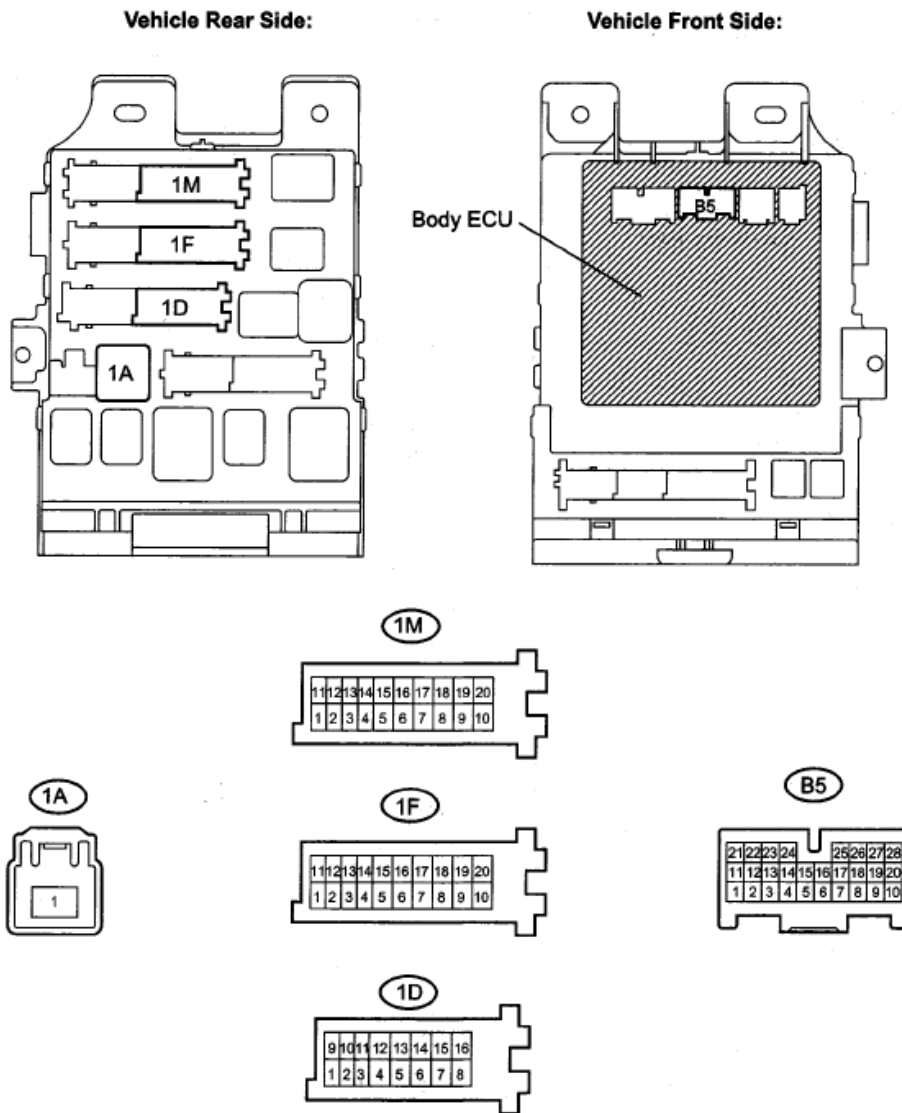
If the result is not as specified, the ECU may have a malfunction.

2. CHECK INSTRUMENT PANEL J/B ASSY (BODY ECU)

- a. Disconnect the 1A, 1D, 1F, 1M and B5 connectors.

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Fig. 4: Identifying Instrument Panel J/B Assembly Connector Terminals
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard voltage and resistance

VOLTAGE AND RESISTANCE SPECIFICATION

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
BECU (1D-10) - Body ground	W - Body ground	+B (BECU) power supply	Constant	10 to 14 V
ALTB (1D-16) -	W - Body	+B (power system, generator	Constant	10 to 14 V

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Body ground	ground	system) power supply		
BATB (1A-1) - Body ground	B - Body ground	+B (power system, battery system) power supply	Constant	10 to 14 V
GND1 (1F-10) - Body ground	W-B - Body ground	Ground	Constant	Below 1 ohms
GND2 (1M-9) - Body ground	W-B - Body ground	Ground	Constant	Below 1 ohms
BCTY (B5-25) - Body ground	P - Body ground	Back door courtesy switch input	Back door CLOSED --> OPEN	10 kohms or higher --> Below 1 ohms

HINT:

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

DIAGNOSIS SYSTEM

1. CHECK DLC3

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

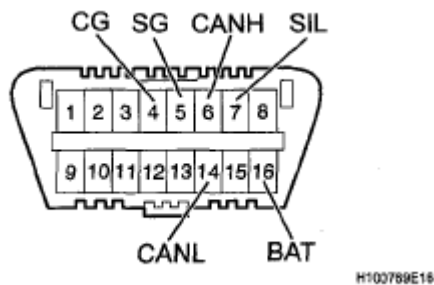


Fig. 5: Identifying DLC3 Connector Terminals

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

VOLTAGE AND RESISTANCE SPECIFICATION

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 ohms
SG (5) - Body ground	Signal ground	Always	Below 1 ohms
BAT (16) - Body ground	Battery positive	Always	10 to 14 V
CANH (6) - CANL (14)	CAN bus line	Ignition switch OFF ⁽¹⁾	54 to 69 ohms
CANH (6) - CG (4)	HIGH-level CAN bus line	Ignition switch OFF ⁽¹⁾	200 ohms or higher
CANL (14) - CG (4)	LOW-level CAN bus line	Ignition switch OFF ⁽¹⁾	200 ohms or higher
CANH (6) - BAT (16)	HIGH-level CAN bus line	Ignition switch OFF ⁽¹⁾	6 kohms or higher

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CANL (14) - BAT (16)	LOW-level CAN bus line	Ignition switch OFF ⁽¹⁾	6 kohms or higher
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(1) Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the ignition switch, any other switches or the doors.

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

- b. Connect the cable of the intelligent tester (with CAN VIM) to the DLC3, turn the ignition switch to the ON position and attempt to use the intelligent tester. If the screen displays a communication error message, a problem exists in the vehicle side or tester side.

HINT:

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

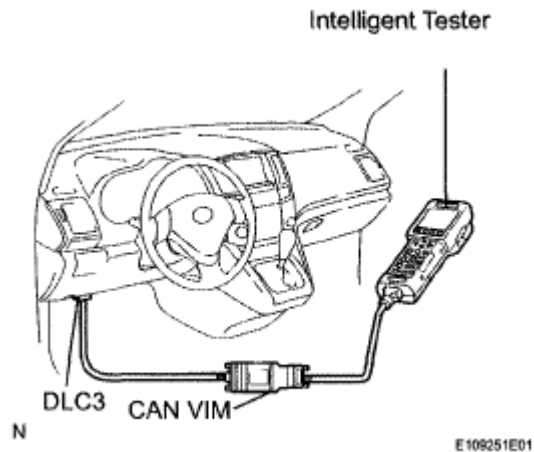


Fig. 6: Connecting Intelligent Tester To DLC3
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DTC CHECK / CLEAR

1. CHECK DTC

- a. Connect the intelligent tester to the DLC3.
- b. Turn the ignition switch ON.
- c. Read the DTC by following the prompts on the tester screen.

HINT:

Refer to the intelligent tester operator's service information for further details.

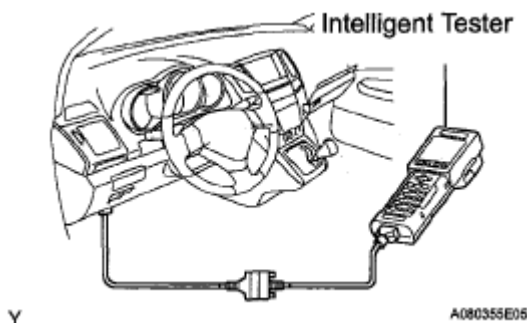


Fig. 7: Connecting Intelligent Tester To DLC3
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. CLEAR DTC

- a. Connect the intelligent tester to the DLC3.
- b. Turn the ignition switch ON.
- c. Erase the DTC by following the directions on the tester screen.

HINT:

Refer to the intelligent tester operator's service information for further details.

DATA LIST / ACTIVE TEST

1. READ DATA LIST

HINT:

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

- a. Connect the intelligent tester to the DLC3.
- b. Turn the ignition switch ON.
- c. Read the DATA LIST

BACK-DOOR (Power Back Door ECU):

DATA LIST - BACK-DOOR (POWER BACK DOOR ECU)

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
COURTESY SW	Back door lock courtesy switch signal /OFF or ON	OFF: Back door is closed ON: Back door is open	-

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HALF RATCHET* SW	Back door lock half-latch* switch signal /OFF or ON	OFF: Back door is closed ON: Back door is not completely closed	-
DOOR HANDLE SW	Back door opener switch (outside handle) signal /OFF or ON	OFF: Back door opener switch is not pushed ON: Back door opener switch is pushed	-
HINT: *: RATCHET appears on the display of the intelligent tester, however, the name of the part corresponding to the display of the tester is "half-latch".			

BODY (Body ECU):

DATA LIST - BODY (BODY ECU)

Item	Measurement Item / Display (Range)	Normal Condition	Normal Condition
BACK DOR OPEN	Back door open judgement /PROHIBIT or PERMIT	PROHIBIT: Back door is in LOCK position (prohibited from being unlatched) PERMIT: Back door is in UNLOCK position (permitted to be unlatched)	-
B DOE OPER SW	Power back door opener/closer switch signal /ON or OFF	ON: Power back door opener/ closer switch is pushed OFF: Power back door opener/ closer switch is not pushed	-

MASTER SW (Multiplex Network Master Switch Assembly (Driver Door ECU)):

DATA LIST - MASTER SW (MULTIPLEX NETWORK MASTER SWITCH ASSEMBLY (DRIVER DOOR ECU))

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
LOCK POS SW	Door unlock detection switch signal /ON or OFF	ON: Any door is unlocked OFF: All doors are locked	-

2. PERFORM ACTIVE TEST

HINT:

Performing the intelligent tester's ACTIVE TEST allows 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.

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The DATA LIST can be displayed during the ACTIVE TEST.

- a. Connect the intelligent tester to the DLC3.
- b. Turn the ignition switch ON.
- c. Perform the ACTIVE TEST.

BACK-DOOR (Power Back Door ECU):

ACTIVE TEST - BACK-DOOR (POWER BACK DOOR ECU)

Item	Test Details	Diagnostic Note
LATCH RELEASE	Back door lock latch release OFF/ON	-
COURTESY SW SIG	Back door courtesy switch OFF/ON	Command signal from tester is prior to that from back door courtesy switch when these 2 signals occur at the same time.

DIAGNOSTIC TROUBLE CODE CHART

HINT:

If a trouble code is displayed during the DTC check, check the circuit listed for that code in the table below.

BACK DOOR CLOSER SYSTEM

DIAGNOSTIC TROUBLE CODE CHART - BACK DOOR CLOSER SYSTEM

DTC No.	Detection Item	Trouble Area
<u>B2215</u>	Back Door Closer Switch Malfunction	1. Back door lock assembly 2. Power back door ECU 3. Wire harness

DTC B2215 BACK DOOR CLOSER SWITCH MALFUNCTION

DESCRIPTION

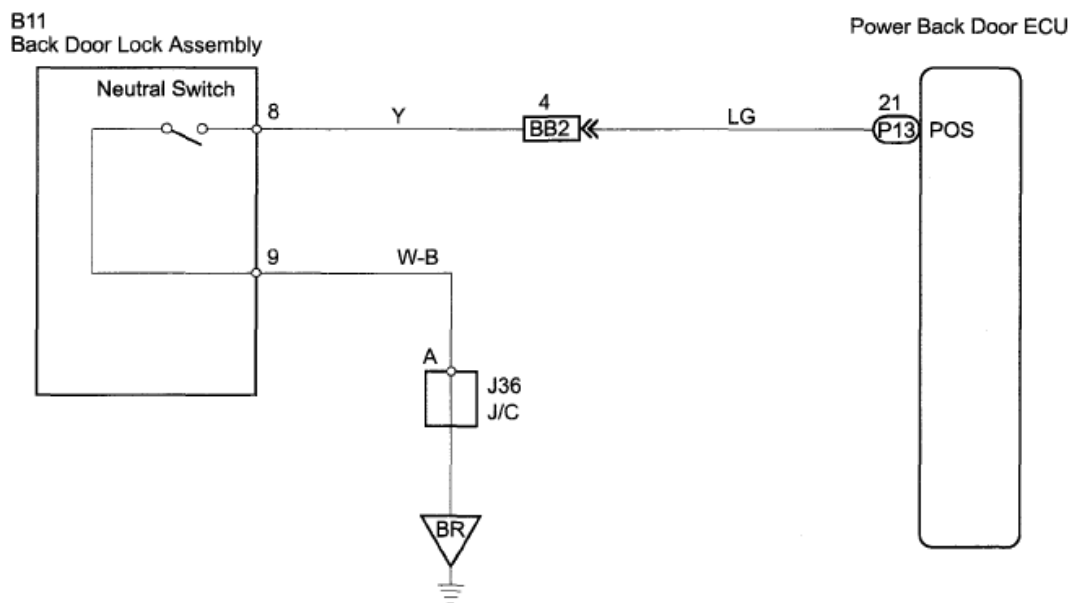
This DTC is output when the neutral switch in the back door has a malfunction. This neutral switch detects if the back door is in the open/close position and sends a position signal to the power back door ECU.

DTC DETECTION CONDITION AND TROUBLE AREA

DTC No.	DTC Detection Condition	Trouble Area
B2215	Back door does not operate	<ul style="list-style-type: none">● Back door lock assembly● Power back door ECU● Wire harness

NOTE: The power back door ECU records the back door positions in the memory. In the case where any of the batteries, fuses, power back door ECU and power back door drive unit are removed and then reinstalled, the power back door ECU loses the memory of the door positions. In such a case, resetting the power back door system is necessary. Refer to the resetting operation (See OPERATION CHECK).

WIRING DIAGRAM



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Fig. 8: Back Door Closer Switch - Wiring Diagram
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

1. **CHECK WIRE HARNESS (BACK DOOR LOCK ASSEMBLY - POWER BACK DOOR ECU)**
 - a. Disconnect the back door lock assembly connector.
 - b. Disconnect the power back door ECU connector.
 - c. Measure the resistance according to the value (s) in the table below.

Standard resistance

RESISTANCE SPECIFICATION

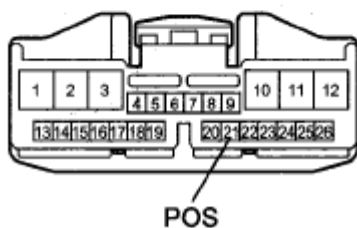
Tester Connection	Condition	Specified Condition
B11-8 - P13-21 (POS)	Always	Below 1 ohms
B11-9 - Body ground	Always	Below 1 ohms

Wire Harness Side:

B11
Back Door Lock Assembly



P13
Power Back Door ECU



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Fig. 9: Identifying Back Door Lock Assembly And Power Back Door ECU Connector Terminals

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

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to Next Step

2. INSPECT BACK DOOR LOCK ASSEMBLY (DOOR LOCK MOTOR)

- a. Check operation of the door lock.
 1. Using a screwdriver, push the latch in order to put the back door lock in the locked condition (full-latch position).
 2. Apply battery voltage and check operation of the latch.

OK

MEASUREMENT CONDITION AND SPECIFIED CONDITION

Measurement Condition	Specified Condition
Battery positive (+) --> Terminal 7	Latch turns to open-latch position
Battery negative (-) --> Terminal 5	

3. Check motor operation when battery voltage is applied to the terminals.

OK

MEASUREMENT CONDITION AND SPECIFIED CONDITION

Measurement Condition	Specified Condition
Battery positive (+) --> Terminal 5 Battery negative (-) --> Terminal 7	Close operation (Full-latch)
Battery positive (+) --> Terminal 7 Battery negative (-) --> Terminal 5	Release operation (Open-latch)

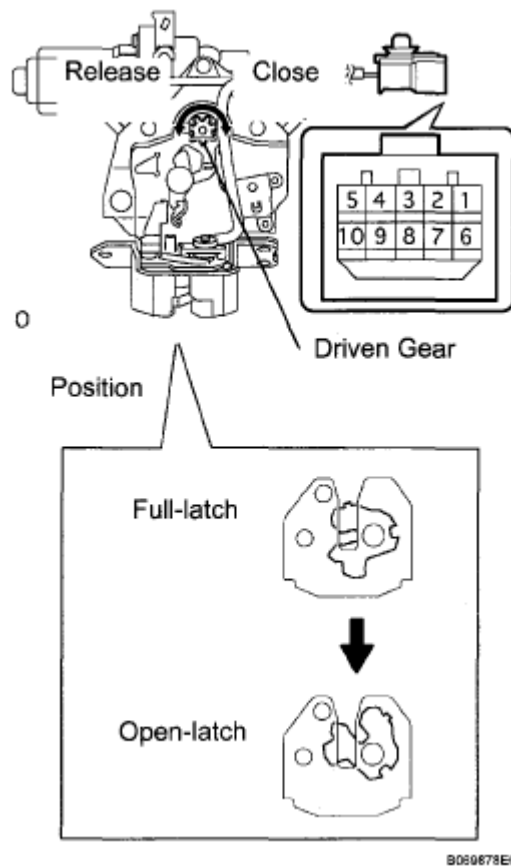


Fig. 10: Inspecting Back Door Lock Assembly (Door Lock Motor)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NG: REPLACE BACK DOOR LOCK ASSEMBLY

OK: Go to Next Step

3. INSPECT BACK DOOR LOCK ASSEMBLY (SWITCH)

- a. Measure the position switch resistance.

1. Connect the battery positive (+) lead to connector terminal 7 and the negative (-) lead to

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connector terminal 5.

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

Standard resistance

RESISTANCE SPECIFICATION

Tester Connection	Driven Gear Position	Specified Condition
8 - 9	Release	Below 1 ohms

3. Connect the battery positive (+) lead to connector terminal 5 and the negative (-) lead to connector terminal 7.
4. Measure the resistance according to the value (s) in the table below.

Standard resistance

RESISTANCE SPECIFICATION

Tester Connection	Driven Gear Position	Specified Condition
8 - 9	Close	10 kohms or higher

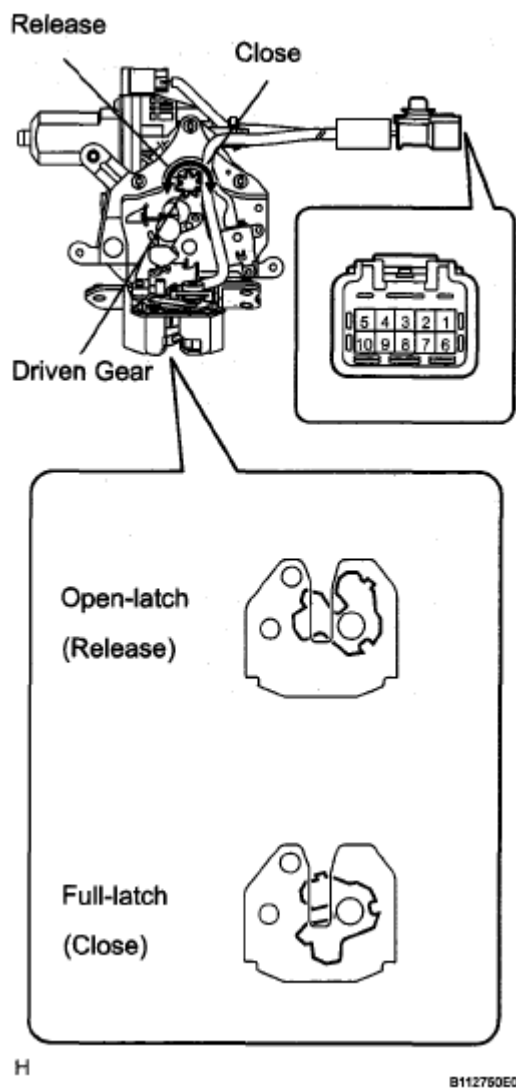


Fig. 11: Identifying Back Door Lock Assembly Connector Terminals
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NG: REPLACE BACK DOOR LOCK ASSEMBLY

OK: REPLACE POWER BACK DOOR ECU

POWER BACK DOOR SYSTEM

PRECAUTION

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

SYSTEM REFERENCE

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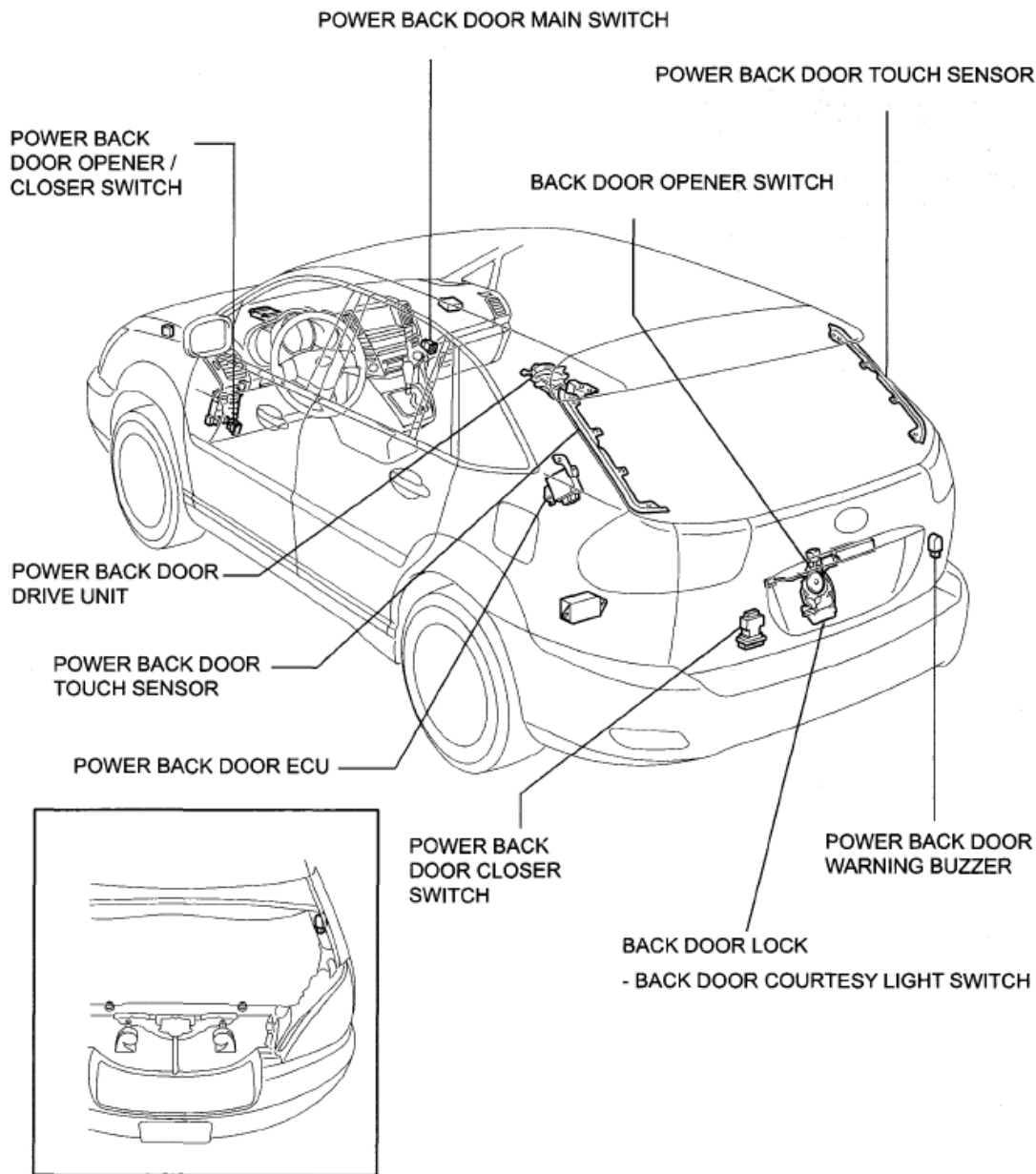
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System Name	See Procedure
Lighting System	See <u>INITIALIZATION</u>
Power Door Lock Control System	
Power Window Control System	
Back Door Closer System	
Power Back Door System	
Electrical back Door Outside Handle System	
Sliding Roof System (for Multi-panel Moon Roof)	
Sliding Roof System (for Standard)	

PARTS LOCATION

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Fig. 12: Identifying Power Back Door System Components Location
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SYSTEM DIAGRAM

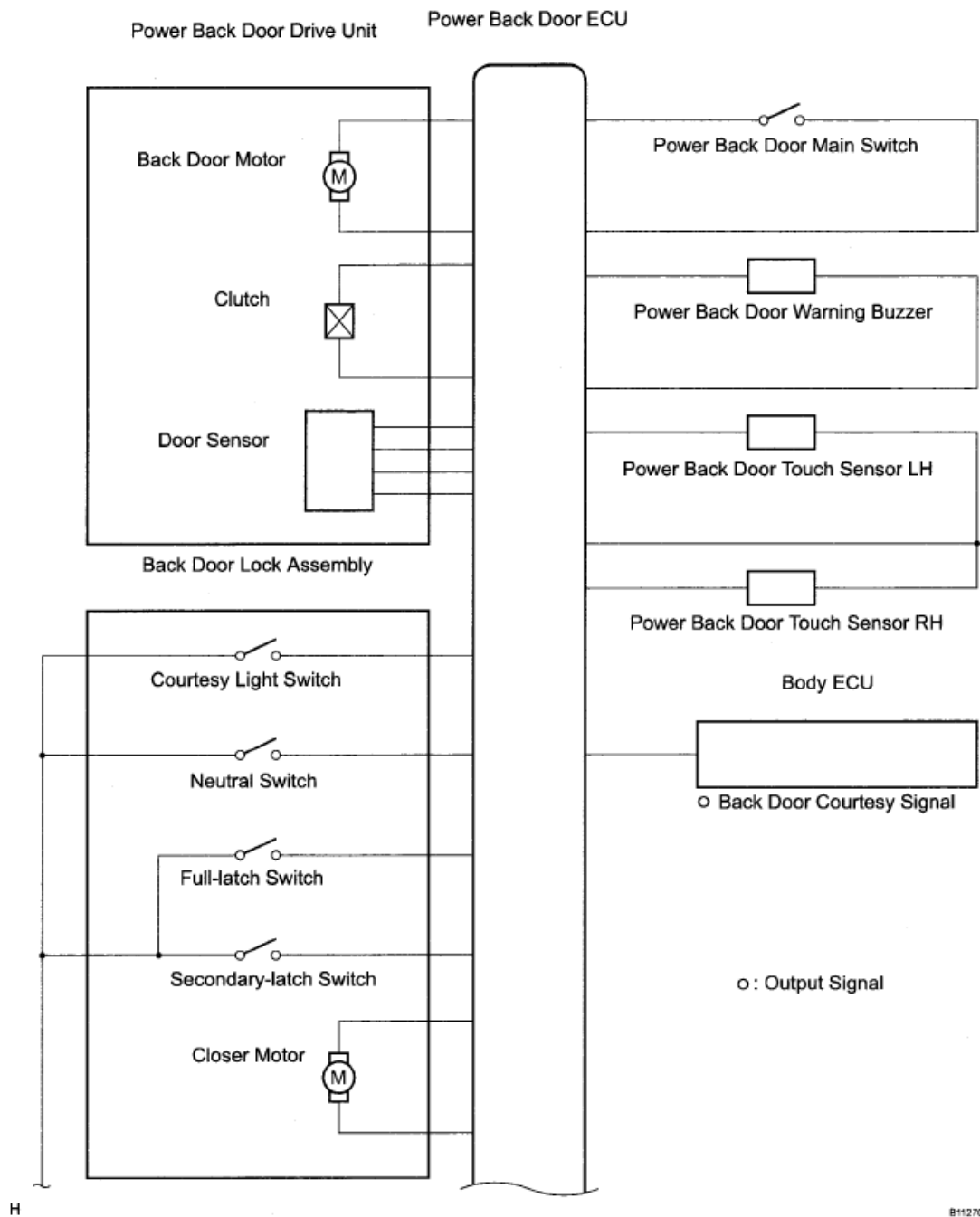
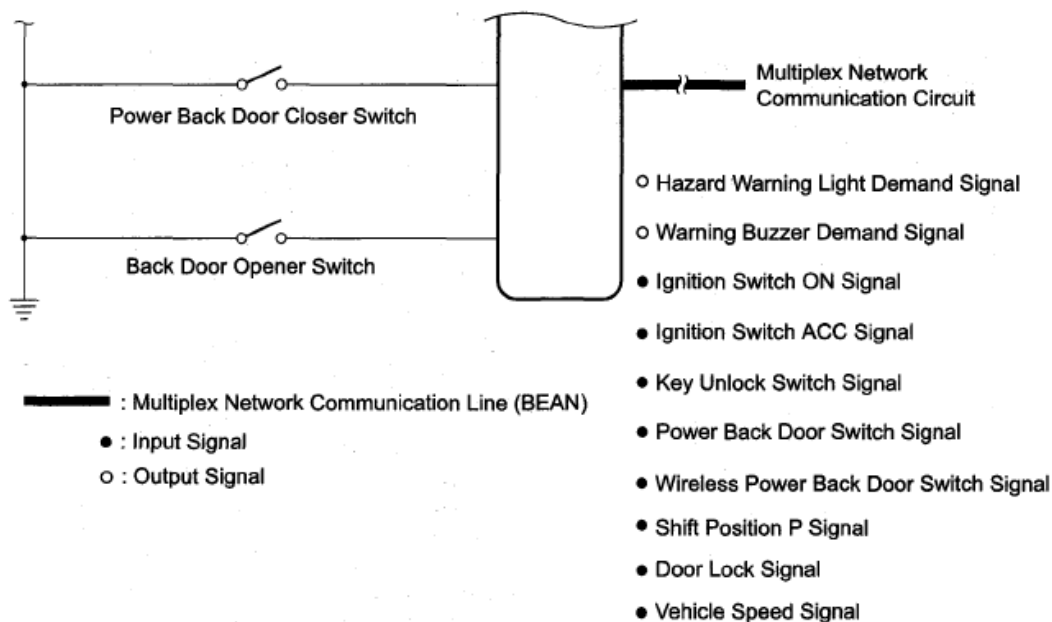


Fig. 13: Power Back Door System Diagram (1 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.



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Fig. 14: Power Back Door System Diagram (2 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SYSTEM DESCRIPTION

1. POWER BACK DOOR SYSTEM DESCRIPTION

- a. The power back door system controls the power back door to automatically open/close using a motor.
 1. The power back door system operates only when the necessary conditions are present.
 2. The power back door ECU records the back door positions in the memory. When any of the battery, fuse, power back door ECU and power back door drive unit are removed and then reinstalled, the power back door ECU loses the memory of the door positions. In such cases, resetting the power back door system is necessary. Please refer to the resetting operation specified in step [*1].
 3. "OPEN/CLOSE" request signals for the back door are input to the power back door ECU. Then, the power back door ECU controls the back door opening/closing operation by outputting commands to the back door lock and back door drive unit.
 4. The power back door system has various request signals: "OPEN/CLOSE" request signal from the transmitter switch, "OPEN/CLOSE" request signal from the power back door opener/ closer switch, "CLOSE" request signal from the power back door closer switch, and "OPEN" request signal from the back door opener switch (outside handle switch).
 5. The power back door system sets off an alarm using a buzzer and hazard warning lights when

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the power back door starts operating.

6. The power back door system causes a buzzer to sound in warning when the shift lever is moved into any position except P when the power back door starts operating or while the power back door is operating and the buzzer continues sounding.
7. [*1] The power back door system turns OFF when the shift lever is moved into any position except P while the power back door is opening. The power back door continues to close when the shift lever is moved into any position except P while the power back door is closing.
8. The power back door reverses the direction that the power back door is operating when any switch is pressed during operation.
9. A pulse sensor and a touch sensor are used to prevent anything from being gets caught in while the power back door is operating (jam protection function).
10. The power back door system stops motor operation and switches to the manual operation mode when the jam protection function is activated repeatedly more than the specified number of times.
11. The power back door system slows the back door down when the back door comes closer to the fully open position or fully closed position in order to reduce the impact against the vehicle body.

b. Operational condition

OPERATIONAL CONDITION

Function	Switch	Necessary Condition
OPEN operation	<ul style="list-style-type: none"> • Transmitter switch • Power back door opener/closer switch • Back door opener switch (Outside handle switch) (This switch can be set ON by customization. Default setting is OFF) 	<ol style="list-style-type: none"> 1. Power back door main switch: ON (pressed) 2. Shift position: P position 3. Back door lock: Unlocked 4. Door position: Between fully closed position and half-open position
CLOSE operation	<ul style="list-style-type: none"> • Transmitter switch • Power back door opener/closer switch • Power back door closer switch 	<ol style="list-style-type: none"> 1. Power back door main switch: ON (pressed) 2. Shift position: P position 3. Touch sensor: Neither pressed nor open 4. Door position: Between fully open position and half-open position

c. Function description

FUNCTION DESCRIPTION

Function	Contents

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<p>Back door buzzer (Sounds differently depending on the situation; when power back door starts operation, when system outputs warning and when power back door reverses moving direction)</p>	<ol style="list-style-type: none"> 1. When power back door starts operation: Sounds twice (a cycle of 0.5 sec.) to notify that power back door will start operating when a request is input from the switch* while back door is fully closed/open. 2. When system outputs warning: <ol style="list-style-type: none"> a. Sounds continuously (a cycle of 0.3 sec.) in warning when shift lever is moved into any position except P while back door is open or ajar (courtesy switch ON and door not fully latched). b. Sounds continuously (a cycle of 0.3 sec.) in warning when shift lever is moved into any position except P while back door is opening/closing. 3. When power back door reverses moving direction: Sounds once for 0.3 sec. to notify that power back door will reverse moving direction after being triggered by switch operation or activation of jam protection function.
<p>Hazard lights (Output signals are sent from power back door ECU to hazard lights via body ECU)</p>	<ol style="list-style-type: none"> 1. When power back door starts operation: Flashes twice to notify that power back door will start operating when a request is input from the switch* while back door is fully closed/open.
<p>Reverse Operation</p>	<ol style="list-style-type: none"> 1. During opening operation: Power back door reverses the direction of movement and moves to fully closed position when any of transmitter switch, power back door opener/closer switch or power back door closer switch are pressed during opening operation. 2. During closing operation: Power back door reverses the direction of movement and moves to fully open position when any of transmitter switch, power back door opener/closer switch or back door opener switch (outside handle switch) are pressed during closing operation.
	<ol style="list-style-type: none"> 1. During opening operation: When pulse sensor detects any change in speed while back door is opening, the system interprets it as "jam" and reverses the direction of movement and returns back door to fully closed position.

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Jam protection function	<ol style="list-style-type: none"> 2. During closing operation: <ol style="list-style-type: none"> a. When pulse sensor detects any change in speed while back door is closing, the system interprets it as "jam" and reverses the direction of movement and returns back door to fully open position. b. When either touch sensor is pressed while back door is closing, the system interprets it as "jam" and reverses the direction of movement and returns back door to fully open position.
Manual operation mode	<ol style="list-style-type: none"> 1. The system switches to manual operation mode: The system stops motor and switches to manual operation mode when "jam protection function" has been activated 2 or more consecutive times and when the 2nd or most recent activation has occurred during closing. 2. The system return to normal operation mode: <ol style="list-style-type: none"> a. The system returns to normal operation mode by pressing the switch again or fully closing the door. b. Power back door is activated to open when the system returns to normal operation mode by pressing the switch* and the door is between fully closed position and half-open position, and it is activated to close when the system returns to normal operation mode by pressing the switch* and the door is between fully open position and half-open position:
Power back door system stop function	<ol style="list-style-type: none"> 1. The system switches OFF (manual operation mode) when either of the following is detected: <ol style="list-style-type: none"> a. DTC B2222 b. Either touch sensor has short/open circuit c. Shift lever is moved into P position while power back door is opening 2. When the problem indicated by step 1 has been solved, the system switches to normal operation mode.
<p>HINT: *: For details of the switch, refer to the table specified in step [*2] "Switches".</p>	

d. [*2] Switches

[*2] SWITCHES

Switches	Contents
Power back door main switch	<ul style="list-style-type: none"> • The system does not operate when the switch is in "ON" position

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<ul style="list-style-type: none"> • Located in the glove box on the passenger side 	<p>(pressed).</p> <ul style="list-style-type: none"> • The system does not operate when the switch is in "OFF" position (not pressed).
<p>Transmitter switch ("PWR DOOR" switch)</p>	<ul style="list-style-type: none"> • Pressing the switch causes power back door to open/close. • Pressing it again during operation reverses the direction of movement. • Request is input when the switch has been pressed for 0.8 sec. and the back door is fully closed or fully open. "0.8 sec." is the default setting and can be changed by customization (See <u>CUSTOMIZE PARAMETERS</u>). The power back door reverses the direction of movement immediately when the switch is pressed while in operation. • Pressing the switch during manual operation mode returns the system to normal operation mode. • The switch does not function while the ignition switch is ON (key is inserted into the ignition key cylinder).
<p>Power back door opener/closer switch</p> <ul style="list-style-type: none"> • Located on the instrument panel on the driver side 	<ul style="list-style-type: none"> • Pressing the switch causes power back door to open/close. Pressing it again during operation reverses the direction of movement. • Request is input when the switch has been pressed for 0.8 sec. and the back door is fully closed or fully open. "0.8 sec." is the default setting and can be changed by customization (See <u>CUSTOMIZE PARAMETERS</u>). The power back door reverses the direction of movement immediately when the switch is pressed while in operation. • Pressing the switch during manual operation mode returns the system to normal operation mode.
<p>Power back door closer switch</p> <ul style="list-style-type: none"> • Located on the back door trim 	<ul style="list-style-type: none"> • Pressing the switch when back door is fully open causes power back door to close. • Pressing the switch while power back door is opening reverses the direction of movement and returns back door to fully closed position. • Request is input when the switch is pressed. • Pressing the switch during manual operation mode returns the system to normal operation mode.
<p>Back door opener switch (Outside handle switch)</p>	<ul style="list-style-type: none"> • Pressing the switch when the back door is fully closed and is unlocked causes back door latch to be released although back door does not open. This setting can be changed by customization (See <u>CUSTOMIZE PARAMETERS</u>). • Request is input only when the vehicle speed is 5 km/h (8 mph) or less. • Pressing the switch while back door is closing reverses the direction of movement and returns the back door to fully open position.

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- Pressing the switch during manual operation mode does not return the system to normal operation mode.

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use the following procedures to troubleshoot the power back door system.
- The intelligent tester should be used in steps 3, 4 and 6.

1. VEHICLE BROUGHT TO WORKSHOP

2. INSPECT BATTERY VOLTAGE

Standard Voltage: 11 to 14 V

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

3. INSPECT COMMUNICATION FUNCTION OF MULTIPLEX COMMUNICATION SYSTEM (BEAN)

- Use the intelligent tester to check if the Multiplex Communication System (MPX) is functioning normally.

Result

RESULT REFERENCE

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

B: GO TO MULTIPLEX COMMUNICATION SYSTEM

A: Go to Next Step

4. CHECK FOR DTC

- Check for DTC and note any codes that are output.
- Delete DTC.
- Recheck DTC.

Result

RESULT REFERENCE

Result	Proceed to
DTC does not reoccur	A

DTC reoccurs	B
--------------	---

B: Go to DIAGNOSTIC TROUBLE CODE CHART

A: Go to Next Step

5. PROBLEM SYMPTOMS TABLE

Result

RESULT REFERENCE

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

B: After repair, go to step 8

A: Go to Next Step

6. OVERALL ANALYSIS AND TROUBLESHOOTING

- a. Terminals of ECU

(See TERMINALS OF ECU)

- b. DATA LIST/ACTIVE TEST

(See DATA LIST / ACTIVE TEST)

7. REPAIR OR REPLACE

8. CONFIRMATION TEST

NEXT: END

OPERATION CHECK

NOTE: Inspection should be started after conforming that the items listed in the **CUSTOMIZE PARAMETER** for the power back door system have defaulted to the initial settings (See INITIALIZATION).

1. CHECK OPENING OPERATION

Power Back Door Main Switch

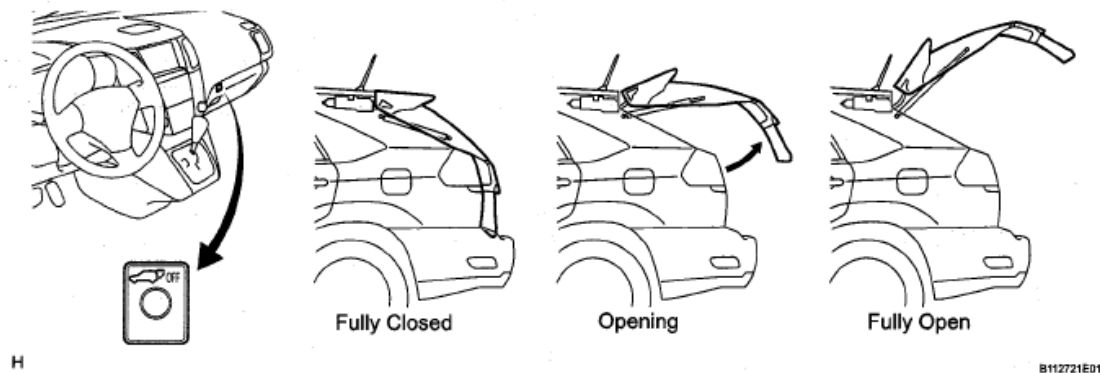


Fig. 15: Checking Power Back Door Opening Operation
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

The power back door stops opening at the specified position slightly short of the fully open position from where the damper stay allows the back door to move to the fully open position.

- a. Conditions necessary for the power back door to open:
 1. Power back door main switch is in the ON position.
 2. Back door is positioned between the fully closed position and the half-open position (When the back door is fully closed, the door must be unlocked).
 3. Shift lever is in the P position when the ignition switch is ON (When the ignition switch is off, power back door can operate with the shift lever in any position).
 4. No key is inserted into the ignition key cylinder when the transmitter is used.
- b. Check the power back door opener/closer switch.
 1. Check that the power back door is unlatched and then opens when the switch has been pressed for more than 0.8 seconds.
 2. Check that the power back door reverses operation and moves to the fully closed position when the switch is pressed again during opening.

Power Back Door Opener/Closer Switch

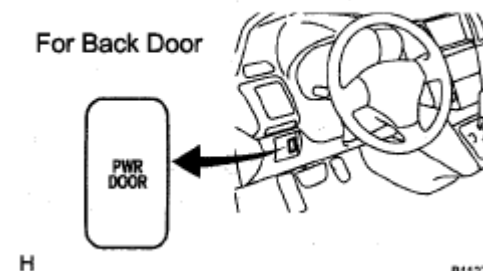
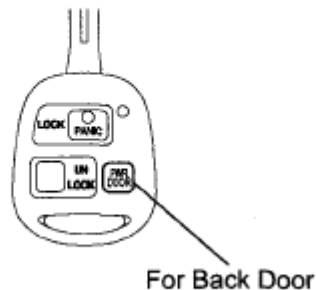


Fig. 16: Identifying Power Back Door Opener/Closer Switch
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Check the transmitter switch for the power back door.
 - 1. Check that the power back door is unlatched and then opens when the switch has been pressed for more than 0.8 seconds.
 - 2. Check that the power back door reverses operation and moves to the fully closed position when the switch is pressed again during opening.
- d. Check the back door opener switch for the power back door.
 - 1. Check that the back door reverses operation and moves to the fully closed position when the back door opener switch is pressed during opening.

Door Control Transmitter

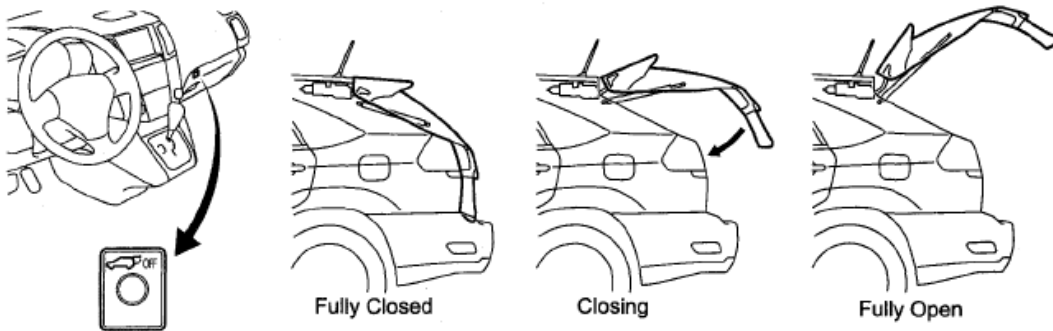


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Fig. 17: Identifying Door Control Transmitter Switch
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. CHECK CLOSING OPERATION

Power Back Door Main Switch



H

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Fig. 18: Checking Power Back Door Closing Operation
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

The power back door stops closing at the specified position slightly short of the fully closed position from where the back door closer system is activated to completely close the back door.

- a. Conditions necessary for the power back door to close:
 1. Power back door main switch is in the ON position.
 2. Back door is positioned between the fully open position and the half-open position.
 3. No key is inserted into the ignition key cylinder when the transmitter is used.
- b. Check the power back door opener/closer switch.
 1. Check that the power back door closes when the switch has been pressed.
 2. Check that the power back door reverses operation and moves to the fully open position when the switch is pressed again during closing.

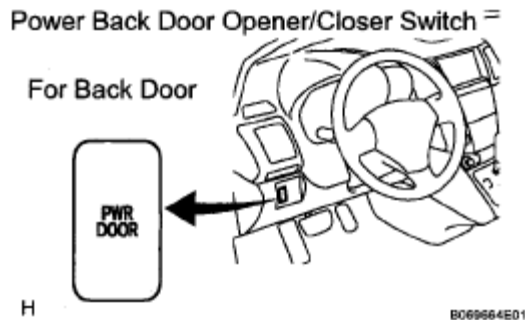


Fig. 19: Identifying Power Back Door Opener/Closer Switch
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Check the power back door closer switch.
 1. Check that the power back door closes when the switch has been pressed for more than 0.8 seconds.
 2. Check that the power back door reverses operation and moves to the fully open position when the switch is pressed again during closing.

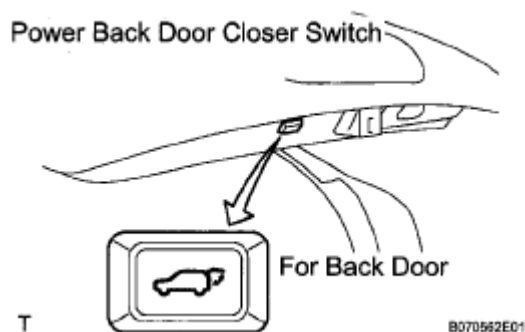


Fig. 20: Identifying Power Back Door Closer Switch
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- d. Check the transmitter switch for the power back door.

1. Check that the power back door closes when the switch has been pressed for more than 0.8 seconds.
 2. Check that the power back door reverses operation and moves to the fully open position when the switch is pressed again during closing.
- e. Check the back door opener switch for the power back door.
1. Check that the power back door reverses operation and moves to the fully open position when the back door opener switch is pressed during closing.

Door Control Transmitter



B114872E01

Fig. 21: Identifying Door Control Transmitter Switch
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. CHECK JAM PROTECTION FUNCTION

HINT:

- The power back door drive unit detects changes in the operating speed of the back door while the power back door is moving. If a change in the operating speed is out of the normal range, it will be judged that foreign objects are detected in the direction that the power back door is moving and the movement will be reversed.
 - When the power back door touch sensors built into the both sides of the back door are compressed, it is judged that foreign objects are detected in the direction that the power back door is moving and the power back door will reverse the movement.
 - The power back door touch sensor operates only while the back door is closing. It does not operate while the back door is opening.
- a. [*1] Check the jam protection function while the power back door is closing.

NOTE: Do not check this function using a part of your body such as a hand. Also, pay thorough attention that nothing gets caught by accident in this process.

1. Fully open the back door.
2. [*2] Press the switch to activate the power back door to close, and perform steps [*3] and [*5], and steps [*4] and [*5] respectively.
3. [*3] While the back door is closing, press the touch sensor using the handle of a hammer or equivalent, as shown in the illustration.

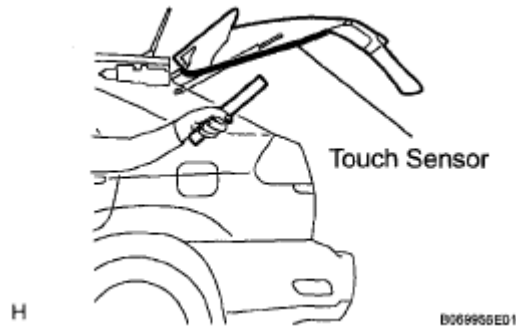


Fig. 22: Identifying Touch Sensor
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

After this step, skip step [*4] and go to step [*5].

4. [*4] While the back door is closing, insert a tire or equivalent between the door panel and vehicle body, as shown in the illustration, in order to interrupt closing operation.

HINT:

After step [*2], skip step [*3] and perform this step. Then, go to step [*5],

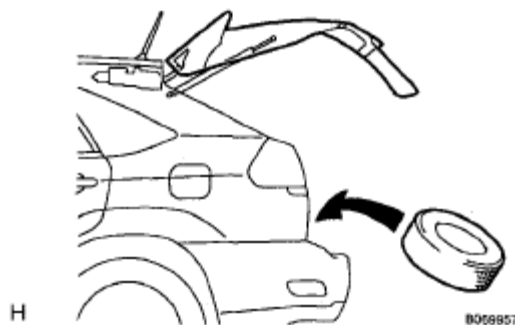


Fig. 23: Inserting Tire Between Door Panel And Vehicle Body
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. [*5] Check that the jam protection function is immediately activated and the power back door reverses operation to the fully open position.
- b. [*6] Check the jam protection function while the power back door is opening.

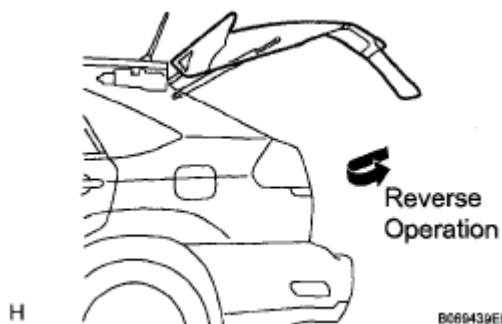


Fig. 24: Checking Power Back Door Reverses Operation
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Pay thorough attention that your body or your cloth, etc. does not get involved with by accident in this process.

1. Fully close the back door.
2. Press the switch activate the power back door to open.
3. While the back door is opening, press, by hand, the outside surface of the back door panel that is moving so that the operating speed decreases, as shown in the illustration.

NOTE: Pay thorough attention that your body or your cloth, etc. does not get involved with by accident in this process.

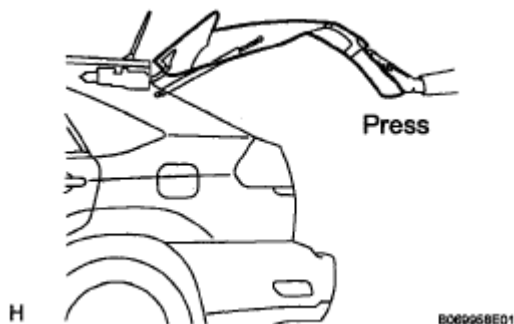


Fig. 25: Pressing Back Door
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. Check that the jam protection function is immediately activated and the power back door reverses operation to the fully closed position.

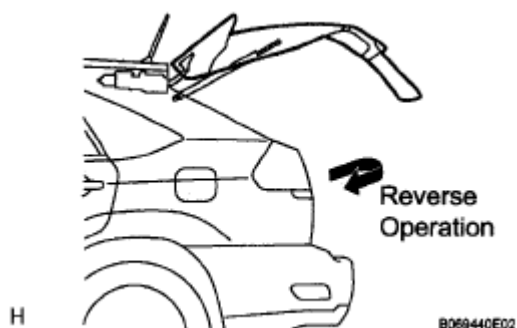


Fig. 26: Checking Power Back Door Reverses Operation
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Check operation of the power back door when the jam protection function is consecutively activated.
 1. Check that power back door operation is cancelled and switched to manual operation mode (not electrically controlled) when the jam protection function has been activated 2 or more consecutive times and when the 2nd or most recent activation has occurred during closing.

HINT:

Refer to steps [*1] and [*6] for the method that activates the jam protection function.

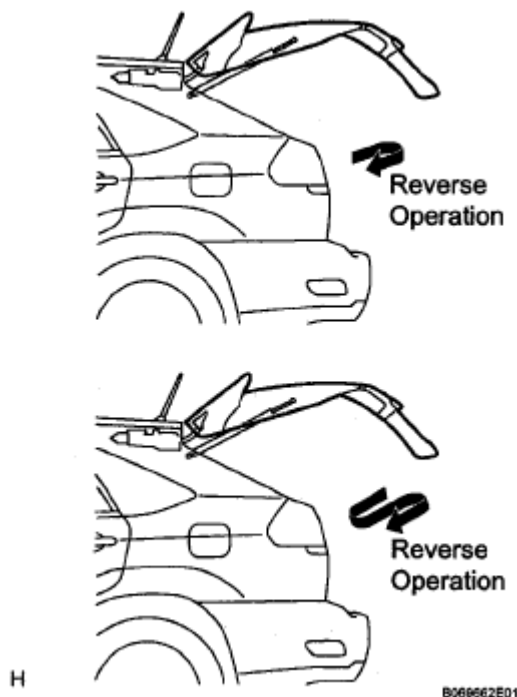


Fig. 27: Checking Power Back Door Operation (Jam Protection Function)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: In order to restore the power back door system to normal operation mode, perform either of the following: manually close the back door fully or press the power back door opener/closer switch for the power back door.

4. CHECK WARNING BUZZER

- a. Check the warning buzzer sounding function that notifies that the power back door is open or opens while the vehicle is moving (when the shift lever is moved into any position except P).
 1. While the back door is open, check that the warning buzzer sounds at a cycle of 0.3 seconds if the shift lever is moved into any position except P with the ignition switch ON.
 2. Turn the ignition switch ON and move the shift lever into any position except P. Check that the warning buzzer sounds at a cycle of 0.3 seconds when the power back door system is activated to open using the transmitter switch and power back door opener/closer switch.
 3. Check that the warning buzzer stops sounding when the back door is fully closed or the shift lever is moved into the P position.
 4. Check that the buzzer sounds once for 0.3 seconds to notify that the power back door reverses moving direction, which is caused by switch operation or activation of the jam protection function during power back door operation.

HINT:

The power back door system turns OFF when the shift lever is moved into any position except P while the power back door is opening. The power back door continues to close when the shift lever is moved into any position except P while the power back door is closing

- b. Check that the warning buzzer and hazard lights that notify the start of opening/closing of the power back door.
 1. Check that the warning buzzer sounds at 2 cycles of 0.5 seconds and hazard lights flash twice when the power back door is activated to open/close.

HINT:

At the start of opening/closing of the power back door, the wireless door lock buzzer (built into the engine room) also sounds.

CUSTOMIZE PARAMETERS

HINT:

The following items can be customized.

NOTE:

- After confirming whether the items requested by the customer are applicable or not for customization, perform customize operations.
- Be sure to record the current settings before customizing.

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- When troubleshooting, make sure that the item in question is not set to "OFF" as a result of customization.

Power back door ECU

CUSTOMIZE PARAMETERS - POWER BACK DOOR ECU

DISPLAY (ITEM)	DEFAULT	CONTENTS	SETTING
PBD SW OPER	0.8s	Function that turns power back door closer switch ON when switch is pushed once or held down for 0.8 sec.	0.8S/ON
PBD BUZZ VOL	LARGE	Function that adjusts the volume of warning buzzer that notifies power back door is operating	OFF/SMALL/LARGE
PBD ONE MOTION	OFF	Function to operate PBD by transmitter (0.8 sec. press) when back door is locked.	ON/OFF
WIRELS PBD OPER	0.8s	Function that operates power back door when transmitter switch is pressed in specified way (1-press, 2-presses, 0.8 sec-press or OFF*1)	ON/TWICE ON/0.8S/OFF
PBD ASSIST OPN*2	OFF	Function that helps power back door opening operation	ON/OFF

HINT:

- *1: Wireless (transmitter switch) operation of the power back door is disabled.
- *2: When this item is set to ON:

When the back door is fully closed, pulling the back door opener switch (outside handle switch) activates the power back door system to automatically open the back door after that it is unlatched.

INITIALIZATION

1. RESET (INITIALIZE)

- a. Resetting the power back door system:

The power back door ECU records the fully open position and the fully closed position of the power back door in its memory and the power back door fully opens and fully closes based on this memory. In the case where any of the batteries, fuses, power back door ECU or power back door drive unit are removed and then reinstalled, the power back door ECU loses the memory of the door positions. In such cases, resetting the system is necessary.

However, the back door closer system has no effect on ECU memory.

Reset the power back door system as follows:

1. Fully close the power back door if opened.

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2. Check that the back door fully opens and fully closes.
 - Unlock the power back door using the unlock button on the transmitter switch or the door control switch.
 - Turn the ignition switch to the off.
 - Check that the power back door main switch is not pushed.
 - Check that the back door fully opens and fully closes by pushing the power back door opener/closer switch or PWR button on the transmitter switch.

HINT:

The jam protection function is enabled through the above initialization procedure.

2. BACK DOOR LOCK

- a. When the battery is reconnected:

If the back door is locked and therefore cannot be opened, it is necessary to unlock the back door using the door control switch or transmitter switch.

- b. When the back door lock is replaced:

The power back door ECU cannot receive a switch signal from the lock. This may cause the power back door system to enter fail-safe mode and DTC B2215 to set, as well as make the system disabled. When the lock is replaced, be sure to perform the following: first, properly connect the lock, second clear the DTC from memory using the intelligent tester, and finally recheck that no DTC is output.

PROBLEM SYMPTOMS TABLE

POWER BACK DOOR SYSTEM

POWER BACK DOOR SYSTEM

Symptom	Suspected area	Refer to
Power back door does not operate	ECU-B NO.1, ECU-IG NO.1, AM1 fuse	-
	ECU power source circuit (power back door ECU)	<u>ECU POWER SOURCE CIRCUIT</u>
	Power back door main switch circuit	<u>MAIN SWITCH CIRCUIT</u>
	Power back door opener/closer switch circuit	<u>POWER BACK DOOR OPENER / CLOSER SWITCH CIRCUIT</u>
	Power back door closer switch circuit	<u>POWER BACK DOOR CLOSER SWITCH</u>

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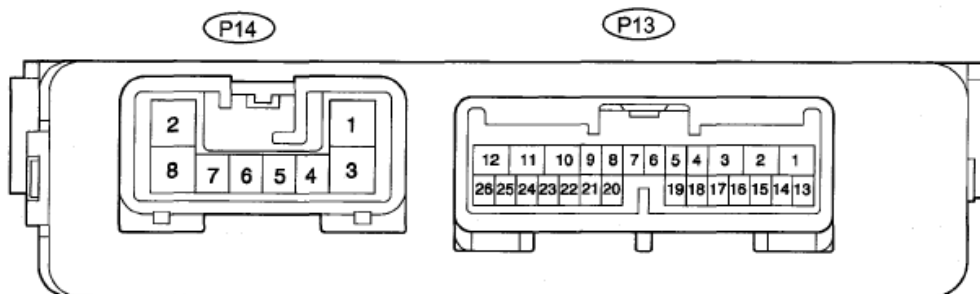
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		<u>CIRCUIT</u>
	Back door lock latch switch circuit	<u>BACK DOOR LOCK LATCH SWITCH CIRCUIT</u>
	Back door lock courtesy switch	<u>BACK DOOR COURTESY SWITCH</u>
	Power back door drive unit	<u>POWER BACK DOOR DRIVE UNIT</u>
	Instrument panel J/B (Body ECU)	-
	Power back door ECU	-
Jam protection function is activated while power back door is operating (for various reasons*) (*: It may be caused by ill-fitting back door, faulty touch sensor or faulty pulse sensor)	Fitting condition of back door	-
	Power back door touch sensor	<u>POWER BACK DOOR TOUCH SENSOR</u>
	Wire harness	-
	Power back door ECU	-
Power back door warning buzzer does not sound	Power back door warning buzzer circuit	<u>POWER BACK DOOR WARNING BUZZER CIRCUIT</u>
	Power back door ECU	-

TERMINALS OF ECU

1. CHECK POWER BACK DOOR ECU

- a. Disconnect the P13 and P14 connectors from the power back door ECU.



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Fig. 28: Identifying Power Back Door ECU Connector Terminals
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard resistance

RESISTANCE SPECIFICATION

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Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
HSW (P13-3) - Body ground	GR - Body ground	Power back door opener switch (outside handle) input	Power back door opener switch OFF --> ON	10 kohms or higher --> Below 1 ohms
BDDN (P13-4) - Body ground	W - Body ground	Power back door closer switch signal input	Power back door closer switch OFF --> ON	10 kohms or higher --> Below 1 ohms
MSE (P13-5) - MSW (P13-6)	W-B - G	Power back door off switch signal circuit	Power back door main switch OFF --> ON	10 kohms or higher --> Below 1 ohms
CTYE (P13-7) - Body ground	P - Body ground	Back door courtesy switch signal input	Back door is closed --> opened	10 kohms or higher --> Below 1 ohms
OSL (P13-14) - OSE (P13-15)	G - Y	Power back door touch sensor LH circuit	Back door touch sensor LH not pressed --> pressed	Approx. 1 kohms Below 100 ohms
OSR (P13-16) - OSE (P13-15)	L-Y	Power back door touch sensor RH circuit	Back door touch sensor RH not pressed --> pressed	Approx. 1 kohms Below 100 ohms
CTYO (P13-19) - Body ground	BR - Body ground	Back door courtesy switch signal output	Back door is closed --> opened	10 kohms or higher --> Below 1 ohms
GND (P14-8) - Body ground	W-B - Body ground	Ground	Always	Below 1 ohms

HINT:

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

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

Standard voltage

VOLTAGE SPECIFICATION

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
IG (P13-9) - Body ground	GR - Body ground	Ignition switch input	Ignition switch OFF --> ON	Below 1 V --> 10 to 14 V
ECUB (P13-10) - Body ground	BR - Body ground	ECU power supply	Always	10 to 14 V
MPX1 (P13-22) - Body ground	SB - Body ground	Multiplex communication signal circuit	Ignition switch ON	Signal waveform
B (P14-2) - Body	Y - Body			

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ground	ground	Motor drive power supply	Always	10 to 14 V
--------	--------	--------------------------	--------	------------

HINT:

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

- d. Reconnect the P13 and P14 connectors to the back door ECU.
- e. Measure the voltage according to the value (s) in the table below.

Standard voltage

VOLTAGE SPECIFICATION

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
BZR- (P13-1) - BZR+ (P13-2)	O - B	Power back door warning buzzer signal input	Back door warning buzzer is stopped --> sounded	Below 1 V --> 10 to 14 V
HAF (P13-8) - Body ground	R - Body ground	Back door lock half- latch switch signal input	Back door is opened --> back door closer motor is operated --> back door is closed	Below 1 V --> 10 to 14 V --> Below 1 V
DC- (P13-11) - DC+ (P13-12)	B - G	Back door closer motor circuit	Back door closer motor is stopped --> operated	Below 1 V --> 10 to 14 V
FUL (P13-18) - Body ground	V - Body ground	Back door lock full- latch switch signal input	Back door is closed --> opened	10 to 14 V --> Below 1 V
POS (P13-21) - Body ground	LG - Body ground	Back door lock position switch signal input	Back door is opened --> back door closer motor is operated --> back door is closed	Below 1 V --> 10 to 14 V --> Below 1 V
DS2 (P13-24) - DSG (P13-23)	GR - R	Power back door drive unit pulse sensor 2 signal input circuit	Power back door motor is stopped --> operated	Below 1 V --> Alternating between 10 to 14 V and below 1 V
DS1 (P13-25) - DSG (P13-23)	Y - R	Power back door drive unit pulse sensor 1 signal input circuit	Power back door motor is stopped --> operated	Below 1 V --> Alternating between 10 to 14 V and below 1 V
DSV (P13-26) - DSG (P13- 23)	L - R	Power back door drive unit pulse sensor power supply circuit	Always	10 to 14 V
BD+ (P14-1) - BD- (P14-3)	B - W	Power back door drive unit motor circuit	Power back door motor is stopped --> operated	Below 1 V --> 10 to 14 V
CL- (P14-6) -		Power back door drive	Power back door motor is	Below 1 V -->

CL+ (P14-7)	G - BR	unit clutch circuit	stopped --> operated	10 to 14 V
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HINT:

- Use an oscilloscope to check the output voltages of the power back door main switch, buzzer and pulse sensor.
- If the result is not as specified, the ECU may have a malfunction.

2. CHECK INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY (BODY ECU)

- Disconnect the 1A, 1D, 1F, 1M and B5 connectors from the instrument panel junction block assembly and body ECU.

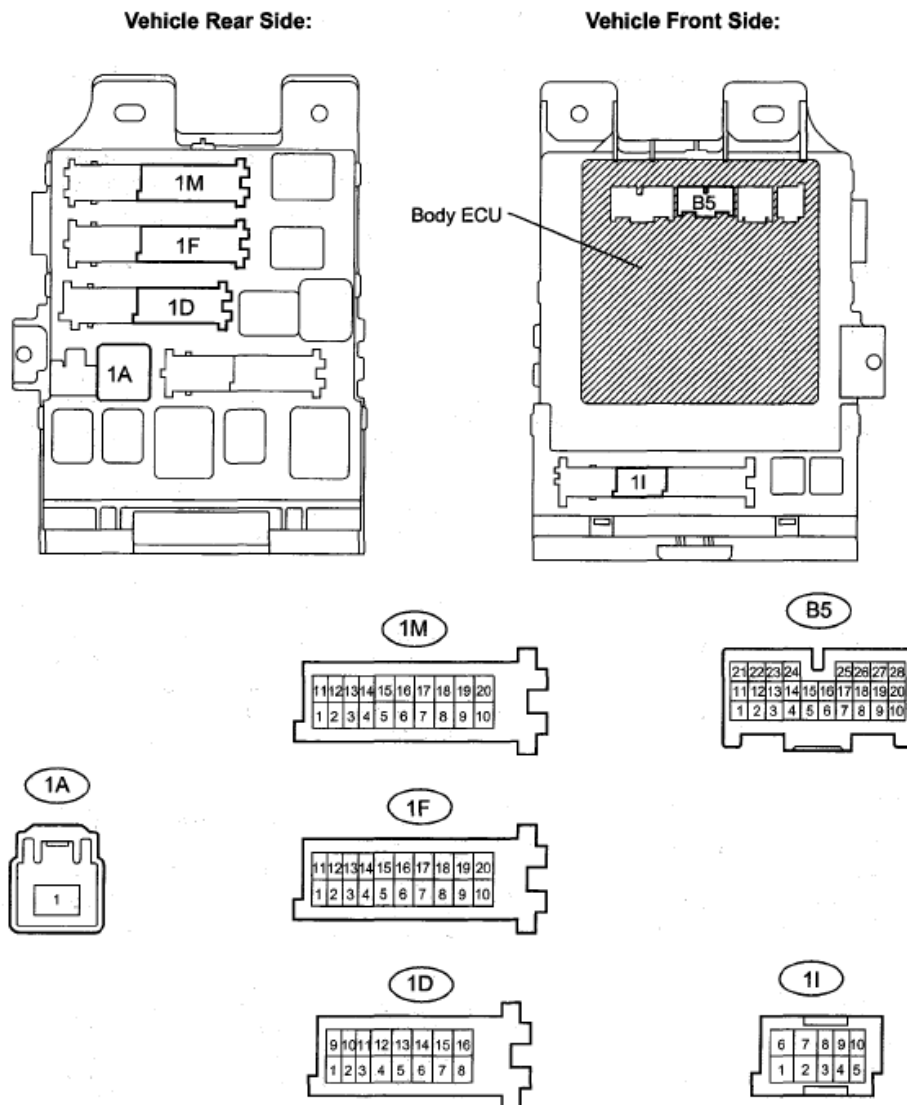


Fig. 29: Identifying Instrument Panel Junction Block Assembly Connector Terminals
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

RESISTANCE SPECIFICATION

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
GND1 (1F-10) - Body ground	W-B - Body ground	Ground	Always	Below 1 ohms
GND2 (1M-9) - Body ground	W-B - Body ground	Ground	Always	Below 1 ohms
PBDS (B5-2) - Body ground	V - Body ground	Power back door opener/closer switch signal input	Power back door opener/closer switch OFF --> ON	10 kohms or higher --> Below 1 ohms
BCTY (B5-25) - Body ground	P - Body ground	Back door courtesy light switch signal input	Back door is closed --> opened	10 kohms or higher --> Below 1 ohms

HINT:

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

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

Standard voltage

VOLTAGE SPECIFICATION

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
BATB (1A-1) - Body ground	B - Body ground	+B (power system, battery system) power supply	Always	10 to 14 V
BECU (1D-10) - Body ground	W - Body ground	+B (BECU) power supply	Always	10 to 14 V
ALTB (1D-16) - Body ground	W - Body ground	+B (power system, generator system) power supply	Always	10 to 14 V

HINT:

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

- d. Reconnect the 1 A, 1D, 1F, 1M and B5 connectors to the instrument panel junction block assembly and body ECU.
- e. Measure the voltage according to the value (s) in the table below.

Standard voltage

VOLTAGE SPECIFICATION

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Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
IG (1I-4) - Body ground	O - Body ground	Ignition switch power supply	Ignition switch OFF --> ON	10 to 14 V --> Below 1 V

HINT:

If the result is not as specified, the instrument panel junction block assembly and body ECU may have a malfunction.

DIAGNOSIS SYSTEM

1. CHECK DLC3

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

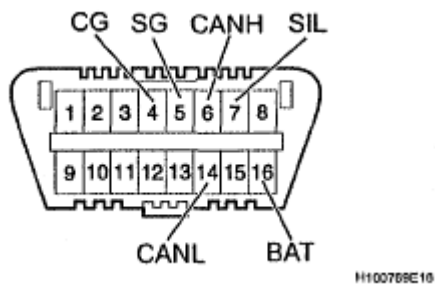


Fig. 30: Identifying DLC3 Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

VOLTAGE AND RESISTANCE SPECIFICATION

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 ohms
SG (5) - Body ground	Signal ground	Always	Below 1 ohms
BAT (16) - Body ground	Battery positive	Always	10 to 14 V
CANH (6) - CANL (14)	CAN bus line	Ignition switch OFF ⁽¹⁾	54 to 69 ohms
CANH (6) - CG (4)	HIGH-level CAN bus line	Ignition switch OFF ⁽¹⁾	200 ohms or higher
CANL (14) - CG (4)	LOW-level CAN bus line	Ignition switch OFF ⁽¹⁾	200 ohms or higher
CANH (6) - BAT (16)	HIGH-level CAN bus line	Ignition switch OFF ⁽¹⁾	6 kohms or higher
CANL (14) - BAT (16)	LOW-level CAN bus line	Ignition switch OFF ⁽¹⁾	6 kohms or higher

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

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

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

- b. Connect the cable of the intelligent tester (with CAN VIM) to the DLC3, turn the ignition switch to the ON position and attempt to use the intelligent tester. If the screen displays a communication error message, a problem exists in the vehicle side or tester side.

HINT:

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

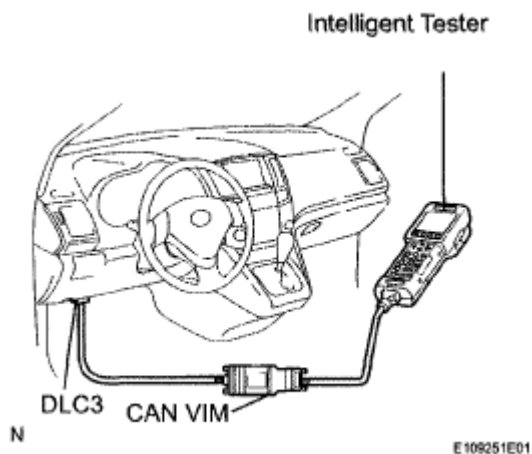


Fig. 31: Connecting Intelligent Tester To DLC3
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DTC CHECK / CLEAR

1. CHECK DTC

- a. Connect the intelligent tester to the DLC3.
- b. Turn the ignition switch ON.
- c. Read the DTC by following the prompts on the tester screen.

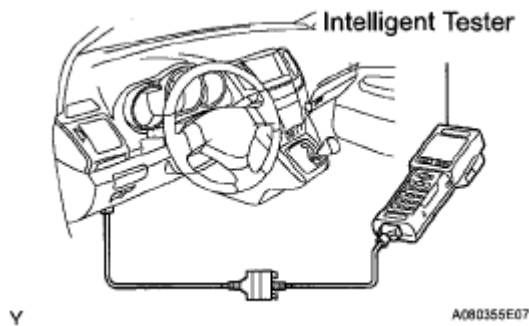


Fig. 32: Connecting Intelligent Tester To DLC3
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

Refer to the intelligent tester operator's service information for further details.

2. CLEAR DTC

- a. Connect the intelligent tester to the DLC3.
- b. Turn the ignition switch ON.
- c. Erase the DTC by following the directions on the tester screen.

HINT:

Refer to the intelligent tester operator's service information for further details.

DATA LIST / ACTIVE TEST

1. READ DATA LIST

HINT:

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

- a. Connect the intelligent tester to the DLC3.
- b. Turn the ignition switch ON.
- c. Read the DATA LIST

BACK-DOOR (Power Back Door ECU):

DATA LIST - BACK-DOOR (POWER BACK DOOR ECU)

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
COURTESY	Back door lock courtesy	OFF: Back door is closed	

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SW	switch signal /OFF or ON	ON: Back door is open	-
HALF LATCH*1 SW	Back door lock half-latch*1 switch signal /OFF or ON	OFF: Back door is closed ON: Back door is not completely closed	-
CLOSER POS SW	Back door lock closer position switch signal /OFF or ON	OFF: Back door is closed ON: Back door is opened	-
FULL LATCH SW	Back door lock full latch switch signal /OFF or ON	OFF: Back door is closed ON: Back door is opened	-
DOOR HANDLE SW	Back door opener switch (outside handle) signal /OFF or ON	OFF: Back door opener switch is not pushed ON: Back door opener switch is pushed	-
DOOR LOCK STATUS	Back door lock status signal /UNLOCK or LOCK	UNLOCK: Back door is unlocked LOCK: Back door is locked	-
PBD CLOSER SW	Power back door closer switch signal /OFF or ON	OFF: Power back door closer switch OFF ON: Power back door closer switch ON	-
DOOR POS-1/4	Back door position (Fully closed -1/4 open) /OK or CAUTION	OK: Back door position is fully closed -1/4 open CAUTION: Back door position is not fully closed - 1/4 open	*2
DOOR POS-2/4	Back door position (1/4 open - 2/4 open) /OK or CAUTION	OK: Back door position is 1/4 open - 2/4 open CAUTION: Back door position is not 1/4 open - 2/4 open	*2
DOOR POS-3/4	Back door position (2/4 open - 3/4 open) /OK or CAUTION	OK: Back door position is 2/4 open - 3/4 open CAUTION: Back door position is not 2/4 open - 3/4 open	*2
DOOR POS-OPEN	Back door position (3/4 open - fully open) /OK or CAUTION	OK: Back door position is 3/4 open - fully open CAUTION: Back door position is not 3/4 open - fully open	*2

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PBD SW OPER	Power back door closer switch operation /0.0s*3 or 0.8s	PBD SW Open 0.0s*3: Power back door closer switch 1-press operates power back door 0.8s: Power back door closer switch 0.8 sec-press (long press) operates power back door	-
PBD BUZZ VOL	Warning buzzer volume during power back door operation /OFF, SMALL or LARGE	OFF: Warning buzzer that notifies power back door is operating does not sound SMALL: Warning buzzer that notifies power back door is operating sounds at small volume LARGE: Warning buzzer that notifies power back door is operating sounds at large volume	-
WIRELS PBD OPER	Wireless power back door switch operation (Transmitter switch operation) /1 TIME, 2 TIMES, 0.8s PR or OFF	1 TIME: Transmitter switch 1-press operates power back door 2 TIMES: Transmitter switch 2-press operates power back door 0.8s PR: Transmitter switch 0.8s.-press operates power back door OFF: Transmitter switch operation is disabled	-
PBD ASSIST OPN	Power back door assist-open operation /OFF or ON	OFF: Back door is opened or closed ON: Back door is opened by power assist	-
PBD TOUCH SEN R	Power back door touch sensor RH signal /OFF, ON or OPEN	OFF: Power back door touch sensor RH is idle ON: Power back door touch sensor RH is pressed OPEN: Power back door touch sensor RH is open	-
PBD TOUCH SEN L	Power back door touch sensor LH signal /OFF, ON or OPEN	OFF: Power back door touch sensor LH is idle ON: Power back door touch sensor LH is pressed OPEN: Power back door touch sensor LH is open	-
PBD MAIN*4 SW	Power back door main switch*4 signal /OFF or ON	OFF: Power back door main switch is not pushed ON: Power back door main switch is pushed	-

HINT:

- *1: RATCHET appears on the display of the intelligent tester, however, the name of the part corresponding to the display of the tester is "half-latch".
- *2: In the case where the CAUTION is displayed even without applying resistance in each range, a foreign object may get caught in that range.

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- *3: "0.0s" appearing on the display of the intelligent tester means that a 1-press of the satellite switch operates the power back door.
- *4: MAIN appears on the display of the intelligent tester, however, the name of the part corresponding to the display of the tester is "power back door main switch".

BODY (Body ECU):

DATA LIST - BODY (BODY ECU)

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
BACK DOR OPEN	Back door open judgement /PROHIBIT or PERMIT	PROHIBIT: Back door is in LOCK position (prohibited from being unlatched) PERMIT: Back door is in UNLOCK position (permitted to be unlatched)	-
B DOE OPEN SW	Power back door opener/closer switch signal /ON or OFF	ON: Power back door opener/ closer switch is pushed OFF: Power back door opener/ closer switch is not pushed	-

2. PERFORM ACTIVE TEST

HINT:

Performing the intelligent tester's ACTIVE TEST allows 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.

- Connect the intelligent tester to the DLC3.
- Turn the ignition switch ON.
- Perform the ACTIVE TEST.

BACK-DOOR (Power Back Door ECU):

ACTIVE TEST DETAIL - BACK-DOOR (POWER BACK DOOR ECU)

Item	Test Details	Diagnostic Note
LATCH RELEASE	Back door lock latch is released OFF/ON	-
PBD MOTOR	Power back door motor is in operation OFF/FORWARD/REVERSE	Clutch is OFF while power back door motor is in operation
	Power back door clutch is in	Power back door motor is OFF when clutch

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PBD CLUTCH	operation OFF/ON	is ON
PBD BUZZER	Power back door buzzer sound OFF/ON	Buzzer sounds once for 0.5 sec.

BODY (Body ECU):

ACTIVE TEST DETAIL - BODY (BODY ECU)

Item	Test Details	Diagnostic Note
TRUNK/BDOR OPEN	Operate back door open OFF/ON	-
DOOR LOCK	Operate door lock motor for all doors OFF/LOCK/UNLOCK	All doors are closed

DIAGNOSTIC TROUBLE CODE CHART

POWER BACK DOOR SYSTEM

DIAGNOSTIC TROUBLE CODE CHART - POWER BACK DOOR SYSTEM

DTC No.	Detection Item	Trouble Area
<u>B2222</u>	PBD Pulse Sensor Malfunction	1. Wire harness 2. Power back door drive unit 3. Power back door ECU

DTC B2222 PBD PULSE SENSOR MALFUNCTION

DESCRIPTION

- A pulse sensor is built into the power back door drive unit to detect foreign objects and back door position. The pulse sensor monitors the operating speed of the back door while the power back door is in operation to detect foreign objects. The pulse sensor also monitors where the back door is to detect the back door position. If a pulse signal that is out of the normal range is output, the power back door ECU will set DTC B2222.
- If DTC B2222 is set, the power back door system will be turned off. Thus, the back door will be switched to manual operation mode (not electrically controlled) and can be moved freely.
- In order to restore the power back door system to normal operation mode, first solve the problem indicated by DTC B2222 and then manually close the back door fully (reset operation).

NOTE: The power back door ECU records the back door positions in the memory, in the case where any of the batteries, fuses, power back door ECU and power back door drive unit are removed and then reinstalled, the power back door ECU loses the memory of the door positions. In such a case, resetting the power back door system is necessary. Refer to the resetting operation (See INITIALIZATION).

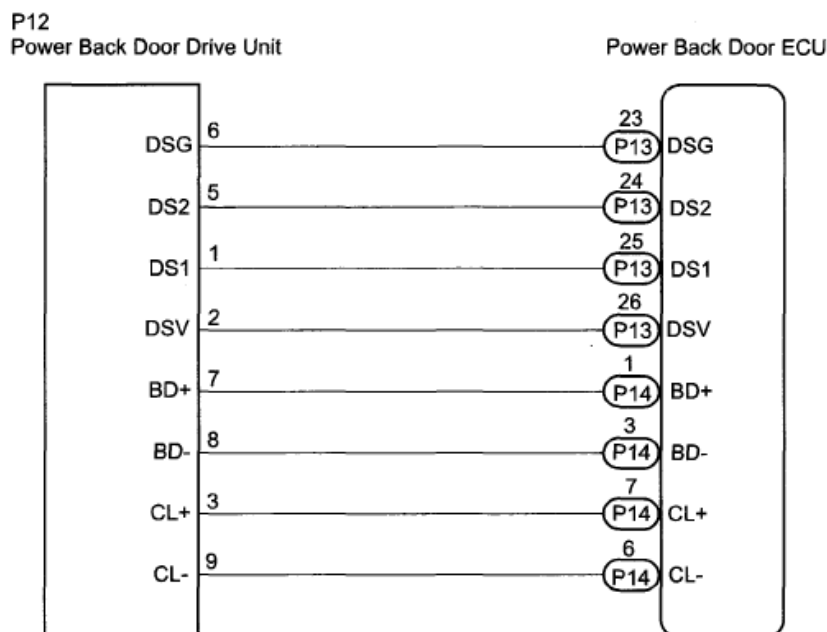
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DTC DETECTION CONDITION AND TROUBLE AREA

DTC No.	DTC Detection Condition	Trouble Area
B2222	Power back door does not operate	<ul style="list-style-type: none"> • Wire harness • Power back door drive unit • Power back door ECU

WIRING DIAGRAM



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B109781E01

Fig. 33: PBD Pulse Sensor - Wiring Diagram

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

INSPECTION PROCEDURE

1. **CHECK WIRE HARNESS (POWER BACK DOOR DRIVE UNIT - POWER BACK DDOR ECU)**
 - a. Disconnect the P12 unit and P 1.3. ECU connectors.
 - b. Measure the resistance according to the value (s) in the table below.

Standard resistance

RESISTANCE SPECIFICATION

Tester Connection	Specified Condition
P12-2 (DSV) - P13-26 (DSV)	Below 1 ohms
P12-6 (DSG) - P13-23 (DSG)	Below 1 ohms
P12-1 (DS1) - P13-25 (DS1)	Below 1 ohms

P12-5 (DS2) - P13-24 (DS2)	Below 1 ohms
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Wire Harness Side:

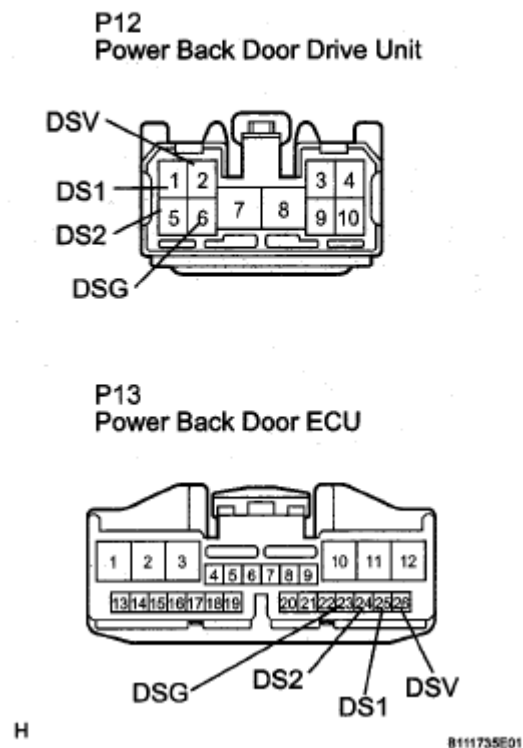


Fig. 34: Identifying Power Back Door Drive Unit And Power Back Door ECU Connector Terminals

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

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to Next Step

2. INSPECT POWER BACK DOOR DRIVE UNIT ASSEMBLY

- a. Remove the unit.
- b. Connect the battery positive (+) lead to terminal 3 and battery negative (-) terminal lead to terminal 9.
- c. Apply battery voltage to the terminals and check the motor operation.

OK

MEASUREMENT CONDITION AND SPECIFIED CONDITION

Measurement Condition	Specified Condition
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Battery positive (+) --> Terminal 7	Open
Battery negative (-) --> Terminal 8	
Battery positive (+) --> Terminal 8	Close
Battery negative (-) --> Terminal 7	

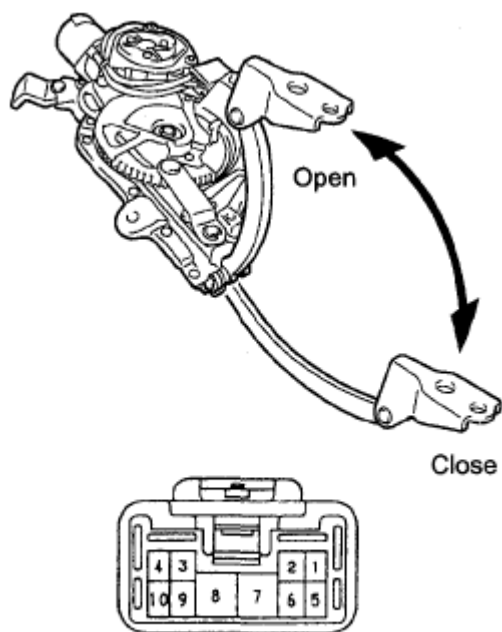
- d. Measure the resistance according to the value (s) in the table below.

Standard resistance

RESISTANCE SPECIFICATION

Tester Connection	Specified Condition
3 - 9	4.0 ohms

- e. Reinstall the unit and connect the connector.



B70376

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Fig. 35: Inspecting Power Back Door Drive Unit Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- f. Using an oscilloscope, check the pulse generated when the door is manually opened and closed.

OK

WAVEFORM REFERENCE

Terminal	1- 6, 5 - 6
Tool setting	10V/DIV., 10 ms/DIV.
Vehicle condition	Door moving

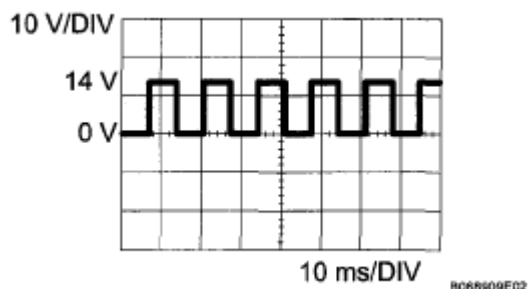


Fig. 36: Voltage Graph

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

HINT:

A cycle of the pulse changes between approx. 10 to 20 msec, according to the speeds that the back door is moving.

NG: REPLACE POWER BACK DOOR DRIVE UNIT ASSEMBLY

OK: REPLACE POWER BACK DOOR ECU

BACK DOOR LOCK LATCH SWITCH CIRCUIT

DESCRIPTION

The full latch switch and half latch switch are built into the back door lock assembly. The full latch switch detects when the latch is not completely engaged. This switch turns on when the back door is open or the latch is not completely engaged. The half latch switch detects when the latch is completely engaged. This switch turns on when the latch is in the over stroke position.

The power back door ECU is connected to the back door lock assembly via terminals FUL and HAF, and latch position signals are input to the ECU.

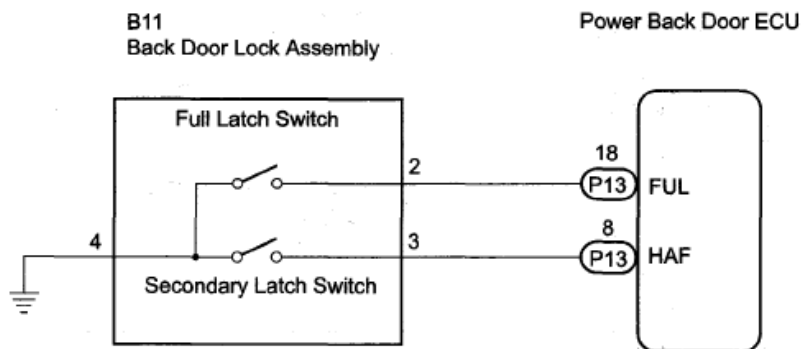
The power back door ECU applies voltage to terminal 2 of the back door lock assembly via terminal FUL. When the full latch switch is on (there is continuity between the switch terminals), a half-engaged state signal is input to the ECU. When the switch is off (there is no continuity between the switch terminals), a state signal other than a half-engaged state is input.

The power back door ECU applies voltage to terminal 3 of the back door lock assembly via terminal HAF. When the half latch switch is on (there is continuity between the switch terminals), an engaged state signal is input to the ECU. When the switch is off (there is no continuity between the switch terminals), a state signal other than an engaged state is input.

NOTE: The power back door ECU records the back door positions in the memory. In the case where any of the batteries, fuses, power back door ECU and power back door drive unit are removed and then reinstalled, the power back door ECU loses the memory of the door positions. In such a case, resetting the

power back door system is necessary. Refer to the resetting operation (See **INITIALIZATION**).

WIRING DIAGRAM



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Fig. 37: Back Door Lock Latch Switch - Wiring Diagram
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

1. INSPECT BACK DOOR LOCK ASSEMBLY

- a. Remove the back door lock assembly.
- b. Measure the resistance according to the value (s) in the table below.

Standard resistance: (Full-latch switch)

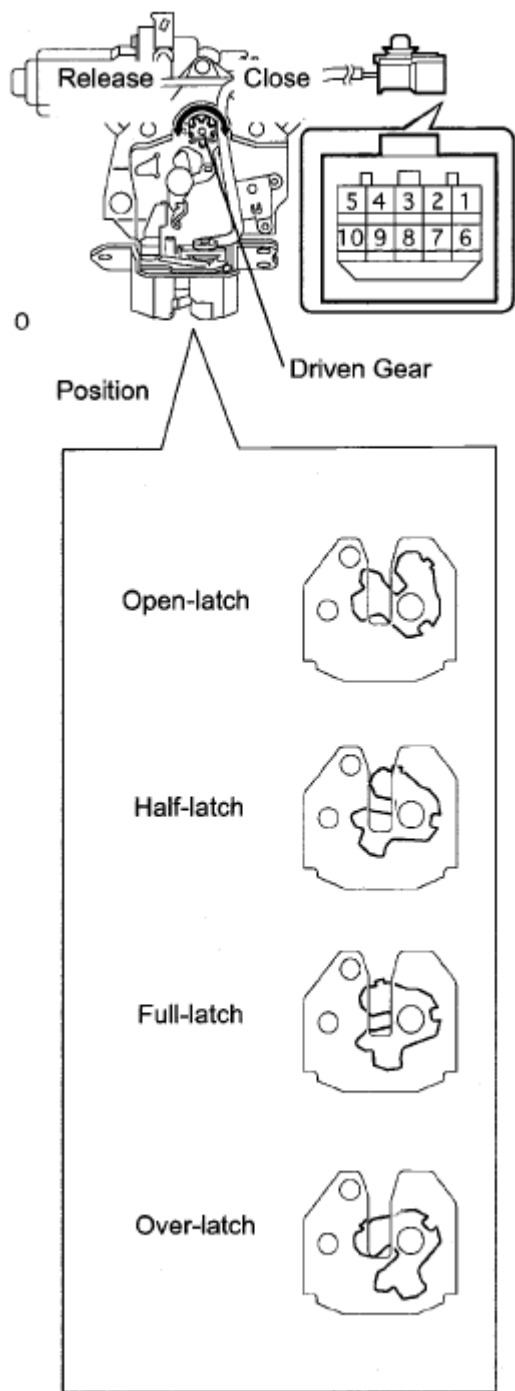
RESISTANCE SPECIFICATION (FULL-LATCH SWITCH)

Tester Connection	Door Lock Latch Position	Specified Condition
2 - 4	Open-latch	10 kohms or higher
2 - 4	Half-latch	10 kohms or higher
2 - 4	Full-latch	10 kohms or higher
2 - 4	Over-latch	Below 1 ohms

(Half-latch switch)

RESISTANCE SPECIFICATION (HALF-LATCH SWITCH)

Tester Connection	Door Lock Latch Position	Specified Condition
3 - 4	Open-latch	Below 1 ohms
3 - 4	Half-latch	10 kohms or higher
3 - 4	Full-latch	10 kohms or higher
3 - 4	Over-latch	10 kohms or higher



B070505E01

Fig. 38: Identifying Back Door Lock Latch Switch Terminals And Back Door Lock Latch Positions

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

NG: REPLACE BACK DOOR LOCK ASSEMBLY

OK: Go to Next Step

2. CHECK WIRE HARNESS (BACK DOOR LOCK ASSEMBLY - POWER BACK DOOR ECU)

- a. Disconnect the back door lock assembly connector.
- b. Disconnect the power back door ECU connector.
- c. Measure the resistance according to the value (s) in the table below.

Standard resistance

RESISTANCE SPECIFICATION

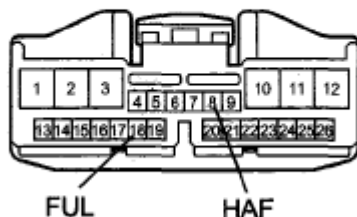
Tester Connection	Condition	Specified Condition
B11-2 - P13-18 (FUL)	Always	Below 1 ohms
B11-3 - P13-8 (HAF)	Always	Below 1 ohms
B11-4 - Body ground	Always	Below 1 ohms

Wire Harness Side:

B11
Back Door Lock Assembly



P13
Power Back Door ECU



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B111702E04

Fig. 39: Identifying Back Door Lock Assembly And Power Back Door ECU Connector Terminals

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

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

POWER BACK DOOR CLOSER SWITCH CIRCUIT

DESCRIPTION

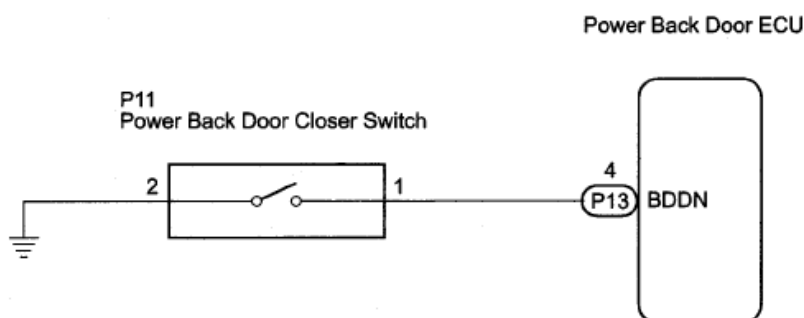
The power back door closer switch only turns on while the switch is being pressed, and turns off when the switch is released.

The power back door ECU is connected to the power back door closer switch via terminal BDDN and power back door operation request signals are input to the ECU.

The power back door ECU applies voltage to the power back door closer switch via terminal BDDN. When the switch is on (there is continuity between the switch terminals), a power back door close request signal is input to the power back door ECU to close the back door.

NOTE: The power back door ECU records the back door positions in the memory. In the case where any of the batteries, fuses, power back door ECU and power back door drive unit are removed and then reinstalled, the power back door ECU loses the memory of the door positions. In such a case, resetting the power back door system is necessary. Refer to the resetting operation (See OPERATION CHECK).

WIRING DIAGRAM



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B109773E14

Fig. 40: Power Back Door Closer Switch - Wiring Diagram
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

1. **READ VALUE OF DATA LIST (POWER BACK DOOR CLOSER SWITCH)**
 - a. Check the DATA LIST to ensure proper function of the power back door closer switch.

2008 Lexus RX 350

2008 ACCESSORIES AND EQUIPMENT Engine Hood/Door - RX350

BACK-DOOR (Power Back Door ECU):**DATA LIST - BACK-DOOR (POWER BACK DOOR ECU)**

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
PBD CLOSER SW	Power back door closer switch signal /OFF or ON	OFF: Power back door closer switch OFF ON: Power back door closer switch ON	-

OK: The display is as specified in the normal condition.

NG: Go to step 2

OK: PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

2. INSPECT POWER BACK DOOR CLOSER SWITCH ASSEMBLY

- a. Remove the power back door closer switch assembly.
- b. Measure the resistance according to the value (s) in the table below.

Standard resistance

RESISTANCE SPECIFICATION

Tester Connection	Switch Position	Specified Condition
1 - 2	Pushed (ON)	Below 1 ohms
1 - 2	Free (OFF)	10 kohms or higher

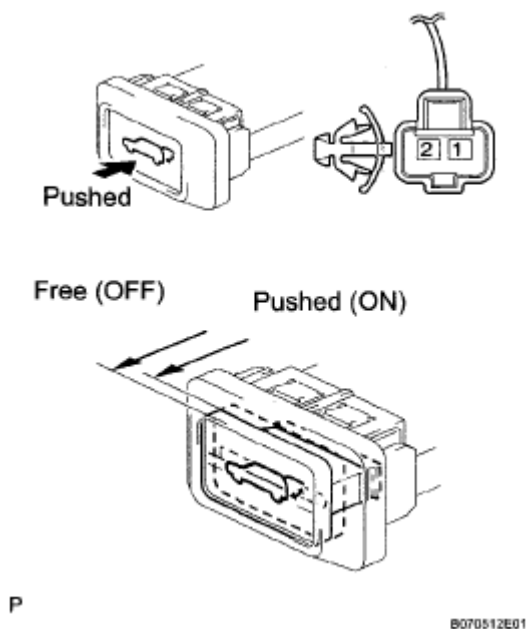


Fig. 41: Inspecting Power Back Door Closer Switch Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NG: REPLACE POWER BACK DOOR CLOSER SWITCH ASSEMBLY

OK: Go to Next Step

3. **CHECK WIRE HARNESS (POWER BACK DOOR CLOSER SWITCH - POWER BACK DOOR ECU)**
 - a. Disconnect the power back door closer switch assembly connector.
 - b. Disconnect the power back door ECU connector.
 - c. Measure the resistance according to the value (s) in the table below.

Standard resistance

RESISTANCE SPECIFICATION

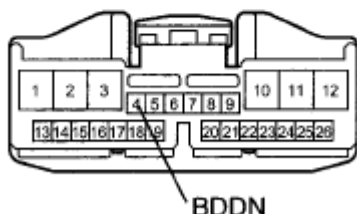
Tester Connection	Condition	Specified Condition
P11-1 - P13 - 4 (BDDN)	Always	Below 1 ohms
P11 - 2 - Body ground	Always	Below 1 ohms

Wire Harness Side :

P11
Power Back Door Closer Switch



P13
Power Back Door ECU



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B112722E01

Fig. 42: Identifying Power Back Door Closer Switch And Power Back Door ECU Connector Terminals

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

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

POWER BACK DOOR OPENER / CLOSER SWITCH CIRCUIT

DESCRIPTION

The power back door opener/closer switch only turns on while the switch is being pressed, and turns off when the switch is released.

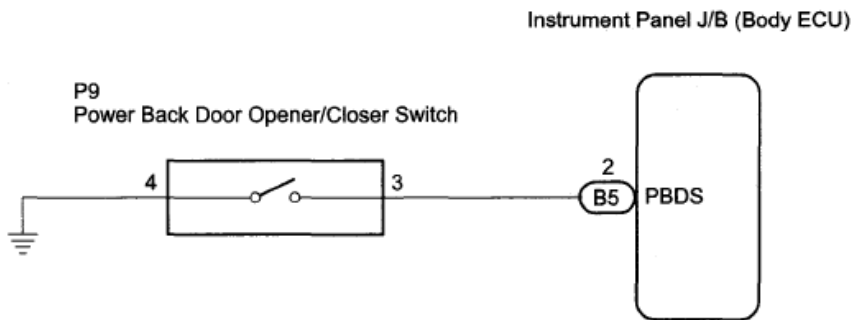
The body ECU is connected to the power back door opener/closer switch via terminal PBDS and power back door operation request signals are input to the ECU.

The body ECU applies voltage to the power back door opener/closer switch via terminal PBDS. When the switch is on (there is continuity between the switch terminals), a power back door operation request signal is

input to the body ECU to operate the back door.

NOTE: The power back door ECU records the back door positions in the memory. In the case where any of the batteries, fuses, power back door ECU and power back door drive unit are removed and then reinstalled, the power back door ECU loses the memory of the door positions. In such a case, resetting the power back door system is necessary. Refer to the resetting operation (See INITIALIZATION).

WIRING DIAGRAM



H

B106773E10

Fig. 43: Power Back Door Opener/Closer Switch - Wiring Diagram
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

1. **READ VALUE OF DATA LIST (POWER BACK DOOR OPENER/CLOSER SWITCH)**
 - a. Check the DATA LIST to ensure proper function of the power back door opener/closer switch.

BODY (Body ECU):

DATA LIST - BODY (BODY ECU)

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
B DOE OPER SW	Power back door opener/closer switch signal /ON or OFF	ON: Power back door opener/ closer switch is pushed OFF: Power back door opener/ closer switch is not pushed	-

OK: The display is as specified in the normal condition.

NG: Go to step 2

OK: PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**2. INSPECT POWER BACK DOOR OPENER/CLOSER SWITCH ASSEMBLY**

- a. Remove the power back door opener/closer switch assembly.
- b. Measure the resistance according to the value (s) in the table below.

Standard resistance**RESISTANCE SPECIFICATION**

Tester Connection	Switch Position	Specified Condition
3 - 4	Pushed (ON)	Below 1 ohms
3 - 4	Free (OFF)	10 kohms or higher

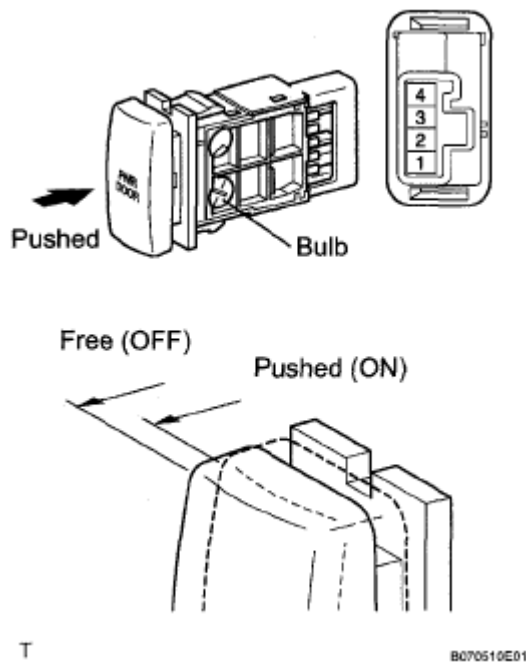


Fig. 44: Inspecting Power Back Door Opener/Closer Switch Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NG: REPLACE POWER BACK DOOR OPENER / CLOSER SWITCH ASSEMBLY**OK: Go to Next Step****3. CHECK WIRE HARNESS (POWER BACK DOOR OPENER/CLOSER SWITCH - POWER BACK DOOR ECU)**

- a. Disconnect the power back door opener/closer switch assembly connector.
- b. Disconnect the instrument panel J/B connector.
- c. Measure the resistance according to the value (s) in the table below.

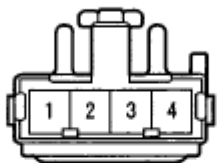
Standard resistance

RESISTANCE SPECIFICATION

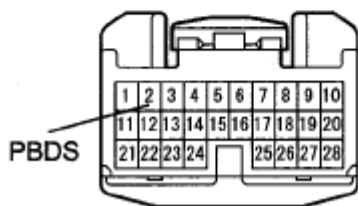
Tester Connection	Condition	Specified Condition
P9-3 - B5-2 (PBDS)	Always	Below 1 ohms
P9-4 - Body ground	Always	Below 1 ohms

Wire Harness Side:

P9
Power Back Door Opener/Closer Switch



B5
Instrument Panel J/B (Body ECU)



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B112736E01

Fig. 45: Identifying Power Back Door Opener/Closer Switch And Instrument Panel J/B Connector Terminals

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

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

POWER BACK DOOR WARNING BUZZER CIRCUIT

DESCRIPTION

The power back door ECU applies current from terminal BZR+ to terminal BZR- to activate the power back

door warning buzzer.

The power back door system uses a warning buzzer built into the back door which has 3 patterns of sounding according to the situation:

1. When all the following conditions are met, the warning buzzer sounds at a cycle of 0.3 seconds:

- The ignition switch is turned ON.
- The shift lever is moved into any position except P.
- The back door is open or the power back door is activated to open.

The warning buzzer continues to sound until the back door is fully closed or the shift lever is moved into the P position.

2. While the power back door is operating, the warning buzzer sounds at a cycle of 0.7 seconds. This stops sounding when the power back door stops. The warning buzzer is set to OFF at factory (default setting) and can be customized when required.

3. When the power back door is activated to open, the warning buzzer that notifies the start of opening sounds at 2 cycles of 0.5 seconds. At the start of opening of the power back door, the wireless buzzer (built into the engine room) also sounds.

4. When the direction that the power back door is moving is reversed by switch operation (power back door opener/closer switch, transmitter switch, power back door closer switch or back door opener switch (outside handle switch)) or the activation of the jam protection function during power back door operation, the warning buzzer sounds once for 0.3 seconds.

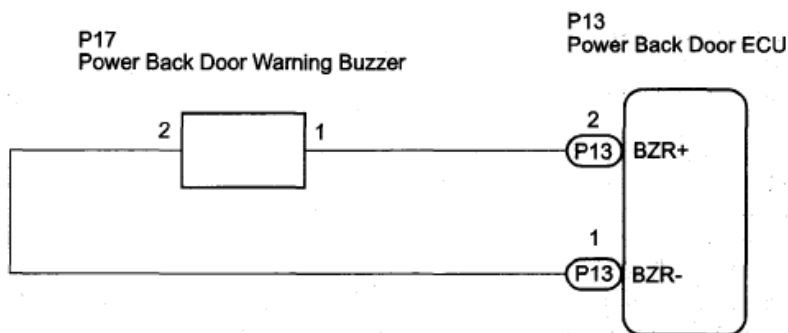
The power back door ECU directly sends a signal to the warning buzzer.

HINT:

- Only item 2 can be customized (See **CUSTOMIZE PARAMETERS**).
- If all items occur at the same time, item 1 is prior to the others.

NOTE: The power back door ECU records the back door positions in the memory. In the case where any of the batteries, fuses, power back door ECU and power back door drive unit are removed and reinstalled, the power back door ECU loses the memory of the door positions. In such cases, resetting the power back door system is necessary. Refer to the resetting operation (See **INITIALIZATION**).

WIRING DIAGRAM



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B10G782E01

Fig. 46: Power Back Door Warning Buzzer - Wiring Diagram

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

INSPECTION PROCEDURE

1. PERFORM ACTIVE TEST BY INTELLIGENT TESTER

- a. Select the ACTIVE TEST, use the intelligent tester to generate a control command, and then check that the power back door warning buzzer operates.

BACK-DOOR (Power Back Door ECU):

ACTIVE TEST DETAIL - BACK-DOOR (POWER BACK DOOR ECU)

Item	Test Details	Diagnostic Note
PBD BUZZER	Power back door buzzer sound OFF/ON	Buzzer sounds once for 0.5 sec.

OK: The buzzer sounds normally.

NG: Go to step 2

OK: PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

2. CHECK WIRE HARNESS (POWER BACK DOOR WARNING BUZZER WIRE HARNESS SIDE)

- a. Remove the back door warning buzzer.
- b. Measure the buzzer connector side voltage.

HINT:

Use an oscilloscope to check the output voltages of the buzzer.

Wire Harness Side:

P17
Power Back Door Warning Buzzer



8112732E01

Fig. 47: Identifying Power Back Door Warning Buzzer Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK:

WAVEFORM REFERENCE

Tester Connection	Tool Setting	Measurement Condition	Specified Condition
P17-1 - Body ground	5V/DIV., 500 ms/DIV.	Condition that causes buzzer to sound is met (See DESCRIPTION)	Pulse generation (See Fig. 48)

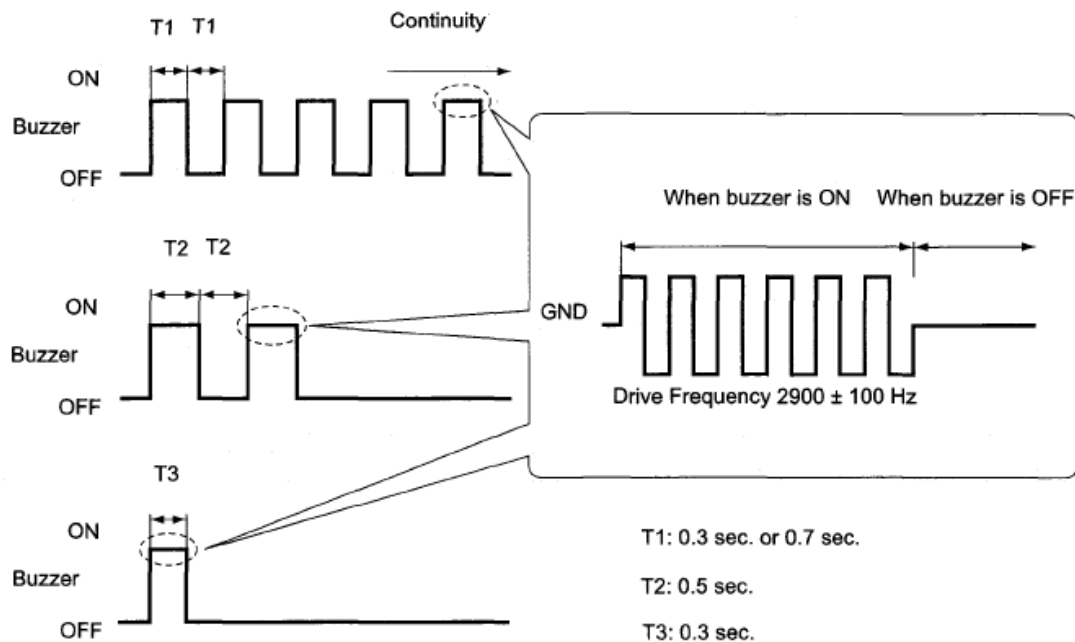


Fig. 48: Identifying Blinking Pattern Of Buzzer

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

NG: Go to step 4

OK: Go to Next Step

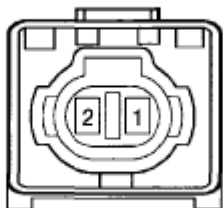
3. INSPECT POWER BACK DOOR WARNING BUZZER ASSEMBLY

- a. Remove the power back door warning buzzer assembly.
- b. Measure the resistance according to the value (s) in the table below.

Standard resistance**RESISTANCE SPECIFICATION**

Tester Connection	Specified Condition
1 - 2	Approx. 1 kohms

NOTE: Directly applying battery voltage to the buzzer does not cause the buzzer to sound.

Power Door Warning Buzzer Assembly:

B069501E01

Fig. 49: Identifying Power Back Door Warning Buzzer Connector Terminals

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

NG: REPLACE POWER BACK DOOR WARNING BUZZER ASSEMBLY

OK: Go to Next Step

4. CHECK WIRE HARNESS (POWER BACK DOOR WARNING BUZZER - POWER BACK DOOR ECU)

- a. Disconnect the power back door warning buzzer connector.
- b. Disconnect the power back door ECU connector.
- c. Measure the resistance according to the value (s) in the table below.

Standard resistance

RESISTANCE SPECIFICATION

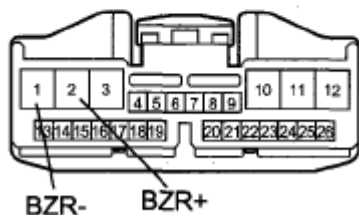
Tester Connection	Condition	Specified Condition
P17-1 - P13-2 (BZR+)	Always	Below 1 ohms
P17-2 - P13-1 (BZR-)	Always	Below 1 ohms

Wire Harness Side :

P17
Power Back Door Warning Buzzer



P13
Power Back Door ECU



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B112723E01

Fig. 50: Identifying Power Back Door Warning Buzzer And Power Back Door ECU Connector Terminals

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

MAIN SWITCH CIRCUIT

DESCRIPTION

The power back door main switch only turns on while the switch is being pressed, and turns off when the switch is released.

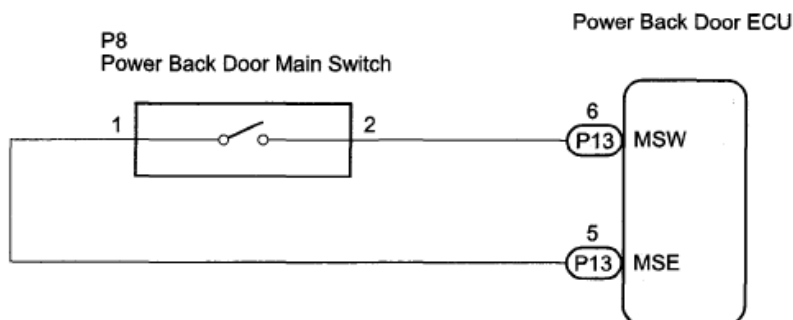
The power back door ECU is connected to the power back door main switch via terminals MSW and MSE, and

power back door operation cancel request signals are input to the ECU.

The power back door ECU applies voltage to the power back door main switch via terminal MSW. When the switch is on (there is continuity between the switch terminals), a power back door operation cancel request signal is input to the power back door ECU.

NOTE: The power back door ECU records the back door positions in the memory. In the case where any of the batteries, fuses, power back door ECU and power back door drive unit are removed and then reinstalled, the power back door ECU loses the memory of the door positions. In such a case, resetting the power back door system is necessary. Refer to the resetting operation (See INITIALIZATION).

WIRING DIAGRAM



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B109783E01

Fig. 51: Power Back Door Main Switch - Wiring Diagram
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

1. READ VALUE OF DATA LIST

- a. Check the DATA LIST to ensure proper function of the power back door main switch.

BACK-DOOR (Power Back Door ECU):

DATA LIST - BACK-DOOR (POWER BACK DOOR ECU)

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
PBD MAIN SW	Power back door main switch signal /ON or OFF	OFF: Power back door main switch is not pushed ON: Power back door main switch is pushed	-

HINT:

MAIN appears on the display of the intelligent tester, however, the name of the part corresponding to the display of the tester is "power back door main switch".

OK: The display is as specified in the normal condition.

NG: Go to step 2

OK: PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

2. INSPECT POWER BACK DOOR MAIN SWITCH

- a. Remove the power back door main switch.
- b. Measure the resistance according to the value (s) in the table below.

Standard resistance

RESISTANCE SPECIFICATION

Tester Connection	Switch Position	Specified Condition
1 - 2	Free (OFF)	10 kohms or higher
1 - 2	Pushed (ON)	Below 1 ohms

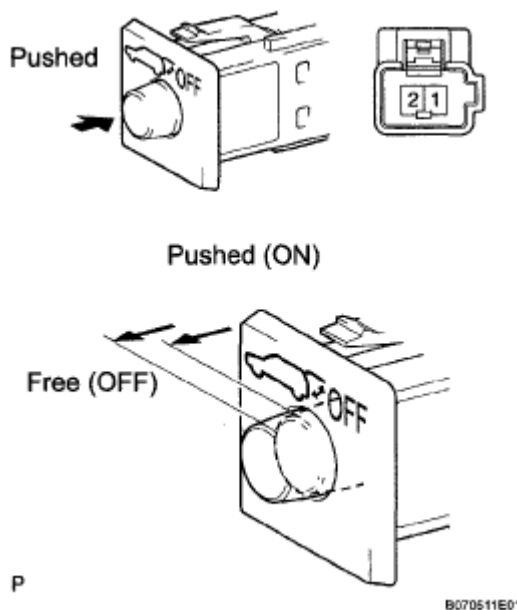


Fig. 52: Inspecting Power Back Door Main Switch
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NG: REPLACE POWER BACK DOOR MAIN SWITCH

OK: Go to Next Step

3. CHECK WIRE HARNESS (POWER BACK DOOR MAIN SWITCH - POWER BACK DOOR ECU)

- a. Disconnect the power back door main switch connector.
- b. Disconnect the power back door ECU connector.
- c. Measure the resistance according to the value (s) in the table below.

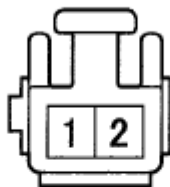
Standard resistance

RESISTANCE SPECIFICATION

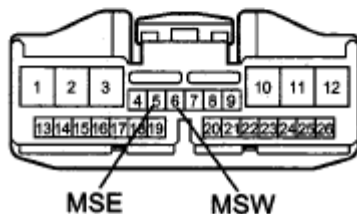
Tester Connection	Condition	Specified Condition
P8-1 - P13-5 (MSE)	Always	Below 1 ohms
P8-2 - P13-6 (MSW)	Always	Below 1 ohms

Wire Harness Side:

P8
Power Back Door Main Switch



P13
Power Back Door ECU



B111725E01

Fig. 53: Identifying Power Back Door Main Switch And Power Back Door ECU Connector Terminals

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

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

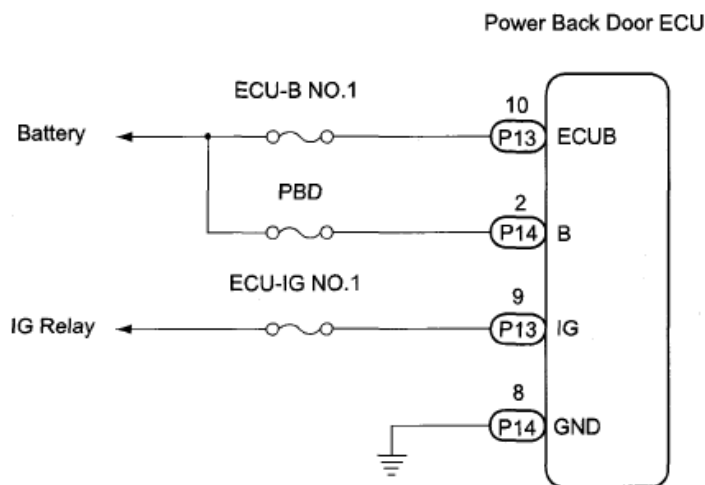
ECU POWER SOURCE CIRCUIT

DESCRIPTION

This circuit supplies power to operate the power back door ECU.

NOTE: The power back door ECU records the back door positions in the memory. In the case where any of the batteries, fuses, power back door ECU and power back door drive unit are removed and then reinstalled, the power back door ECU loses the memory of the door positions. In such a case, resetting the power back door system is necessary. Refer to the resetting operation (See INITIALIZATION).

WIRING DIAGRAM



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B111718E01

Fig. 54: ECU Power Source - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

1. **CHECK WIRE HARNESS (POWER BACK DOOR ECU - BATTERY AND BODY GROUND)**
 - a. Disconnect the power back door ECU connector.
 - b. Measure the resistance according to the value (s) in the table below.

Standard resistance

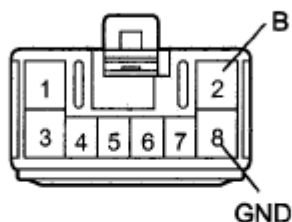
RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
P14-8 (GND) - Body ground	Always	Below 1 ohms

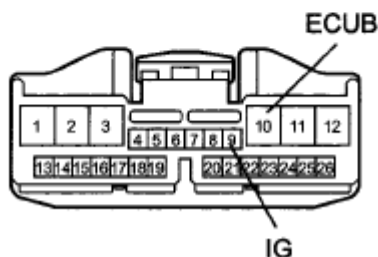
c. Measure the voltage according to the value (s) in the table below.

Wire Harness Side :

P14
Power Back Door ECU



P13
Power Back Door ECU



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Fig. 55: Identifying Power Back Door ECU Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard voltage

VOLTAGE SPECIFICATION

Tester Connection	Condition	Specified Condition
P13-10 (ECUB) - Body ground	Always	10 to 14 V
P14-2 (B) - Body ground	Always	10 to 14 V
P13-9 (IG) - Body ground	Ignition switch ON	10 to 14 V

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS

TABLE**ELECTRICAL BACK DOOR OUTSIDE HANDLE SYSTEM****PRECAUTION**

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

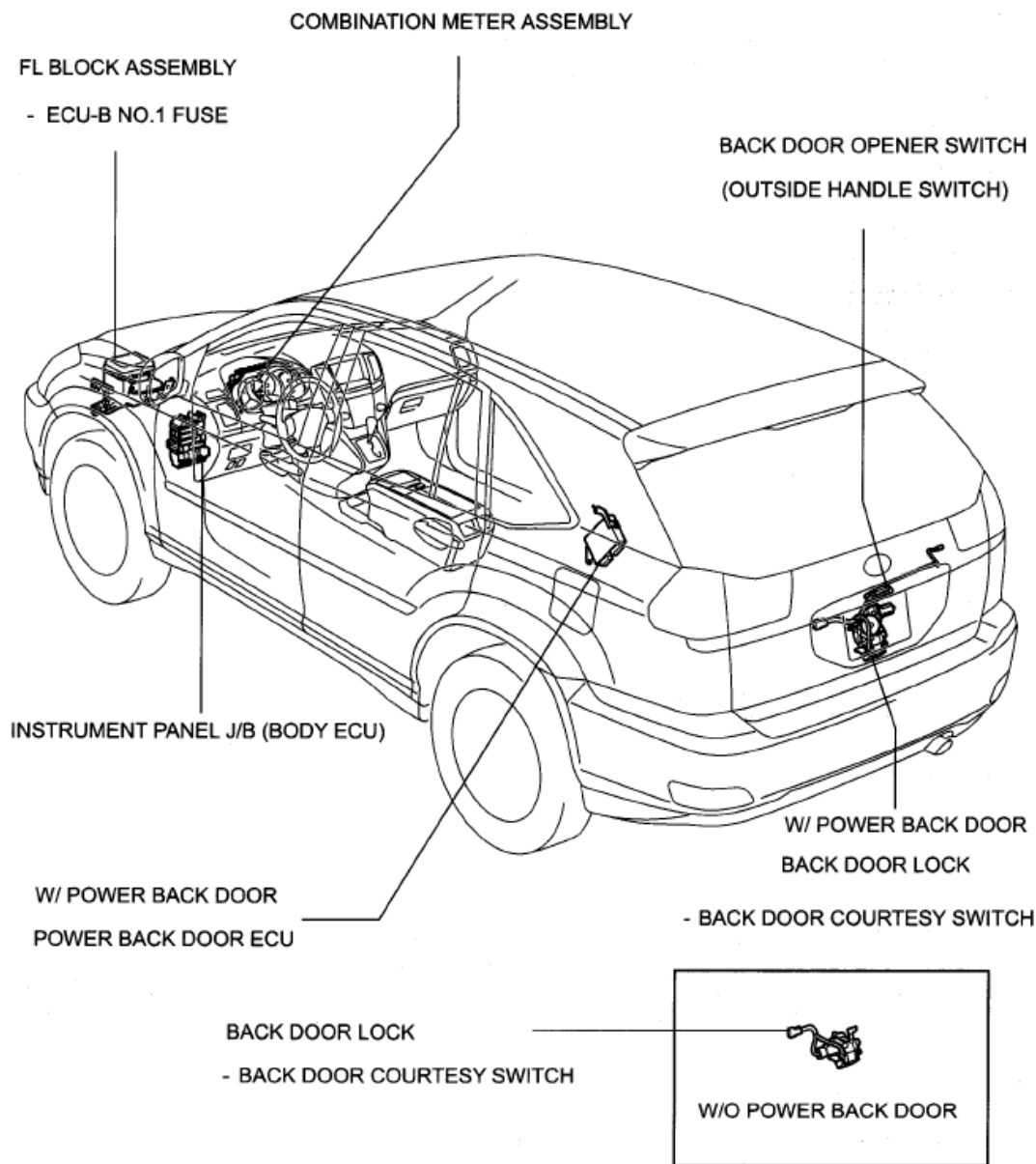
SYSTEM REFERENCE

System Name	See Procedure
Lighting System	See <u>INITIALIZATION</u>
Power Door Lock Control System	
Power Window Control System	
Back Door Closer System	
Power Back Door System	
Electrical Back Door Outside Handle System	
Sliding Roof System (for Multi-panel Moon Roof)	
Sliding Roof System (for Standard)	

PARTS LOCATION

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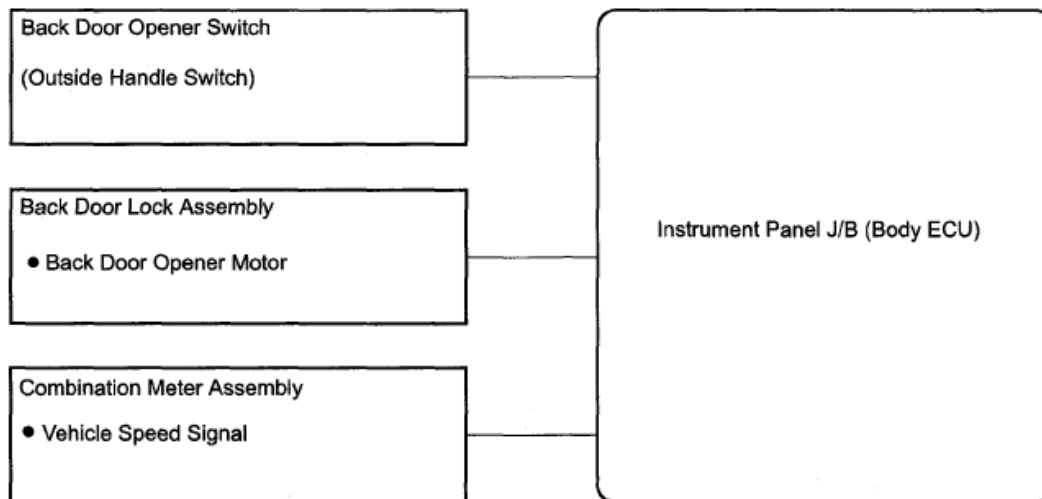
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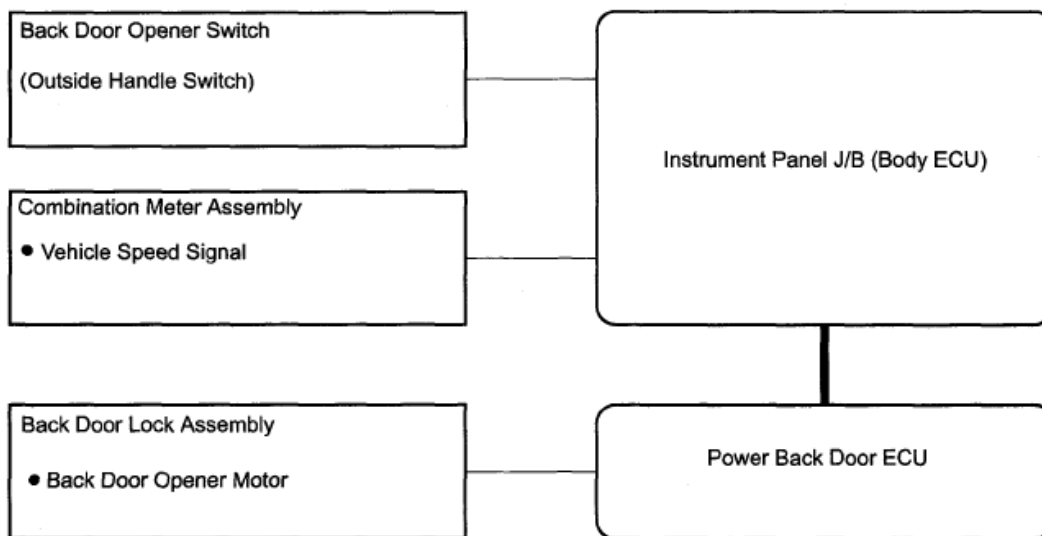
Fig. 56: Identifying Electrical Back Door Outside Handle System Components Location
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SYSTEM DIAGRAM

w/o Power Back Door System:



w/ Power Back Door System:



————— : Multiplex Communication Line (BEAN)

B112717E01

Fig. 57: Electrical Back Door Outside Handle System Diagram
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SYSTEM DESCRIPTION

1. ELECTRICAL BACK DOOR OUTSIDE HANDLE SYSTEM DESCRIPTION

- a. This system is provided on RX330 with a switch on the back door outside handle to open the back door electrically.

- b. On models without a power back door, this system is controlled by the body ECU. On models with a power back door, it is controlled by the power back door ECU.
- c. This system activates when the following two conditions are met:
 - 1. Vehicle speed is less than 5 km/h (3 mph).
 - 2. An unlock signal is input into the body ECU (models without power back door) / power back door ECU (models with power back door) from the respective door in accordance with the wireless door lock remote control, key, or door lock control.

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use the following procedures to troubleshoot the power door lock control system.
- The intelligent tester should be used in steps 3 and 5.

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

Standard Voltage: 11 to 14 V

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

3. **INSPECT COMMUNICATION FUNCTION OF MULTIPLEX COMMUNICATION SYSTEM (BEAN)**
 - a. Use the intelligent tester to check if the Multiplex Communication System (MPX) is functioning normally.

Result

RESULT REFERENCE

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

B: GO TO MULTIPLEX COMMUNICATION SYSTEM

A: Go to Next Step

4. **PROBLEM SYMPTOMS TABLE**

Result

RESULT REFERENCE

Result	Proceed to

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

B: After repair, go to step 7

A: Go to Next Step

5. OVERALL ANALYSIS AND TROUBLESHOOTING

- a. Terminals of ECU

(See TERMINALS OF ECU)

- b. DATA LIST/ACTIVE TEST

(See DATA LIST / ACTIVE TEST)

6. REPAIR OR REPLACE

7. CONFIRMATION TEST

NEXT: END

INITIALIZATION

1. BACK DOOR LOCK

- a. When the battery is reconnected:

If the back door is locked and therefore cannot be opened, it is necessary to unlock the back door using the door control switch or transmitter switch.

- b. When the back door lock is replaced:

The power back door ECU cannot receive a switch signal from the lock. This may cause the power back door system to enter fail-safe mode and DTC B2215 to set, as well as make the system disabled. When the lock is replaced, be sure to perform the following: first, properly connect the lock, second, clear the DTC from memory using the intelligent tester, and finally recheck that no DTC is output.

2. RESET (INITIALIZE)

- a. Resetting the power back door system:

The power back door ECU records the fully open position and the fully closed position of the power back door in its memory and the power back door fully opens and fully closes based on this memory. In the case where any of the batteries, fuses, power back door ECU or power back door drive unit are removed and then reinstalled, the power back door ECU loses the memory of the door positions. In such cases, resetting the system is necessary.

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However the back door closer system has no effect on ECU memory.

Reset the power back door system as follows:

1. Fully close the power back door if opened.
2. Check that the back door fully open and fully close.
 - Unlock the power back door using the unlock button on the transmitter switch or the door control switch.
 - Turn the ignition switch to the "OFF" position.
 - Check that the power back door main switch is in the "OFF" position (not pushed).
 - Check that the back door fully opens and fully closes by pushing the power back door opener/closer switch or PWR button briefly on the transmitter switch.

HINT:

The jam protection function is enabled through the above initialization procedure.

PROBLEM SYMPTOMS TABLE

ELECTRICAL BACK DOOR OUTSIDE HANDLE SYSTEM

ELECTRICAL BACK DOOR OUTSIDE HANDLE SYSTEM

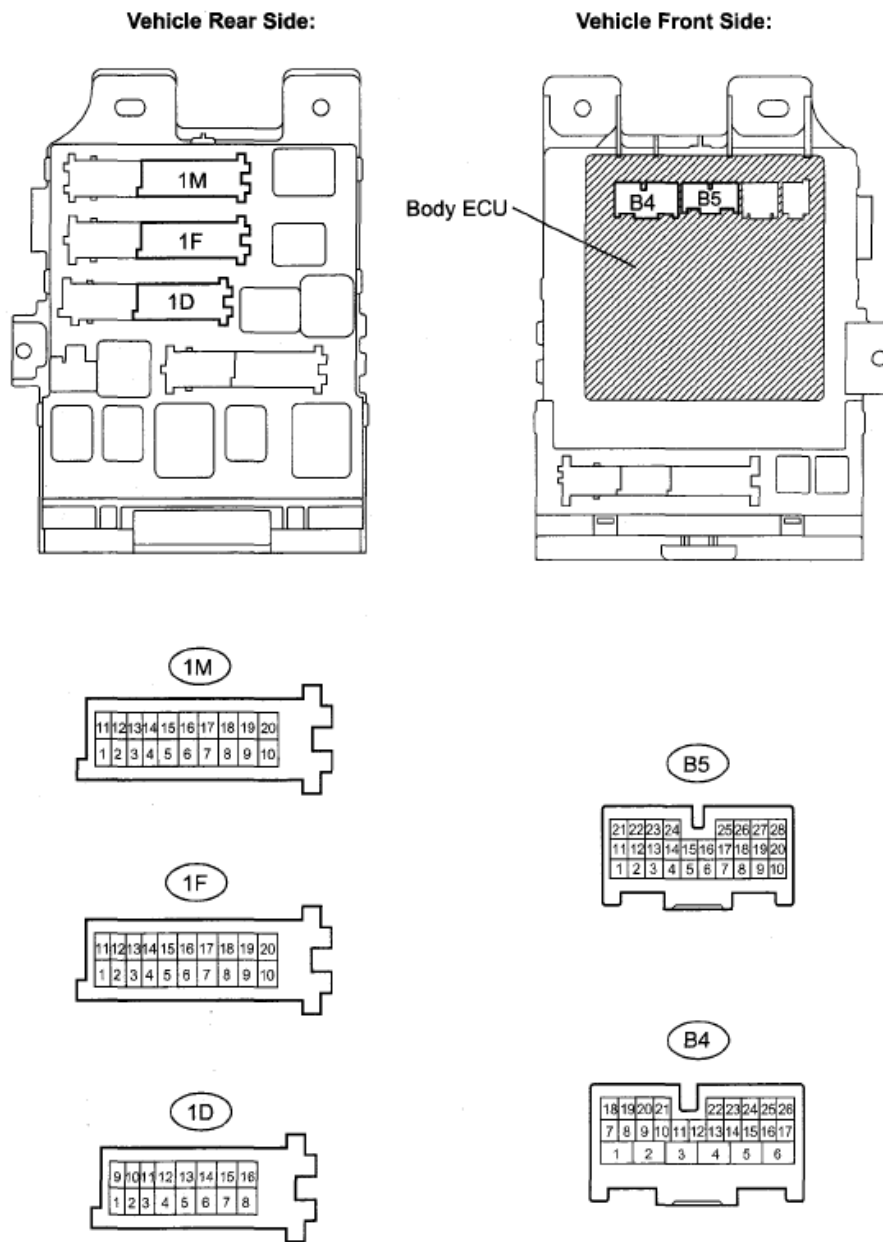
Symptom	Suspected area	Refer to
Only back door cannot be opened (Unlocked) (w/o Power back door system)	Back door opener switch circuit	<u>BACK DOOR OPENER SWITCH CIRCUIT</u>
	Back door, lock motor circuit	<u>BACK DOOR LOCK MOTOR CIRCUIT</u>
	Instrument panel J/B assembly (Body ECU)	-
Only back door cannot be opened (Unlocked) (w/ Power back door system)	Back door opener switch circuit	<u>BACK DOOR OPENER SWITCH CIRCUIT</u>
	Back door lock motor circuit	<u>BACK DOOR LOCK MOTOR CIRCUIT</u>
	Instrument panel J/B assembly (Body ECU)	-
	Power back door ECU	-

TERMINALS OF ECU

1. **CHECK INSTRUMENT PANEL J/B ASSY (BODY ECU)**
 - a. Disconnect the 1D, 1F, 1M and B5 connectors.

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Fig. 58: Identifying Instrument Panel J/B Assembly Connector Terminals
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard voltage and resistance

VOLTAGE AND RESISTANCE SPECIFICATION

Symbols	Wiring	Terminal Description	Condition	Specified
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2008 ACCESSORIES AND EQUIPMENT Engine Hood/Door - RX350

(Terminal No.)	Color			Condition
BECU (1D-10) - Body ground	W - Body ground	+B (BECU) power supply	Constant	10 to 14 V
GND1 (1F-10) - Body ground	W-B - Body ground	Ground	Constant	Below 1 O,
GND2 (1M-9) - Body ground	W-B - Body ground	Ground	Constant	Below 1 ohms
BDSU (BS-3) - Body ground	W - Body ground	Back door opener switch (outside handle switch) input	Back door opener switch OFF --> ON	10 kohms or higher --> Below 1 ohms

HINT:

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

- c. Reconnect the J/B and ECU connectors and measure the voltage according to the value (s) in the table below.

Standard voltage

VOLTAGE SPECIFICATION

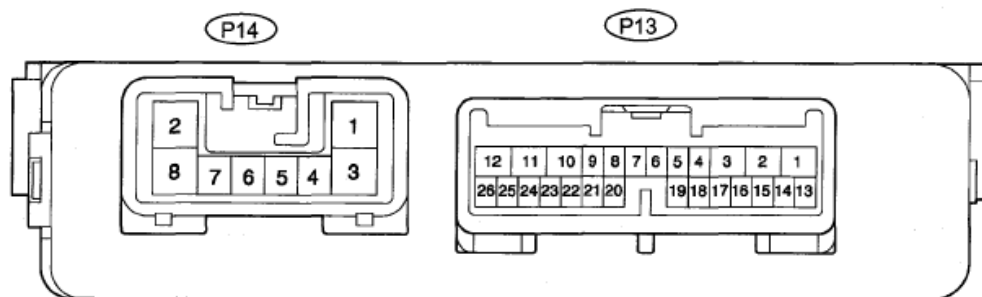
Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
TR+ (B4-1)* - Body ground	BR - Body ground	Back door lock motor drive output	Back door opener switch (outside handle switch) OFF -- > ON	Below 1 V --> 10 to 14V --> Below 1 V

HINT:

- *: w/o Power Back Door
- If the result is not as specified, the J/B (body ECU) may have a malfunction.

2. CHECK POWER BACK DOOR ECU (w/ Power back door system)

- a. Disconnect the P13 and P14 ECU connectors.



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Fig. 59: Identifying Power Back Door ECU Connector Terminals
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard voltage and resistance

VOLTAGE AND RESISTANCE SPECIFICATION

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
ECUB (P13-10) - Body ground	BR - Body ground	ECU (ECUB) power supply	Constant	10 to 14 V
B (P14-2) - Body ground	Y - Body ground	+B (ECUB) power supply	Constant	10 to 14 V
GND (P14-8) - Body ground	W-B - Body ground	Ground	Constant	Below 1 ohms

HINT:

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

- c. Reconnect the ECU connectors and measure the voltage according to the value (s) in the table below.

Standard voltage

VOLTAGE SPECIFICATION

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
DC+ (P13-12) - Body ground	G - Body ground	Back door lock motor drive output (Close)	Back door OPEN --> Not completely closed --> > Motor in normal rotation --> Motor in reverse rotation -->	Below 1 V --> Below 1 V --> 10 to 14 V --> Below 1 V --> Below 1V -->

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			Operation completed (Back door CLOSED)	
DC- (P13-11) - Body ground	B - Body ground	Back door lock motor drive output (Release)	Back door OPEN --> Not completely closed -- > Motor in normal rotation --> Motor in reverse rotation --> Operation completed (Back door CLOSED)	Below 1 V --> Below 1 V --> Below 1 V --> 10 to 14 V --> Below 1 V -->

HINT:

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

DIAGNOSIS SYSTEM

1. CHECK DLC3

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

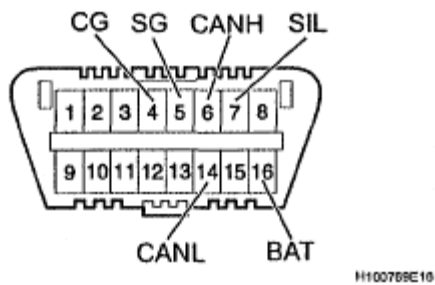


Fig. 60: Identifying DLC3 Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

VOLTAGE AND RESISTANCE SPECIFICATION

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 ohms
SG (5) - Body ground	Signal ground	Always	Below 1 ohms
BAT (16) - Body ground	Battery positive	Always	10 to 14 V
CANH (6) - CANL (14)	CAN bus line	Ignition switch OFF ⁽¹⁾	54 to 69 ohms
CANH (6) - CG (4)	HIGH-level CAN bus line	Ignition switch OFF ⁽¹⁾	200 ohms or higher
CANL (14) - CG (4)	LOW-level CAN bus line	Ignition switch OFF ⁽¹⁾	200 ohms or higher

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CANH (6) - BAT (16)	HIGH-level CAN bus line	Ignition switch OFF ⁽¹⁾	6 kohms or higher
CANL (14) - BAT (16)	LOW-level CAN bus line	Ignition switch OFF ⁽¹⁾	6 kohms or higher

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

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

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

- b. Connect the cable of the intelligent tester (with CAN VIM) to the DLC3, turn the ignition switch to the ON position and attempt to use the intelligent tester. If the screen displays a communication error message, a problem exists in the vehicle side or tester side.

HINT:

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

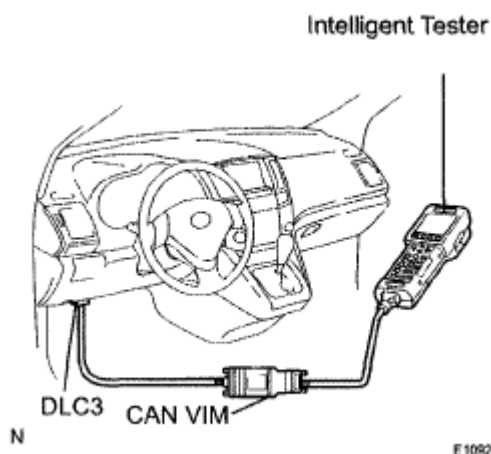


Fig. 61: Connecting Intelligent Tester To DLC3
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DATA LIST / ACTIVE TEST

1. READ DATA LIST

HINT:

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

- a. Connect the intelligent tester to the DLC3.
- b. Turn the ignition switch ON.
- c. Read the DATA LIST

BODY (Body ECU):

DATA LIST - BODY (BODY ECU)

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
B DOE OPEN SW	Back door opener switch signal (Outside handle switch) /ON or OFF	ON: Back door opener switch is pushed OFF: Back door opener switch is not pushed	-

BACK-DOOR (Power Back Door ECU):

DATA LIST - BACK-DOOR (POWER BACK DOOR ECU)

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
DOOR HANDLE SW	Back door opener switch signal (Outside handle switch) /ON or OFF	ON: Back door opener switch is pushed OFF: Back door opener switch is not pushed	-

2. PERFORM ACTIVE TEST

HINT:

Performing the intelligent tester's ACTIVE TEST allows 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 to the DLC3.
- b. Turn the ignition switch ON.
- c. Perform the ACTIVE TEST.

BODY (Body ECU):

ACTIVE TEST DETAIL - BODY (BODY ECU)

Item	Test Details	Diagnostic Note
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TRUNK/BDOR OPEN	Operate back door open OFF/ON	-
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BACK-DOOR (Power Back Door ECU):

ACTIVE TEST DETAIL - BACK-DOOR (POWER BACK DOOR ECU)

Item	Test Details	Diagnostic Note
LATCH RELEASE	Back door lock latch Is released OFF/ON	-

BACK DOOR LOCK MOTOR CIRCUIT

DESCRIPTION

w/o power back door system:

The back door lock motor is built into the back door lock assembly. When a back door open signal is input to the body ECU, the ECU applies current to the back door lock motor via terminal TR+ to activate the motor to open the back door.

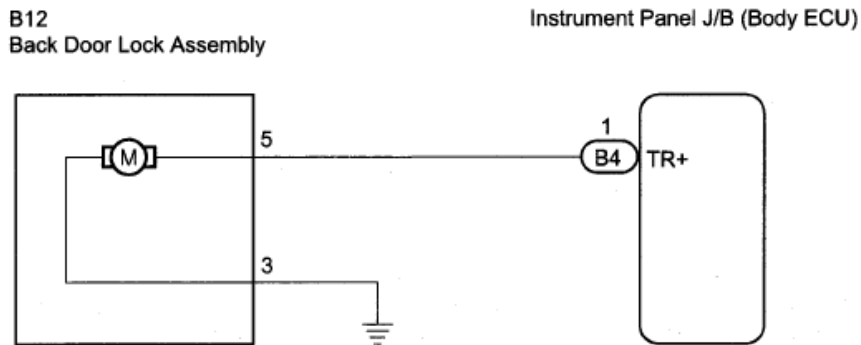
w/ power back door system:

The back door lock motor is built into the back door lock assembly. The power back door ECU controls the back door lock motor to open/close the back door. This ECU applies current from terminal DC+ to terminal DC- to operate the motor to close the door. It reverses the direction of the current to operate the motor to open the door.

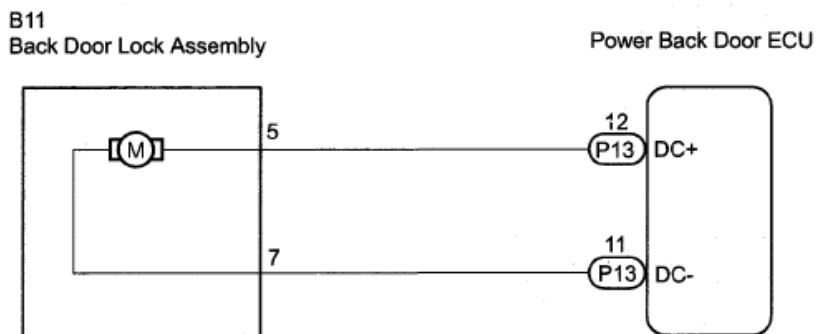
NOTE: The power back door ECU records the back door positions in the memory. In the case where any of the batteries, fuses, power back door ECU and power back door drive unit are removed and then reinstalled, the power back door ECU loses the memory of the door positions. In such a case, resetting the power back door system is necessary. Refer to the resetting operation (See INITIALIZATION).

WIRING DIAGRAM

w/o Power Back Door System:



w/ Power Back Door System:



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Fig. 62: Back Door Lock Motor - Wiring Diagram
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

1. INSPECT BACK DOOR LOCK ASSEMBLY

a. w/o Back door closer system:

1. Remove the back door lock assembly.
2. Using a screwdriver, push the latch in order to put the back door lock in the locked condition (full-latch position).
3. Apply battery voltage and check operation of the door lock motor.

OK

MEASUREMENT CONDITION AND SPECIFIED CONDITION

Measurement Condition	Specified Condition
-----------------------	---------------------

Battery positive (+) --> Terminal 5	Latch turns to open-latch position
Battery negative (-) --> Terminal 3	

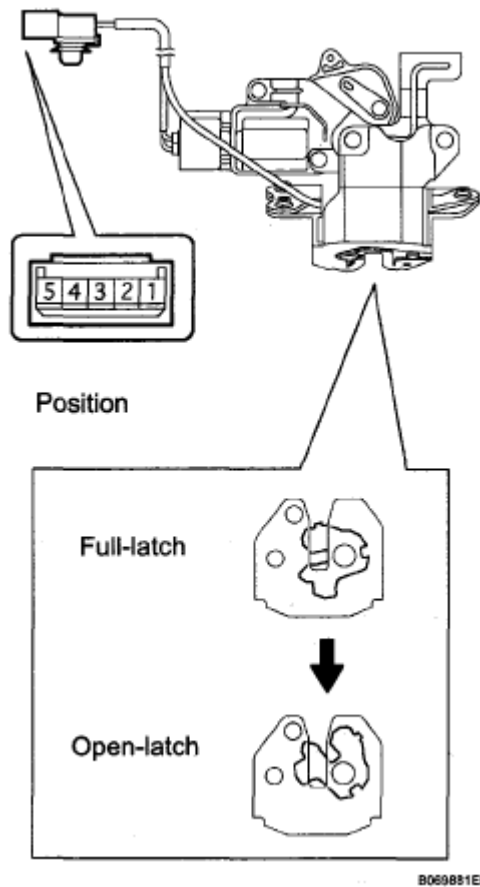


Fig. 63: Inspecting Back Door Lock Assembly (W/O Back Door Closer System)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. w/ Back door closer system:

1. Remove the back door lock assembly.
2. Using a screwdriver, push the latch in order to put the back door lock in the locked condition (full-latch position).
3. Apply battery voltage and check operation of the door lock motor.

OK

MEASUREMENT CONDITION AND SPECIFIED CONDITION

Measurement Condition	Specified Condition
Battery positive (+) --> Terminal 7	Latch turns to open-latch position
Battery negative (-) --> Terminal 5	

c. Check motor operation when battery voltage is applied to the terminals.

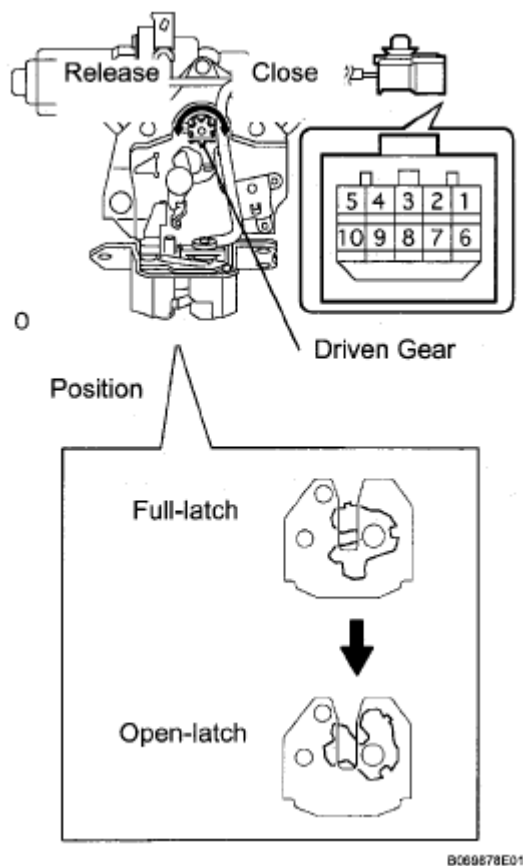


Fig. 64: Inspecting Back Door Lock Assembly (W/ Back Door Closer System)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

MEASUREMENT CONDITION AND SPECIFIED CONDITION

Measurement Condition	Specified Condition
Battery positive (+) --> Terminal 5 Battery negative (-) --> Terminal 7	Close operation (Clock wise)
Battery positive (+) --> Terminal 7 Battery negative (-) --> Terminal 5	Release operation (Counterclockwise rotation)

NG: REPLACE BACK DOOR LOCK ASSEMBLY

OK: Go to Next Step

2. CHECK WIRE HARNESS

a. w/p Back door closer system:

1. Disconnect the back door lock assembly connector.
2. Disconnect the instrument panel J/B connector.
3. Measure the resistance according to the value (s) in the table below.

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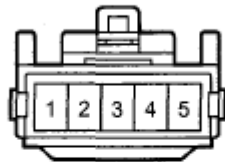
Standard resistance

RESISTANCE SPECIFICATION

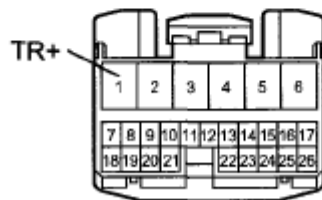
Tester Connection	Condition	Specified Condition
B12-5 - B4-1 (TR+)	Always	Below 1 ohms
B12-3 - Body ground	Always	Below 1 ohms

Wire Harness Side:

B12
Back Door Lock Assembly



B4
Instrument Panel J/B (Body ECU)



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Fig. 65: Identifying Back Door Lock Assembly And Instrument Panel J/B Connector Terminals

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

b. w/ Back door closer system:

1. Disconnect the back door lock assembly connector.
2. Disconnect the power back door ECU connector.
3. Measure the resistance according to the value (s) in the table below.

Standard resistance

RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
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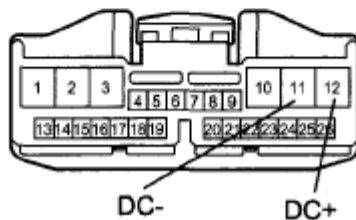
B11-5 - P13-12 (DC+)	Always	Below 1 ohms
B11-7 - P13-11 (DC-)	Always	Below 1 ohms

Wire Harness Side:

B11
Back Door Lock Assembly



P13
Power Back Door ECU



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Fig. 66: Identifying Back Door Lock Assembly And Power Back Door ECU Connector Terminals

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

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

BACK DOOR OPENER SWITCH CIRCUIT

DESCRIPTION

The back door opener switch only turns on while the back door handle is being pulled, and turns off when the handle is released.

The body ECU is connected to the back door opener switch via terminal BDSU and back door unlatch operation request signals are input to the ECU.

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The body ECU applies voltage to the back door opener switch via terminal BDSU. When the switch is on (there is continuity between the switch terminals), a back door unlatch operation request signal is input to the body ECU.

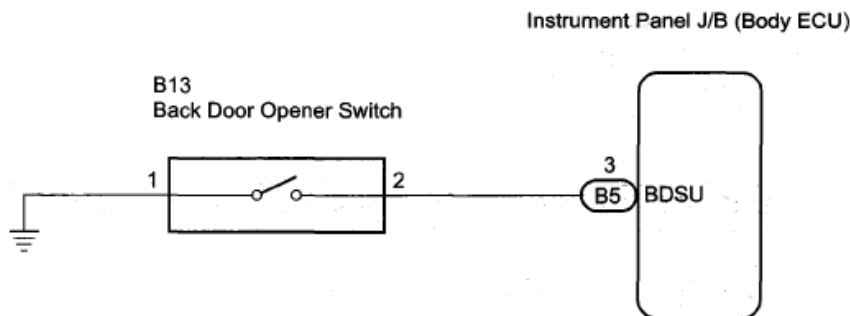
w/o Power back door system:

The body ECU directly activates the motor built into the back door lock assembly to unlatch the back door.

w/ Power back door system:

The body ECU, using multiplex communication, sends signals input from the back door operation switch to the power back door ECU. The power back door ECU then activates the motor built into the back door lock assembly to unlatch the back door based on the signals.

WIRING DIAGRAM



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Fig. 67: Back Door Opener Switch - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

1. READ VALUE OF DATA LIST (BACK DOOR OPENER SWITCH)

- a. Check the DATA LIST to ensure proper function of the power back door opener switch.

BODY (Body ECU):

DATA LIST - BODY (BODY ECU)

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
B DOE OPEN SW	Back door opener switch signal (Outside handle switch) /ON or OFF	ON: Back door opener switch is pushed OFF: Back door opener switch is not pushed	-

OK: The display is as specified in the normal condition.

NG: Go to step 2

OK: PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

2. INSPECT BACK DOOR OPENER SWITCH ASSEMBLY

- a. Remove the back door opener switch assembly.
- b. Measure the resistance according to the value (s) in the table below.

Standard resistance

RESISTANCE SPECIFICATION

Tester Connection	Switch Position	Specified Condition
1 - 2	Free	10 kohms or higher
1 - 2	Pushed	Below 1 ohms

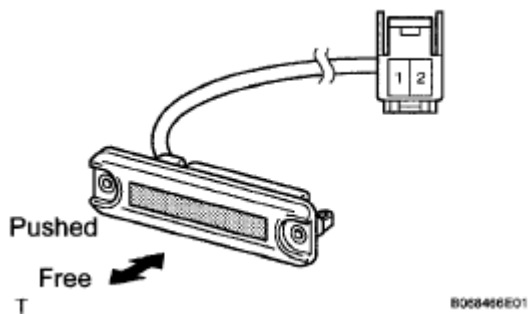


Fig. 68: Inspecting Back Door Opener Switch Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NG: REPLACE BACK DOOR OPENER SWITCH ASSEMBLY

OK: Go to Next Step

3. CHECK WIRE HARNESS (BACK DOOR OPENER SWITCH - INSTRUMENT PANEL J/B (BODY ECU))

- a. Disconnect the back door opener switch assembly connector.
- b. Disconnect the power back door ECU connector.
- c. Measure the resistance according to the value (s) in the table below.

Standard resistance

RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
-------------------	-----------	---------------------

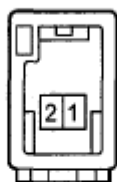
2008 Lexus RX 350

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B13-2 - B5-3 (BDSU)	Always	Below 1 ohms
B13-1 - Body ground	Always	Below 1 ohms

Wire Harness Side:

B13
Back Door Opener Switch



B5
Instrument Panel J/B (Body ECU)



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BDSU

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Fig. 69: Identifying Back Door Opener Switch And Instrument Panel J/B Connector Terminals

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

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

FUEL LID OPENER SYSTEM

PRECAUTION

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

SYSTEM REFERENCE

2008 Lexus RX 350

2008 ACCESSORIES AND EQUIPMENT Engine Hood/Door - RX350

System Name	See Procedure
Lighting System	See <u>INITIALIZATION</u>
Power Door Lock Control System	
Power Window Control System	
Back Door Closer System	
Power Back Door System	
Electrical Back Door Outside Handle	
Sliding Roof System (for Multi-panel Moon Roof)	
Sliding Roof System (for Standard)	

PARTS LOCATION

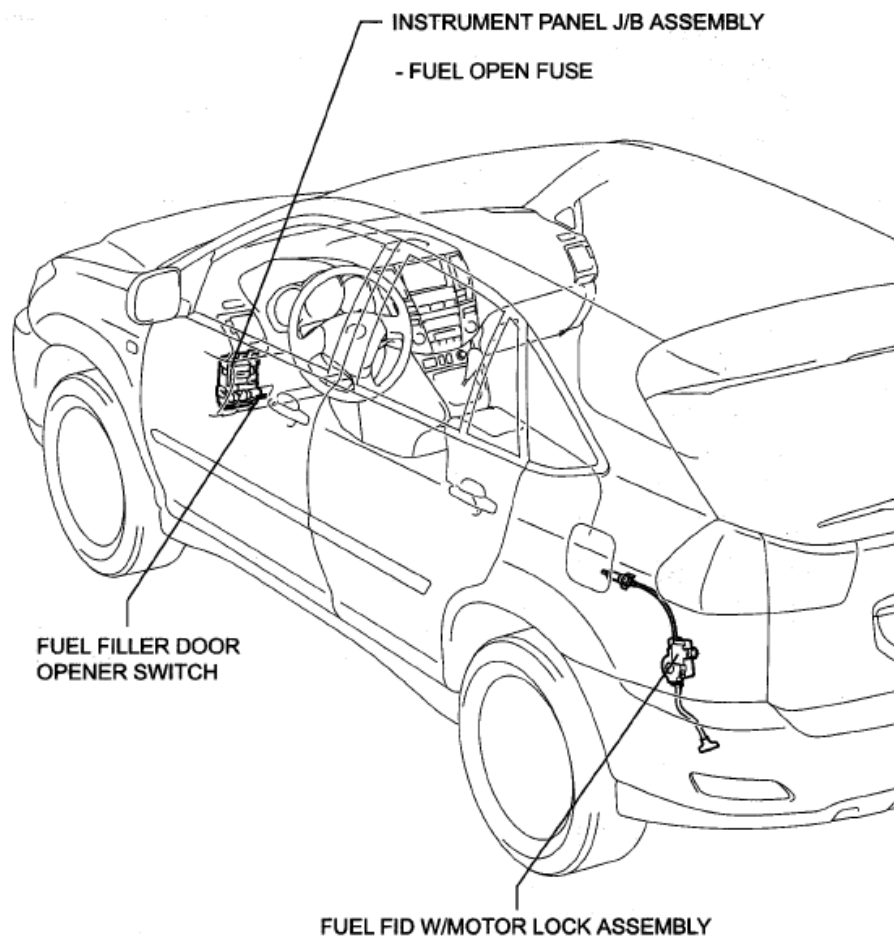


Fig. 70: Identifying Fuel Lid Opener System Components Location

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

PROBLEM SYMPTOMS TABLE

Fuel Lid Opener System

FUEL LID OPENER SYSTEM

Symptom	Suspected area	Refer to
Fuel lid opener does not operate	FUEL OPEN fuse	PARTS LOCATION
	Fuel filler door opener switch	PROBLEM SYMPTOMS TABLE
	Fuel lid w/motor lock assembly	PROBLEM SYMPTOMS TABLE
	Wire harness	-

INSPECTION

1. INSPECT FUEL LID W/MOTOR LOCK ASSEMBLY

- a. Apply battery voltage to the lock control and check the motor operates in the direction.

OK

MEASUREMENT CONDITION AND SPECIFIED CONDITION

Measurement Condition	Specified Condition
Battery positive (+) --> Terminal 2	Open direction
Battery negative (-) --> Terminal 1	

- b. Check the shaft stroke.

Standard: 10.3 mm (0.406 in.) or more

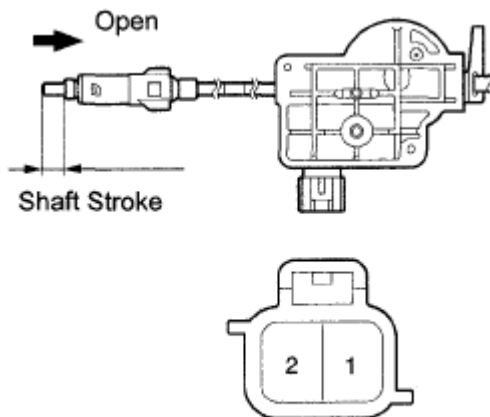


Fig. 71: Inspecting Fuel Lid W/Motor Lock Assembly

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

2. INSPECT FUEL FILLER DOOR OPENER SWITCH

- a. Check the fuel filler door opener switch resistance.

Standard resistance

RESISTANCE SPECIFICATION

Tester Connection	Switch Position	Specified Condition
3 - 4	OFF (Release)	10 kohms or higher
3 - 4	ON (Pushed in)	Below 1 ohms

If the result is not as specified, replace the fuel filler door opener switch.



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Fig. 72: Identifying Fuel Filler Door Opener Switch Connector Terminals
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HOOD

COMPONENTS

2008 Lexus RX 350

2008 ACCESSORIES AND EQUIPMENT Engine Hood/Door - RX350

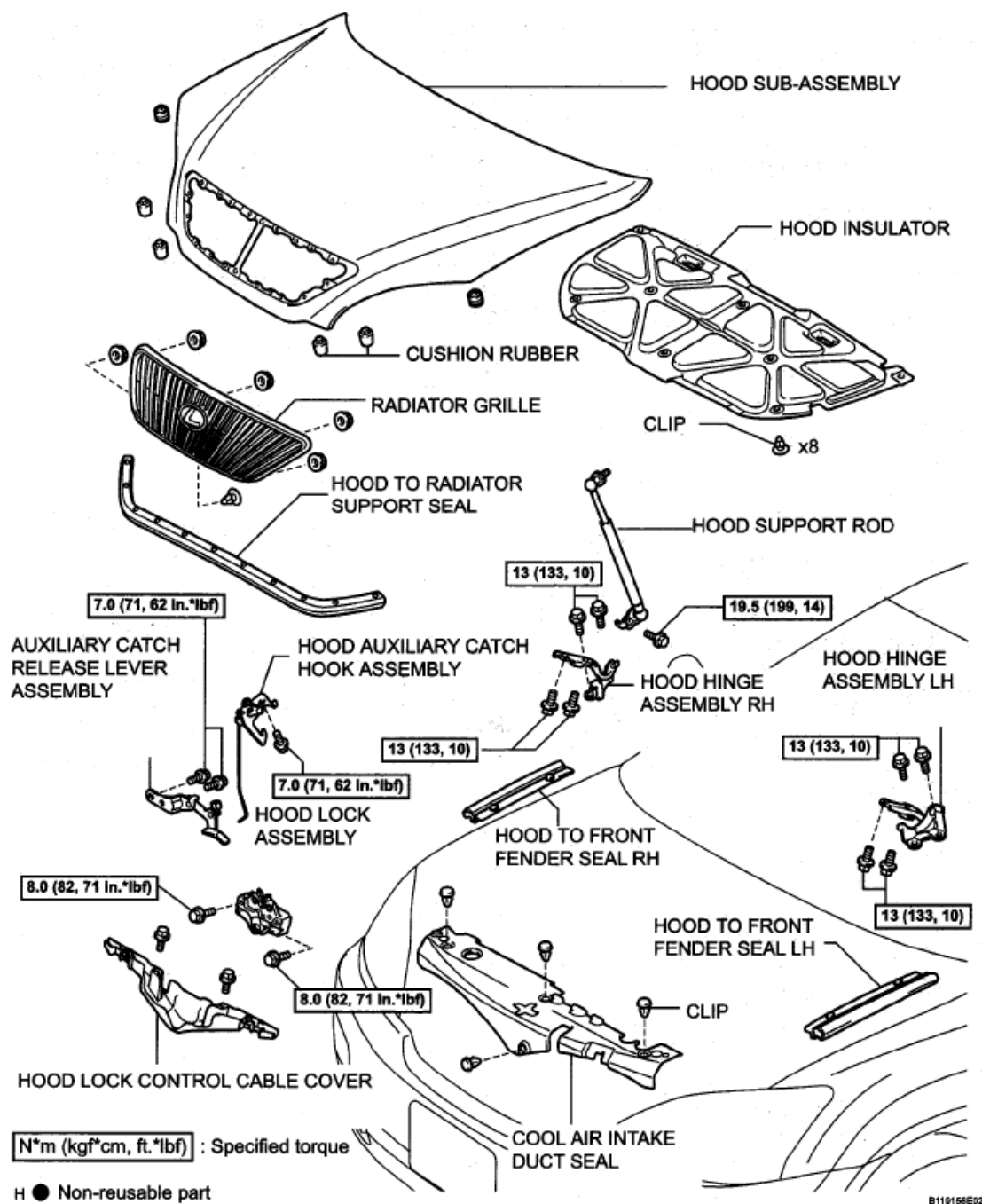


Fig. 73: Identifying Hood Components With Torque Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DISASSEMBLY

1. REMOVE AUXILIARY CATCH RELEASE LEVER ASSEMBLY

- a. Remove the 3 bolts, auxiliary catch release lever assembly and hood auxiliary catch hook assembly as a unit.

- b. Remove the auxiliary catch release lever assembly from the hood auxiliary catch hook assembly.

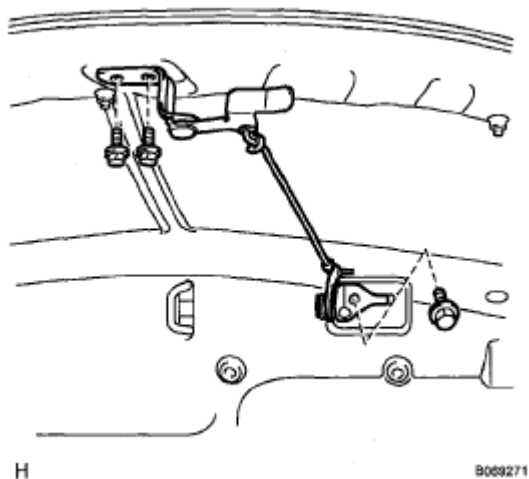


Fig. 74: Identifying Auxiliary Catch Release Lever Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. REMOVE RADIATOR GRILLE

- a. Remove the 5 nuts, clip and radiator grille.

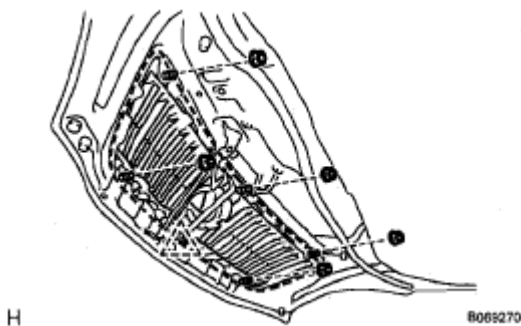


Fig. 75: Identifying Radiator Grille Nuts And Clip
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. REMOVE HOOD INSULATOR

- a. Remove the 8 clips and hood insulator.

4. REMOVE HOOD SUPPORT ROD

5. REMOVE HOOD TO RADIATOR SUPPORT SEAL

6. REMOVE HOOD TO FRONT FENDER SEAL LH

7. REMOVE HOOD TO FRONT FENDER SEAL RH



Fig. 76: Identifying Hood Insulator Clips
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. REMOVE HOOD SUB-ASSEMBLY

- a. Remove the 2 bolts.

HINT:

Use the same procedure for removal on the RH side.

- b. Remove the hood sub-assembly.

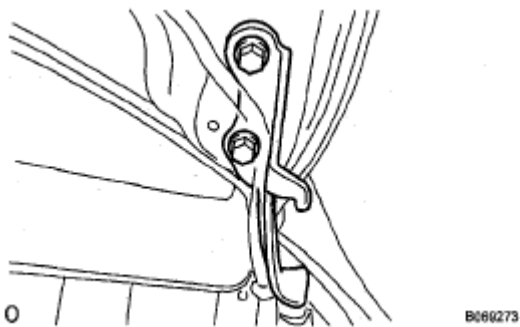


Fig. 77: Identifying Hood Sub-Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. REMOVE HOOD HINGE ASSEMBLY LH

- a. Remove the 2 bolts and hood hinge assembly LH.

10. REMOVE HOOD HINGE ASSEMBLY RH

- a. Remove the 2 bolts and hood hinge assembly RH.

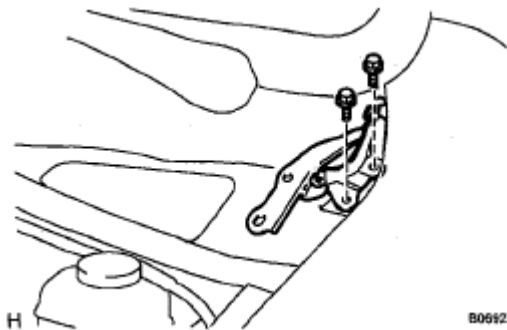


Fig. 78: Identifying Hood Hinge Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. REMOVE COOL AIR INTAKE DUCT SEAL

- a. Remove the 4 clips and cool air intake duct seal.

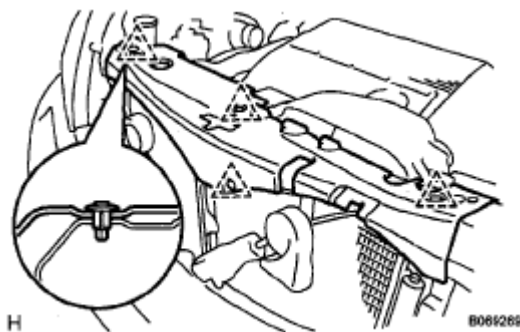


Fig. 79: Identifying Cool Air Intake Duct Seal Clips
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. REMOVE HOOD LOCK CONTROL CABLE COVER

- a. Remove the 2 screws and disengage the 2 claws and remove the hood lock control cable cover.

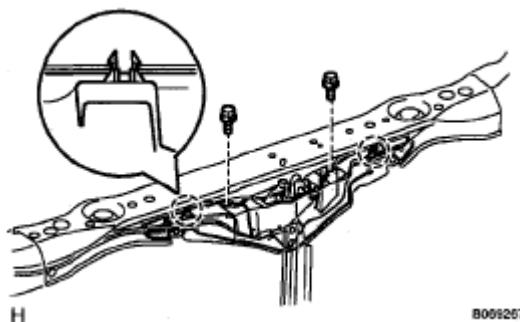


Fig. 80: Identifying Hood Lock Control Cable Cover Screws And Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

13. REMOVE HOOD LOCK ASSEMBLY

- a. Using a screwdriver wrapped with protective tape, remove the nut cap.

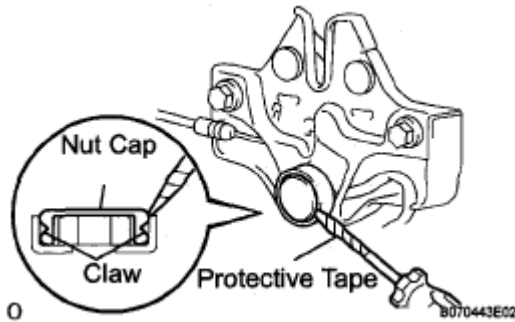


Fig. 81: Removing Nut Cap

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

- b. Remove the 3 bolts and separate the hood lock assembly.
- c. Disconnect the connector and cable.
- d. Remove the hood lock assembly.

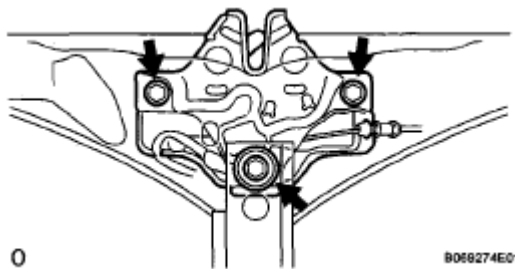


Fig. 82: Locating Hood Lock Assembly Bolts

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

ADJUSTMENT

1. INSPECT HOOD SUB-ASSEMBLY

- a. Check that the clearance is within the standard range.

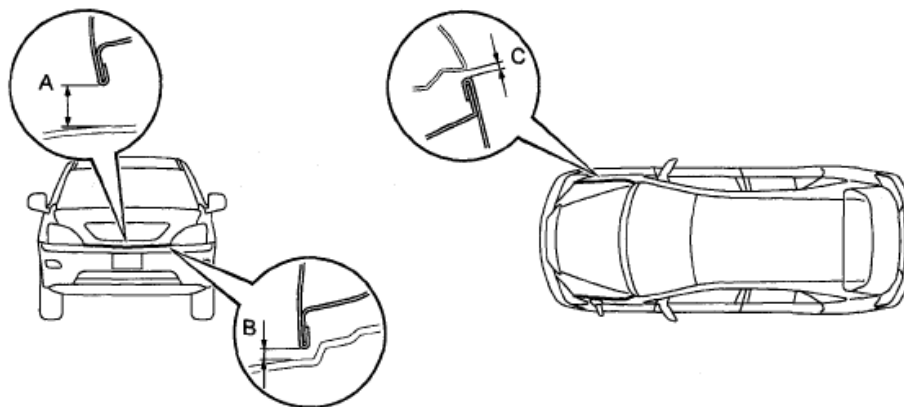


Fig. 83: Identifying Hood Sub-Assembly Clearance
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard range:

RANGE SPECIFICATION

A	25.1 +- 1.5 mm (0.988 +- 0.059 in.)
B	6.0 +- 1.5 mm (0.236 +- 0.059 in.)
C	4.0 +- 1.5 mm (0.157 +- 0.059 in.)

2. ADJUST HOOD SUB-ASSEMBLY

- a. Horizontally and vertically adjust the hood.
 1. Loosen the 4 hood hinge mounting bolts on the hood side.

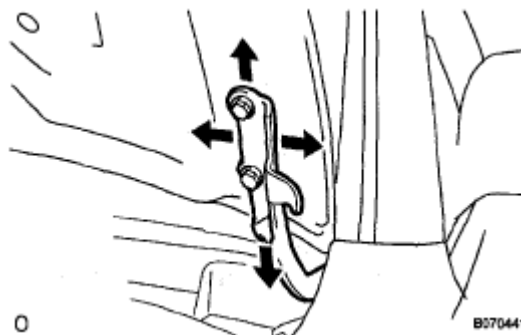


Fig. 84: Adjusting Hood Sub-Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. Adjust the clearance by moving the hood, so that it will be in the standard range.

Standard range A: 4.0 +- 1.5 mm (0.157 +- 0.059 in.)

3. Tighten the hood side hinge bolts after the adjustment.

Torque: 13 N*m (133 kgf*cm, 10 ft.*lbf)

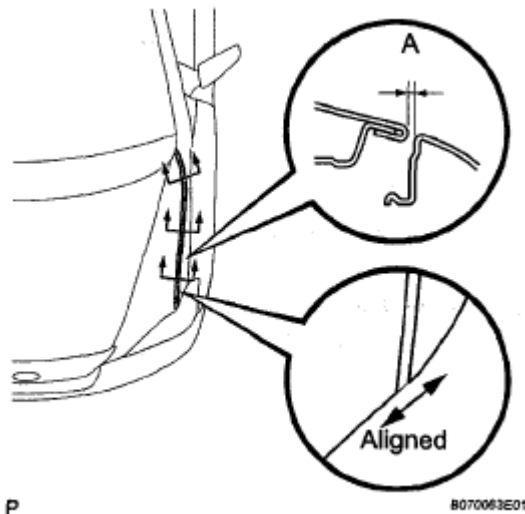


Fig. 85: Adjusting Hood Sub-Assembly Clearance
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Adjust the height of the hood front end using the cushion rubber.
 - 1. Adjust the cushion rubber so that the hood and the fender will be aligned.

HINT:

The cushion rubber moves up and down when turned.

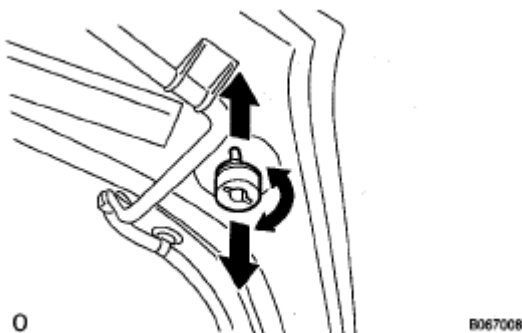


Fig. 86: Adjusting Height Of Hood Front End Using Cushion Rubber
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Adjust the hood lock.
 - 1. Remove the 4 clips and cool air intake duct seal.

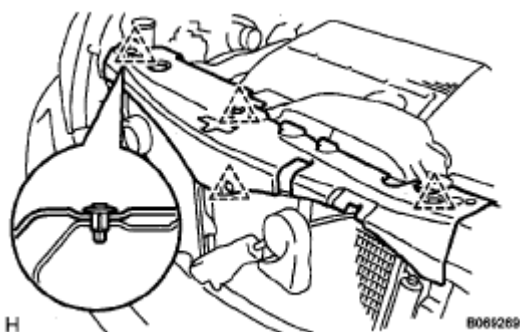


Fig. 87: Identifying Cool Air Intake Duct Seal Clips
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. Remove the 2 bolts, disengage the 2 claws and remove the hood lock control cable cover.

HINT:

If the cover is damaged, replace it with a new cover.

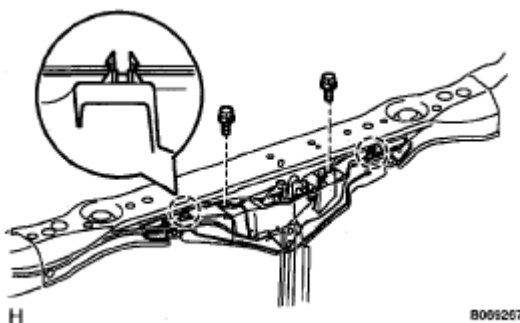


Fig. 88: Identifying Hood Lock Control Cable Cover Bolts And Claws
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. Using a screwdriver wrapped with protective tape, remove the nut cap.

NOTE: Removing the nut cap damages the claw inside the nut cap. Therefore, the use of a new nut cap is necessary for installation.

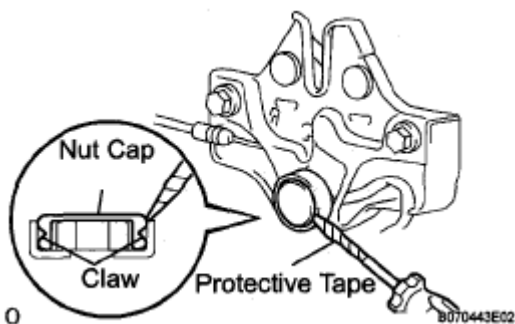


Fig. 89: Removing Nut Cap

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

4. Loosen the 3 bolts.
5. Adjust the hood lock position by moving the striker, so that the striker can enter smoothly.

Torque: 8.0 N*m (82 kgf*cm, 71 in.*lbf)

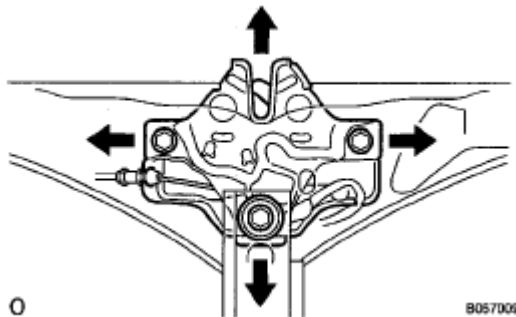


Fig. 90: Adjusting Hood Lock Position

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

REASSEMBLY

1. INSTALL HOOD LOCK ASSEMBLY

- a. Connect the connector and the cable.
- b. Install the hood lock assembly with the 3 bolts.

Torque: 8.0 N*m (82 kgf*cm, 71 in.*lbf)

- c. Install a nut cap.

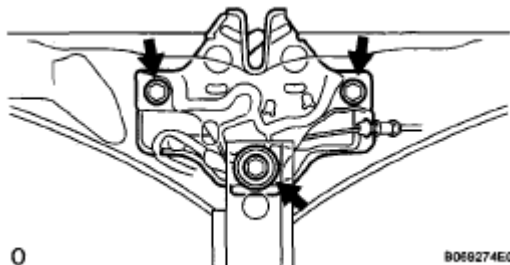


Fig. 91: Locating Hood Lock Assembly Bolts

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

2. INSTALL HOOD LOCK CONTROL CABLE COVER
3. INSTALL COOL AIR INTAKE DUCT SEAL
4. INSTALL HOOD HINGE ASSEMBLY LH

- a. Install the hood hinge assembly LH with the 2 bolts.

Torque: 13 N*m (133 kgf*cm, 10 ft.*lbf)

5. INSTALL HOOD HINGE ASSEMBLY RH

- a. Install the hood hinge assembly RH with the 2 bolts.

Torque: 13 N*m (133 kgf*cm, 10 ft.*lbf)

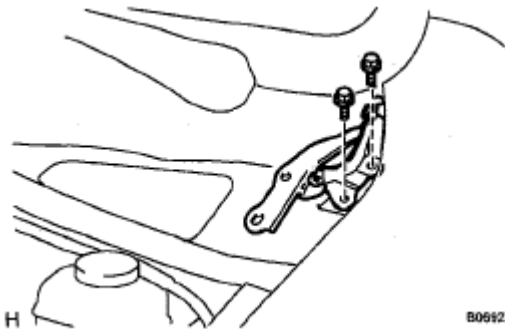


Fig. 92: Identifying Hood Hinge Assembly Bolts (LH)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. INSTALL HOOD SUB-ASSEMBLY

- a. Install the hood sub-assembly with the 2 bolts.

Torque: 13 N*m (133 kgf*cm, 10 ft.*lbf)

HINT:

Use the same procedure for removal on the RH side.

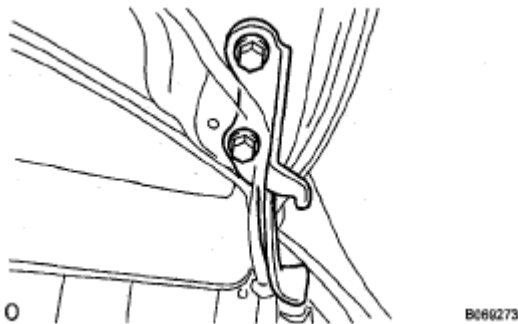


Fig. 93: Identifying Hood Sub-Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. INSTALL HOOD TO FRONT FENDER SEAL RH

8. INSTALL HOOD TO FRONT FENDER SEAL LH

9. **INSTALL HOOD TO RADIATOR SUPPORT SEAL**
10. **INSTALL HOOD SUPPORT ROD**
11. **INSTALL HOOD INSULATOR**
12. **INSTALL RADIATOR GRILLE**
13. **INSTALL HOOD AUXILIARY CATCH HOOK ASSEMBLY**
14. **INSTALL AUXILIARY CATCH RELEASE LEVER ASSEMBLY**
 - a. Install the auxiliary catch release lever assembly and hood auxiliary catch hook assembly as a unit with the 3 bolts.

Torque: 7.0 N*m (71 kgf*cm, 62 in.*lbf)

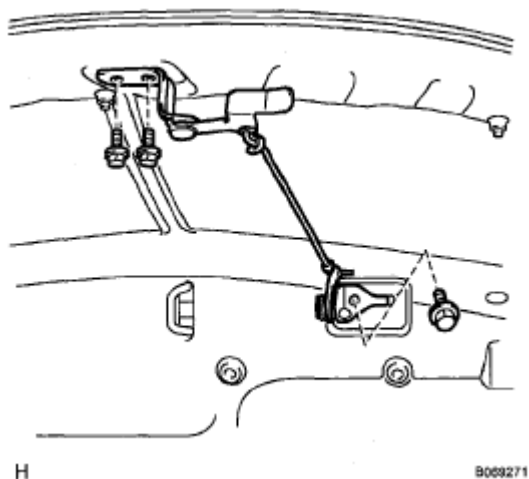


Fig. 94: Identifying Auxiliary Catch Release Lever Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HOOD SUPPORT ROD

COMPONENTS

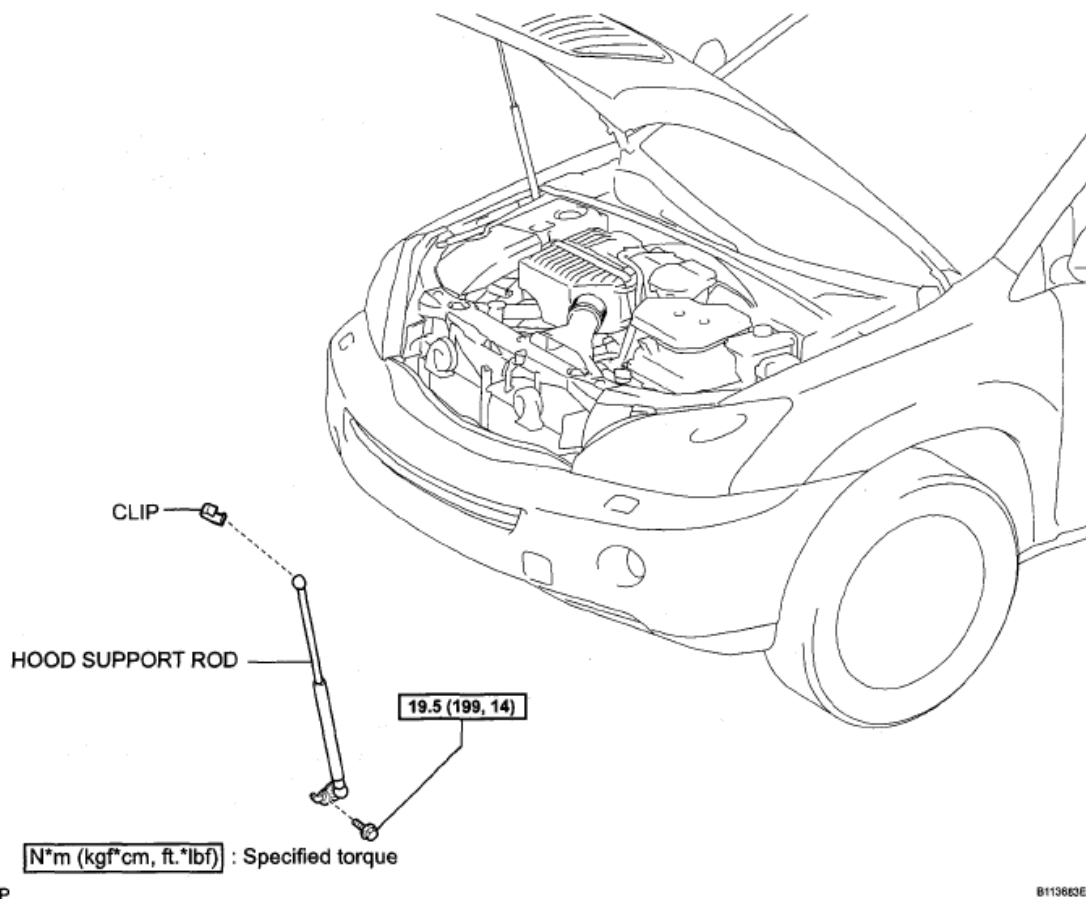


Fig. 95: Identifying Hood Support Rod Components With Torque Specification
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. REMOVE HOOD SUPPORT ROD

HINT:

While supporting the hood sub-assembly by hand, remove the hood support rod.

- a. Using a screw driver, remove the clip and hood support rod from the hood sub-assembly.
- b. Remove the bolt and the hood support rod.

INSTALLATION

1. INSTALL HOOD SUPPORT ROD

- a. Install the hood support rod with the bolt.

Torque: 19.5 N*m (199 kg*cm, 14 ft.*lbf)

- b. Install the hood support rod and clip to the hood sub-assembly.

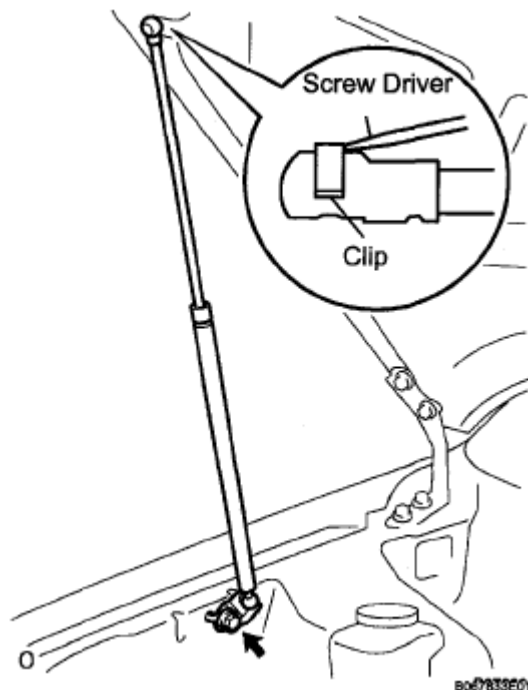


Fig. 96: Identifying Clip And Hood Support Rod From Hood Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DISPOSAL

1. DISPOSE OF HOOD SUPPORT ROD

- Horizontally fix the stay in a vise, with the piston-rod pulled out.
- Wear safety glasses. Gradually cut a part between A and B shown in the illustration using a metal saw and gradually release the gas.

NOTE: Although the gas inside the stay is colorless, odorless and harmless, there is a possibility that metal debris could scatter. Therefore, cover it with clothes or equivalent.

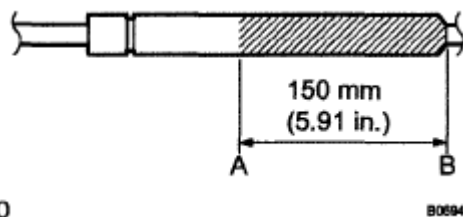
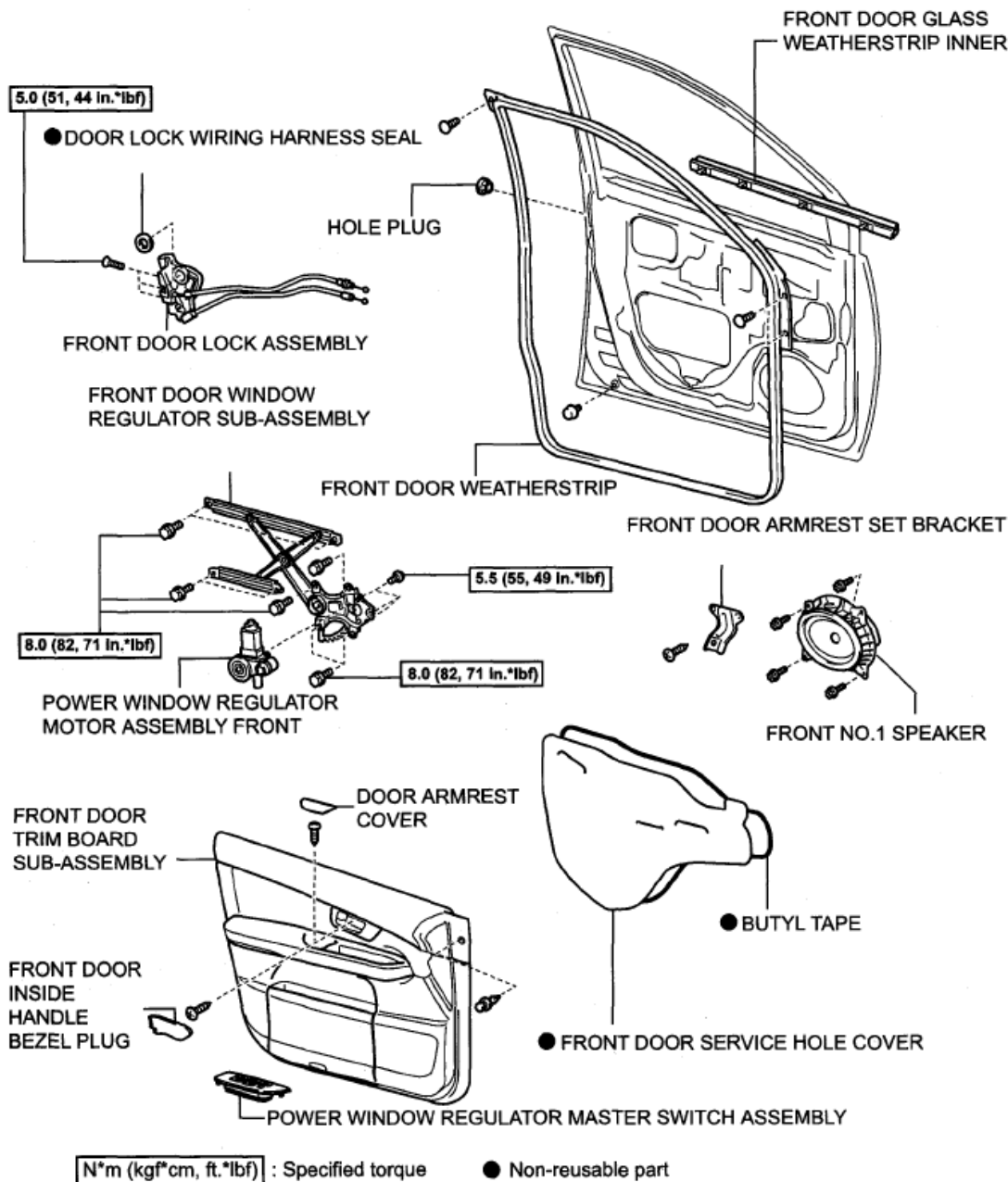


Fig. 97: Identifying Cutting Area Dimension Of Hood Support Rod
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

FRONT DOOR

COMPONENTS



H

B119157E05

Fig. 98: Identifying Front Door Components With Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DISASSEMBLY

- 1 REMOVE FRONT DOOR INSIDE HANDLE BEZEL PLUG

- a. Using a screwdriver wrapped with protective tape, disengage the 3 claws and remove the front door inside handle bezel plug.

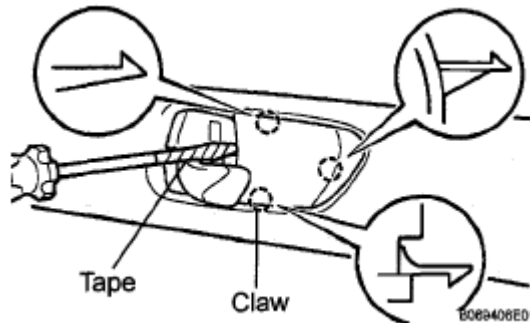


Fig. 99: Disengaging Front Door Inside Handle Bezel Plug Claws
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. REMOVE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY

- a. Using a screwdriver wrapped with protective tape, disengage the 2 claws and the 2 clips.
- b. Disconnect the connector and remove the power window regulator master switch assembly.

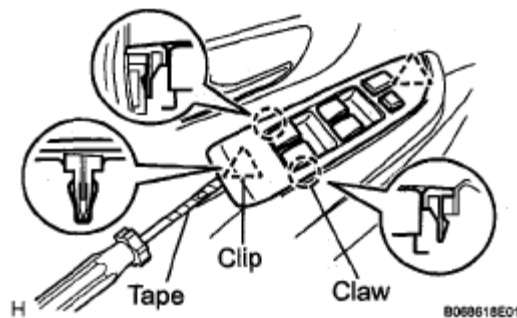


Fig. 100: Identifying Power Window Regulator Master Switch Claws And Clips
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. REMOVE DOOR ARMREST COVER

- a. Remove the door armrest cover.

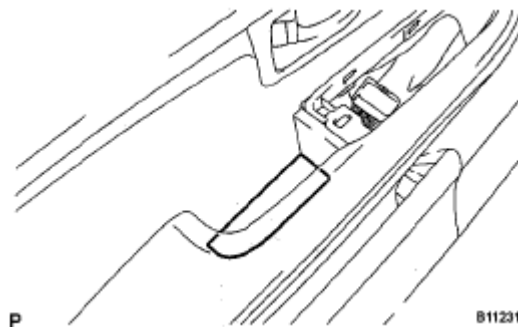
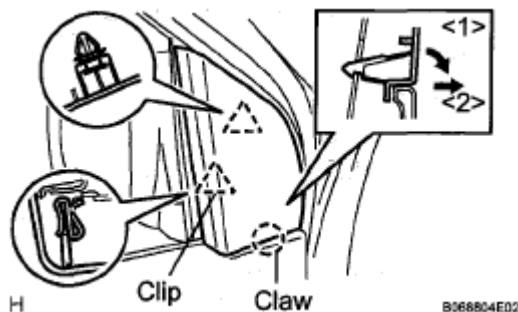


Fig. 101: Identifying Door Armrest Cover

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

4. REMOVE FRONT DOOR LOWER FRAME BRACKET GARNISH

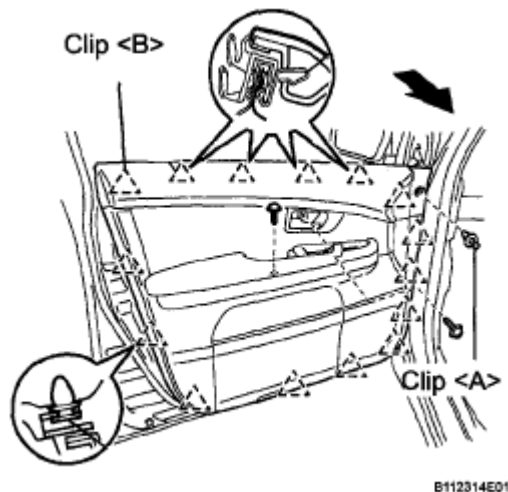
- a. Using a screwdriver wrapped with protective tape, disengage the 2 clips and claw and remove the front door lower frame bracket garnish.

**Fig. 102: Identifying Front Door Lower Frame Bracket Garnish Clips And Claw**

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

5. REMOVE FRONT DOOR TRIM BOARD SUB-ASSEMBLY

- a. Remove the 2 screws.
- b. Remove the clip < A >.
- c. Pulling the front door trim board sub-assembly in the direction of the arrow shown in the illustration, disengage the 15 clips < B >.
- d. Disconnect the cable and each connector from the back side of the inside handle and remove the front door trim board sub-assembly.

**Fig. 103: Pulling Front Door Trim Board Sub-Assembly**

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

- e. Disengage the 2 claws and separate the front door courtesy light.

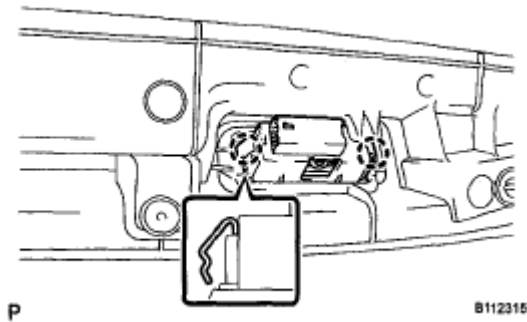


Fig. 104: Identifying Front Door Courtesy Light Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. REMOVE FRONT DOOR GLASS WEATHERSTRIP INNER

- a. Remove the front door glass weatherstrip inner as shown in the illustration.

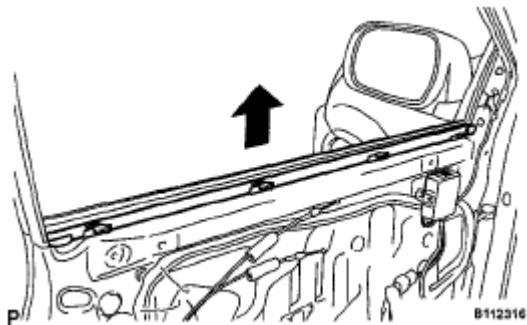


Fig. 105: Removing Front Door Glass Weatherstrip Inner
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. REMOVE FRONT DOOR ARMREST SET BRACKET

- a. Remove the 2 screws and the front door armrest set bracket.

8. REMOVE FRONT NO.1 SPEAKER (See REMOVAL)

9. REMOVE OUTER REAR VIEW MIRROR ASSEMBLY (See REMOVAL)

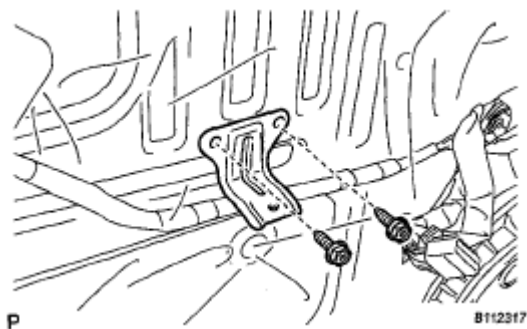


Fig. 106: Identifying Front Door Armrest Set Bracket Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

10. REMOVE FRONT DOOR SERVICE HOLE COVER

- a. Disconnect each connector and remove the front door service hole cover.

HINT:

Remove the remaining tape on the door side.

11. REMOVE FRONT DOOR GLASS RUN

- a. Connect the power window regulator master switch assembly.
- b. Fully lower the front door glass sub-assembly.
- c. Remove the front door glass run.

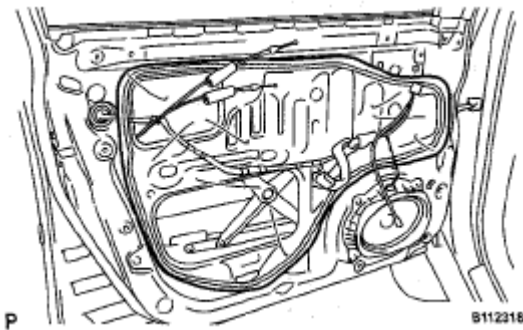


Fig. 107: Identifying Front Door Service Hole Cover
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. REMOVE FRONT DOOR GLASS SUB-ASSEMBLY

- a. Move the front door glass sub-assembly so that the door glass bolts can be seen.
- b. Remove the 2 bolts.

NOTE: After the bolts are removed, the door glass may fall and become deformed.

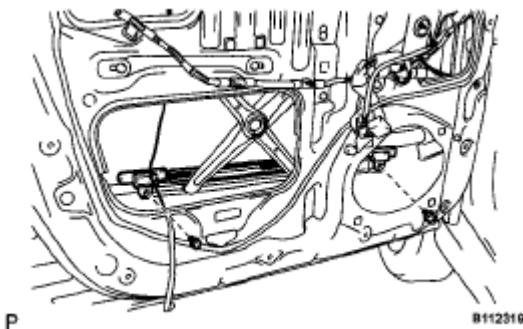


Fig. 108: Identifying Front Door Glass Bolts

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

- c. Remove the front door glass sub-assembly as shown in the illustration.

NOTE: Do not damage the door glass.

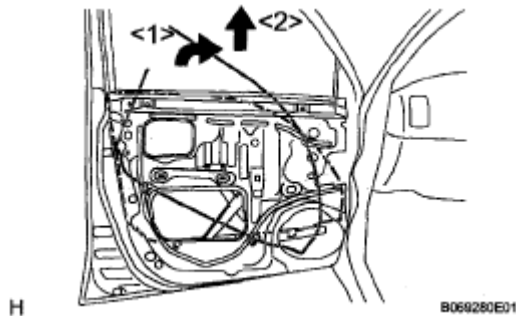


Fig. 109: Removing Front Door Glass Sub-Assembly

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

- d. Disconnect the power window regulator master switch assembly.
13. **REMOVE FRONT DOOR WINDOW REGULATOR SUB-ASSEMBLY**
- a. Disconnect the connector.
 - b. Loosen the temporary bolt.

NOTE: If the temporary bolt is removed, the front door window regulator may fall and become deformed.

- c. Remove the 5 bolts and the front door window regulator sub-assembly and the power window regulator motor assembly front as a unit.
- d. Remove the temporary bolt from the regulator.

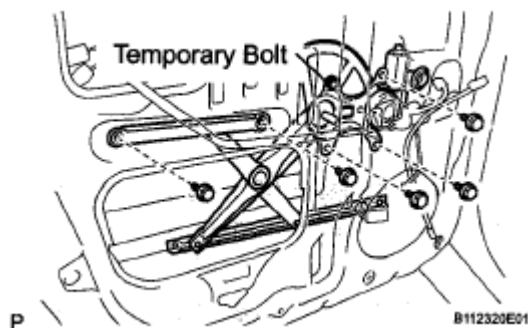


Fig. 110: Identifying Front Door Window Regulator Sub-Assembly Bolts

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

14. REMOVE POWER WINDOW REGULATOR MOTOR ASSEMBLY FRONT

- a. Using a "Torx" driver (T25), remove the 3 screws and the power window regulator motor assembly front.

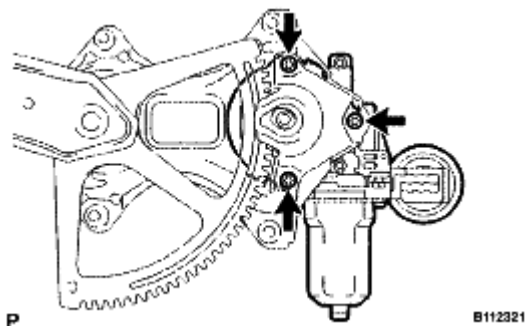


Fig. 111: Locating Front Door Window Regulator Motor Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

15. REMOVE FRONT DOOR FRAME SUB-ASSEMBLY REAR LOWER

- a. Remove the bolt and the front door frame sub-assembly rear lower as shown in the illustration.

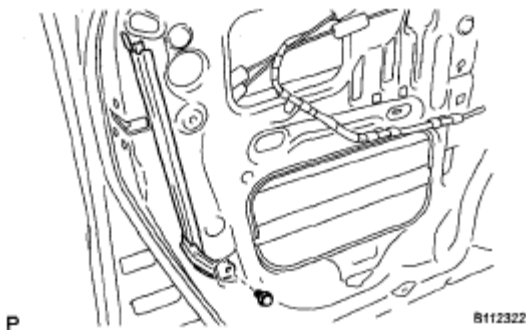


Fig. 112: Identifying Front Door Frame Sub-Assembly Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

16. REMOVE FRONT DOOR LOCK ASSEMBLY

- a. Disconnect the connector.
- b. Using a "Torx" socket wrench (T30), remove the 3 screws.
- c. Slide the front door lock assembly downward, pull out the link from the outside handle frame, and remove the front door lock assembly and cables as a unit

17. REMOVE DOOR LOCK WIRING HARNESS SEAL

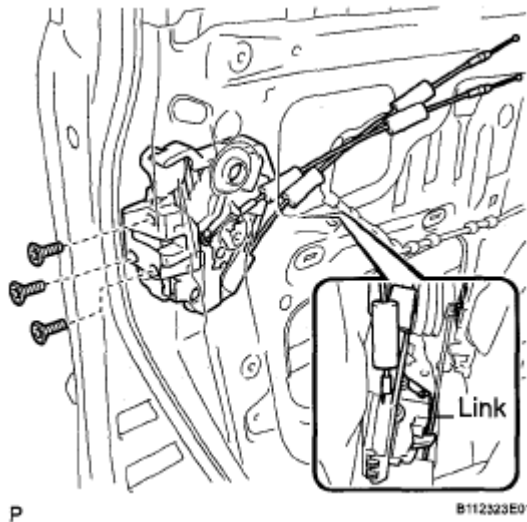


Fig. 113: Identifying Front Door Lock Assembly Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

18. REMOVE FRONT DOOR OUTSIDE HANDLE COVER

- a. Remove the hole plug.
- b. Using a "Torx" socket wrench (T30), loosen the screw and remove the outside handle cover and the door lock key cylinder as a unit.

HINT:

Loosen but do not remove the screw.

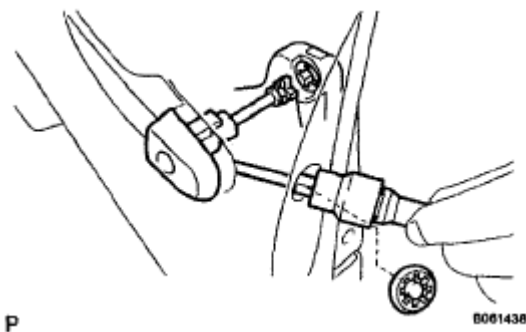


Fig. 114: Loosening Front Door Outside Handle Cover Screw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

19. REMOVE FRONT DOOR HANDLE ASSEMBLY OUTSIDE

- a. Remove the front door handle assembly outside as shown in the illustration.

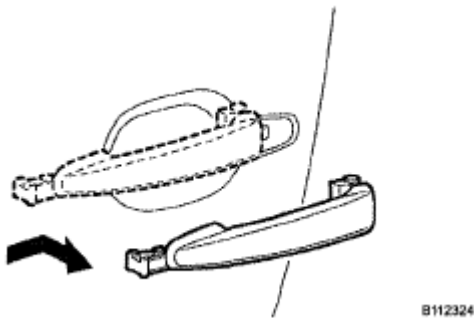


Fig. 115: Removing Front Door Handle Assembly Outside
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

20. REMOVE FRONT DOOR OUTSIDE HANDLE PAD

- a. Disengage the 3 claws and remove the front door outside handle pad.

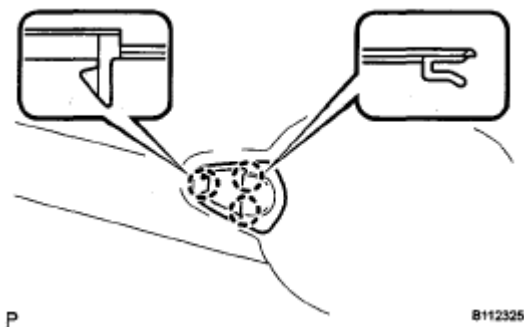


Fig. 116: Identifying Front Door Outside Handle Pad Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

21. REMOVE FRONT DOOR OUTSIDE HANDLE PAD REAR

- a. Disengage the 2 claws and remove the front door outside handle pad rear.

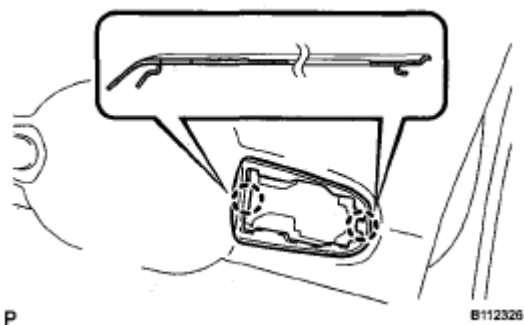


Fig. 117: Identifying Front Door Outside Handle Pad Rear Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

22. REMOVE FRONT DOOR OUTSIDE HANDLE FRAME SUB-ASSEMBLY

- a. Using a "Torx" socket wrench (T30), remove the screw.

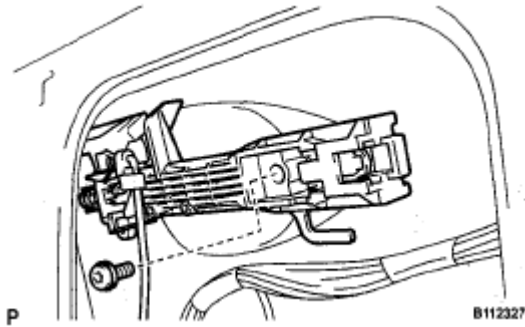


Fig. 118: Identifying Front Door Outside Handle Frame Screw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Disengage the claw and remove the front door outside handle frame sub-assembly.

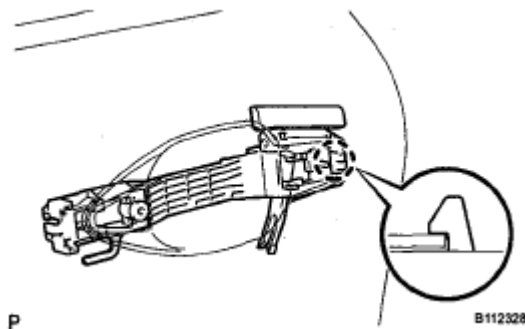


Fig. 119: Identifying Front Door Outside Handle Frame Sub-Assembly Claw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

23. REMOVE FRONT DOOR CHECK COVER

- a. Disengage the pin and remove the front door check cover as shown in the illustration.



Fig. 120: Identifying Front Door Cover Pin
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

24. REMOVE FRONT DOOR CHECK ASSEMBLY

- a. Remove the check cover.
- b. Remove the bolt, 2 nuts, and the front door check assembly.

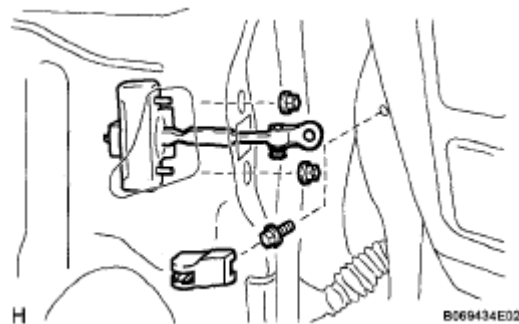


Fig. 121: Identifying Front Door Check Assembly Bolt And Nuts
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

25. REMOVE FRONT DOOR WEATHERSTRIP

- a. Using the clip remover, remove the 3 clips and disengage the 18 clips and remove the front door weatherstrip.

26. REMOVE FRONT DOOR BELT MOLDING ASSEMBLY (See REMOVAL)

27. REMOVE FRONT DOOR WINDOW FRAME MOLDING REAR (See REMOVAL)

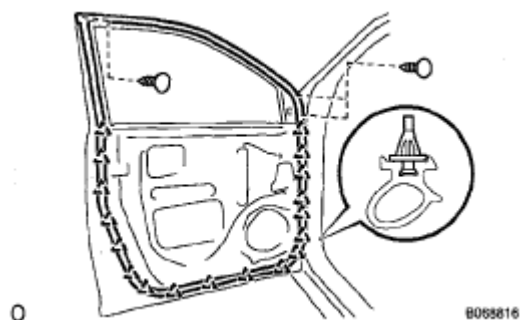


Fig. 122: Identifying Front Door Weatherstrip Clips
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ADJUSTMENT

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**

(See PRECAUTION)

2. **INSPECT FRONT DOOR**

- a. Check that the clearance is within the standard range.

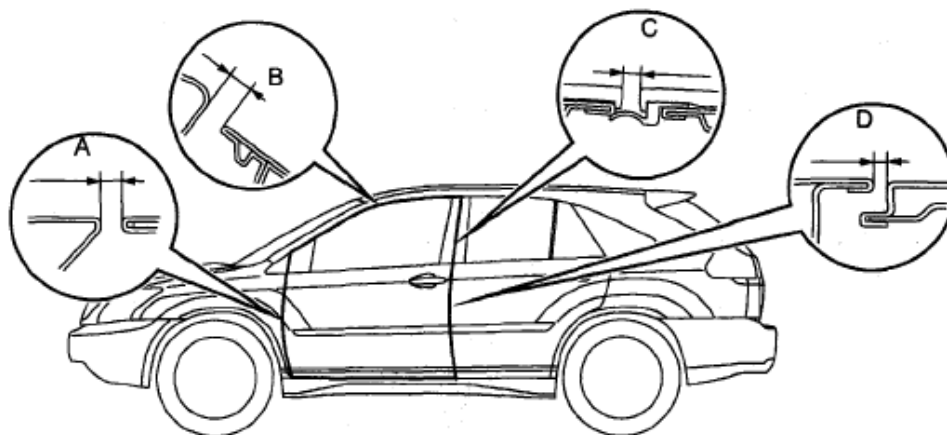


Fig. 123: Identifying Front Door Clearance
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard range:

RANGE SPECIFICATION

A	4.5 +- 1.0 mm (0.177 +- 0.039 in.)
B	5.1 +- 1.5 mm (0.201 +- 0.059 in.)
C	4.8 +- 1.5 mm (0.189 +- 0.059 in.)
D	4.5 +- 1.0 mm (0.177 +- 0.039 in.)

3. ADJUST FRONT DOOR

- a. Using SST, loosen the bolts on the pillar side to adjust the door front and back, up and down.

SST 09812-00010,09812-00020

Torque: 26 N*m (265 kgf*cm, 19 ft.*lbf)

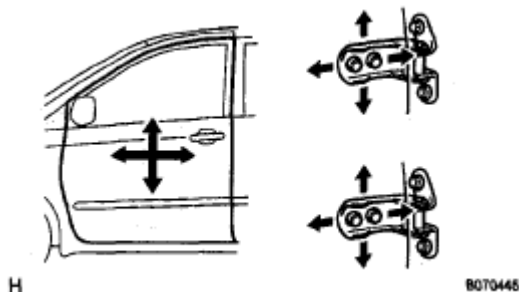


Fig. 124: Adjusting Front Door

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

- b. Loosen the bolts on the door side to adjust the door up and down, and the door front side to side.

Torque: 26 N*m (265 kgf*cm, 19 ft.*lbf)

HINT:

Perform this procedure after replacing the centering bolt with the supplied bolt.

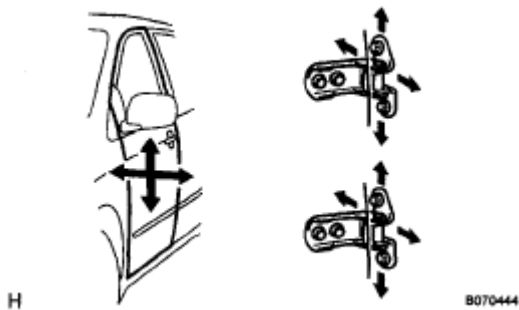


Fig. 125: Adjusting Front Door

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

- c. When adjusting the door rear side to side and the front door lock striker plate assembly, use a "Torx" socket wrench (T40) to loosen the screws until the striker can move. Lightly tap it with a brass bar for adjustment.

Torque: 23 N*m (235 kgf*cm, 17 ft.*lbf)

4. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**
5. **PERFORM INITIALIZATION**

(See **INITIALIZATION**)

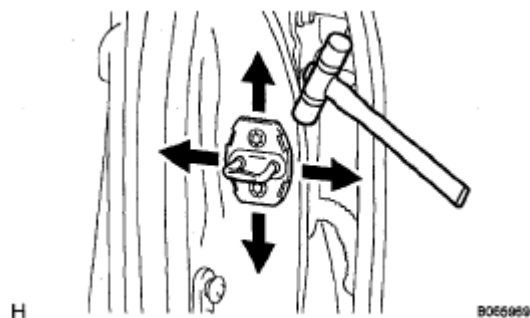


Fig. 126: Adjusting Front Door Lock Striker Plate Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REASSEMBLY

1. **INSTALL FRONT WINDOW FRAME MOLDING REAR** (See **INSTALLATION**)
2. **INSTALL FRONT DOOR BELT MOLDING ASSEMBLY**
3. **INSTALL FRONT DOOR WEATHERSTRIP**
4. **INSTALL FRONT DOOR CHECK ASSEMBLY**

- a. Install the front door check assembly with the bolt and the 2 nuts.

bolt:

Torque: 27 N*m (275 kgf*cm, 20 ft.*lbf)

nut:

Torque: 8.0 N*m (82 kgf*cm, 71 in.*lbf)

- b. Install the check cover.

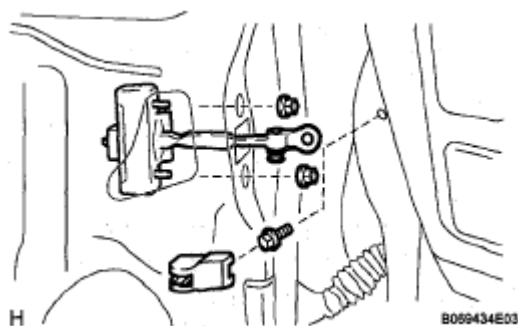


Fig. 127: Identifying Front Door Check Assembly Bolt And Nuts
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. INSTALL FRONT DOOR CHECK COVER
6. INSTALL FRONT DOOR OUTSIDE HANDLE FRAME SUB-ASSEMBLY
 - a. Apply body grease to the sliding parts on the front door outside handle frame sub-assembly.
 - b. Install the front door outside handle frame sub-assembly with the claw.

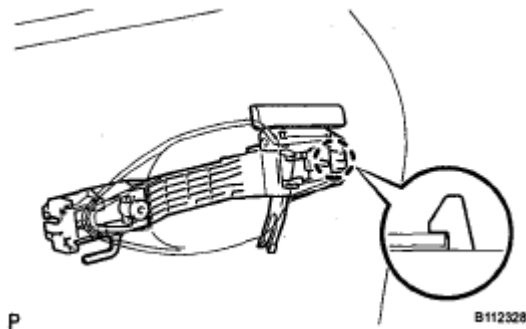


Fig. 128: Identifying Front Door Outside Handle Frame Sub-Assembly Claw
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Using a "Torx" socket wrench (T30), install the front door outside handle frame sub-assembly with the screw.

Torque: 7.0 N*m (71 kgf*cm, 62 in.*lbf)

7. INSTALL FRONT DOOR OUTSIDE HANDLE PAD REAR
8. INSTALL FRONT DOOR OUTSIDE HANDLE PAD
9. INSTALL FRONT DOOR HANDLE ASSEMBLY OUTSIDE
10. INSTALL FRONT DOOR OUTSIDE HANDLE COVER

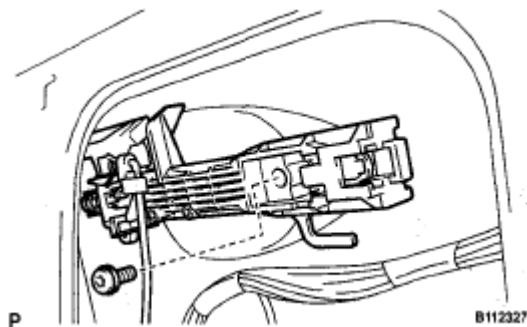


Fig. 129: Identifying Front Door Outside Handle Frame Sub-Assembly Screw
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Using a "Torx" socket wrench (T30), install the front door outside handle cover with the screw.

Torque: 7.0 N*m (71 kgf*cm, 62 in.*lbf)

b. Install the hole plug.

11. INSTALL DOOR LOCK WIRING HARNESS SEAL

12. INSTALL FRONT DOOR LOCK ASSEMBLY

NOTE:

- When reusing the removed front door lock assembly, replace the door lock wire harness sealing on the connector with a new one.
- Do not allow grease or dust to adhere on the door lock wiring harness sealing surface of the connector.
- Reusing the door lock wiring harness sealing and/ or using damaged door lock wiring harness sealing may cause water intrusion to the connection, and result in a malfunction in the front door lock assembly.

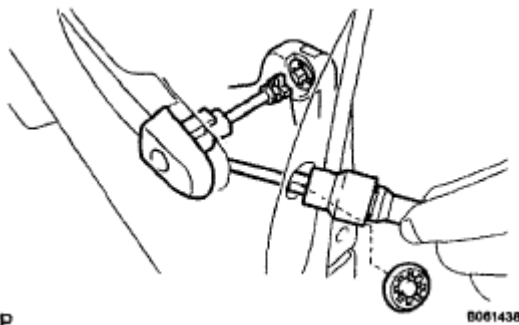


Fig. 130: Installing Front Door Outside Handle Cover Screw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Apply body grease to the sliding parts on the front door lock assembly.
- b. Insert the front door outside handle link to the front door lock assembly, and set it to the front door panel.
- c. Make sure that the front door outside handle link is securely connected to the front door lock assembly.
- d. Using a "Torx" socket wrench (T30), install the front door lock assembly with the 3 screws.

Torque: 5.0 N*m (51 kgf*cm, 44 in.*lbf)

e. Connect the connector.

13. INSTALL FRONT DOOR FRAME SUB-ASSEMBLY REAR LOWER

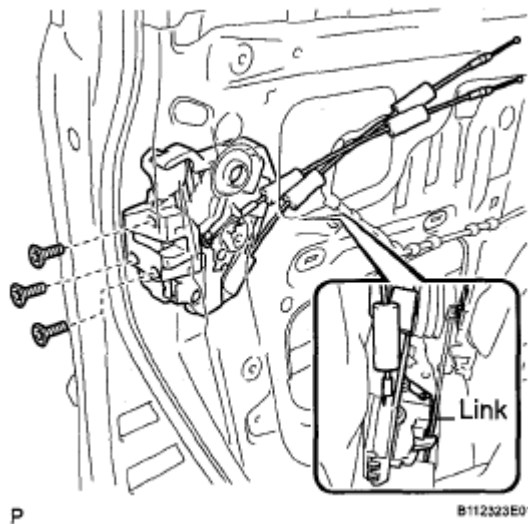


Fig. 131: Identifying Front Door Lock Assembly Screws
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

14. INSTALL POWER WINDOW REGULATOR MOTOR ASSEMBLY FRONT

NOTE: The regulator arm must be below the intermediate position when installing the power window regulator motor.

- a. Using a "Torx" driver (T25), install the power window regulator motor assembly front with the 3 screws.

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

HINT:

The new front window regulator adopts a self-tapping method. The installation position of regulator will be threaded when the self-tapping screw is inserted.

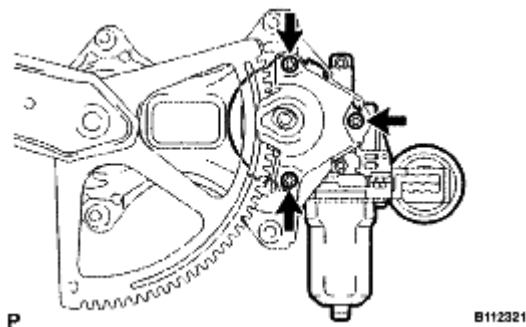


Fig. 132: Locating Front Door Window Regulator Motor Screws
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

15. INSTALL FRONT DOOR WINDOW REGULATOR SUB-ASSEMBLY

- a. Apply body grease to the sliding parts on the front door window regulator sub-assembly.
- b. Install the temporary bolt to the front door window regulator sub-assembly.
- c. Temporarily install the window regulator.
- d. Install the front door window regulator sub-assembly with the 6 bolts.

Torque: 8.0 N*m (82 kgf*cm, 71 in.*lbf)

- e. Connect the connector.

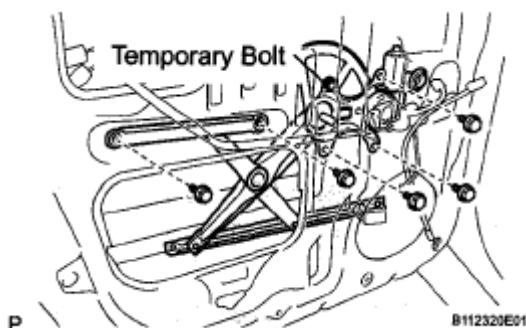


Fig. 133: Identifying Front Door Window Regulator Sub-Assembly Bolts
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

16. INSTALL FRONT DOOR GLASS SUB-ASSEMBLY**17. INSTALL FRONT DOOR GLASS RUN****18. INSTALL FRONT DOOR SERVICE HOLE COVER**

- a. Apply butyl tape to the front door panel as shown in the illustration.
- b. Install a new service hole cover.

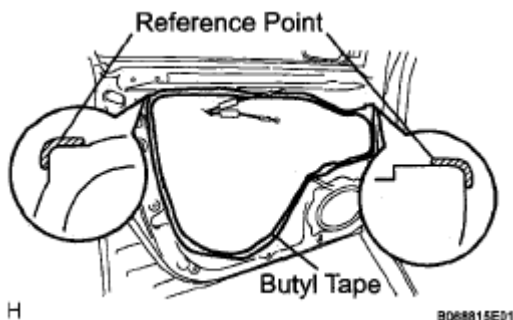


Fig. 134: Identifying Butyl Tape On Front Door Panel
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

19. INSTALL OUTER REAR VIEW MIRROR ASSEMBLY (See INSTALLATION)**20. INSTALL FRONT NO.1 SPEAKER (See INSTALLATION)**

2008 Lexus RX 350

2008 ACCESSORIES AND EQUIPMENT Engine Hood/Door - RX350

21. **INSTALL FRONT DOOR ARMREST SET BRACKET**
22. **INSTALL FRONT DOOR GLASS WEATHERSTRIP INNER**
23. **INSTALL FRONT DOOR TRIM BOARD SUB-ASSEMBLY**
24. **INSTALL FRONT DOOR LOWER FRAME BRACKET GARNISH**
25. **INSTALL DOOR ARMREST COVER**
26. **INSTALL POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY**
27. **INSTALL FRONT DOOR INSIDE HANDLE BEZEL PLUG**
28. **POWER WINDOW CONTROL SYSTEM INITIALIZATION**

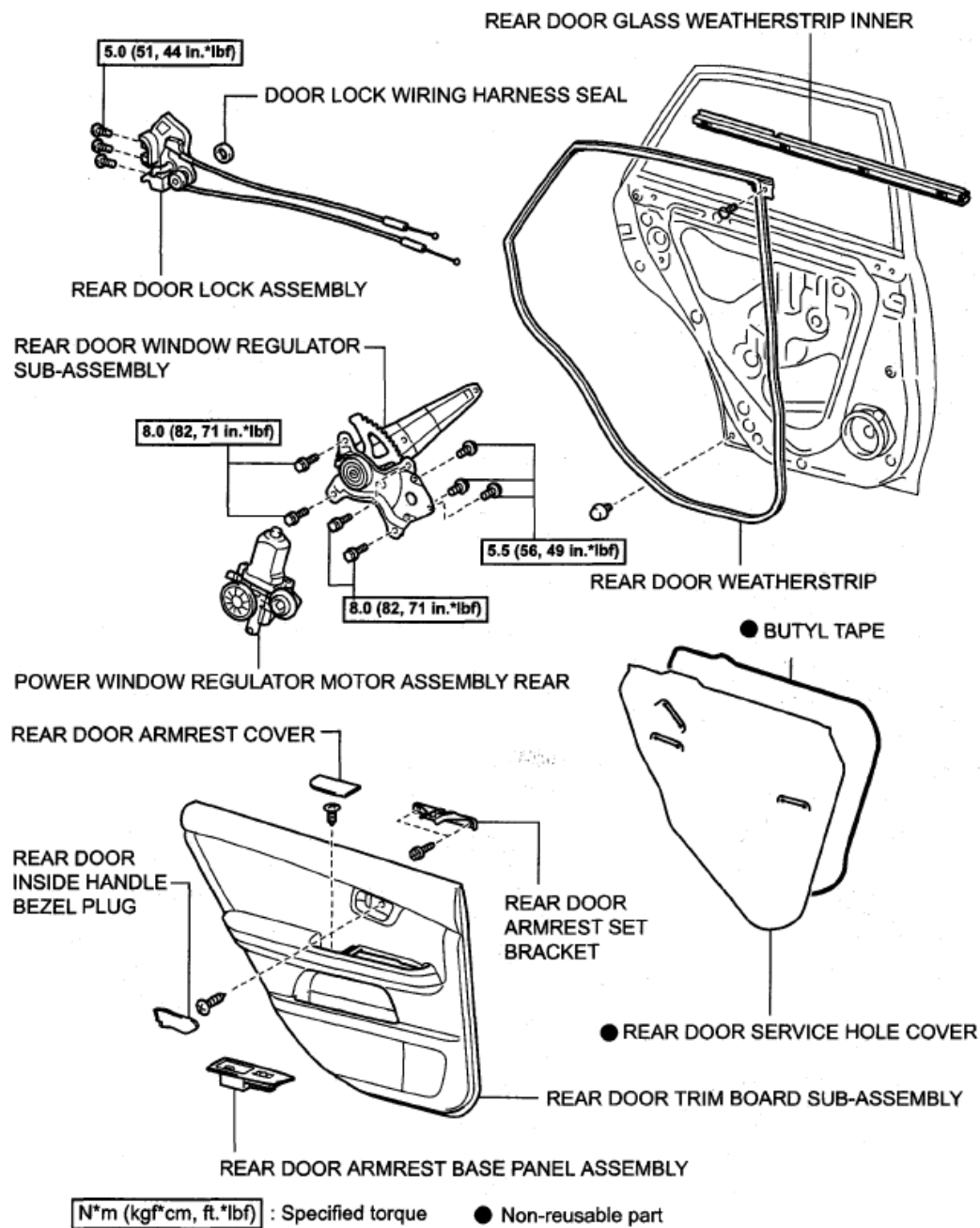
(See INITIALIZATION)

REAR DOOR

COMPONENTS

2008 Lexus RX 350

2008 ACCESSORIES AND EQUIPMENT Engine Hood/Door - RX350



H

8119158EG3

Fig. 135: Identifying Rear Door Components With Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DISASSEMBLY

1. REMOVE REAR DOOR INSIDE HANDLE BEZEL PLUG

- Using a screwdriver wrapped with protective tape, disengage the 3 claws and remove the rear door inside handle bezel plug.

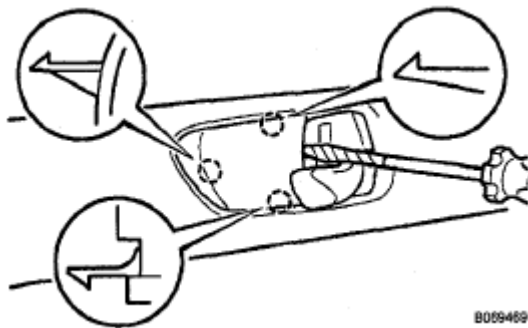


Fig. 136: Disengaging Rear Door Inside Handle Bezel Plug Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. REMOVE REAR DOOR ARMREST BASE PANEL ASSEMBLY

- a. Using a screwdriver wrapped with protective tape, disengage the 2 claws and 2 clips.
- b. Disconnect the connector and remove the rear door armrest base panel assembly.

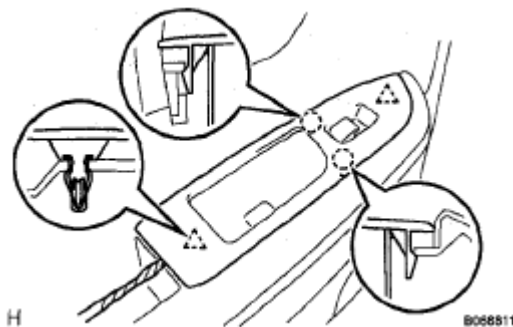


Fig. 137: Identifying Rear Door Armrest Base Panel Claws And Clips
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. REMOVE REAR DOOR ARMREST COVER

- a. Remove the rear door arm rest cover.

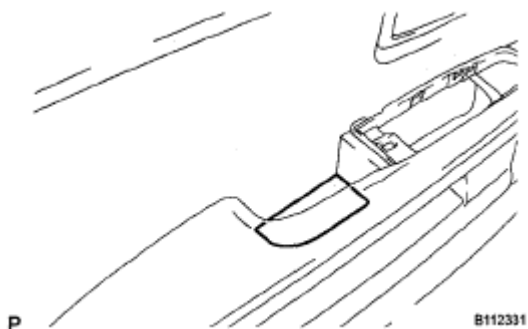


Fig. 138: Identifying Rear Door Arm Rest Cover
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. REMOVE REAR DOOR TRIM BOARD SUB-ASSEMBLY

- a. Remove the 2 screws.
- b. Pulling the front door trim board sub-assembly in the direction of the arrow shown in the illustration, disengage the 13 clips.
- c. Disconnect the cable and each connector from the inside handle and remove the rear door trim board sub-assembly.

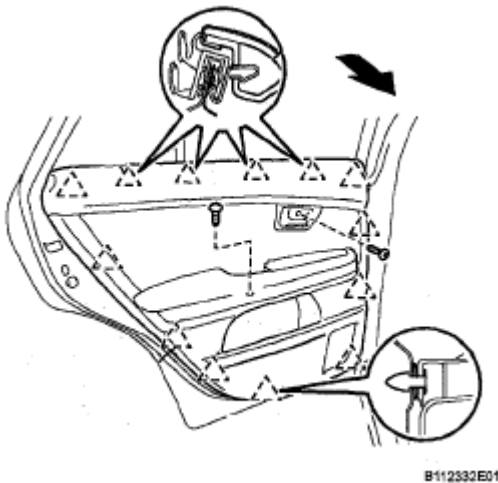


Fig. 139: Pulling Front Door Trim Board Sub-Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. REMOVE REAR DOOR GLASS WEATHERSTRIP

- a. Remove the rear door glass weatherstrip inner as shown in the illustration.

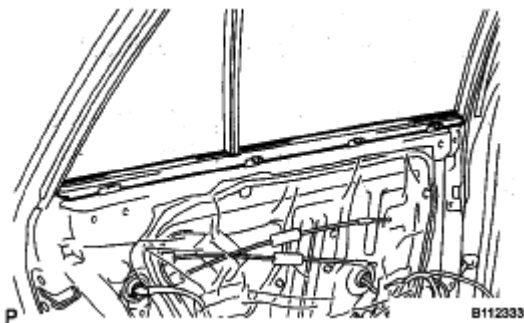


Fig. 140: Identifying Rear Door Glass Weatherstrip Inner
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. REMOVE REAR DOOR ARMREST SET BRACKET

- a. Remove the 2 screws and the rear door armrest set bracket.

7. REMOVE REAR SPEAKER (See REMOVAL)

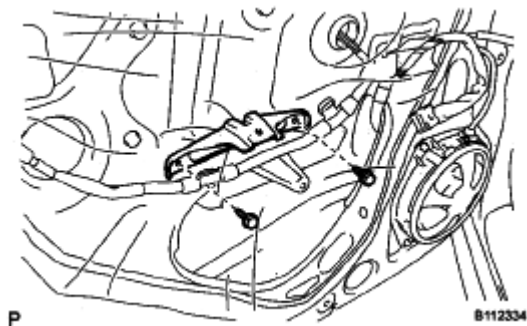


Fig. 141: Identifying Rear Door Armrest Set Bracket Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. REMOVE REAR DOOR SERVICE HOLE COVER

- a. Disconnect each connector and remove the rear door service hole cover.

HINT:

Remove the remaining tape on the door side.

9. REMOVE REAR DOOR GLASS RUN

- a. Connect the window regulator switch assembly.
- b. Fully lower the door glass.
- c. Remove the rear door glass run.

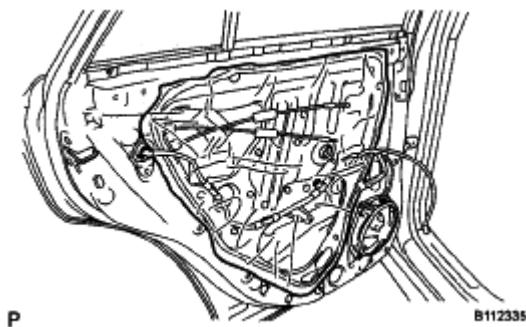


Fig. 142: Identifying Rear Door Service Hole Cover
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

10. REMOVE REAR DOOR WINDOW DIVISION BAR SUB-ASSEMBLY

- a. Remove the 2 bolts, the screw, and the rear door window division bar sub-assembly.



Fig. 143: Identifying Rear Door Window Division Bar Sub-Assembly Bolts And Screw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. REMOVE REAR DOOR QUARTER WINDOW GLASS

- a. Remove the rear door quarter window glass and the rear door quarter window weatherstrip as a unit as shown in the illustration.
- b. Remove the rear door quarter window glass from the rear door quarter window weatherstrip.



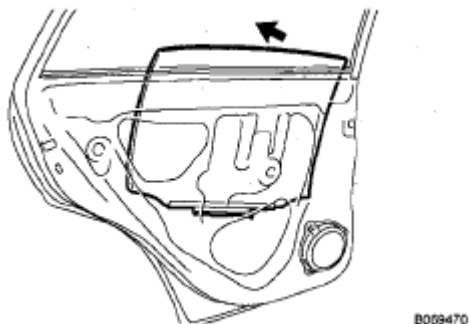
Fig. 144: Removing Rear Door Quarter Window Glass
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. REMOVE REAR DOOR GLASS SUB-ASSEMBLY

- a. Remove the rear door glass sub-assembly from the rear door window regulator sub-assembly as shown in the illustration.

NOTE: Do not damage the door glass.

- b. Disconnect the window regulator switch assembly.



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Fig. 145: Removing Rear Door Glass Sub-Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

13. REMOVE REAR DOOR WINDOW REGULATOR SUB-ASSEMBLY

- a. Disconnect the connector.
- b. Loosen the temporary bolt.

NOTE: If the temporary bolt is removed, the rear door window regulator may fall and become deformed.

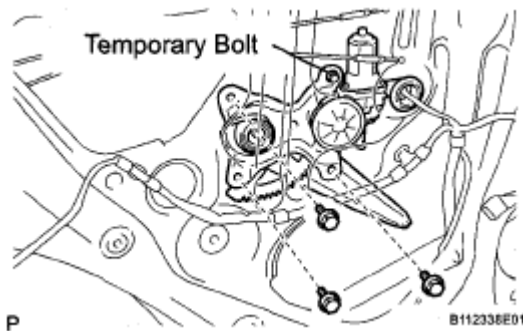


Fig. 146: Identifying Rear Door Window Regulator Sub-Assembly Bolts
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Remove the 3 bolts and the rear door window regulator sub-assembly and the power window regulator motor assembly rear as a unit.
 - d. Remove the temporary bolt from the regulator.
- ### 14. REMOVE POWER WINDOW REGULATOR MOTOR ASSEMBLY REAR
- a. Using a "Torx" driver (T25), remove the 3 screws and the power window regulator motor assembly rear.

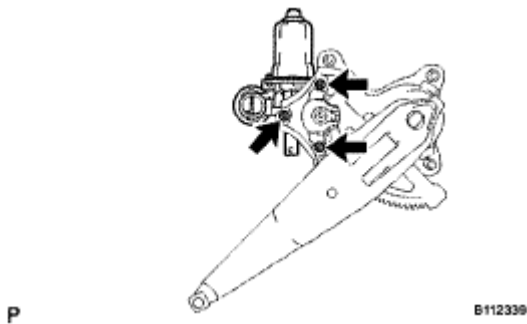


Fig. 147: Locating Rear Power Window Regulator Motor Assembly Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

15. REMOVE REAR DOOR LOCK ASSEMBLY

- a. Disconnect the connector.
- b. Using a "Torx" socket wrench (T30), remove the 3 screws.
- c. Slide the rear door lock assembly downward, pull out the link from the outside handle frame, and remove the rear door lock assembly and cables as a unit.

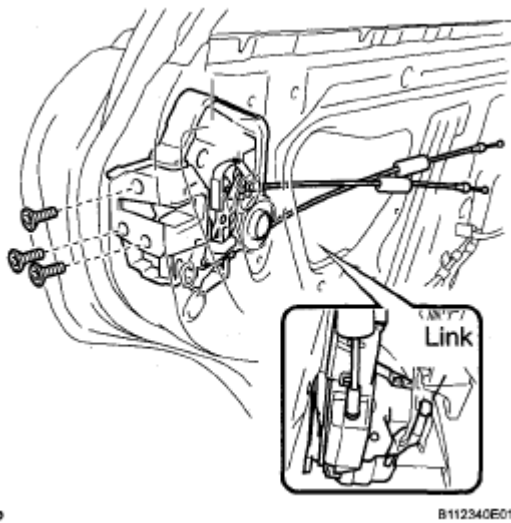
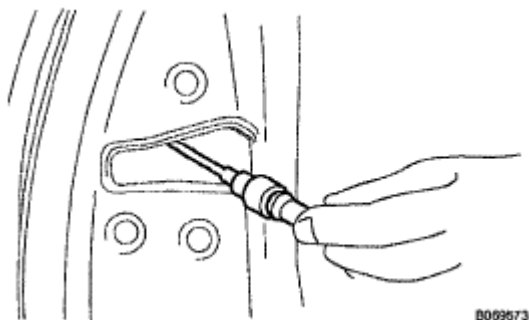


Fig. 148: Identifying Rear Door Lock Assembly Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

16. REMOVE DOOR LOCK WIRING HARNESS SEAL

17. REMOVE REAR DOOR OUTSIDE HANDLE COVER

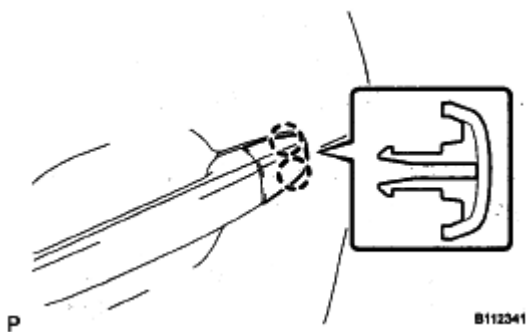
- a. Using a "Torx" socket wrench (T30), loosen the screw.



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Fig. 149: Loosening Rear Door Outside Handle Cover Screw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Disengage the 2 claws and remove the rear door outside handle cover.



P

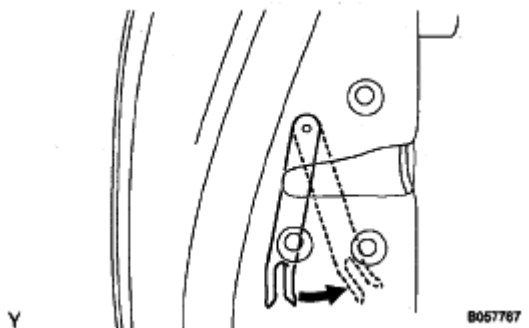
B112341

Fig. 150: Identifying Rear Door Outside Handle Cover Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

18. REMOVE REAR DOOR OUTSIDE HANDLE ASSEMBLY

- a. Pull and hold the release plate of the outside handle frame as shown in the illustration.

NOTE: The release plate may interfere with the outside handle and may be damaged when removing the handle, unless the release plate of the outside handle frame is pulled and held.



Y

B057767

Fig. 151: Pulling Release Plate Of Outside Handle Frame

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

- b. Remove the rear door outside handle assembly as shown in the illustration.

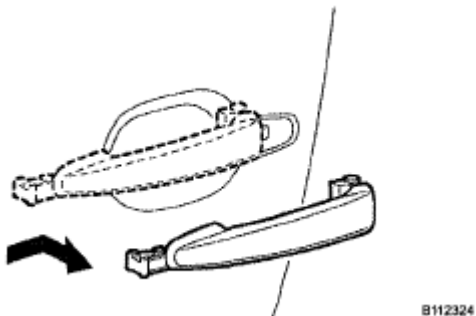


Fig. 152: Removing Rear Door Outside Handle Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

19. REMOVE REAR DOOR OUTSIDE HANDLE PAD

- a. Disengage the 3 claws and remove the rear door outside handle pad.

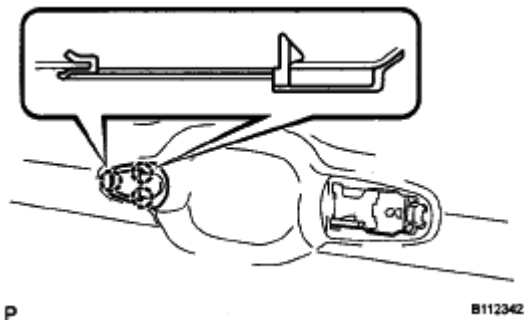


Fig. 153: Identifying Rear Door Outside Handle Pad Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

20. REMOVE REAR DOOR OUTSIDE HANDLE PAD REAR

- a. Disengage the 2 claws and remove the rear door outside handle pad rear.

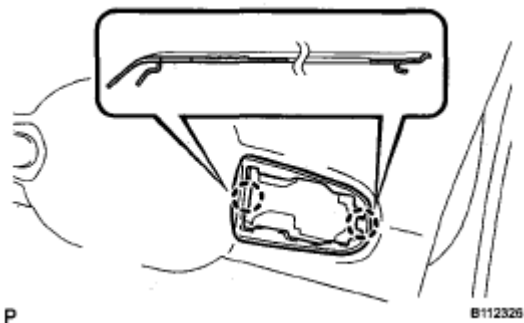


Fig. 154: Identifying Rear Door Outside Handle Pad Claws
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

21. REMOVE REAR DOOR OUTSIDE HANDLE FRAME SUB-ASSEMBLY

- a. Using a "Torx" socket wrench (T30), remove the screw and rear door outside handle frame sub-assembly.

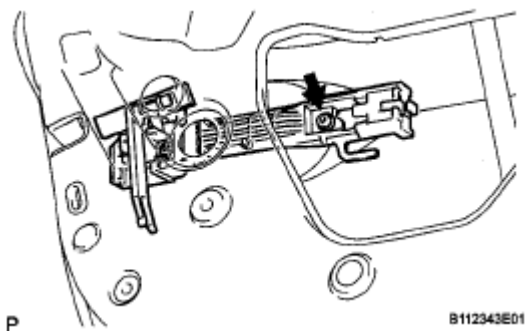


Fig. 155: Locating Rear Door Outside Handle Frame Sub-Assembly Screw
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

22. REMOVE REAR DOOR CHECK COVER

- a. Disengage the pin and remove the rear door check cover.



Fig. 156: Identifying Rear Door Cover Pin
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

23. REMOVE REAR DOOR CHECK ASSEMBLY

- a. Remove the check cover.
- b. Remove the bolt, 2 nuts, and the rear door check assembly.

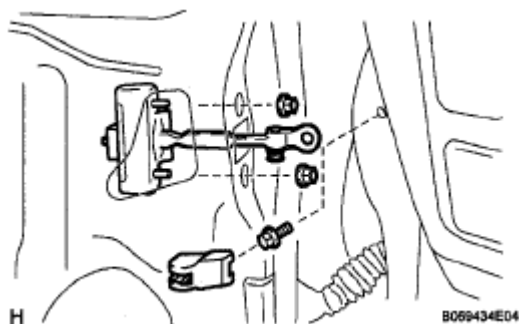


Fig. 157: Identifying Rear Door Check Assembly Bolt And Nuts
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

24. **REMOVE REAR DOOR WEATHERSTRIP**
 - a. Remove the clip < A >, disengage the 19 clips and remove the rear door weatherstrip.
25. **REMOVE REAR DOOR BELT MOLDING ASSEMBLY** (See REMOVAL)
26. **REMOVE REAR DOOR WINDOW FRAME MOLDING SUB-ASSEMBLY** (See REMOVAL)

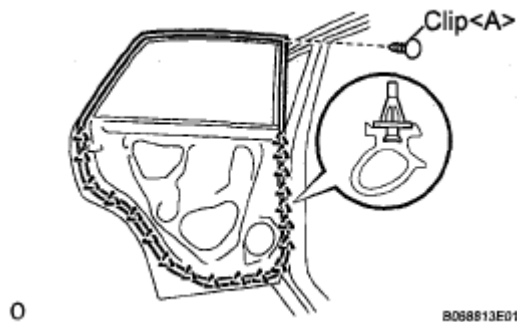
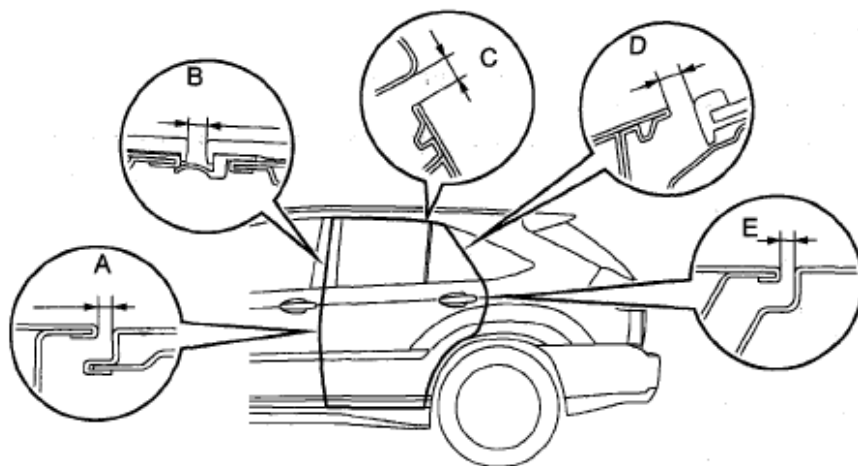


Fig. 158: Identifying Rear Door Weatherstrip Clips
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ADJUSTMENT

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
 (See PRECAUTION)
2. **INSPECT REAR DOOR**
 - a. Check that the clearance is within the standard range.



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Fig. 159: Identifying Rear Door Clearance
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard range:

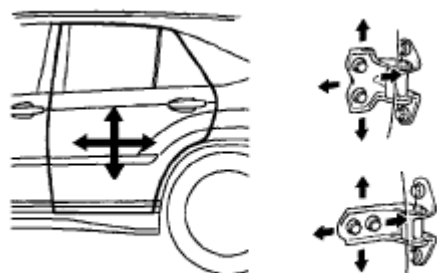
RANGE SPECIFICATION

A	4.5 +- 1.5 mm (0.177 +- 0.059 in.)
B	4.8 +- 1.5 mm (0.189 +- 0.059 in.)
C	5.1 +- 1.5 mm (0.201 +- 0.059 in.)
D	6.8 +- 1.5 mm (0.268 +- 0.059 in.)
E	4.5 +- 1.5 mm (0.177 +- 0.059 in.)

3. ADJUST REAR DOOR

- a. Loosen the bolts on the pillar side to adjust the door front and back, up and down.

Torque: 26 N*m (265 kgf*cm, 19 ft.*lbf)



B070451

Fig. 160: Adjusting Rear Door
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Loosen the bolts on the door side to adjust the door up and down, and the door front side to side.

Torque: 27 N*m (275 kgf*cm, 20 ft.*lbf)

HINT:

Perform this procedure after replacing the centering bolt with the supplied bolt.

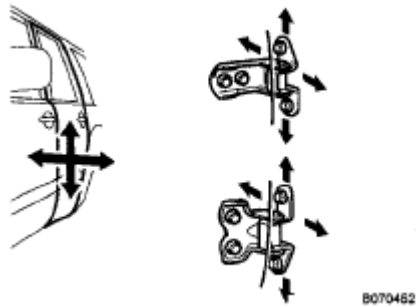


Fig. 161: Adjusting Rear Door

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

- c. When adjusting the door rear side to side and the rear door lock striker plate assembly, using a "Torx" socket wrench (T40), loosen the screws until the striker can move. Lightly tap it with a brass bar for adjustment.

Torque: 23 N*m (235 kgf*cm, 17 ft.*lbf)

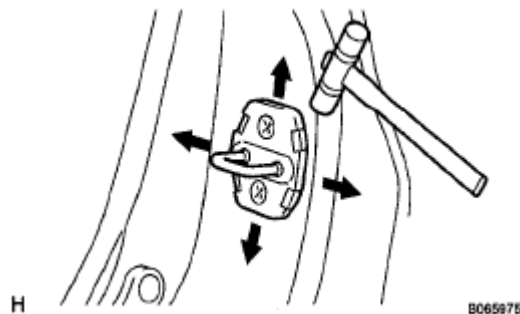


Fig. 162: Adjusting Rear Door Lock Striker Plate Assembly

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

- 4. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**
- 5. **PERFORM INITIALIZATION**

(See **INITIALIZATION**)

REASSEMBLY

- 1. **INSTALL REAR DOOR WINDOW FRAME MOLDING SUB-ASSEMBLY** (See **INSTALLATION**)

2. **INSTALL REAR DOOR BELT MOLDING ASSEMBLY**

3. **INSTALL REAR DOOR WEATHERSTRIP**

4. **INSTALL REAR DOOR CHECK ASSEMBLY**

- a. Install the rear door check assembly with the bolt and the 2 nuts,

bolt:

Torque: 27 N*m (275 kgf*cm, 20 ft.*lbf)

nut:

Torque: 8.0 N*m (82 kgf*cm, 71 in.*lbf)

- b. Install the check cover.

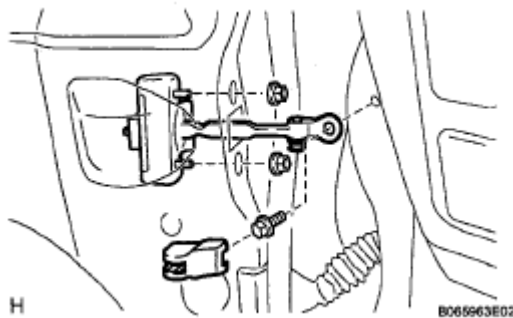


Fig. 163: Identifying Rear Door Check Assembly Bolt And Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **INSTALL REAR DOOR CHECK COVER**

6. **INSTALL REAR DOOR OUTSIDE HANDLE FRAME SUB-ASSEMBLY**

- a. Apply body grease to the sliding parts on the rear door outside handle frame sub-assembly.
- b. Using a "Torx" socket wrench (T30), install the rear door outside handle frame sub-assembly with the screw.

Torque: 7.0 N*m (71 kgf*cm, 62 in.*lbf)

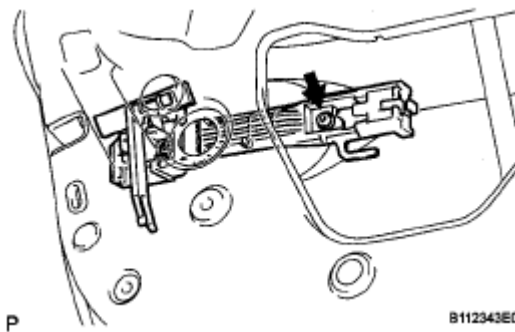


Fig. 164: Locating Rear Door Outside Handle Frame Sub-Assembly Screw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. INSTALL REAR DOOR OUTSIDE HANDLE PAD REAR
8. INSTALL REAR DOOR OUTSIDE HANDLE PAD
9. INSTALL REAR DOOR OUTSIDE HANDLE ASSEMBLY
10. INSTALL REAR DOOR OUTSIDE HANDLE COVER
 - a. Install the rear door outside handle cover with the 2 claws.

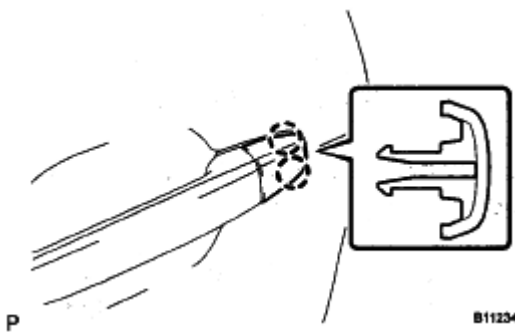


Fig. 165: Identifying Rear Door Outside Handle Cover Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Using a "Torx" socket wrench (T30), install the rear door outside handle cover with the screw.

Torque: 7.0 N*m (71 kgf*cm, 62 in.*lbf)

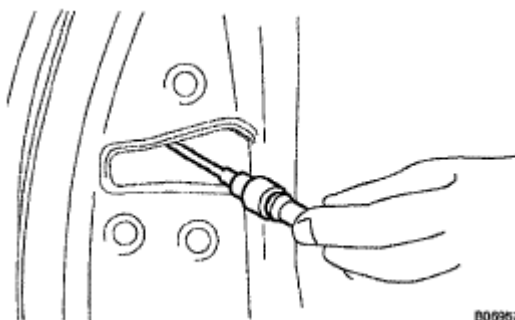


Fig. 166: Installing Rear Door Outside Handle Cover Screw
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. INSTALL DOOR LOCK WIRING HARNESS SEAL
12. INSTALL REAR DOOR LOCK ASSEMBLY

NOTE:

- When reusing the removed rear door lock assembly, replace the door lock wire harness sealing on the connector with a new one.
 - Do not allow grease or dust to adhere on the door lock wiring harness sealing surface of the connector.
 - Reusing the door lock wiring harness sealing and/ or using damaged door lock wiring harness sealing may cause water intrusion to the connection, and result in a malfunction in the rear door lock assembly.
- a. Apply body grease to the sliding parts on the rear door lock assembly.
 - b. Insert the rear door lock assembly to the rear door outside handle release plate, and set it to the rear door panel.
 - c. Make sure that the rear door outside handle frame release plate is securely connected to the rear door lock assembly.
 - d. Using a "Torx" socket wrench (T30), install the rear door lock assembly with the 3 screws.

Torque: 5.0 N*m (51 kgf*cm, 44 in.*lbf)

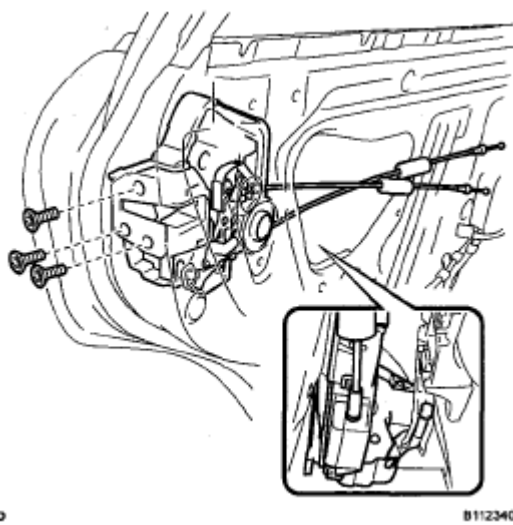


Fig. 167: Identifying Rear Door Lock Assembly Screws
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- e. Connect the connector.
13. INSTALL POWER WINDOW REGULATOR MOTOR ASSEMBLY REAR

NOTE: The regulator arm must be below the intermediate position when installing the power window regulator motor.

- a. Using a "Torx" driver (T25), install the power window regulator motor assembly rear with the 3 screws.

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

HINT:

The new rear window regulator adopts a self-tapping method. The installation position of regulator will be threaded when the self-tapping screw is inserted.

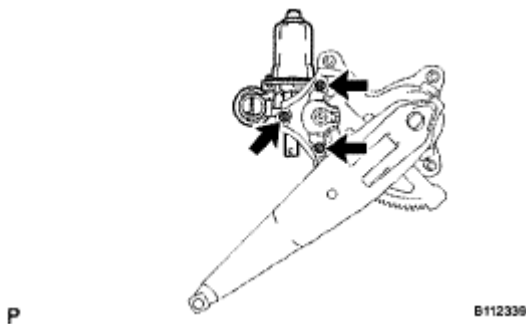


Fig. 168: Locating Rear Power Window Regulator Motor Assembly Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

14. INSTALL REAR DOOR WINDOW REGULATOR SUB-ASSEMBLY

- a. Apply body grease to the sliding parts on the rear door window regulator sub-assembly.
- b. Install the temporary bolt to the rear door window regulator sub-assembly.
- c. Tighten the 4 bolts and install the rear door window regulator sub-assembly.

Torque: 8.0 N*m (82 kgf*cm, 71 in.*lbf)

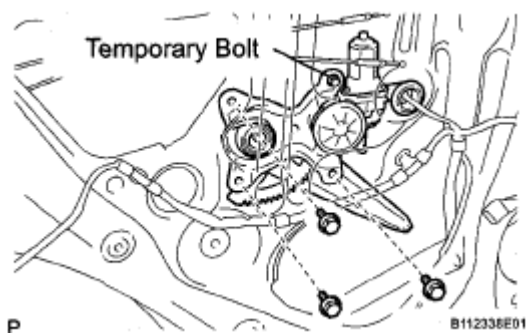


Fig. 169: Identifying Rear Door Window Regulator Sub-Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- d. Connect the connector.
15. **INSTALL REAR DOOR GLASS SUB-ASSEMBLY**
16. **INSTALL REAR DOOR QUARTER WINDOW GLASS**
17. **INSTALL REAR DOOR WINDOW DIVISION BAR SUB-ASSEMBLY**
18. **INSTALL REAR DOOR GLASS RUN**
19. **INSTALL REAR DOOR SERVICE HOLE COVER**
 - a. Apply butyl tape to the rear door panel as shown in the illustration.
 - b. Install the rear door service hole cover.

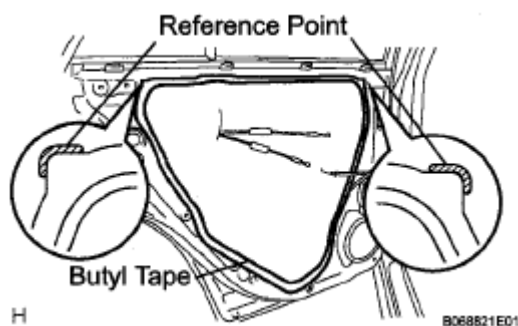


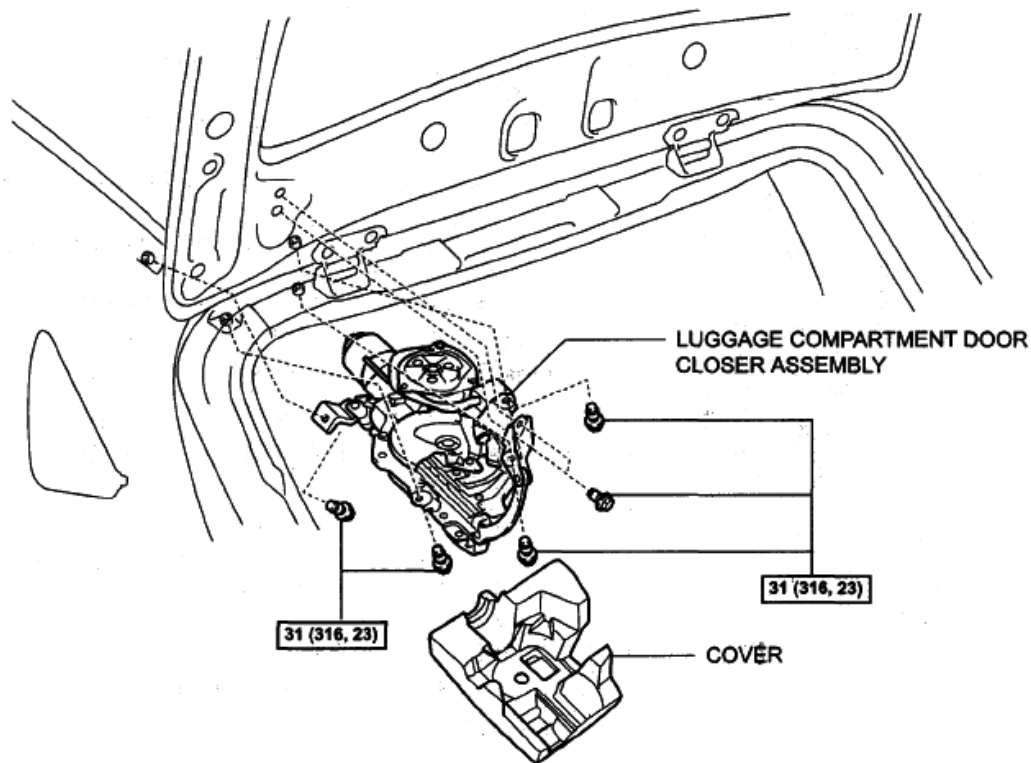
Fig. 170: Identifying Butyl Tape On Rear Door Panel
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

20. **INSTALL REAR SPEAKER** (See INSTALLATION)
21. **INSTALL REAR DOOR ARMREST SET BRACKET**
22. **INSTALL REAR DOOR GLASS WEATHERSTRIP INNER**
23. **INSTALL REAR DOOR TRIM BOARD SUB-ASSEMBLY**
24. **INSTALL REAR DOOR ARMREST COVER**
25. **INSTALL REAR DOOR ARMREST BASE PANEL ASSEMBLY**
26. **INSTALL REAR DOOR INSIDE HANDLE BEZEL PLUG**
27. **POWER WINDOW CONTROL SYSTEM INITIALIZATION**

(See INITIALIZATION)

LUGGAGE COMPARTMENT DOOR CLOSER ASSEMBLY

COMPONENTS



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

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Fig. 171: Identifying Luggage Compartment Door Closer Assembly Components With Torque Specification

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

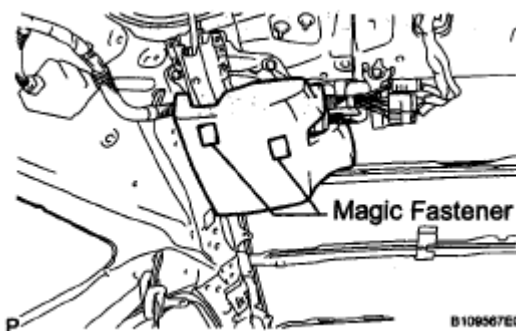
REMOVAL

1. REMOVE ROOF HEADLINING ASSEMBLY

(See **REMOVAL**)

2. REMOVE LUGGAGE COMPARTMENT DOOR CLOSER ASSEMBLY

- a. Remove the 2 magic fasteners and the cover.



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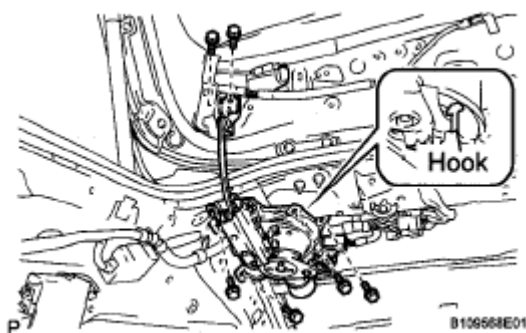
Fig. 172: Identifying Magic Fasteners

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

- b. Disconnect the connector.
- c. Remove the 6 bolts.

NOTE: Do not drop the power back door unit assembly.

- d. Disengage the hook and remove the power back door unit assembly.

**Fig. 173: Identifying Luggage Compartment Door Closer Assembly Bolts**

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

INSTALLATION**1. INSTALL LUGGAGE COMPARTMENT DOOR CLOSER ASSEMBLY**

- a. Firmly engage the hook to the roof.

NOTE: Do not drop the power back door unit assembly.

- b. Install the luggage compartment door closer assembly with the 6 bolts in the order as shown in the illustration.

Torque: 31 N*m (316 kgf*cm, 23 ft.*lbf)

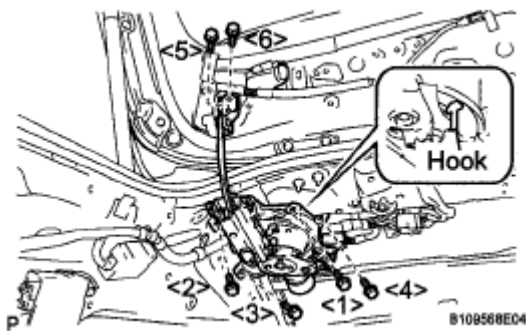


Fig. 174: Identifying Luggage Compartment Door Closer Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. INSTALL ROOF HEADLINING ASSEMBLY

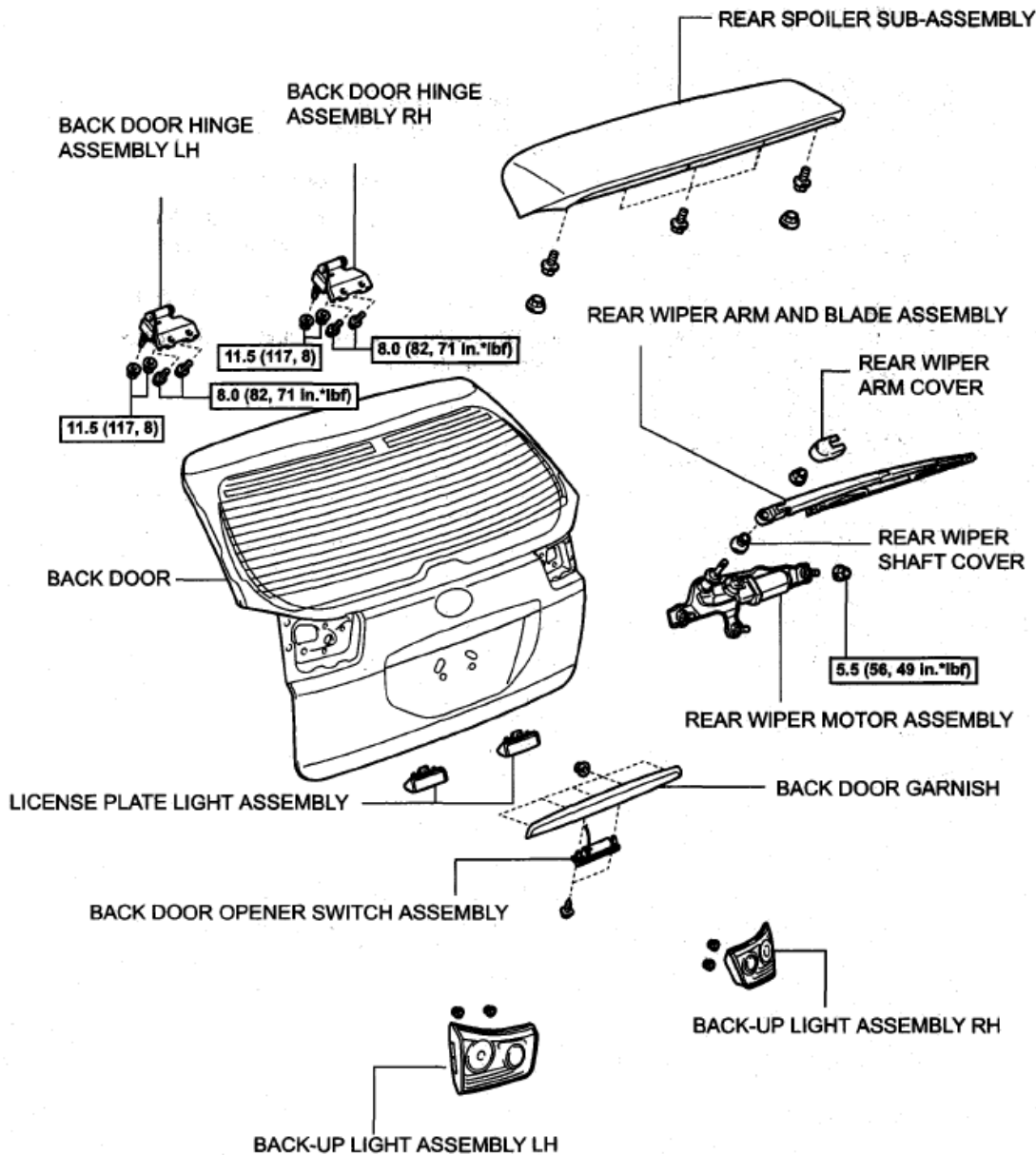
(See **INSTALLATION**)

BACK DOOR

COMPONENTS

2008 Lexus RX 350

2008 ACCESSORIES AND EQUIPMENT Engine Hood/Door - RX350



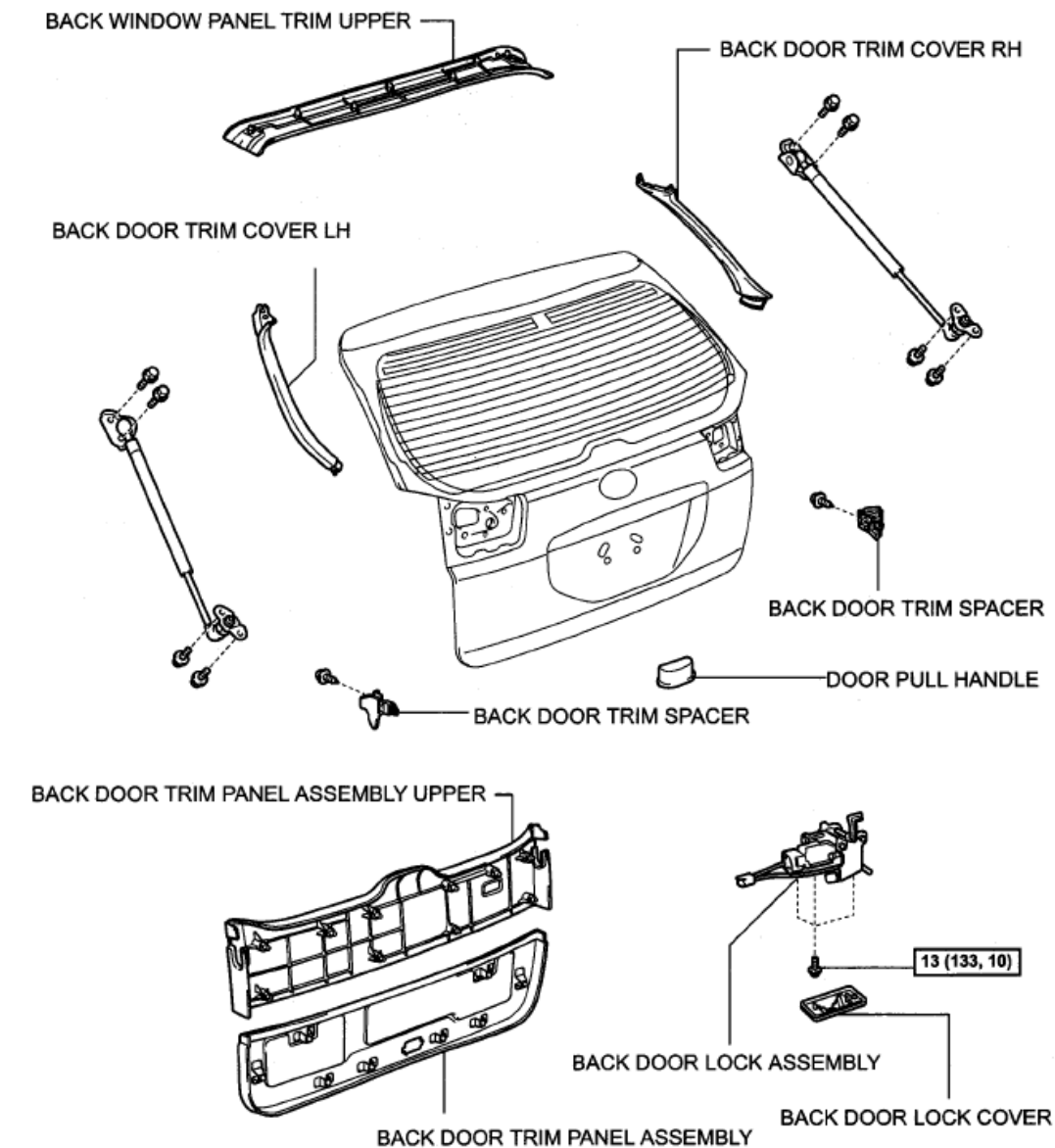
H **N*m (kg*cm, ft.*lbf)** : Specified torque

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Fig. 175: Identifying Back Door Components With Torque Specifications (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2008 Lexus RX 350

2008 ACCESSORIES AND EQUIPMENT Engine Hood/Door - RX350



B110160E02

Fig. 176: Identifying Back Door Components With Torque Specifications (2 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DISASSEMBLY

1. REMOVE REAR WIPER ARM COVER (See REMOVAL)
2. REMOVE REAR WIPER ARM AND BLADE ASSEMBLY (See REMOVAL)
3. REMOVE REAR WIPER SHAFT COVER (See REMOVAL)
4. REMOVE REAR NO.1 WIPER LINK PIVOT NUT (See REMOVAL)
5. REMOVE REAR NO.1 WIPER LINK PIVOT WASHER (See REMOVAL)

6. REMOVE BACK WINDOW PANEL TRIM UPPER (w/o Power Back Door)

- a. Disengage the 2 claws and the 7 clips, and remove the back window panel trim upper.

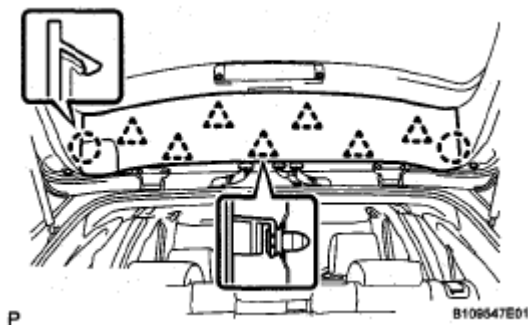


Fig. 177: Identifying Upper Back Window Panel Trim Claws And Clips (W/O Power Back Door)

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

7. REMOVE BACK DOOR TRIM BOARD (w/ Power Back Door)

- a. Disengage the 3 claws and remove the back door trim board.



Fig. 178: Identifying Back Door Trim Board Claws

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

8. REMOVE BACK WINDOW PANEL TRIM UPPER (w/ Power Back Door)

- a. Disengage the 2 claws and the 7 clips, and remove the back window panel trim upper.

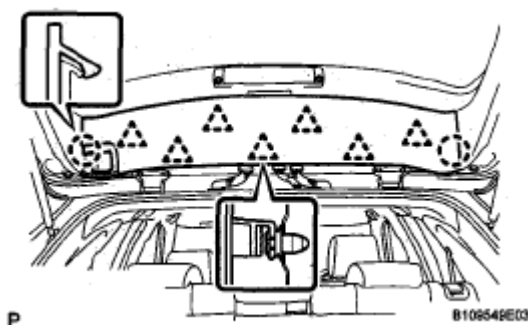
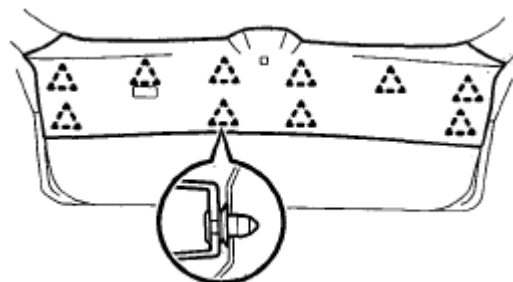


Fig. 179: Identifying Upper Back Window Panel Trim Claws And Clips (W/ Power Back Door)

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

9. REMOVE BACK DOOR TRIM PANEL ASSEMBLY UPPER

- a. Disengage the 10 clips and remove the back door trim panel assembly upper.



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Fig. 180: Identifying Upper Back Door Trim Panel Assembly Clips

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

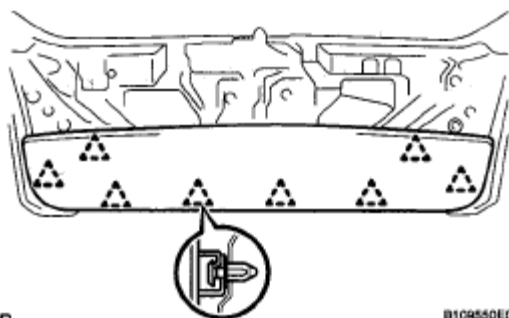
10. REMOVE BACK DOOR TRIM PANEL ASSEMBLY

- a. Disengage the 8 clips and remove the back door trim panel assembly.

11. **REMOVE REAR WIPER MOTOR ASSEMBLY** (See **REMOVAL**)
 12. **REMOVE BACK-UP LIGHT ASSEMBLY LH** (See **REMOVAL**)
 13. **REMOVE BACK-UP LIGHT ASSEMBLY RH**

HINT:

Use the same procedures for the RH side and the LH side.



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Fig. 181: Identifying Back Door Trim Panel Assembly Clips

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

14. REMOVE BACK DOOR TRIM COVER RH

- a. Disengage the 3 clips and remove the back door trim cover RH.

HINT:

If a clip remains on the door, remove the clip from the body and install it to the back door trim cover RH.

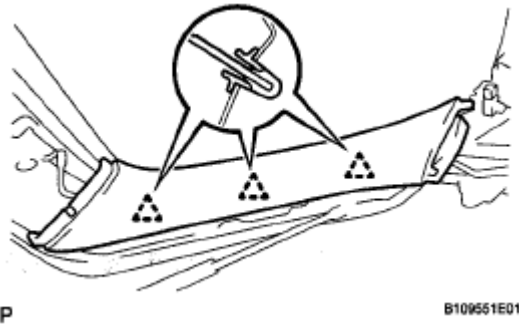


Fig. 182: Identifying Back Door Trim Cover Clips (RH)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

15. REMOVE BACK DOOR TRIM COVER LH

- a. Disengage the 3 clips and remove the back door trim cover LH.

HINT:

If a clip remains on the door, remove the clip from the body and install it to the back door trim cover LH.

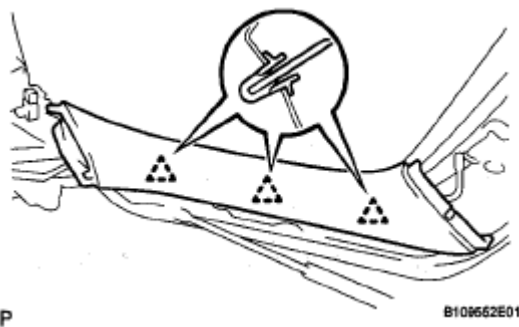


Fig. 183: Identifying Back Door Trim Cover Clips (LH)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

16. **REMOVE REAR SPOILER SUB-ASSEMBLY** (See **REMOVAL**)
17. **REMOVE BACK DOOR TRIM SPACER (RH Side)**
 - a. Remove the screw.
 - b. Disengage the clip and remove the back door trim spacer.
18. **REMOVE BACK DOOR TRIM SPACER (LH Side)**
 - a. Remove the screw.

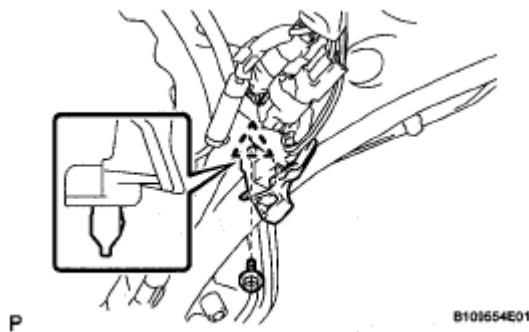


Fig. 184: Identifying Back Door Trim Spacer Screw And Clip (RH Side)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Disengage the clip and remove the back door trim spacer.

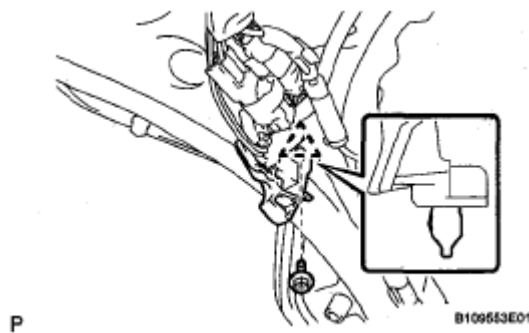


Fig. 185: Identifying Back Door Trim Spacer Screw And Clip (LH Side)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

19. REMOVE BACK DOOR LOCK COVER

- a. Disengage the 4 claws and remove the back door lock cover.

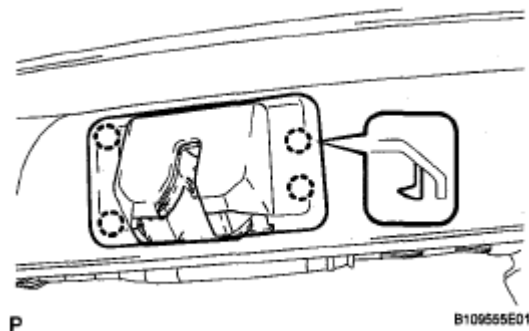


Fig. 186: Identifying Back Door Lock Cover Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

20. REMOVE BACK DOOR LOCK ASSEMBLY (w/o Power Back Door)

- a. Separate the link rod as shown in the illustration.

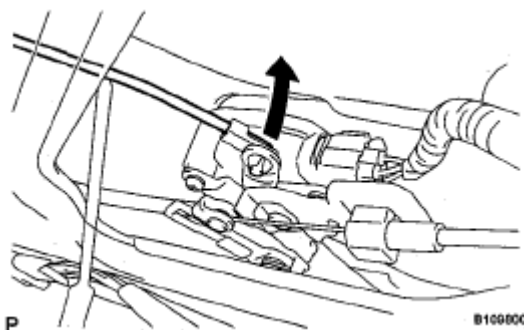


Fig. 187: Separating Link Rod

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

- b. Disconnect the connector and remove the clamp.
- c. Remove the 3 bolts and the back door lock assembly.

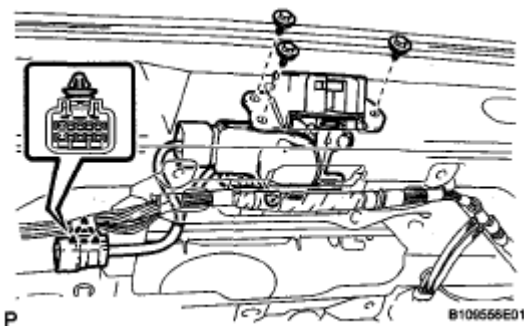


Fig. 188: Identifying Back Door Lock Assembly Bolts (W/O Power Back Door)

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

21. REMOVE BACK DOOR LOCK ASSEMBLY (w/ Power Back Door)

- a. Separate the link rod as shown in the illustration.

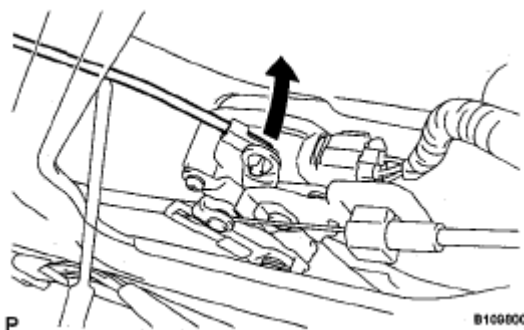


Fig. 189: Separating Link Rod

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

- b. Disconnect each connector and remove the clamp.

- c. Remove the 4 bolts and the back door lock assembly.

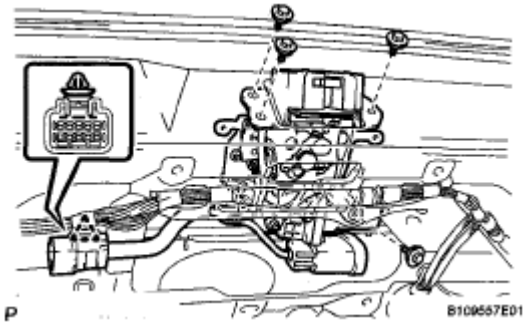


Fig. 190: Identifying Back Door Lock Assembly Bolts (W/ Power Back Door)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

22. REMOVE POWER BACK DOOR SENSOR ASSEMBLY RH (w/ Power Back Door)

- a. Disconnect the connector.
- b. Remove the clip.
- c. Using a "Torx" socket wrench (T30), remove the 3 screws and the power back door sensor assembly RH.

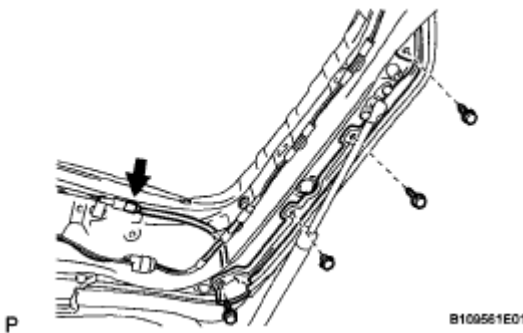


Fig. 191: Identifying Power Back Door Sensor Assembly Screws (RH)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

23. REMOVE POWER BACK DOOR SENSOR ASSEMBLY LH (w/ Power Back Door)

- a. Disconnect the connector.
- b. Remove the clip.
- c. Using a "Torx" socket wrench (T30), remove the 3 screws and the power back door sensor assembly LH.

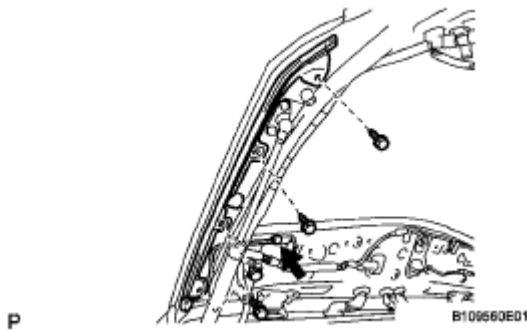


Fig. 192: Identifying Power Back Door Sensor Assembly Screws (LH)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

24. REMOVE BACK DOOR GARNISH (See REMOVAL)

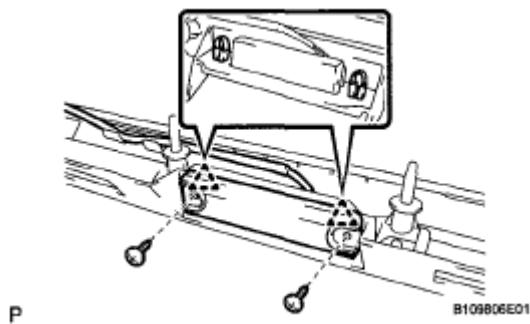


Fig. 193: Identifying Back Door Opener Switch Assembly Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

25. REMOVE BACK DOOR OPENER SWITCH ASSEMBLY
- a. Remove the 2 screws and the back door opener switch assembly.
26. REMOVE TELEVISION CAMERA (w/ Rear View Monitor) (See REMOVAL)
27. REMOVE LICENSE PLATE LIGHT ASSEMBLY (See REMOVAL)

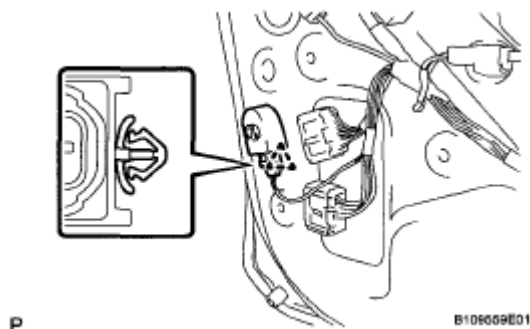


Fig. 194: Identifying Power Back Door Warning Buzzer Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

28. **REMOVE POWER BACK DOOR WARNING BUZZER (w/ Power Back Door)**
 - a. Disconnect the connector.
 - b. Remove the clamp and power back door warning buzzer.
29. **REMOVE POWER BACK DOOR CONTROL SWITCH ASSEMBLY (w/Power Back Door)**
 - a. Remove the clamp and disconnect the connector.
 - b. Disengage the 2 claws and remove the power back door control switch assembly as shown in the illustration.
30. **REMOVE DOOR PULL HANDLE**
 - a. Disengage the 4 claws and remove the door pull handle.

ADJUSTMENT

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

(See PRECAUTION)

2. INSPECT BACK DOOR

- a. Check that the clearance is within the standard range.

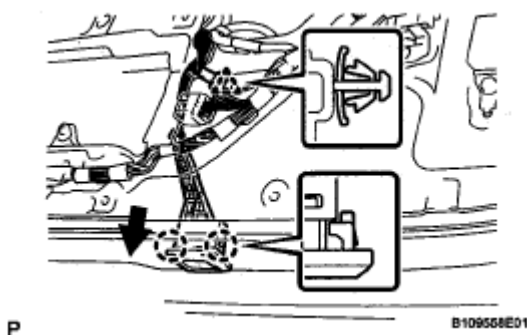


Fig. 195: Removing Power Back Door Control Switch Assembly (W/Power Back Door)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

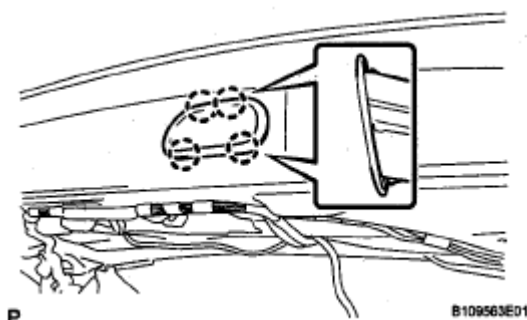
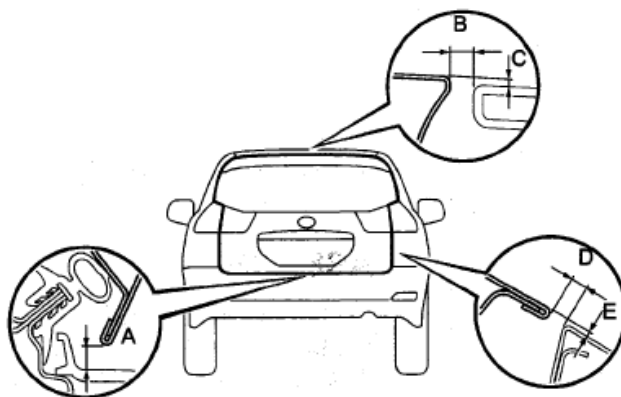


Fig. 196: Identifying Door Pull Handle Claws
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.



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Fig. 197: Identifying Back Door Clearance
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard range:

RANGE SPECIFICATION

A	6.5 +- 2.0 mm (0.256 +- 0.078 in.)
B	8.1 +- 2.0 mm (0.319 +- 0.078 in.)
C	10.0 +- 2.0 mm (0.394 +- 0.078 in.)
D	5.5 +- 1.5 mm (0.217 +- 0.059 in.)
E	0 +- 1.5 mm (0 +- 0.059 in.)

3. ADJUST BACK DOOR

- a. Loosen the body side hinge nuts and adjust the door right, left, forward, and rearward.

Torque: 11.5 N*m (117 kgf*cm, 8.0 ft.*lbf)

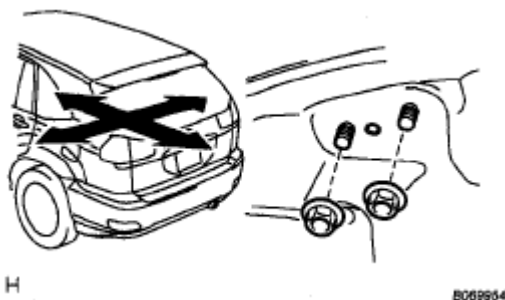


Fig. 198: Adjusting Back Door
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Horizontally and vertically adjust the back door by loosening the back door side hinge bolts.

Torque: 8.0 N*m (82 kgf*cm, 71 in.*lbf)



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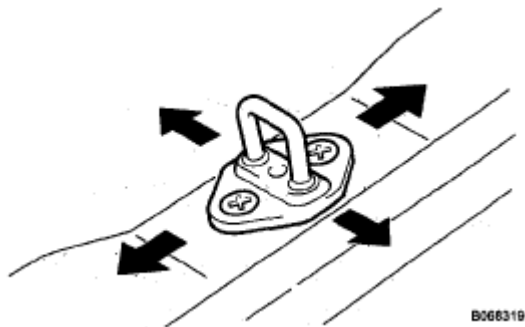
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Fig. 199: Adjusting Back Door

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

- c. When adjusting the back door rear side to side and the back door lock striker assembly, loosen the bolts until the striker can move. Lightly tap striker with a brass bar for adjustment.

Torque: 23 N*m (235 kgf*cm, 17 ft.*lbf)



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Fig. 200: Adjusting Back Door Lock Striker Assembly

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

- 4. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**
- 5. **PERFORM INITIALIZATION**

(See **INITIALIZATION**)

REASSEMBLY

- 1. **INSTALL DOOR PULL HANDLE**
- 2. **INSTALL POWER BACK DOOR CONTROL SWITCH ASSEMBLY (w/ Power Back Door)**
- 3. **INSTALL POWER BACK DOOR WARNING BUZZER (w/ Power Back Door)**
- 4. **INSTALL LICENSE PLATE LIGHT ASSEMBLY (See **INSTALLATION**)**
- 5. **INSTALL TELEVISION CAMERA (w/ Rear View Monitor) (See **INSTALLATION**)**
- 6. **INSTALL BACK DOOR OPENER SWITCH ASSEMBLY**
- 7. **INSTALL BACK DOOR GARNISH (See **INSTALLATION**)**
- 8. **INSTALL POWER BACK DOOR SENSOR ASSEMBLY LH (w/ Power Back Door)**

- a. Install a new clip to the power back door sensor assembly LH.

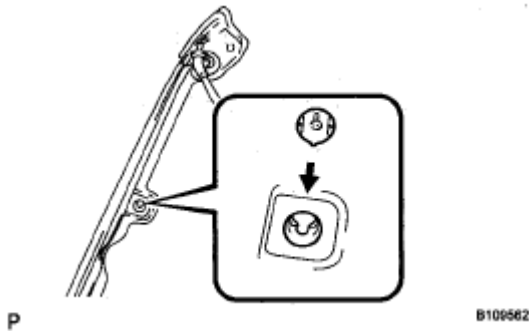


Fig. 201: Locating Power Back Door Sensor Assembly Clip (LH)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Using a "Torx" socket wrench (T30), install the power back door sensor assembly LH with the 3 bolts and the clip.

Torque: 3.5 N*m (36 kgf*cm, 31 in.*lbf)

- c. Connect the connector.

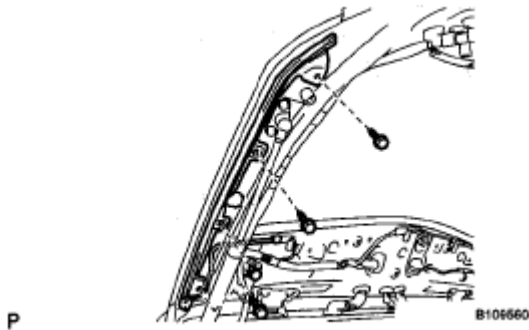


Fig. 202: Identifying Power Back Door Sensor Assembly Bolts (LH)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. INSTALL POWER BACK DOOR SENSOR ASSEMBLY RH (w/ Power Back Door)

- a. Install a new clip to the power back door sensor assembly RH.

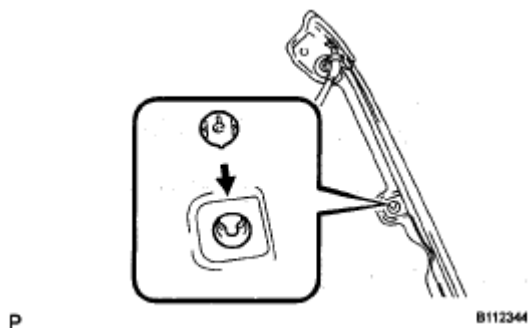


Fig. 203: Locating Power Back Door Sensor Assembly Clip (RH)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Using a "Torx" socket wrench (T30), install the power back door sensor assembly RH with the 3 bolts and the clip.

Torque: 3.5 N*m (36 kgf*cm, 31 in.*lbf)

- c. Connect the connector.

10. INSTALL BACK DOOR LOCK ASSEMBLY (w/ Power Back Door)

- a. Apply body grease to the sliding parts on the back door lock assembly.

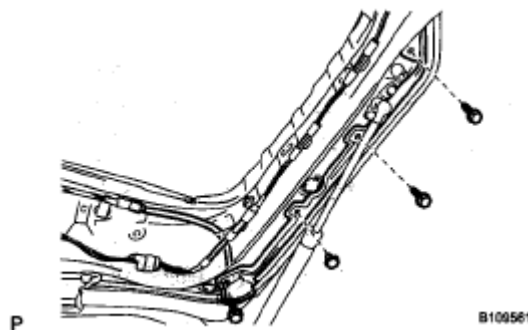


Fig. 204: Identifying Power Back Door Sensor Assembly Bolts (RH)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Install the back door lock assembly with the 4 bolts.

Torque: 13 N*m (133 kgf*cm, 10 ft.*lbf)

- c. Install the clamp.
- d. Connect each connector and the link rod.

11. INSTALL BACK DOOR LOCK ASSEMBLY (w/o Power Back Door)

- a. Apply body grease to the sliding parts on the back door lock assembly.

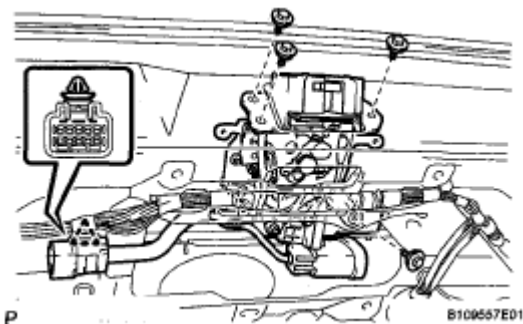


Fig. 205: Identifying Back Door Lock Assembly Bolts (W/ Power Back Door)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Install the back door lock assembly with the 3 bolts.

Torque: 13 N*m (133 kgf*cm, 10 ft.*lbf)

- c. Install the clamp.
- d. Connect the connector and the link rod.

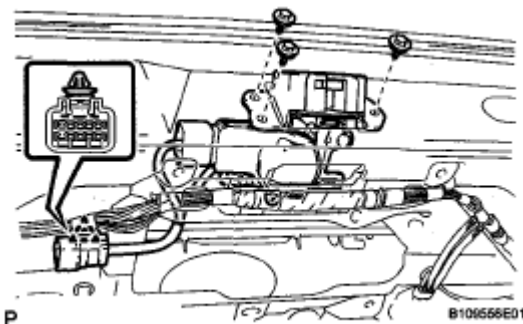


Fig. 206: Identifying Back Door Lock Assembly Bolts (W/O Power Back Door)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- 12. **INSTALL BACK DOOR LOCK COVER**
- 13. **INSTALL BACK DOOR TRIM SPACER (LH Side)**
- 14. **INSTALL BACK DOOR TRIM SPACER (RH Side)**
- 15. **INSTALL REAR SPOILER SUB-ASSEMBLY** (See INSTALLATION)
- 16. **INSTALL BACK DOOR TRIM COVER LH**
- 17. **INSTALL BACK DOOR TRIM COVER RH**
- 18. **INSTALL BACK-UP LIGHT ASSEMBLY LH** (See INSTALLATION)
- 19. **INSTALL BACK-UP LIGHT ASSEMBLY RH**

HINT:

Use the same procedures for the RH side and the LH side.

- 20. **INSTALL REAR WIPER MOTOR ASSEMBLY** (See INSTALLATION)
- 21. **INSTALL BACK DOOR TRIM PANEL ASSEMBLY**
- 22. **INSTALL BACK DOOR TRIM PANEL ASSEMBLY UPPER**
- 23. **INSTALL BACK WINDOW PANEL TRIM UPPER** (w/ Power Back Door)
- 24. **INSTALL BACK DOOR TRIM BOARD** (w/ Power Back Door)
- 25. **INSTALL BACK WINDOW PANEL TRIM UPPER** (w/o Power Back Door)
- 26. **INSTALL REAR NO.1 WIPER LINK PIVOT WASHER** (See INSTALLATION)
- 27. **INSTALL REAR NO.1 WIPER LINK PIVOT NUT** (See INSTALLATION)
- 28. **INSTALL REAR WIPER SHAFT COVER** (See INSTALLATION)
- 29. **INSTALL REAR WIPER ARM AND BLADE ASSEMBLY** (See INSTALLATION)
- 30. **INSTALL REAR WIPER ARM COVER** (See INSTALLATION)
- 31. **BACK DOOR CLOSER SYSTEM INITIALIZATION**

(See OPERATION CHECK)

- 32. **POWER BACK DOOR SYSTEM INITIALIZATION**

(See INITIALIZATION)

- 33. **ELECTRICAL BACK DOOR OUTSIDE HANDLE SYSTEM INITIALIZATION**

(See INITIALIZATION)

BACK DOOR OPENER SWITCH

INSPECTION

- 1. **INSPECT BACK DOOR OPENER SWITCH ASSEMBLY**
 - a. Measure the resistance according to the value (s) in the table below.

Standard resistance

RESISTANCE SPECIFICATION

Tester Connection	Switch Position	Specified Condition
1 - 2	Free	10 kohms or higher
1 - 2	Pushed	Below 1 ohms

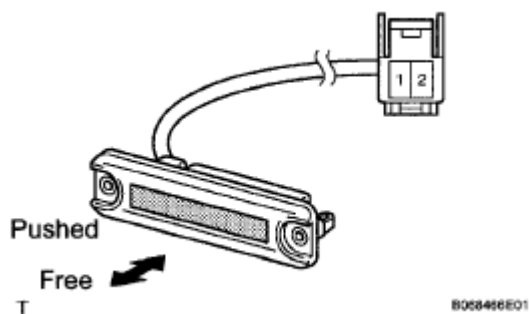


Fig. 207: Inspecting Back Door Opener Switch Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

POWER BACK DOOR MAIN SWITCH

INSPECTION

1. INSPECT POWER BACK DOOR MAIN SWITCH ASSEMBLY

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

Standard resistance

RESISTANCE SPECIFICATION

Tester Connection	Switch Position	Specified Condition
1 - 2	Free (OFF)	10 kohms or higher
1 - 2	Pushed (ON)	Below 1 ohms

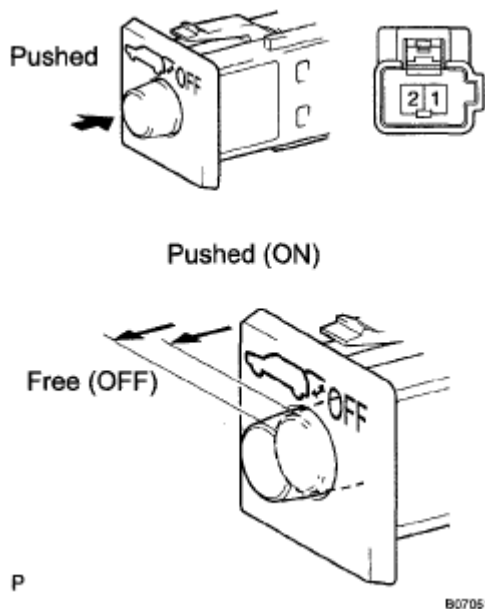


Fig. 208: Inspecting Power Back Door Main Switch Assembly

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

POWER BACK DOOR OPENER / CLOSER SWITCH

INSPECTION

1. INSPECT POWER BACK DOOR OPENER/CLOSER SWITCH ASSEMBLY

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

Standard resistance

RESISTANCE SPECIFICATION

Tester Connection	Switch Position	Specified Condition
3 - 4	Pushed (ON)	10 kohms or higher
3 - 4	Free (OFF)	Below 1 ohms

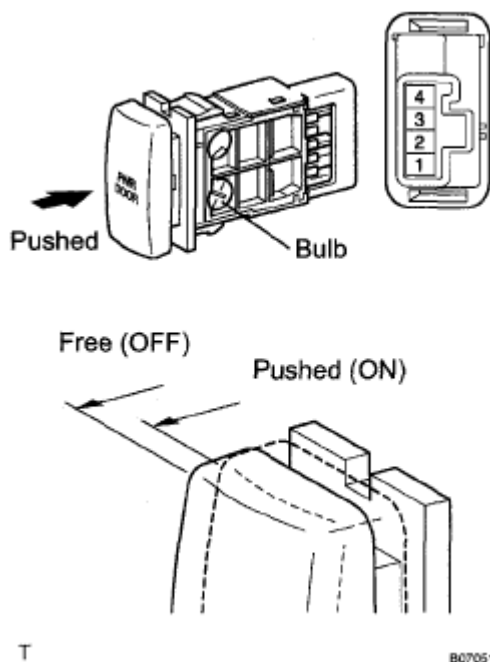


Fig. 209: Inspecting Power Back Door Opener/Closer Switch Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Check that the switch illuminates.

Standard

MEASUREMENT CONDITION AND SPECIFIED CONDITION

Measurement Condition	Specified Condition
Battery positive (+) --> ILL+ (2)	

Battery negative (-) --> ILL- (1)	Illuminates
-----------------------------------	-------------

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

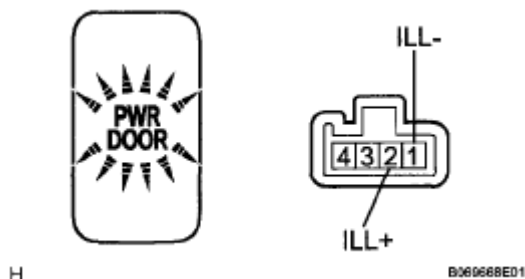


Fig. 210: Identifying Power Back Door Opener/Closer Switch Terminals And Illumination
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

POWER BACK DOOR CLOSER SWITCH

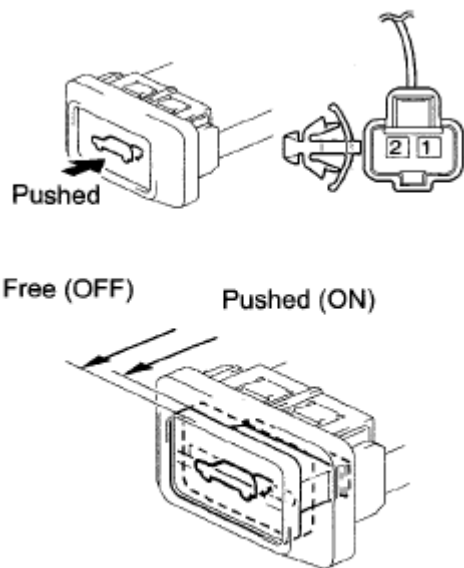
INSPECTION

1. **INSPECT POWER BACK DOOR CLOSER SWITCH ASSEMBLY**
 - a. Measure the resistance according to the value (s) in the table below.

Standard resistance

RESISTANCE SPECIFICATION

Tester Connection	Switch Position	Specified Condition
1 - 2	Pushed (ON)	Below 1 ohms
1 - 2	Free (OFF)	10 kohms or higher



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Fig. 211: Inspecting Power Back Door Closer Switch Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

POWER BACK DOOR TOUCH SENSOR

INSPECTION

1. INSPECT POWER BACK DOOR TOUCH SENSOR ASSEMBLY RH
 - a. Measure the resistance according to the value (s) in the table below.

Standard resistance

RESISTANCE SPECIFICATION

Tester Connection	Switch Position	Specified Condition
1 - 2	Free	Approx. 1 kohms
1 - 2	Pressed	Below 100 ohms

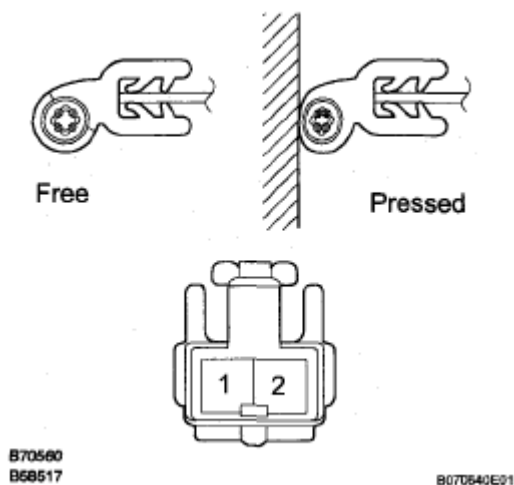


Fig. 212: Identifying Power Back Door Touch Sensor Connector Terminals (RH)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. INSPECT POWER BACK DOOR TOUCH SENSOR ASSEMBLY LH

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

Standard resistance

RESISTANCE SPECIFICATION

Tester Connection	Switch Position	Specified Condition
1 - 2	Free	Approx. 1 kohms
1 - 2	Pressed	Below 100 ohms

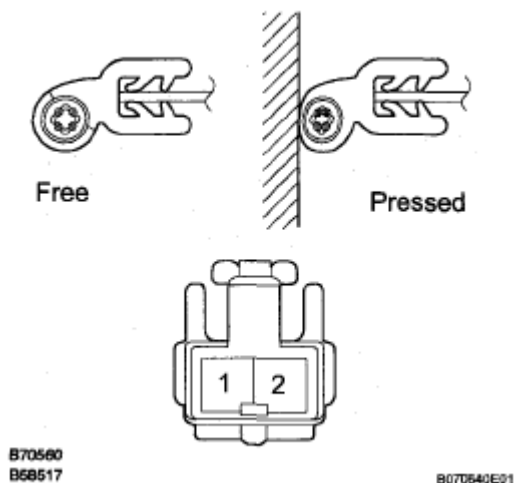


Fig. 213: Identifying Power Back Door Touch Sensor Connector Terminals (LH)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

1. INSPECT POWER BACK DOOR DRIVE UNIT

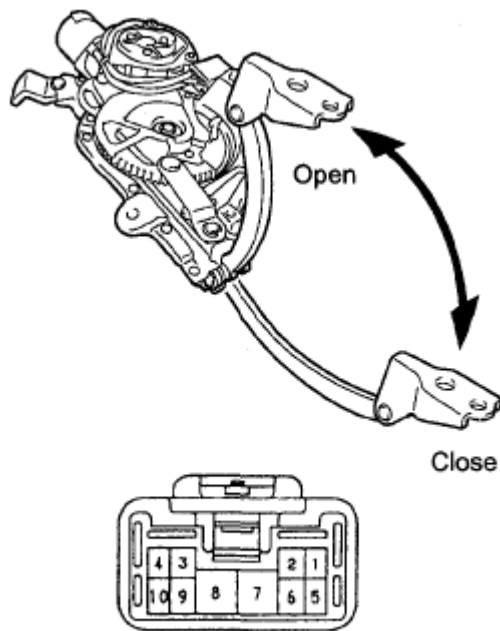
- a. Connect the battery positive (+) lead to terminal 3 and battery negative (-) terminal lead to terminal 9.
- b. Apply battery voltage to the terminals and check the motor operation.

OK

MEASUREMENT CONDITION AND SPECIFIED CONDITION

Measurement Condition	Specified Condition
Battery positive (+) --> Terminal 7 Battery negative (-) --> Terminal 8	Open
Battery positive (+) --> Terminal 8 Battery negative (-) --> Terminal 7	Close

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



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Fig. 214: Inspecting Power Back Door Drive Unit
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard resistance

RESISTANCE SPECIFICATION

Tester Connection	Specified Condition
3 - 9	4.0 ohms

- d. Reinstall the unit with the connector connected.
- e. Reference:

Check the pulse of the pulse sensor.

- 1. Using an oscilloscope, check the pulse generated when the door is manually opened and closed.

OK

WAVEFORM REFERENCE

Terminal	1 - 6,5 - 6
Tool setting	10 V/DIV., 10 ms/DIV.
Vehicle condition	Door moving

HINT:

A cycle of the pulse changes between approx. 10 and 20 msec, according to the speeds that the back door is moving.

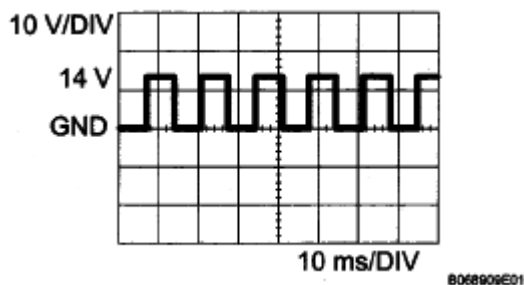


Fig. 215: Voltage Graph
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

POWER BACK DOOR WARNING BUZZER

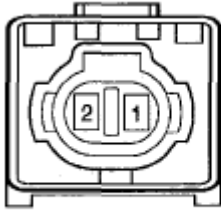
INSPECTION

- 1. **INSPECT POWER BACK DOOR WARNING BUZZER**
 - a. Measure the resistance according to the value (s) in the table below.

Standard resistance

RESISTANCE SPECIFICATION

Tester Connection	Specified Condition
1 - 2	Approx. 1 kohms



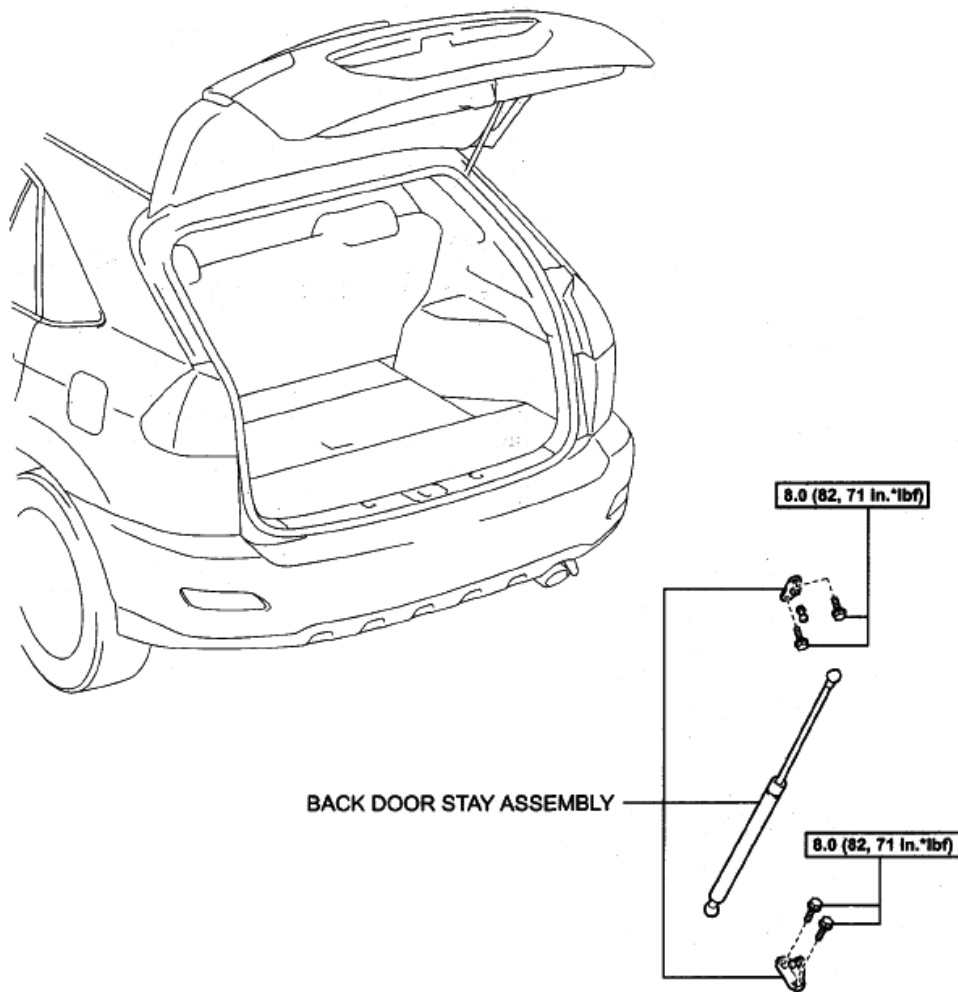
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Fig. 216: Identifying Power Back Door Warning Buzzer Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Directly applying battery voltage to the buzzer does not cause the buzzer to sound.

BACK DOOR SUPPORT

COMPONENTS



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

8109568E03

Fig. 217: Identifying Back Door Support Components With Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. REMOVE BACK DOOR SUPPORT

NOTE: While holding the back door, remove the back door stay assembly.

- a. Remove the 4 bolts and back door support.

INSTALLATION

1. INSTALL BACK DOOR SUPPORT

- a. Install the back door support with the 4 bolts.

Torque: 8.0 N*m (82 kgf*cm, 71 in.*lbf)

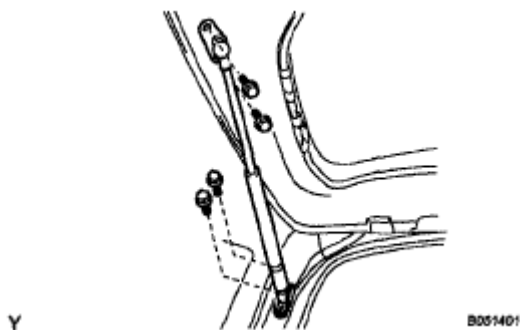


Fig. 218: Identifying Back Door Support Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DISPOSAL

1. DISPOSE OF BACK DOOR SUPPORT

- a. Horizontally fix the stay in a vise with the piston-rod pulled out.
- b. Wear safety glasses. Gradually cut a part between A and B shown in the illustration using a metal saw and gradually release the gas.

NOTE: Although the gas inside the stay is colorless, odorless and harmless, there is a possibility that metal debris could scatter. Therefore, cover it with clothes or equivalent.

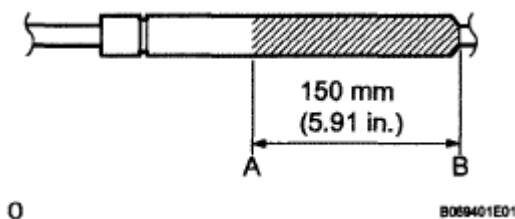
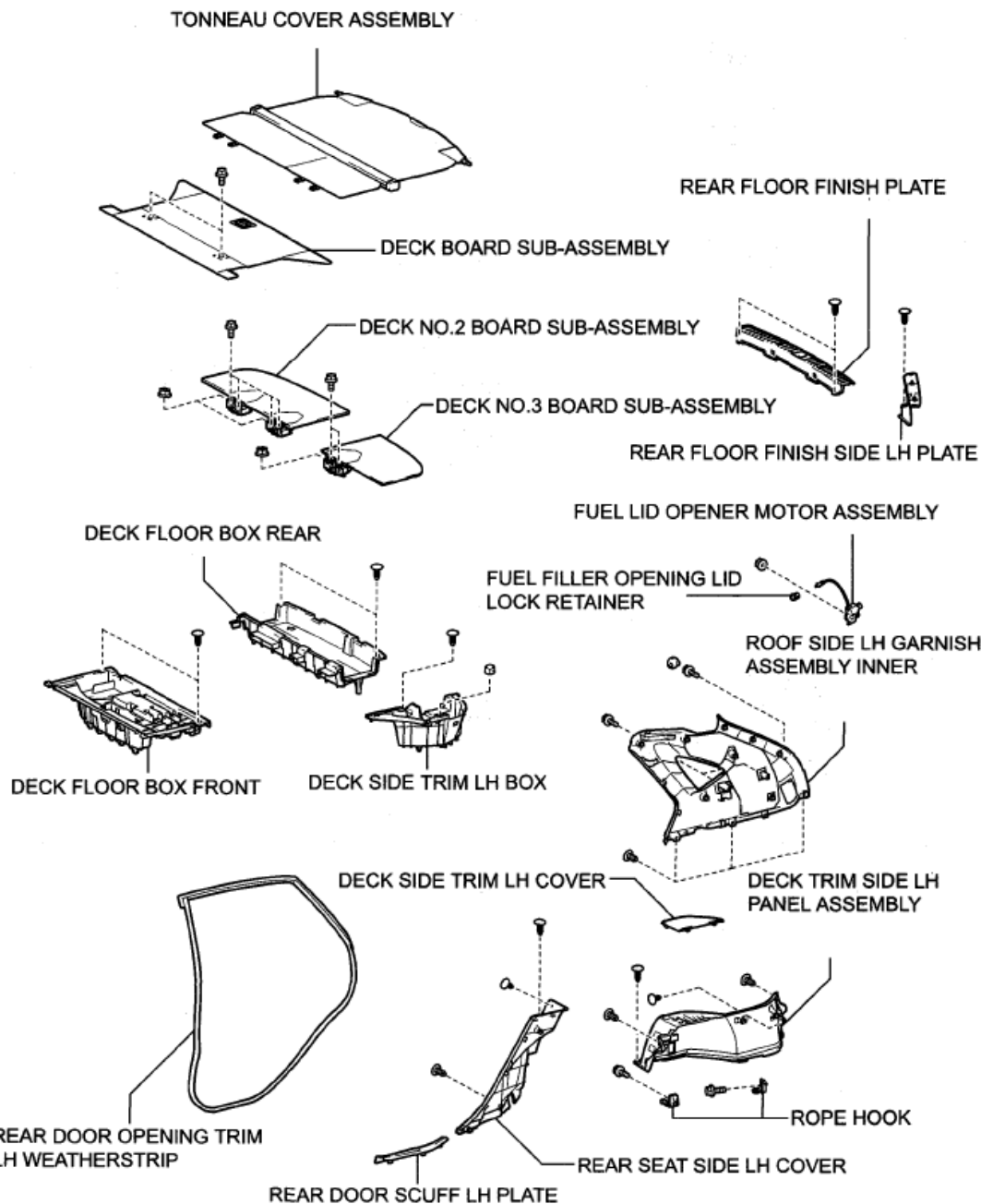


Fig. 219: Identifying Cutting Area Dimension Of Back Door Support
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

FUEL LID OPENER MOTOR ASSEMBLY

COMPONENTS



P

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Fig. 220: Identifying Fuel Lid Opener Motor Assembly Components
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. REMOVE TONNEAU COVER ASSEMBLY
2. REMOVE DECK BOARD SUB-ASSEMBLY (See **REMOVAL**)
3. REMOVE DECK FLOOR BOX FRONT (See **REMOVAL**)
4. REMOVE DECK FLOOR BOX REAR (See **REMOVAL**)

5. REMOVE DECK NO.2 BOARD SUB-ASSEMBLY (See REMOVAL)
6. REMOVE DECK NO.3 BOARD SUB-ASSEMBLY (See REMOVAL)
7. REMOVE DECK SIDE TRIM LH COVER (See REMOVAL)
8. REMOVE REAR FLOOR FINISH PLATE (See REMOVAL)
9. REMOVE DECK SIDE TRIM LH BOX (See REMOVAL)
10. REMOVE REAR DOOR SCUFF LH PLATE (See REMOVAL)
11. REMOVE REAR DOOR OPENING TRIM LH WEATHERSTRIP
12. REMOVE REAR SEAT SIDE LH COVER (See REMOVAL)
13. REMOVE REAR FLOOR FINISH SIDE LH PLATE (See REMOVAL)
14. REMOVE ROPE HOOK (See REMOVAL)
15. REMOVE DECK TRIM SIDE LH PANEL ASSEMBLY (See REMOVAL)
16. REMOVE ROOF SIDE LH GARNISH ASSEMBLY INNER (See REMOVAL)
17. REMOVE FUEL LID OPENER MOTOR ASSEMBLY
 - a. Disconnect the connector.
 - b. Release the lock as shown in the illustration.

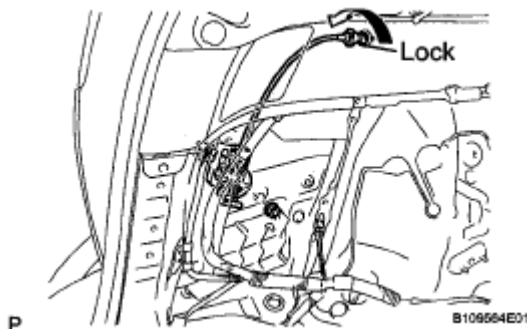


Fig. 221: Releasing Lock

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

- c. Remove the nut and fuel filler opening lid lock sub-assembly.
18. REMOVE FUEL FILLER OPENING LID LOCK RETAINER

INSPECTION

1. INSPECT FUEL FILLER OPENING LID LOCK SUB-ASSEMBLY (FUEL LID OPENER MOTOR)
 1. Apply battery voltage to the motor and check operation of the motor.

OK

MEASUREMENT CONDITION AND SPECIFIED CONDITION

Measurement Condition	Specified Condition
-----------------------	---------------------

Battery positive (+) --> Terminal 2	Shaft moves to open direction
Battery negative (-) --> Terminal 1	

2. Check the shaft strokes.

Shaft stroke: 10.3 mm (0.41 in.) or more

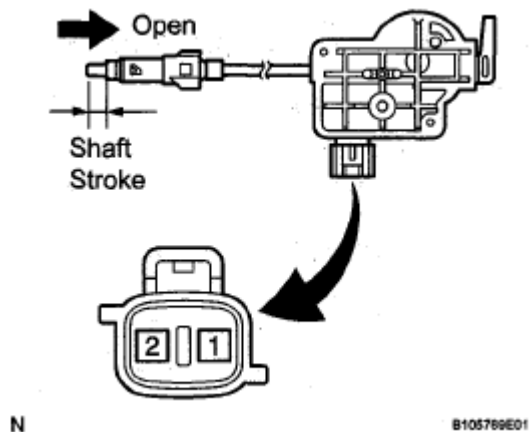


Fig. 222: Inspecting Fuel Filler Opening Lid Lock Sub-Assembly (Fuel Lid Opener Motor)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. **INSTALL FUEL FILLER OPENING LID LOCK RETAINER**
2. **INSTALL FUEL LID OPENER MOTOR ASSEMBLY**
 - a. Install the lock.
 - b. Install the fuel lid opener motor assembly with the nut.
 - c. Connect the connector.
3. **INSTALL ROOF SIDE LH GARNISH ASSEMBLY INNER**
4. **INSTALL DECK TRIM SIDE LH PANEL ASSEMBLY**
5. **INSTALL ROPE HOOK**
6. **INSTALL REAR FLOOR FINISH SIDE LH PLATE**
7. **INSTALL REAR SEAT SIDE LH COVER**
8. **INSTALL REAR DOOR OPENING TRIM LH WEATHERSTRIP**
9. **INSTALL REAR DOOR SCUFF LH PLATE**
10. **INSTALL DECK SIDE TRIM LH BOX**
11. **INSTALL REAR FLOOR FINISH PLATE**
12. **INSTALL DECK SIDE TRIM LH COVER**
13. **INSTALL DECK NO.3 BOARD SUB-ASSEMBLY**
14. **INSTALL DECK NO.2 BOARD SUB-ASSEMBLY**

15. **INSTALL DECK FLOOR BOX REAR**
16. **INSTALL DECK FLOOR BOX FRONT**
17. **INSTALL DECK BOARD SUB-ASSEMBLY**
18. **INSTALL TONNEAU COVER ASSEMBLY**

BACK DOOR LOCK

INSPECTION

1. INSPECT BACK DOOR LOCK ASSY (w/o POWER BACK DOOR SYSTEM)

- a. Check operation of the door lock.
 1. Using a screwdriver, push the latch in order to put the back door lock in the locked condition (full-latch position).
 2. Apply battery voltage to the door lock and check operation of the latch.

OK

MEASUREMENT CONDITION AND SPECIFIED CONDITION

Measurement Condition	Specified Condition
Battery positive (+) --> Terminal 5	Latch turns to open-latch position
Battery negative (-) --> Terminal 3	

HINT:

If the result is not as specified, replace the door lock assembly.

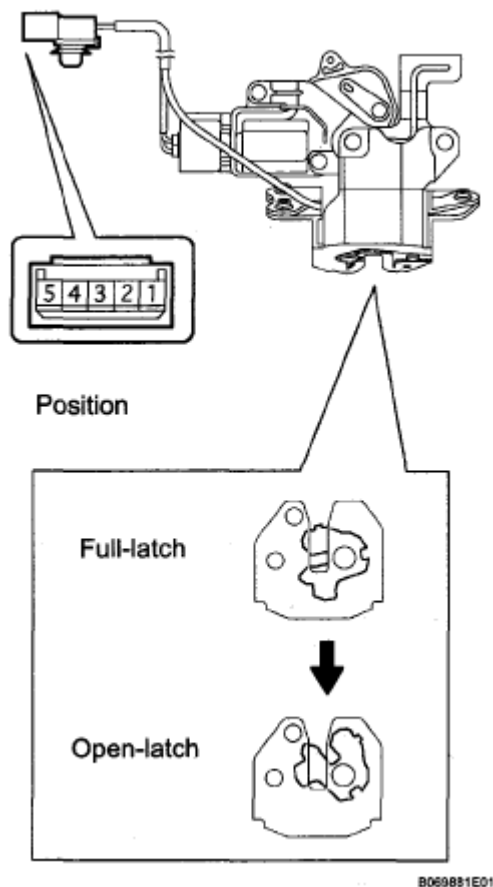


Fig. 223: Inspecting Back Door Lock Assy (W/O Power Back Door System)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

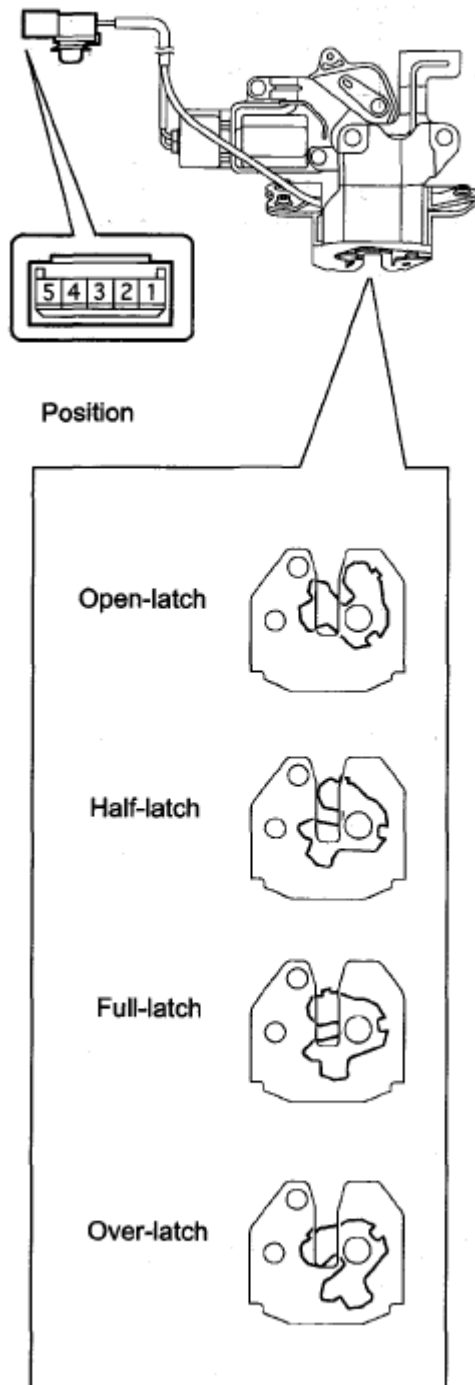
Standard resistance (Courtesy switch)

RESISTANCE SPECIFICATION (COURTESY SWITCH)

Tester Connection	Door Lock Latch Position	Specified Condition
1 - 2	Open-latch	Below 1 ohms
1 - 2	Half-latch	Below 1 ohms
1 - 2	Full-latch	10 kohms or higher
1 - 2	Over-latch	10 kohms or higher

HINT:

If the result is not as specified, replace the door lock assembly.



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Fig. 224: Identifying Back Door Lock Connector Terminals And Door Lock Latch Positions
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **INSPECT BACK DOOR LOCK ASSY (w/ POWER BACK DOOR SYSTEM)**
 - a. Check operation of the door lock.

1. Using a screwdriver, push the latch in order to put the back door lock in the locked condition (full-latch position).
2. Apply battery voltage to the door lock and check operation of the latch.

OK

MEASUREMENT CONDITION AND SPECIFIED CONDITION

Measurement Condition	Specified Condition
Battery positive (+) --> Terminal 7	Latch turns to open-latch position
Battery negative (-) --> Terminal 5	

HINT:

If the result is not as specified, replace the door lock assembly.

3. Apply battery voltage to the door lock motor and check operation of the motor.

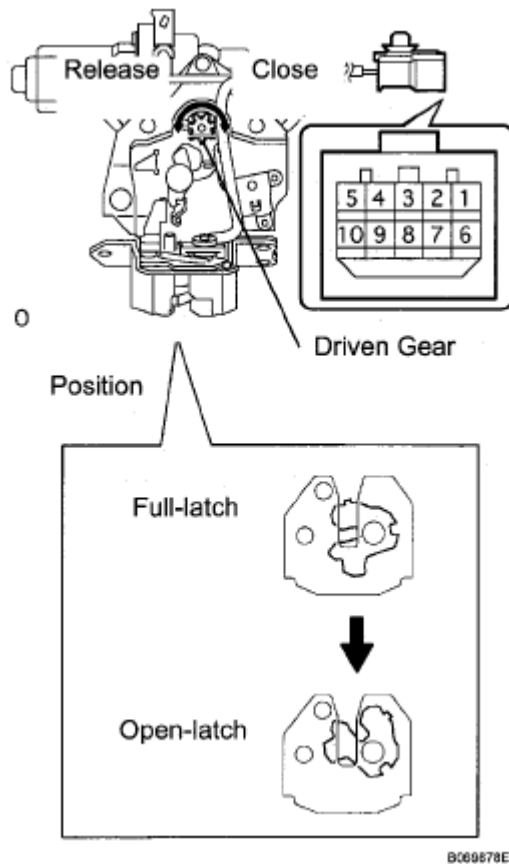


Fig. 225: Inspecting Back Door Lock Assy (W/ Power Back Door System)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK

2008 Lexus RX 350

2008 ACCESSORIES AND EQUIPMENT Engine Hood/Door - RX350

MEASUREMENT CONDITION AND SPECIFIED CONDITION

Measurement Condition	Specified Condition
Battery positive (+) --> Terminal 5 Battery negative (-) --> Terminal 7	Close operation (Full-latch)
Battery positive (+) --> Terminal 7 Battery negative (-) --> Terminal 5	
	Release operation (Open-latch)

HINT:

If the result is not as specified, replace the door lock assembly.

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

Standard resistance (Courtesy switch)**RESISTANCE SPECIFICATION (COURTESY SWITCH)**

Tester Connection	Door Lock Latch Position	Specified Condition
1 - 6	Open-latch	Below 1 ohms
1 - 6	Half-latch	Below 1 ohms
1 - 6	Full-latch	10 kohms or higher
1 - 6	Over-latch	10 kohms or higher

HINT:

If the result is not as specified, replace the door lock assembly.

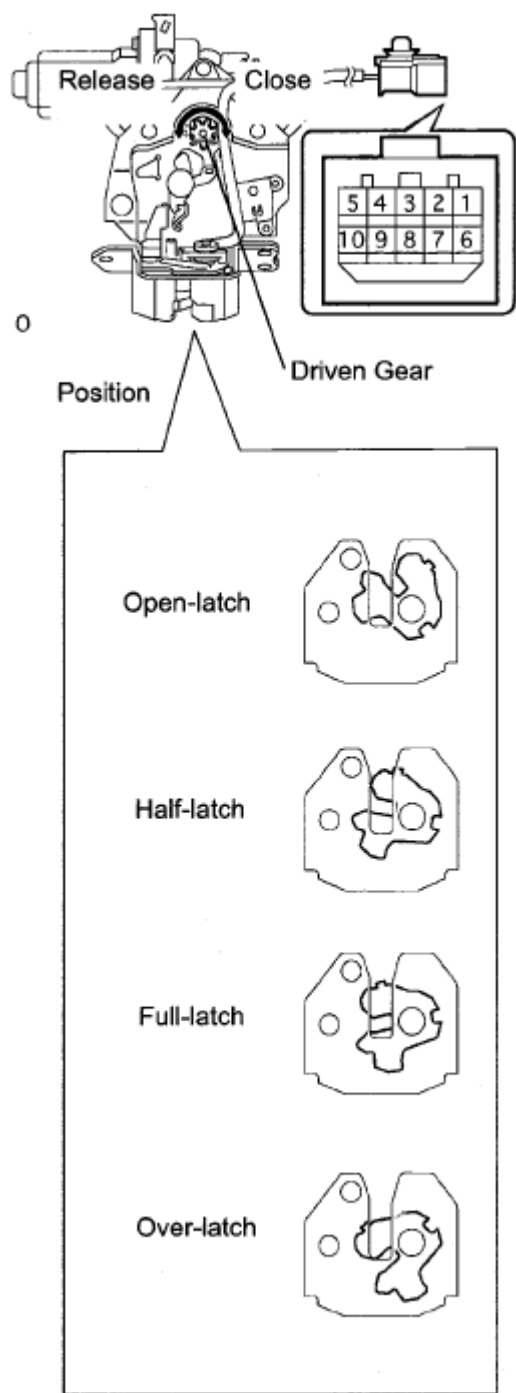
- c. Measure the resistance according to the value (s) in the table below.

Standard resistance (Full-latch switch)**RESISTANCE SPECIFICATION (FULL-LATCH SWITCH)**

Tester Connection	Door Lock Latch Position	Specified Condition
2 - 4	Open-latch	10 kohms or higher
2 - 4	Half-latch	10 kohms or higher
2 - 4	Full-latch	10 kohms or higher
2 - 4	Over-latch	Below 1 ohms

HINT:

If the result is not as specified, replace the door lock assembly.



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Fig. 226: Identifying Back Door Lock Connector Terminals And Door Lock Latch Positions
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard resistance (Half-latch switch)

2008 Lexus RX 350

2008 ACCESSORIES AND EQUIPMENT Engine Hood/Door - RX350

RESISTANCE SPECIFICATION (HALF-LATCH SWITCH)

Tester Connection	Door Lock Latch Position	Specified Condition
3 - 4	Open-latch	Below 1 ohms
3 - 4	Half-latch	10 kohms or higher
3 - 4	Full-latch	10 kohms or higher
3 - 4	Over-latch	10 kohms or higher

HINT:

If the result is not as specified, replace the door lock assembly.

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

1. Full-latch:

Connect the battery positive (+) lead to connector terminal 7 and the negative (-) lead to connector terminal 5.

Standard resistance

RESISTANCE SPECIFICATION

Tester Connection	Driven Gear Position	Specified Condition
8 - 9	Release	Below 1 ohms

HINT:

If the result is not as specified, replace the door lock assembly.

2. Over-latch:

Connect the battery positive (+) lead to connector terminal 5 and the negative (-) lead to connector terminal 7.

Standard resistance

RESISTANCE SPECIFICATION

Tester Connection	Driven Gear Position	Specified Condition
8 - 9	Close	10 kohms or higher

HINT:

If the result is not as specified, replace the door lock assembly.