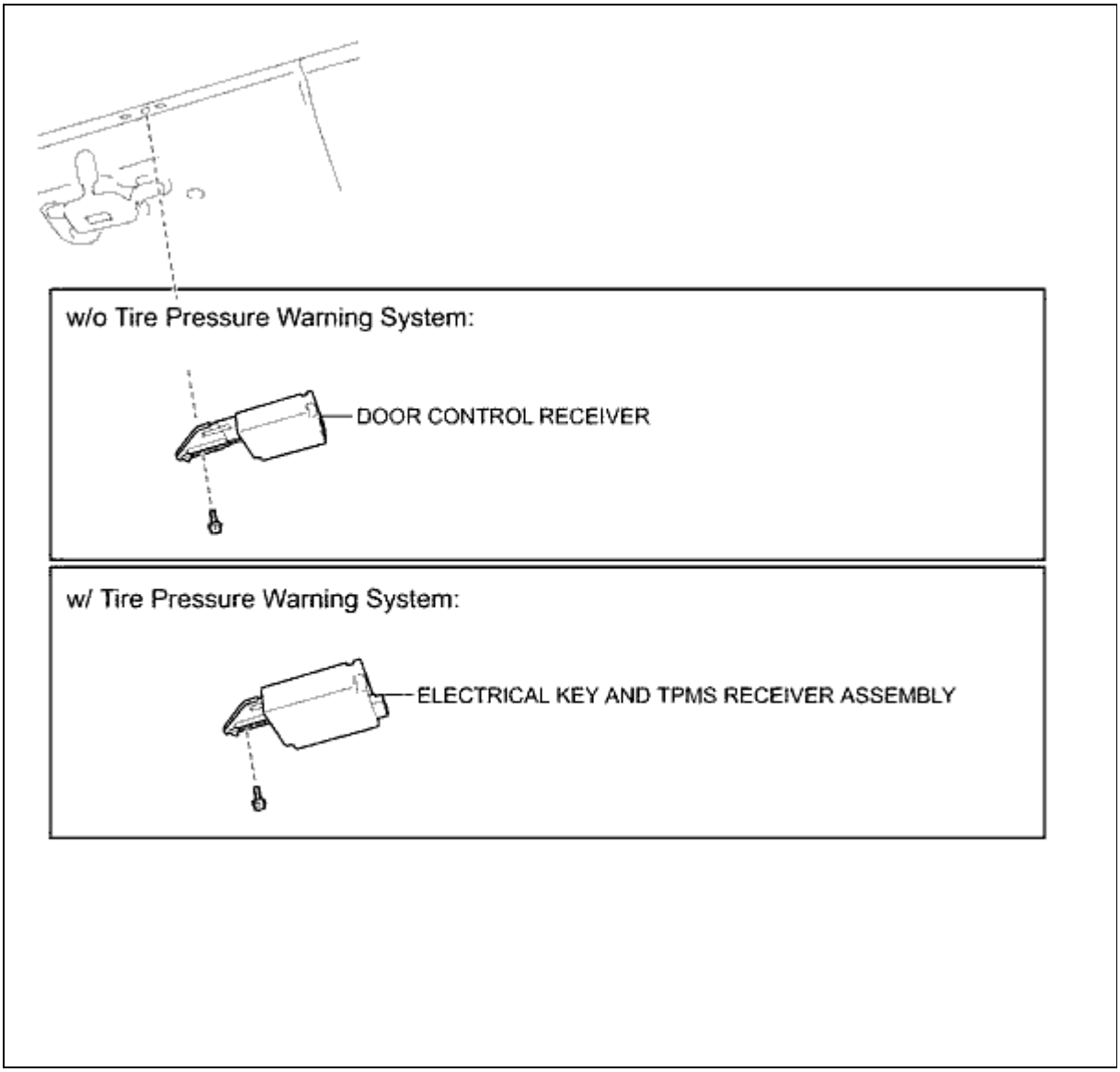
Last Modified: 11-13-2015	6.6 K	**Doc ID:** RM000003N5R007X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: DOOR CONTROL RECEIVER: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000003N5Q007X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: DOOR CONTROL RECEIVER: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL DOOR CONTROL RECEIVER (w/o Tire Pressure Warning System)

(a) Engage the 2 hooks to install the door control receiver.

(b) Install the bolt.

(c) Connect the connector.

2. INSTALL ELECTRICAL KEY AND TPMS RECEIVER ASSEMBLY (w/ Tire Pressure Warning System)

(a) Engage the 2 hooks to install the electrical key and TPMS receiver assembly.

(b) Install the bolt.

(c) Connect the connector.

3. INSTALL ROOF HEADLINING ASSEMBLY (for Double Cab)

INFO

4. INSTALL ROOF HEADLINING ASSEMBLY (for Access Cab)

INFO

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000003N5S007X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: DOOR CONTROL RECEIVER: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

1. REMOVE ROOF HEADLINING ASSEMBLY (for Double Cab)

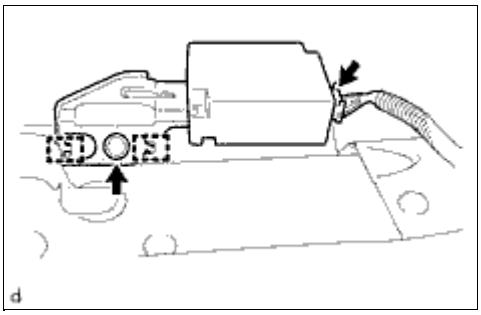
INFO

2. REMOVE ROOF HEADLINING ASSEMBLY (for Access Cab)

INFO

3. REMOVE DOOR CONTROL RECEIVER (w/o Tire Pressure Warning System)

(a) Disconnect the connector.

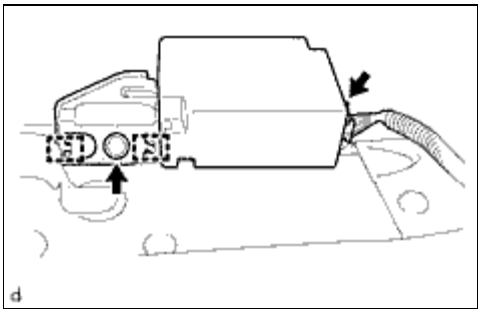


(b) Remove the bolt.

(c) Disengage the 2 hooks to remove the door control receiver.

4. REMOVE ELECTRICAL KEY AND TPMS RECEIVER ASSEMBLY (w/ Tire Pressure Warning System)

(a) Disconnect the connector.



(b) Remove the bolt.

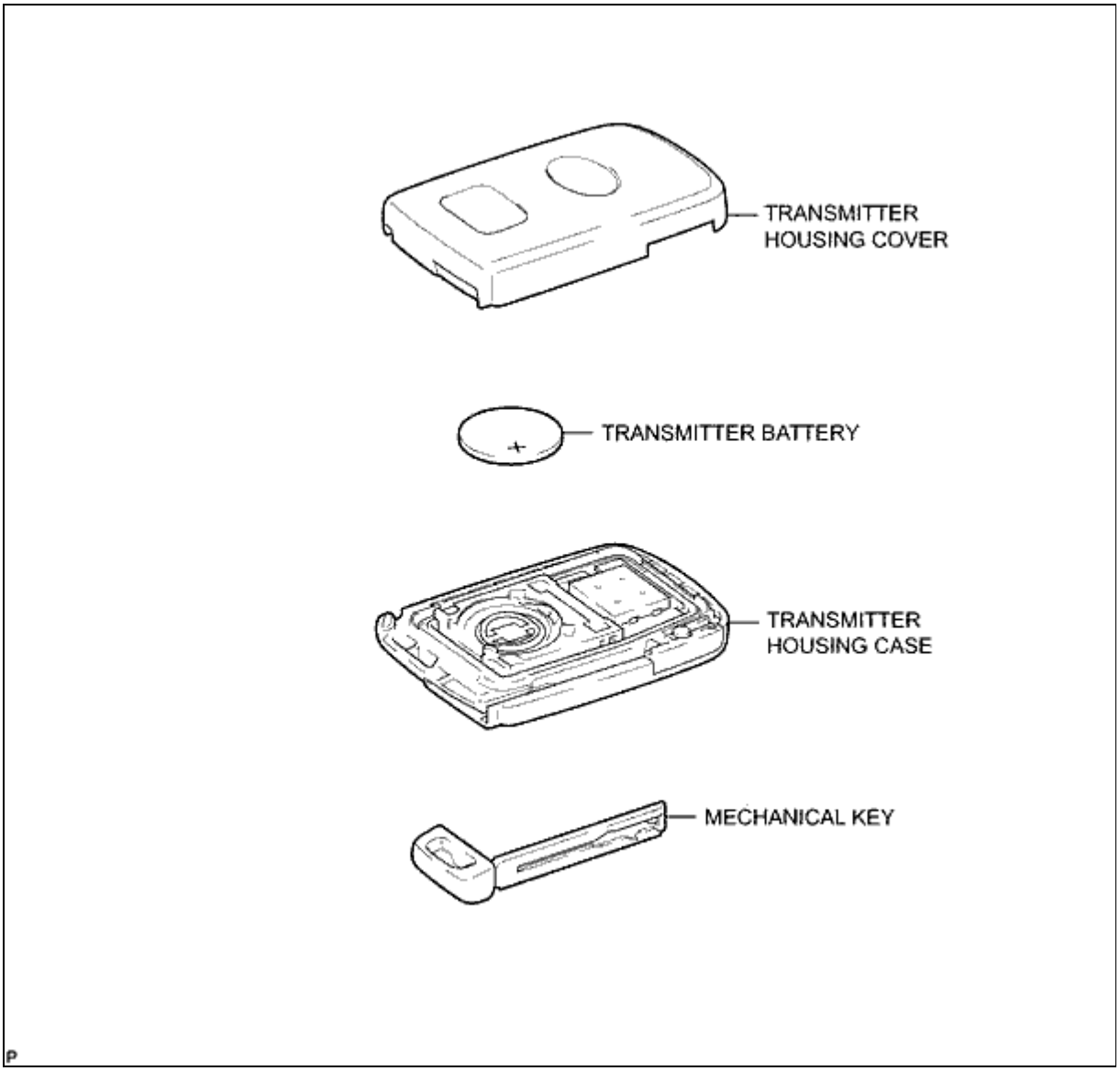
(c) Disengage the 2 hooks to remove the electrical key and TPMS receiver assembly.

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Last Modified: 11-13-2015	6.6 K	**Doc ID:** RM000003QBE04IX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: DOOR CONTROL TRANSMITTER (w/ Smart Key System): COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



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Last Modified: 11-13-2015	6.6 G	**Doc ID:** RM000001P7T052X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: DOOR CONTROL TRANSMITTER (w/ Smart Key System): INSPECTION; 2016 MY Tacoma [08/2015 -]		

INSPECTION

1. INSPECT ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY

(a) Inspect the operation of the electrical key transmitter sub-assembly.

(1) Remove the transmitter battery from the electrical key transmitter sub-assembly INFO .

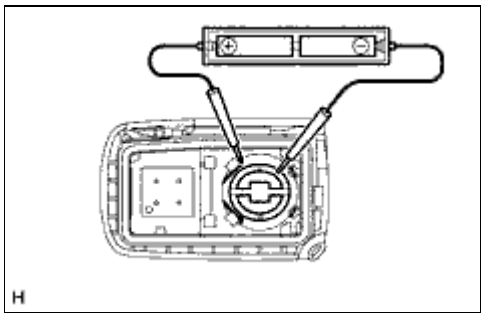
(2) Install a new or known good transmitter battery INFO .

NOTICE:

When replacing the transmitter battery, before starting work, remove static electricity that has built up in the body by touching, for example, the vehicle to prevent the electrical key transmitter sub-assembly from being damaged.

HINT:

If a new or known good transmitter 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 electrical key transmitter sub-assembly, as shown in the illustration.



(3) From outside the vehicle, approximately 1 m (3.28 ft.) away from the driver door outside door handle, test the electrical key transmitter sub-assembly by pointing its key plate at the vehicle and pressing an electrical key transmitter sub-assembly switch.

OK:

The door lock can be operated via the electrical key transmitter sub-assembly.

The LED comes on more than once.

- The operation area differs depending on the user, the way the electrical key transmitter sub-assembly is held, and the location.
- The weak radio waves of the electrical key transmitter sub-assembly may be affected if the area has strong radio waves or noise. The electrical key transmitter sub-assembly operation area may be shortened or the electrical key transmitter sub-assembly may not function.

(b) Inspect the transmitter battery capacity.

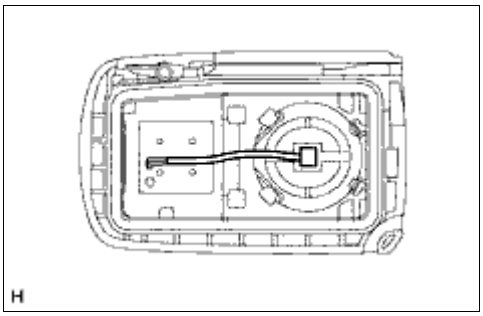
(1) Remove the transmitter battery INFO from the electrical key transmitter sub-assembly that does not operate. Attach a lead wire (0.6 mm (0.0236 in.) in diameter or less including wire sheath) with tape or equivalent to the negative terminal.

NOTICE:

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 transmitter battery will not be able to be installed correctly.

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(2) Carefully pull the lead wire out from the position shown in the illustration and install the previously removed transmitter battery.



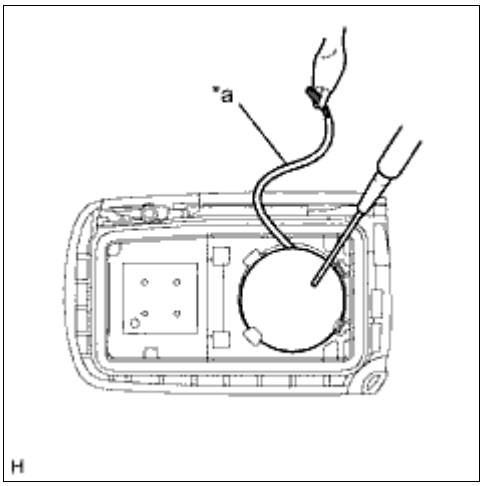
NOTICE:

When replacing the transmitter battery, before starting work, remove static electricity that has built up in the body by touching, for example, the vehicle to prevent the electrical key transmitter sub-assembly from being damaged.

(3) Check the transmitter battery voltage.

Text in Illustration

*a	GND



HINT:

When measuring the transmitter battery voltage, while operating the lock sensor of a door handle, bring the electrical key transmitter sub-assembly within the entry operating range to perform the measurement. For the entry operating range, refer to System Description INFO .

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
Transmitter battery positive (+) - Transmitter battery negative (-)	Engine switch off, all doors closed and lock sensor touched	2.2 to 3.2 V

If the result is not as specified, replace the transmitter battery.

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000002NX60AQX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: DOOR CONTROL TRANSMITTER (w/ Smart Key System): INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL TRANSMITTER BATTERY INFO

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000002NX60ARX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: DOOR CONTROL TRANSMITTER (w/ Smart Key System): REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

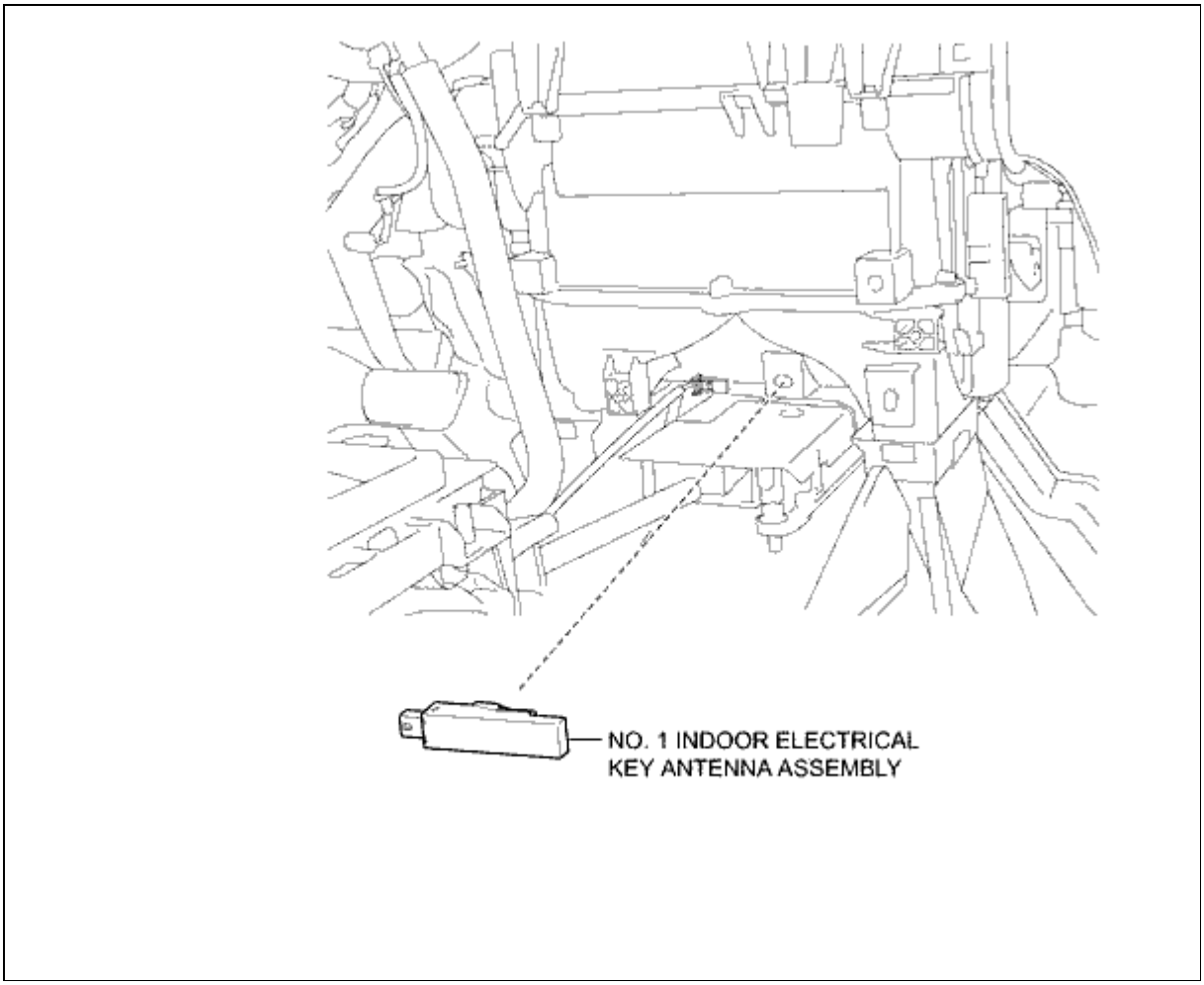
1. REMOVE TRANSMITTER BATTERY INFO

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Last Modified: 11-13-2015	6.6 K	**Doc ID:** RM000005VMF000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: ELECTRICAL KEY OSCILLATOR (for Front Floor): COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000005VME000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: ELECTRICAL KEY OSCILLATOR (for Front Floor): INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL NO. 1 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY

(a) Engage the clamp to install the No. 1 indoor electrical key antenna assembly.

(b) Connect the connector.

2. INSTALL FRONT CONSOLE BOX

INFO

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000005VMG000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: ELECTRICAL KEY OSCILLATOR (for Front Floor): REMOVAL; 2016 MY Tacoma [08/2015 -]		

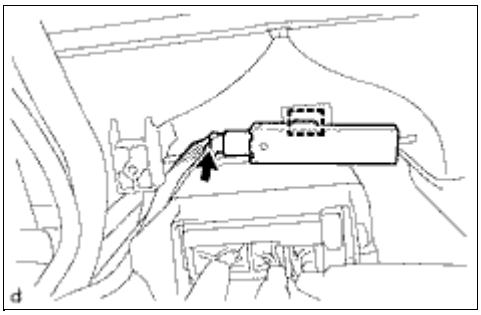
REMOVAL

1. REMOVE FRONT CONSOLE BOX

INFO

2. REMOVE NO. 1 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY

(a) Disconnect the connector.



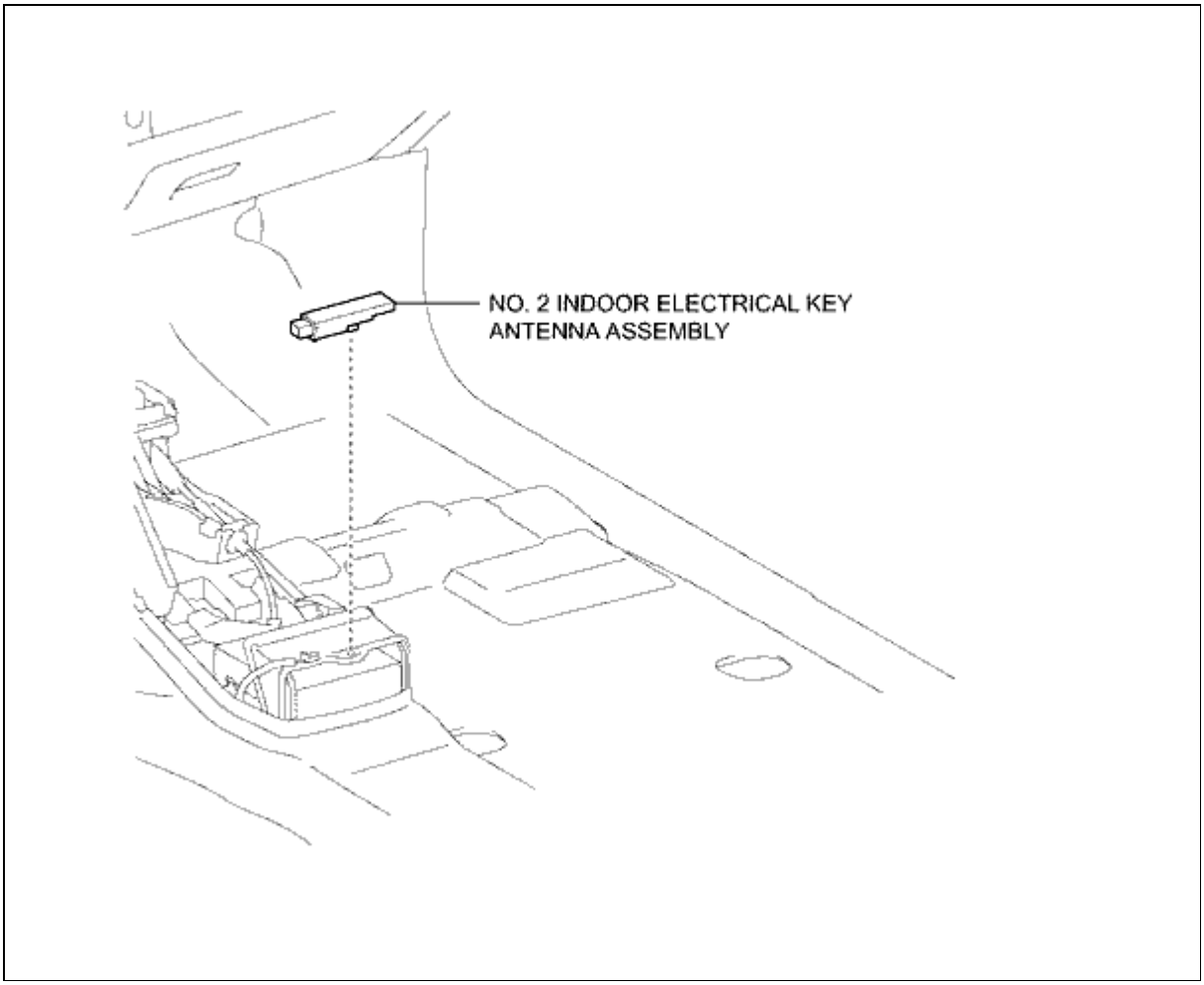
(b) Using a clip remover, disengage the clamp to remove the No. 1 indoor electrical key antenna assembly.

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Last Modified: 11-13-2015	6.6 K	**Doc ID:** RM000005VMI000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: ELECTRICAL KEY OSCILLATOR (for Rear Floor): COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000005VMH000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: ELECTRICAL KEY OSCILLATOR (for Rear Floor): INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL NO. 2 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY

(a) Engage the clamp to install the No. 2 indoor electrical key antenna assembly.

(b) Connect the connector.

2. INSTALL REAR CONSOLE BOX ASSEMBLY

INFO

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000005VMJ000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: ELECTRICAL KEY OSCILLATOR (for Rear Floor): REMOVAL; 2016 MY Tacoma [08/2015 -]		

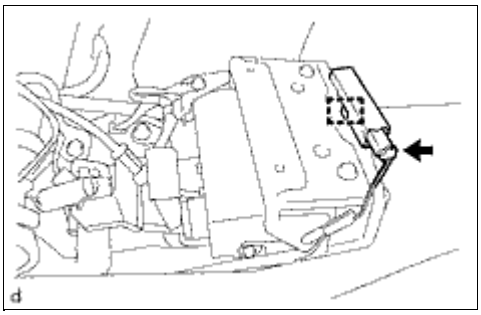
REMOVAL

1. REMOVE REAR CONSOLE BOX ASSEMBLY

INFO

2. REMOVE NO. 2 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY

(a) Disconnect the connector.



(b) Using a clip remover, disengage the clamp to remove the No. 2 indoor electrical key antenna assembly.

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000005UVV000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: KEY REMINDER WARNING SYSTEM: CUSTOMIZE PARAMETERS; 2016 MY Tacoma [08/2015 -]		

CUSTOMIZE PARAMETERS

1. CUSTOMIZING WITH THE TECHSTREAM

HINT:

The following items can be customized.

NOTICE:

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

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Combination Meter / Utility / Customize / Warning.

(e) Select the setting by referring to the table below.

Warning

DISPLAY	DEFAULT	FUNCTION	SETTING	RELEVANT ECU
Key Remind Sound	Slow	Function to change cycle of the key reminder warning buzzer.	Normal, Slow or Fast	Combination meter assembly

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Last Modified: 11-13-2015	6.6 U	**Doc ID:** RM000005UVU000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: KEY REMINDER WARNING SYSTEM: DATA LIST / ACTIVE TEST; 2016 MY Tacoma [08/2015 -]		

DATA LIST / ACTIVE TEST

1. READ DATA LIST

HINT:

Using the 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.

NOTICE:

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) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Body Electrical / Main Body / Data List.

(f) According to the display on the Techstream, read the Data List.

Main Body

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Key Unlock Warning SW	Unlock warning switch / OFF or ON	OFF: Ignition key is not inserted ON: Ignition key is inserted	-
ACC SW	Ignition switch ACC signal / OFF or ON	OFF: Ignition switch off ON: Ignition switch ACC	-
IG SW	Ignition switch ON signal / OFF or ON	OFF: Ignition switch off ON: Ignition switch ON	-
FL Door Courtesy	Front LH door courtesy light switch signal / ON or OFF	ON: Front LH door closed OFF: Front LH door opened	-

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000005UVS000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: KEY REMINDER WARNING SYSTEM: DIAGNOSIS SYSTEM; 2016 MY Tacoma [08/2015 -]		

DIAGNOSIS SYSTEM

1. CHECK DLC3

(a) Check the DLC3 INFO .

2. INSPECT BATTERY VOLTAGE

(a) Measure the battery voltage.

Standard voltage:
11 to 14 V

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

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM0000015WB00AX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: KEY REMINDER WARNING SYSTEM: HOW TO PROCEED WITH TROUBLESHOOTING; 2016 MY Tacoma [08/2015 -]		

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use these procedures to troubleshoot the key reminder warning system.
- *: Use the Techstream.

1.	**VEHICLE BROUGHT TO WORKSHOP**

NEXT

2.	**INSPECT BATTERY VOLTAGE**

(a) Check the battery voltage.

Standard voltage:
11 to 14 V

HINT:

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

NEXT

3.	**CHECK COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM***

(a) Use the Techstream to check if the CAN communication system is functioning normally INFO .

Result

RESULT	PROCEED TO
DTC is not output	A
DTC is output	B

B GO TO CAN COMMUNICATION SYSTEM

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A

4.	**PROBLEM SYMPTOMS TABLE**

Result

RESULT	PROCEED TO
Fault is not listed on Problem Symptoms Table	A
Fault is listed on Problem Symptoms Table	B

B **Go to step 6**

A

5.	**OVERALL ANALYSIS AND TROUBLESHOOTING***

(a) Terminals of ECU INFO .

(b) Data List / Active Test INFO .

NEXT

6.	**REPAIR OR REPLACE**

NEXT

7.	**CONFIRMATION TEST**

NEXT **END**

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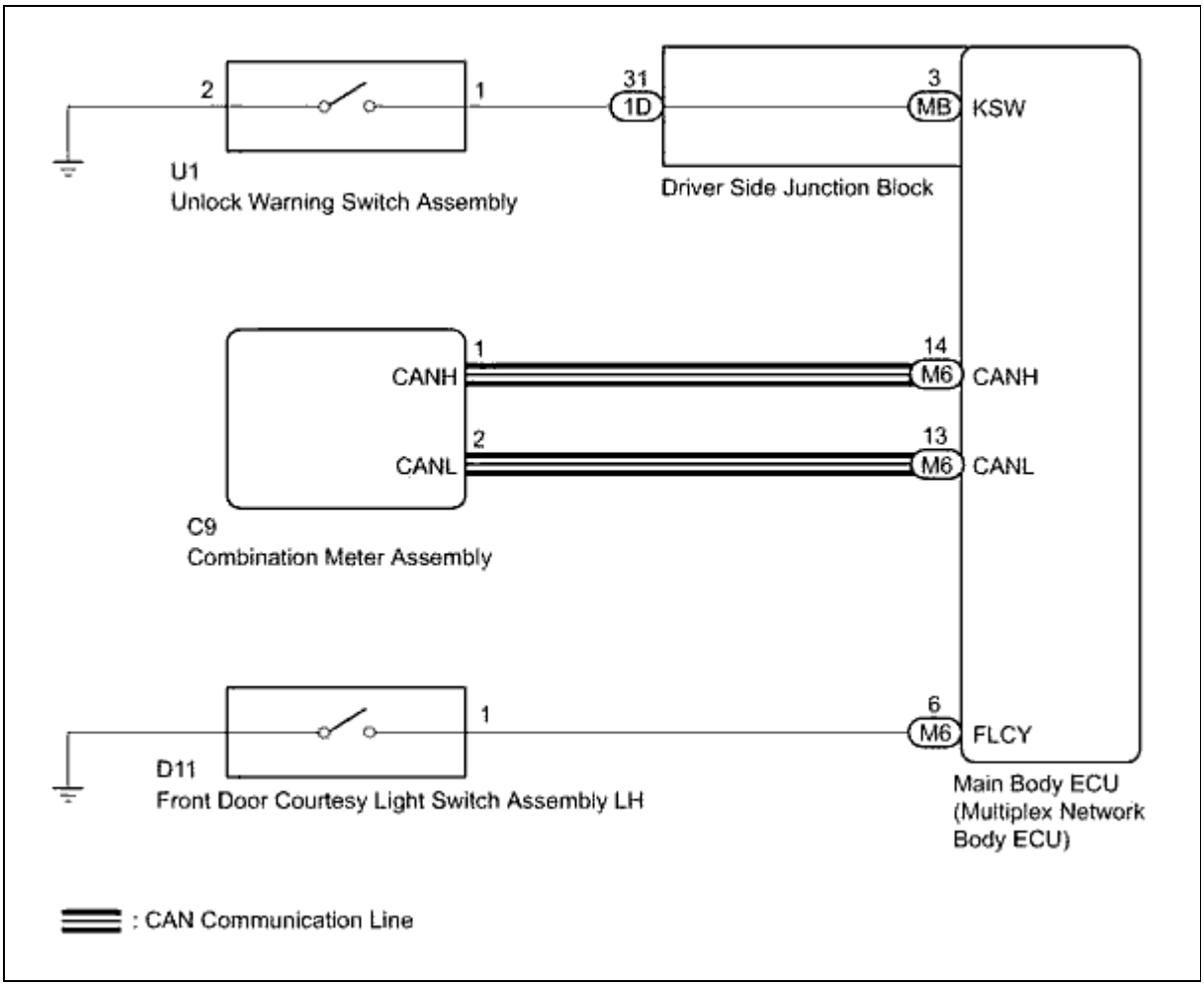
Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM0000015WF00AX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: KEY REMINDER WARNING SYSTEM: Key Reminder Buzzer does not Sound; 2016 MY Tacoma [08/2015 -]		

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 (multiplex network body ECU) sends a key switch signal and driver side courtesy light switch signal to the combination meter.

WIRING DIAGRAM



INSPECTION PROCEDURE

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

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accordance with How to Proceed with Troubleshooting. Then conduct the following troubleshooting procedure.

PROCEDURE

1.	**READ VALUE USING TECHSTREAM (FL DOOR COURTESY)**

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch ON (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Main Body / Data List.

(e) According to the display on the Techstream, read the Data List.

Main Body

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
FL Door Courtesy	Front LH door courtesy light switch signal / ON or OFF	ON: Front LH door closed OFF: Front LH door opened	-

OK:

When the front door courtesy light switch assembly LH is operated, the display changes as shown in the table.

NG ▶ **GO TO LIGHTING SYSTEM (DOOR COURTESY LIGHT SWITCH CIRCUIT)**

OK ▼

2.	**READ VALUE USING TECHSTREAM (KEY UNLOCK WARNING SW)**

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Main Body / Data List.

(e) According to the display on the Techstream, read the Data List.

Main Body

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Key Unlock Warning SW	Unlock warning switch / OFF or ON	OFF: Ignition key is not inserted ON: Ignition key is inserted	-

OK:

When the unlock warning switch is operated, the display changes as shown in the table.

NG ▶ **GO TO STEP 4**

OK ▼

3.	CHECK COMBINATION METER ASSEMBLY (BUZZER OPERATION)

(a) Remove the key from the key cylinder, turn the light control switch on the headlight dimmer switch assembly to the tail position, and open the driver door.

OK:

The light reminder warning buzzer sounds.

HINT:

The key reminder warning system sounds the buzzer built in to the combination meter for key reminder warnings. This buzzer is also used for the light reminder warning system. Therefore, check the operation of the combination meter buzzer by checking if the buzzer sounds to inform that the lights are still on.

NG ▶ **REPLACE COMBINATION METER ASSEMBLY**

OK ▶ **REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)**

4.	INSPECT UNLOCK WARNING SWITCH ASSEMBLY

(a) Remove the unlock warning switch assembly INFO .

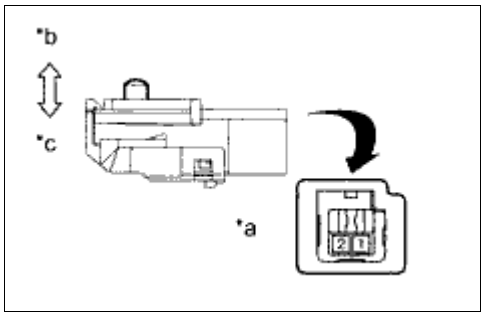
(b) Inspect the unlock warning switch assembly.

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

Text in Illustration

*a	Component without harness connected (Unlock Warning Switch Assembly)
*b	Switch not pushed
*c	Switch pushed



Standard Resistance

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 - 2	Switch not pushed (Key removed)	10 kΩ or higher
1 - 2	Switch pushed (Key inserted)	Below 1 Ω

NG ▶ **REPLACE UNLOCK WARNING SWITCH ASSEMBLY**

OK ▼

5.	**CHECK HARNESS AND CONNECTOR (DRIVER SIDE JUNCTION BLOCK - UNLOCK WARNING SWITCH ASSEMBLY)**

(a) Disconnect the U1 unlock warning switch and 1D driver side junction block connectors.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
U1-1 - 1D-31	Always	Below 1 Ω
U1-2 - Body ground	Always	Below 1 Ω
U1-1 - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

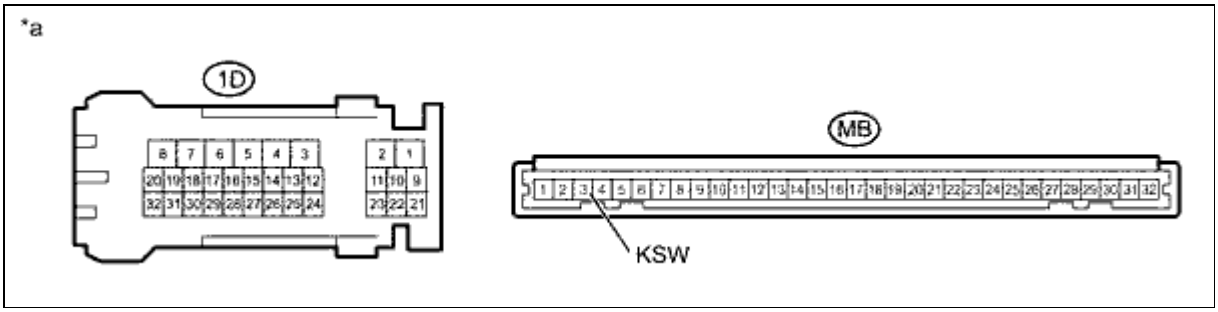
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OK

6.	**INSPECT DRIVER SIDE JUNCTION BLOCK**

(a) Remove the main body ECU (multiplex network body ECU) INFO .

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



*a	Component without harness connected (Driver Side Junction Block)	-	-

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
MB-3 (KSW) - 1D-31	Always	Below 1 Ω
MB-3 (KSW) or 1D-31 - Body ground	Always	10 Ω or higher

NG ▶ **REPLACE DRIVER SIDE JUNCTION BLOCK**

OK ▶ **REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)**

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000005UVT000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: KEY REMINDER WARNING SYSTEM: OPERATION CHECK; 2016 MY Tacoma [08/2015 -]		

OPERATION CHECK

1. CHECK FUNCTION

(a) Check that the key reminder warning buzzer sounds.

(1) With the driver side door closed, insert the key into the ignition key cylinder and then turn the key to LOCK or ACC.

(2) Check that the buzzer sounds intermittently when the driver side door is open.

(b) Check that the key reminder warning buzzer stops.

(1) Check that the buzzer stops sounding if any of the following operations are performed while the buzzer is sounding:

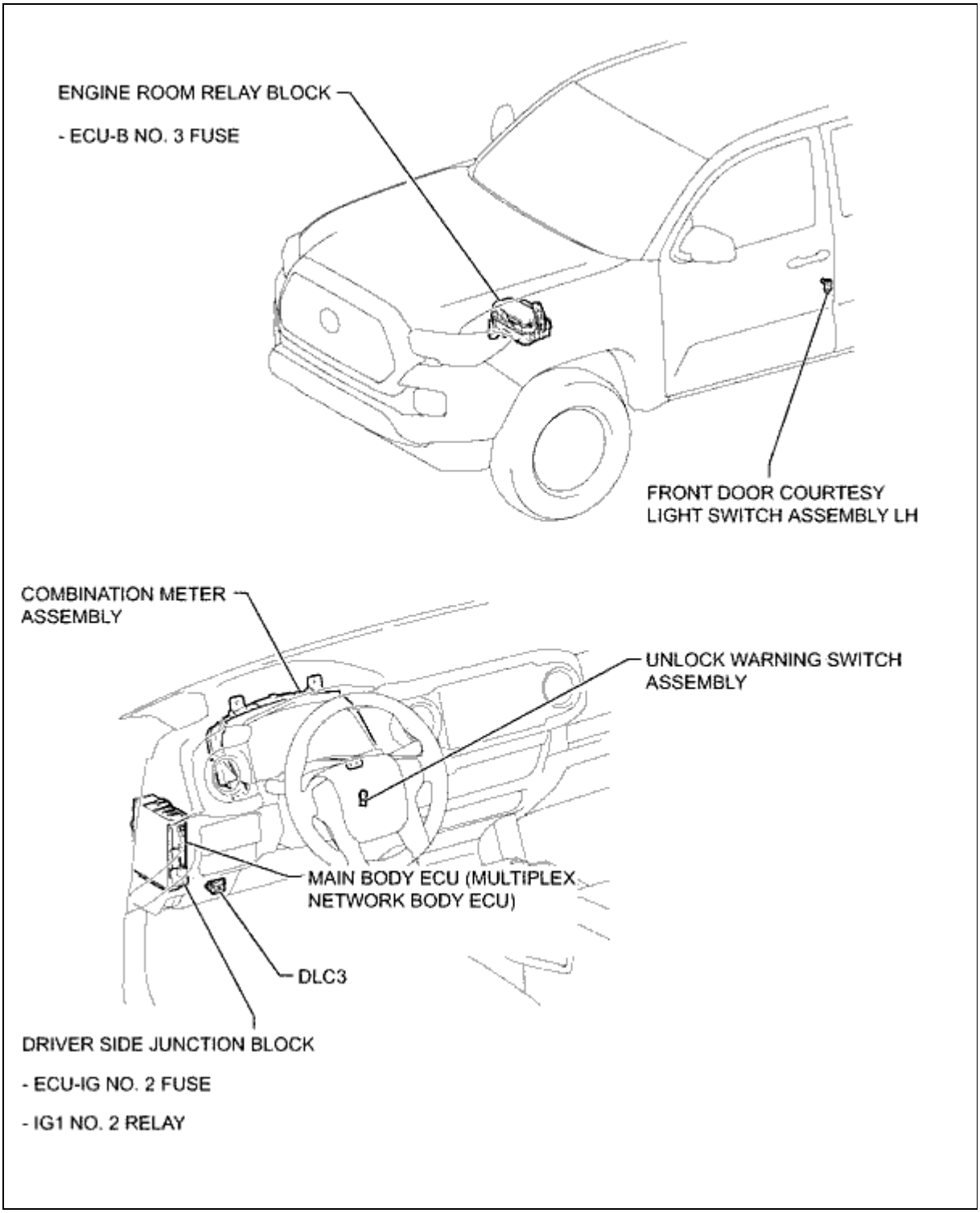
- Close the driver side door (front door courtesy light switch is off).
- Turn the ignition switch to ON.
- Pull the key out from the ignition key cylinder.

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Last Modified: 11-13-2015	6.6 R	**Doc ID:** RM0000015WC00AX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: KEY REMINDER WARNING SYSTEM: PARTS LOCATION; 2016 MY Tacoma [08/2015 -]		

PARTS LOCATION

ILLUSTRATION



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Last Modified: 11-13-2015	6.6 T	**Doc ID:** RM0000015WE00AX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: KEY REMINDER WARNING SYSTEM: PROBLEM SYMPTOMS TABLE; 2016 MY Tacoma [08/2015 -]		

PROBLEM SYMPTOMS TABLE

HINT:

- Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table.

  Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.
- Inspect the fuses and relays related to this system before inspecting the suspected areas below.

Key Reminder Warning System

SYMPTOM	SUSPECTED AREA	SEE PAGE
Key reminder buzzer does not sound	Proceed to "Key Reminder Buzzer does not Sound"	INFO

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM0000015WG00AX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: KEY REMINDER WARNING SYSTEM: SYSTEM DESCRIPTION; 2016 MY Tacoma [08/2015 -]		

SYSTEM DESCRIPTION

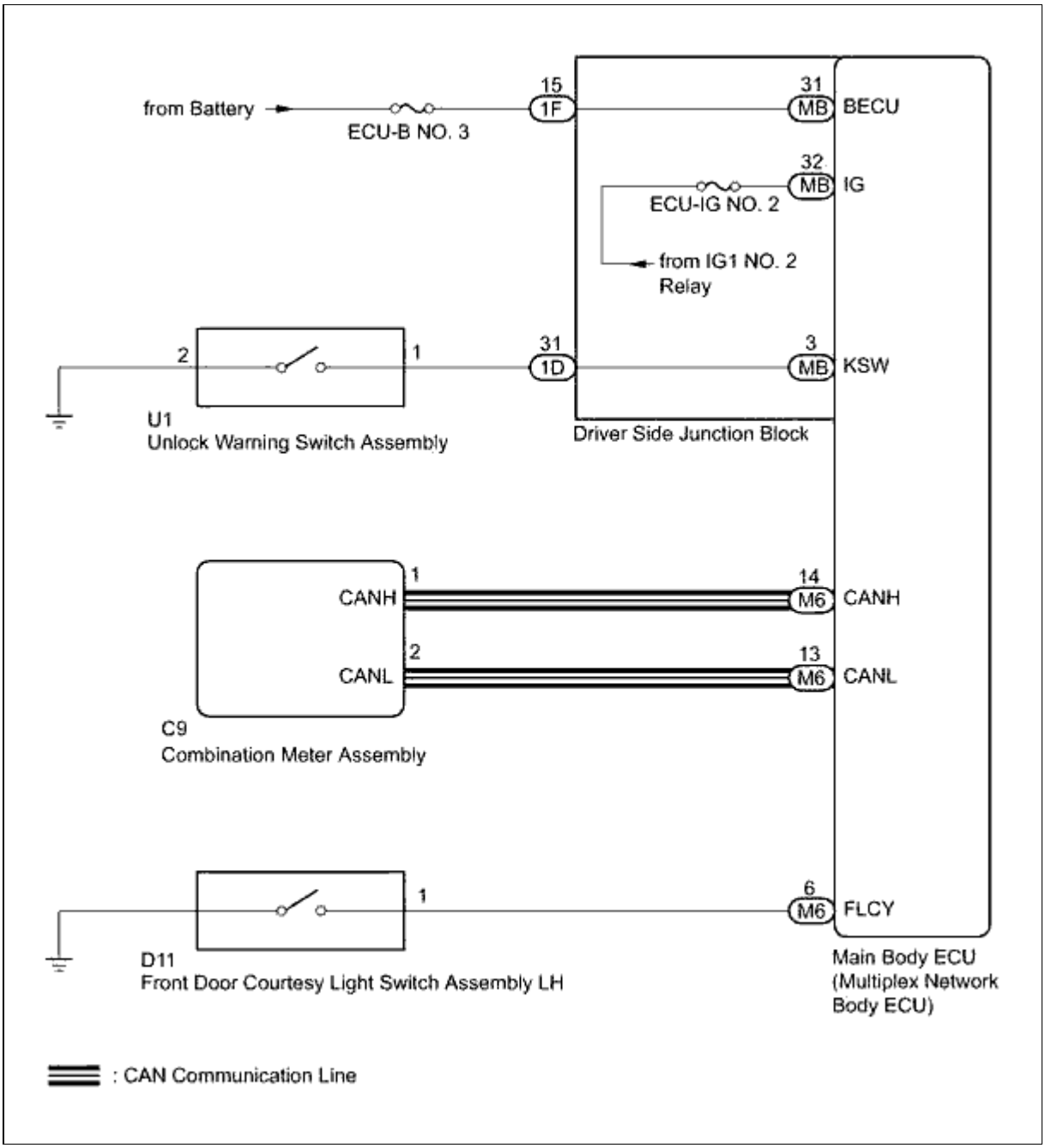
1. KEY REMINDER WARNING SYSTEM DESCRIPTION

(a) When the driver side door is opened with the ignition key in the ACC or LOCK position, this system causes the key reminder warning buzzer to sound in order to warn the driver that the ignition key has not been removed.

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Last Modified: 11-13-2015	6.6 U	**Doc ID:** RM0000015WH00AX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: KEY REMINDER WARNING SYSTEM: SYSTEM DIAGRAM; 2016 MY Tacoma [08/2015 -]		

SYSTEM DIAGRAM

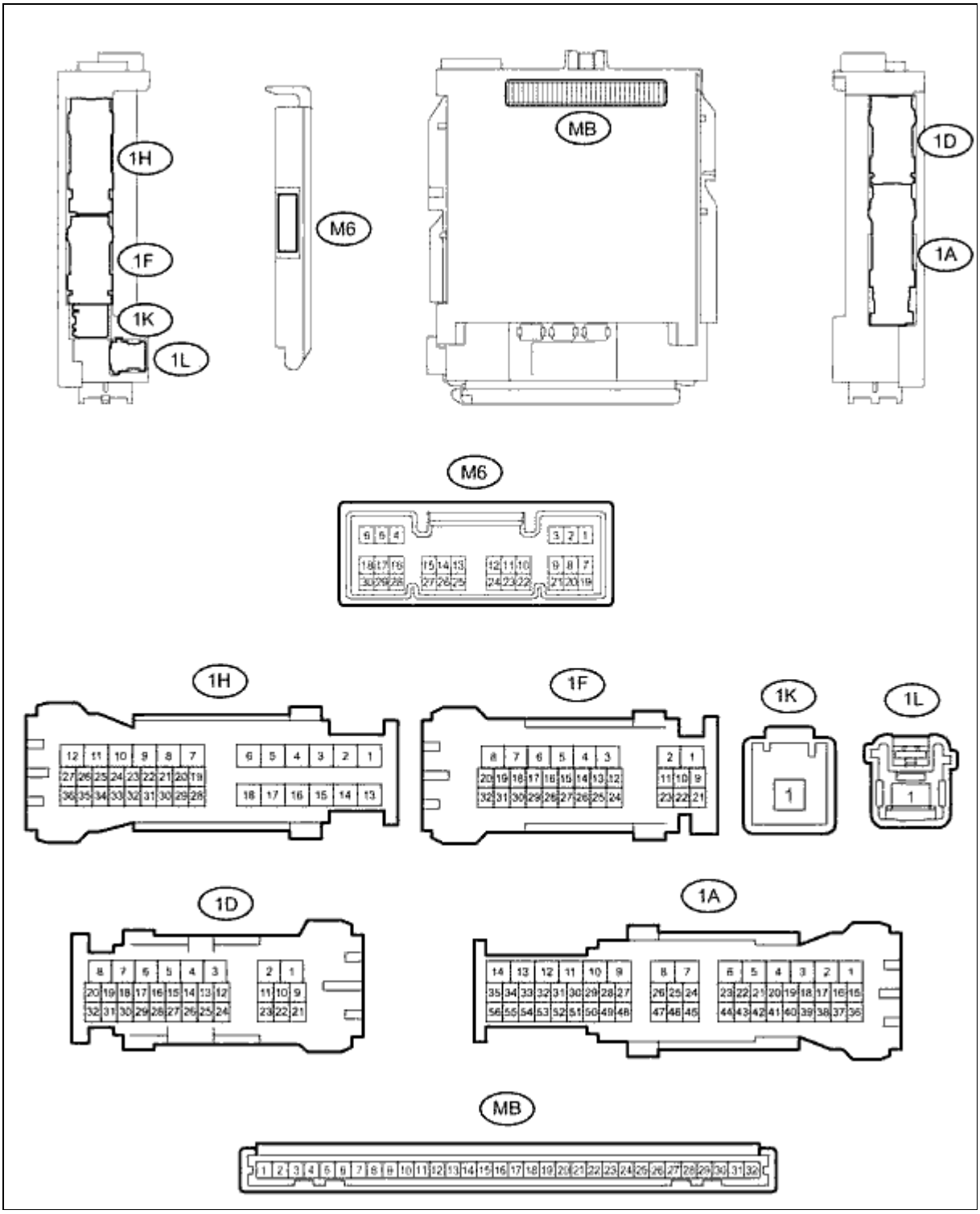


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Last Modified: 11-13-2015	6.6 U	**Doc ID:** RM0000015WD00AX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: KEY REMINDER WARNING SYSTEM: TERMINALS OF ECU; 2016 MY Tacoma [08/2015 -]		

TERMINALS OF ECU

1. CHECK MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU) AND DRIVER SIDE JUNCTION BLOCK



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(a) Remove the main body ECU (multiplex network body ECU) from the driver side junction block INFO .

(b) Disconnect the 1D driver side junction block connector.

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

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
MB-11 (GND1) - Body ground	None - Body ground	Ground	Always	Below 1 Ω
MB-31 (BECU) - Body ground	None - Body ground	Battery power supply	Always	11 to 14 V
MB-30 (ACC) - Body ground	None - Body ground	ACC power supply	Ignition switch ON(ACC)	11 to 14 V
MB-32 (IG) - Body ground	None - Body ground	Ignition switch power supply	Ignition switch ON(IG)	11 to 14 V
1D-31 (KSW) - Body ground	G - Body ground	Unlock warning switch input	No Key in ignition key cylinder (off)	10 kΩ or higher
			Key inserted ignition key cylinder (on)	Below 1 Ω

(d) Install the main body ECU (multiplex network body ECU) to the driver side junction block INFO .

(e) Reconnect the 1D driver side junction block connector.

(f) Measure the voltage and check for pulse according to the value(s) in the table below.

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
M6-6 (FLCY) - Body ground	Y - Body ground	Front door LH courtesy light switch input	Front door LH open	Below 1 V
			Front door LH closed	Pulse generation
1D-31 (KSW) - Body ground	G - Body ground	Unlock warning switch input	No Key in ignition key cylinder (off)	11 to 14 V
			Key inserted ignition key cylinder (on)	Below 1 V

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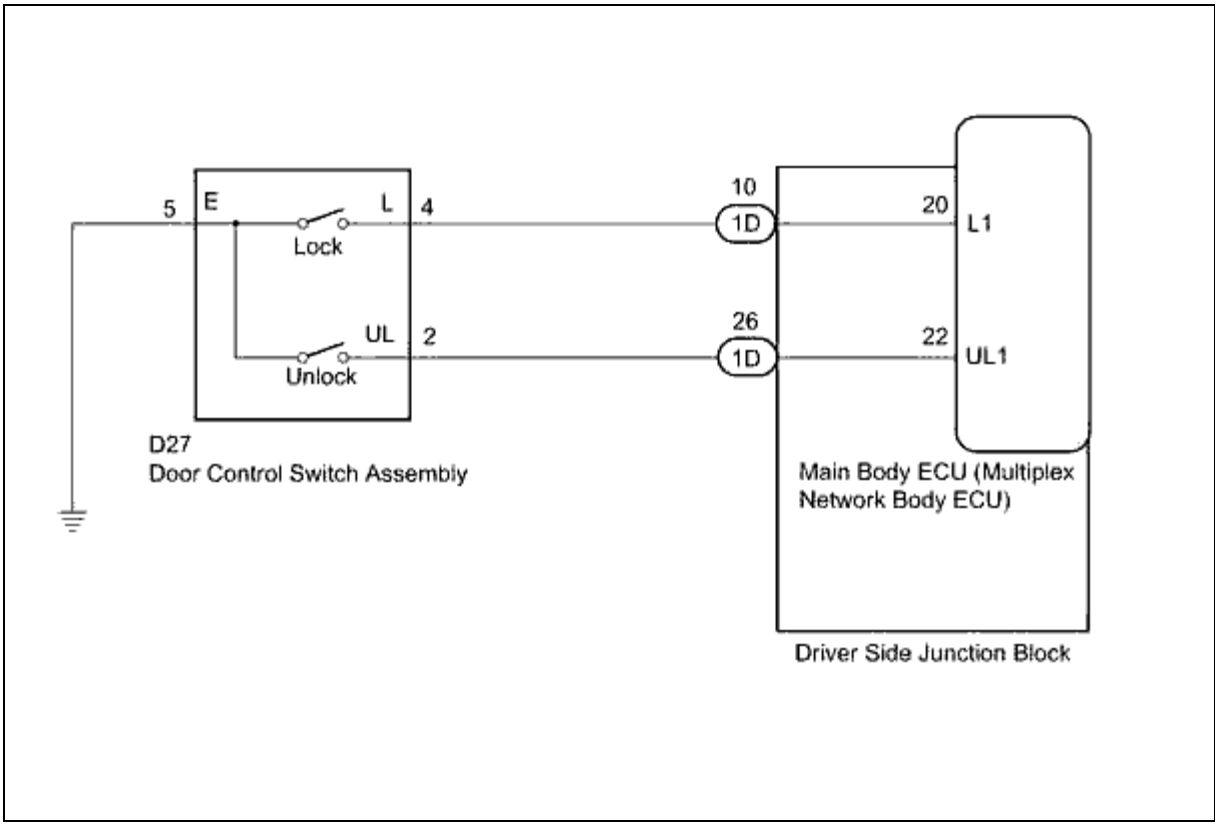
Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000005UVQ000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: POWER DOOR LOCK CONTROL SYSTEM: All Doors LOCK/UNLOCK Functions do not Operate Via Door Control Switch; 2016 MY Tacoma [08/2015 -]		

All Doors LOCK/UNLOCK Functions do not Operate Via Door Control Switch

DESCRIPTION

The main body ECU (multiplex network body ECU) receives switch signals from the door control switch assembly on the front passenger door and activates the door lock motor on each door according to these signals.

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1.	**READ VALUE USING TECHSTREAM (Door Lock SW-Lock, Door Lock SW-Unlock)**

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

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(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Main Body / Data List.

(e) Read the Data List according to the display on the Techstream.

Main Body

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Door Lock SW-Lock	Door control switch (power window regulator master switch assembly) or door control switch assembly lock signal/ON or OFF	ON: Lock side of door control switch (power window regulator master switch assembly) or door control switch assembly pushed OFF: Lock side of door control switch (power window regulator master switch assembly) and door control switch assembly not pushed	-
Door Lock SW-Unlock	Door control switch (power window regulator master switch assembly) or door control switch assembly unlock signal/ON or OFF	ON: Unlock side of door control switch (power window regulator master switch assembly) or door control switch assembly pushed OFF: Unlock side of door control switch (power window regulator master switch assembly) or door control switch assembly not pushed	-

OK:

The Techstream indicates ON or OFF according to the switch operation shown in the table.

NG ▶ **GO TO STEP 2**

OK ▶ **REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)**

2.	**INSPECT DOOR CONTROL SWITCH ASSEMBLY**

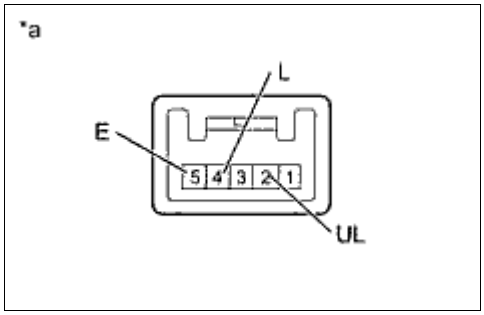
(a) Remove the door control switch assembly INFO .

(b) Inspect the door control switch assembly.

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

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
2 (UL) - 5 (E)	Lock side of door control switch pushed	Below 1 Ω



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TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
2 (UL) - 5 (E)	Lock side of door control switch pushed	10 kΩ or higher
4 (L) - 5 (E)	Lock side of door control switch pushed	Below 1 Ω
4 (L) - 5 (E)	Lock side of door control switch pushed	10 kΩ or higher

Text in Illustration

*a	Component without harness connected (Door Control Switch Assembly)

NG ▶ **REPLACE DOOR CONTROL SWITCH ASSEMBLY**

OK ▼

3.	**CHECK HARNESS AND CONNECTOR (DOOR CONTROL SWITCH ASSEMBLY - MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU))**

(a) Disconnect the 1D driver side junction block connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D27-2 (UL) - 1D-26 (UL1)	Always	Below 1 Ω
D27-4 (L) - 1D-10 (L1)	Always	Below 1 Ω
D27-5 (E) - Body ground	Always	Below 1 Ω
D27-2 (UL) - Body ground	Always	10 kΩ or higher
D27-4 (L) - Body ground	Always	10 kΩ or higher

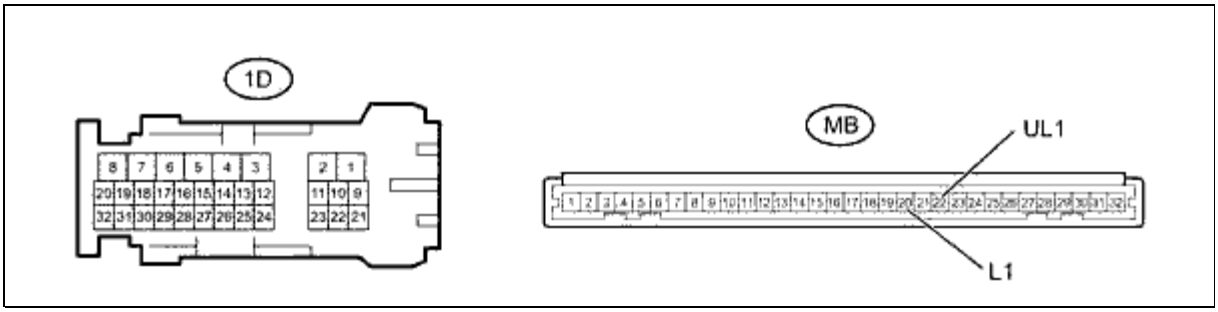
NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

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4.	**CHECK DRIVER SIDE JUNCTION BLOCK**

(a) Remove the driver side junction block INFO .



Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1D-16 - MB-22 (UL1)	Always	Below 1 Ω
1D-23 - MB-20 (L1)	Always	Below 1 Ω
1D-16 - Body ground	Always	10 kΩ or higher
1D-23 (L1) - Body ground	Always	10 kΩ or higher

Text in Illustration

*a	Component without harness connected (driver side junction block)	-	-

NG ▶ **REPLACE DRIVER SIDE JUNCTION BLOCK**

OK ▶ **REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)**

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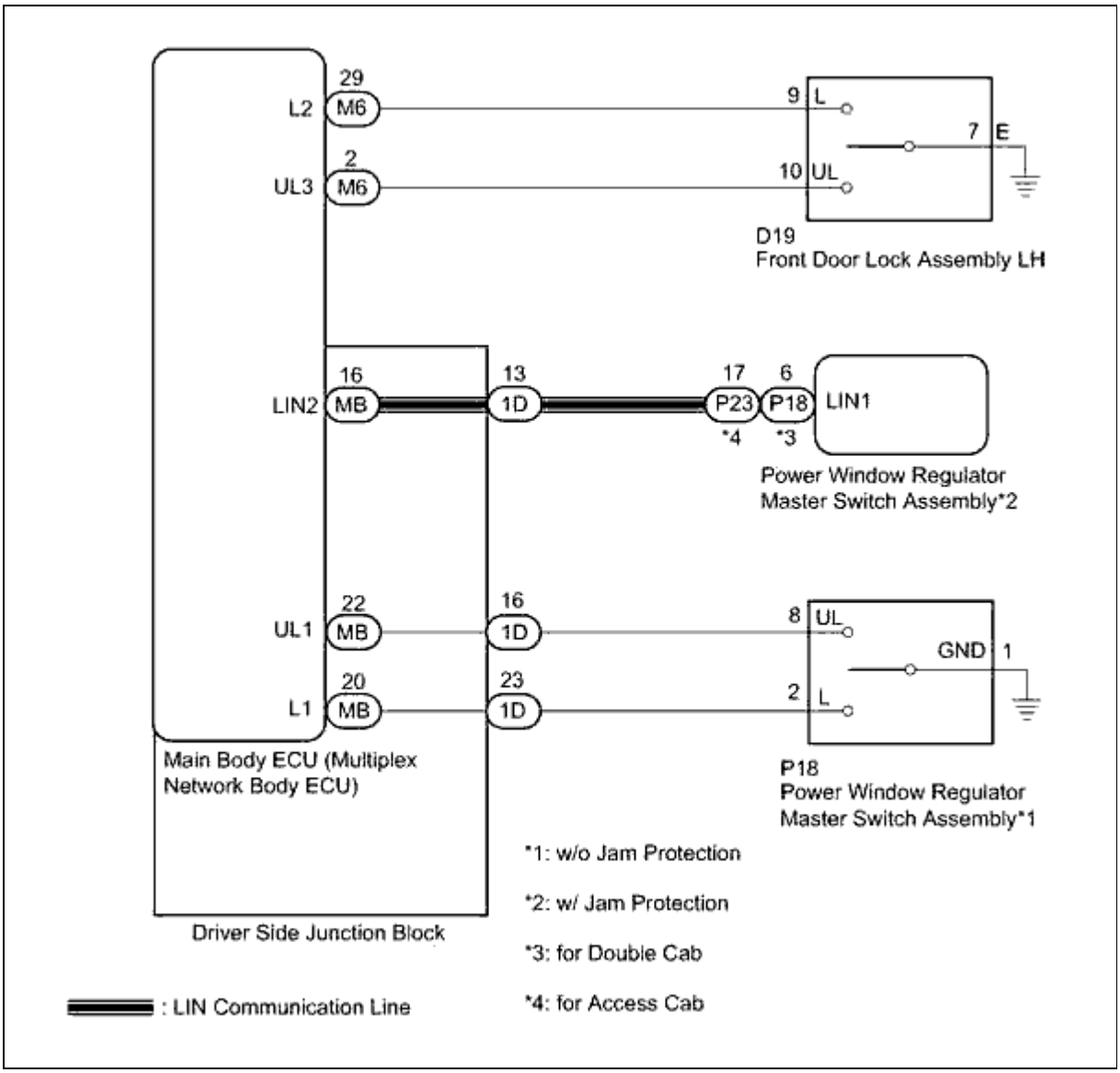
Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000005UVR000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: POWER DOOR LOCK CONTROL SYSTEM: All Doors LOCK/UNLOCK Functions do not Operate Via Door Control Switch or Door Key Cylinder; 2016 MY Tacoma [08/2015 -]		

All Doors LOCK/UNLOCK Functions do not Operate Via Door Control Switch or Door Key Cylinder

DESCRIPTION

The main body ECU (multiplex network body ECU) receives switch signals from the power window regulator master switch assembly and driver door key cylinder lock or unlock switch signals from the front door lock assembly. The main body ECU (multiplex network body ECU) activates the door lock motor on each door according to these signals.

WIRING DIAGRAM



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INSPECTION PROCEDURE

NOTICE:

The power door lock control system uses the LIN communication system. Inspect the communication function by following How to Proceed with Troubleshooting. Troubleshoot the power door lock control system after confirming that the communication systems are functioning properly.*1

*1: w/ Jam Protection

PROCEDURE

1.	**CHECK DOOR LOCK OPERATION**

(a) Check door lock operation INFO .

Result

RESULT	PROCEED TO
All doors cannot be locked by power window regulator master switch assembly. (w/ Jam Protection)	A
All doors cannot be locked by power window regulator master switch assembly. (w/o Jam Protection)	B
All doors cannot be locked by driver door key cylinder	C

B ▶ **GO TO STEP 8**

C ▶ **GO TO STEP 5**

A ▼

2.	**CHECK FOR DTC (LIN COMMUNICATION SYSTEM)**

(a) Clear the DTCs INFO .

(b) Recheck for DTCs.

OK:

DTC B1206 is not output.

NG ▶ **GO TO LIN COMMUNICATION SYSTEM (DTC B1206)**

OK

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3.	**REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY**

(a) Replace the power window regulator master switch assembly INFO .

NEXT

4.	**CHECK DOOR LOCK OPERATION**

(a) Check that all doors can be locked and unlocked by the power window regulator master switch assembly INFO .

OK:

All doors can be locked and unlocked by the power window regulator master switch assembly.

NG ▶ **REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)**

OK ▶ **END (POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY WAS DEFECTIVE)**

5.	**READ VALUE USING TECHSTREAM (Door Key SW-Lock, D Door Key SW-UL)**

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Main Body / Data List.

(e) Read the Data List according to the display on the Techstream.

Main Body

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Door Key SW-Lock	Driver door key-linked lock/unlock switch lock signal/ON or OFF	ON: Driver door key cylinder turned to lock position OFF: Driver door key cylinder not turned to lock position	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
D Door Key SW-UL	Driver door key-linked lock/unlock switch unlock signal/ON or OFF	ON: Driver door key cylinder turned to unlock position OFF: Driver door key cylinder not turned to unlock position	-

OK:

The Techstream indicates ON or OFF according to the key cylinder operation shown in the table.

NG ▶ **GO TO STEP 6**

OK ▶ **REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)**

6.	**INSPECT FRONT DOOR LOCK ASSEMBLY LH**

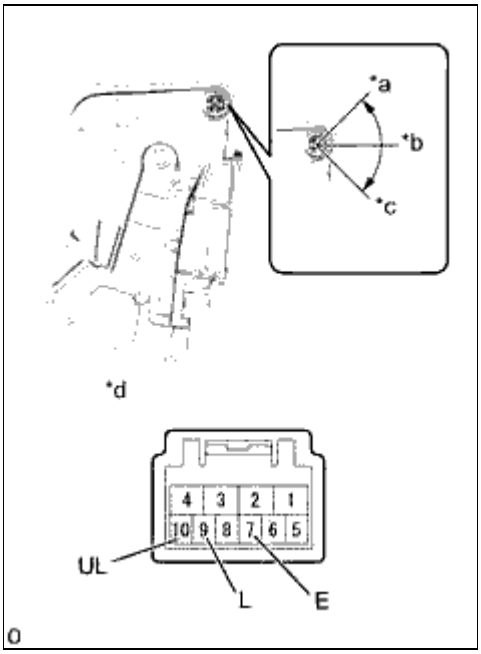
(a) Remove the front door lock assembly LH INFO .

(b) Inspect the front door lock assembly LH.

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

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
9 (L) - 7 (GND)	Always	10 kΩ or higher
9 (L) - 7 (GND)	Lock switch pushed	Below 1 Ω
10 (UL) - 7 (GND)	Always	10 kΩ or higher
10 (UL) - 7 (GND)	Unlock switch pushed	Below 1 Ω



Text in Illustration

*a	Unlock
*b	Neutral
*c	Lock
*d	Component without harness connected (Front Door Lock Assembly LH)

NG ▶ **REPLACE FRONT DOOR LOCK ASSEMBLY LH**

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OK

7.	**CHECK HARNESS AND CONNECTOR (FRONT DOOR LOCK ASSEMBLY LH - MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU))**

(a) Disconnect the M6 main body ECU (multiplex network body ECU) connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D19-9 (L) - M6-29 (L2)	Always	Below 1 Ω
D19-10 (UL) - M6-2 (UL3)	Always	Below 1 Ω
D19-7 (E) - Body ground	Always	Below 1 Ω
M6-29 (L2) - Body ground	Always	10 kΩ or higher
M6-2 (UL3) - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▶ **REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)**

8.	**READ VALUE USING TECHSTREAM (POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY)**

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Main Body / Data List.

(e) Read the Data List according to the display on the Techstream.

Main Body

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Door Lock SW-Lock	Door control switch (power window regulator master switch assembly) or door control switch assembly lock signal/ON or OFF	ON: Lock side of door control switch (power window regulator master switch assembly) or door control switch assembly pushed	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
		OFF: Lock side of door control switch (power window regulator master switch assembly) and door control switch assembly not pushed	
Door Lock SW-Unlock	Door control switch (power window regulator master switch assembly) or door control switch assembly unlock signal/ON or OFF	ON: Unlock side of door control switch (power window regulator master switch assembly) or door control switch assembly pushed OFF: Unlock side of door control switch (power window regulator master switch assembly) or door control switch assembly not pushed	-

OK:

The Techstream indicates ON or OFF according to the switch operation shown in the table.

NG ▶ **GO TO STEP 9**

OK ▶ **REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)**

9.	**INSPECT POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY**

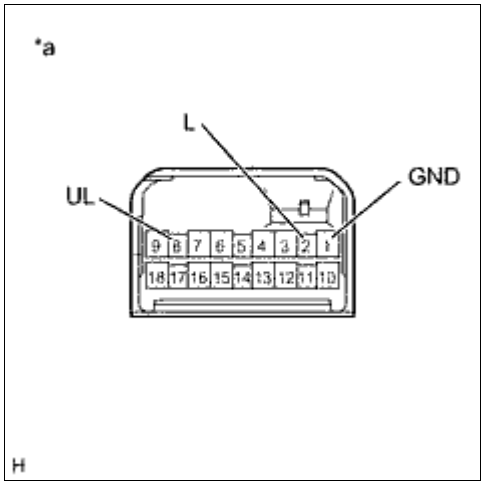
(a) Remove the power window regulator master switch assembly INFO .

(b) Inspect the power window regulator master switch assembly.

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

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
2 (L) - 1 (GND)	Always	10 kΩ or higher
2 (L) - 1 (GND)	Lock switch pushed	Below 1 Ω
8 (UL) - 1 (GND)	Always	10 kΩ or higher
8 (UL) - 1 (GND)	Unlock switch pushed	Below 1 Ω



Text in Illustration

*a	Component without harness connected (Power Window Regulator Master Switch Assembly)

NG ▶ **REPLACE POWER WINDOW REGULATOR MASTER**

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OK

10.	**CHECK HARNESS AND CONNECTOR (POWER WINDOW MASTER SWITCH - MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU))**

(a) Disconnect the 1D driver side junction block connector.

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

Standard Resistance:

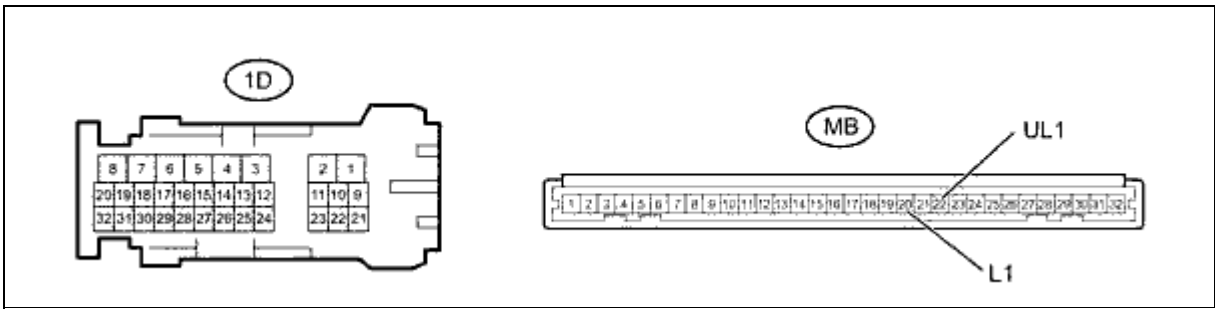
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1D-16 (UL1) - P18-8 (UL)	Always	Below 1 Ω
1D-23 (L1) - P18-2 (L)	Always	Below 1 Ω
P18-1 (GND) - Body ground	Always	Below 1 Ω
1D-16 (UL1) or P18-8 (UL) - Body ground	Always	10 kΩ or higher
1D-23 (L1) or P18-2 (L) - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

11.	**CHECK DRIVER SIDE JUNCTION BLOCK**

(a) Remove the driver side junction block INFO .



Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION

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TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1D-16 - MB-22 (UL1)	Always	Below 1 Ω
1D-23 - MB-20 (L1)	Always	Below 1 Ω
1D-16 - Body ground	Always	10 kΩ or higher
1D-23 (L1) - Body ground	Always	10 kΩ or higher

Text in Illustration

*a	Component without harness connected (driver side junction block)	-	-

NG ▶ **REPLACE DRIVER SIDE JUNCTION BLOCK**

OK ▶ **REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)**

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000005UVP000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: POWER DOOR LOCK CONTROL SYSTEM: CUSTOMIZE PARAMETERS; 2016 MY Tacoma [08/2015 -]		

CUSTOMIZE PARAMETERS

1. CUSTOMIZE POWER DOOR LOCK CONTROL SYSTEM

HINT:

The following items can be customized.

NOTICE:

- 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) Customizing with the Techstream

(1) Connect the Techstream to the DLC3.

(2) Turn the ignition switch to ON.

(3) Turn the Techstream on.

(4) Enter the following menus: Customize Setting / Door Lock.

(5) Select the setting by referring to the table below.

DISPLAY	DEFAULT	CONTENT	SETTING	RELEVANT ECU
Unlock Key Twice	ON	Function that unlocks only the driver door when the driver door key cylinder is turned to unlock once, and unlocks all doors when it is turned to unlock twice. For the OFF setting, turning it once unlocks all doors.	OFF or ON	Main body ECU (Multiplex network body ECU)
Automatic Door Lock Function	Link Shift	• Link Shift: Function that locks all doors when the shift lever is moved out of P, with the ignition switch ON and all doors closed. • Link Speed: Function that locks all doors when the vehicle speed reaches a certain level.	OFF, Link Shift or Link Speed	Main body ECU (Multiplex network body ECU)
Automatic Door Unlock Function	Link Shift	• Link D-door: Function that unlocks the other doors when the driver door is opened within approximately 43 seconds of the ignition switch being turned off. • Link Shift: Function that unlocks all doors when the shift lever is moved to P from any position other than P with the ignition switch ON.	OFF, Link D-door or Link Shift	Main body ECU (Multiplex network body ECU)

(b) Customizing with the Multi-display

(1) Turn the ignition switch to ON.

(2) Enter the following menus: APPS / Setup / Vehicle / Vehicle Customization / Door Lock Settings. (for

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Navigation Receiver Type)

(3) Enter the following menus: SETUP / Vehicle / Vehicle Customization / Door Lock Settings. (for Radio and Display type)

(4) Select the setting by referring to the table below.

DISPLAY	DEFAULT	CONTENT	SETTING	RELEVANT ECU
Automatic Door Lock Function	By Shift From P	• By Shift From P: Function that locks all doors when the shift lever is moved out of P, with the ignition switch ON and all doors closed. • By Speed: Function that locks all doors when the vehicle speed reaches a certain level.	OFF, By Shift From P or By Speed	Main body ECU (Multiplex network body ECU)
Automatic Door Unlock Function	By Shift to P	• By Driver Door: Function that unlocks the other doors when the driver door is opened within approximately 43 seconds of the ignition switch being turned off. • By Shift to P: Function that unlocks all doors when the shift lever is moved to P from any position other than P with the ignition switch ON.	OFF, By Driver Door or By Shift to P	Main body ECU (Multiplex network body ECU)





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Last Modified: 11-13-2015	6.6 U	**Doc ID:** RM000005UZW000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: POWER DOOR LOCK CONTROL SYSTEM: DATA LIST / ACTIVE TEST; 2016 MY Tacoma [08/2015 -]		

DATA LIST / ACTIVE TEST

1. DATA LIST

HINT:

Using the 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.

NOTICE:

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

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Main Body or Master Switch / Data List.

(e) Read the Data List according to the display on the Techstream.

Main Body

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
RR Door Courtesy SW	Rear door courtesy light switch RH signal/ON or OFF	ON: Rear door RH open OFF: Rear door RH closed	-
RL Door Courtesy SW	Rear door courtesy light switch LH signal/ON or OFF	ON: Rear door LH open OFF: Rear door LH closed	-
Door Lock SW-LOCK	Door control switch (power window regulator master switch assembly) or door control switch assembly lock signal/ON or OFF	ON: Lock side of door control switch (power window regulator master switch assembly) or door control switch assembly pushed OFF: Lock side of door control switch (power window regulator master switch assembly) and door control switch assembly not pushed	For vehicles without jam protection, the door lock signals from the power window regulator master switch assembly and the door control switch are combined in this item.
Door Lock SW-UNLOCK	Door control switch (power window regulator master switch assembly) or door control switch assembly unlock signal/ON or OFF	ON: Unlock side of door control switch (power window regulator master switch assembly) or door control switch assembly	For vehicles without jam protection, the door unlock signals from the power window regulator master switch assembly and the door control switch are

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
		pushed OFF: Unlock side of door control switch (power window regulator master switch assembly) or door control switch assembly not pushed	combined in this item.
Door Key SW-Lock	Driver door key-linked lock/unlock switch lock signal/ON or OFF	ON: Driver door key cylinder turned to lock position OFF: Driver door key cylinder not turned to lock position	-
D Door Key SW-UL	Driver door key-linked lock/unlock switch unlock signal/ON or OFF	ON: Driver door key cylinder turned to unlock position OFF: Driver door key cylinder not turned to unlock position	-
FR Door Lock Pos	Front door RH unlock detection switch signal/LOCK or UNLOCK	LOCK: Front door RH locked UNLOCK: Front door RH unlocked	-
FR Door Courtesy	Front door courtesy light switch RH signal/ON or OFF	ON: Front door RH closed OFF: Front door RH open	-
FL Door Lock Pos	Front door LH unlock detection switch signal/LOCK or UNLOCK	LOCK: Front door LH locked UNLOCK: Front door LH unlocked	-
FL Door Courtesy	Front door courtesy light switch LH signal/ON or OFF	ON: Front door LH closed OFF: Front door LH open	-
RR-Door Lock Pos SW*1	Rear door RH and LH unlock detection switch signal/ON or OFF	ON: Rear door RH or LH unlocked OFF: Rear door RH and LH locked	-
RL-Door Lock Pos SW*1	Rear door RH and LH unlock detection switch signal/ON or OFF	ON: Rear door RH or LH unlocked OFF: Rear door RH and LH locked	-
Unlock Key Twice	Key-linked 2-step unlock function/ ON or OFF	Customized value displayed	-
Automatic Door Lock Function	Shift-linked automatic door lock function/ON or OFF	Customized value displayed	-
Automatic Door Unlock	Shift-linked automatic door unlock function/ON or OFF	Customized value displayed	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Function			

*1: for Double Cab

Master Switch

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Door Lock Switch Status*1	Power window regulator master switch lock signal/ON or OFF	ON: Lock side of power window regulator master switch pushed OFF: Lock side of power window regulator master switch not pushed	-
Door Unlock Switch Status*1	Power window regulator master switch unlock signal/ON or OFF	ON: Unlock side of power window regulator master switch pushed OFF: Unlock side of power window regulator master switch not pushed	-

*1: w/ Jam Protection

2. ACTIVE TEST

HINT:

Using the 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 the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Main Body / Active Test.

(e) Perform the Active Test according to the display on the Techstream.

Main Body

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Door Lock	Door lock motor	Unlock/Lock	-
D-Door Unlock	Driver door lock motor	OFF/ON	-

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000000TNQ05TX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: POWER DOOR LOCK CONTROL SYSTEM: HOW TO PROCEED WITH TROUBLESHOOTING; 2016 MY Tacoma [08/2015 -]		

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use the following procedure to troubleshoot the power door lock control system.
- *: Use the Techstream.

1.	**VEHICLE BROUGHT TO WORKSHOP**

NEXT

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 for problem analysis:

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

NEXT

3.	**INSPECT BATTERY VOLTAGE**

(a) Measure the battery voltage.

Standard Voltage:

11 to 14 V

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

NEXT

4.	**CHECK COMMUNICATION FUNCTION OF LIN COMMUNICATION SYSTEM***

(a) Using the Techstream, check for LIN communication system DTCs INFO .

Result

RESULT	PROCEED TO
LIN DTCs are not output	A
LIN DTCs are not output	B

B **GO TO LIN COMMUNICATION SYSTEM**

A

5.	**CHECK FOR DTC (POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY)*, *1**

*1: w/ Jam Protection

(a) Clear the DTCs INFO .

(b) Recheck for DTCs.

Result

RESULT	PROCEED TO
DTC B2312 is not output	A
DTC B2312 is output	B

B **GO TO POWER WINDOW CONTROL SYSTEM**

A

6.	**PROBLEM SYMPTOMS TABLE**

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(a) Refer to Problem Symptoms Table INFO .

Result

RESULT	PROCEED TO
Fault is not listed in Problem Symptoms Table	A
Fault is listed in Problem Symptoms Table	B

B ▶ **Go to step 9**

A

▼

7.	**OVERALL ANALYSIS AND TROUBLESHOOTING***

(a) Terminals of ECU INFO .

(b) Data List / Active Test INFO .

(c) Operation Check INFO .

NEXT

▼

8.	**REPAIR OR REPLACE**

NEXT

▼

9.	**CONFIRMATION TEST**

NEXT ▶ **END**

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000005UVO000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: POWER DOOR LOCK CONTROL SYSTEM: OPERATION CHECK; 2016 MY Tacoma [08/2015 -]		

OPERATION CHECK

1. CHECK POWER DOOR LOCK OPERATION

NOTICE:

The operation check below is based on the non-customized initial condition of the vehicle.

(a) Check basic functions.

(1) Check that all doors lock when the lock side of the door control switch is pressed.

(2) Check that all doors unlock when the unlock side of the door control switch is pressed.

(3) Check that all doors lock when the driver door key cylinder is turned to lock using the mechanical key.

(4) Check that only the driver door unlocks when the driver door lock cylinder is turned to unlock once using the key and other doors unlock when it is turned to unlock consecutively once again.

(b) Check the key lock-in prevention function.

NOTICE:

In order to prevent the key from being locked in, the following inspection should be performed with the driver door window open.

(1) Turn the ignition switch to ON or ACC.

(2) With the driver door open, check that all doors unlock immediately after the door lock knob for the driver door is pressed.

(3) With the driver door open, check that all doors unlock immediately after the lock side of the door control switch (for manual operation) is pressed.

(4) With the driver door open, press the driver door lock knob and hold it for 2 seconds or more, then close the driver door and check that all doors unlock.

(c) Check the security function of the door lock control system.

(1) Close all doors and leave the driver door window open so that the door control switch can be operated from outside the vehicle. (Step 1)

(2) Open the driver door and remove the key from the vehicle. With the door still open, lock the door using the lock knob. Close the driver door. Then, check that the doors do not unlock when the unlock side of the door control switch (for manual operation) is pressed from outside the vehicle.

(3) Starting from Step 1, with the key outside the vehicle, close and lock the driver door using the mechanical key. Then, check that the doors do not unlock when the unlock side of the door control switch (for manual operation) is pressed from outside the vehicle.

(4) Starting from Step 1, with the key outside the vehicle, close and lock the driver door using wireless key operation or smart key operation*. Then, check that the doors do not unlock when the unlock side of the door control switch (for manual operation) is pressed from outside the vehicle.

HINT:

Check that the security function of the door lock control system is canceled under the following conditions:

- The driver door is unlocked using the key.
- The engine is running at 550 rpm or more.

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- The unlock side of the door control switch (for manual operation) is pressed after the door lock knob is unlocked manually.
- The doors are unlocked by wireless operation.

*: w/ Smart Key System

(d) Check the key-linked 2-step unlock function.

(1) Lock all doors.

(2) Check that only the driver door unlocks when the driver door lock cylinder is turned to unlock once using the key and other doors unlock when it is turned to unlock consecutively once again.

(e) Check the driver door-linked automatic door unlock function.

HINT:

The default setting is off. If necessary, the function must be set to ON through the customize function.

(1) When the driver door is closed, turning the ignition switch from ON to off and opening the driver door within approximately 43 seconds will automatically unlock all doors.

(f) Check the shift linked automatic door lock function.

HINT:

The default setting for models without the daytime running light control is off. If necessary, the function must be set to ON through the customize function.

(1) With the shift lever in P and the ignition switch ON, check that all doors lock automatically when the shift lever is moved to any position other than P.

(g) Check the shift linked automatic door unlock function.

(1) With the shift lever in any position other than P and the ignition switch ON, check that all doors unlock automatically when the shift lever is moved to P.

(h) Check the speed-sensitive automatic door lock function.

HINT:

The default setting for models with the daytime running light control is off. If necessary, the function must be set to ON through the customize function.

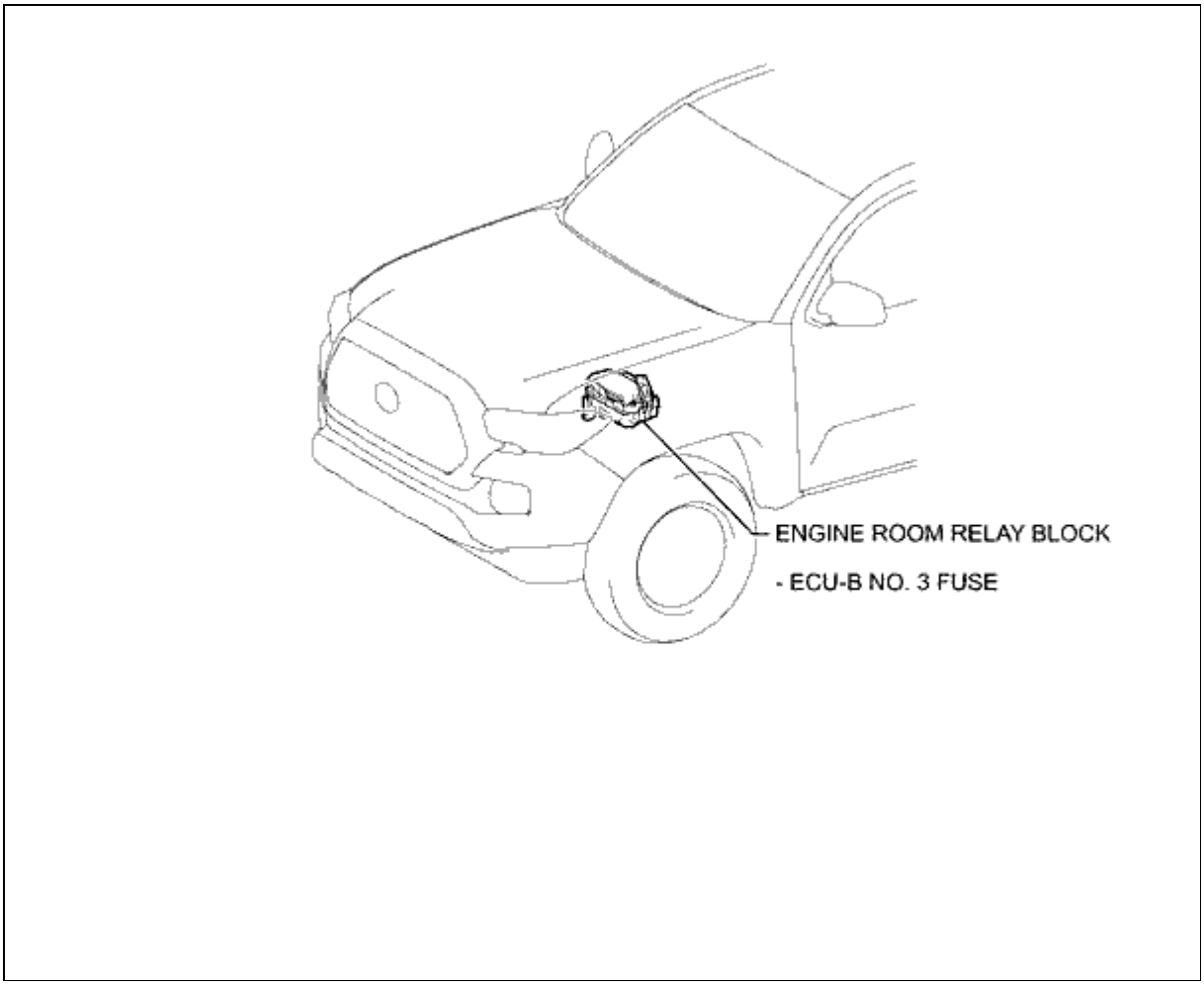
(1) When any door is unlocked and the vehicle is driven at approximately 20 km/h (12 mph) or more, check that all doors lock automatically.

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Last Modified: 11-13-2015	6.6 R	**Doc ID:** RM000000TNS026X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: POWER DOOR LOCK CONTROL SYSTEM: PARTS LOCATION; 2016 MY Tacoma [08/2015 -]		

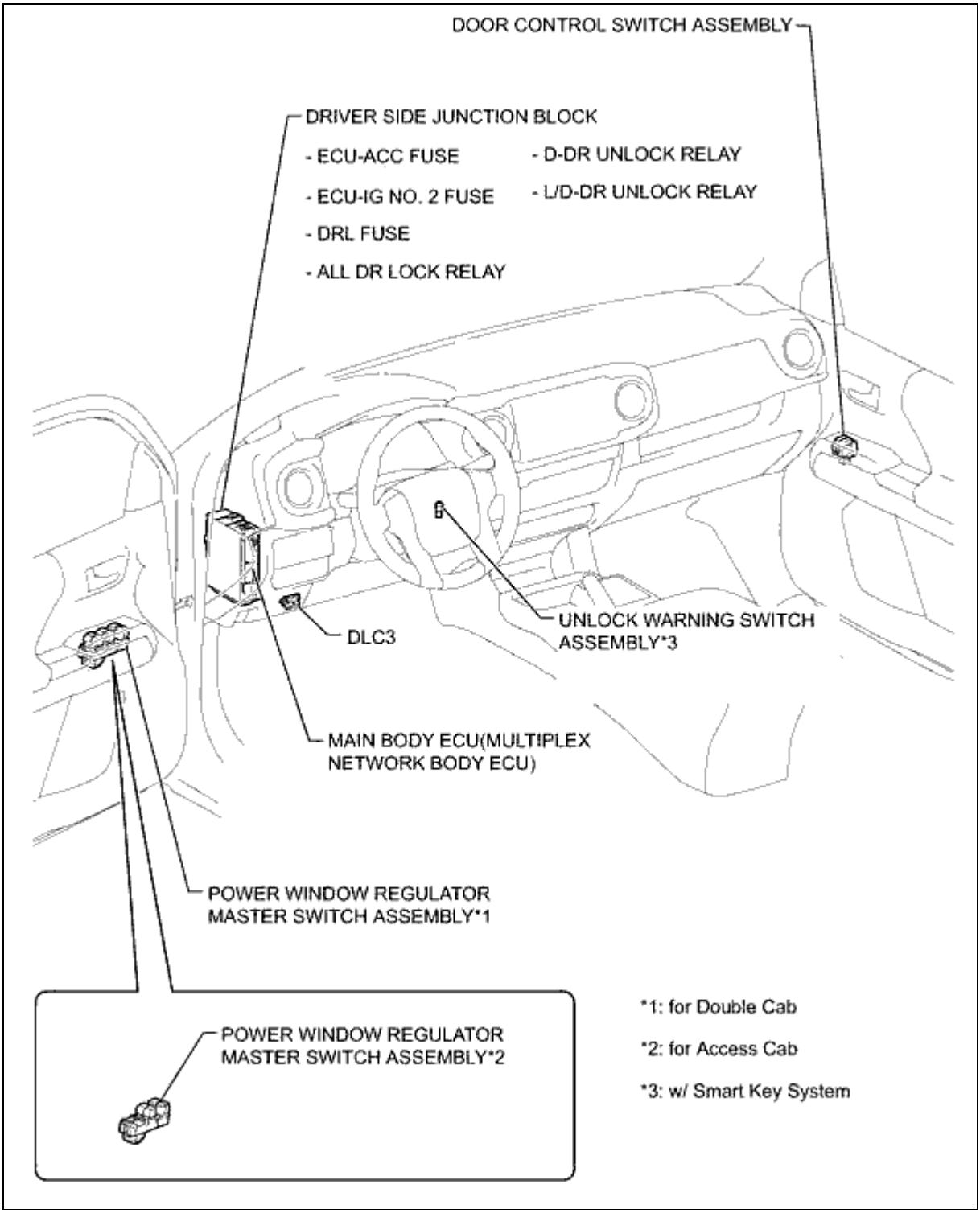
PARTS LOCATION

ILLUSTRATION



ILLUSTRATION

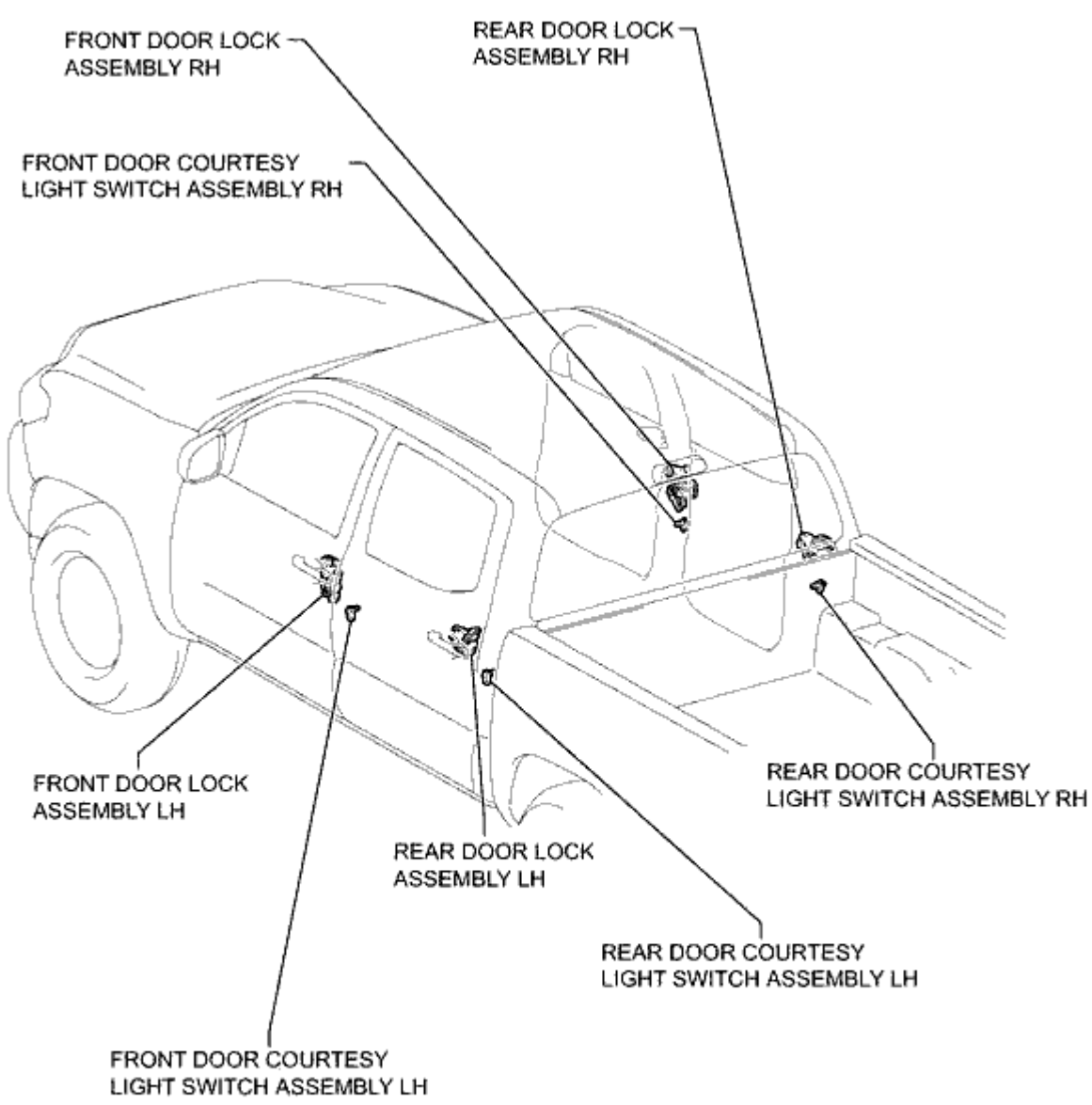
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ILLUSTRATION

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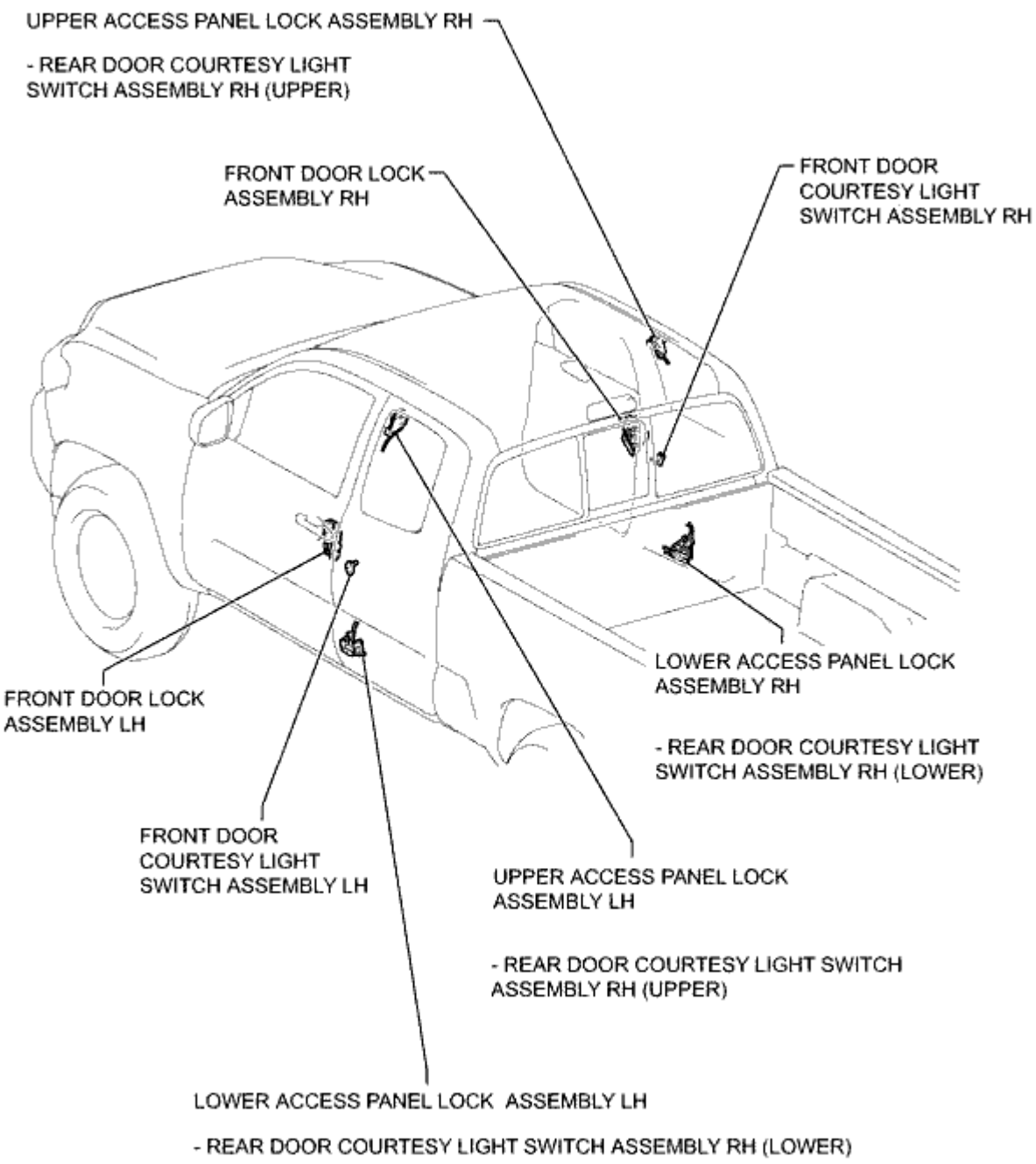
for Double Cab:



ILLUSTRATION

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for Access Cab:



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Last Modified: 11-13-2015	6.6 L	**Doc ID:** RM000005UVN000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: POWER DOOR LOCK CONTROL SYSTEM: PRECAUTION; 2016 MY Tacoma [08/2015 -]		

PRECAUTION

1. IGNITION SWITCH EXPRESSIONS

(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.

EXPRESSION	IGNITION SWITCH (POSITION)	ENGINE SWITCH (CONDITION)
Ignition Switch off	LOCK	Off
Ignition Switch ACC	ACC	On (ACC)
Ignition Switch ON	ON	On (IG)
Engine Start	START	Start

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Last Modified: 11-13-2015	6.6 T	**Doc ID:** RM000000TNU084X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: POWER DOOR LOCK CONTROL SYSTEM: PROBLEM SYMPTOMS TABLE; 2016 MY Tacoma [08/2015 -]		

PROBLEM SYMPTOMS TABLE

- Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.
- Inspect the fuses and relays related to this system before inspecting the suspected areas below.

Power Door Lock Control System

SYMPTOM	SUSPECTED AREA	SEE PAGE
Only Driver Door LOCK/UNLOCK Functions do not Operate	Front door lock assembly LH	INFO
	Wire harness or connector	-
	Main body ECU (Multiplex network body ECU)	INFO
	Driver side junction block	INFO
Only Front Passenger Door LOCK/UNLOCK Functions do not Operate	Front door lock assembly RH	INFO
	Wire harness or connector	-
	Main body ECU (Multiplex network body ECU)	INFO
	Driver side junction block	INFO
Only Rear Door LH LOCK/UNLOCK Functions do not Operate	Rear door lock assembly LH*2	INFO
	Wire harness or connector	-
	Main body ECU (Multiplex network body ECU)	INFO
	Driver side junction block	INFO
Only Rear Door RH LOCK/UNLOCK Functions do not Operate	Rear door lock assembly RH*2	INFO
	Wire harness or connector	-
	Main body ECU (Multiplex network body ECU)	INFO
	Driver side junction block	INFO
Speed-sensitive automatic door lock function does not operate (meter / gauge system operates normally)	Harness or connector	-
	Combination meter assembly	INFO
	Main body ECU (Multiplex network body ECU)	INFO
Driver door-linked automatic door unlock function does not operate	Main body ECU (Multiplex network body ECU)	INFO
Key lock-in prevention function does not operate	Unlock warning switch assembly	INFO
	Harness or connector	-

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SYMPTOM	SUSPECTED AREA	SEE PAGE
	Main body ECU (Multiplex network body ECU)	INFO
All Doors LOCK/UNLOCK Functions do not Operate	Main body ECU (Multiplex network body ECU)	INFO
All Doors LOCK/UNLOCK Functions do not Operate Via Door Control Switch or Door Key Cylinder	Proceed to "All Doors LOCK/UNLOCK Functions do not Operate Via Door Control Switch or Door Key Cylinder"	INFO
All Doors LOCK/UNLOCK Functions do not Operate Via Door Control Switch	Proceed to "All Doors LOCK/UNLOCK Functions do not Operate Via Door Control Switch"	INFO
Lock Operation Continues even after Doors have been Locked*1	Front door lock assembly LH	INFO
	Front door lock assembly RH	INFO
	Rear door lock assembly LH*2	INFO
	Rear door lock assembly RH*2	INFO
	Wire harness or connector	-
	Main body ECU (Multiplex network body ECU)	INFO

*1: When the door unlock detection switch detects an unlock position signal after a door lock operation has been performed, a door lock operation will be performed 3 times.
*2: for Double Cab

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000000TNV057X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: POWER DOOR LOCK CONTROL SYSTEM: SYSTEM DESCRIPTION; 2016 MY Tacoma [08/2015 -]		

SYSTEM DESCRIPTION

1. POWER DOOR LOCK CONTROL SYSTEM DESCRIPTION

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

The main body ECU (multiplex network body ECU) receives lock/unlock request signals from a door control switch or the driver door key lock and unlock switch. Then, the main body ECU (multiplex network body ECU) sends these request signals to the door lock motors in each door to lock/unlock each door in response to the inputs.

2. FUNCTION OF MAIN COMPONENTS

COMPONENT	FUNCTION
Power window regulator master switch assembly • Door control switch	The door control switch on the power window regulator master switch assembly locks or unlocks all doors.
Front door courtesy light switch assembly LH Front door courtesy light switch assembly RH Rear door courtesy light switch assembly LH*1 Rear door courtesy light switch assembly RH*1 Upper access panel lock assembly LH*2 Upper access panel lock assembly RH*2 Lower access panel lock assembly LH*2 Lower access panel lock assembly RH*2	• Placed on each door. • Detects the door status (open or closed) and outputs data to the body ECU. • Turns on when the door is opened and turns off when the door is closed.
Front door lock assembly LH	• The built-in motor locks or unlocks the door. • The built-in key cylinder lock and unlock switch (key-linked) detects the door key operation status (locked or unlocked) and outputs a signal to the body ECU. • The built-in unlock detection switch detects the door status (locked or unlocked) and outputs a signal to the body ECU. This switch turns off when the door is locked and turns on when the door is unlocked.
Front door lock assembly RH	The built-in motor locks or unlocks the door.

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COMPONENT	FUNCTION
Rear door lock assembly LH*1 Rear door lock assembly RH*1	

*1: for Double Cab
*2: for Access Cab

3. SYSTEM FUNCTION

(a) This system is controlled by the main body ECU (multiplex network body ECU). The main body ECU (multiplex network body ECU) outputs signals to each door lock motor. The power door lock control system has the following functions:

FUNCTION	OUTLINE
Manual lock and unlock function	This function can lock or unlock all doors by the door control switch operation.
Key-linked lock and unlock function	This function, which is linked with the mechanical key cylinder, can lock or unlock all doors when a lock or unlock operation is performed.
Manual unlock prohibition function	When the condition below is met, unlocking the vehicle using the door control switch will be prohibited: • The doors are locked using a key-linked operation, wireless key operation or smart key operation*1 with all doors closed.
Key lock-in prevention function	When the key is in the vehicle*1 or ignition key cylinder*2, performing the door lock operation will not lock the door.
Key-linked 2-step unlock function	Unlocks only the driver door by turning the key cylinder once and unlocks the other doors by turning it twice.
Shift-linked automatic door lock function	When the conditions listed below are met consecutively, this function causes all doors to be automatically locked: • All doors are closed. • The ignition switch is ON. • With the shift lever in P, the shift lever is moved to any position other than P. • Any of the doors is unlocked.
Shift-linked automatic door unlock function	When the conditions listed below are met consecutively, this function causes all doors to be automatically unlocked: • The ignition switch is ON. • With the shift lever in any position other than P, the shift lever is moved to P.
Speed-sensitive automatic door lock function	When the conditions listed below are met consecutively, this function causes all doors to be automatically locked: • Vehicle speed is higher than approximately 20 km/h (12 mph). • All doors are closed. • Any of the doors is unlocked.

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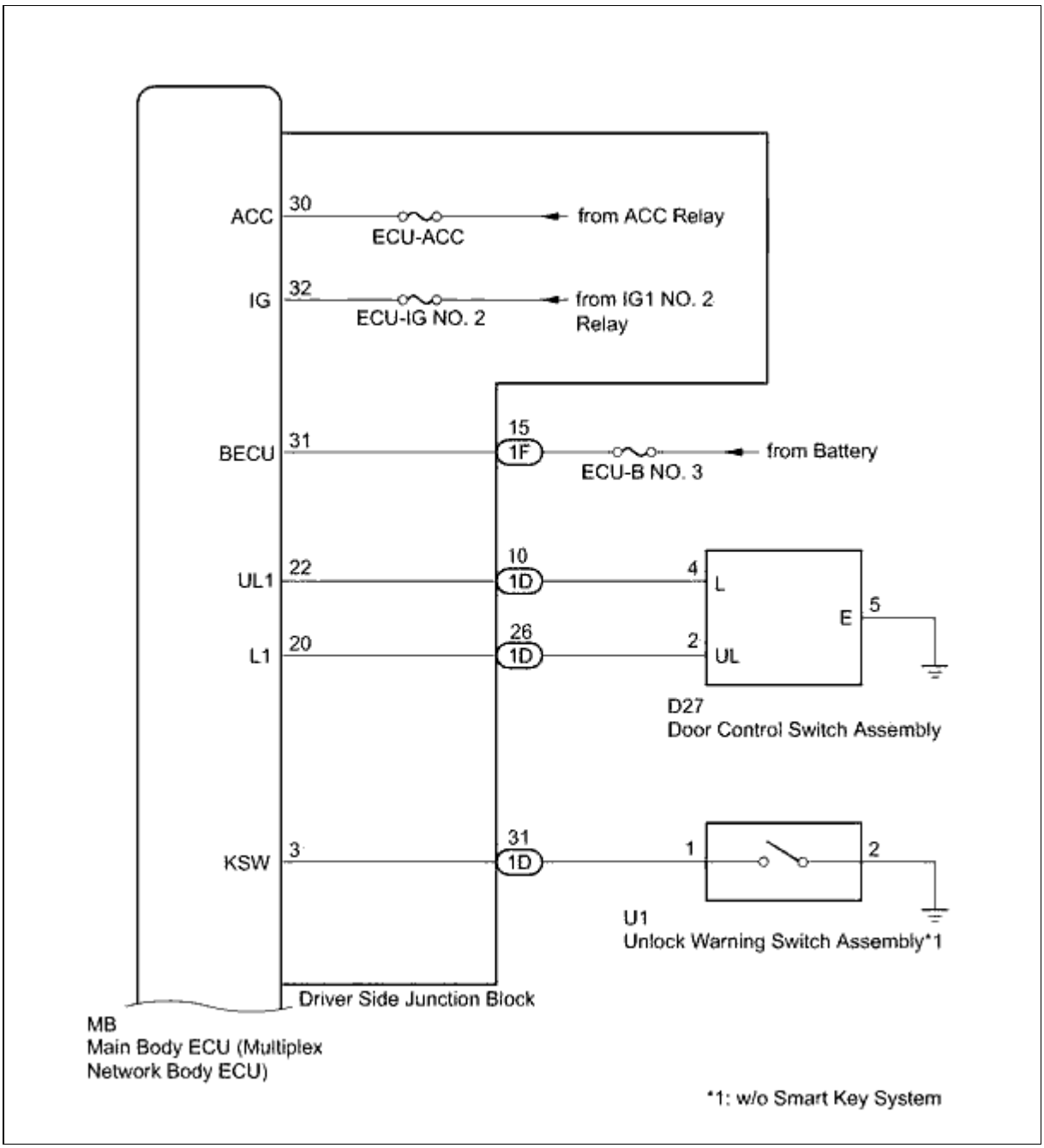
FUNCTION	OUTLINE
Driver door-linked automatic door unlock	All doors are unlocked automatically when the driver door is opened within approximately 43 seconds after the ignition switch is turned from ON to off.

*1: w/ Smart Key System.
*2: w/o Smart Key System.

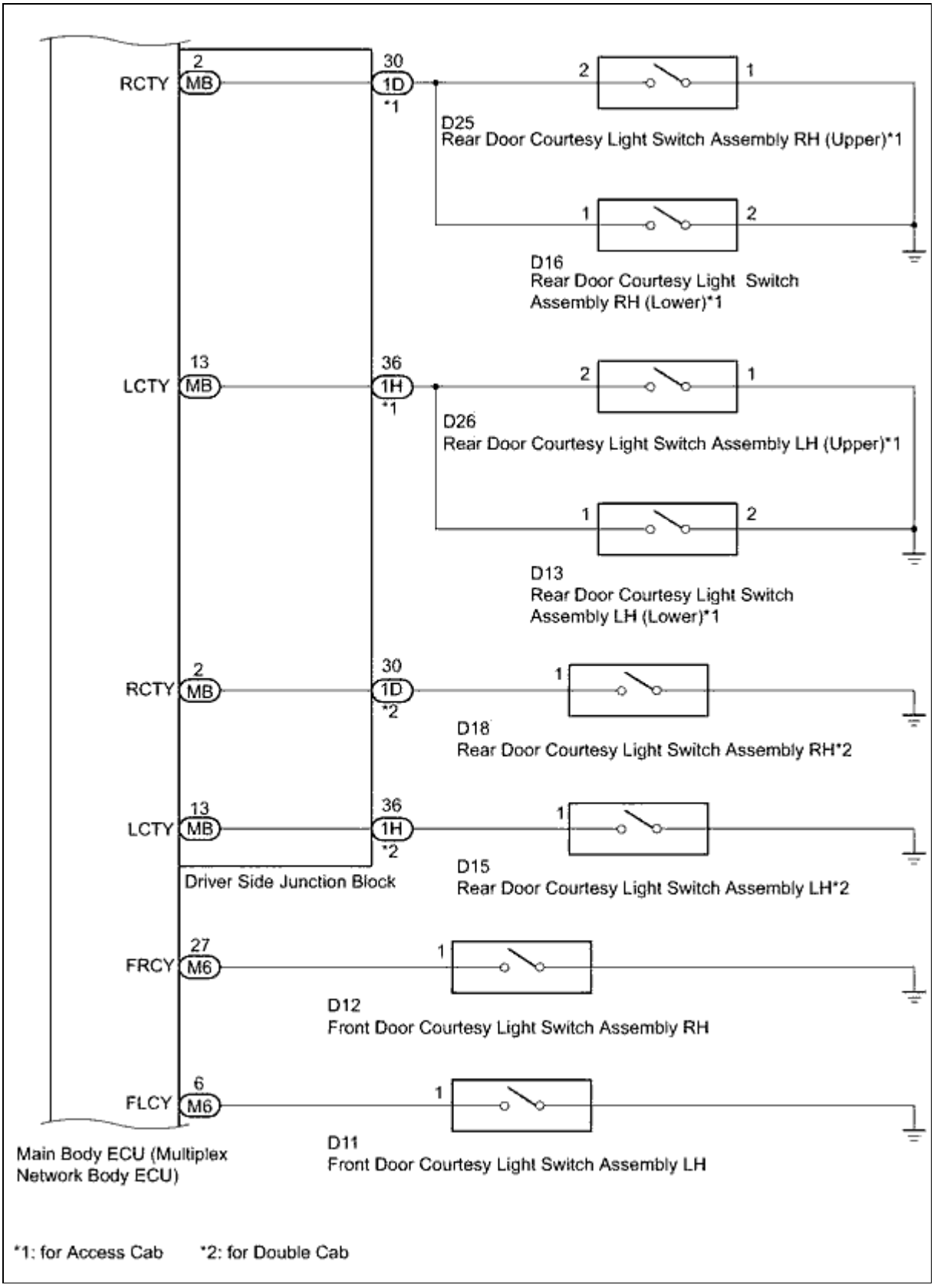
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Last Modified: 11-13-2015	6.6 U	**Doc ID:** RM000000TNY02FX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: POWER DOOR LOCK CONTROL SYSTEM: SYSTEM DIAGRAM; 2016 MY Tacoma [08/2015 -]		

SYSTEM DIAGRAM

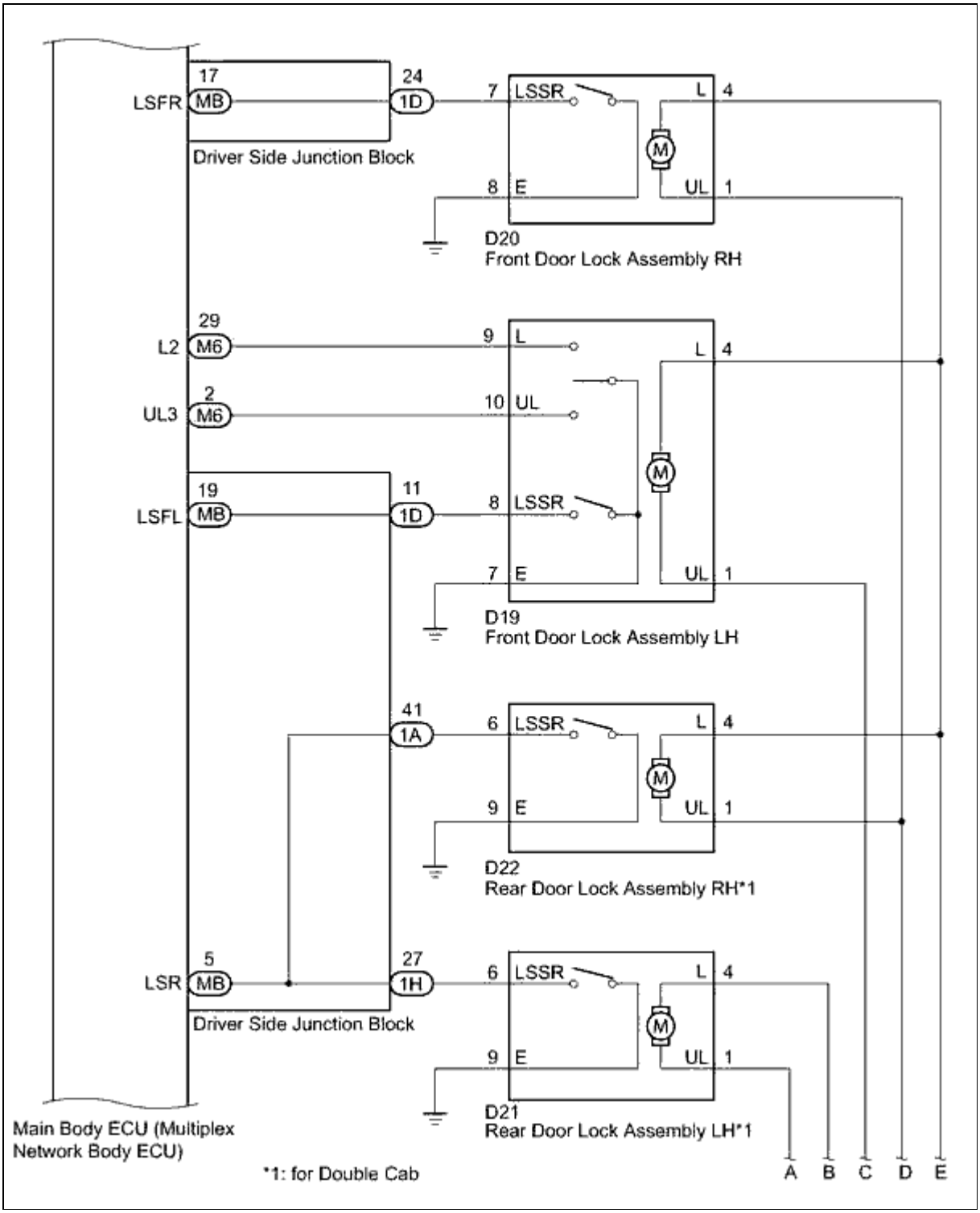


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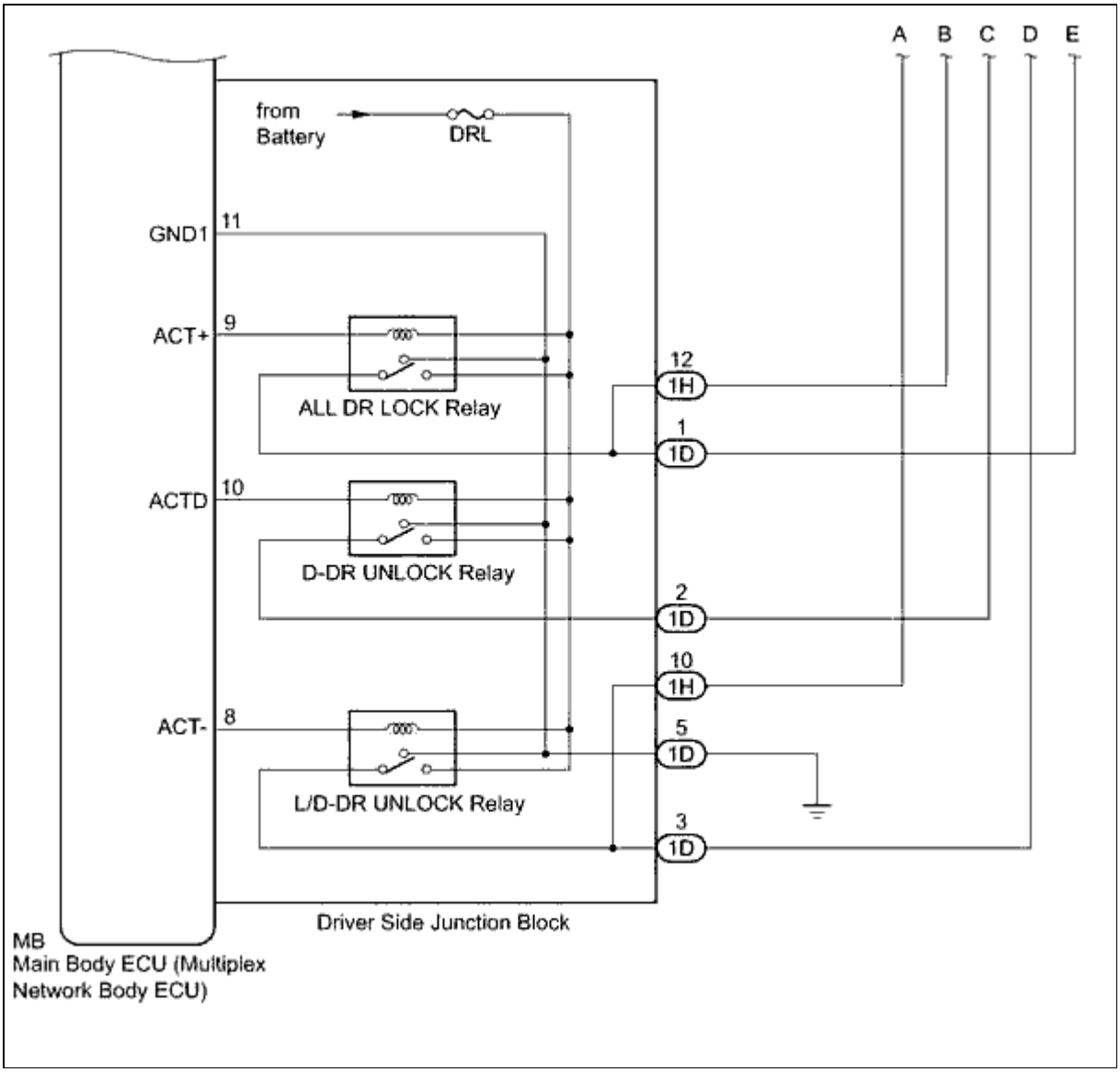


*1: for Access Cab *2: for Double Cab

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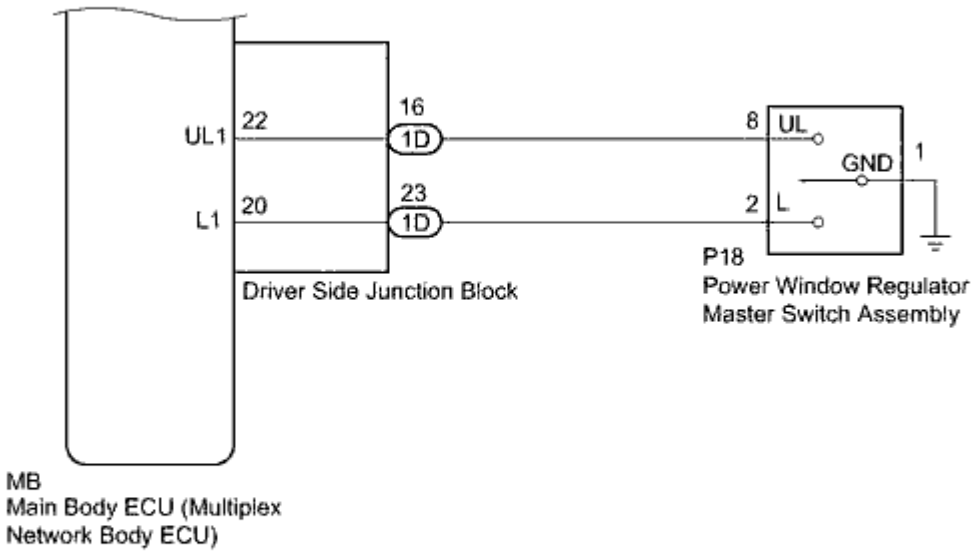


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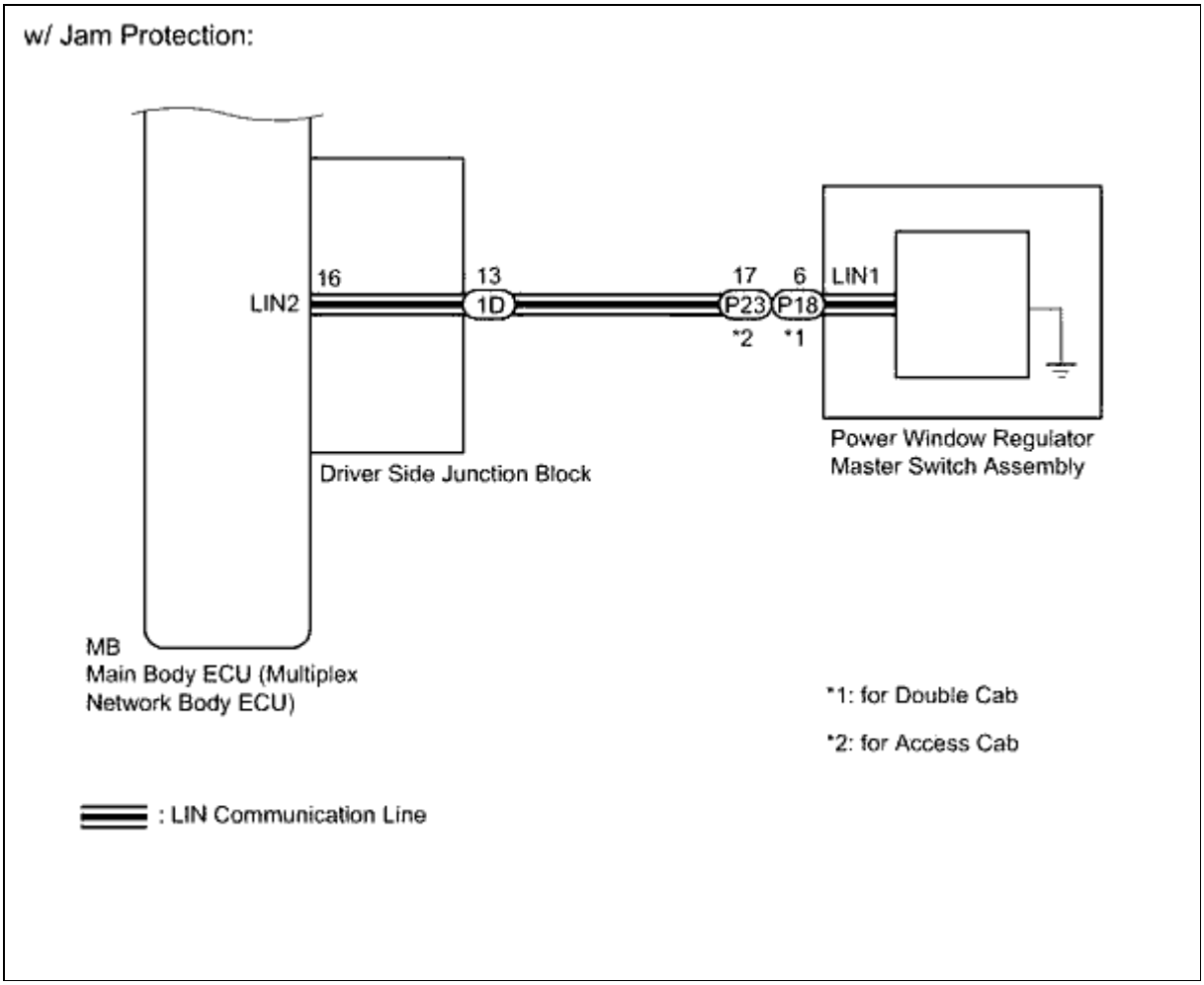


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w/o Jam Protection:



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Communication Table

SENDER	RECEIVER	SIGNAL	COMMUNICATION METHOD
Power window regulator master switch assembly*1	Main Body ECU (Multiplex Network Body ECU)	Door control switch signal	LIN

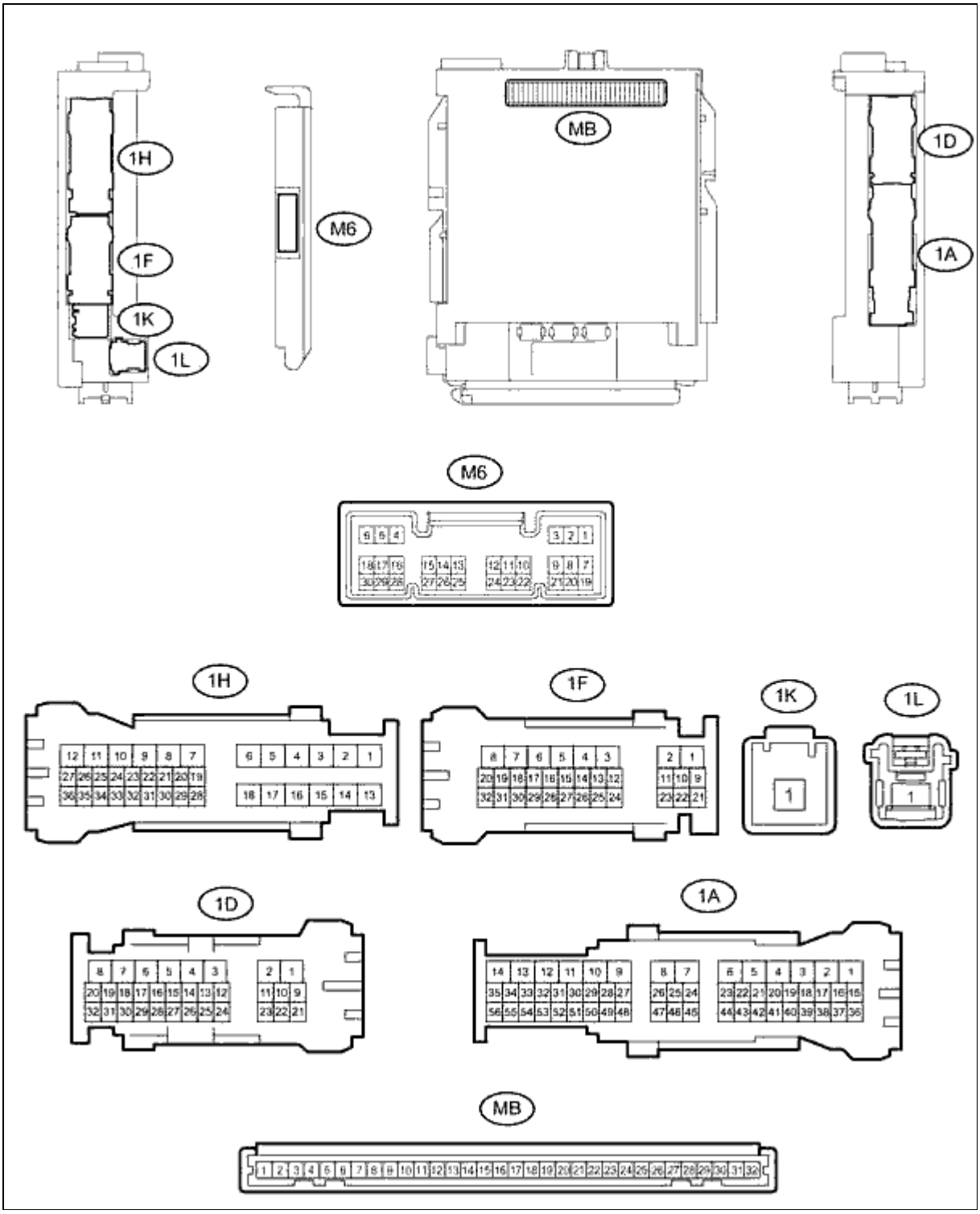
*1: w/ Jam Protection

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Last Modified: 11-13-2015	6.6 U	**Doc ID:** RM000000TNT05VX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: POWER DOOR LOCK CONTROL SYSTEM: TERMINALS OF ECU; 2016 MY Tacoma [08/2015 -]		

TERMINALS OF ECU

1. CHECK DRIVER SIDE JUNCTION BLOCK AND MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)



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(a) Disconnect the MB main body ECU (multiplex network body ECU) connectors.

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

HINT:

Measure the values on the wire harness side with the connectors disconnected.

TESTER CONNECTION	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
MB-11(GND1) - Body ground	-	Ground	Always	Below 1 Ω
MB-31 (BECU) - Body ground	-	Battery power supply	Always	11 to 14 V
MB-30 (ACC) - Body ground	-	ACC power supply	Ignition switch ACC	11 to 14 V
MB-30 (ACC) - Body ground	-	ACC power supply	Ignition switch off	Below 1 V
MB-32 (IG) - Body ground	-	IG power supply	Ignition switch ON	11 to 14 V
MB-32 (IG) - Body ground	-	IG power supply	Ignition switch off	Below 1 V

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

(c) Reconnect the MB main body ECU (multiplex network body ECU) connectors.

(d) Measure the voltage and check for pulses according to the value(s) in the table below.

TESTER CONNECTION	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
1D-1 (ACT+) - Body ground	R - Body ground	Door lock motor unlock drive output (except driver door)	Door control switch or driver door key cylinder off	Below 1 V
			Door control switch or driver door key cylinder unlocked	11 to 14 V
1H-12 (ACT+) - Body ground	LA-R - Body ground	Door lock motor unlock drive output (except driver door)	Door control switch or driver door key cylinder off	Below 1 V
			Door control switch or driver door key cylinder unlocked	11 to 14 V
1H-10 (ACT-) - Body ground	LA-G - Body ground	Door lock motor lock drive output (all doors)	Door control switch or driver door key cylinder off	Below 1 V
			Door control switch or driver door key cylinder locked	11 to 14 V
1D-3 (ACT-) - Body ground	G - Body ground	Door lock motor lock drive output (all doors)	Door control switch or driver door key cylinder off	Below 1 V
			Door control switch or driver door key cylinder locked	11 to 14 V
1D-2 (ACTD) - Body ground	B - Body ground	Driver door lock motor unlock drive output	Door control switch or driver door key cylinder off	Below 1 V

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TESTER CONNECTION	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
			Door control switch or driver door key cylinder unlocked	11 to 14 V
M6-2 (UL3) - Body ground	G - Body ground	Driver door key-linked unlock input	Driver door key cylinder turned to neutral position → on (unlock)	Pulse generation → Below 1 V
M6-29 (L2) - Body ground	SB - Body ground	Driver door key-linked lock input	Driver door key cylinder turned to neutral position → on (lock)	Pulse generation → Below 1 V
M6-27 (FRCY) - Body ground	LG - Body ground	Front door courtesy light switch RH input	Front door RH open	Below 1 V
M6-27 (FRCY) - Body ground	LG - Body ground	Front door courtesy light switch RH input	Front door RH open	11 to 14 V
M6-6 (FLCY) - Body ground	Y - Body ground	Front door courtesy light switch LH input	Front door LH open	Below 1 V
M6-6 (FLCY) - Body ground	Y - Body ground	Front door courtesy light switch LH input	Front door LH closed	11 to 14 V
1H-36 (LCTY) - Body ground	P - Body ground	Rear door courtesy light switch LH input*1 Upper access panel lock assembly LH input*2 Lower access panel lock assembly LH input*2	Rear door LH open	Below 1 V
1H-36 (LCTY) - Body ground	P - Body ground	Rear door courtesy light switch LH input*1 Upper access panel lock assembly LH input*2 Lower access panel lock assembly LH input*2	Rear door LH closed	Pulse generation
1D-30 (RCTY) - Body ground	V - Body ground	Rear door courtesy light switch RH input*1 Upper access panel lock assembly RH input*2 Lower access panel lock assembly RH input*2	Rear door RH open	Below 1 V
1D-30 (RCTY) - Body ground	V - Body ground	Rear door courtesy light switch RH input*1 Upper access panel lock assembly RH input*2 Lower access panel lock assembly RH input*2	Rear door RH closed	Pulse generation
1D-11 (LSFL) - Body ground	P - Body ground	Front door LH unlock detection switch input	Front door LH unlocked	Below 1 V

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TESTER CONNECTION	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
1D-11 (LSFL) - Body ground	P - Body ground	Front door LH unlock detection switch input	Ignition switch off, all doors closed and front door LH locked	Pulse generation
1D-24 (LSFR) - Body ground	GR - Body ground	Front door RH unlock detection switch input	Front door RH unlocked	Below 1 V
1D-24 (LSFR) - Body ground	GR - Body ground	Front door RH unlock detection switch input	Ignition switch off, all doors closed and front door RH locked	Pulse generation
1A-41 (LSR) - Body ground	Y - Body ground	Rear door RH unlock detection switch input	Rear door RH or LH unlocked	Below 1 V
1A-41 (LSR) - Body ground	Y - Body ground	Rear door RH unlock detection switch input	Ignition switch off, all doors closed and rear door RH and LH locked	Pulse generation
1H-27 (LSR) - Body ground	L - Body ground	Rear door LH unlock detection switch input	Rear door LH or RH unlocked	Below 1 V
1H-27 (LSR) - Body ground	L - Body ground	Rear door LH unlock detection switch input	Ignition switch off, all doors closed and rear door LH and RH locked	Pulse generation
1F-29 (BZR) - Body ground	Y - Body ground	Wireless door lock buzzer signal	Wireless door lock buzzer off	Below 1 V
1F-29 (BZR) - Body ground	Y - Body ground	Wireless door lock buzzer signal	Wireless door lock buzzer on	Pulse generation
31-1D (KSW) - Body ground*5	G - Body ground	Key unlock warning switch input	Key in ignition key cylinder	Below 1 V
			No key in ignition key cylinder	11 to 14 V or Pulse generation

*1: for Double Cab
*2: for Access Cab
*3: w/ Jam Protection
*4: w/o Jam Protection
*5: w/o Smart Key System

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000005UVM000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): Additional Key cannot be Registered; 2016 MY Tacoma [08/2015 -]		

Additional Key cannot be Registered

DESCRIPTION

If additional registration is not possible, a malfunction in the certification ECU (smart key ECU assembly), engine switch, electrical key transmitter sub-assembly or steering lock ECU (steering lock actuator or UPR bracket assembly) is suspected.

INSPECTION PROCEDURE

NOTICE:

- If registration of an electrical key transmitter sub-assembly is not possible, first confirm the procedure by engine immobiliser system. INFO .
- The smart key system (for Entry Function) uses a multiplex communication system (LIN communication system) and the CAN communication system. Inspect the communication function by following How to Proceed with Troubleshooting. Troubleshoot the smart key system (for Entry Function) after confirming that the communication systems are functioning properly INFO .
- When using the Techstream with the engine switch off, connect the Techstream to the DLC3 and turn a courtesy light switch on and off at intervals of 1.5 seconds or less until communication between the Techstream and the vehicle begins. Then select the vehicle type under manual mode and enter the following menus: Body Electrical / Smart Key. While using the Techstream, periodically turn a courtesy light switch on and off at intervals of 1.5 seconds or less to maintain communication between the Techstream and the vehicle.
- Before replacing the certification ECU (smart key ECU assembly), steering lock ECU (steering lock actuator or UPR bracket assembly) and electrical key transmitter sub-assembly, refer to the smart key system (for Entry Function) INFO .

HINT:

When additional registration is not possible, some freeze frame data may be stored in the certification ECU (smart key ECU assembly) INFO .

If freeze frame data is available, it can be helpful in determining whether any parts were malfunctioning or not or narrowing down the suspected areas based on the table below.

Certification ECU Log of ID Code Registration

PARAMETER NAME	CAUSE OF PROBLEM AND COUNTERMEASURE
Failed Registration Mode	Make sure that another mode or a different registration mode is not selected, and then restart registration.
Key Registration Max	The registration was not possible because the maximum number of the electrical key transmitter sub-assemblies has already been registered to the certification ECU (smart key ECU assembly). If a new electrical key transmitter sub-assembly needs to be registered, such as when one of the registered electrical key transmitter sub-assemblies has been lost, erase an unnecessary ID code first. INFO .

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PARAMETER NAME	CAUSE OF PROBLEM AND COUNTERMEASURE
Key Verification: Amp Abnormal	Although a registered electrical key transmitter sub-assembly was held near the engine switch, electrical key transmitter sub-assembly registration could not be confirmed due to a malfunction of the immobiliser amplifier, such as a short to ground. DTC B278A or B2784 was stored.
Key Verification: Read Error	A registered electrical key transmitter sub-assembly was not held near the engine switch properly or electrical key transmitter sub-assembly registration cannot be confirmed due to wave interference, etc. Reregister the electrical key transmitter sub-assembly using the correct procedure or use another registered electrical key transmitter sub-assembly.
Transponder Key Amp Abnormal	Although an unregistered electrical key transmitter sub-assembly was held near the engine switch, electrical key transmitter sub-assembly registration cannot be completed due to a malfunction of the immobiliser amplifier, such as a short to ground. DTC B278A or B2784 was stored.
New Key Registration Error	An unregistered electrical key transmitter sub-assembly was not held near the engine switch properly or electrical key transmitter sub-assembly registration cannot be confirmed due to a malfunction, such as wave interference. Reregister the electrical key transmitter sub-assembly using the correct procedure or use another registered electrical key transmitter sub-assembly.
New Key Vehicle ID Error	Although the vehicle ID stored in the certification ECU (smart key ECU assembly) should be registered to the electrical key transmitter sub-assembly during electrical key transmitter sub-assembly registration, it was not successful. Use another unregistered electrical key transmitter sub-assembly for registration.
New Key Registration Failed	Although an unregistered electrical key transmitter sub-assembly was held near the engine switch for registration, electrical key transmitter sub-assembly registration was not successful due to wave interference (such as radio waves emitted from a device in the cabin) or a low transmitter battery.
New Key Already Registered	As a registered electrical key transmitter sub-assembly was held near the engine switch by mistake, electrical key transmitter sub-assembly registration was not successful. Using an unregistered electrical key transmitter sub-assembly, perform the registration procedure again.
New Key ID Code Error	Replace the certification ECU (smart key ECU assembly)
New Key Information Abnormal	The ID code of an electrical key transmitter sub-assembly could not be registered to the certification ECU (smart key ECU assembly). If 2 electrical key transmitter sub-assemblies are held near the engine switch at the same time, incorrect registration information will be stored in the certification ECU (smart key ECU assembly), suspending registration. Reregister the electrical key transmitter sub-assembly using the correct registration procedure.

PROCEDURE

1.	**CHECK FOR DTC**

(a) Check for DTCs.

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NOTICE:

If a malfunction occurs, do not remove/install the vehicle battery before checking for DTCs.

OK:

DTC is not output.

NG ▶ **GO TO DIAGNOSTIC TROUBLE CODE CHART**

OK ▼

2.	**CHECK STEERING LOCK SYSTEM**

(a) Check that the steering wheel unlocks.

OK:

The steering wheel unlocks.

HINT:

Check that the communication between the steering lock ECU (steering lock actuator or UPR bracket assembly) and certification ECU (smart key ECU assembly) is normal.

NG ▶ **GO TO STEERING LOCK SYSTEM**

OK ▼

3.	**REGISTRATION**

(a) Using other unregistered electrical key transmitter sub-assemblies, perform the additional registration procedure.

OK:

Additional registration can be completed.

NG ▶ **GO TO STEP 4**

OK ▶ **REPLACE ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY**

4.	**REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

(a) Replace the certification ECU (smart key ECU assembly) with a new one and register the electrical key transmitter sub-assemblies to the new ECU.

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HINT:

- For replacement, INFO .
- For registration, INFO .

OK:

The key ID can be registered.

NG ▶ **GO TO New key cannot be Registered**

OK ▶ **END (CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) WAS DEFECTIVE)**

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000005UVE000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): All Door Entry Lock/Unlock Functions and Wireless Functions do not Operate; 2016 MY Tacoma [08/2015 -]		

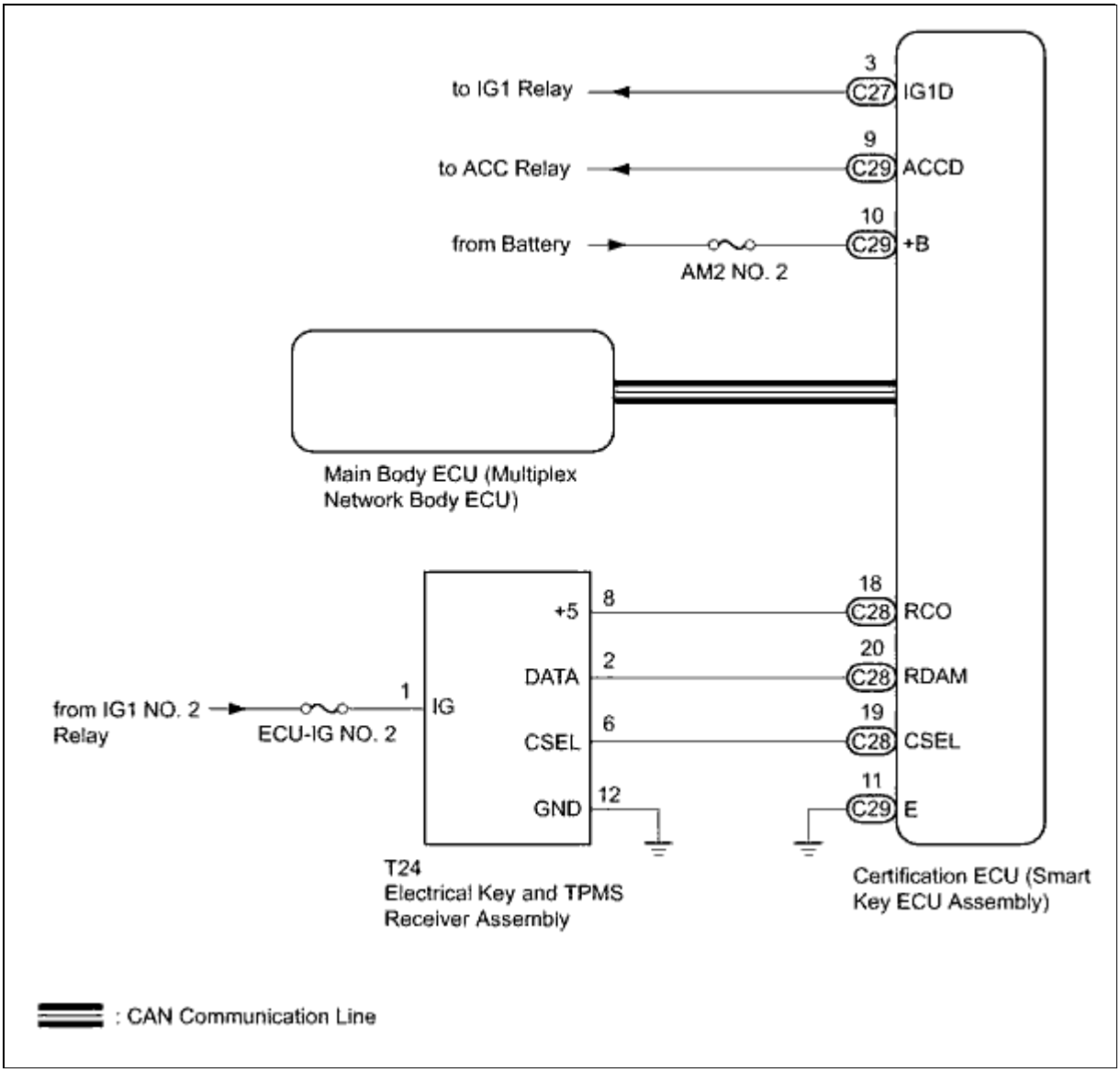
All Door Entry Lock/Unlock Functions and Wireless Functions do not Operate

DESCRIPTION

When the entry operation and wireless operation of the door lock functions do not operate, a malfunction or wave interference may be occurring in either of the following: 1) the signal communication line between the electrical key and TPMS receiver assembly and certification ECU (smart key ECU assembly) (the line used for entry and wireless operations); or 2) the electrical key transmitter sub-assembly. If the entry lock and wireless lock operations cannot be performed, there may be electrical key transmitter sub-assembly malfunctions, wave interference or problems in the communication which is used for the entry and wireless function between the electrical key and TPMS receiver assembly and certification ECU (smart key ECU assembly).

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- The smart key system (for Entry Function) uses the LIN communication system and CAN communication system. Inspect the communication function by following How to Proceed with Troubleshooting. Troubleshoot the smart key system (for Entry Function) after confirming that the communication systems are functioning properly INFO .
- When using the Techstream with the engine switch off, connect the Techstream to the DLC3 and turn a courtesy light switch on and off at intervals of 1.5 seconds or less until communication between the Techstream and the vehicle begins. Then select the vehicle type under manual mode and enter the following menus: Body Electrical / Smart Key. While using the Techstream, periodically turn a courtesy light switch on and off at intervals of 1.5 seconds or less to maintain communication between the Techstream and the vehicle.
- Check that there are no electrical key transmitter sub-assemblies in the vehicle.
- Before performing the inspection, check that DTC B1242 (wireless door lock control) is not output INFO .
- Inspect the fuses for circuits related to this system before performing the following procedure.
- Before replacing the certification ECU (smart key ECU assembly) or main body ECU (multiplex network body ECU), refer to smart key system (for Entry Function) Precaution INFO .
- After repair, confirm that no DTCs are output by performing "DTC Output Confirmation Operation".
- When replacing the electrical key and TPMS receiver assembly, read the transmitter IDs (tire pressure warning system) stored in the old ECU using the Techstream and write them down before removal (See

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page).

- It is necessary to perform initialization INFO after registration INFO of the transmitter IDs into the electrical key and TPMS receiver assembly if the electrical key and TPMS receiver assembly has been replaced.

PROCEDURE

1.	**INSPECT BATTERY VOLTAGE**

(a) Measure the voltage of the vehicle battery.

Standard voltage:
11 to 14 V

HINT:

It may be possible to tell whether the vehicle battery is discharged by operating the horn.

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

NEXT

2.	**CHECK FOR DTC**

(a) Open the driver door using the mechanical key built into the electrical key transmitter sub-assembly.

(b) Check for DTCs.

Result

RESULT	PROCEED TO
DTCs are not output	A
DTCs are output	B

B **GO TO DIAGNOSTIC TROUBLE CODE CHART**

A

3.	**CHECK DOOR AJAR WARNING**

(a) When the doors are locked by operating the entry lock function with all doors closed, check that the door ajar warning operates.

HINT:

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Warning function (door ajar warning) INFO

Result

RESULT	PROCEED TO
The wireless buzzer does not sound	A
The wireless buzzer sounds	B

B ▶ **GO TO LIGHTING SYSTEM (Proceed to Door Courtesy Switch Circuit)**

A ▼

4.	**CHECK POWER DOOR LOCK CONTROL SYSTEM**

(a) When the door control switch on the multiplex network master switch assembly is operated, check that the doors unlock and lock according to the switch operation INFO .

Result

RESULT	PROCEED TO
Power door lock function operates normally	A
Power door lock function does not operate normally	B

B ▶ **GO TO POWER DOOR LOCK CONTROL SYSTEM**

A ▼

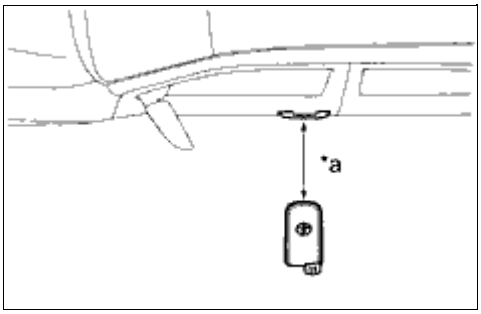
5.	**CHECK KEY DIAGNOSTIC MODE**

(a) Check the following antennas in key diagnostic mode INFO .

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(1) Check the electrical key antenna (for driver door):

When the electrical key transmitter sub-assembly is brought within 0.7 to 1 m (2.30 to 3.28 ft.) of the front door outside handle assembly (for driver door), check that the wireless buzzer sounds.



HINT:

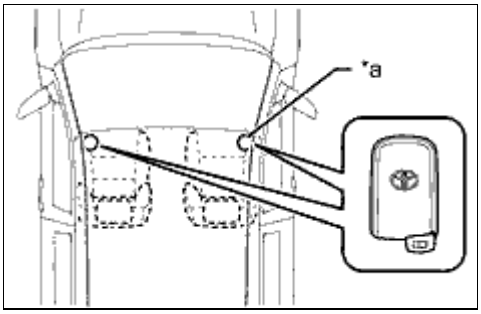
- Select either channel 1 or channel 2 and inspect key diagnostic mode for each channel.
- If the buzzer sounds with [CH1] displayed but not with [CH2], the electrical key transmitter sub-assembly cannot be detected by channel 2 due to a malfunction, such as wave interference.

Text in Illustration

*a	0.7 to 1 m (2.30 to 3.28 ft.)

(2) Check the No. 2 indoor electrical key antenna assembly (front floor):

When the electrical key transmitter sub-assembly is at either inspection point, check that the wireless buzzer sounds.



HINT:

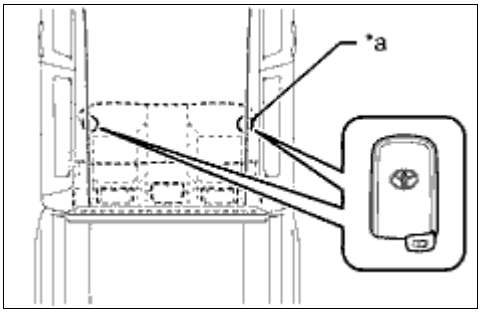
- Select either channel 1 or channel 2 and inspect key diagnostic mode for each channel.
- If the buzzer sounds with [CH1] displayed but not with [CH2], the electrical key transmitter sub-assembly cannot be detected by channel 2 due to a malfunction, such as wave interference.

Text in Illustration

*a	Inspection Point

(3) Check the indoor electrical key antenna (rear floor):

When the electrical key transmitter sub-assembly is at either inspection point, check that the wireless buzzer sounds.



HINT:

- Select either channel 1 or channel 2 and inspect key diagnostic mode for each channel.
- If the buzzer sounds with [CH1] displayed but not with [CH2], the electrical key transmitter sub-assembly cannot be detected by channel 2 due to a malfunction, such as wave interference.

OK:

Wireless buzzer sounds.

Text in Illustration

*a	Inspection Point

Result

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RESULT	PROCEED TO
Diagnostic mode inspections fail for both channels	A
Diagnostic mode inspections succeed for both channels	B
Diagnostic mode inspection succeeds for only one of the channels	C

B ▶ **GO TO STEP 18**

C ▶ **GO TO STEP 27**

A
▼

6.	CHECK WAVE ENVIRONMENT

(a) Bring the electrical key transmitter sub-assembly that was checked first near the electrical key and TPMS receiver assembly and select the failed channel (the channel in which the buzzer did not sound) to recheck key diagnostic mode INFO .

HINT:

- When the electrical key transmitter sub-assembly is brought near the electrical key and TPMS receiver assembly, 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 problem only occurs in certain locations or at certain 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.
- There may be wave interference if the vehicle is near broadcasting antennas, large video displays, wireless garage door opener systems, wireless security cameras, home security systems, etc. In this case, move the vehicle to a different location and check if there is any improvement.
- If a tool for checking radio waves, such as a signal strength meter, is available, move around the area while observing both the LF band (used by the vehicle antenna to form the detection area) and RF band (used by the electrical key transmitter sub-assembly for transmission) to check for locations where there is wave interference.

Result

RESULT	PROCEED TO
The wireless buzzer does not sound	A
The wireless buzzer sounds	B

B ▶ **AFFECTED BY WAVE INTERFERENCE**

A

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7.	CHECK TRANSMITTER BATTERY

(a) Check the transmitter battery level of the electrical key transmitter sub-assembly that was checked first.

(1) Press and hold the lock switch of the transmitter for 5 seconds and check the number of times that the transmitter LED illuminates.

HINT:

- The electrical key transmitter sub-assembly sends voltage information to the certification ECU (smart key ECU assembly) when it is being used. The certification ECU (smart key ECU assembly) displays "Yes" for the "Key Low Battery" item of the Data List when this voltage information indicates 2.2 V or less INFO .
- Even if the transmitter battery is depleted, it is still possible to start the engine by holding the electrical key transmitter sub-assembly near the engine switch, depressing the brake pedal and pressing the engine switch.

Result

RESULT	PROCEED TO
Transmitter LED illuminates 3 times or more when switch is pressed and held	A
Transmitter LED does not illuminate when switch is pressed and held	B
Transmitter LED illuminates once or twice but not a third time	C

B ▶ **GO TO STEP 17**

C ▶ **REPLACE TRANSMITTER BATTERY**

A

8.	CHECK ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY

(a) Check if there is another electrical key transmitter sub-assembly available that is already registered to the vehicle.

Result

RESULT	PROCEED TO
Another registered electrical key transmitter sub-assembly is not available	A
Another registered electrical key transmitter sub-assembly is available	B

B ▶ **GO TO STEP 10**

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A

9.	**ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY REGISTRATION (NEW ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY)**

(a) Register a new electrical key transmitter sub-assembly INFO .

NEXT

10.	**CHECK ENTRY LOCK OPERATION**

(a) Using another registered electrical key transmitter sub-assembly, check that the entry lock and unlock functions operate.

Result

RESULT	PROCEED TO
Entry function does not operate normally	A
Entry function operates normally	B

B **END (ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY WAS DEFECTIVE)**

A

11.	**CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) - ELECTRICAL KEY AND TPMS RECEIVER ASSEMBLY)**

(a) Disconnect the C28 certification ECU (smart key ECU assembly) connector.

(b) Disconnect the T24 electrical key and TPMS receiver assembly connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C28-18 (RCO) - T24-8 (+5)	Always	Below 1 Ω

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TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C28-20 (RDAM) - T24-2 (DATA)	Always	Below 1 Ω
C28-19 (CSEL) - T24-6 (CSEL)	Always	Below 1 Ω
C28-18 (RCO) or T24-8 (+5) - Body ground	Always	10 kΩ or higher
C28-20 (RDAM) or T24-2 (DATA) - Body ground	Always	10 kΩ or higher
C28-19 (CSEL) or T24-6 (CSEL) - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

12.	CHECK ENTRY LOCK OPERATION

(a) Connect all connectors and check that the entry lock and unlock functions operate INFO .

Result

RESULT	PROCEED TO
Entry function does not operate normally	A
Entry function operates normally	B

B ▶ **END (CONNECTOR WAS NOT CONNECTED SECURELY)**

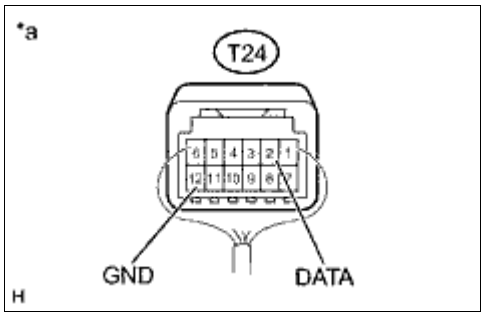
A ▼

13.	CHECK ELECTRICAL KEY AND TPMS RECEIVER ASSEMBLY

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
T24-12 (GND) - Body ground	Always	Below 1 Ω



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

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Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
T24-2 (DATA) - T24-12 (GND)	Procedure: 1. All doors closed 2. All doors locked 3. Lock or unlock switch of electrical key transmitter sub-assembly pressed	Below 1 V → Pulse generation

Text in Illustration

*a	Component with harness connected (Electrical Key and TPMS Receiver Assembly)

NG ▶ **REPLACE ELECTRICAL KEY AND TPMS RECEIVER ASSEMBLY**

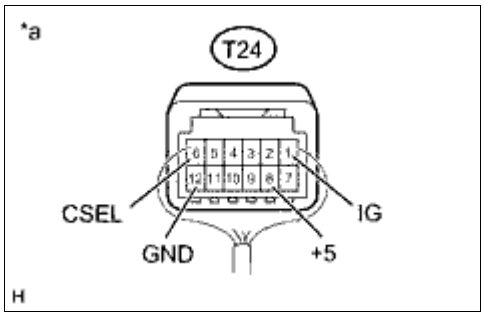
OK ▼

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

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

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
T24-1 (IG) - T24-12 (GND)	Engine switch on (IG)	10 to 16 V
T24-8 (+5) - T24-12 (GND)	Procedure: 1. Engine switch off 2. Electrical key transmitter sub-assembly switch not pressed → pressed	Below 1 V → 4.5 to 6.0 V → Below 1 V
T24-6 (CSEL) - T24-12 (GND)	Procedure: 1. Engine switch off 2. All doors closed	Below 1 V → Pulse generation



Text in Illustration

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*a	Component with harness connected (Electrical Key and TPMS Receiver Assembly)

NG ▶ **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

OK
▼

15.	**REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

(a) Replace the certification ECU (smart key ECU assembly) and perform registration again INFO .

NEXT
▼

16.	**CHECK WIRELESS DOOR LOCK CONTROL SYSTEM**

(a) Check that the wireless door lock functions operate normally INFO .

Result

RESULT	PROCEED TO
Wireless door lock function does not operate normally	A
Wireless door lock function operates normally	B

B ▶ **REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU))**

A ▶ **END (CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) WAS DEFECTIVE)**

17.	**INSPECT TRANSMITTER BATTERY**

(a) Inspect the transmitter battery INFO .

NOTICE:

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

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NG ▶ REPLACE TRANSMITTER BATTERY

OK ▶ REPLACE ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY

18.	PERFORM REGISTRATION

(a) Perform registration of the B code INFO .

NEXT ▼

19.	CHECK ENTRY LOCK OPERATION

(a) After B code registration is complete, check that the entry lock and unlock functions operate INFO .

Result

RESULT	PROCEED TO
Entry function does not operate normally	A
Entry function operates normally	B

B ▶ END (B CODE REGISTRATION FAILED)

A ▼

20.	READ VALUE USING TECHSTREAM (B CODE)

(a) Connect the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Smart Key / Data List.

(e) Read the Data List according to the display on the Techstream.

Smart Key

TESTER	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC

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DISPLAY			NOTE
B Code	B code registration status / Regd or No Regd	Regd: B code registered correctly No Regd: B code not registered correctly	-

Result

RESULT	PROCEED TO
"No Regd" is displayed on the Techstream	A
"Regd" is displayed on the Techstream	B

B ▶ **REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU))**

A ▼

21.	READ VALUE USING TECHSTREAM (B CODE DIFFERENCE)

(a) Connect the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Smart Key / Data List.

(e) Read the Data List according to the display on the Techstream.

Smart Key

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
B Code Difference	B code mismatch / Yes or No	Yes: Communication malfunction No: Communication normal	-

Result

RESULT	PROCEED TO
"No" is displayed on the Techstream	A
"Yes" is displayed on the Techstream	B

B ▶ **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

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A

22.	CHECK CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

(a) Measure the voltage while checking the Data List on the Techstream.

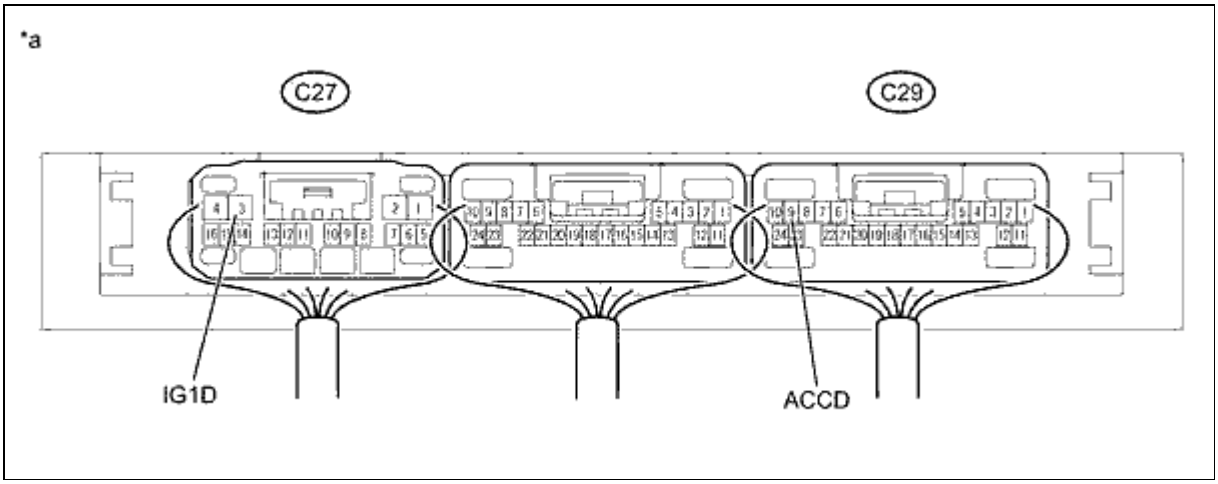
(1) Connect the Techstream to the DLC3.

(2) Turn the engine switch on (IG).

(3) Turn the Techstream on.

(4) Enter the following menus: Body Electrical / Power Source Control / Data List.

(5) Read the Data List according to the display on the Techstream.



Text in Illustration

*a	Component with harness connected (Certification ECU (Smart Key ECU Assembly))	-	-

Power Source Control

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Power Supply Condition	Power supply state / All OFF, ACC ON, IG ON or ST ON	All OFF: Engine switch off (ACC and IG) ACC ON: Engine switch on (ACC) IG ON: Engine switch on (IG) ST ON: Sending engine start request signal	-

Standard Voltage:

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TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C27-3 (IG1D) - Body ground	Engine switch off	Below 1 V
	Engine switch on (ACC)	Below 1 V
	Engine switch on (IG)	9 V or higher
C29-9 (ACCD) - Body ground	Engine switch off	Below 1 V
	Engine switch on (ACC)	9 V or higher
	Engine switch on (IG)	9 V or higher

NG ▶ **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

OK ▼

23.	**READ VALUE USING TECHSTREAM (ACC SW, IG SW)**

(a) Connect the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Main Body / Data List.

(e) Read the Data List according to the display on the Techstream.

Main Body

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
ACC SW	Engine switch status / ON or OFF	ON: Engine switch on (ACC) OFF: Engine switch off	-
IG SW	Engine switch status / ON or OFF	ON: Engine switch on (IG) OFF: Engine switch off	-

HINT:

If the certification ECU (smart key ECU assembly) misjudges for any reason that the engine switch is on (IG) even though the engine switch is off, the entry lock and unlock functions stop.

Result

RESULT	PROCEED TO
The certification ECU (smart key ECU assembly) judges properly that the power source is off when the engine switch is off	A

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RESULT	PROCEED TO
The main body ECU (multiplex network body ECU) does not judge properly that the power source is off when the engine switch is off	B

B ▶ **TROUBLESHOOT MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)**

A

▼

24.	CHECK ENTRY LOCK OPERATION

(a) Disconnect and reconnect the certification ECU (smart key ECU assembly) connector.

(b) Check that the entry lock and unlock functions operate INFO .

Result

RESULT	PROCEED TO
Entry function does not operate normally	A
Entry function operates normally	B

B ▶ **END (CONNECTOR WAS NOT CONNECTED SECURELY)**

A

▼

25.	REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

(a) Replace the certification ECU (smart key ECU assembly) with a new one and perform registration again INFO .

NEXT

▼

26.	CHECK WIRELESS DOOR LOCK CONTROL SYSTEM

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(a) Check that the wireless door lock functions operate normally INFO .

Result

RESULT	PROCEED TO
Wireless door lock function operates normally	A
Wireless door lock function does not operate normally	B

B ▶ **REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU))**

A ▶ **END (CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) WAS DEFECTIVE)**

27.	CHECK WAVE ENVIRONMENT

(a) Bring the electrical key transmitter sub-assembly that was checked first near the electrical key and TPMS receiver assembly and select the failed channel (the channel in which the buzzer did not sound) to recheck key diagnostic mode.

HINT:

- When the electrical key transmitter sub-assembly is brought near the electrical key and TPMS receiver assembly, 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 problem only occurs in certain locations or at certain 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.
- There may be wave interference if the vehicle is near broadcasting antennas, large video displays, wireless garage door opener systems, wireless security cameras, home security systems, etc. In this case, move the vehicle to a different location and check if there is any improvement.
- If a tool for checking radio waves, such as a signal strength meter, is available, move around the area while observing both the LF band (used by the vehicle antenna to form the detection area) and RF band (used by the electrical key transmitter sub-assembly for transmission) to check for locations where there is wave interference.

Result

RESULT	PROCEED TO
The wireless buzzer does not sound	A
The wireless buzzer sounds	B

B ▶ **AFFECTED BY WAVE INTERFERENCE**

A ▼

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28.	**CHECK ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY**

(a) Check if there is another electrical key transmitter sub-assembly available that is already registered to the vehicle.

Result

RESULT	PROCEED TO
Another registered electrical key transmitter sub-assembly is not available	A
Another registered electrical key transmitter sub-assembly is available	B

B ▶ **GO TO STEP 30**

A

▼

29.	**ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY REGISTRATION (NEW ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY)**

(a) Register a new electrical key transmitter sub-assembly INFO .

NEXT

▼

30.	**CHECK WAVE ENVIRONMENT**

(a) Bring another registered electrical key transmitter sub-assembly near the electrical key and TPMS receiver assembly and select the failed channel (the channel in which the buzzer did not sound) to recheck key diagnostic mode.

HINT:

- When the electrical key transmitter sub-assembly is brought near the electrical key and TPMS receiver assembly, 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 problem only occurs in certain locations or at certain 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.
- There may be wave interference if the vehicle is near broadcasting antennas, large video displays, wireless garage door opener systems, wireless security cameras, home security systems, etc. In this case, move the vehicle to a different location and check if there is any improvement.
- If a tool for checking radio waves, such as a signal strength meter, is available, move around the area while observing both the LF band (used by the vehicle antenna to form the detection area) and RF band (used by the electrical key transmitter sub-assembly for transmission) to check for locations where there is wave interference.

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Result

RESULT	PROCEED TO
The wireless buzzer does not sound	A
The wireless buzzer sounds	B

B ▶ **END (ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY WAS DEFECTIVE)**

A ▼

31.	**CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) - ELECTRICAL KEY AND TPMS RECEIVER ASSEMBLY)**

(a) Disconnect the C28 certification ECU (smart key ECU assembly) connector.

(b) Disconnect the T24 electrical key and TPMS receiver assembly connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C28-19 (CSEL) - T24-6 (CSEL)	Always	Below 1 Ω
C28-19 (CSEL) - T24-6 (CSEL)	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

32.	**CHECK ENTRY LOCK OPERATION**

(a) Connect all connectors and check that the entry lock and unlock functions operate INFO .

Result

RESULT	PROCEED TO
Entry function does not operate normally	A
Entry function operates normally	B

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B ▶ END (CONNECTOR WAS NOT CONNECTED SECURELY)

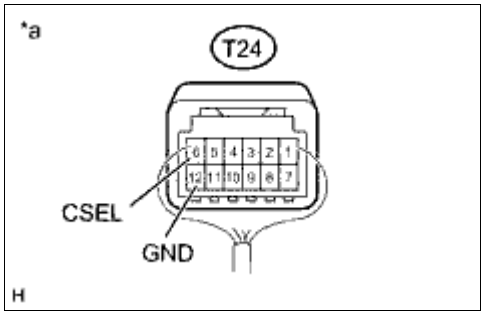
A
▼

33.	CHECK CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

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

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
T24-6 (CSEL) - T24-12 (GND)	Procedure: 1. Engine switch off 2. All doors closed	Below 1 V → Pulse generation



Text in Illustration

*a	Component with harness connected (Electrical key and TPMS Receiver Assembly)

NG ▶ REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

OK
▼

34.	CHECK ELECTRICAL KEY AND TPMS RECEIVER ASSEMBLY

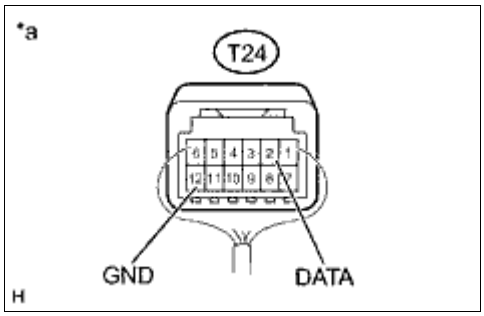
(a) Enter key diagnostic mode and select the channel for which the wireless buzzer did not sound.

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

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
T24-2 (DATA) - T24-12 (GND)	Procedure: 1. All doors closed 2. All doors locked 3. Lock or unlock switch of electrical key transmitter sub-assembly pressed	Below 1 V → 11 to 14 V → Below 1 V



Text in Illustration

*a	Component with harness connected (Electrical key and TPMS Receiver Assembly)

HINT:

Inspection should be performed while the electrical key antenna check in key diagnostic mode is being performed on the failed channel (the channel in which the buzzer did not sound).

NG ▶ **REPLACE ELECTRICAL KEY AND TPMS RECEIVER ASSEMBLY**

OK ▼

35.	**REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

(a) Replace the certification ECU (smart key ECU assembly) and perform registration again INFO .

NEXT ▼

36.	**CHECK WIRELESS DOOR LOCK CONTROL SYSTEM**

(a) Check that the wireless door lock functions operate normally INFO .

Result

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RESULT	PROCEED TO
Wireless door lock function operates normally	A
Wireless door lock function does not operate normally	B

B ▶ **REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU))**

A ▶ **END (CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) WAS DEFECTIVE)**

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000005UVF000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): All Door Entry Lock/Unlock Functions do not Operate, but Wireless Functions Operate; 2016 MY Tacoma [08/2015 -]		

All Door Entry Lock/Unlock Functions do not Operate, but Wireless Functions Operate

DESCRIPTION

When the wireless operation can be used to lock and unlock the doors, communication between the electrical key and TPMS receiver assembly and certification ECU (smart key ECU assembly) is normal. If the entry lock and unlock functions do not operate, the entry cancel function may be set through the customize function, there may be communication problems between the electrical key transmitter sub-assembly and vehicle, or there may be wave interference.

INSPECTION PROCEDURE

NOTICE:

- The smart key system (for Entry Function) uses a multiplex communication system (LIN communication system) and the CAN communication system. Inspect the communication function by following How to Proceed with Troubleshooting. Troubleshoot the smart key system (for Entry Function) after confirming that the communication systems are functioning properly INFO .
- When using the Techstream with the engine switch off, connect the Techstream to the DLC3 and turn a courtesy light switch on and off at intervals of 1.5 seconds or less until communication between the Techstream and the vehicle begins. Then select the vehicle type under manual mode and enter the following menus: Body Electrical / Smart Key. While using the Techstream, periodically turn a courtesy light switch on and off at intervals of 1.5 seconds or less to maintain communication between the Techstream and the vehicle.
- Check that there are no electrical key transmitter sub-assemblies in the vehicle.
- Before performing the inspection, check that DTC B1242 (wireless door lock control) is not output INFO .
- Before replacing the certification ECU (smart key ECU assembly), refer to the smart key system (for Entry Function) precaution INFO .
- After repair, confirm that no DTCs are output by performing the "DTC Output Confirmation Operation".

PROCEDURE

1.	**CHECK POWER DOOR LOCK CONTROL SYSTEM**

(a) When the door control switch on the power window regulator master switch assembly is operated, check that the doors unlock and lock according to the switch operation INFO .

OK:

Door locks operate normally.

NG ▶ **GO TO POWER DOOR LOCK CONTROL SYSTEM**

OK ▼

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2.	CHECK WAVE ENVIRONMENT

(a) Move the electrical key transmitter sub-assembly as described below and perform the operation inspection.

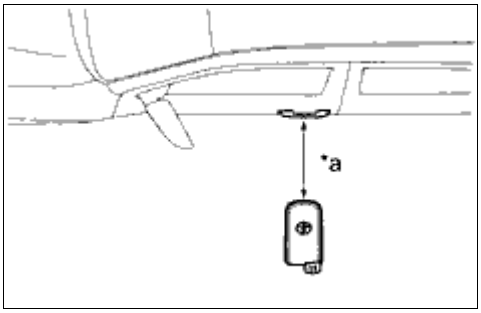
HINT:

- When the electrical key transmitter sub-assembly is brought near the front door outside handle assembly LH, 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 problem only occurs in certain locations or at certain 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.
- There may be wave interference if the vehicle is near broadcasting antennas, large video displays, wireless garage door opener systems, wireless security cameras, home security systems, etc. In this case, move the vehicle to a different location and check if there is any improvement.
- If a tool for checking radio waves, such as a signal strength meter, is available, move around the area while observing both the LF band (used by the vehicle antenna to form the detection area) and RF band (used by the electrical key transmitter sub-assembly for transmission) to check for locations where there is wave interference.
- The transmitting wave of the wireless function and entry function are the same, but the wave logic is different. As a result, it is possible that only the wireless function or only the entry function is affected by wave interference.

(1) Bring the electrical key transmitter sub-assembly approximately 0.3 m (0.984 ft.) from the front door outside handle assembly LH and perform a driver door entry lock and unlock operation check.

HINT:

Communication may not be possible if the electrical key transmitter sub-assembly is within 0.2 m (0.656 ft.) of the rear bumper.



Text in Illustration

*a	Approximately 0.3 m (0.984 ft.)

Result

RESULT	PROCEED TO
All operation checks fail	A
All operation checks are normal	B
Some operation checks are normal	C

B ▶ **AFFECTED BY WAVE INTERFERENCE**

C ▶ **GO TO OTHER PROBLEM**

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A

3.	**CHECK KEY DIAGNOSTIC MODE**

(a) Check the following antennas in key diagnostic mode INFO .

(b) Select either channel 1 or channel 2 and perform key diagnostic mode inspection for each channel.

(1) Check the electrical key antenna (for driver door):

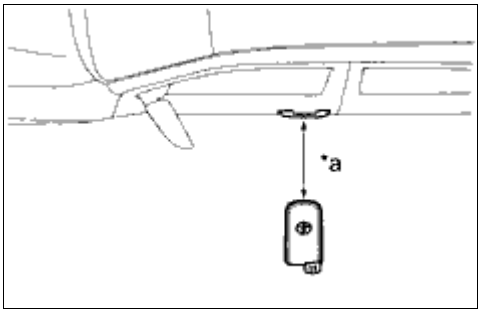
When the electrical key transmitter sub-assembly is brought within 0.7 to 1 m (2.30 to 3.28 ft.) of the front door outside handle assembly LH, check that the wireless buzzer sounds.

HINT:

- Select either channel 1 or channel 2 and inspect key diagnostic mode for each channel.
- If the buzzer sounds with [CH1] displayed but not with [CH2], the electrical key transmitter sub-assembly cannot be detected by channel 2 due to a malfunction, such as wave interference.

OK:

Wireless buzzer sounds.



Text in Illustration

*a	0.7 to 1 m (2.30 to 3.28 ft.)

Result

RESULT	PROCEED TO
All diagnostic mode inspections fail	A
Some diagnostic mode inspections fail (door)	B
All diagnostic mode inspections are normal	C

B **GO TO OTHER PROBLEM**

C **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

A

4.	**CHECK ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY**

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(a) Check if there is another electrical key transmitter sub-assembly available that is already registered to the vehicle.

Result

RESULT	PROCEED TO
Another registered electrical key transmitter sub-assembly is not available	A
Another registered electrical key transmitter sub-assembly is available	B

B ▶ **GO TO STEP 6**

A ▼

5.	**ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY REGISTRATION (NEW ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY)**

(a) Register a new electrical key transmitter sub-assembly INFO .

NEXT ▼

6.	**CHECK ENTRY LOCK OPERATION**

(a) Using another registered electrical key transmitter sub-assembly, check that the entry lock and unlock functions operate INFO .

Result

RESULT	PROCEED TO
Entry function operates normally	A
Entry function does not operate normally	B

B ▶ **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

A ▶ **END (ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY WAS DEFECTIVE)**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005UVH000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): B27A1; Open in Driver Side Electrical Antenna Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	**B27A1**	**Open in Driver Side Electrical Antenna Circuit**

DESCRIPTION

The certification ECU (smart key ECU assembly) generates a request signal and transmits the signal to the front door outside handle assembly LH [electrical key antenna] at intervals of 0.25 seconds. For the front door outside handle assembly LH [electrical key antenna] to detect when the electrical key transmitter sub-assembly is brought close to the vehicle, a signal requesting a response from the electrical key transmitter sub-assembly is transmitted within approximately 1 m (3.28 ft.) of the driver door at intervals of 0.25 seconds. DTC B27A1 is stored by the certification ECU (smart key ECU assembly) when an open circuit is detected between the certification ECU (smart key ECU assembly) and front door outside handle assembly LH [electrical key antenna] (between terminals CLG1 and ANT1, or terminals CG1B and ANT2).

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA	DTC OUTPUT CONFIRMATION OPERATION
B27A1	An open circuit is detected in the circuit between the certification ECU (smart key ECU assembly) and front door outside handle assembly LH (CLG1 - ANT1, CG1B - ANT2) (This is detected by the malfunction detection circuit in the certification ECU (smart key ECU assembly)) (1 trip detection logic*).	• Wire harness or connector • Front door outside handle assembly LH • Certification ECU (smart key ECU assembly)	Any time

*: Only output while a malfunction is present.

Vehicle Condition and Fail-safe Operation when Malfunction Detected

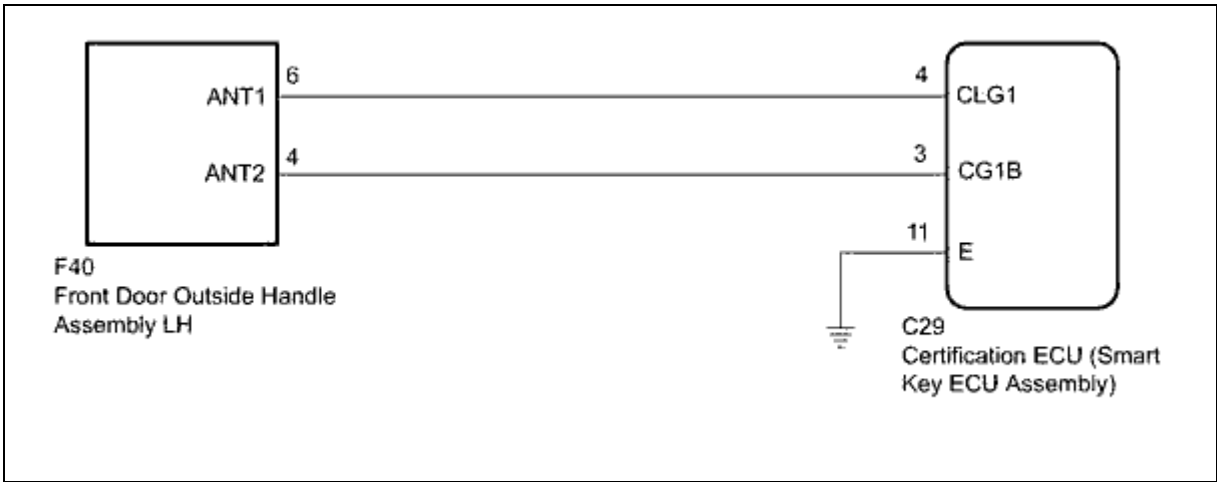
VEHICLE CONDITION WHEN MALFUNCTION DETECTED	FAIL-SAFE OPERATION WHEN MALFUNCTION DETECTED
Entry lock/unlock operation cannot be performed for driver door	-

Related Data List and Active Test

DTC CODE	DATA LIST AND ACTIVE TEST
B27A1	Key diagnostic mode can be used to perform troubleshooting

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- The smart key system (for Entry Function) uses the LIN communication system and CAN communication system. Inspect the communication function by following How to Proceed with Troubleshooting. Troubleshoot the smart key system (for Entry Function) after confirming that the communication systems are functioning properly INFO .
- When using the Techstream with the engine switch off, connect the Techstream to the DLC3 and turn a courtesy light switch on and off at intervals of 1.5 seconds or less until communication between the Techstream and the vehicle begins. Then select the vehicle type under manual mode and enter the following menus: Body Electrical / Smart Key. While using the Techstream, periodically turn a courtesy light switch on and off at intervals of 1.5 seconds or less to maintain communication between the Techstream and the vehicle.
- Before replacing the certification ECU (smart key ECU assembly), refer to smart key system (for Entry Function) Precaution INFO .
- After repair, confirm that no DTCs are output by performing "DTC Output Confirmation Operation".

PROCEDURE

1.	**CHECK CONNECTOR CONNECTION**

(a) Turn the engine switch off.

(b) Check that the connectors are properly connected to the certification ECU (smart key ECU assembly) and front door outside handle assembly LH.

OK:

Connectors are properly connected.

NG ▶ **CONNECT CONNECTORS PROPERLY**

OK ▼

2.	**CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU (SMART KEY ECU**

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	ASSEMBLY) - FRONT DOOR OUTSIDE HANDLE ASSEMBLY LH)

(a) Disconnect the C29 certification ECU (smart key ECU assembly) connector.

(b) Disconnect the F40 front door outside handle assembly LH connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C29-4 (CLG1) - F40-6 (ANT1)	Always	Below 1 Ω
C29-3 (CG1B) - F40-4 (ANT2)	Always	Below 1 Ω
C29-11 (E) - Body ground	Always	Below 1 Ω
C29-4 (CLG1) or F40-6 (ANT1) - Body ground	Always	10 kΩ or higher
C29-3 (CG1B) or F40-4 (ANT2) - Body ground	Always	10 kΩ or higher

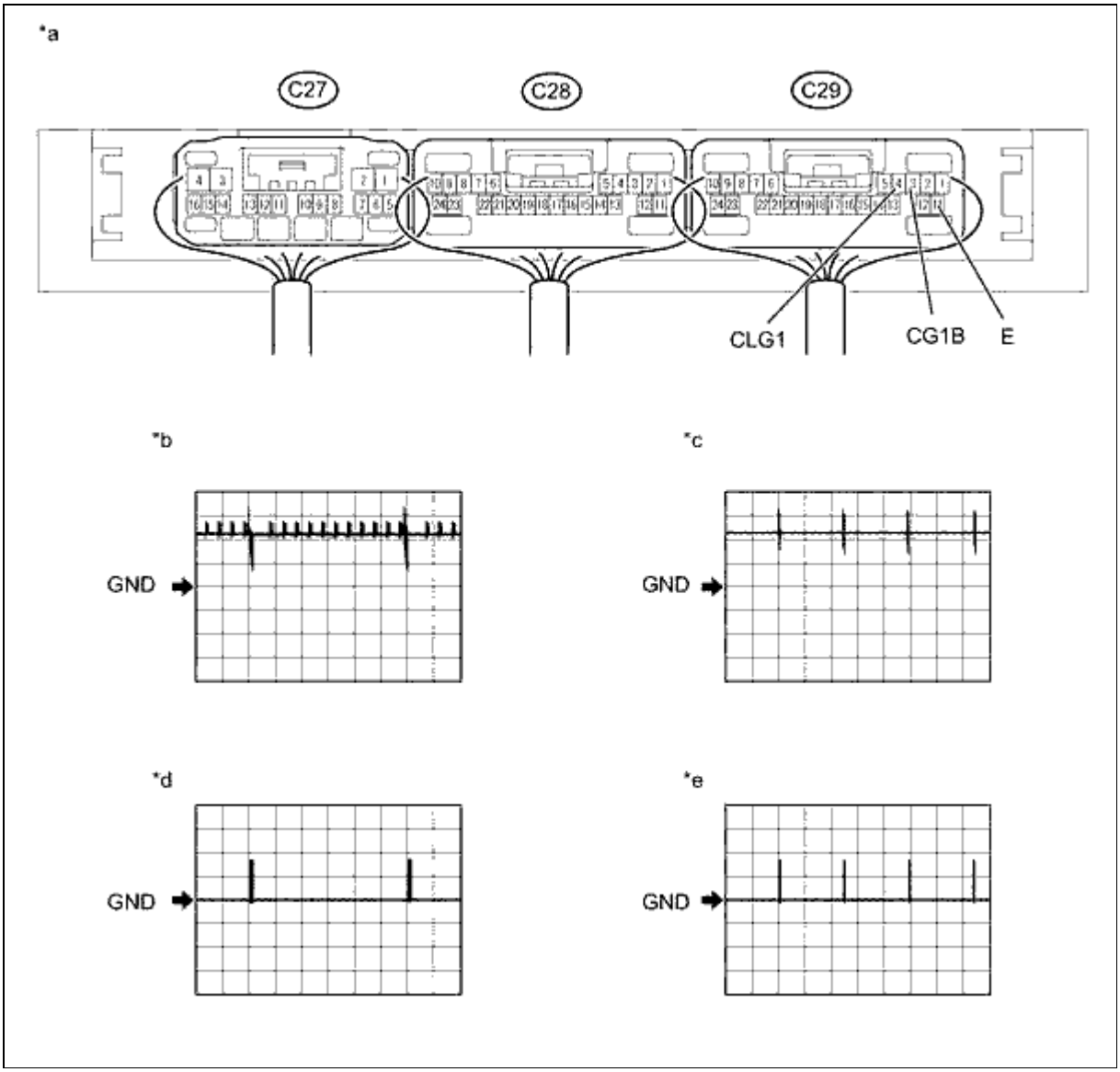
NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

3.	**CHECK CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (OUTPUT TO DRIVER SIDE ELECTRICAL KEY ANTENNA)**

(a) Connect the C29 certification ECU (smart key ECU assembly) connector.

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Text in Illustration

*a	Component with harness connected (Certification ECU (smart key ECU assembly))	*b	Waveform 1
*c	Waveform 2	*d	Waveform 3
*e	Waveform 4	-	-

(b) Connect the F40 front door outside handle assembly LH connector.

(c) Using an oscilloscope, check the waveform.

OK:

TESTER CONNECTION	SWITCH CONDITION	TOOL SETTING	SPECIFIED CONDITION
C29-4 (CLG1) - C29-11 (E)	**Procedure:** 1. Engine switch off 2. All doors closed	5 V/DIV., 500 ms./DIV.	Pulse generation (See waveform 1)

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TESTER CONNECTION	SWITCH CONDITION	TOOL SETTING	SPECIFIED CONDITION
	3. Electrical key transmitter sub-assembly not inside vehicle 4. All doors locked through wireless operation (electrical key transmitter sub-assembly brought inside detection area*)		
	Procedure: 1. Engine switch off 2. All doors closed 3. Electrical key transmitter sub-assembly not inside vehicle 4. All doors locked through wireless operation (electrical key transmitter sub-assembly brought outside detection area*)	5 V/DIV., 100 ms./DIV.	Pulse generation (See waveform 2)
C29-3 (CG1B) - C29-11 (E)	**Procedure:** 1. Engine switch off 2. All doors closed 3. Electrical key transmitter sub-assembly not inside vehicle 4. All doors locked through wireless operation (electrical key transmitter sub-assembly brought inside detection area*)	5 V/DIV., 500 ms./DIV.	Pulse generation (See waveform 3)
	Procedure: 1. Engine switch off 2. All doors closed 3. Electrical key transmitter sub-assembly not inside vehicle 4. All doors locked through wireless operation (electrical key transmitter sub-assembly brought inside detection area*)	5 V/DIV., 100 ms./DIV.	Pulse generation (See waveform 4)

*: For details about the entry function detection area, refer to Operation Check INFO .

NG ▶ **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

OK ▼

4.	**REPLACE FRONT DOOR OUTSIDE HANDLE ASSEMBLY LH**

(a) Temporarily replace the front door outside handle assembly LH with a new or known good one INFO .

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NEXT

5.	**CLEAR DTC**

(a) Clear the DTCs INFO .

NEXT

6.	**CHECK FOR DTC**

(a) Check for DTCs INFO .

OK:
DTC B27A1 is not output.

NG → **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

OK → **END (FRONT DOOR OUTSIDE HANDLE ASSEMBLY LH WAS DEFECTIVE)**

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005UVI000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): B27A5; Open in Front Floor Electrical Key Oscillator Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	**B27A5**	**Open in Front Floor Electrical Key Oscillator Circuit**

DESCRIPTION

The certification ECU (smart key ECU assembly) generates a request signal and transmits the signal to the No. 1 indoor electrical key antenna assembly (front floor). For the No. 1 indoor electrical key antenna assembly (front floor) to detect when the electrical key transmitter sub-assembly is inside the vehicle, the signal from the certification ECU (smart key ECU assembly) requesting a response from the electrical key transmitter sub-assembly is transmitted inside the vehicle. DTC B27A5 is stored by the certification ECU (smart key ECU assembly) when an open circuit is detected between the certification ECU (smart key ECU assembly) and No. 1 indoor electrical key antenna assembly (front floor) (between terminals CLG5 and CLG, or terminals CG5B and CLGB).

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA	DTC OUTPUT CONFIRMATION OPERATION
B27A5	An open circuit is detected in the circuit between the certification ECU (smart key ECU assembly) and No. 1 indoor electrical key antenna assembly (front floor) (CLG5 - CLG, CG5B - CLGB) (1 trip detection logic*).	• Wire harness or connector • No. 1 indoor electrical key antenna assembly (front floor) • Certification ECU (smart key ECU assembly)	Any time

*: Only output while a malfunction is present.

Vehicle Condition and Fail-safe Operation when Malfunction Detected

VEHICLE CONDITION WHEN MALFUNCTION DETECTED	FAIL-SAFE OPERATION WHEN MALFUNCTION DETECTED
When electrical key transmitter sub-assembly is in front seat area: • Power source mode does not change when engine switch pressed • Electrical key transmitter sub-assembly locked inside vehicle	-

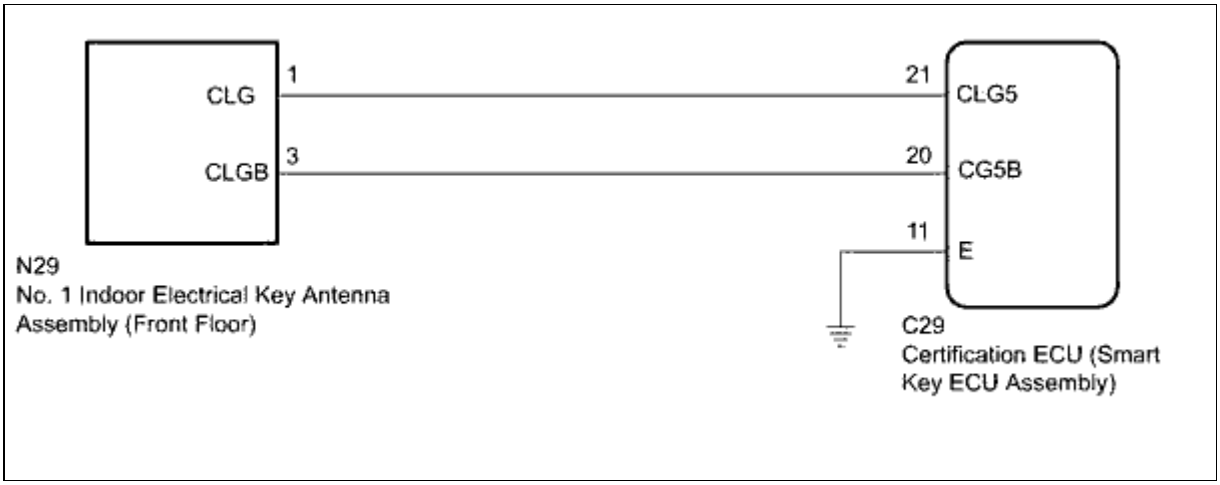
Related Data List and Active Test

DTC CODE	DATA LIST AND ACTIVE TEST

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DTC CODE	DATA LIST AND ACTIVE TEST
B27A5	Key diagnostic mode can be used to perform troubleshooting

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- The smart key system (for Entry Function) uses the LIN communication system and CAN communication system. Inspect the communication function by following How to Proceed with Troubleshooting. Troubleshoot the smart key system (for Entry Function) after confirming that the communication systems are functioning properly INFO .
- When using the Techstream with the engine switch off, connect the Techstream to the DLC3 and turn a courtesy light switch on and off at intervals of 1.5 seconds or less until communication between the Techstream and the vehicle begins. Then select the vehicle type under manual mode and enter the following menus: Body Electrical / Smart Key. While using the Techstream, periodically turn a courtesy light switch on and off at intervals of 1.5 seconds or less to maintain communication between the Techstream and the vehicle.
- Before replacing the certification ECU (smart key ECU assembly), refer to smart key system (for Entry Function) Precaution INFO .
- After repair, confirm that no DTCs are output by performing "DTC Output Confirmation Operation".

PROCEDURE

1.	**CHECK CONNECTOR CONNECTION**

(a) Turn the engine switch off.

(b) Check that the connectors are properly connected to the certification ECU (smart key ECU assembly) and No. 1 indoor electrical key antenna assembly (front floor).

OK:

Connectors are properly connected.

NG ▶ **CONNECT CONNECTORS PROPERLY**

OK

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2.	**CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) - NO. 1 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY)**

(a) Disconnect the C29 certification ECU (smart key ECU assembly) connectors.

(b) Disconnect the N29 No. 1 indoor electrical key antenna assembly (front floor) connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C29-21 (CLG5) - N29-1 (CLG)	Always	Below 1 Ω
C29-20 (CG5B) - N29-3 (CLGB)	Always	Below 1 Ω
C29-11 (E) - Body ground	Always	Below 1 Ω
C29-21 (CLG5) or N29-1 (CLG) - Body ground	Always	10 kΩ or higher
C29-20 (CG5B) or N29-3 (CLGB) - Body ground	Always	10 kΩ or higher

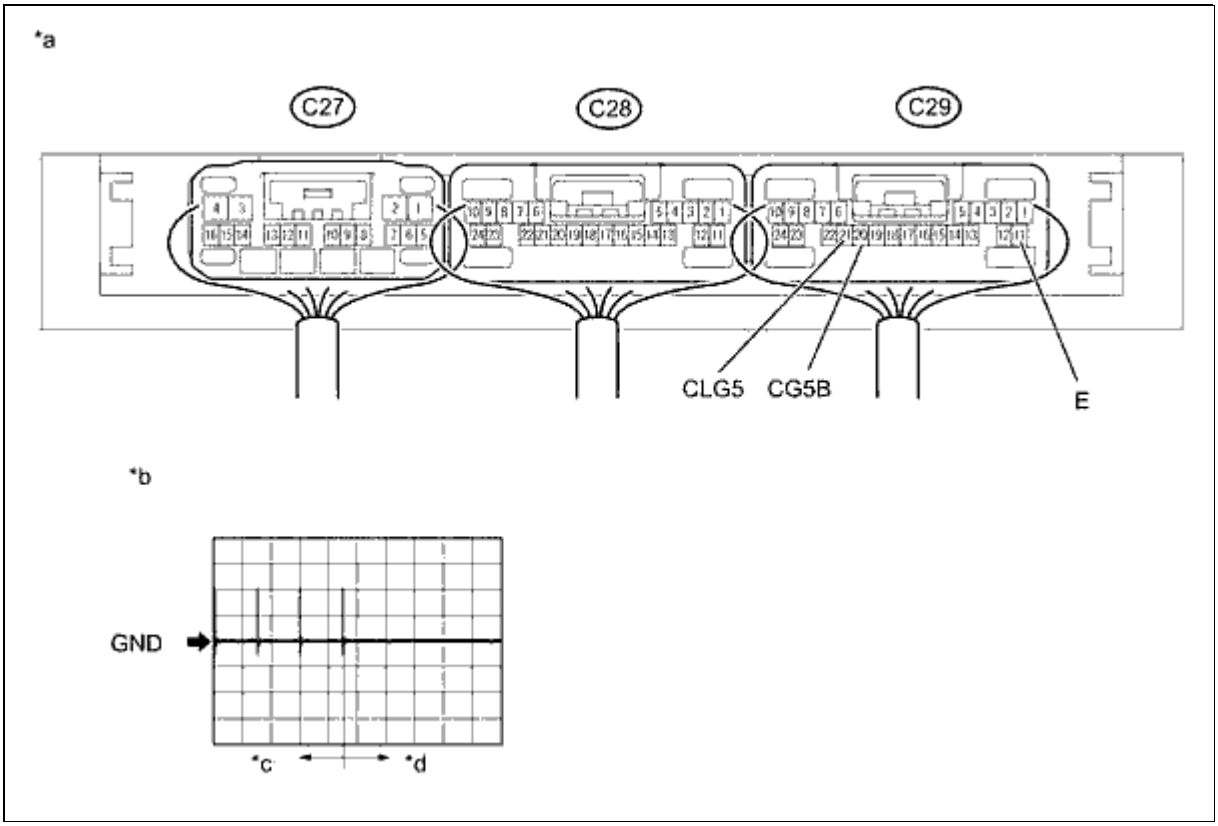
NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

3.	**CHECK CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (OUTPUT TO NO. 1 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY)**

(a) Connect the C29 certification ECU (smart key ECU assembly) connectors.

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Text in Illustration

*a	Component with harness connected (Certification ECU (smart key ECU assembly))	*b	Waveform 1
*c	For 30 seconds after closing any door using the door outside handle	*d	30 seconds or more have elapsed after closing any door using the door outside handle

(b) Connect the N29 No. 1 indoor electrical key antenna assembly (front floor) connector.

(c) Using an oscilloscope, check the waveform.

OK:

TESTER CONNECTION	SWITCH CONDITION	TOOL SETTING	SPECIFIED CONDITION
C29-21 (CLG5) - C29-11 (E)	**Procedure:** 1. Engine switch off 2. Electrical key transmitter sub-assembly not inside vehicle 3. Within 30 seconds of closing any door using the door outside handle	2 V/DIV., 500 ms./DIV.	Pulse generation (See waveform 1)
C29-20 (CG5B) - C29-11 (E)	**Procedure:** 1. Engine switch off 2. Electrical key transmitter sub-assembly not inside vehicle 3. Within 30 seconds of closing any door using the door outside handle	2 V/DIV., 500 ms./DIV.	Pulse generation (See waveform 1)

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NG ▶ REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

OK ▼

4.	REPLACE NO. 1 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY (FRONT FLOOR)

(a) Temporarily replace the No. 1 indoor electrical key antenna assembly (front floor) with a new or known good one INFO .

NEXT ▼

5.	CLEAR DTC

(a) Clear the DTCs INFO .

NEXT ▼

6.	CHECK FOR DTC

(a) Check for DTCs INFO .

OK:

DTC B27A5 is not output.

NG ▶ REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

OK ▶ END (NO. 1 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY (FRONT FLOOR) WAS DEFECTIVE)

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005UVJ000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): B27A6; Open in Rear Floor Electrical Key Oscillator Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	**B27A6**	**Open in Rear Floor Electrical Key Oscillator Circuit**

DESCRIPTION

The certification ECU (smart key ECU assembly) generates a request signal and transmits the signal to the No. 2 indoor electrical key antenna assembly (rear floor). For the No. 2 indoor electrical key antenna assembly (rear floor) to detect when the electrical key transmitter sub-assembly is inside the vehicle, the signal from the certification ECU (smart key ECU assembly) requesting a response from the electrical key transmitter sub-assembly is transmitted inside the vehicle. DTC B27A6 is stored by the certification ECU (smart key ECU assembly) when an open circuit is detected between the certification ECU (smart key ECU assembly) and No. 2 indoor electrical key antenna assembly (rear floor) (between terminals CLG6 and CLG, or terminals CG6B and CLGB).

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA	DTC OUTPUT CONFIRMATION OPERATION
B27A6	An open circuit is detected in the circuit between the certification ECU (smart key ECU assembly) and No. 2 indoor electrical key antenna assembly (rear floor) (CLG6 - CLG, CG6B - CLGB) (1 trip detection logic*).	• Wire harness or connector • No. 2 indoor electrical key antenna assembly (rear floor) • Certification ECU (smart key ECU assembly)	Any time

*: Only output while a malfunction is present.

Vehicle Condition and Fail-safe Operation when Malfunction Detected

VEHICLE CONDITION WHEN MALFUNCTION DETECTED	FAIL-SAFE OPERATION WHEN MALFUNCTION DETECTED
When electrical key transmitter sub-assembly is in rear seat area: • Power source mode does not change when engine switch pressed • Electrical key transmitter sub-assembly locked inside vehicle	-

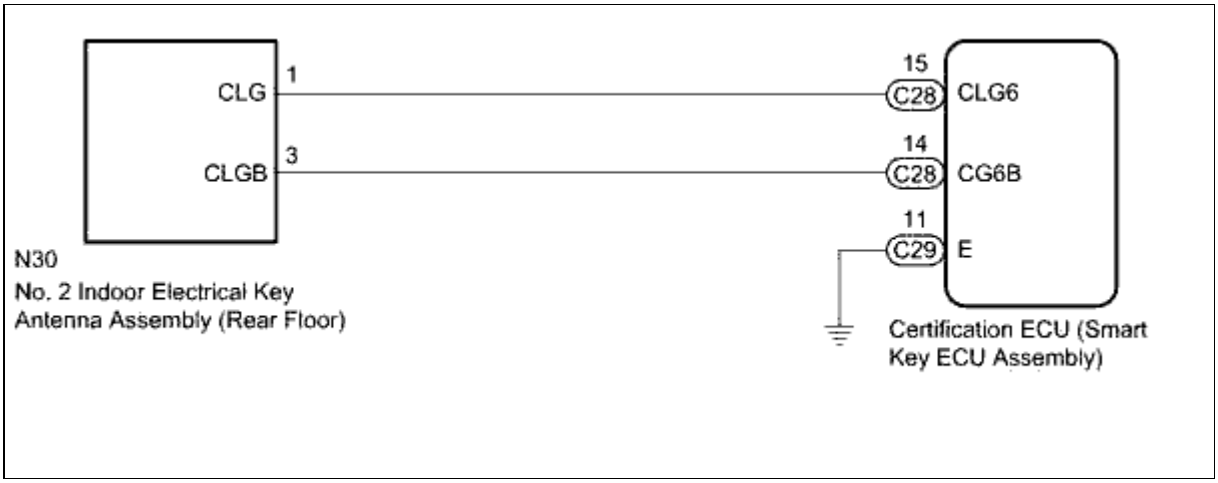
Related Data List and Active Test

DTC CODE	DATA LIST AND ACTIVE TEST

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DTC CODE	DATA LIST AND ACTIVE TEST
B27A6	Key diagnostic mode can be used to perform troubleshooting

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- The smart key system (for Entry Function) uses the LIN communication system and CAN communication system. Inspect the communication function by following How to Proceed with Troubleshooting. Troubleshoot the smart key system (for Entry Function) after confirming that the communication systems are functioning properly INFO .
- When using the Techstream with the engine switch off, connect the Techstream to the DLC3 and turn a courtesy light switch on and off at intervals of 1.5 seconds or less until communication between the Techstream and the vehicle begins. Then select the vehicle type under manual mode and enter the following menus: Body Electrical / Smart Key. While using the Techstream, periodically turn a courtesy light switch on and off at intervals of 1.5 seconds or less to maintain communication between the Techstream and the vehicle.
- Before replacing the certification ECU (smart key ECU assembly), refer to smart key system (for Entry Function) Precaution INFO .
- After repair, confirm that no DTCs are output by performing "DTC Output Confirmation Operation".

PROCEDURE

1.	**CHECK CONNECTOR CONNECTION**

(a) Turn the engine switch off.

(b) Check that the connectors are properly connected to the certification ECU (smart key ECU assembly) and No. 2 indoor electrical key antenna assembly (rear floor).

OK:

Connectors are properly connected.

NG ▶ **CONNECT CONNECTORS PROPERLY**

OK

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2.	**CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU - NO. 2 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY)**

(a) Disconnect the C28 and C29 certification ECU (smart key ECU assembly) connectors.

(b) Disconnect the N30 No. 2 indoor electrical key antenna assembly (rear floor) connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C28-15 (CLG6) - N30-1 (CLG)	Always	Below 1 Ω
C28-14 (CG6B) - N30-3 (CLGB)	Always	Below 1 Ω
C29-11 (E) - Body ground	Always	Below 1 Ω
C28-15 (CLG6) or N30-1 (CLG) - Body ground	Always	10 kΩ or higher
C28-14 (CG6B) or N30-3 (CLGB) - Body ground	Always	10 kΩ or higher

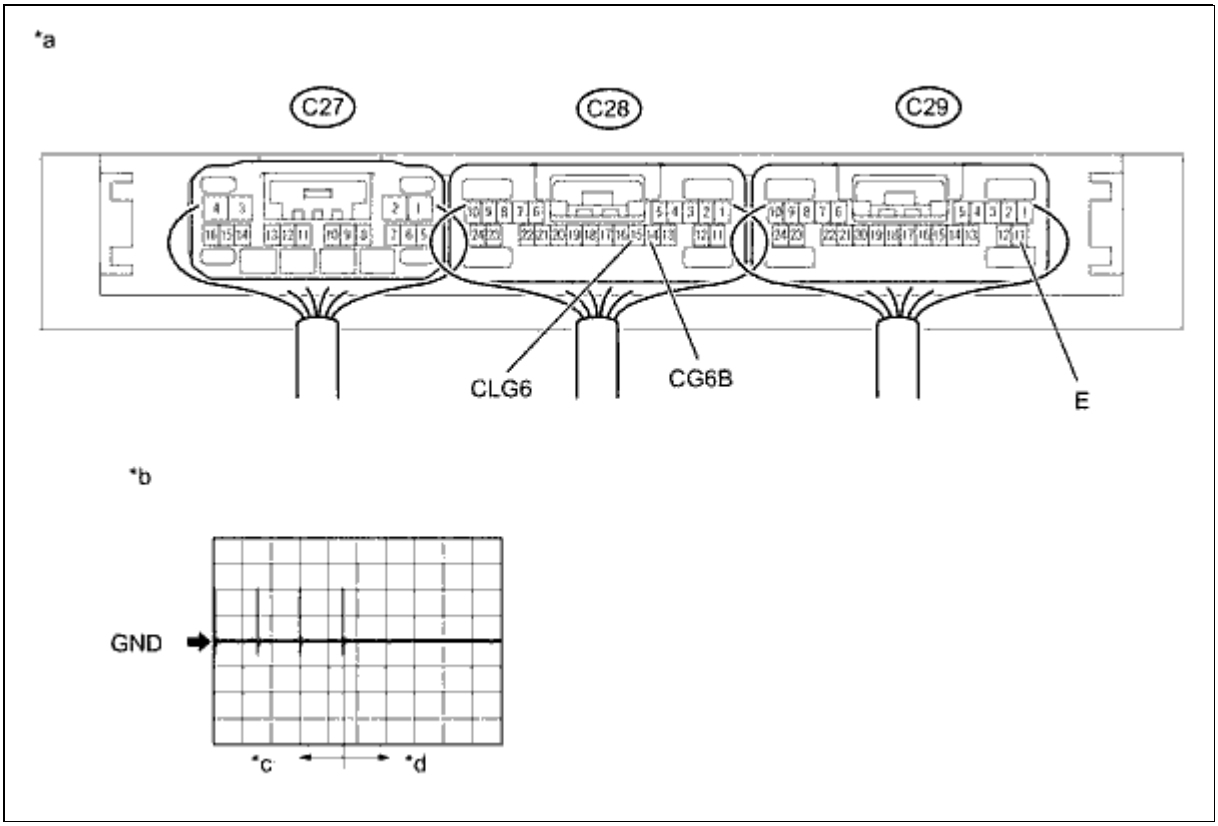
NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

3.	**CHECK CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (OUTPUT TO NO. 2 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY)**

(a) Connect the C28 and C29 certification ECU (smart key ECU assembly) connectors.

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Text in Illustration

*a	Component with harness connected (Certification ECU (smart key ECU assembly))	*b	Waveform 1
*c	For 30 seconds after closing any door using the door outside handle	*d	30 seconds or more have elapsed after closing any door using the door outside handle

(b) Connect the N30 No. 2 indoor electrical key antenna assembly (rear floor) connector.

(c) Using an oscilloscope, check the waveform.

OK:

TESTER CONNECTION	SWITCH CONDITION	TOOL SETTING	TOOL SETTING
C28-15 (CLG6) - C29-11 (E)	**Procedure:** 1. Engine switch off 2. Electrical key transmitter sub-assembly not inside vehicle 3. Within 30 seconds of closing any door using the door outside handle	2 V/DIV., 500 ms./DIV.	Pulse generation (See waveform 1)
C28-14 (CG6B) - C29-11 (E)	**Procedure:** 1. Engine switch off 2. Electrical key transmitter sub-assembly not inside vehicle 3. Within 30 seconds of closing any door using the door outside handle	2 V/DIV., 500 ms./DIV.	Pulse generation (See waveform 1)

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NG ▶ REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

OK ▼

4.	REPLACE NO. 2 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY (REAR FLOOR)

(a) Temporarily replace the No. 2 indoor electrical key antenna assembly (rear floor) with a new or known good one INFO .

NEXT ▼

5.	CLEAR DTC

(a) Clear the DTCs INFO .

NEXT ▼

6.	CHECK FOR DTC

(a) Check for DTCs INFO .

OK:
DTC B27A6 is not output.

NG ▶ REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

OK ▶ END (NO. 2 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY (REAR FLOOR) WAS DEFECTIVE)

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000005UV3000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): CUSTOMIZE PARAMETERS; 2016 MY Tacoma [08/2015 -]		

CUSTOMIZE PARAMETERS

1. CUSTOMIZE SMART KEY SYSTEM (for Entry Function)

HINT:

The following items can be customized.

NOTICE:

- When the customer requests a change in a function, first make sure that the function can be customized.
- Record the current settings before customizing.

(a) Customizing with the Techstream

(1) Connect the Techstream to the DLC3.

(2) Turn the engine switch on (IG).

(3) Turn the Techstream on.

(4) Enter the following menus: Customize Setting / Wireless Door Lock, Smart Key/Access or Warning.

(5) Select the setting by referring to the table below.

Wireless Door Lock

DISPLAY	DEFAULT	CONTENT	SETTING	RELEVANT ECU
Wireless Control	ON	Function that turns the wireless door lock control system on or off.	OFF or ON	Main body ECU (multiplex network body ECU)
Hazard Answer Back	ON	When the doors are locked by entry function, the hazard warning lights flash once. When the doors are unlocked by entry function, the hazard warning lights flash twice.	OFF or ON	Main body ECU (multiplex network body ECU)
Open Door Warning	ON	The buzzer sounds when the lock sensor on the door outside handle assembly is touched to perform entry lock with a door open.	OFF or ON	Main body ECU (multiplex network body ECU)
Auto Lock Time	60 s	Function that regulates the interval between unlocking and automatic relocking of doors.	30 s, 60 s or 120 s	Main body ECU (multiplex network body ECU)
Wireless Auto Lock	ON	This function turns the auto lock function on or off.	OFF or ON	Main body ECU (multiplex network body ECU)
Wireless Buzzer Resp	ON	Function that sounds the answer-back buzzer when an entry lock or unlock operation is performed.	OFF or ON	Main body ECU (multiplex network body ECU)
Wireless Buzzer Vol	Level 5	Buzzer answer back volume	Level 7, Level 6, Level 5, Level 4, Level 3, Level 2, Level 1 or Level0	Main body ECU (multiplex network body ECU)

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Smart Key/Access

DISPLAY	DEFAULT	CONTENT	SETTING	RELEVANT ECU
Park Wait Time	2.5s	Function that sets the period of time (lock confirmation time) that the door is prevented from being unlocked by operating the front door outside handle assembly after an entry lock operation is performed.	0.5s, 1.5s, 2.5s or 5s	Certification ECU (smart key ECU assembly)
Ignition Available Area	All	Function that sets the area that the key must be in before the engine switch can be operated.	Front or All	Certification ECU (smart key ECU assembly)
Door Unlock Mode2	Driver	Function that chooses the doors to be operated by entry unlock operation.	All or Driver	Certification ECU (smart key ECU assembly)
Touch Activation Over Threshold	Active	The function that limits the consecutive entry lock operation to only 2 times can be changed between Active and Not Active. When in Not Active mode, there is no limit for the number of times that the consecutive entry lock operation can be performed.	Active or Not Active	Certification ECU (smart key ECU assembly)
Engine Start Indicator	ON	Function that turns the smart warning light on the combination meter assembly on or off.	OFF or ON	Certification ECU (smart key ECU assembly)

Warning

DISPLAY	DEFAULT	CONTENT	SETTING	RELEVANT ECU
Key Low Battery Warning	ON	Enables or disables the sounding of the buzzer when the transmitter battery is low and the engine switch is turned off after being on (IG) for 20 minutes or more.	OFF or ON	Certification ECU (smart key ECU assembly)

(b) Customizing with the multi-display (for Navigation System)

(1) Turn the engine switch on (IG).

(2) Enter the following menus: APPS / Setup / Vehicle / Vehicle Customization / Door Lock Settings.

(3) Select the setting by referring to the table below.

DISPLAY	DEFAULT	CONTENT	SETTING	RELEVANT ECU
Select Doors to Unlock	Driver's Door	Function that sets which doors are unlocked by the entry unlock function.	All Doors or Driver's Door	Certification ECU (smart key ECU assembly)

(c) Customizing with the multi-display (for Audio and Visual System)

(1) Turn the engine switch on (IG).

(2) Enter the following menus: SETUP / Vehicle / Vehicle customization / Door lock settings.

(3) Select the setting by referring to the table below.

DISPLAY	DEFAULT	CONTENT	SETTING	RELEVANT ECU
Select doors to unlock	Driver's door	Function that sets which doors are unlocked by the entry unlock function.	All doors or Driver's door	Certification ECU (smart key ECU assembly)

(d) Entry unlock mode switching function (manual operation)

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(1) The following entry unlock modes can be selected when using the entry unlock mode switching function.

- All door unlock mode: When the sensor of a front door outside handle assembly LH is touched, an entry unlock operation is performed simultaneously for all doors.
- Driver door unlock mode: When the sensor of the front door outside handle assembly LH is touched, an entry unlock operation is performed for the driver door only.

(2) When customizing through manual operation:

1. Turn the engine switch off.
2. Check that the LED of the electrical key transmitter sub-assembly is not illuminated, and then press and hold the lock and unlock buttons of the electrical key transmitter sub-assembly for 5 seconds or more while the electrical key transmitter sub-assembly is in the actuation area.
3. Check the current setting.

HINT:

- The mode changes from all door unlock mode to driver door unlock mode and then back to all door unlock mode.
- The answer-back (wireless buzzer, buzzer in the combination meter assembly) operation for each mode is indicated in the table below.

CURRENTLY SELECTED MODE	ANSWER-BACK (WIRELESS BUZZER)	ANSWER-BACK (BUZZER IN COMBINATION METER ASSEMBLY)
All door unlock mode	Buzzer sounds twice (short beeps)	Buzzer sounds once
Driver door unlock mode	Buzzer sounds 3 times (short beeps)	Buzzer sounds once

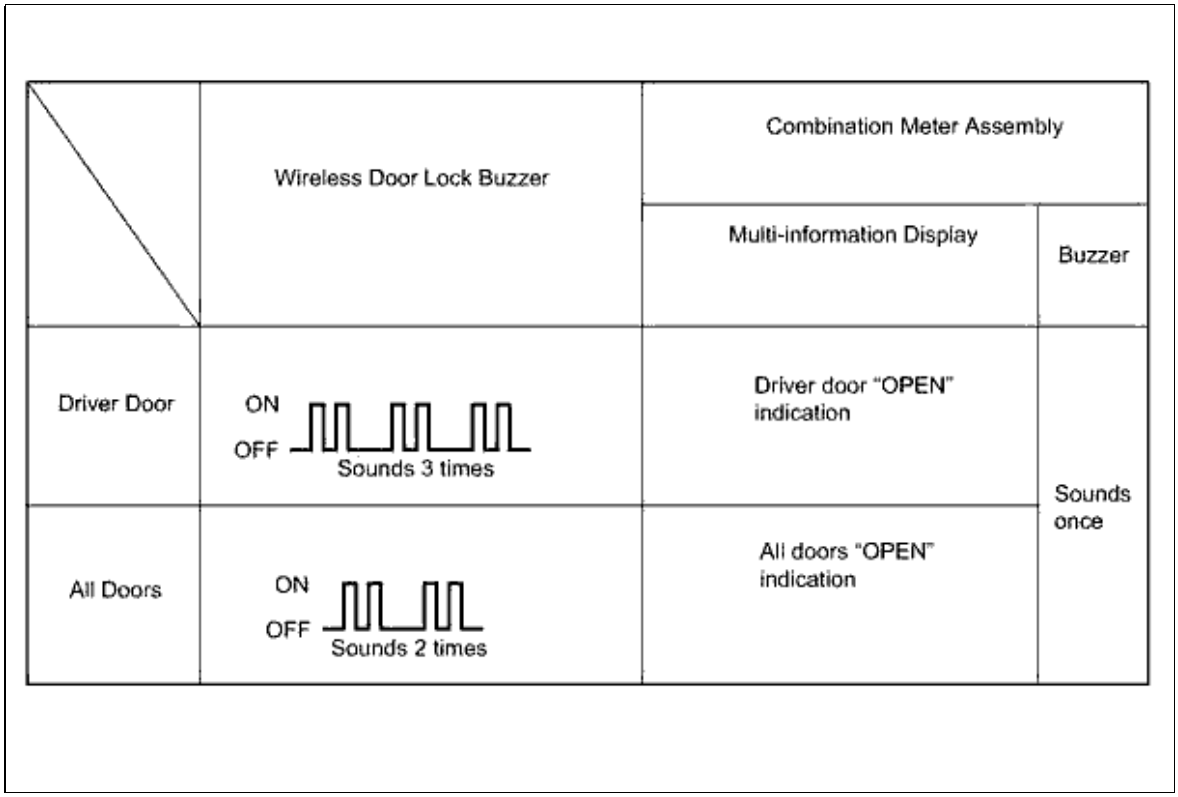
4. Release the lock and unlock buttons of the electrical key transmitter sub-assembly.
5. Check that the LED of the electrical key transmitter sub-assembly is not illuminated, and then press and hold the lock and unlock buttons of the electrical key transmitter sub-assembly for 5 seconds or more to change the mode.

HINT:

Repeat the procedure as necessary to select the desired mode.

6. Unlock the doors with the wireless operation, and then open any door

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(e) Entry cancel function (manual operation)

HINT:

While the smart key system is canceled, it is possible to lock and unlock the doors with the wireless operation, and the start system can be operated by holding the electrical key transmitter sub-assembly near the engine switch.

(1) The following functions are disabled when the smart key system is canceled.

1. Entry unlock/lock functions
2. Push start function
3. Key lock-in prevention function
4. Entry warning functions

(2) When canceling the system through manual operation:

1. Make sure the following conditions are met:
   - The engine switch is off.
   - The driver door is closed.
   - The driver door is unlocked.
2. Press the unlock button of the electrical key transmitter sub-assembly.
3. Open the driver door within 5 seconds of completing the step above (driver door: close condition → opened).
4. With the driver door open, press the unlock button of the electrical key transmitter sub-assembly 2 times within 5 seconds of completing the step above.

NOTICE:

If the driver door is closed before or while pressing the unlock button, the entry cancel setting mode will end.

5. Close and open the driver door twice completing the above step (driver door: open condition → closed → opened → closed → opened).
6. With the driver door open, press the unlock button of the electrical key transmitter sub-assembly 2

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times completing the step above.

NOTICE:

If the driver door is closed before or while pressing the unlock button, the entry cancel setting mode will end.

7. Close and open the driver door completing the step above (driver door: open condition → closed → opened).
8. Close the driver door within 5 seconds of completing the above step.
9. Check that the wireless buzzer sounds twice (short beeps) to confirm that the smart key system has been canceled.

HINT:

Finish the step 5 to 7 within 30 seconds.

(3) Perform the following procedure to restore the smart key system to the active state from the canceled state.

1. Perform the procedures to cancel the smart key system again.
2. Check that the wireless buzzer sounds once (short beep) to confirm that the smart key system has been restored to the active state.

HINT:

- The system changes between the canceled state and the active state each time the procedure to cancel the system through manual operation is performed.
- The buzzer sounds twice when the system changes from the active state to the canceled state, and sounds once when the system changes from the canceled state to the active state.

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Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): DATA LIST / ACTIVE TEST; 2016 MY Tacoma [08/2015 -]		

DATA LIST / ACTIVE TEST

1. DATA LIST

NOTICE:

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.

HINT:

- Using the 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.
- When using the Techstream with the engine switch off, connect the Techstream to the DLC3 and turn a courtesy light switch on and off at intervals of 1.5 seconds or less until communication between the Techstream and the vehicle begins. Then select the vehicle type under manual mode and enter the following menus: Body Electrical / Smart Key. While using the Techstream, periodically turn a courtesy light switch on and off at intervals of 1.5 seconds or less to maintain communication between the Techstream and the vehicle.

(a) Connect the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Smart Key, Main Body or Combination Meter / Data List.

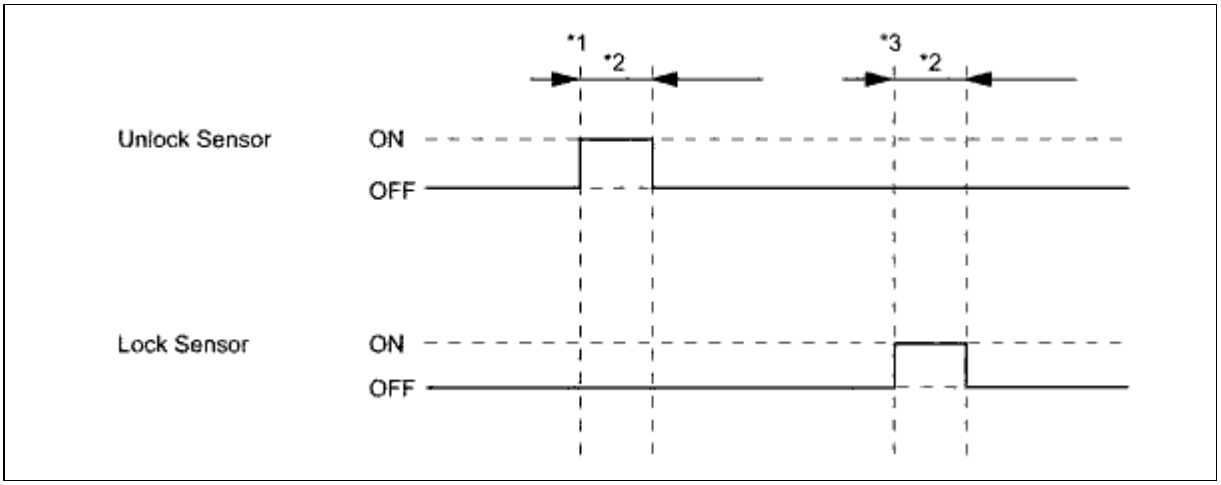
(e) Read the Data List according to the display on the Techstream.

Smart Key

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
D-Door Touch Sensor*1	Driver door touch sensor (unlock sensor) / ON or OFF	ON: Driver door touch sensor (unlock sensor) touched OFF: Driver door touch sensor (unlock sensor) not touched	• Displays whether the unlock sensor is on or off (even if the sensor is touched and contact is maintained, "ON" is displayed only momentarily). • Use this Data List item to help determine if there is an unlock sensor malfunction when the entry unlock function does not operate.
D-Door Trigger Switch*1	Driver door touch sensor (lock sensor) / ON or OFF	ON: Driver door touch sensor (lock sensor) touched OFF: Driver door touch sensor (lock sensor) not touched	• Displays whether the lock sensor is on or off (even if the sensor is touched and contact is maintained, "ON" is displayed only momentarily). • Use this Data List item to help determine if there is a lock sensor malfunction when the entry lock function does not operate.

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*1: Data from an actual vehicle provided for reference.



HINT:

- *1: With engine switch off, all doors closed, electrical key transmitter sub-assembly not inside vehicle and all doors locked, front door outside handle assembly LH (unlock sensor) touched.
- *2: Approximately 150 ms
- *3: With engine switch off, all doors closed, electrical key transmitter sub-assembly not inside vehicle and all doors unlocked, front door outside handle assembly LH (lock sensor) touched.

Main Body

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
ACC SW	Engine switch status / ON or OFF	ON: Engine switch on (ACC) OFF: Engine switch off	-
IG SW	Engine switch status / ON or OFF	ON: Engine switch on (IG) OFF: Engine switch off	-
RR Door Courtesy SW	Rear RH door courtesy light switch / ON or OFF	ON: Rear RH door open OFF: Rear RH door closed	-
RL Door Courtesy SW	Rear LH door courtesy light switch / ON or OFF	ON: Rear LH door open OFF: Rear LH door closed	-
FR Door Lock Pos	Front RH door unlock detection switch signal / UNLOCK or LOCK	UNLOCK: Front RH door unlocked LOCK: Front RH door locked	-
FR Door Courtesy	Front RH door courtesy light switch signal / ON or OFF	ON: Front RH door closed OFF: Front RH door open	-
FL Door Lock Pos	Front LH door unlock detection switch signal / UNLOCK or LOCK	UNLOCK: Front LH door unlocked LOCK: Front LH door locked	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
FL Door Courtesy	Front LH door courtesy light switch signal / ON or OFF	ON: Front LH door closed OFF: Front LH door open	-
RR-Door Lock Pos SW*1	Rear door RH and LH unlock detection switch signal / ON or OFF	ON: OFF: Rear door RH or LH unlocked OFF: Rear door RH and LH locked	-
RL-Door Lock Pos SW*1	Rear door RH and LH unlock detection switch signal / ON or OFF	ON: OFF: Rear door RH or LH unlocked OFF: Rear door RH and LH locked	-
Wireless Control	Wireless door lock function / ON or OFF	Customization status displayed	-
Hazard Answer Back	Hazard answer-back of entry function / ON or OFF	Customization status displayed	-
Wireless Auto Lock	Automatic lock function / ON or OFF	Customization status displayed	-
Open Door Warning	Open door warning / ON or OFF	Customization status displayed	-
Auto Lock Time	Automatic lock time / 120 s, 60 s or 30 s	Customization status displayed	-
Wireless Buzzer Resp	Buzzer answer-back of entry function / ON or OFF	Customization status displayed	-
Wireless Buzzer Vol	Entry door lock buzzer volume / Level7, Level6, Level5, Level4, Level3, Level2, Level1 or Level0	Customization status displayed	-

*1: for Double Cab

Power Source Control

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Shift P Signal	Shift position P/ON or OFF	ON: Shift lever in P OFF: Shift lever not in P	• Use this item to determine if the shift position switch is malfunctioning. • The engine cannot be started when this item is OFF.
Steering Unlock Switch	State of steering unlock sensor signal output from steering lock actuator assembly/ON or OFF	ON: Steering unlocked OFF: Steering locked	• When the shift lever is in P and the engine switch is off, if any door is opened then closed, the steering is locked. • When the key is inside the vehicle and the engine switch is turned on (ACC) or on (IG), the steering unlocks. • The engine cannot be started when

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
			the steering unlock signal is off.
Stop Light Switch1	State of brake pedal/ON or OFF	ON: Brake pedal depressed OFF: Brake pedal released	• Use this item to determine whether the stop light switch is malfunctioning. • The engine cannot be started when this item is OFF. • When this item is malfunctioning, the engine can be started by pressing and holding the engine switch for a certain period of time.
Start Switch1	Engine switch 1 status/ON or OFF	ON: Engine switch pressed OFF: Engine switch not pressed	• If the engine switch is pressed for a short time, the display may not change. • Use this item to determine whether the engine switch input signal is malfunctioning.
Start Switch2	Engine switch 2 status/ON or OFF	ON: Engine switch pressed OFF: Engine switch not pressed	• Backup for engine switch 1. However, when the engine switch is pressed and held, the control functions only when both engine switch 1 and 2 are normal. • Behaves the same way as engine switch 1.
Vehicle Speed Signal	Vehicle being driven or stopped/ Stop or Run	Stop: Vehicle stopped Run: Vehicle being driven at 5 km/ h (3 mph) or more	-
Power Supply Condition	Power supply state / All OFF, ACC ON, IG ON or ST ON	All OFF: Engine switch off (ACC and IG) ACC ON: Engine switch on (ACC) IG ON: Engine switch on (IG) ST ON: Sending engine start request signal	-

Combination Meter

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Vehicle Speed	Vehicle speed / Min.: 0, Max.:	Almost the same as actual vehicle	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Meter	255	speed	

2. ACTIVE TEST

HINT:

Using the 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 the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Smart Key or Main Body / Active Test.

(e) According to the display on the Techstream, perform the Active Test.

Smart Key

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Overhead Tuner Power Supply ON	Door control receiver	OFF/ON	-
Multi Channel SW	Door control receiver	CH1/CH2	-

Main Body

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Door Lock	Wireless Buzzer	Unlock/Lock	-
D-Door Unlock	Driver door lock motor	OFF/ON	-
Wireless Buzzer	Wireless door lock buzzer	OFF/ON	-

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000005UV6000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): DIAGNOSIS SYSTEM; 2016 MY Tacoma [08/2015 -]		

DIAGNOSIS SYSTEM

1. DESCRIPTION

(a) Smart key system (for entry function) data and Diagnostic Trouble Codes (DTCs) can be read through the vehicle Data Link Connector 3 (DLC3). In some cases, a malfunction may be occurring in the smart key system. When the system seems to be malfunctioning, use the Techstream to check for malfunctions and perform repairs.

2. CHECK DLC3

(a) Check the DLC3 INFO .

3. INSPECT BATTERY VOLTAGE

(a) Measure the vehicle battery voltage.

Standard Voltage:
11 to 14 V

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

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Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): DIAGNOSTIC TROUBLE CODE CHART; 2016 MY Tacoma [08/2015 -]		

DIAGNOSTIC TROUBLE CODE CHART

Smart Key System

DTC CODE	DETECTION ITEM	SEE PAGE
B27A1	Open in Driver Side Electrical Antenna Circuit	INFO
B27A5	Open in Front Floor Electrical Key Oscillator Circuit	INFO
B27A6	Open in Rear Floor Electrical Key Oscillator Circuit	INFO

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000005UV7000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): DTC CHECK / CLEAR; 2016 MY Tacoma [08/2015 -]		

DTC CHECK / CLEAR

1. CHECK FOR DTC

HINT:

When using the Techstream with the engine switch off, connect the Techstream to the DLC3 and turn a courtesy light switch on and off at intervals of 1.5 seconds or less until communication between the Techstream and the vehicle begins. Then select the vehicle type under manual mode and enter the following menus: Body Electrical / Smart Key. While using the Techstream, periodically turn a courtesy light switch on and off at intervals of 1.5 seconds or less to maintain communication between the Techstream and the vehicle.

(a) Connect the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Smart Key / Trouble Codes.

(e) Read the DTCs.

2. CLEAR DTC

HINT:

When using the Techstream with the engine switch off, connect the Techstream to the DLC3 and turn a courtesy light switch on and off at intervals of 1.5 seconds or less until communication between the Techstream and the vehicle begins. Then select the vehicle type under manual mode and enter the following menus: Body Electrical / Smart Key. While using the Techstream, periodically turn a courtesy light switch on and off at intervals of 1.5 seconds or less to maintain communication between the Techstream and the vehicle.

(a) Connect the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Smart Key / Trouble Codes.

(e) Clear the DTCs.

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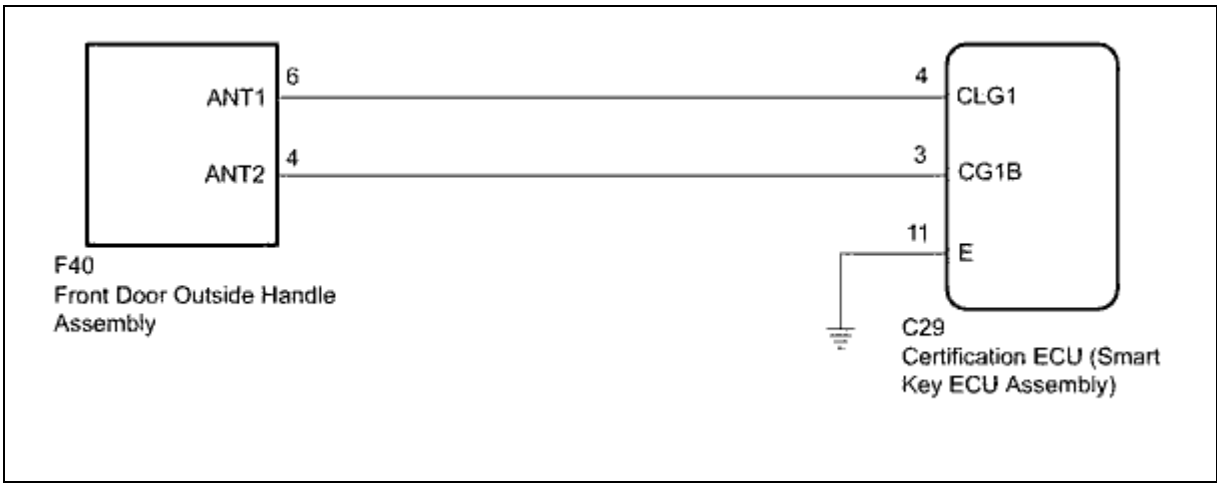
Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000005UVB000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): Driver Side Door Entry Lock Function does not Operate; 2016 MY Tacoma [08/2015 -]		

Driver Side Door Entry Lock Function does not Operate

DESCRIPTION

If the entry lock function does not operate for the driver door only, but the entry unlock function operates, the request code is being transmitted properly from the driver door. In this case, there may be a problem related to the front door outside handle assembly LH (lock sensor) (connection between the certification ECU (smart key ECU assembly) and front door outside handle assembly LH [lock sensor]).

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- The smart key system (for Entry Function) uses a multiplex communication system (LIN communication system) and the CAN communication system. Inspect the communication function by following How to Proceed with Troubleshooting. Troubleshoot the smart key system (for Entry Function) after confirming that the communication systems are functioning properly INFO .
- When using the Techstream with the engine switch off, connect the Techstream to the DLC3 and turn a courtesy light switch on and off at intervals of 1.5 seconds or less until communication between the Techstream and the vehicle begins. Then select the vehicle type under manual mode and enter the following menus: Body Electrical / Smart Key. While using the Techstream, periodically turn a courtesy light switch on and off at intervals of 1.5 seconds or less to maintain communication between the Techstream and the vehicle.
- Check that there are no electrical key transmitter sub-assemblies in the vehicle.
- Before performing the inspection, check that DTC B1242 (wireless door lock control) is not output INFO .
- Before replacing the certification ECU (smart key ECU assembly), refer to the smart key system (for Entry Function) precaution INFO .
- After repair, confirm that no DTCs are output by performing the "DTC Output Confirmation Operation".

PROCEDURE

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1.	**CHECK POWER DOOR LOCK CONTROL SYSTEM**

(a) When the door control switch on the power window regulator switch assembly is operated, check that the doors unlock and lock according to the switch operation INFO .

OK:

Door locks operate normally.

NG ▶ **GO TO POWER DOOR LOCK CONTROL SYSTEM**

OK ▼

2.	**READ VALUE USING TECHSTREAM (D-DOOR TRIGGER SWITCH)**

(a) Connect the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Smart Key / Data List.

(e) Read the Data List according to the display on the Techstream.

Smart Key

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
D-Door Trigger Switch	Driver door touch sensor (lock sensor) / ON or OFF	ON: Driver door touch sensor (lock sensor) touched OFF: Driver door touch sensor (lock sensor) not touched	• Displays whether the lock sensor is on or off (even if the sensor is touched and contact is maintained, "ON" is displayed only momentarily). • Use this Data List item to help determine if there is a lock sensor malfunction when the entry lock function does not operate.

OK:

The Techstream display changes correctly in response to the operation of the front door outside handle assembly LH.

Result

RESULT	PROCEED TO
NG	A
OK	B

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B → REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

A

3.	**CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) - FRONT DOOR OUTSIDE HANDLE ASSEMBLY LH)**

(a) Disconnect the C29 certification ECU (smart key ECU assembly) connector.

(b) Disconnect the F40 front door outside handle assembly LH connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C29-4 (CLG1) - F40-6 (ANT1)	Always	Below 1 Ω
C29-3 (CG1B) - F40-4 (ANT2)	Always	Below 1 Ω
C29-4 (CLG1) or F40-6 (ANT1) - Body ground	Always	10 kΩ or higher
C29-3 (CG1B) or F40-4 (ANT2) - Body ground	Always	10 kΩ or higher

(d) Reconnect the F40 front door outside handle assembly LH connector.

(e) Reconnect the C29 certification ECU (smart key ECU assembly) connector.

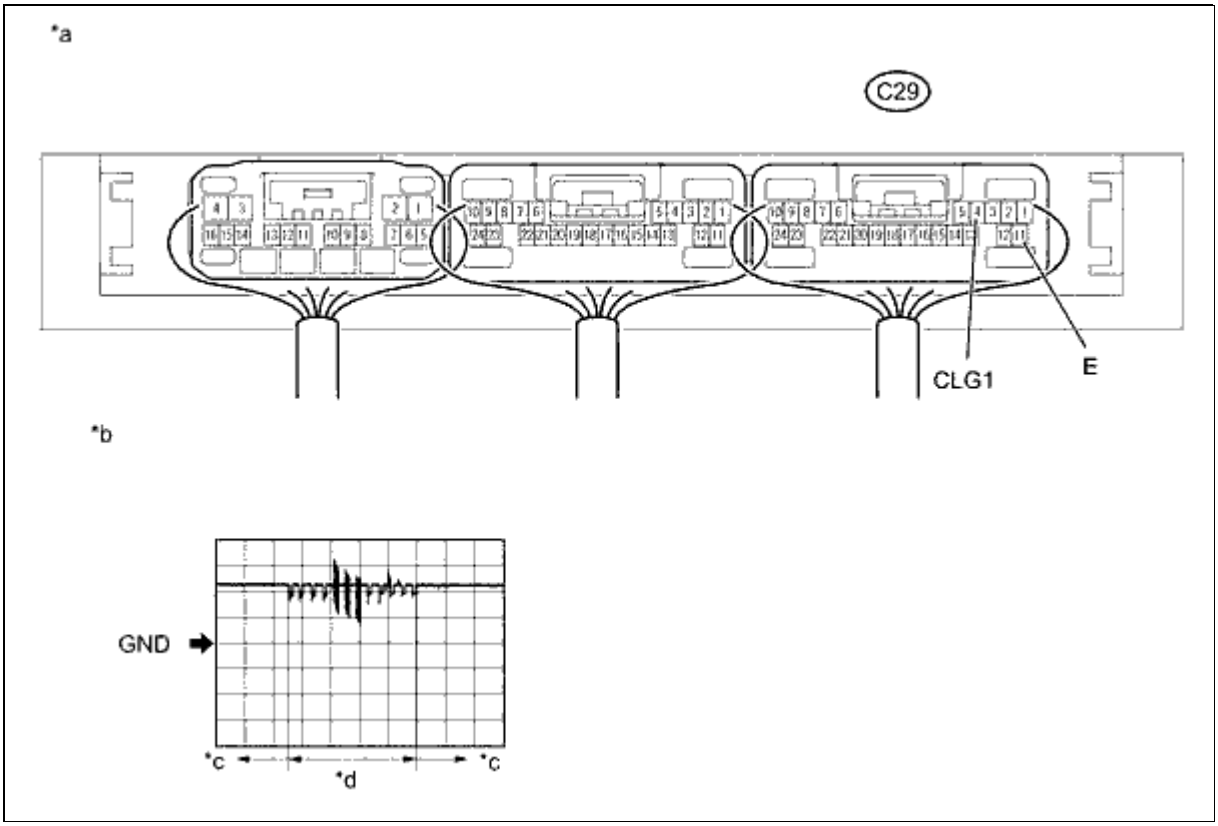
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

4.	**CHECK FRONT DOOR OUTSIDE HANDLE ASSEMBLY LH (INPUT TO DRIVER DOOR LOCK SENSOR)**

(a) Using an oscilloscope, check the waveform.

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Text in Illustration

*a	Component with harness connected (Certification ECU (smart key ECU assembly))	*b	Waveform 1
*c	Lock sensor not touched	*d	Lock sensor touched

OK:

TESTER CONNECTION	SWITCH CONDITION	TOOL SETTING	SPECIFIED CONDITION
C29-4 (CLG1) - C29-11 (E)	Procedure: 1. Engine switch off 2. Electrical key transmitter sub-assembly brought outside vehicle 3. All doors closed 4. All doors locked through wireless operation (electrical key transmitter sub-assembly brought outside detection area*) 5. Driver door lock sensor touched	5 V/DIV., 40 ms/DIV.	Pulse generation (See waveform 1)

*: For details about the entry function detection area, refer to Operation Check INFO .

NG ▶ **REPLACE FRONT DOOR OUTSIDE HANDLE ASSEMBLY LH**

OK ▶ **REPLACE CERTIFICATION ECU (SMART KEY ECU**

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ASSEMBLY)

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000005UVA000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): Driver Side Door Entry Lock and Unlock Functions do not Operate; 2016 MY Tacoma [08/2015 -]		

Driver Side Door Entry Lock and Unlock Functions do not Operate

DESCRIPTION

If the entry lock and unlock functions do not operate for the driver door only, the request code may not be being transmitted from the driver door or the front door outside handle assembly LH (touch sensor) may be malfunctioning. If the entry functions for other doors operate properly, communication between the electrical key transmitter sub-assembly and electrical key and TPMS receiver assembly is normal.

In this case, there may be a problem with request code transmission (communication between the certification ECU (smart key ECU assembly) and front door outside handle assembly LH [electrical key antenna]), or there may be wave interference.

HINT:

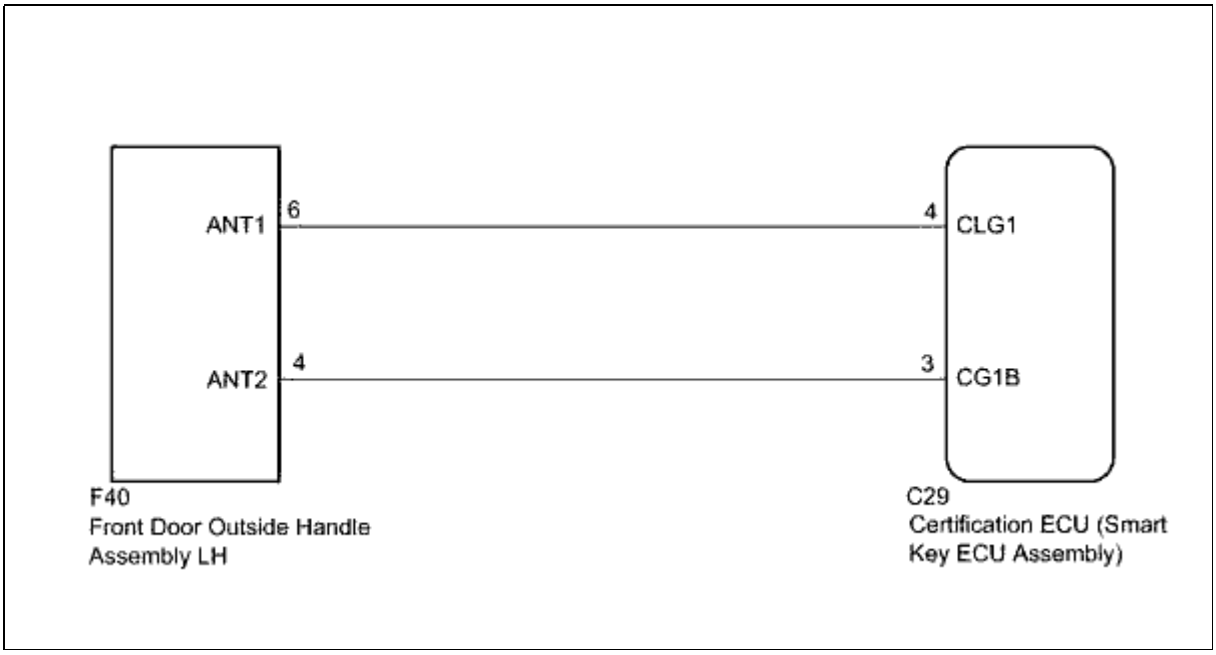
- If the driver door entry lock and unlock functions do not operate, the cause of the malfunction may be stored in the certification ECU (smart key ECU assembly) INFO .
- If the cause of the malfunction is stored in the certification ECU (smart key ECU assembly), the following table is helpful in checking whether or not the malfunction was caused by wave interference.

Radio Wave Interference:

PARAMETER NAME	CAUSE OF PROBLEM AND COUNTERMEASURE
Lock / Key RF Signal Interference	When entry lock operation was performed, the electrical key transmitter sub-assembly could not be confirmed due to wave interference. If the cause of the malfunction has not been stored but the car has been moved and an entry lock operation has been successfully performed, the possibility of wave interference is high.
Unlock / Key RF Signal Interference	When entry unlock operation was performed, the electrical key transmitter sub-assembly could not be confirmed due to wave interference. If the cause of the malfunction has not been stored but the car has been moved and an entry unlock operation has been successfully performed, the possibility of wave interference is high.

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- The smart key system (for Entry Function) uses a multiplex communication system (LIN communication system) and the CAN communication system. Inspect the communication function by following How to Proceed with Troubleshooting. Troubleshoot the smart key system (for Entry Function) after confirming that the communication systems are functioning properly INFO .
- When using the Techstream with the engine switch off, connect the Techstream to the DLC3 and turn a courtesy light switch on and off at intervals of 1.5 seconds or less until communication between the Techstream and the vehicle begins. Then select the vehicle type under manual mode and enter the following menus: Body Electrical / Smart Key. While using the Techstream, periodically turn a courtesy light switch on and off at intervals of 1.5 seconds or less to maintain communication between the Techstream and the vehicle.
- Check that there are no electrical key transmitter sub-assemblies in the vehicle.
- Before performing the inspection, check that DTC B1242 (wireless door lock control) is not output INFO .
- Before replacing the certification ECU (smart key ECU assembly), refer to the smart key system (for Entry Function) precaution INFO .
- After repair, confirm that no DTCs are output by performing the "DTC Output Confirmation Operation".

PROCEDURE

1.	**CHECK POWER DOOR LOCK CONTROL SYSTEM**

(a) When the door control switch on the power window regulator master switch assembly is operated, check that the doors unlock and lock according to the switch operation INFO .

OK:

Door locks operate normally.

NG ▶ **GO TO POWER DOOR LOCK CONTROL SYSTEM**

OK

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2.	**CHECK FOR DTC**

(a) Check for DTCs INFO .

Result

RESULT	PROCEED TO
DTCs are not output	A
DTCs are output	B

B ▶ **GO TO DIAGNOSTIC TROUBLE CODE CHART**

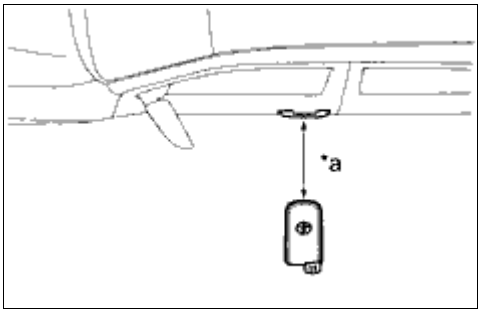
A

3.	**CHECK WAVE ENVIRONMENT**

(a) Bring the electrical key transmitter sub-assembly approximately 0.3 m (0.984 ft.) from the front door outside handle assembly LH and perform an entry function check INFO .

Text in Illustration

*a	Approximately 0.3 m (0.984 ft.)



HINT:

- Communication may not be possible if the electrical key transmitter sub-assembly is within 0.2 m (0.656 ft.) of the front door outside handle assembly LH.
- When the electrical key transmitter sub-assembly is brought near the front door outside handle assembly LH, 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 problem only occurs in certain locations or at certain 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.
- There may be wave interference if the vehicle is near broadcasting antennas, large video displays, wireless garage door opener systems, wireless security cameras, home security systems, etc. In this case, move the vehicle to a different location and check if there is any improvement.
- If a tool for checking radio waves, such as a signal strength

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meter, is available, move around the area while observing both the LF band (used by the vehicle antenna to form the detection area) and RF band (used by the electrical key transmitter sub-assembly for transmission) to check for locations where there is wave interference.
- When checking the operation of the entry lock function several times, it can be operated up to 2 times consecutively. To operate the function 3 times or more consecutively, the doors need to be unlocked once. However, this is only for the entry lock function, other door lock operations, such as a wireless door lock operation can be performed consecutively.

Result

RESULT	PROCEED TO
Entry function does not operate normally	A
Entry function operates normally	B

B ▶ **AFFECTED BY WAVE INTERFERENCE**

A ▼

4.	**READ VALUE USING TECHSTREAM (D-DOOR TOUCH SENSOR, D-DOOR TRIGGER SWITCH)**

(a) Connect the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Smart Key / Data List.

(e) Read the Data List according to the display on the Techstream.

Smart Key

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
D-Door Touch Sensor	Driver door touch sensor (unlock sensor) / ON or OFF	ON: Driver door touch sensor (unlock sensor) touched OFF: Driver door touch sensor (unlock sensor) not touched	• Displays whether the unlock sensor is on or off (even if the sensor is touched and contact is maintained, "ON" is displayed only momentarily). • Use this Data List item to help determine if there is an unlock sensor malfunction when the entry unlock function does not operate.

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
D-Door Trigger Switch	Driver door touch sensor (lock sensor) / ON or OFF	ON: Driver door touch sensor (lock sensor) touched OFF: Driver door touch sensor (lock sensor) not touched	• Displays whether the lock sensor is on or off (even if the sensor is touched and contact is maintained, "ON" is displayed only momentarily). • Use this Data List item to help determine if there is an lock sensor malfunction when the entry lock function does not operate.

HINT:

When checking the operation of the entry lock function several times, it can be operated up to 2 times consecutively. To operate the function 3 times or more consecutively, the doors need to be unlocked once. However, this is only for the entry lock function, other door lock operations, such as a wireless door lock operation can be performed consecutively.

OK:

The Techstream display changes correctly in response to the operation of the front door outside handle assembly LH.

NG ▶ **GO TO STEP 6**

OK ▼

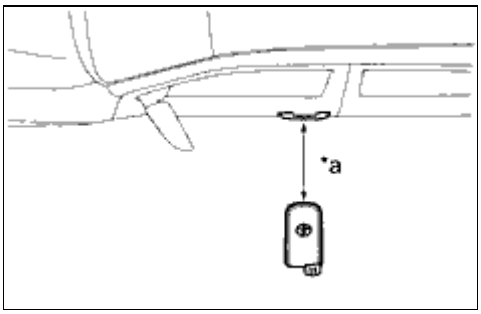
5.	**CHECK KEY DIAGNOSTIC MODE**

(a) Check the following antenna in key diagnostic mode INFO .

(b) Select either channel 1 or channel 2 and perform key diagnostic mode inspection for each channel.

(1) Check the electrical key antenna (for driver door):

When the electrical key transmitter sub-assembly is brought within 0.7 to 1 m (2.30 to 3.28 ft.) of the front door outside handle assembly LH, check that the wireless buzzer sounds.



Text in Illustration

*a	0.7 to 1 m (2.30 to 3.28 ft.)

HINT:

- Select either channel 1 or channel 2 and inspect key diagnostic mode for each channel.
- If the buzzer sounds with [CH1] displayed but not with [CH2], the electrical key transmitter sub-assembly cannot be detected by channel 2 due to a malfunction, such as wave interference.

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Result

RESULT	PROCEED TO
Wireless buzzer does not sound	A
Wireless buzzer sounds	B

B ▶ **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

A
▼

6.	**CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) - FRONT DOOR OUTSIDE HANDLE ASSEMBLY LH)**

(a) Disconnect the C29 certification ECU (smart key ECU assembly) connector.

(b) Disconnect the F40 front door outside handle assembly LH connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C29-4 (CLG1) - F40-6 (ANT1)	Always	Below 1 Ω
C29-3 (CG1B) - F40-4 (ANT2)	Always	Below 1 Ω
C29-4 (CLG1) or F40-6 (ANT1) - Body ground	Always	10 kΩ or higher
C29-3 (CG1B) or F40-4 (ANT2) - Body ground	Always	10 kΩ or higher

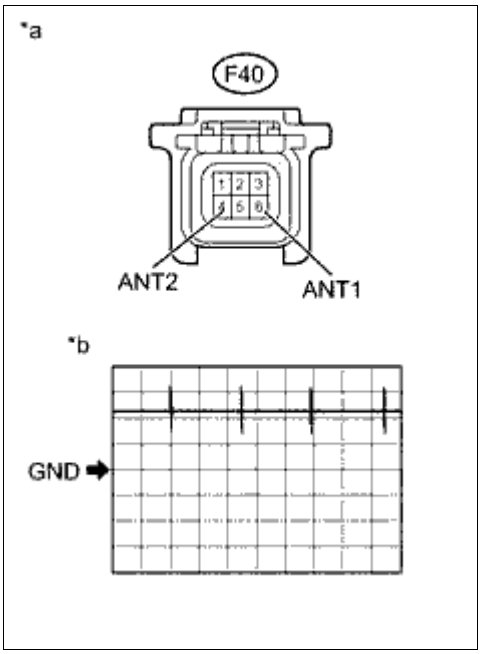
NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK
▼

7.	**CHECK CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (OUTPUT TO DRIVER DOOR ELECTRICAL KEY ANTENNA)**

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(a) Connect the C29 certification ECU (smart key ECU assembly) connector.



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

OK:

TESTER CONNECTION	SWITCH CONDITION	TOOL SETTING	SPECIFIED CONDITION
F40-6 (ANT1) - F40-4 (ANT2)	Procedure: 1. Engine switch off 2. All doors closed 3. Electrical key transmitter sub-assembly not inside vehicle 4. All doors locked through wireless operation (electrical key transmitter sub-assembly brought outside detection area*)	5 V/DIV., 500 ms/DIV.	Pulse generation (See waveform 1)

*: For details about the entry function detection area, refer to Operation Check INFO .

Text in Illustration

*a	Front view of wire harness connector (to Front Door Outside handle assembly LH)
*b	Waveform 1

NG ▶ **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

OK ▼

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8.	CHECK ENTRY LOCK OPERATION

(a) Connect all connectors and check that the entry lock and unlock functions operate INFO .

Result

RESULT	PROCEED TO
Entry function does not operate normally	A
Entry function operates normally	B

B ▶ END (CONNECTOR WAS NOT CONNECTED SECURELY)

A ▼

9.	REPLACE FRONT DOOR OUTSIDE HANDLE ASSEMBLY LH

(a) Temporarily replace the front door outside handle assembly LH with a new or known good one INFO .

NEXT ▼

10.	CHECK ENTRY LOCK OPERATION

(a) Check that the entry lock and unlock functions operate INFO .

Result

RESULT	PROCEED TO
Entry function operates normally	A
Entry function does not operate normally	B

B ▶ REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

A ▶ END (FRONT DOOR OUTSIDE HANDLE ASSEMBLY LH WAS DEFECTIVE)

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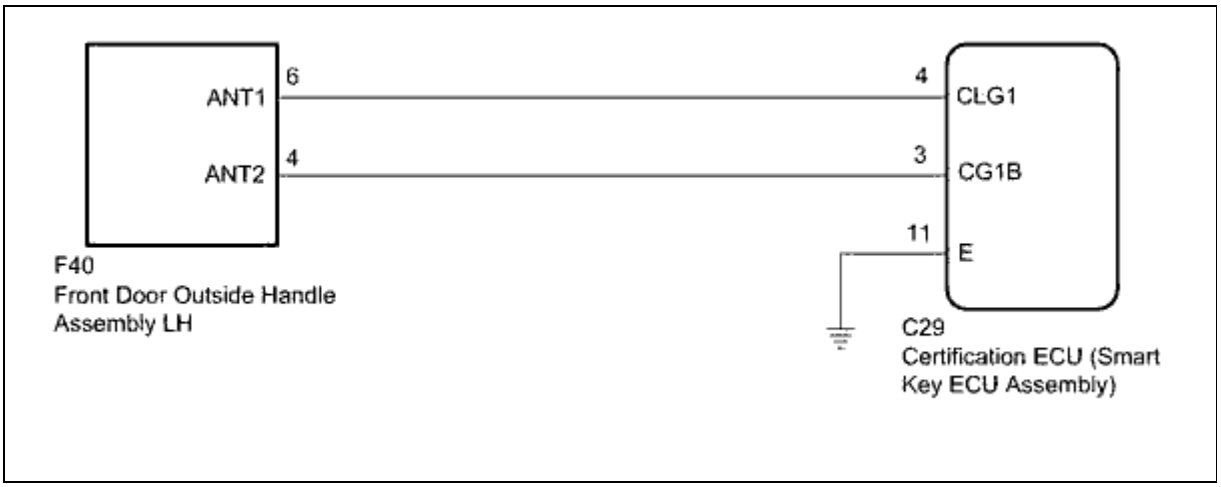
Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000005UV9000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): Driver Side Door Entry Unlock Function does not Operate; 2016 MY Tacoma [08/2015 -]		

Driver Side Door Entry Unlock Function does not Operate

DESCRIPTION

If the entry unlock function does not operate for the driver door only, but the entry lock function operates, the request code is being transmitted properly from the driver door. In this case, there may be a problem related to the touch sensor (connection between the certification ECU (smart key ECU assembly) and front door outside handle assembly LH [unlock sensor]).

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- The smart key system (for Entry Function) uses a multiplex communication system (LIN communication system) and the CAN communication system. Inspect the communication function by following How to Proceed with Troubleshooting. Troubleshoot the smart key system (for Entry Function) after confirming that the communication systems are functioning properly INFO .
- When using the Techstream with the engine switch off, connect the Techstream to the DLC3 and turn a courtesy light switch on and off at intervals of 1.5 seconds or less until communication between the Techstream and the vehicle begins. Then select the vehicle type under manual mode and enter the following menus: Body Electrical / Smart Key. While using the Techstream, periodically turn a courtesy light switch on and off at intervals of 1.5 seconds or less to maintain communication between the Techstream and the vehicle.
- Check that there are no electrical key transmitter sub-assemblies in the vehicle.
- Before performing the inspection, check that DTC B1242 (wireless door lock control) is not output INFO .
- Before replacing the certification ECU (smart key ECU assembly), refer to the smart key system (for Entry Function) precaution INFO .
- After repair, confirm that no DTCs are output by performing the "DTC Output Confirmation Operation".

PROCEDURE

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1.	**CHECK POWER DOOR LOCK CONTROL SYSTEM**

(a) When the door control switch on the power window regulator master switch assembly is operated, check that the doors unlock and lock according to the switch operation INFO .

OK:

Door locks operate normally.

NG ▶ **GO TO POWER DOOR LOCK CONTROL SYSTEM**

OK ▼

2.	**READ VALUE USING TECHSTREAM (FL DOOR LOCK POS)**

(a) Connect the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Main Body / Data List.

(e) Read the Data List according to the display on the Techstream.

Main Body

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
FL Door Lock Pos	Front door LH unlock detection switch signal / UNLOCK or LOCK	UNLOCK: Front door LH unlocked LOCK: Front door LH locked	-

OK:

The Techstream display changes correctly in response to the lock/unlock operation of the front LH door.

NG ▶ **GO TO LIGHTING SYSTEM (Proceed to Door Unlock Detection Switch Circuit)**

OK ▼

3.	**READ VALUE USING TECHSTREAM (D-DOOR TOUCH SENSOR)**

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(a) Connect the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Smart Key / Data List.

(e) Read the Data List according to the display on the Techstream.

Smart Key

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
D-Door Touch Sensor	Driver door touch sensor (unlock sensor) / ON or OFF	ON: Driver door touch sensor (unlock sensor) touched OFF: Driver door touch sensor (unlock sensor) not touched	• Displays whether the unlock sensor is on or off (even if the sensor is touched and contact is maintained, "ON" is displayed only momentarily). • Use this Data List item to help determine if there is an unlock sensor malfunction when the entry unlock function does not operate.

OK:

The Techstream display changes correctly in response to the operation of the front door outside handle assembly LH.

Result

RESULT	PROCEED TO
NG	A
OK	B

B ▶ **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

A ▼

4.	**CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) - FRONT DOOR OUTSIDE HANDLE ASSEMBLY LH)**

(a) Disconnect the C29 certification ECU (smart key ECU assembly) connector.

(b) Disconnect the F40 front door outside handle assembly LH connector.

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

Standard Resistance:

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TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C29-4 (CLG1) - F40-6 (ANT1)	Always	Below 1 Ω
C29-3 (CG1B) - F40-4 (ANT2)	Always	Below 1 Ω
C29-4 (CLG1) or F40-6 (ANT1) - Body ground	Always	10 kΩ or higher
C29-3 (CG1B) or F40-4 (ANT2) - Body ground	Always	10 kΩ or higher

(d) Reconnect the F40 front door outside handle assembly LH connector.

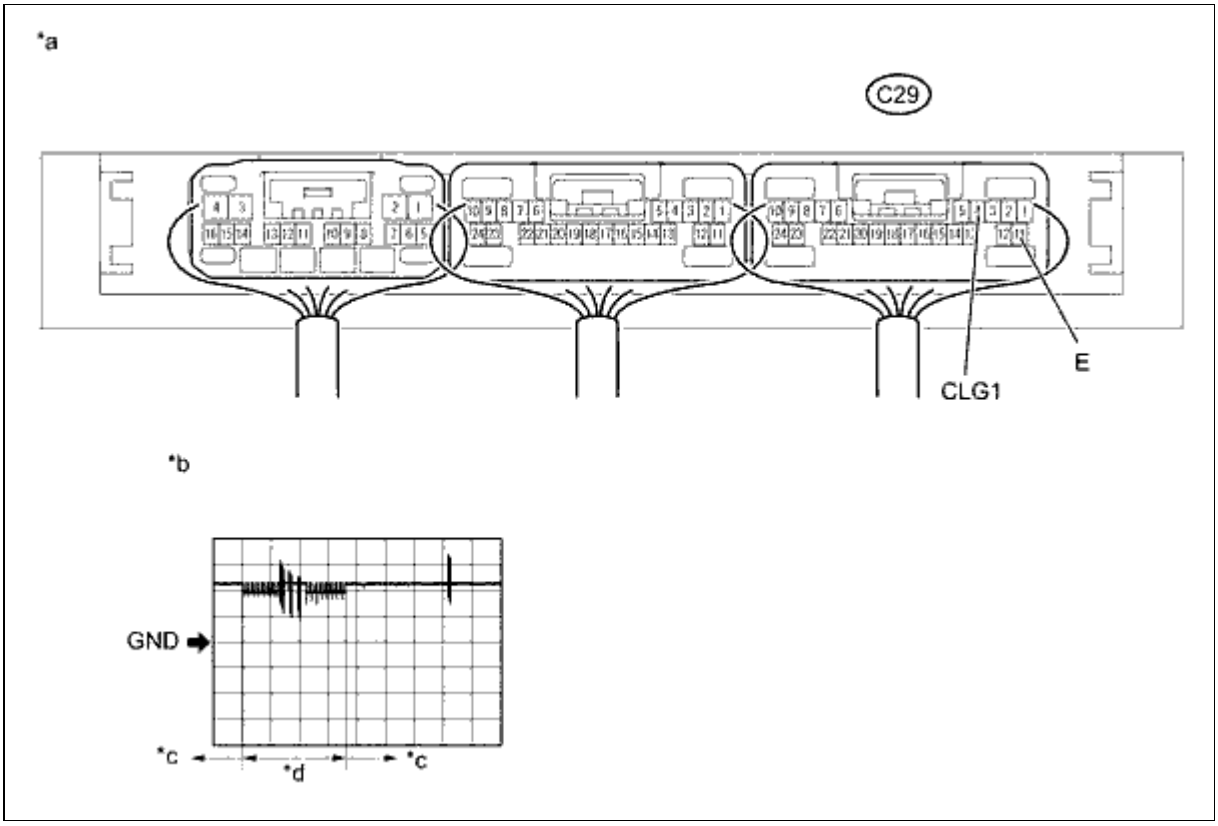
(e) Reconnect the C29 certification ECU (smart key ECU assembly) connector.

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

5.	**CHECK FRONT DOOR OUTSIDE HANDLE ASSEMBLY LH (INPUT TO DRIVER DOOR UNLOCK SENSOR)**

(a) Using an oscilloscope, check the waveform.



Text in Illustration

*a	Component with harness connected	*b	Waveform 1

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	(Certification ECU (smart key ECU assembly))		
*c	Unlock sensor not touched	*d	Unlock sensor touched

OK:

TESTER CONNECTION	SWITCH CONDITION	TOOL SETTING	SPECIFIED CONDITION
C29-4 (CLG1) - C29-11 (E)	Procedure: 1. Engine switch off 2. Electrical key transmitter sub-assembly brought outside vehicle 3. All doors locked 4. Electrical key transmitter sub-assembly not near the vehicle 5. Driver door unlock sensor touched	5 V/DIV., 40 ms/DIV.	Pulse generation (See waveform 1)

NG ▶ **REPLACE FRONT DOOR OUTSIDE HANDLE ASSEMBLY LH**

OK ▶ **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

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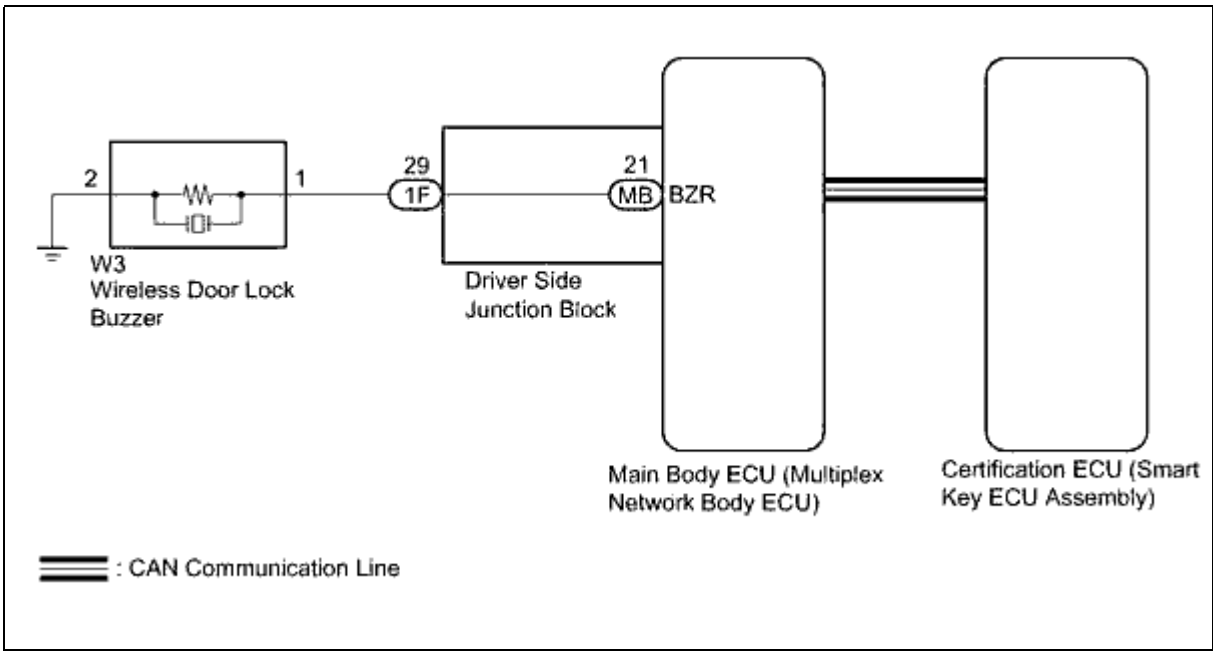
Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000005UVG000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): Entry Exterior Alarm and Answer-back Buzzer do not Sound; 2016 MY Tacoma [08/2015 -]		

Entry Exterior Alarm and Answer-back Buzzer do not Sound

DESCRIPTION

The smart key system (for Entry Function) uses the wireless door lock buzzer to perform various vehicle exterior warnings. When the conditions of each warning are met, the certification ECU (smart key ECU assembly) sends a buzzer activation request signal to the main body ECU (multiplex network body ECU) via CAN communication and the buzzer sounds.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- The smart key system (for Entry Function) uses the LIN communication system and CAN communication system. Inspect the communication function by following How to Proceed with Troubleshooting. Troubleshoot the smart key system (for Entry Function) after confirming that the communication systems are functioning properly INFO .
- When using the Techstream with the engine switch off, connect the Techstream to the DLC3 and turn a courtesy light switch on and off at intervals of 1.5 seconds or less until communication between the Techstream and the vehicle begins. Then select the vehicle type under manual mode and enter the following menus: Body Electrical / Smart Key. While using the Techstream, periodically turn a courtesy light switch on and off at intervals of 1.5 seconds or less to maintain communication between the Techstream and the vehicle.
- Before replacing the certification ECU (smart key ECU assembly) or main body ECU (multiplex network body ECU), refer to smart key system (for Entry Function) INFO .
- After repair, confirm that no DTCs are output by performing "DTC Output Confirmation Operation".

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PROCEDURE

1.	**CHECK CUSTOMIZE SETTING (WIRELESS BUZZER RESP)**

(a) Connect the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Customize Setting / Wireless Door Lock.

Wireless Door Lock

TESTER DISPLAY	DEFAULT	DESCRIPTION	SETTING	ECU
Wireless Buzzer Resp	ON	Wireless buzzer response	OFF or ON	Main body ECU (multiplex network body ECU)

Result

RESULT	PROCEED TO
"ON" is displayed	A
"OFF" is displayed	B

B ▶ **PERFORM CUSTOMIZE SETTING**

A ▼

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

(a) Check that the wireless door lock functions operate normally INFO .

Result

RESULT	PROCEED TO
Wireless door lock function does not operate normally	A
Wireless door lock function operates normally	B

B ▶ **GO TO PROBLEM SYMPTOMS TABLE**

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A

3.	READ VALUE USING TECHSTREAM (EACH UNLOCK DETECTION SWITCH)

(a) Connect the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Main Body / Data List.

(e) Read the Data List according to the display on the Techstream.

Main Body

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
FR Door Lock Pos	Front door RH unlock detection switch signal / UNLOCK or LOCK	UNLOCK: Front door RH unlocked LOCK: Front door RH locked	-
FL Door Lock Pos	Front door LH unlock detection switch signal / UNLOCK or LOCK	UNLOCK: Front door LH unlocked LOCK: Front door LH locked	-
RR-Door Lock Pos SW*1	Rear door RH unlock detection switch signal / ON or OFF	ON: Rear door RH or LH unlocked OFF: Rear door RH and LH locked	-
RL-Door Lock Pos SW*1	Rear door LH unlock detection switch signal / ON or OFF	ON: Rear door RH or LH unlocked OFF: Rear door RH and LH locked	-

*1: for Double Cab

OK:
The Techstream display changes correctly in response to the lock/unlock operation.

NG ▶ **GO TO LIGHTING SYSTEM (PROCEED TO DOOR UNLOCK DETECTION SWITCH CIRCUIT)**

OK

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4.	**PERFORM ACTIVE TEST USING TECHSTREAM (WIRELESS BUZZER)**

(a) Connect the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Main Body / Active Test.

(e) Perform Active Test according to the display on the Techstream.

Main Body

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
Wireless Buzzer	Wireless door lock buzzer	OFF/ON	-

Result

RESULT	PROCEED TO
Wireless buzzer does not sound	A
Wireless buzzer sounds	B

B ▶ **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

A ▼

5.	**INSPECT WIRELESS DOOR LOCK BUZZER**

(a) Disconnect the wireless door lock buzzer connector.

(b) Perform the Active Test using the Techstream and sound the wireless door lock buzzer.

Main Body

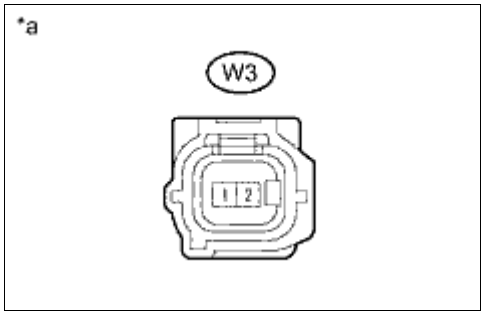
TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
Wireless Buzzer	Wireless door lock buzzer	OFF/ON	-

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(c) While performing the Active Test, measure the voltage between the terminals of the wireless door lock buzzer.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
W3-1 - W3-2	Active Test Wireless Buzzer ON	Pulse generation (frequency: 2 kHz, high voltage: 11 to 14 V, low voltage: below 1 V)
	Active Test Wireless Buzzer OFF	Below 1 V



Text in Illustration

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

NG ▶ **GO TO STEP 6**

OK ▶ **REPLACE WIRELESS DOOR LOCK BUZZER**

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

(a) Remove the main body ECU (multiplex network body ECU) from the driver side junction block INFO .

(b) Reconnect the 1F driver side junction block connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
W3-1 - MB-21 (BZR)	Always	Below 1 Ω
W3-2 - Body ground	Always	Below 1 Ω
W3-1 or MB-21 (BZR) - Body ground	Always	10 kΩ or higher

NG ▶ **GO TO STEP 7**

OK ▶ **REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)**

7.	**CHECK HARNESS AND CONNECTOR (WIRELESS DOOR LOCK BUZZER - DRIVER SIDE**

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	JUNCTION BLOCK)

(a) Disconnect the 1F driver side junction block connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
W3-1 - 1F-29	Always	Below 1 Ω
W3-1 or 1F-29 - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▶ **REPLACE DRIVER SIDE JUNCTION BLOCK**

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000005UVD000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): Entry Interior Alarm does not Sound; 2016 MY Tacoma [08/2015 -]		

Entry Interior Alarm does not Sound

DESCRIPTION

The smart key system (for Entry Function) uses the buzzer in the combination meter assembly to perform various vehicle interior warnings. When the conditions of each warning are met, the certification ECU (smart key ECU assembly) sends a buzzer activation request signal to the combination meter assembly via CAN communication and the buzzer sounds.

INSPECTION PROCEDURE

NOTICE:

- The smart key system (for Entry Function) uses a multiplex communication system (LIN communication system) and the CAN communication system. Inspect the communication function by following How to Proceed with Troubleshooting. Troubleshoot the smart key system (for Entry Function) after confirming that the communication systems are functioning properly INFO .
- Before replacing the certification ECU (smart key ECU assembly), refer to the smart key system (for Entry Function) INFO .

PROCEDURE

1.	**CHECK ENTRY DOOR LOCK OPERATION**

(a) Check that the entry functions operate normally INFO .

OK:

Entry functions operate normally.

NG ▶ **GO TO OTHER PROBLEM**

OK ▶ **GO TO METER / GAUGE SYSTEM**

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000005UUX000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): HOW TO PROCEED WITH TROUBLESHOOTING; 2016 MY Tacoma [08/2015 -]		

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use these procedures to troubleshoot the smart key system (for Entry Function).
- *: Use the Techstream.

1.	**VEHICLE BROUGHT TO WORKSHOP**

NEXT

2.	**CUSTOMER PROBLEM ANALYSIS**

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 for problem analysis:

What?	Vehicle model, system name
When?	Date, time, occurrence frequency. Does it occur recently or for a long time?
Where?	Does it occur at specified place?
Under what conditions?	Unlock/lock the door, engine switch on (IG), engine start.
How did it happen?	Problem symptoms*

  - *: Be sure to ask the customer in detail about the following points concerning the vehicle operating conditions, environment and problem, and then check for DTCs.

    i. If the entry lock/unlock function does not operate for all doors.
    ii. If the entry lock function does not operate.
    iii. If the entry unlock function does not operate.
    iv. If both the entry lock and unlock functions do not operate.
    v. If the wireless lock and unlock functions do not operate.
    vi. If there is no power even when the engine switch is pressed (does not turn on (ACC)).
    vii. If the engine does not start with the push start function.
    viii. If the wireless answer-back buzzer and outside warning buzzers do not sound.
    ix. If an engine start was attempted by holding the electrical key transmitter sub-assembly near the engine switch and then pressing the engine switch.

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x. If the interior warning buzzers do not sound.
xi. Any other details concerning the problem.

○ If it is suspected that wave interference is likely, be sure to ask the customer in detail about the following points concerning the vehicle operating conditions, environment and problem.

i. Specific locations where the system does not operate (such as near TV towers, large video displays, wireless garage door opener systems, wireless security cameras, home security systems, etc.).
ii. Specific times when the system does not operate: Whether or not symptoms occurred immediately after purchase or only recently.

Whether or not the symptoms occurred when the electrical key transmitter sub-assembly was near the vehicle (electrical key antenna).

iii. If the system does not operate only when near specific vehicles (there may be wave interference from the wireless systems of other vehicles).
iv. If the system operates intermittently.
v. If the electrical key transmitter sub-assembly is bundled together with other items.
vi. If the electrical key transmitter sub-assembly is carried together with other electronic devices, such as cell phones, personal computers, portable music players, other electrical key transmitter sub-assemblies, etc. (keep the electrical key transmitter sub-assembly at least 0.1 m (0.328 ft.) away from such items).
vii. Where the electrical key transmitter sub-assembly is being kept when not in use:

Whether or not the electrical key transmitter sub-assembly being placed within 1 m (3.28 ft.) of items such as TVs, DVD recorders, induction cookers, rice cookers, dishwashers, modems, cell phones, personal computers, microwave ovens, desk or floor lights, cordless telephones, etc.

viii. If there are electronic devices that transmit electric waves placed in the vehicle.
ix. When the transmitter battery was last replaced.

The transmitter battery can be checked roughly using the "Key Low Battery" item in the Data List INFO .

x. If the customer installed any optional components (theft deterrent devices, wireless fog lights, etc.) to the vehicle.

NEXT

3.	**INSPECT BATTERY VOLTAGE**

(a) Measure the vehicle battery voltage.

Standard voltage:
11 to 14 V

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

NEXT

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4.	**CHECK COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM***

(a) Use the Techstream to check if the CAN communication system is functioning normally INFO .

Result

RESULT	PROCEED TO
CAN DTC is not output	A
CAN DTC is output	B

B ▶ **GO TO CAN COMMUNICATION SYSTEM**

A ▼

5.	**CHECK METER / GAUGE SYSTEM***

(a) Use the Techstream to check if the meter/gauge system is functioning normally.

HINT:

If the certification ECU (smart key ECU assembly) mistakenly receives a vehicle speed signal, communication between the vehicle and the Techstream fails. Be sure to check "Vehicle Speed Meter" displayed on the Data List to make sure that the vehicle speed is not abnormal.

Result

RESULT	PROCEED TO
No vehicle speed signal is mistakenly received.	A
A vehicle speed signal is mistakenly received.	B

B ▶ **GO TO METER / GAUGE SYSTEM**

A ▼

6.	**CHECK COMMUNICATION FUNCTION OF LIN COMMUNICATION SYSTEM***

(a) Use the Techstream to check if the LIN communication system is functioning normally INFO .

Result

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RESULT	PROCEED TO
LIN DTC is not output	A
LIN DTC is output	B

B ▶ GO TO LIN COMMUNICATION SYSTEM

A ▼

7.	CHECK FUNCTION OF WIRELESS DOOR LOCK CONTROL SYSTEM*

(a) Use the Techstream to check if the wireless door lock control system is functioning normally INFO .

Result

RESULT	PROCEED TO
Wireless door lock control system DTC is not output	A
Wireless door lock control system DTC is output	B

B ▶ GO TO WIRELESS DOOR LOCK CONTROL SYSTEM

A ▼

8.	CHECK FOR DTC*

(a) Recheck for DTCs INFO .

Result

RESULT	PROCEED TO
DTC is not output	A
Steering lock system DTC is output	B
Engine immobiliser system DTC is output	C
Smart key system (for Entry Function) DTC is output	D

B ▶ GO TO STEERING LOCK SYSTEM

C ▶ GO TO ENGINE IMMOBILISER SYSTEM

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D ▶ GO TO DIAGNOSTIC TROUBLE CODE CHART

A

9.	PROBLEM SYMPTOMS TABLE

(a) Refer to Problem Symptoms Table INFO .

Result

RESULT	PROCEED TO
Fault is not listed in problem symptoms table	A
Fault is listed in problem symptoms table	B

B ▶ Go to step 11

A

10.	OVERALL ANALYSIS AND TROUBLESHOOTING*

(a) Operation Check INFO .

(b) Check Data List / Active Test INFO .

(c) Check Terminals of ECU INFO .

NEXT

11.	REPAIR OR REPLACEMENT

NEXT

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12.	**CHECK FOR DTC***

(a) Clear the DTCs INFO .

(b) Check for DTCs INFO .

HINT:

Before checking for DTCs, perform the "DTC Output Confirmation Operation" procedure INFO .

Result

RESULT	PROCEED TO
DTC is not output	A
Smart key system (for Entry Function) DTC is output	B

B ▶ **GO TO DIAGNOSTIC TROUBLE CODE CHART**

A ▶ **END**

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000005UVL000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): New Key cannot be Registered; 2016 MY Tacoma [08/2015 -]		

New Key cannot be Registered

DESCRIPTION

If an electrical key transmitter could not be newly registered, wave interference or a malfunction of the certification ECU (smart key ECU assembly), electrical key transmitter sub-assembly, steering lock ECU (steering lock actuator or UPR bracket assembly) or electrical key and TPMS receiver assembly is suspected.

The registration to add another electrical key transmitter sub-assembly (without replacing any parts) is called "additional key ID registration"

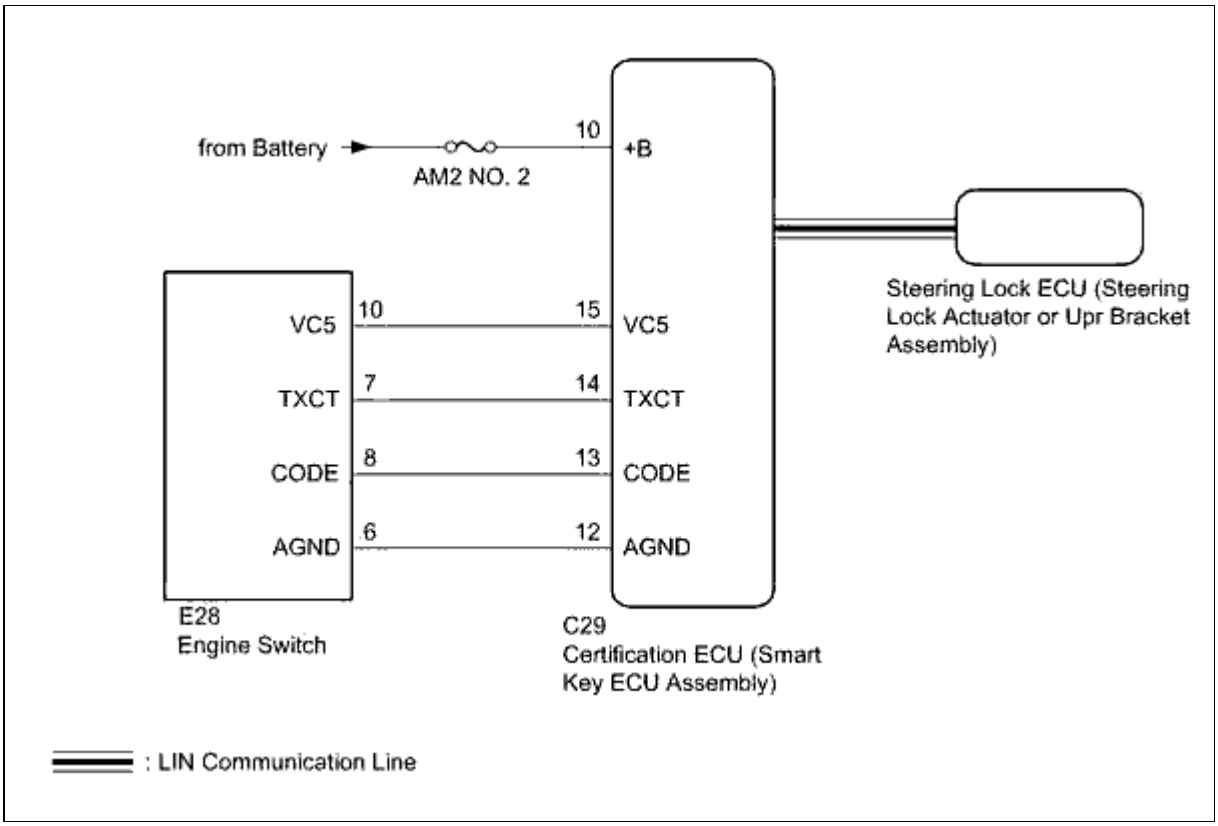
If additional registration is not possible, refer to "Additional Key cannot be Registered" INFO .

HINT:

If any of the following have been performed, new registration of the electrical key transmitter sub-assembly is necessary:

- The certification ECU (smart key ECU assembly) has been replaced.
- The certification ECU (smart key ECU assembly) and steering lock ECU (steering lock actuator or UPR bracket assembly) have been replaced.

WIRING DIAGRAM



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INSPECTION PROCEDURE

NOTICE:

- If registration of an electrical key transmitter sub-assembly is not possible, first confirm the procedure by engine immobiliser system. INFO .
- A new registration mode can be entered only when no electrical key transmitter sub-assemblies are stored in the certification ECU (smart key ECU assembly).
- The smart key system (for Entry Function) uses a multiplex communication system (LIN communication system) and the CAN communication system. Inspect the communication function by following How to Proceed with Troubleshooting. Troubleshoot the smart key system (for Entry Function) after confirming that the communication systems are functioning properly INFO .
- When using the Techstream with the engine switch off, connect the Techstream to the DLC3 and turn a courtesy light switch on and off at intervals of 1.5 seconds or less until communication between the Techstream and the vehicle begins. Then select the vehicle type under manual mode and enter the following menus: Body Electrical / Smart Key. While using the Techstream, periodically turn a courtesy light switch on and off at intervals of 1.5 seconds or less to maintain communication between the Techstream and the vehicle.
- Before replacing the electrical key transmitter sub-assembly, certification ECU (smart key ECU assembly), steering lock ECU (steering lock actuator or UPR bracket assembly), refer to the smart key system (for Entry Function) INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	**CHECK FOR DTC**

(a) Check for DTCs INFO .

NOTICE:

If a malfunction occurs, do not remove/install the vehicle battery before checking for DTCs.

OK:

DTC is not output.

NG ▶ **GO TO DIAGNOSTIC TROUBLE CODE CHART**

OK ▼

2.	**READ VALUE USING TECHSTREAM (OPERATION HISTORY LIST)**

(a) Connect the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Smart Key / Utility / Operation History.

(e) Check the freeze frame data and follow the instructions in the step column of the table below.

Certification ECU Log of ID code registration

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PARAMETER NAME	DETECTION CONDITION	TROUBLE AREA	STEP
Failed Registration Mode	• A registration request was sent while in another mode. • During registration a different registration request was sent.	-	Go to step 3
Vehicle ID not set	A vehicle ID has not been registered in the certification ECU (smart key ECU assembly).	Certification ECU (smart key ECU assembly)	Replace certification ECU (smart key ECU assembly) INFO
Key Registration Max	A registration request is sent when the maximum number of electrical key transmitter sub-assemblies has already been registered.	Certification ECU (smart key ECU assembly	Go to step 6
Vehicle Speed Too High	A registration request is sent with a vehicle speed of 5 km/h or more.	-	Check if the vehicle is stationary. If a code cannot be registered even though the vehicle is stationary, then go to step 4
No ECU Response	The steering lock ECU (steering lock actuator or UPR bracket assembly) was not connected.	Certification ECU (smart key ECU assembly) Steering lock ECU (steering lock actuator or UPR bracket assembly)	Check for DTC B2785 or B2786
L Code Verification Error	The L codes registered in the certification ECU (smart key ECU assembly) and steering lock ECU (steering lock actuator or UPR bracket assembly) did not match.	Certification ECU (smart key ECU assembly) Steering lock ECU (steering lock actuator or UPR bracket assembly)	Go to step 5
Key Verification: Max Number	The number of electrical key transmitter sub-assemblies registered in the steering lock ECU (steering lock actuator or UPR bracket assembly) was more than 7.	Steering lock ECU (steering lock actuator or UPR bracket assembly)	Replace steering lock ECU (steering lock actuator or UPR bracket assembly) INFO
Key Verification: Amp Abnormal	Malfunction of the immobiliser amplifier, such as a short to ground.	Certification ECU (smart key ECU assembly) Engine switch	Check for DTC B278A or B2784
Key Verification: Read Error	Although a registered electrical key transmitter sub-assembly was held near the engine switch, immobiliser system certification did not succeed.	Certification ECU (smart key ECU assembly) Electrical key transmitter	Go to step 7

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PARAMETER NAME	DETECTION CONDITION	TROUBLE AREA	STEP
		subassembly	
Unverified Key	Although all of the registered electrical key transmitter sub-assemblies had been held near the engine switch, electrical key transmitter sub-assembly registration was not possible due to immobiliser system certification not being able to succeed.	Certification ECU (smart key ECU assembly) Electrical key transmitter subassembly	Go to step 11
Transponder Key Amp Error	Malfunction of the immobiliser amplifier, such as a short to ground.	Certification ECU (smart key ECU assembly) Engine switch	Check for DTC B278A or B2784
New Key Registration Error	Although an unregistered electrical key transmitter sub-assembly was held near the engine switch, electrical key transmitter sub-assembly registration is not possible due to immobiliser system certification not being able to succeed.	Certification ECU (smart key ECU assembly) Electrical key transmitter sub-assembly Engine switch	Go to step 13
New Key Vehicle ID Error	Although an unregistered electrical key transmitter sub-assembly was held near the engine switch, electrical key transmitter sub-assembly registration is not possible due to the vehicle ID not being stored successfully.	Certification ECU (smart key ECU assembly) Electrical key transmitter sub-assembly	Go to step 13
New Key Registration Failed	After successful immobiliser system certification, time expired before smart recognition completion confirmation or a registration cancellation request was sent.	Certification ECU (smart key ECU assembly) Electrical key transmitter sub-assembly	Go to step 13
New Key Already Registered	Although a registered electrical key transmitter sub-assembly was held near the engine switch, time expired or a registration cancellation request was sent.	-	Check if a registered electrical key transmitter sub-assembly was held near the engine switch instead of an unregistered electrical key transmitter sub-assembly by mistake. Perform registration again using an unregistered electrical key transmitter sub-assembly. If the same problem occurs again, replace the certification ECU (smart key ECU assembly). 

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PARAMETER NAME	DETECTION CONDITION	TROUBLE AREA	STEP
New Key ID Code Error	Electrical key transmitter sub-assembly registration was not possible due to the certification ECU (smart key ECU assembly) not being able to store the information of the electrical key transmitter sub-assembly to EEPROM correctly.	Certification ECU (smart key ECU assembly)	Replace certification ECU (smart key ECU assembly) INFO
No Response Registering L/S Code	The certification ECU (smart key ECU assembly) steering lock actuator or UPR bracket assembly) was not connected.	Certification ECU (smart key ECU assembly) Steering lock ECU (steering lock actuator or UPR bracket assembly)	Check for DTC B2785.
L Code Verification NG	The L code could not be stored by the certification ECU (smart key ECU assembly) or steering lock ECU (steering lock actuator or UPR bracket assembly).	Certification ECU (smart key ECU assembly) Steering lock ECU (steering lock actuator or UPR bracket assembly)	Go to step 5
Key Number Write Error	The certification ECU (smart key ECU assembly) could not store the number of electrical key transmitter sub-assemblies to EEPROM.	Certification ECU (smart key ECU assembly)	Replace certification ECU (smart key ECU assembly) INFO

NEXT

3.	**CHECK REGISTRATION MODE**

(a) Make sure that another mode or different registration mode is not selected.

OK:

Another mode or a different registration mode is not selected.

HINT:

If any mode has been selected, it is necessary to cancel the mode.

NG ▶ **REREGISTRATION**

OK ▶ **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

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4.	**READ VALUE USING TECHSTREAM (VEHICLE SPEED)**

(a) Connect the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Combination Meter / Data List.

(e) Read the Data List according to the display on the Techstream.

Combination Meter

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Vehicle Speed Meter	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 255 km/h (158 mph)	Almost the same as actual vehicle speed	-

OK:

"0 km/h (0 mph)" is displayed when the vehicle is stationary.

NG ▶ **GO TO METER / GAUGE SYSTEM**

OK ▶ **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

5.	**REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

(a) Replace the certification ECU (smart key ECU assembly) with a new one and register the electrical key transmitter sub-assemblies to the new ECU.

HINT:

- For replacement, INFO .
- For registration, INFO .

OK:

Registration to the new certification ECU (smart key ECU assembly) has completed successfully.

NG ▶ **REPLACE STEERING LOCK ECU (STEERING LOCK ACTUATOR OR UPR BRACKET ASSEMBLY)**

OK ▶ **END (CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) WAS DEFECTIVE)**

6.	**REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

(a) Replace the certification ECU (smart key ECU assembly) with a new one and register the electrical

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key transmitter sub-assemblies to the new ECU.

HINT:

- For replacement, INFO .
- For registration, INFO .

NEXT ▶ **END (CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) WAS DEFECTIVE)**

7.	CHECK ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY

(a) Make sure that a registered electrical key transmitter sub-assembly is used.

OK:
A registered electrical key transmitter sub-assembly is used.

NG ▶ **USE A REGISTERED ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY AND REREGISTRATION**

OK ▼

8.	CHECK NUMBER OF REGISTERED ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLIES

(a) Check the number of registered electrical key transmitter sub-assemblies.

Result

RESULT	PROCEED TO
When only one electrical key transmitter subassembly is registered	A
When 2 or more electrical key transmitter subassemblies are registered	B

B ▶ **GO TO STEP 10**

A ▼

9.	REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

(a) Replace the certification ECU (smart key ECU assembly) with a new one and register the electrical key transmitter sub-assemblies to the new ECU.

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HINT:

- For replacement, INFO .
- For registration, INFO .

OK:

Registration to the new certification ECU (smart key ECU assembly) has completed successfully.

NG ▶ **REPLACE ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY**

OK ▶ **END (CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) WAS DEFECTIVE)**

10.	**REREGISTRATION**

(a) Reregister the electrical key transmitter sub-assemblies using different order combinations INFO .

OK:

"Key Verification Error" is not displayed.

HINT:

HINT: If there are 2 or more electrical key transmitter sub-assemblies, make sure that the number of order combinations is the same as the number of electrical key transmitter sub-assemblies so that each transmitter can be checked first.

Example: When there are 3 registered electrical key transmitter sub-assemblies (A, B and C).

COMBINATION	ORDER*
1	A → B → C
2	B → C→ A
3	C → A → B

*: Except the first electrical key transmitter sub-assembly, the remaining electrical key transmitter sub-assemblies can be checked in any order.

HINT:

The electrical key transmitter sub-assembly held near the engine switch when the malfunction was detected is defective. The defective electrical key transmitter sub-assembly is the one that should be replaced.

NG ▶ **REPLACE ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY**

OK ▶ **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

11.	**CHECK FOR ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY**

(a) Check that all registered electrical key transmitter sub-assemblies are available.

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OK:

No registered electrical key transmitter sub-assemblies are missing.

NG ▶ **ERASE ALL REGISTERED ELECTRICAL KEY TRANSMITTERS EXCEPT ONE, THEN REGISTER THE REMAINING ELECTRICAL KEY TRANSMITTERS**

OK ▼

12.	**REREGISTRATION**

(a) Reregister the electrical key transmitter sub-assemblies using different order combinations INFO .

OK:

"Key Verification Error" is not displayed.

HINT:

If there are 2 or more electrical key transmitters, make sure that the number of order combinations is the same as the number of electrical key transmitters so that each transmitter can be checked first.

Example: When there are 3 registered electrical key transmitter sub-assemblies (A, B and C).

COMBINATION	ORDER*
1	A → B → C
2	B → C→ A
3	C → A → B

*: Except the first electrical key transmitter sub-assembly, the remaining electrical key transmitter sub-assemblies can be checked in any order.

HINT:

The electrical key transmitter sub-assembly held near the engine switch when the malfunction was detected is defective. The defective electrical key transmitter sub-assembly is the one that should be replaced.

NG ▶ **REPLACE ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY**

OK ▶ **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

13.	**REREGISTRATION**

(a) Using an unregistered electrical key transmitter sub-assembly, register the ID.

OK:

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The key ID can be registered.

NG ▶ **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

OK ▶ **END (ELECTRICAL KEY TRANSMITTER WAS DEFECTIVE)**

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000005UV1000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): OPERATION CHECK; 2016 MY Tacoma [08/2015 -]		

OPERATION CHECK

1. CHECK SMART KEY SYSTEM (for Entry Function) OPERATION

NOTICE:

Make sure that the smart key system (for Entry Function) has not been canceled before performing this inspection.

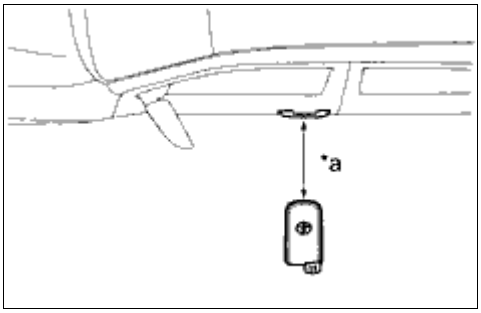
(a) Check the entry unlock function (driver door).

(1) Perform a wireless lock operation to lock the door, touch the unlock sensor built into the backside of the front door outside handle assembly LH while carrying the electrical key transmitter sub-assembly and check that the door unlocks.

HINT:

To perform a wireless lock operation, press the lock button of the electrical key transmitter sub-assembly while standing near the front door outside handle assembly LH.

(2) Inspect the entry unlock detection area. Hold the electrical key transmitter sub-assembly at the same height as the front door outside handle assembly LH and approximately 0.7 m (2.30 ft.) from the vehicle as shown in the illustration and check that the LED (red) of the electrical key transmitter sub-assembly blinks.



Text in Illustration

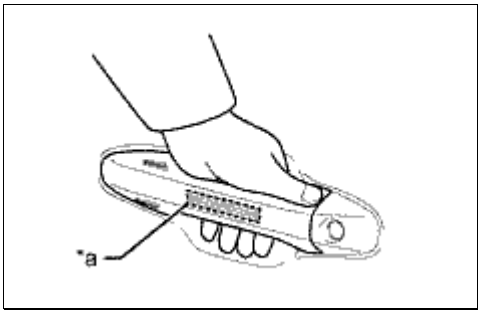
*a	0.7 to 1 m (2.30 to 3.28 ft.)

(3) With the system in unlock standby mode, grasp the front door outside handle assembly LH and check that the door unlocks.

HINT:

- The system is in unlock standby mode when the electrical key transmitter sub-assembly is in the detection area and the key ID code sent by the electrical key transmitter sub-assembly matches the key ID code stored by the certification ECU (smart key ECU assembly).
- Communication may not be possible if the electrical key transmitter sub-assembly is within 0.2 m (0.656 ft.) of the front door outside handle assembly LH.

(4) Check the unlock response sensitivity. With the system in unlock standby mode, touch the area shown in the illustration and check that the door unlocks.



NOTICE:

If the sensor is touched too quickly or released too slowly, the sensor may not react and the door will not unlock.

Text in Illustration

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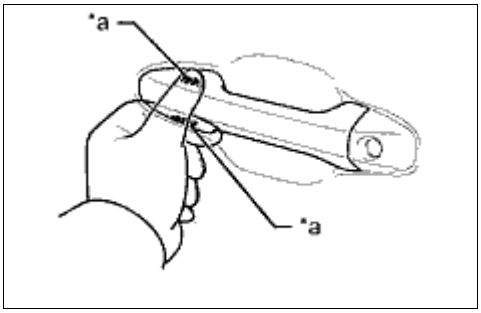
*a	Unlock Sensor (Backside)

(b) Check the entry lock function (driver door).

NOTICE:

If the electrical key transmitter sub-assembly is in the vehicle but outside the detection area (on the instrument panel, in the glove box, on the floor) and a door lock operation is performed, the key lock-in prevention function will not operate and the electrical key transmitter sub-assembly will be locked inside the vehicle.

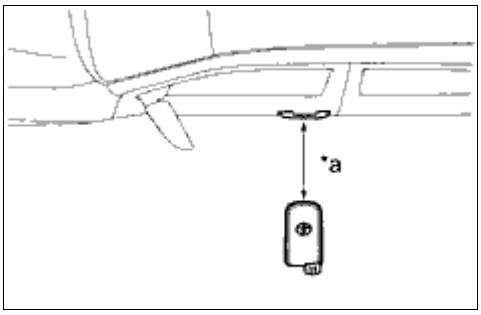
(1) With the door closed and unlocked, touch the lock sensor of the front door outside handle assembly LH while carrying the electrical key transmitter sub-assembly and check that the door locks.



Text in Illustration

*a	Lock Sensor

(2) Inspect the entry lock operating range. Hold the electrical key transmitter sub-assembly approximately 0.1 m (0.328 ft.) below the bottom edge of the door glass and approximately 0.3 m (0.984 ft.) from the vehicle as shown in the illustration, touch the lock sensor and check that the door locks.



Text in Illustration

*a	Approximately 0.3 m (0.984 ft.)

HINT:

- As communication may not be possible if the electrical key transmitter sub-assembly is within 0.2 m (0.656 ft.) of the front door outside handle assembly LH, the door may not lock if the lock sensor is touched with the same hand that is carrying the electrical key transmitter sub-assembly, etc.
- If the key lock-in prevention function buzzer sounds, electric waves from the indoor electrical key antenna may be leaking from the vehicle.
- The door lock operation cannot be performed more than 3 times consecutively.

(c) Check the push start function.

(1) With the engine switch off, move the shift lever to P, depress the brake pedal while carrying the electrical key transmitter sub-assembly. Then, press the engine switch and check that the engine starts.

(2) With the brake pedal released and the engine switch off, press the engine switch while carrying the electrical key transmitter sub-assembly and check that the power source mode changes as follows: off → on (ACC) → on (IG) → off.

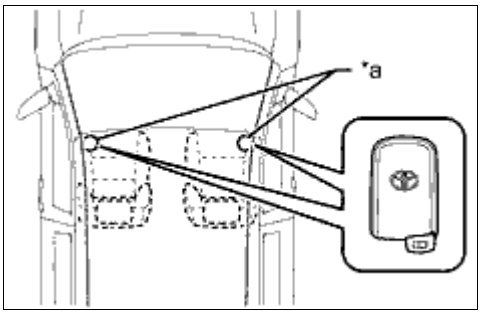
(3) Stop the vehicle, press the engine switch and check that the power source mode changes to off (the engine stops and all electrical systems are off).

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(4) Inspect the push start operating range (front). Place the electrical key transmitter sub-assembly on the front seat at either inspection point so that it is facing in the direction shown in the illustration and check that the engine can be started.

Text in Illustration

*a	Inspection Point



NOTICE:

- Even if the electrical key transmitter sub-assembly is within the vehicle interior detection area, the electrical key transmitter sub-assembly may not be properly detected if it is on the instrument panel, in the glove box or on the floor.
- Communication may not be possible if the electrical key transmitter sub-assembly is within 0.2 m (0.656 ft.) of the shift lever.

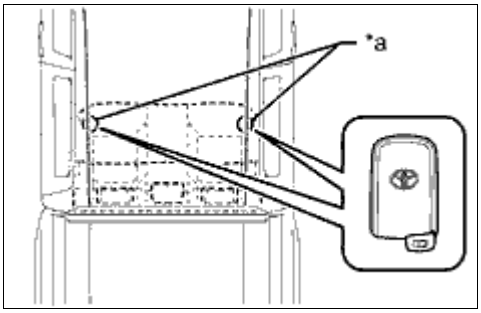
HINT:

Perform the inspection for both inspection points.

(5) Inspect the push start operating range (rear). Place the electrical key transmitter sub-assembly on the rear seat at either inspection point so that it is facing in the direction shown in the illustration and check that the engine can be started.

Text in Illustration

*a	Inspection Point



NOTICE:

- Even if the electrical key transmitter sub-assembly is within the vehicle interior detection area, the electrical key transmitter sub-assembly may not be properly detected if it is on the instrument panel, in the glove box or on the floor.
- Communication may not be possible if the electrical key transmitter sub-assembly is within 0.2 m (0.656 ft.) of the center of the rear seat cushion.

HINT:

Perform the inspection for both inspection points.

(d) Check the key lock-in prevention function (vehicle interior).

NOTICE:

In order to prevent the electrical key transmitter sub-assembly from being locked inside the vehicle, perform this inspection with the window of a door open.

(1) Turn the engine switch off.

(2) Place the electrical key transmitter sub-assembly on a front or rear seat.

(3) Close the door, making sure the doors are unlocked.

(4) Touch a door lock sensor and check that the doors do not lock and the key lock-in prevention function

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buzzer (external) sounds for approximately 5 seconds.

(e) Check transmitter battery saving function

(1) Press the unlock button of the electrical key transmitter sub-assembly twice while pressing the lock button and check that the electrical key transmitter sub-assembly LED blinks 4 times and enters transmitter battery saving mode.

(2) Check that the smart key system (for Entry Function) does not operate while in transmitter battery saving mode.

HINT:

To cancel transmitter battery saving mode, press a button of the electrical key transmitter sub-assembly.

(f) Check the entry cancel function.

(1) Cancel the smart key system and check that all the functions of the smart key system (for Entry Function) no longer operate.

HINT:

- Refer to the following procedures to cancel the smart key system (for Entry Function) INFO .
- While the smart key system is canceled, it is possible to lock and unlock the doors with the wireless operation, and the start system can be operated by holding the electrical key transmitter sub-assembly near the engine switch.

(2) While the key cancel function (entry cancel function) is on, check that all functions of the smart key system cannot be operated.

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

ENTRY OPERATION	WIRELESS BUZZER	HAZARD WARNING LIGHT
Entry Door Lock	Sounds once	Flashes once
Entry Door Unlock	Sounds twice	Flashes twice

2. KEY DIAGNOSTIC MODE (Using Techstream)

HINT:

- With key diagnostic mode, it is possible to check if the electrical key transmitter sub-assembly is operating properly with the selected electrical key antenna and within the selected detection area by the sounding of the wireless buzzer.
- If the buzzer sounds with [CH1] displayed but not with [CH2], the electrical key transmitter sub-assembly cannot be detected by channel 2 due to a malfunction, such as wave interference.

(a) Enter the following menus: Body Electrical / Smart Key / Utility / Communication Check (Key Diag Mode).

(b) Inspect the appropriate item according to the following table.

TESTER DISPLAY	INSPECTION ITEM
[CH1/CH2] Overhead + Driver Side*1	Front door outside handle assembly LH (electrical key antenna)
[CH1] Overhead + Driver Side*1	
[CH2] Overhead + Driver Side*1	
[CH1/CH2] Overhead + Front Room*2	No. 1 indoor electrical key antenna assembly (front floor)
[CH1] Overhead + Front Room*2	
[CH2] Overhead + Front Room*2	
[CH1/CH2] Overhead + Rear Room*3	No. 2 indoor electrical key antenna assembly (rear floor)

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TESTER DISPLAY	INSPECTION ITEM
[CH1] Overhead + Rear Room*3	
[CH2] Overhead + Rear Room*3	
[CH1/CH2] Immobiliser Amp*4	Amplifier (engine switch)
[CH1] Immobiliser Amp*4	
[CH2] Immobiliser Amp*4	

- [CH1]: Channel 1 is set.
- [CH2]: Channel 2 is set.
- [CH1/CH2]: Channel 1 and 2 switches automatically at a specific interval*.

  *: If the electrical key transmitter sub-assembly is detected with either channel 1 or 2, the buzzer sounds.

(c) Bring the electrical key transmitter sub-assembly near the selected electrical key antenna and check that the wireless door lock buzzer sounds.

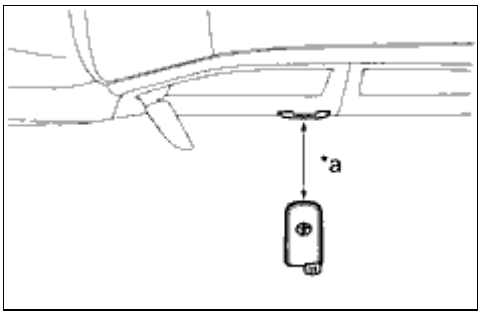
HINT:

The buzzer sounds in short, repeated beeps for all items except "Overhead + Rear Room"*4. For "Overhead + Rear Room"*4, the buzzer sounds in one long, continuous beep.

(1) *1: Front door outside handle assembly LH

Text in Illustration

*a	Approximately 0.3 m (0.984 ft.)



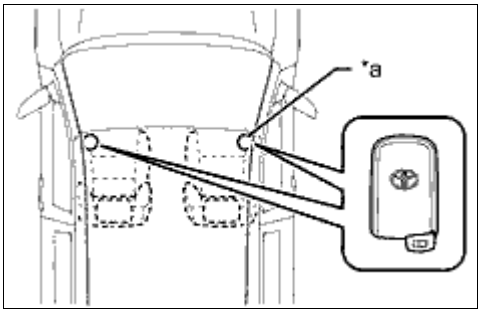
HINT:

Hold the electrical key transmitter sub-assembly at the same height as the front door outside handle assembly LH in the position shown in the illustration.

(d) *2: No. 1 indoor electrical key antenna assembly (front floor)

Text in Illustration

*a	Inspection Point



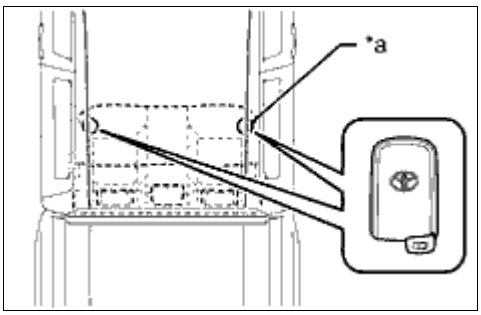
HINT:

Place the electrical key transmitter sub-assembly on the front seat cushion of the driver seat or front passenger seat.

(e) *3: No. 2 indoor electrical key antenna assembly (rear floor)

Text in Illustration

*a	Inspection Point



HINT:

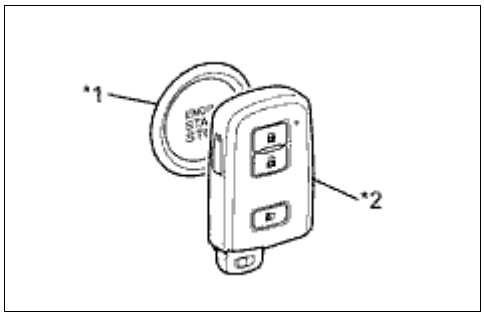
Place the electrical key transmitter sub-assembly on the rear seat cushion.

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(f) *4: Amplifier (engine switch)

Text in Illustration

*1	Engine Switch
*2	Electrical Key Transmitter Sub-assembly



HINT:

While facing the logo side of the electrical transmitter sub-assembly towards the engine switch, hold the transmitter near the engine switch.

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000005UVK000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): OPERATION HISTORY LIST; 2016 MY Tacoma [08/2015 -]		

OPERATION HISTORY LIST

NOTICE:

- The cause of a malfunction is stored in the RAM or EEPROM in the certification ECU (smart key ECU assembly). As the cause of a malfunction stored in the RAM will be cleared when the cable is disconnected from the negative (-) battery terminal, do not disconnect the cable from the negative (-) battery terminal before checking and recording are complete.
- When using the Techstream with the engine switch off, connect the Techstream to the DLC3 and turn a courtesy light switch on and off at intervals of 1.5 seconds or less until communication between the Techstream and the vehicle begins. Then select the vehicle type under manual mode and enter the following menus: Body Electrical / Smart Key. While using the Techstream, periodically turn a courtesy light switch on and off at intervals of 1.5 seconds or less to maintain communication between the Techstream and the vehicle.

1. OPERATION HISTORY

HINT:

The certification ECU (smart key ECU assembly) stores the operation history of the smart key system and it can be read using the Techstream.

(a) Connect the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Smart Key / Utility / Operation History.

(e) Check the freeze frame data.

Certification ECU Log of ID Code Registration

PARAMETER NAME	CONTENT
Transponder Key Amp Error	Although an unregistered electrical key transmitter sub-assembly was held near the engine switch, key registration was suspended after one or more ID code had successfully been registered due to a malfunction of the immobiliser amplifier, such as a short to ground. The ECU code was registered successfully. DTC B278A was stored.
Registration Failed; Vehicle ID Error	Although an unregistered electrical key transmitter sub-assembly was held near the engine switch for registration, electrical key transmitter sub-assembly registration was suspended after one or more ID code had successfully been registered because time had expired due to the vehicle ID code sent by the electrical key transmitter sub-assembly not matching the code stored by the certification ECU (smart key ECU assembly). The ECU code was registered successfully. A recognition code is used between the electrical key transmitter sub-assembly and the certification ECU (smart key ECU assembly). Although the vehicle ID stored in the certification ECU (smart key ECU assembly) should be registered to the electrical key transmitter sub-assembly when the electrical key transmitter sub-assembly was registered, it was not. "Registration Failed; Vehicle ID Error" is displayed when trying to register an electrical key transmitter sub-assembly of another vehicle. If electrical key transmitter sub-assembly registration could not be completed successfully after trying to register another electrical key transmitter sub-assembly, the certification ECU (smart key ECU assembly) might be

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PARAMETER NAME	CONTENT
	malfunctioning.
Registration Failed; Except Vehicle ID Error	Although an unregistered electrical key transmitter sub-assembly was held near the engine switch for registration, electrical key transmitter sub-assembly registration was suspended after one or more ID code had successfully been registered due to noise or the transmitter battery being low. The ECU code was registered successfully.
Registration Failed; Key Already Registered	As a registered electrical key transmitter sub-assembly was held near the engine switch by mistake, electrical key transmitter sub-assembly registration was suspended after one or more ID code had successfully been registered. The ECU code was registered successfully.
Registration Failed; ID Code Write Error	Although an unregistered electrical key transmitter sub-assembly was held near the engine switch, electrical key transmitter sub-assembly registration was suspended after one or more ID code had successfully been registered due to the certification ECU (smart key ECU assembly) not being able to store the electrical key transmitter sub-assembly information correctly. The ECU code was registered successfully.
Registration Failed; Key Info Abnormal	Although an unregistered electrical key transmitter sub-assembly was held near the engine switch, electrical key transmitter sub-assembly registration was suspended after one or more ID code had successfully been registered due to the certification ECU (smart key ECU assembly) not being able to store the electrical key transmitter sub-assembly ID code correctly. The ECU code was registered successfully. The following are be suspected: Registration of electrical key transmitter sub-assemblies is to be done one by one. If 2 electrical key transmitter sub-assemblies were held near the engine switch at the same time, incorrect registration information was stored in the certification ECU (smart key ECU assembly), suspending registration. **HINT:** Reregister the electrical key transmitter sub-assemblies using the correct procedure.
Failed Registration Mode	Although the mode was switched to a registration mode using the Techstream, the mode was not successfully switched (another mode may have already been selected).
Vehicle ID not set	Although the vehicle ID should be stored in the certification ECU (smart key ECU assembly) at the factory, the ID could not be stored successfully (malfunction of the certification ECU (smart key ECU assembly)).
Key Registration Max	Registration was not possible because the maximum number of electrical key transmitter sub-assemblies had already been registered to the certification ECU (smart key ECU assembly). **HINT:** • If a new electrical key transmitter sub-assembly needs to be registered, such as when one of the registered electrical key transmitter sub-assemblies has been lost, erase an unnecessary ID code first. INFO . • If the certification ECU (smart key ECU assembly) has been replaced with a new one, there should be no registered electrical key transmitter sub-assemblies. If any exist, replace the new certification ECU (smart key ECU assembly) with another new certification ECU (smart key ECU assembly).
Vehicle Speed Too High	Electrical key transmitter sub-assembly registration was not possible because the vehicle speed was 5 km/h or more (electrical key transmitter sub-assembly registration is possible only while the vehicle is stopped).

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Radio Wave Interference:

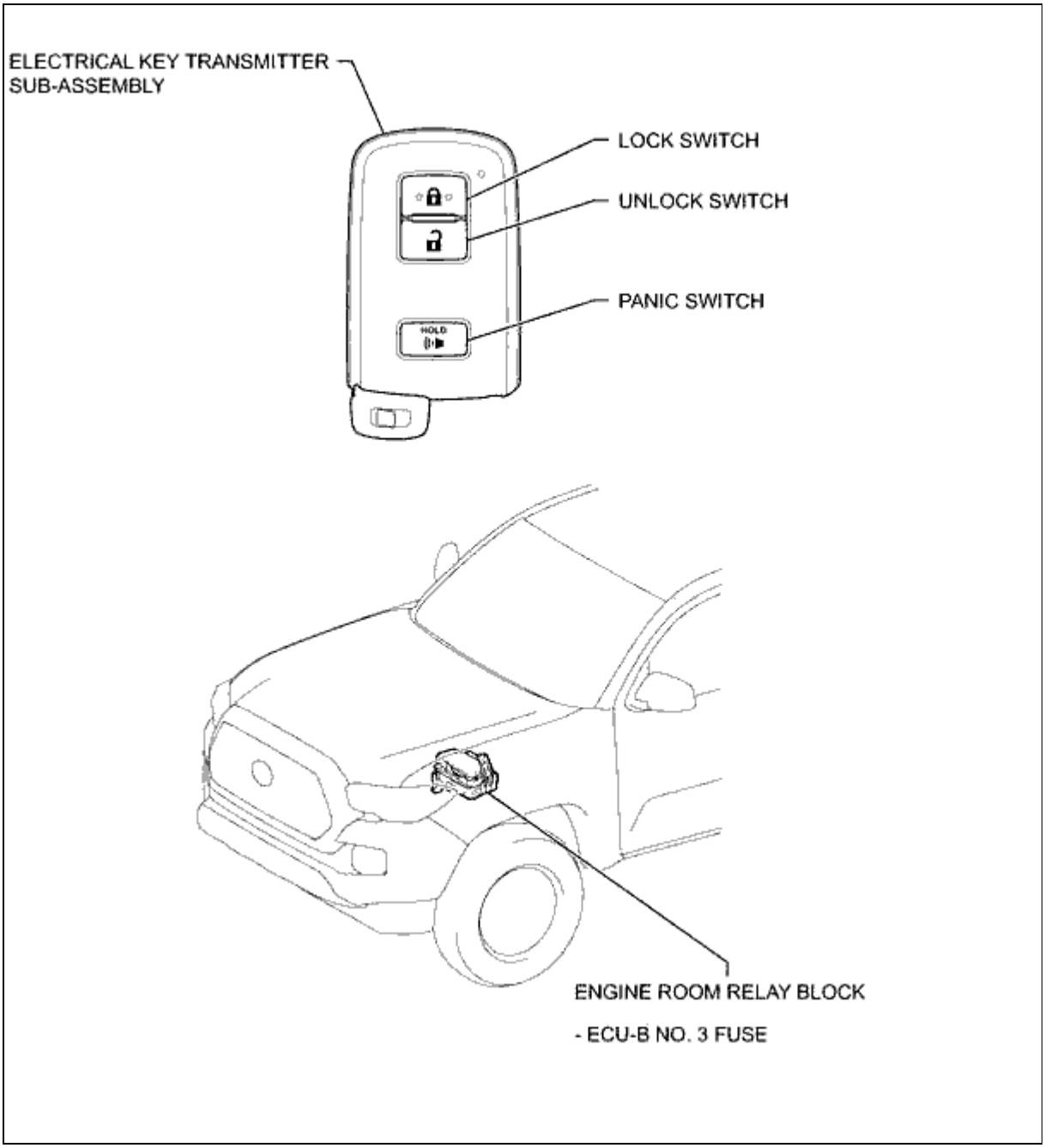
PARAMETER NAME	CONTENT
Lock / Key RF Signal Interference	When entry lock operation was performed, the electrical key transmitter sub-assembly could not be confirmed due to wave interference.
Unlock / Key RF Signal Interference	When entry unlock operation was performed, the electrical key transmitter sub-assembly could not be confirmed due to wave interference.
Operating Engine Switch / Key RF Signal Interference	When the engine switch was operated, the electrical key transmitter sub-assembly could not be confirmed due to wave interference.
Operating Trunk Switch / Key RF Signal Interference	When entry trunk operation was performed, the electrical key transmitter sub-assembly could not be confirmed due to wave interference.

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Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): PARTS LOCATION; 2016 MY Tacoma [08/2015 -]		

PARTS LOCATION

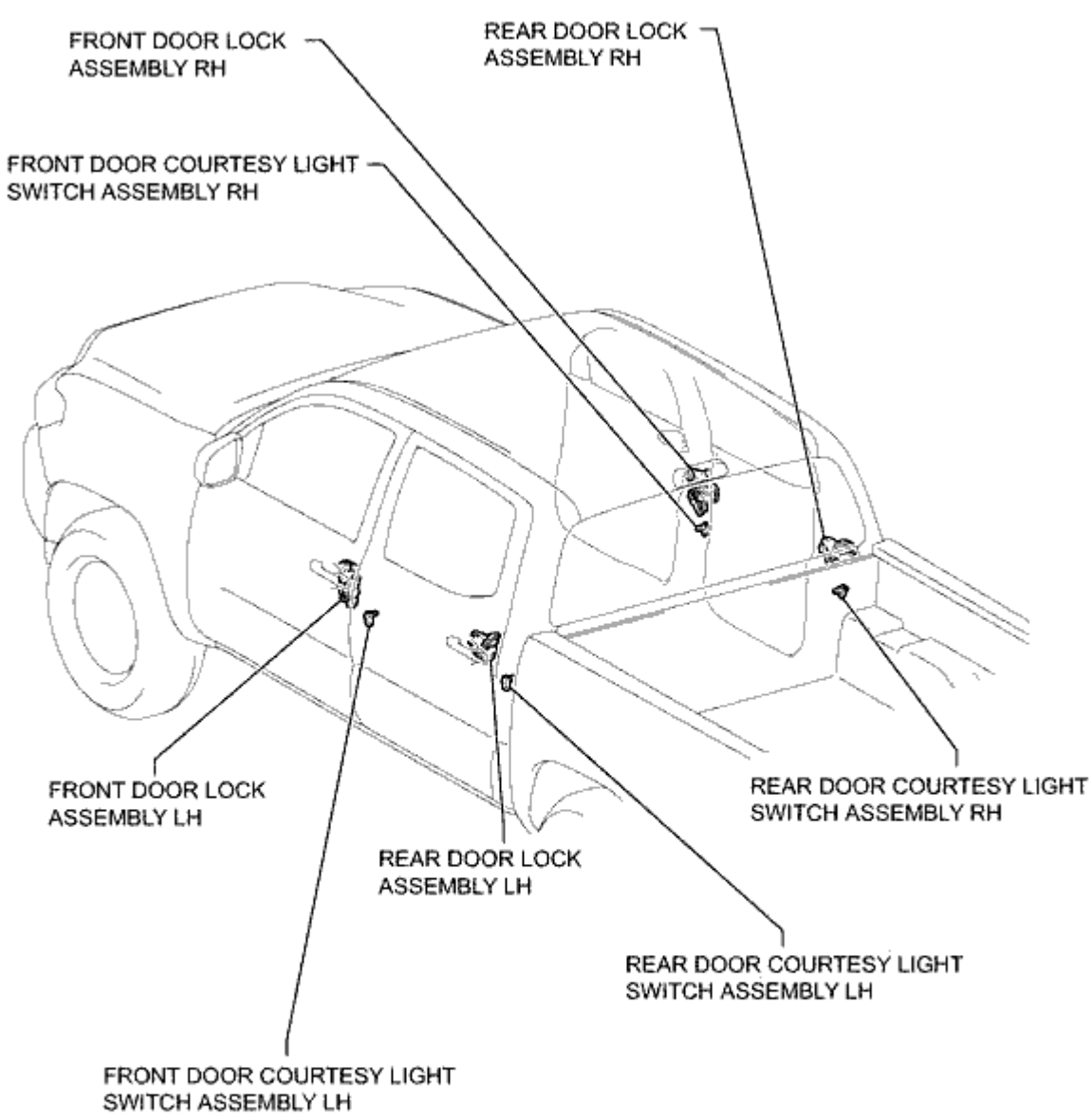
ILLUSTRATION



ILLUSTRATION

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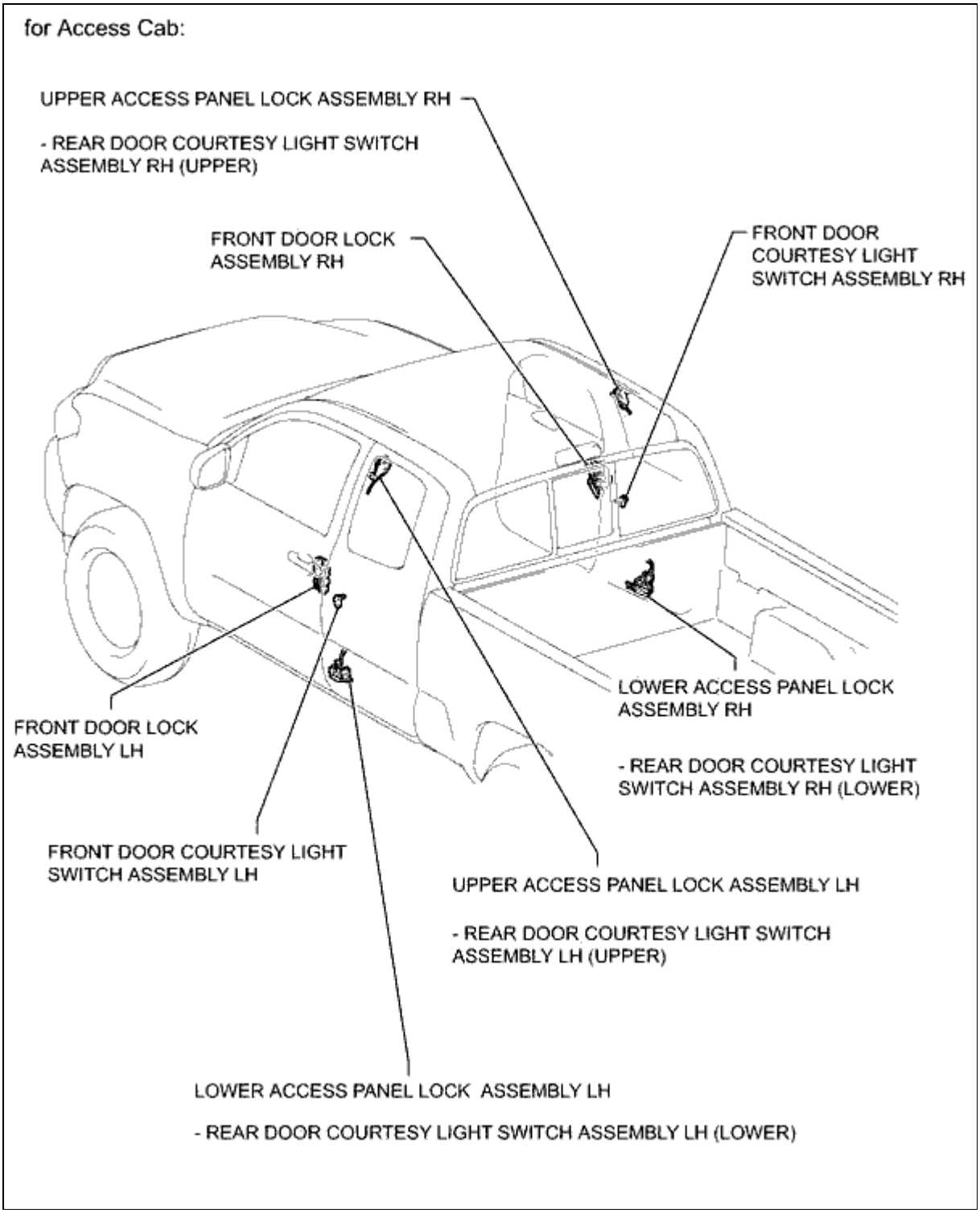
for Double Cab:



ILLUSTRATION

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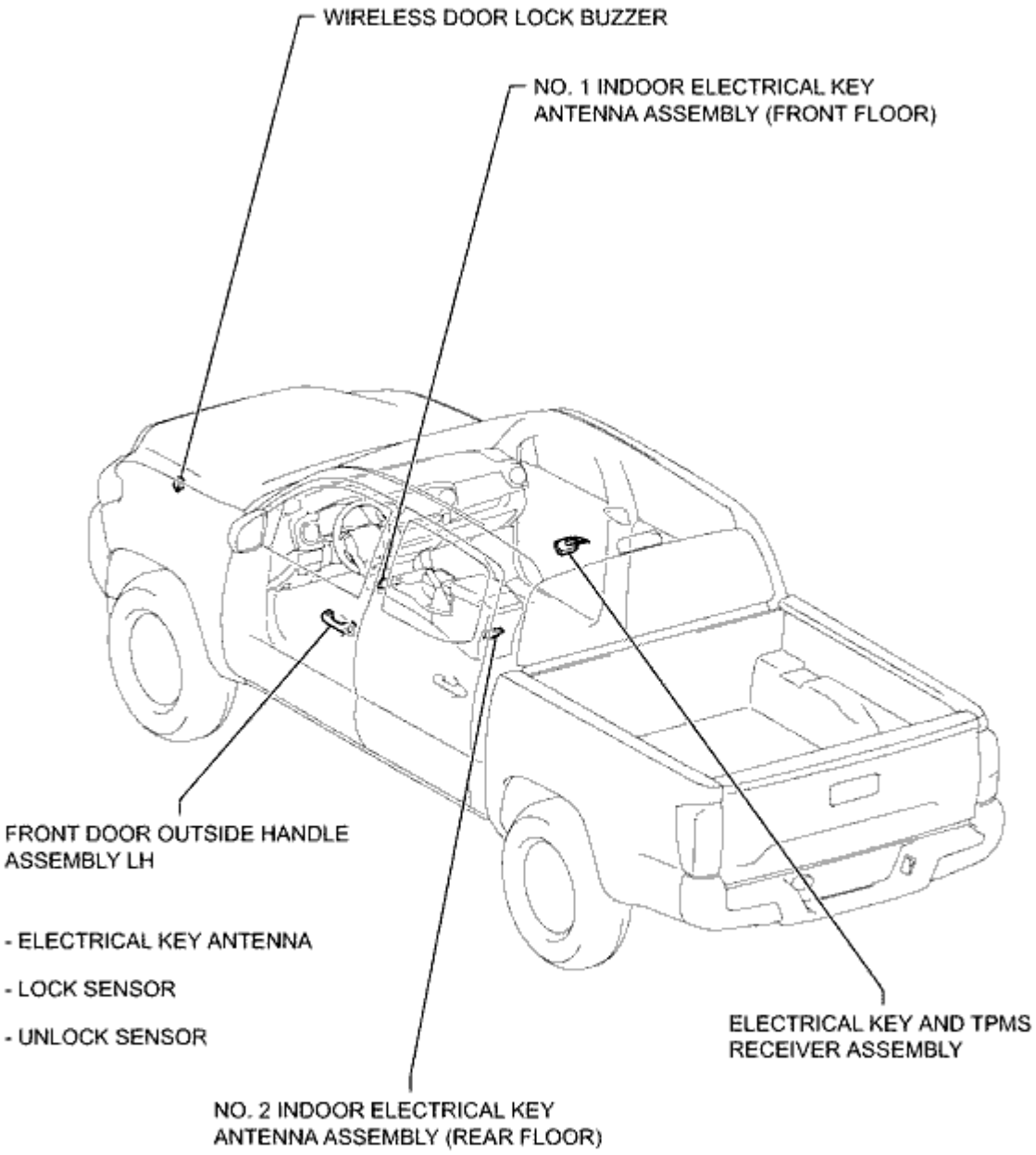
for Access Cab:



ILLUSTRATION

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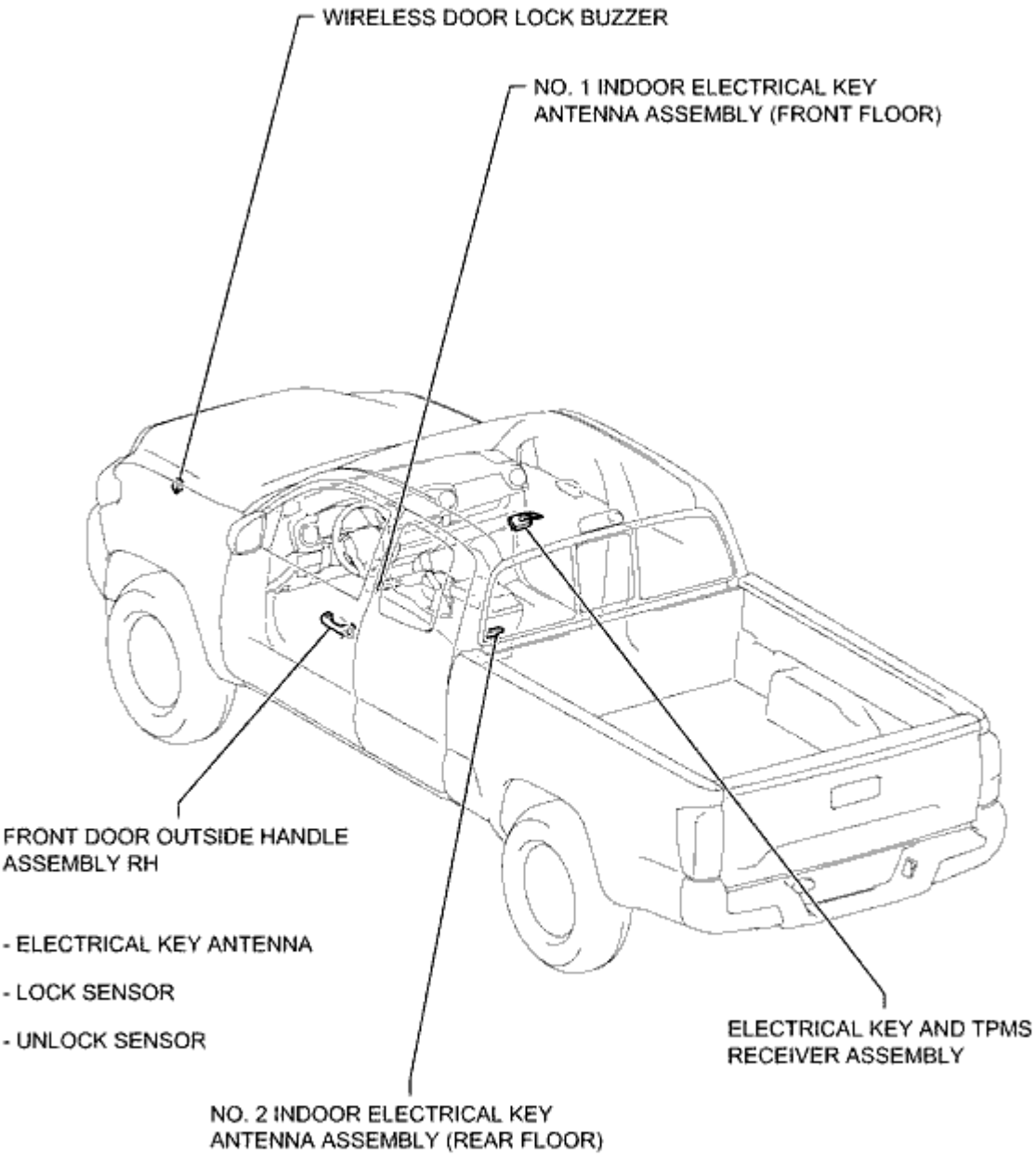
for Double Cab:



ILLUSTRATION

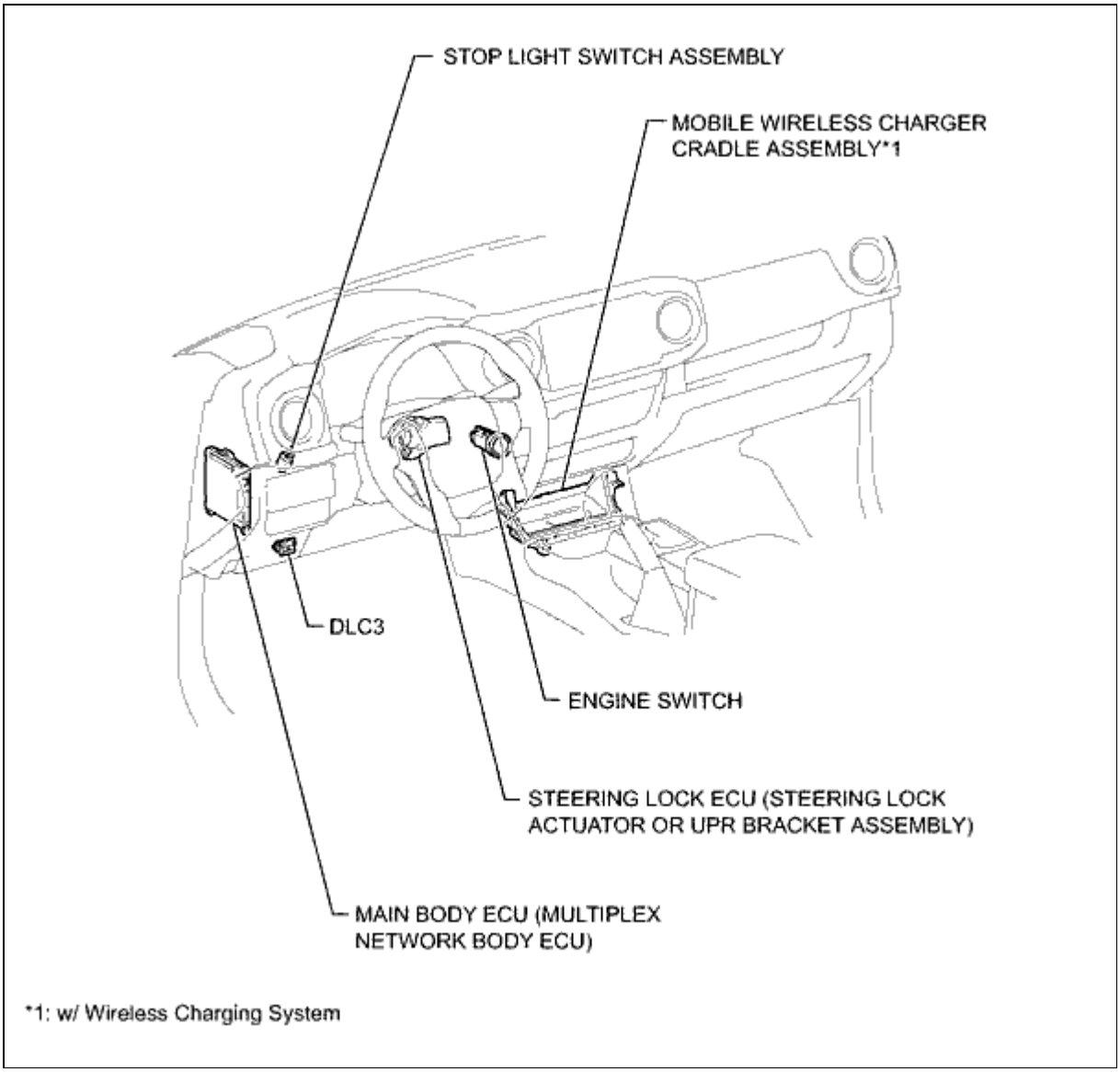
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for Access Cab:



ILLUSTRATION

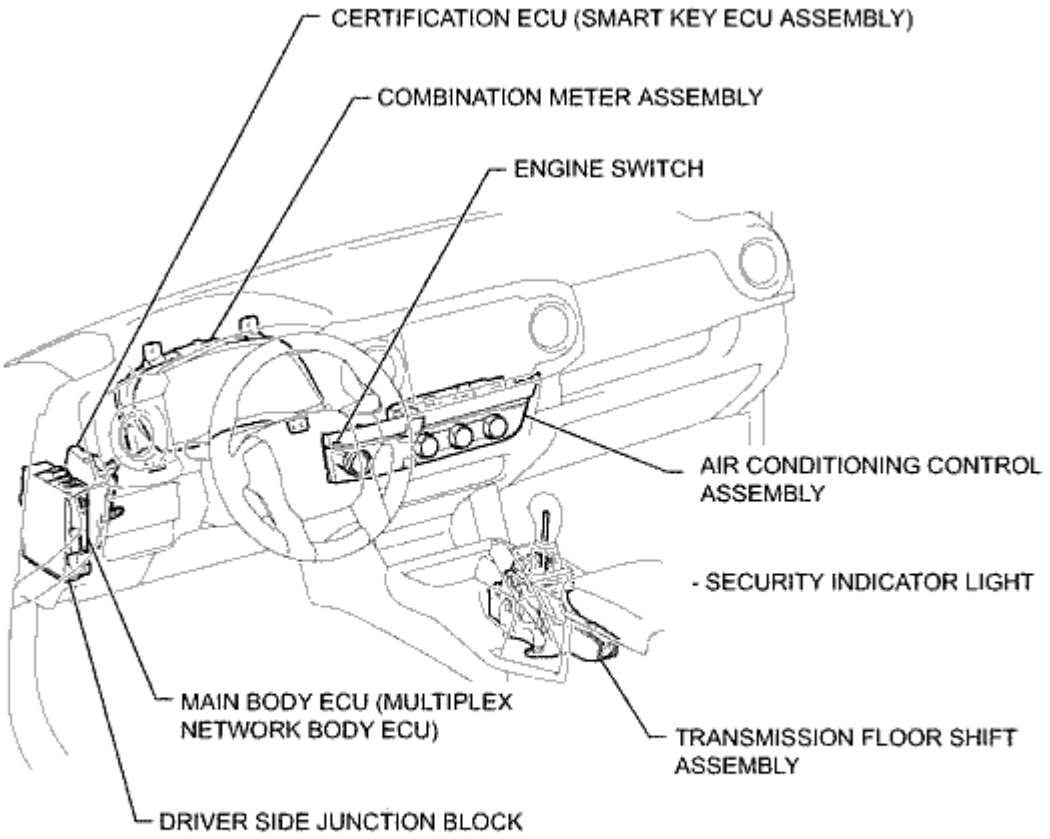
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*1: w/ Wireless Charging System

ILLUSTRATION

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Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): PRECAUTION; 2016 MY Tacoma [08/2015 -]		

PRECAUTION

1. CAUTION REGARDING INTERFERENCE WITH ELECTRONIC DEVICES

CAUTION:

- People with implantable cardiac pacemakers, cardiac resynchronization therapy-pacemakers or implantable cardioverter defibrillators should keep away from the smart key system antennas. The radio waves may affect the operation of such devices. If necessary, the entry function can be disabled. Ask your dealer for details, such as the frequency of radio waves and timing of the emitted radio waves. Then, consult your doctor to see if you should disable the entry function.
- User of any electrical medical device other than implantable cardiac pacemakers, cardiac resynchronization therapy-pacemakers or implantable cardioverter defibrillators should consult the manufacturer of the device for information about its operation under the influence of radio waves. Radio waves could have unexpected effects on the operation of such medical devices.
- Ask your dealer for details for disabling the entry function INFO .

PRECAUTIONS WHEN USING TECHSTREAM

(a) When using the Techstream with the engine switch off, connect the Techstream to the DLC3 and turn a courtesy light switch on and off at intervals of 1.5 seconds or less until communication between the Techstream and the vehicle begins. Then select the vehicle type under manual mode and enter the following menus: Body Electrical / Smart Key. While using the Techstream, periodically turn a courtesy light switch on and off at intervals of 1.5 seconds or less to maintain communication between the Techstream and the vehicle.

2. PRECAUTION FOR REGISTRATION

(a) If replacing any of the following parts, refer to the registration procedures INFO .

(1) Certification ECU (smart key ECU assembly)

(2) Steering lock ECU (steering lock actuator or UPR bracket assembly)

(3) Electrical key transmitter sub-assembly

(4) ECM

(5) Main body ECU (multiplex network body ECU)

3. PRECAUTIONS WHEN DISCONNECTING CABLE FROM NEGATIVE BATTERY TERMINAL

- After turning the engine switch off, waiting time may be required before disconnecting the cable from the negative (-) battery terminal. Therefore, make sure to read the disconnecting the cable from the negative (-) battery terminal notices before proceeding with work.
- When disconnecting the cable from the negative (-) battery terminal while performing repairs, some systems need to be initialized after the cable is reconnected.

4. PRECAUTIONS FOR VEHICLE BATTERY AND TRANSMITTER BATTERY BUILT INTO ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY

(a) When the doors are locked, power from the vehicle battery is used to transmit radio waves. The battery may be discharged if the vehicle remains parked for a long time. If the vehicle is not to be used for a long time, disconnect the vehicle battery or cancel the smart key system (for Entry Function).

HINT:

Refer to the following procedures to cancel the smart key system (for entry function) INFO .

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(b) When the doors are locked and an electrical key transmitter sub-assembly is in the detection area of an electrical key antenna, the key battery may be depleted due to periodic communication between the electrical transmitter sub-assembly and the vehicle. If the vehicle is not to be used for a long time, keep the key away from the vehicle (more than 2 m (6.56 ft.)).

5. PRECAUTIONS FOR ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY

HINT:

For an illustration of an electrical key transmitter sub-assembly, refer to Parts Location INFO .

(a) The electrical key transmitter sub-assembly is a precision instrument. Be sure to observe the following:

(1) Do not subject the electrical key transmitter sub-assembly to strong physical shocks.

(2) Do not keep the electrical key transmitter sub-assembly in a high temperature area for a long time.

(3) Do not use an ultrasonic washing machine to clean the electrical key transmitter sub-assembly.

(4) Do not use the electrical key transmitter sub-assembly near any magnets or magnetized items.

(5) Do not place the electrical key transmitter sub-assembly near magnetic equipment, such as digital audio players, induction cookers, medical devices that generate low-frequency electromagnetic waves, etc.

(6) Do not attach any stickers to the electrical key transmitter sub-assembly.

(7) Do not disassemble the electrical key transmitter sub-assemblies.

(8) The mechanical key should only be used in an emergency, such as when the transmitter battery is depleted.

6. PRECAUTIONS WHEN INSPECTING SMART KEY SYSTEM (for Entry Function)

(a) General precaution for the smart key system (for Entry Function):

(1) Always carry the electrical key transmitter sub-assembly.

(b) The smart key system (for Entry Function) may not operate normally or the key detection area may decrease in the following situations:

(1) The transmitter battery is depleted.

(2) There are TV towers, electric power plants, broadcasting stations, gas stations or other facilities that generate strong radio waves or electrical noise nearby.

(3) Wireless communication devices, such as walkie-talkies, cell phones, cordless telephones, digital audio players, portable game systems, etc., are carried together with the electrical key transmitter sub-assembly.

(4) The electrical key transmitter sub-assembly is covered by or in contact with objects made of metal, such as coins, certain types of cards, etc.

(5) Metallic film is applied to the rear window glass.

(6) A radio wave type keyless entry system or wireless remote is operated nearby.

(7) An electrical key transmitter sub-assembly from another vehicle is nearby.

(8) The electrical key transmitter sub-assembly is placed near equipment that generates high-voltage or electrical noise.

(c) Operating range of the smart key system (for Entry Function):

(1) Due to the body design, there are some areas in which proper system operation is difficult.

(2) Even if the electrical key transmitter sub-assembly is in the vehicle exterior detection area, the electrical key transmitter sub-assembly may not be properly detected if the electrical key transmitter sub-assembly is near a window, a door handle or the center of the bumper.

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(3) Even if an electrical key transmitter sub-assembly is in a vehicle interior detection area, the electrical key transmitter sub-assembly may not be properly detected if it is on the instrument panel, in the glove box or on the floor.

(4) Depending on the way the electrical key transmitter sub-assembly is held, the electrical key transmitter sub-assembly may not operate properly.

(d) As weak radio waves are emitted from the electrical key transmitter sub-assembly, if a pacemaker is being used, be sure to read the pacemaker instruction manual.

(e) The smart key system (for Entry Function) will not operate under the following conditions.

(1) The procedures to cancel the smart key system (for Entry Function) are performed.

(2) There is no transmitter battery or the battery is depleted (the LED of the electrical key transmitter sub-assembly does not blink when an electrical key transmitter sub-assembly switch is pressed).

7. PRECAUTIONS FOR ENTRY UNLOCK FUNCTION

(a) When unlocking the doors, make sure to grasp the front door outside handle assembly LH, ensuring contact with the sensor on the inner part of the handle. Pull the handle after confirming that the door has unlocked.

(b) If the front door outside handle assembly LH is grasped with gloved hands, unlocking may be delayed or may not occur.

(c) When attempting to open a door suddenly or immediately after entering a vehicle exterior detection area, the door may not unlock. In this case the system automatically performs the door unlock operation 4 times. However, if the front door outside handle assembly LH is being pulled at this time, the door may not unlock due to mechanical reasons. If the door is not unlocked, return the front door outside handle assembly LH to its original position and pull the handle after confirming that the door has unlocked.

(d) If the electrical key transmitter sub-assembly is brought too close to the front door outside handle assembly LH, it may not be possible to unlock the door with the entry unlock function.

(e) If an electrical key transmitter sub-assembly is within a vehicle exterior detection area, the door can be unlocked even when a person other than the person carrying the electrical key transmitter sub-assembly grasps the front door outside handle assembly LH.

(f) If a door is not opened after a door unlock operation, the doors automatically lock after approximately or 60 seconds.

(g) If an electrical key transmitter sub-assembly is within a vehicle exterior detection area and a large amount of water is applied to the front door outside handle assembly LH, such as by a car wash or heavy rain, the sensor may react and the entry unlock operation may be performed. However, the doors will automatically lock after approximately 60 seconds if a door is not opened.

(h) If the electrical key transmitter sub-assembly is being carried together with an electrical key transmitter sub-assembly from another vehicle with a smart key system (for Entry Function) and the front door outside handle assembly LH is held, the time before the door is unlocked by the entry unlock operation may be more than normal.

8. PRECAUTIONS FOR ENTRY LOCK FUNCTION

(a) When performing an entry lock operation, if the lock sensor on the front door outside handle assembly LH is touched too quickly, the door may not lock.

(b) If the electrical key transmitter sub-assembly is brought near the vehicle interior (window, front door outside handle assembly LH), the entry lock function may not operate. Also, the key reminder warning buzzer may sound and the entry unlock operation may stop functioning. In this case, move the electrical key transmitter sub-assembly away from the vehicle interior (window, front door outside handle assembly LH), perform an entry lock operation, and then perform an entry unlock operation.

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(c) If the electrical key transmitter sub-assembly is being carried and a lock operation is performed from the driver door while the driver door is open (the door is ajar), the door ajar warning does not operate.

(d) If the electrical key transmitter sub-assembly is left on the instrument panel, in the glove box or on the floor, the key reminder warning function may not operate and the electrical key transmitter sub-assembly may be locked in the vehicle when a door lock operation is performed. Always carry the electrical key transmitter sub-assembly.

(e) The entry unlock operation cannot be performed for approximately 3 seconds after an operation that locks the doors, such as an entry lock or wireless lock operation, is performed.





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Last Modified: 11-13-2015	6.6 T	**Doc ID:** RM000005UUZ000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): PROBLEM SYMPTOMS TABLE; 2016 MY Tacoma [08/2015 -]		

PROBLEM SYMPTOMS TABLE

HINT:

- If a problem occurs in certain locations or at certain times of day, check for the possibility of wave interference.
- When the electrical key transmitter sub-assembly is brought near the electrical key and TPMS receiver assembly (RF band), front outside door outside handle assembly LH (LF band), indoor electrical key antenna (LF band) or any of the electrical key antennas (LF band), the possibility of wave interference decreases. By doing this, whether wave interference is causing the problem can be checked.
- Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.
- Inspect the fuses and relays related to this system before inspecting the suspected areas below.

Smart Key System (for Entry Function)

SYMPTOM	SUSPECTED AREA	SEE PAGE
Entry Interior Alarm does not Sound	Meter/gauge system	INFO
	Certification ECU (smart key ECU assembly)	-
All Door Entry Lock/Unlock Functions and Wireless Functions do not Operate	Power door lock control system	INFO
	Electrical key transmitter sub-assembly	-
	Transmitter battery	-
	Electrical key and TPMS receiver assembly	-
	Certification ECU (smart key ECU assembly)	-
	Harness or connector	-
All Door Entry Lock/Unlock Functions do not Operate, but Wireless Functions Operate	Electrical key transmitter sub-assembly	INFO
	Certification ECU (smart key ECU assembly)	-
Driver Door Entry Unlock Function does not Operate	Power door lock control system	INFO
	Front door outside handle assembly LH	-
	Certification ECU (smart key ECU assembly)	-
	Harness or connector	-
Driver Door Entry Lock and Unlock Functions do not Operate	Power door lock control system	INFO
	Front door outside handle assembly LH	-
	Certification ECU (smart key ECU assembly)	-
	Harness or connector	-
Driver Door Entry Lock Function does not Operate	Power door lock control system	INFO
	Front door outside handle assembly LH	-

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SYMPTOM	SUSPECTED AREA	SEE PAGE
	Certification ECU (smart key ECU assembly)	-
	Harness or connector	-
Room Oscillator does not Recognize Key	Smart key system (for Start Function)	INFO
	No. 1 indoor electrical key antenna (front floor)	-
	No. 2 indoor electrical key antenna (rear floor)	-
	Certification ECU (smart key ECU assembly)	-
	Harness or connector	-
	Electrical key transmitter sub-assembly	-
New Key cannot be Registered	Steering lock ECU (steering lock actuator or UPR bracket assembly)	INFO
	Certification ECU (smart key ECU assembly)	-
	Engine switch	-
	Harness or connector	-
Additional Key cannot be Registered	Certification ECU (smart key ECU assembly)	INFO
	Electrical key transmitter sub-assembly	-

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Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000005UVC000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): Room Oscillator does not Recognize Key; 2016 MY Tacoma [08/2015 -]		

Room Oscillator does not Recognize Key

DESCRIPTION

If code verification cannot be performed in the vehicle interior, there may be problems with the communication between the vehicle (indoor electrical key antenna assembly (front floor) or (rear floor)) and electrical key transmitter sub-assembly, or the certification ECU (smart key ECU assembly) may be malfunctioning. When the electrical key transmitter sub-assembly is brought into the vehicle, verification of the key ID code transmitted from the electrical key transmitter sub-assembly and the key ID code stored in the certification ECU (smart key ECU assembly) is performed. If verification cannot be performed or the codes do not match, the engine switch cannot be turned on (IG) and the engine cannot be started.

When a door is unlocked and the electrical key transmitter sub-assembly is brought into the vehicle, the certification ECU (smart key ECU assembly) activates the indoor electrical key antenna assembly which transmits radio waves to detect the electrical key transmitter sub-assembly. If the electrical key transmitter sub-assembly recognizes that it is in the detection area, it responds with the key ID code. This information is received by the indoor electrical key antenna and then sent to the certification ECU (smart key ECU assembly).

HINT:

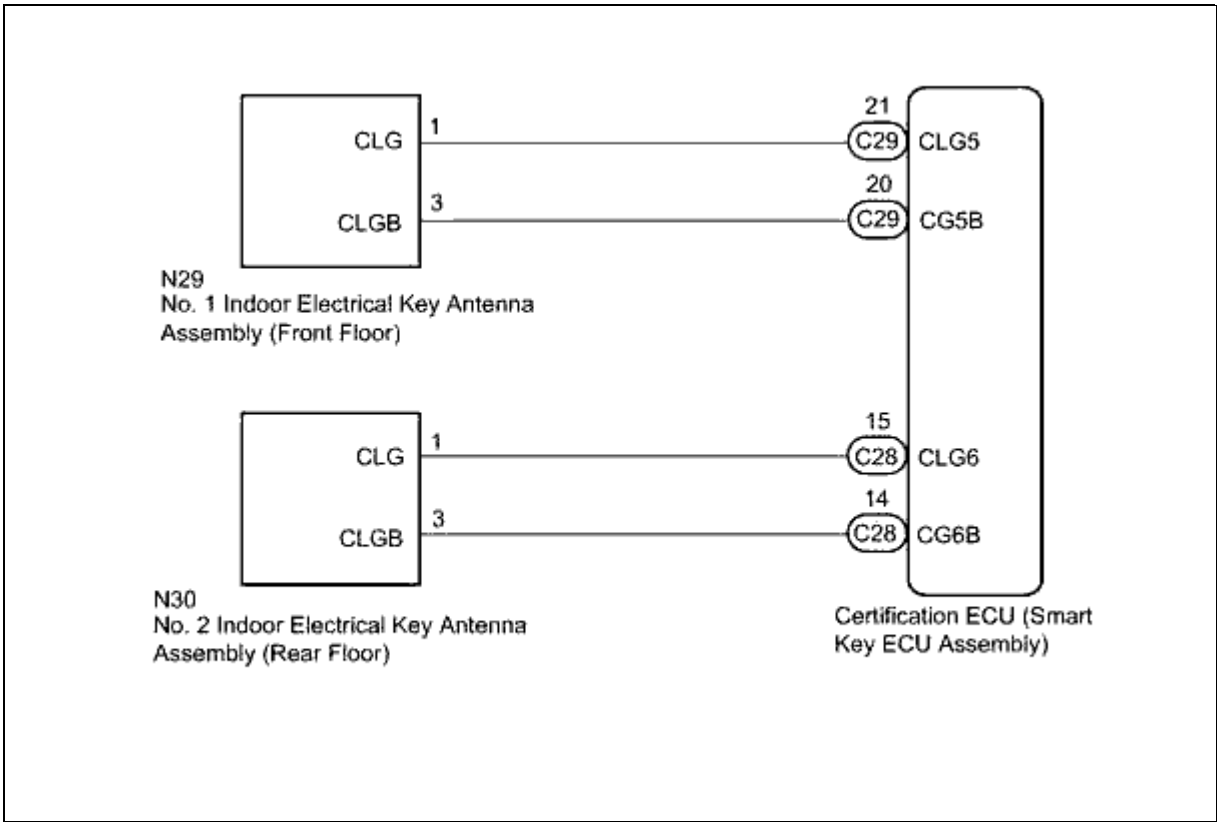
- If the room oscillator does not recognize, the cause of the malfunction may be stored in the certification ECU (smart key ECU assembly).
- If the cause of the malfunction is stored in the certification ECU (smart key ECU assembly), the following table is helpful in checking whether the malfunction was caused by wave interference.

Radio Wave Interference:

PARAMETER NAME	CAUSE OF PROBLEM AND COUNTERMEASURE
Operating Engine Switch / Key RF Signal Interference	When the engine switch was operated, the electrical key transmitter sub-assembly could not be confirmed due to wave interference. Therefore, the output frequency was switched to the other channel (changed from channel 1 to channel 2 or from channel 2 to channel 1). If the cause of the malfunction has not been stored but any devices that can cause wave interference in the cabin have been removed and the room oscillator successfully recognizes the key, the possibility of wave interference is high.

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- The smart key system (for Entry Function) uses the LIN communication system and CAN communication system. Inspect the communication function by following How to Proceed with Troubleshooting. Troubleshoot the smart key system (for Entry Function) after confirming that the communication systems are functioning properly INFO .
- When using the Techstream with the engine switch off, connect the Techstream to the DLC3 and turn a courtesy light switch on and off at intervals of 1.5 seconds or less until communication between the Techstream and the vehicle begins. Then select the vehicle type under manual mode and enter the following menus: Body Electrical / Smart Key. While using the Techstream, periodically turn a courtesy light switch on and off at intervals of 1.5 seconds or less to maintain communication between the Techstream and the vehicle.
- Before replacing the certification ECU (smart key ECU assembly), refer to smart key system (for Entry Function) Precaution INFO .
- After repair, confirm that no DTCs are output by performing "DTC Output Confirmation Operation".
- The indoor electrical key antenna assemblies have an antenna coil between each terminal.
- The electrical key and TPMS receiver assembly is also related to interior verification.

PROCEDURE

1.	**CHECK START OPERATION**

(a) Using another registered electrical key transmitter sub-assembly, check that the engine starts.

Result

RESULT	PROCEED TO
Engine cannot be started	A

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RESULT	PROCEED TO
Engine can be started	B

B ▶ **END (ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY WAS DEFECTIVE)**

A ▼

2.	**CHECK ENTRY LOCK OPERATION**

(a) Check that the entry lock and unlock functions operate on each door.

HINT:

If the electrical key and TPMS receiver assembly is defective, code verification does not begin in the cabin and the entry lock and unlock functions do not operate.

Result

RESULT	PROCEED TO
All door entry functions operate normally (w/ Wireless Charging System)	A
All door entry functions operate normally (w/o Wireless Charging System)	B
All door entry functions does not operate normally	C

B ▶ **GO TO STEP 4**

C ▶ **GO TO OTHER PROBLEM**

A ▼

3.	**CHECK WIRELESS CHARGING SYSTEM**

(a) Turn the wireless charging system off INFO .

(b) Check that interior verification is normal.

HINT:

If the power source mode can be changed, interior verification is normal.

Result

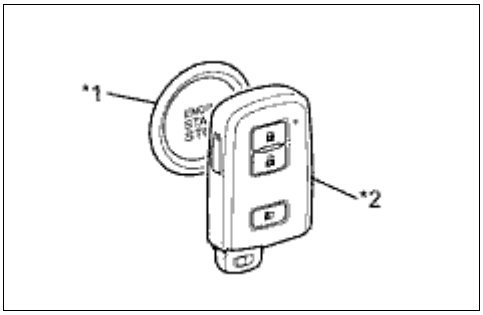
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RESULT	PROCEED TO
Interior verification is abnormal	A
Interior verification is normal	B

B ▶ **GO TO WIRELESS CHARGING SYSTEM**

A

4.	CHECK PUSH-BUTTON START FUNCTION



(a) Remove the transmitter battery of the electrical key transmitter sub-assembly INFO .

(b) With the brake pedal depressed, face the logo side of the electrical key transmitter sub-assembly towards the engine switch, hold the transmitter near the engine switch and then press the engine switch.

(c) When operating the engine switch, check whether the engine starts.

HINT:

- When the electrical key transmitter sub-assembly cannot be verified even though it is inside the detection area, the engine start check can be performed by removing the transmitter battery from the electrical key transmitter sub-assembly and holding the electrical key transmitter sub-assembly near the engine switch.
- If the engine cannot be started when performing this inspection, the certification ECU (smart key ECU assembly) or steering lock ECU (steering lock actuator or UPR bracket assembly) may be malfunctioning.

OK:

Engine starts.

Text in Illustration

*1	Engine Switch
*2	Electrical Key Transmitter Subassembly

NG ▶ **GO TO SMART KEY SYSTEM (FOR START FUNCTION)**

OK

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5.	**CHECK WAVE ENVIRONMENT**

(a) Install the transmitter battery to the electrical key transmitter sub-assembly INFO .

(b) Bring the electrical key transmitter sub-assembly near the No. 1 indoor electrical key antenna assembly (front floor) and perform a smart key system check INFO .

NOTICE:

Communication may not be possible if the electrical key transmitter sub-assembly is within 0.2 m (0.656 ft.) of the No. 1 indoor electrical key antenna assembly (front floor).

(c) Bring the electrical key transmitter sub-assembly near the No. 2 indoor electrical key antenna assembly (rear floor) and perform a smart key system check INFO .

HINT:

Check that the customize status of the "Ignition Available Area" has been "All".

NOTICE:

Communication may not be possible if the electrical key transmitter sub-assembly is within 0.2 m (0.656 ft.) of the center of the No. 2 indoor electrical key antenna assembly (rear floor).

HINT:

- As the effect of wave interference decreases by moving the electrical key transmitter sub-assembly close to each indoor electrical key antenna assembly, it may be possible to check whether wave interference is the cause of the problem.
- If the inspection result is that the problem only occurs in certain locations or at certain 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.
- There may be wave interference if the vehicle is near broadcasting antennas, large video displays, wireless garage door opener systems, wireless security cameras, home security systems, etc. In this case, move the vehicle to a different location and check if there is any improvement.
- If a tool for checking radio waves, such as a signal strength meter, is available, move around the area while observing both the LF band (used by the vehicle antenna to form the detection area) and RF band (used by the electrical key transmitter sub-assembly for transmission) to check for locations where there is wave interference.

OK:

The engine starts when the electrical key transmitter sub-assembly is held near each indoor electrical key antenna assembly and the engine switch is pressed.

Result

RESULT	PROCEED TO
NG	A
OK	B

B ▶ AFFECTED BY WAVE INTERFERENCE

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A

6.	**CHECK FOR DTC**

(a) Check for DTCs INFO .

OK:

DTCs are not output.

NG ▶ **GO TO DIAGNOSTIC TROUBLE CODE CHART**

OK

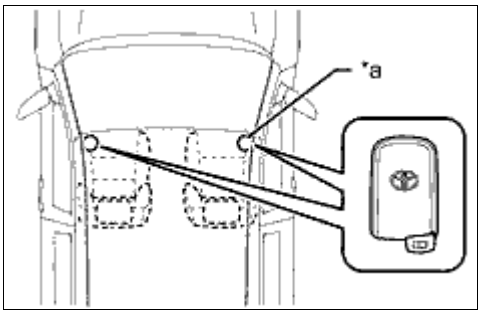
7.	**CHECK KEY DIAGNOSTIC MODE**

(a) Check the following antennas in key diagnostic mode INFO .

(b) Select either channel 1 or channel 2 and inspect key diagnostic mode for each channel.

(1) Check the No. 1 indoor electrical key antenna assembly (front floor).

When the electrical key transmitter sub-assembly is at the inspection point, check that the wireless door lock buzzer sounds.

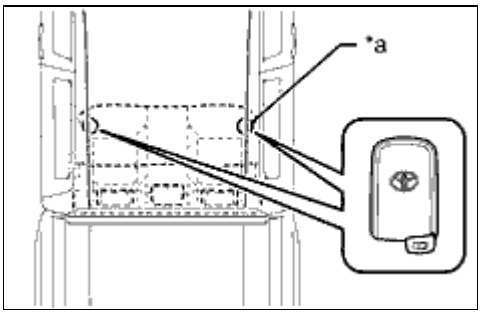


Text in Illustration

*a	Inspection Point

(2) Check the No. 2 indoor electrical key antenna assembly (rear floor).

When the electrical key transmitter sub-assembly is at the inspection point, check that the wireless door lock buzzer sounds.



Text in Illustration

*a	Inspection Point

HINT:

- Select either channel 1 or channel 2 and inspect key diagnostic mode for each channel.
- If the buzzer sounds with [CH1] displayed but not with [CH2], the electrical key transmitter subassembly cannot be detected by

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channel 2 due to a malfunction, such as wave interference.

- It is possible to check which indoor electrical key antenna assembly (front floor or rear floor) is operating by the sounding of the buzzer.
- When the wireless buzzer sounds for all indoor electrical key antenna assemblies, they can be judged as operating properly and a malfunction in the certification ECU (smart key ECU assembly), which performs verification, is suspected.
- When the wireless buzzer does not sound for all indoor electrical key antenna assemblies, it can be judged that the certification ECU (smart key ECU assembly), which controls the indoor electrical key antenna assemblies, is malfunctioning.

Result

RESULT	PROCEED TO
The wireless buzzer sounds/does not sound for all indoor electrical key antenna assemblies	A
The wireless buzzer does not sound for only the No. 1 indoor electrical key antenna assembly (front floor)	B
The wireless buzzer does not sound for only the No. 2 indoor electrical key antenna assembly (rear floor)	C

B ▶ **GO TO STEP 8**

C ▶ **GO TO STEP 12**

A ▶ **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

8.	**CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) - NO. 1 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY (FRONT FLOOR))**

(a) Disconnect the C29 certification ECU (smart key ECU assembly) connector.

(b) Disconnect the N29 No. 1 indoor electrical key antenna assembly (front floor) connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C29-21 (CLG5) - N29-1 (CLG)	Always	Below 1 Ω
C29-20 (CG5B) - N29-3 (CLGB)	Always	Below 1 Ω
C29-21 (CLG5) or N29-1 (CLG) - Body ground	Always	10 kΩ or higher
C29-20 (CG5B) or N29-3 (CLGB) - Body ground	Always	10 kΩ or higher

(d) Reconnect the C29 certification ECU (smart key ECU assembly) connector.

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NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

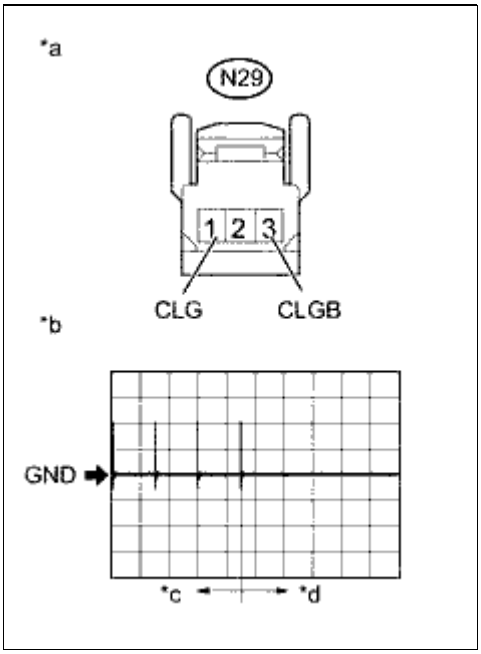
OK ▼

9.	**CHECK CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) OUTPUT TO NO. 1 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY (FRONT FLOOR))**

(a) Using an oscilloscope, check the waveform.

OK:

TESTER CONNECTION	SWITCH CONDITION	TOOL SETTING	SPECIFIED CONDITION
N29-1 (CLG) - N29-3 (CLGB)	Procedure: 1. Engine switch off 2. Electrical key transmitter sub-assembly not inside vehicle 3. Within 30 seconds of closing any door using the door outside handle	2 V/DIV., 500 ms/DIV.	Pulse generation (See waveform 1)



Text in Illustration

*a	Front view of wire harness connector (to No. 1 indoor Electrical Key Antenna (Front Floor))
*b	Waveform 1
*c	For 30 seconds after closing any door using the door outside handle
*d	30 seconds or more have elapsed after closing any door using the door outside handle

NG ▶ **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

OK ▼

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10.	**REPLACE NO. 1 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY (FRONT FLOOR)**

(a) Temporarily replace the No. 1 indoor electrical key antenna assembly (front floor) with a new one INFO .

NEXT

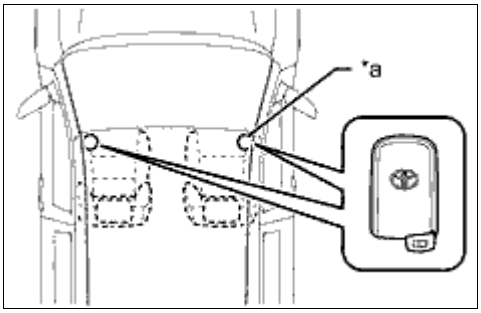
11.	**CHECK KEY DIAGNOSTIC MODE**

(a) Check the following antenna in key diagnostic mode INFO .

(b) Select either channel 1 or channel 2 and inspect key diagnostic mode for each channel.

(1) Check the No. 1 indoor electrical key antenna assembly (front floor).

When the electrical key transmitter sub-assembly is at either inspection point, check that the wireless buzzer sounds.



HINT:

- Select either channel 1 or channel 2 and inspect key diagnostic mode for each channel.
- If the buzzer sounds with [CH1] displayed but not with [CH2], the electrical key transmitter sub-assembly cannot be detected by channel 2 due to a malfunction, such as wave interference.

OK:

Wireless buzzer sounds.

Text in Illustration

*a	Inspection Point

NG ▶ **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

OK ▶ **END (NO. 1 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY (FRONT FLOOR) WAS DEFECTIVE)**

12.	**CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) - NO. 2 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY (REAR FLOOR))**

(a) Disconnect the C28 certification ECU (smart key ECU assembly) connector.

(b) Disconnect the N30 No. 2 indoor electrical key antenna assembly (rear floor) connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C28-15 (CLG6) - N30-1 (CLG)	Always	Below 1 Ω
C28-14 (CG6B) - N30-3 (CLGB)	Always	Below 1 Ω
C28-15 (CLG6) or N30-1 (CLG) - Body ground	Always	10 kΩ or higher
C28-14 (CG6B) or N30-3 (CLGB) - Body ground	Always	10 kΩ or higher

(d) Reconnect the C28 certification ECU (smart key ECU assembly) connector.

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

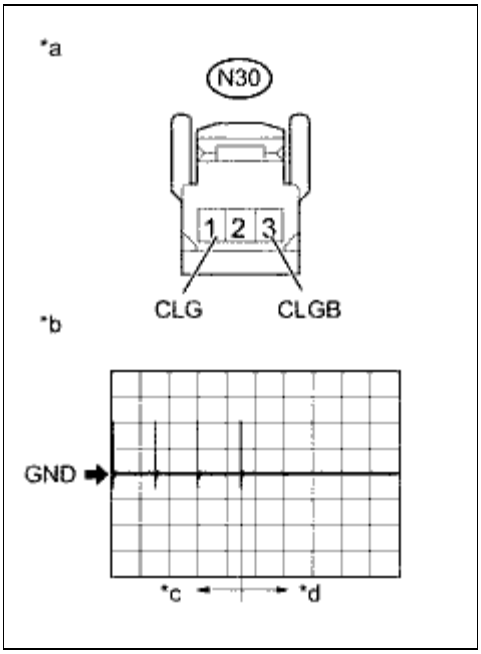
OK ▼

13.	**CHECK CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (OUTPUT TO NO. 2 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY (REAR FLOOR))**

(a) Using an oscilloscope, check the waveform.

OK:

TESTER CONNECTION	SWITCH CONDITION	TOOL SETTING	SPECIFIED CONDITION
N30-1 (CLG) - N30-3 (CLGB)	Procedure: 1. Engine switch off 2. Electrical key transmitter sub-assembly not inside vehicle 3. Within 30 seconds of closing any door using the door outside handle	2 V/DIV., 500 ms/DIV.	Pulse generation (See waveform 1)



Text in Illustration

*a	Front view of wire harness connector (to No. 2 indoor Electrical Key Antenna Assembly (Rear Floor))
*b	Waveform 1

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*c	For 30 seconds after closing any door using the door outside handle
*d	30 seconds or more have elapsed after closing any door using the door outside handle

NG ▶ **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

OK
▼

14.	**REPLACE NO. 2 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY (REAR FLOOR)**

(a) Temporarily replace the No. 2 indoor electrical key antenna assembly (rear floor) with a new one INFO .

NEXT
▼

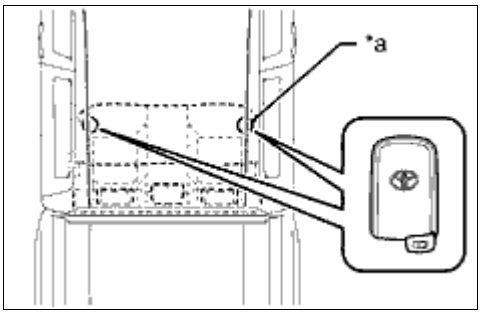
15.	**CHECK KEY DIAGNOSTIC MODE**

(a) Check the following antenna in key diagnostic mode INFO .

(b) Select either channel 1 or channel 2 and inspect the diagnostic mode for each channel.

(1) Check the No. 2 indoor electrical key antenna assembly (rear floor).

When the electrical key transmitter sub-assembly is at the inspection point, check that the wireless door lock buzzer sounds.



HINT:

- Select either channel 1 or channel 2 and inspect key diagnostic mode for each channel.
- If the buzzer sounds with [CH1] displayed but not with [CH2], the electrical key transmitter subassembly cannot be detected by channel 2 due to a malfunction, such as wave interference.

OK:

Wireless buzzer sounds.

Text in Illustration

*a	Inspection Point

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NG ▶ REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

OK ▶ END (NO. 2 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY (REAR FLOOR) WAS DEFECTIVE)

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000005UV0000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): SYSTEM DESCRIPTION; 2016 MY Tacoma [08/2015 -]		

SYSTEM DESCRIPTION

1. SYSTEM DESCRIPTION

The following pattern will be used: "Operation" indicates user operation using the smart key system. "Expected operation of the vehicle" indicates how a known good vehicle will react in accordance with each operation. "Suspected Area/Diagnosis" indicates suspected malfunctioning areas and tips for each diagnosis if the vehicle did not react as expected.

(a) Example: Operation No.

Operation	-
Expected operation of the vehicle	-
Waveform or Output Value	-

SUSPECTED AREA	DIAGNOSIS
-	-

2. BASIC PRECAUTIONS

(a) DTC numbers and ECU Data Lists of the smart key system can be checked using the Techstream.

(b) Check for DTCs using the following procedure. If any DTCs are output, diagnose those DTCs first.

(1) Connect the Techstream to the DLC3.

(2) Turn the engine switch on (IG).

(3) Enter the following menus: Body Electrical / Smart Key, Power Source Control or Starting Control / Trouble Codes.

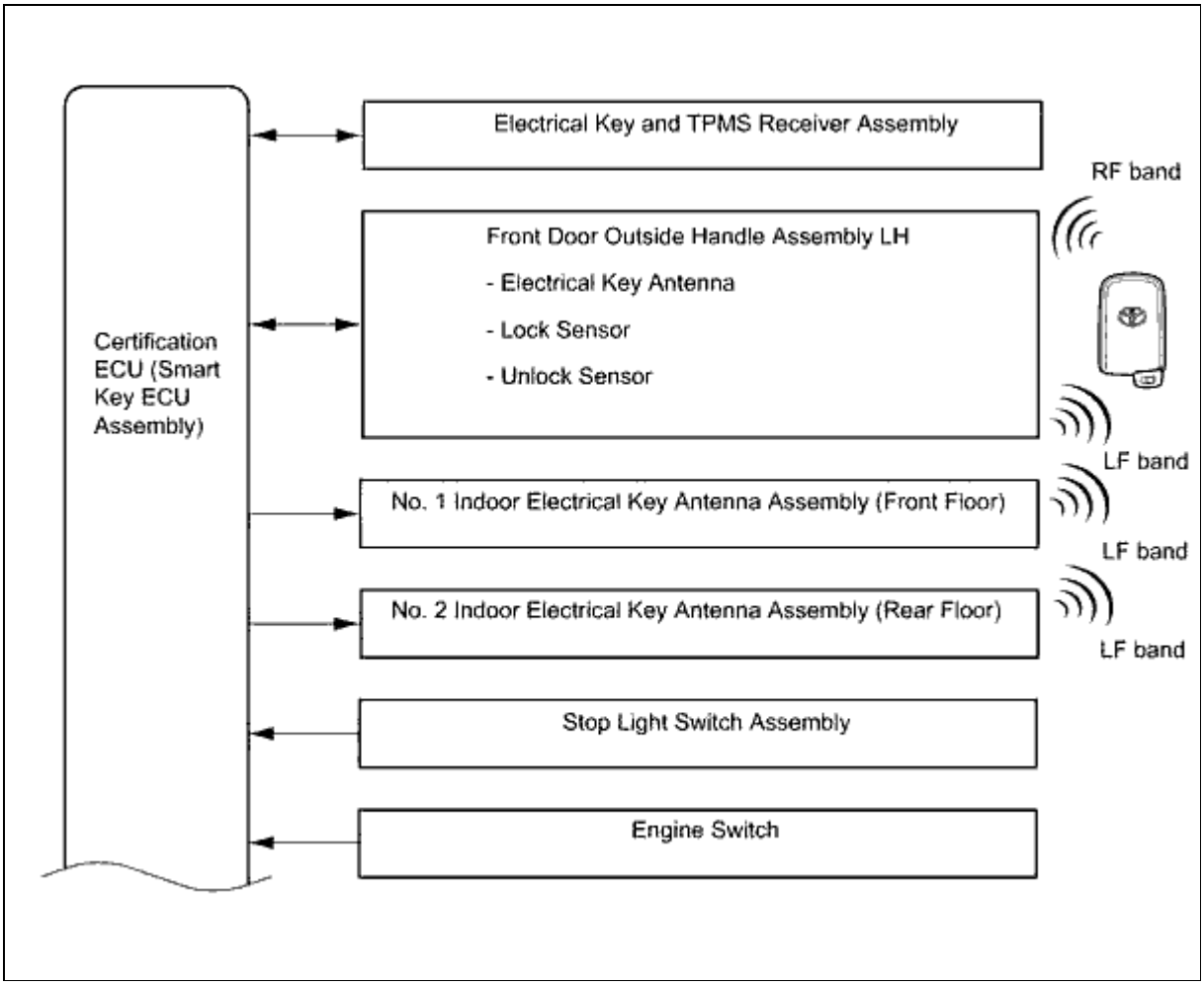
(c) If the engine switch cannot be turned on (IG), follow the procedure below to start communication between the Techstream and vehicle.

(1) When using the Techstream with the engine switch off, connect the Techstream to the DLC3 and turn a courtesy light switch on and off at intervals of 1.5 seconds or less until communication between the Techstream and the vehicle begins. Then select the vehicle type under manual mode and enter the following menus: Body Electrical / Smart Key. While using the Techstream, periodically turn a courtesy light switch on and off at intervals of 1.5 seconds or less to maintain communication between the Techstream and the vehicle.

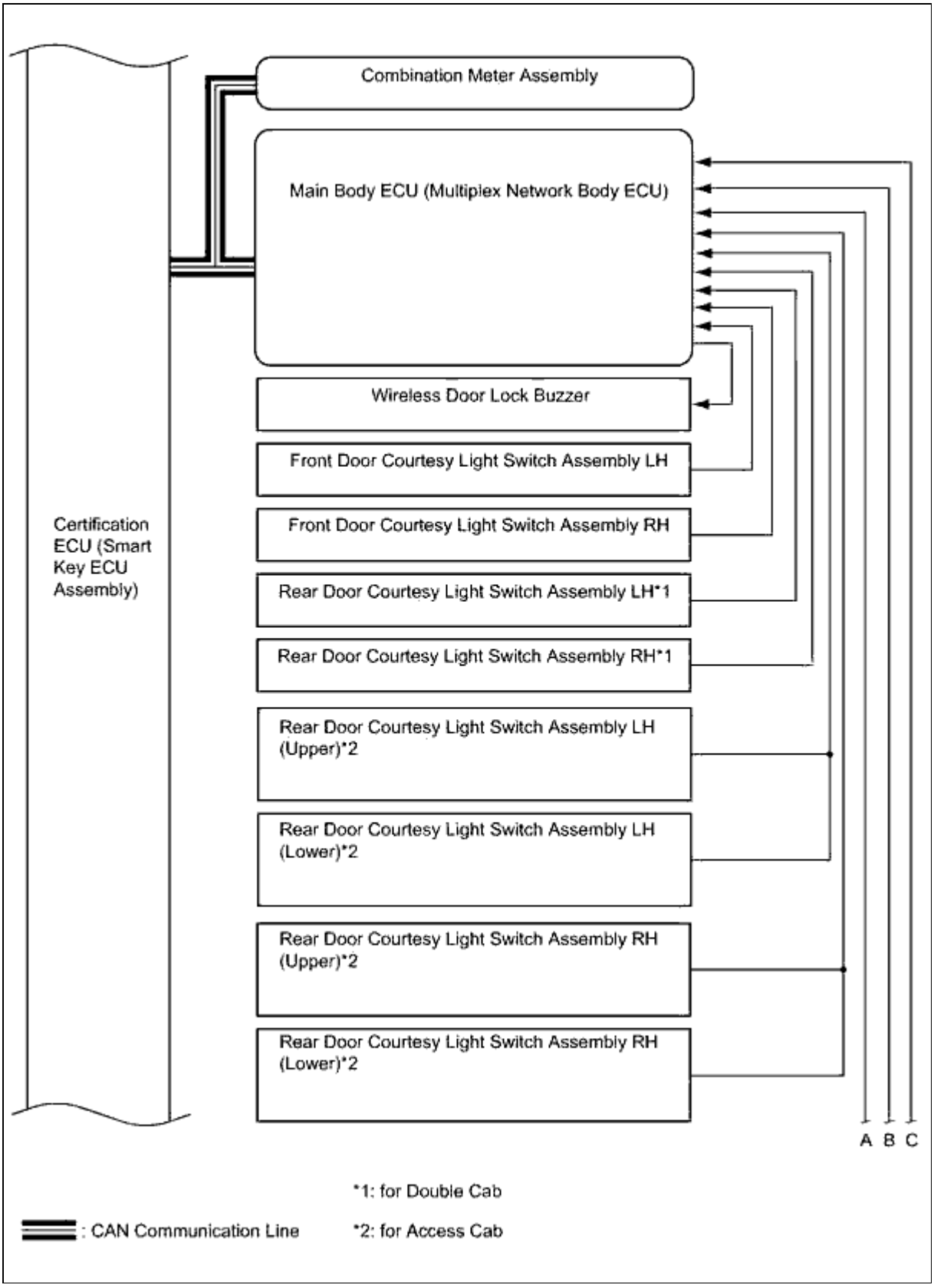
(d) If cancel is selected for the smart key system customize setting, cancel the smart key cancel setting INFO .

3. DIAGRAM OF SMART KEY SYSTEM

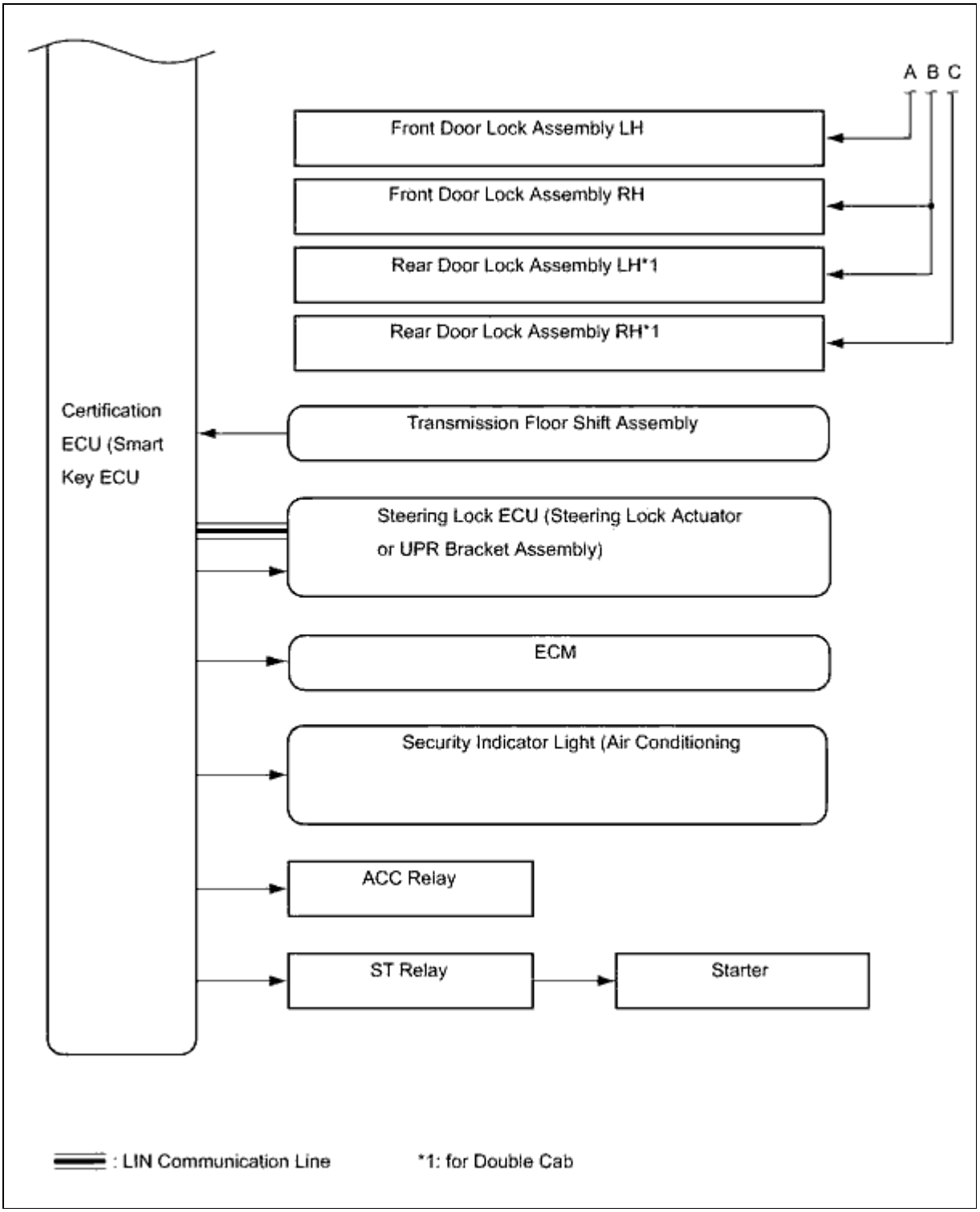
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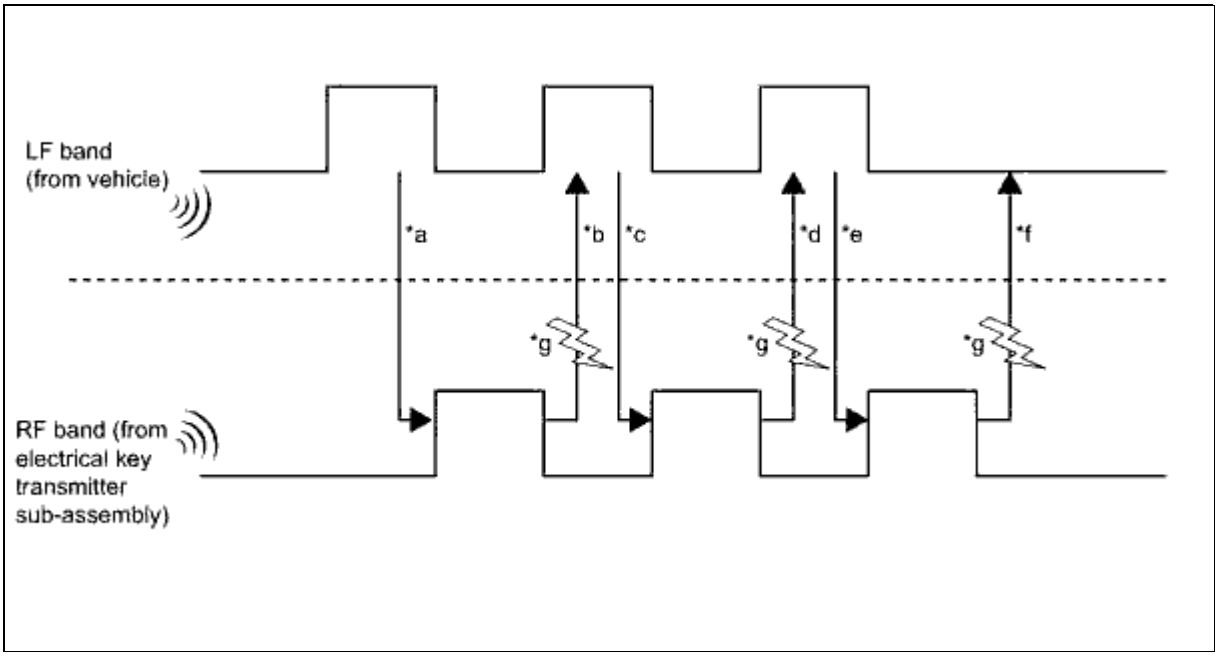


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4. MULTI CHANNEL FUNCTION

(a) The electrical key transmitter sub-assembly and electrical key and TPMS receiver assembly can operate on two different RF channels. When an electrical key transmitter sub-assembly is brought within an exterior detection area, key verification begins. If key verification fails due to wave interference, the channel will be switched and key verification will be performed again.

The multi channel system begins verification using the channel on which the last verification was successfully performed. When verification fails, the system switches to the other channel.



Text in Illustration

*a	Exterior detection areas are created using LF waves (emitted from the vehicle at intervals of 0.25 seconds) to receive a response from the electrical key transmitter sub-assembly.	*b	When the electrical key transmitter sub-assembly is brought into an exterior detection area, it receives LF waves from the vehicle. Using RF waves, the electrical key transmitter sub-assembly responds to the vehicle.
*c	Upon receiving the response from the electrical key transmitter sub-assembly, the certification ECU (smart key ECU assembly) activates the electrical key antennas (outside) one by one. Using LF waves, the certification ECU (smart key ECU assembly) determines which exterior detection area the electrical key transmitter sub-assembly is in.	*d	The electrical key transmitter sub-assembly receives the LF waves from the vehicle and responds using RF waves. (The certification ECU (smart key ECU assembly) recognizes which exterior detection area the electrical key transmitter subassembly is in.)
*e	The certification ECU (smart key ECU assembly) sends registered key ID information to the electrical key transmitter sub-assembly using LF waves. (Up to 7 key IDs can be registered.)	*f	The electrical key transmitter sub-assembly sends the key ID information using RF waves. When the certification ECU (smart key ECU assembly) receives it, verification completes.
*g	Wave interference (Channel switching)	-	-

The multi channel system changes the channels when the RF band (*b, *d and *f) is interrupted by wave interference.

Refer to the table below to confirm when the system changes the channels.

	*B OR *D IS NG		*F IS NG	
Condition	RF waves cannot be received.	RF waves cannot be received properly.	RF waves cannot be received.	RF waves cannot be received properly.
Channel switching	The channels will not be switched.	The channels will be switched.	The channels will not be switched.	The channels will be switched*.

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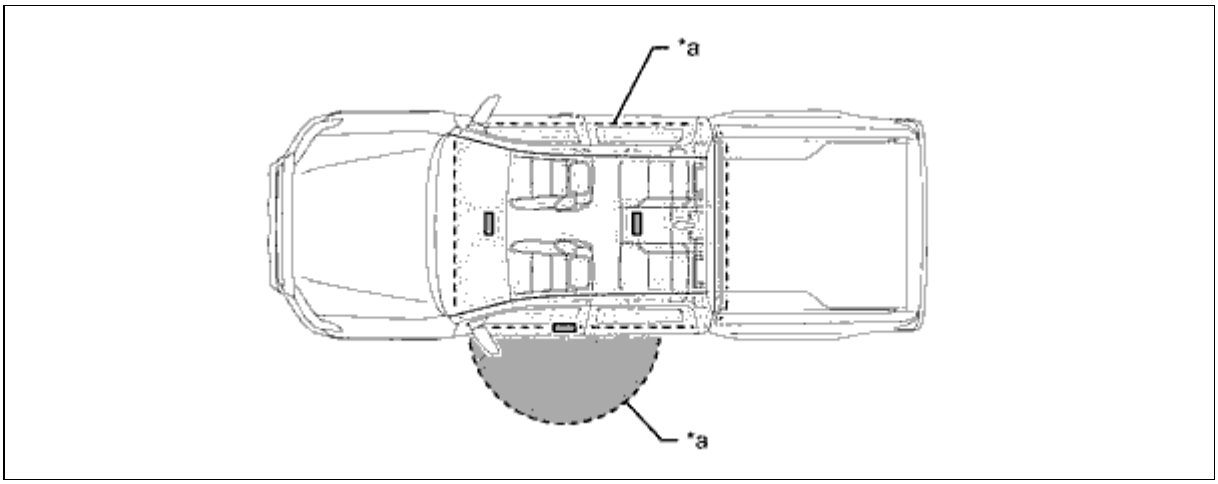
*: The channels are not switched during vehicle interior verification after an entry lock operation is performed.

HINT:

When the channels are switched, the history will be stored in the certification ECU (smart key ECU assembly). This history can be read using the Techstream. INFO .

5. SMART KEY SYSTEM SPECIFICATIONS

(a) Some customers may inquire about the frequency used by the smart key system (for Entry Function) on various models. This repair manual contains the applicable specifications of the smart key system (for Entry Function).



Text in Illustration

*a	Transmitter Detection Area	-	-

Specifications for Smart Key System Antenna LF Output Power

	SPECIFICATION			
	FREQUENCY	OUTPUT POWER/ELECTRIC FIELD INTENSITY	MODULATION METHOD	MOUNTING POINT IN VEHICLE
Inside Passenger Compartment	134.2 kHz	94.4 dBuV/m at 3 m	AM	Inside front floor
Outside Vehicle	134.2 kHz	95 dBuV/m at 3 m	AM	Inside door handle

Specifications for Smart Key System Antenna LF Transmission Timing

	TRANSMISSION TIMING		
	VEHICLE REMAINS PARKED	ENTERING OR EXITING THE VEHICLE	VEHICLE IS BEING DRIVEN
Inside Passenger Compartment	Does not transmit	• Operating door locks • Operating engine switch / depressing brake pedal • Opening or closing doors • With engine switch on (IG) or on	When electrical key transmitter sub-assembly is not detected inside passenger compartment while car is being driven (transmits for 4 seconds)

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	TRANSMISSION TIMING		
	VEHICLE REMAINS PARKED	ENTERING OR EXITING THE VEHICLE	VEHICLE IS BEING DRIVEN
		(ACC), and in P, closing a door when the electrical key transmitter sub-assembly cannot be detected inside the vehicle (continues for 3 seconds until the electrical key transmitter sub-assembly is detected or the engine switch is turned off) • Engine switch is off after driving for more than 20 minutes • (Not in P) when shutting the door, if the electrical key transmitter sub-assembly cannot be detected inside the vehicle (Transmits for 3 seconds until the electrical key transmitter sub-assembly is located)	
Outside Vehicle	(1) When door is locked, transmits at 250 ms intervals (stops when door is unlocked) (2) Does not transmit	(1) Touch the lock sensor (2) Touch the unlock sensor at power saving mode	Does not transmit

6. DIAGNOSIS IN ACCORDANCE WITH USER OPERATION

(a) Operation 1

Operation	Turn the engine switch off and lock all the doors, then take the electrical key transmitter sub-assembly approximately 3 m (9.84 ft.) or more away from the vehicle. **HINT:** The detection area of each electrical key antenna (outside) is formed by emitting a periodic LF band request signal every 0.25 seconds. The detection area formed by each front door outside handle assembly (electrical key antenna) has a detection range of approximately 0.7 m (2.30 ft.).
Waveform or Output Value	Pulse generation (C29-4 (CLG1) - C29-11 (E)*)

*: INFO

(b) Operation 2

Operation	Bring the electrical key transmitter sub-assembly within 0.7 m (2.30 ft.) of the driver door. **HINT:** The system is in unlock standby mode when the electrical key transmitter sub-assembly

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	is in the detection area and the key ID code sent by the electrical key transmitter sub-assembly matches the key ID code stored by the certification ECU (smart key ECU assembly). The door unlocks if the unlock sensor is touched by hand with the system in unlock standby mode. Signal transmission: Certification ECU (smart key ECU assembly) → Front door outside handle assembly LH (electrical key antenna) → Electrical key transmitter sub-assembly → Electrical key and TPMS receiver assembly → Certification ECU (smart key ECU assembly) → Main body ECU (multiplex network body ECU)
Expected operation of the vehicle	The electrical key transmitter sub-assembly LED starts blinking. If it does not, any of the parts listed in the table below may be malfunctioning.
Waveform or Output Value	• Pulse generation (C29-4 (CLG1) - C29-11 (E)*) • Pulse generation (C28-18 (RCO) - C29-11 (E)*) • Pulse generation (C28-22 (RDAM) - C29-11 (E)*) • Pulse generation (C28-19 (CESL) - C29-11 (E)*)

*: INFO

SUSPECTED AREA	DIAGNOSIS
Electrical key transmitter sub-assembly	• The key ID code sent by the electrical key transmitter sub-assembly does not match the key ID code stored in the certification ECU (smart key ECU assembly). Use another electrical key transmitter sub-assembly to check the operation. • If the LED of the electrical key transmitter sub-assembly does not blink when it is brought within 0.7 m (2.30 ft.) of the driver door, perform the following procedure. Press the lock and unlock buttons of the electrical key transmitter sub-assembly to check the operation. If the doors can be locked and unlocked, that means the detection area has not been formed. Parts other than the electrical key transmitter sub-assemblies and electrical key and TPMS receiver assembly may be malfunctioning. • If the electrical key transmitter sub-assembly malfunctions, the engine cannot be started and the engine switch cannot be turned on (ACC or IG). Under normal operation, the "Power ON" is displayed on the multi-information display in the combination meter assembly when the engine switch is pressed with the electrical key transmitter sub-assembly in the driver seat, the shift lever in P and the brake pedal not depressed. If the door cannot be opened, use the mechanical key installed in the electrical key transmitter sub-assembly to open the door. **HINT:** Before replacing the electrical key transmitter sub-assembly, check if the transmitter battery is depleted.
Transmitter battery is depleted	• Press and hold the lock switch of the electrical key transmitter sub-assembly for 5 seconds and check the number of times that the transmitter LED blinks. If the transmitter LED does not blink or blinks only once or twice, the transmitter battery may be depleted. If the transmitter LED does not blink at all, the electrical key transmitter sub-assembly may be malfunctioning. • If the transmitter battery voltage at the time the electrical key transmitter sub-assembly sends a signal drops to 2.2 V or less, "Yes" is displayed for "Key Low

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SUSPECTED AREA	DIAGNOSIS
	Battery" in the Data List. • If the transmitter battery voltage drops to 2.0 V or lower, operation cannot be assured. **HINT:** The output of the electrical key transmitter sub-assembly will decrease if it is in low temperatures. • When the transmitter battery is depleted, the engine cannot be started and the engine switch cannot be turned on (ACC or IG). If the electrical key transmitter sub-assembly is held near the engine switch the engine can be started. • Make sure that the transmitter battery type and installation direction are correct.
Wave Interference	• If the problem occurs in certain locations or times of day, the possibility of wave interference is high. • When the electrical key transmitter sub-assembly is malfunctioning, the transmitter battery is depleted, an electrical key transmitter sub-assembly from another vehicle has been used or wave interference is suspected. "Yes" may be displayed for any of the following Data List items: "Unmatch Code or Form", "No Response", "ID Code Difference" or "Unmatched Vehicle-ID"
Certification ECU (smart key ECU assembly)	-
Front door outside handle assembly LH	Vehicle exterior detection area is not formed properly. • Even if the vehicle exterior detection area is not formed properly, the engine switch can be turned on (ACC) and the engine can be started. • Formation of the vehicle exterior detection area can be confirmed by using the Techstream. INFO . • Even if the vehicle exterior detection area is not formed properly, the doors can be unlocked by pressing the unlock button of the electrical key transmitter sub-assembly.
Electrical Key and TPMS Receiver Assembly	• If the electrical key and TPMS receiver assembly is malfunctioning, it is not possible to unlock the doors by a wireless unlock operation. • If the electrical key and TPMS receiver assembly is malfunctioning, the engine cannot be started and the engine switch cannot be turned on (ACC or IG) unless in an emergency. • Formation of the vehicle exterior detection area can be confirmed by using the Techstream. INFO .
Vehicle Battery is discharged	It may be possible to tell whether the vehicle battery is discharged by operating the horn.
Others	• If the smart key system function has been canceled through the customize function, the detection area cannot be formed, therefore the electrical key transmitter sub-assembly LED will not blink even if the electrical key transmitter sub-assembly is brought near a front door outside handle assembly. • If the electrical key transmitter sub-assembly is in battery saving mode, even if it

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SUSPECTED AREA	DIAGNOSIS
	receives LF waves from the vehicle, it does not respond using RF waves, therefore the electrical key transmitter sub-assembly LED does not blink. • In the smart key system, if the electrical key transmitter sub-assembly is constantly in the exterior detection area of one of the doors, the transmitter battery could be drained. For this reason, if this state continues longer than 10 minutes, the smart key system automatically deactivates the exterior detection area that the electrical key transmitter sub-assembly is in. • If the electrical key transmitter sub-assembly is left in the vehicle and the doors are locked using another electrical key transmitter sub-assembly, the electrical key transmitter sub-assembly LED will not blink even if it is brought near a front door outside handle assembly.

(c) Operation 3

Operation	Touch the unlock sensor of the driver door with the electrical key transmitter sub-assembly in the exterior detection area.
Expected operation of the vehicle	While the doors are unlocked, the answer back is performed at the same time. If they do not, any of the parts listed in the table below may be malfunctioning.
Waveform or Output Value	• Pulse generation (C29-4 (CLG1) - C29-11 (E)*) • Tester connection "main body ECU (multiplex network body ECU), driver side junction block (ACT-)*"

*: INFO

SUSPECTED AREA	DIAGNOSIS
The suspected parts below overlap with the parts covered in operation 2 for when the electrical key transmitter sub-assembly LED does not blink.	-
Front door outside handle assembly LH (unlock sensor)	Under normal operation, "ON" is displayed for the Data List item "D-Door Touch Sensor" when the unlock sensor is touched.
Door lock/unlock mechanism	If a door cannot be locked/unlocked by operating the door control switch on the door in the cabin, the door lock mechanism is malfunctioning.

(d) Operation 4

Operation	After getting into the vehicle while carrying the electrical key transmitter sub-assembly, close the door and press the engine switch once with the shift lever in P while not depressing the brake pedal.
Expected operation of the vehicle	• The blinking security indicator light goes off, and then the set immobiliser function cancels, allowing the vehicle to be driven. • The steering wheel is unlocked. If it does not, the parts listed below may be malfunctioning.

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	HINT: When the engine switch is pressed, the indoor electrical key antenna forms a key detection area inside the vehicle and detects the electrical key transmitter sub-assembly in the cabin. The electrical key transmitter sub-assembly sends the ID code upon receiving a request signal and the electrical key transmitter sub-assembly LED illuminates for a short time. After pressing the engine switch, if the key ID code sent by the electrical key transmitter sub-assembly matches the key ID code stored by the certification ECU (smart key ECU assembly), the ACC relay turns on and the "ACCESSORY" is displayed on multi-information display in combination meter assembly. Then after the power source mode has changed and L code verification has been completed, the steering wheel will be unlocked and the immobiliser will be inactive. Then the Data List status of "Immobiliser" will be changed from "Set" to "Unset". Signal transmission: Certification ECU (smart key ECU assembly) → Indoor electrical key antenna → Electrical key transmitter sub-assembly → Certification ECU (smart key ECU assembly) **HINT:** The interior detection area is formed when any of the following conditions are met: • Within approximately 30 seconds after any of the doors have been closed and opened. • Within approximately 30 seconds after any of the doors have been opened and closed. • The brake pedal is depressed. • Within approximately 30 seconds after the brake pedal has been depressed. • Right after the engine switch is pressed.
Waveform or Output Value	• Pulse generation (C28-22 (RDAM) - C29-11 (E)*) • Pulse generation (C29-21 (CLG5) - C29-11 (E)*) • Pulse generation (C29-9 (ACCD) - C29-11 (E)*)

*: INFO

SUSPECTED AREA	DIAGNOSIS
Certification ECU (smart key ECU assembly)	-
Wave Interference	• If malfunctions occur at a specific location/time, wave interference may be the cause. • If wave interference is suspected in the cabin, disconnect all the connectors of electronic devices besides standard equipment, or remove the electronic devices and check for noise.
Indoor electrical key antenna assemblies that form the interior detection areas.	• If the interior detection areas are not formed properly, the engine cannot be started and the engine switch cannot be turned on (ACC or IG). If the electrical key transmitter sub-assembly is held near the engine switch in an emergency, the engine can be started. • Using the Techstream, enter the key diagnostic mode to forcibly form the interior detection area. If the electrical key transmitter sub-assembly is brought near the area, short beeps sound INFO .
Engine switch	Under normal operation, after the engine switch is pressed, "ON" is displayed for the Data List items "Start Switch1" and "Start Switch2".

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SUSPECTED AREA	DIAGNOSIS
Steering lock ECU (steering lock actuator or UPR bracket assembly)	• If "OK" is displayed for the Data List item "L Code Check" when the engine switch is turned on (ACC), power will be supplied to the steering motor for approximately 10 seconds. Then the ECU sends an unlock signal to the steering motor and the Data List item "Unlock Request Receive" temporarily changes from "NG" to "OK". After the steering unlocks the ECU receives the unlocked signal from the steering motor and the Data List item "Steering Unlock" changes from "Unset" to "Set". • In order to unlock the steering wheel, it is necessary that "OK" is displayed for the Data List item "L Code Check" (the ID code stored in the steering lock ECU (steering lock actuator or UPR bracket assembly) matches that of the certification ECU (smart key ECU assembly)).

HINT:

The electrical key transmitter sub-assembly, the transmitter battery and the vehicle battery have already been inspected in the previous operation steps. However, if they have not been inspected, inspect them.

(e) Operation 5

Operation	Depress the brake pedal with the shift lever in P while carrying an electrical key transmitter sub-assembly.
Expected operation of the vehicle	The smart warning light appear on the multi-information display. If it does not, the parts listed below may be malfunctioning.

SUSPECTED AREA	DIAGNOSIS
Stop light switch assembly	If the brake pedal is depressed, "ON" is displayed for the Data List item "Stop Light Switch1".
Certification ECU (smart key ECU assembly)	Start function-Terminals of ECU INFO .

(f) Operation 6

Operation	After getting into the vehicle while carrying the electrical key transmitter sub-assembly, press the engine switch with the shift lever in P while depressing the brake pedal.
Expected operation of the vehicle	The engine starts. If it does not, the parts listed below may be malfunctioning. **HINT:** If the engine switch is pressed with the steering wheel unlocked, 12 V will be supplied from terminal STAR of the certification ECU (smart key ECU assembly) to the ST relay.

SUSPECTED AREA	DIAGNOSIS
Steering lock system	Under normal operation, the steering wheel will be unlocked and "ON" is displayed for the Data List item "Steering Unlock Switch".
Certification ECU (smart key ECU assembly)	The Data List item "Starter SW" is an instruction to operate the starter. If this turns "ON", 12 V will be supplied from terminal STAR of the certification ECU (smart key ECU assembly) to the ST relay.

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SUSPECTED AREA	DIAGNOSIS
Starter relay	The Data List item "Starter Relay" indicates the voltage at the STA terminal of the certification ECU (smart key ECU assembly). This indicates whether voltage is being supplied to the ST relay.
Starter	-
Vehicle Battery is discharged	Whether the vehicle battery is discharged or not can be checked easily by operating the horn.

(g) Operation 7

Operation	Press the engine switch.
Expected operation of the vehicle	The engine stops, the smart warning light illuminates green and then goes off and the security indicator light changes from off to blinking.

(h) Operation 8

Operation	Open any of the doors with the engine switch off.
Expected operation of the vehicle	The steering wheel locks. If it does not, the parts listed below may be malfunctioning.

SUSPECTED AREA	DIAGNOSIS
Steering lock system	-
Door courtesy light switch assembly	When any of the doors are opened, "OFF" is displayed for the Data List item "FL Door Courtesy".

(i) Operation 9

Operation	Touch the lock sensor of the driver door outside handle while carrying the electrical key transmitter sub-assembly.
Expected operation of the vehicle	Answer back is performed at the same time when the doors are locked.

7. VEHICLE BATTERY SAVING FUNCTION

(a) When the smart key system is operating, the vehicle performs key detection operations every 0.25 seconds. Therefore, if the vehicle is left as is for a long period of time, the vehicle battery may become fully discharged. The following controls help reduce the rate at which the vehicle battery is discharged.

(1) If the smart key system is not operated for 5 days or more, periodic signal transmission from the electrical key antennas stops. However, the doors can still be unlocked by touching the unlock sensor of a front door outside handle assembly LH.

(2) If the smart key system is not operated for 14 days or more, the lock and unlock sensors of the front passenger door outside handle assembly are disabled. Therefore, only the unlock sensor of the front door outside handle assembly LH can be used to unlock the doors.

(3) If 10 minutes or more elapse while the electrical key transmitter sub-assembly is in an exterior detection area, the front door outside handle assembly LH (electrical key antenna) detecting the electrical key transmitter sub-assembly will stop operating.

(b) To restore operation of the smart key system, perform any of the following operations.

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(1) While carrying the electrical key transmitter sub-assembly, touch the lock or unlock sensor of the front door outside handle assembly LH and perform a door lock or unlock operation.

(2) Lock or unlock the doors with the wireless operation.

(3) Insert the mechanical key into the door key cylinder of the driver door and lock or unlock the doors.

8. WIRELESS DOOR LOCK BUZZER VOLUME ADJUSTMENT FUNCTION

(a) The volume of the wireless door lock buzzer can be changed through the customize function.

HINT:

The volume of the following wireless door lock buzzer operations cannot be adjusted.

- Warning function buzzer operations
- Customize function buzzer operations
- Buzzer operations for key diagnostic mode using the Techstream
- Key registration buzzer operations

9. WARNING FUNCTION

(a) Warning

(1) Situation: The engine is left running and the shift lever is in a position other than P when the driver gets out of the vehicle.

There are 2 patterns for this situation.

○ Pattern 1:

When the engine is left running and the shift lever is in a position other than P, the driver opens the door and attempts to get out of the vehicle.

In this situation, the following control is performed:

Reason for warning	Sudden vehicle start, vehicle theft, vehicle roll-away
Warning Start Condition (All conditions are met)	■ The engine switch is on (ACC) or on (IG). ■ The shift lever is in a position other than P. ■ The driver door is opened. ■ The vehicle speed is 0 mph (0 km/h).
Warning description	■ Buzzer in combination meter assembly sounds continuously. ■ "Shift to P Position" is displayed on multi-information display in combination meter assembly.
Warning Stop Condition (One of conditions is met)	■ The engine switch is turned off. ■ The shift lever is in P. ■ The driver door is closed. ■ The vehicle speed is 5 km/h (3.11 mph) or more.

○ Pattern 2:

Under the situation of pattern 1, the driver closes the door and attempts to leave the vehicle while holding the electrical key transmitter sub-assembly.

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In this situation, the following control is performed:

Reason for warning	Sudden vehicle start, vehicle theft, vehicle roll-away
Warning Start Condition (All conditions are met)	■ The engine switch is on (ACC) or on (IG). ■ The shift lever is in a position other than P. ■ The driver door is opened → closed. ■ The electrical key transmitter sub-assembly is not in the vehicle. ■ The vehicle speed is 0 mph (0 km/h).
Warning description	■ Buzzer in combination meter assembly sounds continuously. ■ Wireless buzzer sounds continuously. ■ "Shift to P Position" is displayed on multi-information display in combination meter assembly for 60 seconds.[A] ■ "Key Not Detected" is displayed on multi-information display in combination meter assembly.[B]
Warning Stop Condition (One of conditions is met)	■ The engine switch is turned off ([A] continues to be displayed). ■ Electrical key transmitter sub-assembly is returned to the vehicle ([A] continues to be displayed). ■ The vehicle speed is 5 km/h (3.11 mph) or more. ([B] continues to be displayed). ■ The shift lever is in P ([B] continues to be displayed).

(2) Situation: The key reminder sounds.

When the driver door is open, the driver turns the engine switch on (ACC) and attempts to leave the vehicle.

Reason for warning	Vehicle theft
Warning Start Condition (All conditions are met)	Condition 1 • The shift lever is in P. • The engine switch is on (ACC). • The driver door is opened.
	Condition 2 (Approval for one second or more) • The shift lever is in P. • The engine switch is off. • The steering wheel is unlocked. • The driver door is opened.
Warning description	• Buzzer in combination meter assembly sounds continuously at short and even intervals.

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Warning Stop Condition (One of conditions is met)	The warning is stopped when one of the following conditions is met: • The engine switch is turned on (IG). • The driver door is closed. • The engine switch is turned off and the steering wheel is locked.

(3) Situation: The engine is left running with the shift lever in P when the driver gets out of the vehicle.

There are 2 patterns for this situation.

○ Pattern 1:

When the engine is left running with the shift lever in P, the driver closes the driver door and attempts to leave the vehicle while carrying the electrical key transmitter sub-assembly.

In this situation, the following control is performed:

Reason for warning	Vehicle theft
Warning Start Condition (All conditions are met)	■ The engine switch is on (ACC) or on (IG). ■ The shift lever is in P. ■ The driver door is opened → closed. ■ The electrical key transmitter sub-assembly is not in the vehicle. ■ The vehicle speed is 0 mph (0 km/h).
Warning description	■ Buzzer in combination meter assembly sounds once. ■ Wireless buzzer sounds 3 times. ■ "Key Not Detected" is displayed on multi-information display in combination meter assembly.
Warning Stop Condition (Either condition is met)	■ The engine switch is turned off. ■ The electrical key transmitter sub-assembly is returned to the vehicle.

○ Pattern 2:

Under the situation of pattern 1, the driver touches the lock sensor on the door outside handle assembly.

In this situation, the following control is performed:

Reason for warning	Vehicle theft
Warning Start Condition (All conditions are met)	■ The engine switch is on (ACC) or on (IG). ■ The shift lever is in P. ■ The electrical key transmitter sub-assembly is not in the inside detection areas. ■ The electrical key transmitter sub-assembly is in the

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	outside detection areas. ■ The lock sensor is on. ■ The vehicle speed is 0 mph (0 km/h).
Warning description	■ Buzzer in combination meter assembly sounds once. ■ Wireless buzzer sounds continuously. ■ "Turn Power OFF" is displayed on multi-information display in combination meter assembly for 60 seconds.[A] ■ "Key Not Detected" is displayed on multi-information display in combination meter assembly.[B]
Warning Stop Condition (One of conditions is met)	■ The engine switch is turned off. ■ With the shift lever in P, the shift lever is moved to a position other than P ([B] continues to be displayed).1 ■ The vehicle speed is 5 km/h (3.11 mph) or more. ([B] continues to be displayed). ■ 5 seconds have elapsed after the wireless door lock buzzer is activated (only wireless buzzer stops). ■ Any door is opened or closed (only wireless buzzer stops). ■ Electrical key transmitter sub-assembly is returned to the vehicle ([A] continues to be displayed).

(4) Situation: The engine is left running when a passenger gets out of the vehicle while carrying the electrical key transmitter sub-assembly.

When the engine is left running, a passenger leaves the vehicle while carrying the electrical key transmitter sub-assembly.

In this situation, the following control is performed:

Reason for warning	Engine cannot be restarted
Warning Start Condition (All conditions are met)	• The engine switch is on (ACC) or on (IG). • A door other than the driver door is opened → closed. • The electrical key transmitter sub-assembly is not in the vehicle. • The vehicle speed is 0 mph (0 km/h).
Warning description	• Buzzer in combination meter assembly sounds once. • Wireless buzzer sounds 3 times. • "Key Not Detected" is displayed on multi-information display in combination meter assembly.
Warning Stop Condition (Either condition is met)	• The engine switch is turned off. • The electrical key transmitter sub-assembly is returned to the vehicle.

(5) Situation: The electrical key transmitter sub-assembly is not in the detection areas.

When the electrical key transmitter sub-assembly is not in the vehicle or the transmitter battery is

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depleted, the driver attempts to start the engine or turn the engine switch on (IG).

In this situation, the following control is performed:

Reason for warning	Confuses the user
Warning Start Condition (All conditions are met)	• A door is not unlocked using the mechanical key and the engine switch is pressed. • The electrical key transmitter sub-assembly is not in the vehicle or the transmitter battery is depleted. • The engine immobiliser system is set.
Warning description	• Buzzer in combination meter assembly sounds once. • "Key Not Detected" is displayed on multi-information display in combination meter assembly for 15 seconds.
Warning Stop Condition (Either condition is met)	• The electrical key transmitter sub-assembly is returned to the vehicle. • 30 seconds have elapsed after the door is opened

(6) Situation: The vehicle is driven without an electrical key transmitter sub-assembly.

When the vehicle starts moving without the registered electrical key transmitter sub-assembly in the vehicle.

In this situation, the following control is performed:

Reason for warning	Engine cannot be restarted
Warning Start Condition (All conditions are met)	• The engine switch is on (IG). • Warning of due to electrical key transmitter sub-assembly being brought out of vehicle is output. • The vehicle speed is 5 km/h (3.11 mph) or more. • The electrical key transmitter sub-assembly is not in the vehicle.
Warning description	• Buzzer in combination meter assembly sounds nine times. • "Key Not Detected" is displayed on multi-information display in combination meter assembly.
Warning Stop Condition (Either condition is met)	• The engine switch is turned off. • The electrical key transmitter sub-assembly is returned to the vehicle.

(7) Situation: The electrical key transmitter sub-assembly is left in the vehicle.

The lock sensor on a front door outside handle assembly LH is touched to perform entry lock with the electrical key transmitter sub-assembly left in the vehicle.

In this situation, the following control is performed:

Reason for warning	Vehicle theft

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Warning Start Condition (All conditions are met)	• The engine switch is off. • All doors are closed. • The electrical key transmitter sub-assembly is in the vehicle. • The lock sensor on a front door outside handle assembly LH is on (touched). • Any door is unlocked. • The vehicle speed is 0 km/h (0 mph).
Warning description	• Wireless buzzer sounds continuously for 5 seconds. • "Key Detected in Vehicle" is displayed on multi-information display in combination meter assembly for 60 seconds.
Warning Stop Condition (One of conditions is met)	• The engine switch is turned to a mode other than off. • The vehicle speed is 5 km/h (3.11 mph) or more. • Lock operation is detected. • Any door is opened (only wireless buzzer stops).

(8) Situation: Door is ajar.

The lock sensor on the door outside handle assembly is touched to perform entry lock with a door open.

In this situation, the following control is performed:

Reason for warning	Vehicle theft
Warning Start Condition (All conditions are met)	• The engine switch is off. • The engine switch is on (ACC) or on (IG). • Any door other than the door that performed the entry lock operation is open. • The lock sensor on or lock switch is pressed on electrical key transmitter sub-assembly. • The electrical key transmitter sub-assembly is in the outside detection areas.
Warning description	Wireless buzzer sounds continuously for 5 seconds.
Warning Stop Condition (One of conditions is met)	• The engine switch is turned to a mode other than off. • All doors are closed. • An unlock operation is performed using the wireless door lock remote function. • The touch sensor on the inner side of a door outside handle assembly is used to perform entry unlock.

(9) Situation: The electrical key transmitter sub-assembly is locked inside the vehicle.

With a door open and the electrical key transmitter sub-assembly in the vehicle, the lock knob is locked and then the door is closed with the door handle being pulled.

In this situation, the following control is performed:

Reason for warning	Vehicle theft
Warning Start Condition (All conditions are	• With a door open, the lock knob is locked and then the door is closed with the door handle being pulled.

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met)	• The electrical key transmitter sub-assembly is in the vehicle. • The vehicle speed is 0 km/h (0 mph).
Warning description	• Buzzer in combination meter assembly sounds once. • Wireless buzzer sounds continuously for 5 seconds. • "Key Detected in Vehicle" is displayed on multi-information display in combination meter assembly for 60 seconds.
Warning Stop Condition (Any condition is met)	• The engine switch is turned to a mode other than off. • Any door is opened (only wireless buzzer stops). • Lock operation is detected. • The vehicle speed is 5 km/h (3.11 mph) or more.

(10) Situation: The transmitter battery is weak.

The vehicle is driven using an electrical key transmitter sub-assembly that has a low transmitter battery.

In this situation, the following control is performed:

Reason for warning	Usability function, engine cannot be restarted
Warning Start Condition (All conditions are met)	Condition 1 • The engine switch is turned off after being left on (IG) for more than 20 minutes. • The transmitter battery voltage is low. • The electrical key transmitter sub-assembly is in the vehicle. • The vehicle speed is 0 mph (0 km/h).
	Condition 2 • The engine is off → the engine is started. • The transmitter battery voltage is low. • The electrical key transmitter sub-assembly is in the vehicle. • The vehicle speed is 0 mph (0 km/h). • Condition 1 is met.(past)
Warning description	• Buzzer in combination meter assembly sounds once. • "Key Battery Low" is displayed on multi-information display in combination meter assembly for 15 seconds.
Warning Stop Condition (Either condition is met)	• The vehicle speed is 5 km/h (3.11 mph) or more. • The transmitter battery is replaced with a new one.

(11) Situation: The steering wheel cannot be released.

The steering wheel cannot be released, thus the engine is prevented from starting.

The shift lever is moved to a position other than P before the steering wheel is unlocked.

In this situation, the following control is performed:

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Reason for warning	Usability function
Warning Start Condition	• Steering wheel cannot be unlocked.
Warning description	• Buzzer in combination meter assembly sounds once. • "Steering Lock ON" is displayed on multi-information display in combination meter assembly for 15 seconds.
Warning Stop Condition	• Steering wheel is unlocked.

(12) Situation: The smart key system is malfunctioning. An IG circuit malfunction, vehicle speed signal malfunction or malfunction that interferes with steering lock ECU (steering lock actuator or UPR bracket assembly) operation, has been detected.

In this situation, the following control is performed:

Reason for warning	Malfunction detection
Warning Start Condition (One of conditions is met)	• The steering lock ECU (steering lock actuator or UPR bracket assembly), driver of the certification ECU (smart key ECU assembly) or unlock detection switch is malfunctioning. • An IG relay output circuit malfunction occurs three times or more consecutively. • The vehicle speed is judged as abnormal or vehicle speed signal communication is malfunctioning.
Warning description	• Buzzer in combination meter assembly sounds once. • "Smart Entry & Start System Check" is displayed on multi-information display in combination meter assembly for 15 seconds.
Warning Stop Condition	• The system returns to normal.

(13) Situation: The engine does not start. (Situation A)

When the engine switch is pressed, the electrical key transmitter sub-assembly cannot be detected in the vehicle two times in a row.

In this situation, the following control is performed:

Reason for warning	Usability function
Warning Start Condition (One of conditions is met)	• The engine immobiliser system is set. • The electrical key transmitter sub-assembly is not in the vehicle. • Key code verification error occurs when the engine switch is pressed twice or the driver door key linked unlock operation is performed.
Warning description	• Buzzer in combination meter assembly sounds once. • "Key Battery Low Engine Start: Press Brake Pedal, Push Engine Switch with Key" is displayed on multi-information display in combination meter assembly for 60 seconds.

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(14) Situation: The engine does not start. (Situation B)

There are two patterns for this situation.

○ Pattern 1:

The engine might be started (when the driver gets in the vehicle, or the engine switch is turned on (ACC)).

In this situation, the following control is performed:

Possible effects without warning	Engine cannot be restarted
Warning Start Condition (Either condition is met)	■ After the doors are unlocked from outside the vehicle with the engine switch off, the driver door is opened. ■ With the brake pedal not depressed, the engine switch is turned on (ACC).
Warning description (Not displayed while the opening image is displayed.)	■ "Engine Start: Press Brake Pedal and Push Engine Switch" is displayed on the multi-information display in the combination meter assembly.
Warning Stop Condition (One condition is met)	■ 20 seconds have elapsed after the warning started. ■ The engine speed is at 200 rpm or more. ■ The doors are locked from outside the vehicle. ■ The doors are locked by a wireless door lock operation from inside the vehicle.

○ Pattern 2:

The engine might be started (when the engine switch is on (IG)).

In this situation, the following control is performed:

Possible effects without warning	Engine cannot be restarted
Warning Start Condition (Either condition is met)	■ With the shift lever in P or N and the brake pedal not depressed, the engine switch is turned on (IG) (the engine is not started). ■ The engine switch is on (IG) (the engine is not started) and the shift lever is moved from a position other than P or N to P or N.
Warning description	■ "Engine Start: Press Brake Pedal and Push Engine Switch" is displayed on the multi-information display in the combination meter assembly.

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Warning Stop Condition (One condition is met)	■ The power source mode is changed to any mode other than on (IG). ■ The vehicle speed is 5 km/h (3 mph) or more. ■ The shift lever is moved to a position other than P or N.

(15) Situation: The engine switch cannot be turned off.

There are 2 patterns for this situation.

○ Pattern 1:

A warning message appears on the multi-information display when the driver attempts to turn the engine switch off with the shift lever in any position other than P or N.

In this situation, the following control is performed:

Reason for warning	Discharged vehicle battery, vehicle roll-away
Warning Start Condition	The engine switch is turned off with both conditions below met. ■ Shift lever in any position other than P or N. ■ Even though the engine switch is pressed, the power source mode does not change to off (excluding emergency stop operation).
Warning description	■ Buzzer in combination meter assembly sounds once. ■ "Shift to P Position" is displayed on multi-information display in combination meter assembly.
Warning Stop Condition	■ The engine switch is turned to a mode other than ACC. ■ The shift lever is moved to P.

○ Pattern 2:

Under the situation of pattern 1, the shift lever is moved to P.

In this situation, the following control is performed:

Reason for warning	Discharged vehicle battery, vehicle roll-away
Warning Start Condition	■ The shift lever is moved to P.
Warning description	■ Buzzer in combination meter assembly sounds once. ■ "Turn Power OFF" is displayed on multi-information display in combination meter assembly.
Warning Stop Condition (Either condition	■ The power source mode is changed to mode other than on (ACC).

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is met)	■ The shift lever in any position other than P.

(16) Situation: Auto power off operation occurs.

A warning message appears on the multi-information display when automatic power off operation occurs.

In this situation, the following control is performed:

Reason for warning	Vehicle battery saving function
Warning Start Condition (All conditions are met)	• The shift lever is in P. • The engine switch is on (ACC) or on (IG). • The vehicle speed is 0 km/h (0 mph). • The engine is stopped. • The power source control system is turned off by automatic power off function.
Warning description	• "Powering OFF to Conserve Battery" is displayed on multi-information display in combination meter assembly for 10 seconds.
Warning Stop Condition	• The engine switch is on (ACC) or on (IG).

(17) Situation: Engine immobiliser system certification completion occurs.

When an electrical key transmitter sub-assembly with a depleted transmitter battery is held near to the engine switch while depressing the brake.

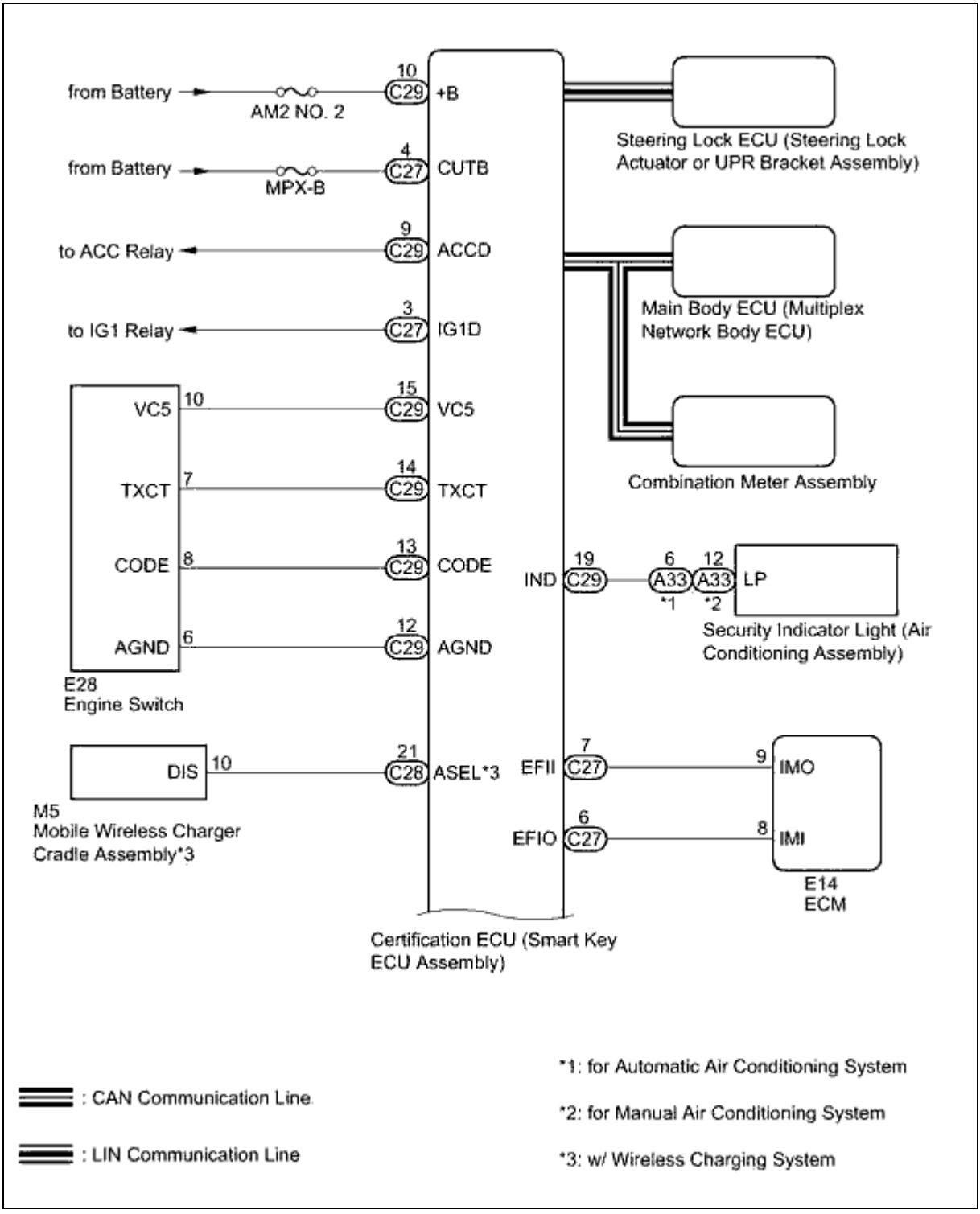
In this situation, the following control is performed:

Reason for warning	Malfunction detection
Warning Start Condition	• Electrical key transmitter sub-assembly certification result is OK.
Warning description	• Buzzer in combination meter assembly sounds once. • "Engine Start: Press Brake Pedal and Push Engine Switch" is displayed on multi-information display in combination meter assembly for 10 seconds.
Warning Stop Condition (One of conditions is met)	• The electrical key transmitter sub-assembly is detected to the vehicle. • The engine is running at 500 rpm or more. • The engine is started. • The engine immobiliser system is set and room recognize is stopped or cannot be recognized.

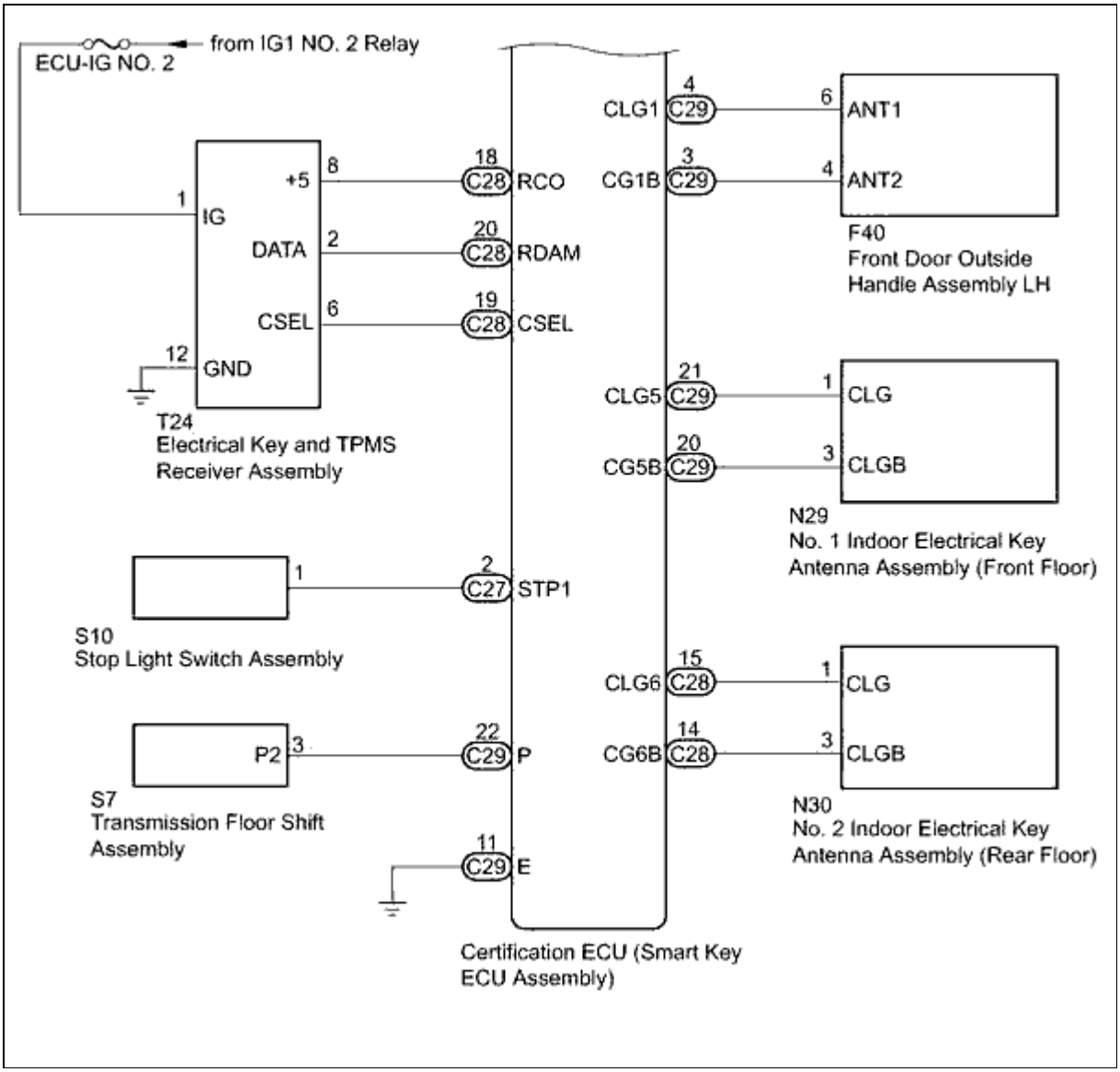
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Last Modified: 11-13-2015	6.6 U	**Doc ID:** RM000005UV2000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): SYSTEM DIAGRAM; 2016 MY Tacoma [08/2015 -]		

SYSTEM DIAGRAM

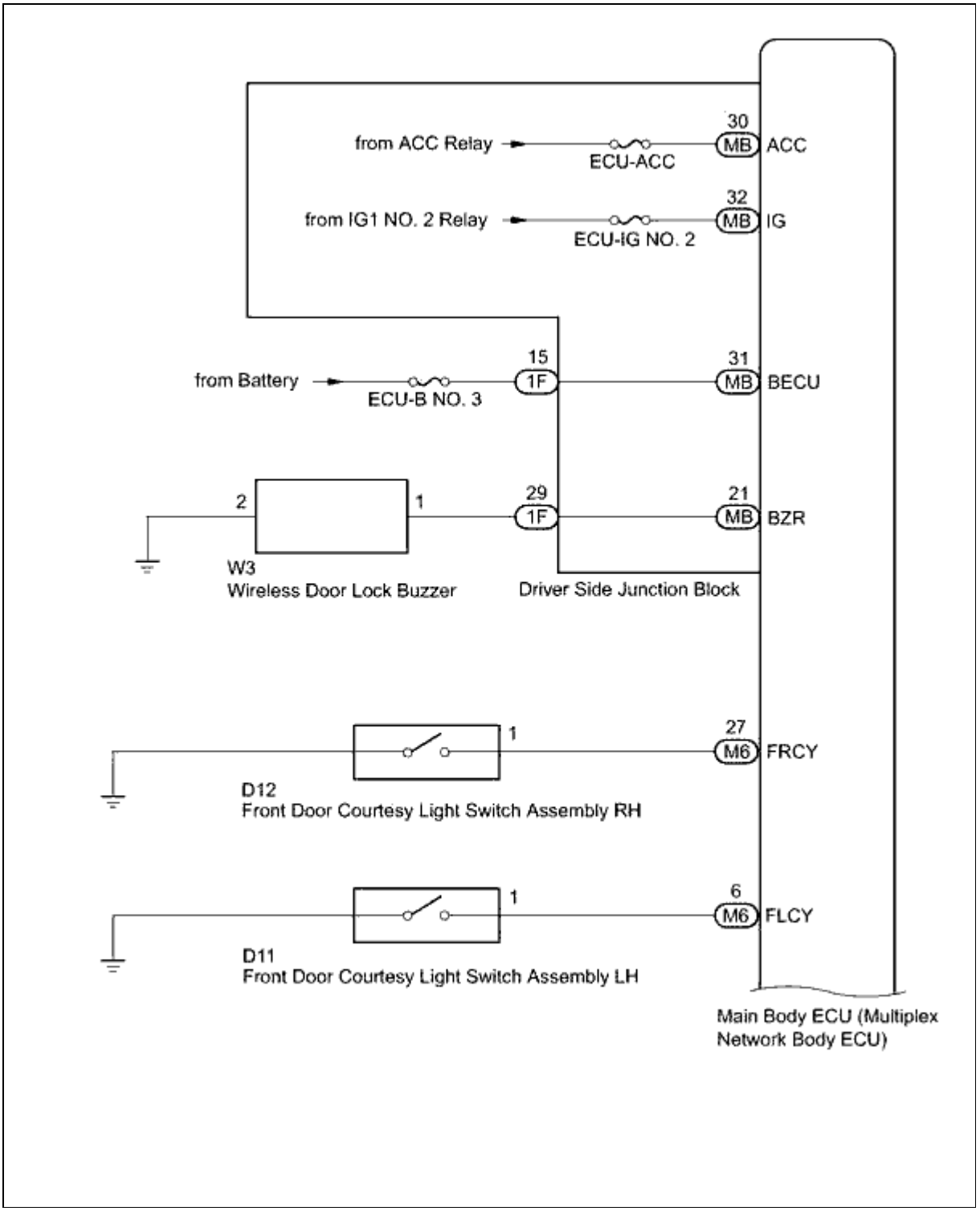


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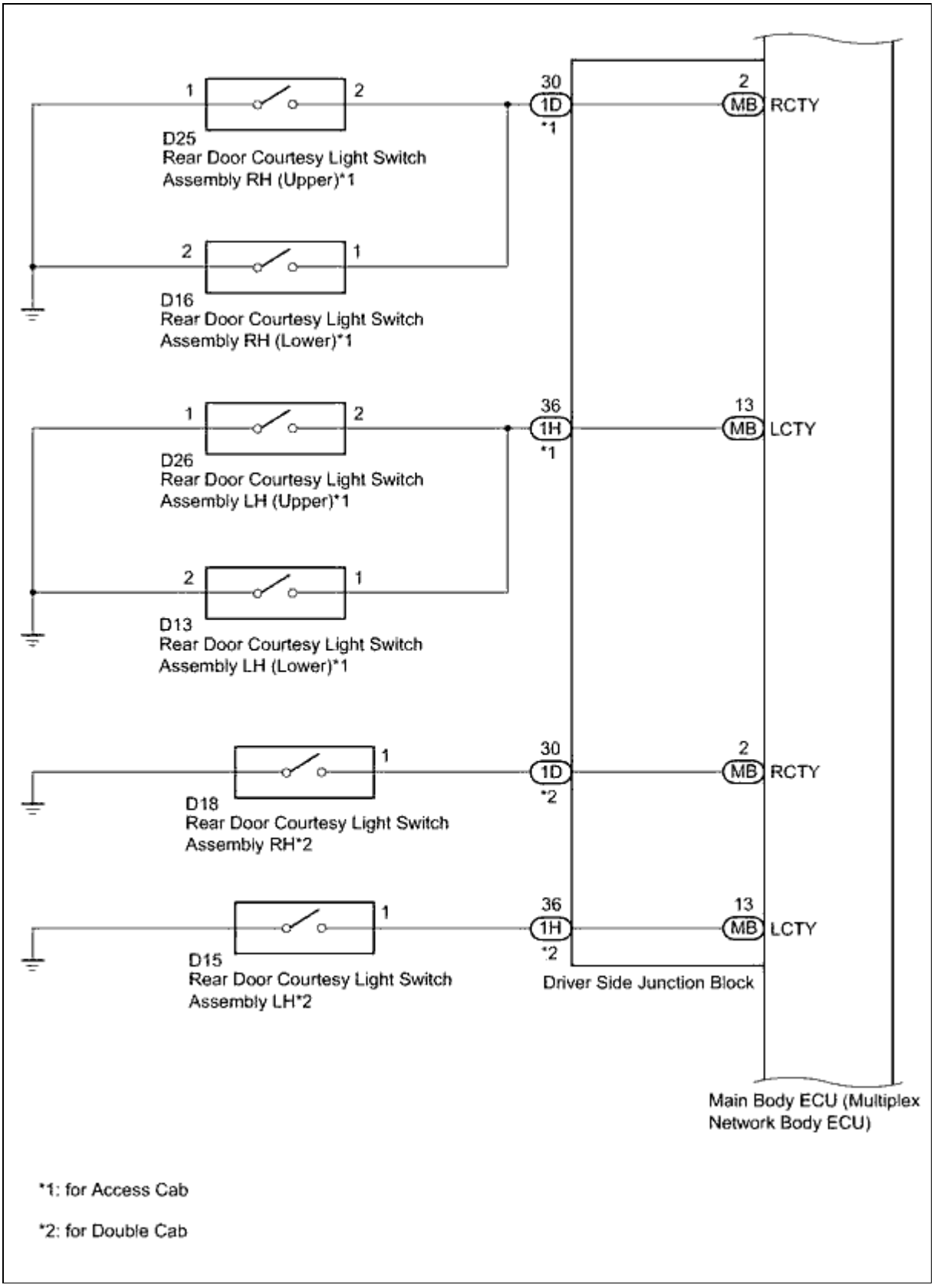


This is a detailed diagram related to the main body ECU (multiplex network body ECU).

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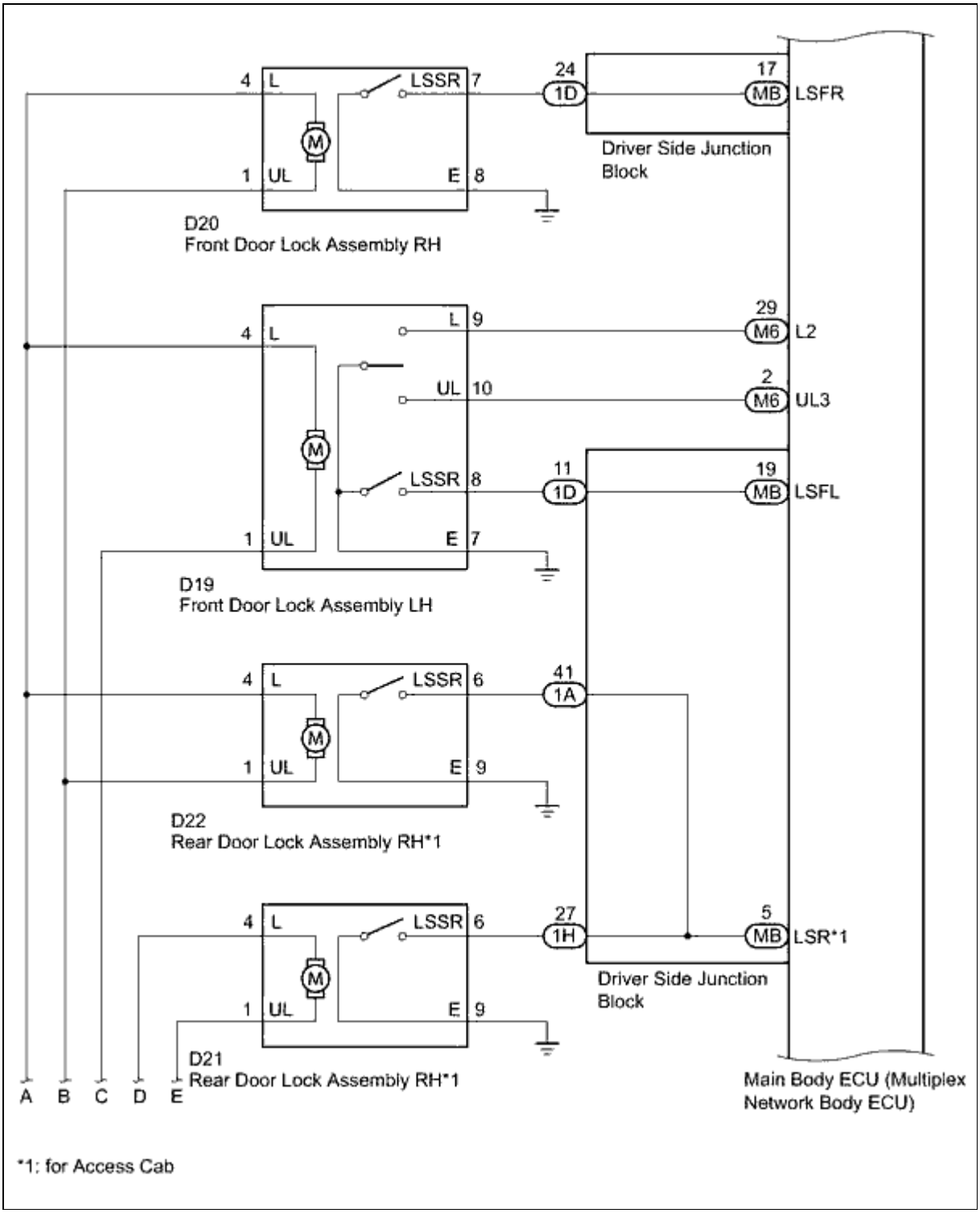
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*1: for Access Cab

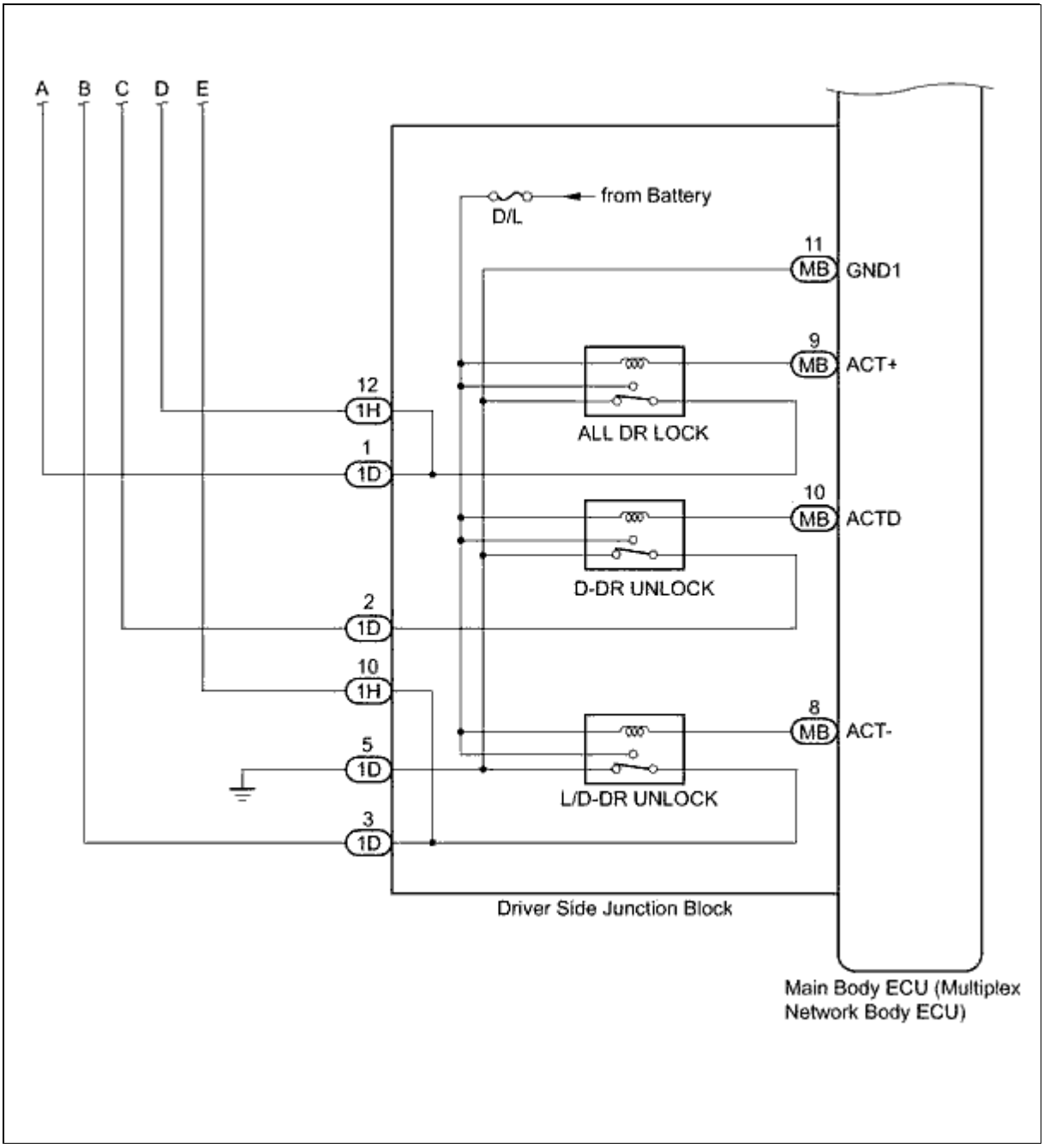
*2: for Double Cab

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*1: for Access Cab

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COMPONENT	FUNCTION
Front door outside handle assembly LH	Receives request signals from the certification ECU (smart key ECU assembly) via the built-in electrical key antenna (front door) and forms the vehicle exterior detection area. Uses the built-in touch sensor (lock sensor/unlock sensor) to detect the operation of the front door outside handle assembly and sends signals to the certification ECU (smart key ECU assembly).
No. 1 indoor electrical key antenna assembly (front floor) No. 2 indoor electrical key antenna assembly (rear floor)	Receives the request code from the certification ECU (smart key ECU assembly) and forms the vehicle interior detection area.

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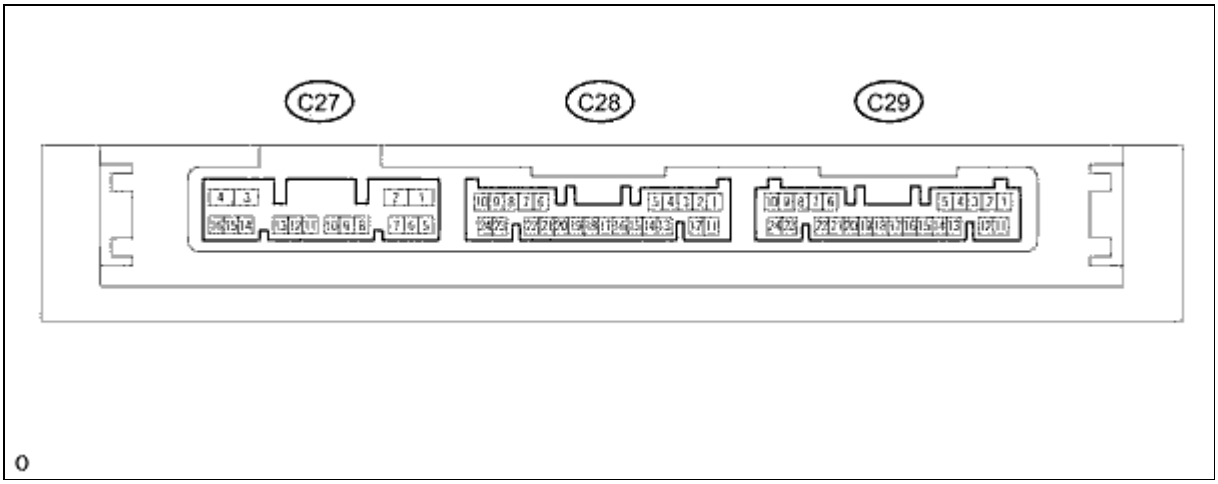
COMPONENT	FUNCTION
Electrical key and TPMS receiver assembly	Receives the smart key system code/wireless code sent from the electrical key transmitter sub-assembly and sends it to the certification ECU (smart key ECU assembly).
Wireless door lock buzzer	Sounds when warning functions operate in accordance with certification ECU (smart key ECU assembly) control.
Electrical key transmitter sub-assembly	Sends the ID code upon receiving a request signal.
Certification ECU (smart key ECU assembly)	Sends request codes to each electrical key antenna. Distinguishes and verifies the ID code from the electrical key transmitter sub-assembly and sends signals to each ECU in response to operated functions (controls entire system). Performs encryption code communication with the steering lock ECU (steering lock actuator or UPR bracket assembly) when ignition operations are performed.

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Last Modified: 11-13-2015	6.6 U	**Doc ID:** RM000005UV5000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: SMART KEY SYSTEM (for Entry Function): TERMINALS OF ECU; 2016 MY Tacoma [08/2015 -]		

TERMINALS OF ECU

1. CHECK CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)



(a) Disconnect the C27 and C29 certification ECU (smart key ECU assembly) connectors.

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

HINT:

Measure the values on the wire harness side with the connector disconnected.

TESTER CONNECTION	INPUT/ OUTPUT	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION	RELATED DATA LIST ITEM
C29-11 (E) - Body ground	-	W-B - Body ground	Ground	Always	Below 1 Ω	-
C29-10 (+B) - C29- 11 (E)	Input	P - W-B	+B power supply	Always	11 to 14 V	-
C27-4 (CUTB) - C29-11 (E)	Input	GR - W-B	Dark current cut pin*	Always	11 to 14 V	-

*: In order to prevent the vehicle battery from being depleted when the vehicle is shipped long distances, a fuse that cuts unnecessary electrical load while the vehicle is being shipped is set in the circuit. If the fuse is removed, the circuit becomes open. If the fuse that is between the vehicle battery and terminal CUTB is removed and the circuit is open, the certification ECU (smart key ECU assembly) changes to a certain control mode (example: the transmission of electric waves every 0.25 seconds. that form the detection area stops).

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

(c) Reconnect the C27 and C29 certification ECU (smart key ECU assembly) connectors.

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

TESTER	INPUT/	WIRING	TERMINAL	CONDITION	SPECIFIED	RELATED

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CONNECTION	OUTPUT	COLOR	DESCRIPTION		CONDITION	DATA LIST ITEM
C27-3 (IG1D) - C29-11 (E)	Input	B - W-B	IG power supply	Engine switch off → on (IG)	Below 1 V → 11 to 14 V	Engine Switch
C29-4 (CLG1) - C29-11 (E)	Output	G - W-B	Output to driver door electrical key antenna (request signal (challenge) is sent to door electrical key antenna from certification ECU (smart key ECU assembly) to form detection area)	Procedure: 1. Engine switch off 2. All doors closed 3. Electrical key transmitter sub-assembly not inside vehicle 4. All doors locked through wireless operation (electrical key transmitter sub-assembly brought inside detection area*2)	Pulse generation (See waveform 1)	Overhead + Driver Side (key diagnostic mode)
				Procedure: 1. Engine switch off 2. All doors closed 3. Electrical key transmitter sub-assembly not inside vehicle 4. All doors locked through wireless operation (electrical key transmitter sub-assembly brought outside detection area*2)	Pulse generation (See waveform 2)	
C29-4 (CLG1) - C29-11 (E)	Input	G - W-B	Input to driver door lock sensor (front door outside handle assembly LH lock sensor on signal is sent to the certification ECU	Procedure: 1. Engine switch off 2. Electrical key transmitter sub-assembly brought outside	Pulse generation (See waveform 6)	D-Door Trigger Switch

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			(smart key ECU assembly))	vehicle 3. All doors closed 4. All doors locked through wireless operation (electrical key transmitter sub-assembly brought outside detection area*2) 5. Driver door lock sensor touched		
C29-4 (CLG1) - C29-11 (E)	Input	G - W-B	Input to driver door unlock sensor (when system is in unlock standby mode and unlock sensor is touched, door electrical key antenna sends unlock sensor input signal (sensing) to certification ECU (smart key ECU assembly))	Procedure: 1. Engine switch off 2. Electrical key transmitter sub-assembly brought outside vehicle 3. All doors locked 4. Electrical key transmitter sub-assembly not near the vehicle 5. Driver door unlock sensor touched	Pulse generation (See waveform 7)	D-Door Touch Sensor
C29-3 (CG1B) - C29-11 (E)	Output	SB - W-B	Output to driver door electrical key antenna (terminal on opposite side of component from CLG1 output terminal)	Procedure: 1. Engine switch off 2. All doors closed 3. Electrical key transmitter sub-assembly not inside vehicle 4. All doors locked through wireless operation (electrical key transmitter sub-assembly brought inside detection	Pulse generation (See waveform 1)	Overhead + Driver Side (key diagnostic mode)

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				area*2)		
				Procedure: 1. Engine switch off 2. All doors closed 3. Electrical key transmitter sub-assembly not inside vehicle 4. All doors locked through wireless operation (electrical key transmitter sub-assembly brought outside detection area*2)	Pulse generation (See waveform 2)	
C29-21 (CLG5) - C29-11 (E)	Output	LG - W-B	Output to No. 1 indoor electrical key antenna assembly (front floor)	Procedure: 1. Engine switch off 2. Electrical key transmitter sub-assembly not inside vehicle 3. Within 30 seconds of closing any door using the door outside handle	Pulse generation (See waveform 3)	Overhead + Front Room (key diagnostic mode)
C29-20 (CG5B) - C29-11 (E)	Output	P - W-B	Output to No. 1 indoor electrical key antenna assembly (front floor) (terminal on opposite side of component from CLG5 output terminal)	Procedure: 1. Engine switch off 2. Electrical key transmitter sub-assembly not inside vehicle 3. Within 30 seconds of closing any door using the door outside handle	Pulse generation (See waveform 3)	Overhead + Front Room (key diagnostic mode)

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C28-15 (CLG6) - C29-11 (E)	Output	BE - W-B	Output to No. 2 indoor electrical key antenna assembly (rear floor)	Procedure: 1. Engine switch off 2. Electrical key transmitter sub-assembly not inside vehicle 3. Within 30 seconds of closing any door using the door outside handle	Pulse generation (See waveform 3)	Overhead + Rear Room (key diagnostic mode)
C28-14 (CG6B) - C29-11 (E)	Output	GR - W-B	Output to No. 2 indoor electrical key antenna assembly (rear floor) (terminal on opposite side of component from CLG6 output terminal)	Proceed: 1. Engine switch off 2. Electrical key transmitter sub-assembly not inside vehicle 3. Within 30 seconds of closing any door using the door outside handle	Pulse generation (See waveform 3)	Overhead + Rear Room (key diagnostic mode)
C28-18 (RCO) - C29- 11 (E)	Output	L - W-B	Output to door control and tire pressure monitoring system receiver assembly (Power supply for electrical key and TPMS receiver assembly. Certification ECU (smart key ECU assembly) outputs 5 V when receiver starts operating.)	Procedure: 1. Engine switch off 2. Electrical key transmitter sub-assembly brought outside detection area but kept inside wireless function operational area 3. Lock or unlock switch of electrical key transmitter sub-assembly not pressed → pressed	Pulse generation (See waveform 4)	-

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C28-21 (ASEL) - C29-11 (E)*1	Output	Y - W-B	Wireless charging system stop signal output	Proceed: 1. Engine switch off 2. Electrical key transmitter sub-assembly inside vehicle 3. Turn the engine switch on (ACC)	Below 1 V → 4.5 to 6 V (within 1 second of engine switch turned on (ACC))	-
C28-19 (CSEL) - C29-11 (E)	Output	SB - W-B	Communication channel switching circuit	Proceed: 1. Engine switch off 2. All doors closed	Below 1 V → pulse generation	-
C28-20(RDAM) - C29-11 (E)	Input	G - W-B	Electrical key and TPMS receiver assembly verifies data received from electrical key transmitter sub-assembly. Electrical key and TPMS receiver assembly sends data from electrical key transmitter sub-assembly to certification ECU (smart key ECU assembly) (Door control and tire pressure monitoring system receiver assembly intermittently grounds 12 V signal from certification ECU (smart key ECU assembly)).	Proceed: 1. Engine switch off 2. All doors locked 3. Electrical key transmitter sub-assembly not inside vehicle 4. Electrical key transmitter sub-assembly brought outside detection area but kept inside wireless function operational area 5. Lock or unlock switch of electrical key transmitter sub-assembly not pressed → pressed	Pulse generation (See waveform 5)	-

*1: w/ Wireless Charging System

*2: For details about the entry function detection area, refer to Operation Check INFO .

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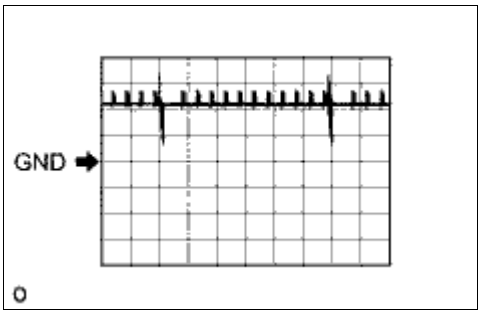
(e) Using an oscilloscope, check waveform 1.

NOTICE:

The oscilloscope waveform shown in the illustration is an example for reference only. Noise, chattering, etc. are not shown.

Waveform 1 (Reference)

ITEM	CONTENT
Tester Connection	C29-4 (CLG1) - C29-11 (E) C28-3 (CG1B) - C29-11 (E)
Tool Setting	5 V/DIV., 500 ms./DIV.
Condition	Procedure: 1. Engine switch off 2. All doors closed 3. Electrical key transmitter sub-assembly not inside vehicle 4. All doors locked through wireless operation (electrical key transmitter sub-assembly brought inside detection area*)



*: For details about the entry function detection area, refer to Operation Check INFO .

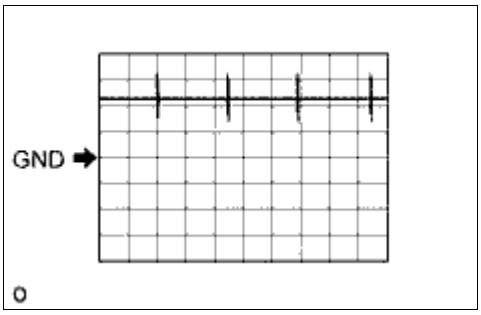
(f) Using an oscilloscope, check waveform 2.

NOTICE:

The oscilloscope waveform shown in the illustration is an example for reference only. Noise, chattering, etc. are not shown.

Waveform 2 (Reference)

ITEM	CONTENT
Tester Connection	C29-4 (CLG1) - C29-11 (E) C29-3 (CG1B) - C29-11 (E)
Tool Setting	5 V/DIV., 500 ms./DIV.
Condition	Procedure: 1. Engine switch off 2. All doors closed 3. Electrical key transmitter sub-assembly not inside vehicle 4. All doors locked through wireless operation (electrical key transmitter sub-assembly brought outside detection area*)



*: For details about the entry function detection area, refer

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to Operation Check INFO .

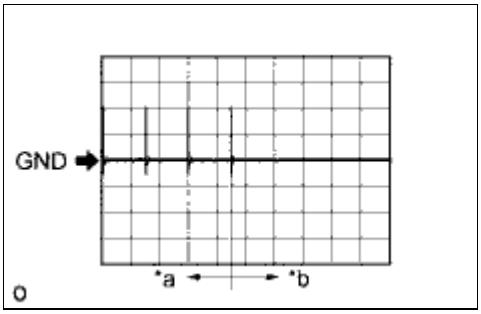
(g) Using an oscilloscope, check waveform 3.

NOTICE:

The oscilloscope waveform shown in the illustration is an example for reference only. Noise, chattering, etc. are not shown.

Waveform 3 (Reference)

ITEM	CONTENT
Tester Connection	C29-21 (CLG5) - C29-11 (E) C29-20 (CG5B) - C29-11 (E)
Tool Setting	2 V/DIV., 500 ms./DIV.
Condition	Procedure: 1. Engine switch off 2. Electrical key transmitter sub-assembly not inside vehicle 3. Within 30 seconds of closing any door using the door outside handle



Text in Illustration

*a	For 30 seconds after closing any door using the door outside handle
*b	30 seconds or more have elapsed after closing any door using the door outside handle

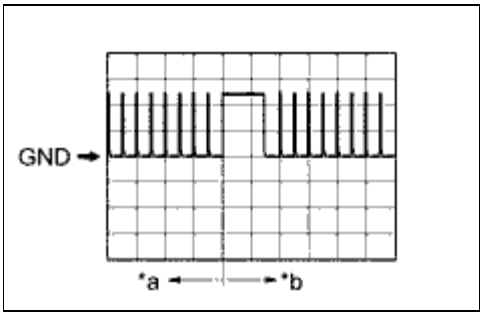
(h) Using an oscilloscope, check waveform 4.

NOTICE:

The oscilloscope waveform shown in the illustration is an example for reference only. Noise, chattering, etc. are not shown.

Waveform 4 (Reference)

ITEM	CONTENT
Tester Connection	C28-18 (RCO) - C29-11 (E)
Tool Setting	2 V/DIV., 500 ms./DIV.
Condition	Procedure: 1. Engine switch off 2. Electrical key transmitter sub-assembly brought outside detection area but kept inside wireless function operational area



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ITEM	CONTENT
	3. Lock or unlock switch of electrical key transmitter sub-assembly not pressed → pressed

Text in Illustration

*a	Before lock or unlock switch of electrical key transmitter sub-assembly pressed
*b	After lock or unlock switch of electrical key transmitter sub-assembly pressed

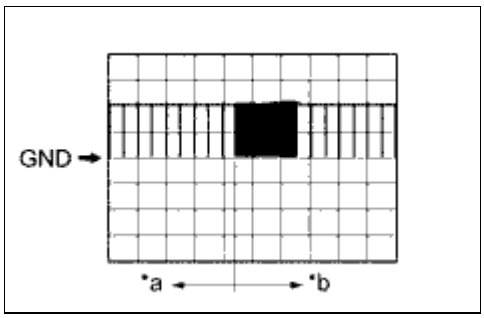
(i) Using an oscilloscope, check waveform 5.

NOTICE:

The oscilloscope waveform shown in the illustration is an example for reference only. Noise, chattering, etc. are not shown.

Waveform 5 (Reference)

ITEM	CONTENT
Tester Connection	C28-20 (RDAM) - C29-11 (E)
Tool Setting	5 V/DIV., 500 ms./DIV.
Condition	Proceed: 1. Engine switch off 2. All doors locked 3. Electrical key transmitter sub-assembly not inside vehicle 4. Electrical key transmitter sub-assembly brought outside detection area but kept inside wireless function operational area 5. Lock or unlock switch of electrical key transmitter sub-assembly not pressed → pressed



Text in Illustration

*a	Before lock or unlock switch of electrical key transmitter sub-assembly pressed
*b	After lock or unlock switch of electrical key transmitter sub-assembly pressed

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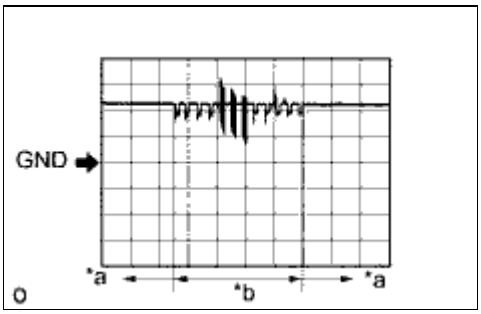
(j) Using an oscilloscope, check waveform 6.

NOTICE:

The oscilloscope waveform shown in the illustration is an example for reference only. Noise, chattering, etc. are not shown.

Waveform 6 (Reference)

ITEM	CONTENT
Tester Connection	C29-4 (CLG1) - C29-11 (E)
Tool Setting	5 V/DIV., 40 ms./DIV.
Condition	Proceed: 1. Engine switch off 2. Electrical key transmitter sub-assembly brought outside vehicle 3. All doors closed 4. All doors locked through wireless operation (electrical key transmitter sub-assembly brought outside detection area*) 5. Lock sensor not touched → touched



*1: For details about the entry function detection area, refer to Operation Check INFO .

Text in Illustration

*a	Lock sensor not touched
*b	Lock sensor touched

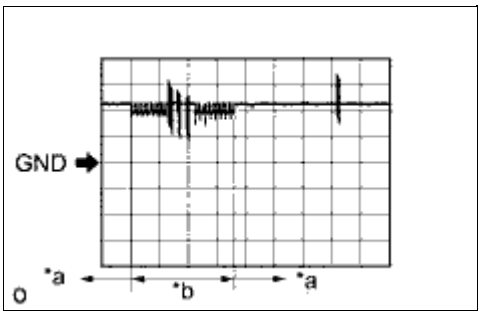
(k) Using an oscilloscope, check waveform 7.

NOTICE:

The oscilloscope waveform shown in the illustration is an example for reference only. Noise, chattering, etc. are not shown.

Waveform 7 (Reference)

ITEM	CONTENT
Tester Connection	C29-4 (CLG1) - C29-11 (E)
Tool Setting	5 V/DIV., 40 ms./DIV.
Condition	Proceed: 1. Engine switch off 2. Electrical key transmitter sub-assembly brought outside vehicle



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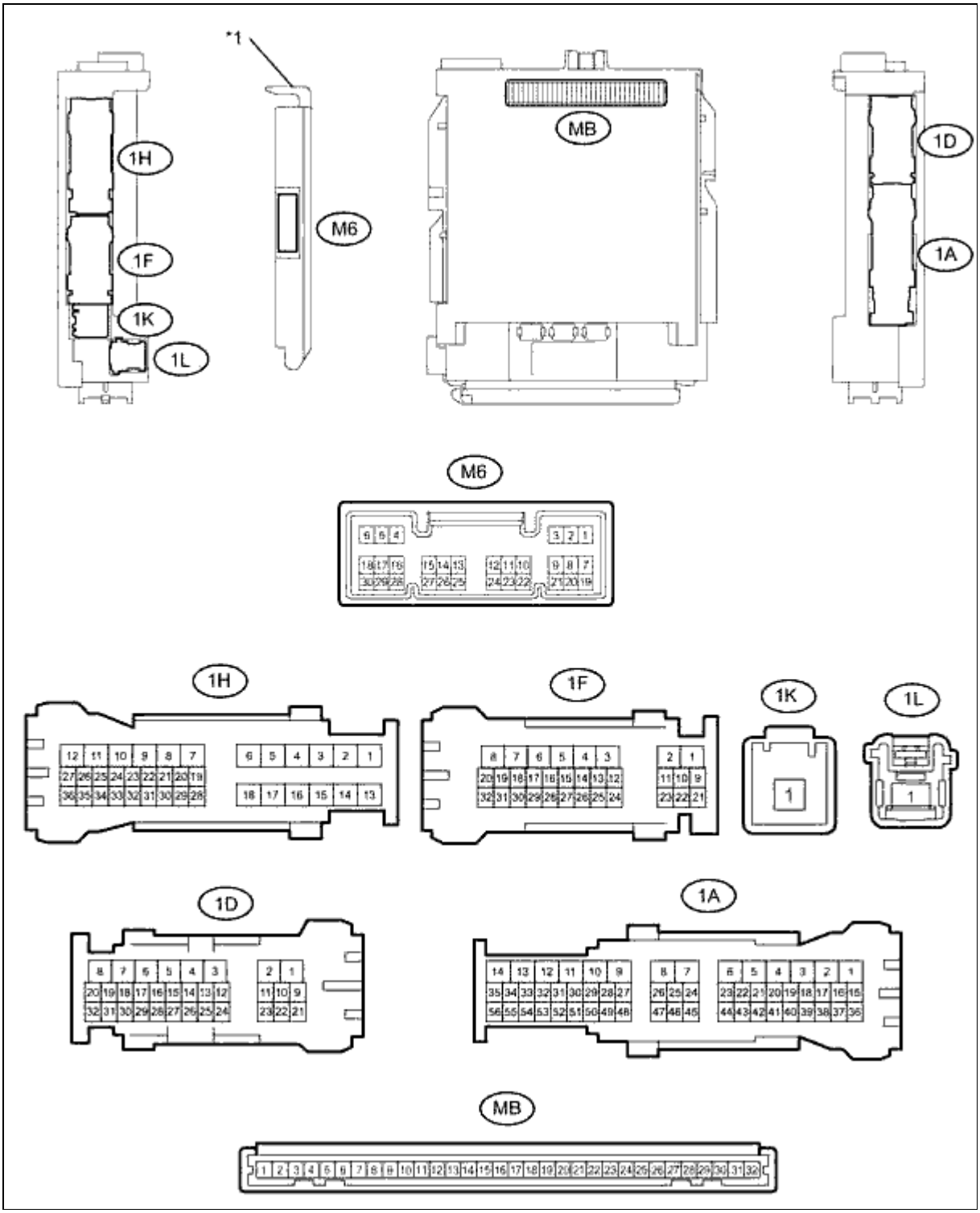
ITEM	CONTENT
	3. All doors locked 4. Electrical key transmitter sub-assembly not near the vehicle 5. Unlock sensor not touched → touched

Text in Illustration

*a	Unlock sensor not touched
*b	Unlock sensor touched

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

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Text in Illustration

*1	Main Body ECU (Multiplex Network Body ECU)	-	-

(a) Remove the main body ECU (multiplex network body ECU) from the driver side junction block INFO .

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

HINT:

Measure the values on the wire harness side with the connector disconnected.

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TESTER CONNECTION	INPUT/ OUTPUT	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION	RELATED DATA LIST ITEM
MB-11 (GND1) - Body ground	-	-	Ground	Always	Below 1 Ω	-
MB-31 (BECU) - Body ground	Input	-	Battery power supply (for CPU)	Always	11 to 14 V	-
MB-30 (ACC) - Body ground	Input	-	ACC power supply	Engine switch on (ACC)	11 to 14 V	ACC SW
MB-32 (IG) - Body ground	Input	-	IG power supply	Engine switch on (IG)	11 to 14 V	IG SW

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

(c) Install the main body ECU (multiplex network body ECU) to the driver side junction block INFO .

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

TESTER CONNECTION	INPUT/ OUTPUT	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION	RELATED DATA LIST ITEM
M6-6 (FLCY) - Body ground	Input	Y - Body ground	Front door courtesy light switch LH input	Front door LH open	Below 1 V	FL Door Courtesy
				Front door LH closed	Pulse generation (See waveform 2)	
M6-27 (FRCY) - Body ground	Input	LG - Body ground	Front door courtesy light switch RH input	Front door RH open	Below 1 V	FR Door Courtesy
				Front door RH closed	Pulse generation (See waveform 2)	
1H-36 (LCTY) - Body ground	Input	P - Body ground	Rear door courtesy light switch LH input*1 Upper access panel lock assembly LH input*2 Lower access panel lock assembly LH input*2	Rear door LH open	Below 1 V	RL Door Courtesy SW
				Rear door LH closed	Pulse generation (See waveform 2)	
1D-30 (RCTY) - Body ground	Input	V - Body ground	Rear door courtesy light switch RH input*1 Upper access panel lock assembly RH input*2 Lower access panel lock assembly RH	Rear door RH open	Below 1 V	RR Door Courtesy SW
				Rear door RH closed	Pulse generation (See waveform 2)	

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TESTER CONNECTION	INPUT/ OUTPUT	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION	RELATED DATA LIST ITEM
			input*2			
M6-29 (L2) - Body ground	Input	SB - Body ground	Driver door key-linked lock input	Driver door key cylinder turned to neutral position → on (lock)	Pulse generation → Below 1 V (See waveform 1)	Door key SW-Lock
M6-2 (UL3) - Body ground	Input	G - Body ground	Driver door key-linked unlock input	Driver door key cylinder turned to neutral position → on (unlock)	Pulse generation → Below 1 V (See waveform 1)	D Door key SW-UL
1D-1 (ACT+) - Body ground	Output	R - Body ground	Door lock motor unlock drive output (except driver door)	Door control switch or driver door key cylinder off	Below 1 V	-
				Door control switch or driver door key cylinder unlocked	11 to 14 V	
1H-12 (ACT+) - Body ground	Output	LA-R - Body ground	Door lock motor unlock drive output (except driver door)	Door control switch or driver door key cylinder off	Below 1 V	-
				Door control switch or driver door key cylinder unlocked	11 to 14 V	
1D-2 (ACTD) - Body ground	Output	B - Body ground	Driver door lock motor unlock drive output	Door control switch or driver door key cylinder off	Below 1 V	-
				Door control switch or driver door key cylinder unlocked	11 to 14 V	
1H-10 (ACT-) - Body ground	Output	LA-G - Body ground	Door lock motor lock drive output (all doors)	Door control switch or driver door key cylinder off	Below 1 V	-
				Door control switch or driver door key cylinder locked	11 to 14 V	
1D-3 (ACT-) - Body ground	Output	G - Body ground	Door lock motor lock drive output (all doors)	Door control switch or driver door key cylinder off	Below 1 V	-
				Door control switch or driver door key cylinder locked	11 to 14 V	
1D-11 (LSFL) - Body ground	Input	P - Body ground	Front door LH unlock detection switch	Front door LH unlocked	Below 1 V	FL Door Lock Pos

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TESTER CONNECTION	INPUT/ OUTPUT	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION	RELATED DATA LIST ITEM
			input	Engine switch off, all doors closed and front door LH locked	Pulse generation (See waveform 1)	
1D-24 (LSFR) - Body ground	Input	GR - Body ground	Front door RH unlock detection switch input	Front door RH unlocked	Below 1 V	FR Door Lock Pos
				Engine switch off, all doors closed and front door RH locked	Pulse generation (See waveform 1)	
1A-41 (LSR) - Body ground*1	Input	Y - Body ground	Rear door RH unlock detection switch input	Rear door RH or LH unlocked	Below 1 V	RL-Door Lock Pos SW
				Engine switch off, all doors closed and rear door RH and LH locked	Pulse generation (See waveform 1)	
1H-27 (LSR) - Body ground*1	Input	L - Body ground	Rear door LH unlock detection switch input	Rear door LH or RH unlocked	Below 1 V	RR-Door Lock Pos SW
				Engine switch off, all doors closed and rear door LH and RH locked	Pulse generation (See waveform 1)	
1F-29 (BZR) - Body ground	Output	Y - Body ground	Wireless door lock buzzer signal	Wireless door lock buzzer off	Below 1 V	
				Wireless door lock buzzer on	Pulse generation	

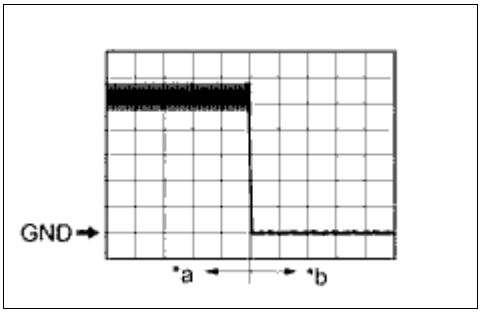
*1: for Double Cab
*2: for Access Cab

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

(e) Using an oscilloscope, check waveform 1.

NOTICE:

The oscilloscope waveform shown in the illustration is an example for reference only. Noise, chattering, etc. are not shown.



Waveform 1 (Reference)

ITEM	CONTENT
Tester Connection	1D-11 (LSFL) - Body ground 1D-24 (LSFR) - Body ground 1A-41 (LSR) - Body ground

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ITEM	CONTENT
	1H-27 (LSR) - Body ground M6-29 (L2) - Body ground M6-2 (UL3) - Body ground
Tool Setting	2 V/DIV., 200 ms./DIV.
Condition	Door locked → unlocked

Text in Illustration

*a	Door locked
*b	Door unlocked

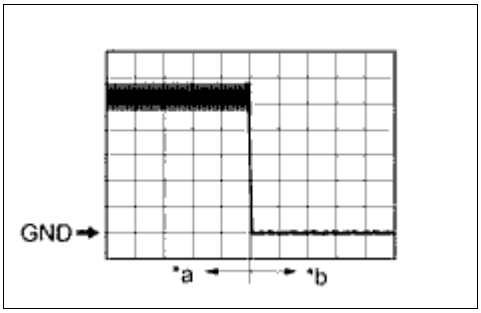
(f) Using an oscilloscope, check waveform 2.

NOTICE:

The oscilloscope waveform shown in the illustration is an example for reference only. Noise, chattering, etc. are not shown.

Waveform 2 (Reference)

ITEM	CONTENT
Tester Connection	M6-6 (FLCY) - Body ground M6-27 (FRCY) - Body ground 1H-36 (LCTY) - Body ground 1D-30 (RCTY) - Body ground
Tool Setting	2 V/DIV., 200 ms./DIV.
Condition	Door closed → opened



Text in Illustration

*a	Door closed
*b	Door open

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM0000039HF05GX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: TRANSMITTER BATTERY (w/ Smart Key System): REPLACEMENT; 2016 MY Tacoma [08/2015 -]		

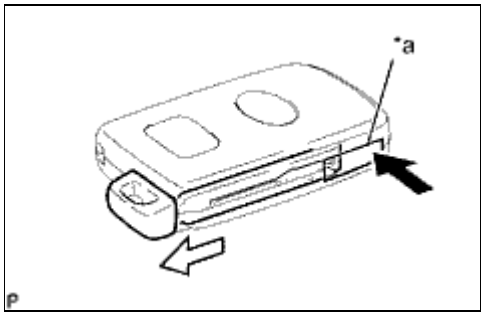
REPLACEMENT

NOTICE:

Take extra care when handling these precision electronic components.

1. REMOVE TRANSMITTER BATTERY

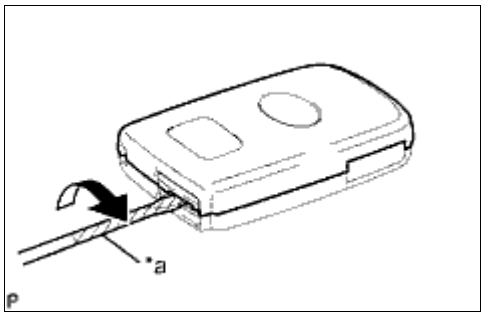
(a) Push the release hook knob and extract the mechanical key as shown in the illustration.



Text in Illustration

*a	Release Hook Knob

(b) Insert a precision screwdriver with its tip wrapped in protective tape into the gap, and turn the screwdriver to remove the transmitter housing cover.



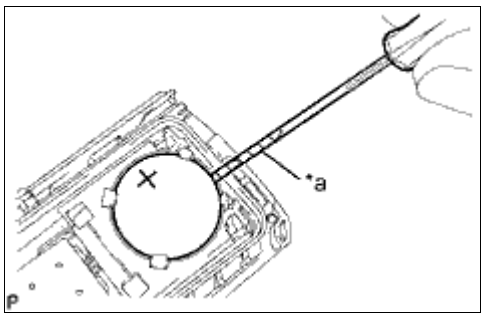
Text in Illustration

*a	Protective Tape

(c) Using a screwdriver with its tip wrapped in protective tape, remove the transmitter battery.

Text in Illustration

*a	Protective Tape



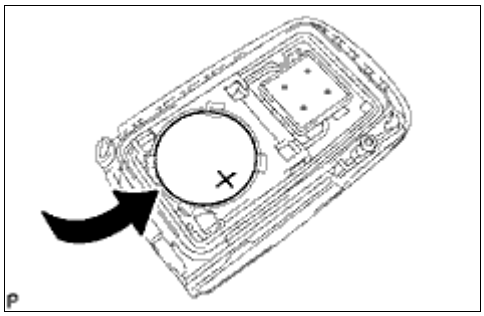
NOTICE:

- Do not push the terminals with your finger.
- Do not forcibly pry up the transmitter battery. The terminals may be damaged.
- Do not touch the transmitter battery with wet hands. Water may cause rust.
- Do not touch or move any components inside the electrical transmitter. It may interfere with proper operation.
- When replacing the transmitter battery, before starting work, remove static electricity that has built up in the body by touching, for example, the vehicle to prevent the electrical transmitter from being damaged.

2. INSTALL TRANSMITTER BATTERY

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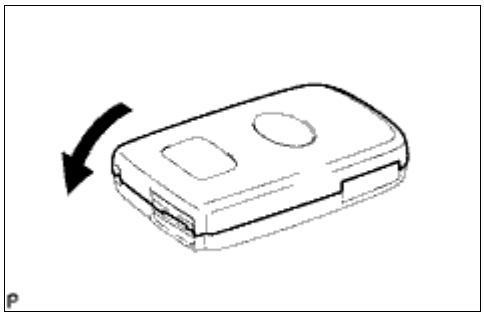
(a) Install a new transmitter battery with the positive (+) side facing upward, as shown in the illustration.



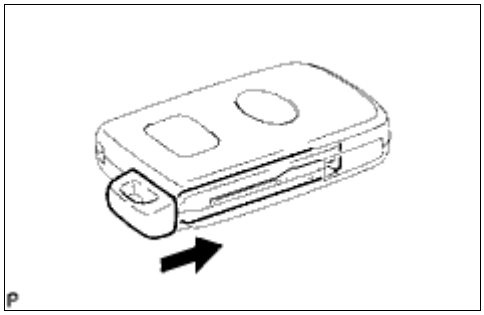
NOTICE:

- Do not bend the transmitter battery electrode during insertion.
- Keep the transmitter cover interior free of dust and oil.
- When replacing the transmitter battery, before starting work, remove static electricity that has built up in the body by touching, for example, the vehicle to prevent the electrical transmitter from being damaged.

(b) Install the transmitter housing cover by pressing down on it as shown in the illustration.



(c) Insert the mechanical key as shown in the illustration.



(d) Press one of the transmitter switches and check that the LED illuminates.

OK:

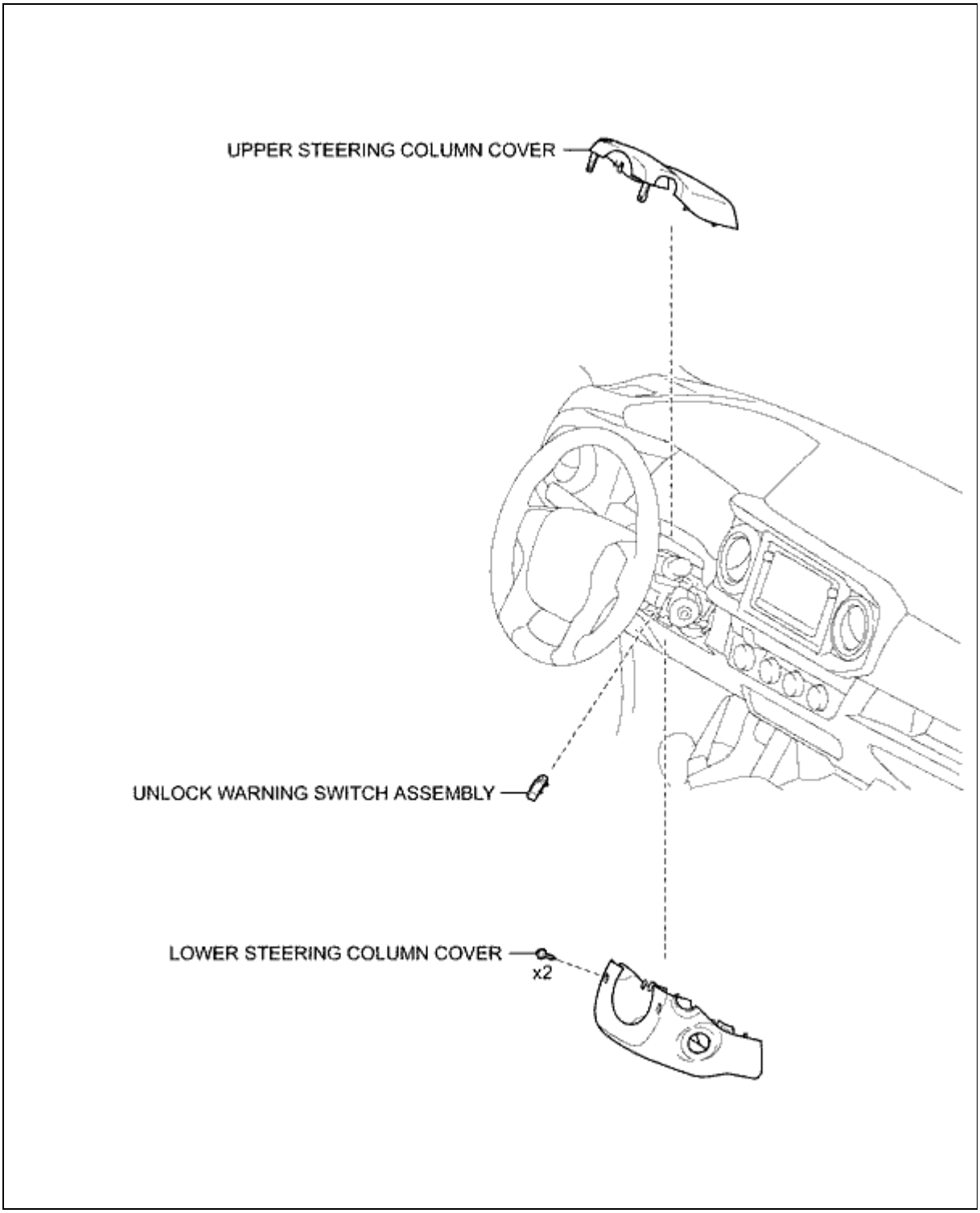
Transmitter LED illuminates when switch is pressed.

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Last Modified: 11-13-2015	6.6 K	**Doc ID:** RM000005VMM000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: UNLOCK WARNING SWITCH: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



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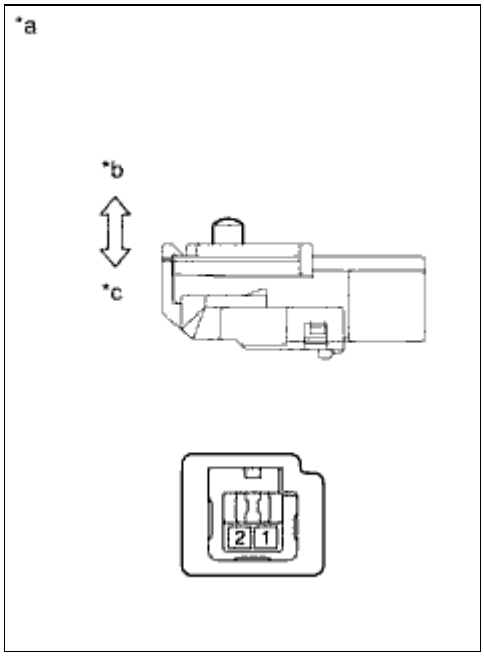
Last Modified: 11-13-2015	6.6 G	**Doc ID:** RM000005VML000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: UNLOCK WARNING SWITCH: INSPECTION; 2016 MY Tacoma [08/2015 -]		

INSPECTION

1. INSPECT UNLOCK WARNING SWITCH ASSEMBLY

(a) Check the resistance.

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



Text in Illustration

*a	Component without harness connected (Unlock Warning Switch Assembly)
*b	Not Pushed
*c	Pushed

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
1 - 2	Pushed	Below 1 Ω
1 - 2	Not Pushed	10 kΩ or higher

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

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000005VMK000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: UNLOCK WARNING SWITCH: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL UNLOCK WARNING SWITCH ASSEMBLY

(a) Engage the 2 claws to install the unlock warning switch assembly.

(b) Connect the connector.

(c) Remove the key from the ignition key cylinder.

2. INSTALL UPPER STEERING COLUMN COVER INFO

3. INSTALL LOWER STEERING COLUMN COVER INFO

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000005VMN000X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: UNLOCK WARNING SWITCH: REMOVAL; 2016 MY Tacoma [08/2015 -]		

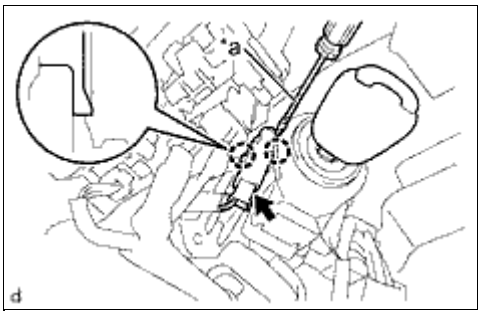
REMOVAL

1. REMOVE LOWER STEERING COLUMN COVER INFO

2. REMOVE UPPER STEERING COLUMN COVER INFO

3. REMOVE UNLOCK WARNING SWITCH ASSEMBLY

(a) Insert the key into the ignition key cylinder.



Text in Illustration

*a	Protective Tape

(b) Disconnect the connector.

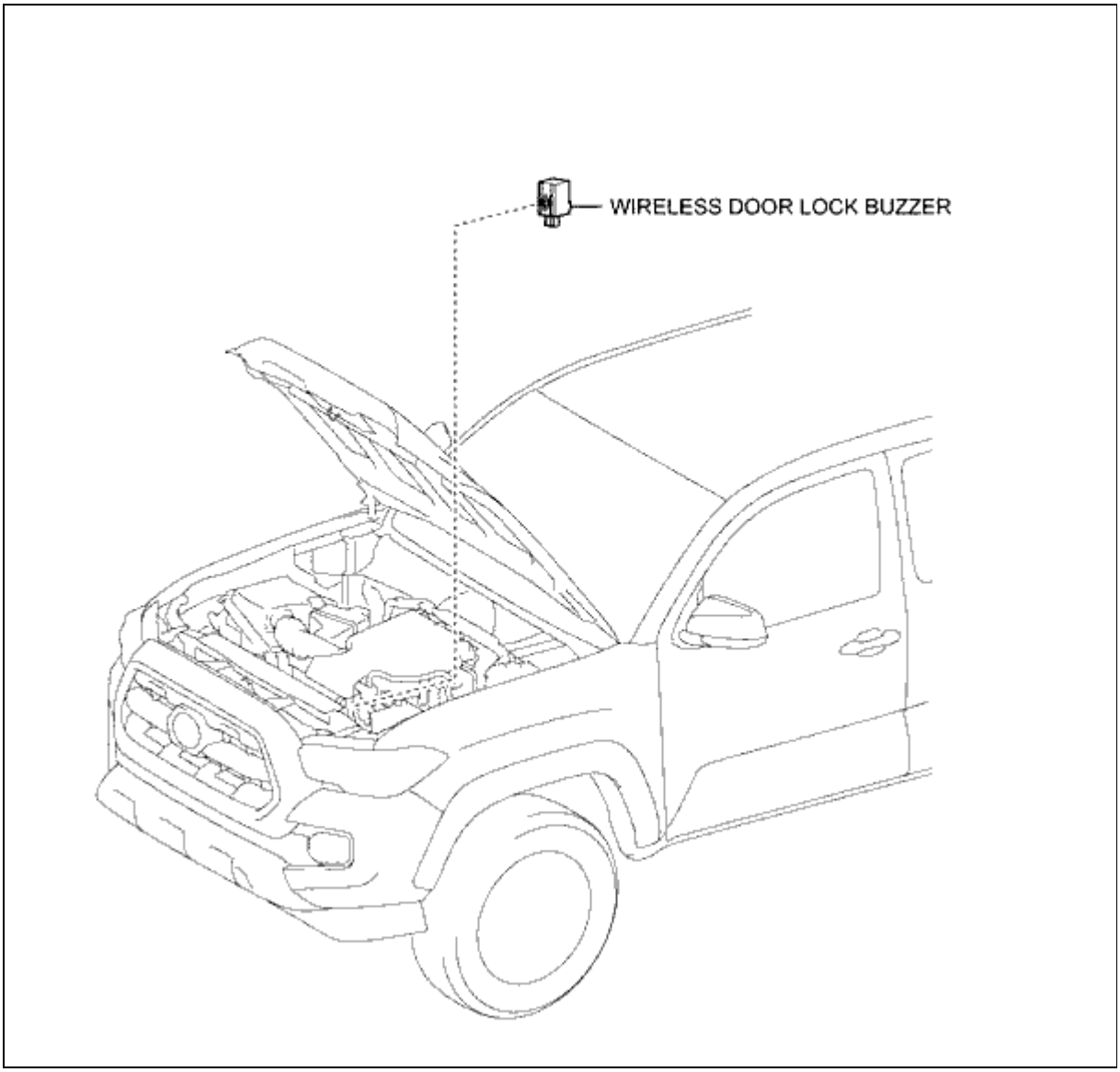
(c) Using a screwdriver with its tip wrapped in protective tape, disengage the 2 claws to remove the unlock warning switch assembly.

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Last Modified: 11-13-2015	6.6 K	**Doc ID:** RM000001HYH018X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK BUZZER: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000001HYF018X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK BUZZER: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL WIRELESS DOOR LOCK BUZZER

(a) Engage the clamp to install the wireless door lock buzzer.

(b) Connect the connector.

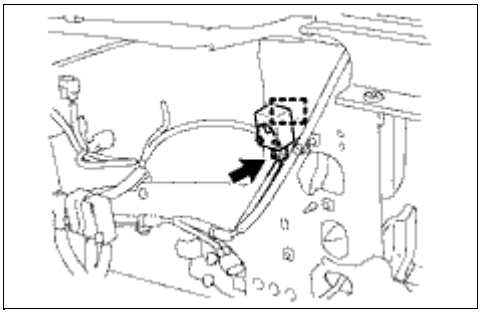
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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000001NE6017X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK BUZZER: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

1. REMOVE WIRELESS DOOR LOCK BUZZER

(a) Disconnect the connector.



(b) Using a clip remover, disengage the clamp to remove the wireless door lock buzzer.

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Last Modified: 11-13-2015	6.6 C	**Doc ID:** RM000005NC1002X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/ Smart Key System): B1242; Wireless Door Lock Tuner Circuit Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	**B1242**	**Wireless Door Lock Tuner Circuit Malfunction**

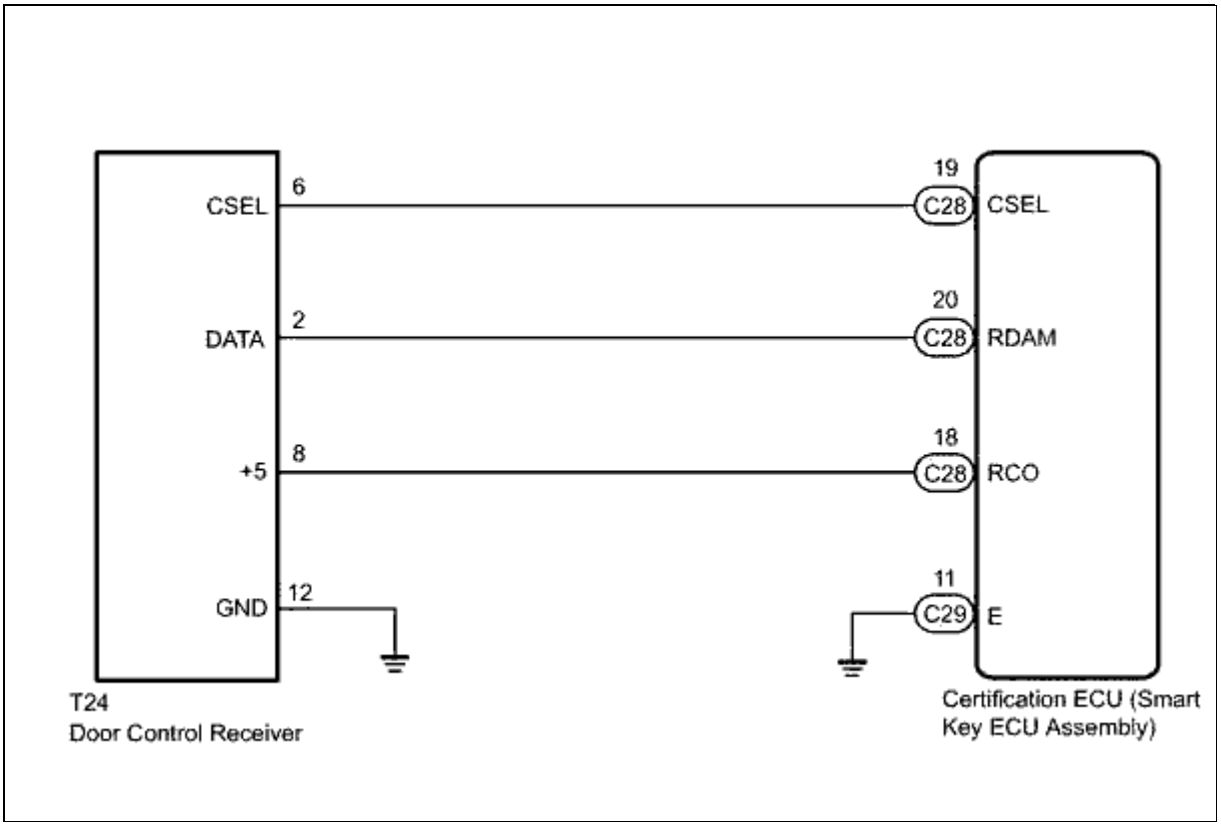
DESCRIPTION

The door control receiver is used to receive radio waves relating to the entry functions of the electrical key transmitter sub-assembly. The certification ECU (smart key ECU assembly) decodes the requested electrical key transmitter sub-assembly by identifying a key code based on the radio waves received via the door control receiver. The door control receiver receives a signal from the electrical key transmitter sub-assembly and sends signals to the main body ECU (multiplex network 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 (ex. if door lock operation is requested, the certification ECU (smart key ECU assembly) sends a door lock command to the main body ECU (multiplex network body ECU)).

DTC NO.	DTC DETECTING CONDITION	TROUBLE AREA
B1242	• Short in RDAM or CSEL to ground between the certification ECU (smart key ECU assembly) and the door control receiver. • Short in RDAM or CSEL to ground when RCO (5 V) output from the ECU is off.	• Wire harness or connector • Door control receiver • Certification ECU (Smart key ECU assembly)

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- When replacing or inspecting the door control receiver and wire harness, do not change the position or length of the wire harness. If the wire harness is too close to the door control receiver, smart and wireless function performance may be affected.
- Before performing the inspection, check that there are no problems related to the CAN communication system INFO .
- When replacing the door control receiver, read the transmitter IDs (tire pressure warning system) stored in the old ECU using the Techstream and write them down before removal INFO .*
- It is necessary to perform registration INFO of the transmitter IDs into the door control receiver if the door control receiver has been replaced.*
- This DTC is not detected within 10 seconds after the engine switch turned to off from on (IG).

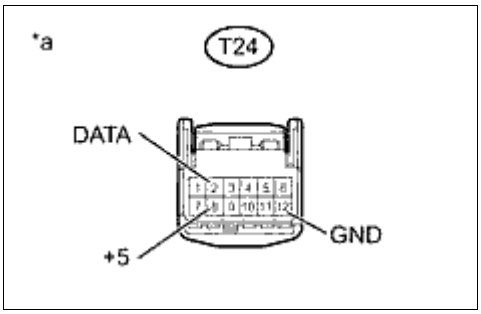
*: w/ Tire Pressure Warning System

PROCEDURE

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

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(a) Disconnect the door control receiver connector.



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

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
T24-8 (+5) - T24-12 (GND)	Engine switch off, all doors closed and electrical key transmitter sub-assembly switch not pressed → electrical key transmitter sub-assembly switch pressed	Below 1 V → 4.5 to 5.5 V (Pulse generation)
T24-2 (DATA) - T24-12 (GND)	Engine switch off	11 to 14 V pulse generation at regular intervals

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
T24-12 (GND) - Body ground	Always	Below 1 Ω

Text in Illustration

*a	Front view of wire harness connector (Door control receiver)

NG ▶ **GO TO STEP 2**

OK ▶ **REPLACE DOOR CONTROL RECEIVER**

2.	**CHECK HARNESS AND CONNECTOR (DOOR CONTROL RECEIVER - CERTIFICATION ECU (SMART KEY ECU ASSEMBLY))**

(a) Disconnect the certification ECU (smart key ECU assembly) connectors.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C28-19 (CSEL) - T24-6 (CSEL)	Always	Below 1 Ω

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TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C28-20 (RDAM) - T24-2 (DATA)	Always	Below 1 Ω
C28-18 (RCO) - T24-8 (+5)	Always	Below 1 Ω
C29-11 (E) - Body ground	Always	Below 1 Ω
T24-12 (GND) - Body ground	Always	Below 1 Ω
C28-19 (CSEL) or T24-6 (CSEL) - Body ground	Always	10 kΩ or higher
C28-22 (RDAM) or T24-2 (DATA) - Body ground	Always	10 kΩ or higher
C28-18 (RCO) or T24-8 (+5) - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▶ **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

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Last Modified: 11-13-2015	6.6 A	**Doc ID:** RM000005O2W002X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/ Smart Key System): CUSTOMIZE PARAMETERS; 2016 MY Tacoma [08/2015 -]		

CUSTOMIZE PARAMETERS

1. CUSTOMIZE WIRELESS DOOR LOCK CONTROL SYSTEM (w/ Smart Key System)

HINT:

The following items can be customized.

NOTICE:

- 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) Customizing with the Techstream

(1) Connect the Techstream to the DLC3.

(2) Turn the engine switch on (IG).

(3) Turn the Techstream on.

(4) Enter the following menus: Customize Setting / Wireless Door Lock.

(5) Select the setting by referring to the table below.

DISPLAY	DEFAULT	CONTENT	SETTING	RELEVANT ECU
Wireless Control	ON	Function that turns wireless door lock	OFF or ON	Main body ECU (Multiplex network body ECU)
Hazard Answer Back	ON	When the doors are locked by wireless operation, the hazard warning lights flash once. When the doors are unlocked by wireless operation, the hazard warning lights flash twice.	OFF or ON	Main body ECU (Multiplex network body ECU)
Open Door Warning	ON	The buzzer sounds when lock is pressed when any of the doors are ajar.	OFF or ON	Main body ECU (Multiplex network body ECU)
Unlock 2 Operation	ON	Function that unlocks driver door when unlock switch on electrical key transmitter sub-assembly is pressed once, and unlocks all doors when pressed twice. If setting is OFF, pressing unlock switch once makes all doors unlock.	OFF or ON	Main body ECU (Multiplex network body ECU)
Panic Function	ON	Function to operate theft deterrent system by continuously pressing panic switch on electrical key transmitter sub-assembly for 0.8 seconds	OFF or ON	Main body ECU (Multiplex network body ECU)
Auto Lock Time	60 s	Function that regulates the interval between unlocking and automatic relocking of doors	30 s, 60 s or 120 s	Main body ECU (Multiplex

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DISPLAY	DEFAULT	CONTENT	SETTING	RELEVANT ECU
				network body ECU)
Wireless Auto Lock	ON	This function turns the wireless auto lock function on or off.	OFF or ON	Main body ECU (Multiplex network body ECU)
Wireless Buzzer Resp	ON	Wireless door lock buzzer response	OFF or ON	Main body ECU (Multiplex network body ECU)
Wireless Buzzer Vol	Level 5	Wireless door lock buzzer volume	Level 7, Level 6, Level 5, Level 4, Level 3, Level 2, Level 1 or Level0	Main body ECU (Multiplex network body ECU)

(b) Customizing with the Multi-display (w/ Navigation System)

(1) Turn the engine switch on (IG).

(2) Enter the following menus: APPS / Setup / Vehicle / Vehicle Customization / Door Lock Settings.

(3) Select the setting by referring to the table below.

DISPLAY	DEFAULT	CONTENT	SETTING	RELEVANT ECU
Remote 2-Press Unlock	On	Function that unlocks driver door when unlock switch on electrical key transmitter sub-assembly is pressed once, and unlocks all doors when pressed twice. If setting is OFF, pressing unlock switch once makes all doors unlock.	On or Off	Main body ECU (Multiplex network body ECU)
Auto Relock Timer	60 s	Function that regulates the interval between unlocking and automatic relocking of doors	Off, 30 s, 60 s or 120 s	Main body ECU (Multiplex network body ECU)

(c) Customizing with the Multi-display (w/ Audio and Visual System)

(1) Turn the engine switch on (IG).

(2) Enter the following menus: SETUP / Vehicle / Vehicle Customization / Door Lock Settings.

(3) Select the setting by referring to the table below.

DISPLAY	DEFAULT	CONTENT	SETTING	RELEVANT ECU
Remote 2-Press Unlock	On	Function that unlocks driver door when unlock switch on electrical key transmitter sub-assembly is pressed once, and unlocks all doors when pressed twice. If setting is OFF, pressing unlock switch once makes all doors unlock.	On or Off	Main body ECU (Multiplex network body ECU)
Auto Relock Timer	60 s	Function that regulates the interval between unlocking and automatic relocking of doors	Off, 30 s, 60 s or 120 s	Main body ECU (Multiplex network body ECU)

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Last Modified: 11-13-2015	6.6 U	**Doc ID:** RM000000XXB031X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/ Smart Key System): DATA LIST / ACTIVE TEST; 2016 MY Tacoma [08/2015 -]		

DATA LIST / ACTIVE TEST

1. DATA LIST

HINT:

Using the 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.

NOTICE:

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

(a) Connect the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Main Body / Data List.

(e) Read the Data List according to the display on the Techstream.

Main Body

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
ACC SW	Engine switch ACC signal/ON or OFF	ON: Engine switch on (ACC) OFF: Engine switch off	-
IG SW	Engine switch IG signal/ON or OFF	ON: Engine switch on (IG) OFF: Engine switch off	-
RR Door Courtesy SW	Rear door courtesy light switch RH signal/ON or OFF	ON: Rear door RH open OFF: Rear door RH closed	-
RL Door Courtesy SW	Rear door courtesy light switch LH signal/ON or OFF	ON: Rear door LH open OFF: Rear door LH closed	-
FR Door Lock Pos	Front door RH unlock detection switch signal/LOCK or UNLOCK	LOCK: Front door RH locked UNLOCK: Front door RH unlocked	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
FR Door Courtesy	Front door courtesy light switch RH signal/ON or OFF	ON: Front door RH closed OFF: Front door RH open	-
FL Door Lock Pos	Front door LH unlock detection switch signal/LOCK or UNLOCK	LOCK: Front door LH locked UNLOCK: Front door LH unlocked	-
FL Door Courtesy	Front door courtesy light switch LH signal/ON or OFF	ON: Front door LH closed OFF: Front door LH open	-
RR-Door Lock Pos SW	Rear door RH and LH unlock detection switch signal/ON or OFF	ON: Rear door RH or LH unlocked OFF: Rear door RH and LH locked	-
RL-Door Lock Pos SW	Rear door RH and LH unlock detection switch signal/ON or OFF	ON: Rear door RH or LH unlocked OFF: Rear door RH and LH locked	-
Wireless Control	Wireless door lock control function/ON or OFF	Customization status displayed	-
Hazard Answer Back	Hazard answer-back of wireless/ON or OFF	Customization status displayed	-
Wireless Auto Lock	Automatic lock function/ON or OFF	Customization status displayed	-
Open Door Warning	Open door warning/ON or OFF	Customization status displayed	-
Unlock 2 Operation	2 times operation of wireless unlock/ON or OFF	Customization status displayed	-
Panic Function	Panic function/ON or OFF	Customization status displayed	-
Auto Lock Time	Automatic lock time/120 s, 60 s or 30 s	Customization status displayed	-
Wireless Buzzer Resp	Buzzer answer-back of wireless/ON or OFF	Customization status displayed	-
Wireless Buzzer Vol	Wireless door lock buzzer volume/ Level7, Level6, Level5, Level4, Level3, Level2, Level1 or Level0	Customization status displayed	-

2. ACTIVE TEST

HINT:

Using the 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

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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 the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Main Body / Active Test.

(e) Perform the Active Test according to the display on the Techstream.

Main Body

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Illuminated Entry System	Interior lights (Interior light switch is in door position and all doors are closed)	OFF/ON	-
Door Lock	Door lock motor	Unlock/Lock	-
Wireless Buzzer	Wireless door lock buzzer	OFF/ON	-

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000000XX902JX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/ Smart Key System): DIAGNOSIS SYSTEM; 2016 MY Tacoma [08/2015 -]		

DIAGNOSIS SYSTEM

1. DESCRIPTION

The ECU stores trouble codes when malfunctions occur.

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

Use the Techstream to help diagnose and repair the problem.

2. CHECK DLC3

(a) Check the DLC3 INFO .

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.

4. SELF-DIAGNOSTIC MODE

(a) Connect the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

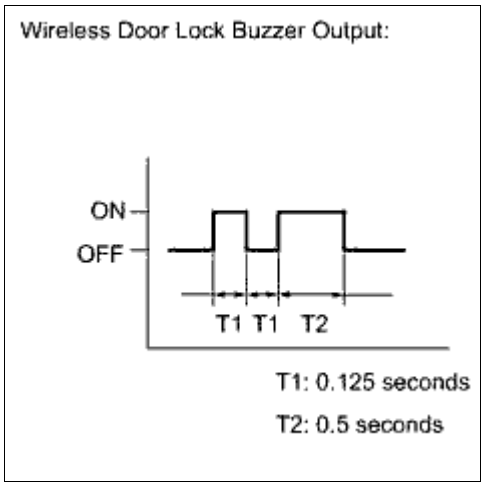
(d) Enter the following menus: Body Electrical / Smart Key / Utility / Wireless Door Lock Diagnosis Mode.

(e) Proceed to the next step in accordance with the prompts on the Techstream screen.

HINT:

The electrical key transmitter uses 2 different frequencies alternately for communication. When in self diagnostic mode, one of the channels can be selected or the channels can be automatically switched.

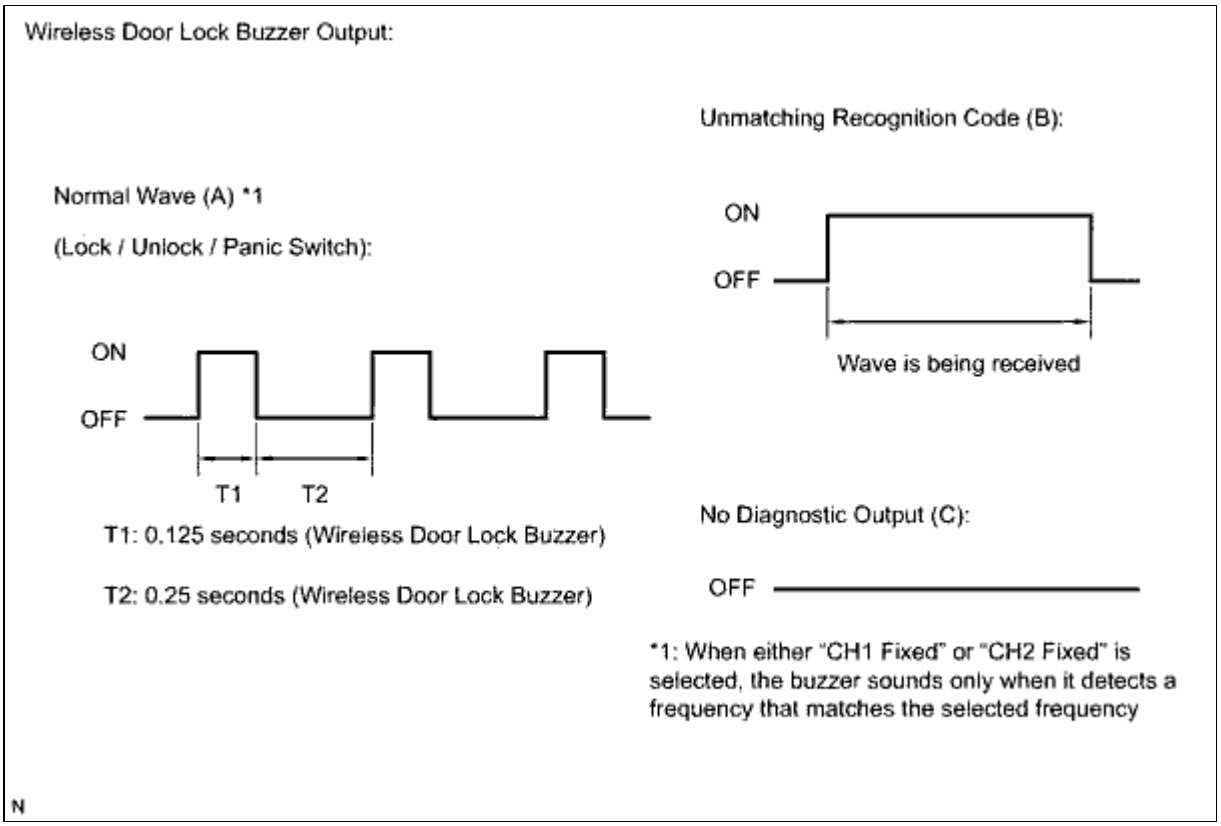
(f) Check that the system has switched to self-diagnostic mode by checking the wireless door lock buzzer output pattern.



(g) Check the diagnostic outputs when the electrical key transmitter sub-assembly switch is held down.

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The diagnostic outputs can be checked by the interior light and wireless door lock buzzer patterns.



Result

WIRELESS DOOR LOCK BUZZER OUTPUT	SUSPECTED AREA
A	Normal (No malfunction)
B	Register wireless code
C	Wave interference or malfunction of a related component

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Last Modified: 11-13-2015	6.6 S	**Doc ID:** RM000005NC0002X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/ Smart Key System): DIAGNOSTIC TROUBLE CODE CHART; 2016 MY Tacoma [08/2015 -]		

DIAGNOSTIC TROUBLE CODE CHART

HINT:

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

Wireless Door Lock Control System

DTC CODE	DETECTION ITEM	SEE PAGE
B1242	Wireless Door Lock Tuner Circuit Malfunction	INFO

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000005NBZ002X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/ Smart Key System): DTC CHECK / CLEAR; 2016 MY Tacoma [08/2015 -]		

DTC CHECK / CLEAR

1. CHECK FOR DTC

HINT:

When using the Techstream with the engine switch off to troubleshoot:

Connect the Techstream to the DLC3 and turn a courtesy light switch on and off at 1.5-second intervals until communication between the Techstream and vehicle begins.

(a) Connect the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Smart Key / Trouble Codes.

(e) Read the DTCs.

2. CLEAR DTC

HINT:

When using the Techstream with the engine switch off to troubleshoot:

Connect the Techstream to the DLC3 and turn a courtesy light switch on and off at 1.5-second intervals until communication between the Techstream and vehicle begins.

(a) Connect the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Smart Key / Trouble Codes.

(e) Clear the DTCs.

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000000XX207FX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/ Smart Key System): HOW TO PROCEED WITH TROUBLESHOOTING; 2016 MY Tacoma [08/2015 -]		

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- The wireless door lock control system troubleshooting procedure is 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.
- *: Use the Techstream.

1.	**VEHICLE BROUGHT TO WORKSHOP**

NEXT

2.	**CUSTOMER PROBLEM ANALYSIS**

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:

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

NEXT

3.	**INSPECT BATTERY VOLTAGE**

(a) Measure the battery voltage.

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Standard voltage:
11 to 14 V

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

NEXT

4.	**INSPECT COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM***

(a) Use the Techstream to check if the CAN communication system is functioning normally INFO .

Result

RESULT	PROCEED TO
DTC is not output	A
DTC is output	B

B **GO TO CAN COMMUNICATION SYSTEM**

A

5.	**CHECK DTC OUTPUT (WIRELESS DOOR LOCK CONTROL SYSTEM)**

(a) Clear the DTCs INFO .

(b) Recheck for DTCs.

Result

RESULT	PROCEED TO
DTC is not output	A
DTC is output	B

B **GO TO DIAGNOSTIC TROUBLE CODE CHART**

A

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6.	PROBLEM SYMPTOMS TABLE

(a) Refer to Problem Symptoms Table INFO .

Result

RESULT	PROCEED TO
Fault is not listed in Problem Symptoms Table.	A
Fault is listed in Problem Symptoms Table.	B

B ▶ **Go to step 8**

A

▼

7.	OVERALL ANALYSIS AND TROUBLESHOOTING*

(a) Operation Check INFO

(b) Terminals of ECU INFO

(c) Data List / Active Test INFO

NEXT

▼

8.	REPAIR OR REPLACE

NEXT

▼

9.	CONFIRMATION TEST

NEXT ▶ **END**

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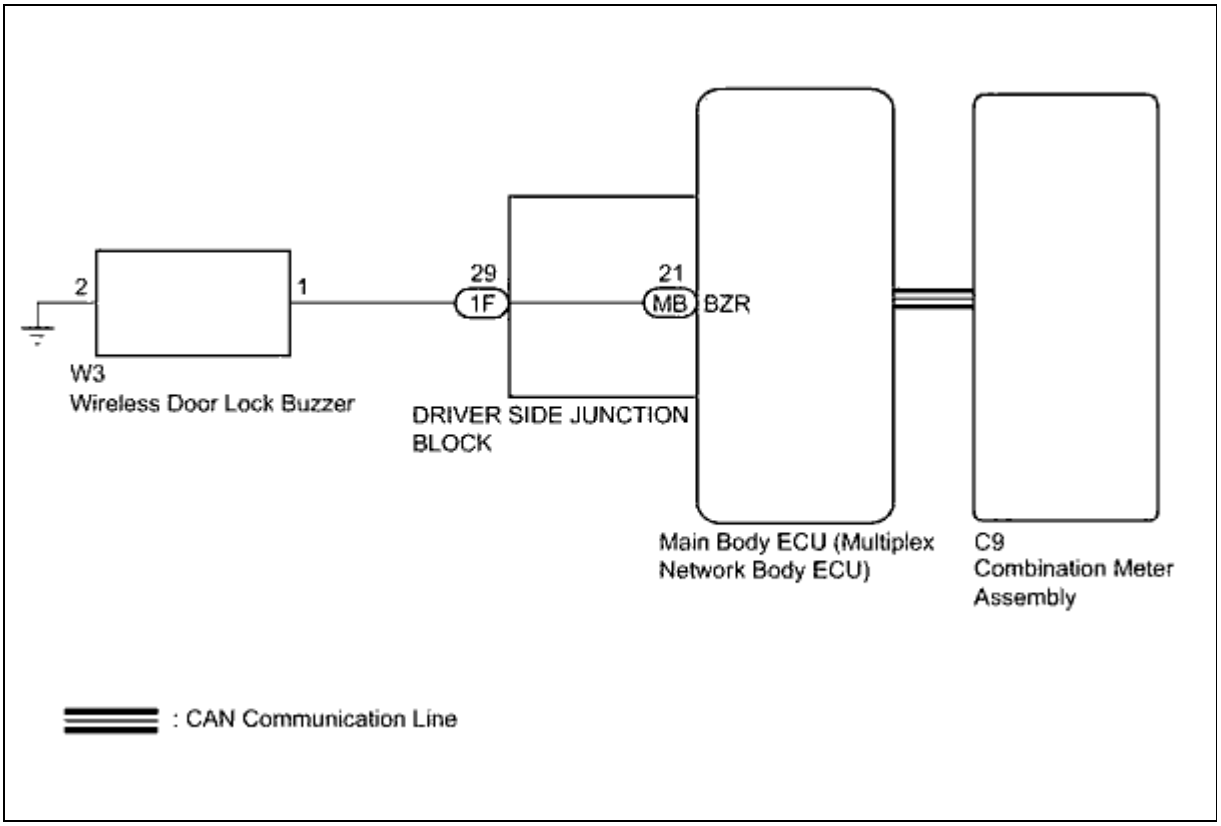
Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM0000027Q80B5X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/ Smart Key System): No Answer-Back; 2016 MY Tacoma [08/2015 -]		

No Answer-Back

DESCRIPTION

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

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

The wireless door lock control system uses the CAN communication system. First, confirm that there is no malfunction in the CAN communication system. Refer to the How to Proceed with Troubleshooting procedure INFO .

PROCEDURE

1.	**READ VALUE USING TECHSTREAM (ANSWER-BACK OPERATION)**

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(a) Connect the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Customize Setting / Wireless Door Lock.

(e) Select the setting by referring to the table below.

DISPLAY	DEFAULT	CONTENT	SETTING	RELEVANT ECU
Hazard Answer Back	ON	When the doors are locked by wireless operation, the hazard warning lights flash once. When the doors are unlocked by wireless operation, the hazard warning lights flash twice.	OFF or ON	Main body ECU (Multiplex network body ECU)
Wireless Buzzer Resp	ON	Wireless door lock buzzer response	OFF or ON	Main body ECU (Multiplex network body ECU)
Wireless Buzzer Vol	Level 5	Wireless door lock buzzer volume	Level 7, Level 6, Level 5, Level 4, Level 3, Level 2, Level 1 or Level 0	Main body ECU (Multiplex network body ECU)

Result

RESULT	PROCEED TO
Both items are ON and except Level 0	A
Either item is OFF or Level 0	B

B ▶ **PERFORM CUSTOMIZE FUNCTION**

A ▼

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

(a) Check the wireless door lock control function using the electrical key transmitter sub-assembly.

Result

RESULT	PROCEED TO
Wireless door lock/unlock operates normally.	A
Wireless door lock/unlock does not operate normally.	B

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B GO TO PROBLEM SYMPTOMS TABLE

A

3.	READ VALUE USING TECHSTREAM (DOOR UNLOCK DETECTION SWITCH)

(a) Connect the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Main Body / Data List.

(e) Read the Data List according to the display on the Techstream.

Main Body

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
FR Door Lock Pos	Front door RH unlock detection switch signal/LOCK or UNLOCK	LOCK: Front door RH locked UNLOCK: Front door RH unlocked	-
FL Door Lock Pos	Front door LH unlock detection switch signal/LOCK or UNLOCK	LOCK: Front door LH locked UNLOCK: Front door LH unlocked	-
RR-Door Lock Pos SW	Rear door RH and LH unlock detection switch signal/ON or OFF	ON: Rear door RH or LH unlocked OFF: Rear door RH and LH locked	-
RL-Door Lock Pos SW	Rear door RH and LH unlock detection switch signal/ON or OFF	ON: Rear door RH or LH unlocked ON: Rear door RH or LH unlocked	-

OK:

The Techstream should display as shown in the table according to door lock operation.

NG GO TO LIGHTING SYSTEM (Proceed to Door Unlock Detection Switch Circuit)

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OK

4.	**CHECK WIRELESS ANSWER-BACK OPERATION**

(a) Check the wireless answer-back operation using the electrical key transmitter sub-assembly.

Result

RESULT	PROCEED TO
Only wireless door lock buzzer answer-back does not occur.	A
Only hazard warning light answer-back does not occur.	B

B ▶ **GO TO STEP 10**

A

5.	**PERFORM ACTIVE TEST USING TECHSTREAM (WIRELESS DOOR LOCK BUZZER)**

(a) Connect the Techstream to the DLC3.

(b) Turn the engine switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Main Body / Active Test.

(e) Perform the Active Test according to the display on the Techstream.

Main Body

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Wireless buzzer	Wireless door lock buzzer	OFF/ON	-

Result

RESULT	PROCEED TO
Wireless door lock buzzer does not turn on/off.	A
Wireless door lock buzzer turns on/off.	B

B ▶ **REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)**

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A

6.	**CHECK HARNESS AND CONNECTOR (WIRELESS DOOR LOCK BUZZER - DRIVER SIDE JUNCTION BLOCK)**

(a) Disconnect the W3 wireless door lock buzzer and 1F driver side junction block connectors.

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

Standard Resistance:

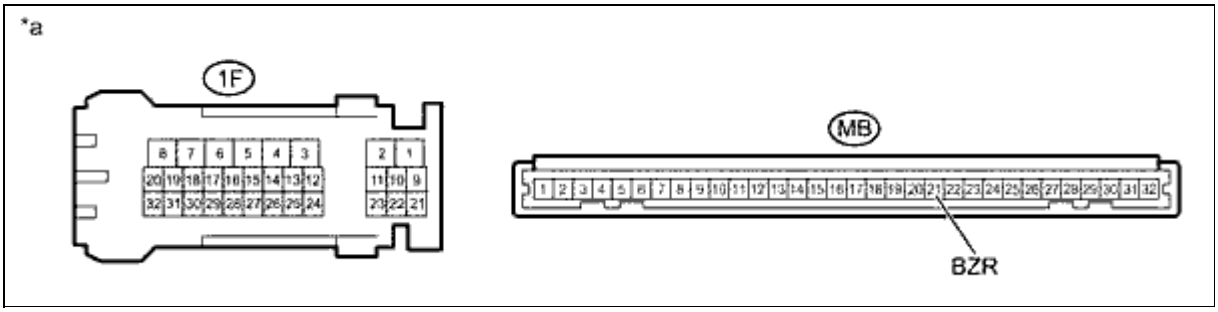
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
W3-1 - 1F-29	Always	Below 1 Ω
W3-2 - Body ground	Always	Below 1 Ω
W3-1 - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

7.	**CHECK DRIVER SIDE JUNCTION BLOCK**

(a) Remove the driver side junction block INFO .



Text in Illustration

*a	Component without harness connected (driver side junction block)	-	-

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

Standard Resistance:

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TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1F-29 - MB-21 (BZR)	Always	Below 1 Ω

NG ▶ **REPLACE DRIVER SIDE JUNCTION BLOCK**

OK ▼

8.	REPLACE WIRELESS DOOR LOCK BUZZER

(a) Temporarily replace the wireless door lock buzzer with a new one INFO .

NEXT ▼

9.	CHECK WIRELESS DOOR LOCK BUZZER OPERATION

(a) Check the operation of the wireless answer-back function.

OK:

Wireless answer-back function operates normally.

NG ▶ **REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)**

OK ▶ **END (WIRELESS DOOR LOCK BUZZER WAS DEFECTIVE)**

10.	HAZARD WARNING LIGHTS OPERATION

(a) Check that the hazard warning light blinks when the hazard warning signal switch is pressed.

OK:

Hazard warning light signal is normal.

NG ▶ **GO TO LIGHTING SYSTEM (Proceed to Hazard Warning Switch Circuit)**

OK ▶ **REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)**

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Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/ Smart Key System): OPERATION CHECK; 2016 MY Tacoma [08/2015 -]		

OPERATION CHECK

1. NOTICE WHEN CHECKING FOLLOWING

(a) Wireless door lock/unlock function:

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

(1) The engine switch is off.

(2) All doors are closed.

(3) The power door lock control system is operating normally.

HINT:

The unlock function operates even when a door is open.

(b) The size of the wireless door lock control operation area differs depending on the situation.

(1) The size of the operation area differs depending on the user and the way the electrical key transmitter sub-assembly is held.

(2) In certain areas, the wireless door lock control function will only operate partially for the operation area, which will be reduced due to the vehicle body shape and the influence of the surrounding environment.

(3) Since the electrical key transmitter sub-assembly uses weak radio waves, strong radio waves or electrical noise in the frequency used by the electrical key transmitter sub-assembly may reduce the size of the operation area and the remote control may not function.

(4) When the transmitter battery is weak, the size of the operation area is reduced and the remote control may not function.

HINT:

If the electrical key transmitter sub-assembly has been left in a place that is exposed to direct sunlight, such as on the instrument panel, it may cause the battery to be weakened or cause other related problems.

2. CHECK WIRELESS DOOR LOCK CONTROL FUNCTIONS

NOTICE:

The operation check below is based on the non-customized initial condition of the vehicle.

HINT:

- The switches described in this text are the switches for transmitting signals. The switches are built into the electrical key transmitter sub-assembly.
- All the functions listed below must be checked in comparison with the remote control operation area.

(a) Make sure that the vehicle is in an area that allows the wireless control function to operate.

(b) Check basic functions.

(1) Check whether the LED of the electrical key transmitter sub-assembly comes on 3 times when each switch is pressed and held 5 seconds.

HINT:

If the transmitter LED illuminates once or twice but not a third time when the switch has been pressed and

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held 5 seconds or more, it may have a weak battery.

(2) Check that all doors lock when the lock switch is pressed.

(3) Check that the driver door unlocks when the unlock switch is pressed once, and all doors unlock when pressed twice within 5 seconds.

(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 locking function.

(1) Check that the doors relock automatically as long as none of the doors have been opened or all doors have not been locked within approximately 60 seconds after all doors are unlocked by pressing the unlock switch.

(2) Check that the automatic locking function does not operate when any door has been opened within approximately 60 seconds of unlocking the doors by pressing the unlock switch.

(3) Check that the automatic locking function does not operate when all doors have been locked manually (such as using key linked operation, or by pressing the lock switch) within approximately 60 seconds of unlocking the doors by pressing the unlock switch.

(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 electrical key transmitter sub-assembly, and that the doors are locked and unlocked by operating a switch on the registered electrical key transmitter sub-assembly.

(f) Check the door ajar warning function.

(1) Check that the wireless door lock buzzer sounds for approximately 5 seconds when the lock switch is pressed with any of the doors ajar or open.

(g) Check the repeat function.

(1) Check that all doors attempt to automatically lock once again 1 second after the lock switch has been pressed while the driver door control knob is being held in the unlock position.

(h) Check the answer-back (hazard warning light) function.

(1) When the lock switch is pressed, check that the hazard warning lights flash once simultaneously with the locking operation of all doors.

(2) When the unlock switch is pressed once, check that the hazard warning lights flash twice simultaneously with the unlocking operation of the driver door.

(i) Check the answer-back (wireless door lock buzzer) function.

(1) When the lock switch is pressed, check that the buzzer sounds once simultaneously with the locking operation of all doors.

(2) When the unlock switch is pressed once, check that the buzzer sounds twice simultaneously with the unlocking operation of the driver door.

(j) Check the panic alarm control function INFO .

(k) Check the illuminated entry function INFO .

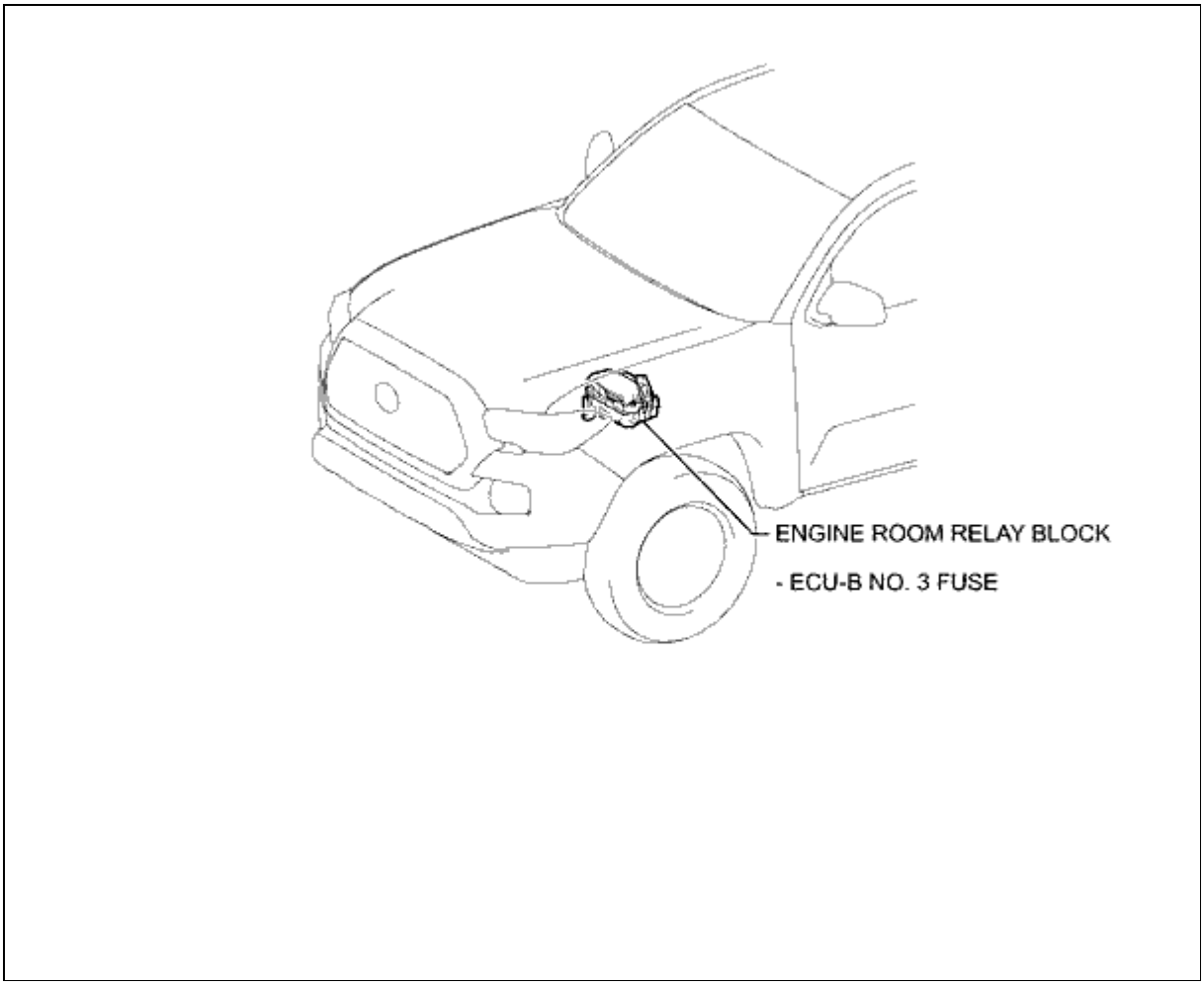
(l) Check the sliding roof open function INFO .

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Last Modified: 11-13-2015	6.6 R	**Doc ID:** RM0000022UD005X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/ Smart Key System): PARTS LOCATION; 2016 MY Tacoma [08/2015 -]		

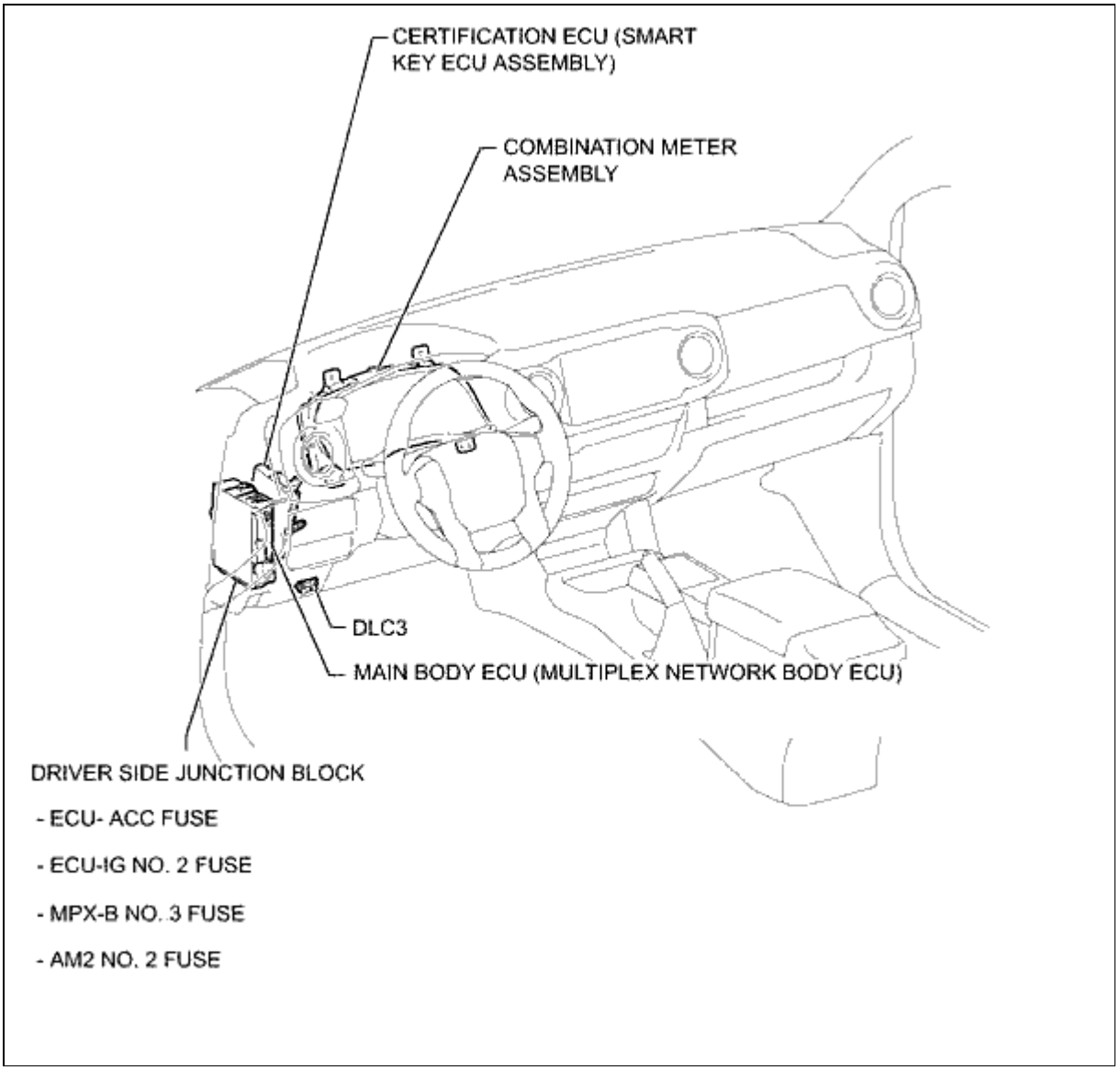
PARTS LOCATION

ILLUSTRATION



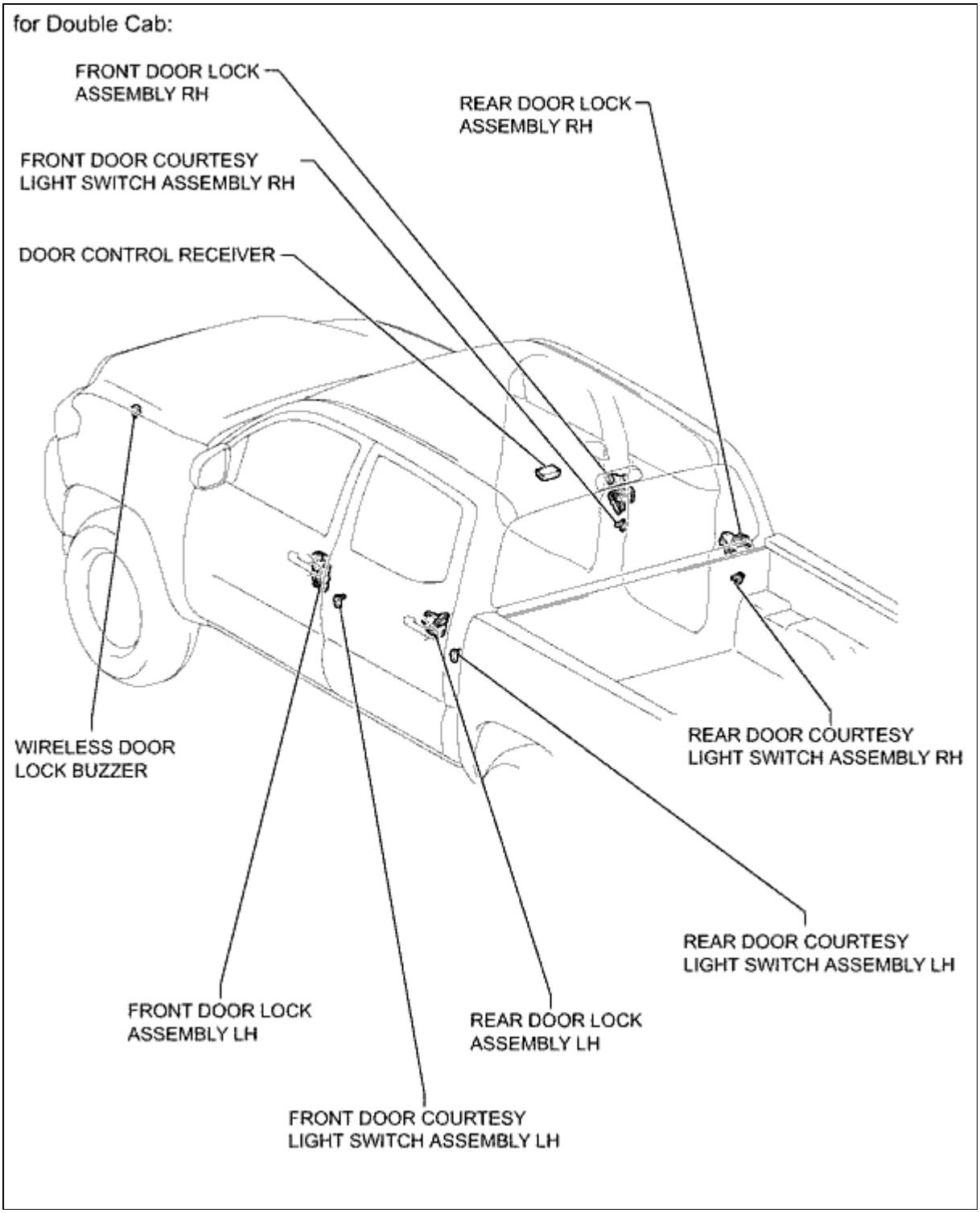
ILLUSTRATION

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ILLUSTRATION

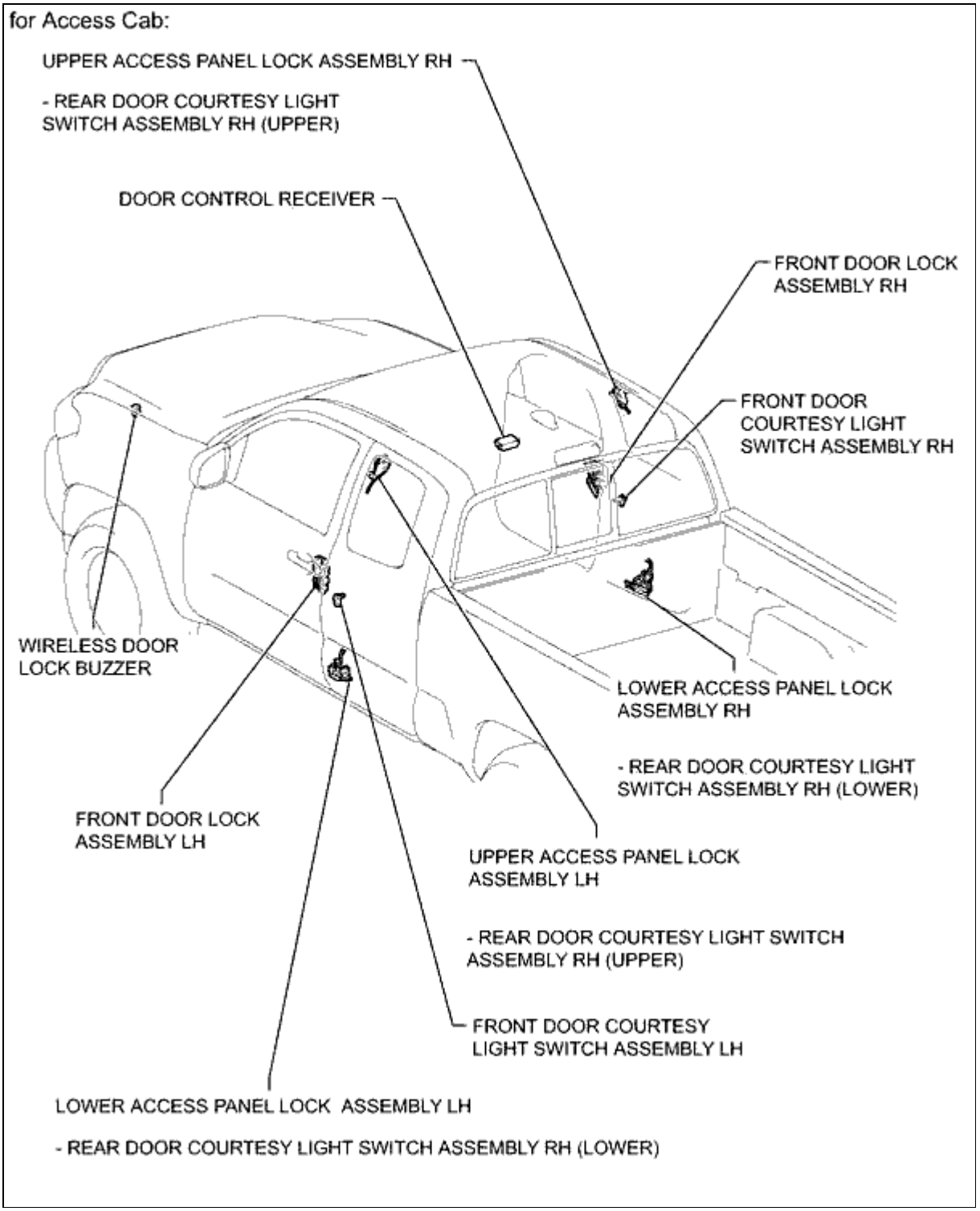
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Last Modified: 11-13-2015	6.6 L	**Doc ID:** RM000001MRQ00XX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/ Smart Key System): PRECAUTION; 2016 MY Tacoma [08/2015 -]		

PRECAUTION

1. PRECAUTIONS WHEN USING TECHSTREAM

(a) When using the Techstream with the engine switch off to troubleshoot:

Connect the Techstream to the vehicle, and turn a courtesy light switch on and off at 1.5-second intervals until communication between the Techstream and the vehicle begins.

(b) After all DTCs are cleared, check if the trouble occurs again 6 seconds after the engine switch is turned on (IG).

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Last Modified: 11-13-2015	6.6 T	**Doc ID:** RM0000022UF007X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/ Smart Key System): PROBLEM SYMPTOMS TABLE; 2016 MY Tacoma [08/2015 -]		

PROBLEM SYMPTOMS TABLE

HINT:

- Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.
- Inspect the fuses and relays related to this system before inspecting the suspected areas below.

Wireless Door Lock Control System

SYMPTOM	SUSPECTED AREA	SEE PAGE
Wireless control function and entry function do not operate	Proceed to "All Door Entry Lock / Unlock Functions and Wireless Functions do not Operate"	INFO
Wireless control function does not operate but entry function operates	Electrical key transmitter sub-assembly	-
Only answer-back function does not operate normally	Proceed to "No answer-back"	INFO
Only automatic lock function does not operate normally	Perform operation check	INFO
	Lighting system (front door courtesy light switch circuit)	INFO
	Lighting system (rear door courtesy light switch circuit)	INFO
	Main body ECU (multiplex network body ECU)	-
Only illuminated entry function does not operate	Perform operation check	INFO
	Lighting system	INFO
	Main body ECU (multiplex network body ECU)	-
Only door ajar warning function does not operate	Perform operation check	INFO
	Lighting system (front door courtesy light switch circuit)	INFO
	Lighting system (rear door courtesy light switch circuit)	INFO
	Main body ECU (multiplex network body ECU)	-
Only panic alarm function does not operate	Perform operation check	INFO
	Lighting system (interior lights)	INFO
	Lighting system (hazard warning lights)	INFO
	Horn system	INFO
	Main body ECU (multiplex network body ECU)	-

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000000XX805XX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/ Smart Key System): SYSTEM DESCRIPTION; 2016 MY Tacoma [08/2015 -]		

SYSTEM DESCRIPTION

1. WIRELESS DOOR LOCK CONTROL SYSTEM

The wireless door lock control system can be used to lock and unlock all doors from a distance. The system is controlled by an electrical key transmitter sub-assembly 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. MULTI CHANNEL FUNCTION

The wireless door lock control system has a multi-channel function. Each time the switch on the electrical key transmitter sub-assembly is pressed, the channel is switched alternately between 2 different frequencies and the signal is sent to the door control receiver.

3. FUNCTION OF MAIN COMPONENTS

COMPONENT	FUNCTION
Electrical key transmitter sub-assembly	• Has lock, unlock, and panic switches. • 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 from the electrical key transmitter sub-assembly and sends them to the certification ECU (smart key ECU assembly).
• Front door courtesy light switch assembly LH/RH • Rear door courtesy light switch assembly LH/RH*1 • Upper access panel lock assembly LH/RH*2 • Lower access panel lock assembly LH/RH*2	• Turns on when a door is opened and turns off when it is closed. • Outputs door status signals (open or closed) to the main body ECU (multiplex network body ECU).
• Front door lock assembly LH/RH • Rear door lock assembly LH/RH*1	• Built-in motor locks or unlocks door. • Transmits the door lock position of each door to the main body ECU (multiplex network 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.

*1: for Double Cab
*2: for Access Cab

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4. SYSTEM FUNCTION

The electrical key transmitter sub-assembly has the lock, unlock, and panic switches. Operating these switches activates each function.

The wireless door lock control system has the following functions:

HINT:

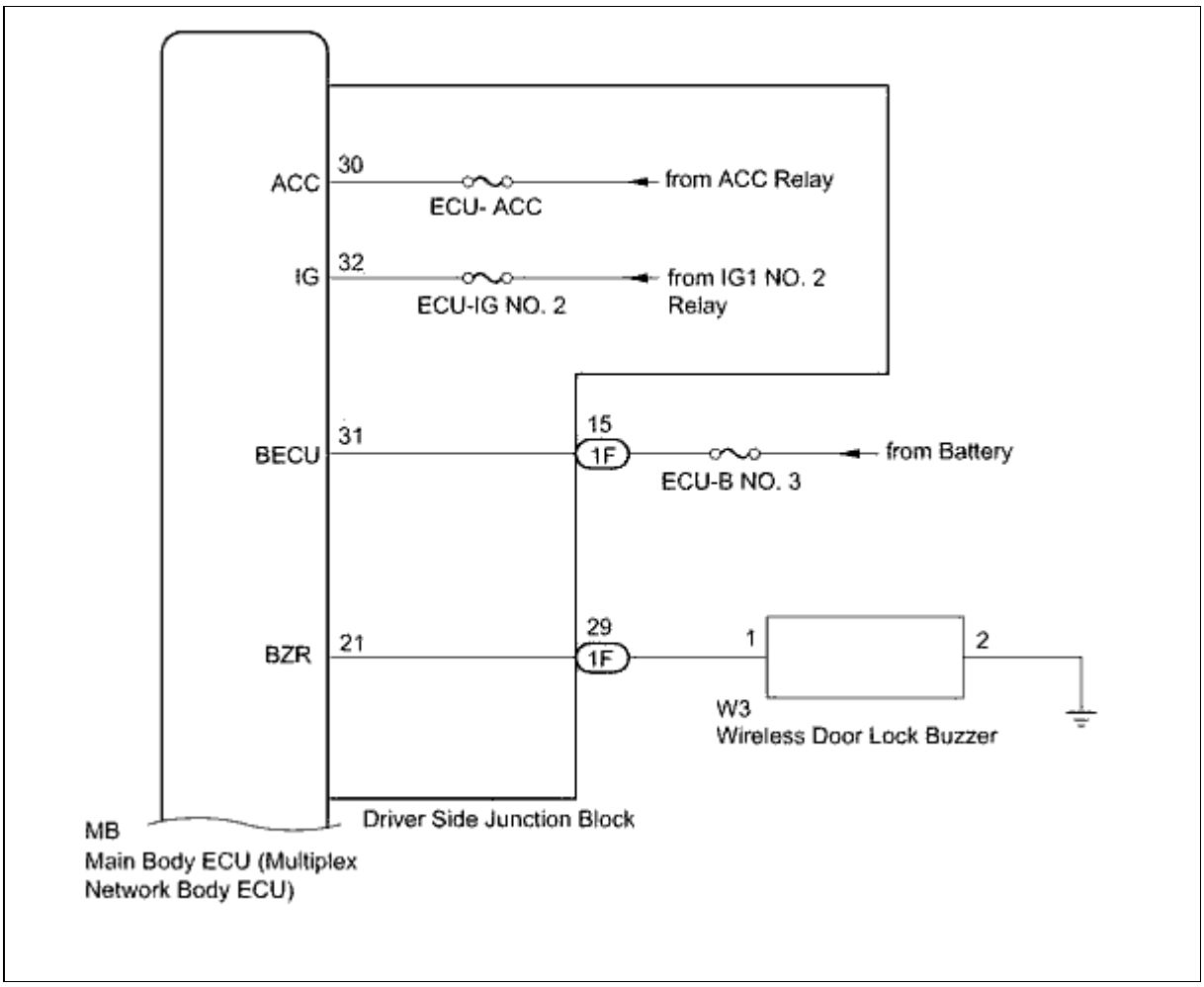
The default settings of the following functions are on. Part of these functions can be customized INFO .

FUNCTION	OPERATION
All door lock	Pressing the lock switch locks all doors.
All door unlock (Unlock 2 operation)	Pressing the unlock switch twice within 5 seconds unlocks all doors after the driver 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 doors will lock again automatically.
Answer back (Hazard warning light)	• When the doors are locked by wireless operation, the hazard warning lights flash once. • When the doors are unlocked by wireless operation, the hazard warning lights flash twice.
Answer back (Wireless door lock buzzer)	• When the doors are locked by wireless operation, the wireless door lock buzzer sounds once. • When the doors are unlocked by wireless operation, the wireless door lock buzzer sounds twice.
Panic alarm	Pressing the panic switch of the electrical key transmitter sub-assembly for longer than about 0.8 seconds causes the following alarms to activate: • Sound the vehicle horns. • Blinks the hazard warning lights. • Illuminates the interior lights. While the panic alarm is operating, pressing any switch of the electrical key transmitter sub-assembly 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 5 seconds continuously. The buzzer stops when all doors are closed or the unlock switch is pressed.
Illuminated entry	When all doors are locked, pressing the unlock switch causes the interior lights to come on simultaneously with the unlock operation.
Self-diagnostic mode	The following are conditions to enter self-diagnostic mode: If the door control receiver receives normal radio waves from the electrical key transmitter sub-assembly when the system is in diagnostic mode, it sounds the wireless door lock buzzer in a normal pattern that corresponds to the function of each switch.

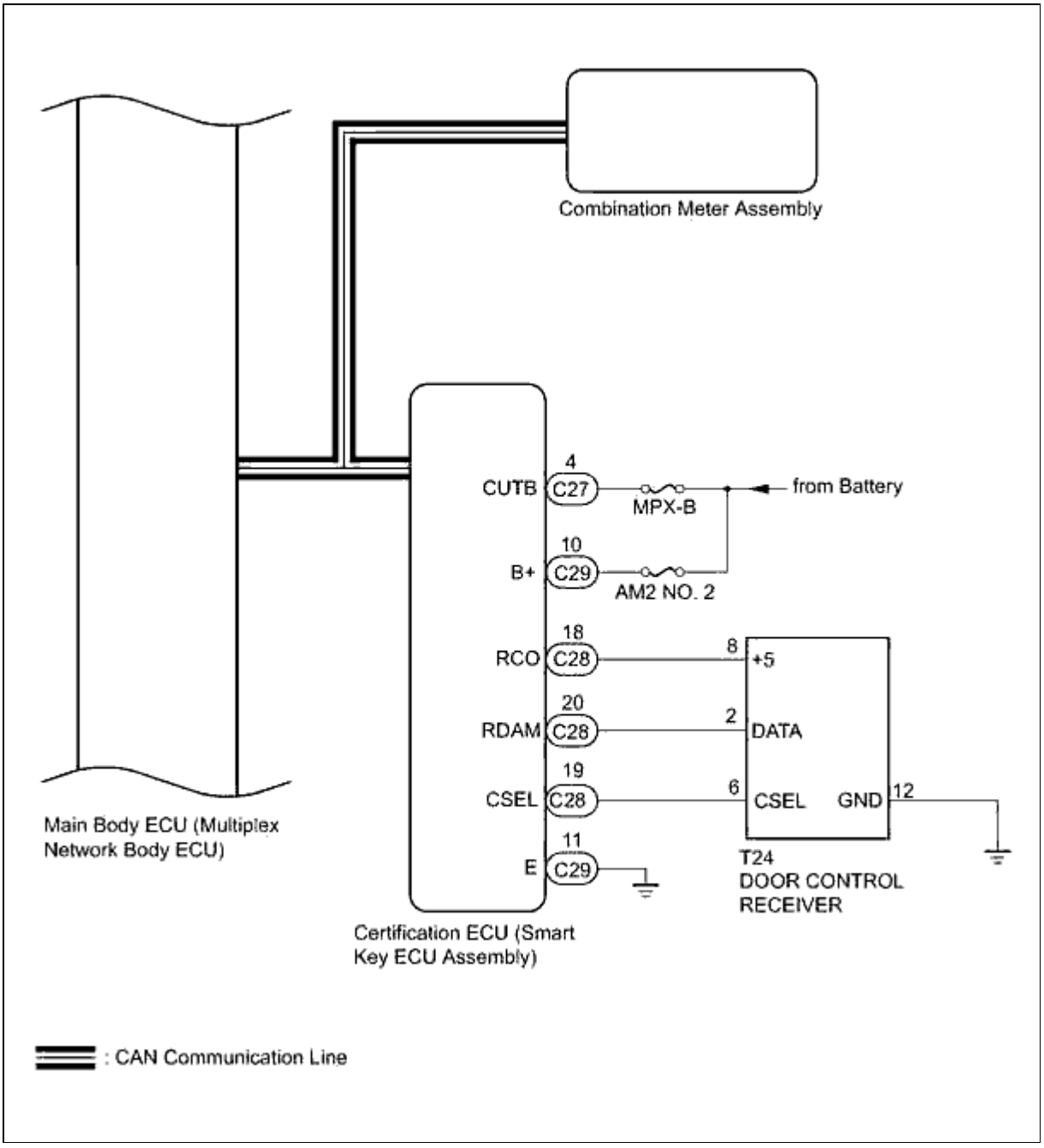
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Last Modified: 11-13-2015	6.6 U	**Doc ID:** RM0000022UH006X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/ Smart Key System): SYSTEM DIAGRAM; 2016 MY Tacoma [08/2015 -]		

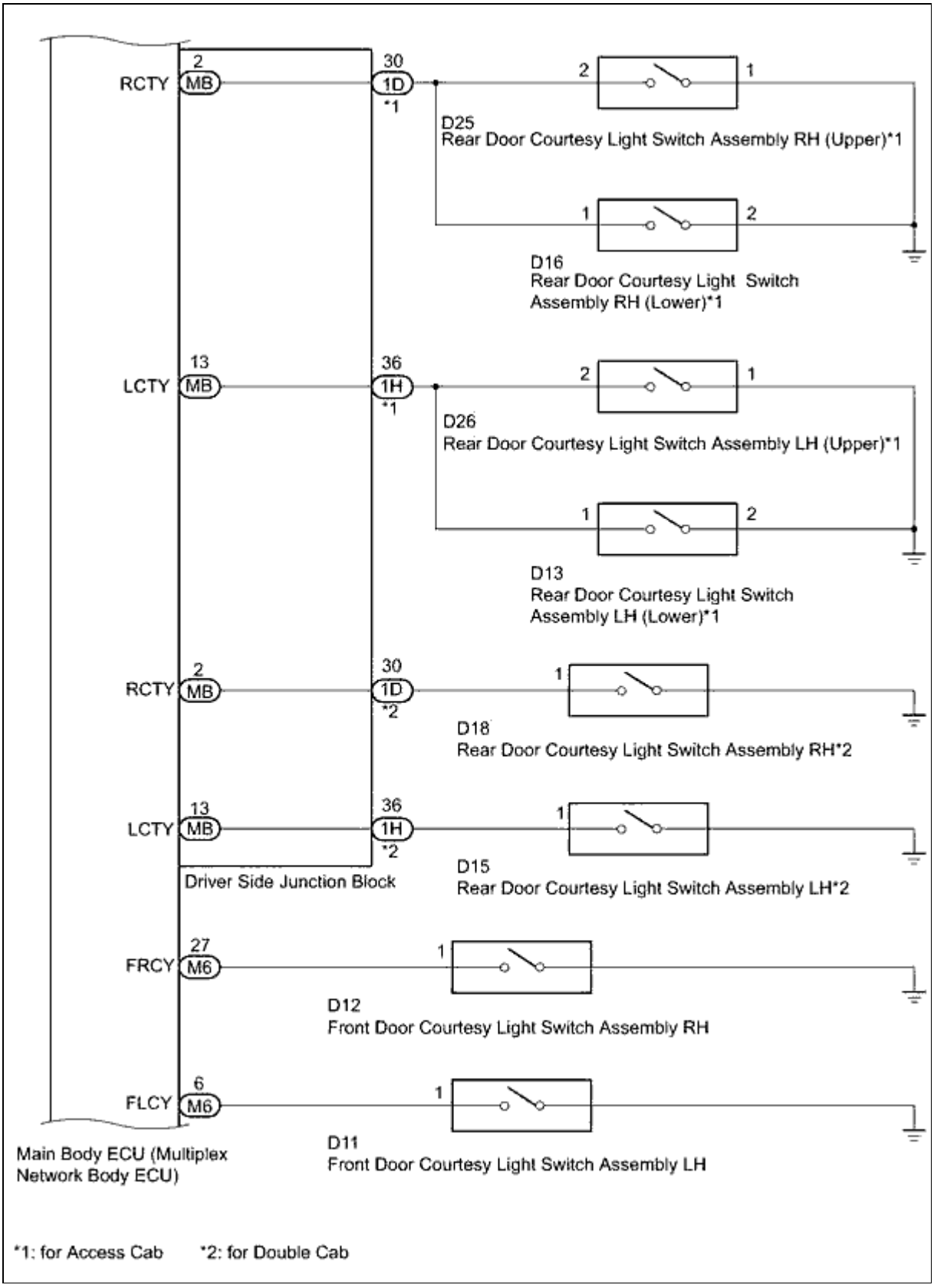
SYSTEM DIAGRAM



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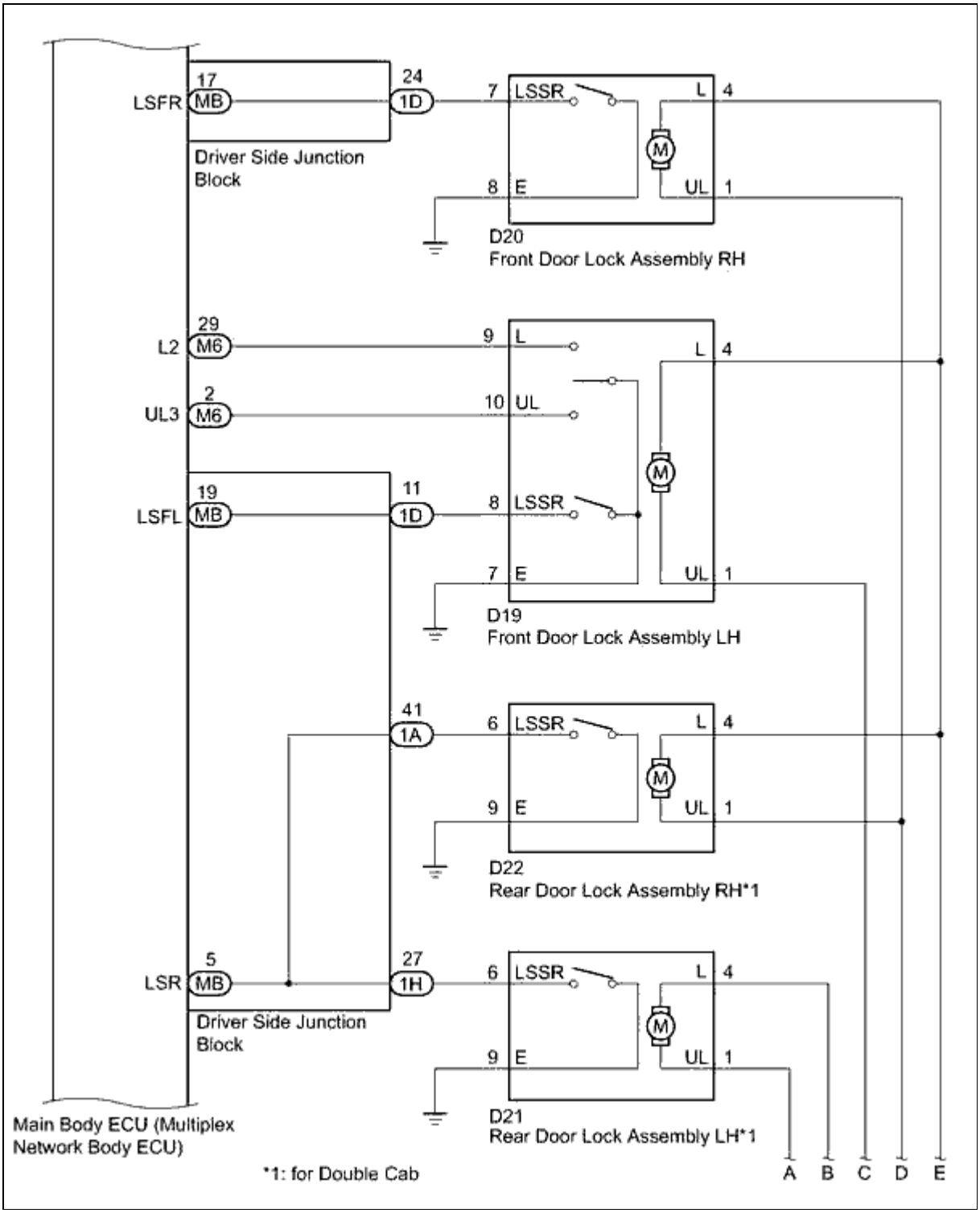


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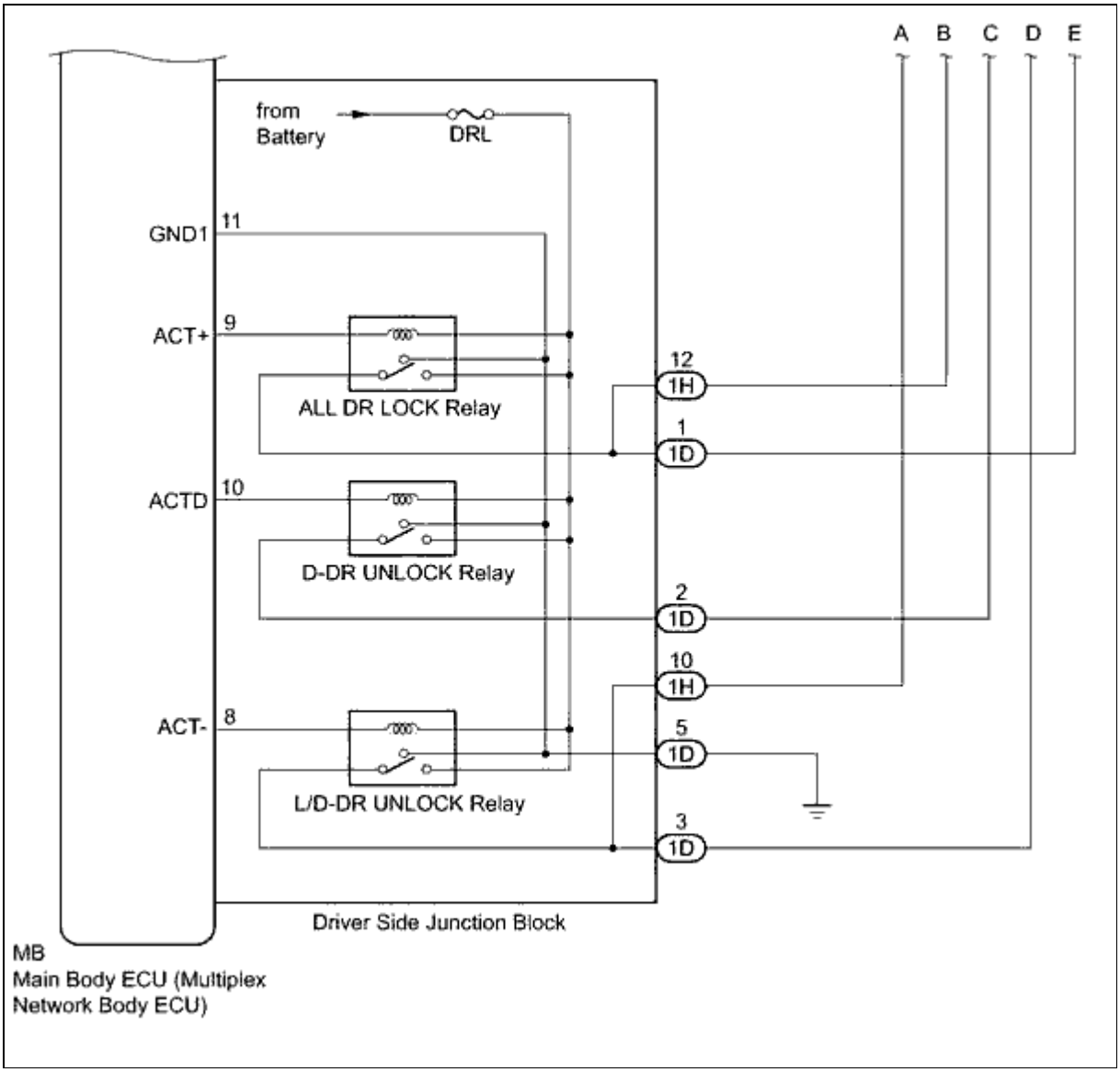


*1: for Access Cab *2: for Double Cab

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Communication Table

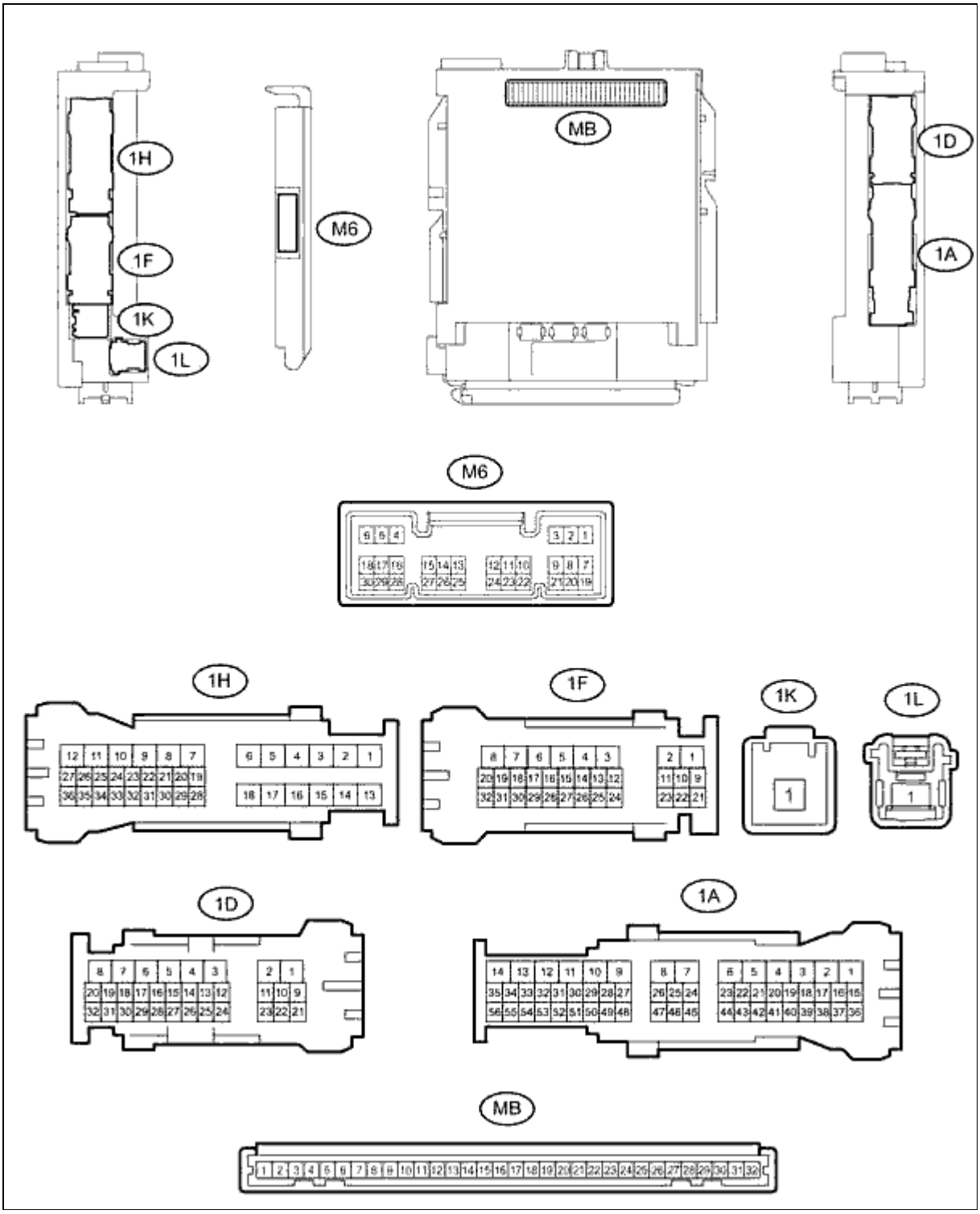
TRANSMITTING ECU (TRANSMITTER)	RECEIVING ECU (RECEIVER)	SIGNAL	LINE
Certification ECU (Smart Key ECU Assembly)	Main Body ECU (Multiplex Network Body ECU)	• Wireless door lock/unlock signal • Wireless door lock buzzer sound request signal	CAN
Main Body ECU (Multiplex Network Body ECU)	Combination Meter Assembly	Wireless door lock hazard warning light request signal	CAN

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Last Modified: 11-13-2015	6.6 U	**Doc ID:** RM0000022UE005X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/ Smart Key System): TERMINALS OF ECU; 2016 MY Tacoma [08/2015 -]		

TERMINALS OF ECU

1. CHECK DRIVER SIDE JUNCTION BLOCK AND MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)



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(a) Disconnect the MB main body ECU (multiplex network body ECU) connectors.

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

HINT:

Measure the values on the wire harness side with the connectors disconnected.

TESTER CONNECTION	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
MB-11(GND1) - Body ground	-	Ground	Always	Below 1 Ω
MB-31 (BECU) - Body ground	-	Battery power supply	Always	11 to 14 V
MB-30 (ACC) - Body ground	-	ACC power supply	Engine switch ACC	11 to 14 V
MB-30 (ACC) - Body ground	-	ACC power supply	Engine switch off	Below 1 V
MB-32 (IG) - Body ground	-	IG power supply	Engine switch ON	11 to 14 V
MB-32 (IG) - Body ground	-	IG power supply	Engine switch off	Below 1 V

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

(c) Reconnect the MB main body ECU (multiplex network body ECU) connectors.

(d) Measure the voltage and check for pulses according to the value(s) in the table below.

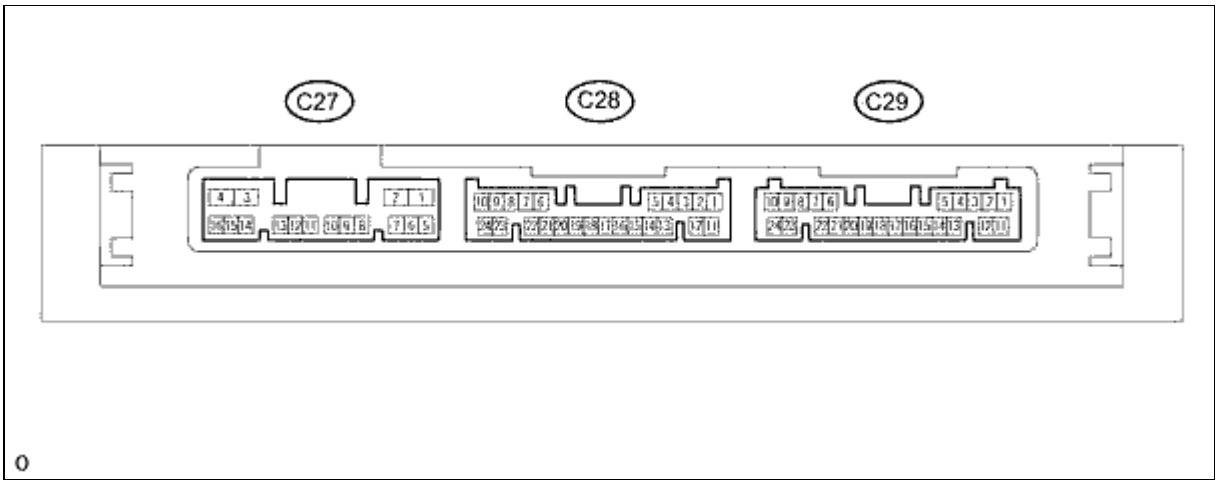
TESTER CONNECTION	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
1D-1 (ACT+) - Body ground	R - Body ground	Door lock motor unlock drive output (except driver door)	Door control switch (power window regulator master switch assembly) or driver door key cylinder off	Below 1 V
			Door control switch (power window regulator master switch assembly) or driver door key cylinder unlocked	11 to 14 V
1H-12 (ACT+) - Body ground	LA-R - Body ground	Door lock motor unlock drive output (except driver door)	Door control switch (power window regulator master switch assembly) or driver door key cylinder off	Below 1 V
			Door control switch (power window regulator master switch assembly) or driver door key cylinder unlocked	11 to 14 V
1H-10 (ACT-) - Body ground	LA-G - Body ground	Door lock motor lock drive output (all doors)	Door control switch (power window regulator master switch assembly) or driver door key cylinder off	Below 1 V
			Door control switch (power window regulator master switch assembly) or driver door key cylinder locked	11 to 14 V
1D-3 (ACT-) - Body ground	G - Body ground	Door lock motor lock drive output (all doors)	Door control switch (power window regulator master switch assembly) or driver door key cylinder off	Below 1 V

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*1: for Double Cab
*2: for Access Cab

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

2. CHECK CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)



(a) Disconnect the C27 and C29 certification ECU (smart key ECU assembly) connector.

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

HINT:

Measure the values on the wire harness side with the connector disconnected.

TESTER CONNECTION	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
C29-11 (E) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
C29-10 (+B) - Body ground	P - Body ground	Battery power supply	Always	11 to 14 V
C27-4 (CUTB) - Body ground	GR - Body ground	Dark current cut fuse pin input signal	Always	11 to 14 V

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

(c) Reconnect the C27 and C29 certification ECU (smart key ECU assembly) connector.

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

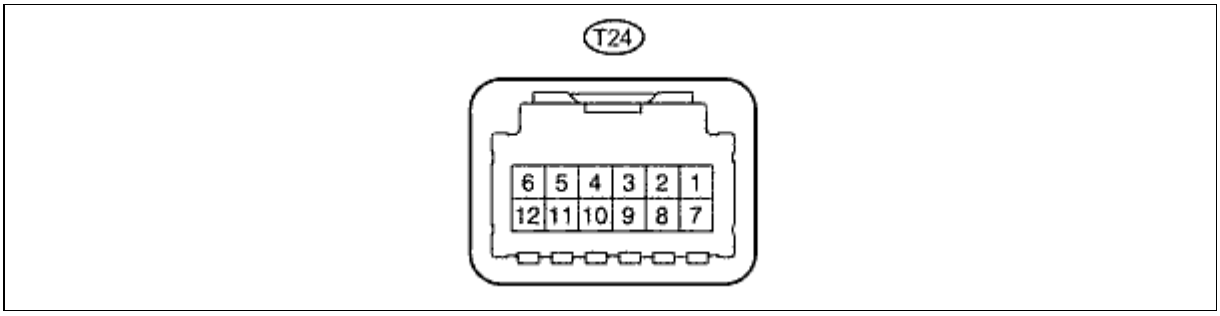
TESTER CONNECTION	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
C27-3 (IG1D) - C29-11 (E)	B - W-B	IG power supply	Engine switch on (IG)	11 to 14 V
			Engine switch off	Below 1 V
C28-19 (CSEL) - C29-11 (E)	SB - W-B	Communication channel switching circuit	Engine switch off, all doors closed and electrical key transmitter sub-assembly switch not pressed → electrical key transmitter sub-assembly switch pressed → electrical key transmitter sub-assembly switch released	Below 1 V → 4.5 to 6.0 V → Below 1 V

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TESTER CONNECTION	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
C28-20 (RDAM) - C29-11 (E)	G - W-B	RF Signal input circuit	Engine switch off	11 to 14 V pulse generation at regular intervals
C28-18 (RCO) - C29-11 (E)	L - W-B	Wireless tuner power supply output circuit	Engine switch off, all doors closed and electrical key transmitter sub-assembly switch not pressed → electrical key transmitter sub-assembly switch pressed	Below 1 V → 4.5 to 5.5 V

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

3. CHECK DOOR CONTROL RECEIVER



(a) Disconnect the T24 door control receiver connector.

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

HINT:

Measure the values on the wire harness side with the connector disconnected.

TESTER CONNECTION	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
T24-7 (+B) - Body ground	BE - Body ground	Battery (power supply)	Always	10 to 16 V
T24-12 (GND) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

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

(c) Reconnect the T24 door control receiver connector.

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

TESTER CONNECTION	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
T24-6 (CSEL) - T24-12 (GND)	SB - W-B	Smart system receiving channel switching signal input	Engine switch off, all doors closed and electrical key transmitter sub-assembly switch not pressed → electrical key transmitter sub-assembly switch pressed → electrical key transmitter sub-assembly switch released	Below 1 V → 4.5 to 6.0 V → Below 1 V

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TESTER CONNECTION	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
T24-2 (DATA) - T24-12 (GND)	G - W-B	Smart system recovery code output	Engine switch off, all doors closed and electrical key transmitter sub-assembly switch not pressed → electrical key transmitter sub-assembly switch pressed → electrical key transmitter sub-assembly switch released	Below 1 V → 10 to 16 V → Below 1 V
T24-8 (+5) - T24-12 (GND)	L - W-B	Receive mode switching signal input	Engine switch off, all doors closed and electrical key transmitter sub-assembly switch not pressed → electrical key transmitter sub-assembly switch pressed	Below 1 V → 4.5 to 5.5 V

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





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Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/o Smart Key System): CUSTOMIZE PARAMETERS; 2016 MY Tacoma [08/2015 -]		

CUSTOMIZE PARAMETERS

1. CUSTOMIZE WIRELESS DOOR LOCK CONTROL SYSTEM

HINT:

The following items can be customized.

NOTICE:

- 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) Customizing with the Techstream

(1) Connect the Techstream to the DLC3.

(2) Turn the ignition switch to ON.

(3) Turn the Techstream on.

(4) Enter the following menus: Customize Setting / Wireless Door Lock.

(5) Select the setting by referring to the table below.

DISPLAY	DEFAULT	CONTENT	SETTING	RELEVANT ECU
Wireless Control	ON	Function that turns wireless door lock	OFF or ON	Main body ECU (Multiplex network body ECU)
Hazard Answer Back	ON	When the doors are locked by wireless operation, the hazard warning lights flash once. When the doors are unlocked by wireless operation, the hazard warning lights flash twice.	OFF or ON	Main body ECU (Multiplex network body ECU)
Open Door Warning	OFF	The buzzer sounds when lock is pressed when any of the doors are ajar.	OFF or ON	Main body ECU (Multiplex network body ECU)
Unlock 2 Operation	ON	Function that unlocks driver door when unlock switch on door control transmitter module set sub-assembly is pressed once, and unlocks all doors when pressed twice. If setting is OFF, pressing unlock switch once makes all doors unlock.	OFF or ON	Main body ECU (Multiplex network body ECU)
Panic Function	ON	Function to operate theft deterrent system by continuously pressing panic switch on door control transmitter module set sub-assembly for 0.8 seconds	OFF or ON	Main body ECU (Multiplex network body ECU)

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DISPLAY	DEFAULT	CONTENT	SETTING	RELEVANT ECU
Auto Lock Time	60 s	Function that regulates the interval between unlocking and automatic relocking of doors	30 s, 60 s or 120 s	Main body ECU (Multiplex network body ECU)
Wireless Auto Lock	ON	This function turns the wireless auto lock function on or off.	OFF or ON	Main body ECU (Multiplex network body ECU)
Wireless Buzzer Resp	ON	Wireless door lock buzzer response	OFF or ON	Main body ECU (Multiplex network body ECU)
Wireless Buzzer Vol	Level 5	Wireless door lock buzzer volume	Level 7, Level 6, Level 5, Level 4, Level 3, Level 2, Level 1 or Level 0	Main body ECU (Multiplex network body ECU)
Wireless Lock Function with Doors Open	ON	Function that locks all the doors after the door that was ajar or open when the lock switch of the door control transmitter module set sub-assembly was pressed is closed	OFF or ON	Main body ECU (Multiplex network body ECU)

(b) Customizing with the Multi-display (w/ Navigation System)

(1) Turn the ignition switch to ON.

(2) Enter the following menus: APPS / Setup / Vehicle / Vehicle Customization / Door Lock Settings.

(3) Select the setting by referring to the table below.

DISPLAY	DEFAULT	CONTENT	SETTING	RELEVANT ECU
Remote 2-Press Unlock	On	Function that unlocks driver door when unlock switch on door control transmitter module set sub-assembly is pressed once, and unlocks all doors when pressed twice. If setting is off, pressing unlock switch once makes all doors unlock.	On or Off	Main body ECU (Multiplex network body ECU)
Auto Relock Timer	60 s	Function that regulates the interval between unlocking and automatic relocking of doors	Off, 30 s, 60 s or 120 s	Main body ECU (Multiplex network body ECU)

(c) Customizing with the Multi-display (w/ Audio and Visual System)

(1) Turn the ignition switch to ON.

(2) Enter the following menus: SETUP / Vehicle / Vehicle Customization / Door Lock Settings.

(3) Select the setting by referring to the table below.

DISPLAY	DEFAULT	CONTENT	SETTING	RELEVANT ECU
Remote 2-Press	On	Function that unlocks driver door when unlock switch on door control transmitter module set sub-assembly is	On or Off	Main body ECU (Multiplex

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DISPLAY	DEFAULT	CONTENT	SETTING	RELEVANT ECU
Unlock		pressed once, and unlocks all doors when pressed twice. If setting is off, pressing unlock switch once makes all doors unlock.		network body ECU)
Auto Relock Timer	60 s	Function that regulates the interval between unlocking and automatic relocking of doors	Off, 30 s, 60 s or 120 s	Main body ECU (Multiplex network body ECU)





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Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/o Smart Key System): DATA LIST / ACTIVE TEST; 2016 MY Tacoma [08/2015 -]		

DATA LIST / ACTIVE TEST

1. DATA LIST

HINT:

Using the 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.

NOTICE:

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

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Main Body / Data List.

(e) Read the Data List according to the display on the Techstream.

Main Body

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Key Unlock Warning SW	Unlock warning switch/ON or OFF	ON: Ignition key inserted OFF: Ignition key not inserted	-
ACC SW	Ignition switch ACC signal/ON or OFF	ON: Ignition switch ACC OFF: Ignition switch off	-
IG SW	Ignition switch IG signal/ON or OFF	ON: Ignition switch ON OFF: Ignition switch off	-
RR Door Courtesy SW	Rear door courtesy light switch RH signal/ON or OFF	ON: Rear door RH open OFF: Rear door RH closed	-
RL Door Courtesy SW	Rear door courtesy light switch LH signal/ON or OFF	ON: Rear door LH open OFF: Rear door LH closed	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
FR Door Lock Pos	Front door RH unlock detection switch signal/LOCK or UNLOCK	LOCK: Front door RH locked UNLOCK: Front door RH unlocked	-
FR Door Courtesy	Front door courtesy light switch RH signal/ON or OFF	ON: Front door RH closed OFF: Front door RH open	-
FL Door Lock Pos	Front door LH unlock detection switch signal/LOCK or UNLOCK	LOCK: Front door LH locked UNLOCK: Front door LH unlocked	-
FL Door Courtesy	Front door courtesy light switch LH signal/ON or OFF	ON: Front door LH closed OFF: Front door LH open	-
RR-Door Lock Pos SW	Rear door RH and LH unlock detection switch signal/ON or OFF	ON: Rear door RH or LH unlocked OFF: Rear door RH and LH locked	-
RL-Door Lock Pos SW	Rear door RH and LH unlock detection switch signal/ON or OFF	ON: Rear door RH or LH unlocked OFF: Rear door RH and LH locked	-
Wireless Control	Wireless door lock control function/ON or OFF	Customization status displayed	-
Hazard Answer Back	Hazard answer-back of wireless/ON or OFF	Customization status displayed	-
Wireless Auto Lock	Automatic lock function/ON or OFF	Customization status displayed	-
Open Door Warning	Open door warning/ON or OFF	Customization status displayed	-
Unlock 2 Operation	2 times operation of wireless unlock/ON or OFF	Customization status displayed	-
Panic Function	Panic function/ON or OFF	Customization status displayed	-
Auto Lock Time	Automatic lock time/120 s, 60 s or 30 s	Customization status displayed	-
Wireless Buzzer Resp	Buzzer answer-back of wireless/ON or OFF	Customize setting displayed	-
Wireless Buzzer Vol	Wireless door lock buzzer volume/Level7, Level6, Level5, Level4, Level3, Level2, Level1 or Level0	Customization status displayed	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Wireless Lock Function with Doors Open	Wireless reservation lock/ON or OFF	Customize setting displayed	-

2. ACTIVE TEST

HINT:

Using the 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 the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Main Body / Active Test.

(e) Perform the Active Test according to the display on the Techstream.

Main Body

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Illuminated Entry System	Interior lights (Interior light switch is in door position and all doors are closed)	OFF/ON	-
Door Lock	Door lock motor	Unlock/Lock/OFF	-
Wireless Buzzer	Wireless door lock buzzer	OFF/ON	-

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Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/o Smart Key System): DIAGNOSIS SYSTEM; 2016 MY Tacoma [08/2015 -]		

DIAGNOSIS SYSTEM

1. CHECK DLC3

(a) Check the DLC3 INFO .

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.

3. 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 ON then off once. (End in off)

(3) Within 30 seconds after turning the ignition switch off, perform the following 9 times: Turn the ignition switch to ON then off. (End in off)

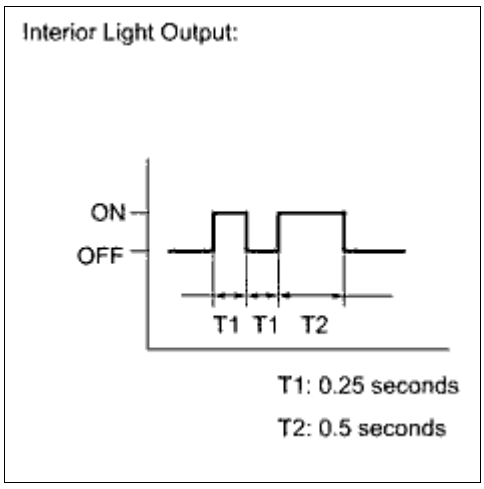
HINT:

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

NOTICE:

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

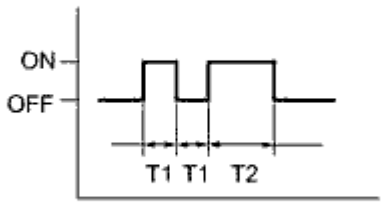
(b) Check that the system has switched to self-diagnostic mode by checking the interior light output pattern.



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(c) Check that the system has switched to self-diagnostic mode by checking the wireless door lock buzzer output pattern.

Wireless Door Lock Buzzer Output:



T1: 0.125 seconds

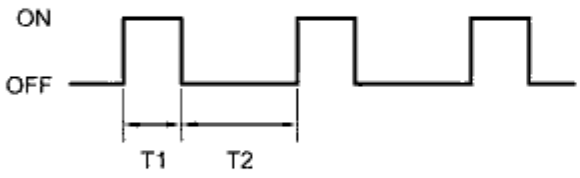
T2: 0.5 seconds

(d) Check the diagnostic outputs when the door control transmitter module set sub-assembly switch is held down. The diagnostic outputs can be checked by the interior light and wireless door lock buzzer patterns.

Interior Light and Wireless Door Lock Buzzer Output:

Normal Wave

(LOCK / UNLOCK / PANIC Switch):



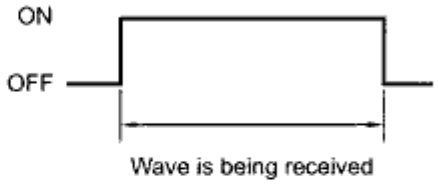
T1: 0.25 seconds (Interior Light)

0.125 seconds (Wireless Door Lock Buzzer)

T2: 0.5 seconds (Interior Light)

0.25 seconds (Wireless Door Lock Buzzer)

Unmatching Recognition Code:



No Diagnostic Output:



N

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM0000010J30R9X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/o Smart Key System): HOW TO PROCEED WITH TROUBLESHOOTING; 2016 MY Tacoma [08/2015 -]		

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.
- *: Use the Techstream.

1.	**VEHICLE BROUGHT TO WORKSHOP**

NEXT

2.	**CUSTOMER PROBLEM ANALYSIS**

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:

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

NEXT

3.	**INSPECT BATTERY VOLTAGE**

(a) Measure the battery voltage.

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Standard Voltage:
11 to 14 V

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

NEXT

4.	**INSPECT COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM***

(a) Use the Techstream to check if the CAN communication system is functioning normally INFO .

Result

RESULT	PROCEED TO
DTC is not output	A
DTC is output	B

B GO TO CAN COMMUNICATION SYSTEM

A

5.	**PROBLEM SYMPTOMS TABLE**

(a) Refer to Problem Symptoms Table INFO .

Result

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

6.	**OVERALL ANALYSIS AND TROUBLESHOOTING***

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(a) Operation Check INFO

(b) Terminals of ECU INFO

(c) Data List / Active Test INFO

NEXT

7.	**REPAIR OR REPLACE**

NEXT

8.	**CONFIRMATION TEST**

NEXT **END**

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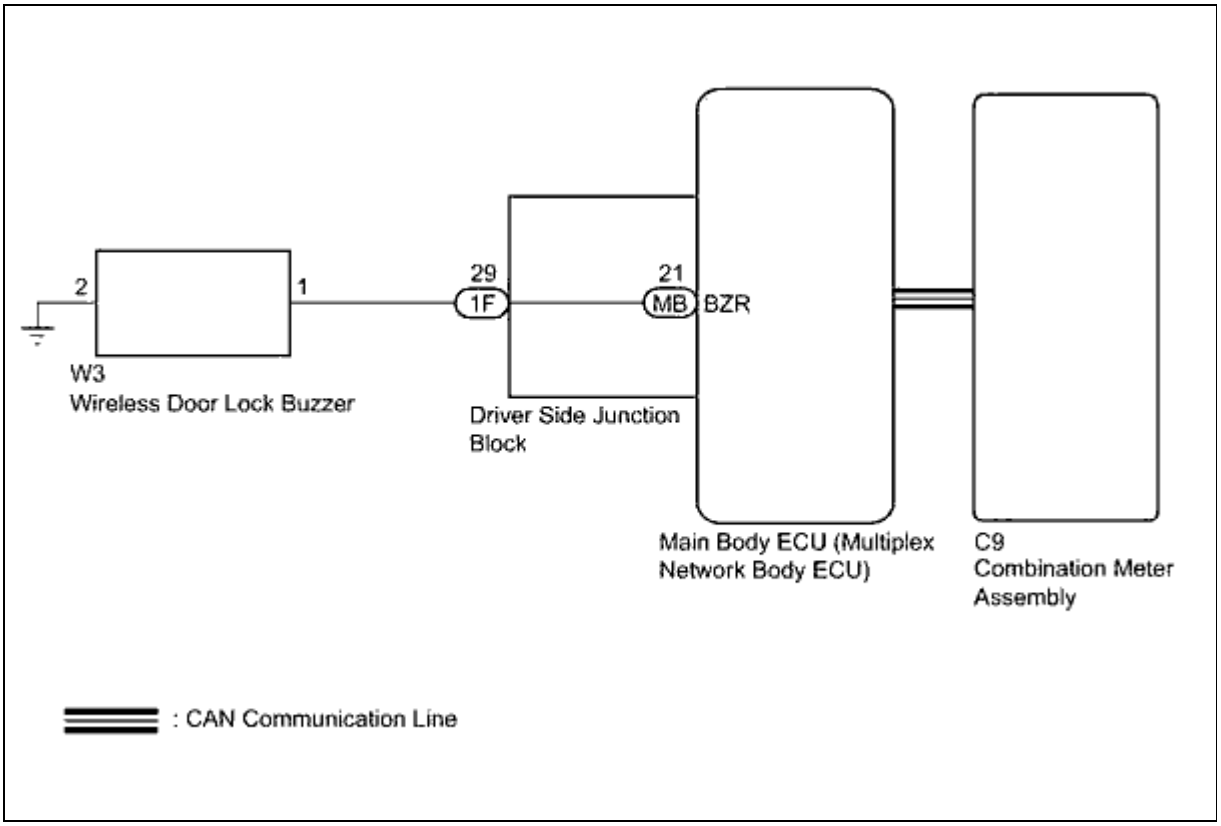
Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM0000027Q80B6X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/o Smart Key System): No Answer-Back; 2016 MY Tacoma [08/2015 -]		

No Answer-Back

DESCRIPTION

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

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

The wireless door lock control system uses the CAN communication system. First, confirm that there is no malfunction in the CAN communication system. Refer to the How to Proceed with Troubleshooting procedure INFO .

PROCEDURE

1.	**READ VALUE USING TECHSTREAM (ANSWER-BACK OPERATION)**

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(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Customize Setting / Wireless Door Lock.

(e) Select the setting by referring to the table below.

DISPLAY	DEFAULT	CONTENT	SETTING	RELEVANT ECU
Hazard Answer Back	ON	When the doors are locked by wireless operation, the hazard warning lights flash once. When the doors are unlocked by wireless operation, the hazard warning lights flash twice.	OFF or ON	Main body ECU (Multiplex network body ECU)
Wireless Buzzer Resp	ON	Wireless door lock buzzer response	OFF or ON	Main body ECU (Multiplex network body ECU)
Wireless Buzzer Vol	Level 5	Wireless door lock buzzer volume	Level 7, Level 6, Level 5, Level 4, Level 3, Level 2, Level 1 or Level 0	Main body ECU (Multiplex network body ECU)

Result

RESULT	PROCEED TO
Both items are ON and except Level 0	A
Either item is OFF or Level 0	B

B ▶ **PERFORM CUSTOMIZE FUNCTION**

A ▼

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

(a) Check the wireless door lock control function using the door control transmitter module set sub-assembly.

Result

RESULT	PROCEED TO
Wireless door lock/unlock operates normally.	A
Wireless door lock/unlock does not operate normally.	B

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B GO TO PROBLEM SYMPTOMS TABLE

A

3.	READ VALUE USING TECHSTREAM (DOOR UNLOCK DETECTION SWITCH)

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Main Body / Data List.

(e) Read the Data List according to the display on the Techstream.

Main Body

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
FR Door Lock Pos	Front door RH unlock detection switch signal/LOCK or UNLOCK	LOCK: Front door RH locked UNLOCK: Front door RH unlocked	-
FL Door Lock Pos	Front door LH unlock detection switch signal/LOCK or UNLOCK	LOCK: Front door LH locked UNLOCK: Front door LH unlocked	-
RR-Door Lock Pos SW*1, *3	Rear door RH and LH unlock detection switch signal/ON or OFF	ON: Rear door RH or LH unlocked OFF: Rear door RH and LH locked	-
RL-Door Lock Pos SW*2, *3	Rear door RH and LH unlock detection switch signal/ON or OFF	ON: Rear door RH or LH unlocked OFF: Rear door RH and LH locked	-

*1: When checking RR- Door Lock Pos SW, make sure to check it with the rear door LH locked.
*2: When checking RL- Door Lock Pos SW, make sure to check it with the rear door RH locked.
*3: for Double Cab

OK:
The Techstream should display as shown in the table according to door lock operation.

NG GO TO LIGHTING SYSTEM (Proceed to Door Unlock Detection Switch Circuit)

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OK

4.	**CHECK WIRELESS ANSWER-BACK OPERATION**

(a) Check the wireless answer-back operation using the door control transmitter module set sub-assembly.

Result

RESULT	PROCEED TO
Only wireless door lock buzzer answer-back does not occur.	A
Only hazard warning light answer-back does not occur.	B

B **GO TO STEP 10**

A

5.	**PERFORM ACTIVE TEST USING TECHSTREAM (WIRELESS DOOR LOCK BUZZER)**

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Main Body / Active Test.

(e) Perform the Active Test according to the display on the Techstream.

Main Body

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Wireless Buzzer	Turns the wireless door lock buzzer	ON/OFF	-

Result

RESULT	PROCEED TO
Wireless door lock buzzer does not turn on/off.	A
Wireless door lock buzzer turns on/off.	B

B **REPLACE MAIN BODY ECU (MULTIPLEX NETWORK**

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BODY ECU)

A

6.	**CHECK HARNESS AND CONNECTOR (WIRELESS DOOR LOCK BUZZER - DRIVER SIDE JUNCTION BLOCK)**

(a) Disconnect the W3 wireless door lock buzzer connectors.

(b) Disconnect the 1F driver side junction block connectors.

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

Standard Resistance:

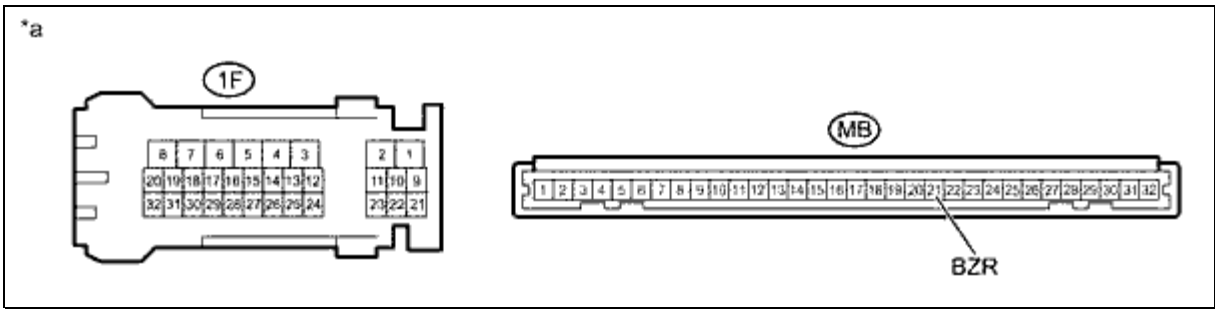
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
W3-1 - 1F-29	Always	Below 1 Ω
W3-2 - Body ground	Always	Below 1 Ω
W3-1 - Body ground	Always	10 kΩ or higher

NG **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

7.	**CHECK DRIVER SIDE JUNCTION BLOCK**

(a) Remove the driver side junction block INFO .



Text in Illustration

*a	Component without harness connected (Driver Side Junction Block)	-	-

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1F-29 - MB-21 (BZR)	Always	Below 1 Ω

NG ▶ **REPLACE DRIVER SIDE JUNCTION BLOCK**

OK ▼

8.	REPLACE WIRELESS DOOR LOCK BUZZER

(a) Temporarily replace the wireless door lock buzzer with a new one INFO .

NEXT ▼

9.	CHECK WIRELESS DOOR LOCK BUZZER OPERATION

(a) Check the operation of the wireless answer-back function.

OK:

Wireless answer-back function operates normally.

NG ▶ **REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)**

OK ▶ **END (WIRELESS DOOR LOCK BUZZER WAS DEFECTIVE)**

10.	CHECK HAZARD WARNING LIGHTS OPERATION

(a) Check that the hazard warning light blinks when the hazard warning signal switch is pressed.

OK:

Hazard warning light signal is normally.

NG ▶ **GO TO LIGHTING SYSTEM (Proceed to Hazard Warning Switch Circuit)**

OK ▶ **REPLACE MAIN BODY ECU (MULTIPLEX NETWORK**

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BODY ECU)

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM000001NMX03VX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/o Smart Key System): OPERATION CHECK; 2016 MY Tacoma [08/2015 -]		

OPERATION CHECK

1. NOTICE WHEN CHECKING THE FOLLOWING

(a) Wireless door lock/unlock function:

This 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 doors are closed.

(3) The power door lock system is operating normally.

HINT:

The unlock function operates even when a door is open.

(b) The size of the wireless door lock control operation area differs depending on the situation.

(1) The size of the operation area differs depending on the user and the way the door control transmitter module set sub-assembly is held.

(2) In certain areas, the wireless door lock control function will only operate partially for the operation area, which will be reduced due to the vehicle body shape and the influence of the surrounding environment.

(3) Since the door control transmitter module set sub-assembly uses weak radio waves, strong radio waves or electrical noise in the frequency used by the door control transmitter module set sub-assembly may reduce the size of the operation area and the remote control may not function.

(4) When the transmitter battery is weak, the size of the operation area is reduced and the remote control may not function.

HINT:

If the door control transmitter module set sub-assembly has been left in a place that is exposed to direct sunlight, such as on the instrument panel, it may cause the transmitter battery to be weakened or cause other related problems.

2. CHECK WIRELESS DOOR LOCK CONTROL FUNCTIONS

NOTICE:

The operation check below is based on the non-customized initial condition of the vehicle.

HINT:

- The switches described in this text are the switches for transmitting signals. The switches are built into the door control transmitter module set sub-assembly.
- All the functions listed below must be checked in comparison with the remote control operation area.

(a) Make sure that the vehicle is in an area that allows the wireless control function to operate.

(b) Check basic functions.

(1) Check that all doors lock when lock switch is pressed.

(2) Check that the driver door unlocks when the unlock switch is pressed once, and unlocks all doors when pressed twice within 5 seconds.

(c) Check the chattering prevention function.

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(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 locking function.

(1) Check that the doors relock automatically as long as none of the doors have been opened or all doors have not been locked within approximately 60 seconds after all doors are unlocked by pressing the unlock switch.

(2) Check that the automatic locking function does not operate when any door has been opened within approximately 60 seconds of unlocking the doors by pressing the unlock switch.

(3) Check that the automatic locking function does not operate when all doors have been locked manually (such as using key linked operation, or by pressing the lock switch) within approximately 60 seconds of unlocking the doors by pressing the unlock switch.

(e) Check the switch operation fail-safe function.

(1) Check that the doors cannot be locked or unlocked by operating a switch on an unregistered door control transmitter module set sub-assembly, and that the doors are locked and unlocked by operating a switch on the registered door control transmitter module set sub-assembly.

(f) Check the repeat function.

(1) Check that all doors attempt to automatically lock once again 1 second after the lock switch has been pressed while the driver door control knob is being held in the unlock position.

(g) Check the answer-back (hazard warning light) function.

(1) When the lock switch is pressed, check that the hazard warning lights flash once simultaneously with the locking operation of all doors.

(2) When the unlock switch is pressed once, check that the hazard warning lights flash twice simultaneously with the unlocking operation of the driver door.

(h) Check the answer-back (wireless door lock buzzer) function.

(1) When the lock switch is pressed, check that the buzzer sounds once simultaneously with the locking operation of all doors.

(2) When the unlock switch is pressed once, check that the buzzer sounds twice simultaneously with the unlocking operation of the driver door.

(3) When the luggage compartment door is opened by wireless operation, the wireless door lock buzzer sounds.

(i) Check the panic alarm control function INFO .

(j) Check the illuminated entry function INFO .

(k) Check the sliding roof open function INFO .

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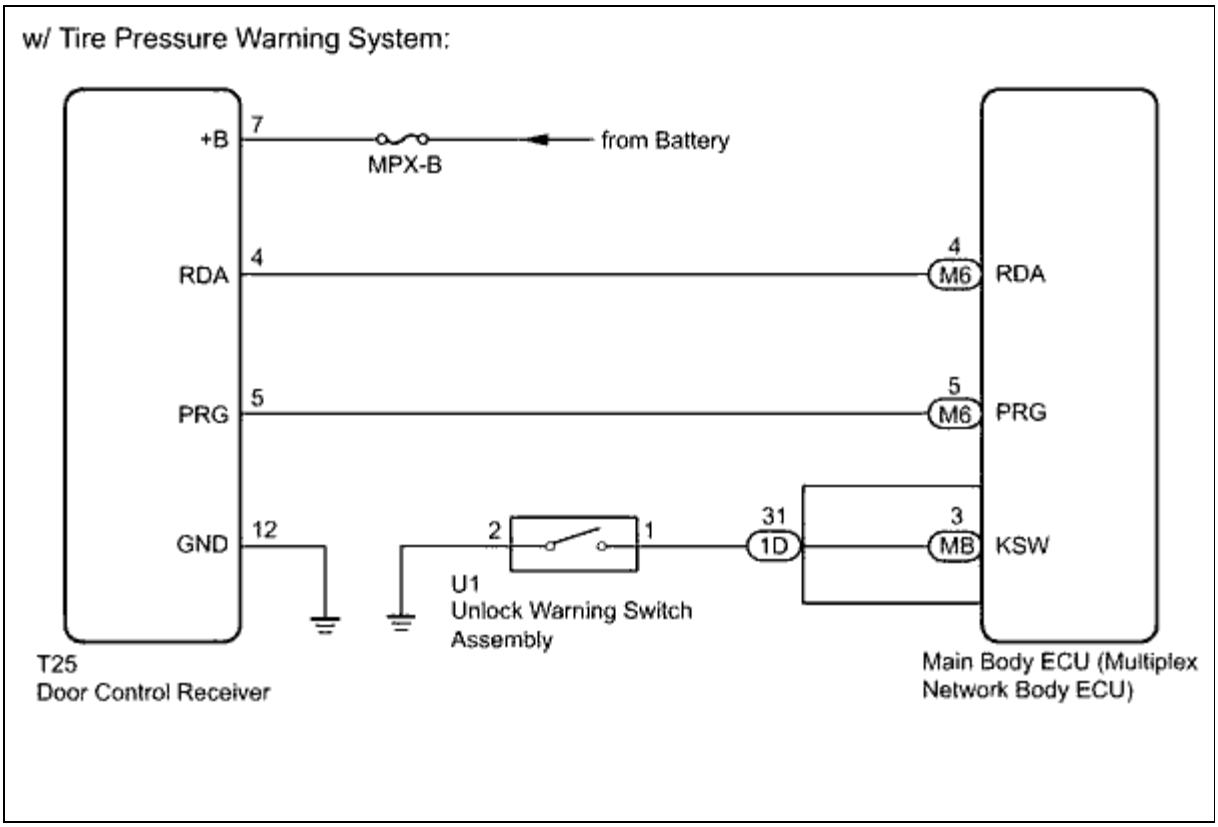
Last Modified: 11-13-2015	6.6 J	**Doc ID:** RM000001WYB069X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/o Smart Key System): Only Wireless Control Function is Inoperative; 2016 MY Tacoma [08/2015 -]		

Only Wireless Control Function is Inoperative

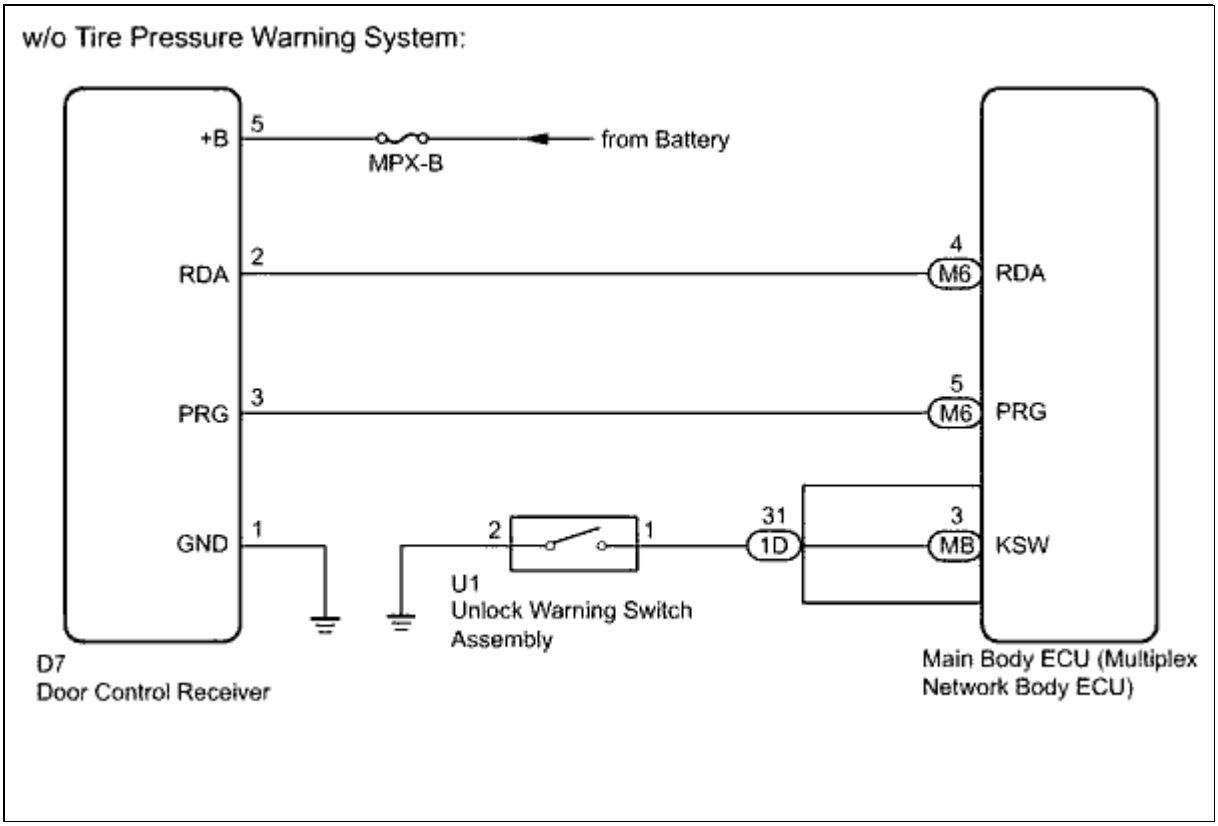
DESCRIPTION

The door control receiver receives signals from the door control transmitter module set sub-assembly and sends these signals to the main body ECU (multiplex network body ECU). The main body ECU (multiplex network body ECU) then controls all doors by sending lock/unlock signals to each door, and sends hazard flasher signals to the combination meter assembly.

WIRING DIAGRAM



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INSPECTION PROCEDURE

NOTICE:

- Inspect the fuses for circuits related to this system before performing the following inspection procedure.
- When replacing the door control receiver, read the transmitter IDs (tire pressure warning system) stored in the old ECU using the Techstream and write them down before removal INFO .*
- It is necessary to perform registration INFO of the transmitter IDs into the door control receiver if the door control receiver has been replaced.*
- When replacing or inspecting the door control receiver and wire harness, do not change the position or length of the wire harness. If the wire harness is too close to the door control receiver and wireless function performance may be affected.

*: w/ Tire Pressure Warning System

PROCEDURE

1.	**CHECK POWER DOOR LOCK OPERATION**

(a) When the door control switch on the power window regulator master switch assembly is operated, check that the locked doors unlock INFO .

OK:

Locked doors unlock.

NG ▶ **GO TO POWER DOOR LOCK CONTROL SYSTEM**

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OK

2.	**CHECK KEY REMINDER WARNING SYSTEM**

(a) Check that the key reminder warning buzzer operates normally.

OK:

Key reminder warning buzzer operates normally.

NG ▶ **GO TO KEY REMINDER WARNING SYSTEM**

OK

3.	**CHECK DOOR CONTROL TRANSMITTER MODULE SET SUB-ASSEMBLY**

(a) When a known good registered door control transmitter module set sub-assembly is used, check that the wireless functions operate normally.

Result

RESULT	PROCEED TO
Wireless door lock/unlock function operates normally with a known good door control transmitter module set sub-assembly.	A
Wireless door lock/unlock function does not operate.	B

B ▶ **GO TO STEP 5**

A

4.	**CHECK TRANSMITTER BATTERY (VOLTAGE)**

(a) Inspect the battery capacity.

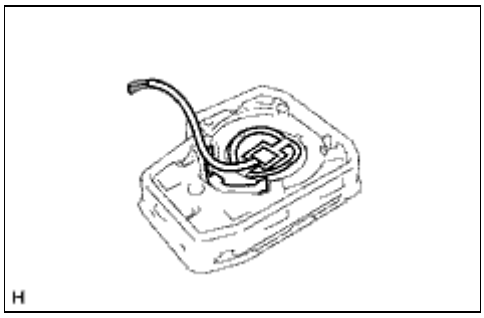
(1) Remove the battery from the door control transmitter module set sub-assembly that does not operate. Attach a lead wire (0.6 mm (0.0236 in.) in diameter or less including wire sheath) with tape or equivalent to the negative (-) terminal.

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NOTICE:

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.



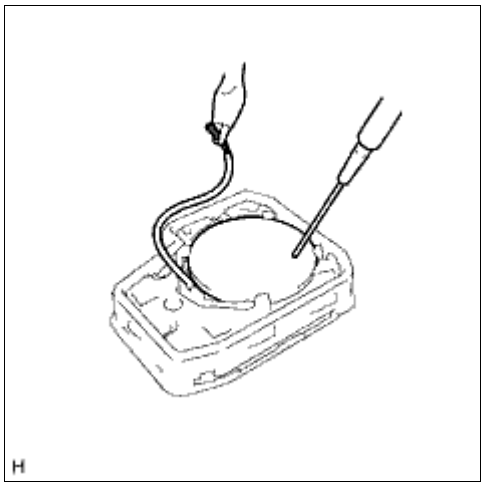
NOTICE:

When replacing the transmitter battery, before starting work, remove static electricity that has built up in the body by touching, for example, the vehicle to prevent the electrical key transmitter from being damaged.

(c) Check the transmitter battery voltage.

HINT:

Measure the transmitter battery voltage while pressing the lock or unlock switch on the door control transmitter module set sub-assembly.



Standard Voltage:

ITEM	CONTENT
Tester Connection	Transmitter battery positive (+) - Transmitter battery negative (-)
Condition	Ignition switch off, all doors closed and lock or unlock switch is pressed
Specified Condition	2.5 to 3.2 V

NG ▶ **REPLACE TRANSMITTER BATTERY**

OK ▶ **REPLACE DOOR CONTROL RECEIVER**

5.	**CHECK WAVE ENVIRONMENT**

(a) Bring the door control transmitter module set sub-assembly near the door control receiver, and perform a wireless operation check.

HINT:

- When the door control transmitter module set sub-assembly 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.
- 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 functions operate normally.

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NG ▶ **GO TO STEP 6**

OK ▶ **END (AFFECTED BY WAVE INTERFERENCE)**

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

(a) Switch to self-diagnostic mode by operating the ignition key cylinder.

(1) Make sure that the vehicle is in its initial condition. Then insert the key into the ignition key cylinder and remove it.

(2) Within 5 seconds after removing the key, insert the key into the ignition key cylinder (ignition switch off). Then turn the ignition switch to ON and off.

(3) Within 30 seconds after turning the ignition switch off, perform the following operation 9 times: turn the ignition switch to ON and then off.

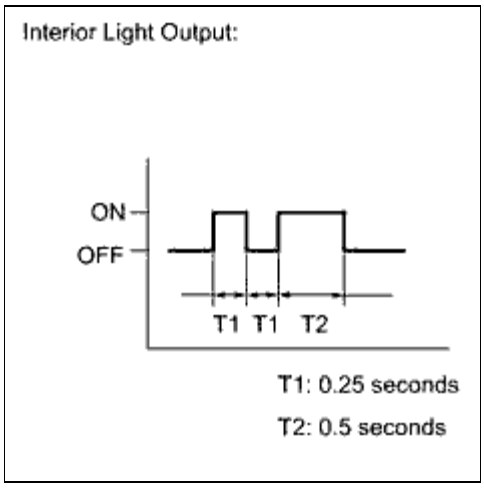
NOTICE:

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

HINT:

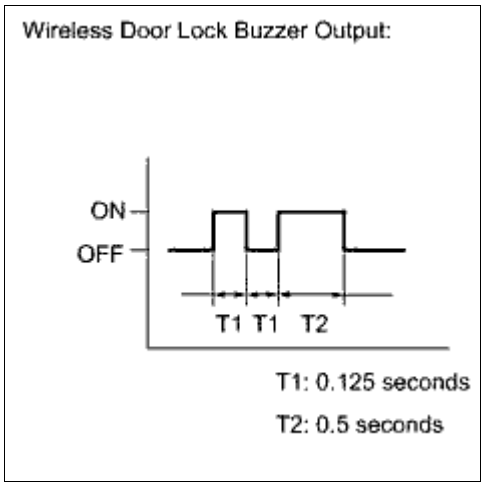
- Turning the ignition switch to ON after the above operations have been completed ends self-diagnostic mode.
- Do not lock or unlock doors during self-diagnostic mode.

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



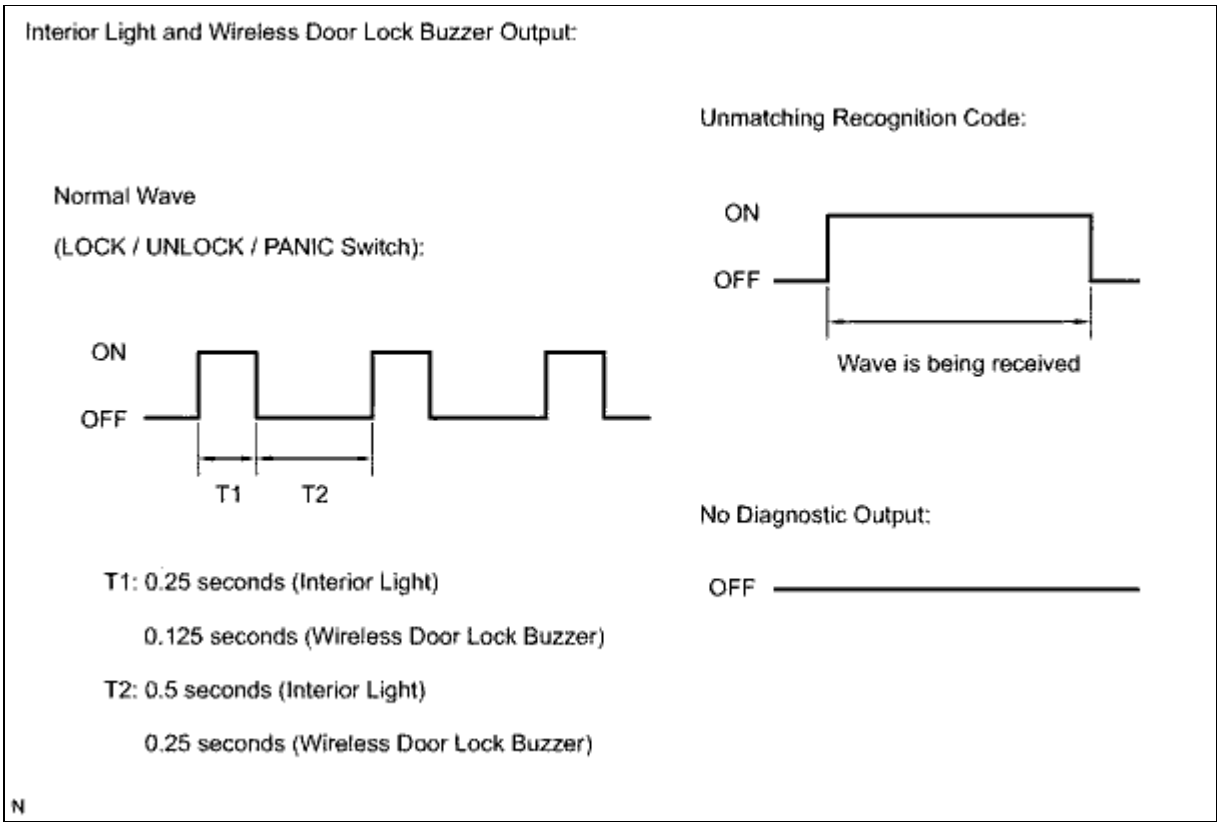
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(c) Check that the system has switched to self-diagnostic mode by checking the wireless door lock buzzer output pattern.



NEXT

7.	**CHECK SELF DIAGNOSTIC MODE**



(a) Inspect the diagnostic outputs when the door control transmitter module set sub-assembly switch is held down. The diagnostic outputs can be checked by the flash patterns of the interior lights and the buzzer patterns of the wireless door lock buzzer.

Result

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RESULT	PROCEED TO
Normal wave (light flash pattern and buzzer pattern) is output.	A
Unmatching recognition code is output.	B
No diagnostic outputs.	C

B ▶ **GO TO STEP 8**

C ▶ **GO TO STEP 9**

A ▶ **REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)**

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 INFO .

OK:

Recognition code can be registered.

NG ▶ **GO TO STEP 13**

OK ▶ **END (GO TO OPERATION CHECK)**

9.	CHECK DOOR CONTROL RECEIVER (RESPONSE)

(a) Prepare the door control transmitter module set sub-assembly from another vehicle.

(b) Press and hold down the door control transmitter module set sub-assembly switch.

(c) Check that an unmatching recognition code is output.

OK:

Unmatching recognition code is output.

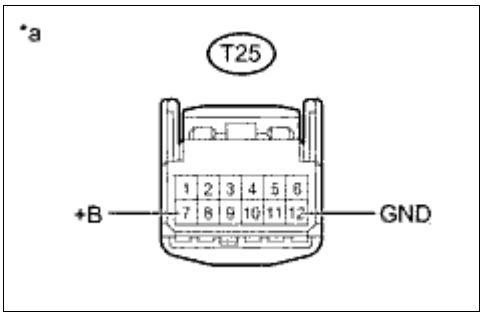
NG ▶ **GO TO STEP 10**

OK ▶ **REPLACE DOOR CONTROL RECEIVER**

10.	CHECK DOOR CONTROL RECEIVER (+B, GND)

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(a) Disconnect the door control receiver (w/ Tire Pressure Warning System).



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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
T25-12 (GND) - Body ground	Always	Below 1 Ω

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

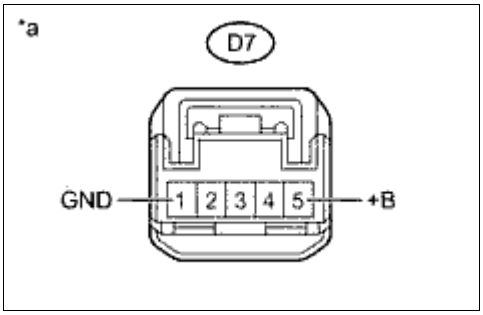
Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
T25-7 (+B) - Body ground	Always	11 to 14 V

Text in Illustration

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

(d) Disconnect the door control receiver (w/o Tire Pressure Warning System).



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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D7-1 (GND) - Body ground	Always	Below 1 Ω

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

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D7-5 (+B) - Body ground	Always	11 to 14 V

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Text in Illustration

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

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

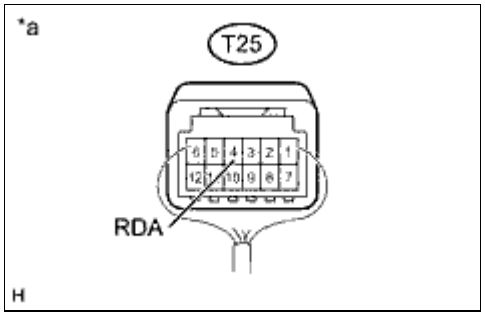
11.	**CHECK DOOR CONTROL RECEIVER (OUTPUT)**

(a) Connect the door control receiver connector (w/ Tire Pressure Warning System).

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

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
T25-4 (RDA) - Body ground	Ignition switch off, all doors closed and door control transmitter module set sub-assembly switch not pressed	11 to 14 V
	Ignition switch off, all doors closed and door control transmitter module set sub-assembly switch pressed	Pulse generation



Text in Illustration

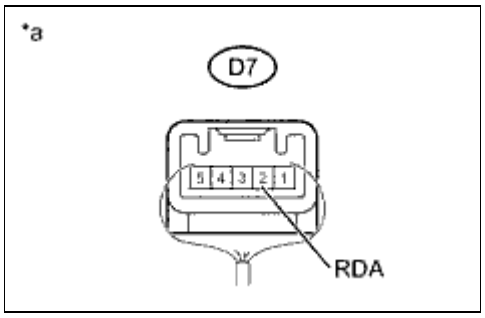
*a	Component with harness connected (Door Control Receiver)

(c) Connect the door control receiver connector (w/o Tire Pressure Warning System).

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

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
D7-2 (RDA) -	Ignition switch off, all doors closed	11 to 14 V



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TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
Body ground	and door control transmitter module set sub-assembly switch not pressed	
	Ignition switch off, all doors closed and door control transmitter module set sub-assembly switch pressed	Pulse generation

Text in Illustration

*a	Component with harness connected (Door Control Receiver)

Result

RESULT	PROCEED TO
OK	A
NG (w/o Tire Pressure Warning System)	B
NG (w/ Tire Pressure Warning System)	C

B ▶ **REPLACE DOOR CONTROL RECEIVER**

C ▶ **REPLACE DOOR CONTROL RECEIVER**

A ▼

12.	**CHECK HARNESS AND CONNECTOR (MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU) - DOOR CONTROL RECEIVER)**

(a) Disconnect the M6 main body ECU (multiplex network body ECU) connector and the T25*1 or D7*2 door control receiver connector.

*1: w/ Tire Pressure Warning System
*2: w/o Tire Pressure Warning System

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

Standard Resistance:

w/ Tire Pressure Warning System

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION

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TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
M6-4 (RDA) - T25-4 (RDA)	Always	Below 1 Ω
M6-4 (RDA) - Body ground	Always	10 kΩ or higher
M6-5 (PRG) - T25-5 (PRG)	Always	Below 1 Ω
M6-5 (PRG) - Body ground	Always	10 kΩ or higher

w/o Tire Pressure Warning System

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
M6-4 (RDA) - D7-2 (RDA)	Always	Below 1 Ω
M6-4 (RDA) - Body ground	Always	10 kΩ or higher
M6-5 (PRG) - D7-3 (PRG)	Always	Below 1 Ω
M6-5 (PRG) - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK
▼

13.	**REPLACE DOOR CONTROL RECEIVER**

(a) Temporarily replace the door control receiver with a new or known good one INFO .

NEXT
▼

14.	**REGISTER RECOGNITION CODE**

(a) Perform the Registration procedure INFO .

NEXT
▼

15.	**CHECK DOOR CONTROL RECEIVER (OPERATION)**

(a) Check that the doors can be locked and unlocked by using the door control transmitter module set sub-assembly lock and unlock switches.

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OK:

Doors can be locked and unlocked using door control transmitter module set sub-assembly.

NG ▶ **REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)**

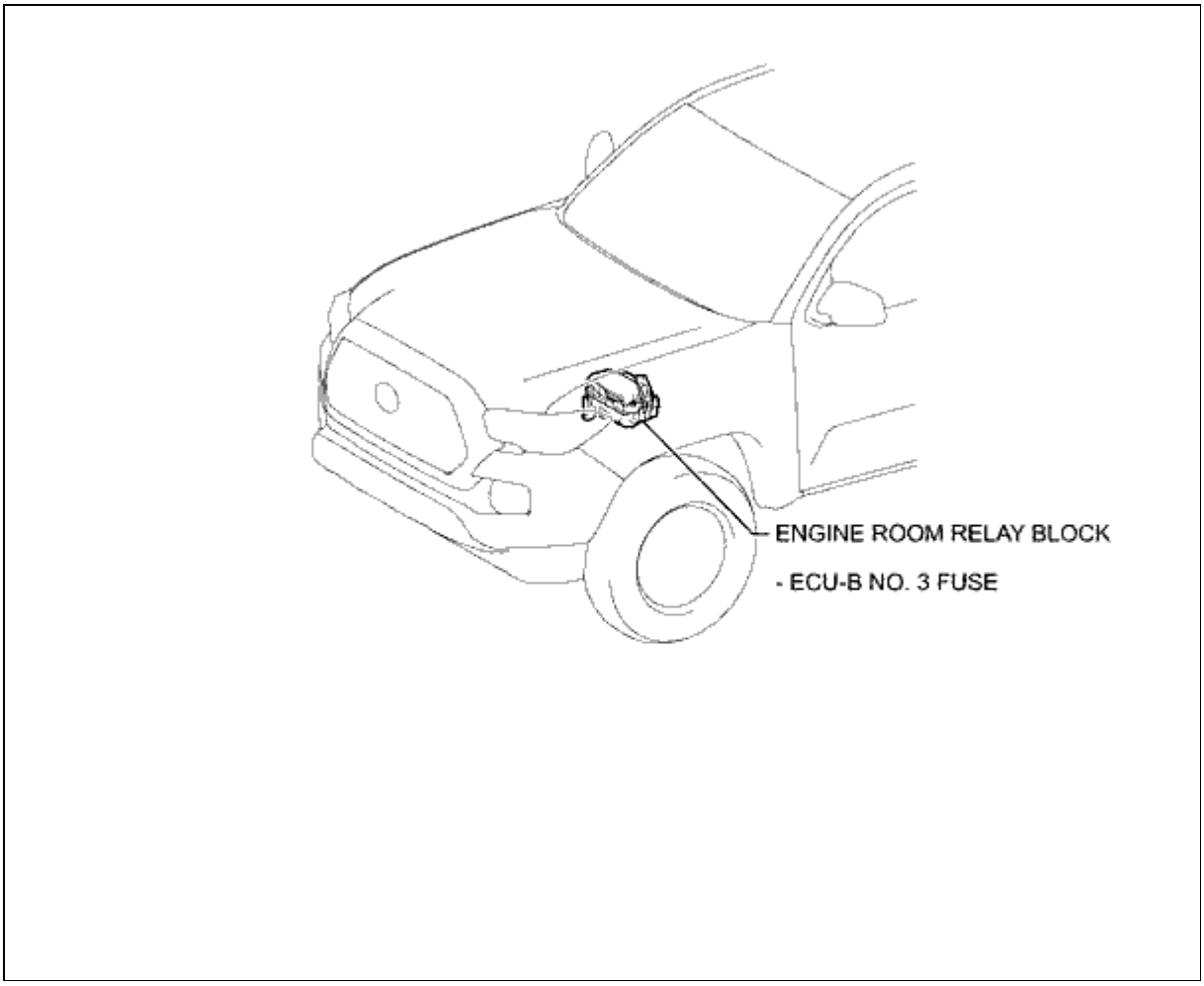
OK ▶ **END (DOOR CONTROL RECEIVER WAS DEFECTIVE)**

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Last Modified: 11-13-2015	6.6 R	**Doc ID:** RM0000024CQ030X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/o Smart Key System): PARTS LOCATION; 2016 MY Tacoma [08/2015 -]		

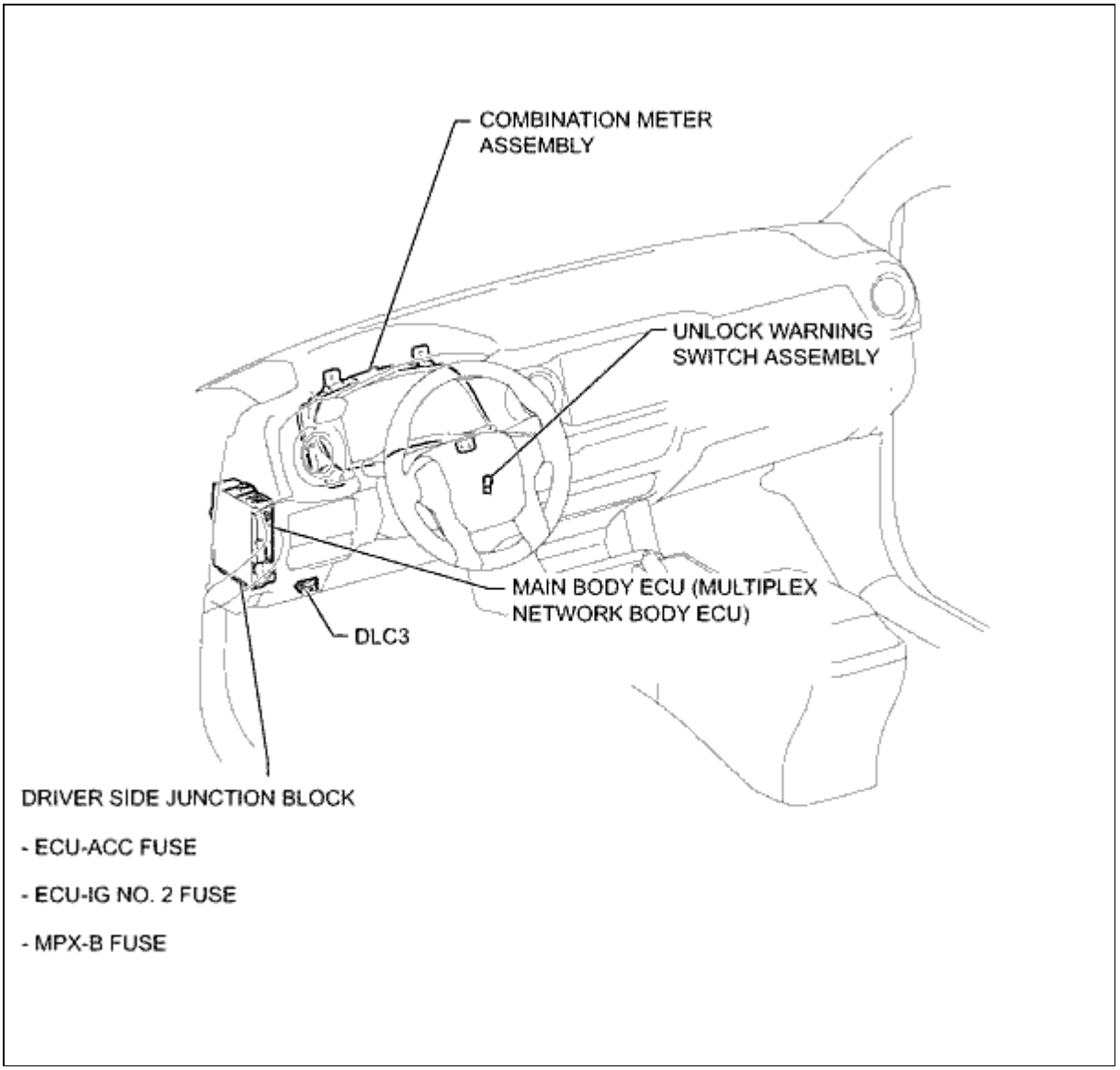
PARTS LOCATION

ILLUSTRATION



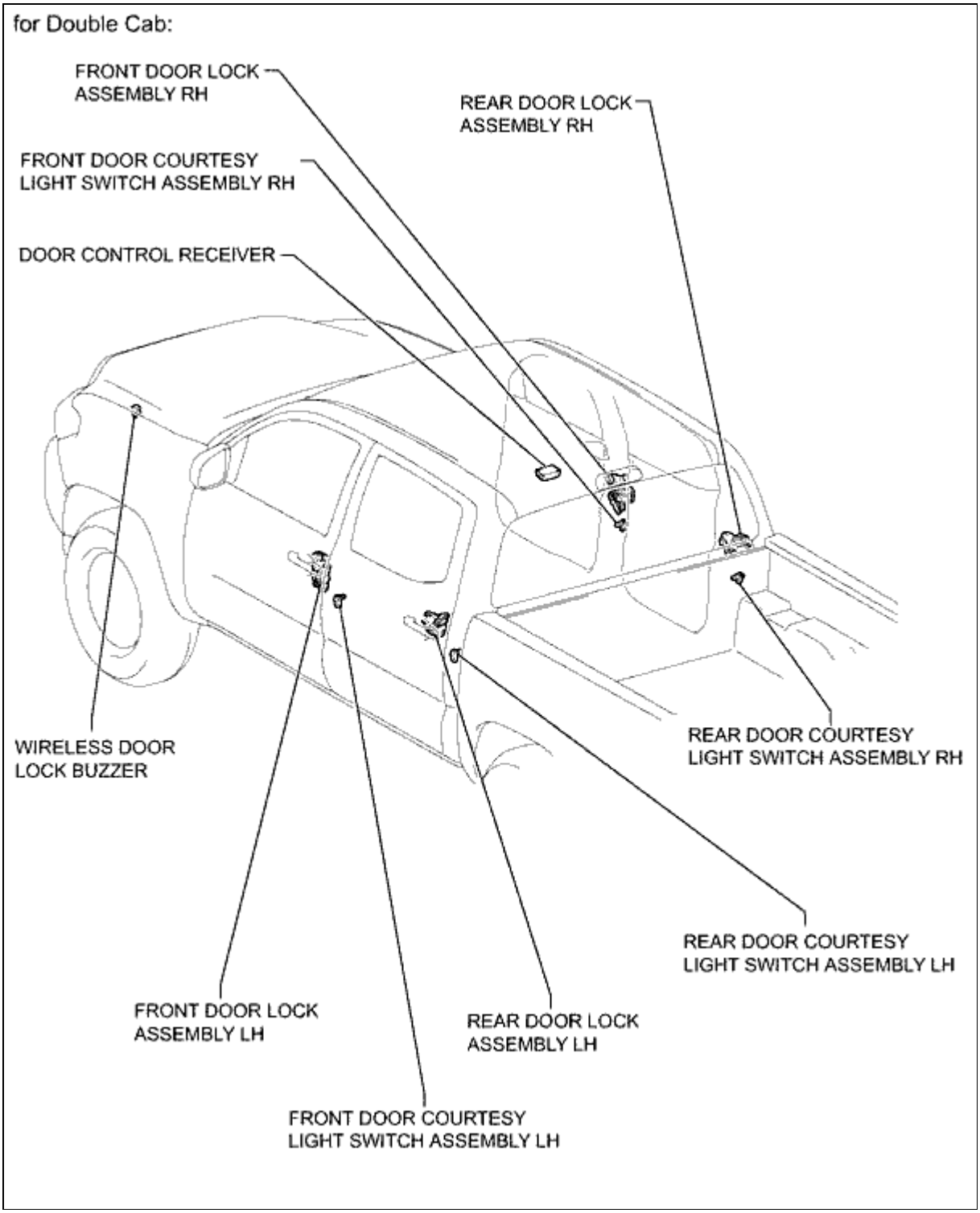
ILLUSTRATION

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ILLUSTRATION

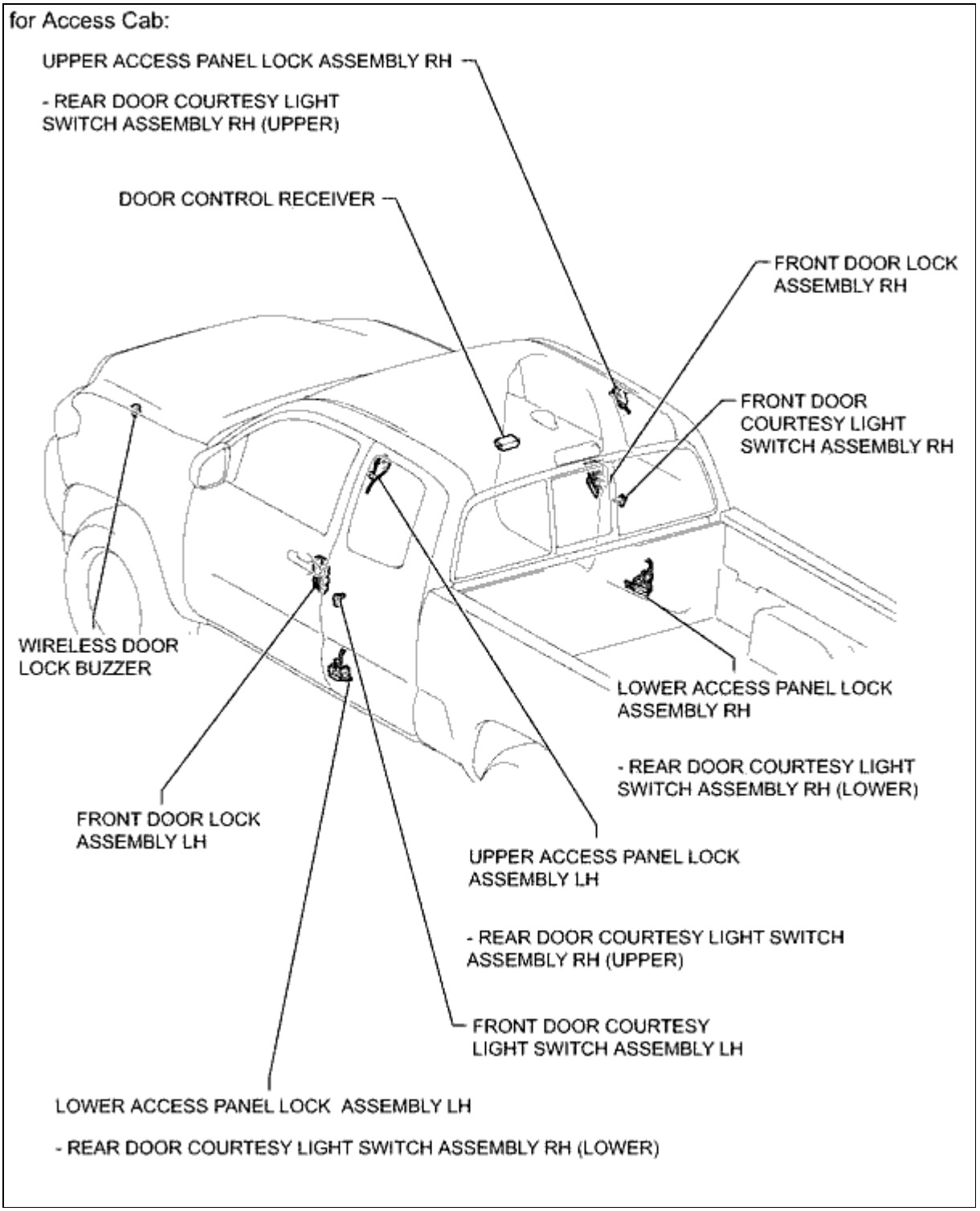
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ILLUSTRATION

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for Access Cab:



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Last Modified: 11-13-2015	6.6 L	**Doc ID:** RM000003TT001LX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/o Smart Key System): PRECAUTION; 2016 MY Tacoma [08/2015 -]		

PRECAUTION

1. DOOR CONTROL RECEIVER EXPRESSIONS

(a) The type of door control receiver used on this model differs according to the specifications of the vehicle. The expressions listed in the table below are used in this section.

VEHICLE SPECIFICATION	PART NAME IN MANUAL	ACTUAL PART NAME
w/ Tire Pressure Warning	Door control receiver	Door control and tire pressure monitoring system receiver assembly
w/o Tire Pressure Warning	Door control receiver	Door control receiver

2. PRECAUTION WHEN USING TECHSTREAM

(a) When using the Techstream to troubleshoot the power door lock control system:

Connect the Techstream to the DLC3 while the ignition switch is off, and turn a door courtesy light switch on and off at 1.5-second intervals until communication between the Techstream and vehicle begins.

(b) After all DTCs are cleared, check if the trouble occurs again 6 seconds after the ignition switch is turned ON (IG).

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Last Modified: 11-13-2015	6.6 T	**Doc ID:** RM0000024CR057X
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/o Smart Key System): PROBLEM SYMPTOMS TABLE; 2016 MY Tacoma [08/2015 -]		

PROBLEM SYMPTOMS TABLE

HINT:

- Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.
- Inspect the fuses and relays related to this system before inspecting the suspected areas below.

Wireless Door Lock Control System

SYMPTOM	SUSPECTED AREA	SEE PAGE
Only wireless control function is inoperative	Proceed to "Only wireless control function is inoperative"	INFO
Only answer-back function does not operate normally	Proceed to "No answer-back"	INFO
Only automatic lock function does not operate normally	Perform the operation check	INFO
	Key reminder warning system	INFO
	Lighting system (front door courtesy light switch circuit)	INFO
	Lighting system (rear door courtesy light switch circuit)	INFO
	Main body ECU (multiplex network body ECU)	-
Only illuminated entry function does not operate	Perform the operation check	INFO
	Lighting system	INFO
	Main body ECU (multiplex network body ECU)	-
Only door ajar warning function does not operate	Perform the operation check	INFO
	Lighting system (front door courtesy light switch circuit)	INFO
	Lighting system (rear door courtesy light switch circuit)	INFO
	Main body ECU (multiplex network body ECU)	-
Only panic alarm function does not operate	Perform operation check	INFO
	Lighting system (int) (interior lights)	INFO
	Lighting system (ext) (headlights, taillights, hazard lights)	INFO
	Theft deterrent system (vehicle horn)*1	INFO

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SYMPTOM	SUSPECTED AREA	SEE PAGE
	Horn system*2	INFO
	Main body ECU (multiplex network body ECU)	-

*1: w/ Theft Deterrent System
*2: w/o Theft Deterrent System

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Last Modified: 11-13-2015	6.6 M	**Doc ID:** RM0000023D304MX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/o Smart Key System): REGISTRATION; 2016 MY Tacoma [08/2015 -]		

REGISTRATION

HINT:

- Register a new recognition code when replacing the door control transmitter module set sub-assembly 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 door control transmitter module set sub-assembly.
- Rewrite mode is used to clear all the previously registered codes and register only new recognition codes. This mode is used when exchanging the door control transmitter module set sub-assembly or the door control receiver with new one.
- Confirmation mode is used to confirm how many recognition codes have already been registered before additional registration of a recognition code.
- Prohibition mode is used to clear all the registered codes and cancel the wireless door lock function. Use this mode when the door control transmitter module set sub-assembly is lost.
- All of the steps in the following registration procedure must be performed in sequential order continuously.

1. REGISTRATION OF RECOGNITION CODE (USING TECHSTREAM)

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Main Body / Utility / Wireless Code Registration.

(e) Select either add or rewrite mode according to the Techstream display.

(f) The number of registered codes is indicated.

(g) Registration of the door control transmitter module set sub-assembly.

(1) If either add mode or rewrite mode has been selected, press the LOCK and UNLOCK switches on the door control transmitter module set sub-assembly simultaneously.

(2) Within 3 seconds of releasing the LOCK and UNLOCK switches, press either of the switches on the door control transmitter module set sub-assembly.

NOTICE:

- Do not press the LOCK and UNLOCK switches simultaneously for more than 1.5 seconds.
- Perform this operation within 1 meter of the driver seat to register the door control transmitter module set sub-assembly.
- Do not push other door control transmitter module set sub-assembly switches during the door control transmitter module set sub-assembly registration process.

(3) The main body ECU (multiplex network body ECU) automatically performs the power door LOCK-UNLOCK operation once in order to indicate whether registration has been completed correctly or not.

(4) If continuing registration, the next recognition code must be registered in the door control transmitter module set sub-assembly within 30 seconds.

HINT:

Up to 6 recognition codes can be registered.

(h) Completing the registration mode.

(1) Registration mode will end when any of the following occurs:

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- 30 seconds or more have elapsed after a code is registered.
- The Techstream is used to finish registration.
- The Techstream is disconnected.
- The ignition switch is turned off.

(i) Perform the following after registration is completed.

(1) Perform the wireless door lock control operation check INFO .

HINT:

If the wireless door lock control does not operate, perform the registration procedure again.

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Last Modified: 11-13-2015	6.6 D	**Doc ID:** RM0000012LZ04BX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/o Smart Key System): SYSTEM DESCRIPTION; 2016 MY Tacoma [08/2015 -]		

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 door control transmitter module set sub-assembly which sends radio waves to the door control receiver. The main body ECU (multiplex network body ECU) performs an ID code identification process and engages the door lock control.

2. MULTI CHANNEL FUNCTION

The wireless door lock control system has a multi-channel function. Each time the switch on the electrical key transmitter is pressed, the channel is switched alternately between 2 different frequencies and the signal is sent to the door control receiver.*

*: w/ Tire Pressure Warning System

3. FUNCTION OF MAIN COMPONENTS

COMPONENT	FUNCTION
Door control transmitter module set sub-assembly	• Has lock, unlock open and panic 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 module set sub-assembly and sends them to the main body ECU (multiplex network body ECU).
• Front door courtesy light switch assembly LH/RH • Rear door courtesy light switch assembly LH/RH*1 • Upper access panel lock assembly LH/RH*2 • Lower access panel lock assembly LH/RH*2	• Turns on when a door is opened and turns off when it is closed. • Outputs door status signals (open or closed) to the main body ECU (multiplex network body ECU).
Unlock warning switch assembly	Detects if the key is inserted in the ignition key cylinder or not.
• Front door lock assembly LH/RH • Rear door lock assembly LH/RH*1	• Built in motor locks or unlocks door. • Transmits the door lock position of each door to the main body ECU (multiplex network body ECU)
Main body ECU (multiplex network body ECU)	Sends wireless door lock control signals in response to the code data from the door control receiver and signals from each switch.

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*1: for Double Cab
*2: for Access Cab

4. SYSTEM FUNCTION

The door control transmitter module set sub-assembly has the lock, unlock, and panic 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 INFO .

FUNCTION	OPERATION
All door lock	Pressing the lock switch locks all doors.
All door unlock (Unlock 2 operation)	Pressing the unlock switch twice within 5 seconds unlocks all the doors after the driver door is unlocked.
Automatic lock	If none of the doors is opened within 60 seconds after they are unlocked by wireless door lock control, all the doors will lock again automatically.
Answer back (Hazard warning light)	• When the doors are locked by wireless operation, the hazard warning lights flash once. • When the doors are unlocked by wireless operation, the hazard warning lights flash twice.
Answer back (Wireless door lock buzzer)	• When the doors are locked by wireless operation, the wireless door lock buzzer sounds once. • When the doors are unlocked by wireless operation, the wireless door lock buzzer sounds twice.
Panic alarm	Pressing the panic switch of the door control transmitter module set sub-assembly for longer than about 0.8 seconds causes the following alarms to activate: • Sound the vehicle horns. • Blinks the headlights, hazard warning lights and taillights. • Illuminates the interior lights. While the panic alarm is operating, pressing any switch of the door control transmitter module set sub-assembly cancels the alarm operation.
Illuminated entry	When all the doors are locked, pressing the unlock switch causes the interior lights to come on simultaneously with the unlock operation.
Self-diagnostic mode	The following are conditions to enter self-diagnostic mode: If the door control receiver receives normal radio waves from the door control transmitter module set sub-assembly when the system is in diagnostic mode, it flashes the interior lights and sounds the wireless door lock buzzer in a normal pattern that corresponds to the function of each switch.
Transmitter recognition code registration	Enables registration (writing and storing) of door control transmitter module set sub-assembly recognition codes in the EEPROM that is contained in the door control receiver.

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5. TRANSMITTER RECOGNITION CODE REGISTRATION FUNCTION

The table below shows the 4 ID registration function modes. The codes are electronically registered (written and stored) in the EEPROM that is contained in the door control receiver.

MODE	FUNCTION
Add mode	Adds a newly received code while preserving any previously registered codes. This mode is used when adding a new door control transmitter module set sub-assembly. If the maximum registration number is exceeded, the oldest one is cleared first.
Rewrite mode	Clears 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 registered codes and disables the wireless door lock function. This mode is used when the door control transmitter module set sub-assembly is lost.

6. CONDITIONS THAT WIRELESS FUNCTIONS DO NOT OPERATE

(a) Lock function will not operate when either of the following conditions is met:

- The key is inserted in the ignition key cylinder.

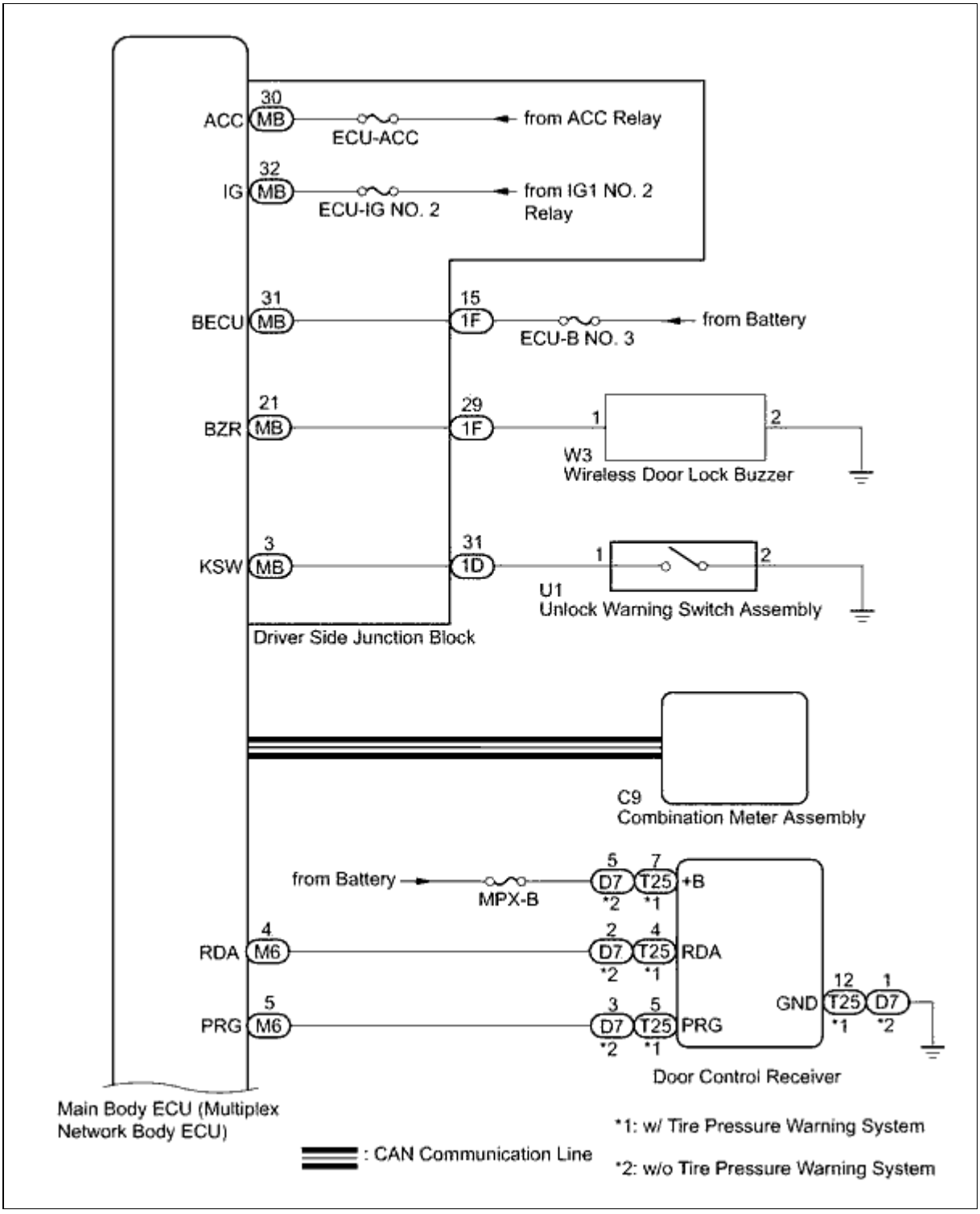
(b) Unlock function will not operate when the following condition is met:

- The key is inserted in the ignition key cylinder.

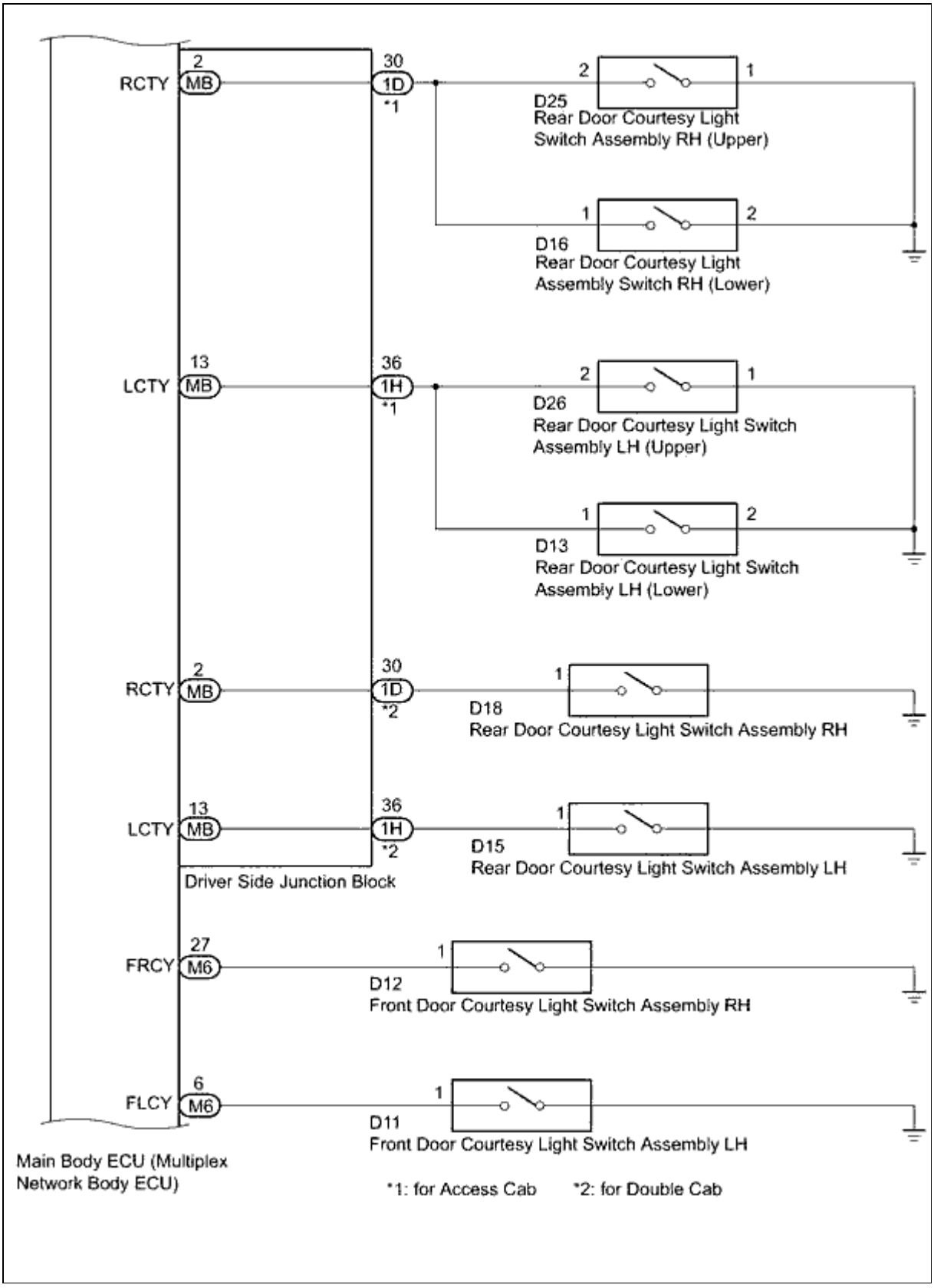
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Last Modified: 11-13-2015	6.6 U	**Doc ID:** RM000001OBR03MX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/o Smart Key System): SYSTEM DIAGRAM; 2016 MY Tacoma [08/2015 -]		

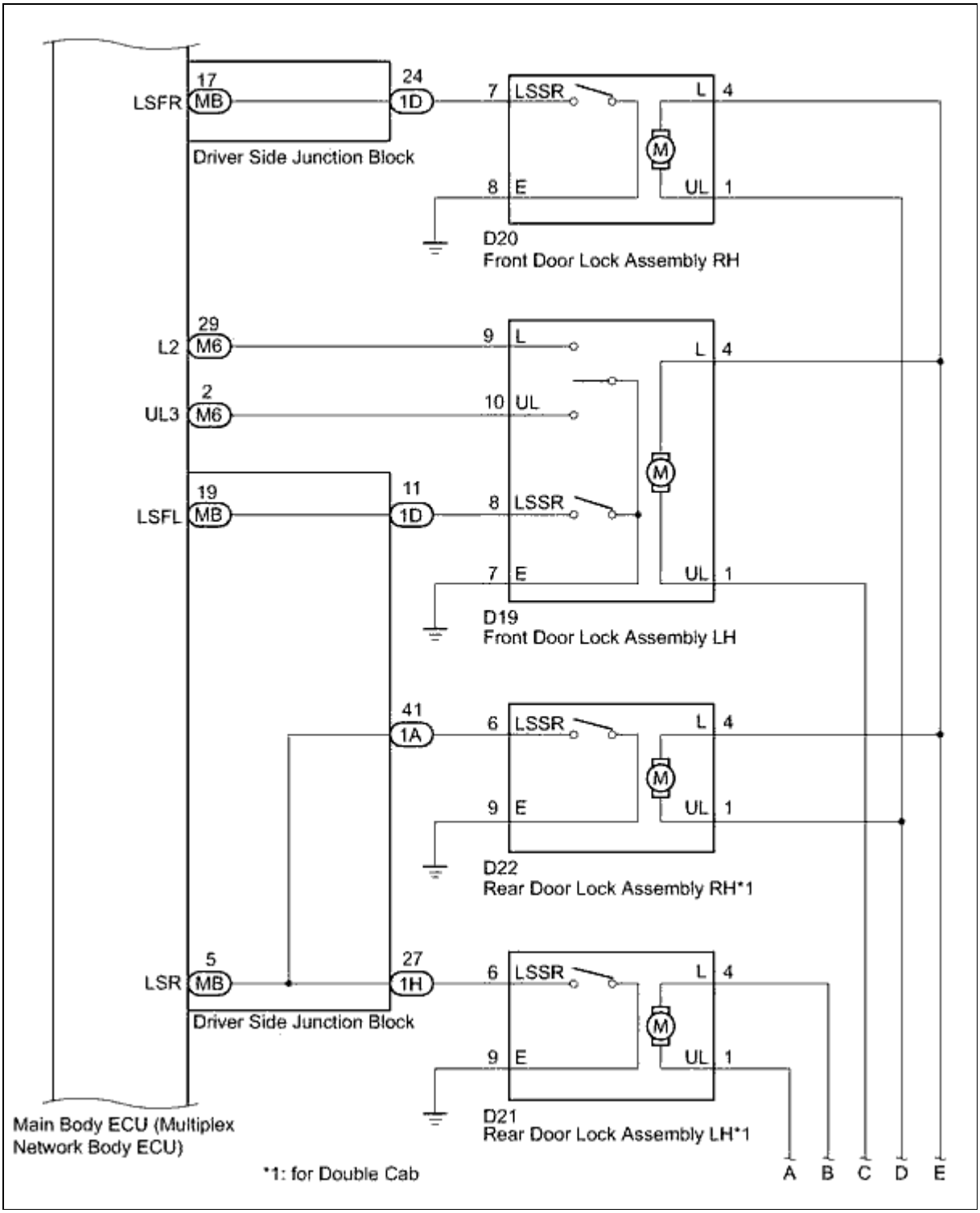
SYSTEM DIAGRAM



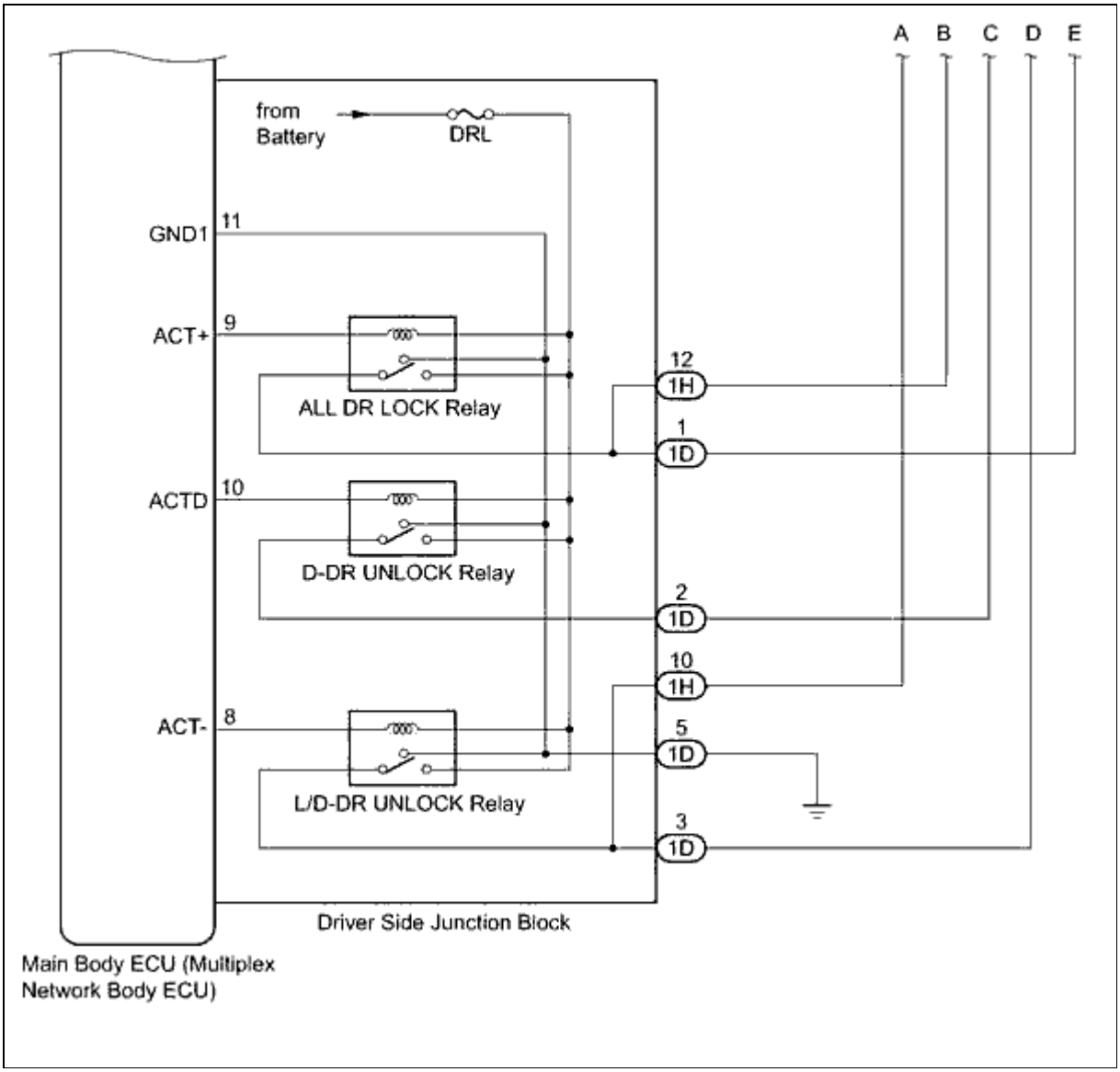
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Communication Table

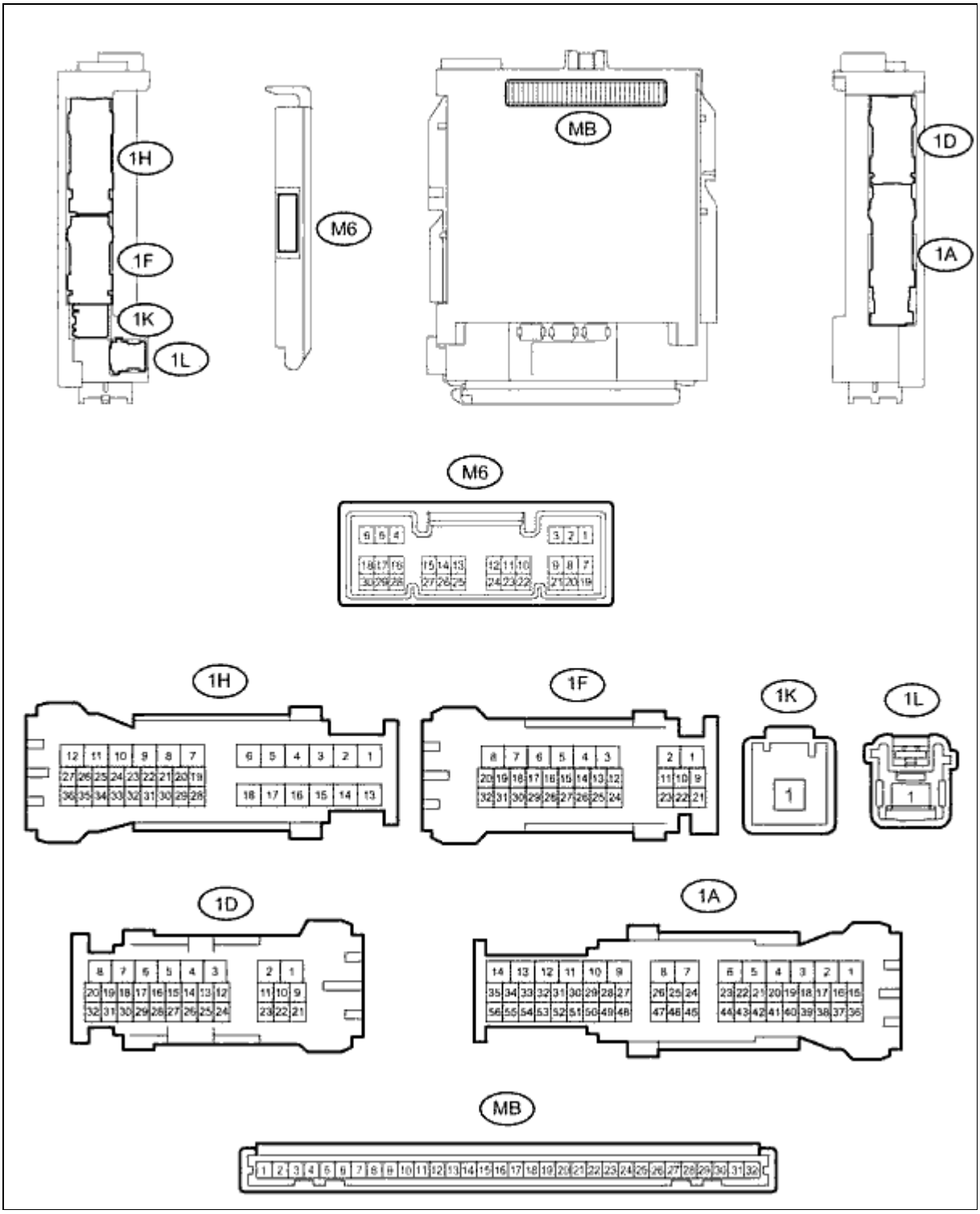
TRANSMITTING ECU (TRANSMITTER)	RECEIVING ECU (RECEIVER)	SIGNAL	LINE
Main body ECU (Multiplex Network Body ECU)	Combination Meter Assembly	Wireless door lock hazard warning light request signal	CAN

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Last Modified: 11-13-2015	6.6 U	**Doc ID:** RM000001O1S03OX
Model Year Start: 2016	**Model:** Tacoma	**Prod Date Range:** [08/2015 -]
Title: DOOR LOCK: WIRELESS DOOR LOCK CONTROL SYSTEM (w/o Smart Key System): TERMINALS OF ECU; 2016 MY Tacoma [08/2015 -]		

TERMINALS OF ECU

1. CHECK DRIVER SIDE JUNCTION BLOCK AND MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)



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(a) Disconnect the MB main body ECU (multiplex network body ECU) connectors.

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

HINT:

Measure the values on the wire harness side with the connectors disconnected.

TESTER CONNECTION	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
MB-11(GND1) - Body ground	-	Ground	Always	Below 1 Ω
MB-31 (BECU) - Body ground	-	Battery power supply	Always	11 to 14 V
MB-30 (ACC) - Body ground	-	ACC power supply	Ignition switch ACC	11 to 14 V
MB-30 (ACC) - Body ground	-	ACC power supply	Ignition switch off	Below 1 V
MB-32 (IG) - Body ground	-	IG power supply	Ignition switch ON	11 to 14 V
MB-32 (IG) - Body ground	-	IG power supply	Ignition switch off	Below 1 V

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

(c) Reconnect the MB main body ECU (multiplex network body ECU) connectors.

(d) Measure the voltage and check for pulses according to the value(s) in the table below.

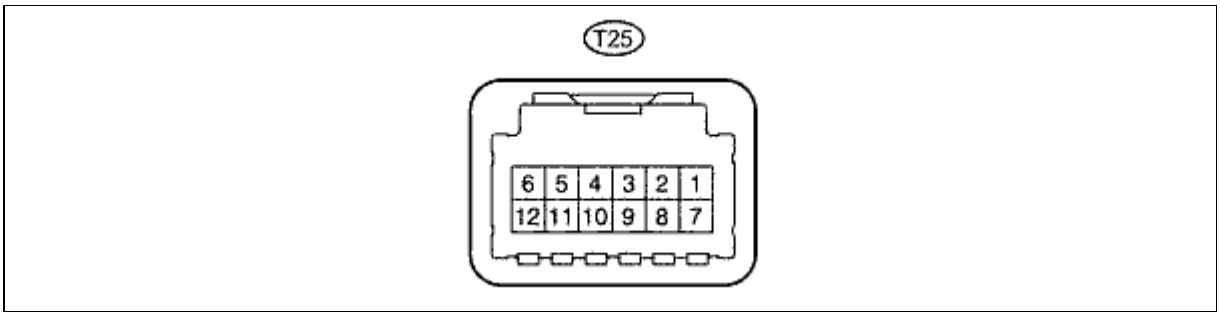
TESTER CONNECTION	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
1D-1 (ACT+) - Body ground	R - Body ground	Door lock motor unlock drive output (except driver door)	Door control switch (power window regulator master switch assembly) or driver door key cylinder off	Below 1 V
			Door control switch (power window regulator master switch assembly) or driver door key cylinder unlocked	11 to 14 V
1H-12 (ACT+) - Body ground	LA-R - Body ground	Door lock motor unlock drive output (except driver door)	Door control switch (power window regulator master switch assembly) or driver door key cylinder off	Below 1 V
			Door control switch (power window regulator master switch assembly) or driver door key cylinder unlocked	11 to 14 V
1H-10 (ACT-) - Body ground	LA-G - Body ground	Door lock motor lock drive output (all doors)	Door control switch (power window regulator master switch assembly) or driver door key cylinder off	Below 1 V
			Door control switch (power window regulator master switch assembly) or driver door key cylinder locked	11 to 14 V
1D-3 (ACT-) - Body ground	G - Body ground	Door lock motor lock drive output (all doors)	Door control switch (power window regulator master switch assembly) or driver door key cylinder off	Below 1 V

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*1: for Double Cab
*2: for Access Cab

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

2. CHECK DOOR CONTROL RECEIVER (w/ Tire Pressure Warning System)



(a) Disconnect the T25 door control receiver connector.

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

HINT:

Measure the values on the wire harness side with the connectors disconnected.

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
T25-7 (+B) - Body ground	BE - Body ground	Battery (power supply)	Always	11 to 14 V
T25-12 (GND) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

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

(c) Reconnect the T25 door control receiver connector.

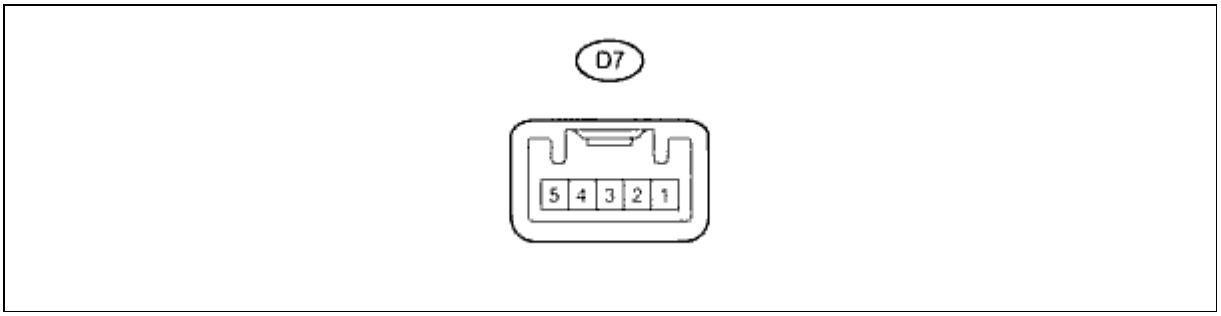
(d) Measure the voltage according to the value(s) in the table below.

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
T25-5 (PRG) - T25-12 (GND)	GR - W-B	Signal input from main body ECU (multiplex network body ECU)	Key inserted in ignition key cylinder → Key pulled out of ignition key cylinder	11 to 14 V → Pulse generation → 11 to 14 V
T25-4 (RDA) - T25-12 (GND)	B - W-B	Signal output to main body ECU (multiplex network body ECU)	Ignition switch off, all doors closed and door control transmitter module set sub-assembly switch not pressed	11 to 14 V
			Ignition switch off, all doors closed and door control transmitter module set sub-assembly switch pressed	Pulse generation

If the result is not as specified, the door control receiver may have a malfunction.

3. CHECK DOOR CONTROL RECEIVER (w/o Tire Pressure Warning System)

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(a) Disconnect the D7 door control receiver connector.

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

HINT:

Measure the values on the wire harness side with the connectors disconnected.

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
D7-5 (+B) - Body ground	V - Body ground	Battery (power supply)	Always	11 to 14 V
D7-1 (GND) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

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

(c) Reconnect the D7 door control receiver connector.

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

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
D7-3 (PRG) - D7-1 (GND)	GR - W-B	Signal input from main body ECU (multiplex network body ECU)	Key inserted in ignition key cylinder → Key pulled out of ignition key cylinder	11 to 14 V → Pulse generation → 11 to 14 V
D7-2 (RDA) - D7-1 (GND)	B - W-B	Signal output to main body ECU (multiplex network body ECU)	Ignition switch off, all doors closed and door control transmitter module set sub-assembly switch not pressed	11 to 14 V
			Ignition switch off, all doors closed and door control transmitter module set sub-assembly switch pressed	Pulse generation

If the result is not as specified, the door control receiver may have a malfunction.

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