

ACCESSORIES & EQUIPMENT

Wireless Door Lock Control System (w/o Smart Key System) (Diagnostic Codes & Symptom Tests) - Sienna

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

DTC B1242: WIRELESS DOOR LOCK TUNER CIRCUIT MALFUNCTION

DESCRIPTION

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

DTC No.	DTC Detection Condition	Trouble Area
B1242	In diagnostic mode, an applicable RDA signal cannot be received within 2.4 seconds after a PRG signal has been output from the main body ECU.	• Wire harness or connector • Door control receiver • Main body ECU

WIRING DIAGRAM

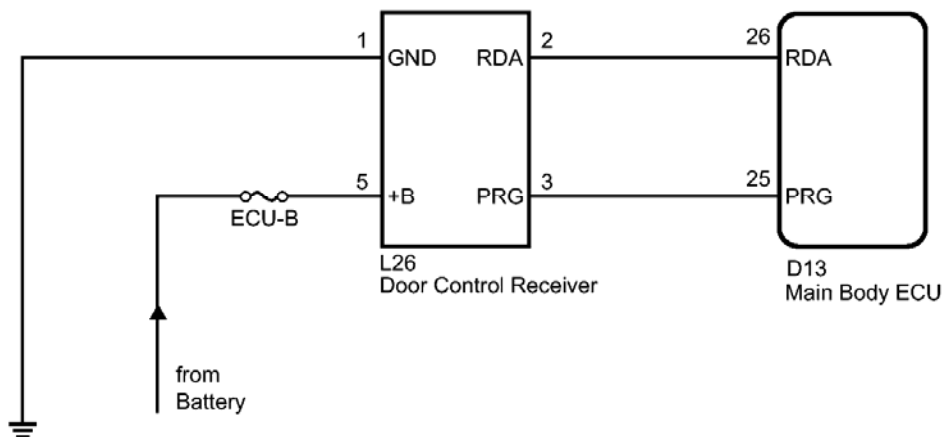


Fig. 1: Wireless Door Lock Tuner Circuit - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

NOTE: Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

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

- a. Disconnect the D13 main body ECU connector and the L26 door control receiver connector.
- b. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
D13-26 (RDA) - L26-2 (RDA)	Always	Below 1 ohms
D13-26 (RDA) - Body ground	Always	10 kohms or higher
D13-25 (PRG) - L26-3 (PRG)	Always	Below 1 ohms
D13-25 (PRG) - Body ground	Always	10 kohms or higher

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step

2. CHECK HARNESS AND CONNECTOR (DOOR CONTROL RECEIVER - BATTERY, BODY GROUND)

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

*a

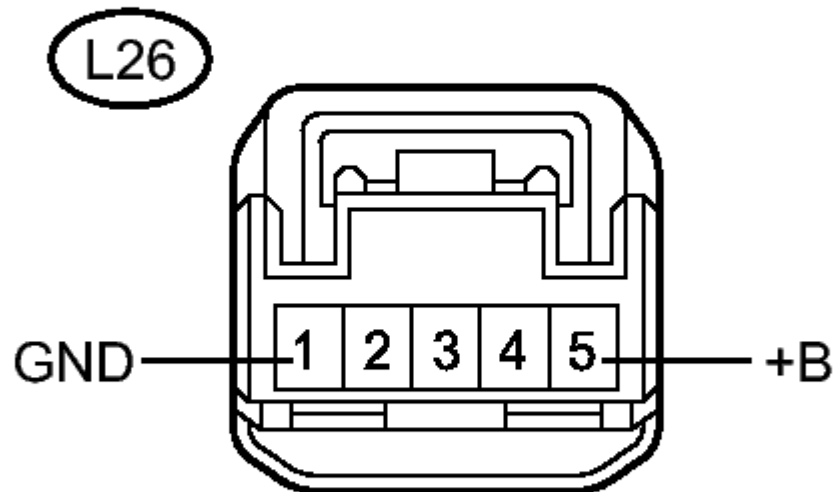


Fig. 2: Checking Harness And Connector (Door Control Receiver - Battery, Body Ground)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard

Tester Connection	Condition	Specified Condition
L26-1 (GND) - Body ground	Always	Below 1 ohms
L26-5 (+B) - Body ground	Always	11 to 14 V

TEXT IN ILLUSTRATION

*a	Front view of wire harness connector (to Door Control Receiver)
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NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step

3. REPLACE DOOR CONTROL RECEIVER

- Temporarily replace the door control receiver with a new or known good one. Refer to **REMOVAL**.

NEXT: Go to next step

4. REGISTER RECOGNITION CODE

- Perform the Registration procedure. Refer to **REGISTRATION**.

NEXT: Go to next step

5. CONFIRM DTC

- Clear the DTCs. Refer to **DTC CHECK / CLEAR**.
- Recheck for DTCs.

RESULT

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

B --> See step 6

A --> END (DOOR CONTROL RECEIVER WAS DEFECTIVE)

6. REPLACE MAIN BODY ECU. Refer to REMOVAL

SYMPTOM TESTS

Only Wireless Control Function is Inoperative

DESCRIPTION

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

WIRING DIAGRAM

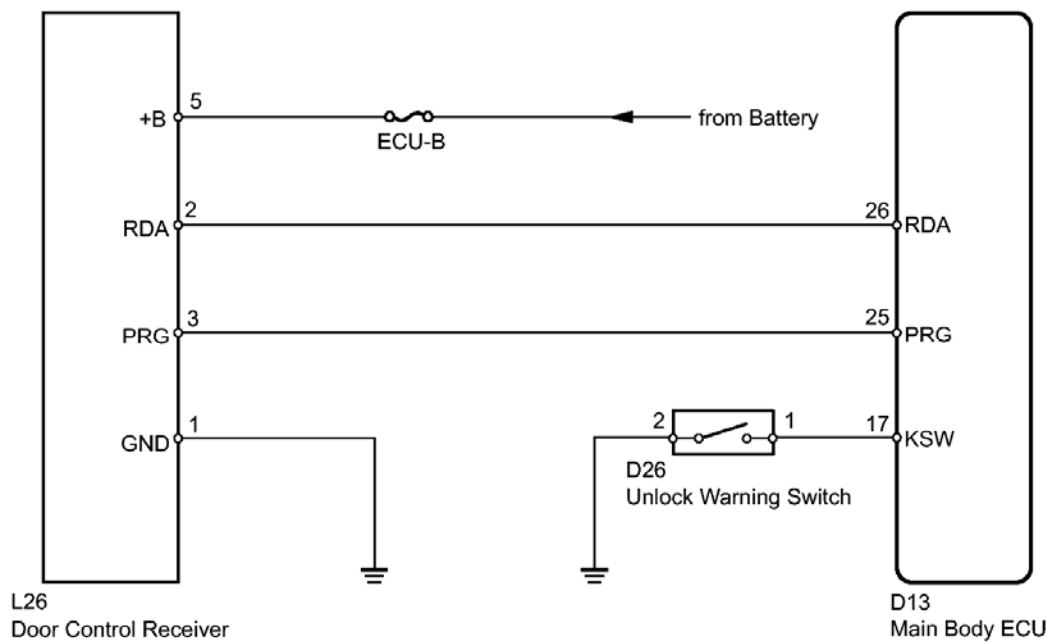


Fig. 3: Door Control Receiver - Wiring Diagram

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

INSPECTION PROCEDURE

NOTE: Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1. CHECK POWER DOOR LOCK OPERATION

- When the door control switch on the master switch assembly is operated, check that the locked doors unlock. Refer to **OPERATION CHECK**.

OK

Locked doors unlock.

NG --> See step 20

OK: Go to next step

2. CHECK KEY REMINDER WARNING SYSTEM

- a. Check that the key reminder warning buzzer operates normally.

OK

Key reminder warning buzzer operates normally.

NG --> See step 18

OK: Go to next step

3. CHECK DOOR CONTROL TRANSMITTER ASSEMBLY

- a. When known good registered door control transmitter 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.	A
Wireless door LOCK/UNLOCK function does not operate.	B

B --> See step 5

A: Go to next step

4. CHECK TRANSMITTER BATTERY

- a. Inspect the battery capacity.
 1. Remove the battery from the electrical key transmitter that does not operate. Refer to **REPLACEMENT** . 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.

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

- b. Carefully pull the lead wire out from the position shown in the illustration and install the previously removed transmitter battery.

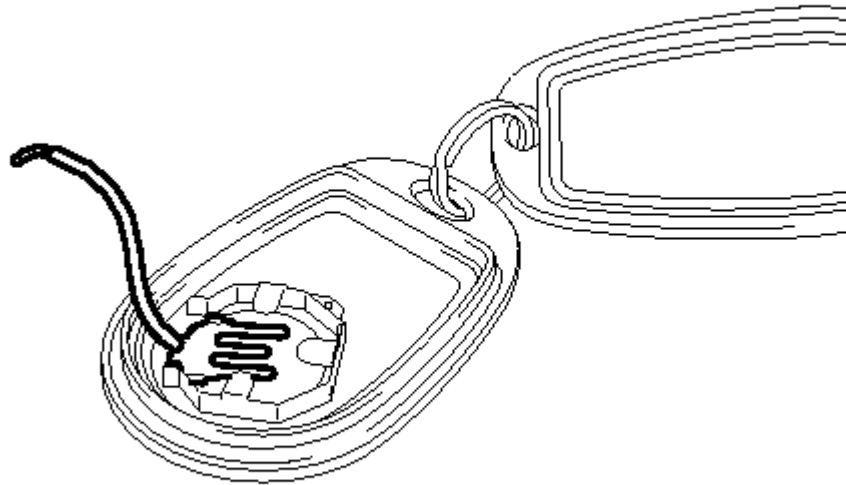


Fig. 4: Identifying Lead Wire
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Using an oscilloscope, check the transmitter battery voltage waveform.

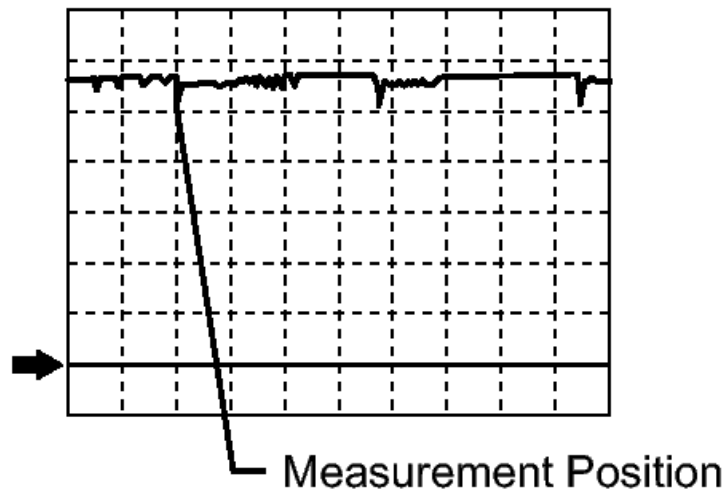
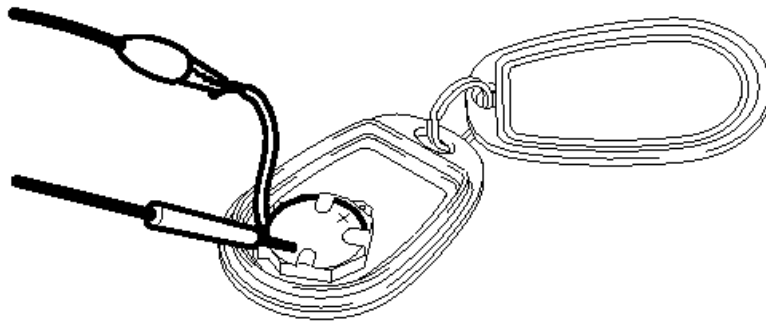


Fig. 5: Checking The Transmitter Battery Voltage Waveform
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

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

Standard Voltage

Item	Content
Tester Connection	Battery positive (+) - Battery negative (-)
Tool Setting	0.5 V/DIV., 100 ms/DIV.
Condition	Ignition switch off, all doors closed and LOCK or UNLOCK switch is pressed
Specified Condition	2.2 to 3.2 V (Refer to Fig. 5)

NG --> See step 16

OK --> REPLACE DOOR CONTROL TRANSMITTER MODULE

5. CHECK WAVE ENVIRONMENT

- a. Bring the transmitter near the door control receiver, and perform a wireless operation check.

HINT:

- When the transmitter is brought near the door control receiver, the possibility of wave interference decreases, and it can be determined if wave interference is causing the problem symptom.
- 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.

NG --> See 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.

NOTE: **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.

Interior Light Output:

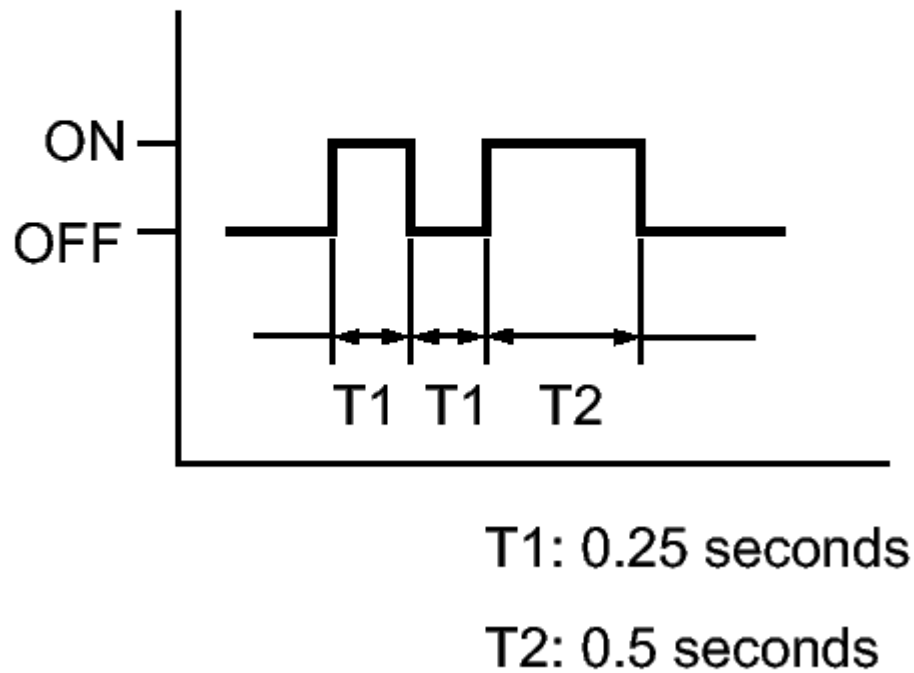


Fig. 6: Checking The Room Light Output Pattern

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

- 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:

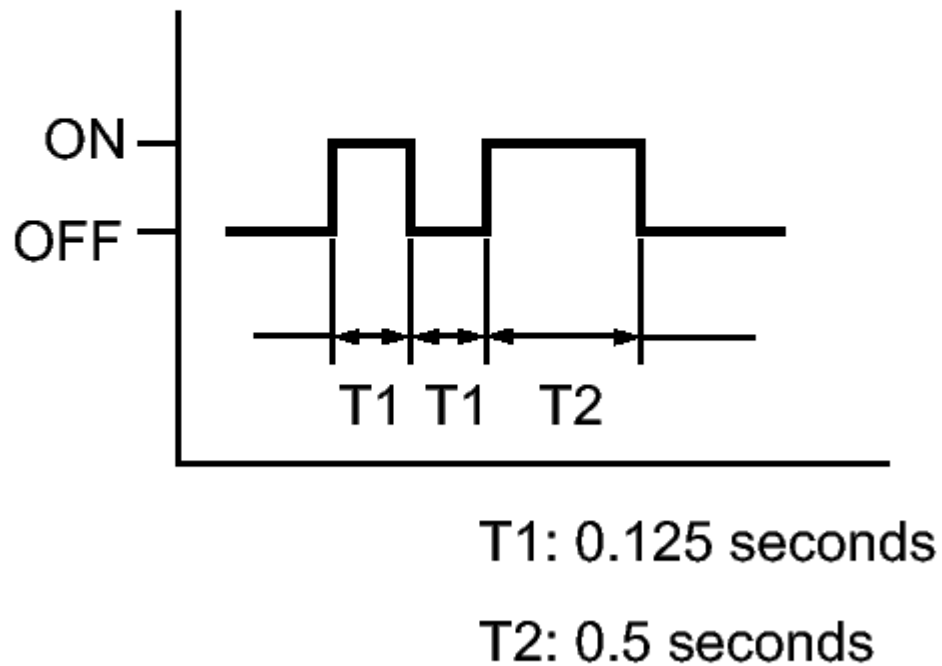


Fig. 7: Checking The Wireless Door Lock Buzzer Output Pattern
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

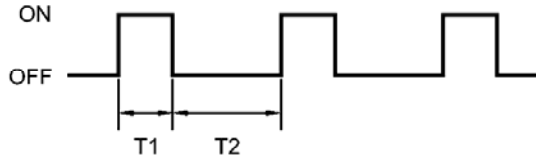
NEXT: Go to next step

7. CHECK SELF DIAGNOSTIC MODE

Interior Light and Wireless Door Lock Buzzer Output:

Normal Wave

(LOCK/UNLOCK Switch):



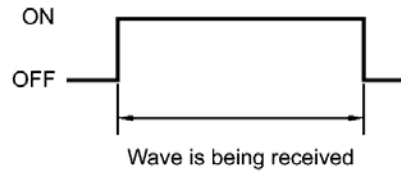
T1: 0.25 seconds (Interior Light)

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

Fig. 8: Identifying Interior Lights And The Buzzer Patterns Of The Wireless Door Lock Buzzer
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- Inspect the diagnostic outputs when the door control transmitter 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

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 --> See step 8

C --> See step 9

A --> See step 17

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. Refer to **REGISTRATION** .

OK

Recognition code can be registered.

NG --> See step 13

OK --> END (GO TO OPERATION CHECK)

9. CHECK DOOR CONTROL RECEIVER (RESPONSE)

- a. Prepare the door control transmitter from another vehicle.
- b. Press and hold down the door control transmitter switch.
- c. Check that an unmatching recognition code is output.

OK

Unmatching recognition code is output.

NG --> See step 10

OK --> REPLACE DOOR CONTROL TRANSMITTER MODULE

10. CHECK HARNESS AND CONNECTOR (DOOR CONTROL RECEIVER - BATTERY, BODY GROUND)

- a. Disconnect the door control receiver connector.

*a

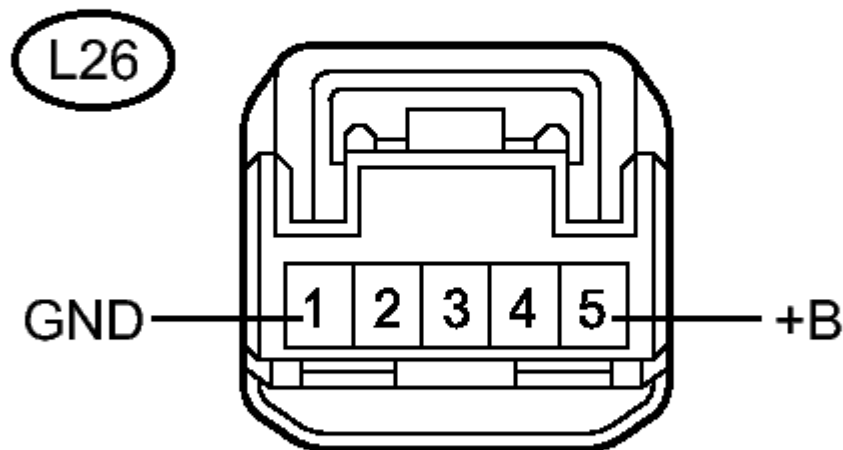


Fig. 9: Checking Harness And Connector (Door Control Receiver - Battery, Body Ground)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
L26-1 (GND) - Body ground	Always	Below 1 ohms

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

Standard Voltage

Tester Connection	Condition	Specified Condition
L26-5 (+B) - Body ground	Always	11 to 14 V

TEXT IN ILLUSTRATION

*a	Front view of wire harness connector (to Door Control Receiver)
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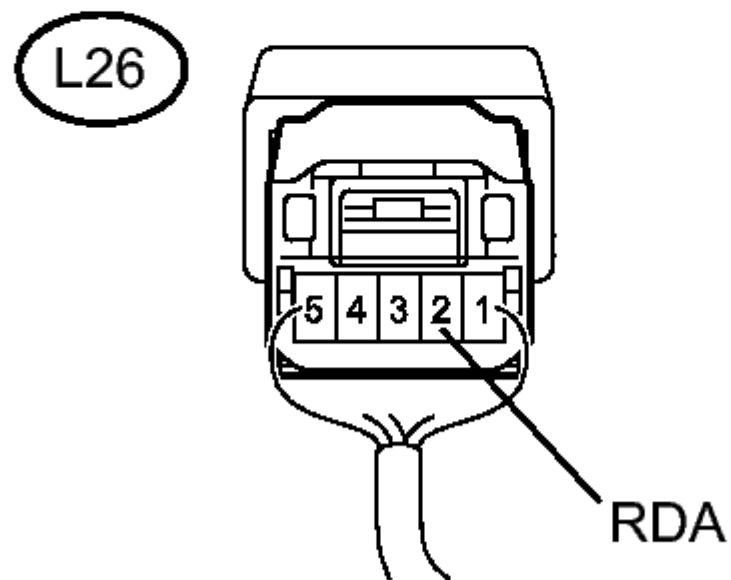
NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step

11. CHECK DOOR CONTROL RECEIVER (OUTPUT)

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

*a



H

Fig. 10: Measuring Voltage Of Door Control Receiver (Output)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard Voltage

Tester Connection	Condition	Specified Condition
L26-2 (RDA) - Body ground	Ignition switch off, all doors closed and transmitter switch not pressed	10 to 14 V
	Ignition switch off,	

L26-2 (RDA) - Body ground	all doors closed and transmitter switch pressed	Pulse generation
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TEXT IN ILLUSTRATION

*a	Component with harness connected (Door Control Receiver)
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NG --> **See step 19**

OK: Go to next step

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

- Disconnect the D13 main body ECU connector and the L26 door control receiver connector.
- Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
D13-26 (RDA) - L26-2 (RDA)	Always	Below 1 ohms
D13-26 (RDA) - Body ground	Always	10 kohms or higher
D13-25 (PRG) - L26-3 (PRG)	Always	Below 1 ohms
D13-25 (PRG) - Body ground	Always	10 kohms or higher

NG --> **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK: Go to next step

13. REPLACE DOOR CONTROL RECEIVER

- a. Temporarily replace the door control receiver with a new or known good one. Refer to REMOVAL .

NEXT: Go to next step

14. REGISTER RECOGNITION CODE

- a. Perform the Registration procedure. Refer to REGISTRATION .

NEXT: Go to next step

15. CHECK DOOR CONTROL RECEIVER (OPERATION)

- a. Check that the doors can be locked and unlocked by using the transmitter LOCK and UNLOCK switches.

OK

Doors can be locked and unlocked using transmitter.

NG --> See step 17

OK --> END (DOOR CONTROL RECEIVER WAS DEFECTIVE)

16. REPLACE TRANSMITTER BATTERY. Refer to REPLACEMENT

17. REPLACE MAIN BODY ECU. Refer to REMOVAL

18. GO TO KEY REMINDER WARNING SYSTEM. Refer to HOW TO PROCEED WITH TROUBLESHOOTING

19. REPLACE DOOR CONTROL RECEIVER. Refer to REMOVAL

20. GO TO POWER DOOR LOCK CONTROL SYSTEM. Refer to HOW TO PROCEED WITH TROUBLESHOOTING

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, the main body ECU hazard warning light and wireless door lock buzzer signal outputs may be malfunctioning.

WIRING DIAGRAM

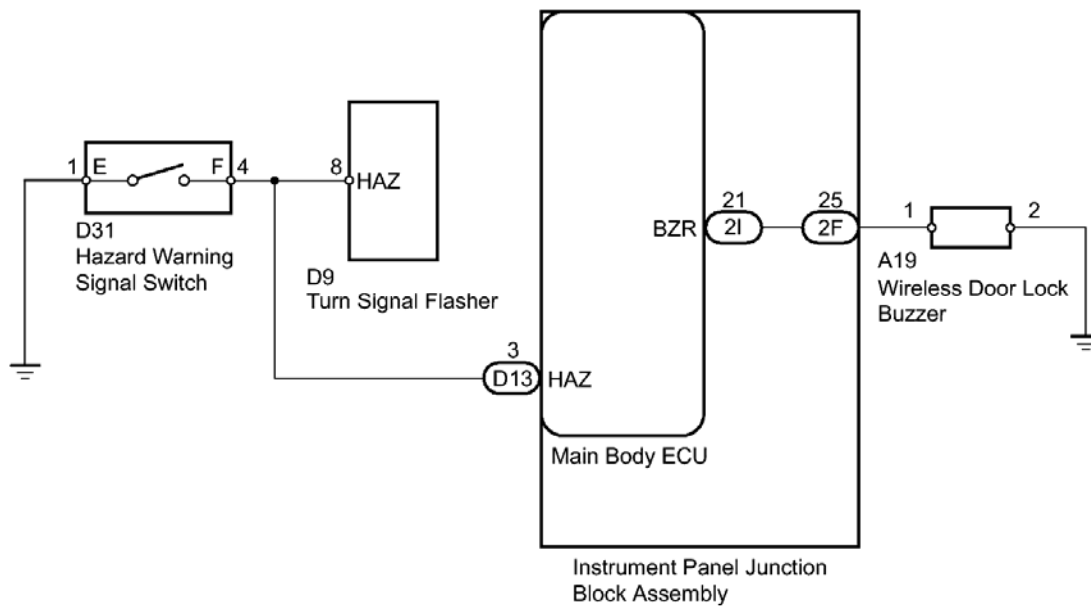


Fig. 11: Wireless Door Lock Buzzer Answer-Back Function Circuit - Wiring Diagram
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

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

PROCEDURE

1. **READ VALUE USING TECHSTREAM (DOOR LOCK POSITION 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 (MAIN BODY ECU)

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
FR Door	Front RH side door lock position	UNLOCK: Front RH side door unlocked	-

Lock Pos	switch signal / UNLOCK or LOCK	LOCK: Front RH side door locked	
FL Door Lock Pos	Front LH side door lock position switch signal / UNLOCK or LOCK	UNLOCK: Front LH side door unlocked LOCK: Front LH side door locked	-
RR-Door Lock Pos SW	Rear RH side door lock position switch signal / ON or OFF	ON: Rear RH side rear door unlocked OFF: Rear RH side rear door locked	-
RL-Door Lock Pos SW	Rear LH side door lock position switch signal / ON or OFF	ON: Rear LH side rear door unlocked OFF: Rear LH side rear door locked	-

OK

The Techstream should display as shown in the table according to door lock operation.

NG --> See step 10

OK: Go to next step

2. CHECK WIRELESS DOOR LOCK CONTROL FUNCTION

- Check the wireless door lock control functions by operating the transmitter switch.

RESULT

Result	Proceed to
Wireless door lock functions	

are normal but hazard warning light answer-back does not occur.	A
Wireless door lock functions are normal but wireless door lock buzzer answer-back does not occur.	B
Doors cannot be locked or unlocked with transmitter.	C

B --> See step 6

C --> See step 11

A: Go to next step

3. CHECK HAZARD WARNING LIGHT

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

OK

Hazard warning lights flash continuously.

NG --> See step 12

OK: Go to next step

4. PERFORM ACTIVE TEST USING TECHSTREAM (TURN SIGNAL FLASHER)

- Connect the Techstream to the DLC3.
- 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
Hazard	Turn Signal Flasher	ON/OFF	-

OK

Hazard warning lights turn on/off.

NG --> See step 5

OK --> See step 13

5. CHECK HARNESS AND CONNECTOR (TURN SIGNAL FLASHER - MAIN BODY ECU)

- a. Disconnect the D9 turn signal flasher connector.
- b. Disconnect the D13 main body ECU connector.
- c. Measure the resistance according to the values in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
D9-8 (HAZ) - D13-3 (HAZ)	Always	Below 1 ohms
D9-8 (HAZ) - Body ground	Always	10 kohms or higher

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK --> See step 13

6. 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 Operation	Turns the wireless door lock buzzer	ON/OFF	-

OK

Wireless buzzer turns on/off.

NG --> See step 7

OK --> See step 13

7. INSPECT WIRELESS DOOR LOCK BUZZER

*a

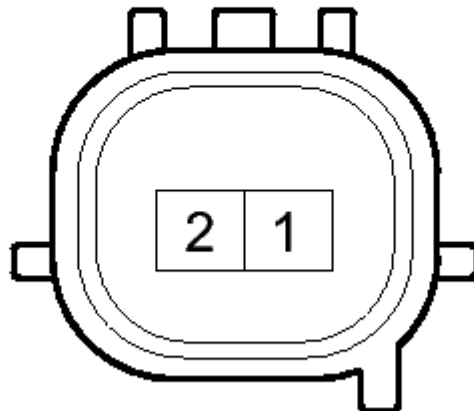


Fig. 12: Measuring Resistance Of Wireless Door Lock Buzzer
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the wireless door lock buzzer. Refer to **REMOVAL** .
- b. Measure the resistance according to the value(s) in the table below.

Standard Resistance

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

TEXT IN ILLUSTRATION

*a	Component without harness connected (Wireless Door Lock Buzzer)
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NOTE: The buzzer excitation circuit is built into the main body ECU, not into the buzzer itself.

NG --> See step 14

OK: Go to next step

8. CHECK HARNESS AND CONNECTOR (INSTRUMENT PANEL JUNCTION BLOCK - WIRELESS DOOR LOCK BUZZER)

- a. Disconnect the 2F instrument panel junction block connector.
- b. Disconnect the A19 buzzer connector.
- c. Measure the resistance according to the values in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
2F-25 (BZR) - A19-1	Always	Below 1 ohms
A19-2 - Body ground	Always	Below 1 ohms
A19-1 -		10 kohms

Body ground	Always	or higher
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NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step

9. INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

- a. Remove the instrument panel junction block assembly. Refer to **REMOVAL** .

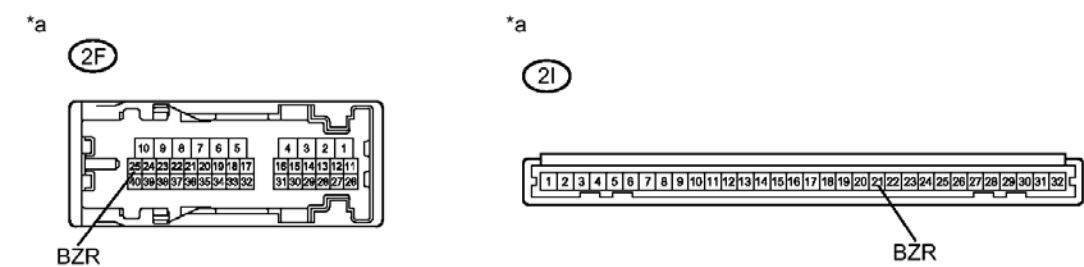


Fig. 13: Inspecting Instrument Panel Junction Block Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

Component without harness connected	
*a (Instrument Panel Junction Block Assembly)	--

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

Standard Resistance

Tester Connection	Condition	Specified Condition
2F-25 (BZR) - 2I- 21 (BZR)	Always	Below 1 ohms

NG --> See step 15

OK --> See step 13

10. **GO TO LIGHTING SYSTEM (Proceed to Door Unlock Detection Switch Circuit). Refer to Door Unlock Detection Switch Circuit**
11. **GO TO PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE**
12. **GO TO LIGHTING SYSTEM. Refer to HOW TO PROCEED WITH TROUBLESHOOTING**
13. **REPLACE MAIN BODY ECU. Refer to REMOVAL**
14. **REPLACE WIRELESS DOOR LOCK BUZZER. Refer to REMOVAL**
15. **REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY. Refer to REMOVAL - Step 2**