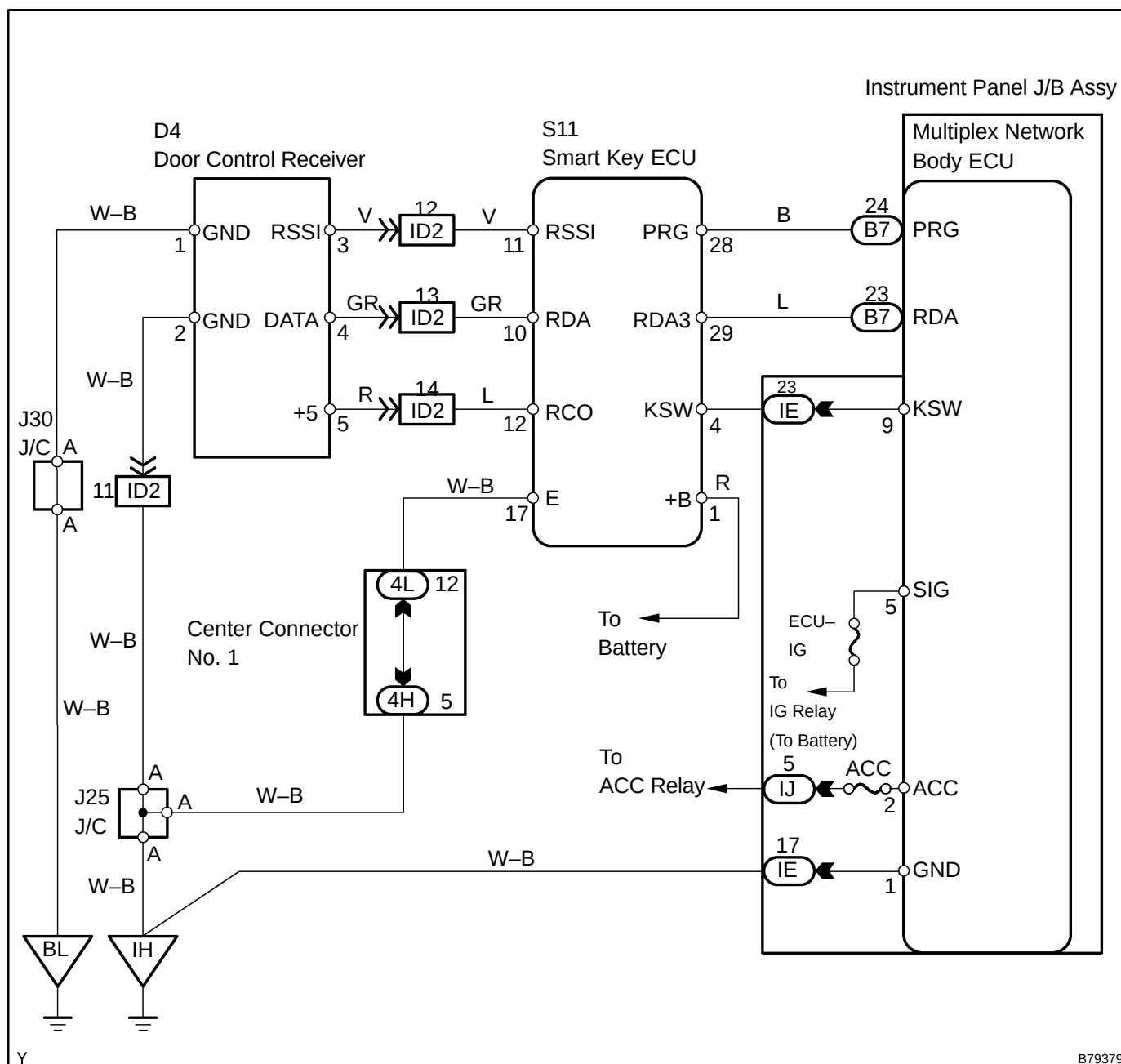


ONLY WIRELESS CONTROL FUNCTION IS INOPERATIVE

CIRCUIT DESCRIPTION

The door control receiver receives signals from the transmitter and sends these signals to the multiplex network body ECU through the smart key ECU. The multiplex network body ECU then controls all doors by sending LOCK/UNLOCK signals to each door lock actuator.

WIRING DIAGRAM



INSPECTION PROCEDURE**1 CHECK WIRELESS DOOR LOCK CONTROL FUNCTIONS (See page 05-2261)****NG****Go to step 2****OK****NORMAL****2 CHECK THAT TRANSMITTER LED LIGHTS UP**

- (a) Check that the transmitter LED lights up 3 times when the switch is pressed 3 times.

OK: Transmitter LED lights up 3 times when the switch is pressed 3 times.

NG**Go to step 4****OK****3 CHECK WIRELESS DOOR LOCK CONTROL FUNCTIONS
(STANDARD OPERATION)**

- (a) Check standard UNLOCK/LOCK switch operation.

NOTICE:

Standardized test procedure: press the transmitter switch for 1 second, directing the beam to the driver side door outside handle from a distance of 1 m (39.4 in.). The transmitter should be pointed directly at the handle, i.e. at a 90° angle to the vehicle body.

NG**Go to step 5****OK****REPLACE DOOR CONTROL TRANSMITTER****4 REPLACE TRANSMITTER BATTERY**

- (a) After replacing the transmitter battery, check that the doors can be locked and unlocked by using the transmitter LOCK/UNLOCK switch.

OK: Doors can be locked and unlocked with transmitter.

NG**REPLACE DOOR CONTROL TRANSMITTER****OK****END**

5 SWITCH TO SELF-DIAGNOSTIC MODE

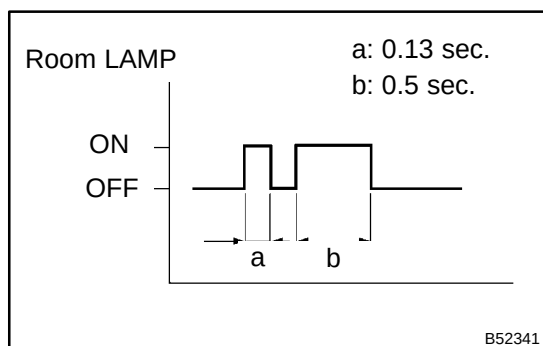
- (a) Switch self-diagnosis mode on the hand-held tester.
 - (1) Connect the hand-held tester to the DLC3.
 - (2) Change the power switch's power mode to ON (IG) by pushing the power switch and push the hand-held test main switch ON.
 - (3) Please refer to the hand-held tester operator's manual for further details.
- (b) Switch self-diagnosis mode by operating the key slot.
 - (1) Put the vehicle under the vehicle's initial condition (see page 05-2261), insert the key into the key slot and remove it.
 - (2) Within 5 seconds after the key is removed (step 1), insert the key into the key slot. Then change the power switch's power mode to ON (IG) and OFF by pushing the power switch.
 - (3) Within 30 seconds after the power switch is to OFF again (step 2), perform the following 9 times: Change the power switch's power mode to ON (IG) and OFF by pushing the power switch (step 3).

NOTICE:

If the change to-self-diagnostic mode has failed, the system will return to normal mode.

HINT:

- Changing the power switch's power mode to ON (IG) by pushing the power switch after step 3 has been completed will end self-diagnostic mode.
- Do not lock or unlock doors during the self-diagnostic mode.



- (c) Check that the system has switched to self-diagnostic mode by checking the flashes of the room lamp (dome lamp or key slot light) or buzzer outputs. Compare the flash patterns of the room lamp and output patterns of the buzzer to the timing chart on the left.

OK: The flash patterns of the room lamp and output patterns of the buzzer should be the same as that shown in the timing chart on the left.

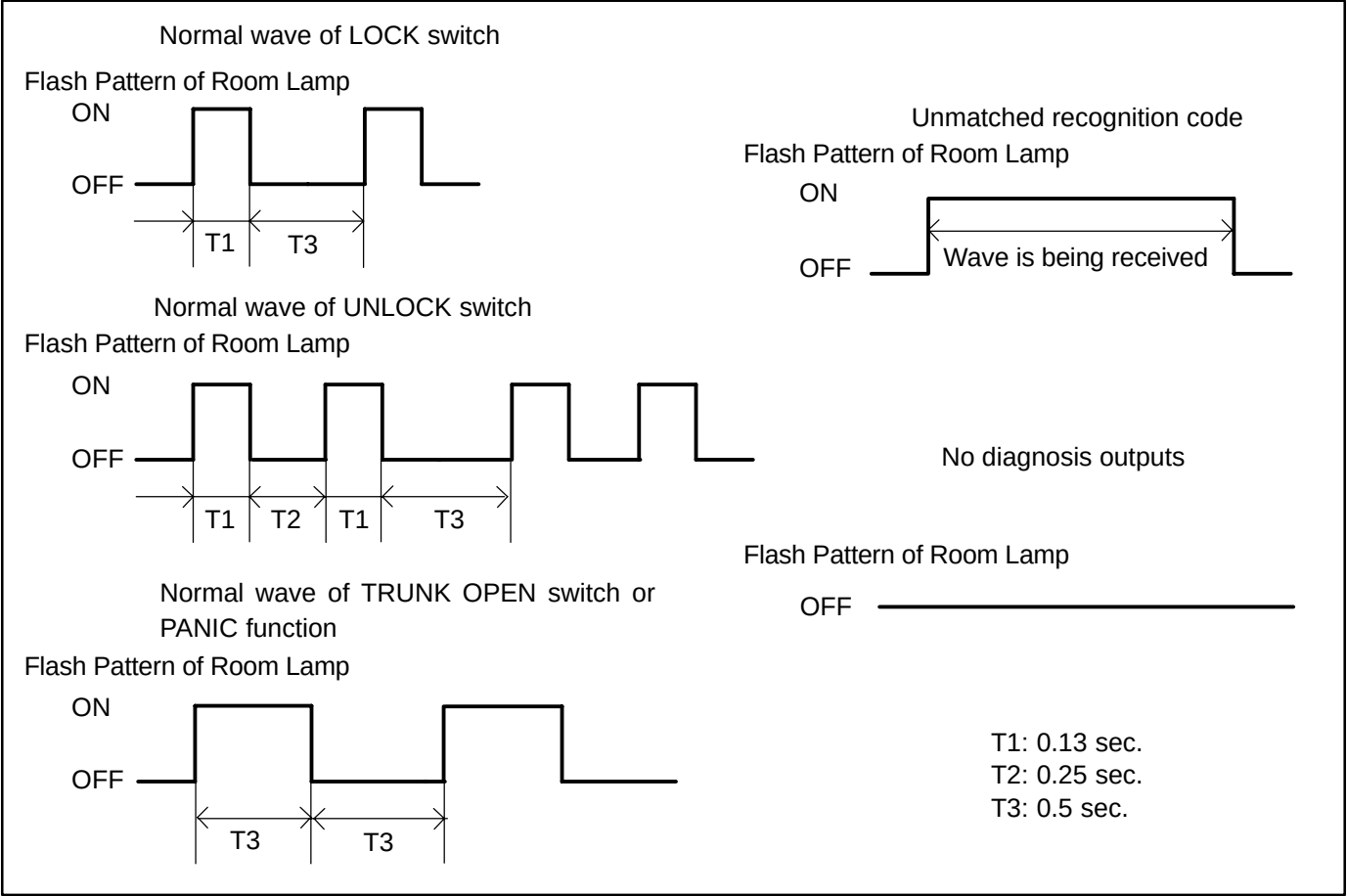
NG

Go to step 11

OK

6 CHECK BY SELF-DIAGNOSTIC MODE

(a) Inspect the diagnosis outputs when the door control transmitter switch is held down. The diagnosis outputs can be checked by the flash patterns of the room lamp and output patterns of the buzzer.



Result	Proceed to
When unmatched recognition code is output.	A
When normal waves (patterns of room lamp and output patterns of buzzer) for LOCK, UNLOCK and PANIC switches are output.	B
When no diagnosis outputs are present.	C

B

REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY

C

Go to step 12

A

7 REGISTER RECOGNITION CODE

- (a) Check that the system can switch to rewrite mode or add mode, and that a recognition code can be registered.

OK:

System can switch to rewrite mode or add mode, and that a recognition code can be registered.

NG

Go to step 8

OK

END

8 REPLACE DOOR CONTROL RECEIVER

- (a) After replacing the door control receiver, check that the doors can be locked and unlocked by using the transmitter LOCK/UNLOCK switch.

OK: Doors can be locked and unlocked with transmitter.

NG

**REPLACE INSTRUMENT PANEL JUNCTION
BLOCK ASSY**

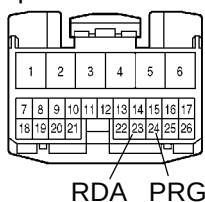
OK

END

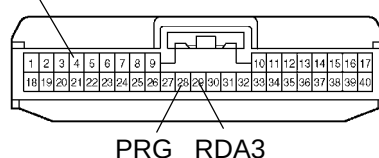
9 CHECK WIRE HARNESS (SMART KEY ECU – MULTIPLEX NETWORK BODY ECU)

Wire Harness Side

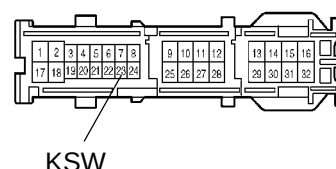
B7
Multiplex Network Body ECU



S11
Smart Key ECU



IE
Instrument Panel J/B Assy



B79931

- (a) Disconnect the S11 and B7 ECU connectors.
(b) Disconnect the 1E J/B connector.
(c) Measure the resistance of wire harness side connector.

Standard:

Tester Connection	Specified Condition
B7-23 (RDA) – S11-29 (RDA3)	Below 1 Ω
B7-24 (PRG) – S11-28 (PRG)	Below 1 Ω
1E-23 (KSW) – S11-4 (KSW)	Below 1 Ω

NG

**REPAIR OR REPLACE WIRE HARNESS AND
CONNECTOR**

OK

10 REPLACE SMART KEY ECU ASSY

- (a) After replacing the smart key ECU, check that the door can be locked and unlocked by using the transmitter LOCK/UNLOCK switch.

OK: Doors can be locked and unlocked with transmitter.

NG

**REPLACE INSTRUMENT PANEL JUNCTION
BLOCK ASSY**

OK

END

11 CONFIRM INPUT METHOD OF SELF-DIAGNOSTIC MODE

Result	Proceed to
When the method for changing the system self-diagnostic mode works.	A
When the method for changing the system self-diagnostic mode does not works.	B

B

Go to step 5

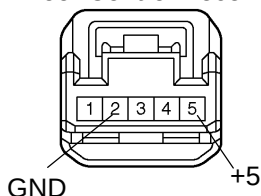
A

Go to step 9

12 CHECK WIRE HARNESS (DOOR CONTROL RECEIVER – BODY GROUND)**Wire Harness Side**

D4

Door Control Receiver



- (a) Disconnect the D4 receiver connector.
(b) Measure the voltage and resistance between the wire harness side connector and body ground.

Standard:

Tester Connection	Specified Condition
D4-5 (+5) – Body ground	4.6 to 5.4 V
D4-2 (GND) – Body ground	Below 1 Ω

NG

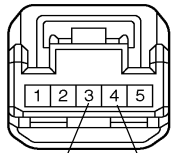
**REPAIR OR REPLACE WIRE HARNESS AND
CONNECTOR**

OK

13 CHECK WIRE HARNESS (DOOR CONTROL RECEIVER – SMART KEY ECU) (DOOR CONTROL RECEIVER OR SMART KEY ECU – BODY GROUND)

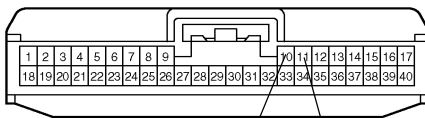
Wire Harness Side

D4
Door Control Receiver



RSSI DATA

S11
Smart Key ECU



RDA RSSI

B79930

- Disconnect the D4 receiver connector.
- Disconnect the S11 ECU connector.
- Measure the resistance of the wire harness side connectors.

Standard:

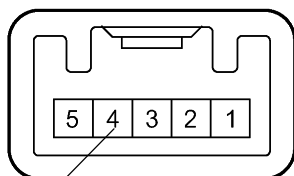
Tester Connection	Specified Condition
D4-4 (DATA) – S11-10 (RDA)	Below 1 Ω
D4-3 (RSSI) – S11-11 (RSSI)	Below 1 Ω
D4-4 (DATA) – S11-10 (RDA) – Body ground	10 k Ω or higher
D4-3 (RSSI) – S11-11 (RSSI) – Body ground	10 k Ω or higher

NG

REPAIR OR REPLACE WIRE HARNESS AND CONNECTOR

OK

14 CHECK DOOR CONTROL RECEIVER (OUTPUT)



DATA

H

B78364

- Reconnect the D4 receiver connector and Measure the voltage between the terminal and body ground.

Standard:

Tester Connection	Condition	Specified Condition
D4-4 (DATA) – Body ground	No key in key slot, all doors closed and each transmitter switch OFF $\square$ ON	Below 1 V $\square$ Approx. 6 to 7 V $\square$ below 1 V

NG

Go to step 15

OK

Go to step 9

15 REPLACE DOOR CONTROL TRANSMITTER

- (a) Check that the doors can be locked and unlocked by using the transmitter LOCK/UNLOCK switch.
OK: Doors can be locked and unlocked with transmitter.

NG**REPLACE DOOR CONTROL RECEIVER****OK****END**

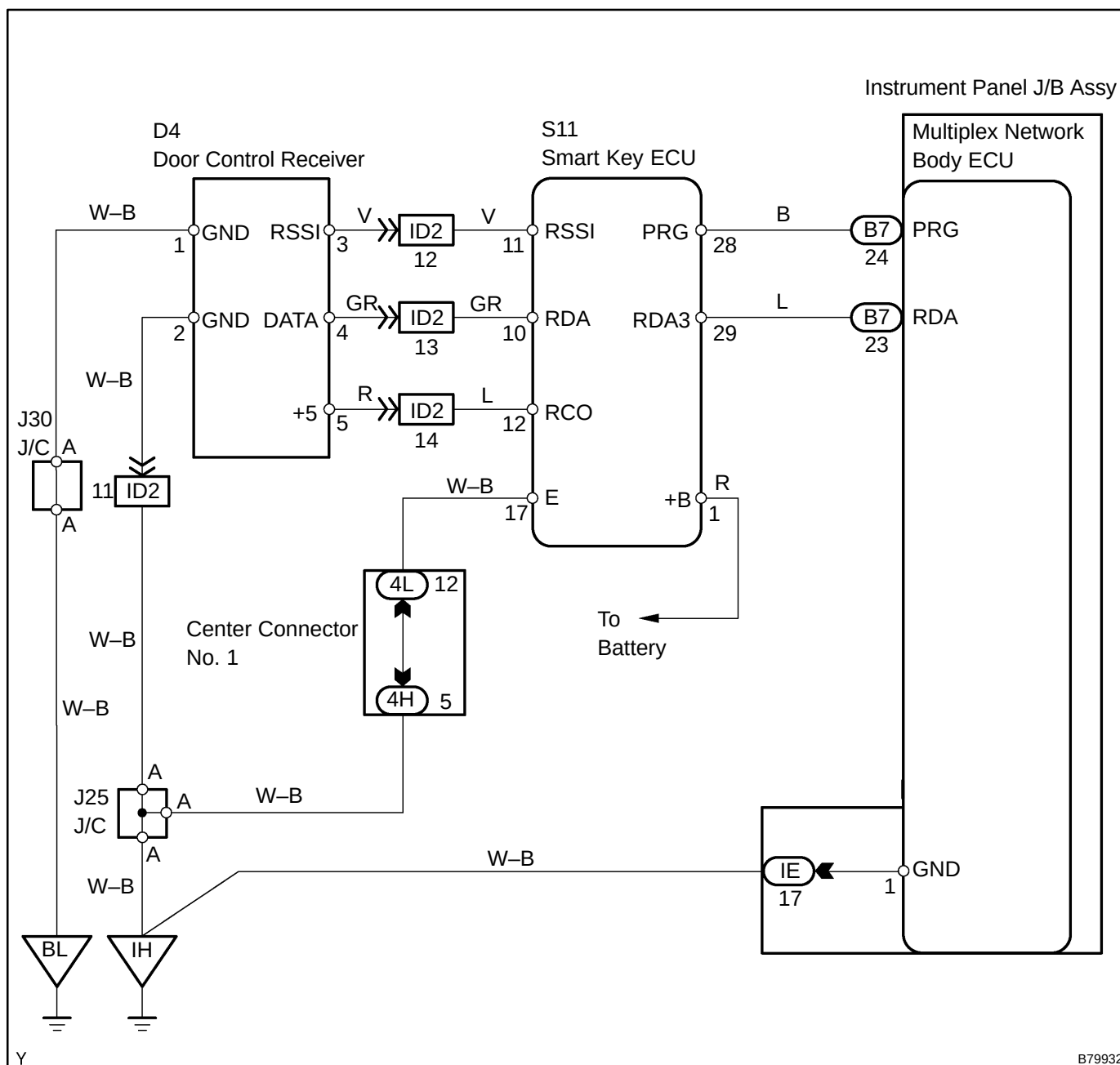
DTC	B1242	WIRELESS DOOR LOCK TUNER CIRCUIT MALFUNCTION
-----	-------	---

CIRCUIT DESCRIPTION

This DTC is detected when a RDA signal is not input to the door control receiver through the smart key ECU within 1 second after the multiplex network body ECU outputs a PRG signal.

DTC No.	DTC Detection Condition	Trouble Area
B1242	Within 1 second after PRG signal is output from multiplex network body ECU during self-diagnostic mode, corresponding RDA signal is not input.	• Door control receiver • Wire harness • Smart key ECU • Multiplex network body ECU

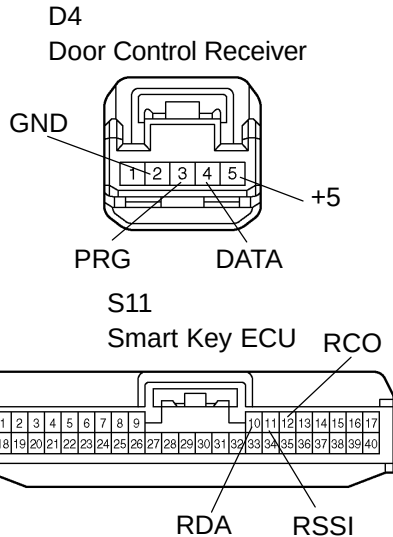
WIRING DIAGRAM



INSPECTION PROCEDURE

1 CHECK WIRE HARNESS (DOOR CONTROL RECEIVER – SMART KEY ECU) (DOOR CONTROL RECEIVER OR SMART KEY ECU – BODY GROUND)

Wire Harness Side



Y

B79393

- Disconnect the S11 ECU connector.
- Disconnect the D4 receiver connector.
- Measure the voltage and resistance of the wire harness side connectors.

Standard:

Tester Connection	Specified Condition
D4-4 (DATA) – S11-10 (RDA)	Below 1 Ω
D4-3 (PRG) – S11-11 (RSSI)	Below 1 Ω
D4-5 (+5) – S11-12 (RCO)	Below 1 Ω
D4-2 (GND) – Body ground	Below 1 Ω
D4-4 (DATA) or S11-10 (RDA) – Body ground	10 k Ω or higher
D4-3 (RSSI) or S11-11 (RSSI) – Body ground	10 k Ω or higher

NG

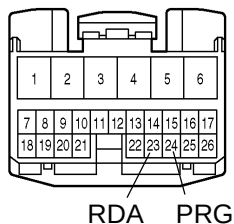
REPAIR OR REPLACE WIRE HARNESS AND CONNECTOR

OK

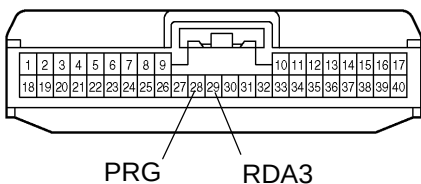
2 CHECK WIRE HARNESS (SMART KEY ECU – MULTIPLEX NETWORK BODY ECU) (SMART KEY ECU OR MULTIPLEX NETWORK BODY ECU – BODY GROUND)

Wire Harness Side

B7
Multiplex Network Body ECU



S11
Smart Key ECU



Y

B79394

- Disconnect the S11 ECU connector.
- Disconnect the B7 ECU connector.
- Measure the resistance of the wire harness side connectors.

Standard:

Tester Connection	Specified Condition
S11-29 (RDA3) – B7-23 (RDA)	Below 1 Ω
S11-28 (PRG) – B7-24 (PRG)	Below 1 Ω
S11-29 (RDA3) or B7-23 (RDA) – Body ground	10 k Ω or higher
S11-28 (PRG) or B7-24 (PRG) – Body ground	10 k Ω or higher

NG

REPAIR OR REPLACE WIRE HARNESS AND CONNECTOR

OK

3 REPLACE DOOR CONTROL RECEIVER

- (a) Check that no DTC is DTC is output.

OK: DTC is not output.

NG

**REPLACE INSTRUMENT PANEL JUNCTION
BLOCK ASSY**

OK

REPLACE SMART KEY ECU

CUSTOMIZE PARAMETERS

HINT:

The following item can be customized.

NOTICE:

- When the customer requests a change in a function, first make sure that customization of the function(s) is possible.
- Be sure to record the current settings before customizing.
- When troubleshooting a function, first make sure that the function is not set to OFF.

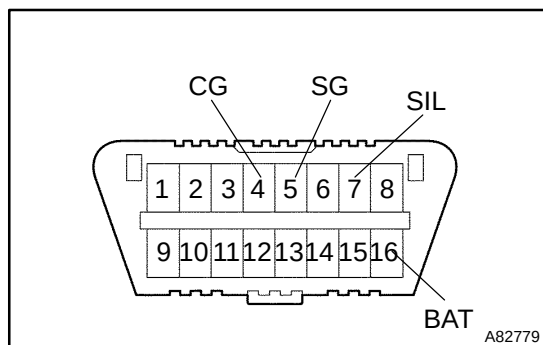
WIRELESS DOOR LOCK:

Display (item)	Default	Contents	Setting
OPEN DOOR WARN (Open door warning)	ON	If door is not completely closed and transmitter LOCK switch is pressed, this function makes buzzer sound for 10 seconds.	ON/OFF
WIRLS BUZZ OPER (Buzzer answer-back of wireless)	ON	Function that makes wireless buzzer sound for answer-back when transmitter lock/unlock switch is pressed.	ON/OFF
WIRELESS OPER (Wireless door lock control function)	ON	Function that turns wireless door lock function ON/OFF.	ON/OFF
ALARM FUNCTION (Panic function)	ON	Function that operates theft deterrent system when transmitter panic switch on transmitter is held for 0.8 seconds.	ON/OFF
UNLOCK/2OPER (2 times operation wireless unlock)	ON	Function that unlocks driver side door when unlock switch on transmitter is pressed once, and unlocks all doors when pressed twice. If on OFF setting, pressing unlock switch once makes all doors unlock.	ON/OFF
AUTO LOCK DELAY (Auto lock time)	30s	This function controls amount of time from unlocking doors to automatic re-locking function.	30s/60s
HAZARD ANS BACK (Hazard answer-back of wireless)	ON	When lock switch on transmitter is pressed, this function illuminates all hazard warning lamps once. when unlock switch is pressed, all hazard warning lamps illuminate twice.	ON/OFF

DIAGNOSIS SYSTEM

1. DESCRIPTION

- (a) Wireless door lock control system data and the Diagnosis Trouble Codes (DTCs) can be read in the Data Link Connector 3 (DLC3). When the system seems to be malfunctioning, use the hand-held tester to check for malfunctions and perform repairs.



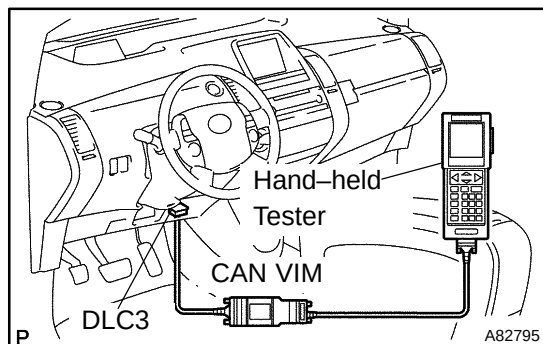
2. CHECK DLC3

HINT:

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

Symbol	Terminal No.	Name	Reference terminal	Result	Condition
SIL	7	Bus "+" line	5 – Signal ground	Pulse generation	During transmission
CG	4	Chassis ground	Body ground	Below 1 Ω	Constant
SG	5	Signal ground	Body ground	Below 1 Ω	Constant
BAT	16	Battery positive	Body ground	11 to 14 V	Constant

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



HINT:

Connect the cable of the hand-held tester (with CAN VIM) to the DLC3, change the power switch's power mode to ON (IG) and attempt to use the hand-held tester. If the screen displays **UNABLE TO CONNECT TO VEHICLE**, a problem exists in the vehicle side or tester side.

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

3. CHECK BATTERY VOLTAGE

Standard: 11 to 14 V

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

DATA LIST/ACTIVE TEST

1. DATA LIST

HINT:

Using the hand-held tester DATA LIST allows switch, actuator and other item values to be read without removing any parts. Reading the DATA LIST early in troubleshooting is one way to shorten labor time.

- Connect the hand-held tester (with CAN VIM) to the DLC3.
- Change the power switch's power mode to ON (IG) by pushing the power switch.
- Read the DATA LIST according to the display on the tester.

Multiplex network body ECU:

Item	Measurement Item/ Display (Range)	Normal Condition	Diagnostic Note
D DOR CTY SW	Driver side door courtesy switch signal/ON or OFF	ON: Driver side door is open. OFF: Driver side door is open.	–
P DOR CTY SW	Passenger side door courtesy switch signal/ON or OFF	ON: Passenger side door is open. OFF: Passenger side door is open.	–
Rr DOR CTY SW	Rear door courtesy switch signal/ ON or OFF	ON: Either right or left door is open. OFF: Both right and left doors are closed.	–
D LOCK POS SW	Driver side door lock position switch signal/ON or OFF	ON: Driver side door lock is in unlock position. OFF: Driver side door lock is in lock position.	–
P LOCK POS SW	Passenger side door lock position switch signal/ON or OFF	ON: Passenger side door lock is in unlock position. OFF: Passenger side door lock is in lock position.	–
Rr LOCK POS SW	Rear door lock position switch signal/ON or OFF	ON: Rear door lock is in unlock position. OFF: Rear door lock is in lock position.	–
REGIST ID CODE	Number of registered ID / Min. 0, Max. 4	Number of registered ID code.	–

Transponder key ECU:

Item	Measurement Item/ Display (Range)	Normal Condition	Diagnostic Note
KEY UNLK WRN SW	Halfway switch signal/ON or OFF	ON: Key is in key slot. OFF: No key is in key slot.	–

2. ACTIVE TEST

HINT:

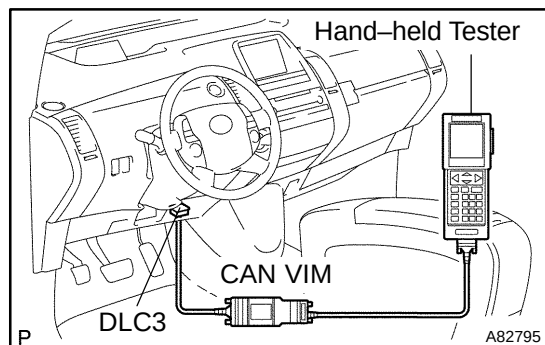
Performing the hand-held tester ACTIVE TEST allows relay, VSV, actuator, and other times to be operated without removing any parts. Performing the ACTIVE TEST early in troubleshooting is one way to shorten labor time. The DATA LIST can be displayed during the ACTIVE TEST.

- Connect the hand-held tester (with CAN VIM) to the DLC3.
- Change the power switch's power mode to ON (IG) by pushing the power switch.
- Perform the ACTIVE TEST according to the display on the tester.

Transponder key ECU:

Item	Normal Condition	Diagnostic Note
HAZARD	Turns turn signal flasher relay ON/OFF	–
TRUNK/BDOR OPEN	Operate back door motor ON/OFF	–
DOOR LOCK	Operate door lock motor for all doors OFF/LOCK/UNLOCK	All doors are closed

DTC CHECK/CLEAR



1. CHECK DTC

- (a) Connect the hand-held tester together with the Controller Area Network Vehicle Interface Module (CAN VIM). Then connect the CAN VIM to the DLC3.
- (b) Change the power switch's power mode to ON (IG) by pushing the power switch.
- (c) Read the DTCs by following the directions on the tester screen.

HINT:

Refer to the hand-held tester operator's manual for further details.

2. CLEAR DTC

- (a) Connect the hand-held tester (with CAN VIM) to the DLC3.
- (b) Change the power switch's power mode to ON (IG) by pushing the power switch.
- (c) Erase the DTCs by following the directions on the tester screen.

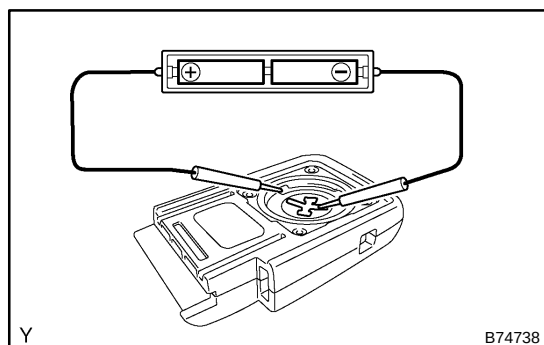
HINT:

Refer to the hand-held tester operator's manual for further details.

INSPECTION

1. INSPECT DOOR CONTROL TRANSMITTER

- (a) Inspect operation of the transmitter.
 - (1) Remove the battery (lithium battery) from the transmitter (see page 05–2263).
 - (2) Install a new or non-depleted battery (lithium battery).



HINT:

When a new or non-depleted transmitter battery is not available, connect 2 new 1.5 V batteries in series. Then connect lead to the batteries and use the leads to apply 3 V voltage to the transmitter, as shown in the illustration.

- (3) From outside the vehicle, approximately 1 m (3.28 ft) from the driver side outside door handle, test the transmitter by pointing its keyplate at the vehicle and pressing a transmitter switch.

Standard:

The door lock can be operated via the transmitter.

HINT:

- The operating range differs depending on the user, the way the transmitter is held and the location.
- Since the transmitter uses weak electric waves, the operating range might be shortened if noise or strong electric waves occur in the area where the transmitter is used. Or, the transmitter may not function.

- (b) Install the battery (lithium battery).

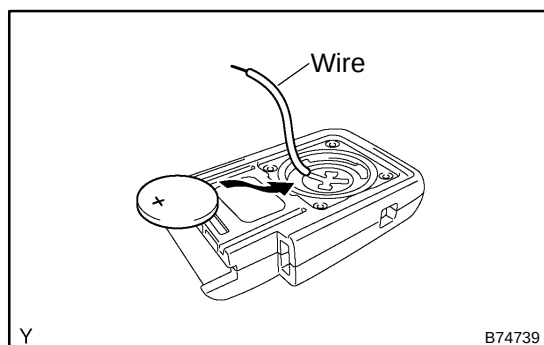
- (c) Inspect the battery capacity.

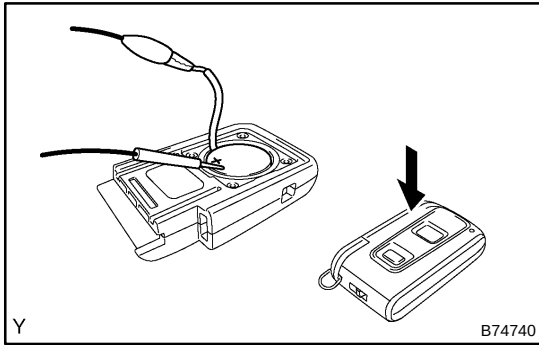
HINT:

- When checking the amount of energy left in the battery (lithium battery), the battery must be checked while it is installed in the transmitter (a resistance of 1.2 kΩ is applied to the battery). When the battery energy is checked by itself (uninstalled), the voltage reading will be more than 2.5 V until the energy is depleted.
- If the transmitter is malfunctioning, the voltage reading of the energy left in the battery may be inaccurate.

- (1) Remove the battery (lithium battery) from the transmitter (see page 05–2263).

- (2) Connect a wire to the negative (–) terminal of the transmitter and install the battery.





- (3) Connect the tester's positive (+) lead to the (+) battery (lithium battery) and the negative (-) lead to the wire respectively.
- (4) Press one of the transmitter switches for approximately 1 second.
- (5) Press the transmitter switch again to check the voltage.

Standard: 2.2 V or higher

HINT:

- When the temperature of the battery is low, the inspection cannot be made correctly.
When the outcome of the test is less than 2.2 V, conduct the test again after leaving the battery in a place with a temperature 18°C (64°F) for more than 30 minutes.
 - Read the voltage immediately after the switch is pressed. When 0.8 seconds have passed after the switch is pressed, the automatic power-off function starts and resistance applied to the battery will cease. The voltage of the battery will be 2.5 V or more.
 - Press the switch at least 3 times before reading the voltage.
If the battery has just been returned to 18°C (64°F), the voltage may be unusually high for the first or second voltage reading.
- (6) Disconnect the lead.
 - (7) Set the battery (lithium battery) in the transmitter.

ON-VEHICLE INSPECTION

PRECAUTION

1. NOTES WHEN CHECKING

(a) Power door LOCK/UNLOCK function:

This wireless door lock control operates only when the following 3 conditions are met.

- (1) No key is inserted into the key slot.
- (2) All the doors are closed.
- (3) The power door lock system is functioning normally.
- (4) Key is not within the smart key detection area.

HINT:

The UNLOCK function operates even when one of the doors is open.

(b) Remote panic function.

This wireless control function operates only when the following condition is met.

- (1) The power switch's power mode is OFF.

HINT:

The key can be inserted. However the power switch's power mode is OFF.

(c) The wireless transmitter operating range differs depending on the situation.

- (1) The operating range differs depending on the user, the way the transmitter is held and the location.
- (2) In certain areas, the operating range will be reduced due to the vehicle body shape and the influence of the surrounding environment.
- (3) Since the transmitter uses weak electric waves, the operating range might be shortened if noise or strong electric waves occur in the area where the transmitter is used. Or, the transmitter may not function.
- (4) When the battery weakens, the operating range is reduced or the transmitter may not function.

HINT:

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

2. WIRELESS DOOR LOCK CONTROL FUNCTIONS

HINT:

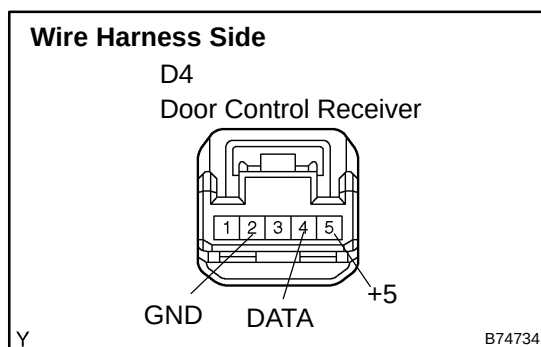
- The switches described below transmit signals and are built into the door control transmitter.
 - The operating range must be taken into account while checks are being made.
- (a) Put the vehicle in conditions that allow the wireless control function to be operated (see page XX-XXX).
 - (b) Check basic functions.
 - (1) Check that the LED of the transmitter lights 3 times when each switch is pressed 3 times.

HINT:

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

- (2) Check that all the doors including the back door lock when the LOCK switch is pressed.
- (3) Check that only the driver side door unlocks when the UNLOCK switch is pressed once, and that the remaining doors unlock when the UNLOCK switch is pressed again within 3 seconds.
- (c) Check the chattering prevention function.
 - (1) Check that pressing a switch will result in the switch's operation occurring only once; and when the switch is held down, the operation is not repeated continuously. Also, make sure that when the switch is pressed in approximately 1 second intervals, the switch's operation will occur each time.
- (d) Check the automatic locking function.
 - (1) Check that if all of the doors are unlocked with the UNLOCK switch and none of the doors are opened or locked within approximately 30 seconds, the door automatically relock.

- (2) Check that if all of the doors are unlocked with the UNLOCK switch and a door is opened or locked within approximately 30 seconds, the automatic locking function does not operate.
- (e) Check the switch operation fail-safe function.
 - (1) Check that the doors cannot be locked by a switch while the key is in the key slot. However, this does not apply when the system is in recognition code registration mode.
- (f) Check the operation stop function when a door is open or not completely closed.
 - (1) Check that if a door is open or not completely closed, the doors cannot be locked by the LOCK switch.
- (g) Check the repeat function.
 - (1) Check that if the LOCK switch is pressed while the movement of the driver side door control knob (in the unlocked state) is restricted, the repeat function attempts to lock all of the doors again 2 seconds later.
- (h) Check the answer-back function.
 - (1) When the LOCK switch is pressed, check that the lamps flash once and the buzzer sounds once simultaneously with the locking of all the doors.
 - (2) When the UNLOCK switch is pressed once, check that the lamps flash twice and the buzzer sounds twice simultaneously with the unlocking of the driver side door.
 - (3) When the UNLOCK switch is pressed again within 3 seconds, check that the lamps flash twice and the buzzer sounds twice simultaneously with the unlocking of all the doors.
- (i) Check the illuminated entry function.
 - (1) When all the doors are locked, pressing the UNLOCK switch causes the room lamp (when the lamp switch is in the DOOR position) to illuminate simultaneously with the unlock operation.
 - (2) Check that the room lamp turns off in approximately 15 seconds if doors have not been opened.
- (j) Check the remote panic function.
 - (1) Check that if the PANIC switch is held down for 0.8 seconds or more, the theft deterrent alarm function sounds the horn and flashes the headlamps and taillamps for 60 seconds. And, with the theft alarm function active, check if pressing any switch on the transmitter causes the horn to stop sounding and the headlamps and taillamps to stop flashing.



3. CHECK DOOR CONTROL RECEIVER

- (a) Disconnect the D4 receiver connector.
- (b) Measure the voltage and resistance between the terminals of the wire harness side connector and body ground.

Standard:

Tester Connection	Specified Condition
D4-5 (+B) – Body ground	4.6 to 5.4 V
D4-2 – Body ground	Below 1 Ω

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

- (c) Reconnect the D4 receiver connector.
- (d) Measure the voltage between the terminal and body ground.

Standard:

Tester Connection	Condition	Specified Condition
D4-4 (RDA) – Body ground	No key in key slot, all doors closed and each transmitter switch OFF → ON	Below 1 V → Approx. 6 to 7 V → Below 1 V

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

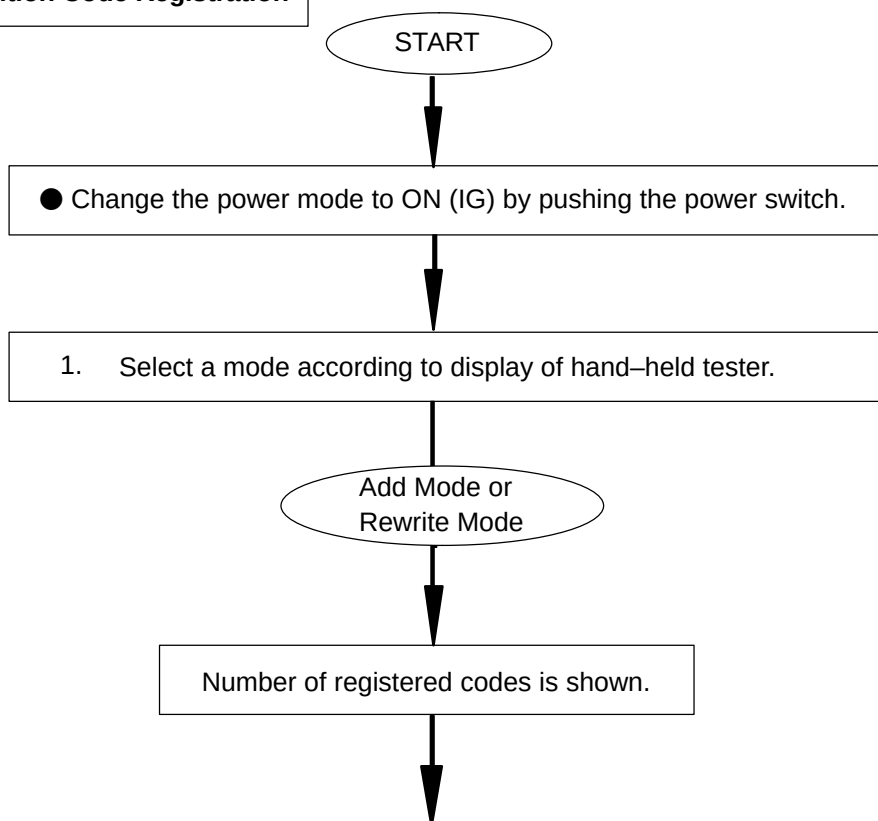
REGISTRATION

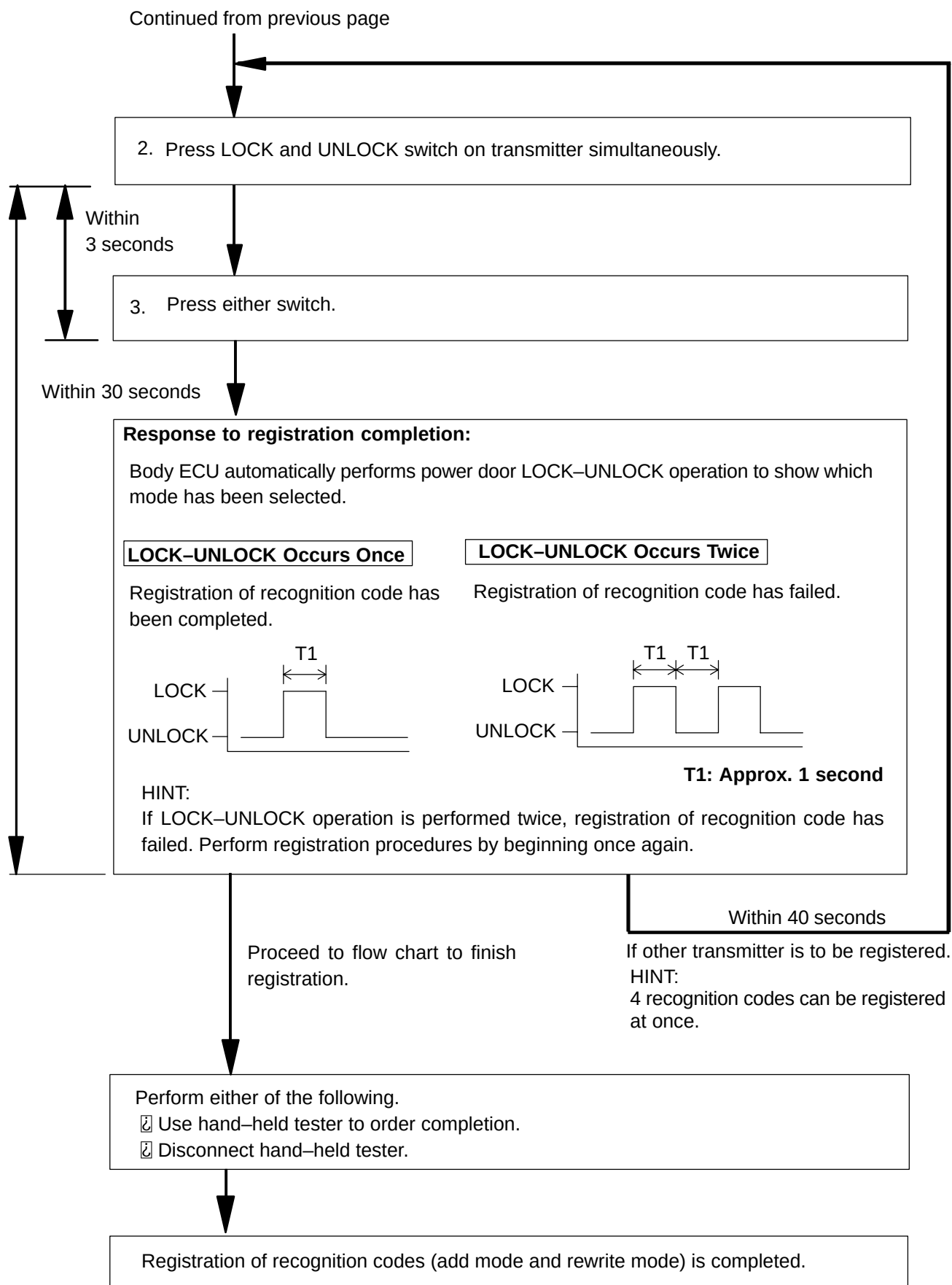
HINT:

- Register a recognition code to the multiplex network body ECU when the door control transmitter or the door control receiver (see page 05-2333 and 05-2158).
- The add mode is used to register new recognition codes while still retaining codes already registered. This mode is used when a new transmitter is added. If the number of registered codes exceeds 4, the previously registered codes will be erased in order, starting from the first registered code.
- The rewrite mode is used to erase all the previously registered recognition codes in order to register new recognition codes. This mode is used when the transmitter or the door control receiver is exchanged for a new one.
- The confirmation mode is used to confirm how many recognition codes have already been registered before an additional registration of a recognition codes.
- The prohibition mode is used to erase all the registered codes and disables the wireless door lock function. This mode is used when the transmitter is lost.
- All of the following registration procedures must be performed in order continuously.

1. REGISTER RECOGNITION CODE

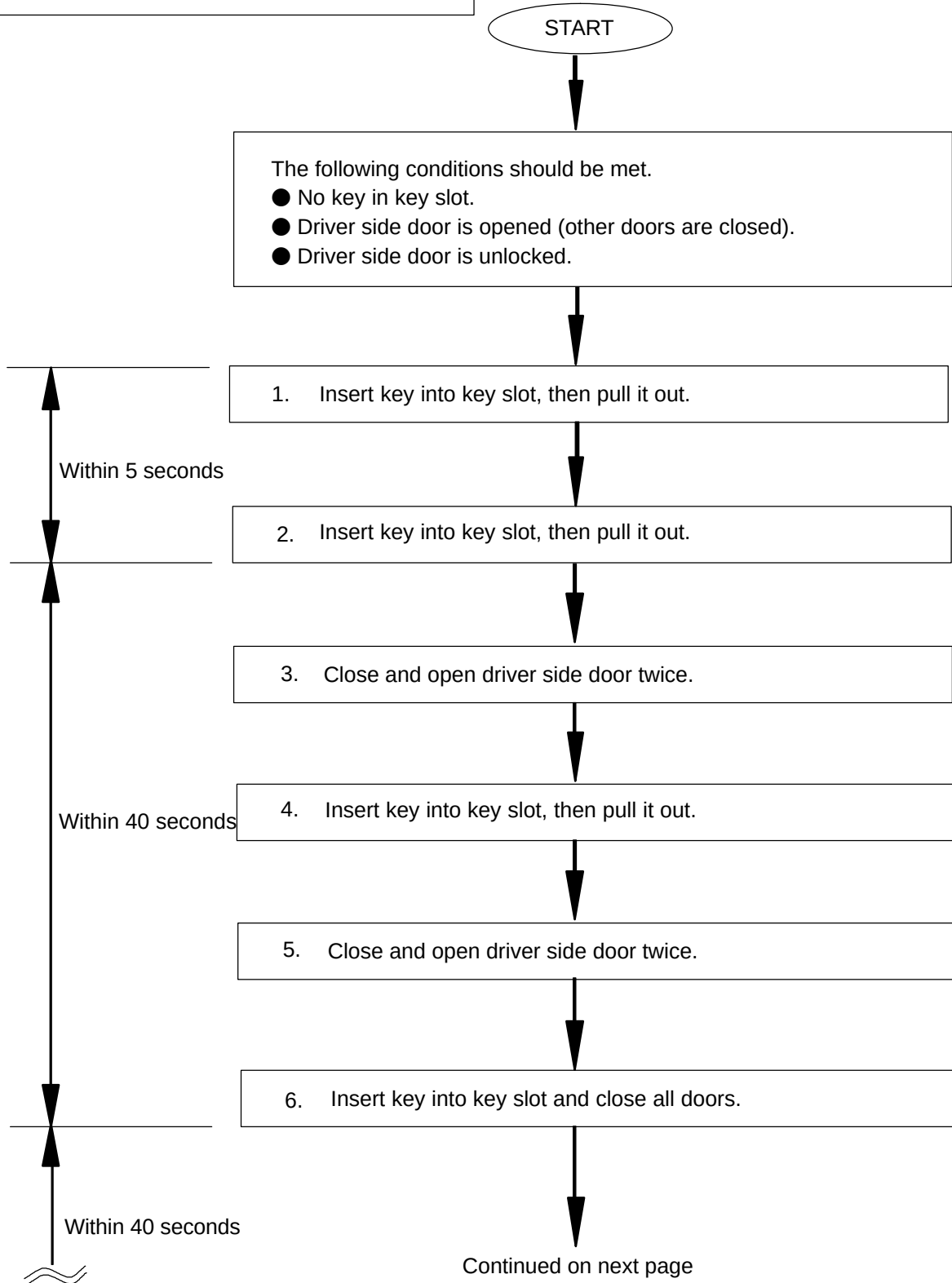
Flow Chart of Recognition Code Registration





2. REGISTER RECOGNITION CODE

Flow Chart of Recognition Code Registration



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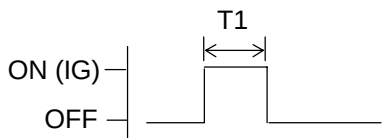
Continued from previous page

Mode Selection:

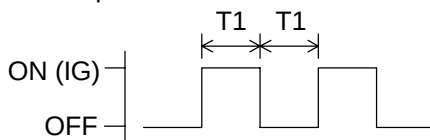
7. Change the power switch's power mode between ON (IG) and OFF repeatedly once within 1 seconds by pushing the power switch.

Number of ON (IG)–OFF operations of power switch:**Add Mode**

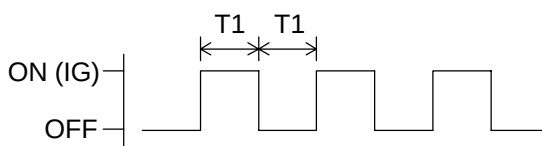
ON (IG)–OFF operation: 1 time

T1: Approx. 1 second**Rewrite Mode**

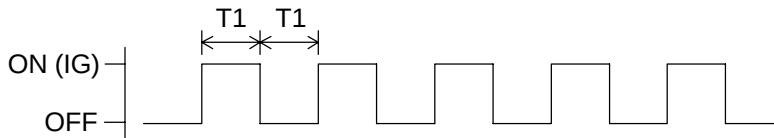
ON (IG)–OFF operation: 2 times

**Confirmation Mode**

ON (IG)–OFF operation: 3 times

**Prohibition Mode**

ON (IG)–OFF operation: 5 times



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

8. Remove key from key slot.

Within 5 seconds

Continued on next page

Within
5 seconds

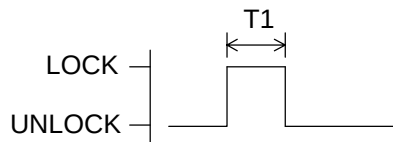
Continued from previous page

Response to selected mode (Power door lock operation):

Body ECU automatically performs power door LOCK–UNLOCK operation to inform which mode has been selected.

Add Mode

LOCK–UNLOCK operation: 1 time

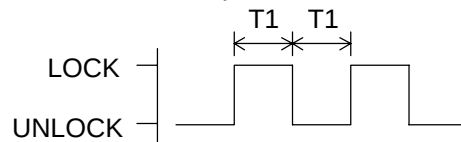


T1: Approx. 1 second

T2: Approx. 2 seconds

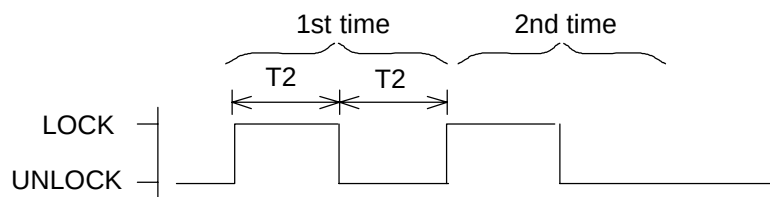
Rewrite Mode

LOCK–UNLOCK operation: 2 times



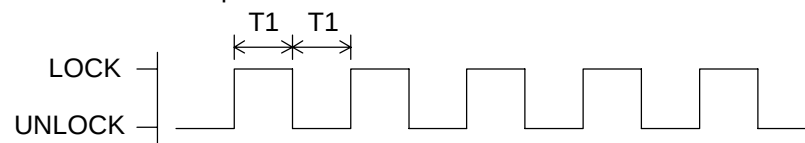
Confirmation Mode

LOCK–UNLOCK operation: The number of registered codes (1 to 5 times)



Prohibition Mode

LOCK–UNLOCK operation: 5 times



HINT:

- In confirmation mode, when LOCK/UNLOCK operation is performed twice, the number of registered recognition codes is 2.
- In confirmation mode, when 0 codes are registered, LOCK/UNLOCK operation is automatically performed 5 times.

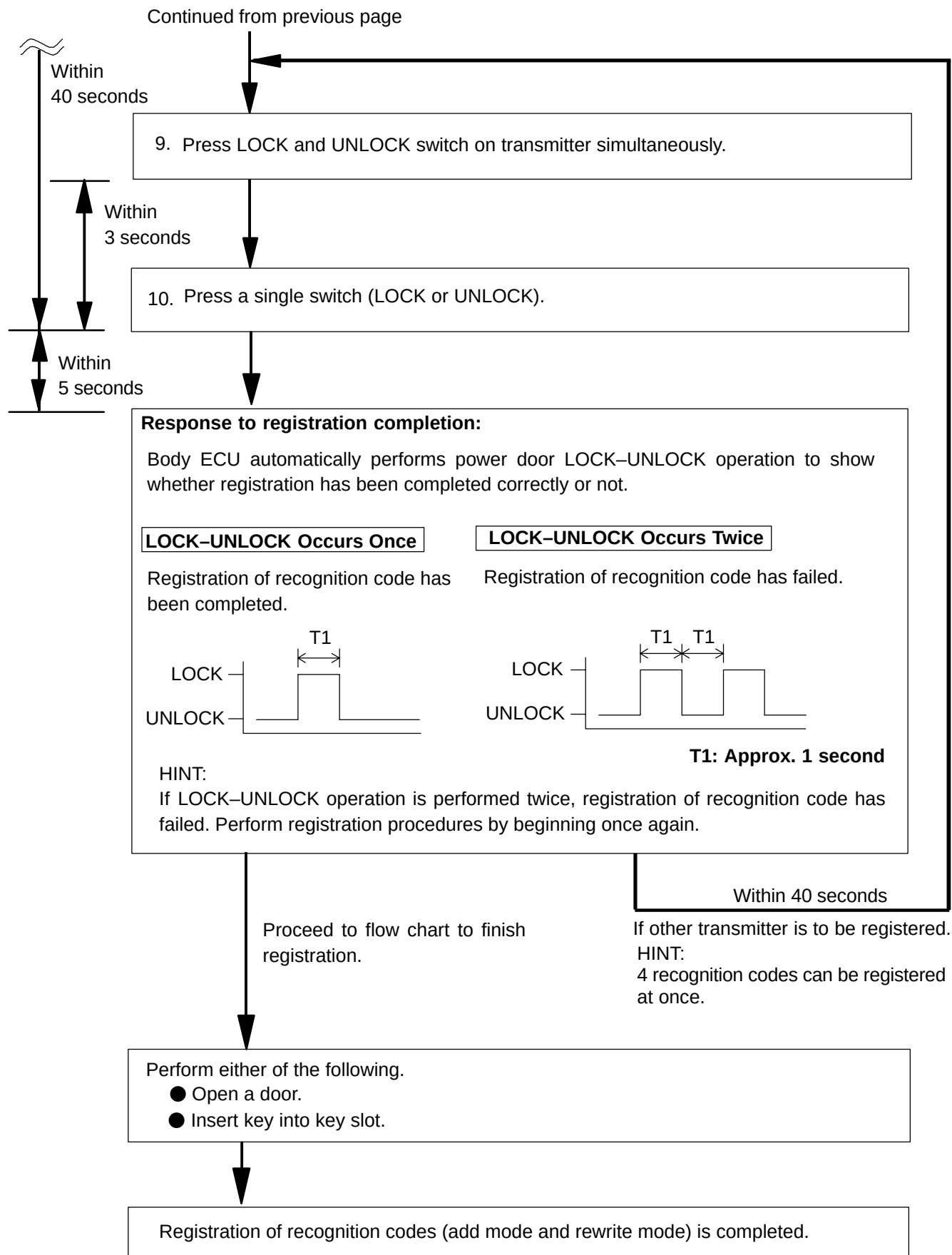
Within
40 seconds

Add Mode or
Rewrite Mode

Confirmation Mode and
Prohibition Mode

Continued on next page

Registration procedures are completed.



NO ANSWER-BACK (HAZARD WARNING LAMP AND WIRELESS DOOR LOCK BUZZER)

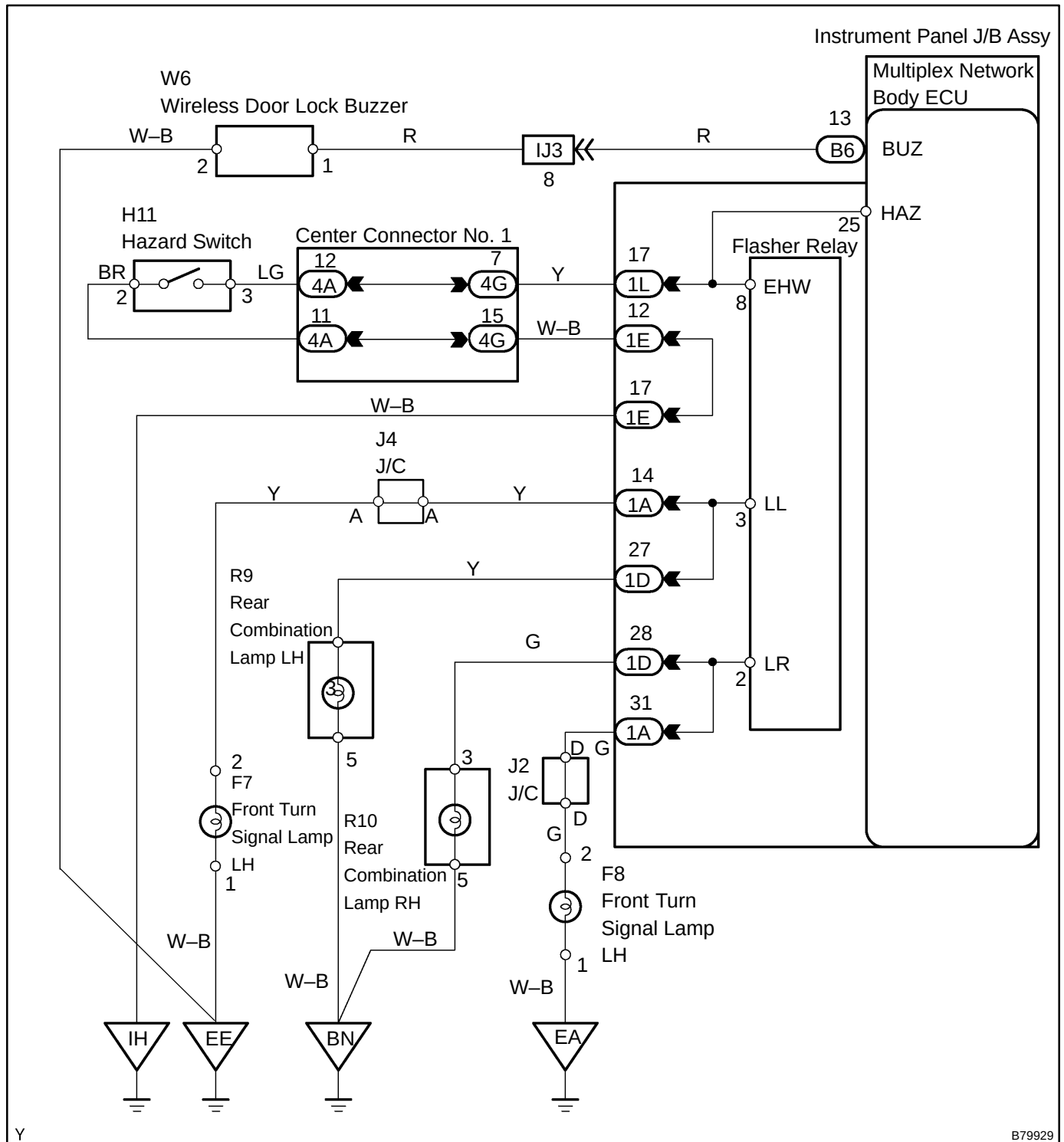
CIRCUIT DESCRIPTION

In some cases, wireless control functions are normal but the hazard warning lamp and wireless door lock buzzer answer-back functions are not. In such cases, the multiplex network body ECU's hazard warning lamp and wireless door lock buzzer signal outputs may be malfunctioning.

NOTICE:

Troubleshooting should be started after confirming that the answer-back function has been switched ON.

WIRING DIAGRAM



Y

B79929

INSPECTION PROCEDURE

1 CHECK WIRELESS DOOR LOCK CONTROL FUNCTIONS

- (a) Check the wireless door lock functions by operating the transmitter switch.

Result:

Result	Proceed To
Wireless door lock functions but hazard warning lamp answer-back does not occur.	A
Wireless door lock functions but wireless door lock buzzer answer-back does not occur.	B
Wireless door lock functions but hazard warning lamp answer-back and wireless door lock buzzer answer-back do not occur.	C

B

Go to step 4

C

Go to FLOW CHART (See page [05-2249](#))

A

2 PERFORM ACTIVE TEST USING HAND-HELD TESTER

- (a) Select the ACTIVE TEST, use the hand-held tester to generate a control command, and then check that the hazard lamps flash.

OK: Signal flasher relay turns ON/OFF.

Item	Test Detail	Diagnostic Note
HAZARD	Turn signal flasher relay ON/OFF	–

NG

Go to step 3

OK

REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY

3 CHECK HAZARD WARNING LAMPS

- (a) Check that the hazard warning lamps flash continuously when the hazard warning signal switch is pressed.

OK: Hazard warning lamps flash continuously.

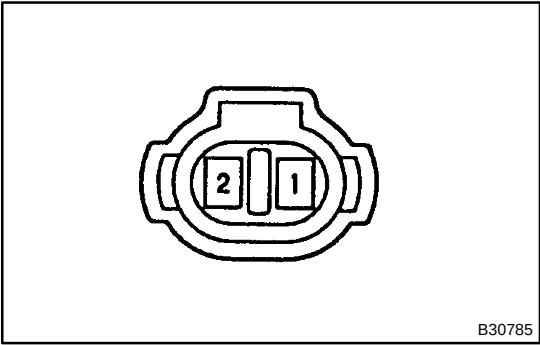
NG

Go to LIGHTING SYSTEM (See page [05-1659](#))

OK

REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY

4 INSPECT WIRELESS DOOR LOCK BUZZER



(a) Measure the buzzer resistance.

NOTICE:

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

(1) Measure the resistance between the terminals of the buzzer.

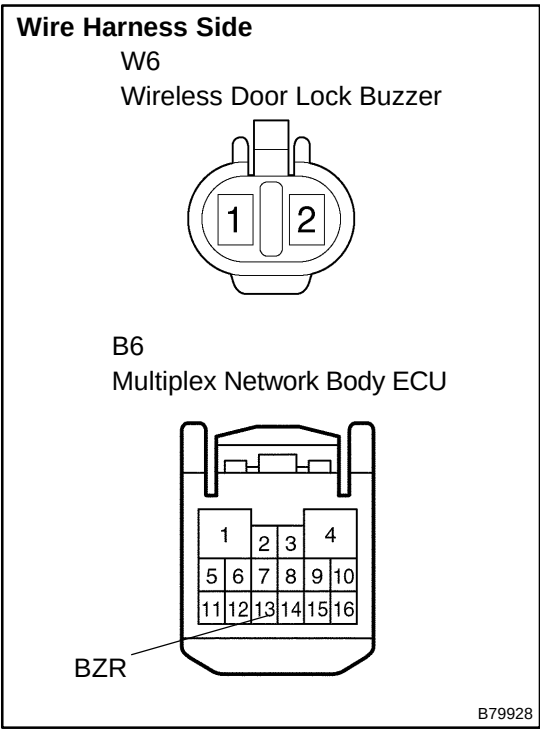
Standard:

Tester Connection	Specified Condition
1 – 2	Approx. 1 kΩ

NG REPLACE WIRELESS DOOR LOCK BUZZER

OK

5 CHECK WIRE HARNESS (WIRELESS DOOR LOCK BUZZER – MULTIPLEX NETWORK BODY ECU)



(a) Disconnect the B6 ECU connector.

(b) Disconnect the W6 buzzer connector.

(c) Measure the resistance of the wire harness side connectors.

Standard:

Tester Connection	Specified Condition
W6-1 – B6-13 (BUZ)	Below 1 Ω
W6-2 – Body ground	Below 1 Ω

NG REPAIR OR REPLACE WIRELESS AND CONNECTOR

OK

REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY

SYSTEM DESCRIPTION

1. WIRELESS DOOR CONTROL SYSTEM DESCRIPTION

- (a) This system is a convenient system for locking and unlocking all the doors from a distance. The wireless control system has the following features:
- The door control receiver performs the code identification process and the multiplex network body ECU operates the door lock control. A serial data link is provided for communication between the door control receiver and multiplex network body ECU.
 - A key-integrated type transmitter is used and it contains the following 3 switches: the door lock switch, door unlock switch and panic switch.
 - An LED (Light Emitting Diode) is mounted on the transmitter to show if the battery is discharged.

2. FUNCTION OF MAIN COMPONENTS

Components	Functions
Door control transmitter	• Contains LOCK, UNLOCK and PANIC switches. • Transmits weak electric waves (recognition codes and function codes) to door control receiver. • Illuminates indicator lamp (LED) during transmission.
Door control receiver	Receives weak electric wave (recognition codes and function codes) and outputs them as code data to multiplex network body ECU.
Halfway switch	Detects if key slot has key inserted or not.
Front door courtesy lamp switch assy Rear door courtesy lamp switch assy Luggage compartment door courtesy lamp switch assy	Turns on when door is open and off when door is closed. Outputs door status (open or closed) to multiplex network body ECU.
Door lock position switch	Transmits door lock positions of each door to multiplex network body ECU.

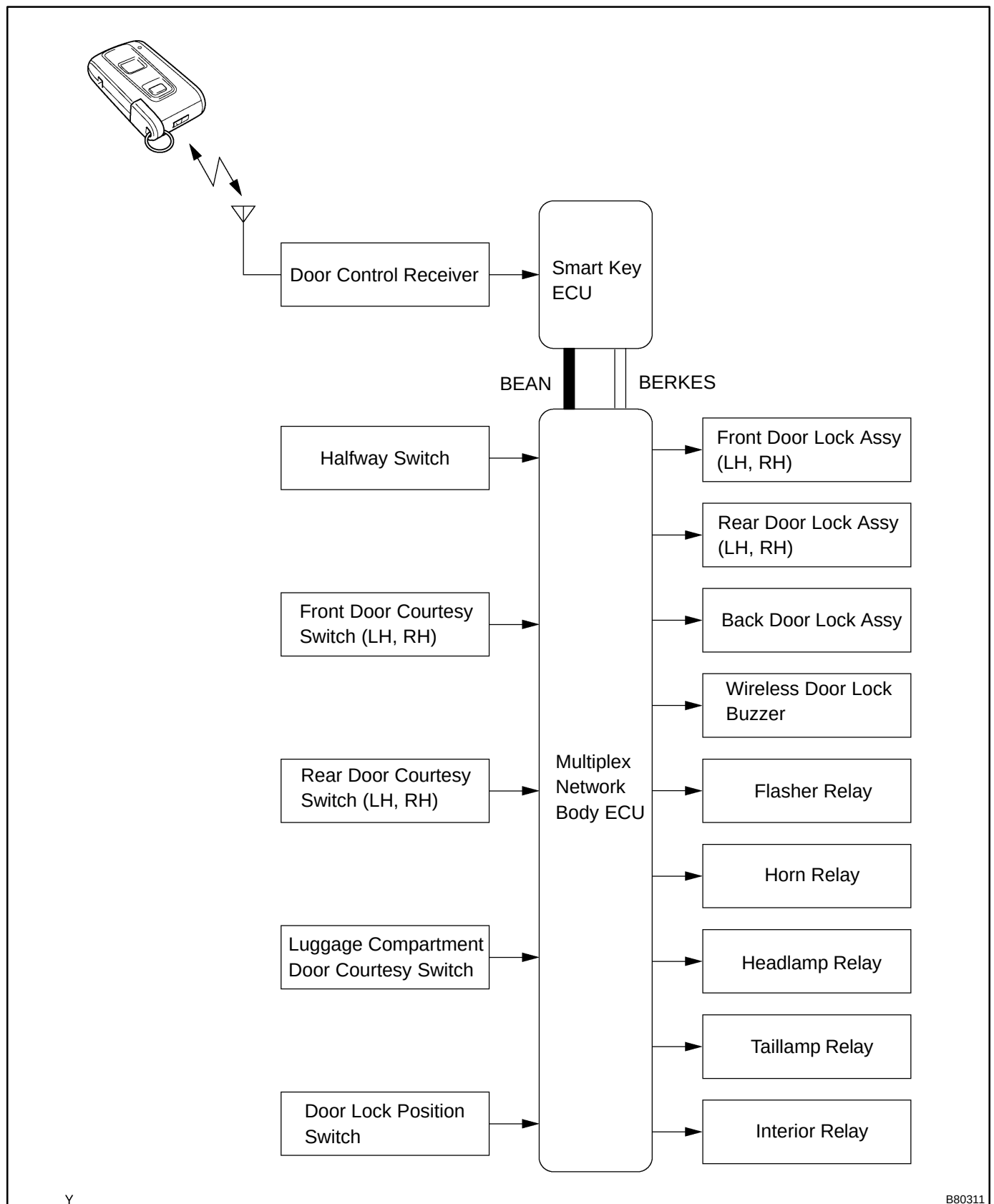
3. SYSTEM FUNCTION

- (a) Door lock/unlock function:
With no key in the key slot (key switch is off) and all door courtesy lamp switches off, pressing the door control transmitter's LOCK/UNLOCK switch causes the transmitter to output weak electric waves which are then input to the door control receiver. The door control receiver reforms these waves into code data in its internal high frequency circuit and outputs the code data to the multiplex network body ECU. The door control receiver and smart key ECU judges the code data (recognition codes and function codes) and outputs its judgment results to the multiplex network body ECU. Upon receiving a door lock/unlock request signal, the multiplex network body ECU outputs a door lock/unlock control signal to each door lock assy. Each door lock assy then locks/unlocks its door and turns on/off its door lock position switch according to the signal.
- (b) Answer-back function:
The multiplex network body ECU receives the door unlock detection switch's on/off signals and uses these signals to confirm if door control operation has completed. The multiplex network body ECU then outputs the hazard warning lamp's output control signals to flash the hazard warning lamp as an answer-back and wireless door lock buzzer signals to cause the wireless door lock buzzer to sound as an answer-back.
- (c) Panic function:
When the door control transmitter's PANIC switch is pressed, the door control receiver and smart key ECU judges the code data (recognition codes and function codes) from the door control transmitter in the same way as when the LOCK/UNLOCK switch is pressed. Upon receiving a theft deterrent alarm control signal from the smart ECU, the multiplex network body ECU actuates a built-in relay to cause the security horn to sound, as well as transmit several kinds of warning signals (hazard warning lamp control signal, vehicle horn warning control signal, headlamp warning signal and taillamp warning signal) to perform theft deterrent alarm control.

(d) The wireless door lock control system has the following functions.

Function	Outline
All door unlock operation	Pressing LOCK switch locks all doors.
All door unlock operation (2-step unlock operation)	Pressing UNLOCK switch once will unlock driver side door. Pressing UNLOCK switch again within 3 seconds will unlock remaining doors.
Answer-back operation	• Hazard lamps flash once when doors are locked, and flashes twice when doors are unlocked to inform that operation has been completed. • Wireless door lock buzzer sounds once when doors are locked and sounds twice when doors are unlocked to inform that operation has been completed.
Panic alarm operation	Holding down PANIC switch sets off theft deterrent alarm, which consists of sounding horn, and flashing headlamps, taillamps and hazard lamps.
Automatic lock function	If none of doors are opened within 30 seconds after they are unlocked by wireless door lock remote control, all doors will lock again automatically.
Repeat function	If door is not locked in response to locking operation of transmitter, multiplex network body ECU will output a lock signal after 1 second.
Illuminated entry function	With all doors locked, pressing door unlock switch causes room lamp to illuminate simultaneously with unlocking operation.
Security function	Sends signal as rolling code.
Transmitter recognition code registration function	Enables 4 modes for registering (writing and storing) transmitter recognition codes in EEPOM, which is built into multiplex network body ECU.
Self-diagnosis	If system has malfunction, multiplex network body ECU sets DTC in its memory.

SYSTEM DIAGRAM



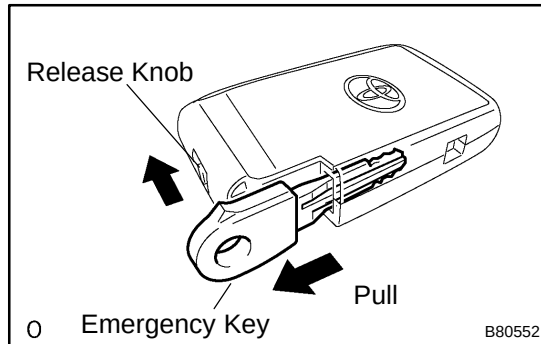
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REPLACEMENT

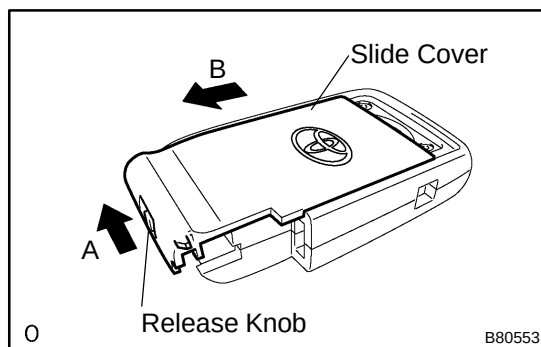
1. REMOVE TRANSMITTER BATTERY

NOTICE:

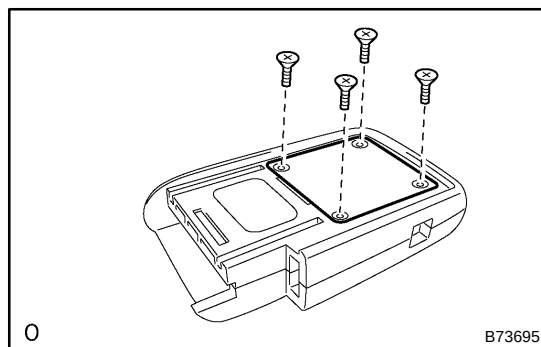
Take extra care when handling these precision electronic components.



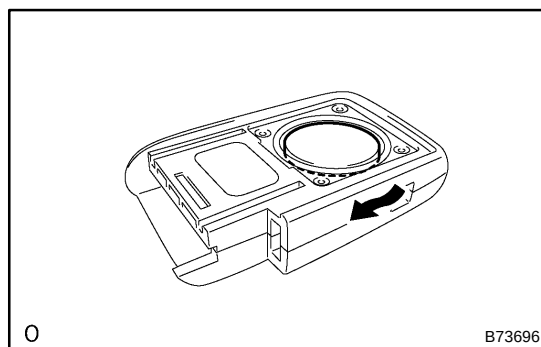
- (a) Push and hold the release knob in the direction indicated by the arrow in the illustration. Take the emergency key out of the key.



- (b) Push and hold the release knob in the direction indicated by the arrow labeled A in the illustration. Push out the slide cover in the direction indicated by the arrow labeled B in the illustration and remove the slide cover.



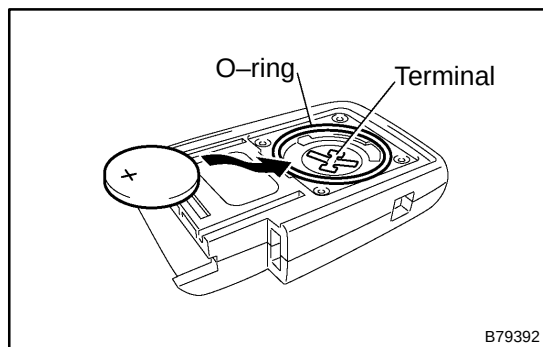
- (c) Remove the 4 screws and cover using a screwdriver, as shown in the illustration.



- (d) Remove the transmitter's battery from the key, as shown in the illustration.

NOTICE:

- Do not push the terminals with your finger.
- Do not forcibly pry up the battery (lithium battery). The terminals may become damaged.
- Do not touch the battery with wet hands. Water may cause rust.
- Do not touch or move any components inside the transmitter, as it may cease to work.



2. INSTALL TRANSMITTER BATTERY

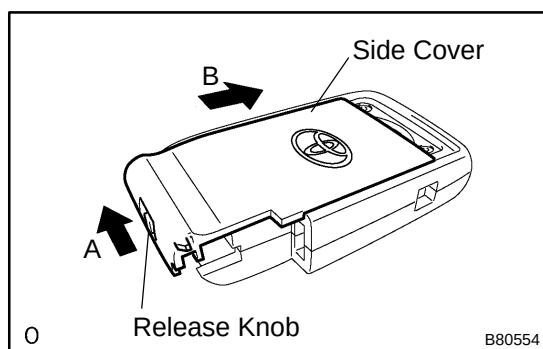
- (a) Install a new battery (lithium battery) with the positive (+) side up, as shown in the illustration.

NOTICE:

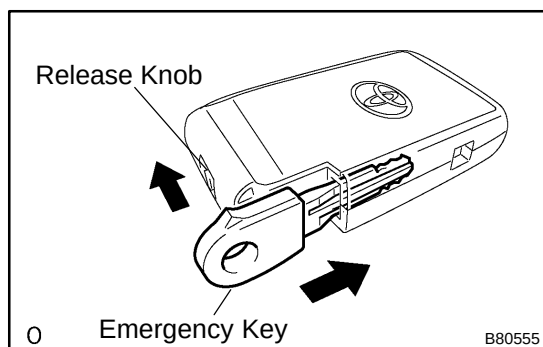
- Be sure that the positive side and the negative side of the transmitter battery are matched up correctly.
 - Be careful not to bend the transmitter battery electrode during insertion.
 - Keep the transmitter case interior free of dust and oil.
- (b) Check that the O-ring is not distorted or slipped off, and install the cover.
- (c) Using a screwdriver, tighten the 4 screws.

NOTICE:

Incomplete installation of the cover will cause defective contact between the battery (lithium battery) and terminal.



- (d) Push and hold the release knob in the direction indicated by the arrow labeled A in the illustration. Push in the slide cover in the direction indicated by the arrow labeled B in the illustration and install the slide cover.



- (e) Push and hold the release knob in the direction indicated by the arrow in the illustration. Insert the emergency key into the key.

HINT:

After installation, press any of the transmitter's switches. Check that the LED illuminates.

CUSTOMER PROBLEM ANALYSIS CHECK

WIRELESS DOOR LOCK CONTROL SYSTEM Check Sheet

Inspector's
Name _____

Customer's Name		VIN	
		Production Date	/ /
		License Plate No.	
Date Vehicle Brought in	/ /	Odometer Reading	km miles

Date Problem First Occurred		/ /
Frequency Problem Occurs		☐ Constant ☐ Sometimes (times/per day, month) ☐ Once only
Weather Conditions When Problem Occurred	Weather	☐ Fine ☐ Cloudy ☐ Rainy ☐ Snowy ☐ Various/Others
	Outdoor Temperature	☐ Hot ☐ Warm ☐ Cool ☐ Cold (Approx. °C (°F))
	Place	☐ Everywhere ☐ Specific Locality ()
Date Transmitter Battery Last Replaced		/ /

Problem Symptoms	☐ Entire wireless door lock control system does not operate.
	☐ Only door unlock function does not operate.
	☐ Only door lock function does not operate.
	☐ Doors can be locked by wireless door lock operation even though door(s) are open.
	☐ Wireless door lock functions abnormally.
	☐ Other
DTC No.	☐ B1242

DIAGNOSTIC TROUBLE CODE CHART

DTC No. (See Page)	Detection Item	Trouble Area
B1242 (05-2246)	Wireless Door Lock Tuner Circuit Malfunction	• Wire harness • Door control receiver • Smart key ECU • Multiplex network body ECU

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use this procedure to troubleshoot the wireless door lock control system.
- The hand-held tester should be used in steps 3, 4 and 6.

1 VEHICLE BROUGHT TO WORKSHOP

2 CUSTOMER PROBLEM ANALYSIS CHECK AND SYMPTOM CHECK (See page 05-2230)

3 INSPECT COMMUNICATION FUNCTION OF LARGE-SCALE MULTIPLEX COMMUNICATION SYSTEM (BEAN)

- (a) Use the hand-held tester to check for normal function of the multiplex communication system.
- (1) (ECU unconnected, communication stop, communication line malfunctioning)
Without code outputs, proceed to A.
 - (2) (ECU unconnected, communication stop, communication line malfunctioning)
With code outputs, proceed to B.

B

Go to MULTIPLEX COMMUNICATION SECTION
(See page 05-2558)

A

4 CHECK FOR DTCS

- (a) Check for DTCS and note any codes that are output.
- (b) Delete the DTC.
- (c) Recheck for DTCS. Try to prompt the DTC by simulating the original activity that the DTC suggests.
- (1) If the DTC does not reoccur, proceed to A.
 - (2) If the DTC reoccurs, proceed to B.

B

Go to step 7

A

5 PROBLEM SYMPTOMS TABLE (See page 05-2238)

- (a) If the fault is not listed on the problem symptoms table, proceed to A.
- (b) If the fault is listed on the problem symptoms table, proceed to B.

B

Go to step 7

A

6	OVERALL ANALYSIS AND TROUBLESHOOTING
----------	---

- (a) DATA LIST/ACTIVE TEST (see page [05-2244](#))
 - (1) Inspection with the hand-held tester (DATA LIST).
 - (2) Inspection with the hand-held tester (ACTIVE TEST).
- (b) Terminals of ECU (see page [05-2239](#))
- (c) On-vehicle inspection (see page [05-2261](#))



7	ADJUST, REPAIR OR REPLACEMENT
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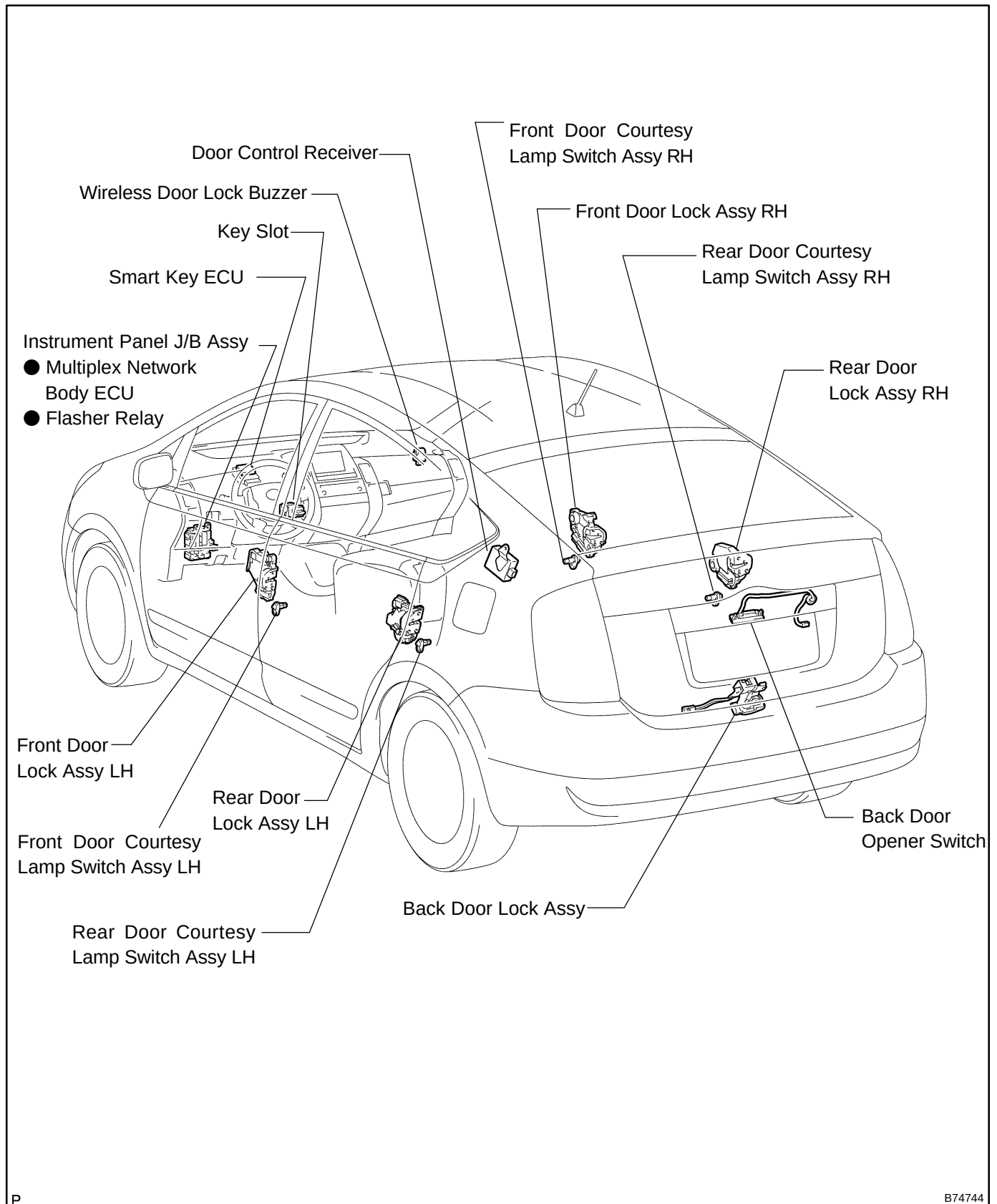


8	CONFIRMATION TEST
----------	--------------------------



END

LOCATION



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

05J6R-01

PRECAUTION

NOTICE FOR INITIALIZATION:

When disconnecting the negative (–) battery terminal, initialize the following system(s) after the terminal is reconnected.

System Name	See Page
Power Window Control System	05-2028

NOTICE FOR HYBRID SYSTEM ACTIVATION:

When the warning lamp is illuminated or the battery has been disconnected and reconnected, pressing the power switch may not start the system on the first try. If so, press the power switch again.

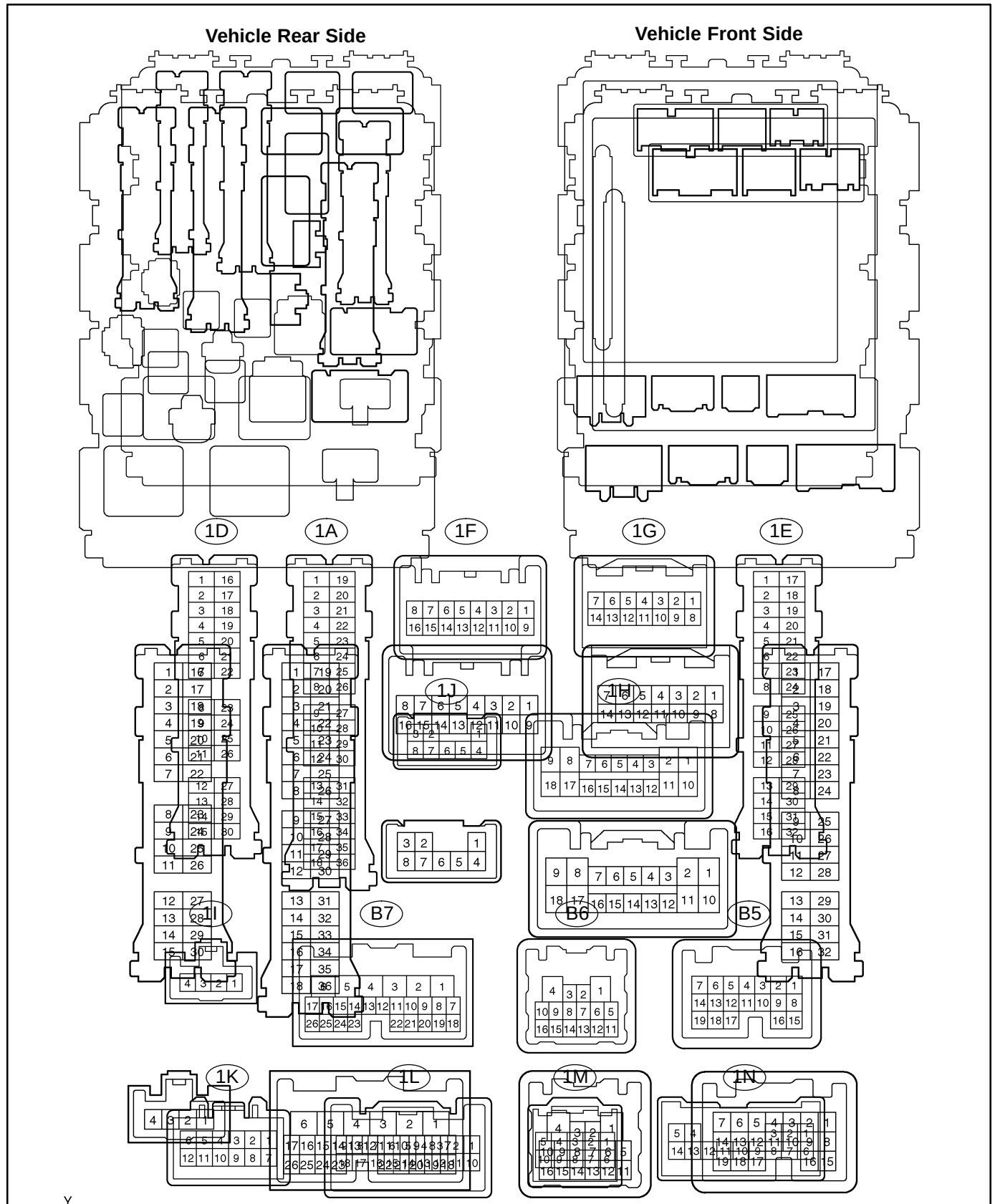
PROBLEM SYMPTOMS TABLE

Problem Symptom	Suspected Area	See Page
Only wireless control function is inoperative	1. Transmitter battery 2. Door control transmitter 3. Door control receiver 4. Key slot 5. Wire harness 6. Multiplex network body ECU 7. Instrument panel J/B assy 8. Smart key ECU 9. Wireless door lock buzzer 10. Lighting system	05-2249
No answer-back (hazard warning lamp and wireless door lock buzzer)	1. Wireless door lock buzzer 2. Lighting system 3. Wire harness 4. Multiplex network body ECU	05-2257

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TERMINALS OF ECU

1. CHECK INSTRUMENT PANEL J/B ASSY (MULTIPLEX NETWORK BODY ECU)



- (a) Disconnect the 1A, 1B, 1D, 1E and 1J J/B connectors.
 (b) Measure the resistance and voltage between each terminal of the wire harness side connector.

Standard:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
SIG (1B-1) – Body ground	W – Body ground	Ignition power supply	Power switch's power mode OFF ON (IG)	0 V ON 10 to 14 V
ACC (1J-5) – Body ground	G – Body ground	Ignition power supply	Power switch's power mode OFF ON (ACC)	0 V ON 10 to 14 V
ECUB (1A-30) – Body ground	R – Body ground	+B (ECUB) power supply	Constant	10 to 14 V
KSW (1E-23) – Body ground	Y – Body ground	Key unlock warning switch input	No key in key slot Key inserted	10 kΩ or higher Below 1 Ω
DCTY (1D-21) – Body ground	V – Body ground	Driver side door courtesy switch input	Driver side door closed Open	10 kΩ or higher Below 1 Ω
PCTY (1D-24) – Body ground	BR – Body ground	Passenger side door courtesy switch input	Passenger side door closed Open	10 kΩ or higher Below 1 Ω
BCTY (1D-7) – Body ground	R – Body ground	Back door courtesy switch input	Back door closed Open	10 kΩ or higher Below 1 Ω
GND (1E-17) – Body ground	W-B – Body ground	Ground	Ground	Below 1 Ω

If the result is not as specified, the wire harness side may have a malfunction.

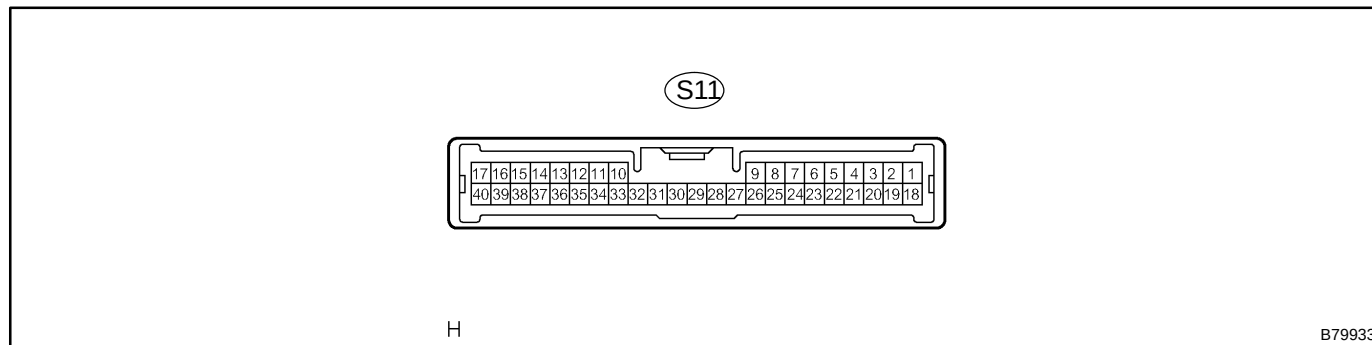
- (c) Reconnect the 1A, 1B, 1D, 1E and 1J J/B connectors.
 (d) Measure the resistance and voltage between each terminal of the connector.

Standard:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
HAZ (1L-17) – Body ground	Y – Body ground	Hazard lamp drive	Answer-back OFF ON	10 to 14 V Pulse generation
RDA (B7-23) – Body ground	L – Body ground	Door control receiver in- put	Power switch's power mode OFF, all doors closed and transmitter switch OFF ON	Below 1 V Approx. 6 to 7 V Below 1 V

If the result is not as specified, the J/B assy (body ECU) may have a malfunction.

2. CHECK SMART KEY ECU



- Disconnect the S11 ECU connector.
- Measure the resistance and voltage of each terminal of the wire harness side connector.

Standard:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
E (S11-17) – Body ground	W-B – Body ground	Ground	Constant	Below 1 Ω
+B1 (S11-1) – E (S11-17)	R – W-B	Battery power supply	Constant	10 to 14 V
IG (S11-18) – E (S11-17)	B – W-B	Ignition power supply	Power switch's power mode OFF → ON (IG)	0 V → 10 to 14 V

If the result is not as specified, the wire harness side may have a malfunction.

- Reconnect the S11 ECU connector.
- Measure the resistance and voltage between each terminal of the connector.

Standard:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
RSSI (S11-28) – E (S11-17)	B – W-B	Door control receiver output signal	Power switch's power mode OFF, all doors closed and transmitter switch OFF → ON (IG)	5 to 0 V → Below 1 V
RDA (S11-29) – E (S11-17)	L – W-B	Door control receiver input signal	Power switch's power mode OFF, all doors closed and transmitter switch OFF → ON (IG)	Below 1 V → Approx. 6 to 7 V → Below 1 V
CLG1 (S11-13) – E (S11-17)	P – W-B	Driver door oscillator sensor signal	All doors open with smart key from outside vehicle and power switch's power mode OFF → ON (IG)	Pulse generation → No pulse
SEL1 (S11-23) – E (S11-17)	Y – W-B	Driver door oscillator sensor signal	Smart key placed at least 3 m apart from driver door → Placed close to front door outside handle assy RH	10 to 14 V → 0

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