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POWER DOOR LOCK CONTROL SYSTEM

PRECAUTION

1. PRECAUTION FOR DISCONNECTING THE BATTERY CABLE

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

SYSTEM NAME REFERENCE

System Name	See Procedure
Power back door system	INITIALIZATION

2. EXPRESSIONS OF IGNITION SWITCH

a. The type of ignition switch used on this model differs according to the specifications of the vehicle. The expressions listed in the table below are used in this section.

IGNITION SWITCH POSITION CHART

Switch Type		Ignition Switch (Position)	Engine Switch (Condition)
Expression	Ignition switch off	LOCK	Off
	Ignition switch on (IG)	ON	On (IG)
	Ignition switch on (ACC)	ACC	On (ACC)
	Engine start	START	Start

PARTS LOCATION

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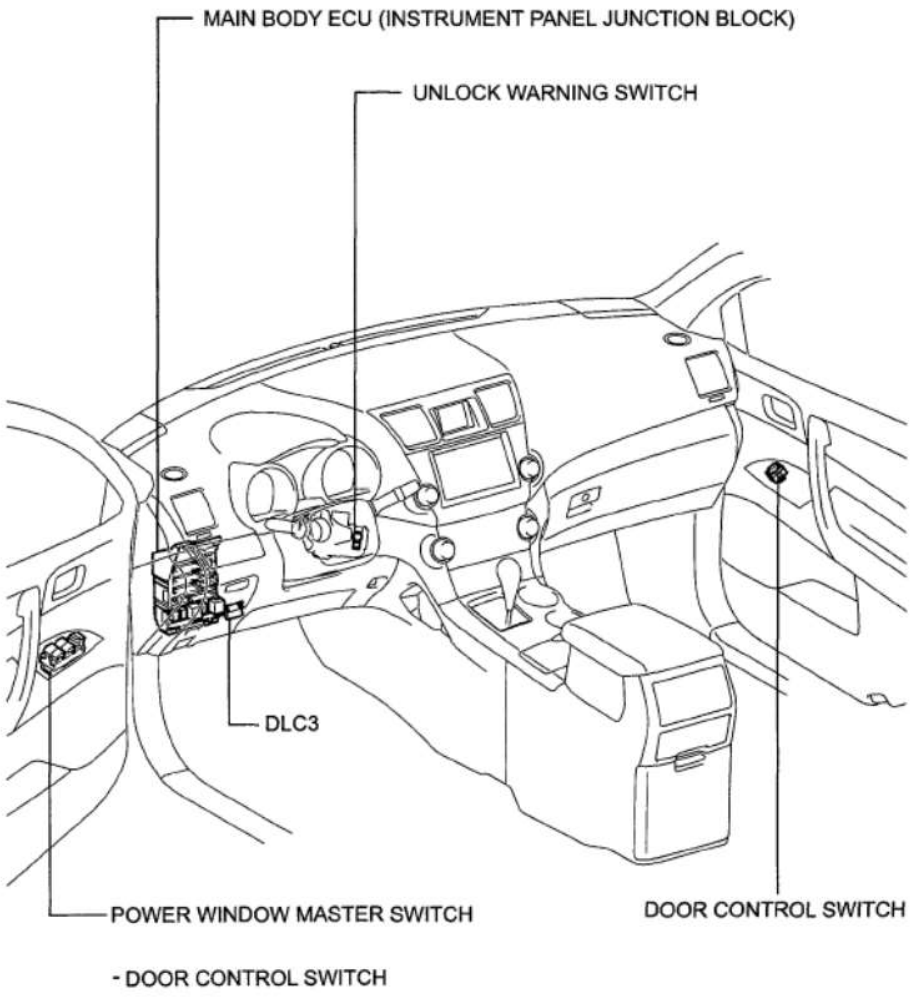


Fig. 1: Identifying Power Door Lock Control System Parts Location (1 Of 2)
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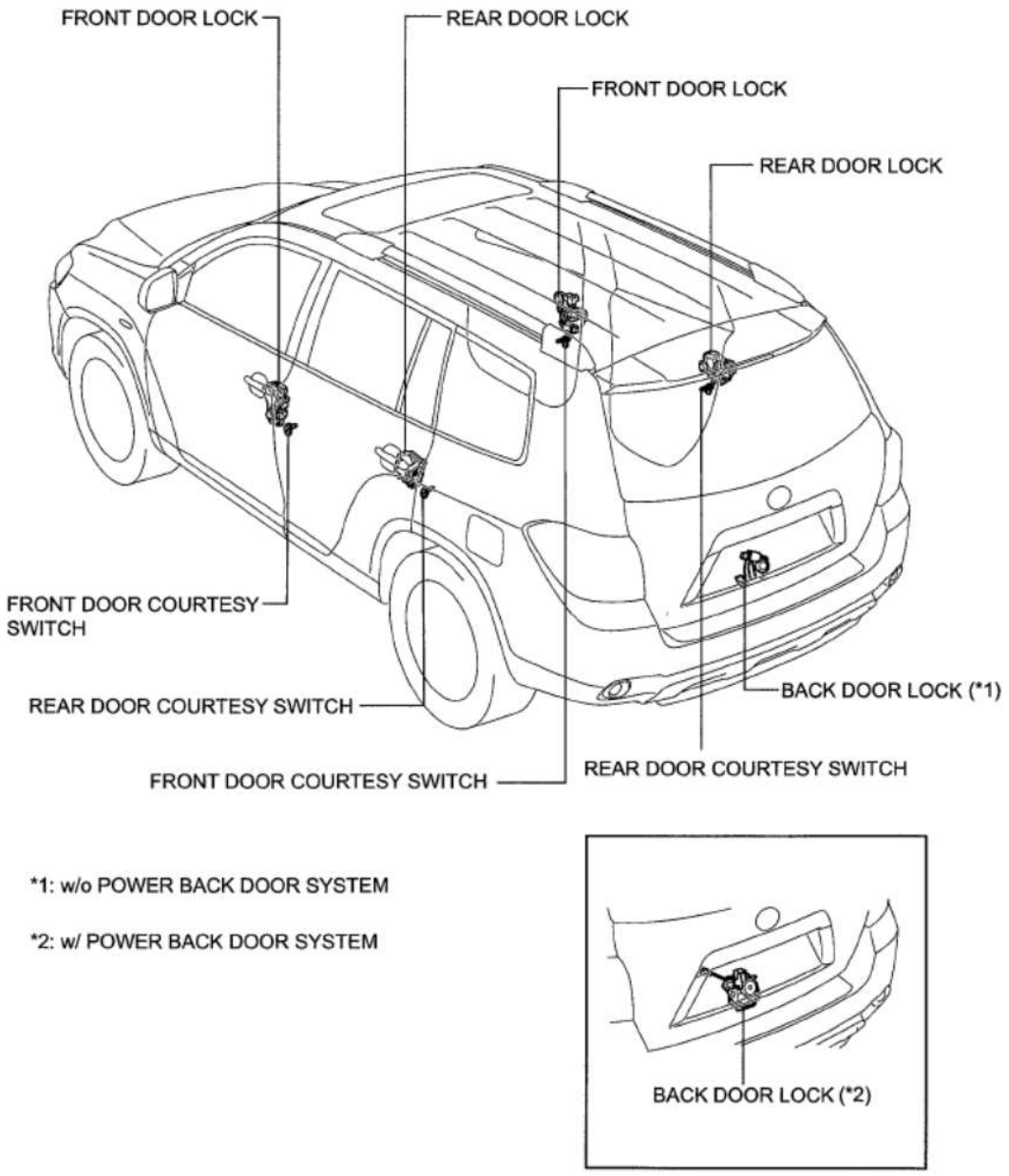


Fig. 2: Identifying Power Door Lock Control System Parts Location (2 Of 2)
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SYSTEM DIAGRAM

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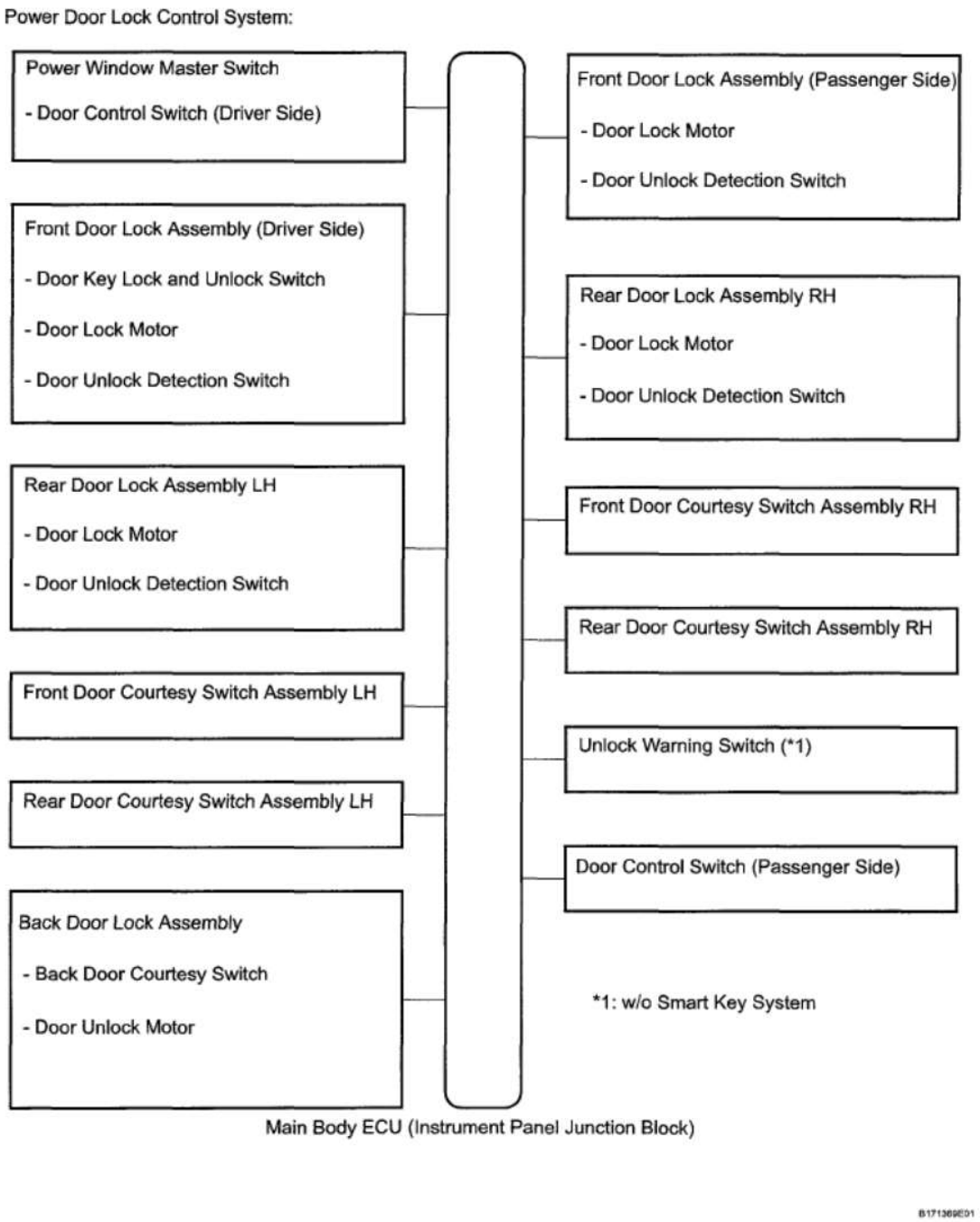


Fig. 3: Power Door Lock Control System Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SYSTEM DESCRIPTION

1. POWER DOOR LOCK CONTROL SYSTEM DESCRIPTION

a. The power door lock control system locks/unlocks all the doors.

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The master switch and the door control switch on the front passenger door send "lock/unlock" request signals to the main body ECU (instrument panel junction block). Then, the main body ECU (instrument panel junction block) sends these request signals to the lock motors in each door to lock/unlock all the doors at once in response to the inputs.

Operating the driver's door lock using a mechanical key sends request signals to lock/unlock the doors to the main body ECU (instrument panel junction block).

2. **FUNCTION OF MAIN COMPONENT**

COMPONENT FUNCTION CHART

Component	Function
Power window master switch	Door control switch on master switch locks/unlocks all doors.
Door control switch	Door control switch on front passenger side locks/unlocks all doors.
Door courtesy switch	Provided for each door. Detects door status (open or closed) and outputs data to main body ECU (instrument panel junction block). Turns on when door is opened and turns off when door is closed.
Driver side door lock	• Built-in motor locks/unlocks door. • Built-in door control switch (key-linked) detects door key operation's door status (locked or unlocked) and outputs data to main body ECU (instrument panel junction block). • Built-in position switch detects door status (locked or unlocked) and outputs data to main body ECU (instrument panel junction block). This switch turns off when door is locked and turns on when door is unlocked.
Passenger side door lock	• Built-in motor locks/unlocks door. • Built-in position switch detects door status (locked or unlocked) and outputs data to main body ECU (instrument panel junction block). This switch turns off when door is locked and turns on when door is unlocked.
Rear LH and RH door locks	• Built-in motor locks/unlocks door. • Built-in position switch detects door status (locked or unlocked) and outputs data to main body ECU (instrument panel junction block). This switch turns off when door is locked and turns on when door is unlocked.

3. **SYSTEM FUNCTION**

a. This system is controlled by the main body ECU (instrument panel junction block). The main body ECU (instrument panel junction block) outputs signals to each door lock motor. The door lock control system of the vehicle has the following functions:

SYSTEM FUNCTION CHART

Function	Outline
Manual lock and unlock function	This function can lock or unlock all doors by the door lock control switch operation.

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Key-linked lock and unlock function	This function, which is linked with the mechanical key cylinder, can lock or unlock all the doors when a lock or unlock operation is effected.
Manual unlock prohibition function	Performing the door lock operation with an electrical key (*1) or a mechanical key (*2) will prohibit the unlock operation by the door lock control switch.
Key lock-in prevention function	If each door lock (*1) or driver's door lock (*2) operation is performed when the electrical key (*1) or mechanical key (*2) is in the cabin (*1) or ignition key cylinder (*2), all the doors will be unlocked.
Shift-linked automatic door lock function	When the conditions listed below are met consecutively, this function causes all the doors to be automatically locked. • The ignition switch is on (IG). • All doors are closed. • The shift lever is moved out of the P position. • Any of the doors are unlocked.
Shift-linked automatic door unlock function	When the ignition switch is on (IG), if moving the shift lever to the P position from any other position, all the doors will be automatically unlocked.
2-step unlock function	This function is provided to unlock the driver's door by turning the key cylinder once and to unlock the remaining doors by turning it twice.
Speed-sensitive automatic door lock (*3)	When conditions listed below are all met, this function causes all doors to automatically lock. • Vehicle speed is higher than approximately 20 km/h (13 mph). • All doors are closed. • The shift lever is moved to any position other than P or N. • Any one of the doors are unlocked.
Opening driver's door-linked automatic door unlock (*3)	All doors are unlocked automatically when the driver's door is opened within 10 seconds after the ignition switch is turned off from on (IG).
HINT: • *1: w/ Smart Key System • *2: w/o Smart Key System • *3: Default is OFF	

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use the following procedures to troubleshoot the power door lock control system.
- Techstream should be used in step 5.

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

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HINT:

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

PROBLEM SYMPTOMS

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

3. **INSPECT BATTERY VOLTAGE**
   a. Measure the battery voltage.

      Standard voltage: 11 to 14 V

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

4. **PROBLEM SYMPTOMS TABLE**

   Result

   RESULT REFERENCE

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

   B: GO TO STEP 6

   A: Go to next step.

5. **OVERALL ANALYSIS AND TROUBLESHOOTING**
   a. TERMINALS OF ECU (See **TERMINALS OF ECU**)
   b. DATA LIST/ACTIVE TEST (See **DIAGNOSIS SYSTEM**)
6. **REPAIR OR REPLACE**
7. CONFIRMATION TEST

   NEXT: END

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OPERATION CHECK

1. **CHECK ELECTRICAL DOOR LOCK OPERATION**

NOTE: The following procedure is on the premise that any functions have not been customized.

a. Check the basic function.
   1. Check that all doors lock when the door control switch (for manual operation) is pushed to LOCK and all doors unlock when pushed to UNLOCK.
   2. Check that all doors lock when the driver side door lock key cylinder is turned to LOCK using the mechanical key.

b. Check the electrical key lock-in prevention function (w/ Smart Key System).

NOTE: In order to prevent the electrical key from being actually locked-in, the following inspection should be performed with the driver side door window open.

   1. Place the electrical key in the cabin.
   2. With the driver side door open, turn the driver side door lock knob or door control switch to LOCK, and then close the driver side door. Then check that all doors unlock.

c. Check the key lock-in prevention function (w/o Smart Key System).

NOTE: In order to prevent the key from being actually locked-in, the inspection should be performed with the driver side door window open.

   1. Have the key inserted into the ignition key cylinder.
   2. With the driver side door open, check that all doors unlock immediately after the door lock knob for the driver side door is turned to LOCK.
   3. With the driver side door open, check that all doors unlock immediately after the door control switch (for manual operation) is turned to LOCK.
   4. With the driver side door open, turn the driver side door lock knob to LOCK, and then close the driver side door. Then check that all doors unlock.

d. Check the security function.

HINT:

*1: w/ Smart Key System

   1. Close all doors with the driver side door window open so that the door control switch can be operated from outside the vehicle.
   2. Pull out the electrical key (*1) or mechanical key (transmitter), open the driver side door and

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then close and lock the door using the electrical key (*1) or mechanical key (transmitter). Under this condition, check that all doors do not unlock when the door control switch (for manual operation) is turned to UNLOCK from outside the vehicle.

3. Pull out the electrical key (*1) or the mechanical key, and close and lock the driver side door using the mechanical key. Under this condition, check that all doors do not unlock when the door control switch (for manual operation) is turned to UNLOCK from outside the vehicle.
4. Pull out the electrical key (*1) or mechanical key (transmitter), close the driver side door, and lock the door by wireless door lock operation. Under this condition, check that all doors do not unlock when the door control switch (for manual operation) is turned to UNLOCK from outside the vehicle.

HINT:

Check that the security function is canceled under the following conditions:

- The ignition switch is turned on (IG).
- The driver side door is unlocked using the mechanical key (transmitter) or the electrical key.
- The door control switch (for manual operation) is turned to UNLOCK after the door control knob is turned to UNLOCK manually.

e. Check the illumination function.
   1. Set the room light switch to the DOOR position.
   2. With all doors locked, check that the driver's door unlocks when the driver side door lock cylinder is turned to UNLOCK using the key. At the same time, the room light comes on.
   3. Check that the room light goes off in approximately 15 seconds if the doors have not been opened.

f. Check the AUTO lock function.
   1. Lock all doors.
   2. Unlock the driver's door using the electrical key.
   3. Allow 30 seconds to elapse while all doors remain closed and the electrical key switch and the entry unlock switch remain untouched. Then, check that all doors will lock automatically.

g. Check the driver door-linked automatic door unlock function.
   1. When the driver door is closed, turning the ignition switch from on (IG) to off and opening the driver door within 10 seconds will automatically unlock all the doors.

h. Check the key-linked 2-step unlock function.
   1. Lock all doors.
   2. Check that only the driver side door unlocks when the driver side door lock cylinder is turned to UNLOCK once using the key and other doors unlock when turned to UNLOCK consecutively once again.

i. Check the speed-sensitive automatic door lock function.
   1. When a door is unlocked and the vehicle is driven at approximately 20 km/h (12 mph) or more, check that all doors automatically lock a total of 2 times (automatic door lock).
   2. When a door lock knob is turned to UNLOCK and the vehicle is driven at approximately 20

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km/h (12 mph) or more, check that all doors automatically lock a total of 2 times (repeat function).

j. Check the automatic locking function interlocked with the shift lever.
   1. When any door is unlocked with all doors closed and the engine started, check that all doors automatically lock when the shift lever is moved into any position other than the P position.
   2. When any door is unlocked after all doors automatically lock, check that all doors attempt to automatically lock once again (retry function). The retry function is canceled when any of the following conditions is fulfilled:
      - All doors are locked.
      - Any door is opened.
      - The shift lever is moved into the P position.
      - The doors are locked or unlocked by the user.
      - The ignition switch is turned off.
      - The engine is stopped.

CUSTOMIZE PARAMETERS

1. CUSTOMIZING FUNCTION WITH TECHSTREAM

HINT:

The following items can be customized.

NOTE:

- **When the customer requests a change in a function, first make sure that the function can be customized.**
- **Be sure to make a note of the current settings before customizing.**
- **When troubleshooting a function, first make sure that the function is set to the default setting.**

a. Connect Techstream to the DLC3.
b. Turn the ignition switch on (IG).
c. Turn the tester on.
d. Enter the following menus: Customize Setting/Door Lock.
e. Select the setting by referring to the table below.

Main Body (Main Body ECU):

TROUBLESHOOTING CHART

Display	Default	Contents	Setting
Unlock Key Twice	ON	Function that unlocks only driver side door when driver side door key cylinder is turned to UNLOCK once, and unlock all doors when it is turned to UNLOCK twice. For OFF setting, turning it once unlocks	ON/OFF

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		all doors.	
Auto Lock/Shift	ON	Function that locks all doors when shift lever is shifted to P from any other position with engine running and all doors closed	ON/OFF
Auto Unlock/Shift	ON	Function that unlocks all doors when shift lever is shifted to P from any other position while the ignition switch is on (IG)	ON/OFF
All Unlock/Open-Close	OFF	Function that unlocks all doors when opening driver door within 10 seconds after turning the ignition switch on (IG)	ON/OFF
Auto Lock	OFF	Function that locks all doors when the vehicle reaches a certain speed	ON/OFF

PROBLEM SYMPTOMS TABLE

HINT:

- Use the table below to help determine the cause of a problem. The likely causes of the problem are indicated in descending order. Check each suspected area in order. Repair or replace faulty parts or perform adjustments as necessary.
- If problem symptoms cannot be identified, follow the HOW TO PROCEED WITH TROUBLESHOOTING procedures.

Power door lock control system

PROBLEM SYMPTOMS CHART

Symptom	Suspected Area	Refer to
All Doors LOCK/UNLOCK Functions do not Operate Via Master Switch, Driver Side Door Key Cylinder	Front door lock assembly (for driver side)	**ALL DOORS LOCK/UNLOCK FUNCTIONS DO NOT OPERATE VIA MASTER SWITCH, DRIVER SIDE DOOR KEY CYLINDER**
	Fuse(DOOR1)	-
	Wire harness or connector	-
	Power window master switch assembly	-
	Main body ECU (instrument panel junction block)	-
All Doors LOCK/UNLOCK Functions do not Operate Via Door Control Switch	Door control switch (for front passenger side)	**ALL DOORS LOCK/UNLOCK FUNCTIONS DO NOT OPERATE VIA DOOR CONTROL SWITCH**
	Wire harness or connector	-
	Main body ECU (instrument panel junction block)	-

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Only Driver Door LOCK/UNLOCK Functions do not Operate	Front door lock assembly (for driver side)	**ONLY DRIVER DOOR LOCK/UNLOCK FUNCTIONS DO NOT OPERATE**
	Wire harness and connector	-
	Main body ECU (instrument panel junction block)	-
Only Passenger Door LOCK/UNLOCK Functions do not Operate	Front door lock assembly (for front passenger side)	**ONLY PASSENGER DOOR LOCK/UNLOCK FUNCTIONS DO NOT OPERATE**
	Wire harness or connector	-
	Main body ECU (instrument panel junction block)	-
Only Rear Door LH LOCK/UNLOCK Functions do not Operate	Rear door lock assembly LH	**ONLY REAR DOOR LH LOCK/UNLOCK FUNCTIONS DO NOT OPERATE**
	Wire harness or connector	-
	Main body ECU (instrument panel junction block)	-
Only Rear Door RH LOCK/UNLOCK Functions do not Operate	Rear door lock assembly RH	**ONLY REAR DOOR RH LOCK/UNLOCK FUNCTIONS DO NOT OPERATE**
	Wire harness or connector	-
	Main body ECU (instrument panel junction block)	-
Only Back Door LOCK/UNLOCK Functions do not Operate	Back door lock assembly	**ONLY BACK DOOR LOCK/UNLOCK FUNCTIONS DO NOT OPERATE**
	Back door opener switch	-
	Wire harness or connector	-
	Main body ECU (instrument panel junction block)	-
Key Lock-in Prevention Function does not Work Properly (*1)	Front door courtesy light switch (for driver side)	**KEY LOCK-IN PREVENTION FUNCTION DOES NOT WORK PROPERLY**
	Unlock warning switch	-
	Wire harness or	

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	connector	-
	Main body ECU (instrument panel junction block)	-
HINT: *1: w/o Smart Key System		

TERMINALS OF ECU

1. **CHECK MAIN BODY ECU (INSTRUMENT PANEL JUNCTION BLOCK)**
   a. Disconnect the D7, D8 and D10 main body ECU connectors.
   b. Disconnect the 1O, 1K, 1M, 1D, 1F and 1J instrument panel junction block connectors.

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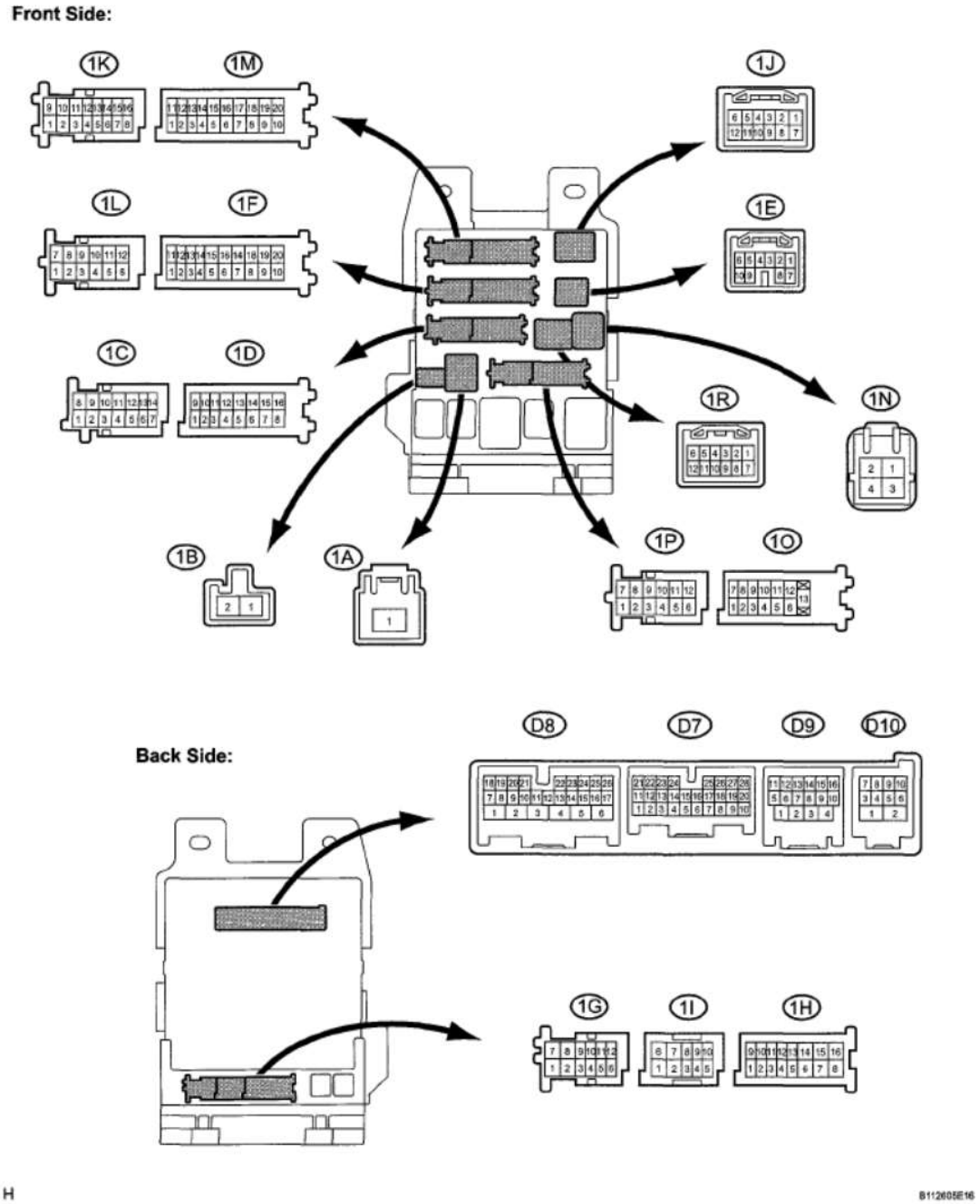


Fig. 4: Identifying 1O, 1K, 1M, 1D, 1F And 1J Instrument Panel Junction Block Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

RESISTANCE SPECIFICATION

Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition

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D8-24 (DCTY) - Body ground	G - Body ground	Driver door courtesy switch	Driver door CLOSED --> OPEN	10 kohms or higher --> Below 1 ohms
D7-5 (RCTY) - Body ground (*1)	GR - Body ground	Rear right door courtesy switch input	Rear right door CLOSED --> OPEN	10 kohms or higher --> Below 1 ohms
D7-7 (RCTY) - Body ground (*2)	GR - Body ground	Rear right door courtesy switch input	Rear right door CLOSED --> OPEN	10 kohms or higher --> Below 1 ohms
D7-21 (PCTY) - Body ground	SB - Body ground	Front passenger door courtesy switch input	Front passenger door CLOSED --> OPEN	10 kohms or higher --> Below 1 ohms
1O-7 (LCTY) - Body ground	B - Body ground	Rear left door courtesy switch input	Rear left door CLOSED --> OPEN	10 kohms or higher --> Below 1 ohms
1M-9 (GND2) - Body ground	W-B - Body ground	Ground	Always	Below 1 ohms
1F-10 (GND1) - Body ground	W-B - Body ground	Ground	Always	Below 1 ohms
1J-3 (L1) - Body ground	L - Body ground	Front passenger door control switch LOCK input	Front passenger door control switch OFF --> LOCK	10 kohms or higher --> Below 1 ohms
1J-4 (UL1) - Body ground	G - Body ground	Front passenger door control switch UNLOCK input	Front passenger door control switch OFF --> UNLOCK	10 kohms or higher --> Below 1 ohms
1K-15 (L1) - Body ground	O - Body ground	Driver door control switch LOCK input	Driver door control switch OFF --> LOCK	10 kohms or higher --> Below 1 ohms
1K-12 (UL1) - Body ground	G - Body ground	Driver door control switch UNLOCK input	Driver door control switch OFF --> UNLOCK	10 kohms or higher --> Below 1 ohms
D10-5 (KSW) - Body ground (*3)	GR - Body ground	Unlock warning switch signal input	No key is in ignition key cylinder --> Key is in ignition key cylinder	10 kohms or higher --> Below 1 ohms
D7-25 (BCTY) - Body ground	L - Body ground	Back door courtesy switch input	Back door CLOSED --> OPEN	10 kohms or higher --> Below 1 ohms
1D-10 (BECU) - Body ground (*3)	W - Body ground	+B (BECU) power supply	Always	11 to 14 V

HINT:

- *1: w/o Power Back Door System
- *2: w/ Power Back Door System

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- *3: w/o Smart Key System

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

d. Reconnect the D7, D8 and D10 main body ECU connectors.
e. Reconnect the 1O, 1K, 1M, 1D, IF and 1J instrument panel junction block connectors.
f. Measure the voltage according to the value(s) in the table below.

VOLTAGE SPECIFICATION

Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
1F-11 (IG) - Body ground	P - Body ground	Engine power supply	Ignition switch on (IG) --> off	11 to 14 V --> Below 1 V
1F-2 (ACC) - Body ground	SB - Body ground	ACC power supply	Ignition switch on (ACC) --> off	11 to 14 V --> Below 1 V
IP-5 (LSR) - Body ground (*1)	G - Body ground	Rear left door lock position switch input	Rear left door UNLOCK --> LOCK	Below 1 V --> 11 to 14 V (or pulse generation)
IP-5 (LSWL) - Body ground (*2)	G - Body ground	Rear left door lock position switch input	Rear left door UNLOCK --> LOCK	Below 1 V --> 11 to 14 V (or pulse generation)
IL-5 (LSR) - Body ground (*1)	B - Body ground	Rear right door lock position switch input	Rear right door UNLOCK --> LOCK	Below 1 V --> 11 to 14 V (or pulse generation)
D8-9 (LSWD) - Body ground	GR - Body ground	Driver door lock position switch input	Driver door UNLOCK --> LOCK	Below 1 V --> 11 to 14 V (or pulse generation)
D8-10 (UL3) - Body ground	V - Body ground	Driver door key-linked door unlock input	Driver door lock cylinder is turned LOCK --> UNLOCK with mechanical key	Below 1 V --> 11 to 14 V (or pulse generation)
1K-16 (L2) - Body ground	BR - Body ground	Driver door key-linked door lock input	Driver door lock cylinder is turned UNLOCK --> LOCK with mechanical key	Below 1 V --> 11 to 14 V (or pulse generation)
1J-1 (ACT+) - Body ground	P - Body ground	Door lock motor LOCK drive output (Front passenger door)	Door control switch (Master switch or front passenger side switch) or driver side door key cylinder OFF --> LOCK --> OFF	Below 1 V --> 11 to 14 V --> Below 1 V
IP-11 (ACT+) - Body ground	GR - Body ground	Door lock motor LOCK drive output (Rear door LH)	Door control switch (Master switch or front passenger side switch) or driver side door key cylinder OFF --> LOCK --> OFF	Below 1 V --> 11 to 14 V --> Below 1 V
1F-5 (ACT+) -	W - Body	Door lock motor LOCK drive output	Door control switch (Master switch or front passenger side switch) or	Below 1 V --> 11 to 14 V --> Below

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Body ground	ground	(Rear door RH)	driver side door key cylinder OFF --> LOCK --> OFF	1 V
IP-6 (ACT-) - Body ground	W - Body ground	Door lock motor UNLOCK drive output (Rear door LH)	Door control switch (Master switch or front passenger side switch) or driver side door key cylinder OFF --> UNLOCK --> OFF	Below 1 V --> 11 to 14 V --> Below 1 V
1F-18 (ACT-) - Body ground	G - Body ground	Door lock motor UNLOCK drive output (Rear door RH)	Door control switch (Master switch or front passenger side switch) or driver side door key cylinder OFF --> UNLOCK --> OFF	Below 1 V --> 11 to 14 V --> Below 1 V
D7-1 (TR+) - Body ground (*3)	LG - Body ground	Door lock motor UNLOCK drive output (Back door)	Back door opener switch (Transmitter) OFF --> UNLOCK --> OFF	Below 1 V --> 11 to 14 V --> Below 1 V
D8-5 (ACTD) - Body ground	W - Body ground	Door lock motor UNLOCK drive output (Driver door)	Door control switch (Master switch or front passenger side switch) or driver side door key cylinder OFF --> UNLOCK --> OFF	Below 1 V --> 11 to 14 V --> Below 1 V
1K-2 (ACT+) - Body ground	R - Body ground	Door lock motor LOCK drive output (Driver door)	Door control switch (Master switch or front passenger side switch) or driver side door key cylinder OFF --> LOCK --> OFF	Below 1 V --> 11 to 14 V --> Below 1 V
1J-2 (ACT-) - Body ground	LG - Body ground	Door lock motor UNLOCK drive output (Front passenger door)	Door control switch (Master switch or front passenger side switch) or driver side door key cylinder OFF --> UNLOCK --> OFF	Below 1 V --> 11 to 14 V --> Below 1 V
D7-5 (LSWR) - Body ground (*2)	B - Body ground	Rear right door lock position switch input	Rear right door UNLOCK --> LOCK	Below 1 V --> 11 to 14 V (or pulse generation)
D7-27 (LSWP) - Body ground	SB - Body ground	Front passenger door lock position switch input	Front passenger door UNLOCK --> LOCK	Below 1 V --> 11 to 14 V (or pulse generation)

HINT:

- *1: w/o Smart Key System, Power Back door System and Glass Hatch Opener System
- *2: w/ Smart Key System, Power Back door System and Glass Hatch Opener System
- *3: w/o Power Back Door

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

DIAGNOSIS SYSTEM

1. **CHECK DLC3**
   a. Check the DLC3 (See **HOW TO TROUBLESHOOT ECU CONTROLLED SYSTEMS**).
2. **INSPECT BATTERY VOLTAGE**

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a. Measure the battery voltage.

Standard voltage:

11 to 14 V

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

DATA LIST/ACTIVE TEST

1. **READ DATA LIST**

HINT:

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

a. Connect Techstream to the DLC3.
b. Turn the ignition switch on (IG).
c. Turn the tester on.
d. Enter the following menus: Body Electrical/Main Body/Data List.
e. Read the Data List according to the display on the tester.

Main Body (Main Body ECU):

TESTER DISPLAY REFERENCE

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
D Door Courtesy SW	Driver side door courtesy light switch signal/ON or OFF	ON: Driver side door is OPEN OFF: Driver side door is CLOSED	-
P Door Courtesy SW	Front passenger side door courtesy light switch signal/ON or OFF	ON: Front passenger side door is OPEN OFF: Front passenger side door is CLOSED	-
RR Door Courtesy SW	Rear right door courtesy light switch signal/ON or OFF	ON: Rear right door is OPEN OFF: Rear right door is CLOSED	-
RL Door Courtesy SW	Rear left door courtesy light switch signal/ON or OFF	ON: Rear left door is OPEN OFF: Rear left door is CLOSED	-

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Back Door Courtesy SW	Back door courtesy light switch signal/ON or OFF	ON: Back door is OPEN OFF: Back door is CLOSED	-
Back Door Open	Back door lock signal/Permit or Prohibit	Permit: Back door is UNLOCK Prohibit: Back door is LOCK	-
Back Door Open Handle SW	Back door open handle signal/ON or OFF	ON: Back door open handle is pushed OFF: Back door open handle is free	-
D-Door Lock Pos SW	Driver side door lock position switch signal/ON or OFF	ON: Driver side door is unlocked OFF: Driver side door is locked	-
P-Door Lock Pos SW	Front passenger side door lock position switch signal/ON or OFF	ON: Front passenger side door is unlocked OFF: Front passenger side door is locked	-
Door Lock SW-Lock	Door control switch lock signal/ ON or OFF	ON: Door control switch is pushed to LOCK OFF: Door control switch is not pushed to LOCK	-
Door Lock SW-Unlock	Door control switch unlock signal/ ON or OFF	ON: Door control switch is pushed to UNLOCK OFF: Door control switch is not pushed to UNLOCK	-
Door Key SW-Lock	Driver door lock/unlock switch lock signal (key-linked lock switch)/ON or OFF	ON: Driver side door key cylinder is turned to LOCK OFF: Driver side door key cylinder is turned to UNLOCK	-
D Door Key SW-UL	Driver door lock/unlock switch unlock signal (key-linked unlock switch)/ON or OFF	ON: Driver side door key cylinder is turned to UNLOCK OFF: Driver side door key cylinder is turned to LOCK	-
Unlock Key Twice	Key-linked 2-step unlock function/ON or OFF	Customized value displayed	-
Auto Lock	Speed-sensitive automatic door lock function/ON or OFF	Customized value displayed	-
Auto Lock/Shift	Shift-linked automatic door lock function/ON or OFF	Customized value displayed	-
Auto Unlock/Shift	Shift-linked automatic door unlock function/ON or OFF	Customized value displayed	-
All Unlock/Open-Close	Driver door-linked automatic door unlock function/ON or OFF	Customized value displayed	-

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2. **PERFORM ACTIVE TEST**

HINT:

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

a. Connect Techstream to the DLC3.
b. Turn the ignition switch on (IG).
c. Turn the tester on.
d. Enter the following menus: Body Electrical/Main Body/Active Test.
e. Perform the Active Test according to the display on the tester.

Main Body (Main Body ECU):

TESTER DISPLAY REFERENCE

Tester Display	Test Part	Control Range	Diagnostic Note
Door Lock	Door lock motor	ON/OFF	-
D-Door Unlock	Driver door lock motor	ON/OFF	-
Trunk and Back-Door Open	Back door lock motor	ON/OFF	-

ALL DOORS LOCK/UNLOCK FUNCTIONS DO NOT OPERATE VIA MASTER SWITCH, DRIVER SIDE DOOR KEY CYLINDER

DESCRIPTION

The main body ECU (instrument panel junction block) receives switch signals from the power window master switch and driver side door key cylinder, and activates the door lock motor on each door according to these signals.

WIRING DIAGRAM

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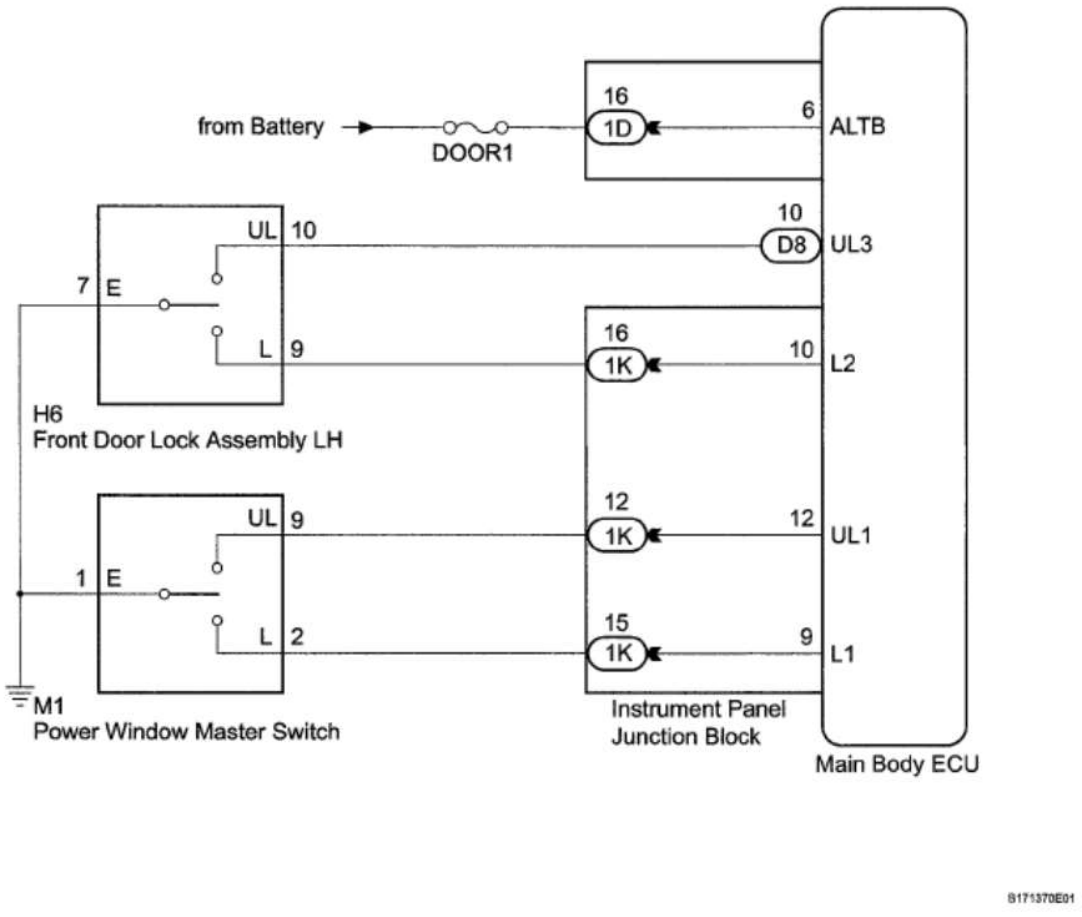


Fig. 5: Power Window Master Switch (Driver Side) - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

1. **INSPECT FUSE (DOOR1)**
   a. Remove the DOOR1 fuse from the engine room relay block.
   b. Measure the resistance according to the value(s) in the table below.

   Standard resistance

   STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
DOOR1 fuse	Always	Below 1 ohms

   NG: REPLACE FUSE (DOOR1)

   OK: Go to next step.

2. **CHECK DOOR LOCK OPERATION**

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Result

RESULT REFERENCE

Result	Proceed to
Doors cannot be locked through driver side door key cylinder.	A
Doors cannot be locked through master switch.	B

A: Go to step 6

B: Go to next step.

3. **READ VALUE USING TECHSTREAM**
   a. Connect Techstream to the DLC3.
   b. Turn the ignition switch on (IG).
   c. Turn the tester on.
   d. Enter the following menus: Body Electrical/Main Body/Data List.
   e. Select Door Lock SW-Lock or Door Lock SW-Unlock in the Data List and read the tester display.

Main Body (Main Body ECU):

TESTER DISPLAY REFERENCE

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Door Lock SW-Lock	boor manual lock switch signal/ ON or OFF	ON: Door control switch on power window regulator master switch is pushed to LOCK OFF: Door control switch on power window regulator master switch is not pushed	-
Door Lock SW-Unlock	Door manual unlock switch signal/ON or OFF	ON: Door control switch on power window regulator master switch is pushed to UNLOCK OFF: Door control switch on power window regulator master switch is not pushed	-

OK: On the tester screen, each item changes between ON and OFF according to the chart above.

NG: Go to step 4

OK: REPLACE MAIN BODY ECU (INSTRUMENT PANEL JUNCTION BLOCK)

4. **INSPECT POWER WINDOW MASTER SWITCH**
   a. Remove the power window master switch (See **POWER WINDOW MASTER SWITCH**).
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

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STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
1 - 2	Locked	Below 1 ohms
1 - 2 1 - 9	OFF (Free)	10 kohms or higher
1 - 9	Unlocked	Below 1 ohms

NG: REPLACE POWER WINDOW MASTER SWITCH (See **POWER WINDOW MASTER SWITCH**)

Component without harness connected:
(Power Window Master Switch)

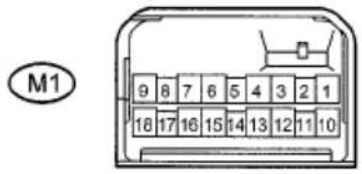


Fig. 6: Identifying M1 Power Window Master Switch Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

5. **CHECK HARNESS AND CONNECTOR (POWER WINDOW MASTER SWITCH CIRCUIT)**
   a. Disconnect the instrument panel junction block connector.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
M1-2 (L) - 1K-15	Always	Below 1 ohms
M1-9 (UL) - 1K-12	Always	Below 1 ohms
M1-1 (E) - Body ground	Always	Below 1 ohms
M1-2 (L) - Body ground	Always	10 kohms or higher
M1-9 (UL) - Body ground	Always	10 kohms or higher

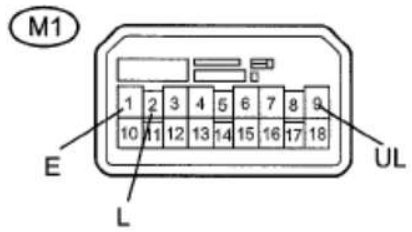
NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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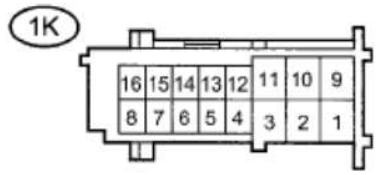
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Front view of wire harness connector:
(to Power Window Master Switch)



Front view of wire harness connector:
(to Instrument Panel Junction Block)



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Fig. 7: Identifying M1 Power Window Master Switch And 1K Instrument Panel Junction Block Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: REPLACE MAIN BODY ECU (INSTRUMENT PANEL JUNCTION BLOCK)

6. **READ VALUE USING TECHSTREAM (DOOR KEY LINKED LOCK AND UNLOCK SWITCH)**
   a. Connect Techstream to the DLC3.
   b. Turn the ignition switch on (IG).
   c. Turn the tester on.
   d. Enter the following menus: Body Electrical/Main Body/Data List.
   e. Select Door Key SW-Lock or Door Key SW-Unlock in the Data List and read the tester display.

Main Body (Main Body ECU):

TESTER DISPLAY REFERENCE

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Door Key SW-	Door key linked lock switch	ON: Driver side door key cylinder is turned to LOCK	-

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Lock	signal/ON or OFF	OFF: Driver side door key cylinder is not turned	
Door Key SW-Unlock	Door key linked unlock switch signal/ON or OFF	ON: Driver side door key cylinder is turned to UNLOCK OFF: Driver side door key cylinder is not turned	-

OK: On the tester screen, each item changes between ON and OFF according to the chart above.

NG: Go to step 7

OK: REPLACE MAIN BODY ECU (INSTRUMENT PANEL JUNCTION BLOCK)

7. **INSPECT FRONT DOOR LOCK ASSEMBLY (FOR DRIVER SIDE)**
   a. Remove the front door lock assembly LH (See **REMOVAL**).
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
7 - 9	ON (Door lock set to LOCK)	Below 1 ohms
7 - 9 7 - 10	OFF (Free)	10 kohms or higher
7 - 10	ON (Door lock set to UNLOCK)	Below 1 ohms

NG: REPLACE FRONT DOOR LOCK ASSEMBLY (FOR DRIVER SIDE) (See **REMOVAL**)

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Component without harness connected:
(Front Door Lock (Driver Side))

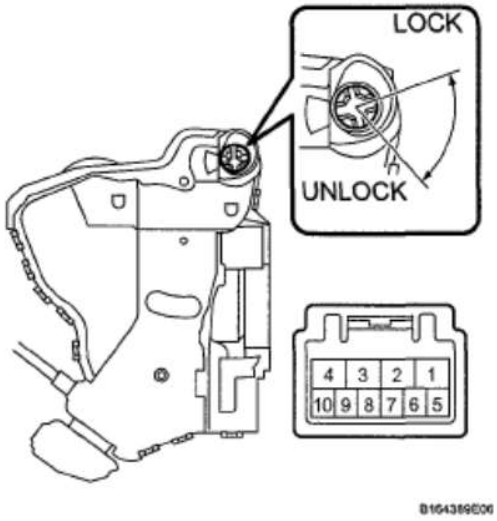


Fig. 8: Identifying Front Door Lock Assembly Lock And Unlock Position (Driver Side)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

8. **CHECK HARNESS AND CONNECTOR (DOOR KEY LINKED LOCK UNLOCK SWITCH CIRCUIT)**
   a. Disconnect the main body ECU (instrument panel junction block) and instrument panel junction block connectors.

Front view of wire harness connector: (to Front Door Lock) | Front view of wire harness connector: (to Instrument Panel Junction Block) | Front view of wire harness connector: (to Main Body ECU)

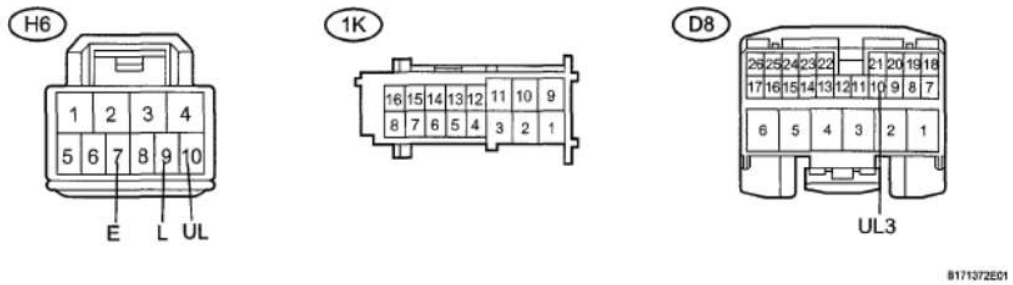


Fig. 9: Identifying Main Body ECU (Instrument Panel Junction Block) And Instrument Panel Junction Block Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

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Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
H6-9 (L) - 1K-16	Always	Below 1 ohms
H6-10 (UL) - D8-10 (UL3)	Always	Below 1 ohms
H6-7 (E) - Body ground	Always	Below 1 ohms
H6-9 (L) - Body ground	Always	10 kohms or higher
H6-10 (UL) - Body ground	Always	10 kohms or higher

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: REPLACE MAIN BODY ECU (INSTRUMENT PANEL JUNCTION BLOCK)

ALL DOORS LOCK/UNLOCK FUNCTIONS DO NOT OPERATE VIA DOOR CONTROL SWITCH

DESCRIPTION

The main body ECU (instrument panel junction block) receives switch signals from the door control switch and activates the door lock motor on each door according to these signals.

WIRING DIAGRAM

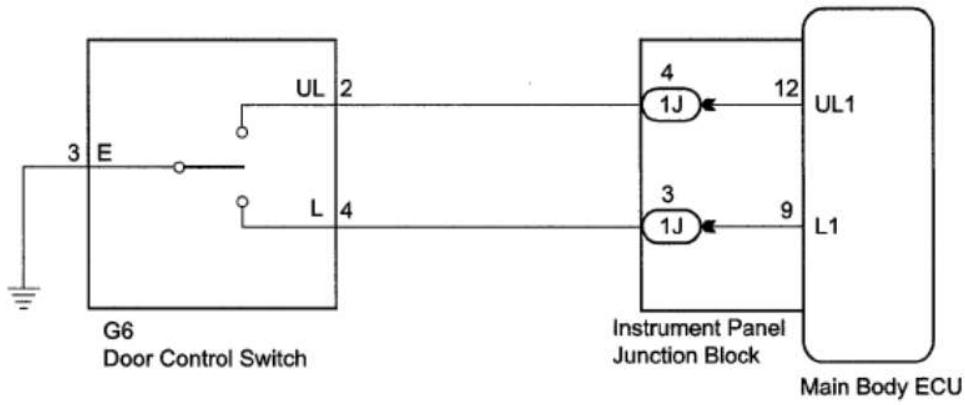


Fig. 10: Door Control Switch - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

1. **INSPECT DOOR CONTROL SWITCH ASSEMBLY (DOOR LOCK AND UNLOCK SWITCH)**
   a. Remove the door control switch (see **TERMINALS OF ECU**).

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

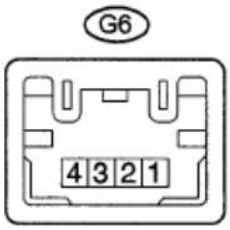
Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Switch Condition	Specified Condition
4 - 3	Locked	Below 1 ohms
4 - 3 2 - 3	OFF (Free)	10 kohms or higher
2 - 3	Unlocked	Below 1 ohms

NG: REPLACE DOOR CONTROL SWITCH ASSEMBLY (See **DOOR CONTROL SWITCH**)

Component without harness connected:
(Door Control Switch)



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Fig. 11: Identifying G6 Door Control Switch Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

2. **CHECK HARNESS AND CONNECTOR (DOOR CONTROL SWITCH CIRCUIT)**
   a. Disconnect the instrument panel junction block connector.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
G6-2 (UL) - 1J-4	Always	Below 1 ohms
G6-4 (L) - 1J-3	Always	Below 1 ohms
G6-3 (E) - Body ground	Always	Below 1 ohms
G6-2 (UL) - Body ground	Always	10 kohms or higher

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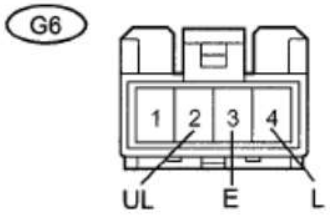
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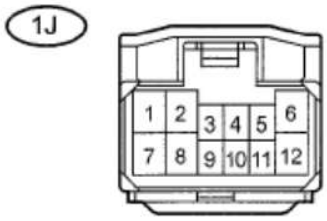
G6-4 (L) - Body ground	Always	10 kohms or higher

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

Front view of wire harness connector:
(to Door Control Switch)



Front view of wire harness connector:
(to Instrument Panel Junction Block)



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Fig. 12: Identifying 1J Instrument Panel Junction Block Connector And G6 Door Control Switch
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: REPLACE MAIN BODY ECU (INSTRUMENT PANEL JUNCTION BLOCK)

ONLY DRIVER DOOR LOCK/UNLOCK FUNCTIONS DO NOT OPERATE

DESCRIPTION

The main body ECU (instrument panel junction block) receives lock/unlock switch signals and activates the door lock motor according to these signals.

WIRING DIAGRAM

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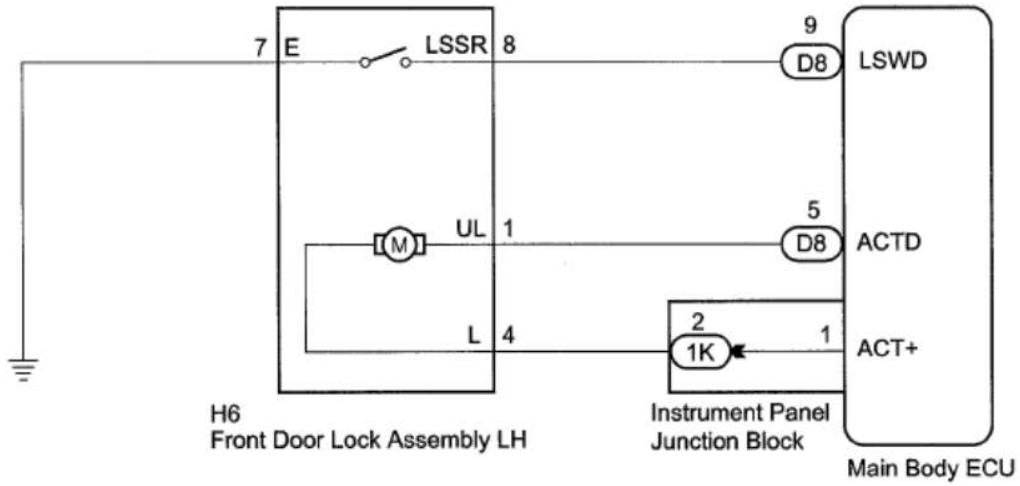


Fig. 13: Driver Door LOCK/UNLOCK Functions - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

1. **INSPECT FRONT DOOR LOCK ASSEMBLY**
   a. Remove the front driver side door lock assembly (See **REMOVAL**).
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Measurement Condition	Door Lock Condition	Specified Condition
7 - 8	Battery positive (+) --> Terminal 4 Battery negative (-) --> Terminal 1	Locked	10 kohms or higher
7 - 8	Battery positive (+) --> Terminal 1 Battery negative (-) --> Terminal 4	Unlocked	Below 1 ohms

NG: REPLACE FRONT DOOR LOCK ASSEMBLY (See **REMOVAL**)

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Component without harness connected:
(Front Door Lock (Driver Side))

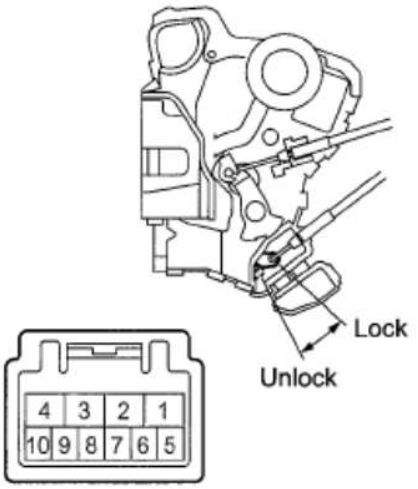


Fig. 14: Identifying Front Door Lock Assembly Lock And Unlock Position (Driver Side)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

2. **CHECK HARNESS AND CONNECTOR (FRONT DOOR LOCK MOTOR CIRCUIT)**
   a. Disconnect the main body ECU (instrument panel junction block) connector.
   b. Disconnect the instrument panel junction block connector.

Front view of wire harness connector: (to Front Door Lock) | Front view of wire harness connector: (to Instrument Panel Junction Block) | Front view of wire harness connector: (to Main Body ECU)

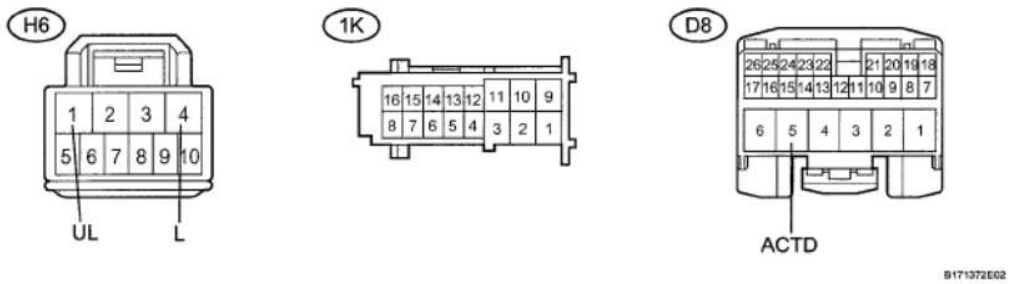


Fig. 15: Identifying Instrument Panel Junction Block Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

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Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
H6-1 (UL) - D8-5 (ACTD)	Always	Below 1 ohms
H6-4 (L) - 1K-2	Always	Below 1 ohms
H6-1 (UL) - Body ground	Always	10 kohms or higher
H6-4 (L) - Body ground	Always	10 kohms or higher

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step.

3. **CHECK HARNESS AND CONNECTOR (DOOR UNLOCK DETECTION SWITCH CIRCUIT)**
   a. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
H6-8 (LSSR) - D8-9 (LSWD)	Always	Below 1 ohms
H6-8 (LSSR) - Body ground	Always	10 kohms or higher
H6-7 (E) - Body ground	Always	Below 1 ohms

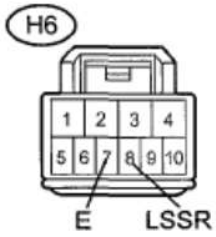
NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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Front view of wire harness connector:
(to Front Door Lock)



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

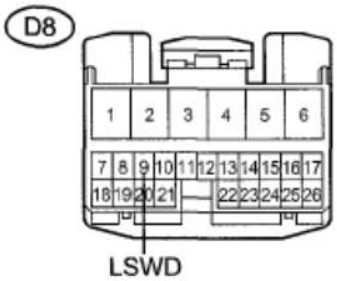


Fig. 16: Identifying H6 Front Door Lock And D8 Main Body ECU Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: REPLACE MAIN BODY ECU (INSTRUMENT PANEL JUNCTION BLOCK)

ONLY PASSENGER DOOR LOCK/UNLOCK FUNCTIONS DO NOT OPERATE

DESCRIPTION

The main body ECU (instrument panel junction block) receives lock/unlock switch signals and activates the door lock motor according to these signals.

WIRING DIAGRAM

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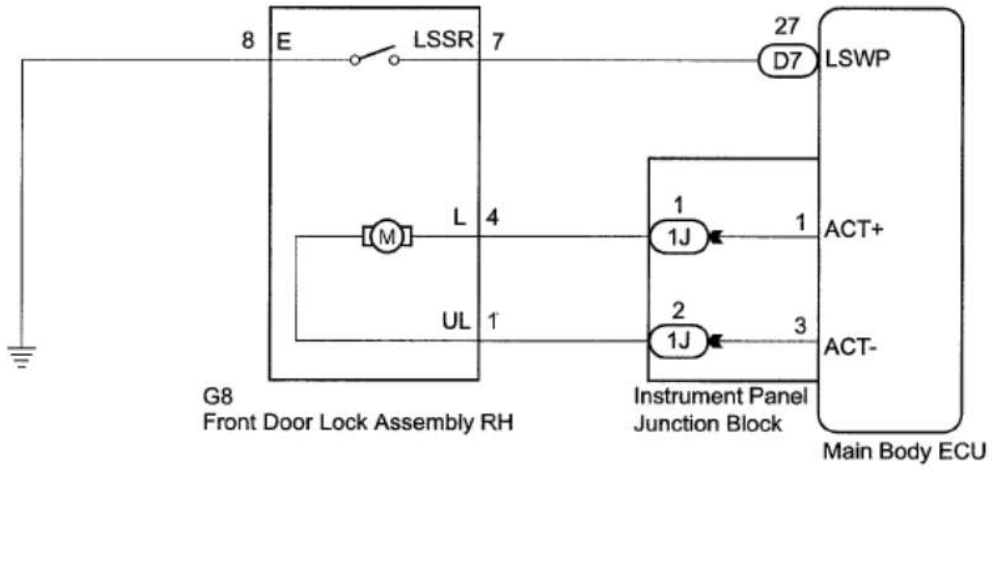


Fig. 17: Passenger Door LOCK/UNLOCK Functions - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

1. **INSPECT FRONT DOOR LOCK ASSEMBLY**
   a. Remove the front passenger side door lock assembly (See **REMOVAL**).
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Measurement Condition	Door Lock Condition	Specified Condition
7 - 8	Battery positive (+) --> Terminal 4 Battery negative (-) --> Terminal 1	Locked	10 kohms or higher
7 - 8	Battery positive (+) --> Terminal 1 Battery negative (-) --> Terminal 4	Unlocked	Below 1 ohms

NG: REPLACE FRONT DOOR LOCK ASSEMBLY (See **REMOVAL**)

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Component without harness connected:
(Front Door Lock (Front Passenger Side))

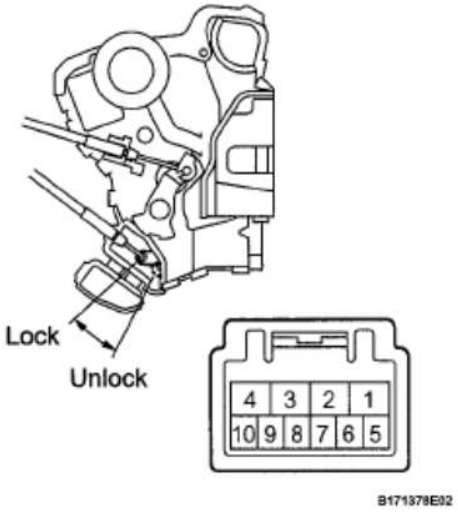


Fig. 18: Identifying Front Passenger Side Door Lock Assembly Lock And Unlock Position
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

2. **CHECK HARNESS AND CONNECTOR (FRONT DOOR LOCK MOTOR CIRCUIT)**
   a. Disconnect the instrument panel junction block connector.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
G8-1 (UL) - 1J-2	Always	Below 1 ohms
G8-4 (L) - 1J-1	Always	Below 1 ohms
G8-1 (UL) - Body ground	Always	10 kohms or higher
G8-4 (L) - Body ground	Always	10 kohms or higher

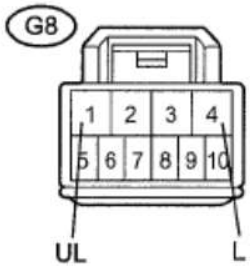
NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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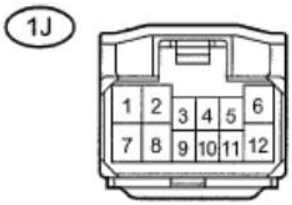
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Front view of wire harness connector:
(to Front Door Lock)



Front view of wire harness connector:
(to Instrument Panel Junction Block)



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Fig. 19: Identifying G8 Front Door Lock And 1J Instrument Panel Junction Block Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

3. **CHECK HARNESS AND CONNECTOR (DOOR UNLOCK DETECTION SWITCH CIRCUIT)**
   a. Disconnect the main body ECU (instrument panel junction block) connector.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
G8-7 (LSSR) - D7-27 (LSWP)	Always	Below 1 ohms
G8-7 (LSSR) - Body ground	Always	10 kohms or higher
G8-8 (E) - Body ground	Always	Below 1 ohms

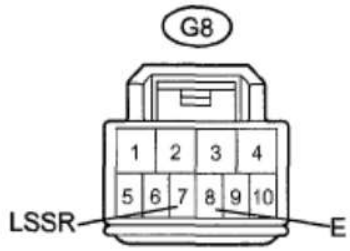
NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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Front view of wire harness connector:
(to Front Door Lock)



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

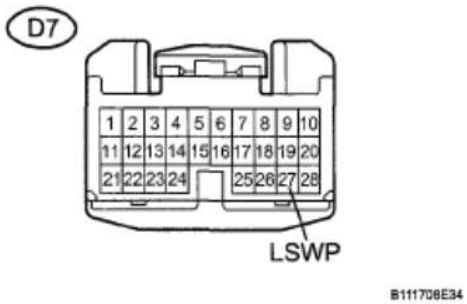


Fig. 20: Identifying D7 Main Body ECU And G8 Front Door Lock Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: REPLACE MAIN BODY ECU (INSTRUMENT PANEL JUNCTION BLOCK)

ONLY REAR DOOR LH LOCK/UNLOCK FUNCTIONS DO NOT OPERATE

DESCRIPTION

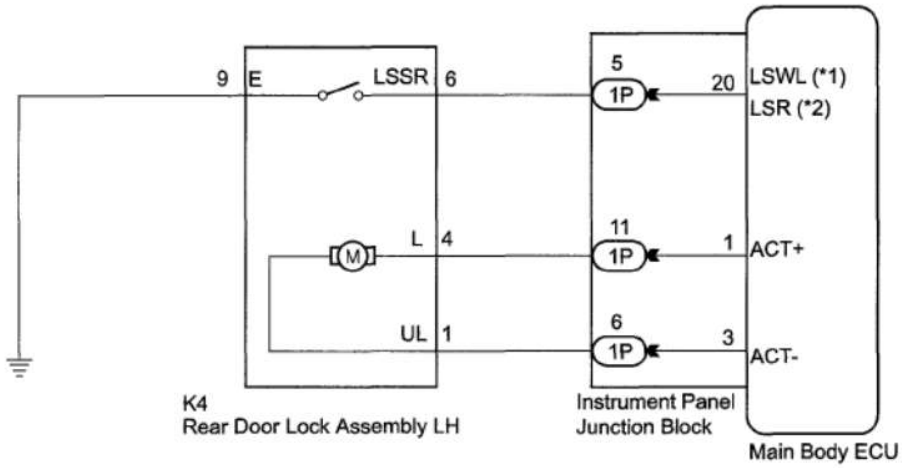
The main body ECU (instrument panel junction block) receives lock/unlock switch signals and activates the door lock motor according to these signals.

WIRING DIAGRAM

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*1: w/ Smart Key System, Power Back Door System and Glass Hatch Opener System

*2: w/o Smart Key System, Power Back Door System and Glass Hatch Opener System

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Fig. 21: Rear Door LH LOCK/UNLOCK Functions - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

1. **INSPECT REAR DOOR LOCK ASSEMBLY**
   a. Remove the rear door lock assembly LH (See **REMOVAL**).
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Measurement Condition	Door Lock Condition	Specified Condition
6 - 9	Battery positive (+) --> Terminal 4 Battery negative (-) --> Terminal 1	Locked	10 kohms or higher
6 - 9	Battery positive (+) --> Terminal 1 Battery negative (-) --> Terminal 4	Unlocked	Below 1 ohms

NG: REPLACE REAR DOOR LOCK ASSEMBLY (See **REMOVAL**)

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Component without harness connected:
(Rear Door Lock (Rear LH Side))

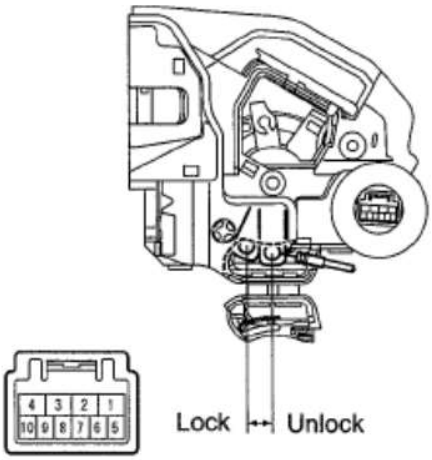


Fig. 22: Identifying Rear Door Lock Assembly Lock And Unlock Position (LH Side)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

2. **CHECK HARNESS AND CONNECTOR (REAR DOOR LOCK MOTOR CIRCUIT)**
   a. Disconnect the instrument panel junction block connector.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
K4-1 (UL) - 1P-6	Always	Below 1 ohms
K4-4 (L) - 1P-11	Always	Below 1 ohms
K4-1 (UL) - Body ground	Always	10 kohms or higher
K4-4 (L) - Body ground	Always	10 kohms or higher

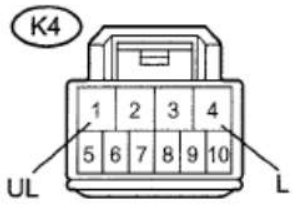
NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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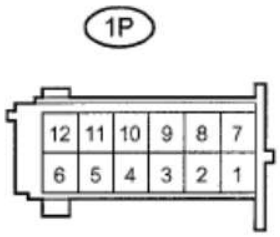
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Front view of wire harness connector:
(to Rear Door Lock)



Front view of wire harness connector:
(to Instrument Panel Junction Block)



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Fig. 23: Identifying 1P Instrument Panel Junction Block Connector And K4 Rear Door Lock Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

3. **CHECK HARNESS AND CONNECTOR (DOOR UNLOCK DETECTION SWITCH CIRCUIT)**
   a. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
K4-6 (LSSR) - 1P-5	Always	Below 1 ohms
K4-6 (LSSR) - Body ground	Always	10 kohms or higher
K4-9 (E) - Body ground	Always	Below 1 ohms

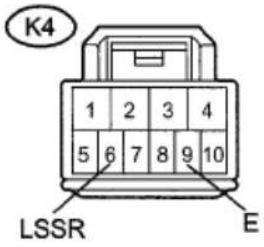
NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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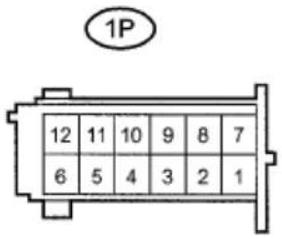
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Front view of wire harness connector:
(to Rear Door Lock)



Front view of wire harness connector:
(to Instrument Panel Junction Block)



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Fig. 24: Identifying 1P Instrument Panel Junction Block Connector And K4 Rear Door Lock Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: REPLACE MAIN BODY ECU (INSTRUMENT PANEL JUNCTION BLOCK)

ONLY REAR DOOR RH LOCK/UNLOCK FUNCTIONS DO NOT OPERATE

DESCRIPTION

The main body ECU (instrument panel junction block) receives lock/unlock switch signals and activates the door lock motor according to these signals.

WIRING DIAGRAM

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w/ Smart Key System, Power Back Door System and Glass Hatch Opener System:

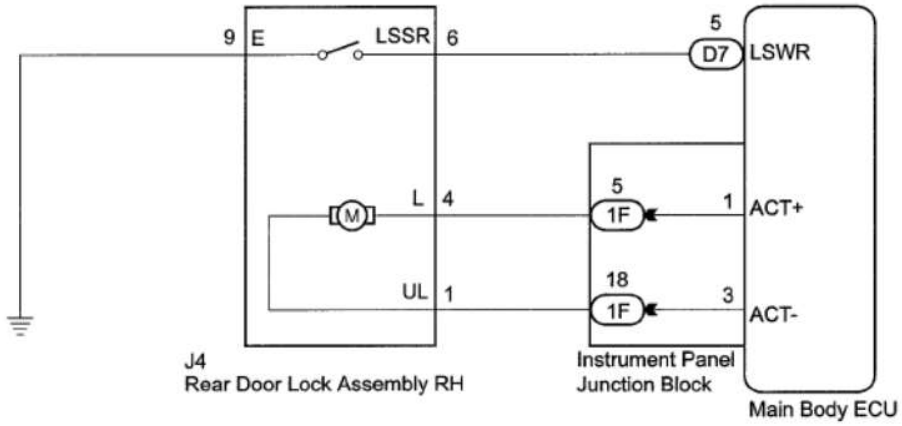


Fig. 25: Rear Door RH LOCK/UNLOCK Functions - Wiring Diagram (W/ Smart Key System)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

w/o Smart Key System, Power Back Door System and Glass Hatch Opener System:

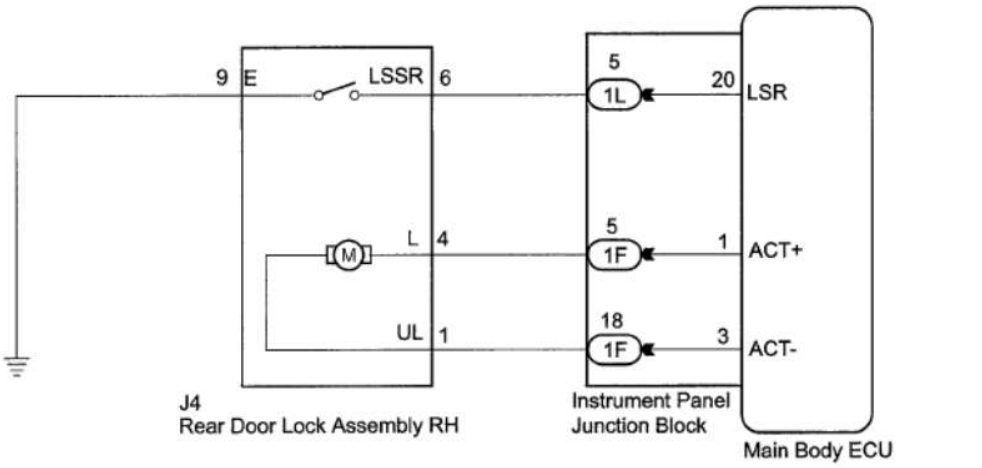


Fig. 26: Rear Door RH LOCK/UNLOCK Functions - Wiring Diagram (W/O Smart Key System)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

1. **INSPECT REAR DOOR LOCK ASSEMBLY**
   a. Remove the rear door lock assembly RH (See **REMOVAL**).
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

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STANDARD RESISTANCE SPECIFICATION

Tester Connection	Measurement Condition	Door Lock Condition	Specified Condition
6 - 9	Battery positive (+) --> Terminal 4 Battery negative (-) --> Terminal 1	Locked	10 kohms or higher
6 - 9	Battery positive (+) --> Terminal 1 Battery negative (-) --> Terminal 4	Unlocked	Below 1 ohms

NG: REPLACE REAR DOOR LOCK ASSEMBLY (See **REMOVAL**)

Component without harness connected:
(Rear Door Lock (Rear RH Side))

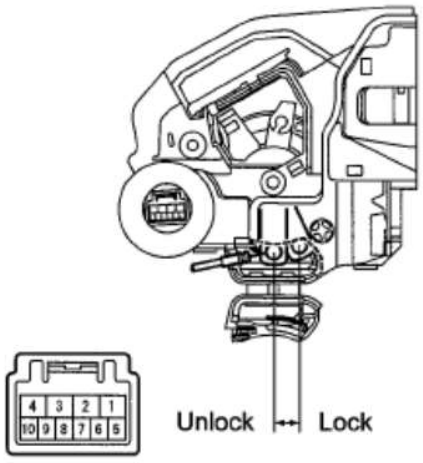


Fig. 27: Identifying Rear Door Lock Assembly Lock And Unlock Position (RH Side)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

2. **CHECK HARNESS AND CONNECTOR (REAR DOOR LOCK MOTOR CIRCUIT)**
   a. Disconnect the instrument panel junction block connector.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

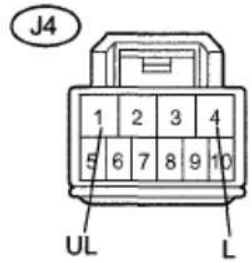
Tester Connection	Condition	Specified Condition
J4-1 (UL) - 1F-18	Always	Below 1 ohms
J4-4 (L) - 1F-5	Always	Below 1 ohms

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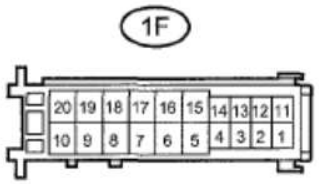
J4-1 (UL) - Body ground	Always	10 kohms or higher
J4-4 (L) - Body ground	Always	10 kohms or higher

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

Front view of wire harness connector:
(to Rear Door Lock)



Front view of wire harness connector:
(to Instrument Panel Junction Block)



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Fig. 28: Identifying 1F Instrument Panel Junction Block And J4 Rear Door Lock Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

3. **CHECK HARNESS AND CONNECTOR (DOOR UNLOCK DETECTION SWITCH CIRCUIT)**
   a. Disconnect the main body ECU (instrument panel junction block)(*1) or instrument panel junction block(*2) connector.

      HINT:

      - *1: w/ Smart Key System, Power Back Door System and Glass Hatch Opener System
      - *2: w/o Smart Key System, Power Back Door System and Glass Hatch Opener System

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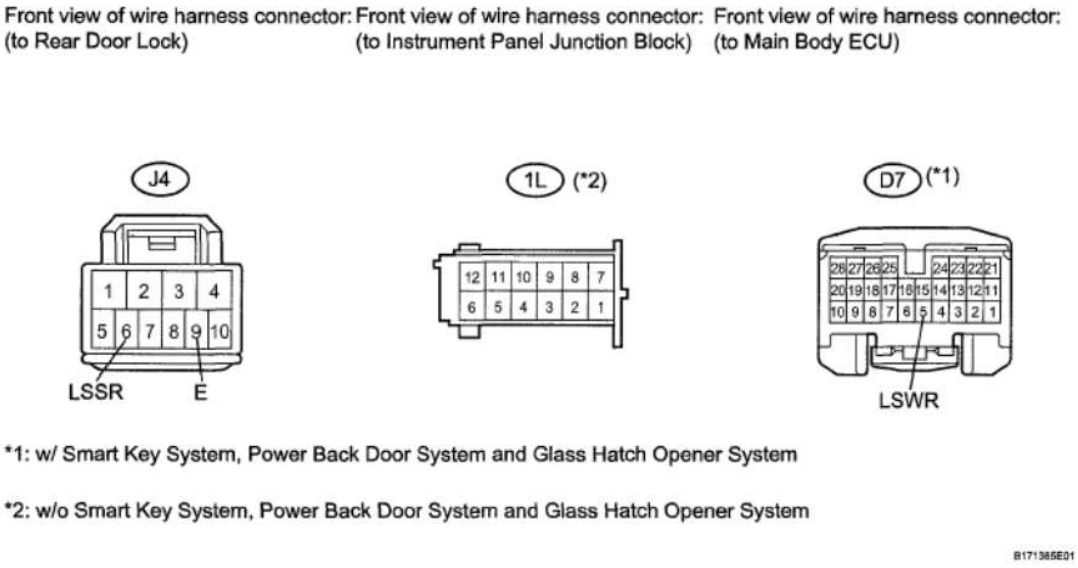


Fig. 29: Identifying Main Body ECU And Instrument Panel Junction Block Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
J4-6 (LSSR) - D7-5 (LSWR)(*1)	Always	Below 1 ohms
J4-6 (LSSR) - 1L-5(*2)	Always	Below 1 ohms
J4-6 (LSSR) - Body ground	Always	10 kohms or higher
J4-9 (E) - Body ground	Always	Below 1 ohms
HINT: • *1: w/ Smart Key System, Power Back Door System and Glass Hatch Opener System • *2: w/o Smart Key System, Power Back Door System and Glass Hatch Opener System		

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: REPLACE MAIN BODY ECU (INSTRUMENT PANEL JUNCTION BLOCK)

ONLY BACK DOOR LOCK/UNLOCK FUNCTIONS DO NOT OPERATE

DESCRIPTION

- The main body ECU (instrument panel junction block) detects the condition of the back door opener switch.
- The main body ECU (instrument panel junction block) receives signals from the back door opener switch

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and activates the back door lock motor according to the signals.

- The main body ECU (instrument panel junction block) detects the condition of the back door courtesy switch.

WIRING DIAGRAM

w/o Power Back Door System:

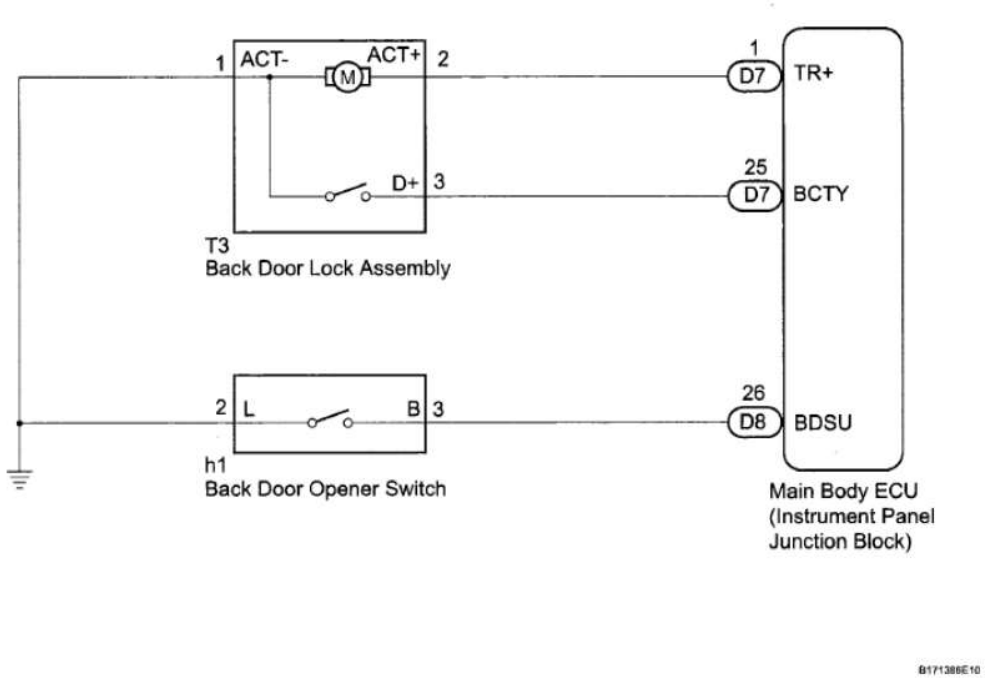


Fig. 30: Back Door Lock/Unlock Functions - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

1. **SYSTEM CHECK**
   a. Check if the vehicle is equipped with a back door closer system.

Result

RESULT REFERENCE

Result	Proceed to
w/ Back Door Closer System	A
w/o Back Door Closer System	B

A: GO TO BACK DOOR CLOSER SYSTEM (Back Door cannot be Opened) (See **BACK DOOR CANNOT BE OPENED**)

B: Go to next step.

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2. **READ VALUE USING TECHSTREAM**
   a. Connect Techstream to the DLC3.
   b. Turn the ignition switch on (IG).
   c. Turn the tester on.
   d. Enter the following menus: Body Electrical/Main Body/Data List.
   e. Select Back Door Open Handle in the Data List and read the tester display.

Main Body (Main Body ECU):

TESTER DISPLAY REFERENCE

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Back Door Open Handle	Back door opener switch/ON or OFF	ON: Back door opener switch is pushed OFF: Back door opener switch is not pushed	-

OK: On the tester screen, the item changes between ON and OFF according to the chart above.

NG: Go to step 5

OK: Go to next step.

3. **INSPECT BACK DOOR LOCK ASSEMBLY**
   a. Remove the back door lock assembly (See **REMOVAL**).
   b. Check operation of the door lock motor.
      1. Move the door lock to the lock position.
      2. Apply battery voltage to the door lock motor and check the operation of the door lock motor.

OK

BATTERY VOLTAGE SPECIFICATION

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

   c. Check operation of the door courtesy switch.
      1. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Switch Condition	Specified Condition

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1 - 3	Locked	10 kohms or higher
1 - 3	Unlocked	Below 1 ohms

NG: REPLACE BACK DOOR LOCK ASSEMBLY (See **REMOVAL**)

Component without harness connected:
(Back Door Lock)

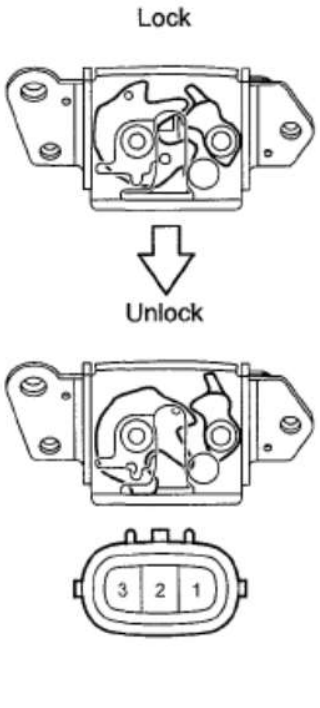


Fig. 31: Identifying Back Door Lock Assembly Lock And Unlock Position
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

4. **CHECK HARNESS AND CONNECTOR (BACK DOOR LOCK CIRCUIT)**
   a. Disconnect the main body ECU (instrument panel junction block) connector.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
T3-2 (ACT+) - D7-1 (TR+)	Always	Below 1 ohms
T3-2 (ACT+) - Body ground	Always	10 kohms or higher

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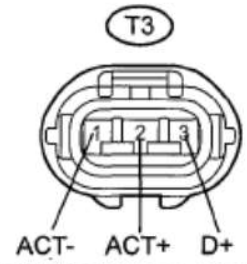
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T3-3 (D+) - D7-25 (BCTY)	Always	Below 1 ohms
T3-3 (D+) - Body ground	Always	10 kohms or higher
T3-1 (ACT-) - Body ground	Always	Below 1 ohms

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

Front view of wire harness connector:
(to Back Door Lock)



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

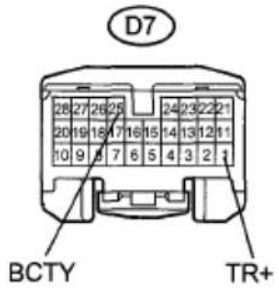


Fig. 32: Identifying T3 Back Door Lock And D7 Main Body ECU Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: REPLACE MAIN BODY ECU (INSTRUMENT PANEL JUNCTION BLOCK)

5. **INSPECT BACK DOOR OPENER SWITCH**
   a. Remove the back door opener switch (See **REMOVAL**).

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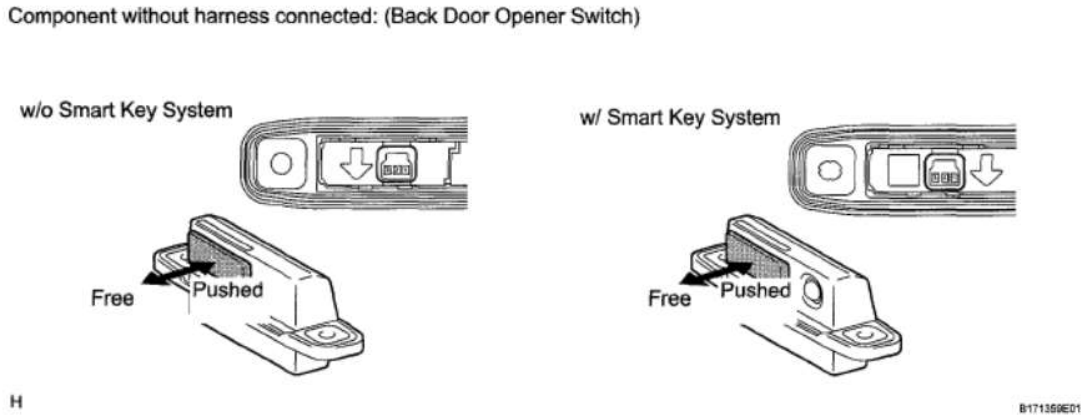


Fig. 33: Inspecting Back Door Opener Switch
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Switch Position	Specified Condition
2 - 3	Back door opener switch not pushed (OFF)	10 kohms or higher
2 - 3	Back door opener switch pushed (ON)	Below 1 ohms

NG: REPLACE BACK DOOR OPENER SWITCH (See **REMOVAL**)

OK: Go to next step.

6. **CHECK HARNESS AND CONNECTOR (BACK DOOR OPENER SWITCH CIRCUIT)**
   a. Disconnect the main body ECU (instrument panel junction block) connector.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
h1-3 (B) - D8-26 (BDSU)	Always	Below 1 ohms
h1-3 (B) - Body ground	Always	10 kohms or higher
h1-2 (L) - Body ground	Always	Below 1 ohms

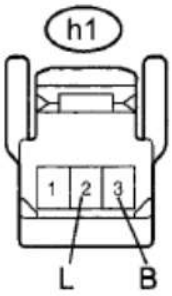
NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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Front view of wire harness connector:
(to Back Door Opener Switch)



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

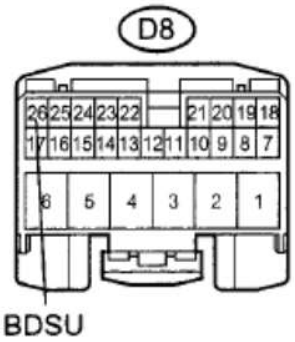


Fig. 34: Identifying H1 Inspect Back Door Opener Switch And D8 Main Body ECU Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: REPLACE MAIN BODY ECU (INSTRUMENT PANEL JUNCTION BLOCK)

KEY LOCK-IN PREVENTION FUNCTION DOES NOT WORK PROPERLY

DESCRIPTION

When the key is in the ignition key cylinder or the door courtesy light ON signal is input to the main body ECU (instrument panel junction block), performing the door lock operation with the lock switch does not lock the door.

WIRING DIAGRAM

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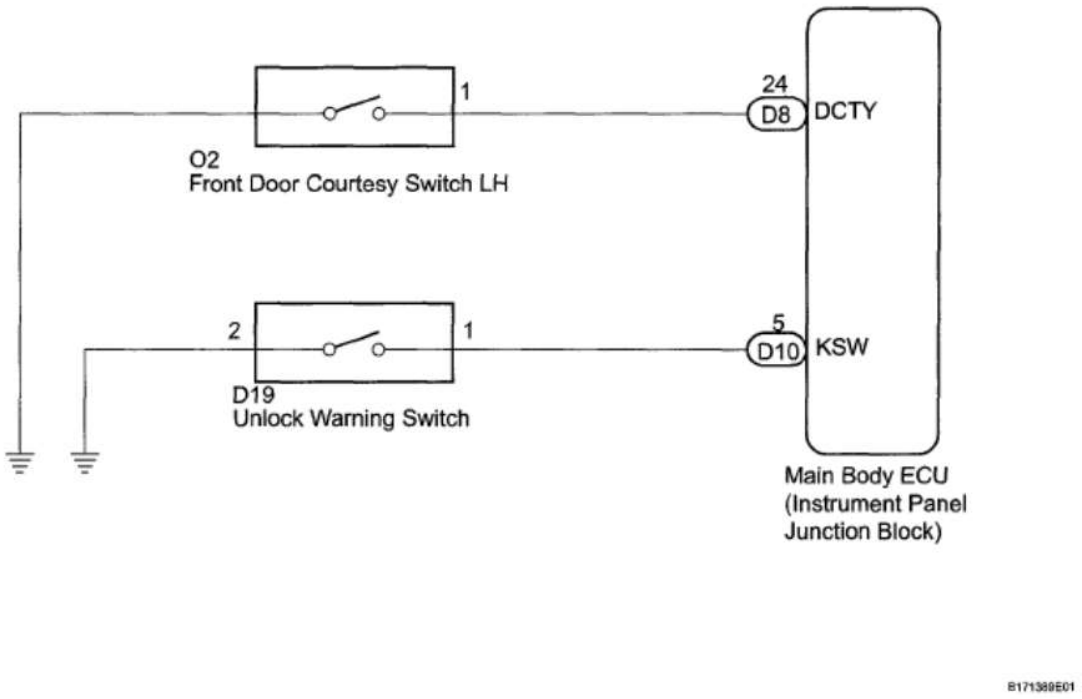


Fig. 35: Key Lock-In Prevention Function - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

1. **READ VALUE USING TECHSTREAM (UNLOCK WARNING SWITCH)**
   a. Connect Techstream to the DLC3.
   b. Turn the ignition switch on (IG).
   c. Turn the tester on.
   d. Enter the following menus: Body Electrical/Main Body/Data List.
   e. Select Key Unlock Warning SW in the Data List and read the tester display.

Main Body (Main Body ECU):

TESTER DISPLAY REFERENCE

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Key Unlock Warning SW	Unlock warning switch signal/ON or OFF	ON: Key is in ignition key cylinder OFF: No key is in ignition key cylinder	-

OK: Techstream displays ON or OFF according to whether the key is in the ignition key cylinder.

NG: Go to step 5

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OK: Go to next step.

2. **READ VALUE USING TECHSTREAM (DRIVER SIDE DOOR COURTESY LIGHT SWITCH)**
   a. Connect Techstream to the DLC3.
   b. Turn the ignition switch on (IG).
   c. Turn the tester on.
   d. Enter the following menus: Body Electrical/Main Body/Data List.
   e. Select D Door Courtesy SW in the Data List and read the tester display.

Main Body (Main Body ECU):

TESTER DISPLAY REFERENCE

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
D Door Courtesy SW	Driver side door courtesy light switch signal/ON or OFF	ON: Driver side door is open OFF: Driver side door is closed	-

OK: Techstream displays ON or OFF according to whether the driver side door is open or closed.

NG: Go to step 3

OK: REPLACE MAIN BODY ECU (INSTRUMENT PANEL JUNCTION BLOCK)

3. **INSPECT FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY**
   a. Remove the driver side door courtesy light switch (See **FRONT DOOR COURTESY SWITCH**).
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
1 - Switch ground	Not pushed (ON)	Below 1 ohms
1 - Switch ground	Pushed (OFF)	10 kohms or higher

NG: REPLACE FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY (See **FRONT DOOR COURTESY SWITCH**)

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Component without harness connected:
(Door Courtesy Light Switch)

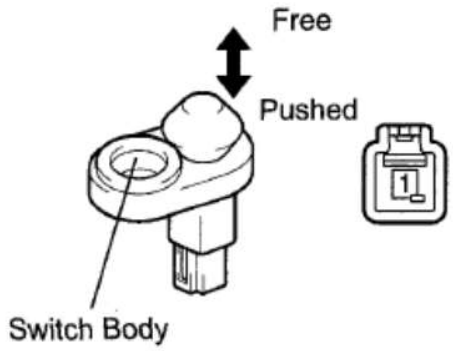


Fig. 36: Inspecting Front Door Courtesy Light Switch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

4. **CHECK HARNESS AND CONNECTOR (FRONT DOOR COURTESY SWITCH CIRCUIT)**
   a. Disconnect the main body ECU (instrument panel junction block) connector.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
O2-1 - D8-24 (DCTY)	Always	Below 1 ohms
O2-1 - Body ground	Always	10 kohms or higher

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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Front view of wire harness connector:
(to Front Door Courtesy Switch LH)



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

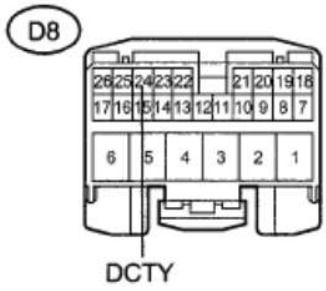


Fig. 37: Identifying O2 Front Door Courtesy Switch LH And D8 Main Body ECU Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: REPLACE MAIN BODY ECU (INSTRUMENT PANEL JUNCTION BLOCK)

5. **INSPECT UNLOCK WARNING SWITCH ASSEMBLY**
   a. Remove the unlock warning switch (See **REMOVAL**).
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Switch Condition	Specified Condition
1 - 2	Pushed	Below 1 ohms
1 - 2	Not pushed	10 kohms or higher

NG: REPLACE UNLOCK WARNING SWITCH ASSEMBLY (See **REMOVAL**)

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Component without harness connected:
(Unlock Warning Switch)

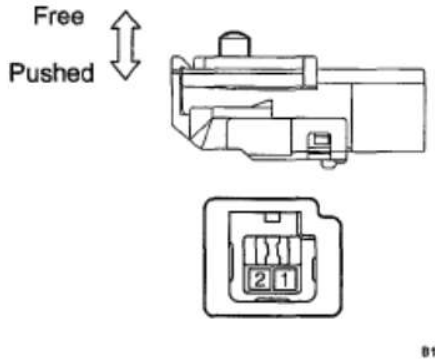


Fig. 38: Inspecting Unlock Warning Switch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

6. **CHECK HARNESS AND CONNECTOR (UNLOCK WARNING SWITCH CIRCUIT)**
   a. Disconnect the main body ECU (instrument panel junction block) connector.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
D19-1 - D10-5 (KSW)	Always	Below 1 ohms
D19-1 - Body ground	Always	10 kohms or higher
D19-2 - Body ground	Always	Below 1 ohms

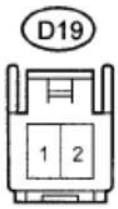
NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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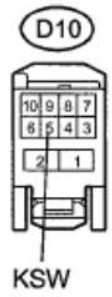
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Front view of wire harness connector:
(to Unlock Warning Switch)



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



B171391E01

Fig. 39: Identifying D19 Unlock Warning Switch And D10 Main Body ECU Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: REPLACE MAIN BODY ECU (INSTRUMENT PANEL JUNCTION BLOCK)

WIRELESS DOOR LOCK CONTROL SYSTEM (W/ SMART KEY SYSTEM)

PRECAUTION

1. **PRECAUTION FOR DISCONNECTING THE BATTERY CABLE**

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

SYSTEM NAME REFERENCE

System Name	See Procedure
Power Back Door System	INITIALIZATION

PARTS LOCATION

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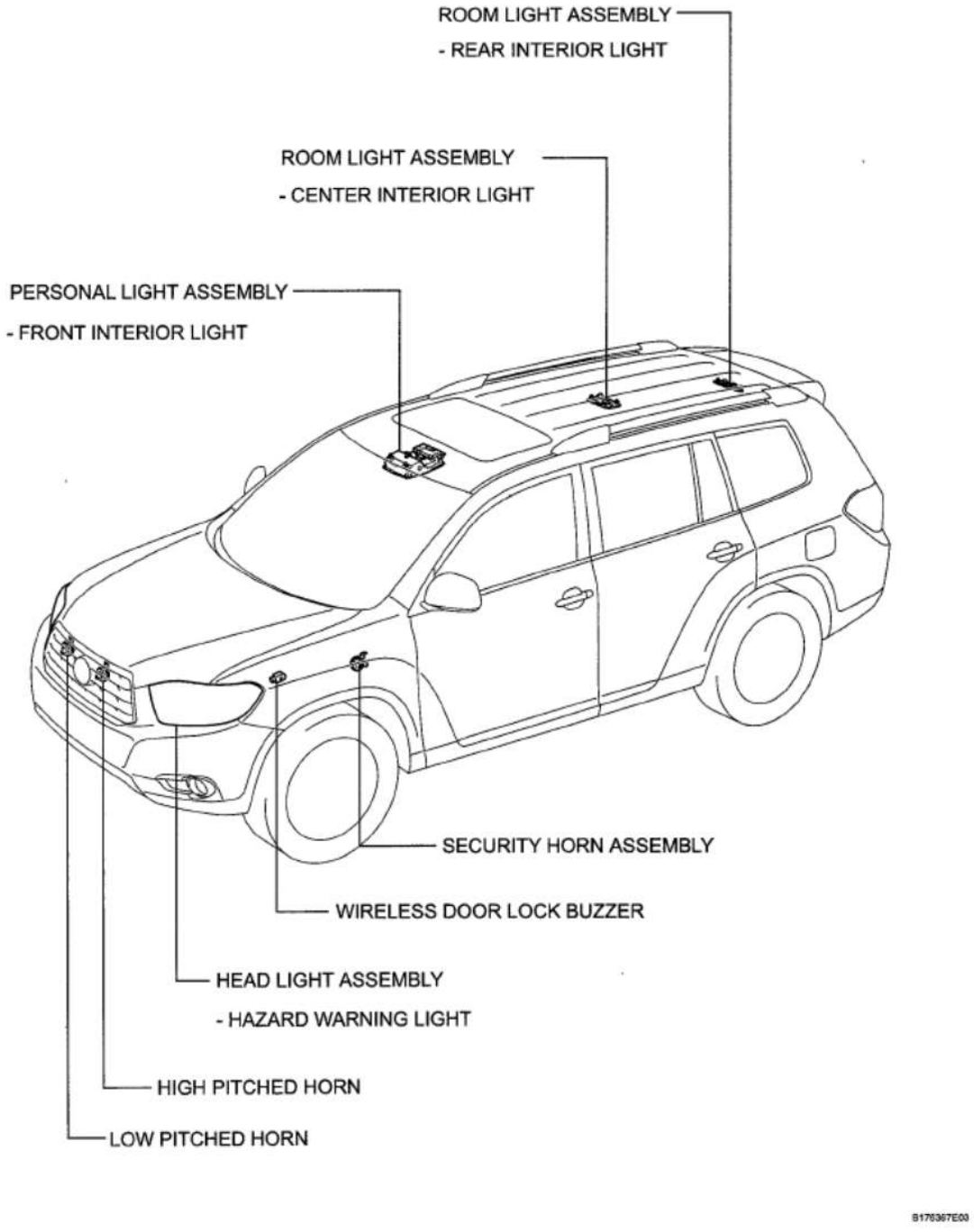


Fig. 40: Identifying Wireless Door Lock Control System (W/ Smart Key) Parts Location (1 Of 4)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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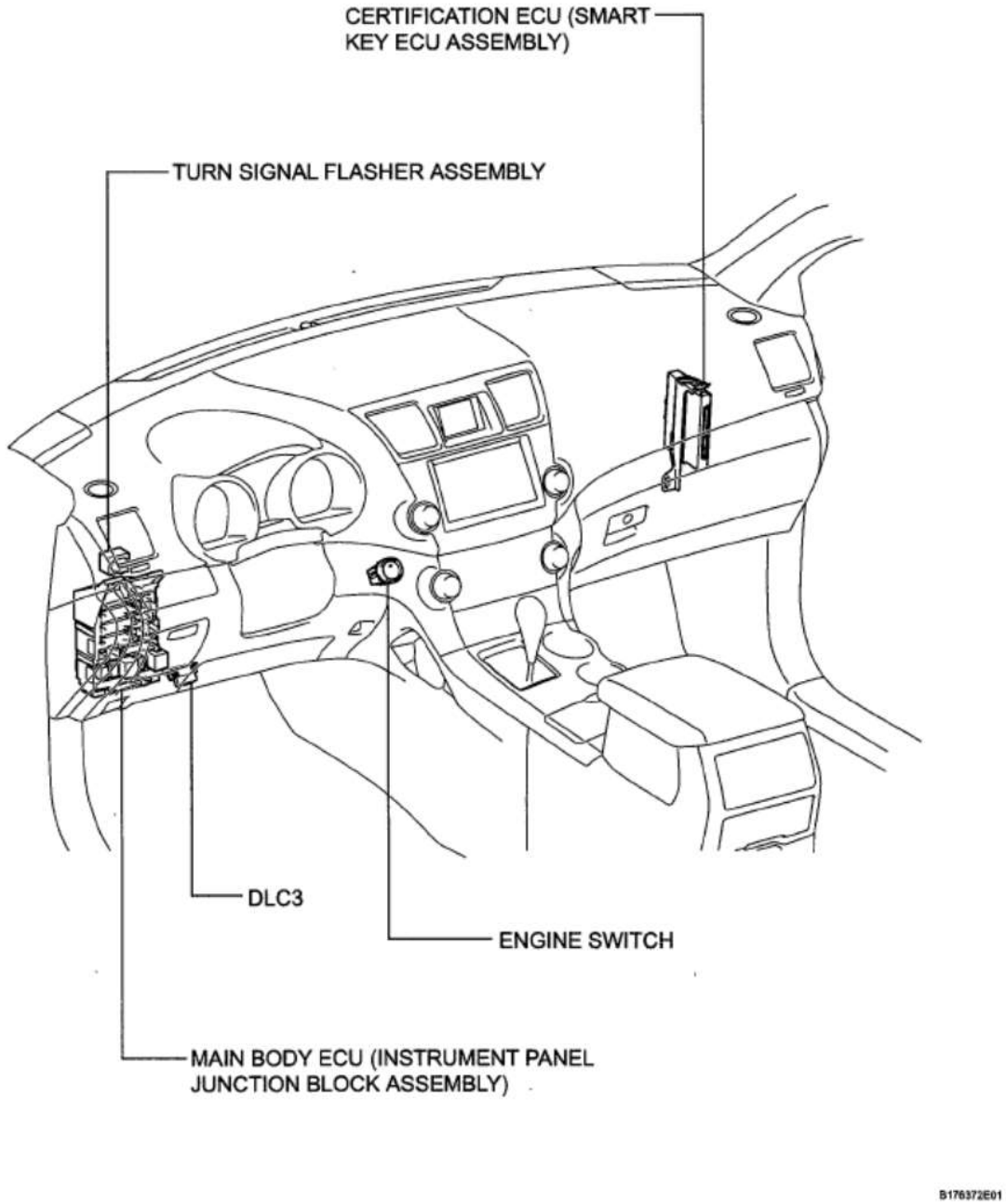


Fig. 41: Identifying Wireless Door Lock Control System (W/ Smart Key) Parts Location (2 Of 4)
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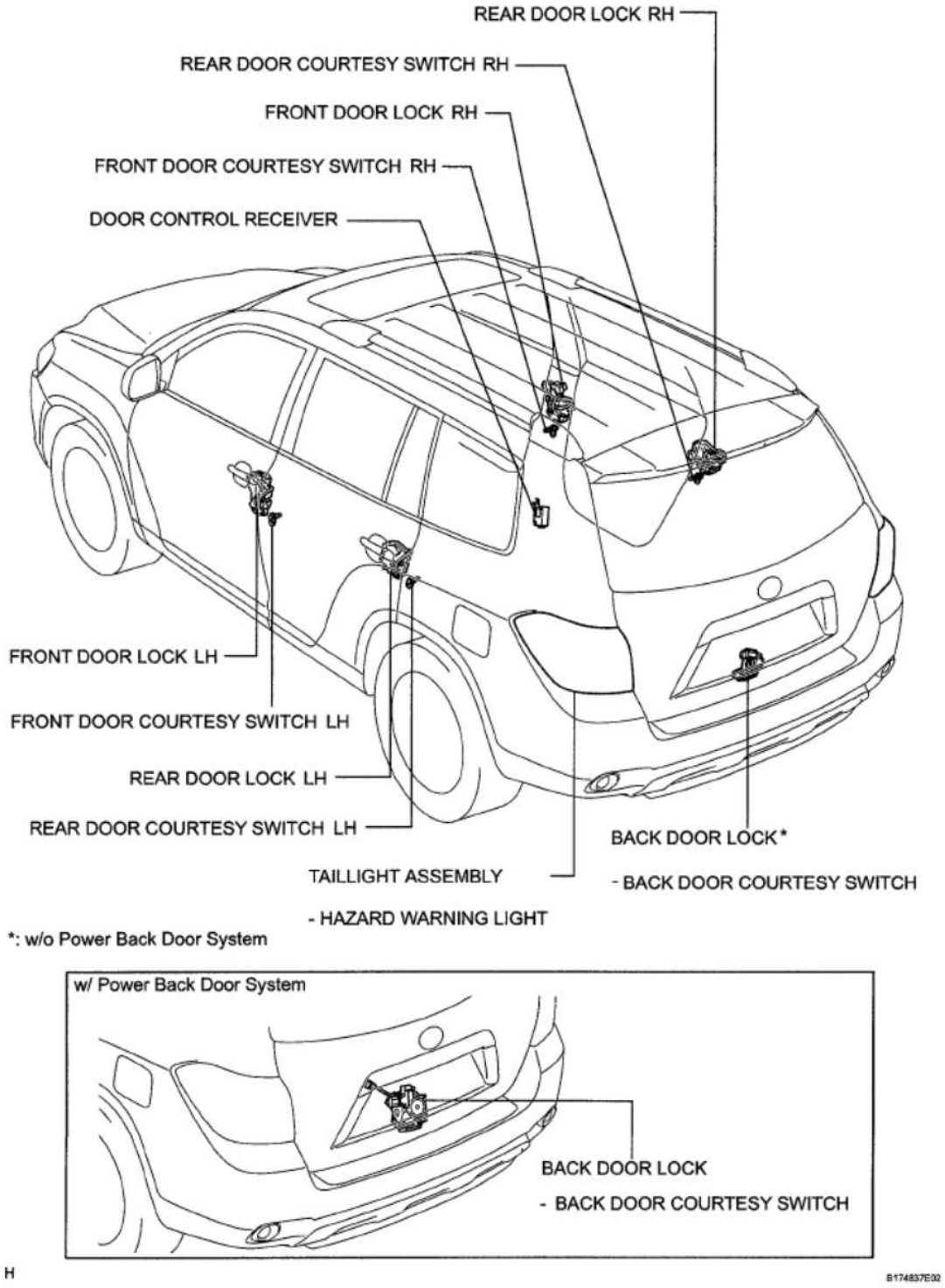


Fig. 42: Identifying Wireless Door Lock Control System (W/ Smart Key) Parts Location (3 Of 4)
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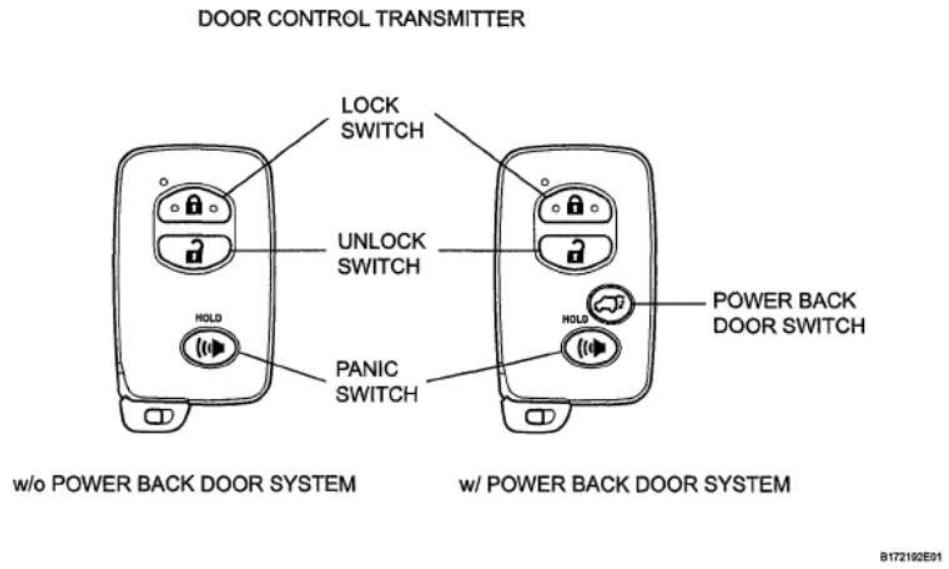
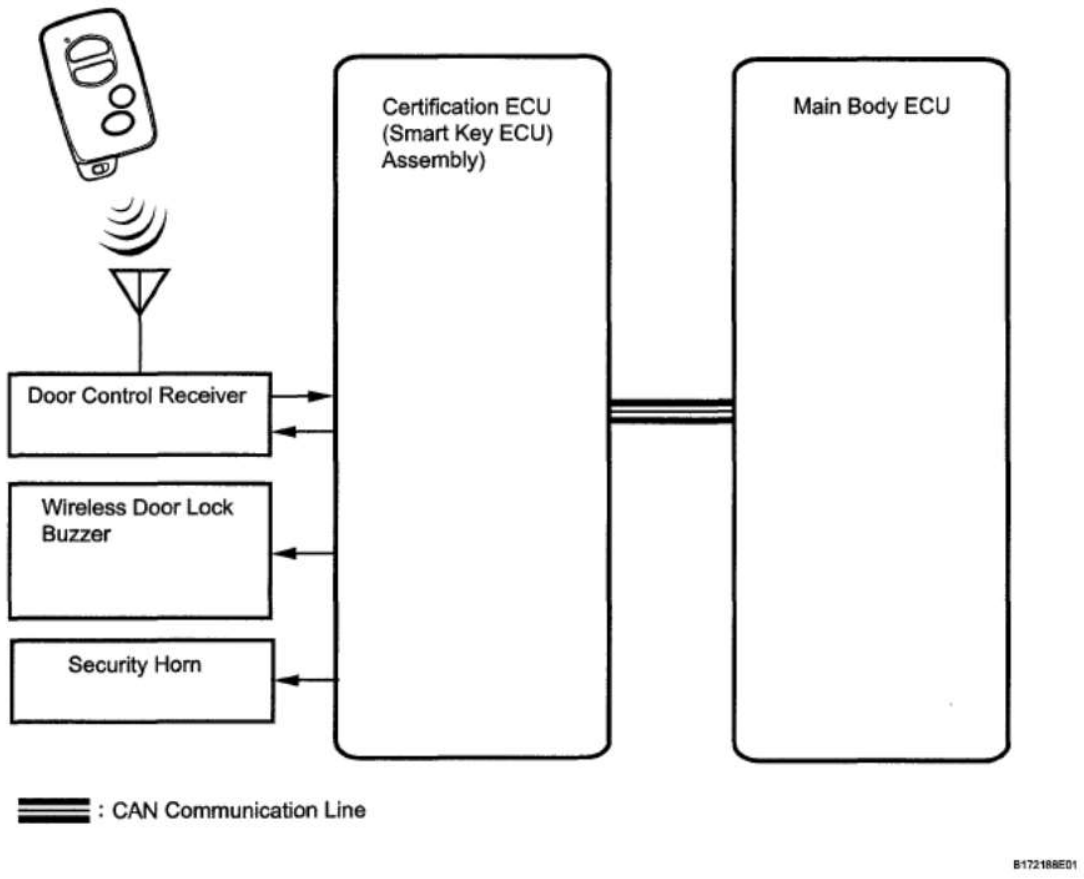


Fig. 43: Identifying Wireless Door Lock Control System (W/ Smart Key) Parts Location (4 Of 4)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SYSTEM DIAGRAM



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Fig. 44: Wireless Door Lock Control System Diagram - W/ Smart Key (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

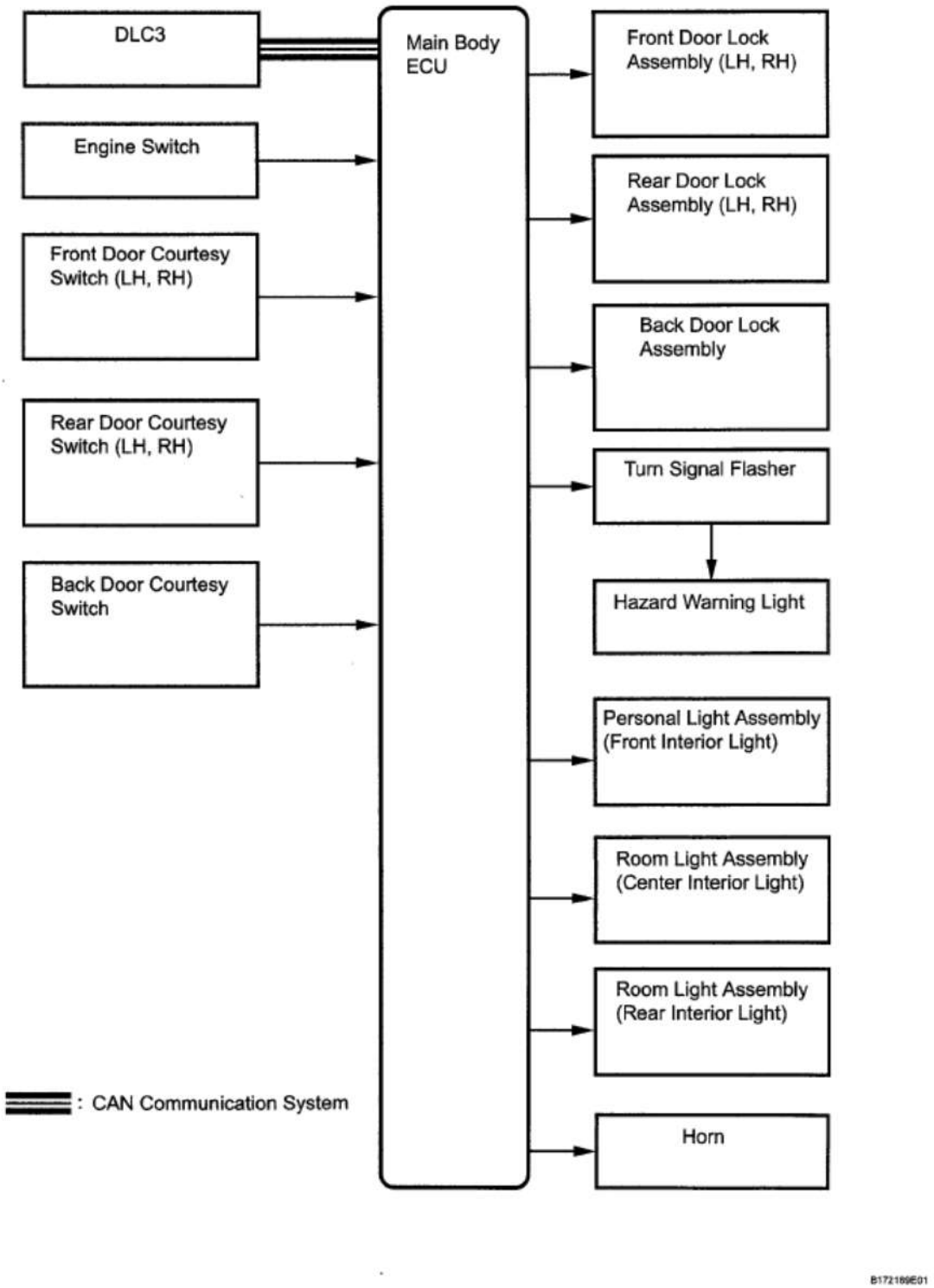


Fig. 45: Wireless Door Lock Control System Diagram - W/ Smart Key (2 Of 2)

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SIGNAL REFERENCE

Transmitting ECU (Transmitter)	Receiving ECU (Receiver)	Signal	Line
Certification ECU (Smart Key ECU Assembly)	Main Body ECU	Wireless door lock signal	CAN

SYSTEM DESCRIPTION

1. **WIRELESS DOOR LOCK CONTROL SYSTEM**

The wireless door lock control system functions to lock and unlock all the doors from a distance. The system is controlled by a hand-held transmitter which sends radio waves to the door control receiver. The certification ECU (smart key ECU assembly) performs an ID code identification process and engages the door lock control.

2. **FUNCTION OF MAIN COMPONENTS**

MAIN COMPONENTS FUNCTION

Component	Function
Door control transmitter	• Has LOCK, UNLOCK, PANIC and POWER BACK DOOR* switches. • Transmits weak radio waves (recognition codes and function codes) to the door control receiver.
Door control receiver	Receives weak radio waves from the door control transmitter and sends them to the certification ECU (smart key ECU assembly).
• Front door courtesy light switch • Rear door courtesy light switch • Back door courtesy light switch	Turns on when a door is opened and turns off when it is closed. Outputs door status codes (open or closed) to the main body ECU.
Door lock position switch	Transmits the door lock positions of each door to the main body ECU.
Certification ECU (Smart key ECU assembly)	Sends wireless door lock control signals in response to the code data from the door control receiver and signals from each ECU.
HINT: *: w/ Power Back Door System	

3. **SYSTEM FUNCTION**

The door control transmitter has the LOCK, UNLOCK, PANIC, POWER BACK DOOR (w/ Power Back Door System) switches. Operating these switches activates each function.

The wireless door lock control system has the following functions:

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HINT:

The default settings of the following functions are ON. Part of these functions can be customized (See **CUSTOMIZE PARAMETERS**).

OPERATION CHART

Function	Operation
All door lock	Pressing the LOCK switch locks all doors.
All door unlock (2-step unlock)	Pressing the UNLOCK switch twice within 3 seconds unlocks all the doors after the driver's door is unlocked.
Power back door open/close operation*	Pressing the POWER BACK DOOR switch of the transmitter for longer than about 1 second opens or closes the back door.
Automatic lock	If none of the doors is opened within 60 seconds after they are unlocked by the wireless door lock control, all the doors will lock again automatically.
Answer back	• When the doors are locked by wireless operation, the hazard warning lights flash once, and wireless door lock buzzer sounds once. • When the doors are unlocked by wireless operation, the hazard warning lights flash twice and wireless door lock buzzer sounds twice.
Panic alarm	Pressing the PANIC switch of the transmitter for longer than about 0.8 seconds causes the following alarms to activate: • Sounds the horn and security horn. • Flashes the hazard lights. • Illuminates the front interior light (when the switch is in the DOOR position). While the panic alarm is operating, pressing any switch of the transmitter cancels the alarm operation.
Door ajar warning	The buzzer sounds when the LOCK switch is pressed when any of the doors are ajar, and it sounds for 10 seconds continuously. The buzzer stops when all doors are closed or the UNLOCK switch is pressed.
Illuminated entry	When all the doors are locked, pressing the UNLOCK switch causes the interior light to come on simultaneously with the unlock operation.
HINT: *: w/ Power Back Door System	

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

The wireless door lock control system troubleshooting procedures are based on the premise that the power door lock control system is operating normally. Check the power door lock control system first before troubleshooting the wireless door lock control system.

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Use this procedure to troubleshoot the wireless door lock control system.

1. **VEHICLE BROUGHT TO WORKSHOP**
2. **CUSTOMER PROBLEM ANALYSIS**
   a. Interview the customer to confirm the trouble (See **HOW TO PROCEED WITH TROUBLESHOOTING**).
3. **INSPECT COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM**
   a. Use Techstream to check for normal function of the CAN communication system.

Result

RESULT REFERENCE

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

B: Go to CAN COMMUNICATION SYSTEM (See **DIAGNOSTIC TROUBLE CODE CHART**)

A: Go to next step.

4. **DTC CHECK**
   a. Check for a DTC and note any codes that are output.
   b. Delete the DTC.
   c. Recheck for DTCs. Try to prompt the DTC by simulating the original symptom that the DTC suggests.

Result

RESULT REFERENCE

Result	Proceed to
DTC does not recur	A
DTC recurs	B

B: GO TO DTC CHECK/CLEAR (See **DIAGNOSIS SYSTEM**)

A: Go to next step.

5. **SYMPTOM SIMULATION**
6. **PROBLEM SYMPTOMS TABLE**
   a. If the fault is not listed in the problem symptoms table, proceed to A.
   b. If the fault is listed in the problem symptoms table, proceed to B.

B: Go to step 8

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A: Go to next step.

7. **PERFORM TROUBLESHOOTING ACCORDING TO MALFUNCTION SYMPTOM**
   a. Terminals of ECU (See **TERMINALS OF ECU**)
   b. DATA LIST/ACTIVE TEST (See **DIAGNOSIS SYSTEM**)
8. **ADJUST, REPAIR OR REPLACE**
9. **CONFIRMATION TEST**

NEXT: END

OPERATION CHECK

1. **FUNCTIONS AND OPERATING CONDITIONS**
   a. The wireless door LOCK/UNLOCK function: The wireless door lock control function operates only when the following 3 conditions are met:
      1. There is no door control transmitter in the cabin.
      2. All the doors are closed.
      3. The power door lock system operates normally.

      HINT:

      The UNLOCK function operates even when a door is open.

   b. The power back door open function (w/ Power Back Door System):

      The wireless door lock control function operates only when the following 4 conditions are met:

      1. There is no door control transmitter in the cabin.
      2. The power back door main switch is ON (switch free: orange paint on the top of the switch appears).
      3. The back door is between the fully closed position and the half-open position (When the door is in the fully closed position, the door will be unlocked).
      4. The power back door system operates normally.

   c. The power back door close function (w/ Power Back Door System):

      The wireless door lock control function operates only when the following 4 conditions are met:

      1. There is no door control transmitter in the cabin.
      2. The power back door main switch is ON.
      3. The back door is between the half-open position and the fully open position.
      4. The power back door system operates normally.

   d. The remote panic function:

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The wireless door lock control function operates only when the following condition is met:

1. The engine switch is turned off.

HINT:

The key can be inserted, however it must be in the off position.

e. The wireless transmitter operational range differs depending on the situation.
   1. The operational range differs depending on the user, the way the transmitter is held, and the location.
   2. In certain areas, the operational range will be reduced due to the vehicle body shape and the influence of the surrounding environment.
   3. Since the transmitter uses weak radio waves, the operational range may be reduced or the transmitter may not function if interference or stronger radio waves occur in the area where the transmitter is used.
   4. When the battery is low, the operational range is reduced and/or the transmitter may not function.

HINT:

If the transmitter has been left in a place that is exposed to direct sunlight, such as on the instrument panel, the battery may be weakened or other problems may occur.

2. **CHECK WIRELESS DOOR LOCK CONTROL FUNCTIONS**

HINT:

- The switches built into the door control transmitter send radio waves to the door lock control receiver.
- The operational range must be taken into account during checks.

a. Establish conditions that allow the wireless control function to be operated successfully.
b. Check basic functions.
   1. Check whether the LED of the transmitter comes on 3 times when each switch is pressed 3 times.

      HINT:

      If the LED does not come on when the switch has been pressed 3 times or more, it may have a dead battery.

   2. Check that all the doors lock when the LOCK switch is pressed.
   3. Check that only the driver side door unlocks when the UNLOCK switch is pressed once and that the other doors unlock when the UNLOCK switch is pressed again within 3 seconds.
   4. Check that the power back door opens or closes when the POWER BACK DOOR switch is

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held down for 1 second or more (w/ Power Back Door System).

5. Check that the power back door reverses the signal immediately when the POWER BACK DOOR switch is pressed while the door is automatically moving (no delay) (w/ Power Back Door System).

c. Check the chattering prevention function.
   1. Check that the corresponding operation occurs only once and is not repeated continuously while the switch is held. However, when the switch is operated repeatedly at 1 second intervals, check that the corresponding operation is carried out.

d. Check the automatic lock function.
   1. Check that if all doors are unlocked with the UNLOCK switch and none of the doors is opened or locked within approximately 60 seconds, the doors automatically re-lock.
   2. Check that if all doors are unlocked with the UNLOCK switch and a door is opened or locked within approximately 60 seconds, the automatic lock function does not operate.

e. Check the switch operation fail-safe function.
   1. Check that the doors cannot be locked or unlocked by operating a switch on the unregistered transmitter, and that the doors are locked and unlocked by operating a switch on the registered transmitter.

f. Check the door ajar warning function.
   1. Check that the wireless door lock buzzer sounds for approximately 10 seconds when the LOCK switch is pressed with any of the doors ajar or open.

g. Check the repeat function.
   1. Check that all the doors attempt to automatically lock once again 1 second after the LOCK switch has been pressed while the movement of the driver side door control knob, which is in the unlocked state, is being restricted.

h. Check the answer-back function.
   1. When the LOCK switch is pressed, check that the lights flash once and the buzzer sounds once, simultaneously with the locking operation of all the doors.
   2. When the UNLOCK switch is pressed once, check that the lights flash twice and the buzzer sounds twice, simultaneously with the unlocking operation of the driver side door.
   3. When the UNLOCK switch is pressed again within 3 seconds, check that the lights flash twice and the buzzer sounds twice, simultaneously with the unlocking operation of all the doors.
   4. When the POWER BACK DOOR switch is held down for 1 second or more, check that the buzzer sounds once, simultaneously with the operation of the power back door (w/ Power Back Door System).

i. Check the remote panic function.
   1. Check that the horn sounds, the headlights and taillights flash and the interior light remains on (when the light switch is turned to the DOOR position) for 60 seconds by the theft alarm function, when the PANIC switch is held down for 0.8 seconds or more. Also, check that the horn stops sounding and the lights stop flashing when either switch of the transmitter is pressed.

j. Check the interior light ON function.

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HINT:

Turn the interior light switch to the DOOR position before the check.

1. Check that the interior light comes on simultaneously with the unlocking operation when the UNLOCK switch has been pressed.
2. Check that the interior light goes off in approximately 15 seconds if none of the doors is opened after the unlocking operation.

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 customizing operations.**
- **Be sure to record the current settings before customization.**
- **When troubleshooting, make sure that the item in question is not set to "OFF" as a result of customization (Example: For the system, "the wireless function does not operate", first check that the wireless function is not set to "OFF", then perform troubleshooting).**

1. **CUSTOMIZE**
   a. Connect Techstream to the DLC3.
   b. Turn the engine switch on (IG).
   c. Turn the tester on.
   d. Enter the following menus: Select: Customize Setting /
   e. Select the setting by referring to the table below.

Wireless Door Lock

TROUBLESHOOTING CHART

Display (Item)	Default	Contents	Setting
Wireless Control	ON	ON/OFF of wireless door lock function	ON/OFF
Hazard Answer Back	ON	When LOCK switch on transmitter pressed, all hazard warning lights illuminate once. When UNLOCK switch pressed, all hazard warning lights illuminate twice	ON/OFF
Wireless Buzzer Resp	ON	Function that makes wireless buzzer sound for answer-back when transmitter LOCK/UNLOCK switch pressed	ON/OFF
Wireless Auto Lock	ON	Function to control automatic relocking of doors after unlocking with wireless door lock function.	ON/OFF

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Open Door Warning	ON	If door is not completely closed and transmitter LOCK switch is pressed, this function sounds a buzzer for 10 seconds	ON/OFF
Unlock 2 Operation	ON	Function that unlocks driver side door when unlock switch on transmitter is pressed once, and unlocks all doors when pressed twice. If setting is OFF, pressing unlock switch once makes all doors unlock.	ON/OFF
Auto Lock Time	60s	This function controls amount of time from unlocking doors to automatic re-locking function	30s/60s/120s
Panic Alarm Function	ON	Function to operate theft deterrent system by continuously pressing panic switch on transmitter for 0.8 seconds	ON/OFF

PROBLEM SYMPTOMS TABLE

If a normal system code is displayed during the DTC check, but the problem still occurs, check the circuits for each problem symptom in the order given in the table below and proceed to the relevant troubleshooting page.

HINT:

- The following is the troubleshooting procedure for the wireless door lock control of a vehicle with the smart key system.
- For the troubleshooting procedure for the wireless door lock control of a vehicle without the smart key system, refer to the **WIRELESS DOOR LOCK CONTROL SYSTEM (W/O SMART KEY SYSTEM)**.
- Inspect the fuse and relay before investigating the suspected areas shown in the table below.
- Use the table below to help determine the cause of a problem. The likely causes of the problem are indicated in descending order. Check each suspected area in order. Repair or replace faulty parts or perform adjustments as necessary.

WIRELESS DOOR LOCK CONTROL SYSTEM:

PROBLEM SYMPTOMS CHART

Symptom	Suspected Area	Refer to
Wireless control function and entry function do not operate	Proceed to "All Door Entry Lock/Unlock Functions and Wireless Functions do not Operate"	**ALL DOOR ENTRY LOCK/UNLOCK FUNCTIONS AND WIRELESS FUNCTIONS DO NOT OPERATE**
Wireless control function does not operate but entry function operate	Replace electrical key transmitter	-
Wireless control function does not operate normally	Transmitter battery	**REMOVAL**
	Door control transmitter	**REMOVAL**
	Certification ECU (smart key ECU assembly)	-
	Wire harness or connector	-
	Door control receiver	-

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	Main body ECU	-
Answer-back function does not operate	Lighting system	**PROBLEM SYMPTOMS TABLE**
	Main body ECU	-
	Wire harness or connector	-
	Wireless door lock buzzer	**NO ANSWER-BACK**
Automatic lock function only does not operate normally	Perform operation check	**OPERATION CHECK**
	Lighting system (door courtesy light switch)	**PROBLEM SYMPTOMS TABLE**
Illuminated entry function only does not operate	Perform operation check	**OPERATION CHECK**
	Lighting system	**PROBLEM SYMPTOMS TABLE**
Door ajar warning function only does not operate	Perform operation check	**OPERATION CHECK**
	Lighting system (door courtesy light switch)	**DOOR COURTESY SWITCH CIRCUIT**
	Meter/gauge system	-
Panic alarm function only does not operate	Perform operation check	**OPERATION CHECK**
	Theft deterrent system	**PROBLEM SYMPTOMS TABLE**

TERMINALS OF ECU

1. **CHECK MAIN BODY ECU (INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY)**
   a. Disconnect the main body ECU (instrument panel junction block assembly) connectors.

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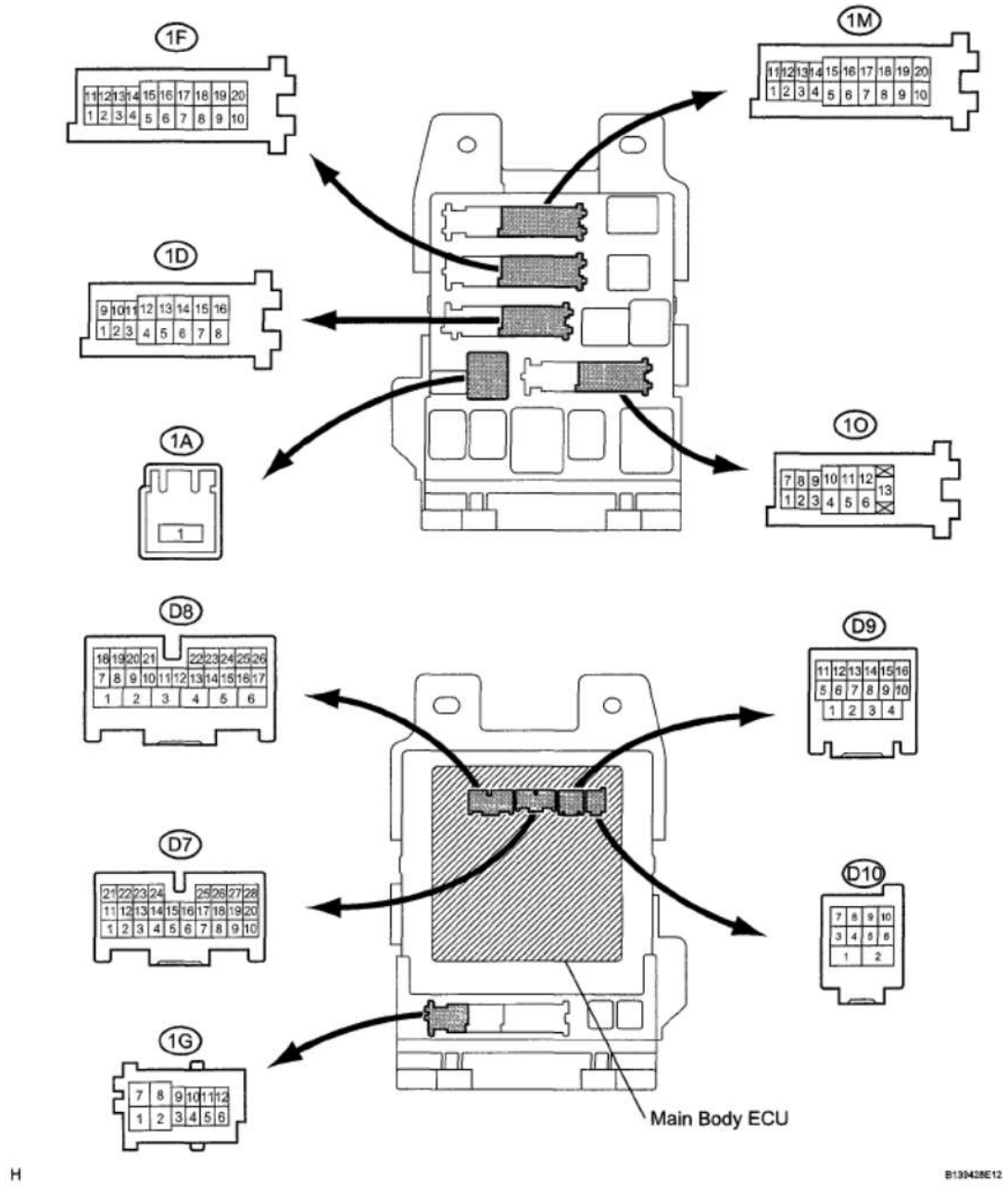


Fig. 46: Identifying Main Body ECU (Instrument Panel Junction Block Assembly) Connectors
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b. Measure the resistance and voltage between each terminal of the wire harness side connectors and body ground.

CONNECTOR TERMINAL REFERENCE

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition

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1A-1 (IG) - Body ground	B - Body ground	Ignition power supply (IG signal)	Engine switch on (IG) --> off	10 to 14 V --> Below 1 V
1A-1 (ACC) - Body ground	B - Body ground	Ignition power supply (ACC signal)	Engine switch on (ACC) --> off	10 to 14 V --> Below 1 V
1D-16 (ALTB) - Body ground	W - Body ground	+B (power system alternator system) power supply	Always	10 to 14 V
D8-24 (DCTY) - Body ground	G - Body ground	Driver side door courtesy light switch input	Driver side door CLOSED (OFF) --> OPEN (ON)	10 kohms or higher --> Below 1 ohms
D7-21 (PCTY) - Body ground	SB - Body ground	Passenger side courtesy light switch input	Passenger side door CLOSED (OFF) --> OPEN (ON)	10 kohms or higher --> Below 1 ohms
D7-7 (RCTY) - Body ground*1	GR - Body ground	Rear courtesy light switch RH input	Rear door RH CLOSED (OFF) --> OPEN (ON)	10 kohms or higher --> Below 1 ohms
D7-5 (RCTY) - Body ground*2	GR - Body ground	Rear courtesy light switch RH input	Rear door RH CLOSED (OFF) --> OPEN (ON)	10 kohms or higher --> Below 1 ohms
1O-7 (LCTY) - Body ground	B - Body ground	Rear courtesy light switch LH input	Rear door LH CLOSED (OFF) --> OPEN (ON)	10 kohms or higher --> Below 1 ohms
D7-25 (BCTY) - Body ground	L - Body ground	Back door courtesy light switch input	Back door CLOSED (OFF) --> OPEN (ON)	10 kohms or higher --> Below 1 ohms
1F-10 (GND1) - Body ground	W-B - Body ground	Ground	Always	Below 1 ohms
1M-9 (GND2) - Body ground	W-B - Body ground	Ground	Always	Below 1 ohms
HINT: • *1: w/ Power Back Door System • *2: w/o Power Back Door System				

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

c. Reconnect the main body (instrument panel J/B) connectors.

d. Measure the voltage between each terminal of the wire harness side connectors and body ground.

CONNECTOR TERMINAL REFERENCE

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
D7-1 (TR+) -	LG - Body	Back door opener	Back door CLOSED (LOCKED)	Below 1 V --> 10

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Body ground*3	ground	motor	--> OPEN (UNLOCKED)	to 14 V*1
D9-4 (HAZ) - Body ground	O - Body ground	Turn signal flasher relay signal	Any transmitter switch is pressed --> not pressed	Below 1 V --> 10 to 14 V*2

HINT:

- *1: When operating the motor.
- *2: When operating the answer back function.
- *3: w/o Power Back Door System

2. **CHECK CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

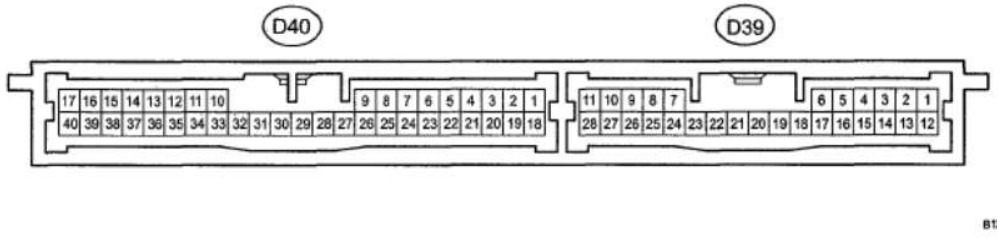


Fig. 47: Identifying D40 Certification ECU (Smart Key ECU Assembly) Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

a. Disconnect the D40 certification ECU (smart key ECU assembly) connector.
b. Measure the resistance and voltage according to the value(s) in the table below.

CONNECTOR TERMINAL REFERENCE

Terminal No. (Symbols)	Wiring Color	Terminal Description	Condition	Specified Condition
D40-17 (E) - Body ground	B - Body ground	Ground	Always	Below 1 ohms
D40-1 (+B) - D40-17 (E)	B - B	Battery power supply	Always	11 to 14 V
D40-18 (IG) - D40-17 (E)	G - B	IG power supply	Engine switch on (IG)	11 to 14 V
			Engine switch off	Below 1 V

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

c. Reconnect the D40 certification ECU (smart key ECU assembly) connector.
d. Measure the voltage according to the value(s) in the table below.

CONNECTOR TERMINAL REFERENCE

Terminal No. (Symbols)	Wiring Color	Terminal Description	Condition	Specified Condition

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D40-39 (RSSI) - D40-17 (E)	B - B	Door control receiver output signal	Engine switch off, all doors closed and transmitter switch not pressed	11 to 14 V
			Engine switch off, all doors closed and transmitter switch pressed	Below 1 V
D40-38 (RDA) - D40-17 (E)	Y - B	Door control receiver output signal	Engine switch off, all doors closed and transmitter switch not pressed	4.6 to 5.4 V
			Engine switch off, all doors closed and transmitter switch pressed	Pulse generation
D40-29 (RCO) - D40-17 (E)	V - B	Supply battery to door control receiver	Engine switch off, all doors closed and transmitter switch pressed	4.6 to 5.4 V
D40-21 (BZR) - Body ground	R - Body ground	Wireless door lock buzzer signal	Wireless door lock buzzer OFF --> ON	Below 1 V --> Pulse generation

If the result is not as specified, the certification ECU (smart key ECU assembly) may have a malfunction.

DIAGNOSIS SYSTEM

1. **DESCRIPTION**

   The ECU stores trouble codes when trouble occurs on the vehicle.

   The diagnostic system allows for reading of the trouble codes from the DLC3.

   Use Techstream to check and solve the problem.

2. **CHECK DLC3**
   a. Check the DLC3 (See **HOW TO TROUBLESHOOT ECU CONTROLLED SYSTEMS**).

DTC CHECK/CLEAR

1. **CHECK DTC**
   a. Connect Techstream to the DLC3.
   b. Turn the engine switch on (IG).
   c. Read the DTC by following the prompts on the tester screen.

   HINT:

   Refer to the Techstream operator's manual for further details.

2. **CLEAR DTC**

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a. Connect Techstream to the DLC3.
b. Turn the engine switch on (IG).
c. Erase the DTC by following the directions on the tester screen.

HINT:

Refer to the Techstream operator's manual for further details.

DATA LIST/ACTIVE TEST

1. **DATA LIST**

HINT:

Using Techstream to read the Data List allows switch, sensor, actuator and other item values to be read without removing any parts. Reading the Data List early in troubleshooting is one way to save diagnostic time.

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

a. Connect Techstream to the DLC3.
b. Turn the engine switch on (IG).
c. Enter the following menus: Body Electrical/Main Body or Smart Key/Data List.
d. Read the Data List according to the display on the tester.

Main Body (Main body ECU):

TESTER DISPLAY REFERENCE

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Wireless Control	Wireless door lock control function/ON or OFF	ON: Operating OFF: Not operating	-
Hazard Answer Back	Hazard answer-back of wireless/ON or OFF	ON: Operating OFF: Not operating	-
Wireless Auto Lock	Wireless door lock control function/ON or OFF	ON: Operating OFF: Not operating	-
Open Door Warning	Open door warning/ON or OFF	ON: Operating OFF: Not operating	-
Unlock 2 Operation	Unlock 2 Operation of wireless unlock/ON or OFF	ON: All doors unlock when UNLOCK switch pressed twice OFF: All doors unlock when UNLOCK switch pressed once	-

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Auto Lock Time	Automatic lock time/120 s, 60 s or 30 s	120 s: 120 seconds 60 s: 60 seconds 30 s: 30 seconds	-
Wireless Buzzer Resp	Wireless door lock buzzer response/ON or OFF	ON: Operating OFF: Not operating	-

Smart Key (Certification ECU (Smart Key ECU Assembly)):

TESTER DISPLAY REFERENCE

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Panic Alarm Function	Panic function/ON or OFF	ON: Operating OFF: Not operating	-

2. **ACTIVE TEST**

HINT:

Using Techstream to perform Active Test allows relay, VSV, actuator and other items to be operated without removing any parts. This non-intrusive functional inspection can be very useful because intermittent operation may be discovered before parts or wiring is disturbed. Performing the Active Test early in troubleshooting is one way to save diagnostic time. The Data List can be displayed during the Active Test.

a. Connect Techstream to the DLC3.
b. Turn the engine switch on (IG).
c. Enter the following menus: Body Electrical/Main Body or Smart Key/Active Test.
d. Perform the Active Test according to the display on the tester.

Main Body (Main body ECU):

TESTER DISPLAY REFERENCE

Tester Display	Test Part	Control Range	Diagnostic Note
Hazard	Turn signal flasher relay	ON/OFF	Observe headlight and rear combination light for correct operation
Vehicle Horn	Vehicle horns	ON/OFF	-
Illuminated Entry System	Interior light and ignition key cylinder light (Interior light switch is in DOOR position and all doors are closed)	ON/OFF	-
Trunk and Back-Door Open	Back door opener motor	ON/OFF	Observe back door

Smart Key (Certification ECU (Smart Key ECU Assembly)):

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TESTER DISPLAY REFERENCE

Tester Display	Test Part	Control Range	Diagnostic Note
Wireless Buzzer Operation	Wireless door lock buzzer	ON/OFF	-

DIAGNOSTIC TROUBLE CODE CHART

HINT:

If a trouble code is indicated during the DTC check, check the circuit listed for that code in the table below. Then proceed to the appropriate page.

WIRELESS DOOR LOCK CONTROL SYSTEM:

DIAGNOSTIC TROUBLE CODE CHART

DTC Code	Detection Item	Trouble Area
B1242	Wireless Door Lock Tuner Circuit Malfunction	1. Door control receiver 2. Wire harness 3. Certification ECU (Smart key ECU assembly)

DTC B1242 WIRELESS DOOR LOCK TUNER CIRCUIT MALFUNCTION

DESCRIPTION

- The electrical key antenna is used to receive electric waves relating to the entry functions of the smart key system with push-button start. The certification ECU (smart key ECU assembly) decodes the requested smart key system with push-button start operation by identifying a key code based on electric waves received via the electrical key antenna and the door control receiver.
- The door control receiver receives a signal from the wireless door control transmitter and sends signals to the main body ECU through the certification ECU (smart key ECU assembly).
- The certification ECU (smart key ECU assembly) then sends a command, according to the requested operation, to each ECU. (e.g. If door lock operation is requested, the ECU sends a door lock command to the main body ECU.)

DTC DETECTION CONDITION AND TROUBLE AREA

DTC No.	DTC Detection Condition	Trouble Area
B1242	The certification ECU (smart key ECU assembly) detects that there is a short in the circuit between terminals RSSI, or between terminals DATA and RDA.	• Door Control Receiver • Wire harness • Certification ECU (Smart key ECU assembly)

WIRING DIAGRAM

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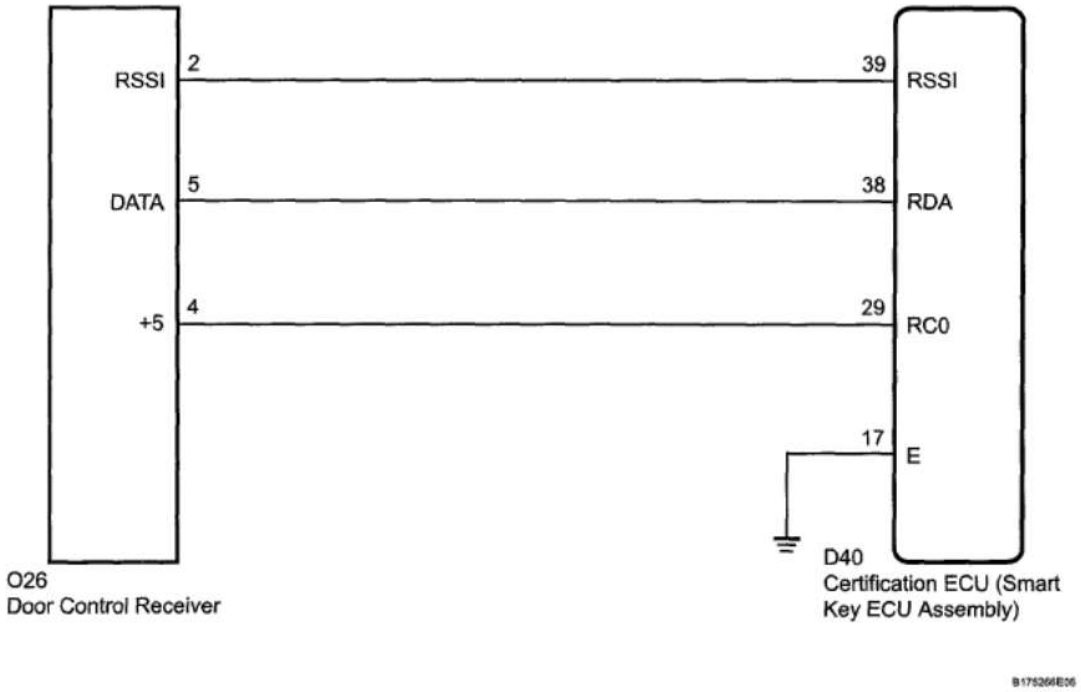


Fig. 48: Wireless Door Lock Tuner Circuit Malfunction - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

1. **CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU - DOOR CONTROL RECEIVER)**
   a. Disconnect the D40 certification ECU (smart key ECU assembly) connector and O26 door control receiver connector.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
D40-39 (RSSI) - O26-2 (RSSI)	Always	Below 1 ohms
D40-38 (RDA) - O26-5 (DATA)	Always	Below 1 ohms
D40-39 (RSSI) - Body ground	Always	10 kohms or higher
D40-38 (RDA) - Body ground	Always	10 kohms or higher

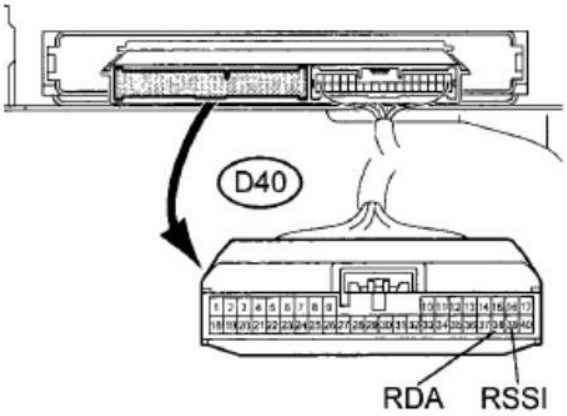
NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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Front view of wire harness connector:
(to Certification ECU (Smart Key ECU Assembly))



Front view of wire harness connector:
(to Door Control Receiver)

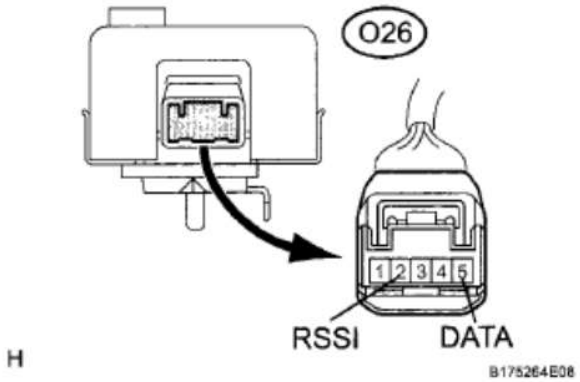


Fig. 49: Identifying D40 Certification ECU (Smart Key Ecu Assembly) And O26 Door Control Receiver Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

2. **INSPECT CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**
   a. Reconnect the D40 certification ECU (smart key ECU assembly) connector.
   b. Measure the voltage according to the value(s) in the table below.

Standard voltage

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STANDARD VOLTAGE SPECIFICATION

Tester Connection	Condition	Specified Condition
D40-39 (RSSI) - D40-17 (E)	Engine switch off, all doors closed, the electrical key is not in the actuation area	Below 1 V
	Engine switch off, all doors closed, the electrical key is in the actuation area	4.6 to 5.4 V
D40-38 (RDA) - D40-17 (E)	Engine switch off, all doors closed and transmitter switch not pressed	Below 1 V
	Engine switch off, all doors closed and transmitter switch pressed	4.6 to 5.4 V

Component with harness connected:
(Certification ECU (Smart Key ECU Assembly))

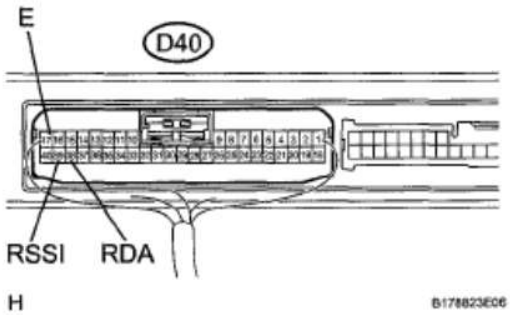


Fig. 50: Identifying D40 Certification ECU (Smart Key ECU Assembly) Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NG: REPLACE DOOR CONTROL RECEIVER (See **REMOVAL**)

OK: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

NO ANSWER-BACK

DESCRIPTION

In some cases, wireless door lock control functions are normal but the hazard warning lights and/or wireless door lock buzzer answer-back function(s) does not operate. In such cases, the certification ECU'S (smart key ECU assembly) hazard warning lights and wireless door lock buzzer signal outputs may be malfunctioning.

NOTE: Troubleshooting should be started after confirming that the customize status of the answer-back function has been switched ON.

WIRING DIAGRAM

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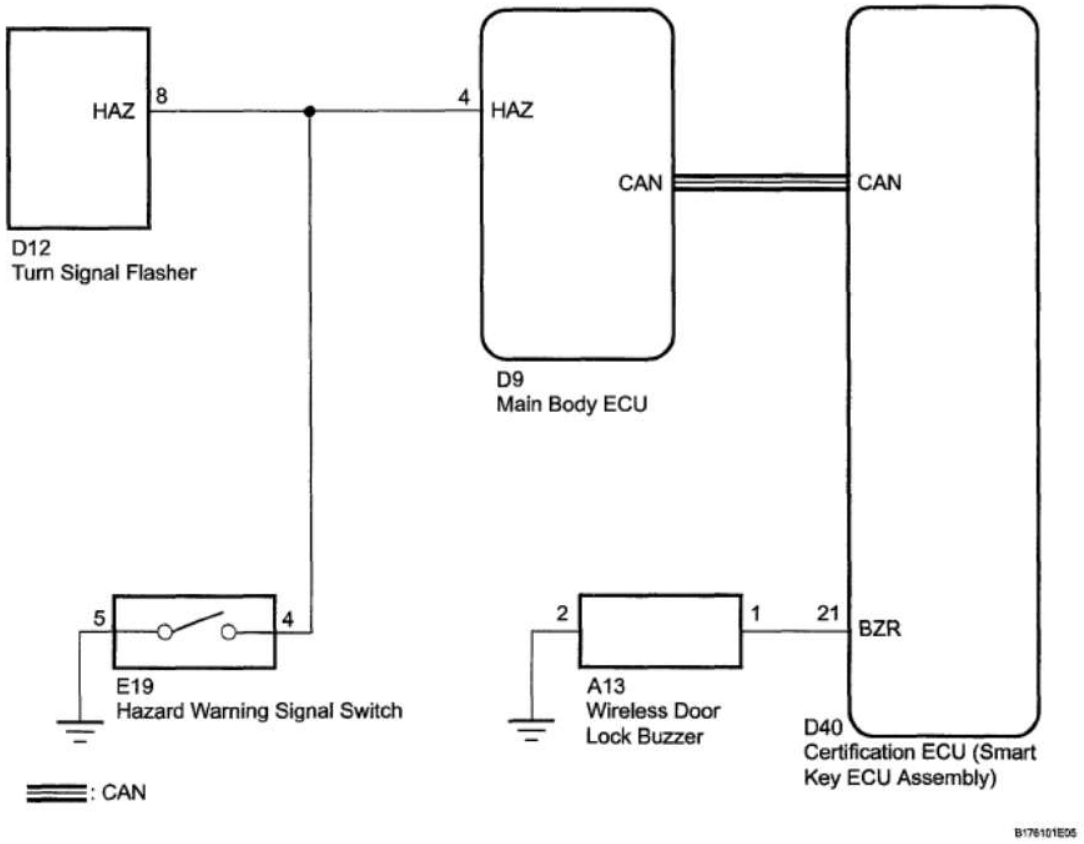


Fig. 51: Hazard Warning Signal Switch - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

1. **CHECK WIRELESS DOOR LOCK CONTROL FUNCTION**
   a. Check the wireless door lock control functions by operating the transmitter switch.

Result

RESULT REFERENCE

Result	Proceed to
Wireless door lock functions are normal but hazard warning lights answer-back does not occur	A
Wireless door lock functions are normal but wireless door lock buzzer answer-back does not occur	B
Doors cannot be locked and unlocked with transmitter	C

B: Go to step 6

C: GO TO FLOWCHART (See **PROBLEM SYMPTOMS TABLE**)

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A: Go to next step.

2. **CHECK HAZARD WARNING LIGHT**
   a. Check that the hazard warning lights flash continuously when the hazard warning signal switch is pressed.

OK: Hazard warning lights flash continuously.

NG: GO TO LIGHTING SYSTEM (See **PROBLEM SYMPTOMS TABLE**)

OK: Go to next step.

3. **PERFORM ACTIVE TEST USING TECHSTREAM (TURN SIGNAL FLASHER)**
   a. Select an Active Test, use Techstream to generate a control command, and then check that the hazard warning lights flash.

Smart Key (Certification ECU (Smart Key ECU Assembly))

TESTER DISPLAY REFERENCE

Tester Display	Test Part	Control Range	Diagnostic Note
Hazard	Turn Signal Flasher	ON/OFF	-

OK: Hazard warning lights are turned ON/OFF.

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step.

4. **REPLACE MAIN BODY ECU**
   a. Replace the main body ECU.
5. **CHECK HAZARD WARNING LIGHTS**
   a. Check that the hazard warning lights flash continuously when the door control transmitter LOCK or UNLOCK switch is pressed.

OK: Hazard warning lights flash continuously.

NG: REPLACE CERTIFICATION ECU (SMART KEY ECU)

OK: REPLACE MAIN BODY ECU

6. **PERFORM ACTIVE TEST USING TECHSTREAM (WIRELESS DOOR LOCK BUZZER)**
   a. Select the Active Test, use Techstream to generate a control command, and then check that the wireless buzzer operate normally.

Main Body

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TESTER DISPLAY REFERENCE

Tester Display	Test Part	Control Range	Diagnostic Note
Wireless Buzzer	Wireless Door Lock Buzzer	ON/OFF	-

OK: Wireless buzzer turns ON/OFF.

NG: Go to step 7

OK: REPLACE CERTIFICATION ECU (SMART KEY ECU)

7. **INSPECT WIRELESS DOOR LOCK BUZZER**
   a. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
1 - 2	Always	950 to 1050 ohms

NOTE:

- **The buzzer circuit is built into the certification ECU (smart key ECU assembly), not into the buzzer itself.**
- **When battery voltage is directly applied to the buzzer, the buzzer does not sound.**

Component without harness connected:
(Wireless Door Lock Buzzer)



Fig. 52: Identifying Wireless Door Lock Buzzer
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NG: REPLACE WIRELESS DOOR LOCK BUZZER (See **REMOVAL**)

OK: Go to next step.

8. **CHECK WIRE HARNESS (WIRELESS DOOR LOCK BUZZER - CERTIFICATION ECU AND BODY GROUND)**
   a. Disconnect the A13 buzzer connector.

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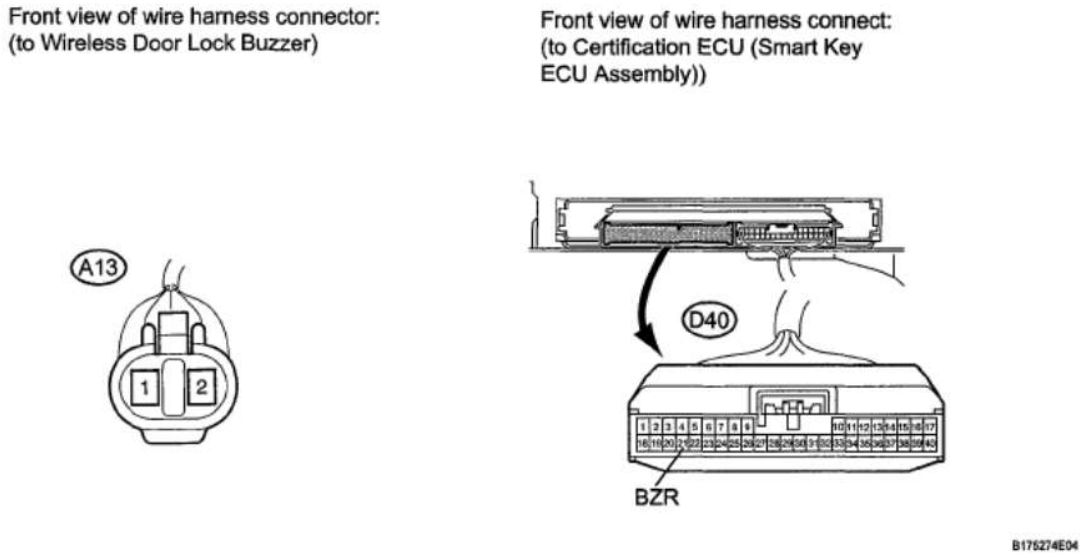


Fig. 53: Identifying A13 Wireless Door Lock Buzzer And D40 Certification ECU Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Disconnect the D40 certification ECU (smart key ECU assembly) connector.
c. Measure the resistance of the wire harness side connectors.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
A13-1 - D40-21 (BZR)	Always	Below 1 ohms
A13-2 - Body ground	Always	Below 1 ohms
A13-1 - Body ground	Always	10 kohms or higher

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: REPLACE CERTIFICATION ECU (SMART KEY ECU)

WIRELESS DOOR LOCK CONTROL SYSTEM (W/O SMART KEY SYSTEM)

PRECAUTION

1. **PRECAUTION FOR DISCONNECTING THE BATTERY CABLE**

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

SYSTEM NAME REFERENCE

System Name	See Procedure

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Power Back Door System **INITIALIZATION**

PARTS LOCATION

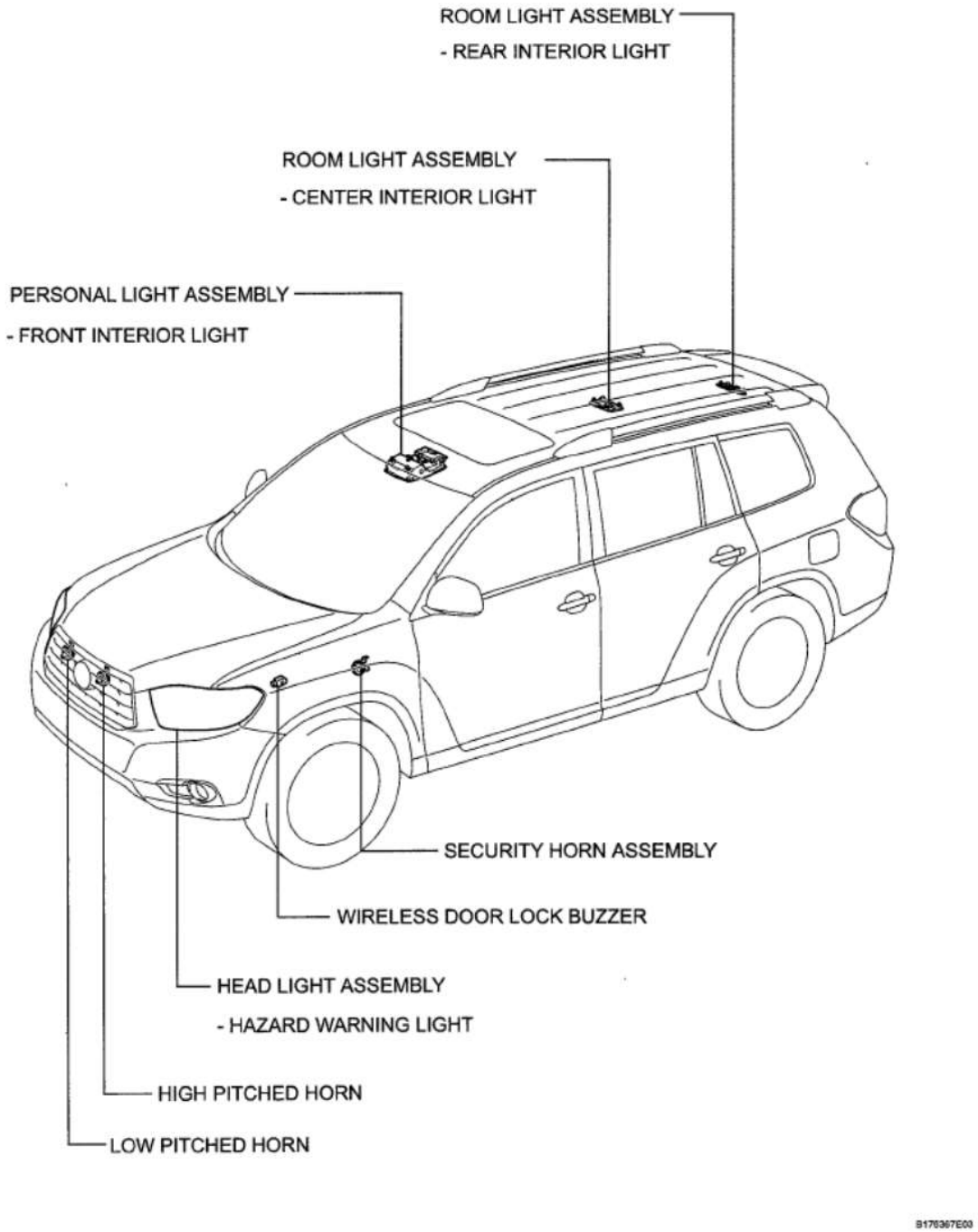


Fig. 54: Identifying Wireless Door Lock Control System (W/O Smart Key System) Parts Location (1 Of 4)

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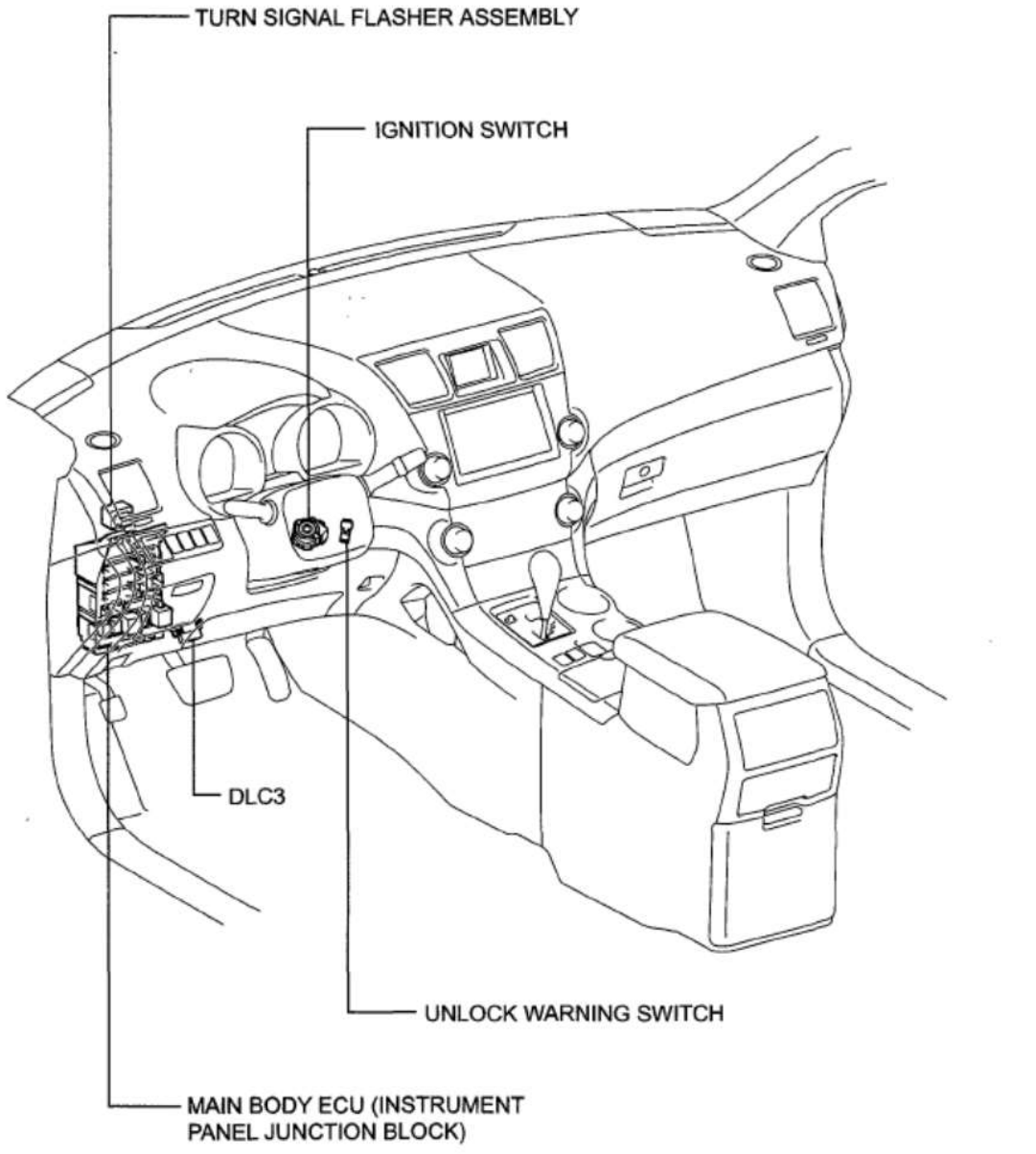


Fig. 55: Identifying Wireless Door Lock Control System (W/O Smart Key System) Parts Location (2 Of 4)
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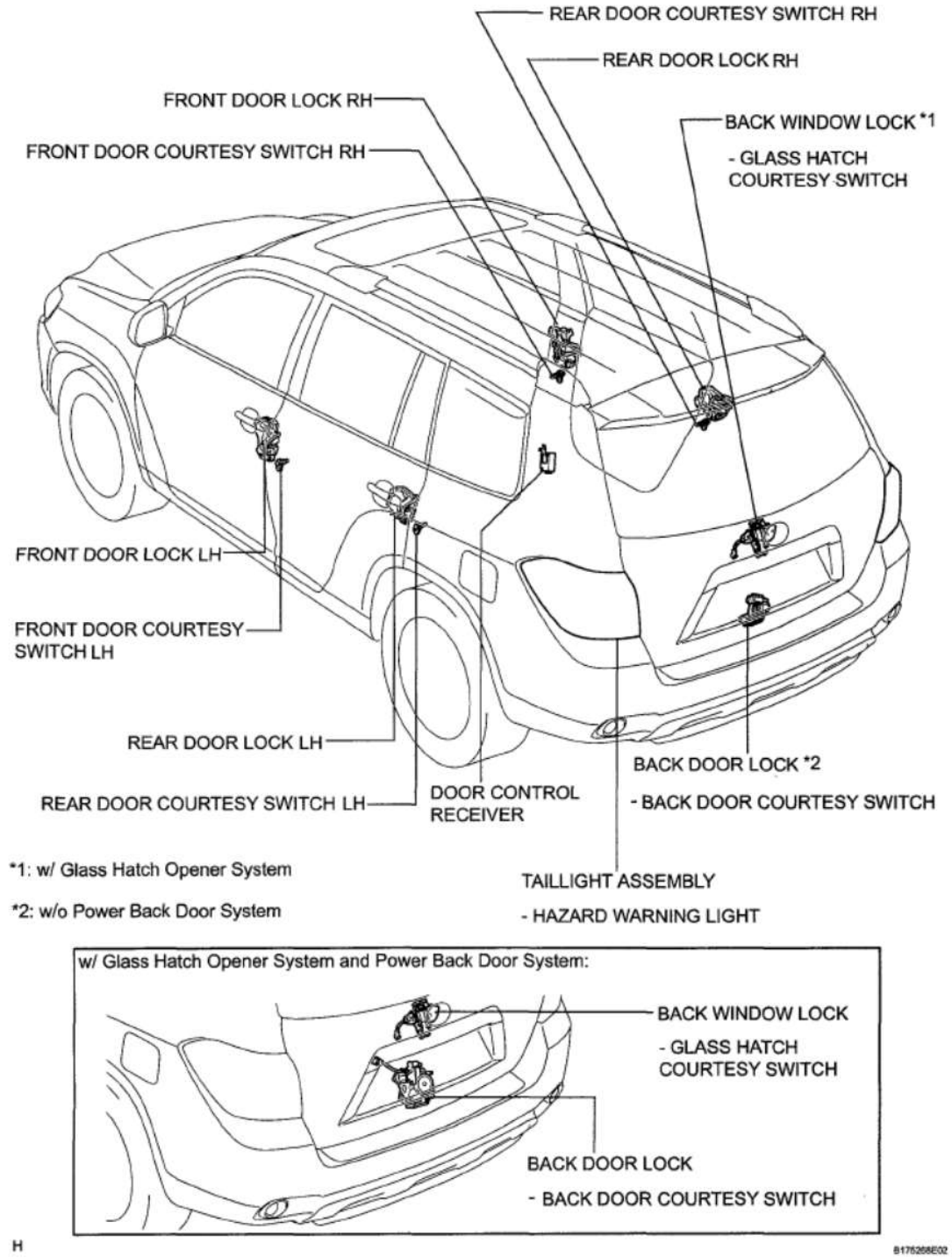


Fig. 56: Identifying Wireless Door Lock Control System (W/O Smart Key System) Parts Location (3 Of 4)

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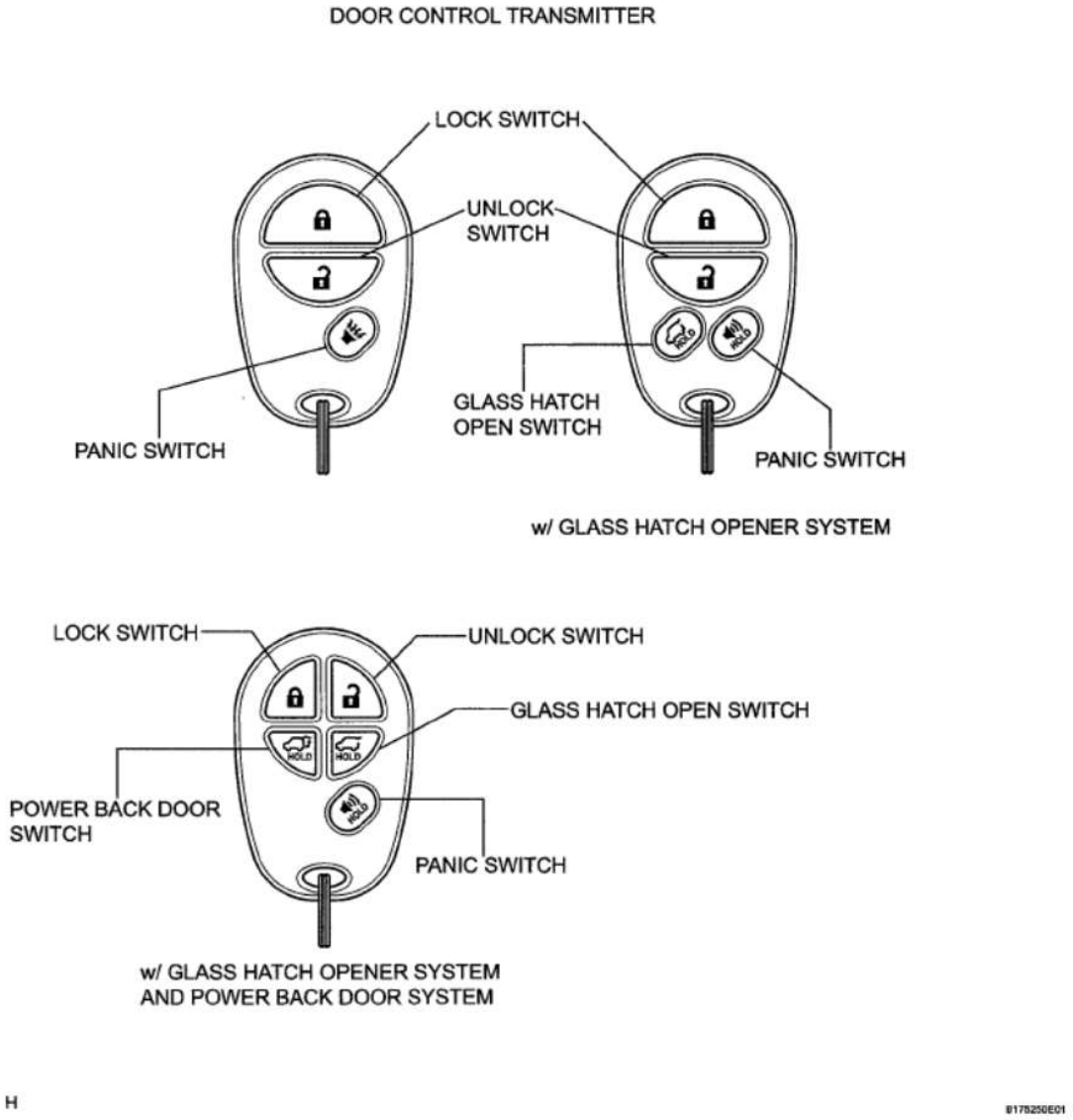


Fig. 57: Identifying Wireless Door Lock Control System (W/O Smart Key System) Parts Location (4 Of 4)

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SYSTEM DIAGRAM

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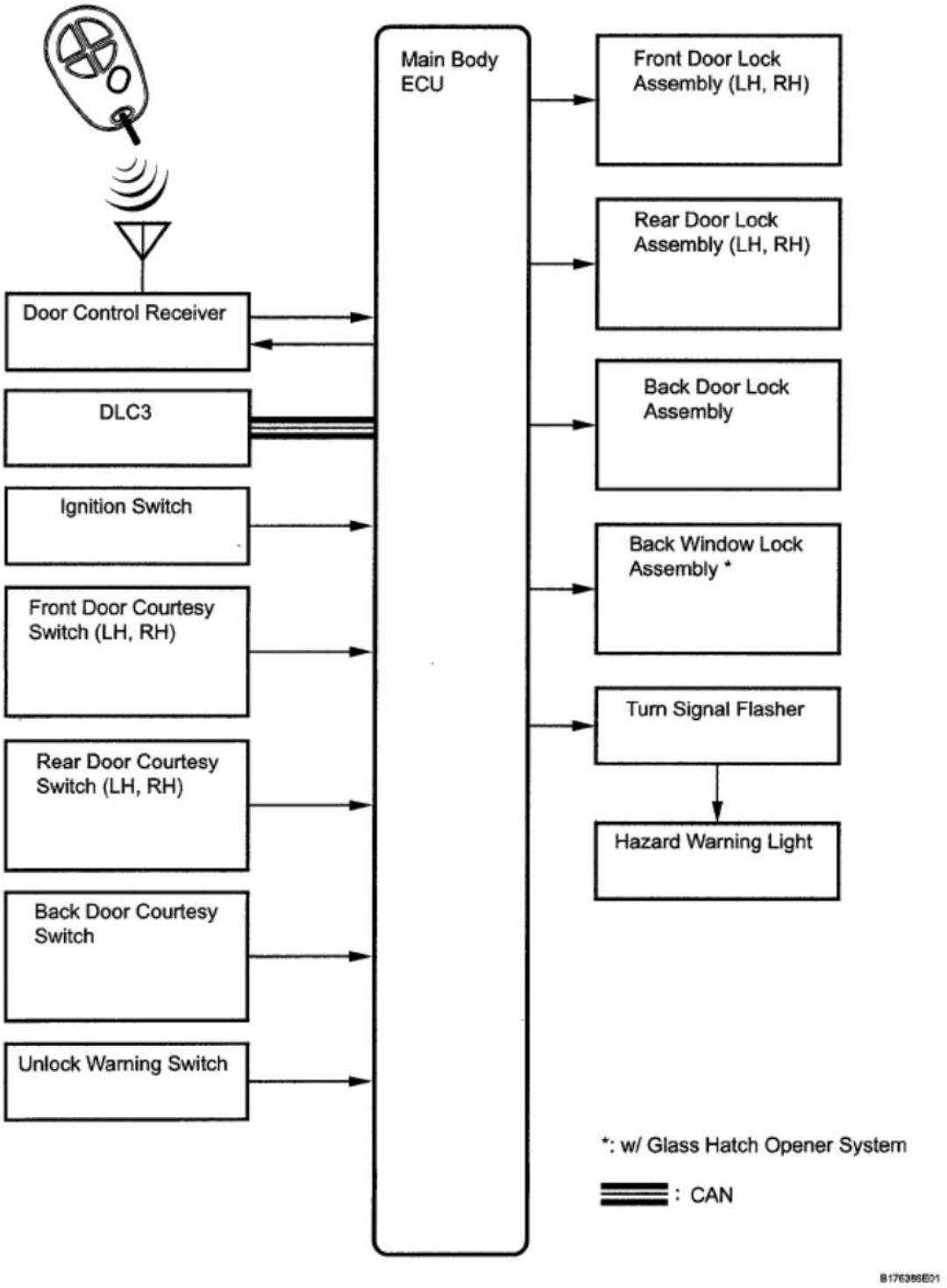


Fig. 58: Wireless Door Lock Control System Diagram (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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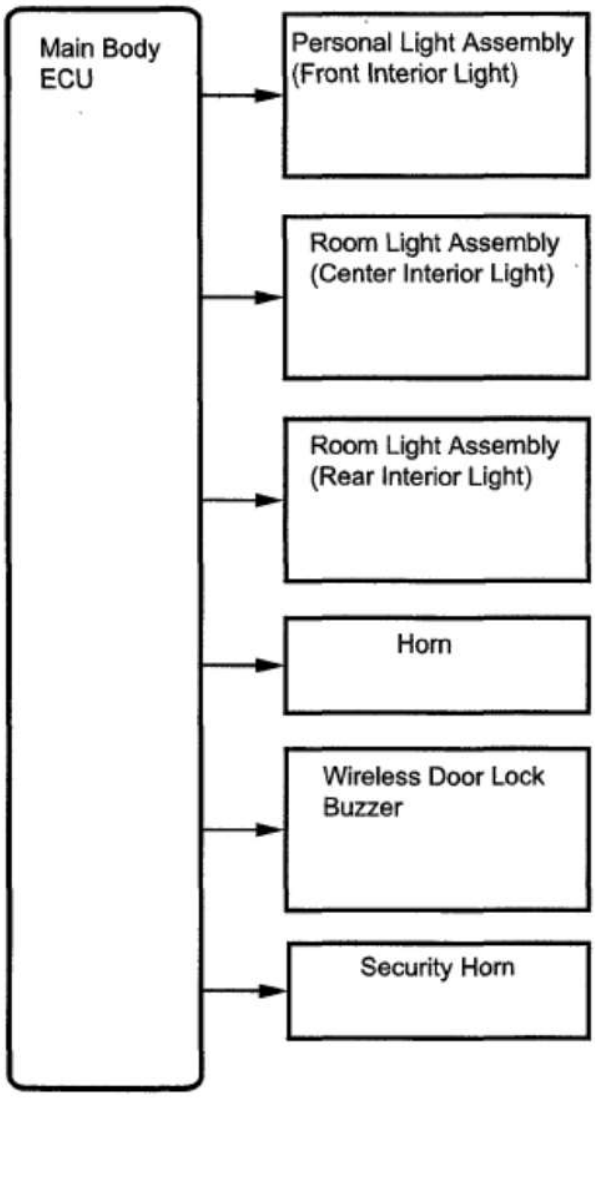


Fig. 59: Wireless Door Lock Control System Diagram (2 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SYSTEM DESCRIPTION

1. WIRELESS DOOR LOCK CONTROL SYSTEM

The wireless door lock control system functions to lock and unlock all the doors from a distance. The system is controlled by a hand-held transmitter which sends radio waves to the door control receiver. The main body ECU performs an ID code identification process and engages the door lock control.

2. FUNCTION OF MAIN COMPONENTS

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MAIN COMPONENTS FUNCTION

Component	Function
Door control transmitter	• Has LOCK, UNLOCK and PANIC switches. • Has LOCK, UNLOCK, PANIC and GLASS HATCH OPEN switches.*1 • Has LOCK, UNLOCK, PANIC, GLASS HATCH OPEN and POWER BACK DOOR switches.*2 • Transmits weak radio waves (recognition codes and function codes) to the door control receiver. • Illuminates the indicator light (LED) during transmission.
Door control receiver	Receives weak radio waves (recognition codes and function codes) and outputs them as code data to the main body ECU.
• Front door courtesy light switch • Rear door courtesy light switch • Back door courtesy light switch	Turns on when a door is opened and turns off when it is closed. Outputs door status codes (open or closed) to the main body ECU.
Unlock warning switch	Detects if the key is inserted in the ignition key cylinder or not.
Door lock position switch	Transmits the door lock positions of each door to the main body ECU.
Main body ECU	Sends wireless door lock control signals in response to the code data from the door control receiver and signals from each switch.
HINT: • *1: w/ Glass Hatch Opener System • *2: w/ Glass Hatch Opener System and Power Back Door System	

3. **SYSTEM FUNCTION**

The door control transmitter has the LOCK, UNLOCK, PANIC, GLASS HATCH OPEN and POWER BACK DOOR switches. Operating these switches activates each function.

The wireless door lock control system has the following functions:

HINT:

The default settings of the following functions are ON. Part of these functions can be customized (See **CUSTOMIZE PARAMETERS**).

OPERATION CHART

Function	Operation
All door lock	Pressing the LOCK switch locks all doors.
All door unlock (2-	Pressing the UNLOCK switch twice within 3 seconds unlocks all the doors after the

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step unlock)	driver's door is unlocked.
Automatic lock	If none of the doors is opened within 60 seconds after they are unlocked by the wireless door lock control, all the doors will lock again automatically.
Panic alarm	Pressing the PANIC switch of the transmitter for longer than about 0.8 seconds causes the following alarms to activate: • Sounds the horn and security horn. • Flashes the hazard lights, headlights, and taillights. • Illuminates the front interior light (when the switch is in the DOOR position). While the panic alarm is operating, pressing any switch of the transmitter cancels the alarm operation.
Glass hatch open operation*1	Pressing the GLASS HATCH OPEN switch of the transmitter for longer than about 0.8 seconds opens the glass hatch.
Power back door open/close operation*2	Pressing the POWER BACK DOOR switch of the transmitter for longer than about 0.8 seconds opens or closes the back door.
Answer back	• When the doors are locked by wireless operation, the hazard warning lights flash once, and wireless door lock buzzer sounds once. • When the doors are unlocked by wireless operation, the hazard warning lights flash twice and wireless door lock buzzer sounds twice. • When the glass hatch is opened by wireless operation, the wireless door lock buzzer sounds once.*1
Door ajar warning	The buzzer sounds when the LOCK switch is pressed when any of the doors are ajar, and it sounds for 10 seconds continuously. The buzzer stops when all doors are closed or the UNLOCK switch is pressed.
Illuminated entry	When all the doors are locked, pressing UNLOCK causes the interior lights to come on simultaneously with the unlock operation.
Self-diagnostic mode	The following are ways to enter the self-diagnostic mode: • If the door control receiver receives normal radio waves from the door control transmitter when the system is in diagnostic mode, it flashes the interior light in a normal pattern that corresponds to the function of each switch. • Read DTCs with Techstream.
Transmitter recognition code registration	Enables the registration (writing and storing) of 6 types of transmitter recognition codes in the EEPROM that is contained in the door control receiver.
HINT: • *1: w/ Glass Hatch Opener System • *2: w/ Power Back Door System	

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4. **TRANSMITTER RECOGNITION CODE REGISTRATION FUNCTION**

The table below shows the 4 ID registration function modes by which up to 6 different codes can be registered. The codes are electronically registered (written and stored) in the EEPROM that is contained in the door control receiver.

TRANSMITTER RECOGNITION CODE REGISTRATION FUNCTION

Mode	Function
Add mode	Adds a newly received code while preserving any previously registered codes. This mode is used when adding a new transmitter. If the number of registered codes exceeds 6, the oldest registered code is erased first.
Rewrite mode	Erases all previously registered codes and registers only newly input codes.
Confirmation mode	Confirms how many codes are currently registered. When adding a new code, this mode is used to check how many codes already exist.
Prohibition mode	Deletes all the registered codes and disables the wireless door lock function. This mode is used when the transmitter is lost.

5. **CONDITIONS THAT WIRELESS FUNCTIONS DO NOT OPERATE**
   a. Lock operation is not available when:
      - Any of the doors is open.
      - The key is inserted in the ignition key cylinder.
   b. Unlock operation is not available when:
      - The key is inserted in the ignition key cylinder.

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

The wireless door lock control system troubleshooting procedures are based on the premise that the power door lock control system is operating normally. Check the power door lock control system first before troubleshooting the wireless door lock control system.

Use this procedure to troubleshoot the wireless door lock control system.

1. **VEHICLE BROUGHT TO WORKSHOP**
2. **CUSTOMER PROBLEM ANALYSIS**
   a. Interview the customer to confirm the trouble (See **HOW TO PROCEED WITH TROUBLESHOOTING**).
3. **DTC CHECK**
   a. Check for a DTC and note any codes that are output.
   b. Delete the DTC.
   c. Recheck for DTCs. Try to prompt the DTC by simulating the original symptom that the DTC suggests.

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Result

RESULT REFERENCE

Result	Proceed to
DTC does not recur	A
DTC recurs	B

B: Go to DTC CHECK/CLEAR (See **DIAGNOSIS SYSTEM**)

A: Go to next step.

4. **SYMPTOM SIMULATION**
5. **PROBLEM SYMPTOMS TABLE**
   a. If the fault is not listed in the problem symptoms table, proceed to A.
   b. If the fault is listed in the problem symptoms table, proceed to B.

B: Go to step 8

A: Go to next step.

6. **PERFORM TROUBLESHOOTING ACCORDING TO MALFUNCTION SYMPTOM**
   a. Terminals of ECU (See **TERMINALS OF ECU**)
   b. DATA LIST/ACTIVE TEST (See **DATA LIST/ACTIVE TEST**)
7. **ADJUST, REPAIR OR REPLACE**
8. **CONFIRMATION TEST**

NEXT: END

OPERATION CHECK

1. **FUNCTIONS AND OPERATING CONDITIONS**
   a. The wireless door LOCK/UNLOCK function: The wireless door lock control function operates only when the following 3 conditions are met:
      1. There is no key in the ignition key cylinder.
      2. All the doors are closed.
      3. The power door lock system operates normally.

      HINT:

      The UNLOCK function operates even when a door is open.

   b. The power back door open function (w/ Power Back Door System):

      The wireless door lock control function operates only when the following 4 conditions are met:

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1. There is no key in the ignition key cylinder.
2. The power back door main switch is ON (switch free: orange paint on the top of the switch appears).
3. The back door is between the fully closed position and the half-open position (When the door is in the fully closed position, the door will be unlocked).
4. The power back door system operates normally.

c. The power back door close function (w/ Power Back Door System):

The wireless door lock control function operates only when the following 4 conditions are met:

1. There is no key in the ignition key cylinder.
2. The power back door main switch is ON.
3. The back door is between the half-open position and the fully open position.
4. The power back door system operates normally.

d. The glass hatch open function (w/ Glass Hatch Opener System):

The wireless door lock control function operates only when the following 3 conditions are met:

1. There is no key in the ignition key cylinder.
2. The glass hatch is in the fully closed position.
3. The glass hatch system operates normally.

e. The remote panic function:

The wireless door lock control function operates only when the following condition is met:

1. The ignition key is turned off.

HINT:

The key can be inserted, however it must be in the off position.

f. The wireless transmitter operational range differs depending on the situation.
   1. The operational range differs depending on the user, the way the transmitter is held, and the location.
   2. In certain areas, the operational range will be reduced due to the vehicle body shape and the influence of the surrounding environment.
   3. Since the transmitter uses weak radio waves, the operational range may be reduced or the transmitter may not function if interference or stronger radio waves occur in the area where the transmitter is used.
   4. When the battery is low, the operational range is reduced and/or the transmitter may not function.

HINT:

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If the transmitter has been left in a place that is exposed to direct sunlight, such as on the instrument panel, the battery may be weakened or other problems may occur.

2. **CHECK WIRELESS DOOR LOCK CONTROL FUNCTIONS**

HINT:

- The switches built into the door control transmitter send radio waves to the door lock control receiver.
- The operational range must be taken into account during checks.

a. Establish conditions that allow the wireless control function to be operated successfully.

b. Check basic functions.

1. Check whether the LED of the transmitter illuminates 3 times when each switch is pressed 3 times.

   HINT:

   If the LED does not illuminate when the switch has been pressed 3 times or more, it may have a dead battery.

2. Check that all the doors lock when the LOCK switch is pressed.
3. Check that only the driver side door unlocks when the UNLOCK switch is pressed once and that the other doors unlock when the UNLOCK switch is pressed again within 3 seconds.
4. Check that the power back door opens or closes when the POWER BACK DOOR switch is held down for 1 second or more (w/ Power Back Door System).
5. Check that the power back door reverses right when the POWER BACK DOOR switch is pressed while the door is automatically moving (no delay) (w/ Power Back Door System).
6. Check that the glass hatch opens when the GLASS HATCH switch is held down for 0.8 seconds (w/ Glass Hatch Opener System).

c. Check the chattering prevention function.

1. Check that the corresponding operation occurs only once and is not repeated continuously while the switch is held. However, when the switch is operated repeatedly at 1 second intervals, check that the corresponding operation is carried out.

d. Check the automatic lock function.

1. Check that if all doors are unlocked with the UNLOCK switch and none of the doors is opened or locked within approximately 60 seconds, the doors automatically re-lock.
2. Check that if all doors are unlocked with the UNLOCK switch and a door is opened or locked within approximately 60 seconds, the automatic lock function does not operate.

e. Check the switch operation fail-safe function.

1. Check that the doors cannot be locked or unlocked by operating a switch on the unregistered transmitter, and that the doors are locked and unlocked by operating a switch on the registered transmitter.

f. Check the door ajar warning function.

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1. Check that the wireless door lock buzzer sounds for approximately 10 seconds when the LOCK switch is pressed with any of the doors ajar or open.

g. Check the repeat function.

1. Check that all the doors attempt to automatically lock once again 1 second after the LOCK switch has been pressed while the movement of the driver side door control knob, which is in the unlocked state, is being restricted.

h. Check the answer-back function.

1. When the LOCK switch is pressed, check that the lights flash once and the buzzer sounds once, simultaneously with the locking operation of all the doors.
2. When the UNLOCK switch is pressed once, check that the lights flash twice and the buzzer sounds twice, simultaneously with the unlocking operation of the driver side door.
3. When the UNLOCK switch is pressed again within 3 seconds, check that the lights flash twice and the buzzer sounds twice, simultaneously with the unlocking operation of all the doors.
4. When the GLASS HATCH OPEN switch is held down for 0.8 seconds or more, check that the buzzer sounds once, simultaneously with the opening operation of the glass hatch.

i. Check the remote panic function.

1. Check that the horn sounds, the headlights and taillights flash and the interior light remains on (when the light switch is turned to the DOOR position) for 60 seconds by the theft alarm function, when the PANIC switch is held down for 0.8 seconds or more. Also, check that the horn stops sounding and the lights stop flashing when either switch of the transmitter is pressed.

j. Check the interior light ON function.

HINT:

Turn the interior light switch to the DOOR position before the check.

1. Check that the interior light comes on simultaneously with the unlocking operation when the UNLOCK switch has been pressed.
2. Check that the interior light goes off in approximately 15 seconds if none of the doors are opened after the unlocking operation.

REGISTRATION

HINT:

- Register the recognition code when replacing the door control transmitter or the door control receiver.
- Add mode is used to retain the already registered codes while registering a new recognition code. This mode is used when adding a transmitter. If the number of registered codes exceeds 6, the previously registered code will be correspondingly erased in order, starting from the code registered first.
- Rewrite mode is used to erase all the previously registered codes and register only new recognition codes. This mode is used when exchanging the transmitter or the door control receiver for new one.
- Confirmation mode is used to confirm how many recognition codes have already been registered before

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an additional registration of a recognition code.

- Prohibition mode is used to erase all the registered codes and cancel the wireless door lock function. Use this mode when the transmitter is lost.
- All the following registration procedures must be performed in order continuously.

1. **REGISTRATION OF RECOGNITION CODE (USING TECHSTREAM)**

HINT:

For detailed procedures, refer to the prompts on the tester screen. The number of currently registered codes can be checked out on the first screen of the WIRELESS REGIST.

a. Turn the ignition switch to the ON position.
b. Enter the following menus: Body Electrical/Main Body/Wireless Registration.
c. Press both LOCK and UNLOCK switches within 1 to 1.5 seconds.
d. Press either switch for more than 1 second within 3 seconds.
e. Check the response to the registration completion.

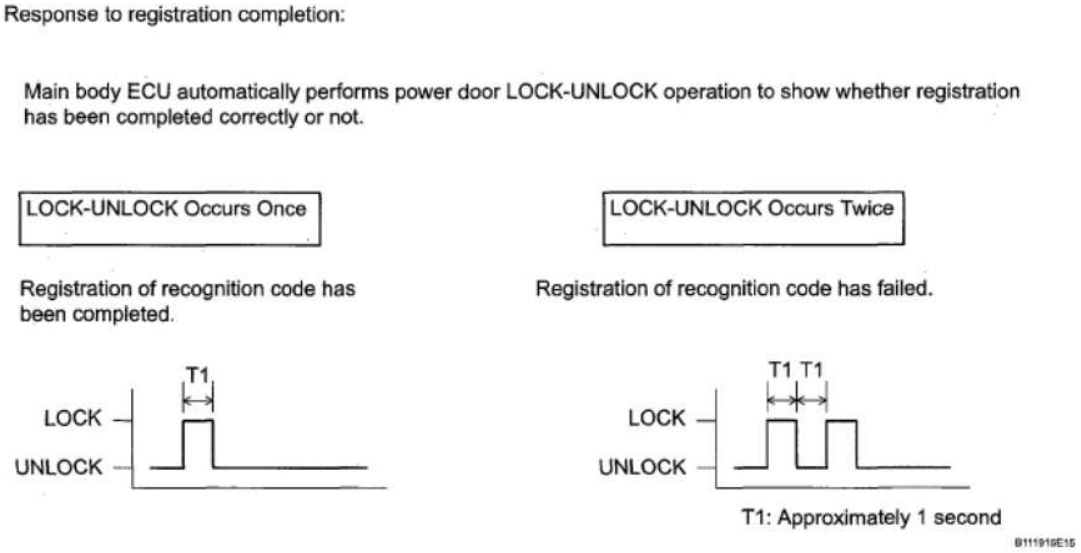


Fig. 60: Lock And Unlock Switches Blinking Pattern
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

- If the LOCK-UNLOCK operation occurs twice, the registration of recognition code has failed. Perform the registration procedures again from the beginning.
- If registering another transmitter, repeat the procedures after the tester operation. All 6 recognition codes can be registered consecutively.

f. Perform either of the following to complete the registration of recognition codes:

- Use Techstream to send completion command.

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- Disconnect Techstream.

2. **REGISTER RECOGNITION CODE (USING SWITCH OPERATION)**

a. The following conditions should be met.

- No key in the ignition key cylinder.
- The driver side door is open (the other doors are closed).
- The driver side door is unlocked.

b. Insert and remove the key into/from the ignition key cylinder twice (Insert --> Remove --> Insert --> Remove) within 5 seconds.

HINT:

The procedure should end with the key removed.

c. Perform the following operations within 40 seconds.

1. Close and open the driver side door twice (Close --> Open --> Close --> Open).

HINT:

The procedure should end with the door open.

2. Insert and remove the key into/from the ignition key cylinder (Insert --> Remove).

HINT:

The procedure should end with the key removed.

3. Close and open the driver side door twice (Close --> Open --> Close --> Open).

HINT:

The procedure should end with the door open.

4. Insert the key into the ignition key cylinder and close all doors.

d. Perform the following operations within 40 seconds.

1. Turn the ignition switch from ON to OFF at approximately 1 second intervals, operate the ignition switch according to the number of times shown below.

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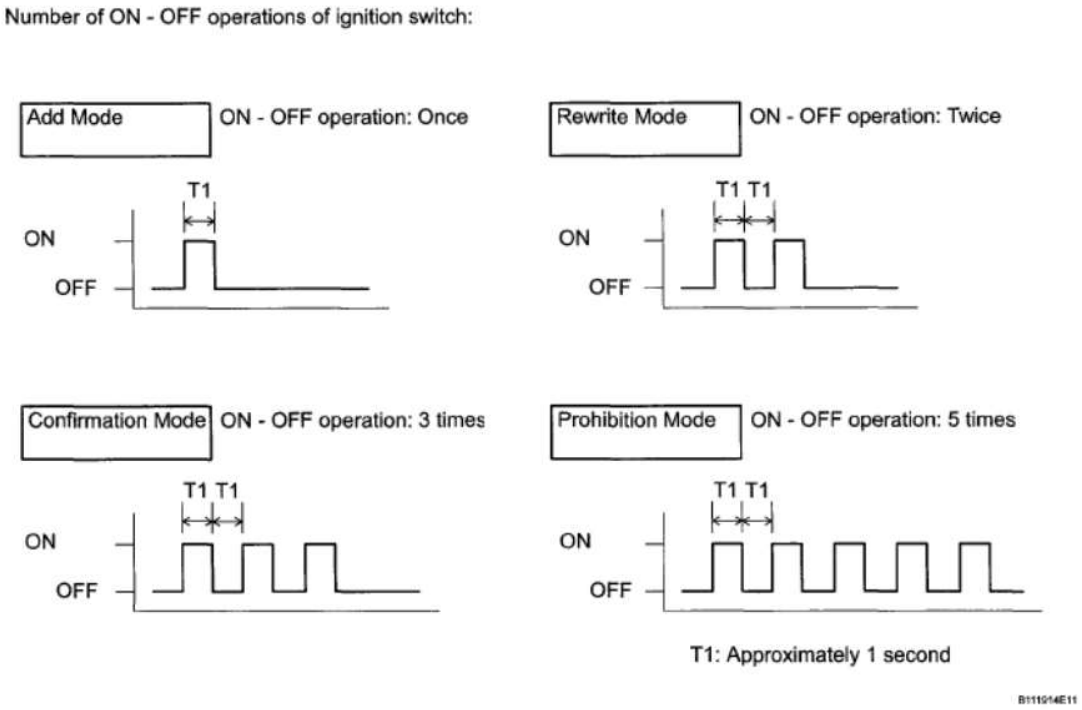


Fig. 61: Ignition Switch Blinking Pattern
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

If the number of ignition switch ON - OFF operations is 0, 4, 6 or more, there will be no response (the power door lock and unlock operation) to show which mode has been selected.

2. Remove the key from the ignition key cylinder.

e. Check the response of the selected mode within 5 seconds.

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Response to selected mode (power door lock operation):

Main body ECU automatically performs power door LOCK-UNLOCK operations to indicate which mode has been selected.

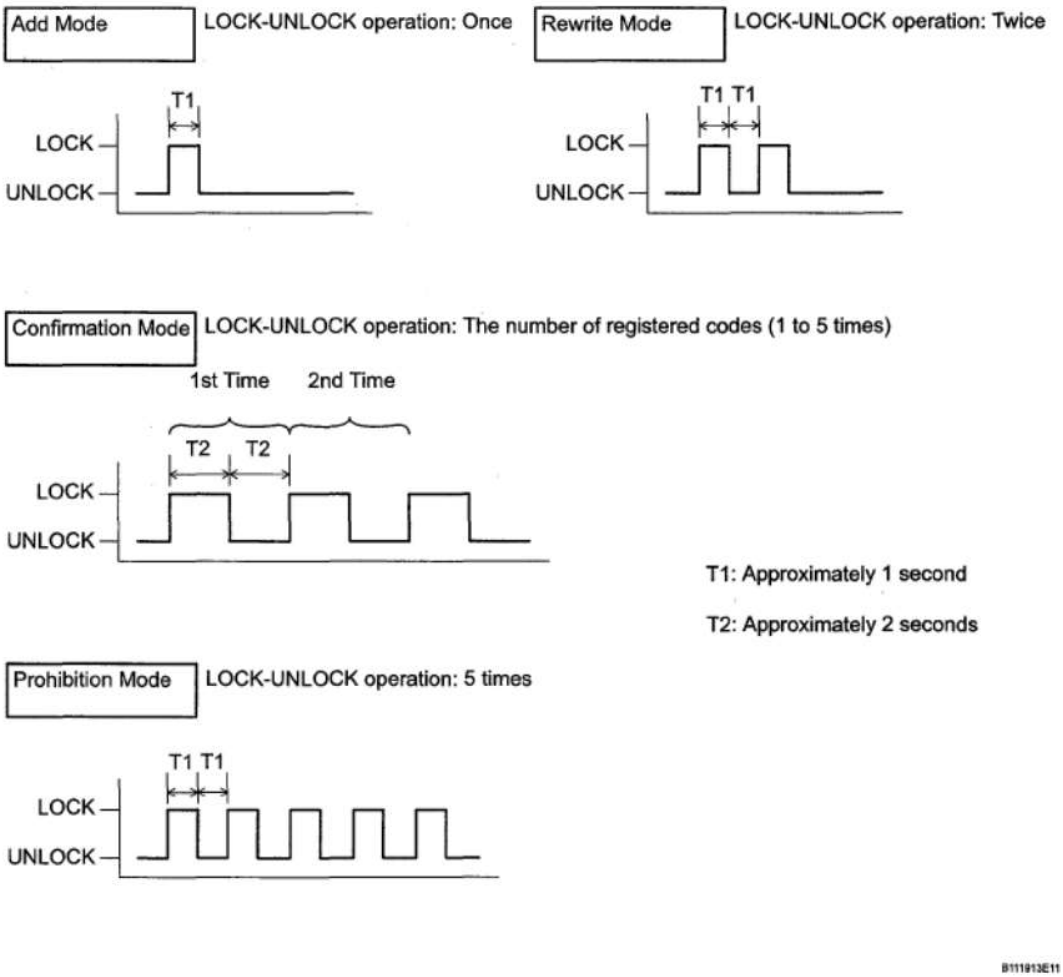


Fig. 62: Power Door Lock-Unlock Operation Chart
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: After the system has been set to the prohibition mode, enter the confirmation mode and check that the number of registered keys is 0.

HINT:

- In the confirmation mode, LOCK-UNLOCK operation will occur once for each recognition code that has been registered. For example, if 2 recognition codes have been registered, LOCK-UNLOCK operation will occur twice.
- In the confirmation mode, if no recognition codes have been registered, LOCK-UNLOCK operation will occur 5 times.

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- If confirmation mode or prohibition mode is selected, the operation ends after the response to the selected mode completes.

f. Within 40 seconds of completing the confirmation mode operation, press the LOCK and UNLOCK switches on the transmitter simultaneously.

g. After completing the above step, press a single switch (LOCK or UNLOCK) within 5 seconds.

h. After completing the above step, check the response to the registration completion within 3 seconds.

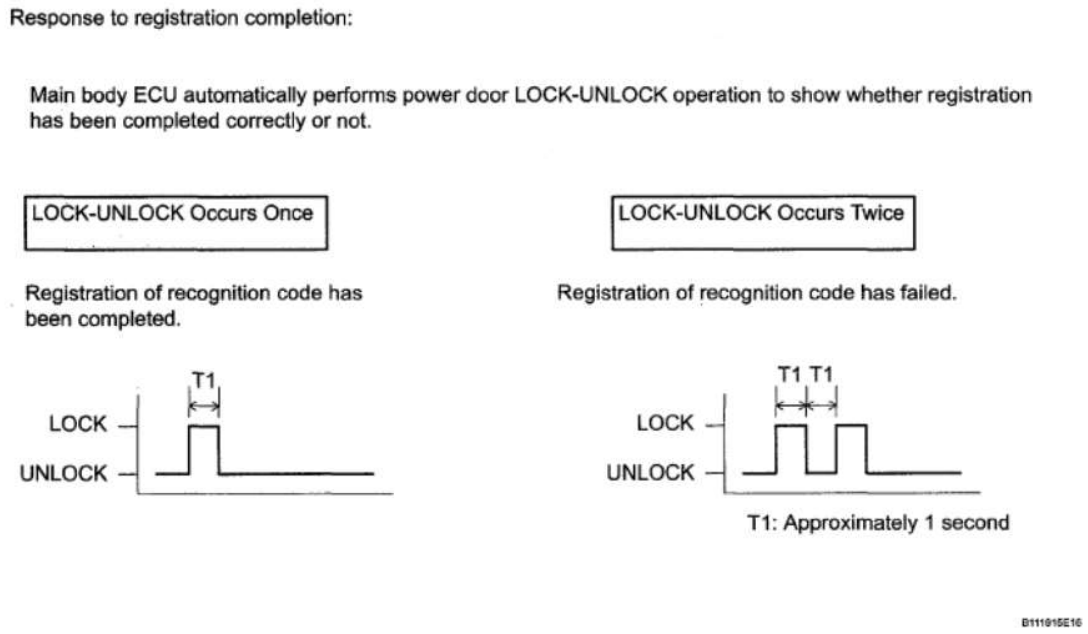


Fig. 63: Power Door Lock-Unlock Operation Chart
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

- If the LOCK-UNLOCK operation occurs twice, the registration of recognition code has failed. Perform registration procedures again from the beginning.
- If registering another transmitter, repeat the procedures after the response to the selected mode confirmation. All 6 recognition codes can be registered consecutively.

i. Perform either of the following to complete the registration of recognition codes:
- Open the door.
- Insert the key into the ignition key cylinder.

CUSTOMIZE PARAMETERS

HINT:

The following items can be customized.

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NOTE:

- **After confirming whether the items requested by the customer are applicable or not for customization, perform customizing operations.**
- **Be sure to record the current settings before customization.**
- **When troubleshooting, make sure that the item in question is not set to "OFF" as a result of customization (Example: For the system, "the wireless function does not operate", first check that the wireless function is not set to "OFF", then perform troubleshooting).**

1. **CUSTOMIZE**
   a. Connect Techstream to the DLC3.
   b. Turn the ignition switch to the ON position.
   c. Turn the tester on.
   d. Enter the following menus: Select: Customize Setting /
   e. Select the setting by referring to the table below.

Wireless Door Lock

TROUBLESHOOTING CHART

Display (Item)	Default	Contents	Setting
Wireless Control	ON	ON/OFF of wireless door lock function	ON/OFF
Hazard Answer Back	ON	When LOCK switch on transmitter pressed, all hazard warning lights illuminate once. When UNLOCK switch pressed, all hazard warning lights illuminate twice	ON/OFF
Wireless Buzzer Resp	ON	Function that makes wireless buzzer sound for answer-back when transmitter LOCK/UNLOCK switch pressed	ON/OFF
Wireless Auto Lock	ON	Function to control automatic relocking of doors after unlocking with wireless door lock function.	ON/OFF
Open Door Warning	ON	If door is not completely closed and transmitter LOCK switch is pressed, this function sounds a buzzer for 10 seconds	ON/OFF
Unlock 2 Operation	ON	Function that unlocks driver side door when unlock switch on transmitter is pressed once, and unlocks all doors when pressed twice. If setting is OFF, pressing unlock switch once makes all doors unlock.	ON/OFF
Panic Function	ON	This function operates the theft deterrent system when PANIC is pressed and held for 0.8 second or more.	ON/OFF
Auto Lock Time	60s	This function controls amount of time from unlocking doors to automatic re-locking function.	30s/60s/120s
			1tim ON: Push once 2tim ON: Push twice Long 1: Push and

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Wireless Glass Hatch Open*	Long 1	This function changes operation method of transmitter to glass hatch.	hold for 0.6 seconds Long 2: Push and hold for 0.8 seconds Prohibit: Does not operate
HINT: *: w/ Glass Hatch Opener System			

PROBLEM SYMPTOMS TABLE

If a normal system code is displayed during the DTC check, but the problem still occurs, check the circuits for each problem symptom in the order given in the table below and proceed to the relevant troubleshooting page.

HINT:

- The following is the troubleshooting procedure for the wireless door lock control of a vehicle with the smart key system.
- For the troubleshooting procedure for the wireless door lock control of a vehicle with the smart key system, refer to the **WIRELESS DOOR LOCK CONTROL SYSTEM (W/ SMART KEY SYSTEM)**.
- Inspect the fuse and relay before investigating the suspected areas shown in the table below.
- Use the table below to help determine the cause of a problem. The likely causes of the problem are indicated in descending order. Check each suspected area in order. Repair or replace faulty parts or perform adjustments as necessary.

WIRELESS DOOR LOCK CONTROL SYSTEM:

PROBLEM SYMPTOMS CHART

Symptom	Suspected Area	Refer to
Only wireless control function is inoperative	Door control transmitter	**INSPECTION**
	Transmitter battery	**INSPECTION**
	Main body ECU	-
	Door control receiver	-
	Unlock warning switch	**INSPECTION**
	Wire harness or connector	-
Answer-back function does not operate normally.	Lighting system	**PROBLEM SYMPTOMS TABLE**
	Main body ECU	-
	Wire harness or connector	-
	Wireless door lock buzzer	**REMOVAL**
	Perform the operation check	**OPERATION CHECK**
	Unlock warning switch circuit	**KEY REMINDER BUZZER DOES NOT**

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The automatic lock function does not operate normally.		**SOUND**
	Door courtesy switch circuit	**DOOR COURTESY SWITCH CIRCUIT**
	If the symptoms still occur after the above areas have been inspected and proved to be normal, replace the main body ECU (Instrument Panel junction block)	-
The illuminated entry function only does not operate.	Perform the operation check	**OPERATION CHECK**
	Lighting system	**PROBLEM SYMPTOMS TABLE**
	If the symptoms still occur after the above area has been inspected and proved to be normal, replace the main body ECU (Instrument Panel junction block)	-
The answer back function does not operate (Hazard warning light).	Perform the operation check	**OPERATION CHECK**
	Wire harness or connector	-
	Turn signal flasher assembly	**NO ANSWER-BACK**
	If the symptoms still occur after the above areas have been inspected and proved to be normal, replace the main body ECU (Instrument Panel junction block)	-

TERMINALS OF ECU

1. **CHECK MAIN BODY ECU**
   a. Disconnect the main body ECU connector.

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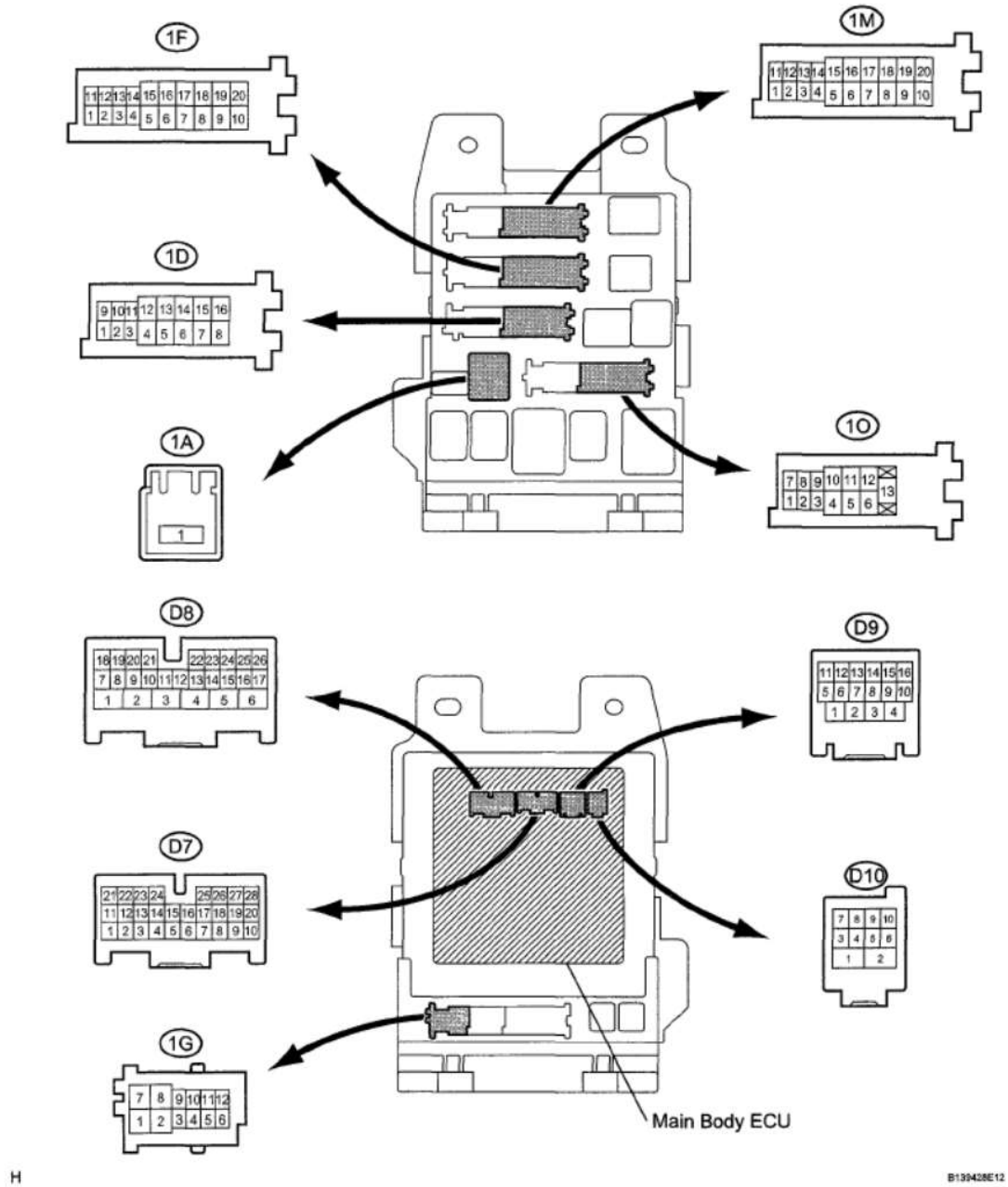


Fig. 64: Identifying Main Body ECU Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Measure the resistance and voltage between each terminal of the wire harness side connectors and body ground.

CONNECTOR TERMINAL REFERENCE

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
1A-1 (ACC) -	B - Body	Ignition power supply	Ignition switch ACC -->	10 to 14 V -->

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Body ground	ground	(ACC signal)	OFF	Below 1 V
1A-1 (IG) - Body ground	B - Body ground	Ignition power supply (IG signal)	Ignition switch ON --> OFF	10 to 14 V --> Below 1 V
1D-10 (BECU) - Body ground	W - Body ground	+B power supply	Always	10 to 14 V
1D-16 (ALTB) - Body ground	W - Body ground	+B (power system alternator system) power supply	Always	10 to 14 V
D8-24 (DCTY) - Body ground	G - Body ground	Driver side door courtesy light switch input	Driver side door CLOSED (OFF) --> OPEN (ON)	10 kohms or higher --> Below 1 ohms
D7-21 (PCTY) - Body ground	SB - Body ground	Passenger side courtesy light switch input	Passenger side door CLOSED (OFF) --> OPEN (ON)	10 kohms or higher --> Below 1 ohms
D7-7 (RCTY) - Body ground*1	GR - Body ground	Rear courtesy light switch RH input	Rear door RH CLOSED (OFF) --> OPEN (ON)	10 kohms or higher --> Below 1 ohms
D7-5 (RCTY) - Body ground*2	GR - Body ground	Rear courtesy light switch RH input	Rear door RH CLOSED (OFF) --> OPEN (ON)	10 kohms or higher --> Below 1 ohms
1O-7 (LCTY) - Body ground	B - Body ground	Rear courtesy light switch LH input	Rear door LH CLOSED (OFF) --> OPEN (ON)	10 ohms or higher --> Below 1 ohms
D7-25 (BCTY) - Body ground	L - Body ground	Back door courtesy light switch input	Back door CLOSED (OFF) --> OPEN (ON)	10 kohms or higher --> Below 1 ohms
D10-5 (KSW) - Body ground	GR - Body ground	Unlock warning switch input	No key in ignition key cylinder (OFF) --> Key inserted (ON)	10 kohms or higher --> Below 1 ohms
1F-10 (GND1) - Body ground	W-B - Body ground	Ground	Always	Below 1 ohms
1M-9 (GND2) - Body ground	W-B - Body ground	Ground	Always	Below 1 ohms
HINT: • *1: w/ Power Back Door System • *2: w/o Power Back Door System				

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

c. Reconnect the main body ECU (instrument panel junction block) connectors.

d. Measure the voltage between each terminal of the wire harness side connectors and body ground.

CONNECTOR TERMINAL REFERENCE

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Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
D7-1 (TR+) - Body ground*3	LG - Body ground	Back door opener motor input	Back door CLOSED (LOCKED) --> OPEN (UNLOCKED)	Below 1 V --> 10 to 14 V*1
D9-4 (HAZ) - Body ground	O - Body ground	Turn signal flasher relay signal	Any transmitter switch is pressed --> not pressed	Below 1 V --> Pulse generation*2
D10-7 (BZR) - Body ground	R - Body ground	Wireless door lock buzzer	Wireless door lock buzzer OFF --> ON	Below 1 V --> 10 to 14 V
HINT: • *1: When operating the motor. • *2: When operating the answer back function. • *3: w/o Power Back Door System				

DIAGNOSIS SYSTEM

1. **DESCRIPTION**

   The ECU stores trouble codes when trouble occurs on the vehicle.

   The diagnostic system allows for reading of the trouble codes from the DLC3.

   Use Techstream to check and solve the problem.

2. **CHECK DLC3**
   a. Check the DLC3 (See **HOW TO TROUBLESHOOT ECU CONTROLLED SYSTEMS**).

DTC CHECK/CLEAR

1. **DTC CHECK/CLEAR (USING TECHSTREAM)**
   a. DTC check
      1. Connect Techstream to the DLC3.
      2. Turn the ignition switch to the ON position.
      3. Read DTCs on the tester screen.
   b. DTC clear
      1. Connect Techstream to the DLC3.
      2. Turn the ignition switch to the ON position.
      3. Clear the DTCs following the prompts on the tester screen.

   HINT:

   Techstream has a SNAPSHOT function which records the monitored data.

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Refer to the Techstream operator's manual for further details.

2. **SELF-DIAGNOSTIC MODE (OPERATING IGNITION KEY CYLINDER)**
   a. Switch to self-diagnostic mode.
      1. Insert the key into the ignition key cylinder and remove it.
      2. Within 5 seconds after the key is removed, insert it into the ignition key cylinder and then Turn the ignition switch to the ON position then OFF 1 time. (End in OFF)
      3. Within 30 seconds of turning the ignition switch OFF, perform the following 9 times: Turn the ignition switch to the ON position then OFF. (End in OFF)

   HINT:

   Turning the ignition switch to the ON position after the procedure above has been completed will end the self-diagnostic mode.

   NOTE: If the system fails to enter the self-diagnostic mode, the system will return to normal mode.

   b. Check that the system has switched to self-diagnostic mode by checking the flashes of the interior light.
   c. Check the diagnostic outputs when the door control transmitter switch is held down. The diagnostic outputs can be checked by the flashes of the interior light.

Interior Light Output:

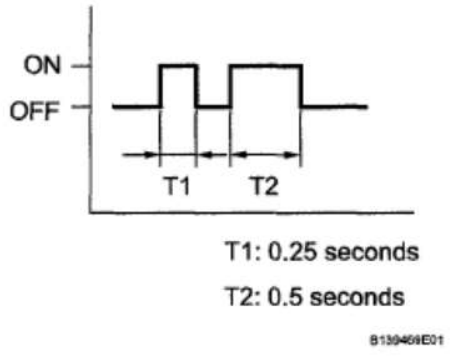


Fig. 65: Interior Light Output Blinking Pattern
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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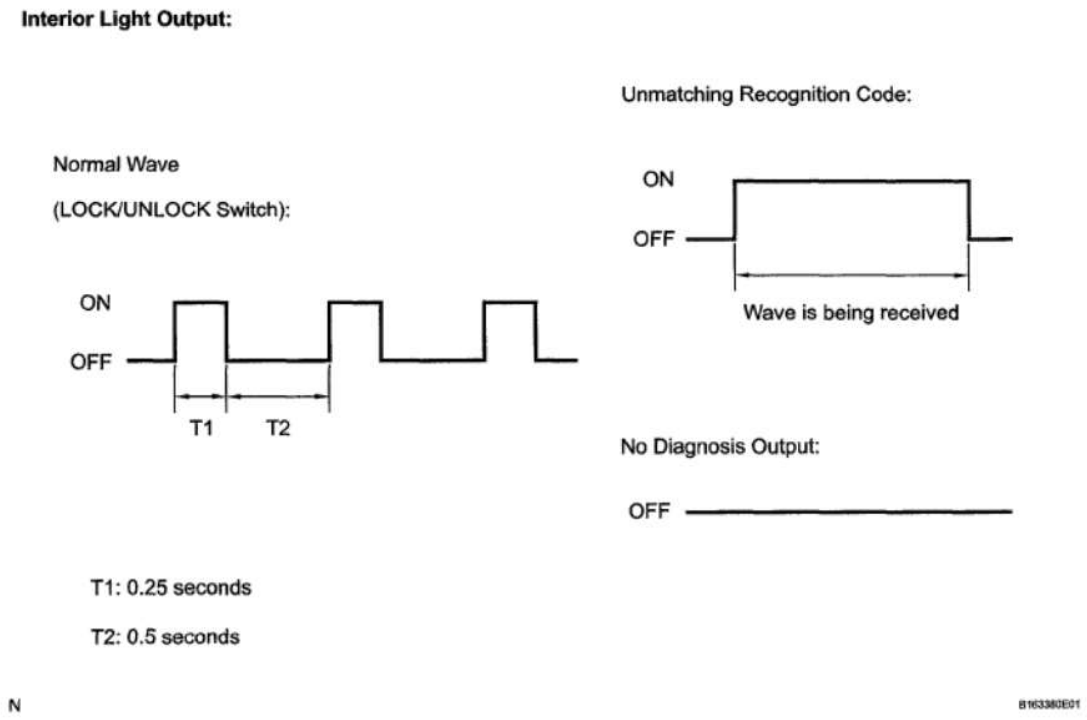


Fig. 66: Interior Light Output Blinking Pattern
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **SELF-DIAGNOSTIC MODE (USING TECHSTREAM)**
   a. Switch to self-diagnostic mode.
      1. Connect Techstream to the DLC3.
      2. Turn the ignition switch to the ON position and turn Techstream main switch on.

   HINT:

   Refer to the Techstream operator's manual for further details.

DATA LIST/ACTIVE TEST

1. **DATA LIST**

   HINT:

   Using Techstream to read the Data List allows switch, sensor, actuator and other item values to be read without removing any parts. Reading the Data List early in troubleshooting is one way to save diagnostic time.

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

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a. Connect Techstream to the DLC3.
b. Turn the ignition switch to the ON position.
c. Enter the following menus: Body Electrical/Main Body/Data List.
d. Read the Data List according to the display on the tester.

Main Body (Main body ECU):

TESTER DISPLAY REFERENCE

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Wireless Control	Wireless door lock control function/ON or OFF	ON: Operating OFF: Not operating	-
Hazard Answer Back	Hazard answer-back of wireless/ON or OFF	ON: Operating OFF: Not operating	-
Wireless Auto Lock	Automatic lock function/ON or OFF	ON: Operating OFF: Not operating	-
Open Door Warning	Open door warning/ON or OFF	ON: Operating OFF: Not operating	-
Unlock 2 Operation	Unlock 2 Operation of wireless unlock/ON or OFF	ON: All doors unlock when UNLOCK switch pressed twice OFF: All doors unlock when UNLOCK switch pressed once	-
Panic Function	Panic function/ON or OFF	ON: Operating OFF: Not operating	-
Auto Lock Time	Automatic lock time/120 s, 60 s or 30 s	120 s: 120 seconds 60 s: 60 seconds 30 s: 30 seconds	-
Wireless Buzzer Resp	Wireless door lock buzzer response/ON or OFF	ON: Operating OFF: Not operating	-
Wireless Glass Hatch Open*	Glass hatch open function type/1tim ON, 1tim ON, Long 1, Long 2 or Prohibit	1tim ON: Push once 2tim ON: Push twice Long 1: Push and hold for 0.6 seconds Long 2: Push and hold for 0.8 seconds Prohibit: Does not operate	-
HINT: *: w/ Glass Hatch Opener System			

2. **ACTIVE TEST**

HINT:

Using Techstream to perform Active Test allows relay, VSV, actuator and other items to be operated

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without removing any parts. This non-intrusive functional inspection can be very useful because intermittent operation may be discovered before parts or wiring is disturbed. Performing the Active Test early in troubleshooting is one way to save diagnostic time. The Data List can be displayed during the Active Test.

a. Connect Techstream to the DLC3.
b. Turn the ignition switch to the ON position.
c. Enter the following menus: Body Electrical/Main Body/Active Test.
d. Perform the Active Test according to the display on the tester.

Main Body (Main body ECU):

TESTER DISPLAY REFERENCE

Tester Display	Test Part	Control Range	Diagnostic Note
Hazard	Turns the turn signal flasher relay	ON/OFF	Observe headlight and rear combination light for correct operation
Vehicle Horn	Turns the vehicle horns	ON/OFF	-
Illuminated Entry System	Interior light and ignition key cylinder light (Interior light switch is in DOOR position and all doors are closed)	ON/OFF	-
Trunk and Back-Door Open	Turns the back door opener motor	ON/OFF	Observe back door
Wireless Buzzer	Wireless door lock buzzer	ON/OFF	-

DIAGNOSTIC TROUBLE CODE CHART

HINT:

If a trouble code is displayed during the DTC check, inspect the trouble areas listed for that code. For details of the code, refer to "Refer to" in the DTC chart.

- The following is the troubleshooting procedure for the wireless door lock control of a vehicle without the smart key system.

  For the troubleshooting procedure for the wireless door lock control of a vehicle with the smart key system, refer to the **WIRELESS DOOR LOCK CONTROL SYSTEM (W/ SMART KEY SYSTEM)**.

- Inspect the fuse and relay before investigating the trouble areas shown in the table below.

WIRELESS DOOR LOCK CONTROL SYSTEM:

DIAGNOSTIC TROUBLE CODE CHART

DTC Code	Detection Item	Trouble Area

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B1242	Wireless Door Lock Tuner Circuit Malfunction	1. Wire harness or connector 2. Door control receiver 3. Main body ECU

DTC B1242 WIRELESS DOOR LOCK TUNER CIRCUIT MALFUNCTION

DESCRIPTION

The door control receiver receives signals from the transmitter and sends these signals to the main body ECU.

DTC DETECTION CONDITION AND TROUBLE AREA

DTC No.	DTC Detection Condition	Trouble Area
B1242	In diagnostic mode, an applicable RDA signal cannot be received within 1 second after an PRG signal has been output from the main body ECU.	• Wire harness or connector • Door control receiver • Main body ECU

WIRING DIAGRAM

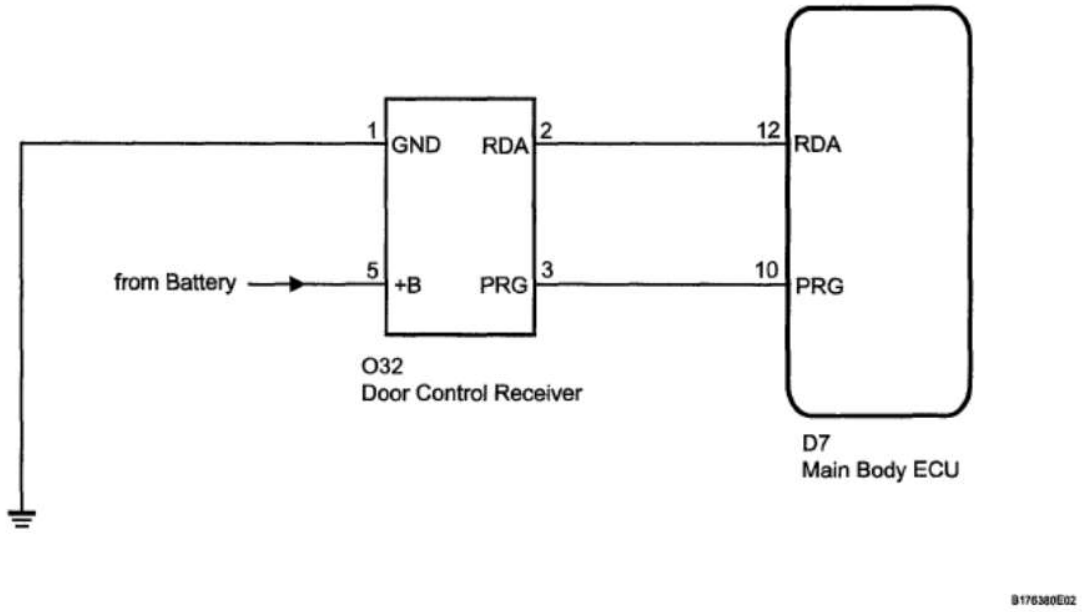


Fig. 67: Wireless Door Lock Tuner Circuit Malfunction - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

1. **CHECK HARNESS AND CONNECTOR (MAIN BODY ECU - DOOR CONTROL RECEIVER)**

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a. Disconnect the D7 main body ECU connector and the O32 door control receiver connector.

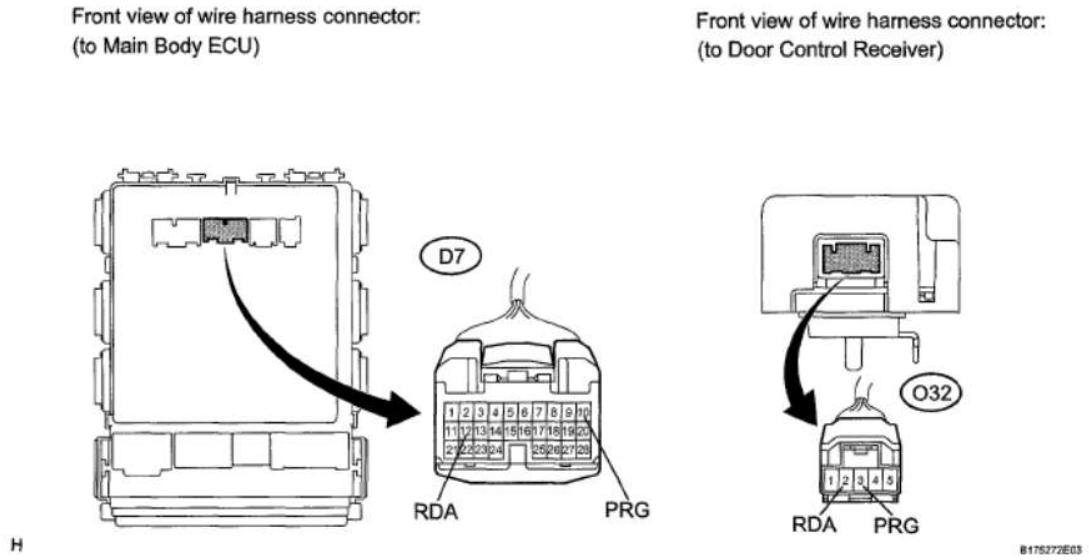


Fig. 68: Identifying D7 Main Body ECU And O32 Door Control Receiver Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
D7-12 (RDA) - O32-2 (RDA)	Always	Below 1 ohms
D7-12 (RDA) - Body ground	Always	10 kohms or higher
D7-10 (PRG) - O32-3 (PRG)	Always	Below 1 ohms
D7-10 (PRG) - Body ground	Always	10 kohms or higher

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step.

2. **CHECK HARNESS AND CONNECTOR (BATTERY, BODY GROUND)**
   a. Measure the voltage and resistance according to the value(s) in the table below.

Standard

RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
O32-1 (GND) - Body ground	Always	Below 1 ohms
O32-5 (+B) - Body ground	Always	11 to 14 V

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NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

Front view of wire harness connector:
(to Door Control Receiver)

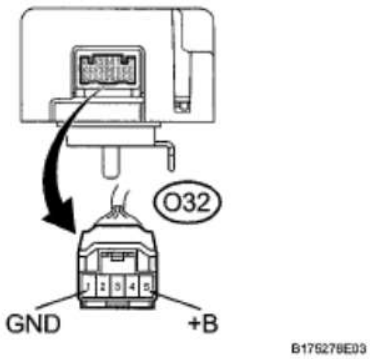


Fig. 69: Identifying O32 Door Control Receiver Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

3. **REPLACE DOOR CONTROL RECEIVER**
   a. Reconnect the E6 main body ECU connector.
   b. Replace the door control receiver with a normal one (See **REMOVAL**).
   c. Perform the registration procedures (See **REGISTRATION**).

HINT:

If a normally functioning door control receiver is available, connect it and check if the wireless door lock function is normal or DTCs are output. If the alternative receiver functions normally, replace the original door control receiver.

4. **CONFIRM DTC**
   a. Clear the DTCs (See **DIAGNOSIS SYSTEM**).
   b. Check if the same DTC is detected.

HINT:

Reinstall the sensors, connectors, etc. and restore the previous vehicle conditions before rechecking for DTCs.

Result

RESULT REFERENCE

Result	Proceed to

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DTC is output	A
DTC is not output	B

B: USE SIMULATION METHOD TO CHECK (See **HOW TO PROCEED WITH TROUBLESHOOTING**)

A: REPLACE MAIN BODY ECU (INSTRUMENT PANEL JUNCTION BLOCK)

ONLY WIRELESS CONTROL FUNCTION IS INOPERATIVE

DESCRIPTION

The door control receiver receives signals from the transmitter and sends these signals to the main body ECU. The main body ECU then controls all doors by sending lock/unlock signals to each door, and sends hazard flasher relay signals to the turn signal flasher relay (hazard warning lights).

WIRING DIAGRAM

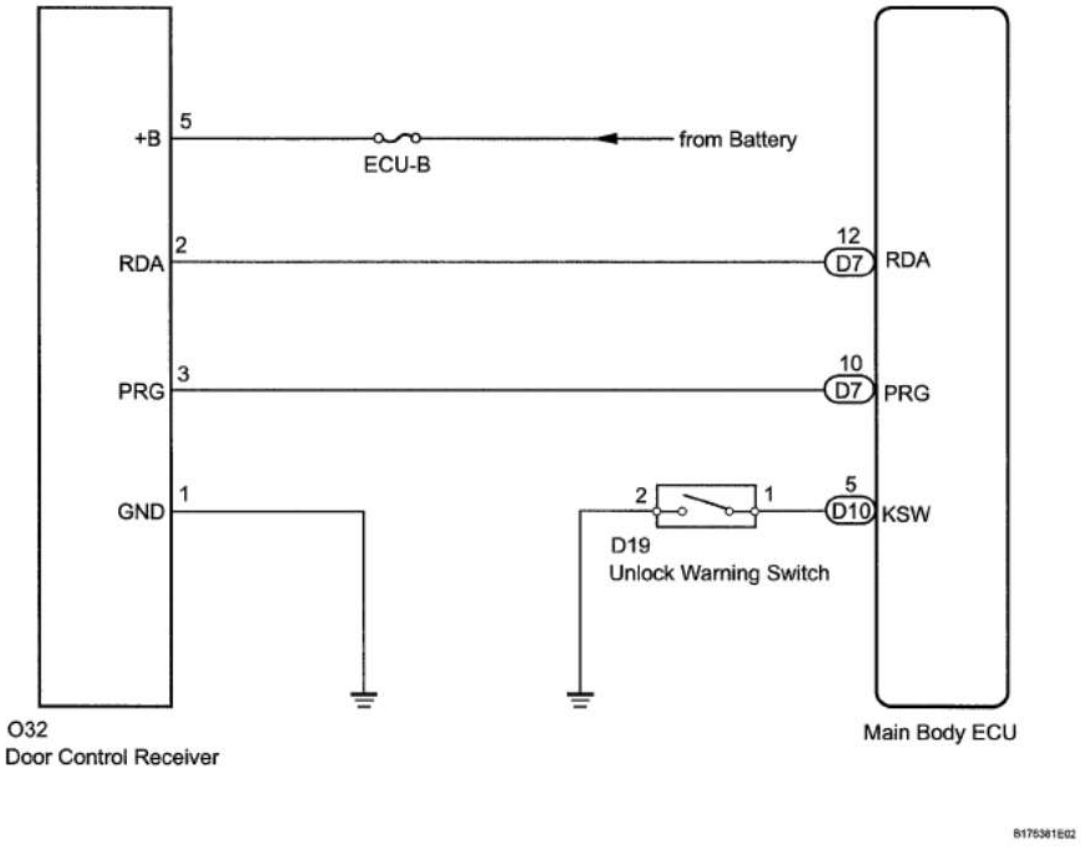


Fig. 70: Wireless Control Function - Wiring Diagram
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INSPECTION PROCEDURE

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1. **CHECK WIRELESS DOOR LOCK CONTROL FUNCTIONS**
   a. Check the wireless door lock control system function (See **OPERATION CHECK**).

Result

RESULT REFERENCE

Result	Proceed to
The wireless door LOCK/UNLOCK function does not operate with transmitter	A
The power back door function does not operate with transmitter	B
The glass hatch function does not operate with transmitter	C

B: GO TO POWER BACK DOOR SYSTEM (See **PROBLEM SYMPTOMS TABLE**)

C: GO TO GLASS HATCH OPENER SYSTEM (See **SYSTEM DIAGRAM**)

A: Go to next step.

2. **CHECK DOOR CONTROL TRANSMITTER**
   a. When another registered door control transmitter is used, check that the wireless operates normally.

Result

RESULT REFERENCE

Result	Proceed to
Wireless door LOCK/UNLOCK function operates and door control transmitter that did not operate is electrical key transmitter	A
Wireless door LOCK/UNLOCK function does not operate	B

B: Go to step 5

A: Go to next step.

3. **CHECK TRANSMITTER LED ILLUMINATION**
   a. Check that the transmitter's LED illuminates 3 times when the switch is pressed 3 times.

Result

RESULT REFERENCE

Result	Proceed to
Transmitter's LED does not illuminate 3 times when switch is pressed 3 times	A
Transmitter's LED illuminates 3 times when switch is pressed 3 times	B
The transmitter's LED does not illuminate the second or third time	C

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HINT:

If the transmitter's LED does not illuminate the second or third time, replace the transmitter battery as it is depleted.

B: REPLACE DOOR CONTROL TRANSMITTER

C: REPLACE TRANSMITTER BATTERY (See **DOOR CONTROL TRANSMITTER (W/O SMART KEY SYSTEM)**)

A: Go to next step.

4. **INSPECT TRANSMITTER BATTERY (VOLTAGE)**
   a. Electrical key transmitter
      1. Remove the battery from the electrical key transmitter that does not operate. Attach a lead wire (0.6 mm (0.0236 in.) in diameter or less including wire sheath) with tape or equivalent to the negative terminal (See **DOOR CONTROL TRANSMITTER (W/O SMART KEY SYSTEM)**).

NOTE: **Do not wrap the lead wire around a terminal, wedge it between terminals, or solder it. A terminal may be deformed or damaged, and the battery will not be able to be installed correctly.**

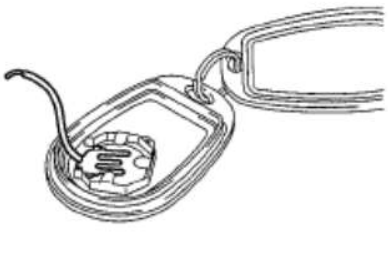


Fig. 71: Identifying Lead Wire
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

      2. Carefully pull the lead wire out from the position shown in the illustration and install the previously removed transmitter battery.
      3. Using an oscilloscope, check the transmitter battery voltage waveform.

HINT:

Measure the transmitter battery voltage while pressing the LOCK or UNLOCK switch on the transmitter.

Standard voltage

STANDARD VOLTAGE SPECIFICATION

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Item	Content
Tester Connection	Battery positive (+) - Battery negative (-)
Tool Setting	0.5 V/DIV., 100ms/DIV.
Condition	Power switch OFF, all doors closed and lock switch pushed
Specified Condition	2.2 to 3.2 V (Refer to the waveform)

NG: REPLACE TRANSMITTER BATTERY (See **DOOR CONTROL TRANSMITTER (W/O SMART KEY SYSTEM)**)

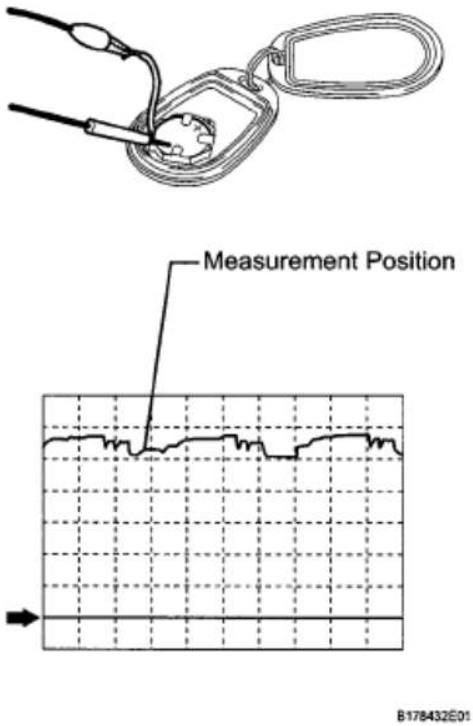


Fig. 72: Checking Transmitter Battery Voltage Waveform
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: REPLACE DOOR CONTROL TRANSMITTER

5. **CHECK ROOM LIGHT ASSEMBLY**
   a. Check that the room light illumination operates normally.

OK: Room light operation normally.

NG: Go to LIGHTING SYSTEM (See **PROBLEM SYMPTOMS TABLE**)

OK: Go to next step.

6. **SWITCH TO SELF-DIAGNOSTIC MODE**

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a. Switch to self-diagnostic mode by operating the ignition key cylinder.
   1. Make sure the vehicle is in its initial condition. Then insert the key into the ignition key cylinder and remove it.
   2. Within 5 seconds of removing the key, insert the key into the ignition key cylinder (ignition switch OFF). Then turn the ignition switch ON and OFF.
   3. Within 30 seconds of turning the ignition switch OFF, perform the following operation 9 times: turn the ignition switch to the ON position and then OFF.

NOTE: If the system cannot enter self-diagnostic mode, the system returns to normal mode.

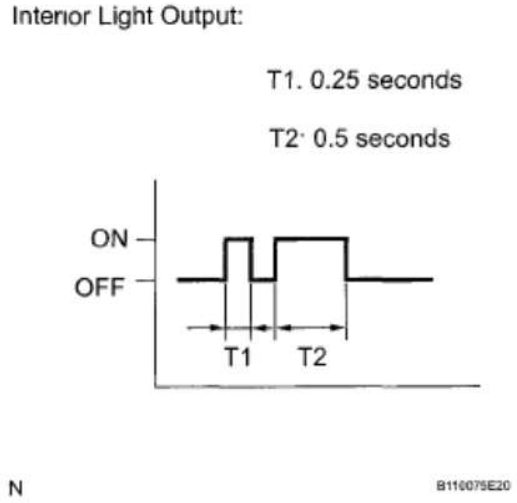


Fig. 73: Interior Light Blinking Pattern
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

- Turning the ignition switch to the ON position after the above operations have been completed ends self-diagnostic mode.
- Do not lock or unlock doors during self-diagnostic mode.

b. Check that the system has switched to self-diagnostic mode by checking the room light flash pattern.

OK: Flash pattern is same as illustration.

NG: Go to step 13

OK: Go to next step.

7. **CHECK BY SELF DIAGNOSTIC MODE**

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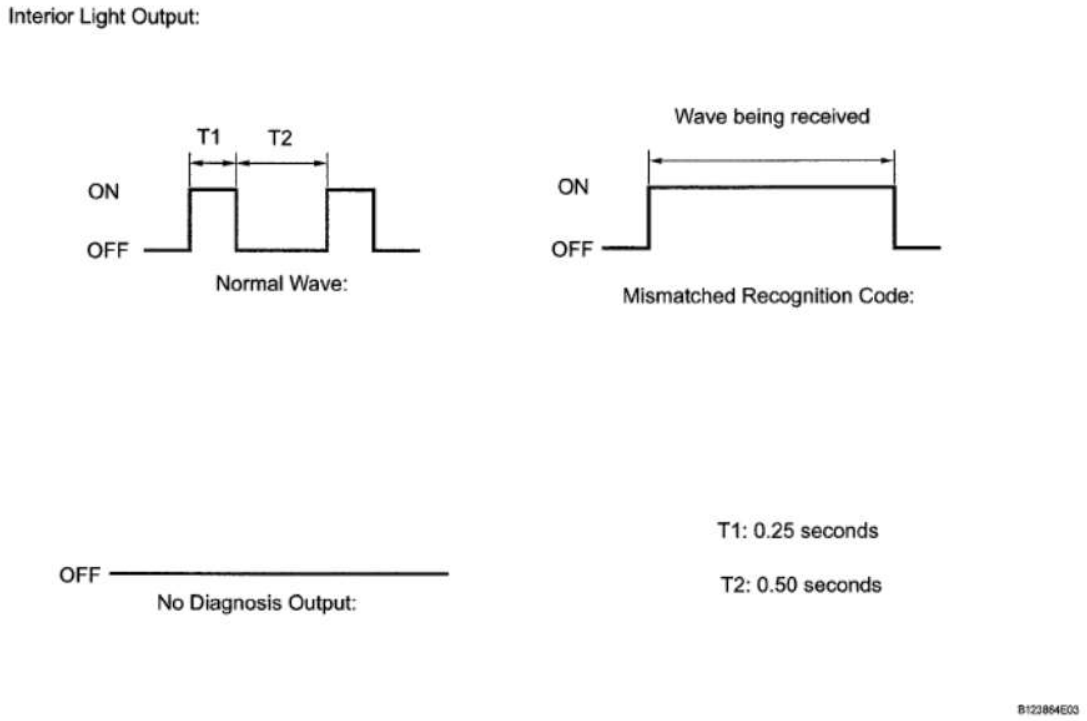


Fig. 74: Interior Light Blinking Pattern
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

a. Inspect the diagnosis outputs when the door control transmitter switch is held down. The diagnosis outputs can be checked by the flash patterns of the room light.

Result

RESULT REFERENCE

Result	Proceed to
Unmatching recognition code is output	A
Normal waves (light flash patterns) is output	B
No diagnosis outputs	C

B: REPLACE MAIN BODY ECU

C: Go to step 9

A: Go to next step.

8. **REGISTER RECOGNITION CODE**
   a. Check that the system can be switched to rewrite mode or add mode, and that a recognition code can be registered (See **REGISTRATION**).

OK: Recognition code can be registered.

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NG: Go to step 16

OK: END

9. **CHECK DOOR CONTROL RECEIVER (RESPONSE)**
   a. Prepare the door control transmitter of another vehicle.
   b. Hold down the door control transmitters switch.
   c. Check that an unmatching recognition code is output.

OK: Unmatching recognition code is output.

NG: Go to step 10

OK: REPLACE DOOR CONTROL TRANSMITTER

10. **REPLACE DOOR CONTROL RECEIVER**
    a. Temporarily replace the door lock control receiver with a new or normally functioning one (See **REMOVAL**).
11. **REGISTER RECOGNITION CODE**
    a. Perform the REGISTRATION procedures (See **REGISTRATION**).
12. **CHECK DOOR CONTROL RECEIVER (OPERATION)**
    a. Check that the doors can be locked and unlocked by using the transmitter LOCK and UNLOCK switches.

OK: Doors can be locked and unlocked with transmitter.

NG: REPLACE MAIN BODY ECU

OK: END (DOOR CONTROL RECEIVER IS DEFECTIVE)

13. **INSPECT UNLOCK WARNING SWITCH ASSEMBLY**
    a. Remove the unlock warning switch (See **REMOVAL**).
    b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

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

    c. Reconnect the unlock warning switch.

NG REPLACE UNLOCK WARNING SWITCH ASSEMBLY (See **REMOVAL**)

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Component without harness connected:

(Unlock Warning Switch)

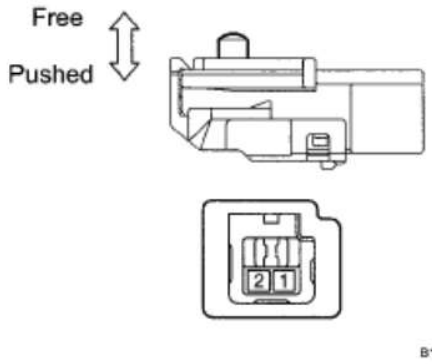


Fig. 75: Inspecting Unlock Warning Switch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

14. **CHECK HARNESS AND CONNECTOR (UNLOCK WARNING SWITCH - MAIN BODY ECU AND BODY GROUND)**

Front view of wire harness connector:
(to Unlock Warning Switch)

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

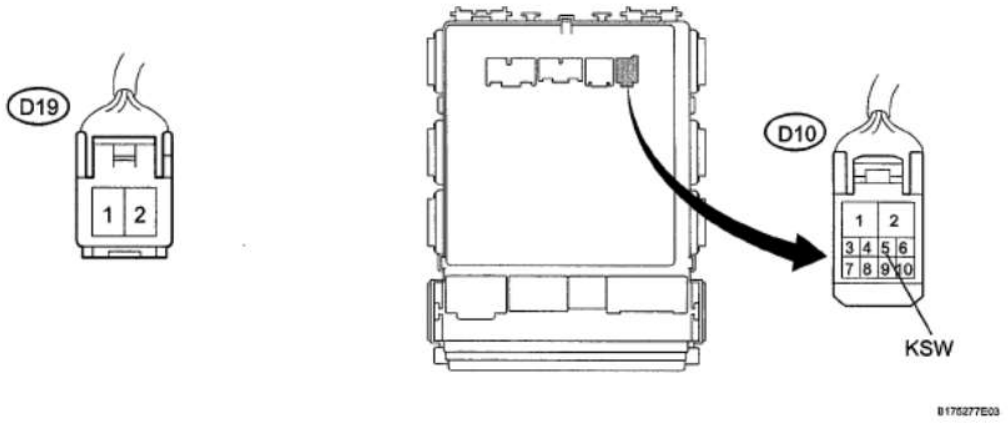


Fig. 76: Identifying D19 Unlock Warning Switch And D10 Main Body ECU Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

a. Disconnect the D19 unlock warning switch connector.
b. Disconnect the D10 main body ECU connector.
c. Measure the resistance according to the value(s) in the table below.

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Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
D19-1 - D10-5 (KSW)	Always	Below 1 ohms
D19-2 - Body ground		
D10-5 (KSW) or D19-1 - Body ground	Always	10 kohms or higher

d. Reconnect the unlock warning switch connector.
e. Reconnect the main body ECU connector

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step.

15. **CHECK DOOR CONTROL RECEIVER (OUTPUT)**
    a. Measure the voltage according to the value(s) in the table below.

Standard voltage

STANDARD VOLTAGE SPECIFICATION

Tester Connection	Switch Condition	Specified Condition
O32-2 (RDA) - Body ground	Transmitter switch ON --> OFF (No key in ignition key cylinder, all doors closed)	Below 1 V --> 6 to 7 V --> Below 1 V

NG: Go to step 16

Component with harness connected:
(Door Control Receiver)

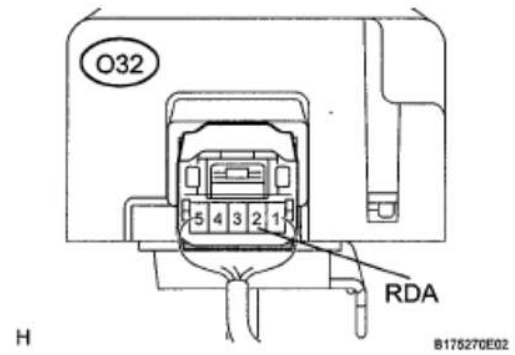


Fig. 77: Identifying O32 Door Control Receiver Connector
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OK: REPLACE MAIN BODY ECU

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16. **REPLACE DOOR CONTROL TRANSMITTER**
    a. Temporarily replace the door control transmitter module with a new or normally functioning one.
17. **REGISTER RECOGNITION CODE**
    a. Perform the REGISTRATION procedures (See **REGISTRATION**).
18. **CHECK DOOR CONTROL TRANSMITTER MODULE**
    a. Check that the doors can be locked and unlocked by using the transmitter LOCK and UNLOCK switches.

OK: Doors can be locked and unlocked with transmitter.

NG: REPLACE DOOR CONTROL RECEIVER (See **REMOVAL**)

OK: END (DOOR CONTROL TRANSMITTER MODULE IS DEFECTIVE)

NO ANSWER-BACK

DESCRIPTION

In some cases, wireless door lock control functions are normal but the hazard warning lights and/or wireless door lock buzzer answer-back function(s) do not operate. In such cases, the main body ECU's hazard warning lights and wireless door lock buzzer signal outputs may be malfunctioning.

NOTE: Troubleshooting should be started after confirming that the customize status of the answer-back function has been switched ON.

WIRING DIAGRAM

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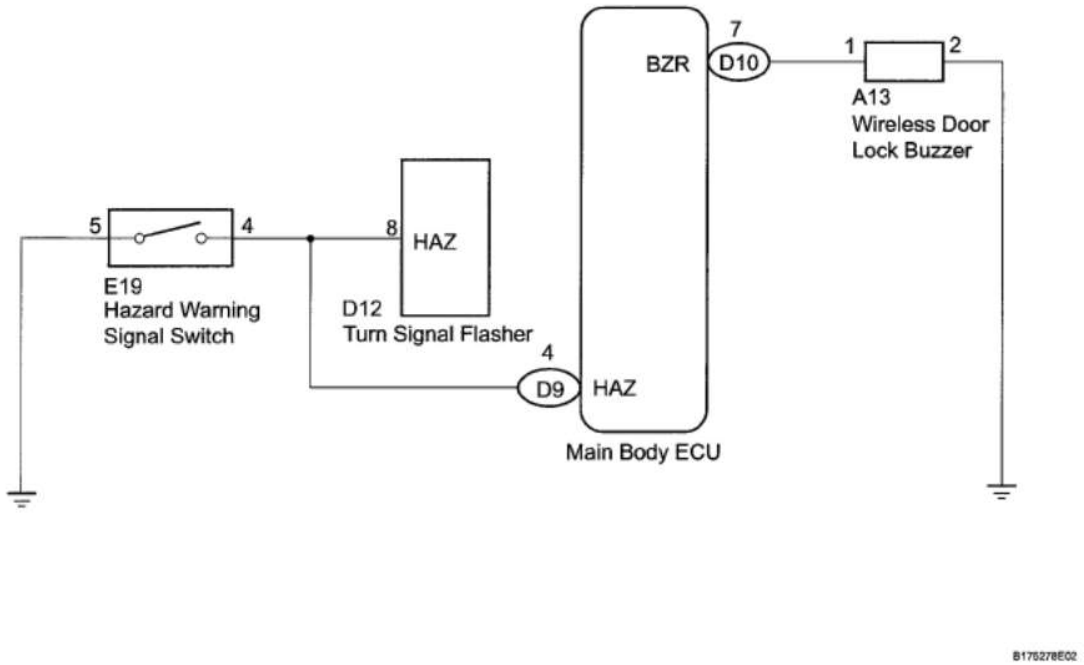


Fig. 78: Hazard Warning Signal Switch - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

1. **CHECK WIRELESS DOOR LOCK CONTROL FUNCTION**
   a. Check the wireless door lock control functions by operating the transmitter switch.

   Result

   RESULT REFERENCE

Result	Proceed to
Wireless door lock functions are normal but hazard warning lights answer-back does not occur	A
Wireless door lock functions are normal but wireless door lock buzzer answer-back does not occur	B
Doors cannot be locked and unlocked with transmitter	C

   B: Go to step 4

   C: GO TO PROBLEM SYMPTOMS TABLE (See **PROBLEM SYMPTOMS TABLE**)

   A: Go to next step.

2. **CHECK HAZARD WARNING LIGHT**

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a. Check that the hazard warning lights flash continuously when the hazard warning signal switch is pressed.

OK: Hazard warning lights flash continuously.

NG: GO TO LIGHTING SYSTEM (See **PROBLEM SYMPTOMS TABLE**)

OK: Go to next step.

3. **PERFORM ACTIVE TEST USING TECHSTREAM (FLASHER RELAY)**
   a. Select the Active Test, use Techstream to generate a control command, and then check that the hazard warning lights flash.

Main Body

TESTER DISPLAY REFERENCE

Tester Display	Test Part	Control Range	Diagnostic Note
Hazard	Turn Signal Flasher	ON/OFF	-

OK: Hazard warning lights are turned ON/OFF.

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: REPLACE MAIN BODY ECU

4. **PERFORM ACTIVE TEST USING TECHSTREAM (WIRELESS DOOR LOCK BUZZER)**
   a. Select the Active Test, use Techstream to generate a control command, and then check that the wireless buzzer operate normally.

Main Body

TESTER DISPLAY REFERENCE

Tester Display	Test Part	Control Range	Diagnostic Note
Wireless Buzzer	Wireless Door Lock Buzzer	ON/OFF	-

OK: Wireless buzzer turns ON/OFF.

NG: Go to step 5

OK: REPLACE MAIN BODY ECU

5. **INSPECT WIRELESS DOOR LOCK BUZZER**
   a. Measure the resistance according to the value(s) in the table below.

Standard resistance

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STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
1 - 2	Always	950 to 1050 ohms

NOTE:

- **The buzzer circuit is built into the main body ECU, not into the buzzer itself.**
- **When battery voltage is directly applied to the buzzer, the buzzer does not sound.**

Component without harness connected:
(Wireless Door Lock Buzzer)



Fig. 79: Identifying Wireless Door Lock Buzzer Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

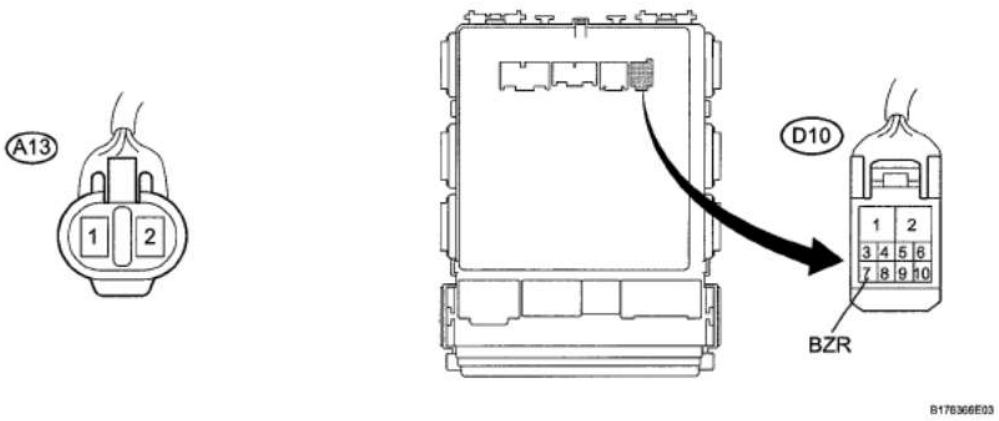
NG: REPLACE WIRELESS DOOR LOCK BUZZER (See **REMOVAL**)

OK: Go to next step.

6. **CHECK HARNESS AND CONNECTOR (WIRELESS DOOR LOCK BUZZER - MAIN BODY ECU AND BODY GROUND)**

Front view of wire harness connector:
(to Wireless Door Lock Buzzer)

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



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Fig. 80: Identifying A13 Wireless Door Lock Buzzer And D10 Main Body ECU Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

a. Disconnect the A13 wireless door lock buzzer connector.
b. Disconnect the D10 main body ECU connector.
c. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
A13-1 - D10-7 (BZR)	Always	Below 1 ohms
A13-2 - Body ground	Always	
A13-1 or D10-7 (BZR) - Body ground	Always	10 kohms or higher

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: REPLACE MAIN BODY ECU

SMART KEY SYSTEM

PRECAUTION

1. **PRECAUTION FOR DISCONNECTING THE BATTERY CABLE**

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

SYSTEM NAME REFERENCE

System Name	See Procedure
Power back door system	INITIALIZATION

2. **PRECAUTIONS WHEN USING TECHSTREAM**
   a. When troubleshooting the smart key system using Techstream with the engine switch off, connect Techstream to the vehicle and repeat turning any of the courtesy light switches on and off until communication between the tester and the vehicle begins (the interval between ON and OFF should be less than 1.5 seconds).
   b. After DTCs are all cleared, check if the trouble occurs again 6 seconds after the engine switch is turned on (IG).
3. **PRECAUTIONS FOR EACH FUNCTION**
   a. Precautions for the electrical key:

      The electrical key is a precision instrument. Be sure to observe the following:

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1. Do not drop or strike the electrical key.
2. Do not keep the electrical key in a high temperature area for a long time.
3. Do not use an ultrasonic washing machine to clean the electrical key.
4. Keep the electrical key away from magnets or magnetized items during use.
5. Do not attach any stickers to the electrical key.
6. If an electrical key is lost, delete all registered electrical key ID codes and then reregister the remaining electrical keys.

b. Precautions for the entry unlock function:

1. As the sensor is built into the backside of the door outside handle, the user must touch the backside of the door outside handle when performing the unlock function.
2. If the backside of the door outside handle is touched with gloved hands, the response of the door may be delayed.
3. During the entry unlock operation, if the door outside handle is pulled before the door unlocks, the unlock function cannot be completed. Confirm that the door has been unlocked before pulling the door outside handle to open the door.
4. Make sure that the doors are unlocked when touching the touch sensor on the door outside handle while the electrical key is being carried. If the doors cannot be unlocked, the certification ECU (smart key ECU assembly) orders the main body ECU (instrument panel junction block) to perform the door unlock operation 4 times at intervals of 0.75 seconds.

   At this time, the door may not be unlocked because the door outside handle is being pulled due to some mechanical reasons.

   Be sure to return the door outside handle to its original position.

   If the door cannot be opened by pulling the door outside handle, perform the entry unlock operation again.

5. If the electrical key is too close to the oscillator on the outside of the vehicle, the door may not be unlocked because the electrical key cannot react to the strong wave output from the transmitter.
6. If the electrical key is within the vehicle exterior detection area, the door can be unlocked even when a person other than the person carrying the electrical key holds the door outside handle. However, the doors other than the door that the codes match will not be unlocked.

   (If the electrical key is within the driver side door's detection area outside the vehicle, the doors will be unlocked when the person carrying the electrical key holds the driver side door outside handle. However, if any door outside handle other than that of the driver side door is held, the doors will not be unlocked).

7. If a door is not opened after the door unlock operation, the doors automatically lock after approximately 30 seconds.
8. If a large amount of water is applied to the door outside handle due to a car wash or heavy rain, the electrical key being within the vehicle exterior detection area may cause the doors to

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be unlocked.

However, the doors will be locked again after approximately 30 seconds if a door is not opened.

9. If the electrical key of the smart key system is used while it is being carried with the electrical key of another smart key system, the time before the entry unlock operation will become longer than usual. This is not a malfunction.

c. Precautions for the entry lock function:

1. When performing the entry lock operation, firmly press the lock switch on the door outside handle. If the lock switch is pressed too quickly or lightly, the entry lock may not operate.
2. It is possible that signals output from the indoor electrical key antenna may leak through the window. Also, if the electrical key is too close to a door electrical key oscillator, the oscillator output signals are too strong and the electrical key cannot respond. As a result, when the electrical key is near the vehicle interior (window, door outside handle), the entry lock function may not operate. Also, the electrical key reminder warning buzzer may sound and the entry unlock operation may stop functioning. In this situation, move the electrical key away from the vehicle interior (window, door outside handle), perform the entry lock operation and perform the entry unlock operation.
3. Do not touch the lock switch while opening or closing the door.

   If the lock switch is pressed when opening or closing the door while the electrical key is being carried, the door ajar warning buzzer sounds (beeps outside the vehicle for 10 seconds).

4. If the electrical key is on the instrument panel, rear package tray, floor, or in the glove box, the electrical key reminder function may not operate and the electrical key may be locked in the vehicle. Always carry the electrical key.
5. If the electrical key is outside the vehicle but is very close to a window or door outside handle (the ECU determines that the electrical key is inside the vehicle) and the transmitter or mechanical key is used to lock the doors (entry lock is not used), entry unlock will not operate. To unlock the doors, perform a wireless door unlock operation. The entry lock function operates in this way to prevent the user from unintentionally unlocking the doors from outside the vehicle. For example, when a user operates the wireless door lock operation from inside the vehicle, radio waves from a door electrical key oscillator may leak into the vehicle interior and the doors may unlock.
6. To allow the user enough time to check if the doors are locked after performing a door lock operation (entry lock function or wireless door lock operation), the entry unlock function will not be permitted for 3 seconds after the door lock operation.

d. Precautions for back door or glass hatch entry open function:

Even if the electrical key is within the outside electrical key oscillator (back door) detection area, the back door or glass hatch cannot be opened if the electrical key is in the following areas:

- Near the center of the bumper
- Too close to the ground or in a high place

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e. Precautions for the function to prevent electrical key confinement in the cabin:
   1. Do not place the electrical key in the cabin.

      If the luggage compartment is closed with the electrical key in it when all the doors are locked, the alarm to indicate electrical key confinement will operate (beeping sound for 2 seconds outside of the vehicle). However, the alarm may not operate for some reason relating to the electrical key location, the electrical key condition (covered with metal or near metal), or ambient radio waves.

   2. If the glass hatch is closed with the electrical key in the luggage compartment when any of the doors is unlocked or open, the electrical key confinement prevention function will not operate. In this case, use the glass hatch opener in the cabin to open the glass hatch and take out the electrical key.
   3. The alarm may erroneously operate in the following conditions. If you can confirm that you are carrying the electrical key or that the electrical key is in the cabin, there is no problem. The entry glass hatch open function may not operate if the alarm erroneously operates. In this case, use the glass hatch opener in the cabin.
      - The electrical key is brought into the cabin after the glass hatch is opened, and then the glass hatch is closed.
      - The glass hatch is closed by the person who is carrying the electrical key.
   4. If the alarm operates when the glass hatch is closed with all the doors locked, the electrical key is in the cabin. Check the cabin to find the electrical key.
   5. If the glass hatch is closed with the electrical key in the luggage compartment when all the doors are locked, the alarm will sound and the glass hatch can be opened. This may increase the risk of the vehicle being stolen.
   6. Do not open or close the glass hatch after all the doors are locked if you want to keep the spare electrical keys in the cabin. As a result, the alarm may sound and the glass hatch can be opened. This may increase the risk of the vehicle being stolen.

f. Precautions for the battery built into the electrical key and the vehicle battery:
   1. The electrical key is constantly checking for signals from the vehicle, which requires power from the electrical key's built-in battery. The life of the battery is approximately 1 to 2 years depending on the usage conditions. Be sure to replace the battery when its power is low. When replacing the battery, do not touch the inner circuit board or other inner parts.
   2. The electrical key is constantly checking for signals from the vehicle using battery power to determine whether the electrical key is being used or not. Even if the user is carrying 2 electrical keys and only 1 electrical key is used, both electrical keys will consume battery power.
   3. The electrical key receives radio waves at approximately 314 MHz. If the electrical key continuously receives strong, identical frequency waves, this may drain the electrical key's battery. Store the electrical key at least 1 m (3.3 ft.) away from TVs, personal computers, or other electrical products.
   4. When a door is being locked, the vehicle battery is used to transmit radio waves. The battery may be dead if the vehicle remains stopped for a long time. If the vehicle is not used for a long time, remove the battery from the vehicle or cancel the smart key system.

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5. When a door is being locked with the electrical key in the detection area of a door electrical key oscillator, the battery is used for regular communication between the electrical key and vehicle. If the vehicle is not used, keep the electrical key away from the vehicle (more than 2 m (6.6 ft.)).
6. After disconnecting and reconnecting the battery cable, the entry unlock function may not operate. If this occurs, perform a wireless door unlock and lock operation.

g. Precautions for the entry unlock mode switching function:
   1. Use the entry unlock mode switching function within a 1 m (3.3 ft.) area around the vehicle.
   2. The entry unlock mode switching function cannot be used within 5 seconds of the previous mode change. Wait 5 seconds or more before performing a mode change.

PARTS LOCATION

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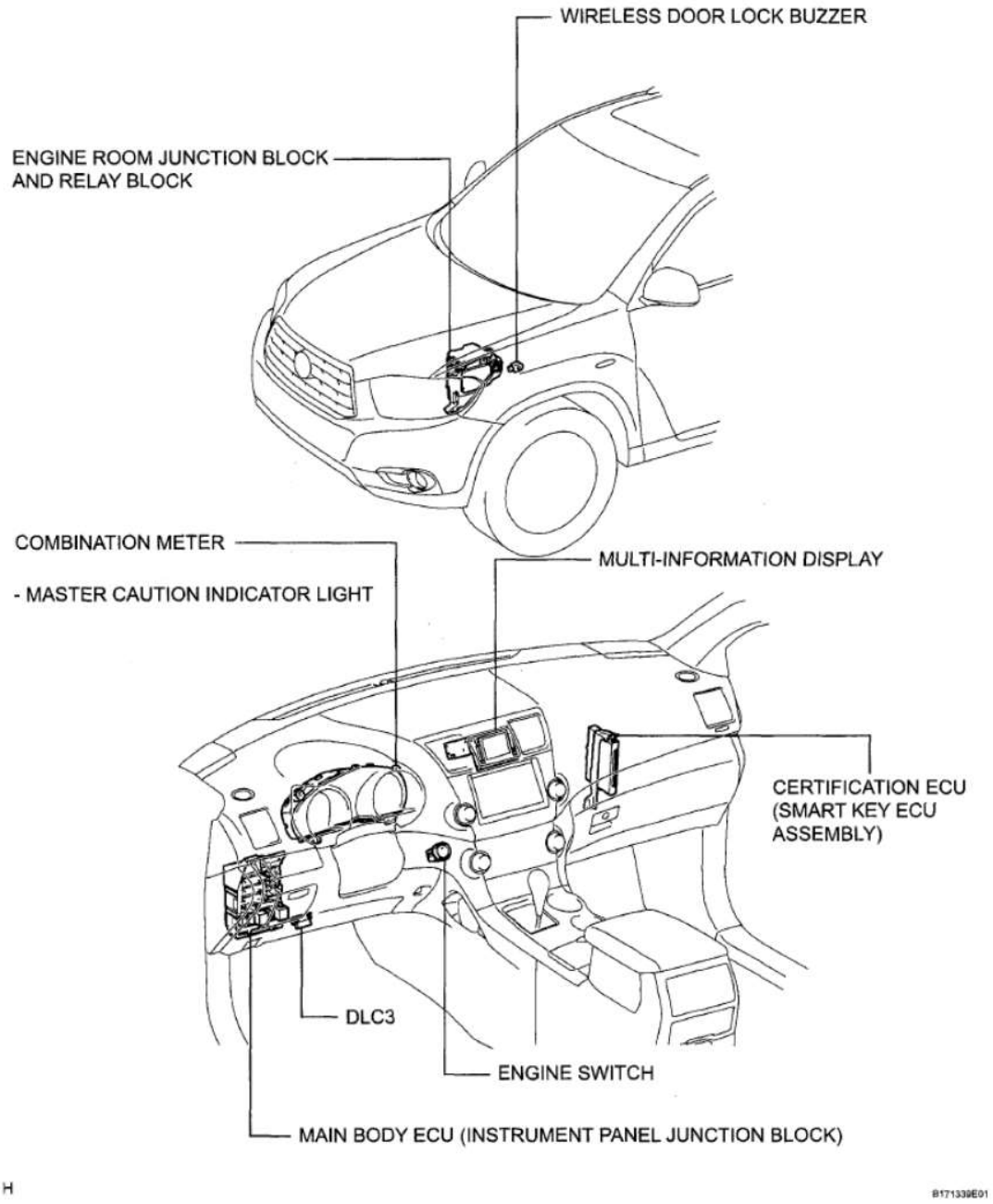


Fig. 81: Identifying Smart Key System Parts Location (1 Of 3)
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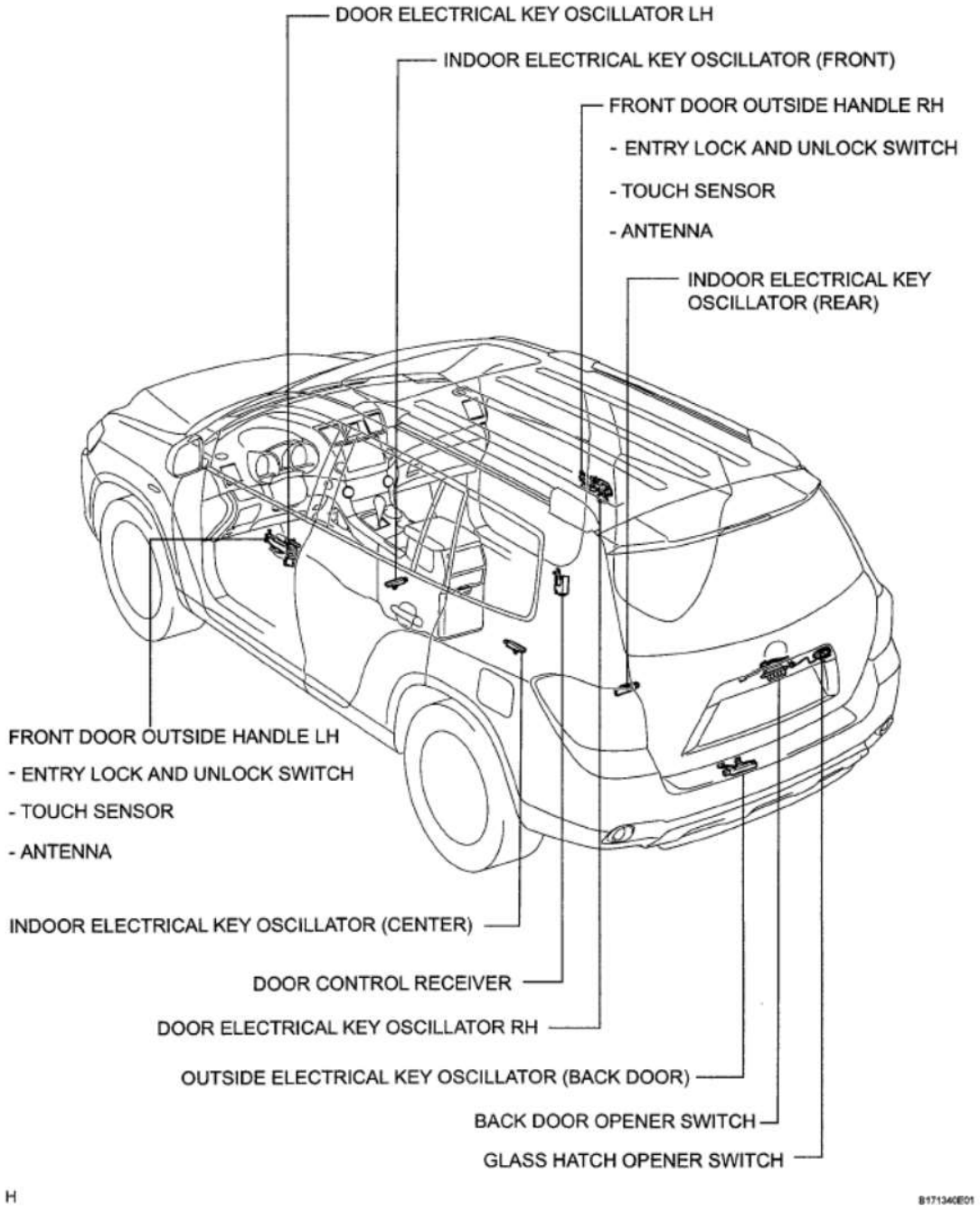


Fig. 82: Identifying Smart Key System Parts Location (2 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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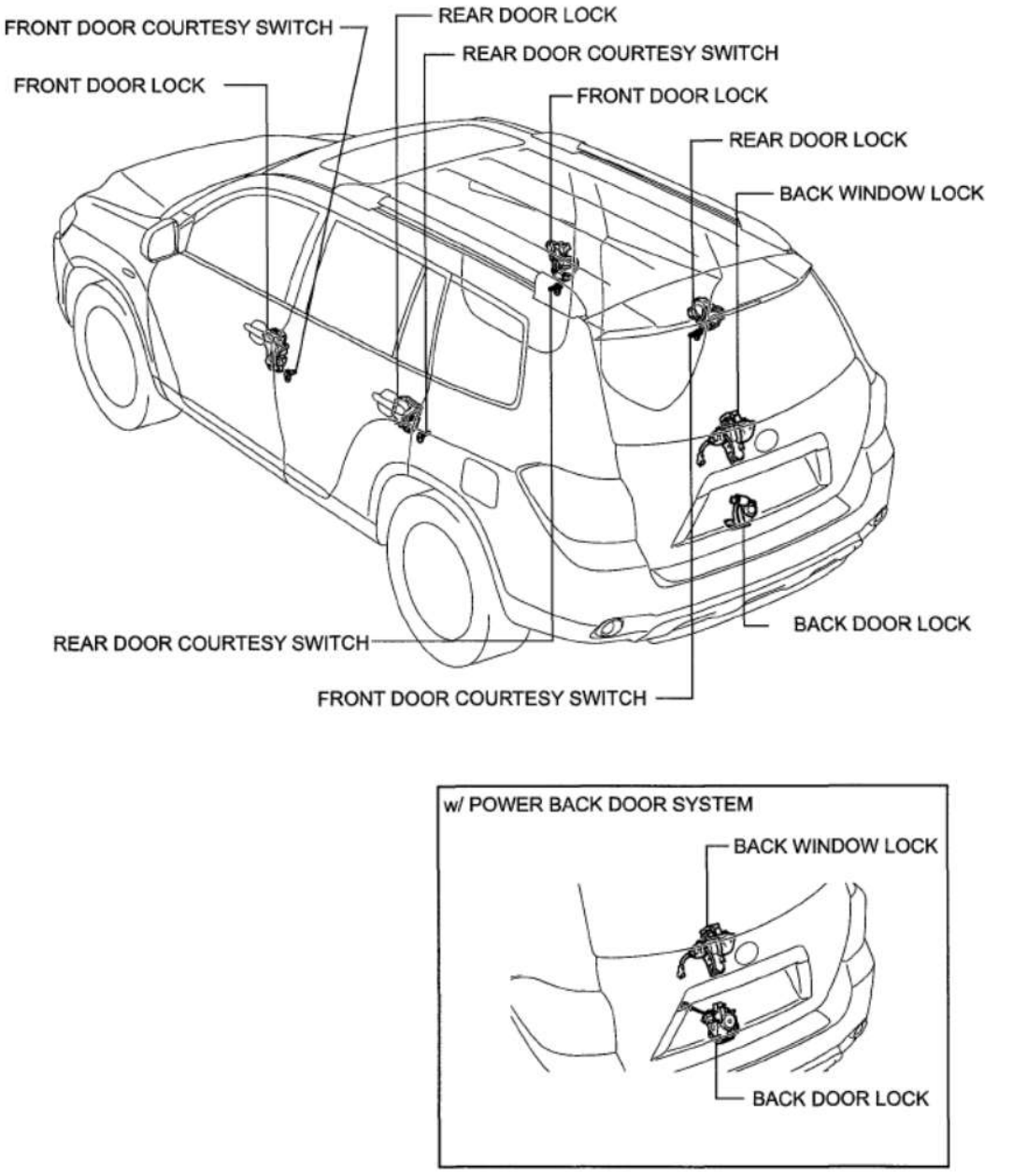


Fig. 83: Identifying Smart Key System Parts Location (3 Of 3)
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SYSTEM DIAGRAM

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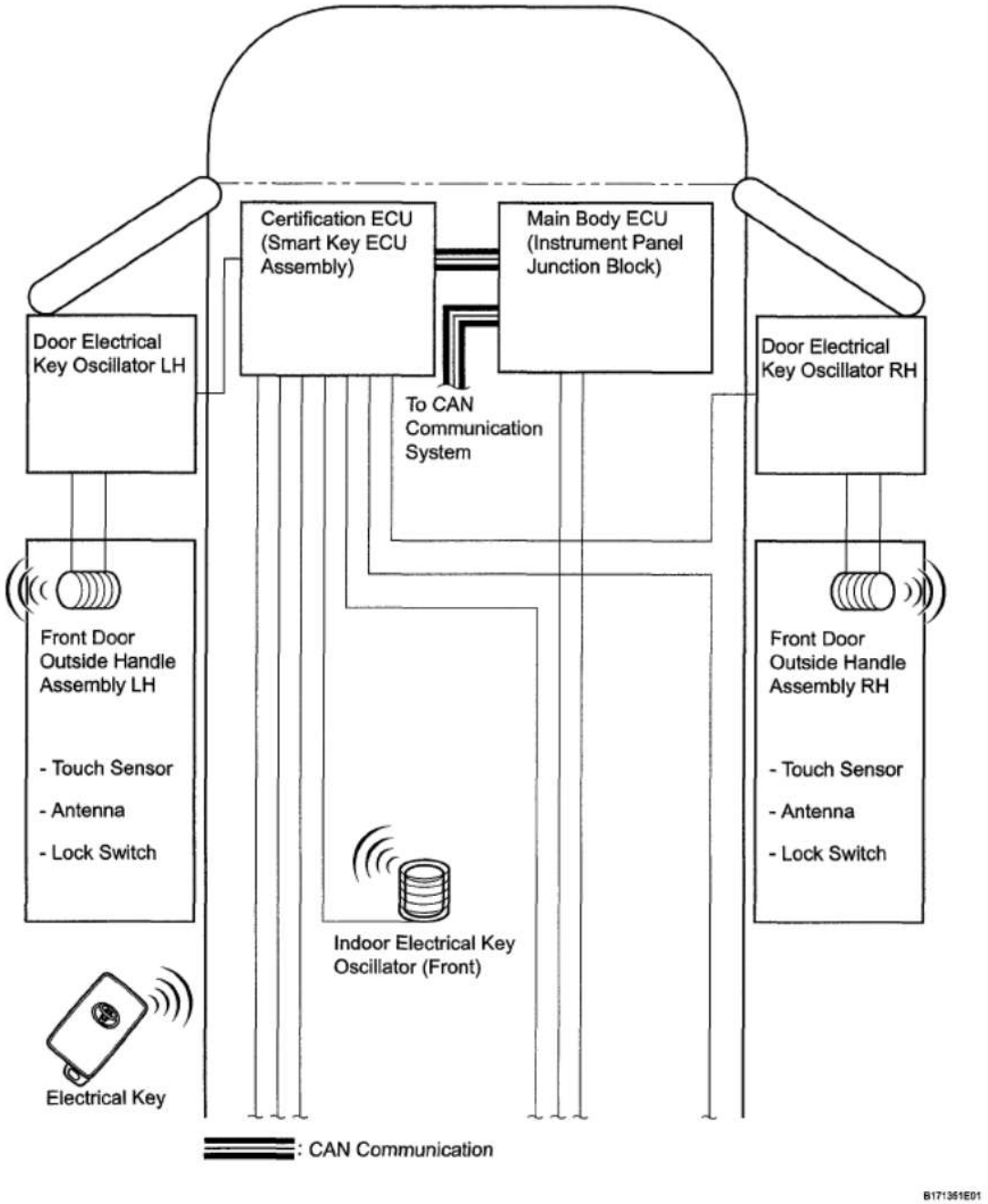


Fig. 84: Smart Key System Diagram (1 Of 2)
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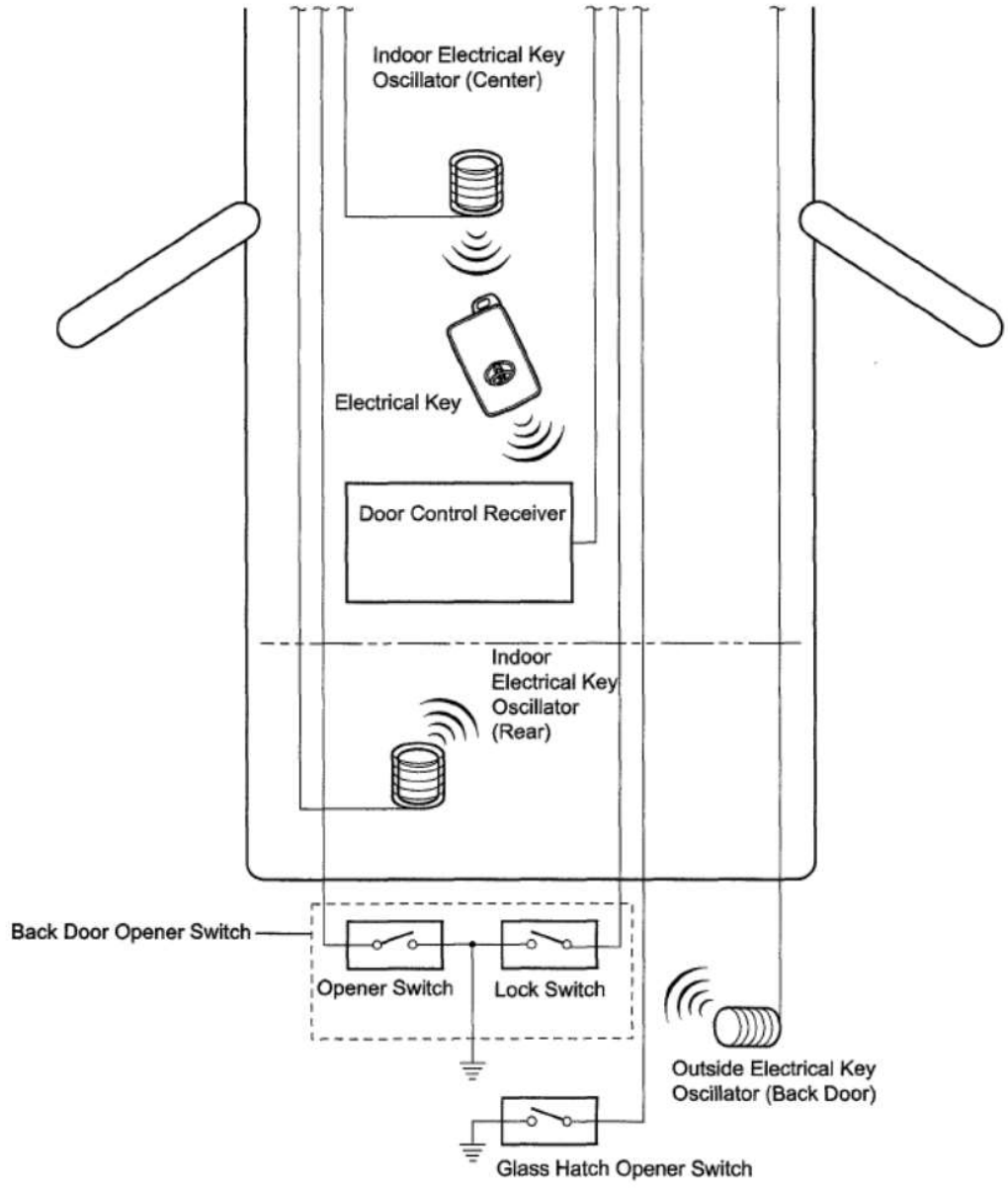


Fig. 85: Smart Key System Diagram (2 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SIGNALS REFERENCE

Transmitting ECU (Transmitter)	Receiving ECU	Signals	Communication Method
		Courtesy light switch signal	
		Door lock output	

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Main body ECU (Instrument panel junction block)	Certification ECU (Smart key ECU assembly)	signal	CAN
		Back door output request signal	
		Glass hatch output request signal	
		Wireless door lock buzzer request signal	
		Door lock position switch signal	
		Driver door key operated switch signal	
Certification ECU (Smart key ECU assembly)	Main body ECU (Instrument panel junction block)	Illumination light request signal	CAN
		Light answer back signal	
		Door lock/unlock request signal	
Certification ECU (Smart key ECU assembly)	Combination meter	Meter buzzer single-shot request signal	CAN
		Meter buzzer intermittence request signal	
		Meter buzzer continuation request signal	
Certification ECU (Smart key ECU assembly)	Multi-information display	Door open display signal	CAN
		Key loss warning signal	
		Low key battery warning signal	
		Steering lock malfunction warning signal	
		Steering lock not-released warning signal	
Combination meter	• Certification ECU (Smart key ECU assembly) • Main body ECU (Instrument panel junction block)	Vehicle speed signal	CAN

SYSTEM DESCRIPTION

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CAUTION: If using a pacemaker, be sure to read the manual of the pacemaker before using the electrical key because the radio waves of the electrical key may affect the pacemaker.

1. **SMART KEY SYSTEM DESCRIPTION**
   a. In addition to conventional mechanical key and wireless door lock control functions, the smart key system enables door locking/unlocking, steering lock releasing, engine starting, and back door and glass hatch opening without operating the electrical key. The only requirement is that the electrical key is in the user's possession.
      - This system is controlled by the certification ECU (smart key ECU assembly). When the certification ECU (smart key ECU assembly) detects the presence of an electrical key in one of the detection areas, it identifies and checks the ID code, and outputs operation signals to the related ECU in accordance with their functions.
      - The detection areas are formed by 6 oscillators (2 door electrical key oscillators, 1 back door outside electrical key oscillator, and 3 indoor electrical key oscillators).
2. **DETECTION AREA**

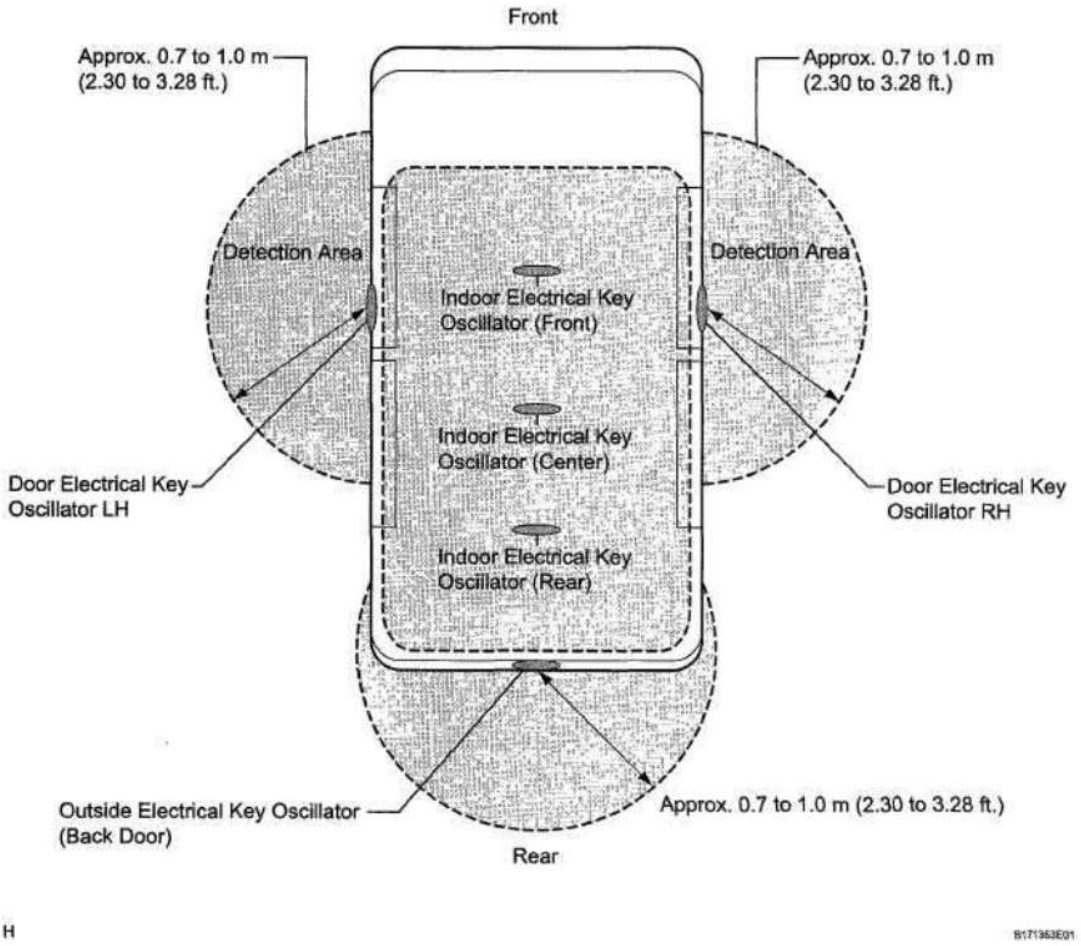


Fig. 86: Inspecting Door Lock Operation's Detection Area
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a. Precautions for the entire system:

- Be sure to carry the electrical key during inspection of the smart key system.
- As weak radio waves are used to detect the electrical key, the electrical key detection area may decrease, or the electrical key may not be detected correctly in the following situations:

a. The electrical key battery is depleted.

b. Any facilities that generate strong radio waves, such as a TV tower, power plant, broadcast station, or gas station, are located nearby.

c. A wireless device, such as a cellular phone, is carried with the electrical key.

d. The electrical key is in contact with or covered with metal.

e. Another wireless door lock control function is operated near the vehicle.

f. The electrical key is located near a device that generates high voltage or noise.

- The electrical key may be difficult to operate for a reason relating to the vehicle body shape.
- The electrical key may not be detected correctly if it is around the vehicle's windows, the door outside handle, or the center of the bumper even when it is in the detection area outside the vehicle.
- The electrical key may not be detected correctly if it is on the instrument panel, rear package tray, floor, or in the glove box even when it is in the detection area inside the vehicle.
- The electrical key may not operate if the electrical key is not held properly.
- The smart key system does not operate in the following conditions:

a. The smart key system is canceled.

b. The electrical key battery is completely depleted (the indicator does not blink when pushing any of the buttons on the electrical key).

3. **FUNCTION OF MAIN COMPONENTS**

MAIN COMPONENTS FUNCTION

Component	Function
Electrical Key	Consists of mechanical key, transmitter for wireless door lock control, and transceiver for smart key system
Certification ECU (Smart Key ECU Assembly)	Controls smart key system in accordance with signals from each oscillator, various switches, ECUs, and electrical key • Judges and certifies ID code from door control receiver • Transmits engine immobiliser unset signal to ID code box (immobiliser code ECU) • Transmits steering unlock signals to steering lock ECU
Main Body ECU (Instrument panel junction block)	Controls push button start function in accordance with signals from various switches, ECUs, and combination meter • Transmits electrical key verification request signal to certification ECU (smart key ECU assembly) in accordance with engine switch signal, and turns relays ON and OFF • Receives request signal from certification ECU (smart key ECU

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	assembly) and actuates door lock motor to unlock or lock door • Transmits each door condition and glass hatch condition signal to the certification ECU (smart key ECU assembly)
ID code box (Immobiliser Code ECU)	Receives steering unlock or engine immobiliser unset signals from certification ECU (smart key ECU assembly), certifies them, and transmits unset signals to steering lock ECU or ECM
Door Outside Handle (driver door and passenger door) (antenna)	Transmits request signals
Door Outside Handle (driver door and passenger door) (touch sensor)	Detects that person touches inside of door outside handle
Door Outside Handle (driver door and passenger door) (lock switch)	Transmits door lock request signals to certification ECU (smart key ECU assembly)
Door Electrical Key Oscillator (driver door and passenger door)	Receives request signal from certification ECU (smart key ECU assembly), and forms detection area around front door
Indoor Electrical Key Oscillator (front, center and rear)	Receives request signal from certification ECU (smart key ECU assembly), and forms detection area in vehicle interior
Outside Electrical Key Oscillator (back door)	Receives request signal from certification ECU (smart key ECU assembly), and forms detection area around back door
Door Control Receiver	Receives ID code from electrical key in detection area and transmits it to certification ECU (smart key ECU assembly)
Glass Hatch Opener Switch	Transmits a glass hatch open request signal to the main body ECU (instrument panel junction block)
Back Door Opener Switch	Transmits a back door open request signal to the main body ECU (instrument panel junction block)
Back Door Lock Switch	Transmits a back door lock request signal to the certification ECU (smart key ECU assembly)
• Wireless Door Lock Buzzer • Multi-information Display • Combination Meter ○ Buzzer	When certification ECU (smart key ECU assembly) detects conditions such as listed below, it warns driver by sounding wireless door lock buzzer, displaying information in multi-information display and sounding a buzzer in combination meter in accordance with request signal from ECU Example: • Electrical key is taken out of vehicle • Driver leaves vehicle while engine is still running

4. CONSTRUCTION AND OPERATION

a. Electrical Key

The electrical key consists of a mechanical key, a transmitter for the wireless door lock control, and

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a transceiver for the smart key system.

- The transceiver for the smart key system receives signals from the oscillators and sends the ID code to the tuner.
- The transmitter for the wireless door lock control.
- This mechanical key works for the driver door, glove box, but cannot start the engine.

A total of 7 electrical keys can be registered.

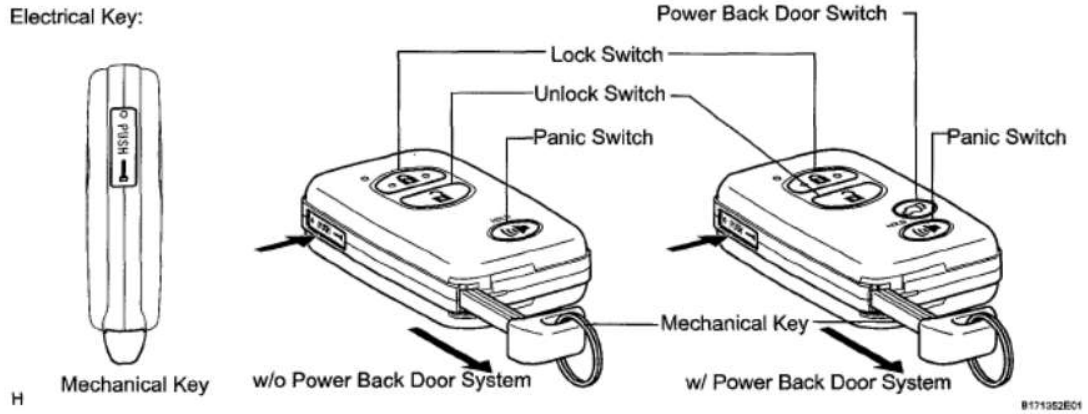


Fig. 87: Mechanical Key Operation System
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Oscillator (door electrical key oscillators, front, center and rear indoor electrical key oscillators, back door outside electrical key oscillator) Each oscillator transmits the request signal received from the certification ECU (smart key ECU assembly), and forms an electrical key detection area to detect the presence of an electrical key. The detection area formed by the door electrical key oscillator and back door outside electrical key oscillator is approximately 0.7 to 1.0 m (2.3 to 3.3 ft.) from the door outside handle of the door or the center of the rear bumper.
   - The detection area of the door electrical key oscillator is formed by transmitting a request signal every 0.25 seconds while the engine switch is off and each door is locked. In this way, it detects the proximity of an electrical key. During entry lock, the detection area is formed with the lock switch on.
   - The detection area of the back door outside oscillator is formed when the back door opener switch, back door entry lock switch and glass hatch opener switch are on.
   - The detection area of the indoor electrical key oscillator (front, center and rear) is formed when the driver door is opened or closed, during start ignition, when a warning is activated, or the lock switch is on.

5. **ENTRY FUNCTION OPERATION**
   a. The smart key system has the following functions:

OPERATION CHART

Function	Outline
Mechanical Key	Operation is same as conventional mechanical key.

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Wireless Door Lock Control	This function remotely locks and unlocks all doors or back door. Operation is same as wireless door lock control system. However, receiver in certification ECU (smart key ECU assembly) uses entry door control receiver to control locking and unlocking.
Entry Illumination	When person carrying electrical key enters detection area, door will enter unlock standby mode and front map light and foot light will illuminate.
Entry Unlock	When electrical key is located in detection area of door electrical key oscillator, door will unlock by touching inside of door outside handle.
Entry Lock	When electrical key is located in detection area of door electrical key oscillator and engine switch is off, door can be locked by pressing lock switch on door outside handle.
Entry Back Door Open	When a key is in an exterior actuation area of the outside electrical key oscillator (back door), the back door opens manually by simply pressing the back door opener switch.
Entry Glass Hatch Open	When a key is in an exterior actuation area of the outside electrical key oscillator (back door), the back door glass opens manually by simply pressing the glass hatch opener switch.
Electrical Key Lock-in Prevention	• This function prevents confinement of electrical key if door is locked using door outside handle while electrical key is still inside vehicle. • If all doors are locked and glass hatch is closed while electrical key is still inside vehicle, the warning buzzer sounds. If glass hatch opener switch is operated, glass hatch can be opened.
Warning	When any of situations below occur, smart key system causes certification ECU (smart key ECU assembly) to sound buzzer in combination meter and wireless door lock buzzer, and display information in order to alert driver. • Warning if occupant leaves with electrical key. • Warning if engine switch is operated while electrical key is outside actuation area. • Warning if entry lock is operated while electrical key is inside vehicle. • Warning if electrical key battery is weak. • The electrical key is left in the vehicle. • A door is ajar. • Warning if glass hatch is closed while electrical key is inside vehicle. • Steering lock does not release. • The steering lock mechanism is malfunctioning. • The main body ECU (instrument panel junction block) is malfunctioning. • An engine start method is displayed.
Battery Saving	If electrical key is constantly located within actuation area of door electrical key oscillator, system maintains periodic communication with electrical key. Therefore, if vehicle remains parked in that state for a long time, electrical key battery and vehicle battery could be drained.

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Key Cancel (See **CUSTOMIZE PARAMETERS**)	Following electrical key functions can be cancelled by performing certain operations: • Entry Unlock/Lock • Entry Back Door Open • Entry Glass Hatch Open • Electrical key Lock-in Prevention • Warning
Electrical Key Code Registration	The total number of electrical keys that can be registered is seven. Enables the registration (writing and storing) of transmitter recognition codes in the EEPROM that is contained in the certification ECU (smart key ECU assembly).

6. **WIRELESS DOOR LOCK AND UNLOCK AND POWER BACK DOOR OPEN*1 FUNCTION**

Push the LOCK/UNLOCK/POWER BACK DOOR OPEN*1 switch on the electrical key to operate each function.

For details, (See **OPERATION CHECK**).

HINT:

*1 : w/ Power Back Door System

7. **ENTRY UNLOCK FUNCTION**
   a. The detection area is formed by communication between a door electrical key oscillator and door control receiver when the door is locked in order to detect access of the person carrying the electrical key.
   b. When the person carrying the electrical key enters the detection area around the vehicle, the matching of the ID codes for a door electrical key oscillator and electrical key will automatically be performed. After the matching is completed, the door will enter unlock standby mode.
   c. In unlock standby mode, the antenna built into the door outside handle starts sensing. If the door outside handle is held (the back side of the door outside handle is touched), the door unlock operation will be performed. At this time, the hazard warning light blinks twice and the wireless door lock buzzer sounds twice.
   d. If any of the doors are not opened after a door unlock operation, all doors will automatically lock after 30 seconds.
8. **ENTRY LOCK FUNCTION**
   a. After leaving the vehicle carrying the electrical key, push the lock switch on the door outside handle and back door opener switch when all the doors are closed.
   b. The certification ECU (smart key ECU assembly) determines whether the electrical key is located inside or outside the cabin based on the information from a door electrical key oscillator and room oscillator. Then matching of the ID codes is performed.

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c. When the matching result shows that the ID codes of the electrical key and indoor antenna do not match and the ID codes of the electrical key and door electrical key oscillator match, the door lock function will operate. At this time, the hazard warning lights blink once and the wireless door lock buzzer sounds once.

d. If the electrical key is located inside the cabin, the door lock function will not operate and the alarm buzzer (beep sound) will sound for 2 seconds.

9. **ENTRY BACK DOOR OPEN FUNCTION**

Stand in front of the back door with the electrical key and push the back door opener switch to start the matching of the ID codes for the outside electrical key oscillator (back door). If the ID codes match, back door open operation will be performed.

10. **ENTRY GLASS HATCH OPEN FUNCTION**

Stand in front of the back door with the electrical key and push the glass hatch opener switch to start the matching of the ID codes for the outside electrical key oscillator (back door). If the ID codes match, glass hatch open operation will be performed.

11. **ELECTRICAL KEY LOCK-IN PREVENTION FUNCTION**

a. If you attempt to lock the door through keyless operation (turn the lock knob to LOCK and then close the door) with the electrical key in the cabin, the system determines that the electrical key is located in the cabin and unlocks the door.

b. If the glass hatch is closed with the electrical key in the luggage compartment, the alarm will sound and the glass hatch can be opened only when all the doors are locked in order to prevent electrical key confinement in the vehicle.

12. **WARNING FUNCTION**

a. General

When any of the situations below occur, the smart key system causes the certification ECU (smart key ECU assembly) to sound the buzzer in the combination meter and the wireless door lock buzzer, and illuminate the combination meter's multi-information display in order to alert the driver.

WARNING FUNCTION OPERATION CONDITION

Warning Function Operation Condition	Situation
Exit warning if shift lever position is not P and power source mode is not off.	A
Exit warning if shift lever position is P and power source mode is not off.	B
An occupant leaves with the electrical key.	C
The engine switch is operated while the electrical key is outside the detection area.	D
Entry lock is operated while the electrical key is inside the cabin.	E
The electrical key battery is weak.	F
The electrical key is left in the vehicle.	G
A door is ajar.	H
Glass hatch is closed while the electrical key is in cabin.	I

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Steering lock is not released.	J
The steering lock mechanism is malfunctioning.	K
The main body ECU (instrument panel junction block) is malfunctioning.	L
An engine start method is displayed.	M

b. Situation A

There are 2 patterns for situation A.

Pattern 1: A door is opened and the user tries to leave the vehicle.

Pattern 2: Then the user holds the electrical key and tries to move away from the vehicle.

In these situations, the following control is performed:

- Pattern 1

WARNING FUNCTION OPERATION CONDITION (SITUATION A) - PATTERN 1

Possible Effects without Warning	Sudden vehicle start, vehicle theft, vehicle roll-away
Warning Condition	The certification ECU (smart key ECU assembly) gives warning when all of the following conditions are satisfied: • The shift lever position is not P. • The engine switch is not off. • The driver side door is open. • Vehicle speed is less than 5 km/h (3.1 mph).
Combination Meter • Buzzer	**WARNING:** **Sounds continuously**
Multi-information Display	**WARNING:** **The following message is displayed on the combination meter:** • **"Shift to P Range"** **The warning is stopped when one of the following conditions is met:** • **The engine switch is off.** • **Vehicle speed is above 0 km/h (0 mph).** • **The shift lever position is P.**
Wireless Door Lock Buzzer	-
	The warning is stopped when one of the following conditions is met:

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Warning Stop Condition	• The engine switch is off. • The shift lever position is P. • The driver side door is closed. • Vehicle speed is above 5 km/h (3.1 mph).

- Pattern 2

WARNING FUNCTION OPERATION CONDITION (SITUATION A) - PATTERN 2

Possible Effects without Warning	Sudden vehicle start, vehicle theft, vehicle roll-away
Warning Condition	The certification ECU (smart key ECU assembly) gives warning when all of the following conditions are satisfied: • The shift lever position is not P. • The engine switch is not off. • The driver side door is opened and closed. • Vehicle speed is 0 km/h (0 mph). • The electrical key is not in the cabin.
Combination Meter • Buzzer	**WARNING:** **Sounds continuously** **The warning is stopped when one of the following conditions is met:** • **The engine switch is off.** • **The shift lever position is P.** • **The electrical key is in the cabin.** • **Vehicle speed is above 0 km/h (0 mph).**
Multi-information Display	**WARNING:** **The following messages are displayed alternately on the combination meter:** • **"Shift to P Range"** • **"Key is not Detected"** **"Shift to P Range" disappears when one of the following conditions is met:** • **The engine switch is off.** • **Vehicle speed is above 0 km/h (0 mph).** • **The shift lever position is P.** **"Key is not Detected" disappears when either of the following conditions is met:**

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	• **The engine switch is off.** • **The electrical key is in cabin or luggage compartment.**
Wireless Door Lock Buzzer	**WARNING:** **Sounds continuously** **The warning is stopped when one of the following conditions is met:** • **The engine switch is off.** • **The shift lever position is P.** • **The electrical key is in the cabin.** • **Vehicle speed is above 0 km/h (0 mph).**

c. Situation B

There are 2 patterns for situation B.

Pattern 1: A door is opened and the user tries to leave the vehicle. Then the user holds the electrical key and tries to move away from the vehicle.

Pattern 2: Then the user tries to use the entry lock and presses the lock switch.

In these situations, the following control is performed:

- Pattern 1

WARNING FUNCTION OPERATION CONDITION (SITUATION B) - PATTERN 1

Possible Effects without Warning	Vehicle theft, engine cannot be restarted
Warning Condition	The certification ECU (smart key ECU assembly) gives warning when all of the following conditions are satisfied: • The shift lever position is P. • The engine switch is not off. • The driver side door is opened and closed. • The electrical key is not in the cabin.
Combination Meter Buzzer	**WARNING:** **Sounds once**
Multi-information Display	**WARNING:** **The following message is displayed on the combination meter:** • **"Key is not Detected"** **The warning is stopped when either of the following conditions is met:**

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	• **The engine switch is off.** • **The electrical key is in the cabin.**
Wireless Door Lock Buzzer	**WARNING:** **Sounds 3 times** **The warning is stopped when either of the following conditions is met:** • **The engine switch is off.** • **The electrical key is in the cabin.**

- Pattern 2

WARNING FUNCTION OPERATION CONDITION (SITUATION B) - PATTERN 2

Possible Effects without Warning	Vehicle theft
Warning Condition	The certification ECU (smart key ECU assembly) gives warning when all of the following conditions are satisfied: • The shift lever position is P. • The engine switch is not off. • All doors are closed. • The lock switch is "ON". • The electrical key is not in the cabin. • Vehicle speed is above 0 km/h (0 mph).
Combination Meter Buzzer	-
Multi-information Display	-
Wireless Door Lock Buzzer	**WARNING:** **Sounds for 60 seconds** **The warning is stopped when one of the following conditions is met:** • **The engine switch is off.** • **Vehicle speed is above 0 km/h (0 mph).** • **The electrical key is in the cabin.** • **The shift lever position is P.**

d. Situation C

In this situation, the following control is performed:

WARNING FUNCTION OPERATION CONDITION (SITUATION C)

Possible Effects without	

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Warning	Engine cannot be restarted
Warning Condition	The certification ECU (smart key ECU assembly) gives warning when all of the following conditions are satisfied: • The engine switch is not off. • Any door other than the driver side door is opened and closed. • The electrical key is not in the cabin.
Combination Meter Buzzer	**WARNING:** **Sounds once**
Multi-information Display	**WARNING:** **The following message is displayed on the combination meter:** • **"Key is not Detected"** **The warning is stopped when one of the following conditions is met:** • **The engine switch is off.** • **Vehicle speed is above 0 km/h (0 mph).** • **The electrical key is in the cabin.**
Wireless Door Lock Buzzer	**WARNING:** **Sounds 3 times** **The warning is stopped when one of the following conditions is met:** • **The engine switch is off.** • **Vehicle speed is above 0 km/h (0 mph).** • **The electrical key is in the cabin.**

e. Situation D

In this situation, the following control is performed:

WARNING FUNCTION OPERATION CONDITION (SITUATION D)

Possible Effects without Warning	Confuses the user
Warning Condition	The certification ECU (smart key ECU assembly) gives warning when both of the following conditions are satisfied: • The engine switch is turned on from off. • The electrical key is not in the cabin.
Combination Meter • Buzzer	**WARNING:** **Sounds once**
	WARNING:

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Multi-information Display	**The following message is displayed on the combination meter for 8 seconds (disappears after 8 seconds):** • **"Key is not Detected"**
Wireless Door Lock Buzzer	-

f. Situation E

In this situation, the following control is performed:

WARNING FUNCTION OPERATION CONDITION (SITUATION E)

Possible Effects without Warning	Vehicle theft
Warning Condition	The certification ECU (smart key ECU assembly) gives warning when all of the following conditions are satisfied: • The engine switch is off. • All doors are closed. • The lock switch is "ON". • The electrical key is in the cabin.
Combination Meter Buzzer	-
Multi-information Display	-
Wireless Door Lock Buzzer	**WARNING:** **Sounds for 2 seconds**

g. Situation F

In this situation, the following control is performed:

WARNING FUNCTION OPERATION CONDITION (SITUATION F)

Possible Effects without Warning	Smart key system does not function
Warning Condition	The certification ECU (smart key ECU assembly) gives warning when all of the following conditions are satisfied: • The engine switch is turned off after being left on (IG) for over 20 minutes. • The electrical key battery voltage is low. • The electrical key is in the cabin.
Combination Meter	**WARNING:**

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• Buzzer	**Sounds once**
Multi-information Display	**WARNING:** **The following message is displayed on the combination meter for 5 seconds (disappears after 5 seconds):** • **"Low Smart Key Battery"**
Wireless Door Lock Buzzer	-

h. Situation G

There are two patterns for situation G.

- Pattern 1: When the driver's door is open, the driver changes the power source mode to ON (ACC) and attempts to leave the vehicle.
- Pattern 2: When the driver's door is open, the driver changes the power source mode from ON (IG) to OFF and attempts to leave the vehicle.

In these situations, the following control is performed:

Pattern 1 and Pattern 2

WARNING FUNCTION OPERATION CONDITION (SITUATION D) - PATTERN 1 AND 2

Possible Effects without Warning	Vehicle theft
Warning Condition	The warning is activated when either of the following conditions is met: • The engine switch is on (ACC) and the driver door is open. • The engine switch is off, the steering wheel is unlocked, and the driver door is open.
Combination Meter • Buzzer	**WARNING:** **Continues to sound at short and even intervals**
Multi-information Display	-
Wireless Door Lock Buzzer	-
Engine Switch Indicator Light	-
Warning Stop Condition	The warning is stopped when one of the following conditions is met: • The engine switch is off. • The driver side door is closed. • The engine switch is off and the steering is locked.

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i. Situation H

The lock switch on the door outside handle is pressed to perform entry lock with a door open. In this situation, the following control is performed:

WARNING FUNCTION OPERATION CONDITION (SITUATION H)

Possible Effects without Warning	Vehicle theft
Warning Condition	The warning is activated when all of the following conditions are met: • The engine switch is off. • Any doors are open. • The entry lock button on the door outside handle is operated.
Combination Meter • Buzzer	-
Multi-information Display	-
Wireless Door Lock Buzzer	**WARNING:** **Sounds continuously**
Engine Switch Indicator Light	-
Warning Stop Condition	The warning is stopped when one of the following conditions is met: • The engine switch is off. • All doors are closed. • Wireless door lock remote function is unlocked. • Entry unlock is operated. • 10 seconds have elapsed since the wireless door lock buzzer was activated.

j. Situation I

The glass hatch door is closed with the electrical key left in the luggage compartment. In this situation, the following control is performed:

WARNING FUNCTION OPERATION CONDITION (SITUATION I)

Possible Effects without Warning	Vehicle theft
Warning Condition	The warning is activated when all of the following conditions are met: • Vehicle speed is 0 km/h (0 mph). • All doors are closed and locked or the state where the door after

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	unlock operation is waiting to open. • Entry glass hatch open function is available.
Combination Meter • Buzzer	-
Multi-information Display	-
Wireless Door Lock Buzzer	**WARNING:** **Sounds for 2 seconds**
Warning Stop Condition	-

k. Situation J

The steering lock cannot be released. In this situation, the following control is performed:

WARNING FUNCTION OPERATION CONDITION (SITUATION J)

Possible Effects without Warning	Vehicle theft
Warning Condition	The steering lock cannot be released, thus the engine is prevented from starting.
Combination Meter Buzzer	-
Multi-information Display	**WARNING:** **The following message is displayed on the combination meter for 15 seconds (disappears after 15 seconds):** • **"S/T is not Unlocked"**
Combination Meter • Master Caution Indicator Light	**WARNING:** **Flashes**
Wireless Door Lock Buzzer	-
Engine Switch Indicator Light	**WARNING:** **The indicator blinks in green at 1-second intervals (goes off automatically in 15 seconds).**
Warning Stop Condition	The engine switch is pressed while the steering wheel is turned left and right, and the steering lock is successfully released.

l. Situation K

A malfunction of the steering lock ECU is detected. In this situation, the following control is performed:

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WARNING FUNCTION OPERATION CONDITION (SITUATION K)

Possible Effects without Warning	Vehicle theft
Warning Condition	A malfunction of the steering lock ECU is detected.
Combination Meter Buzzer	-
Multi-information Display	**WARNING:** **The following message is displayed on the combination meter:** • **"Check S/T Lock"**
Combination Meter • Master Caution Indicator Light	**WARNING:** **Flashes**
Wireless Door Lock Buzzer	-
Engine Switch Indicator Light	**WARNING:** **The indicator blinks in amber at 2-second intervals.**
Warning Stop Condition	The steering lock ECU returns to normal.

m. Situation L

A malfunction of the main body ECU (instrument panel junction block) is detected. In this situation, the following control is performed:

WARNING FUNCTION OPERATION CONDITION (SITUATION L)

Possible Effects without Warning	Vehicle theft
Warning Condition	A malfunction in the main body ECU (instrument panel junction block) is detected.
Combination Meter • Buzzer	-
Multi-information Display	-
Combination Meter • Master Caution Indicator Light	-
Wireless Door Lock Buzzer	-
Engine Switch Indicator Light	**WARNING:** **The indicator blinks in amber at 2-second intervals.**
Warning Stop Condition	The main body ECU (instrument panel junction block) returns to normal.

n. Situation M

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A warning message appears on the meter when the driver does not follow the proper procedure to start the vehicle.

In this situation, the following control is performed:

WARNING FUNCTION OPERATION CONDITION (SITUATION M)

Possible Effects without Warning	Vehicle theft
Warning Condition	The warning is activated when all of the following conditions are met: • The power source is in a mode other than ON (IG). • Any doors are closed and opened. • The power source is changed from OFF to ON (ACC) more than once with the engine off and the brake pedal not depressed.
Combination Meter • Buzzer	-
Multi-information Display	**WARNING:** **The following message is displayed on the combination meter:** • **"When Starting the Engine Depress the Brake Pedal"**
Combination Meter • Master Caution Indicator Light	-
Wireless Door Lock Buzzer	-
Engine Switch Indicator Light	-
Warning Stop Condition	The warning is stopped when either of the following conditions is met: • 10 seconds have elapsed since a warning message was displayed. • The engine switch is pressed with the brake pedal depressed.

13. **BATTERY SAVING**

a. Vehicle Battery Saving Function

In the smart key system, signals are emitted outside the vehicle at a prescribed interval (0.25 seconds) when the doors are locked. Therefore, the vehicle battery could be discharged if the vehicle remains parked for a long time. For this reason, the controls listed below are carried out:

VEHICLE BATTERY SAVING FUNCTION CHART

Condition	Control
Both conditions below are met for 5 days:	

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• Electrical key is not in detection area. • Touch sensor or lock switch operation is not performed.	Signal transmission interval is extended from 0.25 to 0.75 seconds.
Both conditions below are met for 14 days: • Electrical key is not in detection area. • Touch sensor or lock switch operation is not performed.	Automatically deactivates the smart key system

Reinstatement Conditions

- A wireless door lock control signal (lock, unlock) is input and the ID code matches.
- A user carries the electrical key and presses the lock switch on a door outside handle.
- A door is locked or unlocked by the mechanical key.

b. Electrical Key Battery and Vehicle Battery Saving Function

In the smart key system, if the electrical key is constantly located within the vehicle exterior detection area of the doors, the system maintains periodic communication with the electrical key. Therefore, if the vehicle remains parked in that state for a long time, the electrical key battery and the vehicle battery could be discharged. For this reason, if this state continues longer than 10 minutes, the smart key system automatically becomes deactivated. Reinstatement Conditions

- A wireless door lock control signal (lock, unlock) is input and the ID code matches.
- A user carries the electrical key and presses the lock switch on a door outside handle.
- A door is locked or unlocked by the mechanical key.

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use the following procedures to troubleshoot the smart key system.
- Techstream can be used in steps 4, 5, 6 and 8.
- When troubleshooting the smart key system using Techstream with the engine switch off, connect Techstream to the vehicle and repeat turning any of the courtesy light switches on and off until communication between the tester and the vehicle begins (the interval between ON and OFF should be less than 1.5 sec).

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

HINT:

- In troubleshooting, confirm that the problem symptoms have been accurately identified. Preconceptions should be discarded in order to make an accurate judgment. To clearly understand

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what the problem symptoms are, it is extremely important to ask the customer about the problem and the conditions at the time the malfunction occurred.

- Gather as much information as possible for reference. Past problems that seem unrelated may also help in some cases.
- The following 5 items are important points in the problem analysis:

TROUBLESHOOTING CHART

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

3. **INSPECT BATTERY VOLTAGE**
   a. Measure the battery voltage.

Standard voltage: 11 to 14 V

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

4. **INSPECT CAN COMMUNICATION SYSTEM**
   a. Use Techstream to check if the CAN communication system is functioning normally.

Result

RESULT REFERENCE

Result	Proceed to
(ECU connected, communication line malfunctioning) DTC is not output.	A
(ECU connected, communication line malfunctioning) DTC is output.	B (See **HOW TO PROCEED WITH TROUBLESHOOTING**)

B: GO TO CAN COMMUNICATION SYSTEM

A: Go to next step.

5. **INSPECT LIN COMMUNICATION SYSTEM**
   a. Use Techstream to check if the LIN communication system is functioning normally.

Result

RESULT REFERENCE

Result	Proceed to
(ECU connected, communication line malfunctioning)	A

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DTC is not output.	
(ECU connected, communication line malfunctioning) DTC is output.	B (See **DIAGNOSTIC TROUBLE CODE CHART**)

A: GO TO LIN COMMUNICATION SYSTEM

B: Go to next step.

6. **CHECK FOR DTC**
   a. Check for DTCs. Based on the DTCs output, try to cause the same steering lock system DTC, engine immobiliser system DTC, wireless door lock control system DTC or smart key system (starting) DTC to be output by simulating the symptoms indicated by the DTCs.

Result

RESULT REFERENCE

Result	Proceed to
Steering lock system DTC is not output.	A (See **DIAGNOSTIC TROUBLE CODE CHART**)
Engine immobiliser system DTC is output.	B (See **DIAGNOSTIC TROUBLE CODE CHART**)
Wireless door lock control system DTC is output.	C (See **DIAGNOSTIC TROUBLE CODE CHART**)
Smart key system (starting) DTC is output.	D (See **DIAGNOSTIC TROUBLE CODE CHART**)
DTC is not output.	E

A: GO TO STEERING LOCK SYSTEM

B: GO TO ENGINE IMMOBILISER SYSTEM

C: GO TO WIRELESS DOOR LOCK CONTROL SYSTEM

D: GO TO SMART KEY SYSTEM (STARTING)

E: Go to next step.

7. **PROBLEM SYMPTOMS TABLE**

Result

RESULT REFERENCE

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

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B: GO TO STEP 9

A: Go to next step.

8. **OVERALL ANALYSIS AND TROUBLESHOOTING**
   a. OPERATION CHECK (See **OPERATION CHECK**)
   b. DATA LIST/ACTIVE TEST (See **DIAGNOSIS SYSTEM**)
   c. TERMINALS OF ECU (See **TERMINALS OF ECU**)
9. **REPAIR OR REPLACE**
10. **CONFIRMATION TEST**

NEXT: END

OPERATION CHECK

1. **SMART KEY SYSTEM OPERATION INSPECTION**

HINT:

Refer to **PROBLEM SYMPTOMS TABLE** if the results of the following checks are not normal (See **PROBLEM SYMPTOMS TABLE**).

a. Check the entry unlock function.
   1. Use the wireless lock operation to lock the doors. With the electrical key in your possession, touch a door's outside handle (touch sensor) and check that the door unlocks.
b. Check the entry unlock operation's detection area.
   1. Step 1: Hold the electrical key at the same height as the door's outside handle (approximately 0.8 m (2.62 ft.)). Make sure that the direction and position of the electrical key are as shown in the illustration.
   2. Step 2: When the electrical key is brought within 0.7 to 1.0 m (2.30 to 3.28 ft.) of the vehicle, check that the system enters unlock standby mode.

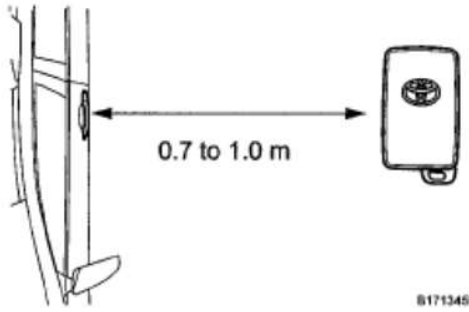


Fig. 88: Checking Entry Unlock Operation's Detection Area
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HINT:

Unlock standby mode is signified by the electrical key's red LED illuminating.

3. Step 3: After the system enters unlock standby mode, touch the door outside handle's sensor within 3 seconds. Check that the door unlocks.

NOTE: The electrical key cannot communicate with the system within a 0.2 m (0.656 ft.) radius of each door outside handle.

4. Step 4: Repeat steps 2 and 3 for the remaining doors.
5. Step 5: Inspect the door electrical key oscillator's response sensitivity. Wear protective gloves, set the system to unlock standby mode, and check that touching the inner side of the door outside handle (the highlighted area in the illustration) with your fingers causes the door to unlock.

NOTE: When touching the highlighted area, tapping too quickly or having extended contact may not trigger the sensor. In such a case, the door will not unlock.

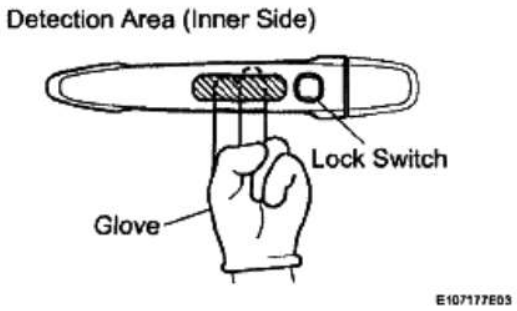


Fig. 89: Inspecting Door Electrical Key Oscillator's
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. Step 6: Repeat step 5 for the remaining doors.

c. Check the entry lock function.

1. Step 1: Close all of the vehicle's doors. With the electrical key in your possession outside the vehicle, check that pressing the lock switch locks the doors.

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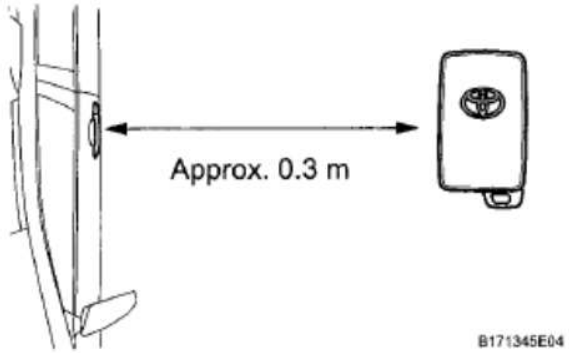


Fig. 90: Checking Entry Lock Function
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. Step 2: Inspect the entry lock operation's detection area and the indoor electrical key antenna for wave leaks. Hold the electrical key at a height of 1 m (3.28 ft.) above the lower edge of the window frame. Make sure that the direction and position of the electrical key are as shown in the illustration. When the electrical key is approximately 0.3 m (0.984 ft.) from the vehicle and the lock switch is pressed, check that all the doors lock and the warning buzzer (for when the electrical key is forgotten) does not sound. If the warning buzzer sounds, the indoor electrical key antenna may have a wave leak.

   HINT:

   Do not press the lock switch with the same hand that is holding the electrical key because the electrical key cannot communicate with the system within a 0.2 m (0.656 ft.) radius of the door outside handle. The doors will not lock.

3. Step 3: Repeat steps 1 and 2 for the remaining doors.

d. Check the entry back door open function.
   1. Close the back door. With the electrical key in your possession, check that pressing the back door opener switch opens the back door.
   2. Inspect the entry back door open operation's detection area. Hold the electrical key at the same height as the back door opener switch (approximately 0.8 m (2.62 ft.)) and align the key with the center of the rear of the vehicle. Make sure that the direction and position of the electrical key are as shown in the illustration. When the electrical key is brought within 0.7 to 1.0 m (2.30 to 3.28 ft.) of the vehicle, check that pressing the back door opener switch opens the back door.

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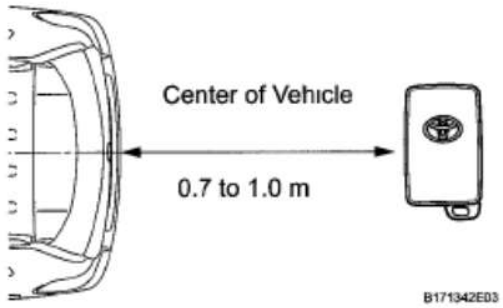


Fig. 91: Checking Entry Back Door Open Function
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Check the entry glass hatch open function.
   1. Close the back door. With the electrical key in your possession, check that pressing the glass hatch opener switch opens the glass hatch.
   2. Inspect the entry glass hatch open operation's detection area. Hold the electrical key at the same height as the glass hatch opener switch (approximately 0.8 m (2.62 ft.)) and align the key with the center of the rear of the vehicle. Make sure that the direction and position of the electrical key are as shown in the illustration. When the electrical key is brought within 0.7 to 1.0 m (2.30 to 3.28 ft.) of the vehicle, check that pressing the glass hatch opener switch opens the glass hatch.

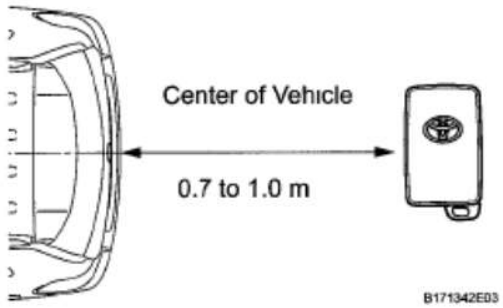


Fig. 92: Checking Entry Glass Hatch Open Function
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

f. Check the entry ignition function.
   1. When the engine is off:

      With the electrical key in your possession and the brake pedal depressed, check that pressing the engine switch releases the steering wheel lock and starts the engine.

      HINT:

      The engine can be started only when the engine switch indicator illuminates in green.

   2. When the engine is running:

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With the electrical key in your possession, check that pressing the engine switch stops the engine.

3. Inspect the entry ignition operation's detection area (front). Make sure that the direction of the electrical key is as shown in the illustration. When the electrical key is in either of the 2 inspection points in the illustration, check that the engine can start.

NOTE: The engine cannot be started when the electrical key is on the instrument panel or in the glove box.

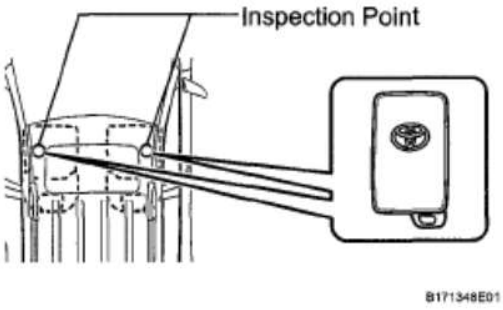


Fig. 93: Inspecting Entry Ignition Operation's Detection Area (Front)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. Inspect the entry ignition operation's detection area (center). Make sure that the direction of the electrical key is as shown in the illustration. When the electrical key is in either of the 2 inspection points in the illustration, check that the engine can start.

NOTE: The engine cannot be started when the electrical key is on the instrument panel or in the glove box.

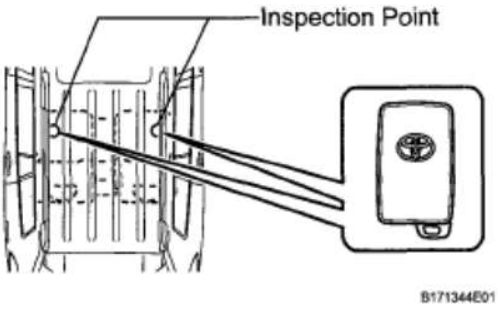


Fig. 94: Inspecting Entry Ignition Operation's Detection Area (Center)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. Inspect the entry ignition operation's detection area (rear). Make sure that the direction of the electrical key is as shown in the illustration. When the electrical key is in either of the 2 inspection points in the illustration, check that the engine can start.

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NOTE: The engine cannot be started when the electrical key is on the instrument panel or in the glove box.

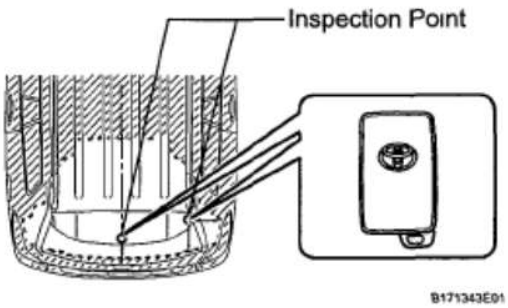


Fig. 95: Inspecting Entry Ignition Operation's Detection Area (Rear)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

g. Check the electrical key lock-in prevention function (Glass hatch).
   1. Place the electrical key in the cabin with all doors locked. Check that: 1) closing the glass hatch triggers the electrical key's wireless buzzer (which lasts approximately 2 seconds), and 2) pressing the glass hatch opener switch opens the glass hatch.

h. Place the electrical key lock-in prevention function (Cabin).
   1. Place the electrical key in the cabin with all doors locked. Check that: 1) closing all doors triggers the electrical key's wireless buzzer (which lasts approximately 2 seconds), and 2) unlocking the doors opens the doors.

i. Check the electrical key cancel function.
   1. Proceed to the electrical key cancel operation (See **CUSTOMIZE PARAMETERS**).

      The electrical key cancel operation disables the following functions:

      - Entry Unlock/Lock
      - Entry Back Door Open
      - Entry Glass Hatch Open
      - Electrical Key Lock-in Prevention
      - Warning

   2. While the electrical key cancel function is ON, check that all functions in the smart key system cannot be operated.

j. Check the answer-back function (hazard warning light flashing and buzzer sounding).

OPERATION CHART

Entry Operation	Hazard Warning Light	Buzzer
Entry Door Lock	Flashes once	Sounds once
Entry Door Unlock	Flashes twice	Sounds twice
Entry Back Door Open	Does not flash	Does not sound
Entry Glass Hatch Open	Does not flash	Does not sound

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k. Check that the electrical key reminder warning buzzer sounds.
   1. Carry the electrical key in the vehicle and close the driver side door. Then turn the engine switch off or on (ACC). The steering lock is released.
   2. Open the driver side door and check that the buzzer sounds intermittently.

l. Check that the electrical key reminder warning buzzer stops.
   1. When the buzzer is sounding, check that the buzzer stops sounding if either of the following is performed:
      - Close the driver side door (front door courtesy light switch is off).
      - Turn the engine switch on (IG or ACC) and lock the steering wheel.

2. **KEY DIAGNOSTIC MODE**

HINT:

Key diagnostic mode checks if the electrical key transmitter within a selected oscillator/amplifier detection area is operating normally. The results are output through the wireless door lock buzzer (in right front fender).

a. Connect Techstream to the DLC3.
b. Turn the engine switch on (IG).
c. Turn the tester on.
d. Enter the following menus: Body Electrical/Smart Key/Utility/Communication Check (Key Diag Mode).
e. Check the values by referring to the table below.

Smart Key (Certification ECU (Smart Key ECU Assembly)):

TESTER DISPLAY REFERENCE

Tester Display	Inspection Range
Overhead + Driver Side	Door electrical key oscillator (front LH)
Overhead + Passenger Side	Door electrical key oscillator (front RH)
Overhead + Front Room	Indoor electrical key oscillator (front)
Overhead + Rear Room	Indoor electrical key oscillator (center)
Overhead + Back Door	Outside electrical key oscillator (back door)
Overhead + Back Door (inside)	Indoor electrical key oscillator (rear)
Immobiliser Amp	Amplifier (engine switch)

f. When the electrical key transmitter is brought near the selected oscillator/antenna, check that the wireless door lock buzzer sounds.

CUSTOMIZE PARAMETERS

1. **CUSTOMIZING FUNCTION WITH TECHSTREAM**

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HINT:

The items in the table below can be customized.

NOTE:

- **When the customer requests a change in a function, first make sure that the function can be customized.**
- **Be sure to make a note of the current setting before customizing.**
- **When troubleshooting a function, first make sure that the function is set to the default setting.**

HINT:

The following functions' default settings are ON. Part of these functions can be customized.

a. Connect Techstream to the DLC3.
b. Turn the engine switch on (IG).
c. Turn the tester on.
d. Enter the following menus: Customize Setting./Smart Key.
e. Select the setting by referring to the table below.

Smart Key (Certification ECU (Smart Key ECU Assembly) (SMART)):

TROUBLESHOOTING CHART

Display (Item)	Default	Contents	Setting
Ignition Available Area	ALL	Function to choose the available area for electrical key to start engine and release the steering lock.	FRONT/ALL
Park Wait Time	2.5s	Function that sets waiting time to permit opening door after door is locked with entry lock function.	0.5s/1.5s/2.5s/5.0s
Glass Hatch Open Operation	ON	Function to open the glass hatch when the driver has the electrical key and presses glass hatch opener switch.	ON/OFF
Back Door Opening Operation	LONG	Function to open the back door when the driver has the electrical key and presses back door opener switch.	LONG/TWICE/OFF

Smart Key (Certification ECU (Smart Key ECU Assembly) (WARNING)):

TROUBLESHOOTING CHART

Display (Item)	Default	Contents	Setting
Passenger Take Key	ON	Function to warn that the electrical key is taken out by passengers (It means that the key is taken out from except the driver's door) when engine is running.	ON/OFF
Key Out Range Warning	ON	Function to set a warning function for trying to start the engine before key is still out of its range.	ON/OFF
Key Low		Function to set a warning function for the time when a key battery	

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Battery Warning	ON	becomes weak.	ON/OFF

2. **ENTRY UNLOCK MODE SWITCHING FUNCTION**

HINT:

The function only changes the entry unlock mode of the smart key system. This function is not for the wireless door lock control.

a. To change the vehicle to entry unlock mode switching function:

- Driver door unlock mode:

  When the driver door's touch sensor is touched, only the driver door unlocks. When another touch sensor is touched, all doors unlock.

- All door unlock mode:

When any touch sensor is touched, all doors unlock.

1. When the engine switch is off, press the LOCK button and one of the other buttons on the key at the same time for approximately 5 seconds while the key is in the actuation area.
2. The certification ECU (smart key ECU assembly) receives this signal from the door control receiver and switches the entry unlock mode.
3. The certification ECU (smart key ECU assembly) sounds the wireless door lock buzzer and the buzzer in the combination meter to inform the user that the mode has been switched.
4. If the entry unlock mode needs to be switched again, press the LOCK button and one of the other three buttons on the key at the same time for approximately 5 seconds after the LED of the key goes off.

NOTE: After pressing and holding the switches for 4.5 seconds, wait 5 seconds before performing the same procedure again.

b. The certification ECU (smart key ECU assembly) receives this signal from the door control receiver and changes the smart key system to the entry unlock mode.

c. The certification ECU (smart key ECU assembly) sounds the wireless door lock buzzer and the buzzer of the combination meter to inform the user that the mode has been switched.

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Mode	Wireless Door Lock Buzzer	Multi-information Display		Combination Meter Buzzer
Driver Door (Default)	ON / OFF — Sounds 3 times	Displayed for 4 sec.	Driver door "OPEN" indication	Sounds once
All Doors (Customized)	ON / OFF — Sounds 2 times	Displayed for 4 sec.	All doors "OPEN" indication	Sounds once

B171364E02

Fig. 96: Multi-Information Screen Display Chart
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **ELECTRICAL KEY CANCEL**

The electrical key cancel operation disables the following functions:

- Entry Unlock/Lock
- Entry Back Door Open
- Entry Glass Hatch Open
- Electrical Key Lock-in Prevention
- Warning

a. The operation procedures are as follows:

Precondition:

Engine switch off, driver side door closed and unlocked.

1. Unlock the driver side door once with the UNLOCK switch of the electrical key.
2. Open the driver door within 5 seconds.
3. Unlock the driver side door twice with the UNLOCK switch of the electrical key within 5 seconds.
4. Close and open the driver door twice within 30 seconds.

(Driver Door: Close --> Open --> Close --> Open)

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5. Unlock the driver side door twice with the UNLOCK switch of the electrical key within 5 seconds.
6. Close and open the driver door within 30 seconds.

   (Driver Door: Close --> Open)

7. Close the driver door within 5 seconds. When electrical key cancel is activated, the wireless door lock buzzer sounds twice.

To return to the original condition, perform the procedures again. When the original condition is returned, the wireless door lock buzzer sounds once.

PROBLEM SYMPTOMS TABLE

HINT:

Use the table below to help determine the cause of a problem. The likely causes of the problem are indicated in descending order. Check each suspected area in order. Repair or replace faulty parts or perform adjustments as necessary.

SMART KEY SYSTEM:

PROBLEM SYMPTOMS CHART

Symptom	Suspected Area	Refer to
All door entry lock/unlock functions and wireless functions do not operate	Power door lock control system	**ALL DOOR ENTRY LOCK/UNLOCK FUNCTIONS AND WIRELESS FUNCTIONS DO NOT OPERATE**
	Electrical key transmitter	-
	Electrical key transmitter battery	-
	Fuse (ECU-B2)	-
	Wire harness or connector	-
	Door control receiver	-
	Certification ECU (Smart key ECU assembly)	-
All door entry lock/unlock functions do not operate, but wireless functions operate	Electrical key transmitter	**ALL DOOR ENTRY LOCK/UNLOCK FUNCTIONS DO NOT OPERATE, BUT WIRELESS FUNCTIONS OPERATE**
	Certification ECU (Smart key ECU assembly)	-
Driver side door entry unlock	Power door lock control system	**DRIVER SIDE DOOR ENTRY UNLOCK FUNCTION DOES NOT OPERATE**
	Door electrical key oscillator (for driver side)	-
	Front door outside handle	

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function does not operate	(for driver side)	-
	Certification ECU (Smart key ECU assembly)	-
	Wire harness or connector	-
Front passenger side door entry unlock function does not operate	Power door lock control system	**FRONT PASSENGER SIDE DOOR ENTRY UNLOCK FUNCTION DOES NOT OPERATE**
	Door electrical key oscillator (for front passenger side)	-
	Front door outside handle (for front passenger side)	-
	Certification ECU (Smart key ECU assembly)	-
	Wire harness or connector	-
Driver side door entry lock and unlock functions do not operate	Power door lock control system	**DRIVER SIDE DOOR ENTRY LOCK AND UNLOCK FUNCTIONS DO NOT OPERATE**
	Door electrical key oscillator (for driver side)	-
	Front door outside handle (for driver side)	-
	Certification ECU (Smart key ECU assembly)	-
	Wire harness or connector	-
Front passenger side door entry lock and unlock functions do not operate	Power door lock control system	**FRONT PASSENGER SIDE DOOR ENTRY LOCK AND UNLOCK FUNCTIONS DO NOT OPERATE**
	Door electrical key oscillator (for front passenger side)	-
	Front door outside handle (for front passenger side)	-
	Certification ECU (Smart key ECU assembly)	-
	Wire harness or connector	-
Driver side door entry lock	Power door lock control system	**DRIVER SIDE DOOR ENTRY LOCK FUNCTION DOES NOT OPERATE**
	Door electrical key oscillator (for driver side)	-
	Front door outside handle	

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function does not operate	(for driver side)	-
	Certification ECU (Smart key ECU assembly)	-
	Wire harness or connector	-
Front passenger side door entry lock function does not operate	Power door lock control system	**FRONT PASSENGER SIDE DOOR ENTRY LOCK FUNCTION DOES NOT OPERATE**
	Door electrical key oscillator (for front passenger side)	-
	Front door outside handle (for front passenger side)	-
	Certification ECU (Smart key ECU assembly)	-
	Wire harness or connector	-
Room oscillator does not recognize key	Indoor electrical key oscillator (for front)	**ROOM OSCILLATOR DOES NOT RECOGNIZE KEY**
	Indoor electrical key oscillator (for rear)	-
	Indoor electrical key oscillator (for luggage compartment)	-
	Certification ECU (Smart key ECU assembly)	-
	Wire harness or connector	-
Entry interior alarm does not sound	Combination meter	**ENTRY INTERIOR ALARM DOES NOT SOUND**
	Certification ECU (Smart key ECU assembly)	-
Entry answer-back does not occur (Buzzer)	Wireless door lock control system	**ENTRY ANSWER-BACK BUZZER DOES NOT SOUND**
	Certification ECU (Smart key ECU assembly)	-
Entry answer-back does not occur (Hazard warning light)	Wireless door lock control system	**PROBLEM SYMPTOMS TABLE**
Entry glass hatch open function does not operate	Glass hatch opener system	**GLASS HATCH OPENER SYSTEM DOES NOT OPERATE**
Back door entry lock function does not operate	Power door lock control system	**BACK DOOR ENTRY LOCK FUNCTION DOES NOT OPERATE**
	Back door opener switch	-
	Certification ECU (Smart key ECU assembly)	-

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	Wire harness or connector	-
Back door entry lock and unlock functions do not operate	Power door lock control system	**BACK DOOR ENTRY LOCK AND UNLOCK FUNCTIONS DO NOT OPERATE**
	Outside electrical key oscillator (for back door)	-
	Certification ECU (Smart key ECU assembly)	-
	Wire harness or connector	-

TERMINALS OF ECU

1. **CHECK CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**
   a. Disconnect the D40 certification ECU (smart key ECU assembly) connector.

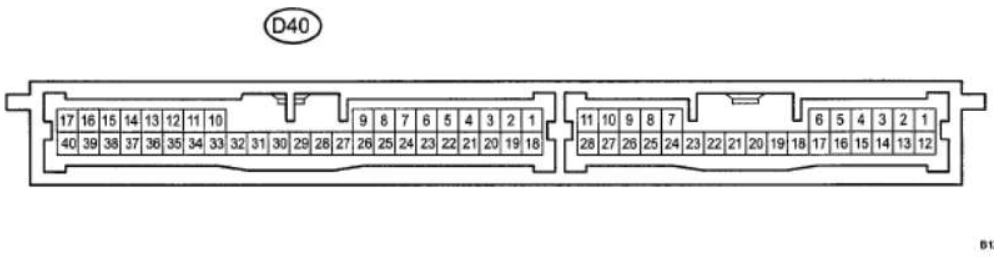


Fig. 97: Identifying D40 Certification ECU (Smart Key ECU Assembly) Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

CONNECTOR TERMINAL REFERENCE

Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
D40-1 (+B) - Body ground	B - Body ground	+B power supply	Always	11 to 14 V
D40-3 (TSW1) - Body ground	LG - Body ground	Entry lock switch (driver side) signal	Front lock switch not pushed	10 kohms or higher
D40-3 (TSW1) - Body ground	LG - Body ground	Entry lock switch (driver side) signal	Front lock switch pushed	Below 1 ohms
D40-4 (TSW2) - Body ground	GR - Body ground	Entry lock switch (front passenger side) signal	Front lock switch not pushed	10 kohms or higher
D40-4 (TSW2) - Body ground	GR - Body ground	Entry lock switch (front passenger side) signal	Front lock switch pushed	Below 1 ohms
D40-7 (TSW5) - Body ground	BR - Body ground	Back door entry lock switch signal	Lock switch OFF	10 kohms or higher

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D40-7 (TSW5) - Body ground	BR - Body ground	Back door entry lock switch signal	Lock switch ON	Below 1 ohms
D40-10 (LIN) - Body ground	L - Body ground	LIN line	Always	10 kohms or higher
D40-17 (E) - Body ground	B - Body ground	Ground	Always	Below 1 ohms
D40-18 (IG) - Body ground	G - Body ground	Ignition power supply	Engine switch off	Below 1 V
D40-18 (IG) - Body ground	G - Body ground	Ignition power supply	Engine switch on (IG)	11 to 14 V
D40-19 (ACC) - Body ground	SB - Body ground	ACC power supply	Engine switch off	Below 1 V
D40-19 (ACC) - Body ground	SB - Body ground	ACC power supply	Engine switch on (ACC)	11 to 14 V
D40-27 (CANH) - Body ground	GR - Body ground	CAN line	Always	10 kohms or higher
D40-28 (CANL) - Body ground	W - Body ground	CAN line	Always	10 kohms or higher
D40-40 (AGND) - Body ground	V - Body ground	Ground	Always	Below 1 ohms

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

c. Reconnect the D40 certification ECU (smart key ECU assembly) connector.

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

CONNECTOR TERMINAL REFERENCE

Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
D40-5 (SEL1) - D40-17 (E)	P - B	Touch sensor (driver side) activation control signal	The key is moved more than 5 m (16.4 ft.) away from the front door.	11 to 14 V
D40-5 (SEL1) - D40-17 (E)	P - B	Touch sensor (driver side) activation control signal	The key is moved to the door outside handle.	Below 1 V
D40-6 (SEL2) - D40-17 (E)	Y - B	Touch sensor (front passenger side) activation control signal	The key is moved more than 5 m (16.4 ft.) away from the front passenger door.	11 to 14 V
D40-6 (SEL2) - D40-17 (E)	Y - B	Touch sensor (front passenger side) activation control signal	The key is moved to the door outside handle.	Below 1 V
D40-8 (TXCT)	O - Body	Transponder key	Electrical key is not in the	Below 1 V

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- Body ground	ground	amplifier output signal	cabin.	
D40-8 (TXCT) - Body ground	O - Body ground	Transponder key amplifier output signal	Electrical key is outside the cabin and the driver's door is open.	Pulse generation (see **WAVEFORM 1**)
D40-9 (CODE) - Body ground	GR - Body ground	Transponder key amplifier communication signal	Electrical key is not in the cabin.	Below 1 V
D40-9 (CODE) - Body ground	GR - Body ground	Transponder key amplifier communication signal	Electrical key is outside the cabin and the driver's door is open. Electrical key is held close to the engine switch with the brake pedal depressed.	Pulse generation (see **WAVEFORM 2**)
D40-11 (CLG5) - D40-12 (CG5B)	R - W	Indoor electrical key oscillator (front) sensor signal	Within 30 seconds after driver side door opened and closed, engine switch off	Alternating between 5 V and below -5 V
D40-11 (CLG5) - D40-12 (CG5B)	R - W	Indoor electrical key oscillator (front) sensor signal	Engine switch on (IG)	Below 1 V
D40-13 (CLG6) - D40-14 (CG6B)	R - SB	Indoor electrical key oscillator (center) sensor signal	Within 30 seconds after driver side door opened and closed, engine switch off	Alternating between 5 V and below -5 V
D40-13 (CLG6) - D40-14 (CG6B)	R - SB	Indoor electrical key oscillator (center) sensor signal	Engine switch on (IG)	Below 1 V
D40-15 (CLG7) - D40-16 (CG7B)	G - O	Indoor electrical key oscillator (rear) sensor signal	Within 30 seconds after driver side door opened and closed, engine switch off	Alternating between 5 V and below -5 V
D40-15 (CLG7) - D40-16 (CG7B)	G - O	Indoor electrical key oscillator (rear) sensor signal	Engine switch on (IG)	Below 1 V
D40-21 (BZR) - Body ground	R - Body ground	Wireless door lock buzzer signal	Wireless door lock buzzer OFF	Below 1 V
D40-21 (BZR) - Body ground	R - Body ground	Wireless door lock buzzer signal	Wireless door lock buzzer ON	Pulse generation
D40-22 (SEN1) - D40-17 (E)	O - B	Touch sensor (driver side) detection signal	Door outside handle touched	Below 1 V
D40-22 (SEN1) - D40-17 (E)	O - B	Touch sensor (driver side) detection signal	Door outside handle not touched (the electrical key is outside the cabin)	11 to 14 V
D40-23 (SEN2) - D40-17 (E)	W - B	Touch sensor (front passenger side) detection signal	Door outside handle touched	Below 1 V
D40-23		Touch sensor (front	Door outside handle not	

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(SEN2) - D40-17 (E)	W - B	passenger side) detection signal	touched (the electrical key is outside the cabin)	11 to 14 V
D40-29 (RC0) - D40-17 (E)	V - B	Entry door control receiver power source	Engine switch off, all doors closed and electrical key switch on	4.5 to 5.5 V
D40-29 (RC0) - D40-17 (E)	V - B	Entry door control receiver power source	Engine switch off, all doors closed and electrical key switch off	Below 1 V
D40-30 (VC5) - Body ground	G - Body ground	Transponder key amplifier power supply	Electrical key is not in the cabin.	Below 1 V
D40-30 (VC5) - Body ground	G - Body ground	Transponder key amplifier power supply	Electrical key is outside the cabin and the driver's door is open.	4.5 to 5.5 V
D40-31 (CLG8) - D40-32 (CG8B)	LG - P	Outside electrical key oscillator (back door) sensor signal	Back door opener switch ON	Alternating between 5 V and below -5 V
D40-31 (CLG8) - D40-32 (CG8B)	LG - P	Outside electrical key oscillator (back door) sensor signal	Back door opener switch OFF	Below 1 V
D40-33 (CLG1) - D40-17 (E)	GR - B	Door electrical key oscillator (driver side) sensor signal	All doors closed and locked and engine switch off	Alternating between 5 V and below 1 V
D40-33 (CLG1) - D40-17 (E)	GR - B	Door electrical key oscillator (driver side) sensor signal	Door unlocked or open	Below 1 V
D40-35 (CLG2) - D40-17 (E)	LG - B	Door electrical key oscillator (front passenger side) sensor signal	All doors closed and locked and engine switch off	Alternating between 5 V and below 1 V
D40-35 (CLG2) - D40-17 (E)	LG - B	Door electrical key oscillator (front passenger side) sensor signal	Door unlocked or open	Below 1 V
D40-38 (RDA) - D40-17 (E)	Y - B	Entry door control receiver data input signal	Engine switch off, all doors closed and electrical key switch off	11 to 14 V (Pulse generation)
D40-38 (RDA) - D40-17 (E)	Y - B	Entry door control receiver data input signal	Engine switch off, all doors closed and electrical key switch on	Pulse generation
D40-38 (RDA) - Body ground	Y - Body ground	Tuner input signal	Engine switch off, all doors closed, and the electrical key is not in the detection area.	11 to 14 V (Pulse generation)
D40-38 (RDA) - Body ground	Y - Body ground	Tuner input signal	The electrical key is in the detection area.	Pulse generation

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D40-39 (RSSI) - D40-17 (E)	B - B	Entry door control receiver electric wave existence signal	Engine switch off, all doors closed, and the electrical key is not in the detection area.	11 to 14 V
D40-39 (RSSI) - D40-17 (E)	B - B	Entry door control receiver electric wave existence signal	Engine switch off, all doors closed, and the electrical key is in the detection area.	Below 1 V

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

e. Inspect using an oscilloscope.

Waveform 1 (Reference):

WAVEFORM REFERENCE

Tester Connection	D40-8 (TXCT) - Body ground
Tool Setting	2 V/DIV., 50ms./DIV.
Condition	The electrical key is outside the cabin and the driver's door is open.

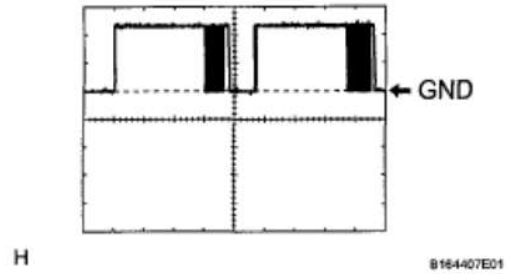


Fig. 98: Waveform Graph 1
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

f. Inspect using an oscilloscope.

Waveform 2 (Reference):

WAVEFORM REFERENCE

Tester Connection	D40-9 (CODE) - Body ground
Tool Setting	2 V/DIV., 50 ms./DIV.
Condition	The electrical key is outside the cabin and the driver's door is open. The electrical key is held close to the engine switch with the brake pedal depressed.

2. **MAIN BODY ECU (INSTRUMENT PANEL JUNCTION BLOCK)**

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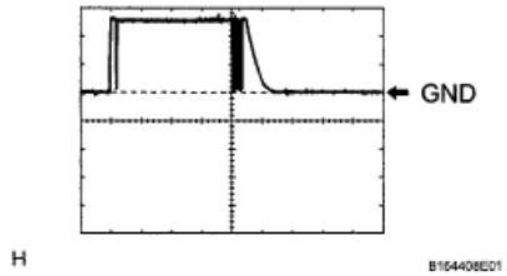


Fig. 99: Waveform Graph 2
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

a. Disconnect the 1M and 1F junction block connectors.
b. Disconnect the D9 main body ECU (instrument panel junction block) connector.

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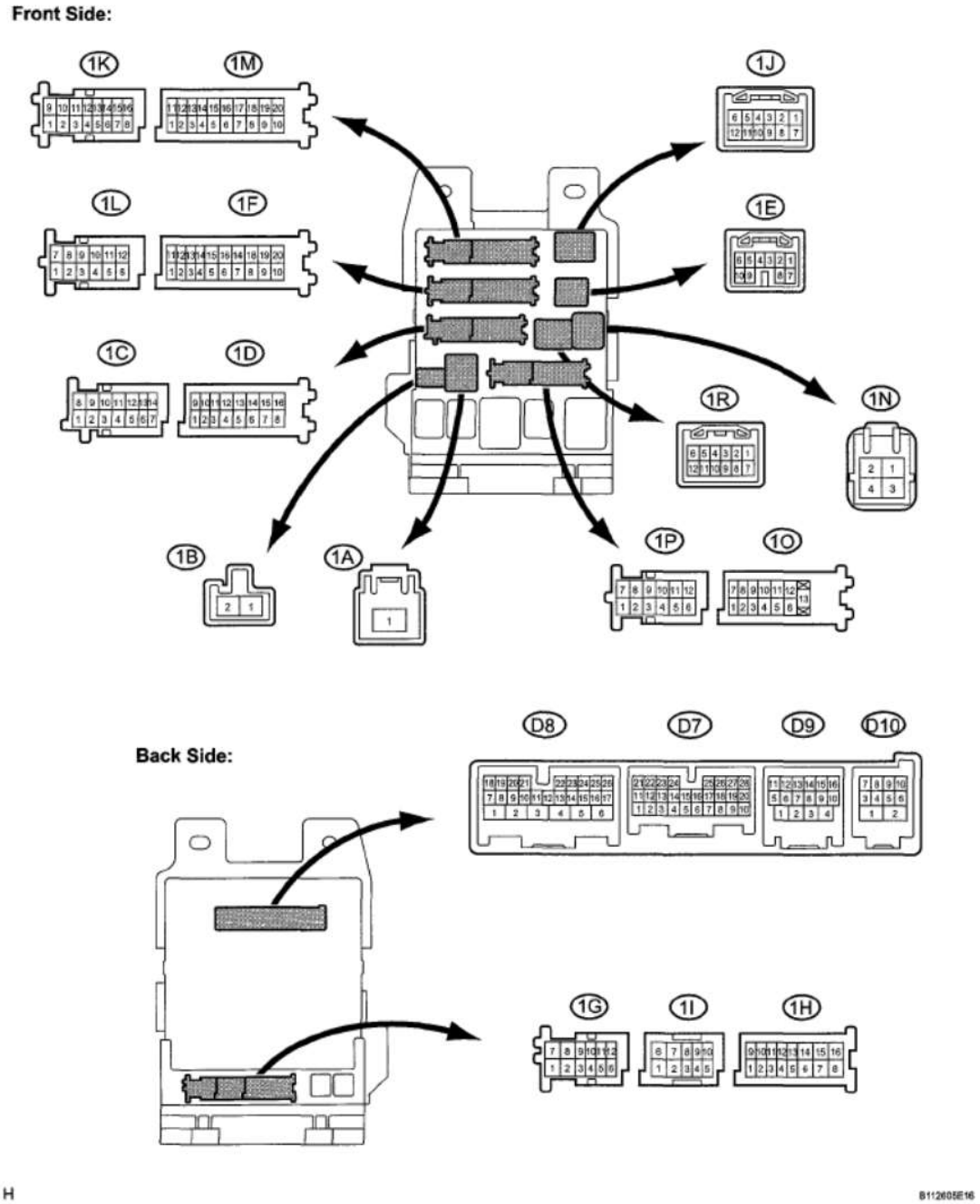


Fig. 100: Identifying 1M And 1F Junction Block Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

CONNECTOR TERMINAL REFERENCE

Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition

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1M-9 (GND2) - Body ground	W-B - Body ground	Ground	Always	Below 1 ohms
1F-10 (GND1) - Body ground	W-B - Body ground	Ground	Always	Below 1 ohms
D9-15 (CANN) - Body ground	W - Body ground	CAN line	Always	10 kohms or higher
D9-16 (CANP) - Body ground	Y - Body ground	CAN line	Always	10 kohms or higher

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

d. Reconnect the 1M and 1F junction block connectors.
e. Reconnect the D9 main body ECU (instrument panel junction block) connector.
f. Measure the voltage according to the value(s) in the table below.

CONNECTOR TERMINAL REFERENCE

Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
1M-7 (STP) - Body ground	GR - Body ground	Stop light switch signal	Brake pedal depressed	11 to 14 V
1M-7 (STP) - Body ground	GR - Body ground	Stop light switch signal	Brake pedal released	Below 1 V

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

DIAGNOSIS SYSTEM

1. **CHECK DLC3**
   a. Check the DLC3 (See **HOW TO TROUBLESHOOT ECU CONTROLLED SYSTEMS**).
2. **INSPECT BATTERY VOLTAGE**
   a. Measure the battery voltage.

Standard voltage: 11 to 14 V

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

DATA LIST/ACTIVE TEST

1. **READ DATA LIST**

HINT:

Using Techstream to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading

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the Data List information early in troubleshooting is one way to save diagnostic time.

a. Connect Techstream to the DLC3.
b. Turn the engine switch on (IG).
c. Turn the tester on. When Techstream cannot be turned on due to a malfunction or other problem, refer to PRECAUTIONS WHEN USING TECHSTREAM (See **SMART KEY SYSTEM**).
d. Enter the following menus: Body Electrical/Smart Key or Main Body/Data List.
e. Read the Data List according to the display on the tester.

Smart Key (Certification ECU (Smart Key ECU Assembly)):

TESTER DISPLAY REFERENCE

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
D Touch Sensor	Driver side door touch sensor/ON or OFF	ON: Sensor is touched OFF: Sensor is not touched	-
P Touch Sensor	Front passenger side door touch sensor/ON or OFF	ON: Sensor is touched OFF: Sensor is not touched	-
D Trigger SW	Driver side door lock switch/ON or OFF	ON: Switch is pressed OFF: Switch is not pressed	-
P Trigger SW	Front passenger side door lock switch/ON or OFF	ON: Switch is pressed OFF: Switch is not pressed	-
Tr/B-Door Unlk	Back door opener switch/ON or OFF	ON: Switch is pushed OFF: Switch is not pushed	-
IG SW	Engine switch/ON or OFF	ON: Engine switch is on (IG) OFF: Engine switch is off	-
Unmatch V-ID	Unmatched vehicle-ID/YES or NO	YES: Key ID matches vehicle NO: Key ID does not match vehicle	-
No Response	No response/YES or NO	YES: Response from key NO: No response from key	-
Unmatch Format	Unmatched response code and format/YES or NO	YES: Key ID code matches NO: Key ID code does not match	-
Low Battery	Key low battery/YES or NO	YES: Key battery voltage drops NO: Key battery voltage is normal	-
P/S 10-Min	Power save counter - 10 minutes/ Min.: 0; Max.: 255	Power save counter after door LOCK/UNLOCK-10 minutes	-
P/S 5-Day	Power save counter - 5 days/ Min.: 0; Max.: 255	Power save counter after door LOCK/UNLOCK-5 days	-
P/S 14-Day	Power save counter -14 days/ Min.: 0; Max.: 255	Power save counter after door LOCK/UNLOCK-14 days	-
ACC SW	Engine switch/ON or OFF	ON: Engine switch is on (ACC) OFF: Engine switch is off	-
Wrong Code	ID code difference/YES or NO	YES: Key ID code matches NO: Key ID code does not match	-

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Wrong C Code	Challenge code difference (Response)/YES or NO	YES: Key ID code matches NO: Key ID code does not match	-
Wrong ID Code	ID code difference/YES or NO	YES: Key ID code matches NO: Key ID code does not match	-
Wrong Rol Code	Rolling code difference/YES or NO	YES: Key rolling code matches NO: Key rolling code does not match	-
Entry Cancel SW	Entry door lock function cancel/ ON or OFF	Mode status is displayed	-
Glass Hatch Open Mode	Glass hatch open mode with vehicle locked/ON or OFF	Customization status is displayed	-
Back Door Open Mode	Back door open mode with vehicle locked/ON or OFF	Customization status is displayed	-
Key Lo-Batt Warm	Key low battery warning/ON or OFF	Customization status is displayed	-

Main Body (Main Body ECU):

TESTER DISPLAY REFERENCE

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
IG SW	Engine switch/ON or OFF	ON: Engine switch is on (IG) OFF: Engine switch is off	-
D Dor Cty SW	Driver side door courtesy light switch signal/ON or OFF	ON: Driver side door open OFF: Driver side door closed	-
P Dor Cty SW	Front passenger side door courtesy light switch signal/ON or OFF	ON: Front passenger side door open OFF: Front passenger side door closed	-
RR Dor Cty SW	Rear door courtesy light switch RH signal/ON or OFF	ON: Rear door open OFF: Rear door closed	-
RL Dor Cty SW	Rear door courtesy light switch LH signal/ON or OFF	ON: Rear door open OFF: Rear door closed	-
Back Door Courtesy SW	Back door courtesy light switch signal/ON or OFF	ON: Back door open OFF: Back door closed	-

2. **PERFORM ACTIVE TEST**

HINT:

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

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performing Active Tests.

a. Connect Techstream to the DLC3.
b. Turn the engine switch on (IG).
c. Turn the tester on.
d. Enter the following menus: Body Electrical/Smart Key/Active Test.
e. Perform the Active Test according to the display on the tester.

Smart Key (Certification ECU (Smart Key ECU Assembly)):

TESTER DISPLAY REFERENCE

Tester Display	Test Part	Control Range	Diagnostic Note
Overhead Tuner	Entry door control receiver	ON/OFF	-
Fr Transmitter	Indoor electrical key oscillator (front)	ON/OFF	-
Rr Transmitter	Indoor electrical key oscillator (center)	ON/OFF	-
In Bdr Transmitter	Indoor electrical key oscillator (rear)	ON/OFF	-
Bdoor Transmitter	Outside electrical key oscillator (back door)	ON/OFF	-
P Select Sig	Front passenger side select	ON/OFF	-
Wireless Buzzer	Wireless buzzer	ON/OFF	-
Security Ind	Security indicator	ON/OFF	-

Main Body:

TESTER DISPLAY REFERENCE

Tester Display	Test Part	Control Range	Diagnostic Note
Trunk/Bdor Open	Back door opener switch signal	ON/OFF	-

ENTRY ANSWER-BACK BUZZER DOES NOT SOUND

DESCRIPTION

The smart key system uses the wireless door lock buzzer to perform various vehicle exterior warnings. When the conditions for each warning are met, the certification ECU (smart key ECU assembly) sends a buzzer signal to the wireless door lock buzzer, and the wireless door lock buzzer sounds.

INSPECTION PROCEDURE

NOTE: Before performing the inspection, check that there are no problems related to "CAN COMMUNICATION SYSTEM" and "LIN COMMUNICATION SYSTEM".

1. **CHECK WIRELESS DOOR LOCK BUZZER OPERATION**
   a. When the wireless operation is used to lock or unlock the doors, check that the wireless door lock buzzer sounds normally.

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OK: Wireless door lock buzzer sounds.

NG: GO TO WIRELESS DOOR LOCK CONTROL SYSTEM (See **PROBLEM SYMPTOMS TABLE**)

OK: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

ALL DOOR ENTRY LOCK/UNLOCK FUNCTIONS AND WIRELESS FUNCTIONS DO NOT OPERATE

DESCRIPTION

When the entry functions and wireless door lock functions do not operate, a malfunction or wave interference may be occurring in either of the following: 1) signal communication line between the door control receiver and certification ECU (smart key ECU assembly) (line is used for entry and wireless functions); or 2) electrical key transmitter.

WIRING DIAGRAM

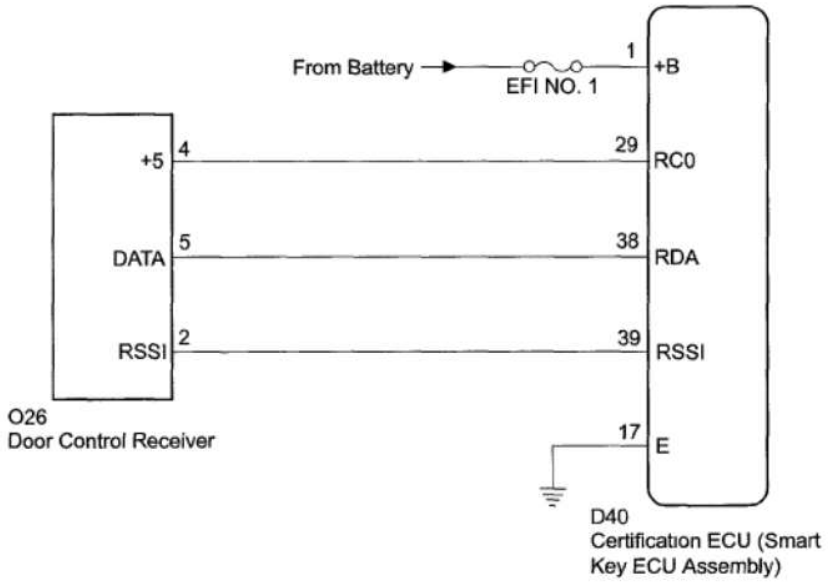


Fig. 101: Door Control Receiver - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

NOTE:

- **Before performing the inspection, check that there are no problems related to "CAN COMMUNICATION SYSTEM" and "LIN COMMUNICATION SYSTEM".**

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- **Check that there are not electrical key transmitters in the vehicle.**
- **Before performing the inspection, check that DTC B1242 is not output (see DTC B1242 WIRELESS DOOR LOCK TUNER CIRCUIT MALFUNCTION).**

1. **CHECK POWER DOOR LOCK OPERATION**
   a. When the door control switch on the master switch assembly is operated, check that the locked doors unlock (See **OPERATION CHECK**).

OK: Locked doors unlock.

NG: GO TO POWER DOOR LOCK CONTROL SYSTEM (See **PROBLEM SYMPTOMS TABLE**)

OK: Go to next step.

2. **CHECK ELECTRICAL KEY TRANSMITTER**
   a. When another registered door control transmitter is used, check that the wireless and entry functions operate normally (See **OPERATION CHECK**).

Result

RESULT REFERENCE

Result	Proceed to
Entry functions do not operate	A
Entry functions operate and electrical key transmitter does not operate	B

A: Go to step 5

B: Go to next step.

3. **CHECK ELECTRICAL KEY TRANSMITTER (LED)**
   a. Check that the transmitter's LED illuminates 3 times when the switch is pressed 3 times.

Result

RESULT REFERENCE

Result	Proceed to
Transmitter's LED illuminates 3 times when switch is pressed 3 times	A
Transmitter's LED does not illuminate the second or third time	B
Transmitter's LED does not illuminate 3 times when switch is pressed 3 times	C

HINT:

If the transmitter's LED does not illuminate the second or third time, replace the transmitter battery as it is

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depleted.

A: REPLACE ELECTRICAL KEY TRANSMITTER

B: REPLACE ELECTRICAL TRANSMITTER BATTERY (See **REMOVAL**)

C: Go to next step.

4. **INSPECT TRANSMITTER BATTERY (VOLTAGE)**
   a. Remove the battery from the electrical key transmitter that does not operate. Attach a lead wire (0.6 mm (0.0236 in.) in diameter or less including wire sheath) with tape or equivalent to the negative terminal (See **REMOVAL**).

NOTE: **Do not wrap the lead wire around a terminal, wedge it between the terminals, or solder it. A terminal may be deformed or damaged, and the battery will not be able to be installed correctly.**

   b. Carefully pull the lead wire out from the position shown in the illustration and install the previously removed transmitter battery.

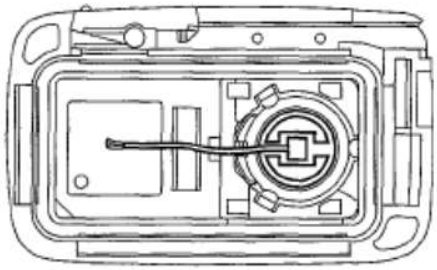


Fig. 102: Identifying Lead Wire
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   c. Using an oscilloscope, check the transmitter battery voltage waveform.

HINT:

When measuring the battery voltage, while operating the lock switch of a door outside handle, bring the electrical key transmitter within the entry operating range to perform the measurement. For the entry operating range, refer to **SYSTEM DESCRIPTION** (See **SYSTEM DESCRIPTION**).

Standard voltage

STANDARD VOLTAGE SPECIFICATION

Item	Content

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Tester Connection	Battery positive (+) - Battery negative (-)
Tool Setting	0.5 V/DIV., 100ms/DIV.
Condition	Engine switch OFF, all doors closed and lock switch pushed
Specified Condition	2.2 to 3.2 V (Refer to the waveform)

NG: REPLACE ELECTRICAL TRANSMITTER BATTERY (See **REMOVAL**)

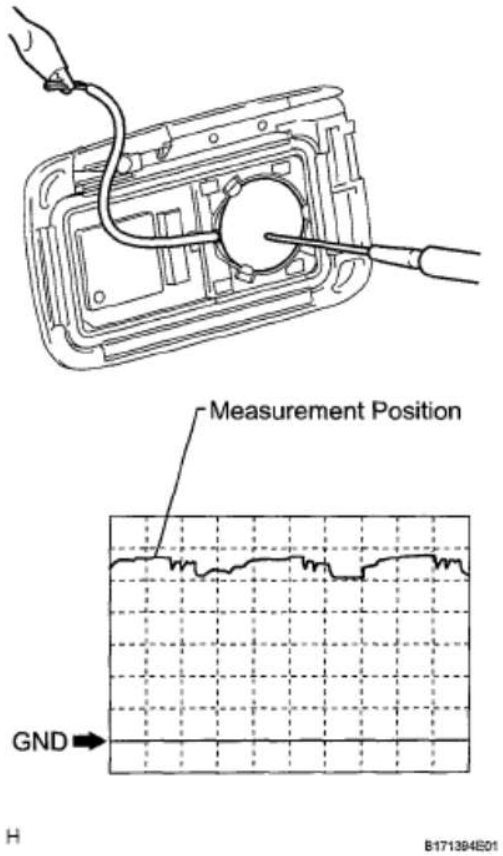


Fig. 103: Checking Transmitter Battery Voltage Waveform
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: REPLACE ELECTRICAL KEY TRANSMITTER

5. **CHECK WAVE ENVIRONMENT**
   a. Bring the electrical key transmitter near the door control receiver, and perform a wireless and smart operation check.

HINT:

- When the electrical key transmitter is brought near the door control receiver, the possibility of wave interference decreases, and it can be determined if wave interference is causing the problem symptom.

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- If the inspection result is that the problem only occurs in certain locations or times of day, the possibility of wave interference is high. Also, added vehicle components may cause wave interference. If installed, remove them and perform the operation check.

OK: Wireless and entry functions operate normally.

NG: Go to step 6

OK: AFFECTED BY WAVE INTERFERENCE

6. **INSPECT FUSE (EFI NO. 1)**
   a. Remove the EFI NO. 1 fuse from the main body ECU (instrument panel junction block).
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
EFI NO. 1 fuse	Always	Below 1 ohms

NG: REPLACE FUSE (EFI NO. 1)

OK: Go to next step.

7. **CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU - BATTERY AND GROUND)**
   a. Measure the voltage and resistance according to the value(s) in the table below.

Standard voltage

STANDARD VOLTAGE SPECIFICATION

Tester Connection	Condition	Specified Condition
D40-1 (+B) - Body ground	Always	11 to 14 V

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
D40-17 (E) - Body ground	Always	Below 1 ohms

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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Component with harness connected:
(Certification ECU (Smart Key ECU Assembly))

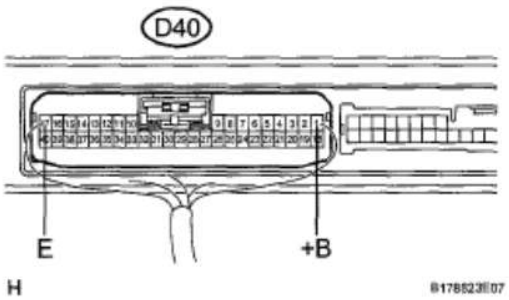


Fig. 104: Identifying D40 Certification ECU Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

8. **CHECK HARNESS AND CONNECTOR (DOOR CONTROL RECEIVER - CERTIFICATION ECU)**
   a. Disconnect the certification ECU (smart key ECU assembly) and door control receiver connectors.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

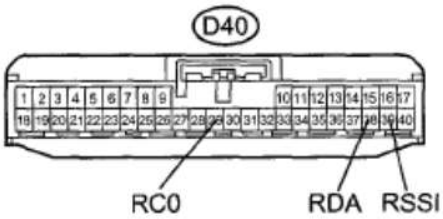
STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
D40-39 (RSSI) - O26-2 (RSSI)	Always	Below 1 ohms
D40-38 (RDA) - O26-5 (DATA)	Always	Below 1 ohms
D40-29 (RCO) - O26-4 (+5)	Always	Below 1 ohms
D40-39 (RSSI) - Body ground	Always	10 kohms or higher
D40-38 (RDA) - Body ground	Always	10 kohms or higher
D40-29 (RCO) - Body ground	Always	10 kohms or higher

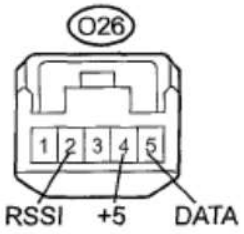
NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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Front view of wire harness connector:
(to Certification ECU (Smart Key ECU Assembly))



Front view of wire harness connector:
(to Door Control Receiver)



H B171406E01

Fig. 105: Identifying D40 Certification ECU And O26 Door Control Receiver Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

9. **REPLACE DOOR CONTROL RECEIVER**
   a. Replace the door control receiver (See **REMOVAL**).
10. **CHECK DOOR CONTROL RECEIVER (OPERATION)**
   a. Check that the wireless and entry functions operate normally.

OK: Wireless and entry functions operate normally.

NG: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

OK: END (DOOR CONTROL RECEIVER IS DEFECTIVE)

ALL DOOR ENTRY LOCK/UNLOCK FUNCTIONS DO NOT OPERATE, BUT WIRELESS FUNCTIONS OPERATE

DESCRIPTION

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When the wireless operation can be used to lock and unlock the doors, the communication line between the door control receiver and certification ECU (smart key ECU assembly) is normal. When the entry functions do not operate, one of the following may be the cause: 1) entry cancel function is set through customization; 2) malfunction in smart key system communication line (electrical key transmitter and vehicle); or 3) wave interference.

INSPECTION PROCEDURE

NOTE: Before performing the inspection, check that there are no problems related to "CAN COMMUNICATION SYSTEM" and "LIN COMMUNICATION SYSTEM".

1. **READ VALUE ON TECHSTREAM (ENTRY CANCEL FUNCTION)**
   a. Connect Techstream to the DLC3.
   b. Turn the engine switch on (IG).
   c. Turn the tester on.
   d. Enter the following menus: Body Electrical/Smart Key/Data List.
   e. Select Entry Cancel SW in the Data List and read the tester display.

Smart Key (Certification ECU (Smart Key ECU Assembly)):

TESTER DISPLAY REFERENCE

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Entry Cancel SW	Entry function cancel/ON or OFF	Mode status is displayed	-

Result

RESULT REFERENCE

Result	Proceed to
Entry function is ON	A
Entry function is OFF	B

A: PERFORM CANCELLATION OF ENTRY KEY CANCEL FUNCTION (See **CUSTOMIZE PARAMETERS**)

B: Go to next step.

2. **CHECK WAVE ENVIRONMENT**
   a. Move the electrical key transmitter as described below and perform the operation inspection.

   HINT:

   - When the electrical key transmitter is brought near the door outside handle or electrical key antenna, the possibility of wave interference decreases, and it can be determined if wave interference is causing the problem symptom.

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- The transmitting waves of the wireless functions and entry functions are the same, but the wave logic is different. Therefore, it is possible that only the wireless functions or only the entry functions are affected by wave interference.

b. Bring the electrical key transmitter near the driver door outside handle, and perform a front driver door entry lock and unlock operation check.

NOTE: If the key is brought within 0.2 m (0.656 ft.) of the door outside handle, communication is not possible.

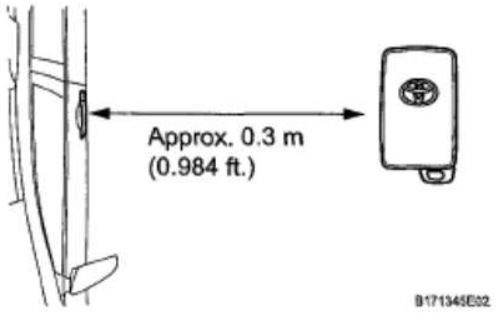


Fig. 106: Bring Electrical Key Transmitter Near Driver Door Outside Handle
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Bring the electrical key transmitter near the front passenger door outside handle, and perform a front passenger door entry lock and unlock operation check.

NOTE: If the key is brought within 0.2 m (0.656 ft.) of the door outside handle, communication is not possible.

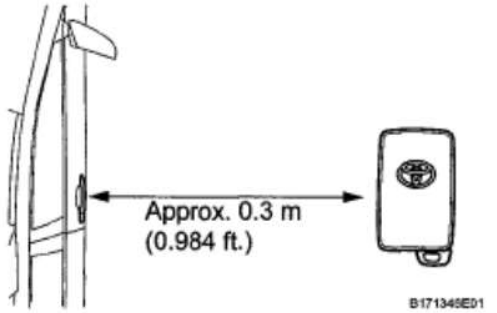


Fig. 107: Bring Electrical Key Transmitter Near Front Passenger Door Outside Handle
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Bring the electrical key transmitter near the outside electrical key oscillator (back door), and perform an entry back door open and lock functions check.

NOTE: If the key is brought within 0.2 m (0.656 ft.) of the rear bumper, communication is not possible.

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HINT:

If the inspection result is that the problem only occurs in certain locations or times of day, the possibility of wave interference is high. Also, added vehicle components may cause wave interference. If installed, remove them and perform the operation check.

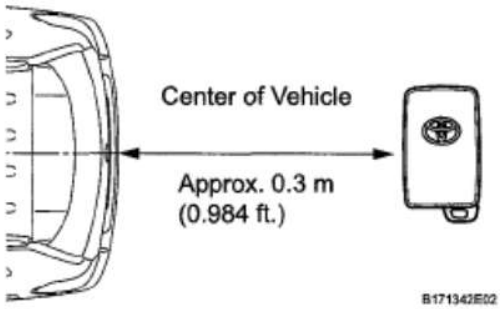


Fig. 108: Bring Electrical Key Transmitter Near Outside Electrical Key Oscillator (Back Door)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Result

RESULT REFERENCE

Result	Proceed to
Some operation checks are normal	A
All operation checks fail	B

A: AFFECTED BY WAVE INTERFERENCE

B: Go to next step.

3. **PERFORM KEY DIAGNOSTIC MODE INSPECTION**
   a. Diagnostic mode inspection (driver door outside handle oscillator)
      1. Connect Techstream to the DLC3.
      2. Turn the engine switch on (IG).
      3. Turn the tester on.
      4. Enter the following menus: Body Electrical/Smart Key/Utility/Communication Check (Key Diag Mode)/Overhead + Driver Side.
      5. When the electrical key transmitter is in the position shown in the illustration, check that the wireless door lock buzzer sounds.

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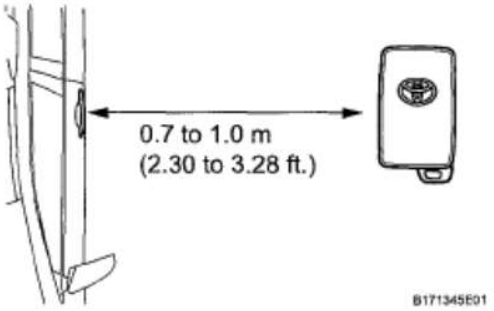


Fig. 109: Diagnostic Mode Inspection (Driver Door Outside Handle Oscillator)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Diagnostic mode inspection (front passenger door outside handle oscillator)
   1. Connect Techstream to the DLC3.
   2. Turn the engine switch on (IG).
   3. Turn the tester on.
   4. Enter the following menus: Body Electrical/Smart Key/Utility/Communication Check (Key Diag Mode)/Overhead + Passenger Side.
   5. When the electrical key transmitter is in the position shown in the illustration, check that the wireless door lock buzzer sounds.

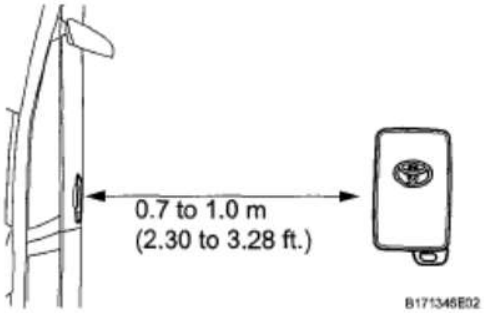


Fig. 110: Diagnostic Mode Inspection (Front Passenger Door Outside Handle Oscillator)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Diagnostic mode inspection (indoor electrical key oscillator (front))
   1. Connect Techstream to the DLC3.
   2. Turn the engine switch on (IG).
   3. Turn the tester on.
   4. Enter the following menus: Body Electrical/Smart Key/Utility/Communication Check (Key Diag Mode)/Overhead + Front Room.
   5. When the electrical key transmitter is in the position shown in the illustration, check that the wireless door lock buzzer sounds.

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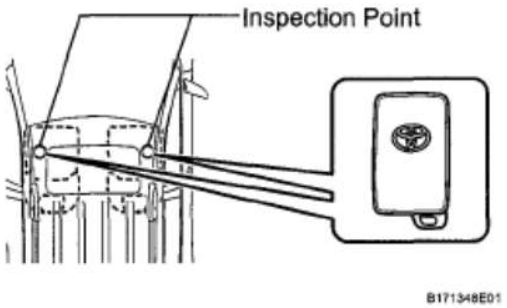


Fig. 111: Inspecting Entry Ignition Operation's Detection Area (Front)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Diagnostic mode inspection (indoor electrical key oscillator (rear))
   1. Connect Techstream to the DLC3.
   2. Turn the engine switch on (IG).
   3. Turn the tester on.
   4. Enter the following menus: Body Electrical/Smart Key/Utility/Communication Check (Key Diag Mode)/Overhead + Rear Room.
   5. When the electrical key transmitter is in the position shown in the illustration, check that the wireless door lock buzzer sounds.

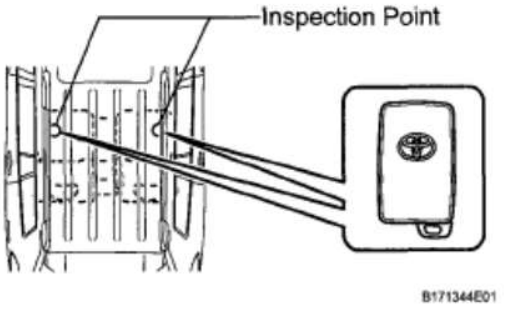


Fig. 112: Inspecting Entry Ignition Operation's Detection Area (Center)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Diagnostic mode inspection (indoor electrical key oscillator (luggage compartment))
   1. Connect Techstream to the DLC3.
   2. Turn the engine switch on (IG).
   3. Turn the tester on.
   4. Enter the following menus: Body Electrical/Smart Key/Utility/Communication Check (Key Diag Mode)/Overhead + Back Door (inside).
   5. When the electrical key transmitter is held at the same height as the rear bumper upper surface and aligned with the center of the rear of the vehicle, check that the wireless door lock buzzer sounds.

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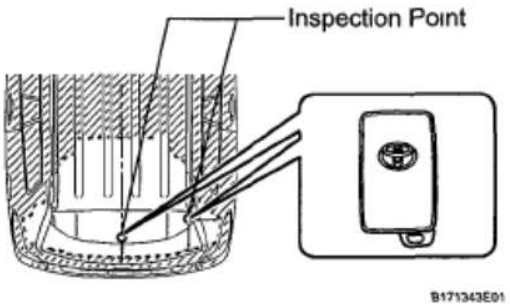


Fig. 113: Inspecting Entry Ignition Operation's Detection Area (Rear)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

f. Diagnostic mode inspection (outside electrical key oscillator (back door))
   1. Connect Techstream to the DLC3.
   2. Turn the engine switch on (IG).
   3. Turn the tester on.
   4. Enter the following menus: Body Electrical/Smart Key/Utility/Communication Check (Key Diag Mode)/Overhead + Back Door.
   5. When the electrical key transmitter is in the position shown in the illustration, check that the wireless door lock buzzer sounds.

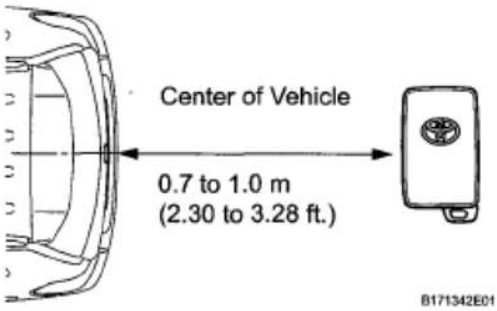


Fig. 114: Diagnostic Mode Inspection (Outside Electrical Key Oscillator (Back Door)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Result

RESULT REFERENCE

Result	Proceed to
Some diagnostic mode inspections fail (door)	A
Some diagnostic mode inspections fail (interior)	B
Some diagnostic mode inspections fail (back door)	C
All diagnostic mode inspections are normal	D
All diagnostic mode inspections fail	E

A: GO TO OTHER PROBLEM (PROCEED TO PROBLEM SYMPTOMS TABLE

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FLOWCHART FOR EACH DOOR) (See **PROBLEM SYMPTOMS TABLE**)

B: GO TO OTHER FLOWCHART (See **ROOM OSCILLATOR DOES NOT RECOGNIZE KEY**)

C: GO TO OTHER FLOWCHART (See **BACK DOOR ENTRY LOCK AND UNLOCK FUNCTIONS DO NOT OPERATE**)

D: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

E: Go to next step.

4. **REPLACE ELECTRICAL KEY TRANSMITTER**
   a. Replace the electrical key transmitter.
5. **REGISTER ELECTRICAL KEY TRANSMITTER**
   a. Register the electrical key transmitter (See **REGISTRATION**).
6. **CHECK ELECTRICAL KEY TRANSMITTER (OPERATION)**
   a. Check that the entry functions operate normally.

OK: Entry functions operate normally.

NG: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

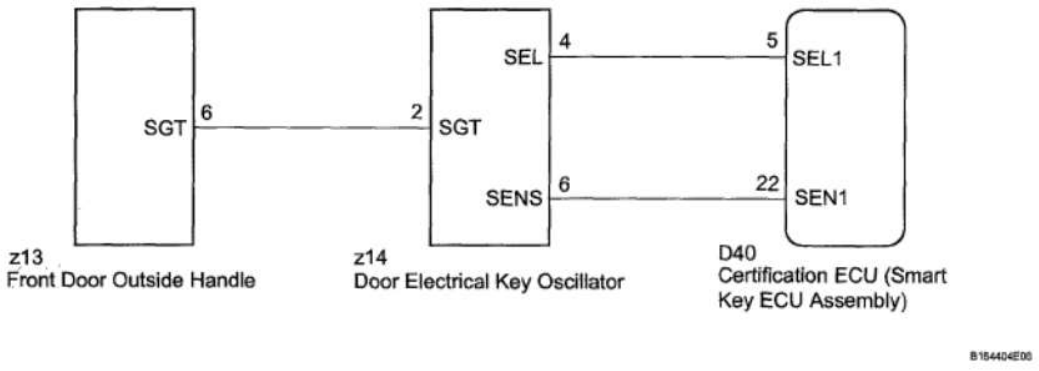
OK: END (ELECTRICAL KEY TRANSMITTER IS DEFECTIVE)

DRIVER SIDE DOOR ENTRY UNLOCK FUNCTION DOES NOT OPERATE

DESCRIPTION

If the driver door entry unlock function does not operate but the entry lock function operates, the communication line between the vehicle and electrical key transmitter is normal. As a faulty part, the touch sensor circuit (certification ECU (smart key ECU assembly) --> driver side door outside handle driver side door electrical key oscillator) can be considered.

WIRING DIAGRAM



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Fig. 115: Driver Side Door Entry Unlock Function - Wiring Diagram
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INSPECTION PROCEDURE

NOTE: Before performing the inspection, check that there are no problems related to "CAN COMMUNICATION SYSTEM" and "LIN COMMUNICATION SYSTEM".

1. **CHECK POWER DOOR LOCK OPERATION**
   a. When the door control switch on the master switch assembly is operated, check that the locked doors unlock (See **OPERATION CHECK**).

   OK: Locked doors unlock.

   NG: GO TO POWER DOOR LOCK CONTROL SYSTEM (See **PROBLEM SYMPTOMS TABLE**)

   OK: Go to next step.

2. **READ VALUE ON TECHSTREAM (DOOR OUTSIDE HANDLE)**
   a. Connect Techstream to the DLC3.
   b. Turn the engine switch on (IG).
   c. Turn the tester on.
   d. Enter the following menus: Body Electrical/Smart Key/Data List.
   e. Select D Touch Sensor in the Data List and read the tester display.

   Smart Key (Certification ECU (Smart Key ECU Assembly)):

   TESTER DISPLAY REFERENCE

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
D Touch Sensor	Status of touch sensor front LH/ON or OFF	ON: Touch sensor is touched OFF: Touch sensor is not touched	-

   OK: On the tester screen, the item changes between ON and OFF according to the chart above.

   NG: Go to step 3

   OK: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

3. **CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU - DOOR ELECTRICAL KEY OSCILLATOR)**
   a. Disconnect the certification ECU (smart key ECU assembly) and door electrical key oscillator connectors.

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

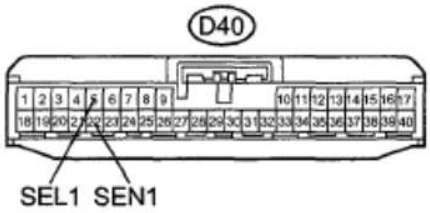
Standard resistance

STANDARD RESISTANCE SPECIFICATION

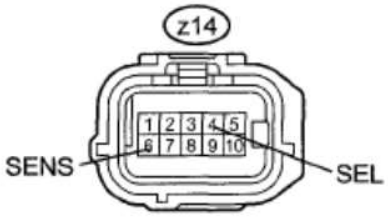
Tester Connection	Condition	Specified Condition
D40-5 (SEL1) - z14-4 (SEL)	Always	Below 1 ohms
D40-22 (SEN1) - z14-6 (SENS)	Always	Below 1 ohms
D40-5 (SEL1) - Body ground	Always	10 kohms or higher
D40-22 (SEN1) - Body ground	Always	10 kohms or higher

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

Front view of wire harness connector:
(to Certification ECU (Smart Key ECU Assembly))



Front view of wire harness connector:
(to Electrical Key Oscillator)



H B171407E01

Fig. 116: Identifying D40 Certification ECU And Z14 Door Electrical Key Oscillator Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

4. **CHECK HARNESS AND CONNECTOR (DOOR ELECTRICAL KEY OSCILLATOR - FRONT DOOR OUTSIDE HANDLE)**

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a. Remove the front door outside handle (See **REMOVAL**).
b. Disconnect the touch sensor connector.
c. Measure the resistance according to the value(s) in the table below.

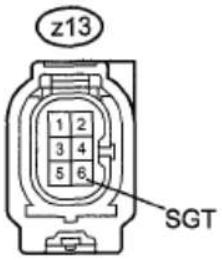
Standard resistance

STANDARD RESISTANCE SPECIFICATION

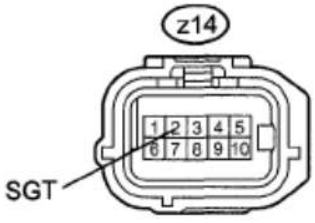
Tester Connection	Condition	Specified Condition
z13-6 (SGT) - z14-2 (SGT)	Always	Below 1 ohms
z13-6 (SGT) - Body ground	Always	10 kohms or higher

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

Front view of wire harness connector:
(to Touch Sensor)



Front view of wire harness connector:
(to Electrical Key Oscillator)



H B164339E23

Fig. 117: Identifying Z13 Touch Sensor And Z14 Electrical Key Oscillator Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

5. **REPLACE DOOR ELECTRICAL KEY OSCILLATOR**
   a. Replace the door electrical key oscillator (See **REMOVAL**).

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6. **CHECK DOOR ELECTRICAL KEY OSCILLATOR (OPERATION)**
   a. Check that the entry functions operate normally.

   OK: Entry functions operate normally.

   NG: Go to step 7

   OK: END (DOOR ELECTRICAL KEY OSCILLATOR IS DEFECTIVE)

7. **REPLACE FRONT DOOR OUTSIDE HANDLE**
   a. Replace the front door outside handle RH (See **REMOVAL**).
8. **CHECK FRONT DOOR OUTSIDE HANDLE (OPERATION)**
   a. Check that the entry functions operate normally.

   OK: Entry functions operate normally.

   NG: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

   OK: END (FRONT DOOR OUTSIDE HANDLE IS DEFECTIVE)

FRONT PASSENGER SIDE DOOR ENTRY UNLOCK FUNCTION DOES NOT OPERATE

DESCRIPTION

If the front passenger door entry unlock function does not operate but the entry lock function operates, the communication line between the vehicle and electrical key transmitter is normal. As a faulty part, the touch sensor circuit (certification ECU (smart key ECU assembly) --> passenger side door outside handle --> passenger side door key oscillator) can be considered.

WIRING DIAGRAM

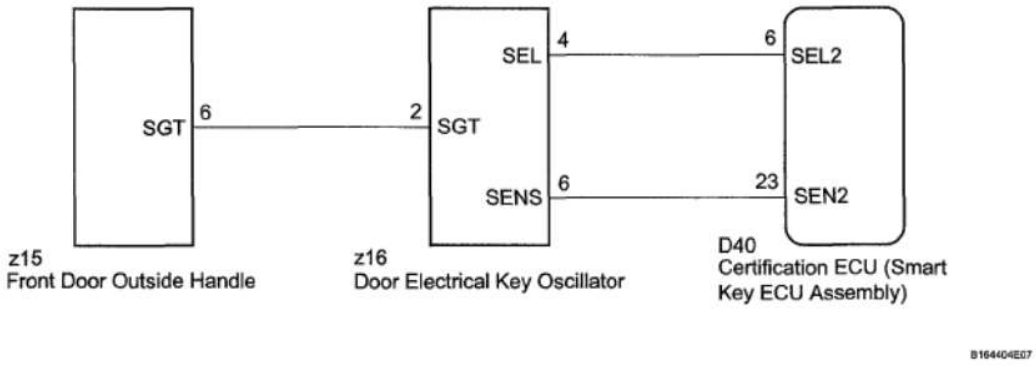


Fig. 118: Front Passenger Side Door Entry Unlock Function - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

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NOTE: Before performing the inspection, check that there are no problems related to "CAN COMMUNICATION SYSTEM" and "LIN COMMUNICATION SYSTEM".

1. **CHECK POWER DOOR LOCK OPERATION**
   a. When the door control switch on the master switch assembly is operated, check that the locked doors unlock (See **OPERATION CHECK**).

   OK: Locked doors unlock.

   NG: GO TO POWER DOOR LOCK CONTROL SYSTEM (See **PROBLEM SYMPTOMS TABLE**)

   OK: Go to next step.

2. **READ VALUE ON TECHSTREAM (DOOR OUTSIDE HANDLE)**
   a. Connect Techstream to the DLC3.
   b. Turn the engine switch on (IG).
   c. Turn the tester on.
   d. Enter the following menus: Body Electrical/Smart Key/Data List.
   e. Select P Touch Sensor in the Data List and read the tester display.

   Smart Key (Certification ECU (Smart Key ECU Assembly)):

   TESTER DISPLAY REFERENCE

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
P Touch Sensor	Status of touch sensor front LH/ON or OFF	ON: Touch sensor is touched OFF: Touch sensor is not touched	-

   OK: On the tester screen, the item changes between ON and OFF according to the chart above.

   NG: Go to step 3

   OK: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

3. **CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU - DOOR ELECTRICAL KEY OSCILLATOR)**
   a. Disconnect the certification ECU (smart key ECU assembly) and door electrical key oscillator connectors.
   b. Measure the resistance according to the value(s) in the table below.

   Standard resistance

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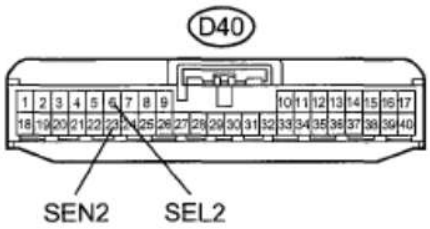
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STANDARD RESISTANCE SPECIFICATION

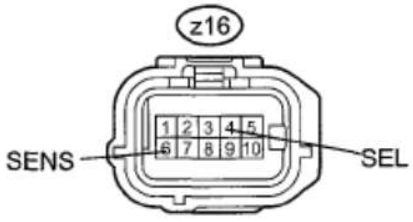
Tester Connection	Condition	Specified Condition
D40-6 (SEL2) - z16-4 (SEL)	Always	Below 1 ohms
D40-23 (SEN2) - z16-6 (SENS)	Always	Below 1 ohms
D40-6 (SEL2) - Body ground	Always	10 kohms or higher
D40-23 (SEN2) - Body ground	Always	10 kohms or higher

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

Front view of wire harness connector:
(to Certification ECU (Smart Key ECU Assembly))



Front view of wire harness connector:
(to Electrical Key Oscillator)



H B171407E02

Fig. 119: Identifying D40 Certification ECU (Smart Key ECU Assembly) And Z16 Door Electrical Key Oscillator Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

4. **CHECK HARNESS AND CONNECTOR (DOOR ELECTRICAL KEY OSCILLATOR - FRONT DOOR OUTSIDE HANDLE)**
   a. Remove the front door outside handle (See **REMOVAL**).
   b. Disconnect the touch sensor connector.
   c. Measure the resistance according to the value(s) in the table below.

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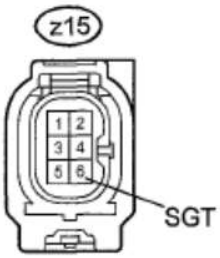
Standard resistance

STANDARD RESISTANCE SPECIFICATION

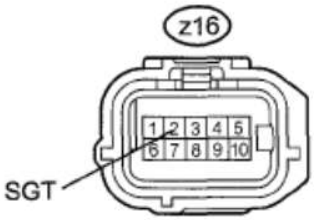
Tester Connection	Condition	Specified Condition
z15-6 (SGT) - z16-2 (SGT)	Always	Below 1 ohms
z15-6 (SGT) - Body ground	Always	10 kohms or higher

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

Front view of wire harness connector:
(to Touch Sensor)



Front view of wire harness connector:
(to Electrical Key Oscillator)



H B164339E24

Fig. 120: Identifying Z15 Touch Sensor And Z16 Electrical Key Oscillator Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

5. **REPLACE DOOR ELECTRICAL KEY OSCILLATOR**
   a. Replace the door electrical key oscillator (See **REMOVAL**).
6. **CHECK DOOR ELECTRICAL KEY OSCILLATOR (OPERATION)**
   a. Check that the entry functions operate normally.

OK: Entry functions operate normally.

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NG: Go to step 7

OK: END (DOOR ELECTRICAL KEY OSCILLATOR IS DEFECTIVE)

7. **REPLACE FRONT DOOR OUTSIDE HANDLE**
   a. Replace the front door outside handle LH (See **REMOVAL**).
8. **CHECK FRONT DOOR OUTSIDE HANDLE (OPERATION)**
   a. Check that the entry functions operate normally.

OK: Entry functions operate normally.

NG: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

OK: END (FRONT DOOR OUTSIDE HANDLE IS DEFECTIVE)

DRIVER SIDE DOOR ENTRY LOCK AND UNLOCK FUNCTIONS DO NOT OPERATE

DESCRIPTION

When the driver door entry lock and unlock functions do not operate, one of the following may be malfunctioning: 1) power door lock system, 2) driver side door electrical key oscillator, or 3) certification ECU (smart key ECU assembly).

WIRING DIAGRAM

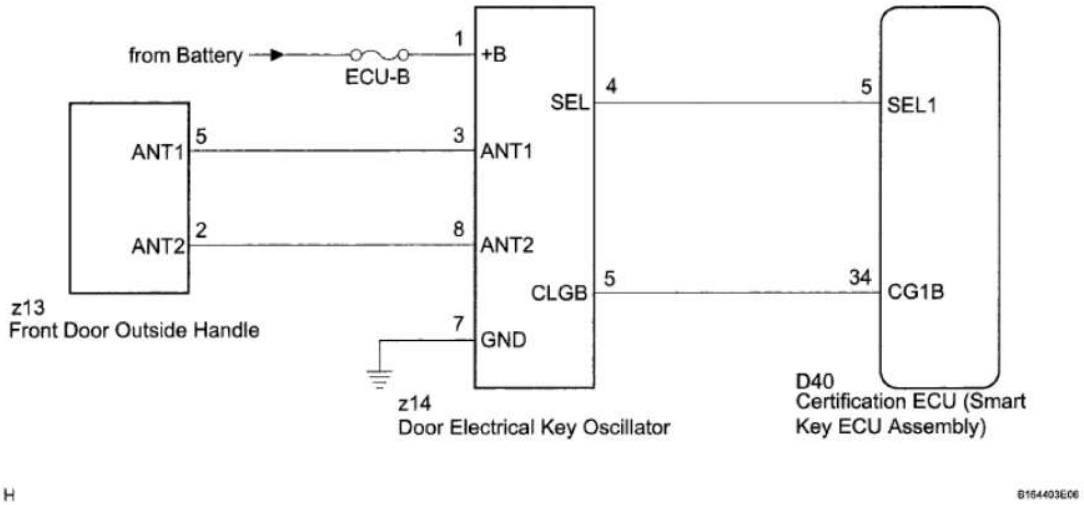


Fig. 121: Driver Side Door Entry Lock And Unlock Functions - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

NOTE: Before performing the inspection, check that there are no problems related to

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"CAN COMMUNICATION SYSTEM" and "LIN COMMUNICATION SYSTEM".

1. **CHECK POWER DOOR LOCK OPERATION**
   a. When the door control switch on the master switch assembly is operated, check that the locked doors unlock (See **OPERATION CHECK**).

OK: Locked doors unlock.

NG: GO TO POWER DOOR LOCK CONTROL SYSTEM (See **PROBLEM SYMPTOMS TABLE**)

OK: Go to next step.

2. **READ VALUE ON TECHSTREAM (DOOR OUTSIDE HANDLE)**
   a. Connect Techstream to the DLC3.
   b. Turn the engine switch on (IG).
   c. Turn the tester on.
   d. Enter the following menus: Body Electrical/Smart Key/Data List.
   e. Select D Touch Sensor or D Trigger SW in the Data List and read the tester display.

Smart Key (Certification ECU (Smart Key ECU Assembly)):

TESTER DISPLAY REFERENCE

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
D Touch Sensor	Driver side door touch sensor/ON or OFF	ON: Touch sensor is touched OFF: Touch sensor is not touched	-
D Trigger SW	Driver side door lock switch/ON or OFF	ON: Entry lock switch is pressed OFF: Entry lock switch is not pressed	-

OK: On the tester screen, each item changes between ON and OFF according to the chart above.

NG: REPLACE FRONT DOOR OUTSIDE HANDLE (See **REMOVAL**)

OK: Go to next step.

3. **CHECK WAVE ENVIRONMENT**
   a. Bring the electrical key transmitter near the driver door outside handle, and perform a driver door entry lock and unlock operation check.

NOTE: If the key is brought within 0.2 m (0.656 ft.) of the door outside handle, communication is not possible.

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HINT:

- When the electrical key transmitter is brought near the driver door outside handle, the possibility of wave interference decreases, and it can be determined if wave interference is causing the problem symptom.
- If the operation check is normal, the possibility of wave interference is high. Also, added vehicle components may cause wave interference. If installed, remove them and perform the operation check.

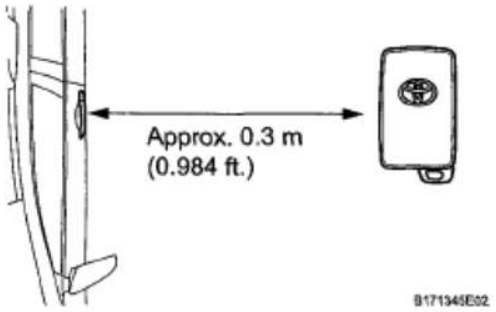


Fig. 122: Bring Electrical Key Transmitter Near Driver Door Outside Handle
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Entry functions operate normally.

NG: Go to step 4

OK: AFFECTED BY WAVE INTERFERENCE

4. **PERFORM KEY DIAGNOSTIC MODE INSPECTION**
   a. Diagnostic mode inspection (driver door electrical key oscillator)
   1. Connect Techstream to the DLC3.
   2. Turn the engine switch on (IG).
   3. Turn the tester on.
   4. Enter the following menus: Body Electrical/Smart Key/Utility/Communication Check (Key Diag Mode)/Overhead + Driver Side.
   5. When the electrical key transmitter is in the position shown in the illustration, check that the wireless door lock buzzer sounds.

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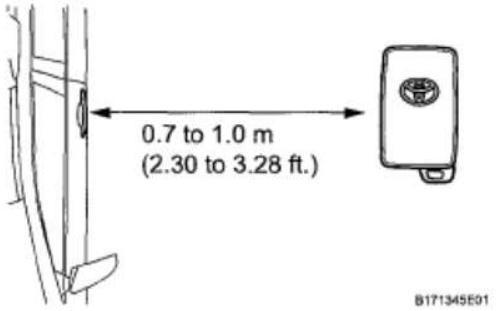


Fig. 123: Diagnostic Mode Inspection (Driver Door Outside Handle Oscillator)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

If the buzzer sounds, it can be determined that the driver door electrical key oscillator is operating normally.

OK: Wireless door lock buzzer sounds.

NG: Go to step 5

OK: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

5. **CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU - DOOR ELECTRICAL KEY OSCILLATOR)**
   a. Disconnect the certification ECU (smart key ECU assembly) and door electrical key oscillator connectors.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
D40-5 (SEL1) - z14-4 (SEL)	Always	Below 1 ohms
D40-34 (CG1B) - z14-5 (CLGB)	Always	Below 1 ohms
D40-5 (SEL1) - Body ground	Always	10 kohms or higher
D40-34 (CG1B) - Body ground	Always	10 kohms or higher

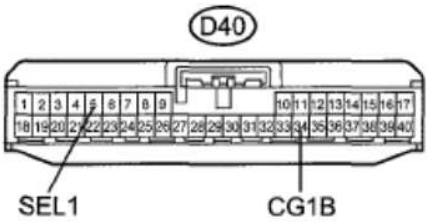
NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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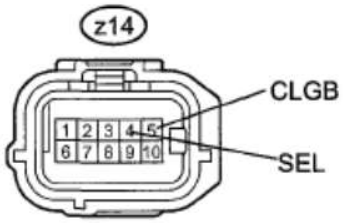
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Front view of wire harness connector:
(to Certification ECU (Smart Key ECU Assembly))



Front view of wire harness connector:
(to Electrical Key Oscillator)



H B171407E03

Fig. 124: Identifying D40 Certification ECU And Z14 Door Electrical Key Oscillator Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

6. **CHECK HARNESS AND CONNECTOR (DOOR ELECTRICAL KEY OSCILLATOR - FRONT DOOR OUTSIDE HANDLE)**
   a. Remove the front door outside handle (See **REMOVAL**).
   b. Disconnect the door antenna connector.
   c. Measure the resistance according to the value(s) in the table below.

Standard resistance

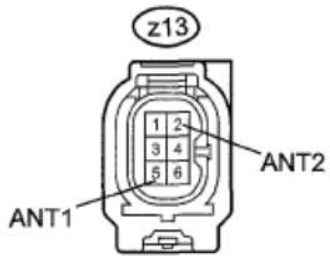
STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
z13-2 (ANT2) - z14-8 (ANT2)	Always	Below 1 ohms
z13-5 (ANT1) - z14-3 (ANT1)	Always	Below 1 ohms
z13-2 (ANT2) - Body ground	Always	10 kohms or higher
z13-5 (ANT1) - Body ground	Always	10 kohms or higher

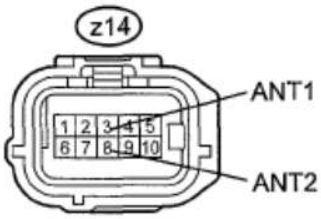
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NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

Front view of wire harness connector:
(to Door Antenna)



Front view of wire harness connector:
(to Electrical Key Oscillator)



H B164339E25

Fig. 125: Identifying Z13 Door Antenna And Z14 Door Electrical Key Oscillator Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

7. **INSPECT FUSE (ECU-B)**
   a. Remove the ECU-B fuse from the engine room junction block.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

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

NG: REPLACE FUSE (ECU-B)

OK: Go to next step.

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8. **CHECK HARNESS AND CONNECTOR (DOOR ELECTRICAL KEY OSCILLATOR - BATTERY AND BODY GROUND)**
   a. Measure the voltage according to the value(s) in the table below.

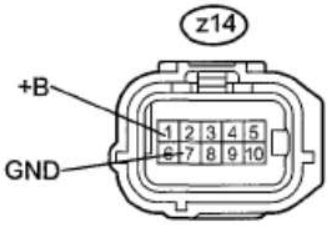
Standard voltage

STANDARD VOLTAGE SPECIFICATION

Tester Connection	Condition	Specified Condition
z14-1 (+B) - z14-7 (GND)	Always	11 to 14 V

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

Front view of wire harness connector:
(to Electrical Key Oscillator)



H B164336E10

Fig. 126: Identifying Z14 Door Electrical Key Oscillator Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

9. **REPLACE DOOR ELECTRICAL KEY OSCILLATOR**
   a. Replace the door electrical key oscillator (See **REMOVAL**).
10. **CHECK DOOR ELECTRICAL KEY OSCILLATOR (OPERATION)**
   a. Check that the entry functions operate normally.

OK: Entry functions operate normally.

NG: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

OK: END (DOOR ELECTRICAL KEY OSCILLATOR IS DEFECTIVE)

FRONT PASSENGER SIDE DOOR ENTRY LOCK AND UNLOCK FUNCTIONS DO NOT OPERATE

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DESCRIPTION

When the front passenger door entry lock and unlock functions do not operate, one of the following may be malfunctioning: 1) power door lock system, 2) front passenger side door electrical key oscillator, or 3) certification ECU (smart key ECU assembly).

WIRING DIAGRAM

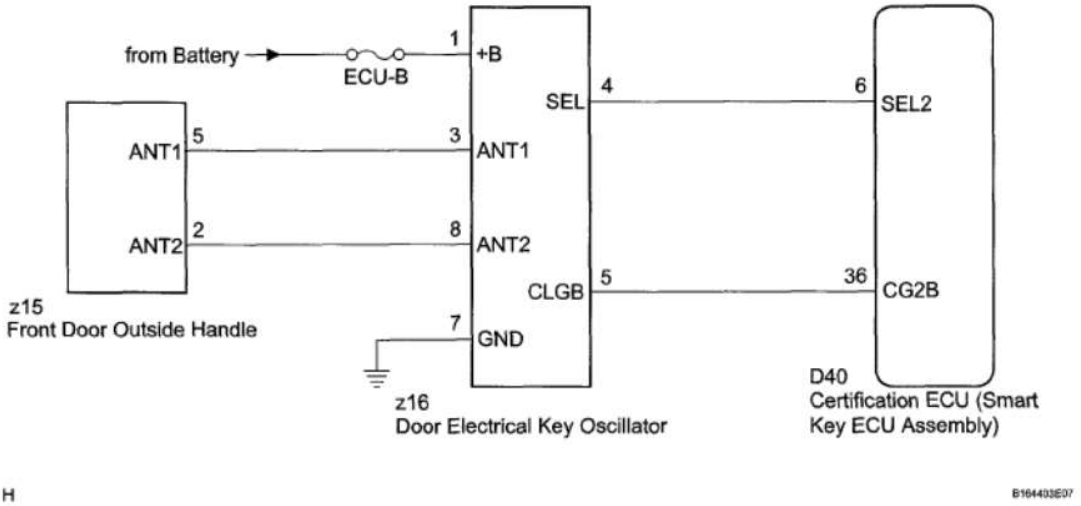


Fig. 127: Front Passenger Side Door Entry Lock And Unlock Functions - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

NOTE: Before performing the inspection, check that there are no problems related to "CAN COMMUNICATION SYSTEM" and "LIN COMMUNICATION SYSTEM".

1. **CHECK POWER DOOR LOCK OPERATION**
   a. When the door control switch on the master switch assembly is operated, check that the locked doors unlock (See **OPERATION CHECK**).

   OK: Locked doors unlock.

   NG: GO TO POWER DOOR LOCK CONTROL SYSTEM (See **PROBLEM SYMPTOMS TABLE**)

   OK: Go to next step.

2. **READ VALUE ON TECHSTREAM (DOOR OUTSIDE HANDLE)**
   a. Connect Techstream to the DLC3.
   b. Turn the engine switch on (IG).
   c. Turn the tester on.

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d. Enter the following menus: Body Electrical/Smart Key/Data List.
e. Select P Touch Sensor or P Trigger SW in the Data List and read the tester display.

Smart Key (Certification ECU (Smart Key ECU Assembly)):

TESTER DISPLAY REFERENCE

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
P Touch Sensor	Front passenger side door touch sensor/ON or OFF	ON: Touch sensor is touched OFF: Touch sensor is not touched	-
P Trigger SW	Front passenger side door lock switch/ON or OFF	ON: Entry lock switch is pressed OFF: Entry lock switch is not pressed	-

OK: On the tester screen, each item changes between ON and OFF according to the chart above.

NG: REPLACE FRONT DOOR OUTSIDE HANDLE (See **REMOVAL**)

OK: Go to next step.

3. **CHECK WAVE ENVIRONMENT**
   a. Bring the electrical key transmitter near the front passenger door outside handle, and perform a front passenger door entry lock and unlock operation check.

NOTE: **If the key is brought within 0.2 m (0.656 ft.) of the door outside handle, communication is not possible.**

HINT:

- When the electrical key transmitter is brought near the front passenger door outside handle, the possibility of wave interference decreases, and it can be determined if wave interference is causing the problem symptom.
- If the inspection result is that the operation check is normal, the possibility of wave interference is high. Also, added vehicle components may cause wave interference. If installed, remove them and perform the operation check.

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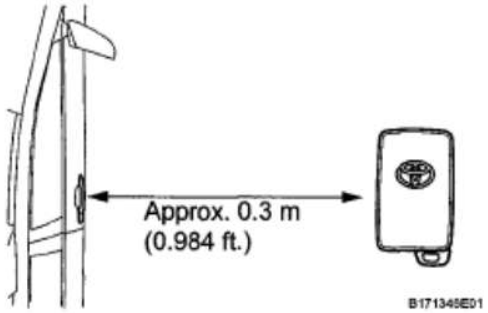


Fig. 128: Bring Electrical Key Transmitter Near Front Passenger Door Outside Handle
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Entry functions operate normally.

NG: Go to step 4

OK: AFFECTED BY WAVE INTERFERENCE

4. **PERFORM KEY DIAGNOSTIC MODE INSPECTION**
   a. Diagnostic mode inspection (front passenger door electrical key oscillator)
      1. Connect Techstream to the DLC3.
      2. Turn the engine switch on (IG).
      3. Turn the tester on.
      4. Enter the following menus: Body Electrical/Smart Key/Utility/Communication Check (Key Diag Mode)/Overhead + Passenger Side.
      5. When the electrical key transmitter is in the position shown in the illustration, check that the wireless door lock buzzer sounds.

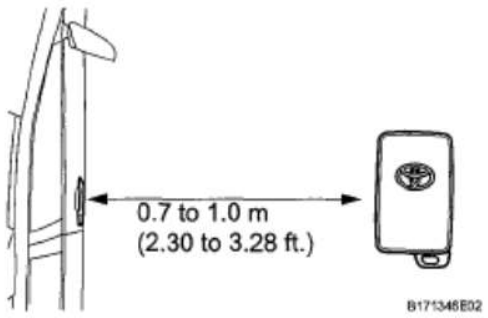


Fig. 129: Diagnostic Mode Inspection (Front Passenger Door Outside Handle Oscillator)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

If the buzzer sounds, it can be determined that the front passenger door electrical key oscillator is operating normally.

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OK: Wireless door lock buzzer sounds.

NG: Go to step 5

OK: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

5. **CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU - DOOR ELECTRICAL KEY OSCILLATOR)**
   a. Disconnect the certification ECU (smart key ECU assembly) and door electrical key oscillator connectors.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
D40-6 (SEL2) - z16-4 (SEL)	Always	Below 1 ohms
D40-36 (CG2B) - z16-5 (CLGB)	Always	Below 1 ohms
D40-6 (SEL2) - Body ground	Always	10 kohms or higher
D40-36 (CG2B) - Body ground	Always	10 kohms or higher

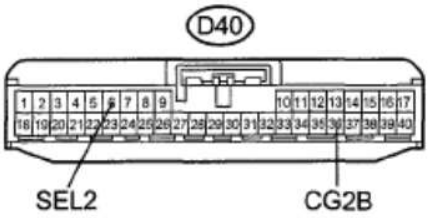
NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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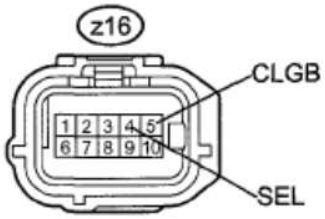
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Front view of wire harness connector:
(to Certification ECU (Smart Key ECU Assembly))



Front view of wire harness connector:
(to Electrical Key Oscillator)



H B171407E04

Fig. 130: Identifying D40 Certification ECU And Z16 Door Electrical Key Oscillator Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

6. **CHECK HARNESS AND CONNECTOR (DOOR ELECTRICAL KEY OSCILLATOR - FRONT DOOR OUTSIDE HANDLE)**
   a. Remove the front door outside handle (See **REMOVAL**).
   b. Disconnect the door antenna connectors.
   c. Measure the resistance according to the value(s) in the table below.

Standard resistance

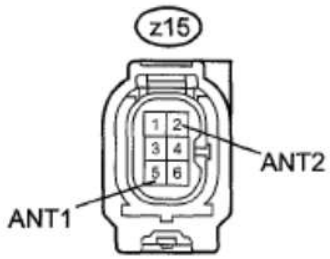
STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
z15-2 (ANT2) - z16-8 (ANT2)	Always	Below 1 ohms
z15-5 (ANT1) - z16-3 (ANT1)	Always	Below 1 ohms
z15-2 (ANT2) - Body ground	Always	10 kohms or higher
z15-5 (ANT1) - Body ground	Always	10 kohms or higher

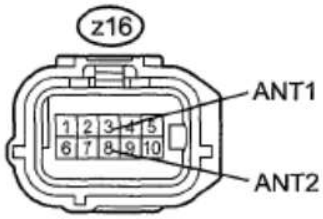
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NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

Front view of wire harness connector:
(to Door Antenna)



Front view of wire harness connector:
(to Electrical Key Oscillator)



H B164339E26

Fig. 131: Identifying Z15 Door Antenna And Z16 Door Electrical Key Oscillator Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

7. **INSPECT FUSE (ECU-B)**
   a. Remove the ECU-B fuse from the engine room junction block.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

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

NG: REPLACE FUSE (ECU-B)

OK: Go to next step.

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8. **CHECK HARNESS AND CONNECTOR (DOOR ELECTRICAL KEY OSCILLATOR - BATTERY AND BODY GROUND)**
   a. Measure the voltage according to the value(s) in the table below.

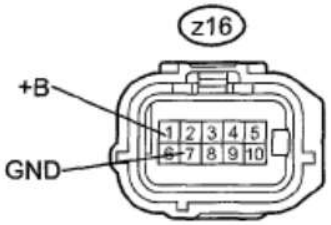
Standard voltage

STANDARD VOLTAGE SPECIFICATION

Tester Connection	Condition	Specified Condition
z-16-1 (+B) - z16-7 (GND)	Always	11 to 14 V

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

Front view of wire harness connector:
(to Electrical Key Oscillator)



H B164336E11

Fig. 132: Identifying Z16 Electrical Key Oscillator Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

9. **REPLACE DOOR ELECTRICAL KEY OSCILLATOR**
   a. Replace the door electrical key oscillator (See **REMOVAL**).
10. **CHECK DOOR ELECTRICAL KEY OSCILLATOR (OPERATION)**
   a. Check that the entry functions operate normally.

OK: Entry functions operate normally.

NG: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

OK: END (DOOR ELECTRICAL KEY OSCILLATOR IS DEFECTIVE)

DRIVER SIDE DOOR ENTRY LOCK FUNCTION DOES NOT OPERATE

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DESCRIPTION

If the driver door entry lock function does not operate but the entry unlock function operates, the communication line between the vehicle and electrical key transmitter is normal. As a faulty part, the entry lock switch circuit (certification ECU (smart key ECU assembly) --> driver side door outside handle (entry lock switch) --> driver side door electrical key oscillator) can be considered.

WIRING DIAGRAM

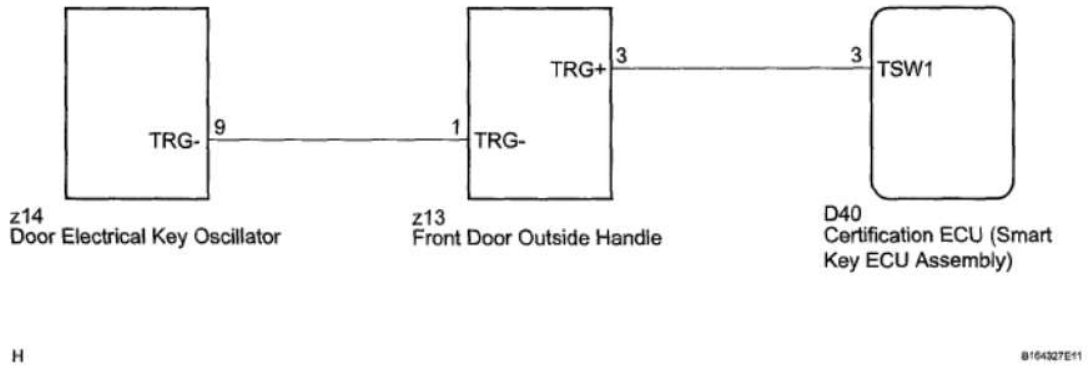


Fig. 133: Driver Side Door Entry Lock Function - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

NOTE: Before performing the inspection, check that there are no problems related to "CAN COMMUNICATION SYSTEM" and "LIN COMMUNICATION SYSTEM".

1. **CHECK POWER DOOR LOCK OPERATION**
   a. When the door control switch on the master switch assembly is operated, check that the locked doors unlock (See **OPERATION CHECK**).

   OK: Locked doors unlock.

   NG: GO TO POWER DOOR LOCK CONTROL SYSTEM (See **PROBLEM SYMPTOMS TABLE**)

   OK: Go to next step.

2. **READ VALUE ON TECHSTREAM (DOOR OUTSIDE HANDLE)**
   a. Connect Techstream to the DLC3.
   b. Turn the engine switch on (IG).
   c. Turn the tester on.
   d. Enter the following menus: Body Electrical/Smart Key/Data List.
   e. Select D Trigger SW in the Data List and read the tester display.

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Smart Key (Certification ECU (Smart Key ECU Assembly)):

TESTER DISPLAY REFERENCE

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
D Trigger SW	Driver side door lock switch/ON or OFF	ON: Entry lock switch is pressed OFF: Entry lock switch is not pressed	-

OK: On the tester screen, the item changes between ON and OFF according to the chart above.

NG: Go to step 3

OK: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

3. **CHECK HARNESS AND CONNECTOR (FRONT DOOR OUTSIDE HANDLE - DOOR ELECTRICAL KEY OSCILLATOR)**
   a. Remove the front door outside handle (See **REMOVAL**).
   b. Disconnect the door electrical key oscillator connector.
   c. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
z13-1 (TRG-) - z14-9 (TRG-)	Always	Below 1 ohms
z13-1 (TRG-) - Body ground	Always	10 kohms or higher

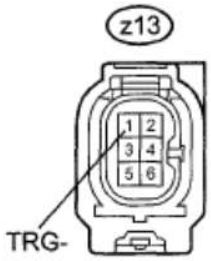
NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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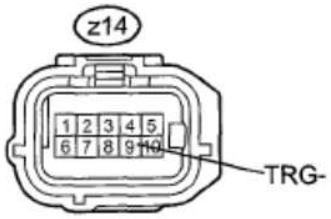
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Front view of wire harness connector:
(to Entry Lock Switch)



Front view of wire harness connector:
(to Electrical Key Oscillator)



H B164339E27

Fig. 134: Identifying Z13 Entry Lock Switch And Z14 Electrical Key Oscillator Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

4. **CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU - FRONT DOOR OUTSIDE HANDLE)**
   a. Disconnect the certification ECU (smart key ECU assembly) connector.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
D40-3 (TSW1) - z13-3 (TRG+)	Always	Below 1 ohms
D40-3 (TSW1) - Body ground	Always	10 kohms or higher

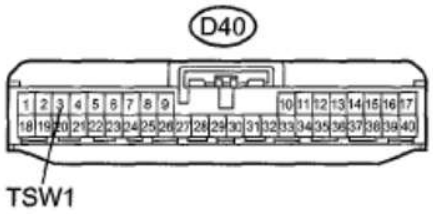
NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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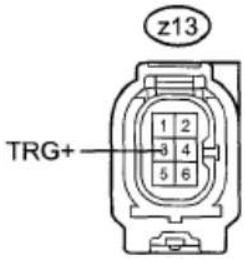
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Front view of wire harness connector:
(to Certification ECU (Smart Key ECU Assembly))



Front view of wire harness connector:
(to Entry Lock Switch)



H B171408E01

Fig. 135: Identifying Z13 Entry Lock Switch And D40 Certification ECU Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

5. **INSPECT FRONT DOOR OUTSIDE HANDLE (DRIVER SIDE)**
   a. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
z13-1 (TRG-) - z13-3 (TRG+)	Lock switch not pushed	10 kohms or higher
z13-1 (TRG-) - z13-3 (TRG+)	Lock switch pushed	Below 1 ohms

NG: REPLACE FRONT DOOR OUTSIDE HANDLE (See **REMOVAL**)

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Component without harness connected:
(Entry Lock Switch)



H B112485E30

Fig. 136: Inspecting Front Door Outside Handle (Driver Side)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

6. **REPLACE DOOR ELECTRICAL KEY OSCILLATOR**
   a. Replace the door electrical key oscillator (See **REMOVAL**).
7. **CHECK DOOR ELECTRICAL KEY OSCILLATOR (OPERATION)**
   a. Check that the entry functions operate normally.

OK: Entry functions operate normally.

NG: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

OK: END (DOOR ELECTRICAL OSCILLATOR IS DEFECTIVE)

FRONT PASSENGER SIDE DOOR ENTRY LOCK FUNCTION DOES NOT OPERATE

DESCRIPTION

If the front passenger side door entry lock function does not operate but the entry unlock function operates, the communication line between the vehicle and electrical key transmitter is normal. As a faulty part, the entry lock switch circuit (certification ECU (smart key ECU assembly) --> passenger side door outside handle (entry lock switch) --> passenger side door electrical key oscillator) can be considered.

WIRING DIAGRAM

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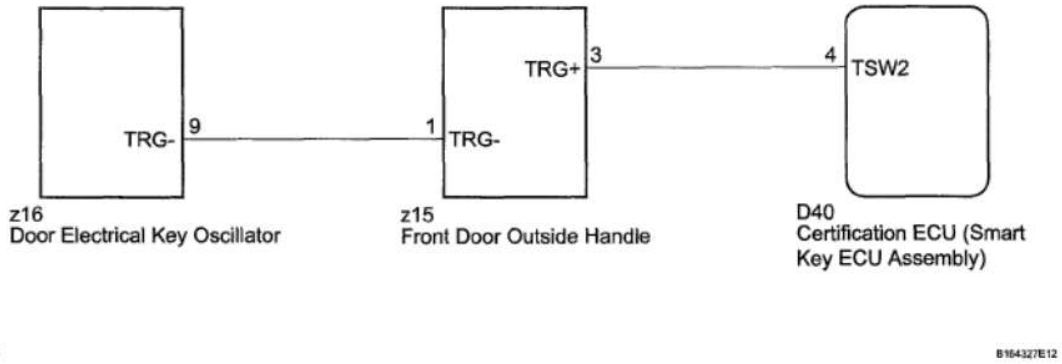


Fig. 137: Front Passenger Side Door Entry Lock Function - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

NOTE: Before performing the inspection, check that there are no problems related to "CAN COMMUNICATION SYSTEM" and "LIN COMMUNICATION SYSTEM".

1. **CHECK POWER DOOR LOCK OPERATION**
   a. When the door control switch on the master switch assembly is operated, check that the locked doors unlock (See **OPERATION CHECK**).

   OK: Locked doors unlock.

   NG: GO TO POWER DOOR LOCK CONTROL SYSTEM (See **PROBLEM SYMPTOMS TABLE**)

   OK: Go to next step.

2. **READ VALUE ON TECHSTREAM (DOOR OUTSIDE HANDLE)**
   a. Connect Techstream to the DLC3.
   b. Turn the engine switch on (IG).
   c. Turn the tester on.
   d. Enter the following menus: Body Electrical/Smart Key/Data List.
   e. Select P Trigger SW in the Data List and read the tester display.

   Smart Key (Certification ECU (Smart Key ECU Assembly)):

   TESTER DISPLAY REFERENCE

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
P Trigger SW	Front passenger side door lock switch/ON or OFF	ON: Entry lock switch is pressed OFF: Entry lock switch is not	-

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		pressed	

OK: On the tester screen, the item changes between ON and OFF according to the chart above.

NG: Go to step 3

OK: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

3. **CHECK HARNESS AND CONNECTOR (FRONT DOOR OUTSIDE HANDLE - DOOR ELECTRICAL KEY OSCILLATOR)**
   a. Remove the front door outside handle (See **REMOVAL**).
   b. Disconnect the door electrical key oscillator connector.
   c. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
z15-1 (TRG-) - z16-9 (TRG-)	Always	Below 1 ohms
z15-1 (TRG-) - Body ground	Always	10 kohms or higher

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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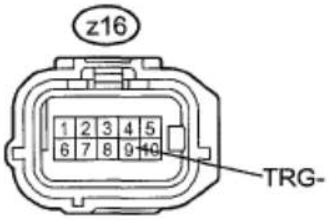
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Front view of wire harness connector:
(to Entry Lock Switch)



Front view of wire harness connector:
(to Electrical Key Oscillator)



H B164339E28

Fig. 138: Identifying Z16 Electrical Key Oscillator Z15 Entry Lock Switch Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

4. **CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU - FRONT DOOR OUTSIDE HANDLE)**
   a. Disconnect the certification ECU (smart key ECU assembly) connector.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
D40-4 (TSW2) - z15-3 (TRG+)	Always	Below 1 ohms
D40-4 (TSW2) - Body ground	Always	10 kohms or higher

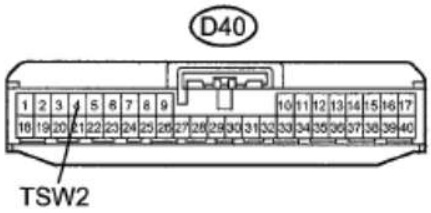
NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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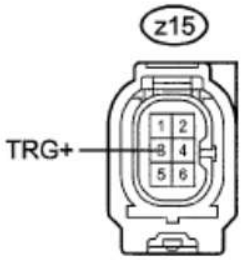
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Front view of wire harness connector:
(to Certification ECU (Smart Key ECU Assembly))



Front view of wire harness connector:
(to Entry Lock Switch)



H B171408E02

Fig. 139: Identifying D40 Certification ECU And Z15 Entry Lock Switch Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

5. **INSPECT FRONT DOOR OUTSIDE HANDLE (FRONT PASSENGER SIDE)**
   a. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
z15-1 (TRG-) - z15-3 (TRG+)	Lock switch not pushed	10 kohms or higher
z15-1 (TRG-) - z15-3 (TRG+)	Lock switch pushed	Below 1 ohms

NG: REPLACE FRONT DOOR OUTSIDE HANDLE (See **REMOVAL**)

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Component without harness connected:
(Entry Lock Switch)



H B112465E31

Fig. 140: Inspecting Front Door Outside Handle (Front Passenger Side)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

6. **REPLACE DOOR ELECTRICAL KEY OSCILLATOR**
   a. Replace the door electrical key oscillator (See **REMOVAL**).
7. **CHECK DOOR ELECTRICAL KEY OSCILLATOR (OPERATION)**
   a. Check that the entry functions operate normally.

OK: Entry functions operate normally.

NG: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

OK: END (DOOR ELECTRICAL KEY OSCILLATOR IS DEFECTIVE)

ROOM OSCILLATOR DOES NOT RECOGNIZE KEY

DESCRIPTION

If the room oscillator does not recognize a key, either of the following may be the cause: 1) communication between the indoor electrical key oscillator (front) and electrical key transmitter cannot be performed; or 2) communication between the indoor electrical key oscillator (center) and electrical key transmitter cannot be performed; or 3) communication between the indoor electrical key oscillator (rear) and electrical key transmitter cannot be performed.

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WIRING DIAGRAM

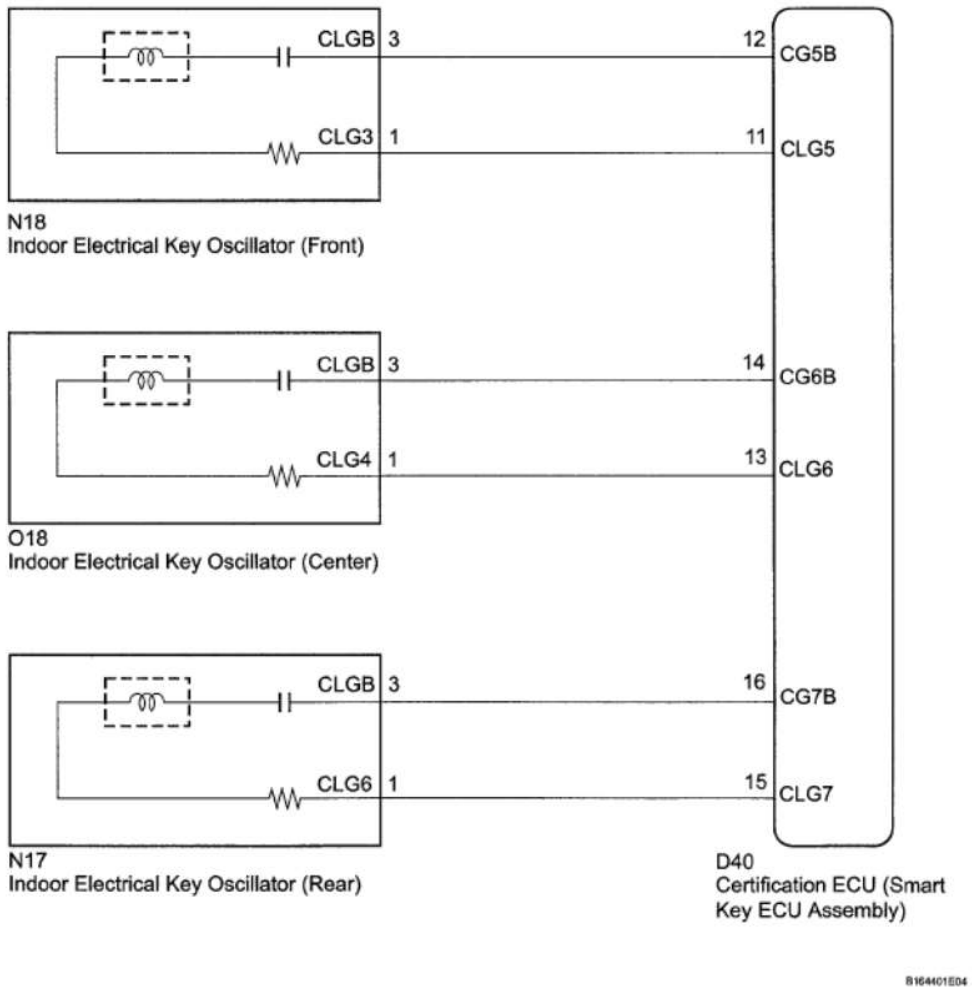


Fig. 141: Indoor Electrical Key Oscillator (Front) - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

NOTE:

- **Before performing the inspection, check that there are no problems related to "CAN COMMUNICATION SYSTEM" and "LIN COMMUNICATION SYSTEM".**
- **When using Techstream with the engine switch off to troubleshoot: Connect Techstream to the vehicle, and turn a courtesy light switch on and off at 1.5-second intervals until communication between the tester and vehicle begins.**

1. **CHECK SMART KEY SYSTEM (ENTRY FUNCTION)**
   a. Check that entry lock and unlock functions can be operated at each door.

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OK: Entry lock and unlock functions operate normally.

NG: GO TO OTHER PROBLEM (PROCEED TO PROBLEM SYMPTOMS TABLE FOR EACH DOOR) (See **PROBLEM SYMPTOMS TABLE**)

OK: Go to next step.

2. **CHECK SMART KEY SYSTEM (START FUNCTION)**
   a. Remove the battery of the electrical key transmitter (See **REMOVAL**).

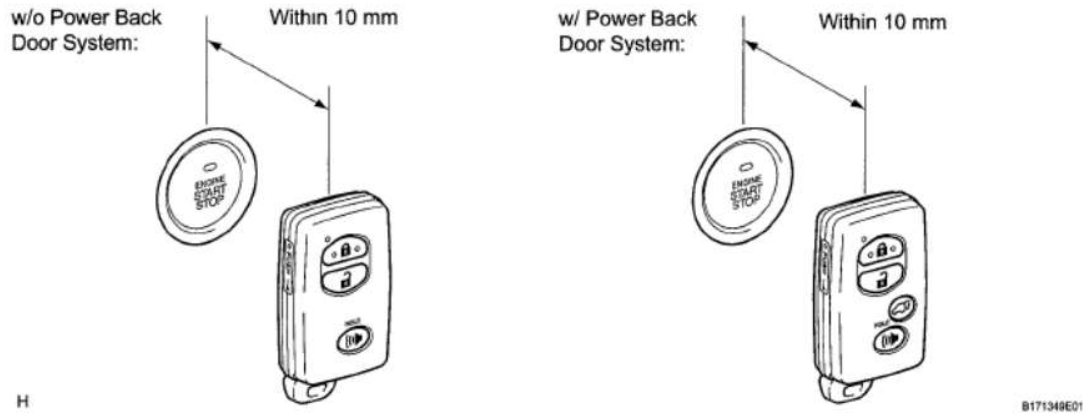


Fig. 142: Checking Smart Key System (Entry Function)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. With the brake pedal depressed, face the logo side of the key to the engine switch.
   c. When operating the engine switch, check whether the power source mode changes.

OK: Power source mode changes.

HINT:

- When the electrical key transmitter cannot be verified even though it is in the start operating range, the engine start check can be performed by removing the transmitter battery from the electrical key transmitter and holding the transmitter against the engine switch.
- When performing the check, if the power source mode changes, there is a problem with key certification inside the cabin.

NG: GO TO SMART KEY SYSTEM (Power Source Mode does not Change) (See **POWER SOURCE MODE DOES NOT CHANGE**)

OK: Go to next step.

3. **CHECK WAVE ENVIRONMENT**
   a. Install the battery to the electrical key transmitter.
   b. Bring the electrical key transmitter near the indoor electrical key oscillator (front), and perform an

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engine start check.

NOTE: If the key is brought within 0.2 m (0.656 ft.) of the indoor electrical key oscillator (front), communication is not possible.

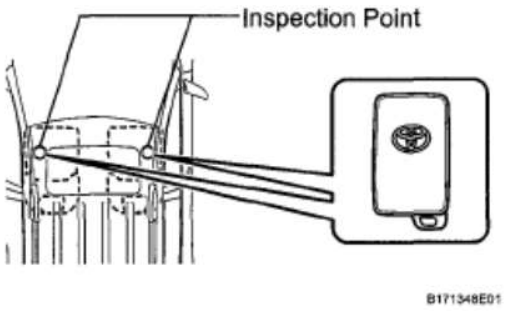


Fig. 143: Inspecting Entry Ignition Operation's Detection Area (Front)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Bring the electrical key transmitter near the indoor electrical key oscillator (center), and perform an engine start check.

NOTE: If the key is brought within 0.2 m (0.656 ft.) of the indoor electrical key oscillator (rear), communication is not possible.

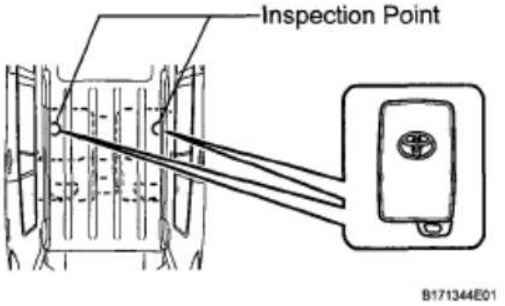


Fig. 144: Inspecting Entry Ignition Operation's Detection Area (Center)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Bring the electrical key transmitter near the indoor electrical key oscillator (rear), and perform an engine start check.

NOTE: If the key is brought within 0.2 m (0.656 ft.) of the indoor electrical key oscillator (luggage compartment), communication is not possible.

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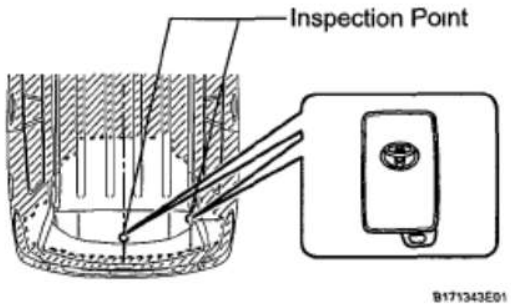


Fig. 145: Inspecting Entry Ignition Operation's Detection Area (Rear)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

- When the electrical key transmitter is brought near the indoor electrical key oscillator, the possibility of wave interference decreases, and it can be determined if wave interference is causing the problem symptom.
- If the operation check is normal, the possibility of wave interference is high. Also, added vehicle components may cause wave interference. If installed, remove them and perform the operation check.

OK: The engine starts.

NG: Go to step 4

OK: AFFECTED BY WAVE INTERFERENCE

4. **PERFORM KEY DIAGNOSTIC MODE INSPECTION**
   a. Diagnostic mode inspection (indoor electrical key oscillator (front))
      1. Connect Techstream to the DLC3.
      2. Turn the engine switch on (IG).
      3. Turn the tester on.
      4. Enter the following menus: Body Electrical/Smart Key/Utility/Communication Check (Key Diag Mode)/Overhead + Front Room.
      5. When the electrical key transmitter is placed on the driver seat or front passenger seat cushion, check that the wireless door lock buzzer sounds.

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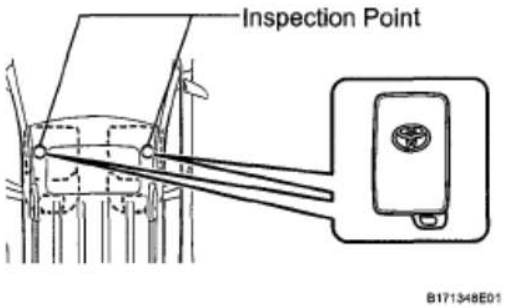


Fig. 146: Inspecting Entry Ignition Operation's Detection Area (Front)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Diagnostic mode inspection (indoor electrical key oscillator (center))
   1. Connect Techstream to the DLC3.
   2. Turn the engine switch on (IG).
   3. Turn the tester on.
   4. Enter the following menus: Body Electrical/Smart Key/Utility/Communication Check (Key Diag Mode)/Overhead + Rear Room.
   5. When the electrical key transmitter is placed on the rear seat cushion, check that the wireless door lock buzzer sounds.

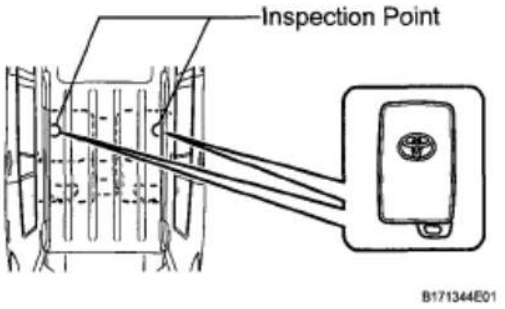


Fig. 147: Inspecting Entry Ignition Operation's Detection Area (Center)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Diagnostic mode inspection (indoor electrical key oscillator (rear))
   1. Connect Techstream to the DLC3.
   2. Turn the engine switch on (IG).
   3. Turn the tester on.
   4. Enter the following menus: Body Electrical/Smart Key/Utility/Communication Check (Key Diag Mode)/Overhead + Back Door (inside).
   5. When the electrical key transmitter is held at the same height as the rear bumper upper surface and aligned with the center of the rear of the vehicle, check that the wireless door lock buzzer sounds.

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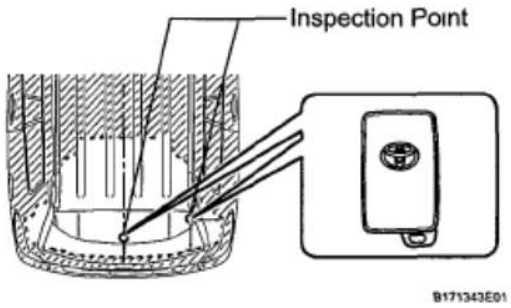


Fig. 148: Inspecting Entry Ignition Operation's Detection Area (Rear)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

If the buzzer sounds, it can be determined that the indoor electrical key oscillators are operating normally.

Result

RESULT REFERENCE

Result	Proceed to
Front, center and rear operation checks are normal or fail	A
Center operation check is normal	B
Rear operation check is normal	C
Front operation check is normal	D

A: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

B: Go to step 7

C: Go to step 9

D: Go to next step.

5. **CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU - INDOOR ELECTRICAL KEY OSCILLATOR)**
   a. Disconnect the certification ECU (smart key ECU assembly) and indoor electrical key oscillator front connectors.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

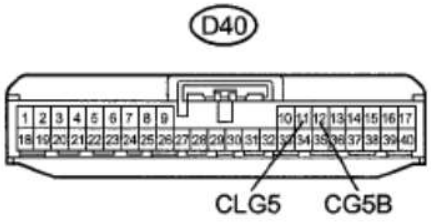
Tester Connection	Condition	Specified Condition
D40-11 (CLG5) - N18-1 (CLG3)	Always	Below 1 ohms
D40-12 (CG5B) - N18-3 (CLGB)	Always	Below 1 ohms

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D40-11 (CLG5) - Body ground	Always	10 kohms or higher
D40-12 (CG5B) - Body ground	Always	10 kohms or higher

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

Front view of wire harness connector:
(to Certification ECU (Smart Key ECU Assembly))



Front view of wire harness connector:
(to Electrical Key Oscillator)

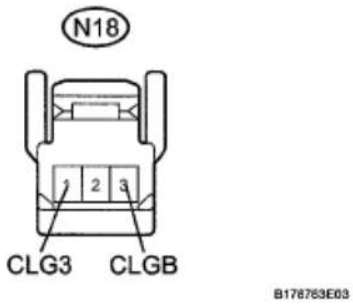


Fig. 149: Identifying D40 Certification ECU And N18 Electrical Key Oscillator Front Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

6. **INSPECT INDOOR ELECTRICAL KEY OSCILLATOR (FRONT)**
   a. Measure the voltage according to the value(s) in the table below.

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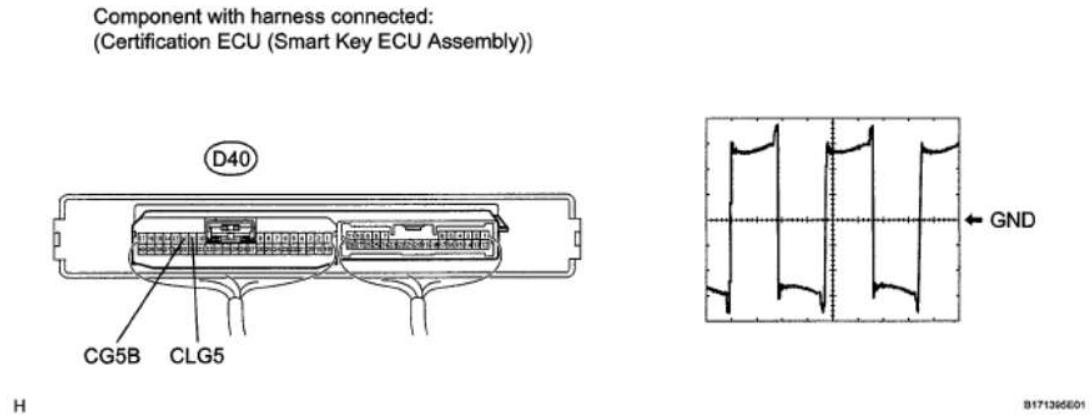


Fig. 150: Inspecting Indoor Electrical Key Oscillator (Front)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard voltage

STANDARD VOLTAGE SPECIFICATION

Tester Connection	Tool Setting	Condition	Specified Condition
D40-11 (CLG5) - D40-12 (CG5B)	2 V/DIV, 2 µs/DIV. (Reference)	Engine switch on (IG)	Pulse generation

NG: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

OK: REPLACE INDOOR ELECTRICAL KEY OSCILLATOR (FRONT) (See **REMOVAL**)

7. **CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU - INDOOR ELECTRICAL KEY OSCILLATOR)**
   a. Disconnect the certification ECU (smart key ECU assembly) and indoor electrical key oscillator center connectors.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
D40-13 (CLG6) - O18-1 (CLG4)	Always	Below 1 ohms
D40-14 (CG6B) - O18-3 (CLGB)	Always	Below 1 ohms
D40-13 (CLG6) - Body ground	Always	10 kohms or higher
D40-14 (CG6B) - Body ground	Always	10 kohms or higher

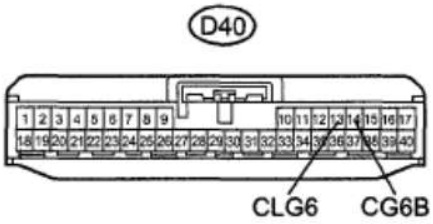
NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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Front view of wire harness connector:
(to Certification ECU (Smart Key ECU Assembly))



Front view of wire harness connector:
(to Electrical Key Oscillator)

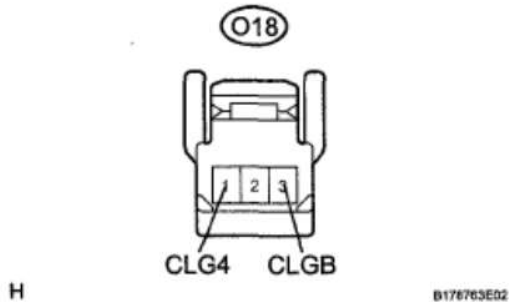


Fig. 151: Identifying D40 Certification ECU And O18 Electrical Key Oscillator Center Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

8. **INSPECT INDOOR ELECTRICAL KEY OSCILLATOR (CENTER)**
   a. Measure the voltage according to the value(s) in the table below.

Component with harness connected:
(Certification ECU (Smart Key ECU Assembly))

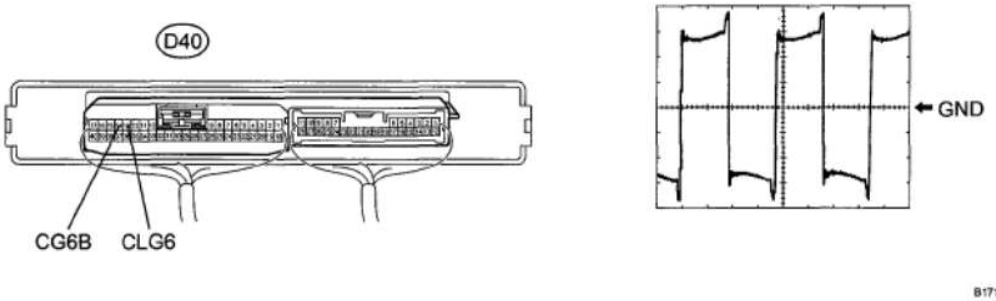


Fig. 152: Inspecting Indoor Electrical Key Oscillator (Center)

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

Standard voltage

STANDARD VOLTAGE SPECIFICATION

Tester Connection	Tool Setting	Condition	Specified Condition
D40-13 (CLG6) - D40-14 (CG6B)	2 V/DIV, 2 µs/DIV. (Reference)	Engine switch on (IG)	Pulse generation

NG: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

OK: REPLACE INDOOR ELECTRICAL KEY OSCILLATOR (CENTER) (See **REMOVAL**)

9. **CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU - INDOOR ELECTRICAL KEY OSCILLATOR)**
   a. Disconnect the certification ECU (smart key ECU assembly) and indoor electrical key oscillator rear connectors.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
D40-15 (CLG7) - N17-1 (CLG6)	Always	Below 1 ohms
D40-16 (CG7B) - N17-3 (CLGB)	Always	Below 1 ohms
D40-15 (CLG7) - Body ground	Always	10 kohms or higher
D40-16 (CG7B) - Body ground	Always	10 kohms or higher

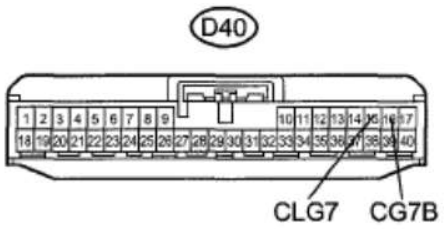
NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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Front view of wire harness connector:
(to Certification ECU (Smart Key ECU Assembly))



Front view of wire harness connector:
(to Electrical Key Oscillator)

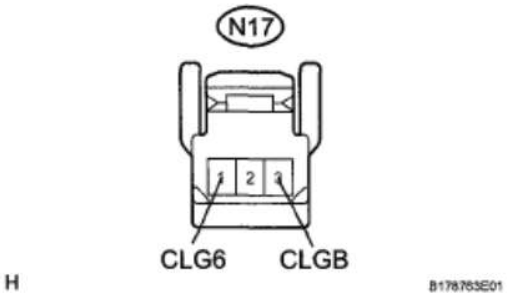


Fig. 153: Identifying D40 Certification ECU And N17 Electrical Key Oscillator Rear Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

10. **INSPECT INDOOR ELECTRICAL KEY OSCILLATOR (REAR)**
    a. Measure the voltage according to the value(s) in the table below.

Component with harness connected:
(Certification ECU (Smart Key ECU Assembly))

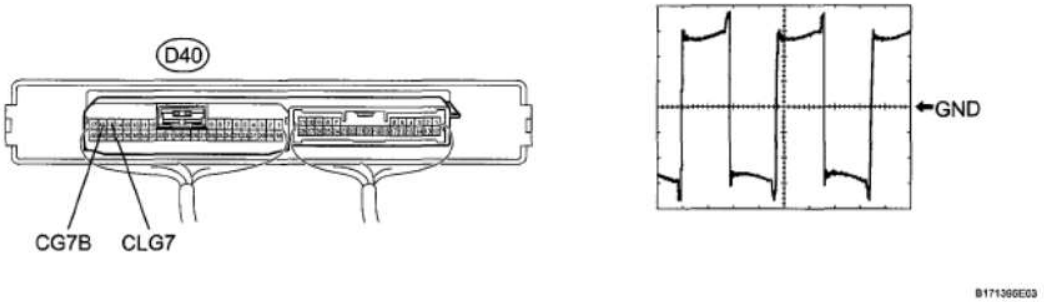


Fig. 154: Inspecting Indoor Electrical Key Oscillator (Rear)

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

Standard voltage

STANDARD VOLTAGE SPECIFICATION

Tester Connection	Tool Setting	Condition	Specified Condition
D40-15 (CLG7) - D40-16 (CG7B)	2 V/DIV, 2 µs/DIV. (Reference)	Engine switch on (IG)	Pulse generation

NG: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

OK: REPLACE INDOOR ELECTRICAL KEY OSCILLATOR (REAR) (See **REMOVAL**)

ENTRY INTERIOR ALARM DOES NOT SOUND

DESCRIPTION

The smart key system uses the combination meter buzzer to perform various vehicle interior warnings. When the conditions for each warning are met, the certification ECU (smart key ECU assembly) sends a buzzer signal to the meter ECU, and the combination meter buzzer sounds.

INSPECTION PROCEDURE

NOTE: Before performing the inspection, check that there are no problems related to "CAN COMMUNICATION SYSTEM" and "LIN COMMUNICATION SYSTEM".

1. **CHECK COMBINATION METER ASSEMBLY (OPERATION)**
   a. Turn the engine switch on (IG). Place luggage on the front passenger seat to cause the front passenger seat belt warning light to blink.
   b. When driving the vehicle at 15 km/h or higher, check that the seat belt warning buzzer sounds to inform that the front passenger seat belt is not fastened.

   HINT:

   The smart key system sounds the buzzer built into the combination meter for indoor warnings. This buzzer is also used for the seat belt warning system. Therefore, check the operation of the combination meter buzzer by checking if the buzzer sounds to inform that the seat belt is not fastened.

   OK: Combination meter buzzer sounds.

   NG: GO TO METER/GAUGE SYSTEM (See **PROBLEM SYMPTOMS TABLE**)

   OK: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

BACK DOOR ENTRY LOCK AND UNLOCK FUNCTIONS DO NOT OPERATE

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DESCRIPTION

When the back door entry lock and unlock functions do not operate, one of the following may be malfunctioning: 1) power door lock control system, or 2) outside electrical key oscillator (back door), or 3) main body ECU (instrument panel junction block), or 4) certification ECU (smart key ECU assembly).

WIRING DIAGRAM

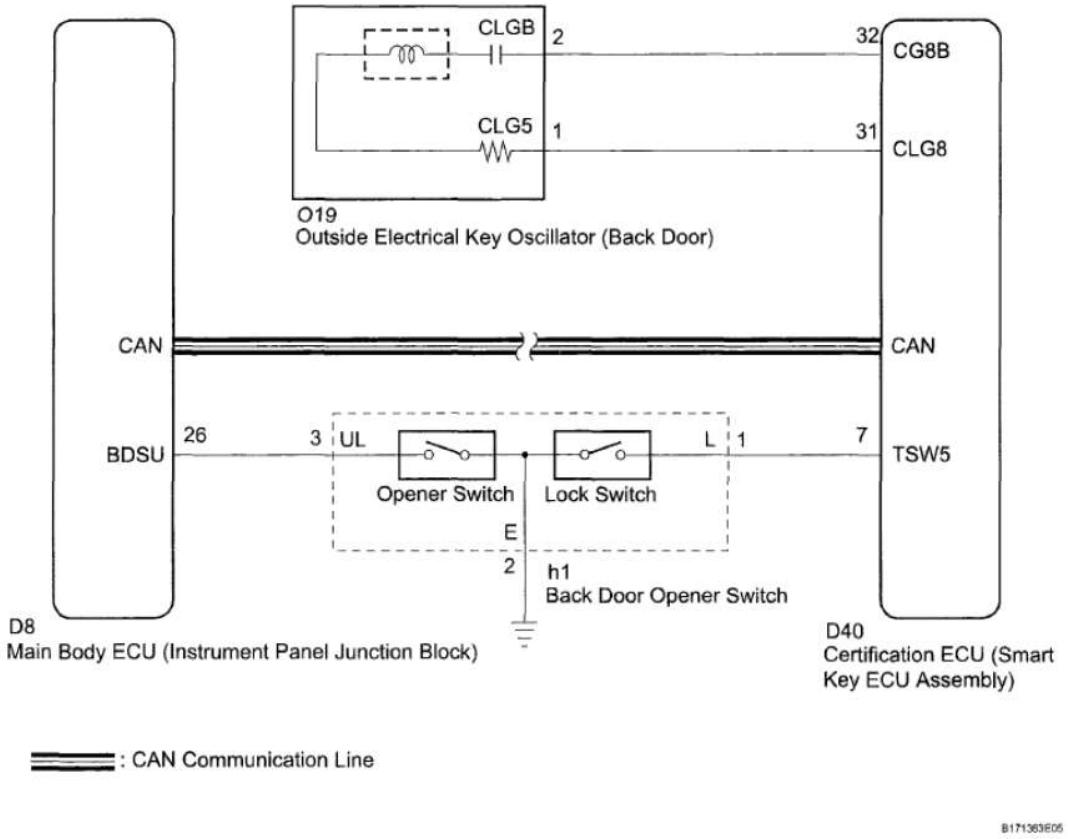


Fig. 155: Back Door Entry Lock And Unlock Functions - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

NOTE: Before performing the inspection, check that there are no problems related to "CAN COMMUNICATION SYSTEM" and "LIN COMMUNICATION SYSTEM".

1. **CHECK POWER DOOR LOCK OPERATION**
   a. When the door control switch on the master switch assembly is operated, check that the locked doors unlock (See **OPERATION CHECK**).

OK: Locked doors unlock.

NG: GO TO POWER DOOR LOCK CONTROL SYSTEM (See **PROBLEM SYMPTOMS**

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TABLE)

OK: Go to next step.

2. **CHECK WAVE ENVIRONMENT**
   a. Bring the electrical key transmitter near the outside electrical key oscillator (back door), and perform an entry back door open and entry lock functions check.

NOTE: **If the key is brought within 0.2 m (0.656 ft.) of the rear bumper, communication is not possible.**

HINT:

- When the electrical key transmitter is brought near the electrical key antenna, the possibility of wave interference decreases, and it can be determined if wave interference is causing the problem symptom.
- If the operation check is normal, the possibility of wave interference is high. Also, added vehicle components may cause wave interference. If installed, remove them and perform the operation.

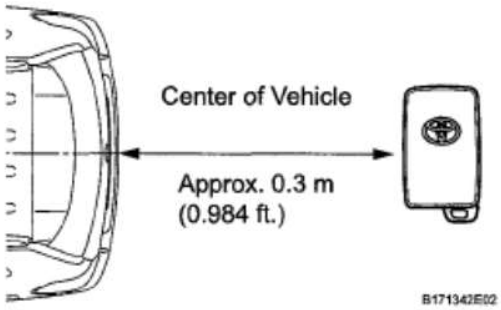


Fig. 156: Bring Electrical Key Transmitter Near Outside Electrical Key Oscillator (Back Door)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Entry functions operate normally.

NG: Go to step 3

OK: AFFECTED BY WAVE INTERFERENCE

3. **PERFORM KEY DIAGNOSTIC MODE INSPECTION**
   a. Diagnostic mode inspection (outside electrical key oscillator (back door))
      1. Connect Techstream to the DLC3.
      2. Turn the engine switch on (IG).
      3. Turn the tester on.
      4. Enter the following menus: Body Electrical/Smart Key/Utility/Communication Check (Key Diag Mode)/Overhead + Back Door.

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5. When the electrical key transmitter is held at the same height as the rear bumper upper surface and aligned with the center of the rear of the vehicle, check that the wireless door lock buzzer sounds.

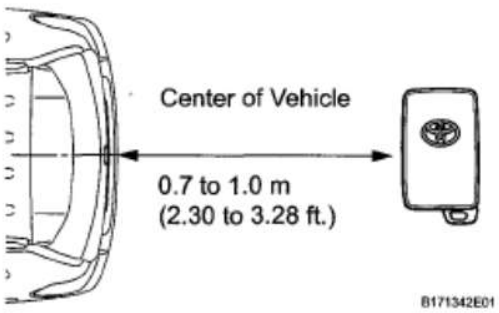


Fig. 157: Diagnostic Mode Inspection (Outside Electrical Key Oscillator (Back Door)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

If the buzzer sounds, it can be determined that the back door outside electrical key oscillator is operating normally.

OK: Wireless door lock buzzer sounds.

NG: Go to step 4

OK: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

4. **CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU - OUTSIDE ELECTRICAL KEY OSCILLATOR)**
   a. Disconnect the certification ECU (smart key ECU assembly) and outside electrical key oscillator connectors.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
D40-31 (CLG8) - O19-1 (CLG5)	Always	Below 1 ohms
D40-32 (CG8B) - O19-2 (CLGB)	Always	Below 1 ohms
D40-31 (CLG8) - Body ground	Always	10 kohms or higher
D40-32 (CG8B) - Body ground	Always	10 kohms or higher

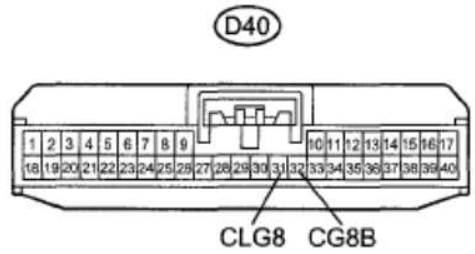
NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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Front view of wire harness connector:
(to Certification ECU (Smart Key ECU Assembly))



Front view of wire harness connector:
(to Electrical Key Oscillator)

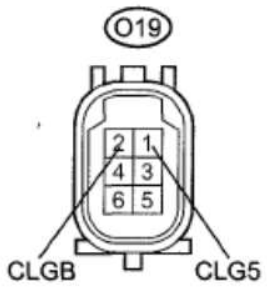


Fig. 158: Identifying D40 Certification ECU And O19 Outside Electrical Key Oscillator Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

5. **REPLACE OUTSIDE ELECTRICAL KEY OSCILLATOR**
   a. Replace the outside electrical key oscillator (See **ELECTRICAL KEY OSCILLATOR (FOR OUTSIDE LUGGAGE COMPARTMENT)**).
6. **CHECK OUTSIDE ELECTRICAL KEY OSCILLATOR (OPERATION)**
   a. Check that the entry functions operate normally.

OK: Entry functions operate normally.

NG: Go to step 7

OK: END (OUTSIDE ELECTRICAL KEY OSCILLATOR IS DEFECTIVE)

7. **REPLACE MAIN BODY ECU (INSTRUMENT PANEL JUNCTION BLOCK)**
   a. Replace the main body ECU (instrument panel junction block).
8. **CHECK MAIN BODY ECU (INSTRUMENT PANEL JUNCTION BLOCK) (OPERATION)**

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a. Check that the entry functions operate normally.

OK: Entry functions operate normally.

NG: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

OK: END (MAIN BODY ECU (INSTRUMENT PANEL JUNCTION BLOCK) IS DEFECTIVE)

BACK DOOR ENTRY LOCK FUNCTION DOES NOT OPERATE

DESCRIPTION

If the back door entry lock function does not operate but the back door open function operates, the communication line between the vehicle and electrical key transmitter is normal. As a faulty part, the entry lock switch circuit (certification ECU (smart key ECU assembly) --> back door opener switch (entry lock switch)) can be considered.

WIRING DIAGRAM

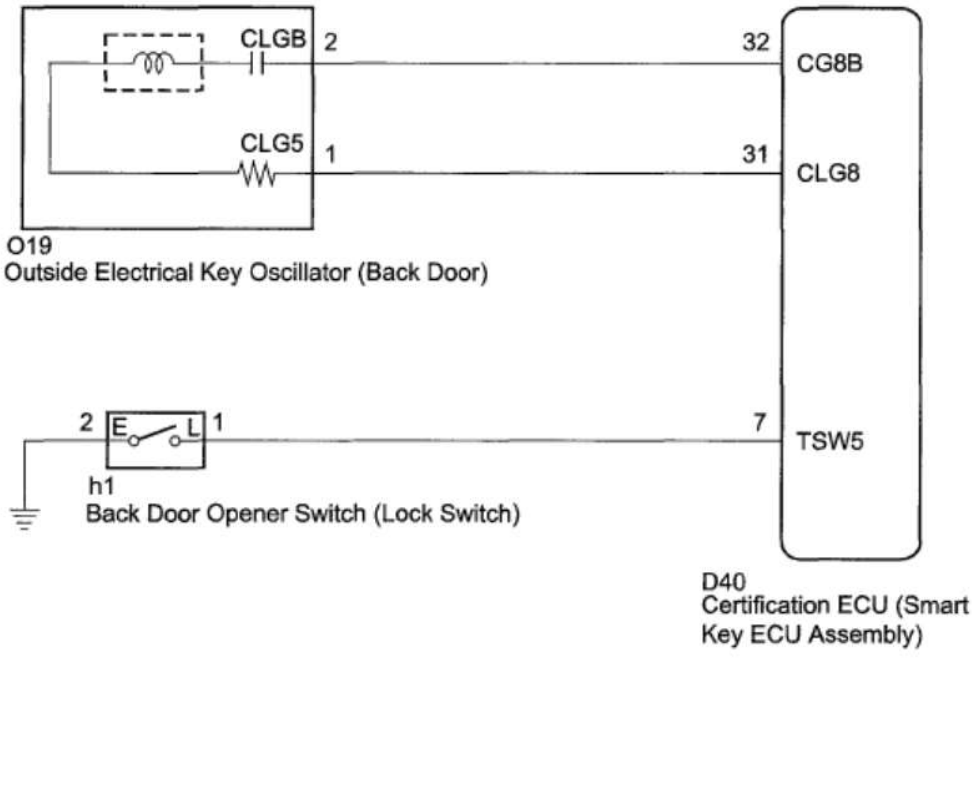


Fig. 159: Back Door Entry Lock Function - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

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NOTE: Before performing the inspection, check that there are no problems related to "CAN COMMUNICATION SYSTEM" and "LIN COMMUNICATION SYSTEM".

1. **CHECK POWER DOOR LOCK OPERATION**
   a. When the door control switch on the master switch assembly is operated, check that the locked doors unlock (See **OPERATION CHECK**).

OK: Locked doors unlock.

NG: GO TO POWER DOOR LOCK CONTROL SYSTEM (See **PROBLEM SYMPTOMS TABLE**)

OK: Go to next step.

2. **READ VALUE ON TECHSTREAM (BACK DOOR OPENER SWITCH)**
   a. Connect Techstream to the DLC3.
   b. Turn the engine switch on (IG).
   c. Turn the tester on.
   d. Enter the following menus: Body Electrical/Smart Key/Data List.
   e. Select Tr/B-Door Lock SW in the Data List and read the tester display.

Smart Key (Certification ECU (Smart Key ECU Assembly)):

TESTER DISPLAY REFERENCE

Tester Display	Measurement Item/Display	Normal Condition	Diagnostic Note
Tr/B-Door Lock SW	Back door lock switch/ON or OFF	ON: Back door lock switch is pushed	-
		OFF: Back door lock switch is not pushed	

OK: On the tester screen, each item changes between ON and OFF according to the chart above.

NG: Go to step 3

OK: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

3. **CHECK BACK DOOR OPENER SWITCH**
   a. Remove the back door opener switch (See **REMOVAL**).
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

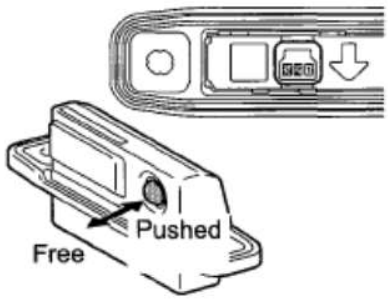
Tester Connection	Condition	Specified Condition

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1 - 2	Lock switch pushed	Below 1 ohms
1 - 2	Lock switch not pushed	10 kohms or higher

NG: REPLACE BACK DOOR OPENER SWITCH (See **REMOVAL**)

Component without harness connected:
(Back Door Opener Switch (Lock Switch))



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Fig. 160: Checking Power Door Lock Operation
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

4. **CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU - BACK DOOR OPENER SWITCH)**
   a. Disconnect the certification ECU (smart key ECU assembly) connector.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
D40-7 (TSW5) - h1-1 (L)	Always	Below 1 ohms
D40-7 (TSW5) - Body ground	Always	10 kohms or higher

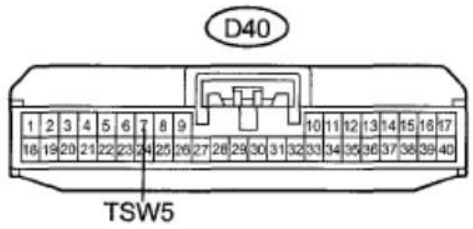
NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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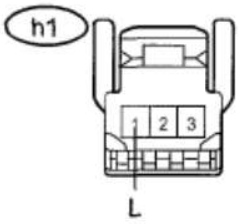
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Front view of wire harness connector:
(to Certification ECU (Smart Key ECU Assembly))



Front view of wire harness connector:
(to Back Door Opener Switch (Lock Switch))



B171361E01

Fig. 161: Identifying D40 Certification ECU And H1 Back Door Opener Switch Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

5. **CHECK HARNESS AND CONNECTOR (BACK DOOR OPENER SWITCH - BODY GROUND)**
   a. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
h1-2 (E) - Body ground	Always	Below 1 ohms

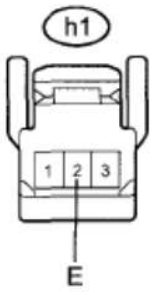
NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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Front view of wire harness connector:
(to Back Door Opener Switch)



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Fig. 162: Identifying H1 Back Door Opener Switch Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (See **REMOVAL**)

KEY REMINDER WARNING SYSTEM

PRECAUTION

1. **PRECAUTION FOR DISCONNECTING THE BATTERY CABLE**

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

SYSTEM NAME REFERENCE

System Name	See Procedure
Power Back Door System	**INITIALIZATION**

2. **PRECAUTION FOR KEY REMINDER WARNING SYSTEM**
   a. For the inspection procedure of the key reminder warning system for models equipped with the smart key system, refer to the smart key system (See **PROBLEM SYMPTOMS TABLE**).

PARTS LOCATION

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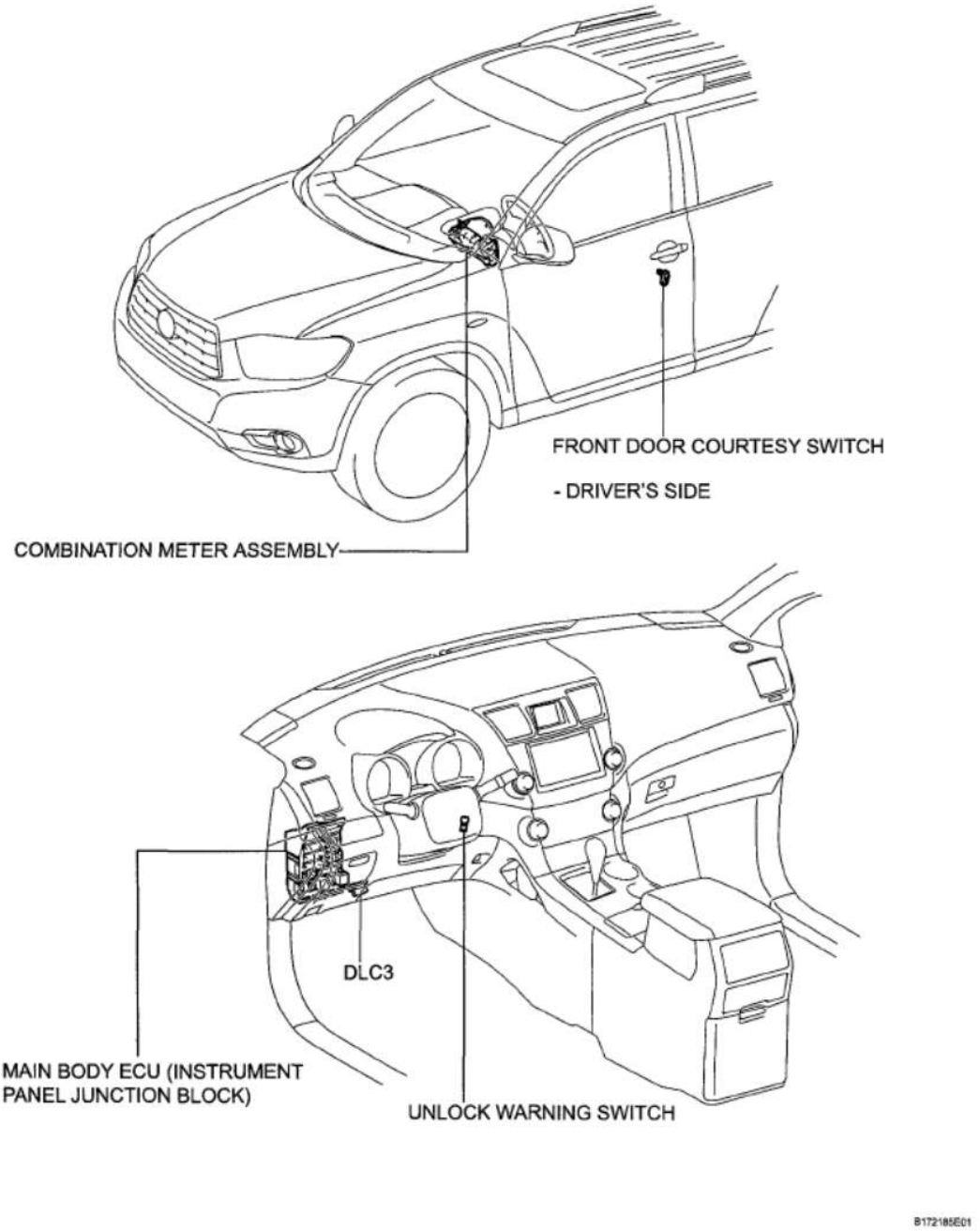


Fig. 163: Identifying Key Reminder Warning System Parts Location
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SYSTEM DIAGRAM

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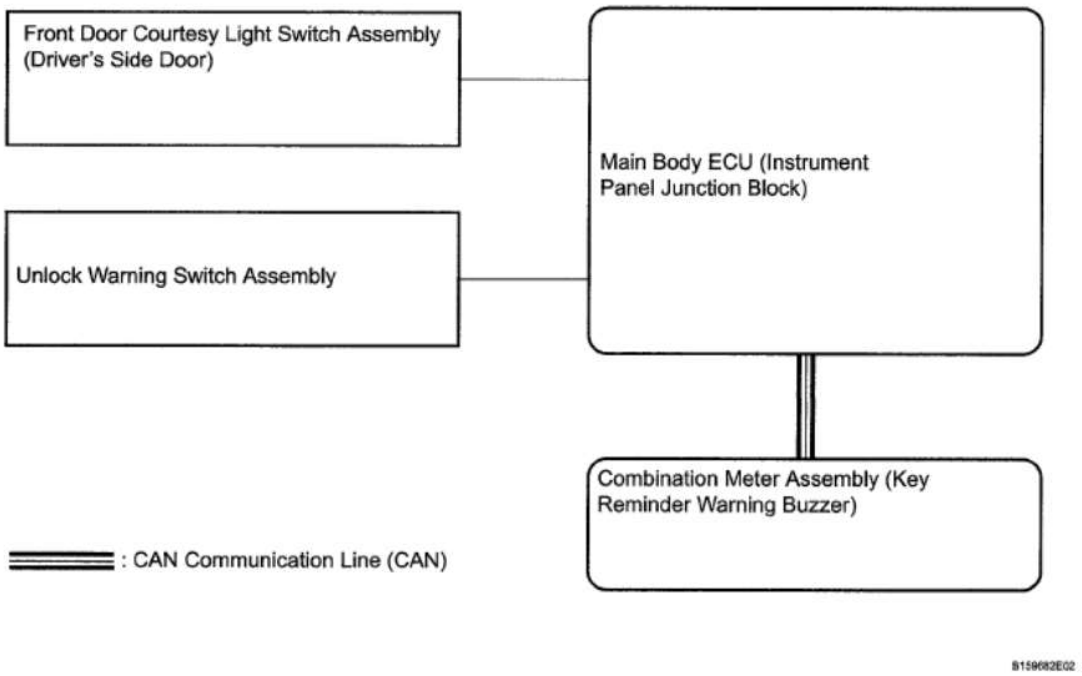


Fig. 164: Key Reminder Warning System Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

BODY ECU

SIGNALS REFERENCE

Transmitting ECU	Receiving ECU	Signals	Communication method
Main Body ECU (Instrument Panel Junction Block)	Combination Meter Assembly	Driver's side door courtesy light switch signal	CAN
Main Body ECU (Instrument Panel Junction Block)	Combination Meter Assembly	Unlock warning switch signal	CAN

SYSTEM DESCRIPTION

1. **KEY REMINDER WARNING SYSTEM DESCRIPTION**
   a. When the driver's side door is opened with the ignition key in the ACC or LOCK position, this system causes a buzzer to sound in order to warn the driver that the ignition key has not been removed.

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use the following procedures to troubleshoot the key reminder warning system.
- Techstream should be used in steps 4 and 6.

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

HINT:

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

PROBLEM SYMPTOMS

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

3. **INSPECT BATTERY VOLTAGE**
   a. Measure the battery voltage.

Standard voltage: 11 to 14 V

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

4. **INSPECT COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM**
   a. Use Techstream to check if the CAN communication system is functioning normally.

Result

RESULT REFERENCE

Result	Proceed to
(ECU connected, communication line malfunctioning) DTC is not output.	A
(ECU connected, communication line malfunctioning) DTC is output.	B (See **HOW TO PROCEED WITH TROUBLESHOOTING**)

B: GO TO CAN COMMUNICATION SYSTEM

A: Go to next step.

5. **PROBLEM SYMPTOMS TABLE**

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Result

RESULT REFERENCE

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

B: GO TO STEP 7

A: Go to next step.

6. **OVERALL ANALYSIS AND TROUBLESHOOTING**
   a. DATA LIST/ACTIVE TEST (See **DIAGNOSIS SYSTEM**)
   b. TERMINALS OF ECU (See **PROBLEM SYMPTOMS TABLE**)
7. **REPAIR OR REPLACE**
8. **CONFIRMATION TEST**

NEXT: END

OPERATION CHECK

1. **CHECK FUNCTION**
   a. Check that the key reminder warning buzzer sounds.
      1. With the driver's side door closed, insert the key into the ignition key cylinder and then make sure that the key is in the LOCK or ACC position.
      2. Check that the buzzer sounds intermittently if the driver's side door is opened.
   b. Check that the key reminder warning buzzer stops.
      1. Check that the buzzer stops sounding if any of the following operations is performed while the buzzer is sounding:
         - Close the driver's side door (front door courtesy light switch is off).
         - Turn the ignition switch on (IG).
         - Pull out the key from the ignition key cylinder.

PROBLEM SYMPTOMS TABLE

KEY REMINDER WARNING SYSTEM:

PROBLEM SYMPTOMS CHART

Symptom	Suspected Area	Refer to
	Unlock warning switch circuit	**KEY REMINDER BUZZER DOES NOT SOUND**
	Driver side courtesy light switch circuit	**KEY REMINDER BUZZER DOES NOT SOUND**

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Key reminder buzzer does not sound	Harness or connector	-
	Main body ECU	-
	Combination meter assembly (Key reminder buzzer)	-
	CAN communication system	-

TERMINALS OF ECU

1. **CHECK MAIN BODY ECU (INSTRUMENT PANEL JUNCTION BLOCK)**
   a. Disconnect the 1F, 1M and 1D junction block connectors.
   b. Disconnect the D8 and D10 main body ECU (instrument panel junction block) connectors.

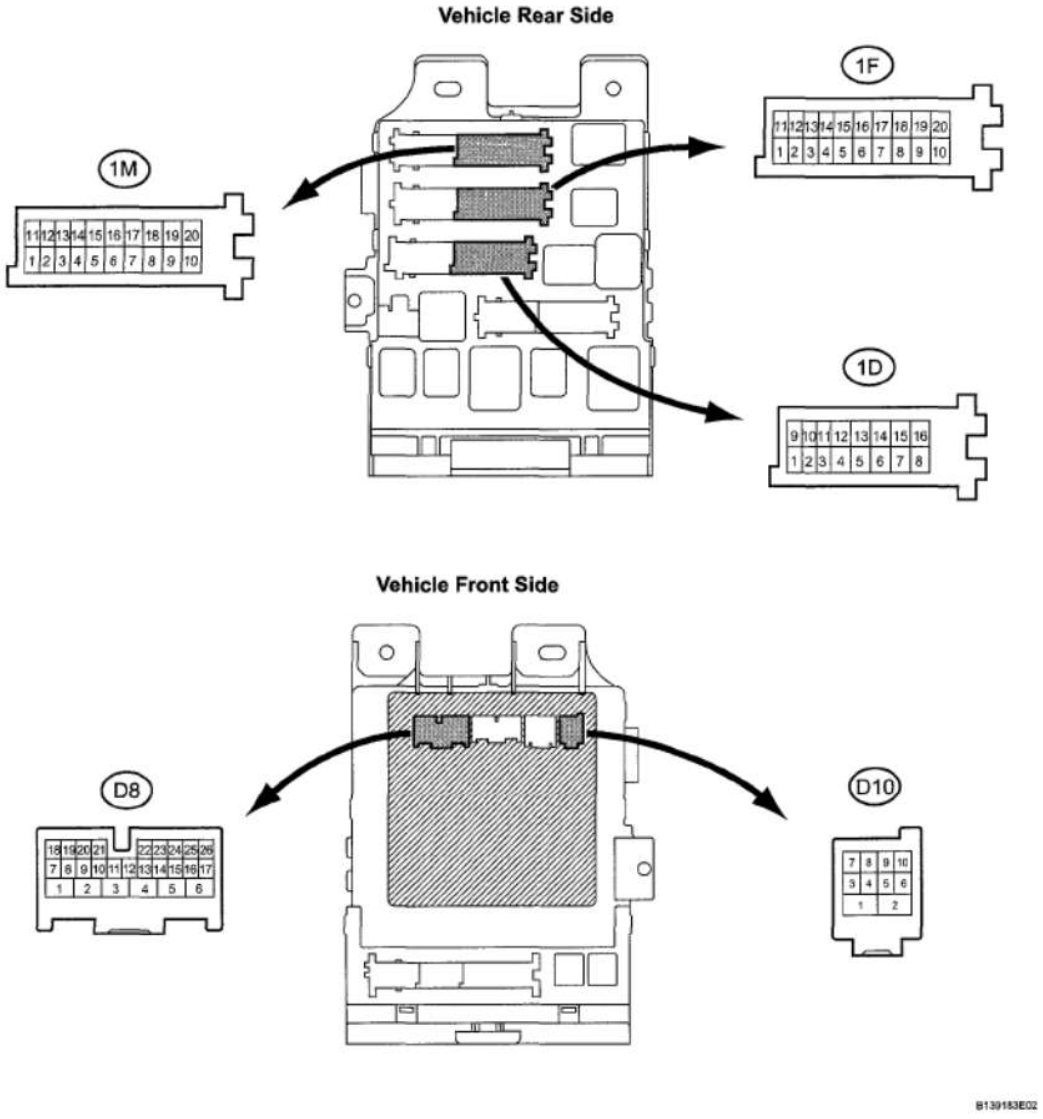


Fig. 165: Identifying 1F, 1M And 1D Junction Block Connectors
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c. Measure the resistance and voltage according to the value(s) in the table below.

CONNECTOR TERMINAL REFERENCE

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
1F-10 (GND1) - Body ground	W-B - Body ground	Ground	Always	Below 1 ohms
1M-9 (GND2) - Body ground				
1D-10 (BECU) - Body ground	W - Body ground	Power source	Always	10 to 14 V
D8-24 (DCTY) - Body ground	G - Body ground	Driver door courtesy light switch signal	Switch pushed (Door closed)	10 kohms or higher
			Switch free (Door opened)	Below 1 ohms
D10-5 (KSW) - Body ground	GR - Body ground	Key unlock warning switch signal	No key is in ignition key cylinder	10 kohms or higher
			Key is in ignition key cylinder	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. Check the DLC3 (See **HOW TO TROUBLESHOOT ECU CONTROLLED SYSTEMS**).

DATA LIST/ACTIVE TEST

1. **READ DATA LIST**

HINT:

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

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

a. Connect Techstream to the DLC3.

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b. Turn the ignition switch on (IG).
c. Turn the tester on.
d. Enter the following menus: Body Electrical/Main Body/Data List
e. According to the display on tester, read the "Data List".

Main Body

TESTER DISPLAY REFERENCE

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Key Unlock Warning SW	Unlock warning switch signal/ON or OFF	ON: Key is in ignition key cylinder OFF: No key is in ignition key cylinder	-
D Door Courtesy SW	Driver side door courtesy light switch signal/ON or OFF	ON: Driver side door is open OFF: Driver side door is closed	-

KEY REMINDER BUZZER DOES NOT SOUND

DESCRIPTION

The key reminder warning buzzer sounds when the driver side door is opened while the ignition switch is in the LOCK or ACC positions. The key reminder warning buzzer is activated when the main body ECU sends a key switch signal and driver side courtesy switch signal to the combination meter.

HINT:

Since the key reminder warning system has functions that use CAN communication, first confirm that there is no malfunction in the communication system by inspecting the CAN communication functions in accordance with the "HOW TO PROCEED WITH TROUBLESHOOTING" procedures. Then, conduct the following inspection procedure.

WIRING DIAGRAM

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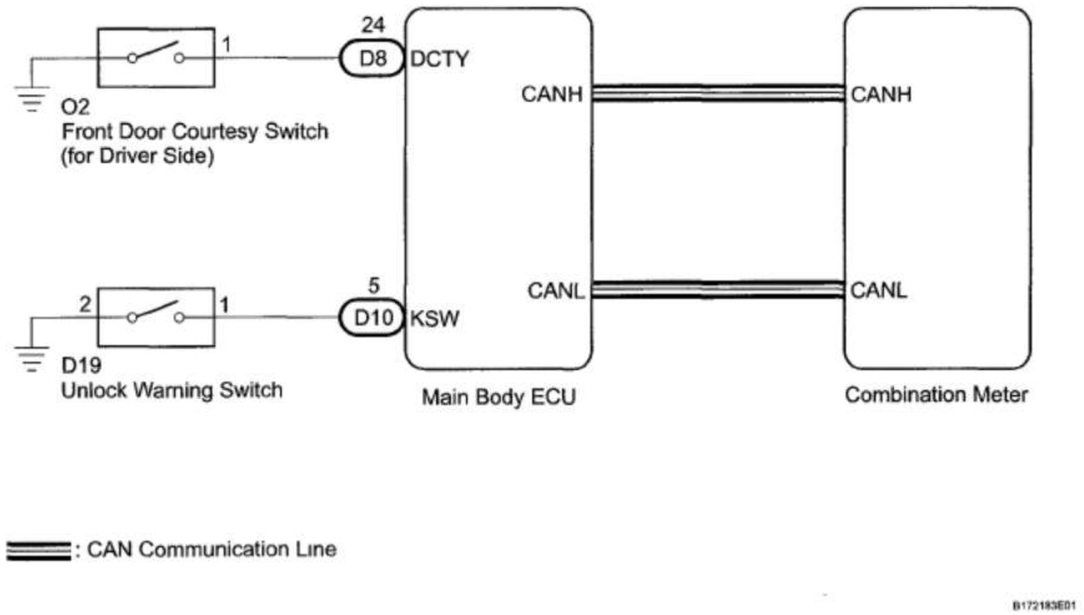


Fig. 166: Key Reminder Buzzer - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

1. **READ VALUE USING TECHSTREAM (FRONT DOOR COURTESY LIGHT SWITCH)**
   a. Check the Data List for proper functioning of the front door courtesy light switch LH.

   Main Body

   TESTER DISPLAY REFERENCE

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
D Door Courtesy SW	Front door courtesy light switch LH signal/ON or OFF	ON: Driver side door is open OFF: Driver side door is closed	-

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

   NG: Go to step 5

   OK: Go to next step.

2. **READ VALUE USING TECHSTREAM (UNLOCK WARNING SWITCH)**
   a. Check the Data List for proper functioning of the unlock warning switch.

   Main Body

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TESTER DISPLAY REFERENCE

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Key Unlock Warning SW	Unlock warning switch signal/ON or OFF	ON: Key is in ignition key cylinder OFF: No key is in ignition key cylinder	-

OK: ON (Key is in ignition key cylinder) appears on the screen.

NG: Go to step 3

OK: REPLACE COMBINATION METER ASSEMBLY

3. **INSPECT UNLOCK WARNING SWITCH ASSEMBLY**
   a. Remove the unlock warning switch assembly (See **REMOVAL**).
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Switch Condition	Specified Condition
1 - 2	Switch free (Key removed)	10 kohms or higher
1 - 2	Switch pushed (Key set)	Below 1 ohms

NG: REPLACE UNLOCK WARNING SWITCH ASSEMBLY (See **REMOVAL**)

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Component without harness connected:
(Unlock Warning Switch Assembly)

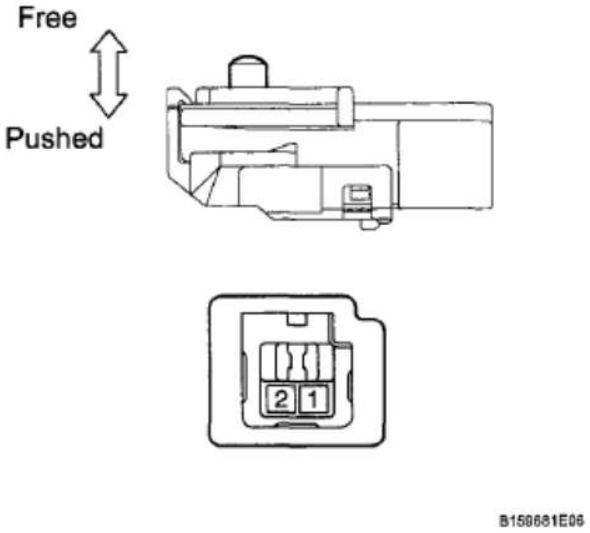


Fig. 167: Inspecting Unlock Warning Switch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

4. **CHECK HARNESS AND CONNECTOR (UNLOCK WARNING SWITCH - MAIN BODY ECU)**
   a. Disconnect the D19 unlock warning switch assembly and D10 main body ECU connectors.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
D19-1 - D10-5 (KSW)	Always	Below 1 ohms
D19-1 - Body ground		10 kohms or higher

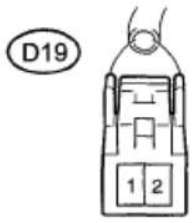
NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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Front view of wire harness connector:
(to Unlock Warning Switch Assembly)



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

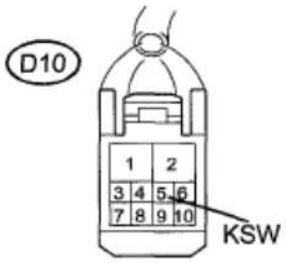


Fig. 168: Identifying D19 Unlock Warning Switch Assembly And D10 Main Body Ecu Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)

5. **INSPECT FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY (for Driver Side)**
   a. Remove the driver's side front door courtesy light switch (See **FRONT DOOR COURTESY SWITCH**).
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
1 - Switch body	Courtesy switch pushed (Door closed)	10 kohms or higher
	Courtesy switch free (Door open)	Below 1 ohms

NG: REPLACE FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY (for Driver Side)
(See **FRONT DOOR COURTESY SWITCH**)

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Component without harness
connected:(Door Courtesy Light Switch)

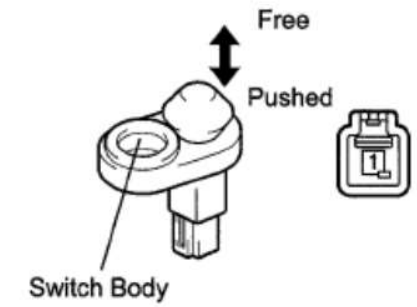


Fig. 169: Inspecting Front Door Courtesy Light Switch Assembly (Driver Side)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step.

6. **CHECK HARNESS AND CONNECTOR (FRONT DOOR COURTESY LIGHT SWITCH - MAIN BODY ECU)**
   a. Disconnect the O2 front door courtesy switch assembly and D8 main body ECU connectors.
   b. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
O2-1 - D8-24 (DCTY)	Always	Below 1 ohms
O2-1 - Body ground		10 kohms or higher

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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Front view of wire harness connector:(to Front Door Courtesy Switch Assembly)



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

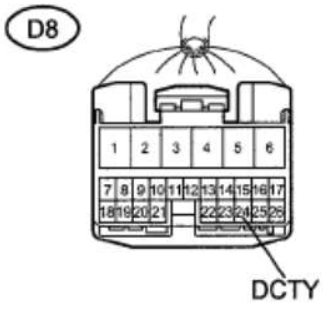


Fig. 170: Identifying O2 Front Door Courtesy Switch Assembly And D8 Main Body ECU Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)

DOOR CONTROL TRANSMITTER (W/ SMART KEY SYSTEM)

COMPONENTS

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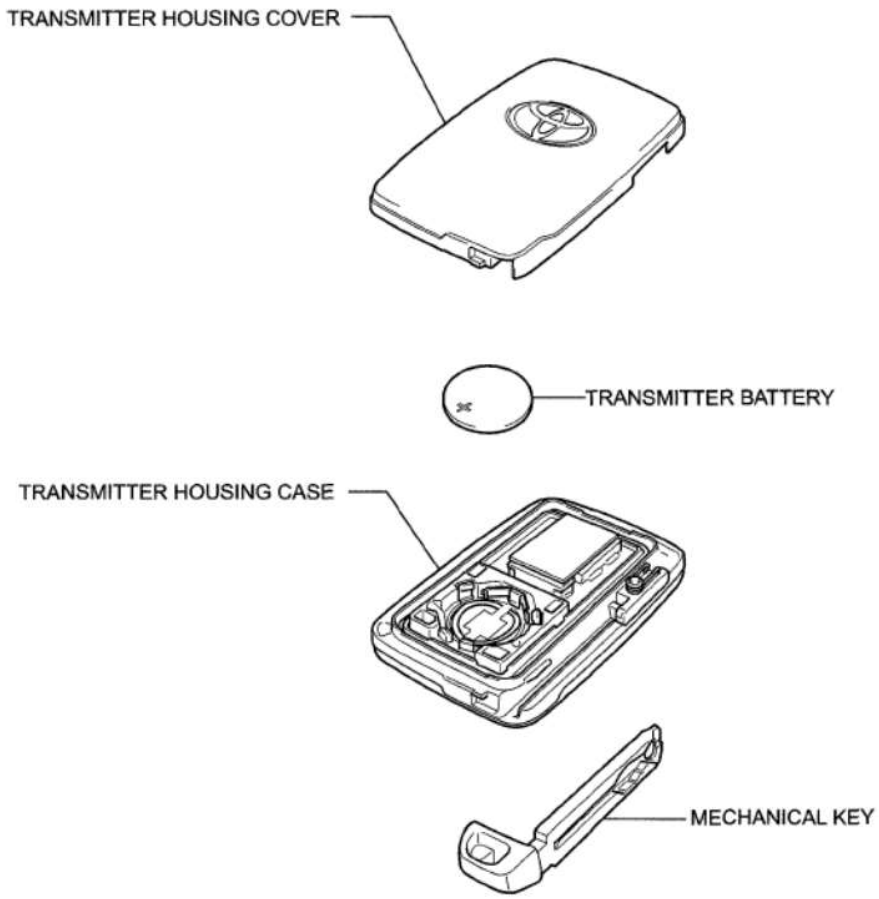


Fig. 171: Identifying Door Control Transmitter (W/ Smart Key System) Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. **REMOVE TRANSMITTER BATTERY**
   a. Remove the mechanical key.

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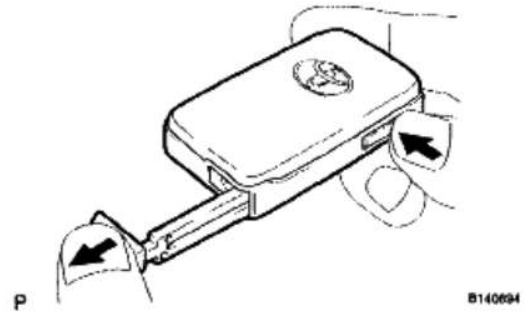


Fig. 172: Locating Mechanical Key
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Insert a screwdriver into the gap, and turn the screwdriver to detach the cover.

HINT:

Tape the screwdriver tip before use.

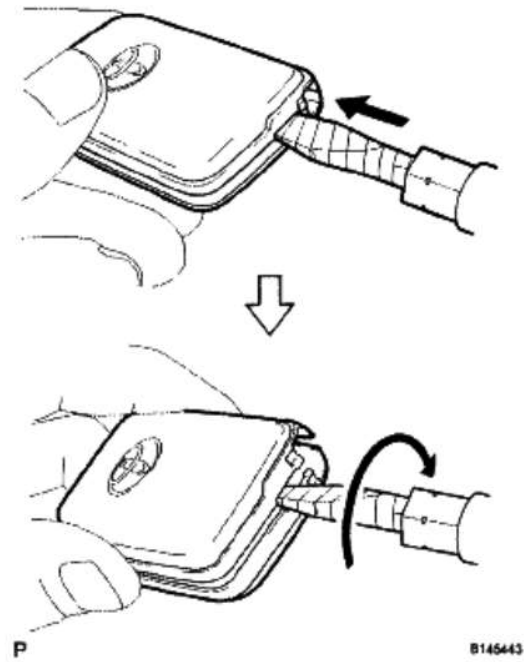


Fig. 173: Inserting Screwdriver Into Gap
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Insert a screwdriver into the gap and gently remove the battery (lithium battery).

NOTE:

- **Do not push the terminals with your finger.**
- **Do not forcibly pry up the battery (lithium battery) because doing so will deform the terminals.**

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- **Do not touch the battery with wet hands. Water may result in corrosion.**
- **Do not touch or move any components inside the transmitter because handling the components may interfere with proper operation of the transmitter.**

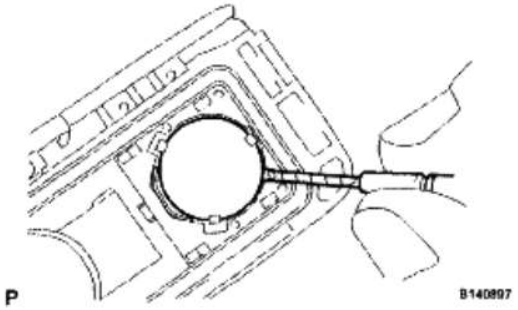


Fig. 174: Removing Lithium Battery
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

1. **INSPECT DOOR CONTROL TRANSMITTER**
   a. Inspect operation of the transmitter.
      1. Remove the battery (lithium battery) from the transmitter (See **REMOVAL**).
      2. Install a new or normal battery (lithium battery).

         HINT:

         If a new or normal battery is not available, first connect 2 new 1.5 V batteries in series. Then connect leads to the batteries and apply 3 V to the transmitter, as shown in the illustration.

      3. From outside the vehicle, approximately 1 m (3.28 ft.) away from the driver side outside door handle, test the transmitter by pointing its key plate at the vehicle and pressing a transmitter switch.

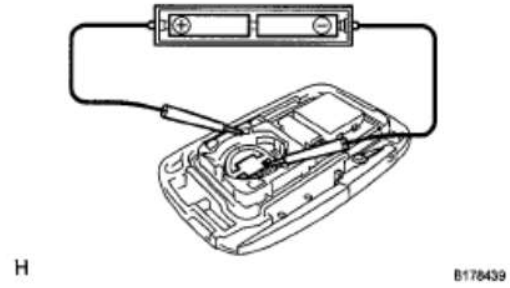


Fig. 175: Inspecting Operation Of Transmitter
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OK: The door lock can be operated via the transmitter.

The LED comes on more than once.

- The operational area differs depending on the user, the way the transmitter is held, and the location.
- The transmitter's faint electric waves may be affected if the area has strong electric waves or noise. The transmitter's operation area may be shortened or the transmitter may not function.

b. Inspect the battery capacity.

1. Remove the battery from the electrical key transmitter that does not operate. Attach a lead wire (0.6 mm (0.0236 in.) in diameter or less including wire sheath) with tape or equivalent to the negative terminal (See **SYSTEM DESCRIPTION**).

NOTE: **Do not wrap the lead wire around a terminal, wedge it between the terminals, or solder it. A terminal may be deformed or damaged, and the battery will not be able to be installed correctly.**

2. Carefully pull the lead wire out from the position shown in the illustration and install the previously removed transmitter battery.

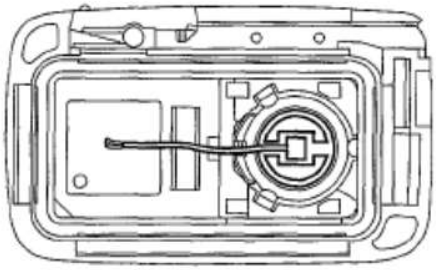


Fig. 176: Identifying Lead Wire
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. Using an oscilloscope, check the transmitter battery voltage waveform.

HINT:

When measuring the battery voltage, while operating the lock switch of a door handle, bring the electrical key transmitter within the entry operating range to perform the measurement. For the entry operating range, refer to **SYSTEM DESCRIPTION** (see **SYSTEM DESCRIPTION**).

Standard voltage

STANDARD VOLTAGE SPECIFICATION

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Item	Content
Tester Connection	Battery positive (+) - Battery negative (-)
Tool Setting	0.5 V/DIV., 100ms/DIV.
Condition	Engine switch OFF, all doors closed and lock switch pushed
Specified Condition	2.2 to 3.2 V (Refer to the waveform)

If the result is not as specified, replace the transmitter battery.

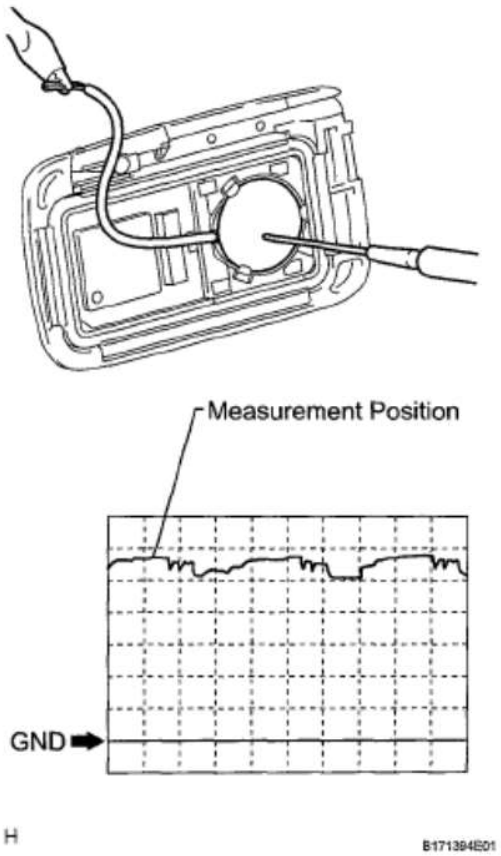


Fig. 177: Checking Transmitter Battery Voltage Waveform
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. **INSTALL TRANSMITTER BATTERY**
   a. Install a new battery (lithium battery) with the positive (+) side up as shown in the illustration.

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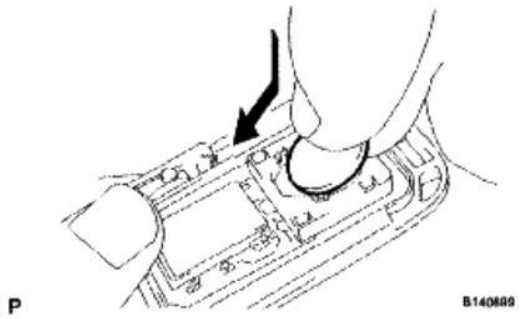


Fig. 178: Installing Battery
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Press down gently on the battery to set it in place.

NOTE:

- **Be sure that the positive and negative sides of the transmitter battery are positioned correctly.**
- **Be careful not to bend the terminals of the transmitter battery during installation.**
- **Keep the interior of the transmitter case free of dust, water, and oil.**

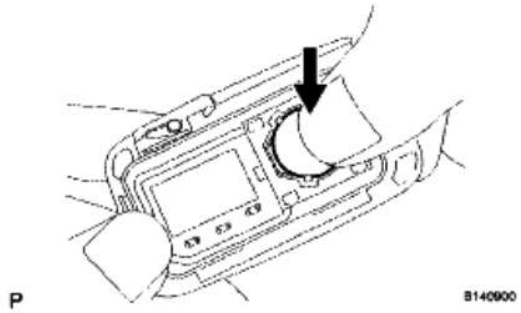
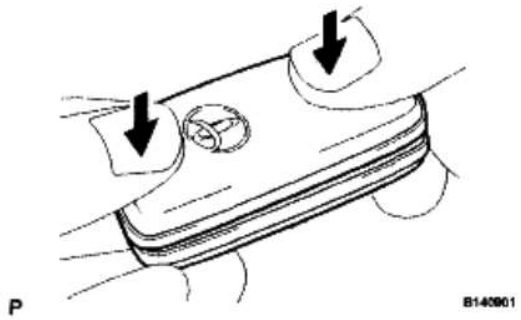


Fig. 179: Pressing Down Battery
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Install the cover by pressing it as shown in the illustration.



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Fig. 180: Installing Cover By Pressing Down
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Install the mechanical key.

HINT:

After the installation, press one of the transmitter switches and check that the LED illuminates.

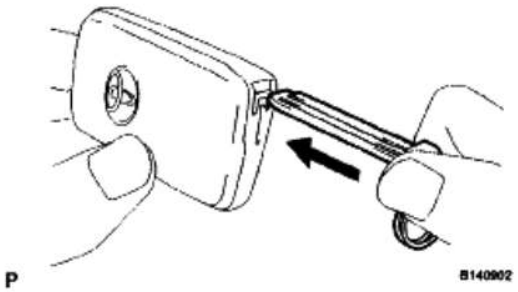


Fig. 181: Installing Mechanical Key
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

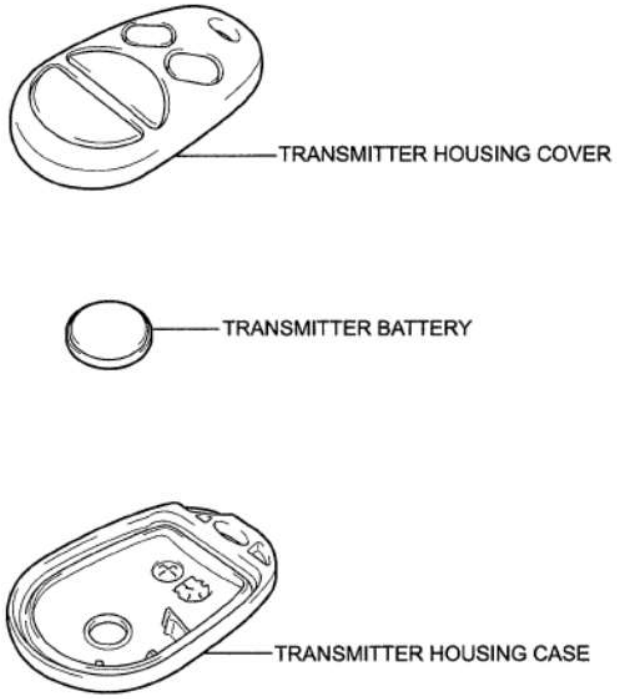
DOOR CONTROL TRANSMITTER (W/O SMART KEY SYSTEM)

COMPONENTS

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P B174108E04

Fig. 182: Identifying Door Control Transmitter (W/O Smart Key System) Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. **REMOVE TRANSMITTER BATTERY**

NOTE: Special caution should be taken for handling each component as they are precision electronic components.

a. Using a screwdriver with its tip wrapped in protective tape, pry open the transmitter housing cover.

NOTE: Do not forcibly pry the cover.

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Fig. 183: Prying Open Transmitter Housing Cover
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the battery (lithium battery).

NOTE:

- **Do not push the terminals with your finger.**
- **Do not forcibly pry up the battery. The terminals may become damaged.**
- **Do not touch the battery with wet hands. Water may cause rust.**
- **Do not touch or move any components inside the transmitter. It may cease to work.**

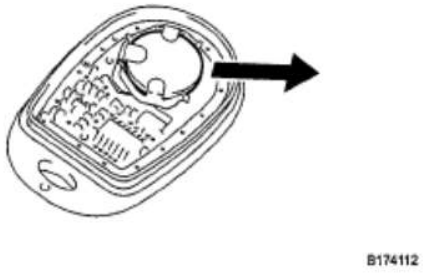


Fig. 184: Removing Lithium Battery
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

1. **INSPECT DOOR CONTROL TRANSMITTER**
   a. Inspect operation of the transmitter.
      1. Remove the battery (lithium battery) from the transmitter (See **DOOR CONTROL TRANSMITTER (W/O SMART KEY SYSTEM)**).
      2. Install a new or non-depleted battery (lithium battery).

         HINT:

         When a new or non-depleted battery is not available, first connect 2 new 1.5 batteries in

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series. Then connect leads to the batteries and apply 3 V to the transmitter, as shown in the illustration.

3. From outside the vehicle, approximately 1 m (3.28 ft) from the driver side outside door handle, test the transmitter by pointing its key plate at the vehicle and pressing a transmitter switch.

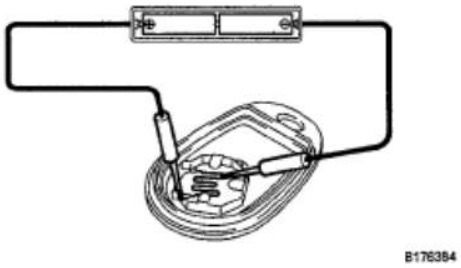


Fig. 185: Inspecting Door Control Transmitter
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: The door lock can be operated via the transmitter.

The LED comes on more than once.

- The operational area differs depending on the user, the way the transmitter is held and the location.
- The transmitter's faint electric waves may be affected if the area has strong electric waves or noise. The transmitter's operation area may be shortened or the transmitter may not function.

b. Inspect the battery capacity.
   1. Remove the battery from the electrical key transmitter that does not operate. Attach a lead wire (0.6 mm (0.0236 in.) in diameter or less including wire sheath) with tape or equivalent to the negative terminal (See **DOOR CONTROL TRANSMITTER (W/O SMART KEY SYSTEM)**).

      NOTE: Do not wrap the lead wire around a terminal, wedge it between the terminals, or solder it. A terminal may be deformed or damaged, and the battery will not be able to be installed correctly.

   2. Carefully pull the lead wire out from the position shown in the illustration and install the previously removed transmitter battery.

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Fig. 186: Identifying Lead Wire
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. Using an oscilloscope, check the transmitter battery voltage waveform.

HINT:

Measure the transmitter battery voltage while pressing the LOCK or UNLOCK switch on the transmitter.

Standard voltage

STANDARD VOLTAGE SPECIFICATION

Item	Content
Tester Connection	Battery positive (+) - Battery negative (-)
Tool Setting	0.5 V/DIV., 100 ms/DIV.
Condition	Engine switch OFF, all doors closed and lock switch pushed
Specified Condition	2.2 to 3.2 V (Refer to the waveform)

If the result is not as specified, replace the transmitter battery.

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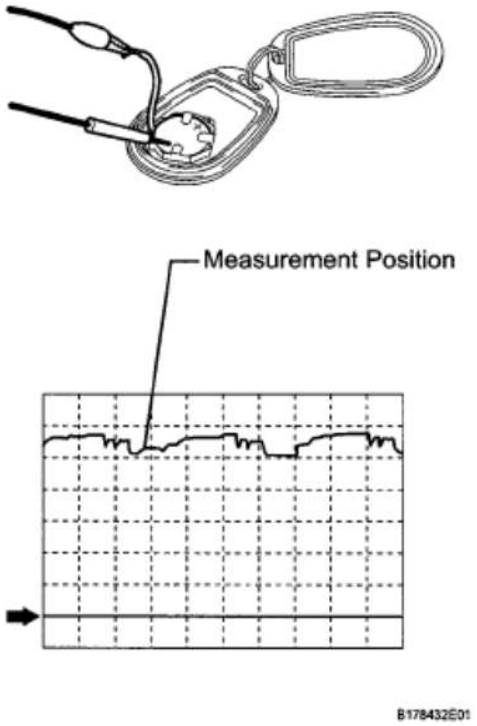


Fig. 187: Checking Transmitter Battery Voltage Waveform
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. **INSTALL TRANSMITTER BATTERY**
   a. Install a new battery (lithium battery) with the positive (+) side up, as shown in the illustration.

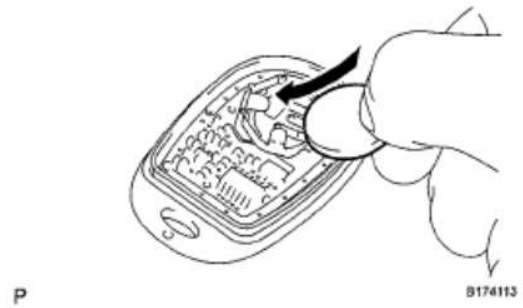


Fig. 188: Installing Lithium Battery
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Press down gently on the battery to set it in place.

NOTE:

- **Be careful not to bend the transmitter battery electrode during insertion.**

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- **Keep the transmitter cover interior free of dust and oil.**

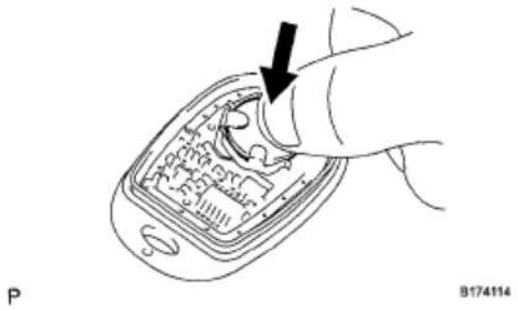


Fig. 189: Pressing Down Gently On Battery
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Install the case securely.

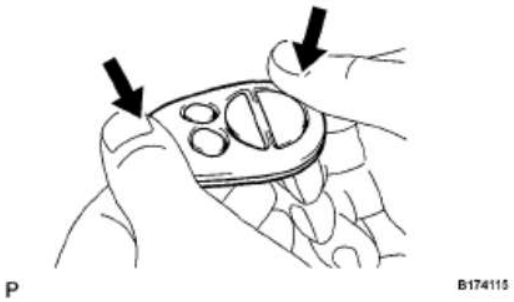


Fig. 190: Installing Case Securely
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DOOR CONTROL SWITCH

COMPONENTS

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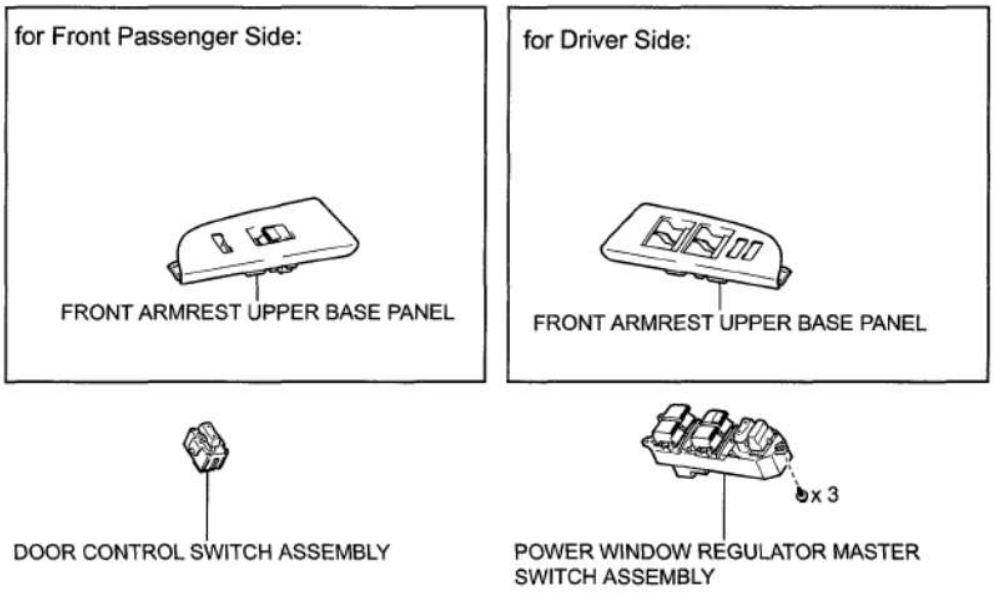


Fig. 191: Identifying Door Control Switch Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. **REMOVE FRONT ARMREST UPPER BASE PANEL** (See **DISASSEMBLY**)
2. **REMOVE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY (for Driver Side)**
   a. Remove the 3 screws and the power window regulator master switch assembly.

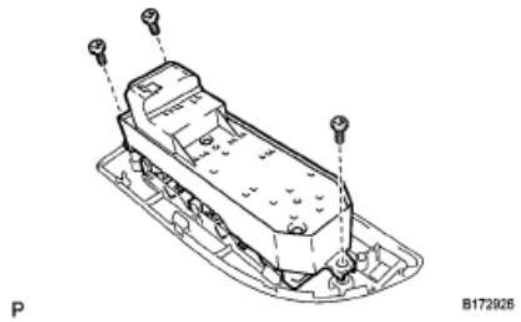


Fig. 192: Identifying Power Window Regulator Master Switch Assembly With Screws

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

3. **REMOVE DOOR CONTROL SWITCH ASSEMBLY (for Front Passenger Side)**
   a. Disengage the 2 claws and remove the door control switch assembly.

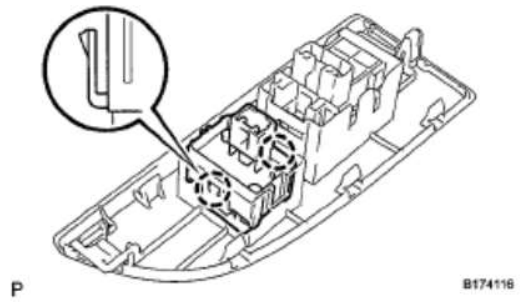


Fig. 193: Identifying Door Control Switch Assembly With Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

1. **INSPECT POWER WINDOW MASTER SWITCH**
   a. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
1 - 2	Locked	Below 1 ohms
1 - 2 1 - 9	OFF (Free)	10 kohms or higher
1 - 9	Unlocked	Below 1 ohms

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

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Component without harness connected:
(Power Window Master Switch)

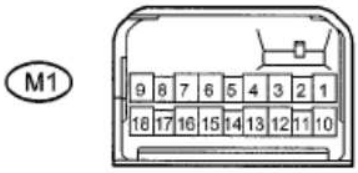


Fig. 194: Identifying Power Window Master Switch Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **INSPECT DOOR CONTROL SWITCH ASSEMBLY**

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

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Switch Condition	Specified Condition
4 - 3	Locked	Below 1 ohms
4 - 3 2 - 3	OFF (Free)	10 kohms or higher
2 - 3	Unlocked	Below 1 ohms

If the result is not specified, replace door control switch assembly.

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Component without harness connected:
(Door Control Switch)

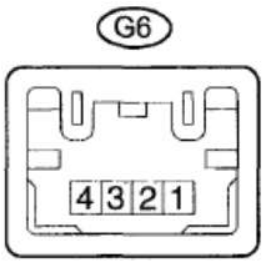


Fig. 195: Identifying Door Control Switch Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. **INSTALL POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY (for Driver Side)**
   a. Install the power window regulator master switch assembly with the 3 screws.

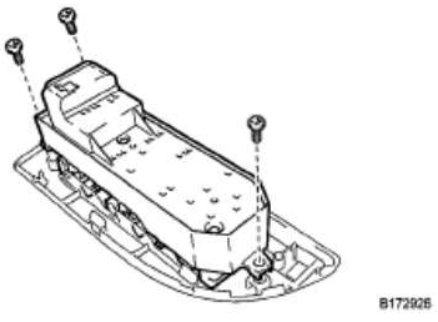


Fig. 196: Identifying Power Window Regulator Master Switch Assembly With Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **INSTALL DOOR CONTROL SWITCH ASSEMBLY (for Front Passenger Side)**
   a. Engage the 2 claws and install the door control switch assembly.
3. **INSTALL FRONT ARMREST UPPER BASE PANEL** (See **REASSEMBLY**)

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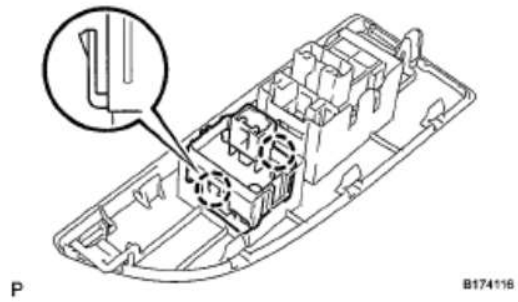


Fig. 197: Identifying Door Control Switch Assembly With Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

UNLOCK WARNING SWITCH

COMPONENTS

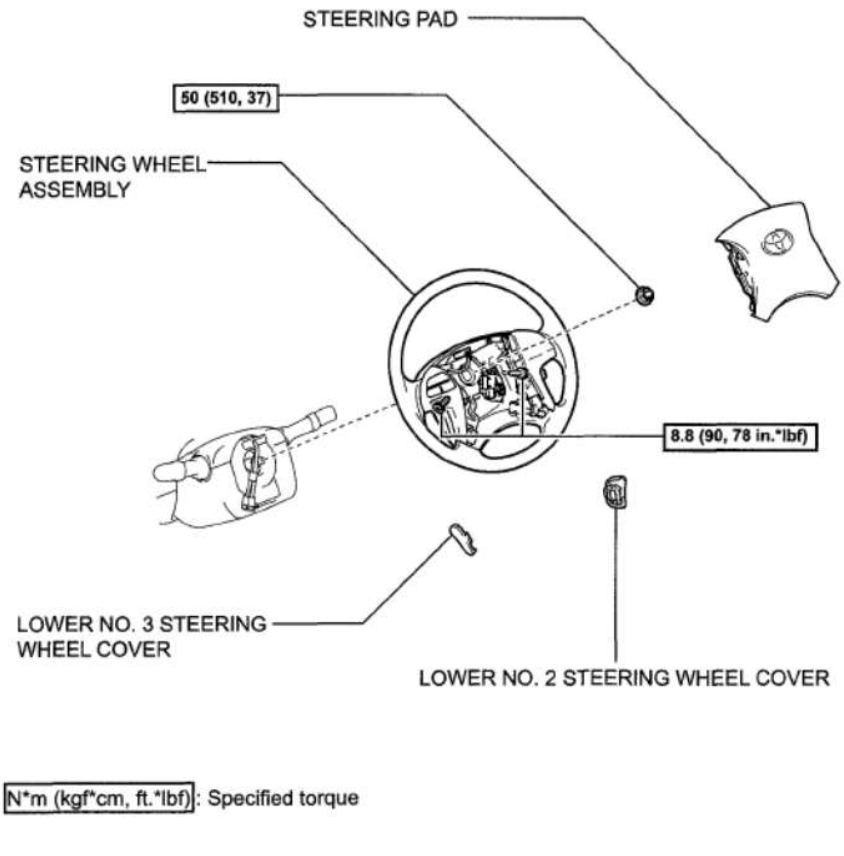


Fig. 198: Identifying Unlock Warning Switch Components With Torque Specification (1 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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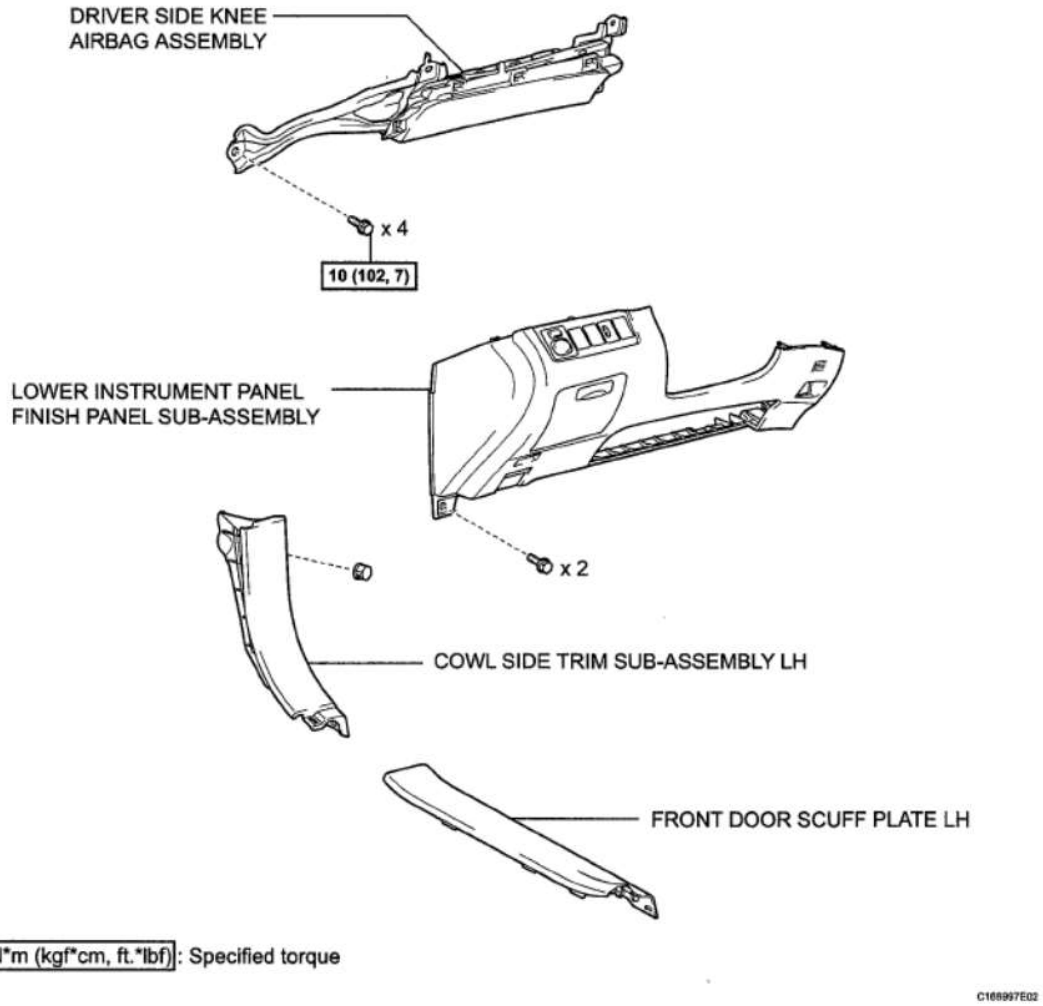


Fig. 199: Identifying Unlock Warning Switch Components With Torque Specification (2 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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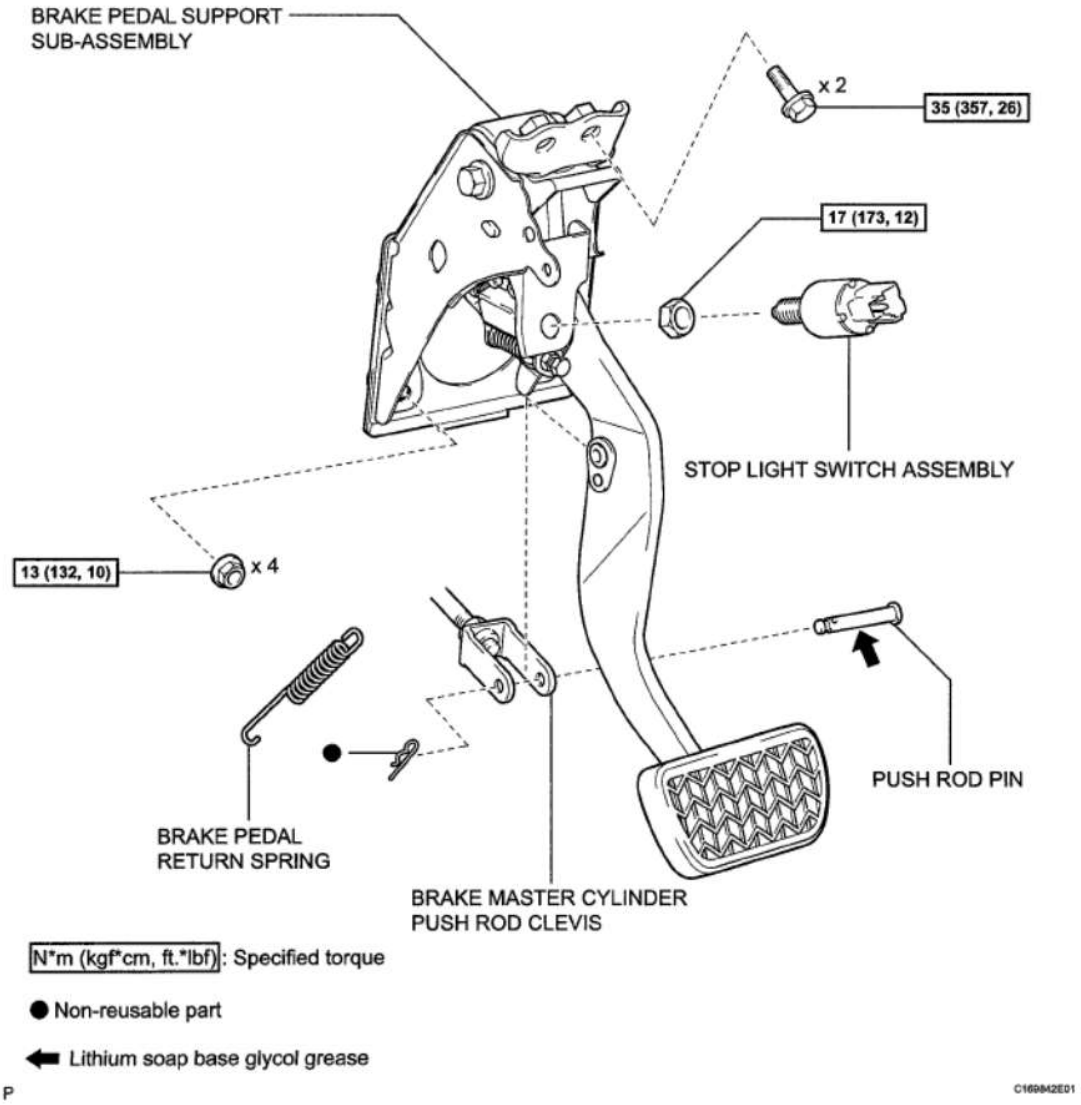


Fig. 200: Identifying Unlock Warning Switch Components With Torque Specification (3 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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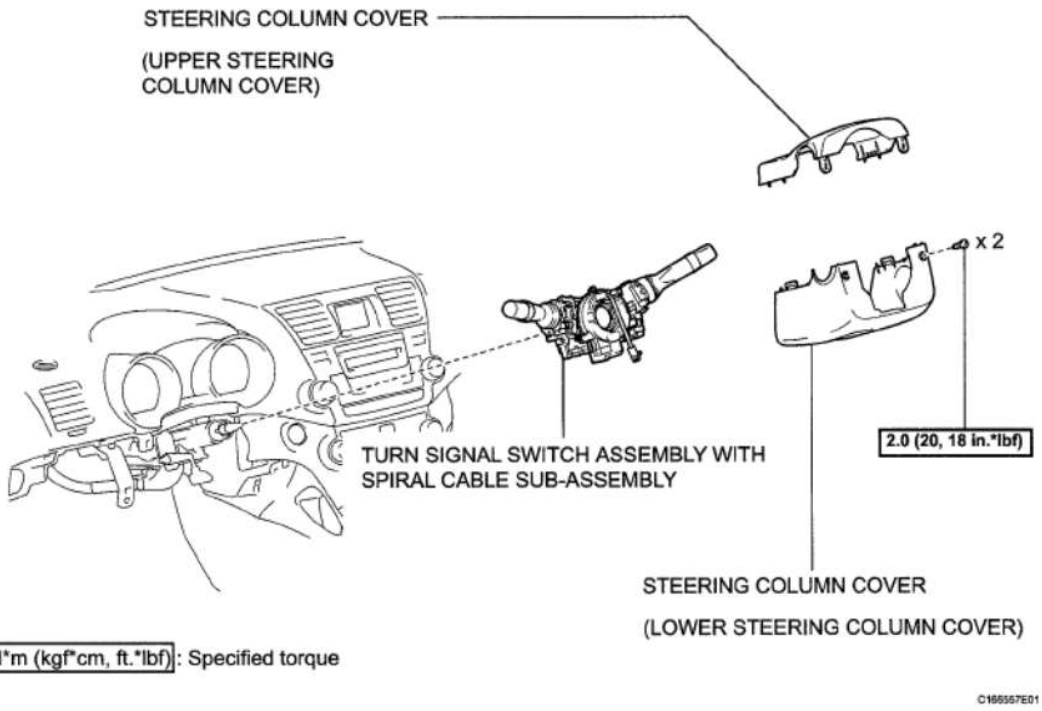


Fig. 201: Identifying Unlock Warning Switch Components With Torque Specification (4 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

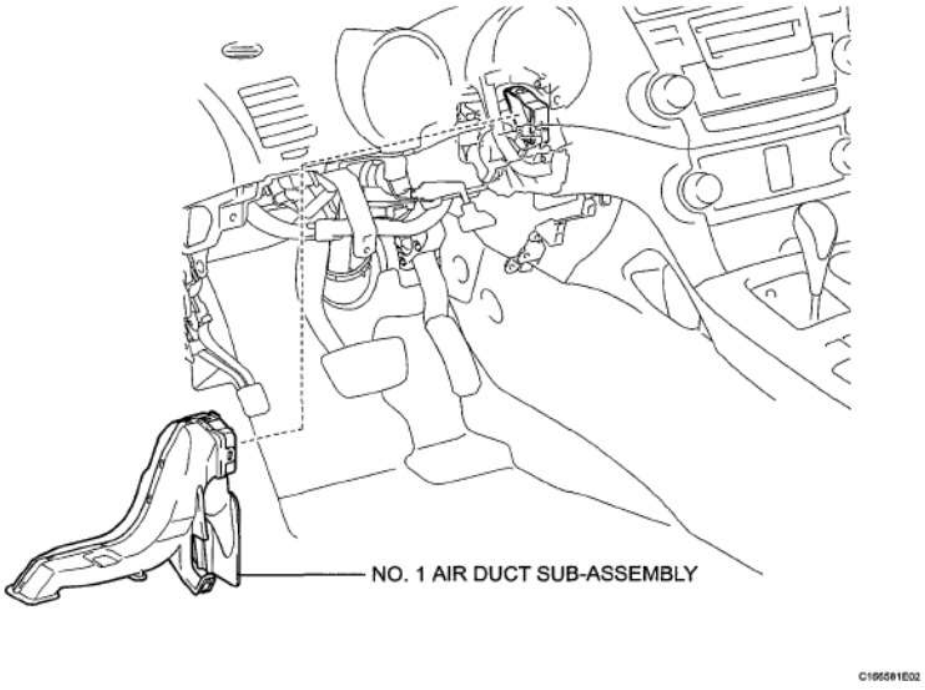


Fig. 202: Identifying Unlock Warning Switch Components With Torque Specification (5 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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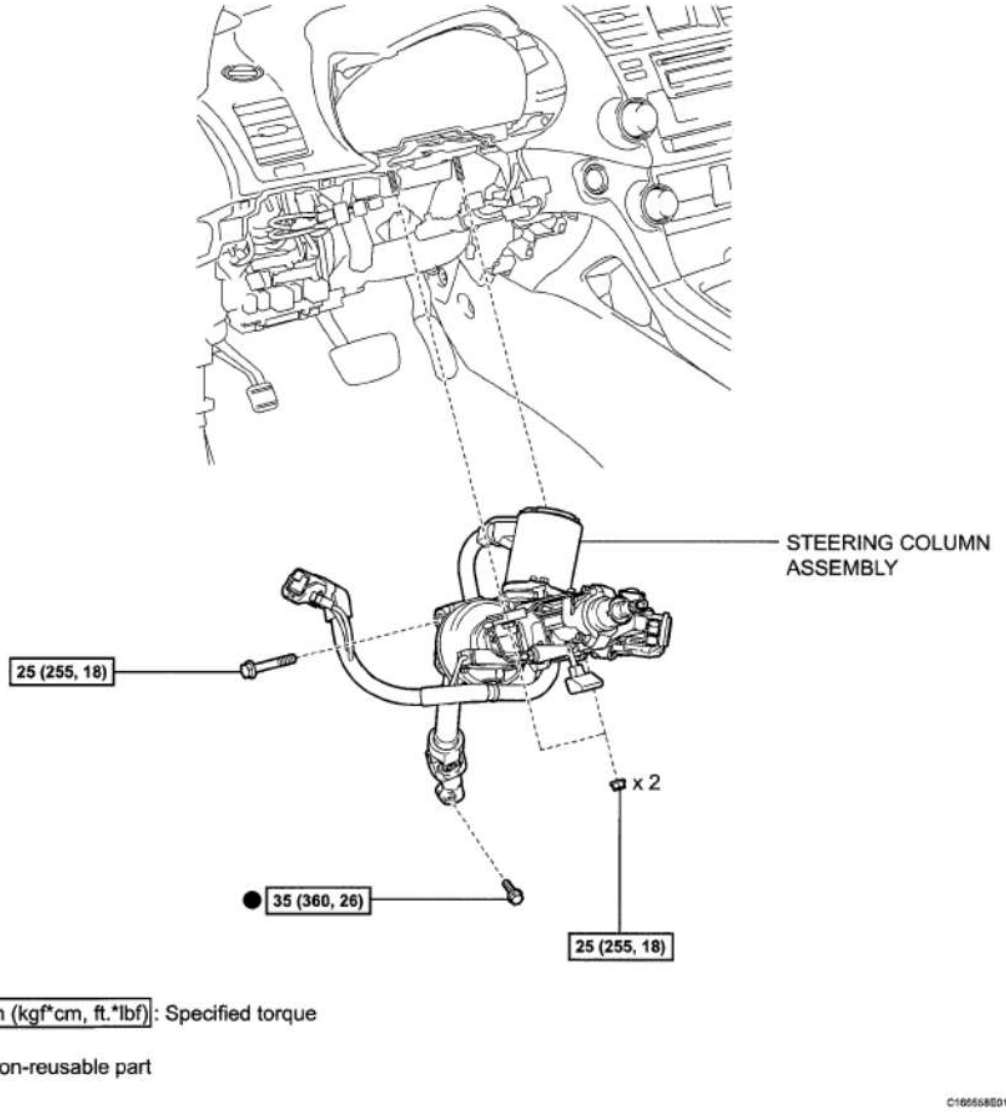


Fig. 203: Identifying Unlock Warning Switch Components With Torque Specification (6 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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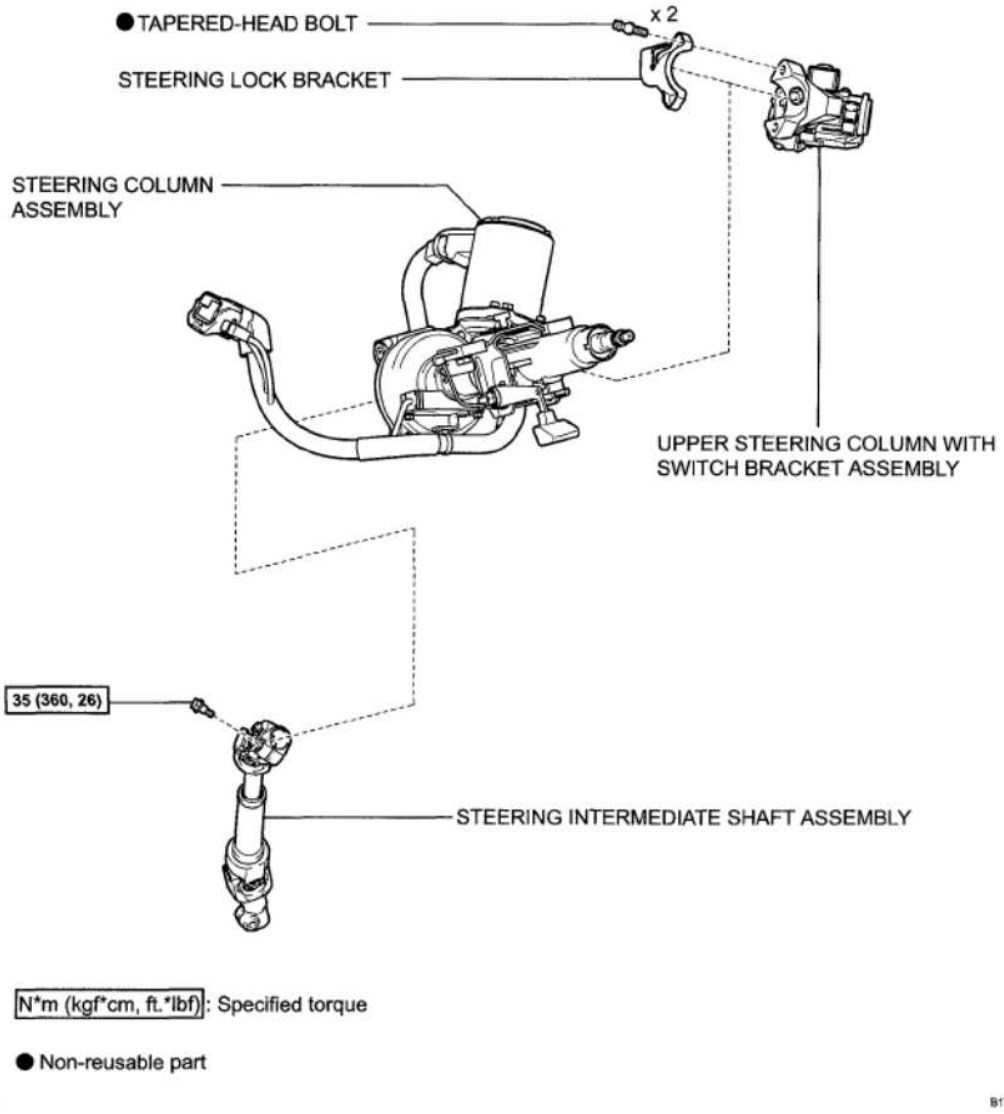


Fig. 204: Identifying Unlock Warning Switch Components With Torque Specification (7 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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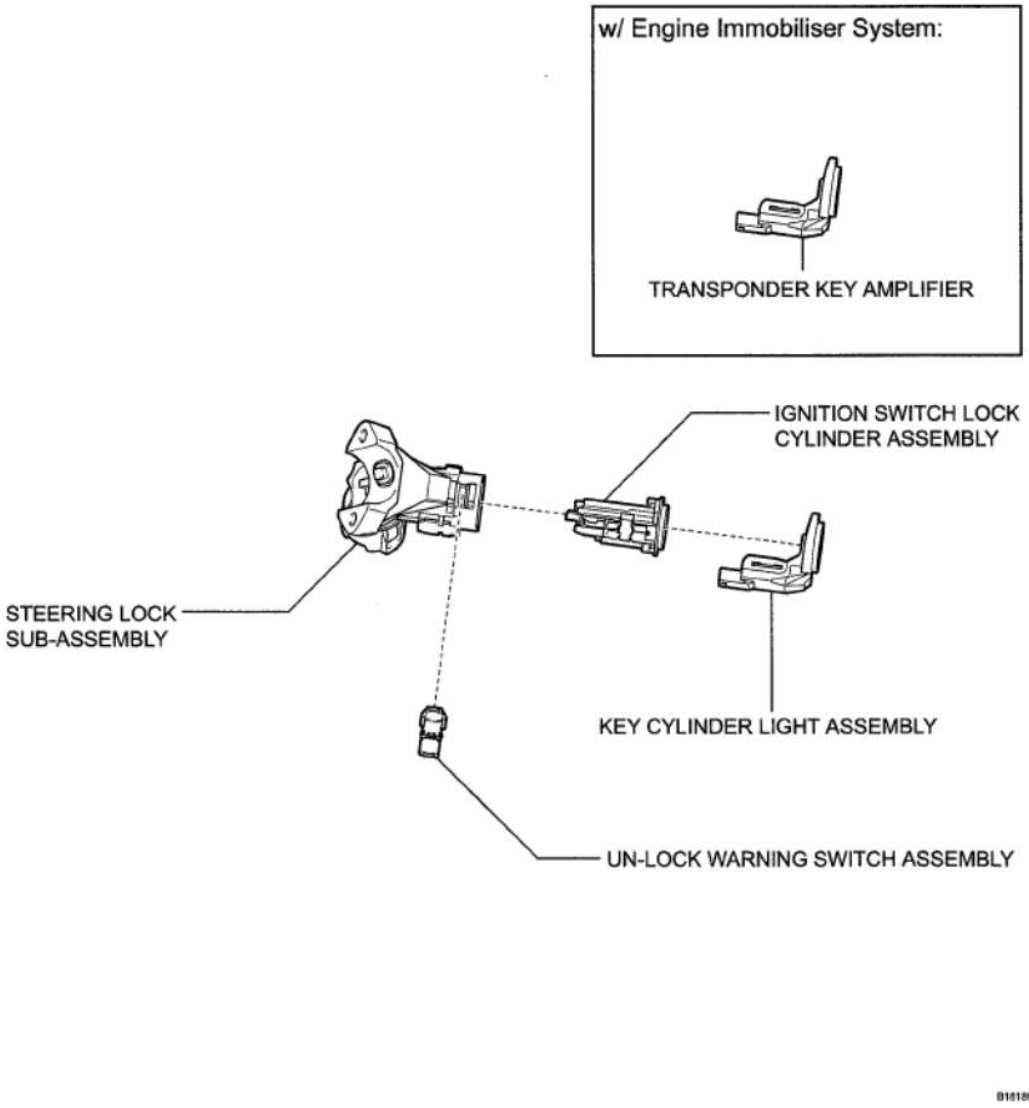


Fig. 205: Identifying Unlock Warning Switch Components With Torque Specification (8 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

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

1. **PRECAUTION**

   (See **STEERING SYSTEM**)

2. **POSITION FRONT WHEELS STRAIGHT AHEAD**

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

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

NOTE: When disconnecting the cable, some systems need to be initialized after the cable is reconnected (See INITIALIZATION).

4. **REMOVE FRONT WHEEL LH**
5. **REMOVE LOWER NO. 3 STEERING WHEEL COVER** (See **REMOVAL**)
6. **REMOVE LOWER NO. 2 STEERING WHEEL COVER** (See **REMOVAL**)
7. **REMOVE STEERING PAD** (See **REMOVAL**)
8. **REMOVE STEERING WHEEL ASSEMBLY** (See **DISASSEMBLY**)
9. **REMOVE FRONT DOOR SCUFF PLATE LH** (See **REMOVAL**)
10. **REMOVE COWL SIDE TRIM SUB-ASSEMBLY LH** (See **REMOVAL**)
11. **REMOVE LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY (for Manual Air Conditioning System)** (See **REMOVAL**)
12. **REMOVE LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY (for Automatic Air Conditioning System)** (See **REMOVAL**)
13. **REMOVE DRIVER SIDE KNEE AIRBAG ASSEMBLY** (See **REMOVAL**)
14. **REMOVE BRAKE PEDAL RETURN SPRING** (See **REMOVAL**)
15. **REMOVE STOP LIGHT SWITCH ASSEMBLY** (See **INSPECTION**)
16. **SEPARATE BRAKE MASTER CYLINDER PUSH ROD CLEVIS** (See **REMOVAL**)
17. **REMOVE BRAKE PEDAL SUPPORT SUB-ASSEMBLY** (See **REMOVAL**)
18. **REMOVE STEERING COLUMN COVER** (See **REMOVAL**)
19. **REMOVE TURN SIGNAL SWITCH ASSEMBLY WITH SPIRAL CABLE** (See **REMOVAL**)
20. **REMOVE NO. 1 AIR DUCT SUB-ASSEMBLY** (See **REMOVAL**)
21. **SEPARATE STEERING INTERMEDIATE SHAFT SUB-ASSEMBLY** (See **REMOVAL**)
22. **REMOVE STEERING COLUMN ASSEMBLY** (See **REMOVAL**)
23. **REMOVE STEERING INTERMEDIATE SHAFT SUB-ASSEMBLY** (See **DISASSEMBLY**)
24. **REMOVE KEY CYLINDER LIGHT ASSEMBLY (w/o Engine Immobiliser System)** (See **DISASSEMBLY**)
25. **REMOVE TRANSPONDER KEY AMPLIFIER (w/ Engine Immobiliser System)** (See **DISASSEMBLY**)
26. **REMOVE STEERING COLUMN UPPER WITH SWITCH BRACKET ASSEMBLY** (See **DISASSEMBLY**)
27. **REMOVE IGNITION SWITCH LOCK CYLINDER ASSEMBLY** (See **DISASSEMBLY**)
28. **REMOVE UN-LOCK WARNING SWITCH ASSEMBLY**
    a. Remove the un-lock warning switch assembly by pushing up the center part and releasing the 2

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claws.

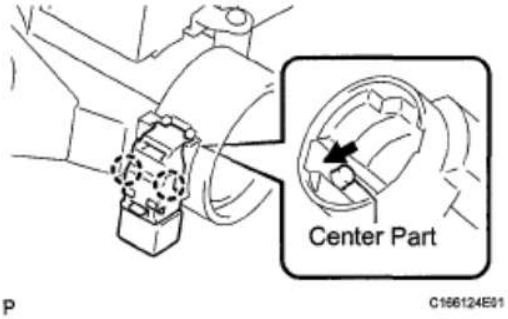


Fig. 206: Identifying Un-Lock Warning Switch Connector Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

1. **INSPECT UNLOCK WARNING SWITCH ASSEMBLY**
   a. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
1 - 2	Switch free (Key removed)	10 kohms or higher
1 - 2	Switch pushed (Key set)	Below 1 ohms

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

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Component without harness connected:
(Unlock Warning Switch)

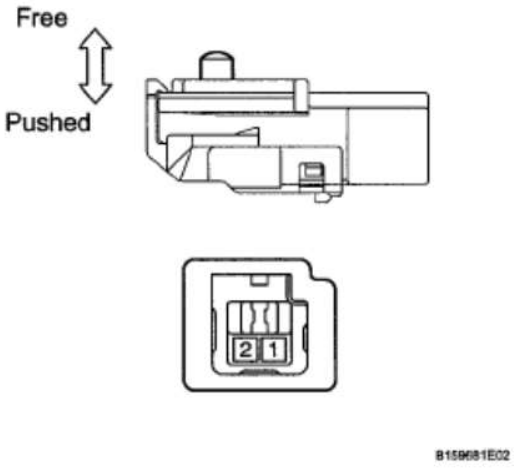


Fig. 207: Inspecting Unlock Warning Switch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. **INSTALL UN-LOCK WARNING SWITCH ASSEMBLY**
   a. Engage the 2 claws to install the un-lock warning switch assembly to the steering lock sub-assembly.
2. **INSTALL IGNITION SWITCH LOCK CYLINDER ASSEMBLY** (See **REASSEMBLY**)
3. **INSPECT STEERING LOCK OPERATION** (See **INSPECTION**)

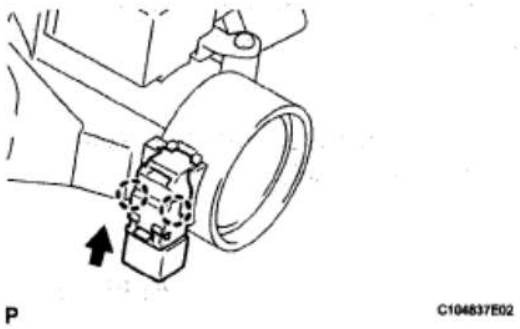


Fig. 208: Identifying Un-Lock Warning Switch Connector Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **INSTALL STEERING COLUMN UPPER WITH SWITCH BRACKET ASSEMBLY** (See **REASSEMBLY**)

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5. **INSTALL KEY CYLINDER LIGHT ASSEMBLY (w/o Engine Immobiliser System)** (See **REASSEMBLY**)
6. **INSTALL TRANSPONDER KEY AMPLIFIER (w/ Engine Immobiliser System)** (See **INSTALLATION**)
7. **INSTALL STEERING INTERMEDIATE SHAFT SUB-ASSEMBLY** (See **INSTALLATION**)
8. **INSTALL STEERING COLUMN ASSEMBLY** (See **INSTALLATION**)
9. **CONNECT STEERING INTERMEDIATE SHAFT SUB-ASSEMBLY** (See **INSTALLATION**)
10. **INSTALL NO. 1 AIR DUCT SUB-ASSEMBLY** (See **INSTALLATION**)
11. **POSITION FRONT WHEELS STRAIGHT AHEAD**
12. **INSTALL TURN SIGNAL SWITCH ASSEMBLY WITH SPIRAL CABLE** (See **INSTALLATION**)
13. **INSTALL STEERING COLUMN COVER** (See **INSTALLATION**)
14. **INSTALL BRAKE PEDAL SUPPORT SUB-ASSEMBLY** (See **INSTALLATION**)
15. **INSTALL BRAKE MASTER CYLINDER PUSH ROD CLEVIS** (See **INSTALLATION**)
16. **INSTALL BRAKE PEDAL RETURN SPRING** (See **INSTALLATION**)
17. **INSTALL STOP LIGHT SWITCH ASSEMBLY** (See **INSTALLATION**)
18. **INSPECT AND ADJUST BRAKE PEDAL HEIGHT** (See **ADJUSTMENT**)
19. **INSPECT BRAKE PEDAL FREE PLAY** (See **ADJUSTMENT**)
20. **INSPECT BRAKE PEDAL RESERVE DISTANCE** (See **ADJUSTMENT**)
21. **INSTALL DRIVER SIDE KNEE AIRBAG ASSEMBLY** (See **INSTALLATION**)
22. **INSTALL LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY (for Manual Air Conditioning System)** (See **INSTALLATION**)
23. **INSTALL LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY (for Automatic Air Conditioning System)** (See **INSTALLATION**)
24. **INSTALL COWL SIDE TRIM SUB-ASSEMBLY LH** (See **INSTALLATION**)
25. **INSTALL FRONT DOOR SCUFF PLATE LH** (See **INSTALLATION**)
26. **ADJUST SPIRAL CABLE** (See **INSTALLATION**)
27. **INSTALL STEERING WHEEL ASSEMBLY** (See **INSTALLATION**)
28. **INSPECT STEERING WHEEL CENTER POINT**
29. **INSTALL STEERING PAD** (See **INSTALLATION**)
30. **INSTALL LOWER NO. 3 STEERING WHEEL COVER** (See **INSTALLATION**)
31. **INSTALL LOWER NO. 2 STEERING WHEEL COVER** (See **INSTALLATION**)
32. **INSTALL FRONT WHEEL LH**
33. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

NOTE: **When disconnecting the cable, some systems need to be initialized after the cable is reconnected (See INITIALIZATION).**

34. **INSPECT STEERING PAD** (See **INSTALLATION**)

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35. **INSPECT SRS WARNING LIGHT**

(See **DIAGNOSIS SYSTEM**)

FRONT DOOR LOCK

COMPONENTS

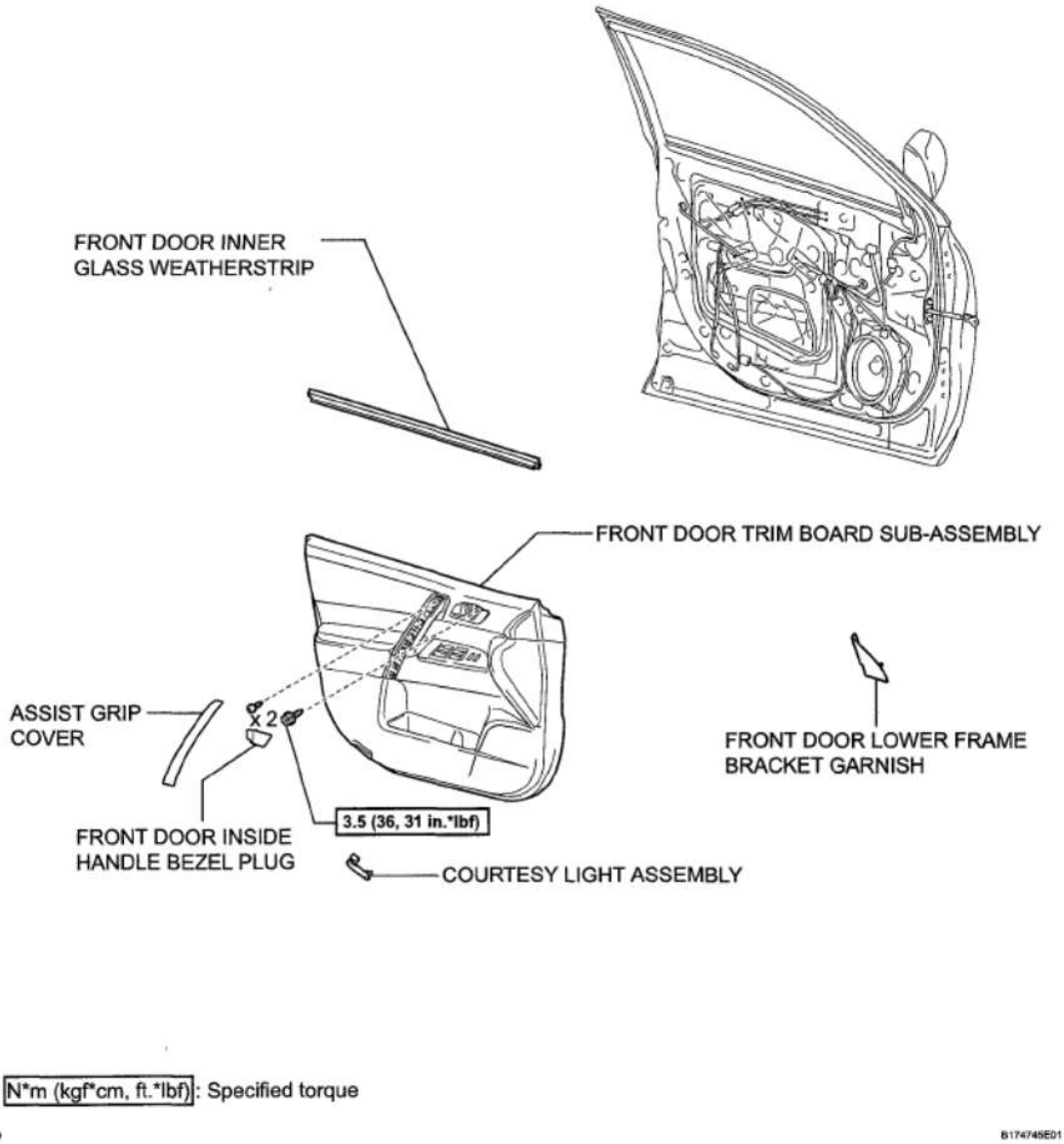


Fig. 209: Identifying Front Door Lock Components With Torque Specification (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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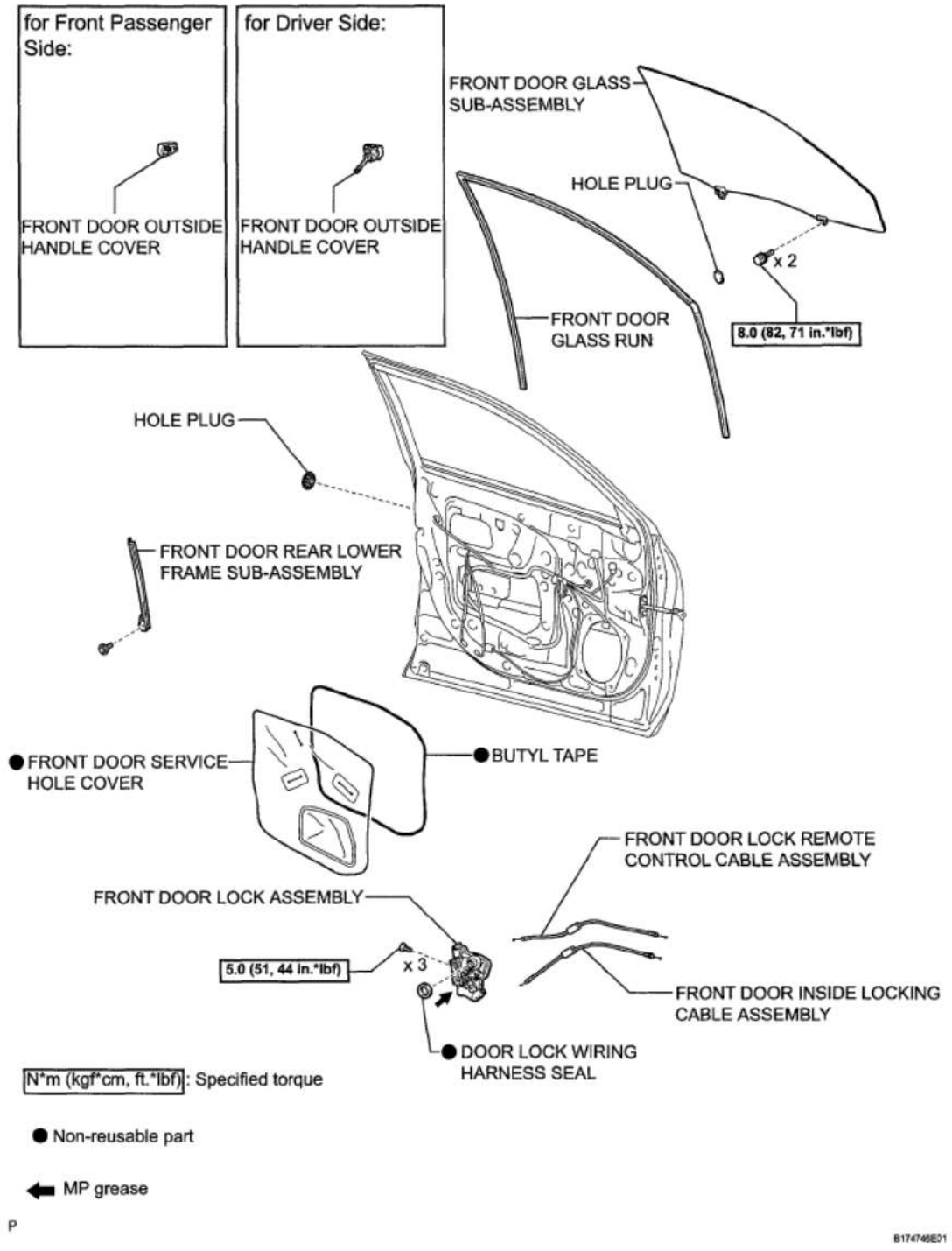


Fig. 210: Identifying Front Door Lock Components With Torque Specification (2 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. **DISCONNECT NEGATIVE BATTERY TERMINAL**

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

NOTE: When disconnecting the cable, some systems need to be initialized after the cable is reconnected (See INITIALIZATION).

2. **REMOVE FRONT DOOR LOWER FRAME BRACKET GARNISH** (See **DISASSEMBLY**)
3. **REMOVE FRONT DOOR INSIDE HANDLE BEZEL PLUG** (See **DISASSEMBLY**)
4. **REMOVE ASSIST GRIP COVER** (See **DISASSEMBLY**)
5. **REMOVE COURTESY LIGHT ASSEMBLY** (See **DISASSEMBLY**)
6. **REMOVE FRONT DOOR TRIM BOARD SUB-ASSEMBLY** (See **DISASSEMBLY**)
7. **REMOVE FRONT DOOR INNER GLASS WEATHERSTRIP** (See **DISASSEMBLY**)
8. **REMOVE FRONT DOOR SERVICE HOLE COVER** (See **DISASSEMBLY**)
9. **REMOVE FRONT DOOR GLASS SUB-ASSEMBLY** (See **DISASSEMBLY**)
10. **REMOVE FRONT DOOR GLASS RUN** (See **DISASSEMBLY**)
11. **REMOVE FRONT DOOR REAR LOWER FRAME SUB-ASSEMBLY** (See **DISASSEMBLY**)
12. **REMOVE FRONT DOOR OUTSIDE HANDLE COVER (for Driver Side)** (See **DISASSEMBLY**)
13. **REMOVE FRONT DOOR OUTSIDE HANDLE COVER (for Front Passenger Side)** (See **DISASSEMBLY**)
14. **REMOVE FRONT DOOR LOCK ASSEMBLY**
    a. Using a "TORX" socket wrench (T30), remove the 3 screws.
    b. Slide the front door lock assembly downward, pull out the front door lock open rod from the outside handle frame, and remove the front door lock assembly and cables as a unit.
    c. Remove the front door lock open rod from the front door lock assembly.

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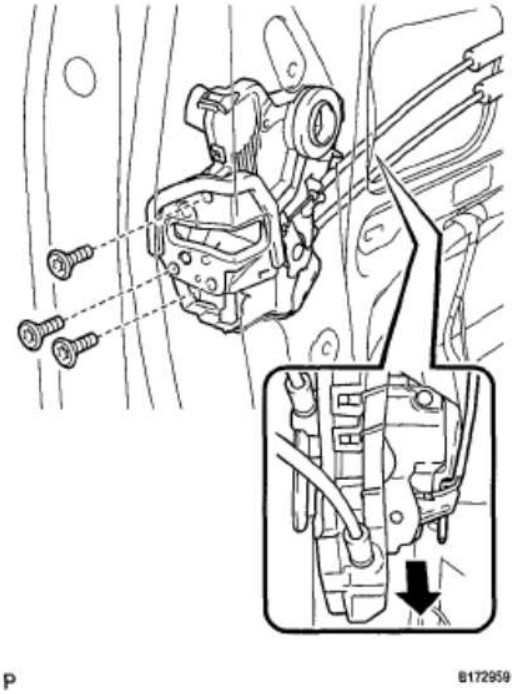


Fig. 211: Sliding Front Door Lock Assembly Downward
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

15. **REMOVE FRONT DOOR LOCK REMOTE CONTROL CABLE ASSEMBLY**
    a. Remove the front door lock remote control cable assembly.

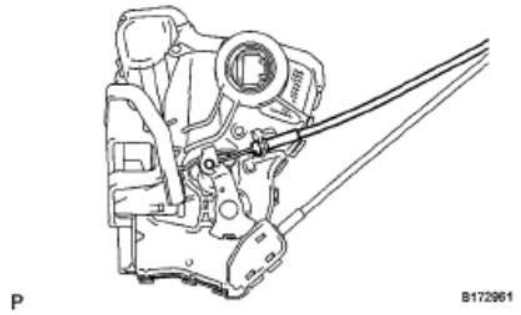


Fig. 212: Identifying Front Door Lock Remote Control Cable Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

16. **REMOVE FRONT DOOR INSIDE LOCKING CABLE ASSEMBLY**
    a. Using a screwdriver, disengage the 3 claws.

    HINT:

    Tape the screwdriver tip before use.

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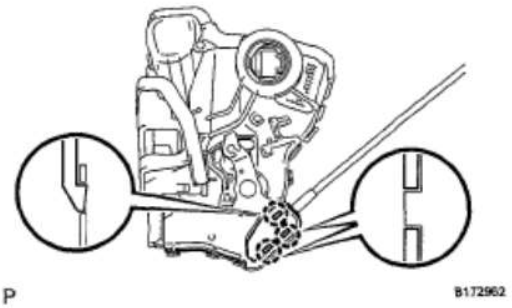


Fig. 213: Identifying Front Door Inside Locking Cable Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the front door inside locking cable assembly.

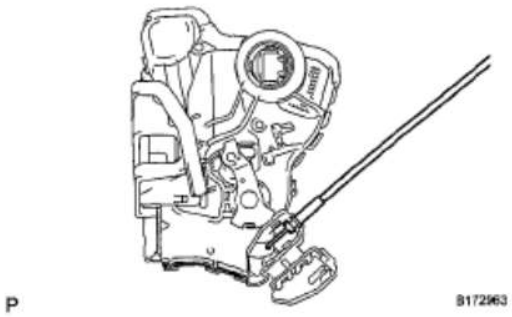


Fig. 214: Identifying Front Door Inside Locking Cable
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

1. **INSPECT FRONT DOOR LOCK ASSEMBLY (for Driver Side)**
   a. Apply the battery voltage to the motor terminals and check the operation of the door lock motor.

   OK

   BATTERY VOLTAGE SPECIFICATION

Measurement Condition	Specified Condition
Battery positive (+) --> 4 (L) Battery negative (-) --> 1 (UL)	Locked
Battery positive (+) --> 1 (UL) Battery negative (-) --> 4 (L)	Unlocked

   If the result is not as specified, replace the door lock assembly.

   b. Measure the resistance of the door lock position switch.

   Standard resistance

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STANDARD RESISTANCE SPECIFICATION

Tester Connection	Measurement Condition	Door Lock Condition	Specified Condition
7 - 8	Battery positive (+) --> Terminal 4 Battery negative (-) --> Terminal 1	Locked	10 kohms or higher
7 - 8	Battery positive (+) --> Terminal 1 Battery negative (-) --> Terminal 4	Unlocked	Below 1 ohms

If the result is not as specified, replace the door lock assembly.

Component without harness connected:
(Front Door Lock (Driver Side))

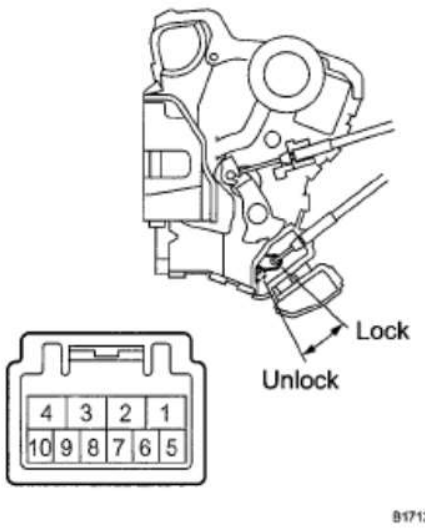


Fig. 215: Identifying Front Door Lock Assembly Lock And Unlock Position (Driver Side)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Measure the resistance of the door key lock and unlock switch operation.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
7 - 9	Locked	Below 1 ohms
7 - 9 7 - 10	OFF (Free)	10 kohms or higher
7 - 10	Unlocked	Below 1 ohms

If the result is not as specified, replace the door lock assembly.

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Component without harness connected:
(Front Door Lock (Driver Side))

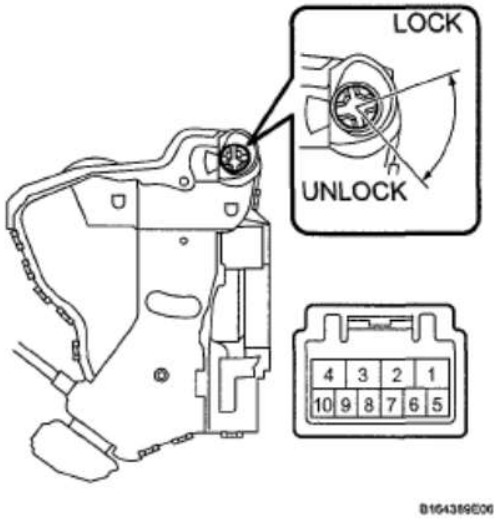


Fig. 216: Identifying Front Door Lock Assembly Lock And Unlock Position (Driver Side)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **INSPECT FRONT DOOR LOCK ASSEMBLY (for Front Passenger Side)**
   a. Apply the battery voltage to the motor terminals and check the operation of the door lock motor.

OK

BATTERY VOLTAGE SPECIFICATION

Measurement Condition	Specified Condition
Battery positive (+) --> Terminal 4 Battery negative (-) --> Terminal 1	Locked
Battery positive (+) --> Terminal 1 Battery negative (-) --> Terminal 4	Unlocked

   b. Measure the resistance of the door lock position switch.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Measurement Condition	Door Lock Condition	Specified Condition
7 - 8	Battery positive (+) --> Terminal 4 Battery negative (-) --> Terminal 1	Locked	10 kohms or higher
7 - 8	Battery positive (+) --> Terminal 1 Battery negative (-) --> Terminal 4	Unlocked	Below 1ohms

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Component without harness connected:
(Front Door Lock (Front Passenger Side))

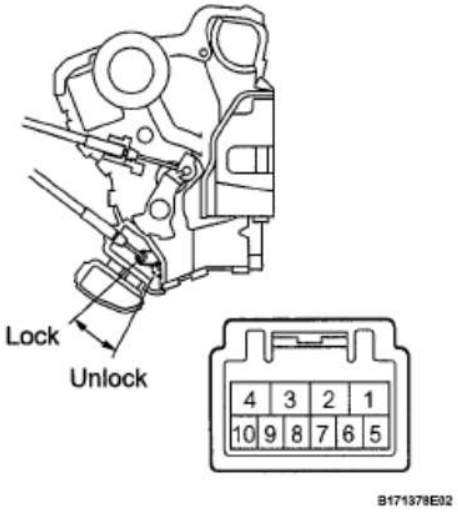


Fig. 217: Identifying Front Passenger Side Door Lock Assembly Lock And Unlock Position
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the result is not as specified, replace the door lock assembly.

INSTALLATION

1. **INSTALL FRONT DOOR INSIDE LOCKING CABLE ASSEMBLY**
   a. Install the front door inside locking cable assembly.

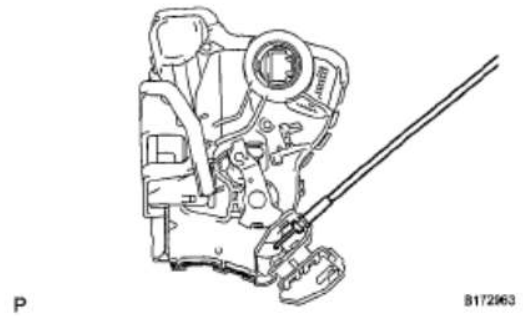


Fig. 218: Identifying Front Door Inside Locking Cable
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Engage the 3 claws.

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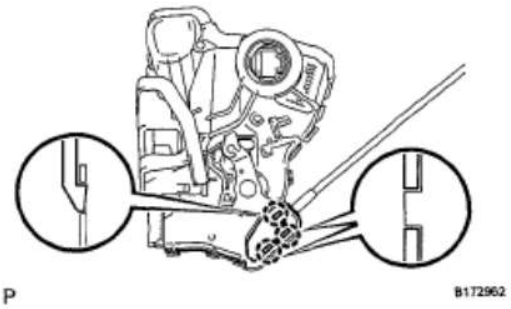


Fig. 219: Identifying Front Door Inside Locking Cable Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **INSTALL FRONT DOOR LOCK REMOTE CONTROL CABLE ASSEMBLY**
   a. Install the front door lock remote control cable assembly.
3. **INSTALL FRONT DOOR LOCK ASSEMBLY**

NOTE:

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

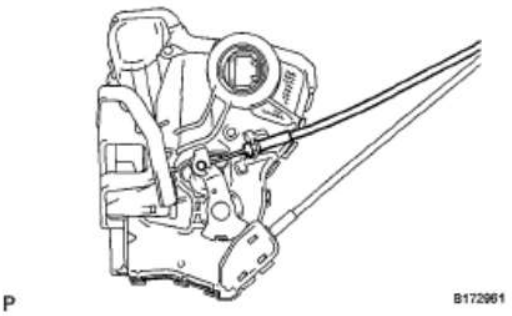


Fig. 220: Identifying Front Door Lock Remote Control Cable Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

a. Apply MP grease to the sliding parts of the front door lock assembly.
b. Install a new door lock wiring harness seal to the front door lock assembly.
c. Insert the front door lock open rod to the front door lock assembly.
d. Make sure that the front door lock open rod is securely connected to the front door lock assembly.
e. Using a "TORX" socket wrench (T30), install the front door lock assembly with the 3 screws.

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

4. **INSTALL FRONT DOOR OUTSIDE HANDLE COVER (for Driver Side)** (See **REASSEMBLY**)
5. **INSTALL FRONT DOOR OUTSIDE HANDLE COVER (for Front Passenger Side)** (See **REASSEMBLY**)
6. **INSTALL FRONT DOOR REAR LOWER FRAME SUB-ASSEMBLY** (See **REASSEMBLY**)
7. **INSTALL FRONT DOOR GLASS RUN** (See **REASSEMBLY**)
8. **INSTALL FRONT DOOR GLASS SUB-ASSEMBLY** (See **REASSEMBLY**)
9. **INSTALL FRONT DOOR SERVICE HOLE COVER** (See **REASSEMBLY**)
10. **INSTALL FRONT DOOR INNER GLASS WEATHERSTRIP** (See **REASSEMBLY**)

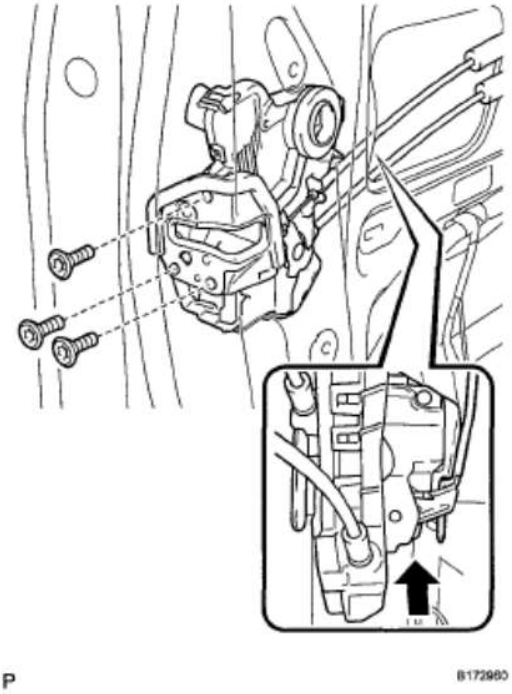


Fig. 221: Inserting Front Door Lock Open Rod To Front Door Lock Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. **INSTALL FRONT DOOR TRIM BOARD SUB-ASSEMBLY** (See **REASSEMBLY**)
12. **INSTALL COURTESY LIGHT ASSEMBLY** (See **REASSEMBLY**)
13. **INSTALL ASSIST GRIP COVER** (See **REASSEMBLY**)
14. **INSTALL FRONT DOOR INSIDE HANDLE BEZEL PLUG** (See **REASSEMBLY**)
15. **INSTALL FRONT DOOR LOWER FRAME BRACKET GARNISH** (See **REASSEMBLY**)
16. **CONNECT NEGATIVE BATTERY TERMINAL**

NOTE: **When disconnecting the cable, some systems need to be initialized after the cable is reconnected (See INITIALIZATION).**

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REAR DOOR LOCK

COMPONENTS

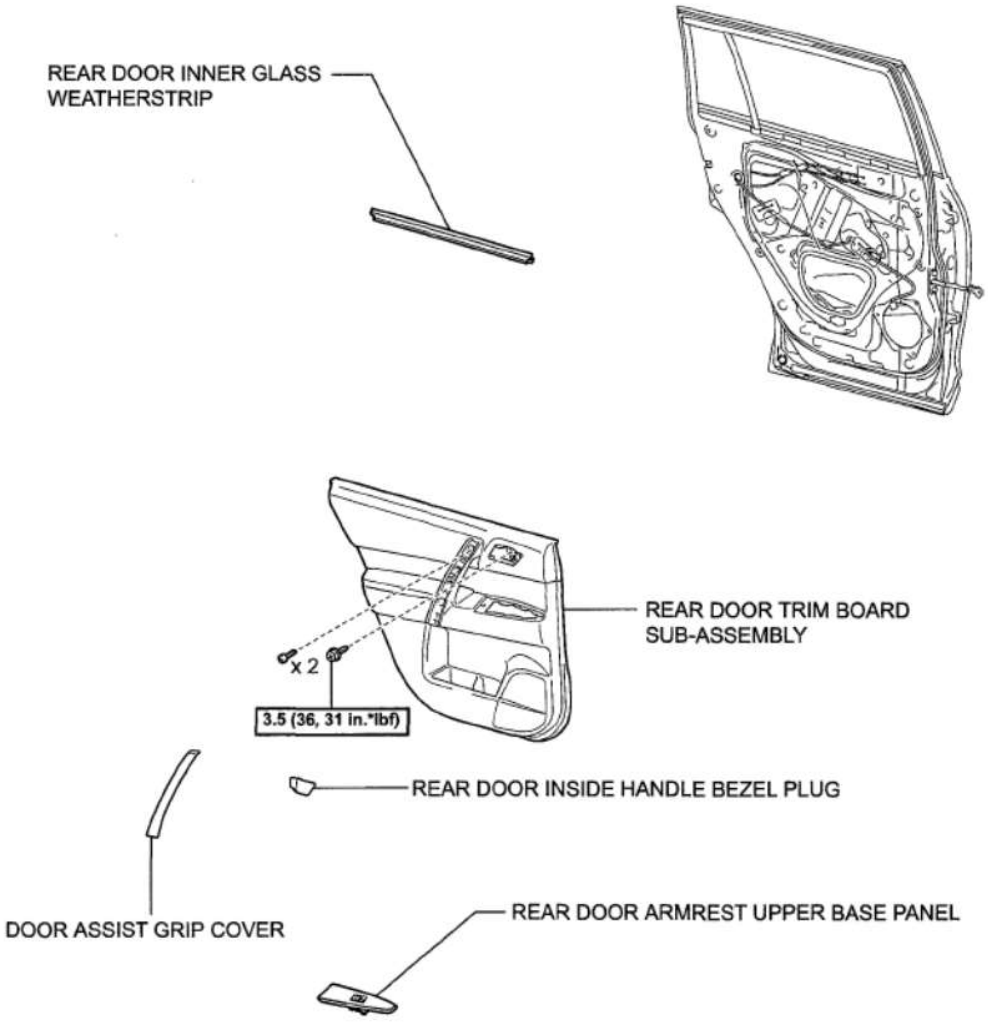


Fig. 222: Identifying Rear Door Lock Components With Torque Specification (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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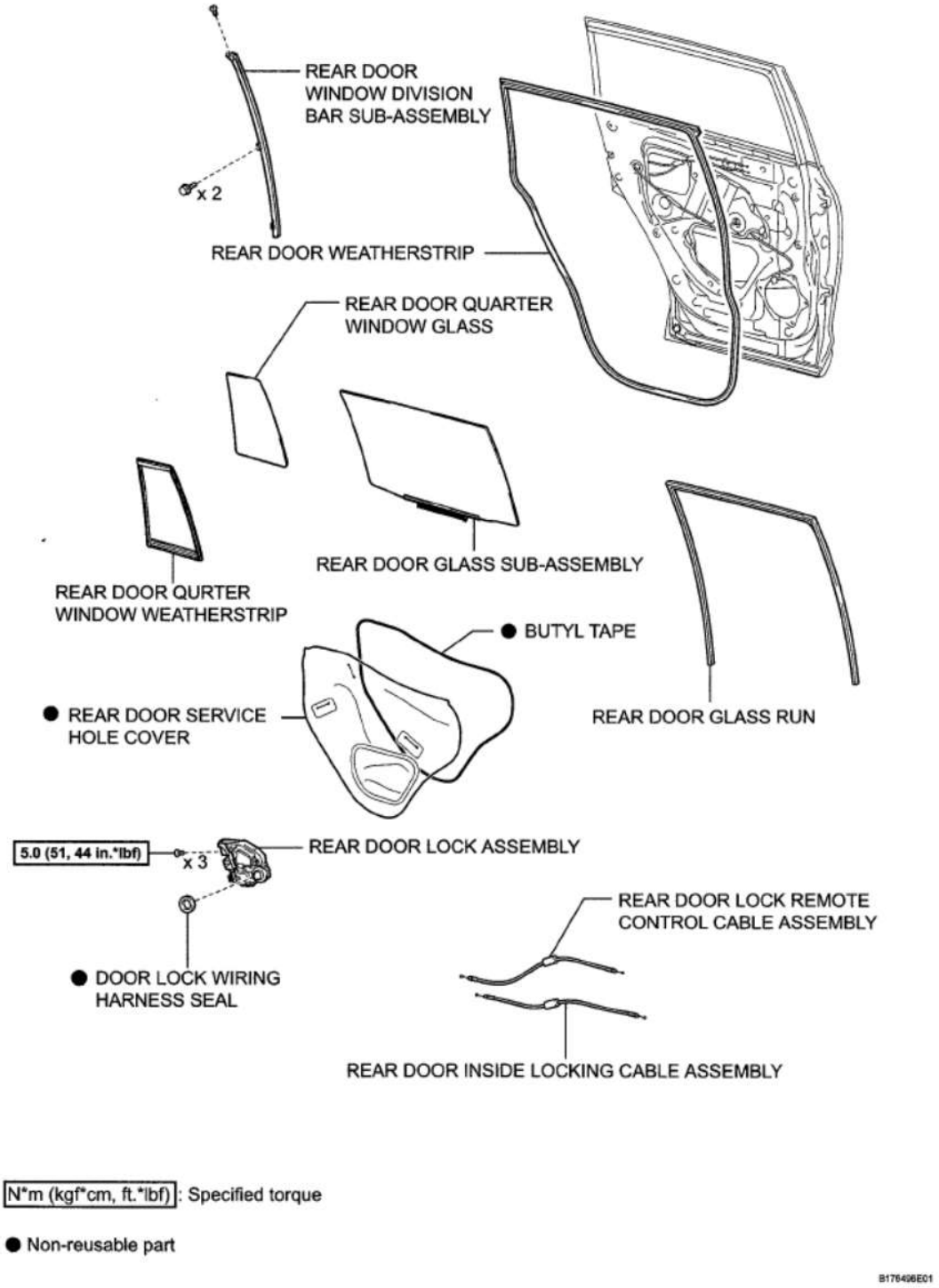


Fig. 223: Identifying Rear Door Lock Components With Torque Specification (2 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

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1. **DISCONNECT NEGATIVE BATTERY TERMINAL**

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

NOTE: When disconnecting the cable, some systems need to be initialized after the cable is reconnected (See INITIALIZATION)

2. **REMOVE REAR DOOR INSIDE HANDLE BEZEL** (See **DISASSEMBLY**)
3. **REMOVE REAR DOOR ARMREST UPPER BASE PANEL** (See **DISASSEMBLY**)
4. **REMOVE DOOR ASSIST GRIP COVER** (See **DISASSEMBLY**)
5. **REMOVE REAR DOOR TRIM BOARD SUB-ASSEMBLY** (See **DISASSEMBLY**)
6. **REMOVE REAR DOOR INNER GLASS WEATHERSTRIP** (See **DISASSEMBLY**)
7. **REMOVE REAR DOOR SERVICE HOLE COVER** (See **DISASSEMBLY**)
8. **REMOVE REAR DOOR WEATHERSTRIP** (See **DISASSEMBLY**)
9. **REMOVE REAR DOOR GLASS RUN** (See **DISASSEMBLY**)
10. **REMOVE REAR DOOR WINDOW DIVISION BAR SUB-ASSEMBLY** (See **DISASSEMBLY**)
11. **REMOVE REAR DOOR QUARTER WINDOW GLASS** (See **DISASSEMBLY**)
12. **REMOVE REAR DOOR GLASS SUB-ASSEMBLY** (See **DISASSEMBLY**)
13. **REMOVE REAR DOOR LOCK ASSEMBLY**
    a. Using a "TORX" socket wrench (T30), remove the 3 screws.
    b. Move the rear door lock assembly downward and pull the release plate out of the rear door outside handle frame.
    c. Remove the door lock wiring harness seal from the rear door lock assembly.

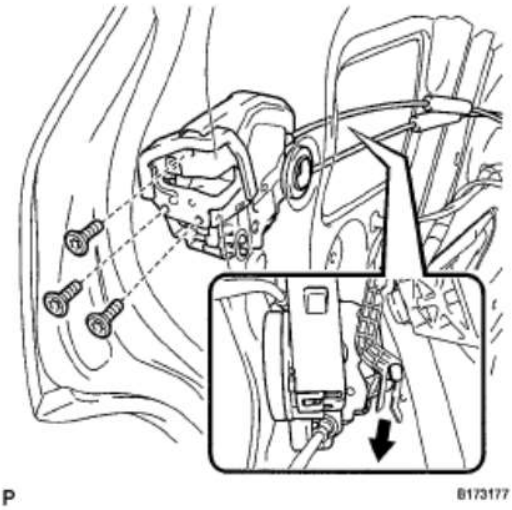


Fig. 224: Moving Rear Door Lock Assembly Downward

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14. **REMOVE REAR DOOR LOCK REMOTE CONTROL CABLE ASSEMBLY**
    a. Using a screwdriver, disengage the claw.

       HINT:

       Tape the screwdriver tip before use.

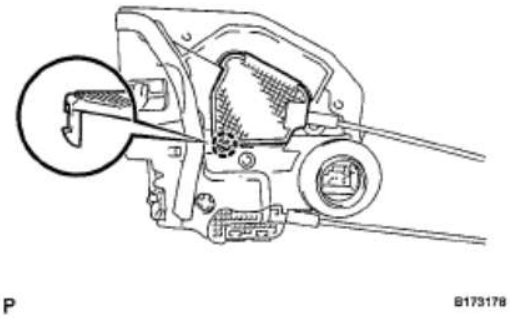


Fig. 225: Identifying Rear Door Lock Remote Control Cable Claw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

    b. Remove the rear door lock remote control cable assembly.

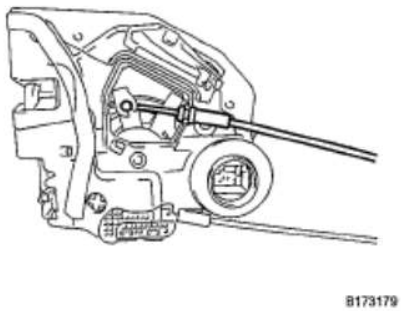


Fig. 226: Identifying Rear Door Lock Remote Control Cable
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

15. **REMOVE REAR DOOR INSIDE LOCKING CABLE ASSEMBLY**
    a. Using a screwdriver, disengage the 3 claws.

       HINT:

       Tape the screwdriver tip before use.

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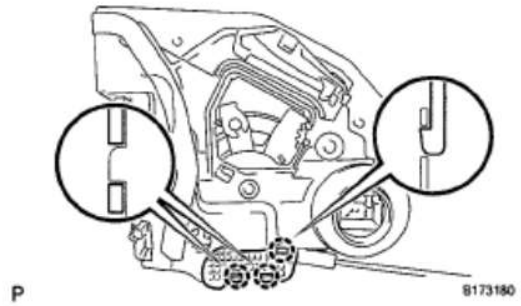


Fig. 227: Identifying Rear Door Inside Locking Cable Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the rear door inside locking cable assembly.

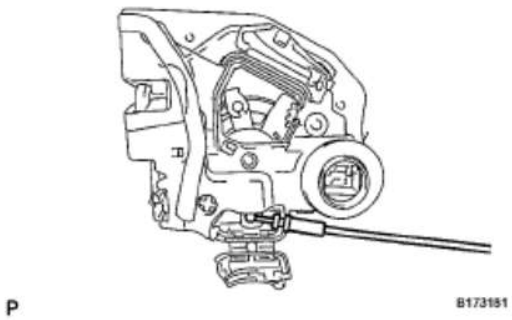


Fig. 228: Identifying Rear Door Inside Locking Cable
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

1. **INSPECT REAR DOOR LOCK ASSEMBLY LH**
   a. Apply the battery voltage to the door lock motor and check the operation of the door lock motor.

   OK

   BATTERY VOLTAGE SPECIFICATION

Measurement Condition	Specified Condition
Battery positive (+) --> Terminal 4 Battery negative (-) --> Terminal 1	Locked
Battery positive (+) --> Terminal 1 Battery negative (-) --> Terminal 4 If the result is not as specified, replace the door lock assembly.	Unlocked

   b. Measure the resistance of the door lock position switch.

Standard resistance

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STANDARD RESISTANCE SPECIFICATION

Tester Connection	Measurement Condition	Door Lock Condition	Specified Condition
6 - 9	Battery positive (+) --> Terminal 4 Battery negative (-) --> Terminal 1	Locked	10 kohms or higher
6-9	Battery positive (+) --> Terminal 1 Battery negative (-) --> Terminal 4	Unlocked	Below 1 ohms

Component without harness connected:
(Rear Door Lock (Rear LH Side))

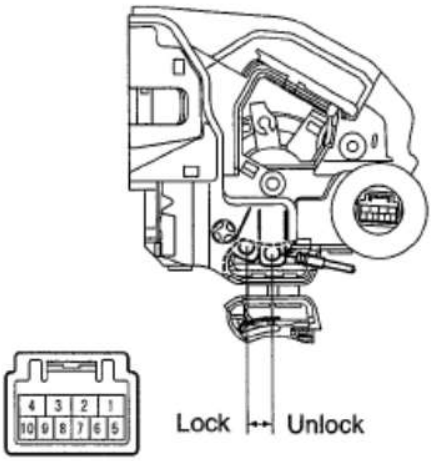


Fig. 229: Inspecting Rear Door Lock Assembly LH
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the result is not as specified, replace the door lock assembly.

2. **INSPECT REAR DOOR LOCK ASSEMBLY RH**
   a. Apply the battery voltage to the door lock motor and check the operation of the door lock motor.

   OK

   BATTERY VOLTAGE SPECIFICATION

Measurement Condition	Specified Condition
Battery positive (+) --> Terminal 4 Battery negative (-) --> Terminal 1	Locked
Battery positive (+) --> Terminal 1 Battery negative (-) --> Terminal 4	Unlocked

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If the result is not as specified, replace the door lock assembly.

b. Measure the resistance of the door lock position switch.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Measurement Condition	Door Lock Condition	Specified Condition
6 - 9	Battery positive (+) --> Terminal 4 Battery negative (-) --> Terminal 1	Locked	10 kohms or higher
6 - 9	Battery positive (+) --> Terminal 1 Battery negative (-) --> Terminal 4	Unlocked	Below 1 ohms

Component without harness connected:
(Rear Door Lock (Rear RH Side))

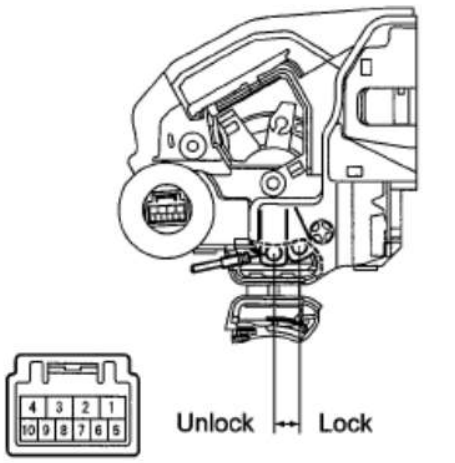


Fig. 230: Inspecting Rear Door Lock Assembly RH
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the result is not as specified, replace the door lock assembly.

INSTALLATION

1. **INSTALL REAR DOOR INSIDE LOCKING CABLE ASSEMBLY**
   a. Install the rear door inside locking cable assembly.

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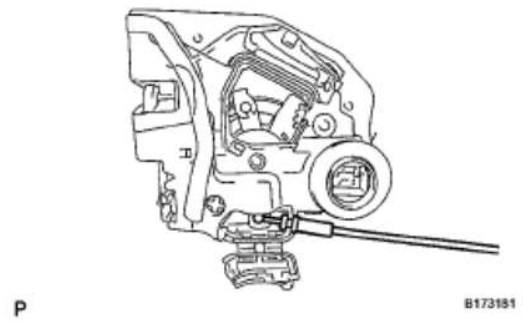


Fig. 231: Identifying Rear Door Inside Locking Cable
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Engage the 3 claws.

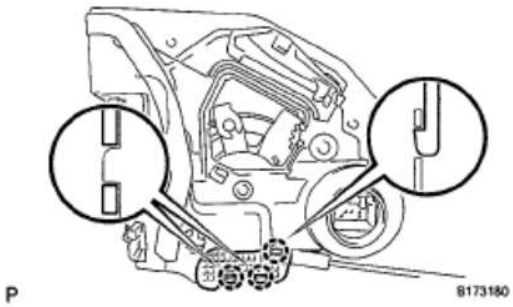


Fig. 232: Identifying Rear Door Inside Locking Cable Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **INSTALL REAR DOOR LOCK REMOTE CONTROL CABLE ASSEMBLY**
   a. Install the rear door lock remote control cable assembly.

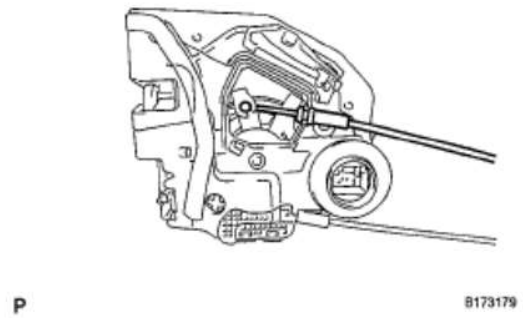


Fig. 233: Identifying Rear Door Lock Remote Control Cable
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Engage the claw.
3. **INSTALL REAR DOOR LOCK ASSEMBLY**

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NOTE:

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

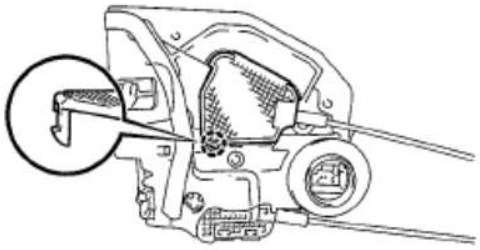


Fig. 234: Identifying Rear Door Lock Remote Control Cable Claw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

a. Apply MP grease to the sliding parts of the rear door lock assembly.
b. Install a new door lock wiring harness seal to the rear door lock assembly.
c. Insert the rear door lock assembly to the rear door outside handle release plate, and set it to the rear door panel.
d. Make sure that the rear door outside handle frame release plate is securely connected to the rear door lock assembly.
e. 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)

f. Connect the connector.

4. **INSTALL REAR DOOR GLASS RUN** (See **REASSEMBLY**)
5. **INSTALL REAR DOOR GLASS SUB-ASSEMBLY** (See **REASSEMBLY**)
6. **INSTALL REAR DOOR QUARTER WINDOW GLASS** (See **REASSEMBLY**)

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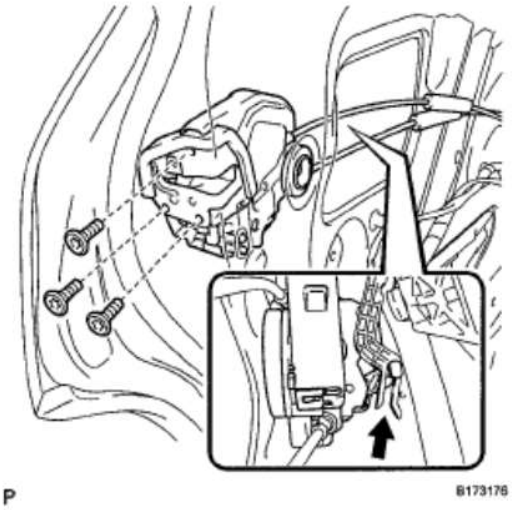


Fig. 235: Inserting Rear Door Lock Assembly To Rear Door Outside Handle Release Plate
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **INSTALL REAR DOOR WINDOW DIVISION BAR SUB-ASSEMBLY** (See **REASSEMBLY**)
8. **INSTALL REAR DOOR WEATHERSTRIP** (See **REASSEMBLY**)
9. **INSTALL REAR DOOR SERVICE HOLE COVER** (See **REASSEMBLY**)
10. **INSTALL REAR DOOR INNER GLASS WEATHERSTRIP** (See **REASSEMBLY**)
11. **INSTALL DOOR TRIM BOARD SUB-ASSEMBLY** (See **REASSEMBLY**)
12. **INSTALL DOOR ASSIST GRIP COVER** (See **REASSEMBLY**)
13. **INSTALL REAR DOOR ARMREST UPPER BASE PANEL** (See **REASSEMBLY**)
14. **INSTALL REAR DOOR INSIDE HANDLE BEZEL PLUG** (See **REASSEMBLY**)
15. **CONNECT NEGATIVE BATTERY TERMINAL**

NOTE: **When disconnecting the cable, some systems need to be initialized after the cable is reconnected (See INITIALIZATION).**

BACK DOOR LOCK

COMPONENTS

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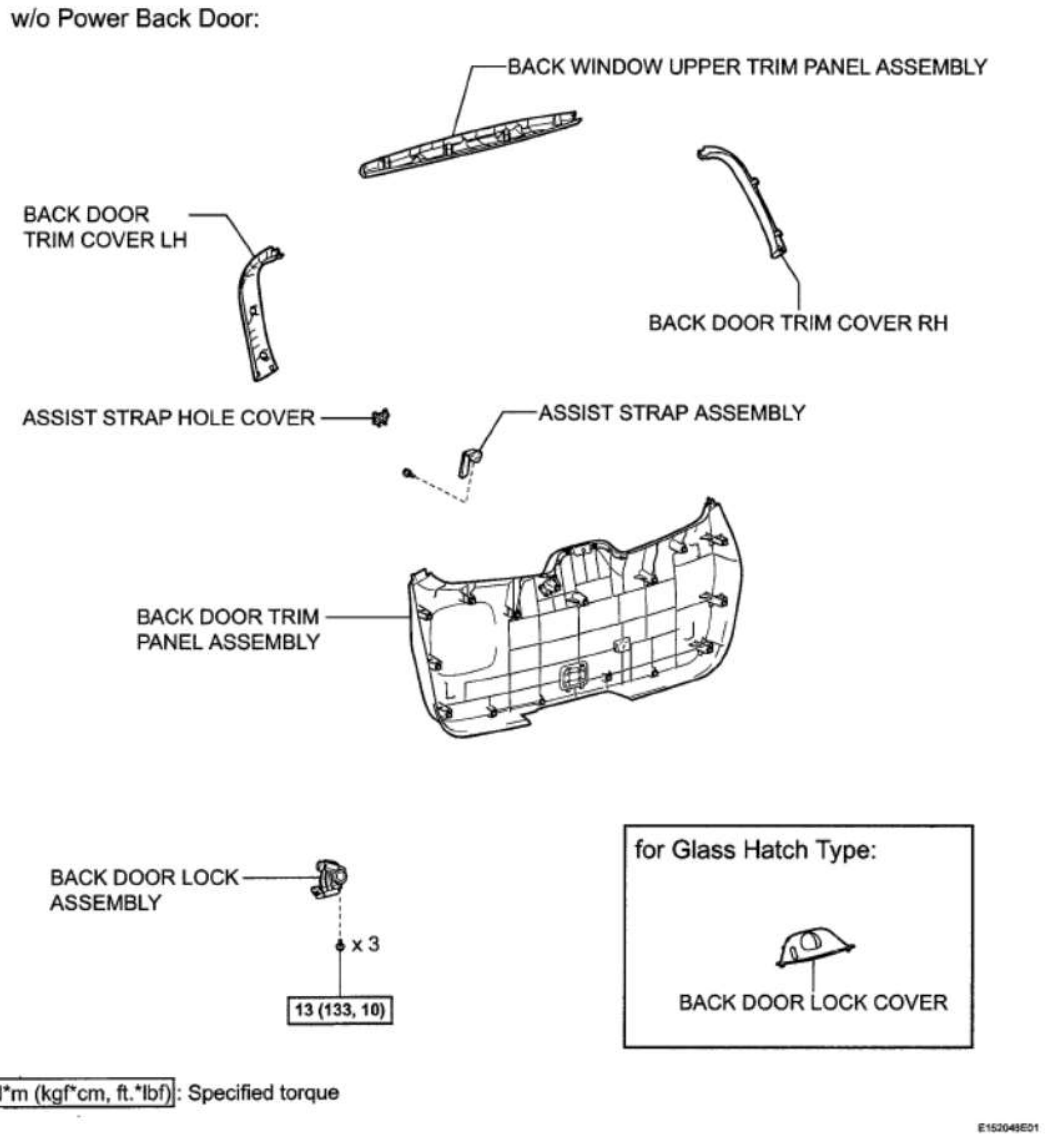


Fig. 236: Identifying Back Door Lock Components With Torque Specification (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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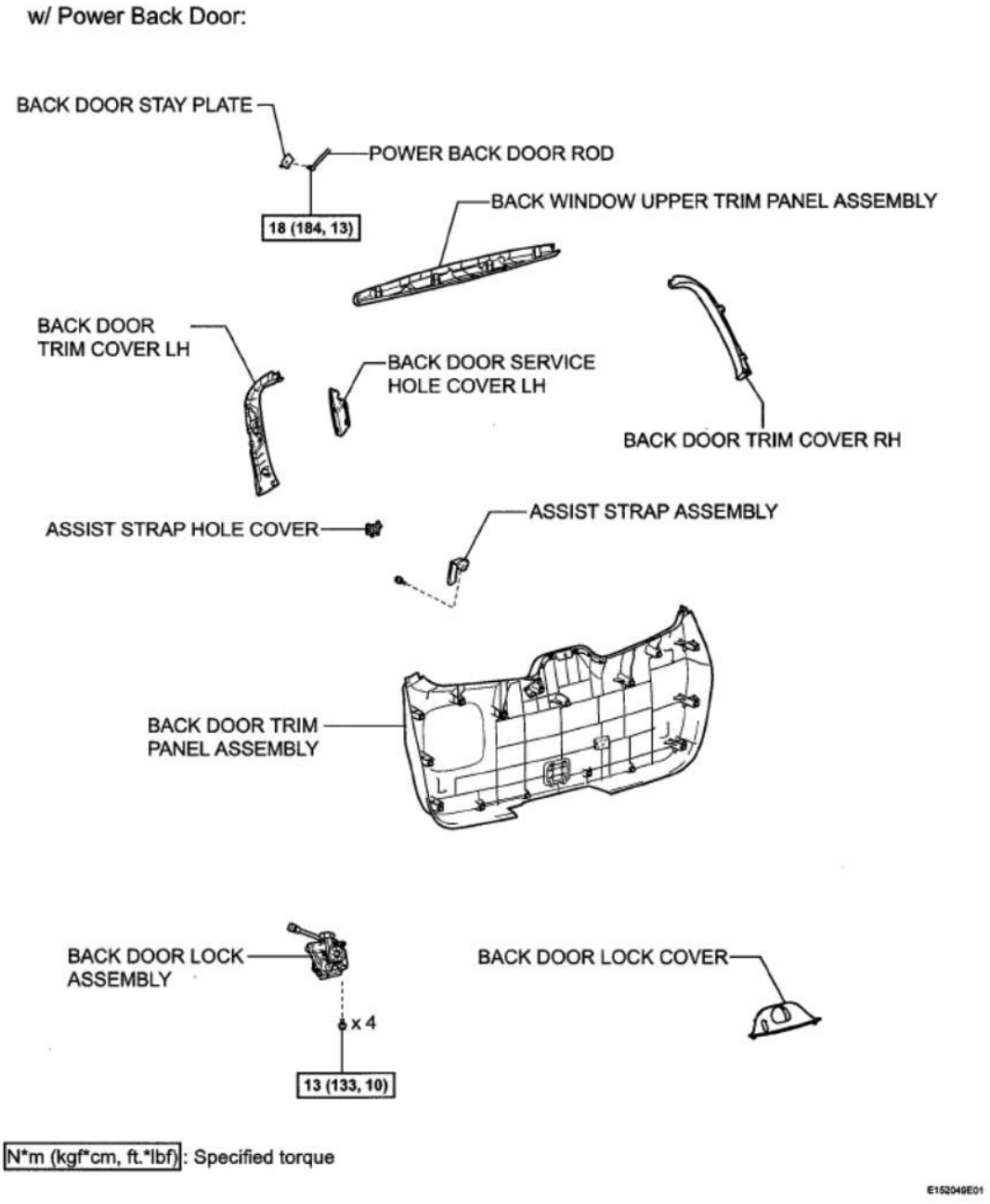


Fig. 237: Identifying Back Door Lock Components With Torque Specification (2 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. **REMOVE BACK WINDOW UPPER PANEL TRIM ASSEMBLY** (See **DISASSEMBLY**)
2. **REMOVE BACK DOOR TRIM COVER LH (w/o Power Back Door)** (See **DISASSEMBLY**)
3. **REMOVE BACK DOOR SERVICE HOLE COVER LH (w/ Power Back Door)** (See **DISASSEMBLY**)

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4. **DISCONNECT POWER BACK DOOR ROD (w/ Power Back Door)** (See **DISASSEMBLY**)
5. **REMOVE BACK DOOR TRIM COVER LH (w/ Power Back Door)** (See **DISASSEMBLY**)
6. **REMOVE BACK DOOR TRIM COVER RH** (See **DISASSEMBLY**)
7. **REMOVE BACK DOOR LOCK COVER (for Glass Hatch Type)** (See **DISASSEMBLY**)
8. **REMOVE ASSIST STRAP HOLE COVER** (See **DISASSEMBLY**)
9. **REMOVE ASSIST STRAP ASSEMBLY** (See **DISASSEMBLY**)
10. **REMOVE BACK DOOR TRIM PANEL ASSEMBLY** (See **DISASSEMBLY**)
11. **REMOVE BACK DOOR LOCK ASSEMBLY (w/o Power Back Door)**
    a. Disconnect the connector.
    b. Remove the 3 bolts and back door lock assembly.

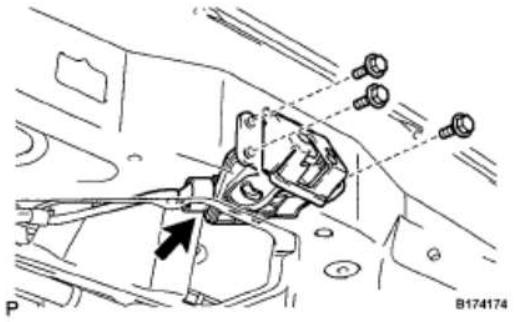


Fig. 238: Identifying Back Door Lock Assembly With Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. **REMOVE BACK DOOR LOCK ASSEMBLY (w/ Power Back Door)**
    a. Disconnect the connector.
    b. Disengage the clamp.

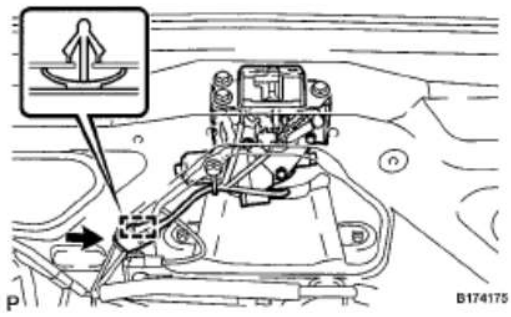


Fig. 239: Identifying Back Door Lock Assembly Clamp
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    c. Remove the 4 bolts and back door lock assembly.

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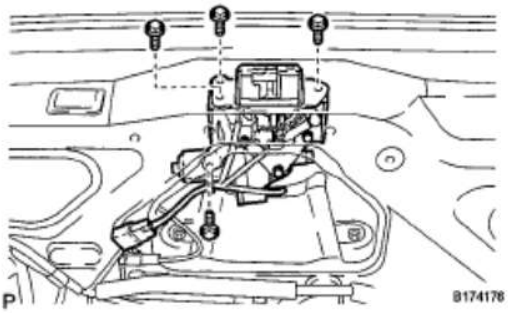


Fig. 240: Identifying Back Door Lock Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

1. **INSPECT BACK DOOR LOCK ASSEMBLY (w/o Power Back Door)**
   a. Check operation of the door lock motor.
      1. Move the door lock to the lock position.
      2. Apply the battery voltage to the door lock motor and check the operation of the door lock motor.

      OK

      BATTERY VOLTAGE SPECIFICATION

Measurement Condition	Specified Condition
Battery positive (+) --> 2 Battery negative (-) --> 1	Unlocked

      If the result is not specified, replace the back door lock.

   b. Check operation of the door courtesy switch.
      1. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Switch Condition	Specified Condition
1 - 3	Locked	10 kohms or higher
1 - 3	Unlocked	Below 1 ohms

If the result is not specified, replace the back door lock.

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Component without harness connected:
(Back Door Lock)

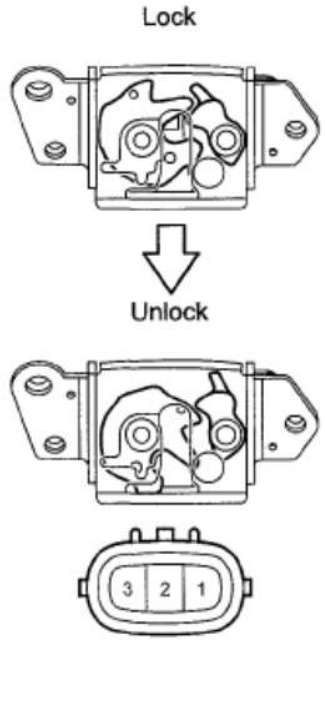


Fig. 241: Identifying Back Door Lock Assembly Lock And Unlock Position
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2. **INSPECT BACK DOOR LOCK ASSEMBLY (w/ Power Back Door)**
   a. Check operation of the door lock motor.

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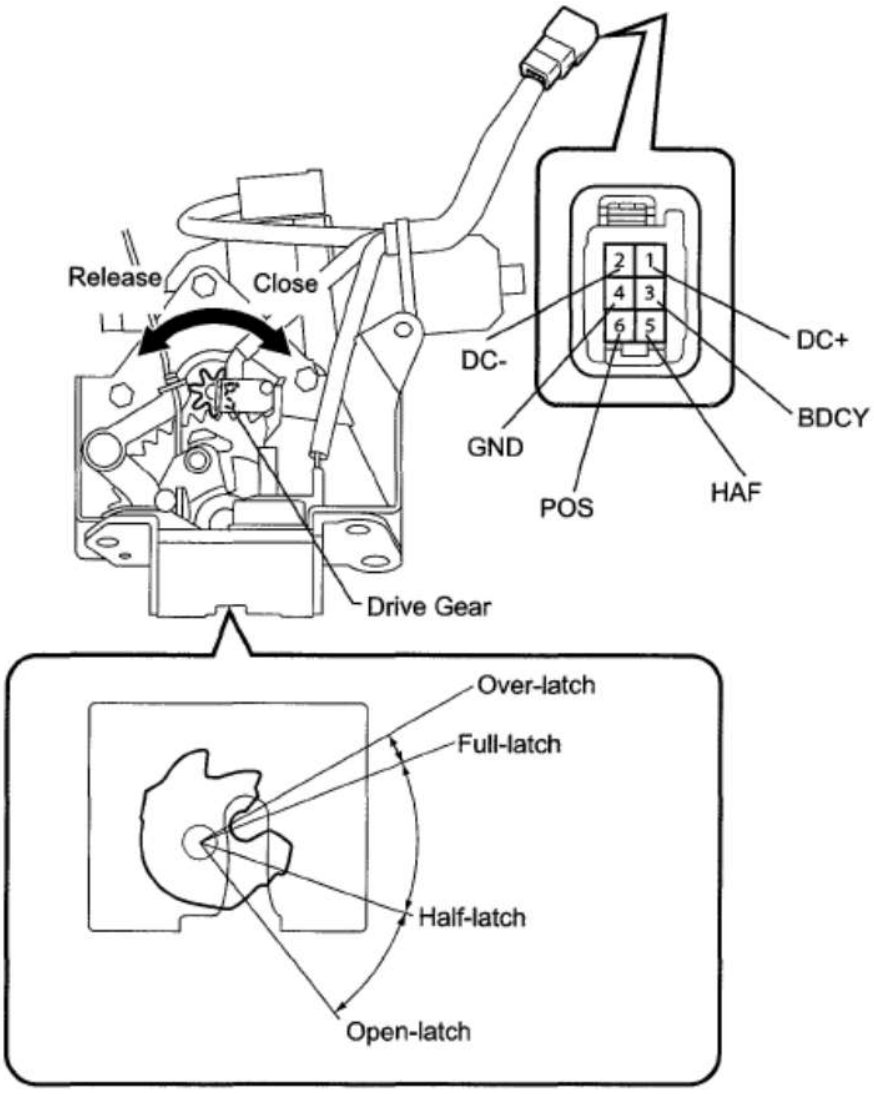


Fig. 242: Inspecting Back Door Lock Assembly (W/ Power Back Door)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. Move the door lock to the lock position.
2. Apply the battery voltage to the door lock motor and check the operation of the door lock motor.

OK

BATTERY VOLTAGE SPECIFICATION

Measurement Condition	Specified Condition
Battery positive (+) --> Terminal 1 (DC+)	

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Battery negative (-) --> Terminal 2 (DC-)	Latch turns to full-latch position
Battery positive (+) --> Terminal 2 (DC-) Battery negative (-) --> Terminal 1 (DC+)	Latch turns to open-latch position

If the result is not specified, replace the back door lock.

b. Check operation of the switch.
   1. Measure the resistance according to the value(s) in the table below.

Standard resistance:

Full-latch switch

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Door Lock Latch Position	Specified Condition
5 (HAF) - 4 (GND)	Over-latch	Below 1 ohms
5 (HAF) - 4 (GND)	Open-latch	10 kohms or higher
5 (HAF) - 4 (GND)	Full-latch	10 kohms or higher
5 (HAF) - 4 (GND)	Half-latch	10 kohms or higher

Sector switch

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Door Lock Latch Position	Specified Condition
6 (POS) - 4 (GND)	Open-latch	Below 1 ohms
6 (POS) - 4 (GND)	Over-latch	10 kohms or higher
6 (POS) - 4 (GND)	Full-latch	10 kohms or higher
6 (POS) - 4 (GND)	Half-latch	10 kohms or higher

Back door courtesy light switch

STANDARD RESISTANCE SPECIFICATION

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

If the result is not specified, replace the back door lock.

INSTALLATION

1. **INSTALL BACK DOOR LOCK ASSEMBLY (w/o Power Back Door)**
   a. Install the back door lock assembly with the 3 bolts.

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

b. Connect the connector.

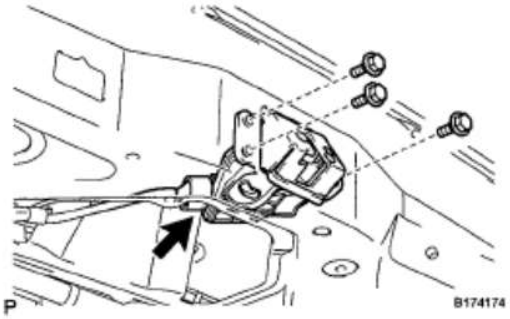


Fig. 243: Identifying Back Door Lock Assembly With Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **INSTALL BACK DOOR LOCK ASSEMBLY (w/ Power Back Door)**
   a. Install the back door lock assembly with the 4 bolts.

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

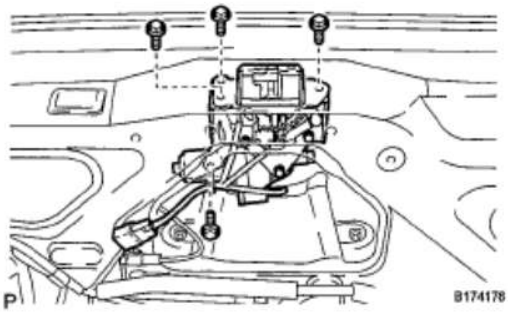


Fig. 244: Identifying Back Door Lock Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Connect the connector.
   c. Engage the clamp.
3. **INSTALL BACK DOOR TRIM PANEL ASSEMBLY** (See **REASSEMBLY**)
4. **INSTALL ASSIST STRAP ASSEMBLY** (See **REASSEMBLY**)
5. **INSTALL ASSIST STRAP HOLE COVER** (See **REASSEMBLY**)
6. **INSTALL BACK DOOR LOCK COVER (for Glass Hatch Type)** (See **REASSEMBLY**)

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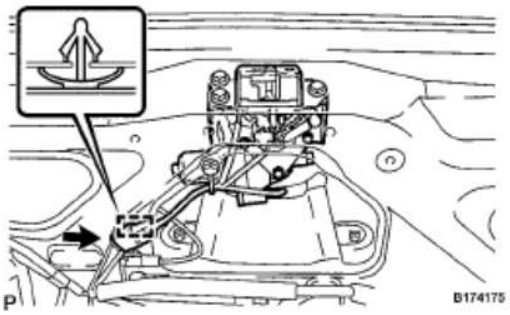


Fig. 245: Identifying Back Door Lock Assembly Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **INSTALL BACK DOOR TRIM COVER LH (w/o Power Back Door)** (See **REASSEMBLY**)
8. **INSTALL BACK DOOR TRIM COVER LH (w/ Power Back Door)** (See **REASSEMBLY**)
9. **CONNECT POWER BACK DOOR ROD (w/ Power Back Door)** (See **REASSEMBLY**)
10. **INSTALL BACK DOOR SERVICE HOLE COVER LH (w/ Power Back Door)** (See **REASSEMBLY**)
11. **INSTALL BACK DOOR TRIM COVER RH** (See **REASSEMBLY**)
12. **INSTALL BACK WINDOW UPPER PANEL TRIM ASSEMBLY** (See **REASSEMBLY**)

DOOR CONTROL RECEIVER

COMPONENTS

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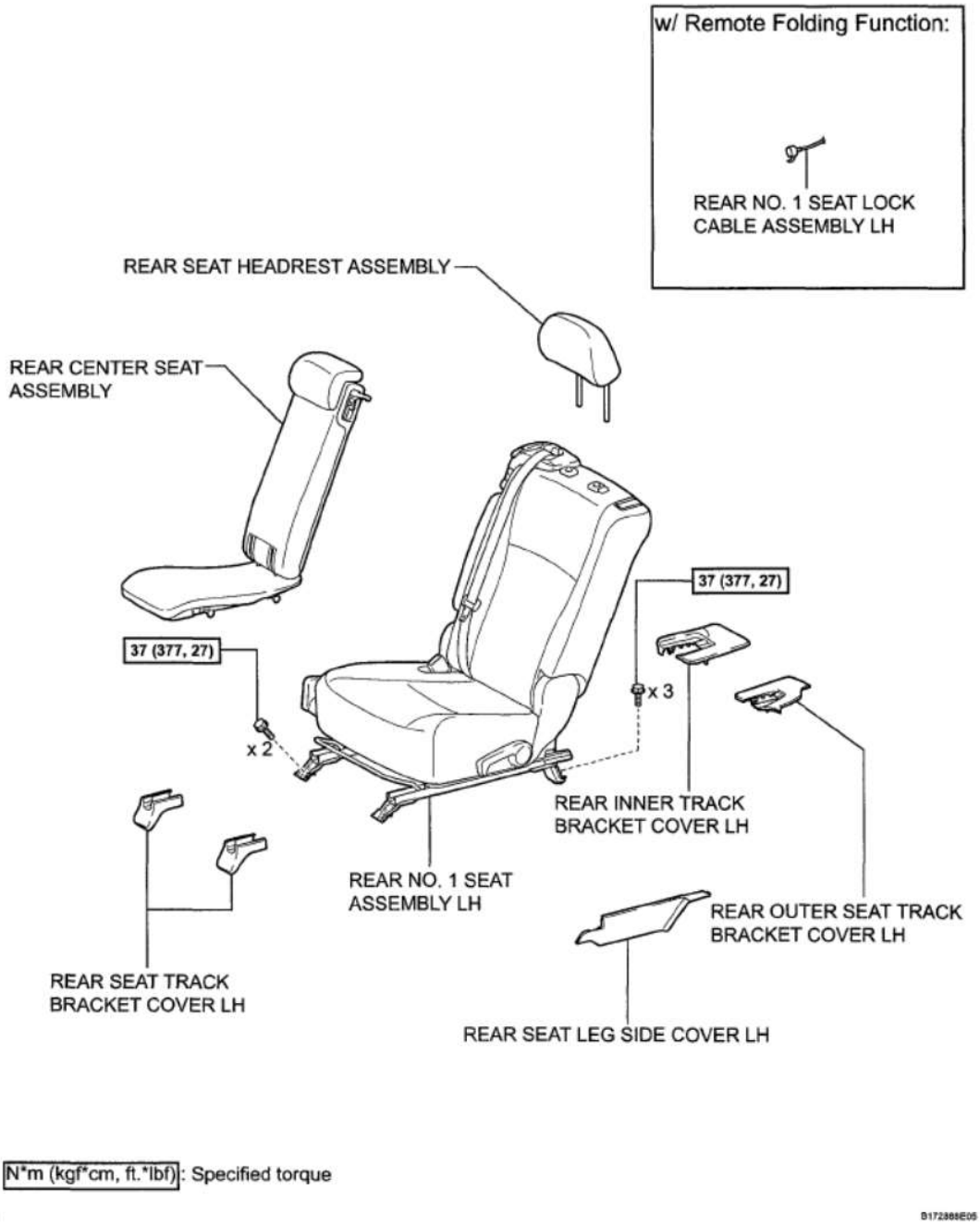


Fig. 246: Identifying Door Control Receiver Components With Torque Specification (1 Of 7)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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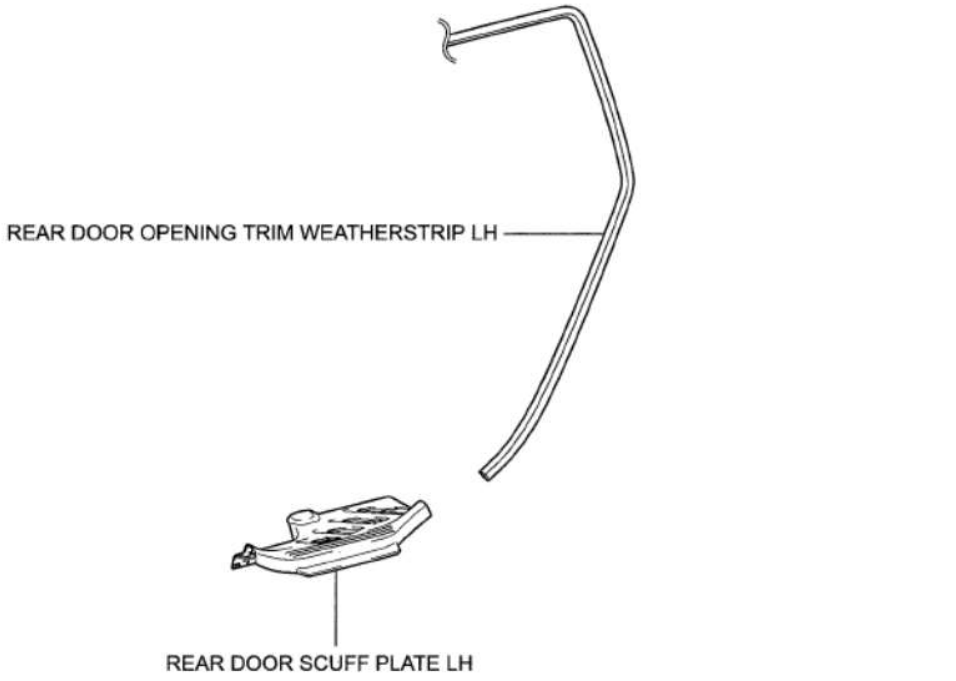


Fig. 247: Identifying Door Control Receiver Components With Torque Specification (2 Of 7)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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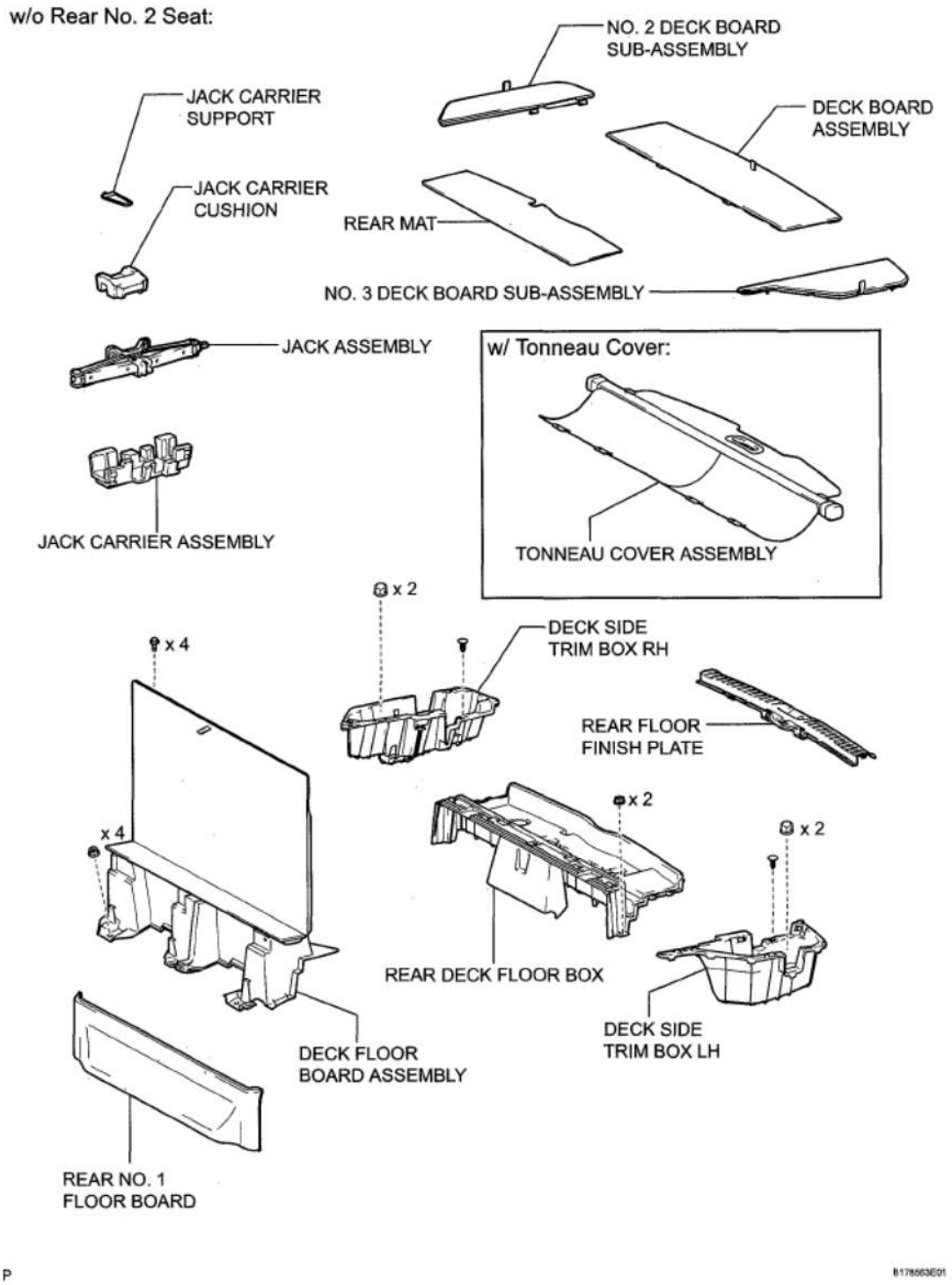


Fig. 248: Identifying Door Control Receiver Components With Torque Specification (3 Of 7)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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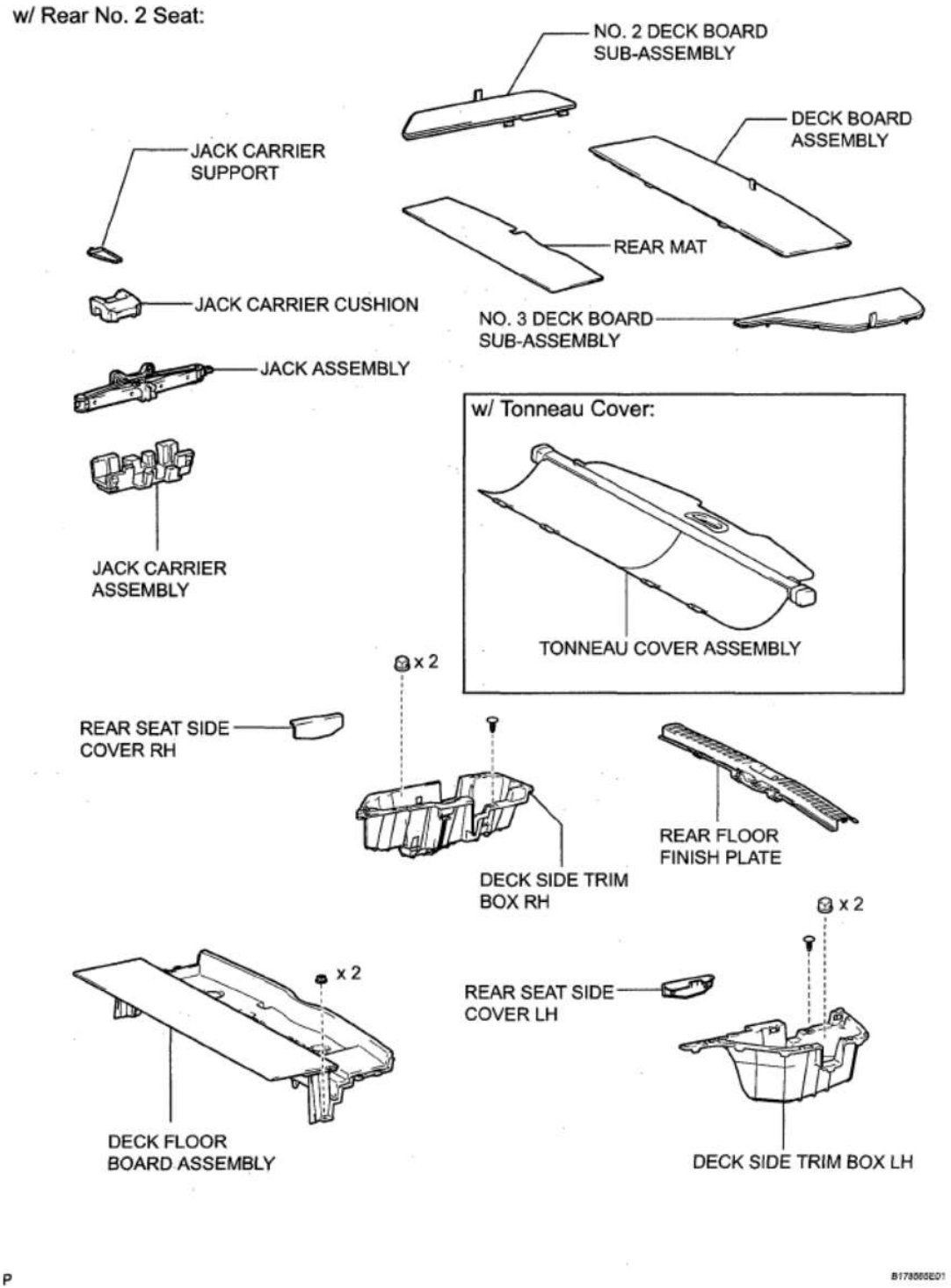


Fig. 249: Identifying Door Control Receiver Components With Torque Specification (4 Of 7)
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w/ Rear No. 2 Seat:

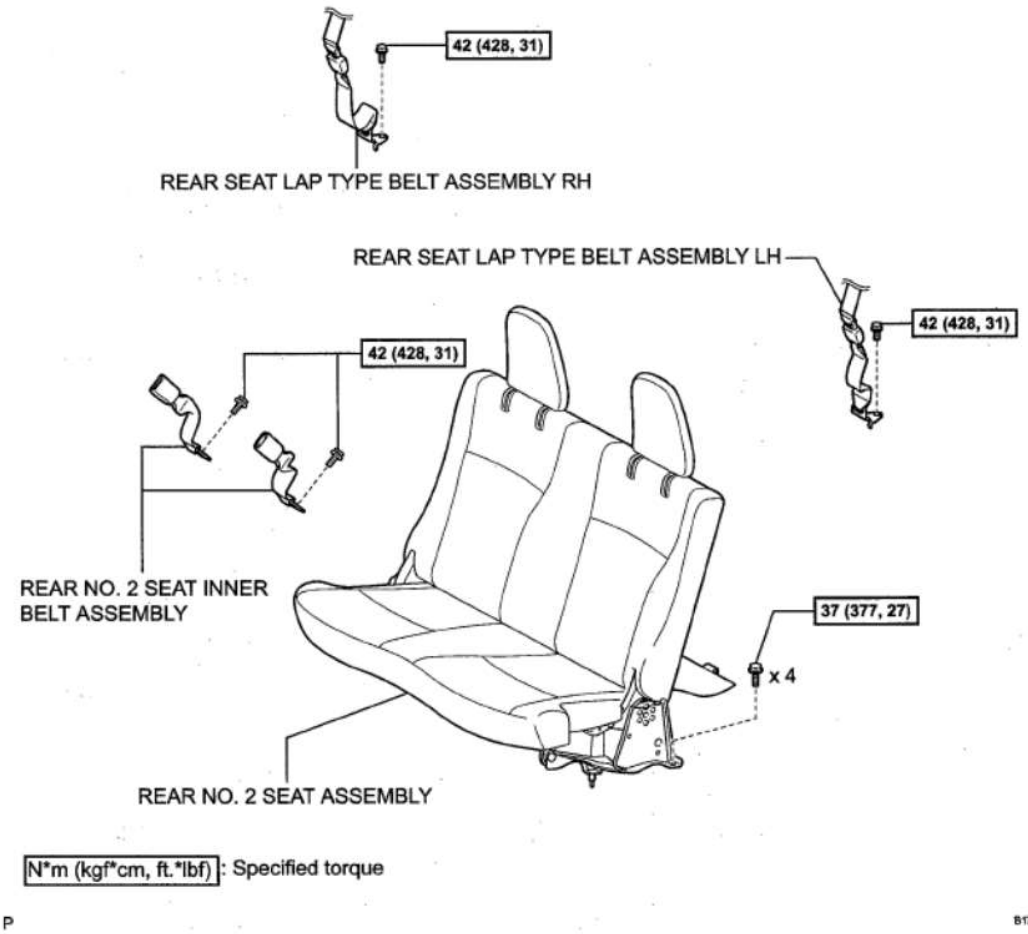


Fig. 250: Identifying Door Control Receiver Components With Torque Specification (5 Of 7)
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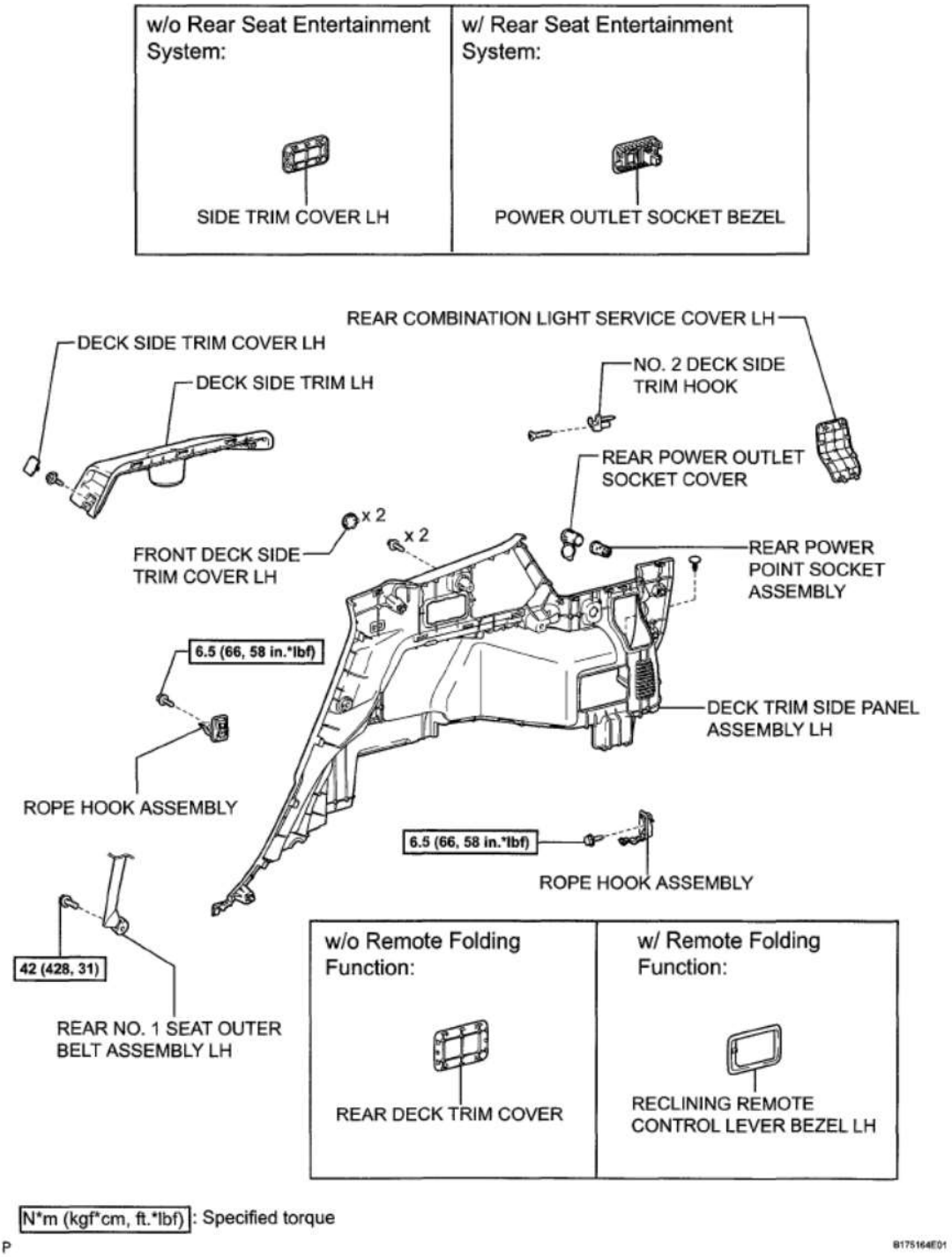


Fig. 251: Identifying Door Control Receiver Components With Torque Specification (6 Of 7)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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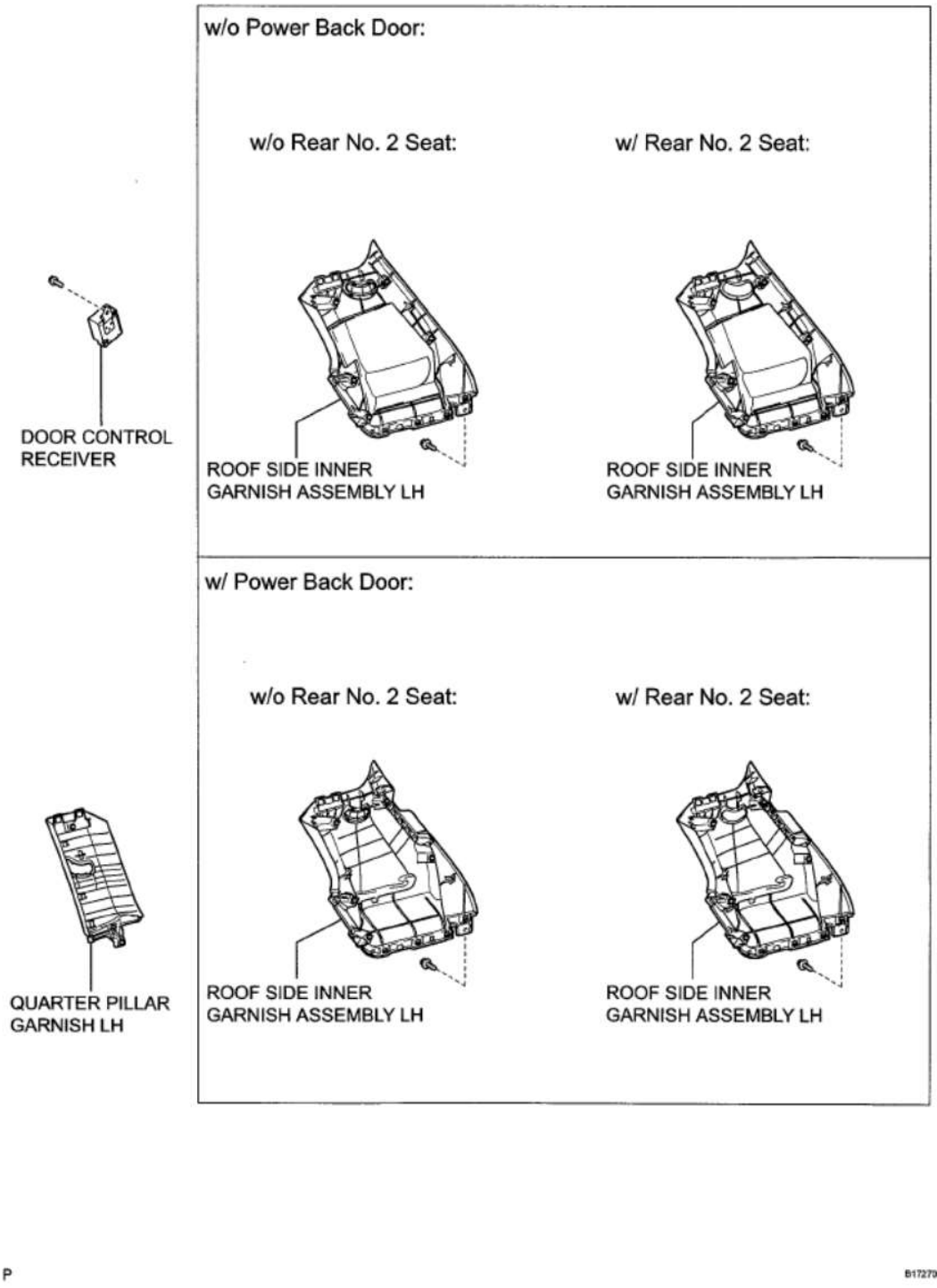


Fig. 252: Identifying Door Control Receiver Components With Torque Specification (7 Of 7)
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REMOVAL

1. **REMOVE REAR CENTER SEAT ASSEMBLY**

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2. **REMOVE REAR SEAT HEADREST ASSEMBLY** (See **REMOVAL**)
3. **REMOVE REAR SEAT TRACK BRACKET COVER LH** (See **REMOVAL**)
4. **REMOVE REAR OUTER SEAT TRACK BRACKET COVER LH** (See **REMOVAL**)
5. **REMOVE REAR INNER TRACK BRACKET COVER LH** (See **REMOVAL**)
6. **REMOVE REAR SEAT LEG SIDE COVER LH** (See **REMOVAL**)
7. **DISCONNECT REAR NO. 1 SEAT LOCK CABLE ASSEMBLY (w/ Remote Folding Function)** (See **REMOVAL**)
8. **REMOVE REAR NO. 1 SEAT ASSEMBLY LH** (See **DISASSEMBLY**)
9. **REMOVE REAR DOOR SCUFF PLATE LH** (See **REMOVAL**)
10. **REMOVE REAR DOOR OPENING TRIM WEATHERSTRIP LH** (See **REMOVAL**)
11. **REMOVE DECK BOARD ASSEMBLY** (See **REMOVAL**)
12. **REMOVE NO. 3 DECK BOARD SUB-ASSEMBLY** (See **REMOVAL**)
13. **REMOVE NO. 2 DECK BOARD SUB-ASSEMBLY** (See **REMOVAL**)
14. **REMOVE TONNEAU COVER ASSEMBLY (w/ Tonneau Cover)** (See **REMOVAL**)
15. **REMOVE REAR NO. 1 FLOOR BOARD (w/o Rear No. 2 Seat)** (See **REMOVAL**)
16. **REMOVE REAR SEAT SIDE COVER LH (w/ Rear No. 2 Seat)** (See **REMOVAL**)
17. **REMOVE DECK SIDE TRIM BOX LH** (See **REMOVAL**)
18. **REMOVE REAR SEAT SIDE COVER RH (w/ Rear No. 2 Seat)** (See **REMOVAL**)
19. **REMOVE JACK CARRIER SUPPORT**
20. **REMOVE JACK CARRIER CUSHION** (See **REMOVAL**)
21. **REMOVE JACK ASSEMBLY** (See **REMOVAL**)
22. **REMOVE JACK CARRIER ASSEMBLY** (See **REMOVAL**)
23. **REMOVE DECK SIDE TRIM BOX RH** (See **REMOVAL**)
24. **REMOVE DECK FLOOR BOARD ASSEMBLY (w/o Rear No. 2 Seat)** (See **REMOVAL**)
25. **REMOVE REAR MAT** (See **REMOVAL**)
26. **REMOVE DECK FLOOR BOARD ASSEMBLY (w/ Rear No. 2 Seat)** (See **REMOVAL**)
27. **REMOVE REAR DECK FLOOR BOX (w/o Rear No. 2 Seat)** (See **REMOVAL**)
28. **REMOVE REAR NO. 2 SEAT INNER BELT ASSEMBLY (w/ Rear No. 2 Seat)** (See **INSTALLATION**)
29. **DISCONNECT REAR SEAT LAP TYPE BELT ASSEMBLY LH (w/ Rear No. 2 Seat)** (See **REMOVAL**)
30. **DISCONNECT REAR SEAT LAP TYPE BELT ASSEMBLY RH (w/ Rear No. 2 Seat)** (See **REMOVAL**)
31. **REMOVE REAR NO. 2 SEAT ASSEMBLY (w/ Rear No. 2 Seat)** (See **DISASSEMBLY**)
32. **REMOVE REAR FLOOR FINISH PLATE** (See **REMOVAL**)
33. **REMOVE DECK SIDE TRIM COVER LH** (See **REMOVAL**)
34. **REMOVE DECK SIDE TRIM COVER LH** (See **REMOVAL**)
35. **REMOVE SIDE TRIM COVER LH (w/o Rear Seat Entertainment System)** (See **REMOVAL**)

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36. **REMOVE POWER OUTLET SOCKET BEZEL (w/ Rear Seat Entertainment System)** (See **REMOVAL**)
37. **REMOVE REAR COMBINATION LIGHT SERVICE COVER LH** (See **REMOVAL**)
38. **REMOVE REAR POWER POINT SOCKET ASSEMBLY** (See **REAR POWER OUTLET SOCKET**)
39. **REMOVE REAR POWER OUTLET SOCKET COVER** (See **INSTALLATION**)
40. **REMOVE REAR DECK TRIM COVER (w/o Remote Folding Function)** (See **REMOVAL**)
41. **REMOVE RECLINING REMOTE CONTROL LEVER BEZEL LH (w/ Remote Folding Function)** (See **REMOVAL**)
42. **REMOVE ROPE HOOK ASSEMBLY (for LH Side)** (See **REMOVAL**)
43. **REMOVE NO. 2 DECK SIDE TRIM HOOK** (See **REMOVAL**)
44. **REMOVE FRONT DECK SIDE TRIM COVER LH** (See **REMOVAL**)
45. **DISCONNECT REAR NO. 1 SEAT OUTER BELT ASSEMBLY LH** (See **REMOVAL**)
46. **REMOVE DECK TRIM SIDE PANEL ASSEMBLY LH** (See **REMOVAL**)
47. **REMOVE QUARTER PILLAR GARNISH LH** (See **REMOVAL**)
48. **REMOVE ROOF SIDE INNER GARNISH ASSEMBLY LH (w/o Power Back Door)** (See **REMOVAL**)
49. **REMOVE ROOF SIDE INNER GARNISH ASSEMBLY LH (w/ Power Back Door)** (See **REMOVAL**)
50. **REMOVE DOOR CONTROL RECEIVER**
    a. Disconnect the connector.
    b. Remove the bolt and the door control receiver.

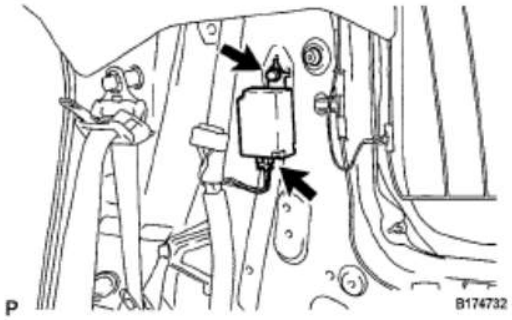


Fig. 253: Locating Door Control Receiver Connector Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. **INSTALL DOOR CONTROL RECEIVER**
    a. Install the door control receiver with the bolt.
    b. Connect the connector.
2. **INSTALL ROOF SIDE INNER GARNISH ASSEMBLY LH (w/ Power Back Door)** (See

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INSTALLATION)

3. **INSTALL ROOF SIDE INNER GARNISH ASSEMBLY LH (w/ Power Back Door)** (See INSTALLATION)

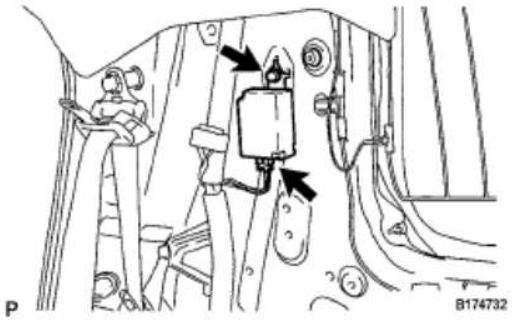


Fig. 254: Locating Door Control Receiver Connector Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **INSTALL QUARTER PILLAR GARNISH LH** (See INSTALLATION)
5. **INSTALL DECK TRIM SIDE PANEL ASSEMBLY LH** (See INSTALLATION)
6. **CONNECT REAR NO. 1 SEAT OUTER BELT ASSEMBLY LH** (See INSTALLATION)
7. **INSTALL FRONT DECK SIDE TRIM COVER LH** (See INSTALLATION)
8. **INSTALL NO. 2 DECK SIDE TRIM HOOK** (See INSTALLATION)
9. **INSTALL ROPE HOOK ASSEMBLY (for LH Side)** (See INSTALLATION)
10. **INSTALL REAR DECK TRIM COVER (w/o Remote Folding Function)** (See INSTALLATION)
11. **INSTALL RECLINING REMOTE CONTROL LEVER BEZEL LH (w/ Remote Folding Function)** (See INSTALLATION)
12. **INSTALL REAR POWER OUTLET SOCKET COVER** (See INSTALLATION)
13. **INSTALL REAR POWER POINT SOCKET ASSEMBLY** (See INSTALLATION)
14. **INSTALL REAR COMBINATION LIGHT SERVICE COVER LH** (See INSTALLATION)
15. **INSTALL SIDE TRIM COVER LH (w/o Rear Seat Entertainment System)** (See INSTALLATION)
16. **INSTALL POWER OUTLET SOCKET BEZEL (w/ Rear Seat Entertainment System)** (See INSTALLATION)
17. **INSTALL DECK SIDE TRIM LH** (See INSTALLATION)
18. **INSTALL DECK SIDE TRIM COVER LH** (See INSTALLATION)
19. **INSTALL REAR FLOOR FINISH PLATE** (See INSTALLATION)
20. **INSTALL REAR NO. 2 SEAT ASSEMBLY (w/ Rear No. 2 Seat)** (See INSTALLATION)
21. **CONNECT REAR SEAT LAP TYPE BELT ASSEMBLY LH (w/ Rear No. 2 Seat)** (See INSTALLATION)
22. **CONNECT REAR SEAT LAP TYPE BELT ASSEMBLY RH (w/ Rear No. 2 Seat)** (See INSTALLATION)
23. **INSTALL REAR NO. 2 SEAT INNER BELT ASSEMBLY (w/ Rear No. 2 Seat)** (See

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INSTALLATION)

24. **INSTALL REAR DECK FLOOR BOX (w/o Rear No. 2 Seat)** (See INSTALLATION)
25. **INSTALL DECK FLOOR BOARD ASSEMBLY (w/o Rear No. 2 Seat)** (See INSTALLATION)
26. **INSTALL REAR MAT** (See INSTALLATION)
27. **INSTALL DECK FLOOR BOARD ASSEMBLY (w/ Rear No. 2 Seat)** (See INSTALLATION)
28. **INSTALL DECK SIDE TRIM BOX LH** (See INSTALLATION)
29. **INSTALL REAR SEAT SIDE COVER LH (w/ Rear No. 2 Seat)** (See INSTALLATION)
30. **INSTALL DECK SIDE TRIM BOX RH** (See INSTALLATION)
31. **INSTALL JACK CARRIER ASSEMBLY** (See INSTALLATION)
32. **INSTALL JACK ASSEMBLY** (See INSTALLATION)
33. **INSTALL JACK CARRIER CUSHION** (See INSTALLATION)
34. **INSTALL JACK CARRIER SUPPORT**
35. **INSTALL REAR SEAT SIDE COVER RH (w/ Rear No. 2 Seat)** (See INSTALLATION)
36. **INSTALL REAR NO. 1 FLOOR BOARD (w/o Rear No. 2 Seat)** (See INSTALLATION)
37. **INSTALL TONNEAU COVER ASSEMBLY (w/ Tonneau Cover)**
38. **INSTALL NO. 2 DECK BOARD SUB-ASSEMBLY** (See INSTALLATION)
39. **INSTALL NO. 3 DECK BOARD SUB-ASSEMBLY** (See INSTALLATION)
40. **INSTALL DECK BOARD ASSEMBLY** (See INSTALLATION)
41. **INSTALL REAR DOOR OPENING TRIM WEATHERSTRIP LH** (See INSTALLATION)
42. **INSTALL REAR DOOR SCUFF PLATE LH** (See INSTALLATION)
43. **INSTALL REAR NO. 1 SEAT ASSEMBLY LH** (See INSTALLATION)
44. **CONNECT REAR NO. 1 SEAT LOCK CABLE ASSEMBLY (w/ Remote Folding Function)** (See INSTALLATION)
45. **INSPECT REAR SEAT SLIDE ADJUSTER LOCK (for LH Side)** (See INSTALLATION)
46. **INSTALL REAR SEAT LEG SIDE COVER LH** (See INSTALLATION)
47. **INSTALL REAR INNER SEAT TRACK BRACKET COVER LH** (See INSTALLATION)
48. **INSTALL REAR OUTER SEAT TRACK BRACKET COVER LH** (See INSTALLATION)
49. **INSTALL REAR SEAT TRACK BRACKET COVER LH** (See INSTALLATION)
50. **INSTALL REAR SEAT HEADREST ASSEMBLY (for LH Side)** (See INSTALLATION)
51. **INSTALL REAR CENTER SEAT ASSEMBLY**

ELECTRICAL KEY OSCILLATOR (FOR FRONT DOOR)

COMPONENTS

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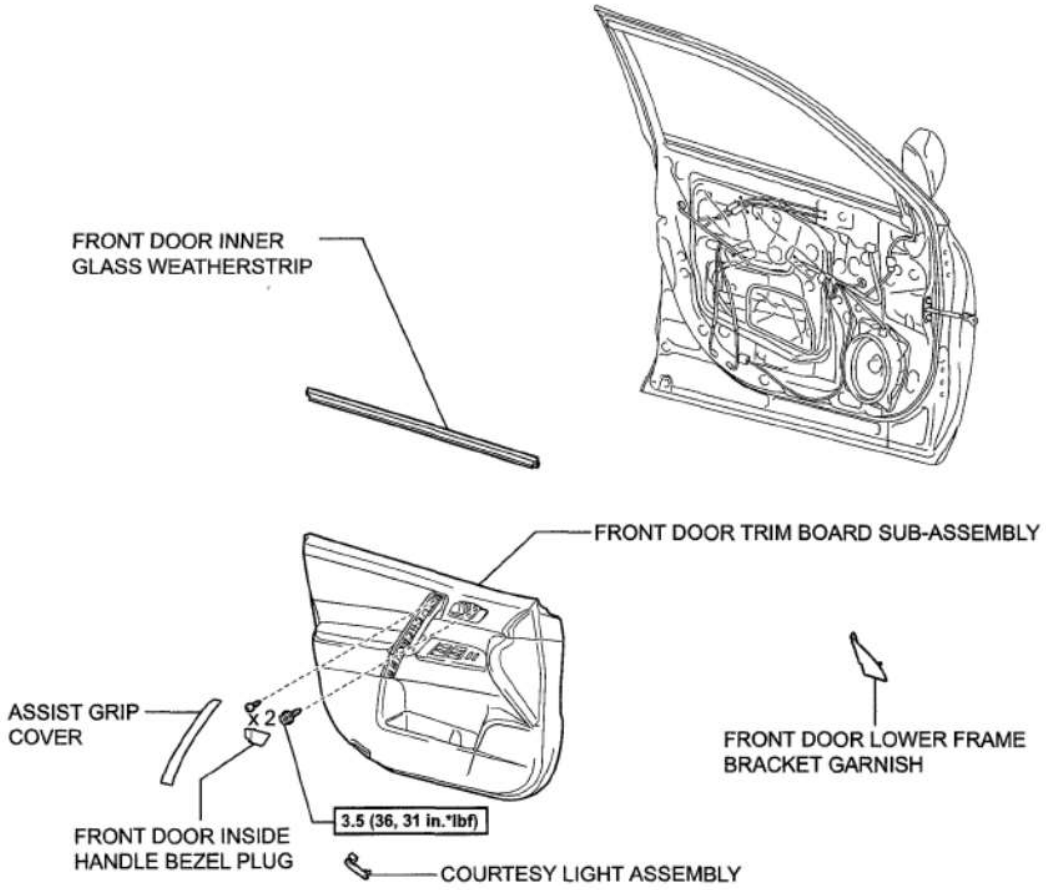


Fig. 255: Identifying Electrical Key Oscillator (Front Door) Components With Torque Specification (1 Of 3)

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

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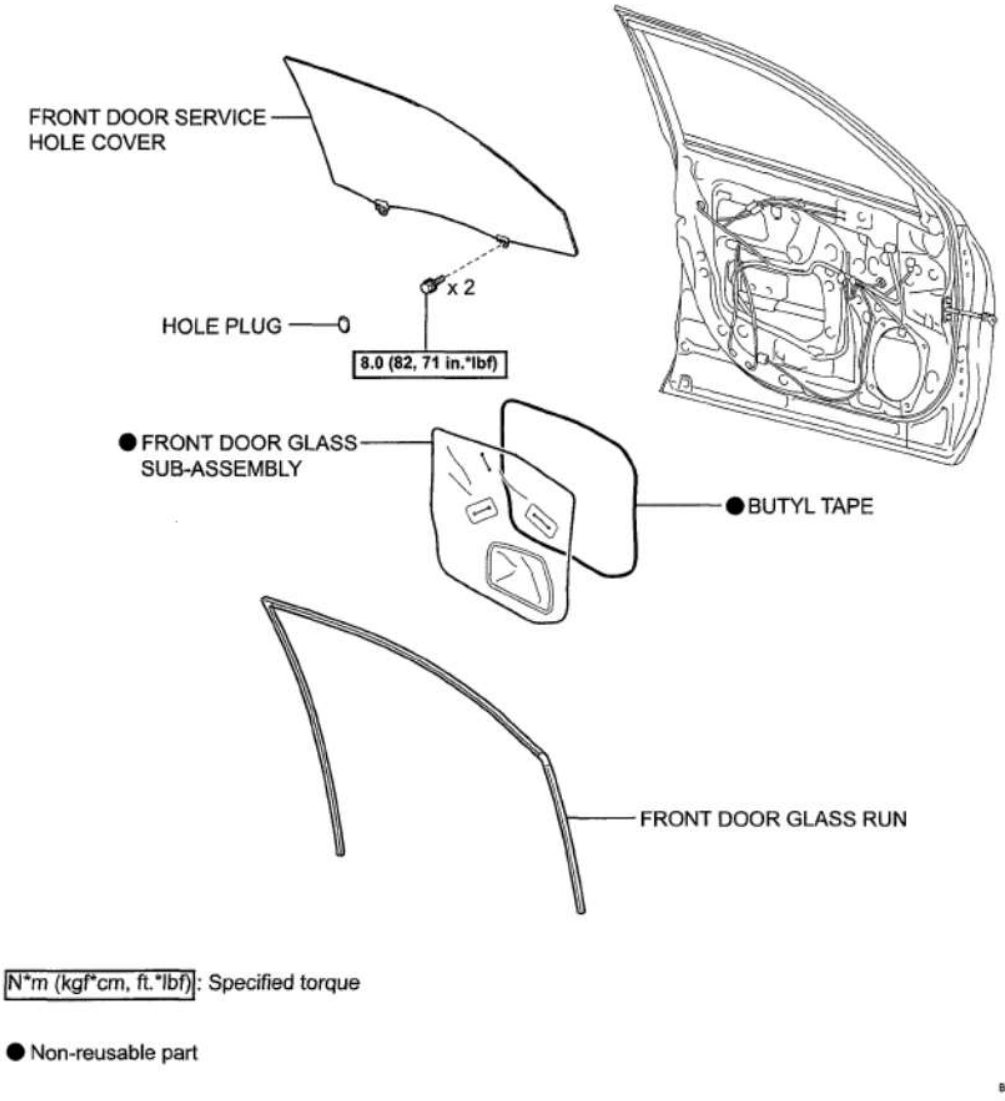


Fig. 256: Identifying Electrical Key Oscillator (Front Door) Components With Torque Specification (2 Of 3)

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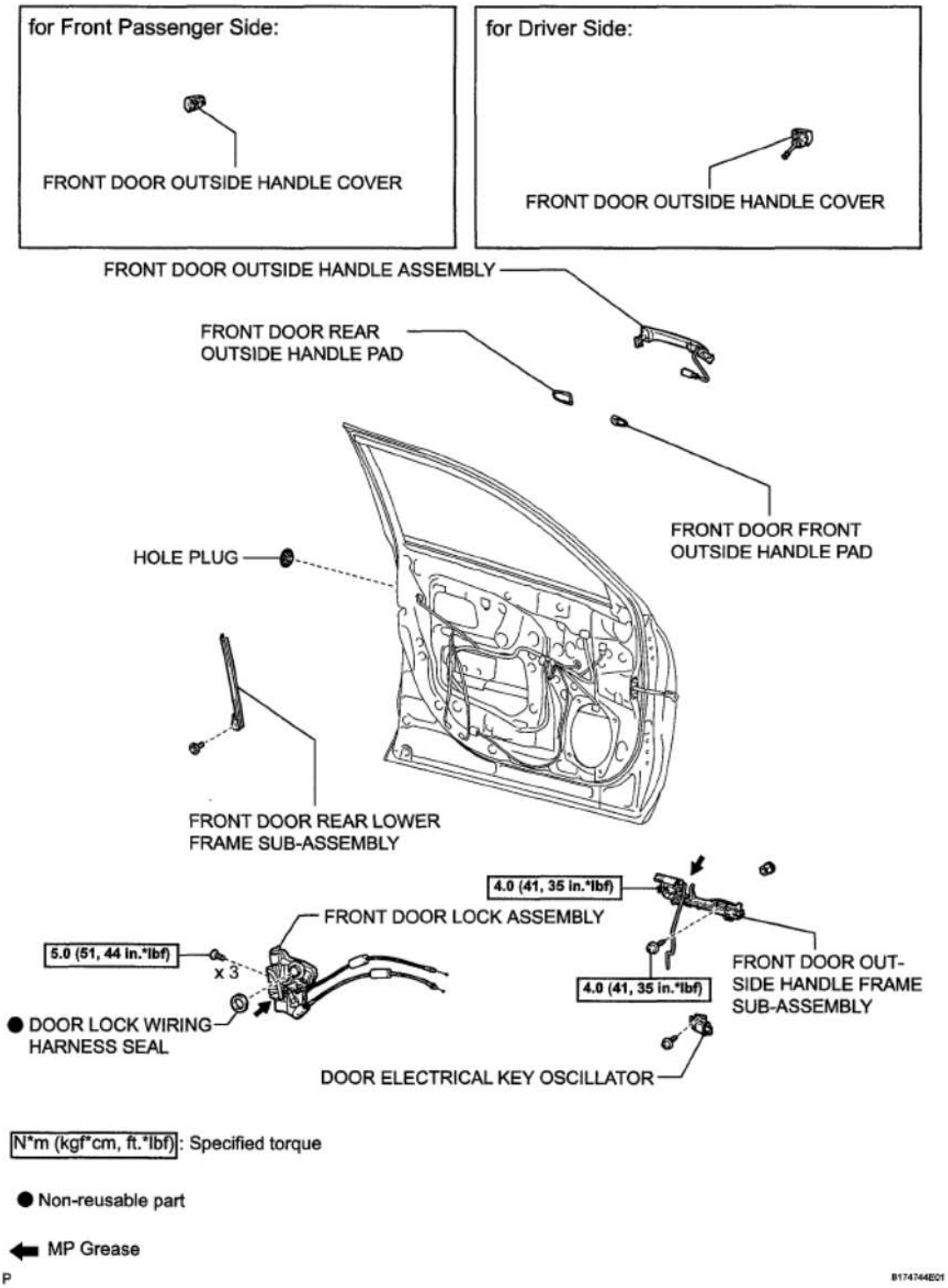


Fig. 257: Identifying Electrical Key Oscillator (Front Door) Components With Torque Specification (3 Of 3)

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REMOVAL

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1. **DISCONNECT NEGATIVE BATTERY TERMINAL**

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

NOTE: When disconnecting the cable, some systems need to be initialized after the cable is reconnected (See INITIALIZATION).

2. **REMOVE FRONT DOOR LOWER FRAME BRACKET GARNISH** (See **DISASSEMBLY**)
3. **REMOVE FRONT DOOR INSIDE HANDLE BEZEL PLUG** (See **DISASSEMBLY**)
4. **REMOVE ASSIST GRIP COVER** (See **DISASSEMBLY**)
5. **REMOVE COURTESY LIGHT ASSEMBLY** (See **DISASSEMBLY**)
6. **REMOVE FRONT DOOR TRIM BOARD SUB-ASSEMBLY** (See **DISASSEMBLY**)
7. **REMOVE FRONT DOOR INNER GLASS WEATHERSTRIP** (See **DISASSEMBLY**)
8. **REMOVE FRONT DOOR SERVICE HOLE COVER** (See **DISASSEMBLY**)
9. **REMOVE FRONT DOOR GLASS SUB-ASSEMBLY** (See **DISASSEMBLY**)
10. **REMOVE FRONT DOOR GLASS RUN** (See **DISASSEMBLY**)
11. **REMOVE FRONT DOOR REAR LOWER FRAME SUB-ASSEMBLY** (See **DISASSEMBLY**)
12. **REMOVE FRONT DOOR OUTSIDE HANDLE COVER (for Driver Side)** (See **DISASSEMBLY**)
13. **REMOVE FRONT DOOR OUTSIDE HANDLE COVER (for Front Passenger Side)** (See **DISASSEMBLY**)
14. **REMOVE FRONT DOOR OUTSIDE HANDLE ASSEMBLY** (See **DISASSEMBLY**)
15. **REMOVE FRONT DOOR FRONT OUTSIDE HANDLE PAD** (See **DISASSEMBLY**)
16. **REMOVE FRONT DOOR REAR OUTSIDE HANDLE PAD** (See **DISASSEMBLY**)
17. **REMOVE FRONT DOOR LOCK ASSEMBLY** (See **DISASSEMBLY**)
18. **REMOVE FRONT DOOR OUTSIDE HANDLE FRAME SUB-ASSEMBLY** (See **DISASSEMBLY**)
19. **REMOVE DOOR ELECTRICAL KEY OSCILLATOR**
    a. Remove the screw and the door electrical key oscillator.

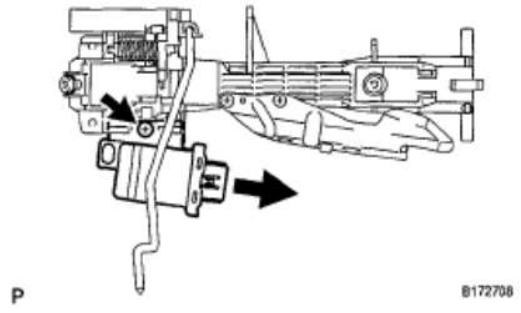


Fig. 258: Locating Door Electrical Key Oscillator Screw

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INSTALLATION

1. **INSTALL DOOR ELECTRICAL KEY OSCILLATOR**
   a. Install the door electrical key oscillator with the screw.
2. **INSTALL FRONT DOOR OUTSIDE HANDLE FRAME SUB-ASSEMBLY** (See **REASSEMBLY**)
3. **INSTALL FRONT DOOR LOCK ASSEMBLY** (See **REASSEMBLY**)

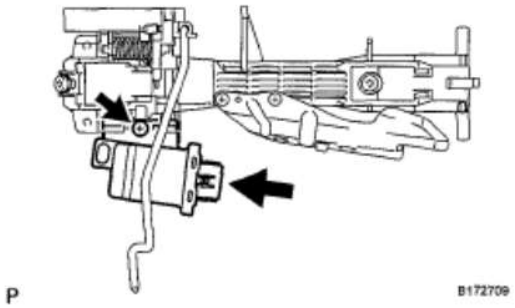


Fig. 259: Locating Door Electrical Key Oscillator Screw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **INSTALL FRONT DOOR REAR OUTSIDE HANDLE PAD** (See **REASSEMBLY**)
5. **INSTALL FRONT DOOR FRONT OUTSIDE HANDLE PAD** (See **REASSEMBLY**)
6. **INSTALL FRONT DOOR OUTSIDE HANDLE ASSEMBLY** (See **REASSEMBLY**)
7. **INSTALL FRONT DOOR OUTSIDE HANDLE COVER (for Driver Side)** (See **REASSEMBLY**)
8. **INSTALL FRONT DOOR OUTSIDE HANDLE COVER (for Front Passenger Side)** (See **REASSEMBLY**)
9. **INSTALL FRONT DOOR REAR LOWER FRAME SUB-ASSEMBLY** (See **REASSEMBLY**)
10. **INSTALL FRONT DOOR GLASS RUN** (See **REASSEMBLY**)
11. **INSTALL FRONT DOOR GLASS SUB-ASSEMBLY** (See **REASSEMBLY**)
12. **INSTALL FRONT DOOR SERVICE HOLE COVER** (See **REASSEMBLY**)
13. **INSTALL FRONT DOOR INNER GLASS WEATHERSTRIP** (See **REASSEMBLY**)
14. **INSTALL FRONT DOOR TRIM BOARD SUB-ASSEMBLY** (See **REASSEMBLY**)
15. **INSTALL COURTESY LIGHT ASSEMBLY** (See **REASSEMBLY**)
16. **INSTALL ASSIST GRIP COVER** (See **REASSEMBLY**)
17. **INSTALL FRONT DOOR INSIDE HANDLE BEZEL PLUG** (See **REASSEMBLY**)
18. **INSTALL FRONT DOOR LOWER FRAME BRACKET GARNISH** (See **REASSEMBLY**)
19. **CONNECT NEGATIVE BATTERY TERMINAL**

HINT:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (See

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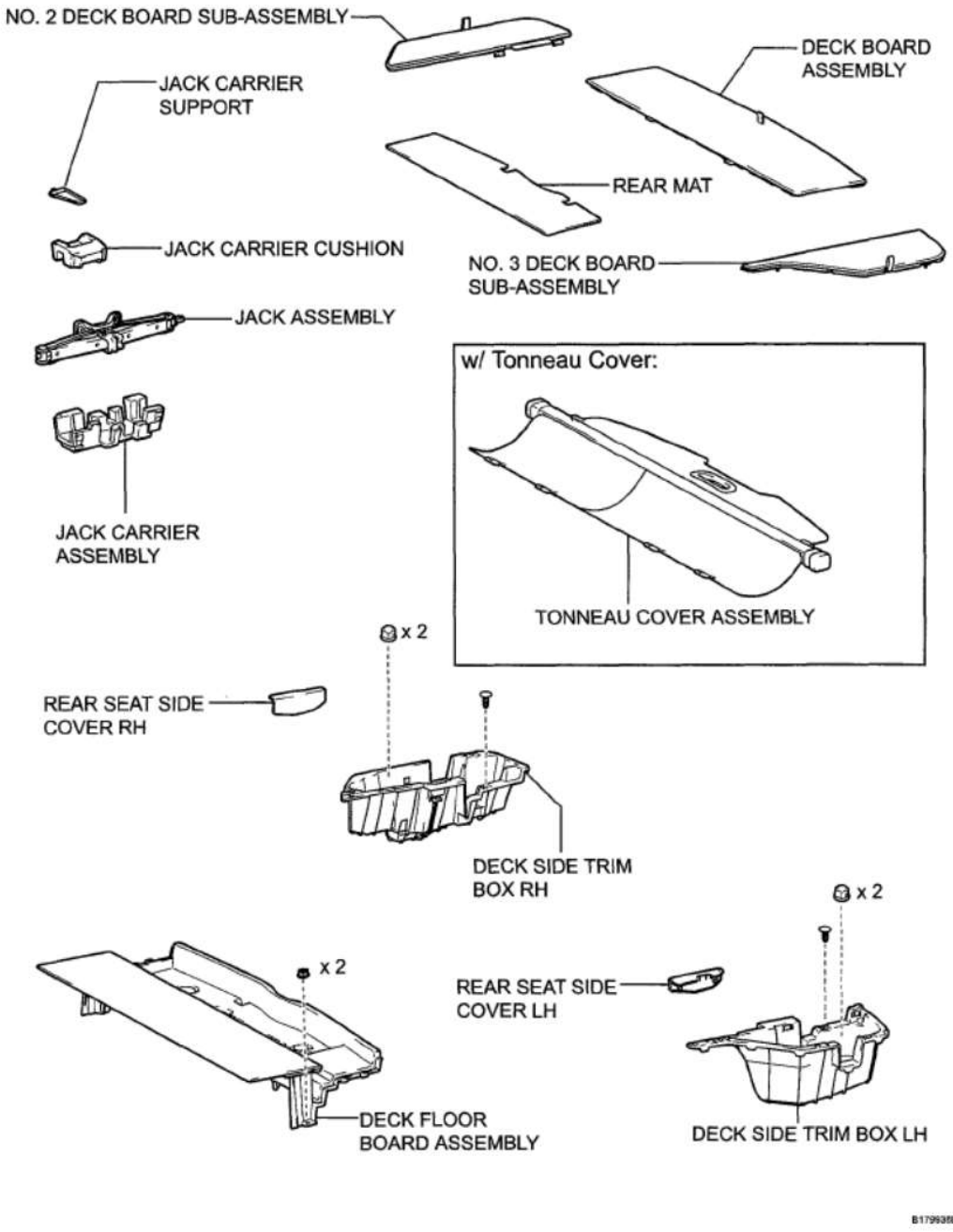
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INITIALIZATION).

ELECTRICAL KEY OSCILLATOR (FOR LUGGAGE COMPARTMENT)

COMPONENTS



P

Fig. 260: Identifying Electrical Key Oscillator (Luggage Compartment) Components With Torque Specification (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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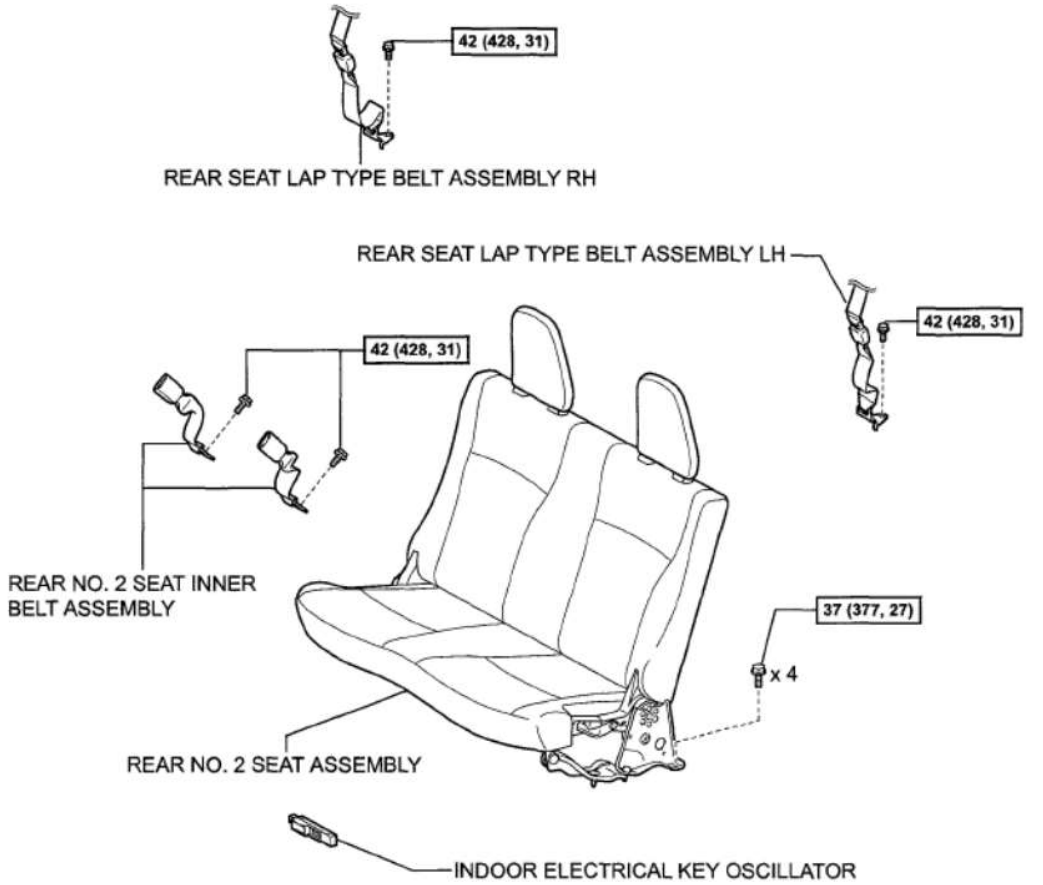


Fig. 261: Identifying Electrical Key Oscillator (Luggage Compartment) Components With Torque Specification (2 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. **REMOVE DECK BOARD ASSEMBLY** (See **REMOVAL**)
2. **REMOVE NO. 3 DECK BOARD SUB-ASSEMBLY** (See **REMOVAL**)
3. **REMOVE NO. 2 DECK BOARD SUB-ASSEMBLY** (See **REMOVAL**)
4. **REMOVE TONNEAU COVER ASSEMBLY (w/ Tonneau Cover)** (See **REMOVAL**)
5. **REMOVE REAR SEAT SIDE COVER LH** (See **REMOVAL**)
6. **REMOVE DECK SIDE TRIM BOX LH** (See **REMOVAL**)
7. **REMOVE REAR SEAT SIDE COVER RH** (See **REMOVAL**)
8. **REMOVE JACK CARRIER SUPPORT**

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9. **REMOVE JACK CARRIER CUSHION** (See **REMOVAL**)
10. **REMOVE JACK ASSEMBLY** (See **REMOVAL**)
11. **REMOVE JACK CARRIER ASSEMBLY** (See **REMOVAL**)
12. **REMOVE DECK SIDE TRIM BOX RH** (See **REMOVAL**)
13. **REMOVE REAR MAT** (See **REMOVAL**)
14. **REMOVE DECK FLOOR BOARD ASSEMBLY** (See **REMOVAL**)
15. **REMOVE REAR NO. 2 SEAT INNER BELT SUB-ASSEMBLY** (See **INSTALLATION**)
16. **DISCONNECT REAR SEAT LAP TYPE BELT ASSEMBLY LH** (See **REMOVAL**)
17. **DISCONNECT REAR SEAT LAP TYPE BELT ASSEMBLY RH** (See **REMOVAL**)
18. **REMOVE REAR NO. 2 SEAT ASSEMBLY** (See **DISASSEMBLY**)
19. **REMOVE INDOOR ELECTRICAL KEY OSCILLATOR**
    a. Disengage the clamp.
    b. Disconnect the connector and remove the indoor electrical key oscillator.

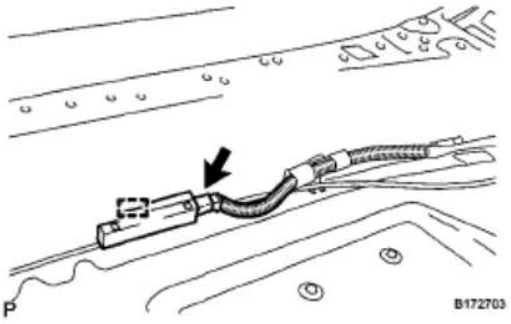


Fig. 262: Locating Indoor Electrical Key Oscillator Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. **INSTALL INDOOR ELECTRICAL KEY OSCILLATOR**
    a. Connect the connector.
    b. Engage the clamp and install the indoor electrical key oscillator.
2. **INSTALL REAR NO. 2 SEAT ASSEMBLY** (See **INSTALLATION**)
3. **INSTALL REAR SEAT LAP TYPE BELT ASSEMBLY LH** (See **INSTALLATION**)

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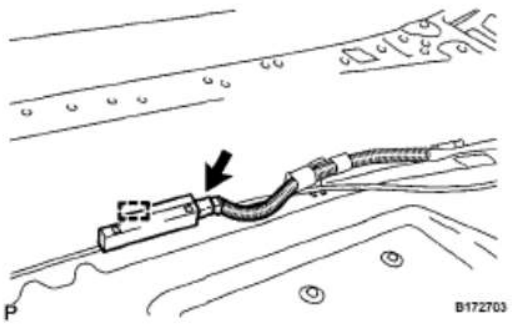


Fig. 263: Locating Indoor Electrical Key Oscillator Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **INSTALL REAR SEAT LAP TYPE BELT ASSEMBLY RH** (See **INSTALLATION**)
5. **INSTALL REAR NO. 2 SEAT INNER BELT SUB-ASSEMBLY** (See **INSTALLATION**)
6. **INSTALL REAR MAT** (See **INSTALLATION**)
7. **INSTALL DECK FLOOR BOARD ASSEMBLY** (See **INSTALLATION**)
8. **INSTALL DECK SIDE TRIM BOX LH** (See **INSTALLATION**)
9. **INSTALL REAR SEAT SIDE COVER LH** (See **INSTALLATION**)
10. **INSTALL DECK SIDE TRIM BOX RH** (See **INSTALLATION**)
11. **INSTALL JACK CARRIER ASSEMBLY** (See **INSTALLATION**)
12. **INSTALL JACK ASSEMBLY** (See **INSTALLATION**)
13. **INSTALL JACK CARRIER CUSHION** (See **INSTALLATION**)
14. **INSTALL JACK CARRIER SUPPORT**
15. **INSTALL REAR SEAT SIDE COVER RH** (See **INSTALLATION**)
16. **INSTALL TONNEAU COVER ASSEMBLY (w/ Tonneau Cover)**
17. **INSTALL NO. 2 DECK BOARD SUB-ASSEMBLY** (See **INSTALLATION**)
18. **INSTALL NO. 3 DECK BOARD SUB-ASSEMBLY** (See **INSTALLATION**)
19. **INSTALL DECK BOARD ASSEMBLY** (See **INSTALLATION**)

ELECTRICAL KEY OSCILLATOR (FOR OUTSIDE LUGGAGE COMPARTMENT)

COMPONENTS

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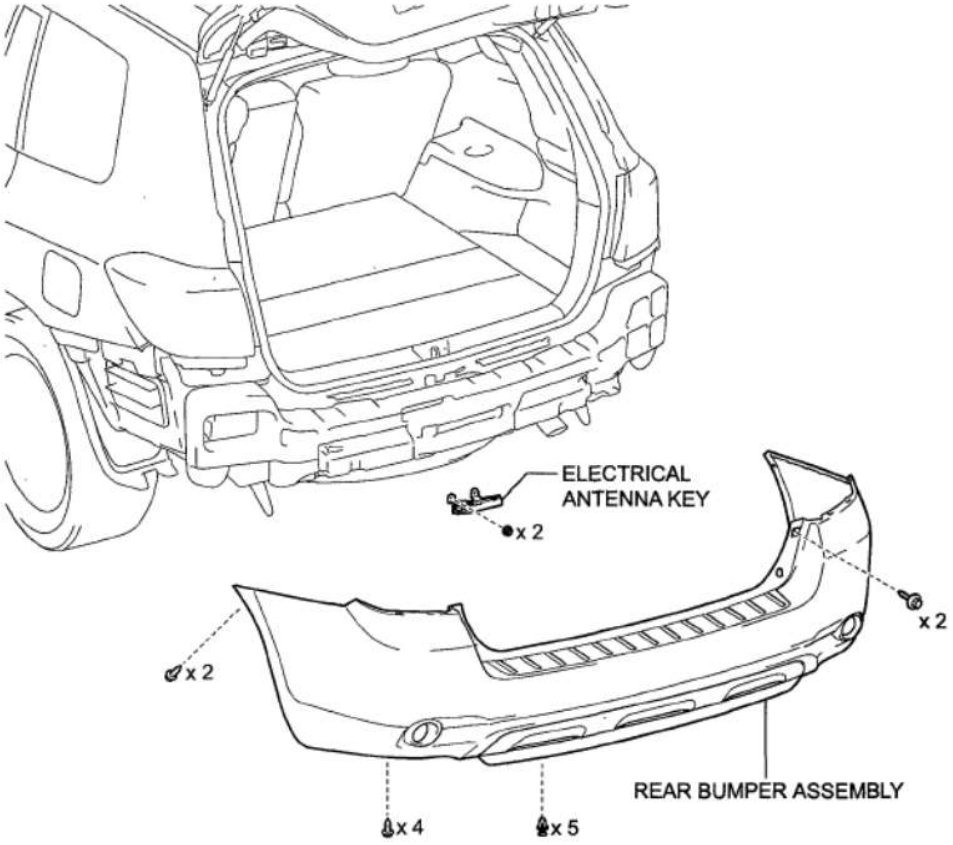


Fig. 264: Identifying Electrical Key Oscillator (Outside Luggage Compartment) Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. **REMOVE REAR BUMPER ASSEMBLY** (See **REMOVAL**)
2. **REMOVE ELECTRICAL ANTENNA KEY**
   a. Disconnect the connector.
   b. Remove the 2 nuts and the electrical antenna key.

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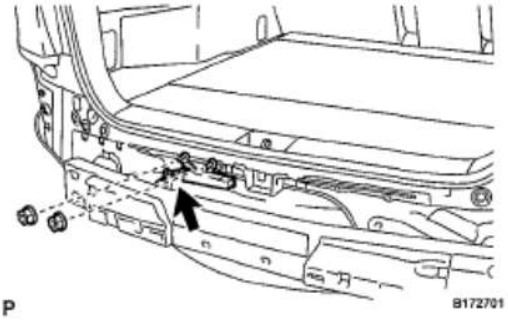


Fig. 265: Locating Electrical Antenna Key Connector Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. **INSTALL ELECTRICAL ANTENNA KEY**
   a. Install the electrical antenna key with the 2 nuts.
   b. Connect the connector.
2. **INSTALL REAR BUMPER ASSEMBLY** (See **INSTALLATION**)

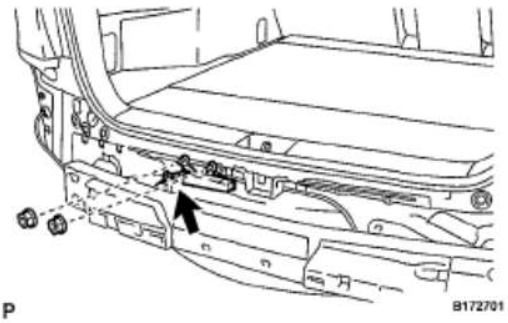


Fig. 266: Locating Electrical Antenna Key Connector Nuts
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ELECTRICAL KEY OSCILLATOR (FOR FRONT SIDE)

COMPONENTS

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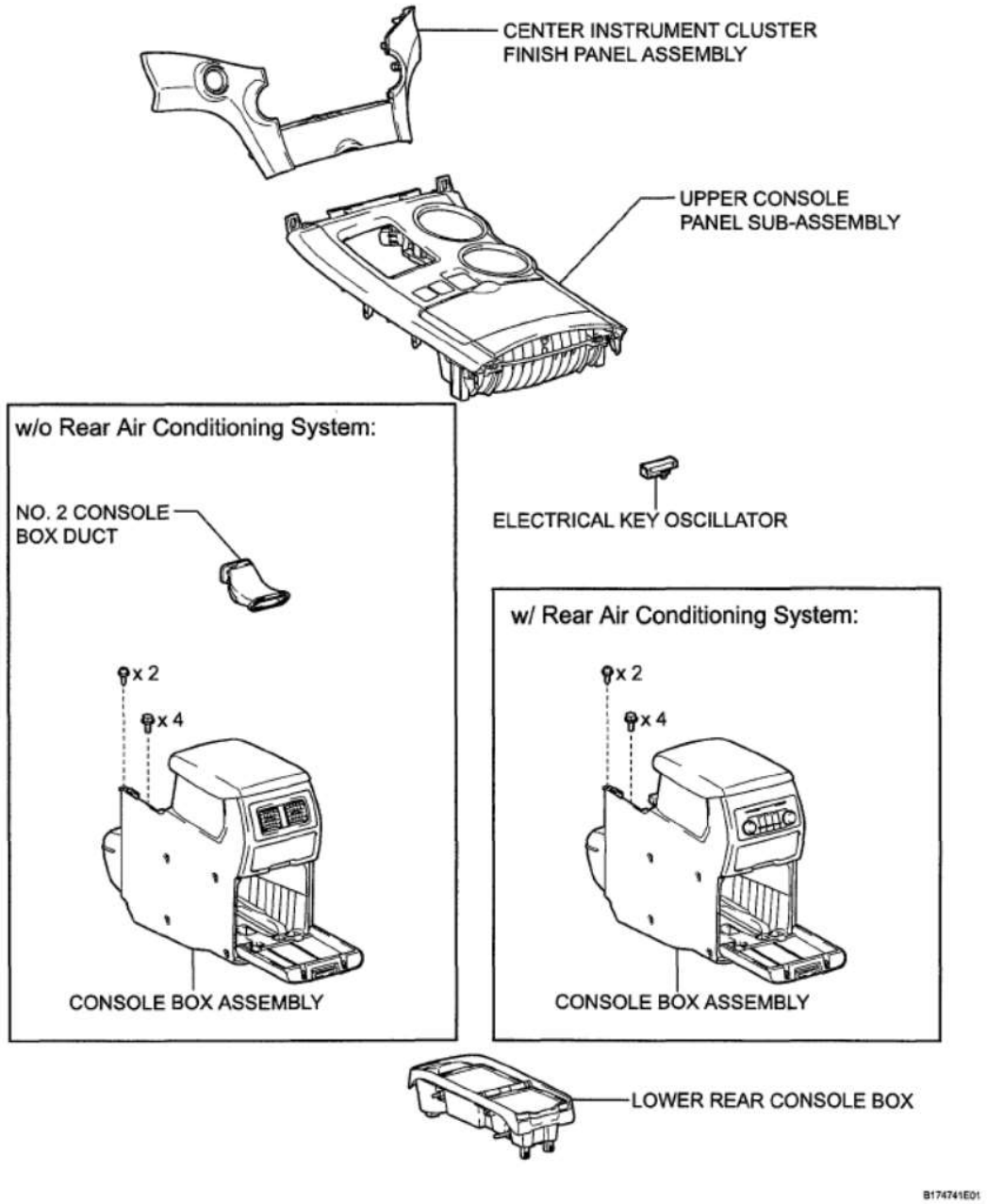


Fig. 267: Identifying Electrical Key Oscillator (Front Side) Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. **REMOVE CENTER INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY** (See **REMOVAL**)
2. **REMOVE UPPER CONSOLE PANEL SUB-ASSEMBLY** (See **REMOVAL**)
3. **REMOVE NO. 2 CONSOLE BOX DUCT (w/o Rear Air Conditioning System)** (See **REMOVAL**)
4. **REMOVE LOWER REAR CONSOLE BOX** (See **REMOVAL**)

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5. **REMOVE CONSOLE BOX ASSEMBLY (w/o Rear Air Conditioning System)** (See **REMOVAL**)
6. **REMOVE CONSOLE BOX ASSEMBLY (w/ Rear Air Conditioning System)** (See **DISASSEMBLY**)
7. **REMOVE ELECTRICAL KEY OSCILLATOR**
   a. Disconnect the connector.
   b. Disengage the clamp and remove the electrical key oscillator.

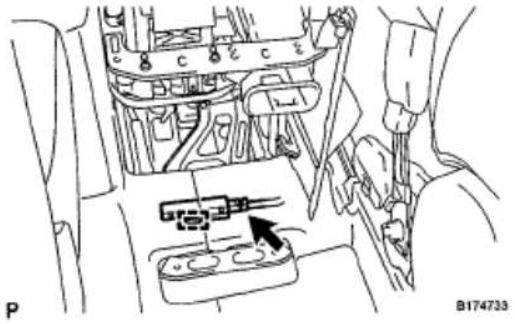


Fig. 268: Locating Electrical Key Oscillator Connector Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. **INSTALL ELECTRICAL KEY OSCILLATOR**
   a. Connect the connector.
   b. Install the indoor electrical key oscillator with the clamp.
2. **INSTALL CONSOLE BOX ASSEMBLY (w/ Rear Air Conditioning System)** (See **INSTALLATION**)
3. **INSTALL CONSOLE BOX ASSEMBLY (w/o Rear Air Conditioning System)** (See **INSTALLATION**)



Fig. 269: Locating Electrical Key Oscillator Connector Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **INSTALL LOWER REAR CONSOLE BOX** (See **INSTALLATION**)
5. **INSTALL NO. 2 CONSOLE BOX DUCT (w/o Rear Air Conditioning System)** (See

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INSTALLATION)

6. **INSTALL UPPER CONSOLE PANEL SUB-ASSEMBLY** (See **INSTALLATION**)
7. **INSTALL CENTER INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY** (See **INSTALLATION**)

ELECTRICAL KEY OSCILLATOR (FOR REAR SIDE)

COMPONENTS

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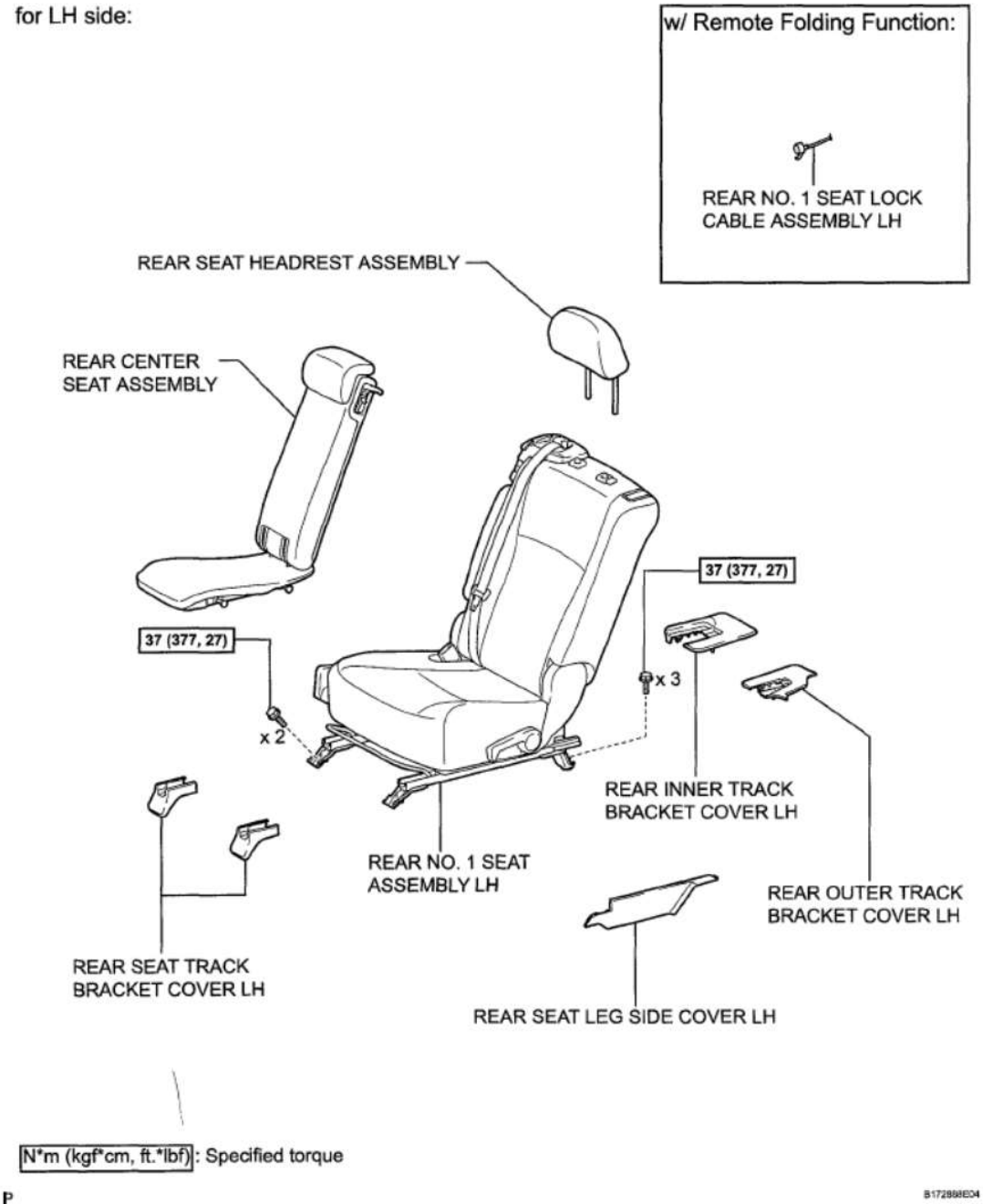


Fig. 270: Identifying Electrical Key Oscillator (Rear Side) Components With Torque Specification (1 Of 8)

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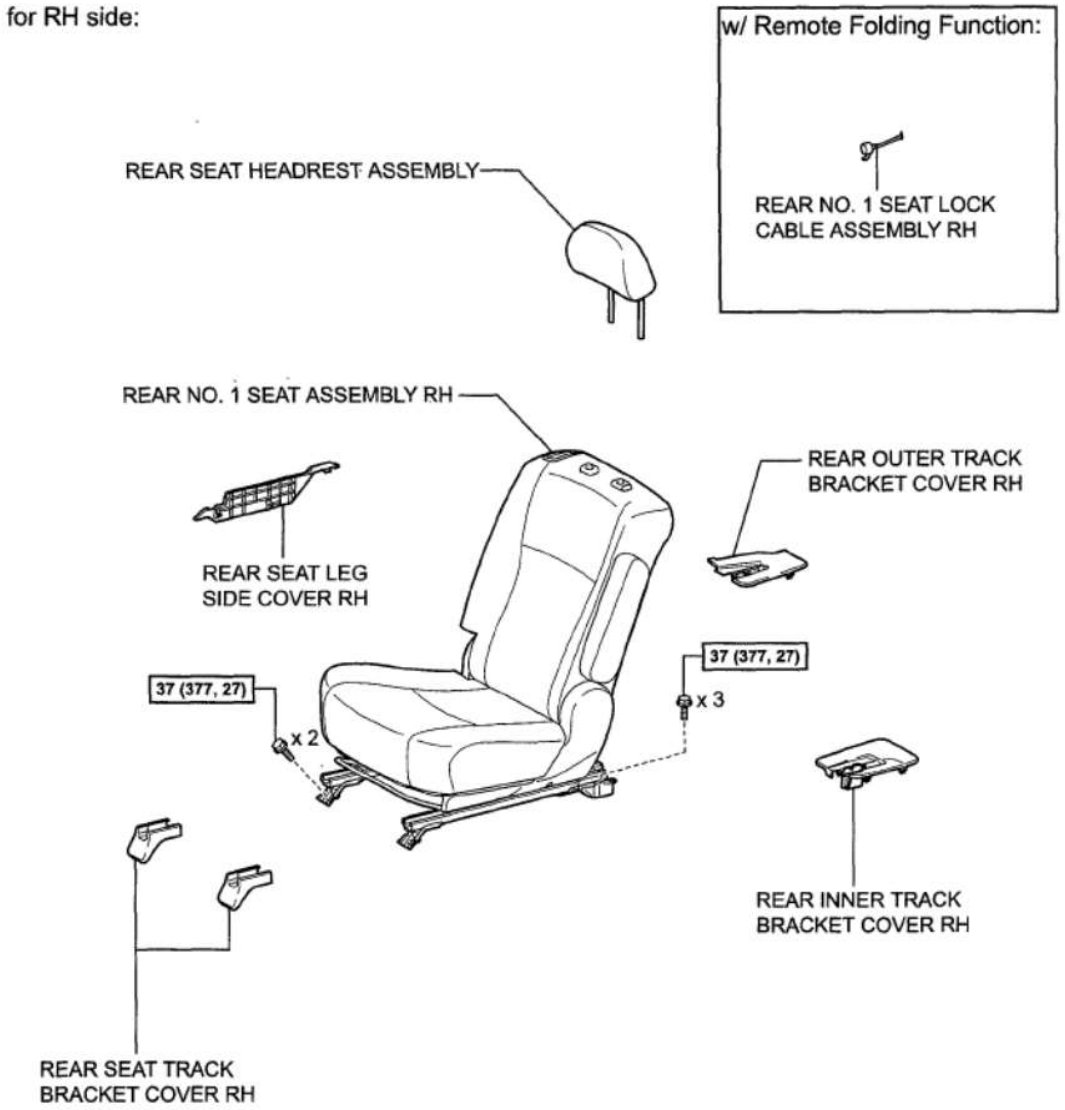


Fig. 271: Identifying Electrical Key Oscillator (Rear Side) Components With Torque Specification (2 Of 8)

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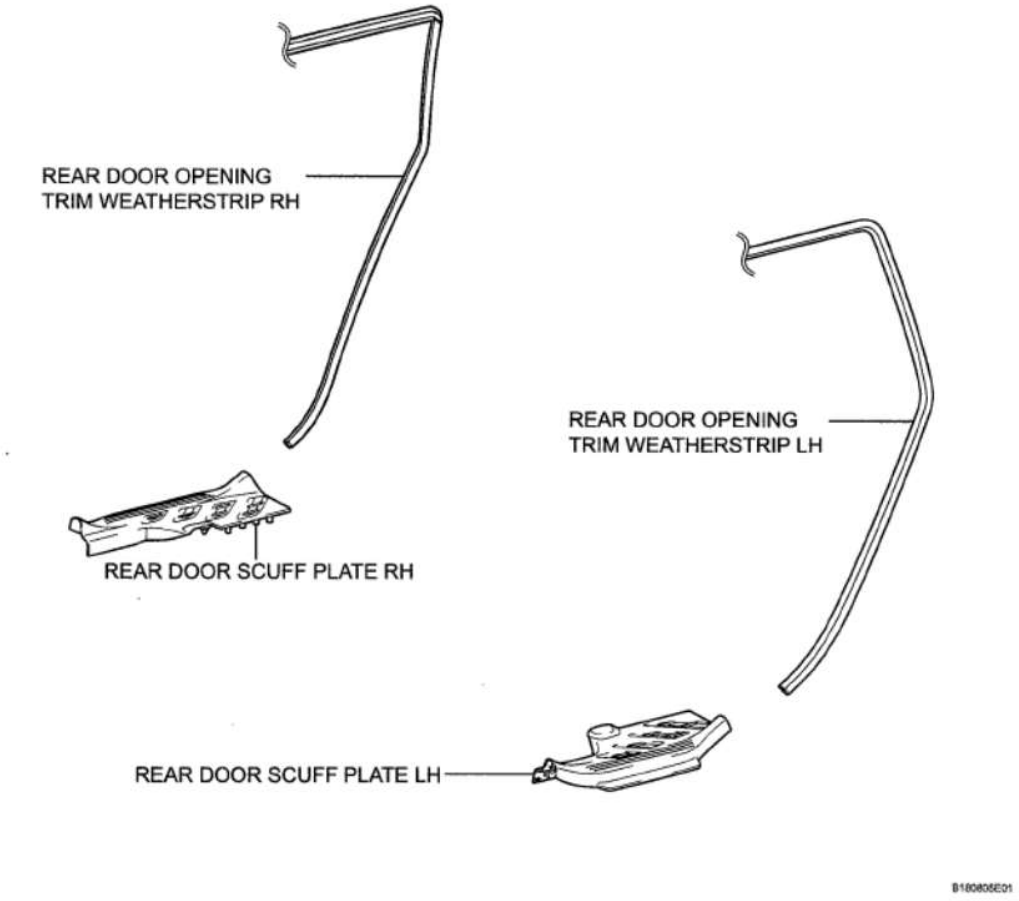


Fig. 272: Identifying Electrical Key Oscillator (Rear Side) Components With Torque Specification (3 Of 8)

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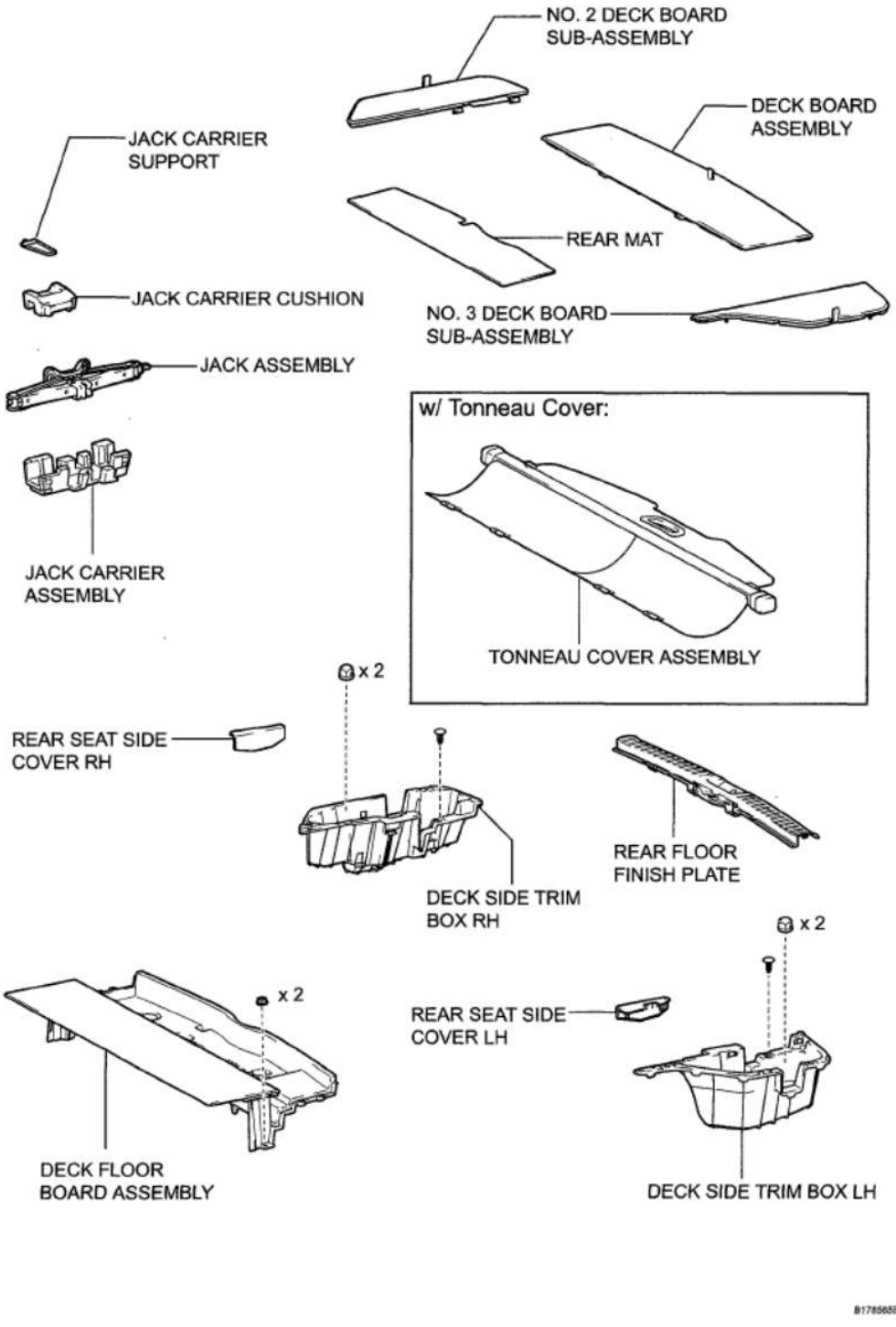


Fig. 273: Identifying Electrical Key Oscillator (Rear Side) Components With Torque Specification (4 Of 8)

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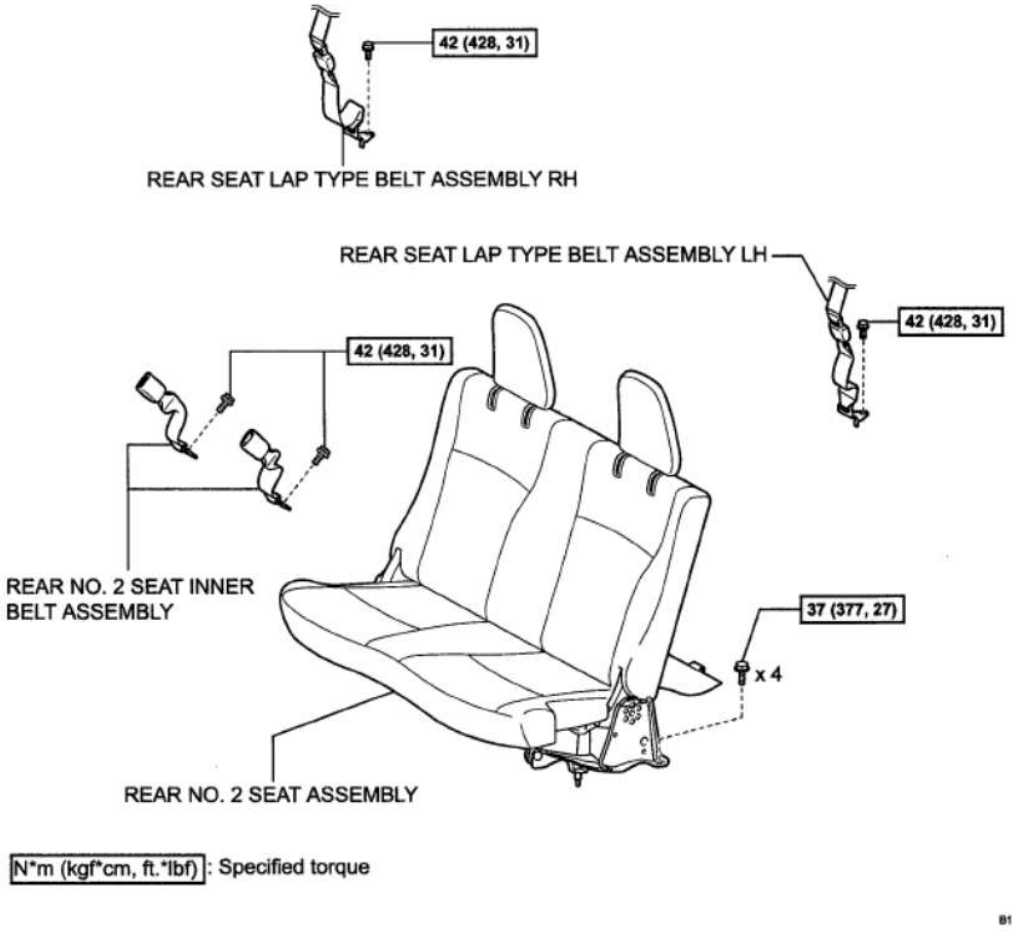


Fig. 274: Identifying Electrical Key Oscillator (Rear Side) Components With Torque Specification (5 Of 8)

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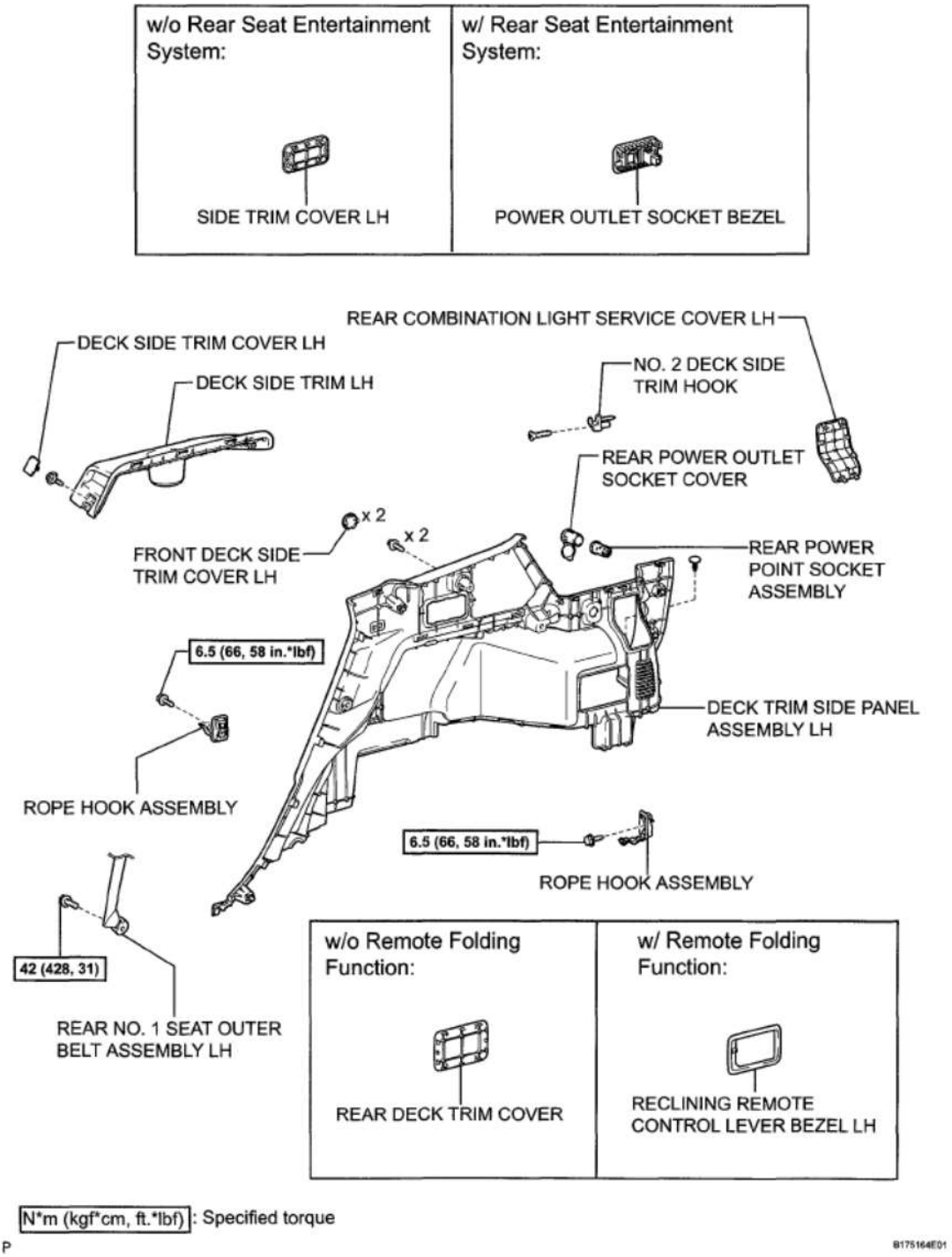


Fig. 275: Identifying Electrical Key Oscillator (Rear Side) Components With Torque Specification (6 Of 8)

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

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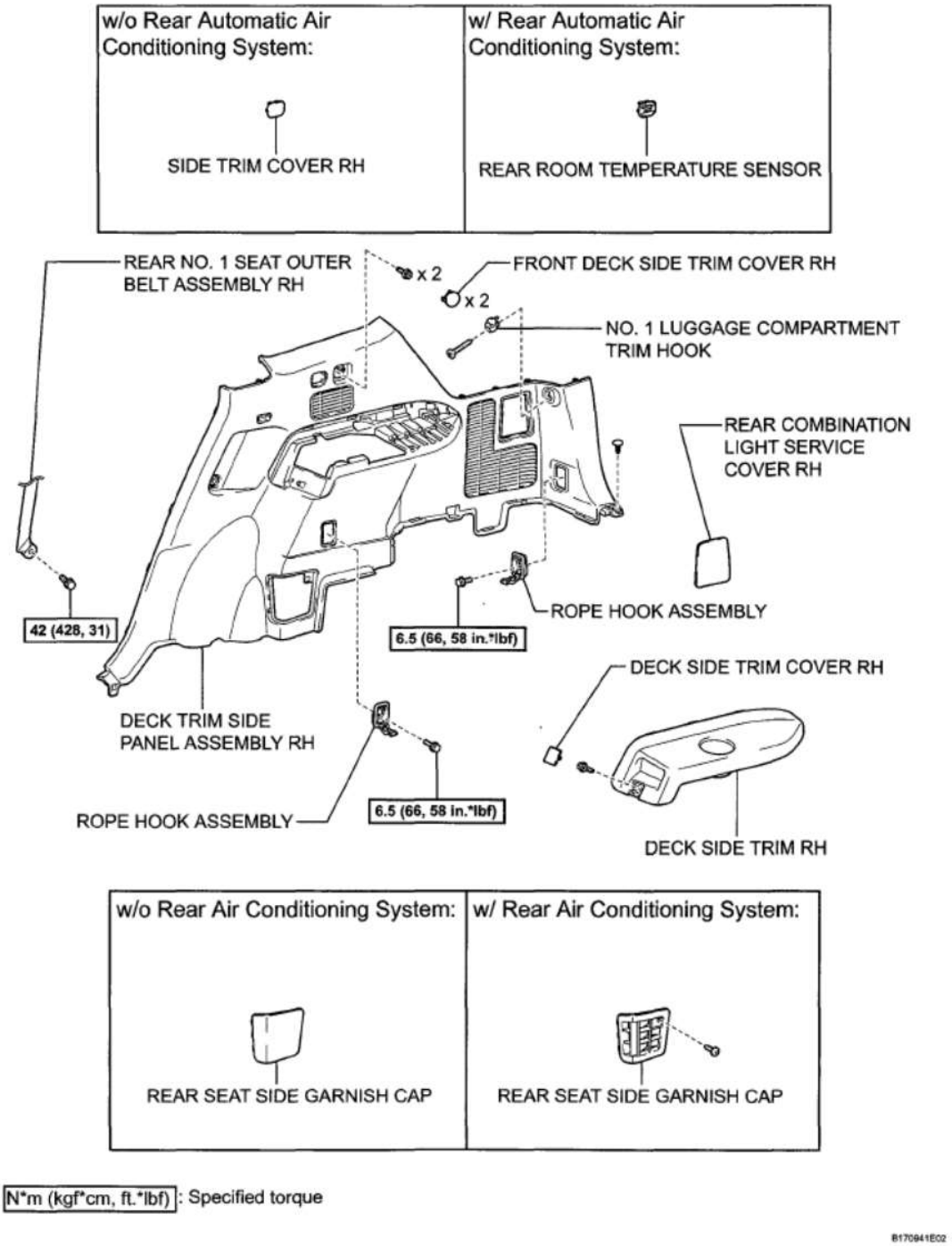


Fig. 276: Identifying Electrical Key Oscillator (Rear Side) Components With Torque Specification (7 Of 8)

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

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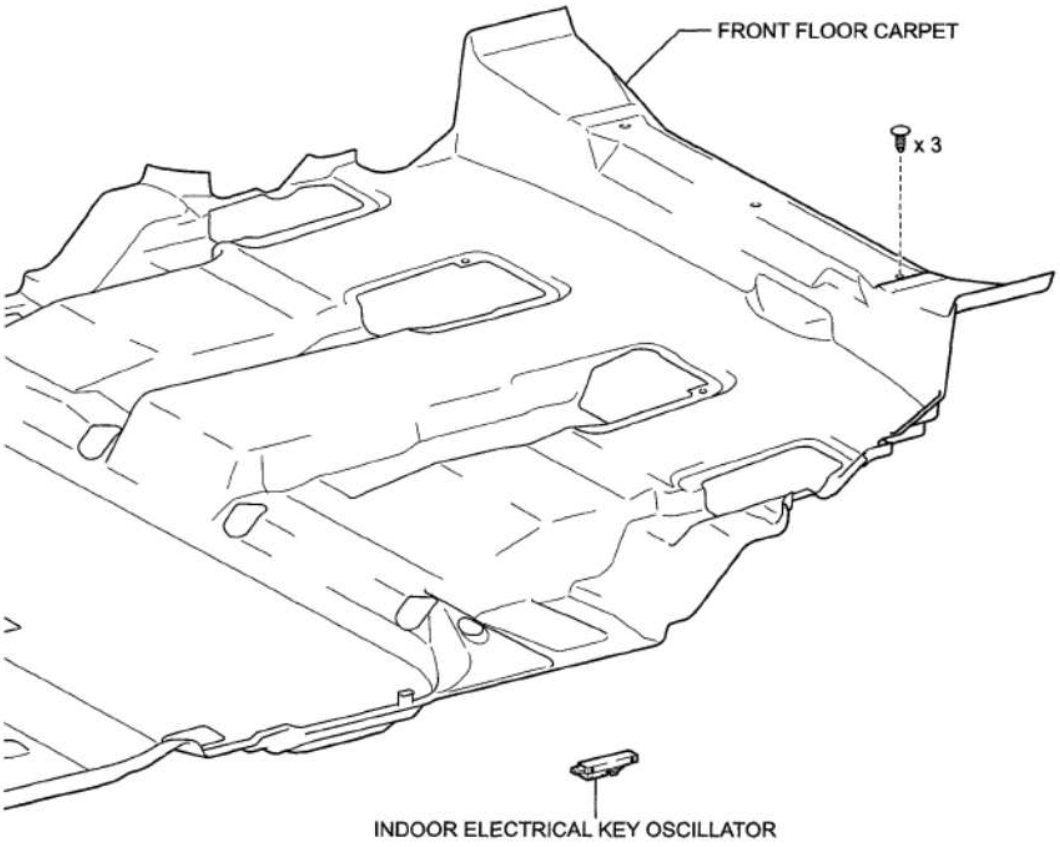


Fig. 277: Identifying Electrical Key Oscillator (Rear Side) Components With Torque Specification (8 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. **REMOVE REAR CENTER SEAT ASSEMBLY**
2. **REMOVE REAR SEAT HEADREST ASSEMBLY (for LH Side)** (See **REMOVAL**)
3. **REMOVE SEAT TRACK BRACKET COVER LH** (See **REMOVAL**)
4. **REMOVE REAR OUTER TRACK BRACKET COVER LH** (See **REMOVAL**)
5. **REMOVE REAR INNER TRACK BRACKET COVER LH** (See **REMOVAL**)
6. **REMOVE REAR SEAT LEG SIDE COVER LH** (See **REMOVAL**)
7. **DISCONNECT REAR NO. 1 SEAT LOCK CABLE ASSEMBLY LH (w/ Remote Folding Function)** (See **REMOVAL**)
8. **REMOVE REAR NO. 1 SEAT ASSEMBLY LH** (See **DISASSEMBLY**)
9. **REMOVE REAR SEAT HEADREST ASSEMBLY (for RH Side)** (See **REMOVAL**)

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10. **REMOVE SEAT TRACK BRACKET COVER RH** (See **REMOVAL**)
11. **REMOVE REAR OUTER TRACK BRACKET COVER RH** (See **REMOVAL**)
12. **REMOVE REAR INNER TRACK BRACKET COVER RH** (See **REMOVAL**)
13. **REMOVE REAR SEAT LEG SIDE COVER RH** (See **REMOVAL**)
14. **DISCONNECT REAR NO. 1 SEAT LOCK CABLE ASSEMBLY RH (w/ Remote Folding Function)**

    HINT:

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

15. **REMOVE REAR NO. 1 SEAT ASSEMBLY RH**
16. **REMOVE REAR DOOR SCUFF PLATE LH** (See **REMOVAL**)
17. **REMOVE REAR DOOR OPENING TRIM WEATHERSTRIP LH** (See **REMOVAL**)
18. **REMOVE REAR DOOR SCUFF PLATE RH**

    HINT:

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

19. **REMOVE REAR DOOR OPENING TRIM WEATHERSTRIP RH**

    HINT:

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

20. **REMOVE DECK BOARD ASSEMBLY** (See **REMOVAL**)
21. **REMOVE NO. 3 DECK BOARD SUB-ASSEMBLY** (See **REMOVAL**)
22. **REMOVE NO. 2 DECK BOARD SUB-ASSEMBLY** (See **REMOVAL**)
23. **REMOVE TONNEAU COVER ASSEMBLY (w/ Tonneau Cover)** (See **REMOVAL**)
24. **REMOVE REAR SEAT SIDE COVER LH** (See **REMOVAL**)
25. **REMOVE DECK SIDE TRIM BOX LH** (See **REMOVAL**)
26. **REMOVE REAR SEAT SIDE COVER RH** (See **REMOVAL**)
27. **REMOVE JACK CARRIER SUPPORT**
28. **REMOVE JACK CARRIER CUSHION** (See **REMOVAL**)
29. **REMOVE JACK ASSEMBLY** (See **REMOVAL**)
30. **REMOVE JACK CARRIER ASSEMBLY** (See **REMOVAL**)
31. **REMOVE DECK SIDE TRIM BOX RH** (See **REMOVAL**)
32. **REMOVE REAR MAT** (See **REMOVAL**)
33. **REMOVE DECK FLOOR BOARD ASSEMBLY (w/ Rear No. 2 Seat)** (See **REMOVAL**)
34. **REMOVE REAR NO. 2 SEAT INNER BELT ASSEMBLY** (See **INSTALLATION**)

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35. **DISCONNECT REAR SEAT LAP TYPE BELT ASSEMBLY LH** (See **REMOVAL**)
36. **DISCONNECT REAR SEAT LAP TYPE BELT ASSEMBLY RH** (See **REMOVAL**)
37. **REMOVE REAR NO. 2 SEAT ASSEMBLY** (See **DISASSEMBLY**)
38. **REMOVE REAR FLOOR FINISH PLATE** (See **REMOVAL**)
39. **REMOVE DECK SIDE TRIM COVER LH** (See **REMOVAL**)
40. **REMOVE DECK SIDE TRIM LH** (See **REMOVAL**)
41. **REMOVE SIDE TRIM COVER LH (w/o Rear Seat Entertainment System)** (See **REMOVAL**)
42. **REMOVE POWER OUTLET SOCKET BEZEL (w/ Rear Seat Entertainment System)** (See **REMOVAL**)
43. **REMOVE REAR COMBINATION LIGHT SERVICE COVER LH** (See **REMOVAL**)
44. **REMOVE REAR POWER POINT SOCKET ASSEMBLY** (See **REAR POWER OUTLET SOCKET**)
45. **REMOVE REAR POWER OUTLET SOCKET COVER** (See **INSTALLATION**)
46. **REMOVE REAR DECK TRIM COVER (w/o Remote Folding Function)** (See **REMOVAL**)
47. **REMOVE RECLINING REMOTE CONTROL LEVER BEZEL LH (w/ Remote Folding Function)** (See **REMOVAL**)
48. **REMOVE ROPE HOOK ASSEMBLY (for LH Side)** (See **REMOVAL**)
49. **REMOVE NO. 2 DECK SIDE TRIM HOOK** (See **REMOVAL**)
50. **REMOVE FRONT DECK SIDE TRIM COVER LH** (See **REMOVAL**)
51. **DISCONNECT REAR NO. 1 SEAT OUTER BELT ASSEMBLY LH** (See **REMOVAL**)
52. **REMOVE DECK TRIM SIDE PANEL ASSEMBLY LH** (See **REMOVAL**)
53. **REMOVE REAR SEAT SIDE GARNISH CAP (w/o Rear Air Conditioning System)** (See **REMOVAL**)
54. **REMOVE REAR SEAT SIDE GARNISH CAP (w/ Rear Air Conditioning System)** (See **REMOVAL**)
55. **REMOVE DECK SIDE TRIM COVER RH**

    HINT:

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

56. **REMOVE DECK SIDE TRIM RH**

    HINT:

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

57. **REMOVE SIDE TRIM COVER RH (w/o Rear Automatic Air Conditioning System)** (See **REMOVAL**)
58. **REMOVE REAR ROOM TEMPERATURE SENSOR (w/ Rear Automatic Air Conditioning System)** (See **ROOM TEMPERATURE SENSOR (FOR REAR)**)

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59. **REMOVE REAR COMBINATION LIGHT SERVICE COVER RH** (See **REMOVAL**)
60. **REMOVE ROPE HOOK ASSEMBLY (for RH Side)** (See **REMOVAL**)
61. **REMOVE NO. 1 LUGGAGE COMPARTMENT TRIM HOOK** (See **REMOVAL**)
62. **REMOVE FRONT DECK SIDE TRIM COVER RH**

    HINT:

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

63. **DISCONNECT REAR NO. 1 SEAT OUTER BELT ASSEMBLY RH**

    HINT:

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

64. **REMOVE DECK TRIM SIDE PANEL ASSEMBLY RH** (See **REMOVAL**)
65. **REMOVE INDOOR ELECTRICAL KEY OSCILLATOR**
    a. Using a clip remover, remove the 3 clips and tear off the front floor carpet.

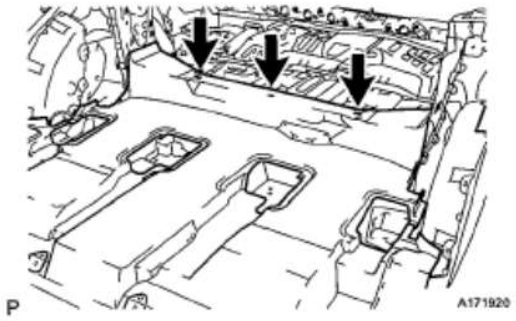
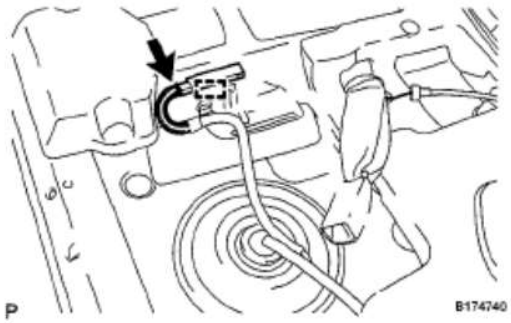


Fig. 278: Locating Front Floor Carpet Clips
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

    b. Disconnect the connector.
    c. Remove the clamp and the indoor electrical key oscillator.



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Fig. 279: Locating Indoor Electrical Key Oscillator Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. **INSTALL INDOOR ELECTRICAL KEY OSCILLATOR**
   a. Install the indoor electrical key oscillator with the clamp.
   b. Connect the connector.

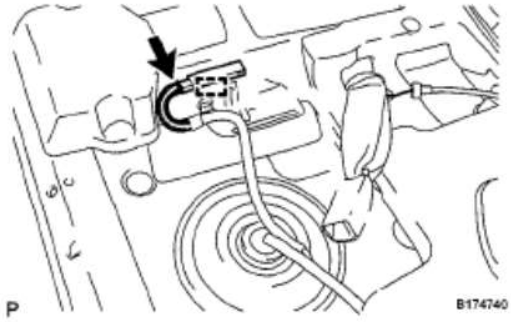


Fig. 280: Locating Indoor Electrical Key Oscillator Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   c. Install the front floor carpet with the 3 clips.
2. **INSTALL DECK TRIM SIDE PANEL ASSEMBLY LH** (See **INSTALLATION**)
3. **CONNECT REAR NO. 1 SEAT OUTER BELT ASSEMBLY LH** (See **INSTALLATION**)
4. **INSTALL FRONT DECK SIDE TRIM COVER LH** (See **INSTALLATION**)
5. **INSTALL NO. 2 DECK SIDE TRIM HOOK** (See **INSTALLATION**)

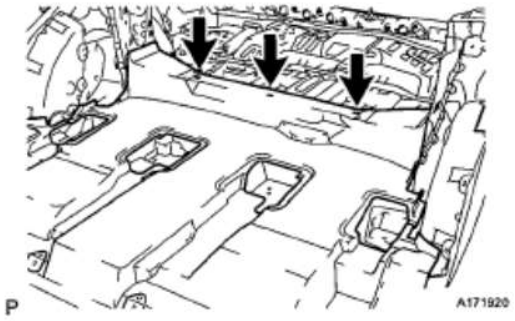


Fig. 281: Locating Front Floor Carpet Clips
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **INSTALL ROPE HOOK ASSEMBLY (for LH Side)** (See **INSTALLATION**)
7. **INSTALL REAR DECK SIDE TRIM COVER (w/o Remote Folding Function)** (See **INSTALLATION**)
8. **INSTALL RECLINING REMOTE CONTROL LEVER BEZEL LH (w/ Remote Folding Function)**

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(See **INSTALLATION**)

9. **INSTALL REAR POWER OUTLET SOCKET COVER** (See **INSTALLATION**)
10. **INSTALL REAR POWER POINT SOCKET ASSEMBLY** (See **INSTALLATION**)
11. **INSTALL REAR COMBINATION LIGHT SERVICE COVER LH** (See **INSTALLATION**)
12. **INSTALL SIDE TRIM COVER LH (w/o Rear Seat Entertainment System)** (See **INSTALLATION**)
13. **INSTALL POWER OUTLET SOCKET BEZEL (w/ Rear Seat Entertainment System)** (See **INSTALLATION**)
14. **INSTALL DECK SIDE TRIM LH** (See **INSTALLATION**)
15. **INSTALL DECK SIDE TRIM COVER LH** (See **INSTALLATION**)
16. **INSTALL DECK TRIM SIDE PANEL ASSEMBLY RH** (See **INSTALLATION**)
17. **CONNECT REAR NO. 1 SEAT OUTER BELT ASSEMBLY RH**

    HINT:

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

18. **INSTALL FRONT DECK SIDE TRIM COVER RH**

    HINT:

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

19. **INSTALL NO. 1 LUGGAGE COMPARTMENT TRIM** (See **INSTALLATION**)
20. **INSTALL ROPE HOOK ASSEMBLY (for RH Side)**

    HINT:

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

21. **INSTALL REAR COMBINATION LIGHT SERVICE COVER RH** (See **INSTALLATION**)
22. **INSTALL REAR ROOM TEMPERATURE SENSOR (w/ Automatic Air Conditioning System)** (See **INSPECTION**)
23. **INSTALL SIDE TRIM COVER RH (w/o Rear Automatic Air Conditioning System)** (See **INSTALLATION**)
24. **INSTALL DECK SIDE TRIM RH**

    HINT:

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

25. **INSTALL DECK SIDE TRIM COVER RH**

    HINT:

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

26. **INSTALL REAR SEAT SIDE GARNISH CAP (w/o Rear Air Conditioning System)** (See **INSTALLATION**)
27. **INSTALL REAR SEAT SIDE GARNISH CAP (w/ Rear Air Conditioning System)** (See **INSTALLATION**)
28. **INSTALL REAR FLOOR FINISH PLATE** (See **INSTALLATION**)
29. **INSTALL REAR NO. 2 SEAT ASSEMBLY** (See **INSTALLATION**)
30. **CONNECT REAR SEAT LAP TYPE BELT ASSEMBLY LH** (See **INSTALLATION**)
31. **CONNECT REAR SEAT LAP TYPE BELT ASSEMBLY RH** (See **INSTALLATION**)
32. **INSTALL REAR NO. 2 SEAT INNER BELT ASSEMBLY** (See **INSTALLATION**)
33. **INSTALL REAR MAT** (See **INSTALLATION**)
34. **INSTALL DECK FLOOR BOARD ASSEMBLY** (See **INSTALLATION**)
35. **INSTALL DECK SIDE TRIM BOX LH** (See **INSTALLATION**)
36. **INSTALL REAR SEAT SIDE COVER LH** (See **INSTALLATION**)
37. **INSTALL DECK SIDE TRIM BOX RH** (See **INSTALLATION**)
38. **INSTALL JACK CARRIER ASSEMBLY** (See **INSTALLATION**)
39. **INSTALL JACK ASSEMBLY** (See **INSTALLATION**)
40. **INSTALL JACK CARRIER CUSHION** (See **INSTALLATION**)
41. **INSTALL JACK CARRIER SUPPORT**
42. **INSTALL REAR SEAT SIDE COVER RH** (See **INSTALLATION**)
43. **INSTALL TONNEAU COVER ASSEMBLY (w/ Tonneau Cover)**
44. **INSTALL NO. 2 DECK BOARD SUB-ASSEMBLY** (See **INSTALLATION**)
45. **INSTALL NO. 3 DECK BOARD SUB-ASSEMBLY** (See **INSTALLATION**)
46. **INSTALL DECK BOARD ASSEMBLY** (See **INSTALLATION**)
47. **INSTALL REAR DOOR OPENING TRIM WEATHERSTRIP LH** (See **INSTALLATION**)
48. **INSTALL REAR DOOR SCUFF PLATE LH** (See **INSTALLATION**)
49. **INSTALL REAR DOOR OPENING TRIM WEATHERSTRIP RH** (See **INSTALLATION**)
50. **INSTALL REAR DOOR SCUFF PLATE RH**

HINT:

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

51. **INSTALL REAR NO. 1 SEAT ASSEMBLY LH** (See **INSTALLATION**)
52. **CONNECT REAR NO. 1 SEAT LOCK CABLE ASSEMBLY LH (w/ Remote Folding Function)** (See **INSTALLATION**)
53. **INSPECT REAR SEAT SLIDE ADJUSTER LOCK (for LH Side)** (See **INSTALLATION**)
54. **INSTALL REAR SEAT LEG SIDE COVER LH** (See **INSTALLATION**)
55. **INSTALL REAR INNER TRACK BRACKET COVER LH** (See **INSTALLATION**)

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56. **INSTALL REAR OUTER TRACK BRACKET COVER LH** (See **INSTALLATION**)
57. **INSTALL SEAT TRACK BRACKET COVER LH** (See **INSTALLATION**)
58. **INSTALL REAR SEAT HEADREST ASSEMBLY (for LH Side)** (See **INSTALLATION**)
59. **INSTALL REAR CENTER SEAT ASSEMBLY**
60. **INSTALL REAR NO. 1 SEAT ASSEMBLY RH**
61. **CONNECT REAR NO. 1 SEAT LOCK CABLE ASSEMBLY RH (w/ Remote Folding Function)**

    HINT:

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

62. **INSPECT REAR SEAT SLIDE ADJUSTER LOCK (for RH Side)** (See **INSTALLATION**)
63. **INSTALL REAR SEAT LEG SIDE COVER RH** (See **INSTALLATION**)
64. **INSTALL REAR INNER TRACK BRACKET COVER RH** (See **INSTALLATION**)
65. **INSTALL REAR OUTER TRACK BRACKET COVER RH** (See **INSTALLATION**)
66. **INSTALL SEAT TRACK BRACKET COVER RH** (See **INSTALLATION**)
67. **INSTALL REAR SEAT HEADREST ASSEMBLY (for RH Side)** (See **INSTALLATION**)

ENTRY LOCK AND UNLOCK SWITCH (FOR FRONT DOOR)

COMPONENTS

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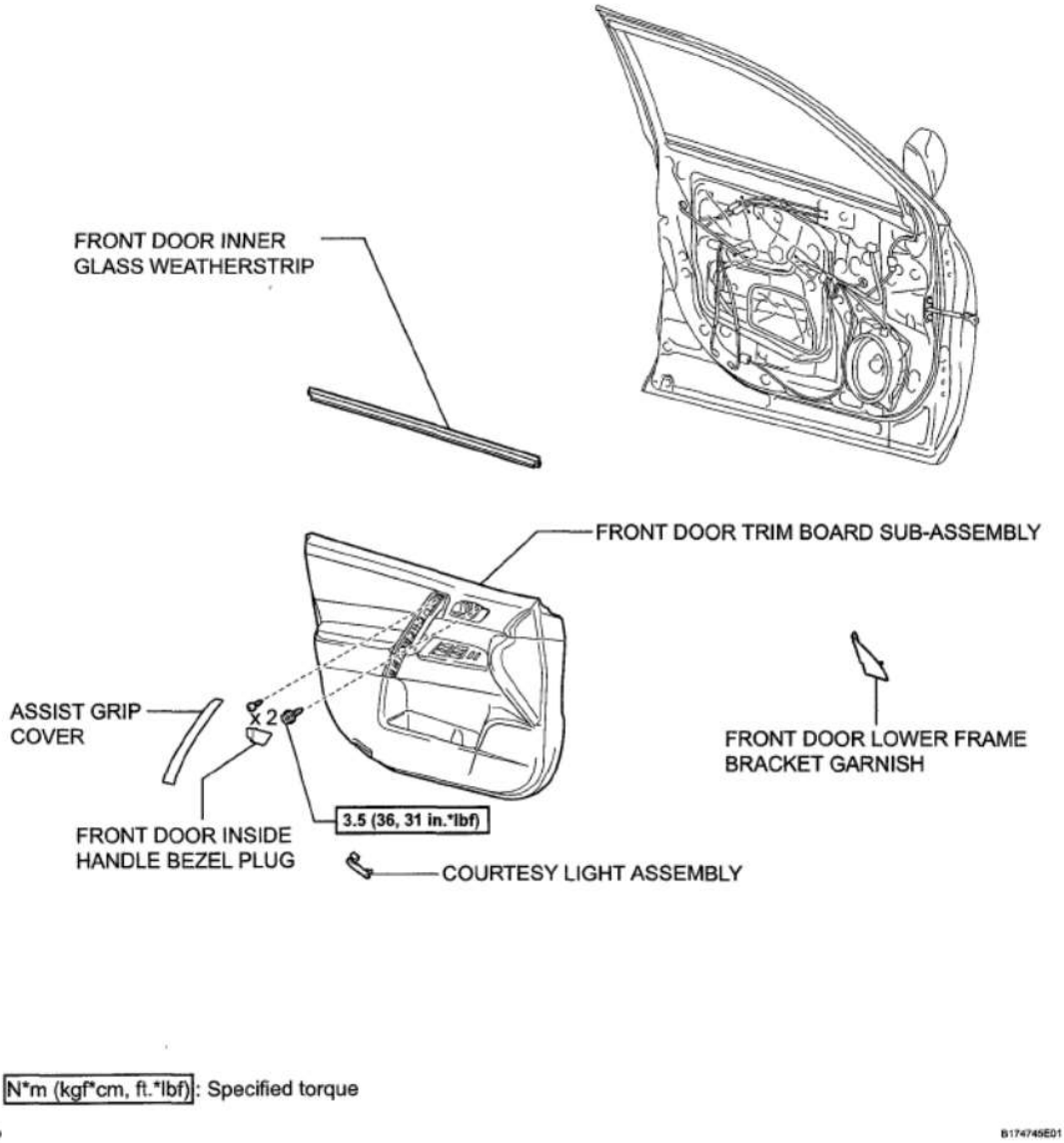


Fig. 282: Identifying Entry Lock And Unlock Switch (Front Door) Components With Torque Specification (1 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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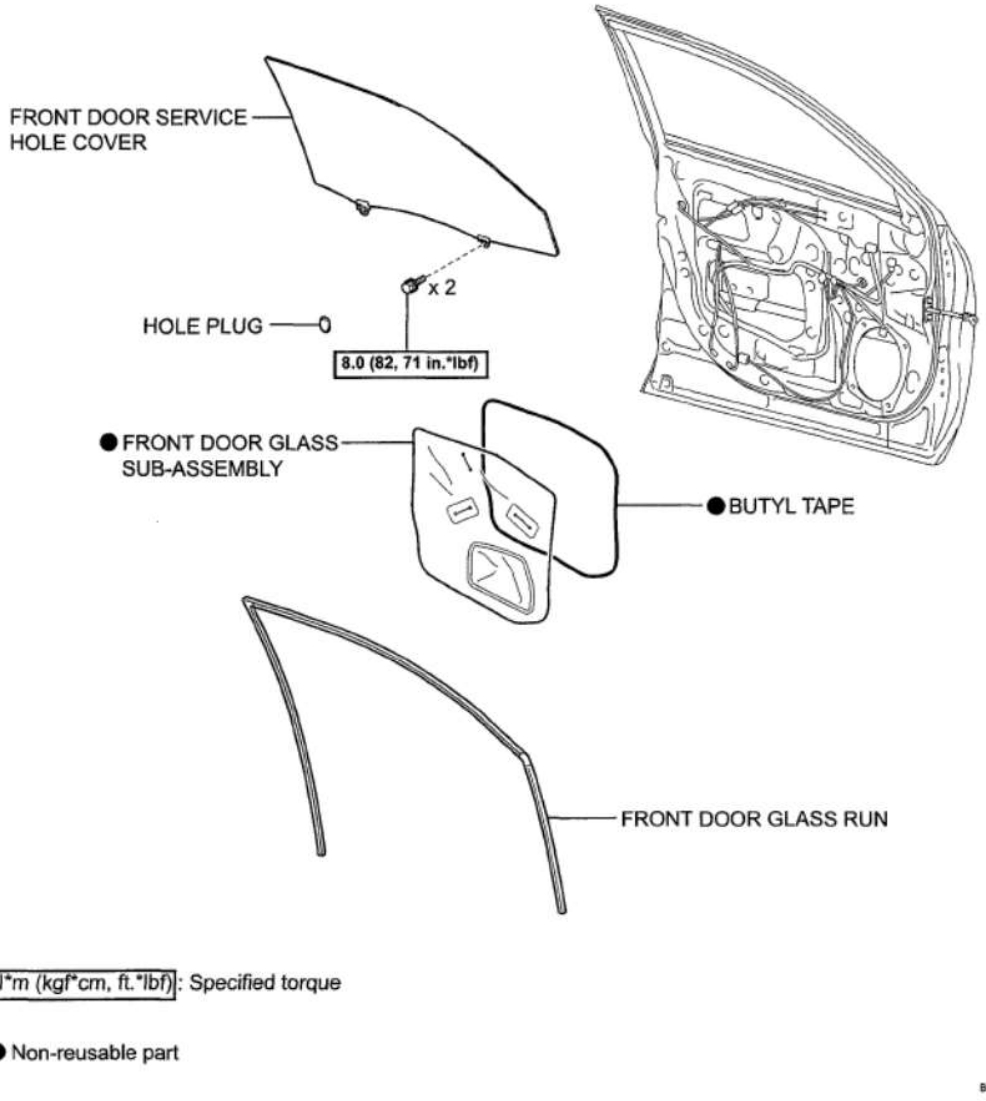


Fig. 283: Identifying Entry Lock And Unlock Switch (Front Door) Components With Torque Specification (2 Of 3)
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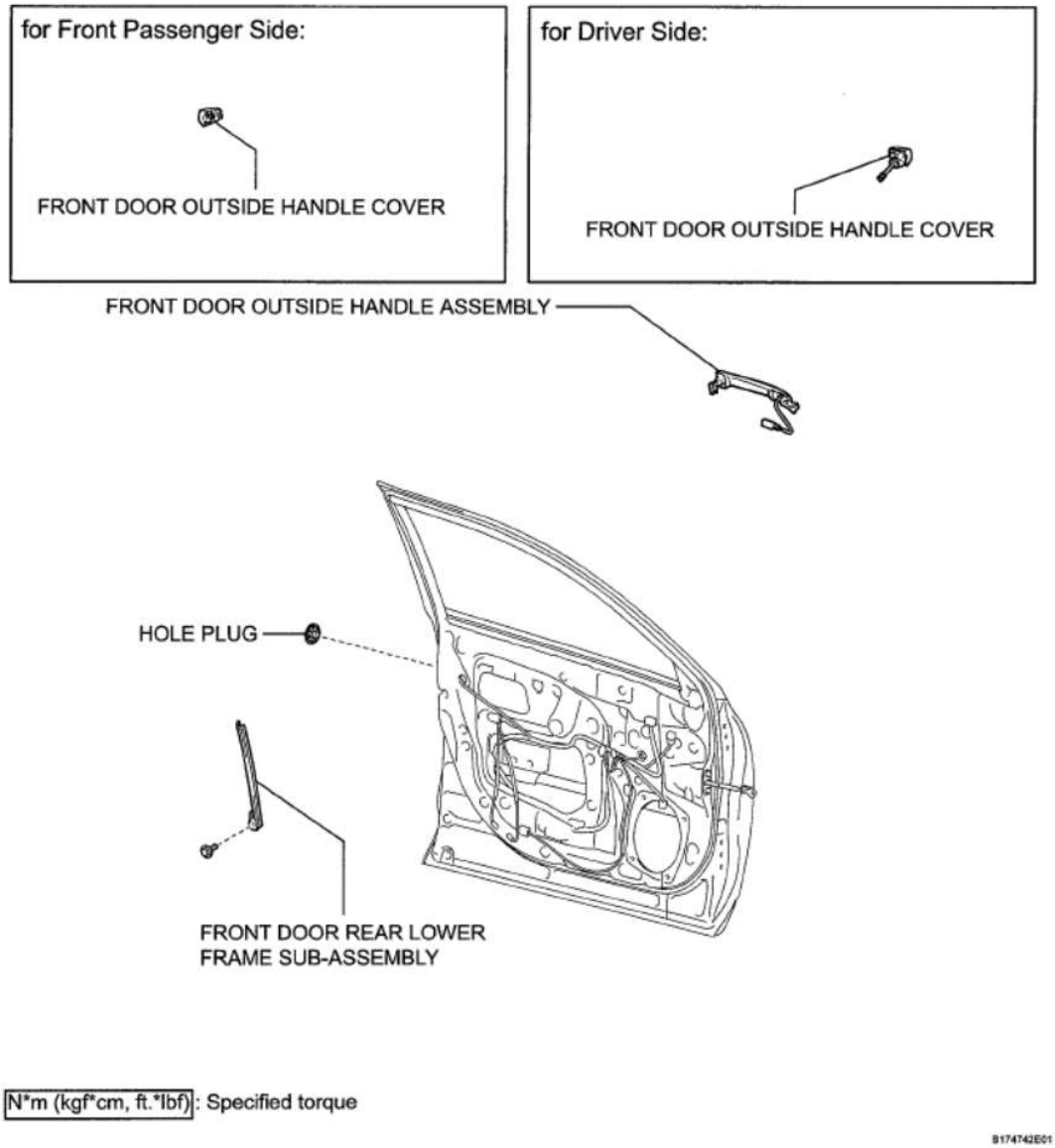


Fig. 284: Identifying Entry Lock And Unlock Switch (Front Door) Components With Torque Specification (3 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. **DISCONNECT NEGATIVE BATTERY TERMINAL**

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

NOTE: When disconnecting the cable, some systems need to be initialized after

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the cable is reconnected (See INITIALIZATION).

2. **REMOVE FRONT DOOR LOWER FRAME BRACKET GARNISH** (See **DISASSEMBLY**)
3. **REMOVE FRONT DOOR INSIDE HANDLE BEZEL PLUG** (See **DISASSEMBLY**)
4. **REMOVE ASSIST GRIP COVER** (See **DISASSEMBLY**)
5. **REMOVE COURTESY LIGHT ASSEMBLY** (See **DISASSEMBLY**)
6. **REMOVE FRONT DOOR TRIM BOARD SUB-ASSEMBLY** (See **DISASSEMBLY**)
7. **REMOVE FRONT DOOR INNER GLASS WEATHERSTRIP** (See **DISASSEMBLY**)
8. **REMOVE FRONT DOOR SERVICE HOLE COVER** (See **DISASSEMBLY**)
9. **REMOVE FRONT DOOR GLASS SUB-ASSEMBLY** (See **DISASSEMBLY**)
10. **REMOVE FRONT DOOR GLASS RUN** (See **DISASSEMBLY**)
11. **REMOVE FRONT DOOR REAR LOWER FRAME SUB-ASSEMBLY** (See **DISASSEMBLY**)
12. **REMOVE FRONT DOOR OUTSIDE HANDLE COVER (for Driver Side)** (See **DISASSEMBLY**)
13. **REMOVE FRONT DOOR OUTSIDE HANDLE COVER (for Front Passenger Side)** (See **DISASSEMBLY**)
14. **REMOVE FRONT DOOR OUTSIDE HANDLE ASSEMBLY**
    a. Disconnect the connector.

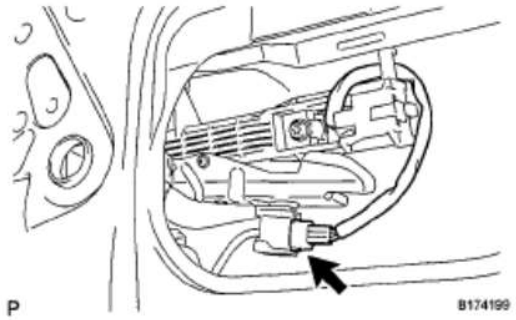


Fig. 285: Locating Front Door Outside Handle Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

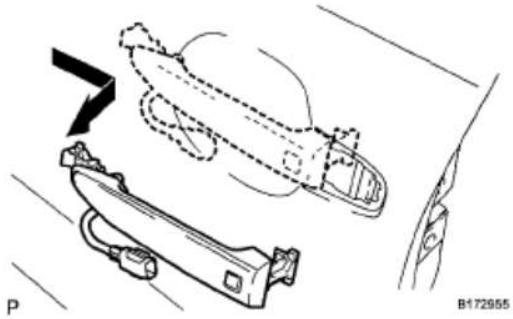


Fig. 286: Removing Front Door Outside Handle Assembly

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

INSPECTION

1. **INSPECT ENTRY LOCK SWITCH (for Driver Side)**
   a. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
z13-1 (TRG-) - z13-3 (TRG+)	Lock switch not pushed	10 kohms or higher
z13-1 (TRG-) - z13-3 (TRG+)	Lock switch pushed	Below 1 ohms

If the result is not specified, replace the entry lock switch.

Component without harness connected:
(Entry Lock Switch)



H B112485830

Fig. 287: Inspecting Entry Lock Switch (For Driver Side)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **INSPECT ENTRY LOCK SWITCH (for Front Passenger Side)**
   a. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

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Tester Connection	Condition	Specified Condition
z15-1 (TRG-) - z15-3 (TRG+)	Lock switch not pushed	10 kohms or higher
z15-1 (TRG-) - z15-3 (TRG+)	Lock switch pushed	Below 1 ohms

If the result is not specified, replace the entry lock switch.

Component without harness connected:
(Entry Lock Switch)



H B112465E31

Fig. 288: Inspecting Entry Lock Switch (For Front Passenger Side)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. **INSTALL FRONT DOOR OUTSIDE HANDLE ASSEMBLY**
   a. Insert the front end of the front door outside handle assembly into the front door outside handle frame.
   b. Insert the rear end of the front door outside handle assembly into the front door outside handle frame. Next, slide the front door outside handle assembly toward the front of the vehicle to install it.

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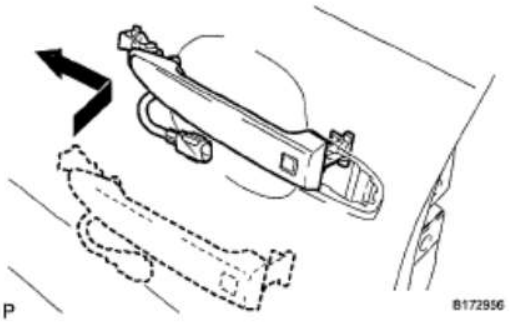


Fig. 289: Installing Front Door Outside Handle Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Connect the connector.

2. **INSTALL FRONT DOOR OUTSIDE HANDLE COVER (for Driver Side)** (See **REASSEMBLY**)
3. **INSTALL FRONT DOOR OUTSIDE HANDLE COVER (for Front Passenger Side)** (See **REASSEMBLY**)
4. **INSTALL FRONT DOOR REAR LOWER FRAME SUB-ASSEMBLY** (See **REASSEMBLY**)
5. **INSTALL FRONT DOOR GLASS RUN** (See **REASSEMBLY**)

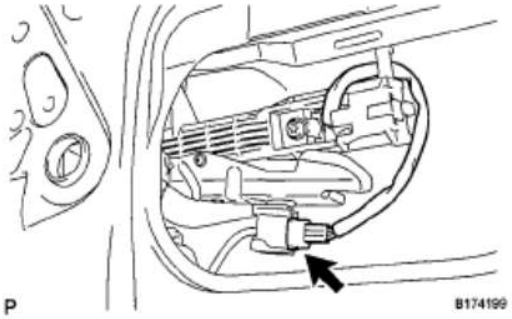


Fig. 290: Locating Front Door Outside Handle Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **INSTALL FRONT DOOR GLASS SUB-ASSEMBLY** (See **REASSEMBLY**)
7. **INSTALL FRONT DOOR SERVICE HOLE COVER** (See **REASSEMBLY**)
8. **INSTALL FRONT DOOR INNER GLASS WEATHERSTRIP** (See **REASSEMBLY**)
9. **INSTALL FRONT DOOR TRIM BOARD SUB-ASSEMBLY** (See **REASSEMBLY**)
10. **INSTALL COURTESY LIGHT ASSEMBLY** (See **REASSEMBLY**)
11. **INSTALL ASSIST GRIP COVER** (See **REASSEMBLY**)
12. **INSTALL FRONT DOOR INSIDE HANDLE BEZEL PLUG** (See **REASSEMBLY**)
13. **INSTALL FRONT DOOR LOWER FRAME BRACKET GARNISH** (See **REASSEMBLY**)
14. **CONNECT NEGATIVE BATTERY TERMINAL**

NOTE: **When disconnecting the cable, some systems need to be initialized after**

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the cable is reconnected (See INITIALIZATION).

ENTRY LOCK AND UNLOCK SWITCH (FOR BACK DOOR)

COMPONENTS

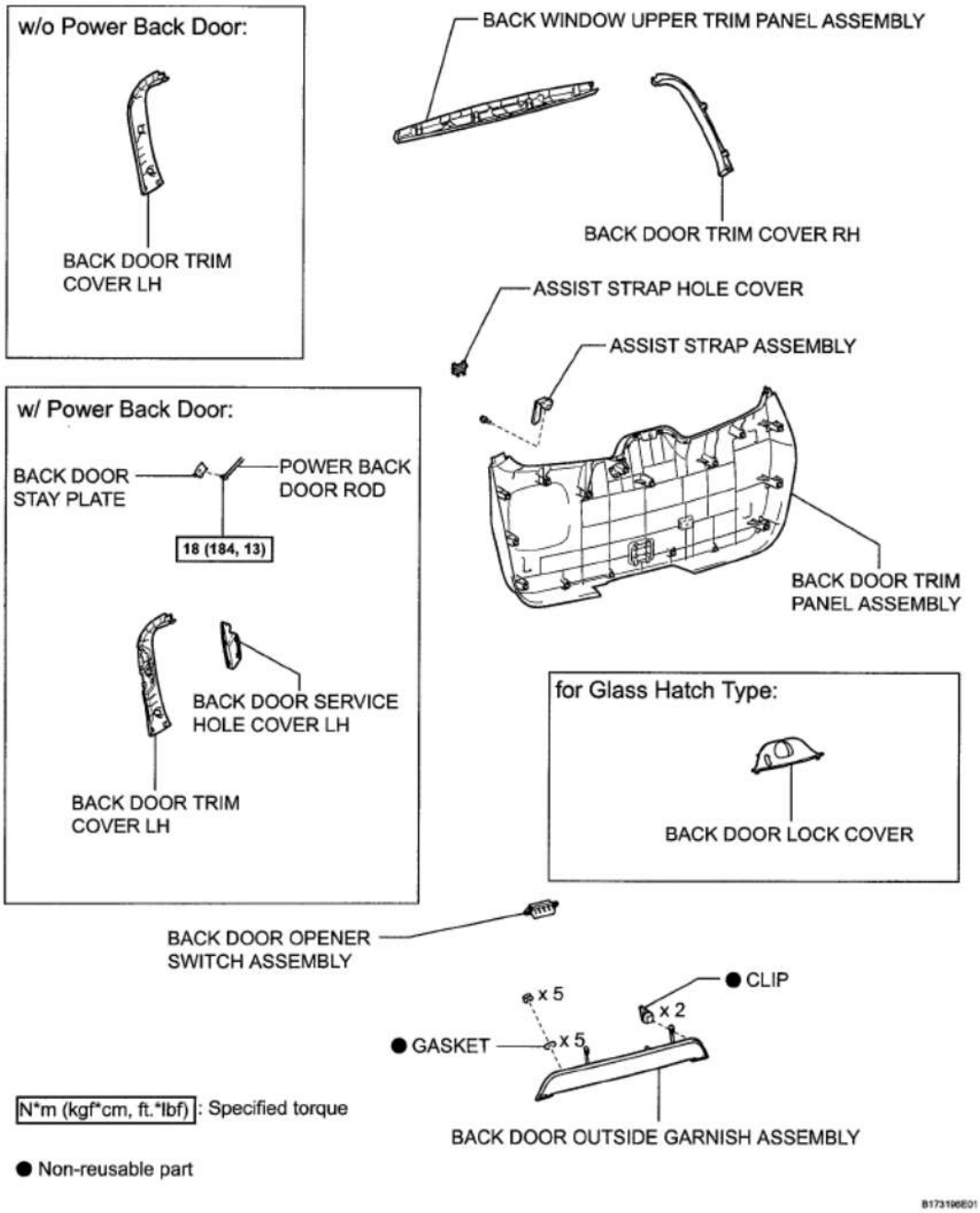


Fig. 291: Identifying Entry Lock And Unlock Switch (Back Door) Components With Torque Specification

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

REMOVAL

1. **REMOVE BACK WINDOW UPPER TRIM PANEL ASSEMBLY** (See **DISASSEMBLY**)
2. **REMOVE BACK DOOR TRIM COVER LH (w/o Power Back Door)** (See **DISASSEMBLY**)
3. **REMOVE BACK DOOR SERVICE HOLE COVER LH (w/ Power Back Door)** (See **DISASSEMBLY**)
4. **DISCONNECT POWER BACK DOOR ROD (w/ Power Back Door)** (See **DISASSEMBLY**)
5. **REMOVE BACK DOOR TRIM COVER LH (w/ Power Back Door)** (See **DISASSEMBLY**)
6. **REMOVE BACK DOOR TRIM COVER RH** (See **DISASSEMBLY**)
7. **REMOVE BACK DOOR LOCK COVER (for Glass Hatch Type)** (See **DISASSEMBLY**)
8. **REMOVE ASSIST STRAP HOLE COVER** (See **DISASSEMBLY**)
9. **REMOVE ASSIST STRAP ASSEMBLY** (See **DISASSEMBLY**)
10. **REMOVE BACK DOOR TRIM PANEL ASSEMBLY** (See **DISASSEMBLY**)
11. **REMOVE BACK DOOR OUTSIDE GARNISH ASSEMBLY** (See **REMOVAL**)
12. **REMOVE BACK DOOR OPENER SWITCH ASSEMBLY**
    a. Remove the back door opener switch assembly.

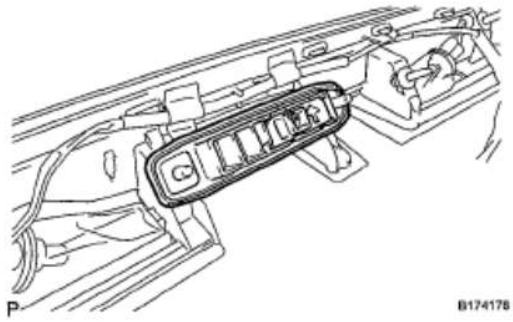


Fig. 292: Identifying Back Door Opener Switch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

1. **INSPECT ENTRY LOCK SWITCH (for Back Door)**
    a. Measure the resistance according to the value(s) in the table below.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
1 - 2	Lock switch pushed	Below 1 ohms
1 - 2	Lock switch not pushed	10 kohms or higher

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If the result is not specified, replace the entry lock switch.

Component without harness connected:
(Back Door Opener Switch (Lock Switch))

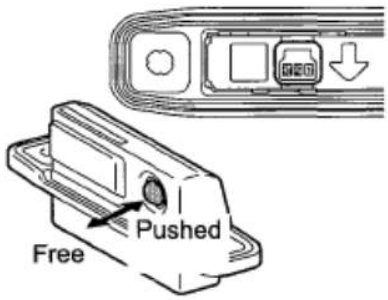


Fig. 293: Inspecting Entry Lock Switch (Back Door)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. **INSTALL BACK DOOR OPENER SWITCH ASSEMBLY**
   a. Install the back door opener switch assembly.
2. **INSTALL BACK DOOR OUTSIDE GARNISH ASSEMBLY** (See **INSTALLATION**)
3. **INSTALL BACK DOOR TRIM PANEL ASSEMBLY** (See **REASSEMBLY**)
4. **INSTALL ASSIST STRAP ASSEMBLY** (See **REASSEMBLY**)

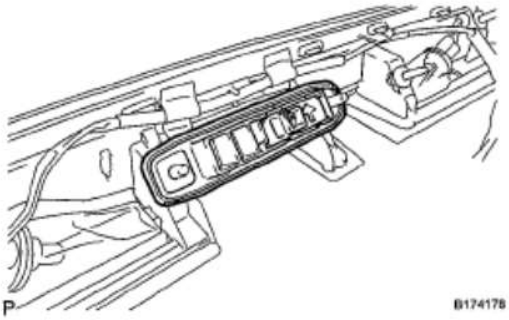


Fig. 294: Identifying Back Door Opener Switch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **INSTALL ASSIST STRAP HOLE COVER** (See **REASSEMBLY**)
6. **INSTALL BACK DOOR LOCK COVER (for Glass Hatch Type)** (See **REASSEMBLY**)
7. **INSTALL BACK DOOR TRIM COVER LH (w/o Power Back Door)** (See **REASSEMBLY**)
8. **INSTALL BACK DOOR TRIM COVER LH (w/ Power Back Door)** (See **REASSEMBLY**)

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9. **CONNECT POWER BACK DOOR ROD (w/ Power Back Door)** (See **REASSEMBLY**)
10. **INSTALL BACK DOOR SERVICE HOLE COVER LH (w/ Power Back Door)** (See **REASSEMBLY**)
11. **INSTALL BACK DOOR TRIM COVER RH** (See **REASSEMBLY**)
12. **INSTALL BACK WINDOW UPPER TRIM PANEL ASSEMBLY** (See **REASSEMBLY**)

WIRELESS DOOR LOCK BUZZER

COMPONENTS

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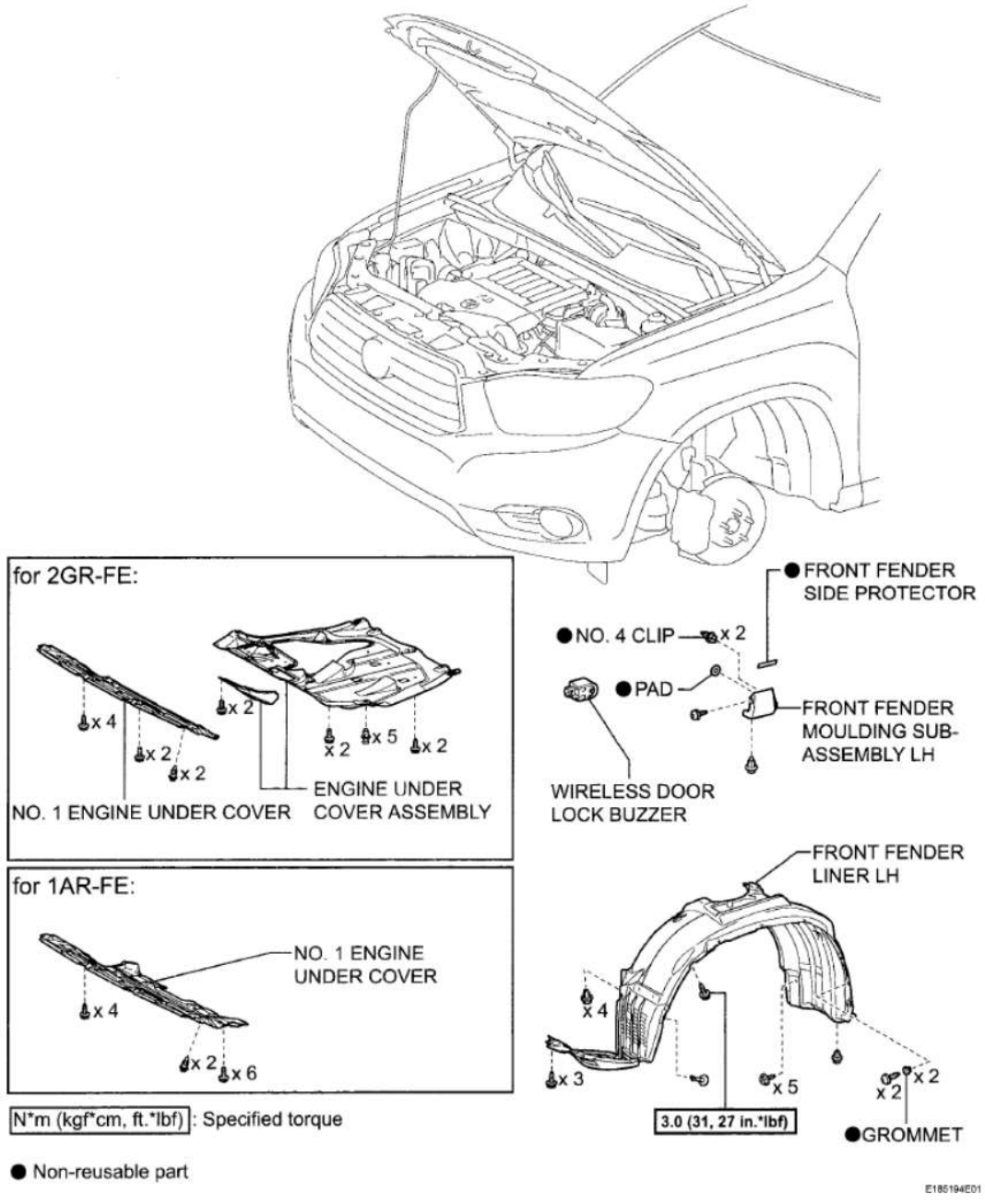


Fig. 295: Identifying Wireless Door Lock Buzzer Components With Torque Specification
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. **REMOVE ENGINE UNDER COVER ASSEMBLY (for 2GR-FE)** (See **REMOVAL**)
2. **REMOVE NO. 1 ENGINE UNDER COVER**
3. **REMOVE FRONT FENDER MOULDING SUB-ASSEMBLY LH** (See **REMOVAL**)
4. **REMOVE FRONT FENDER LINER LH** (See **REMOVAL**)

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5. **REMOVE WIRELESS DOOR LOCK BUZZER**
   a. Disconnect the connector.
   b. Remove the clamp and the wireless door lock buzzer.

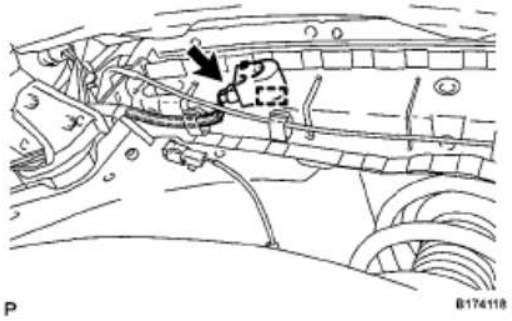


Fig. 296: Locating Wireless Door Lock Buzzer Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

1. **INSPECT WIRELESS DOOR LOCK BUZZER**
   a. Measure the resistance according to the value(s) in the table below.

HINT:

The buzzer activation circuit is built into the ECU, not into the buzzer itself. When battery voltage is applied directly to the buzzer, the buzzer will not sound.

Standard resistance

STANDARD RESISTANCE SPECIFICATION

Tester Connection	Condition	Specified Condition
A13-1 - A13-2	Always	950 to 1050 ohms

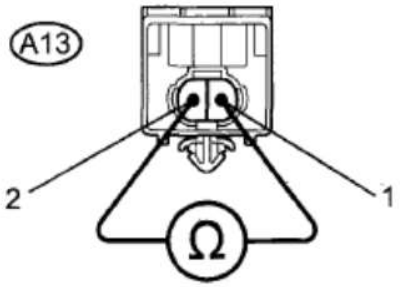
If the result is not as specified, replace the wireless door lock buzzer.

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Component without harness connected:
(Wireless Door Lock Buzzer)

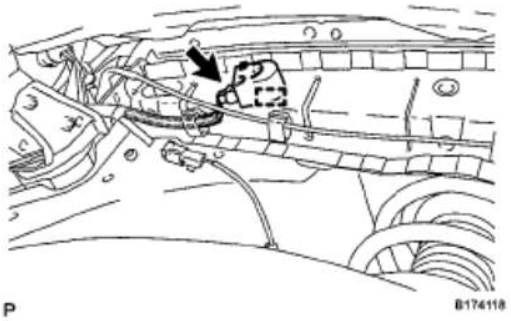


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Fig. 297: Inspecting Wireless Door Lock Buzzer
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. **INSTALL WIRELESS DOOR LOCK BUZZER**
   a. Connect the connector.
   b. Install the wireless door lock buzzer with the clamp.
2. **INSTALL FRONT FENDER LINER LH** (See **INSTALLATION**)
3. **INSTALL FRONT FENDER MOULDING SUB-ASSEMBLY LH** (See **INSTALLATION**)



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Fig. 298: Locating Wireless Door Lock Buzzer Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **INSTALL NO. 1 ENGINE UNDER COVER**
5. **INSTALL ENGINE UNDER COVER ASSEMBLY (for 2GR-FE)** (See **INSTALLATION**)

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