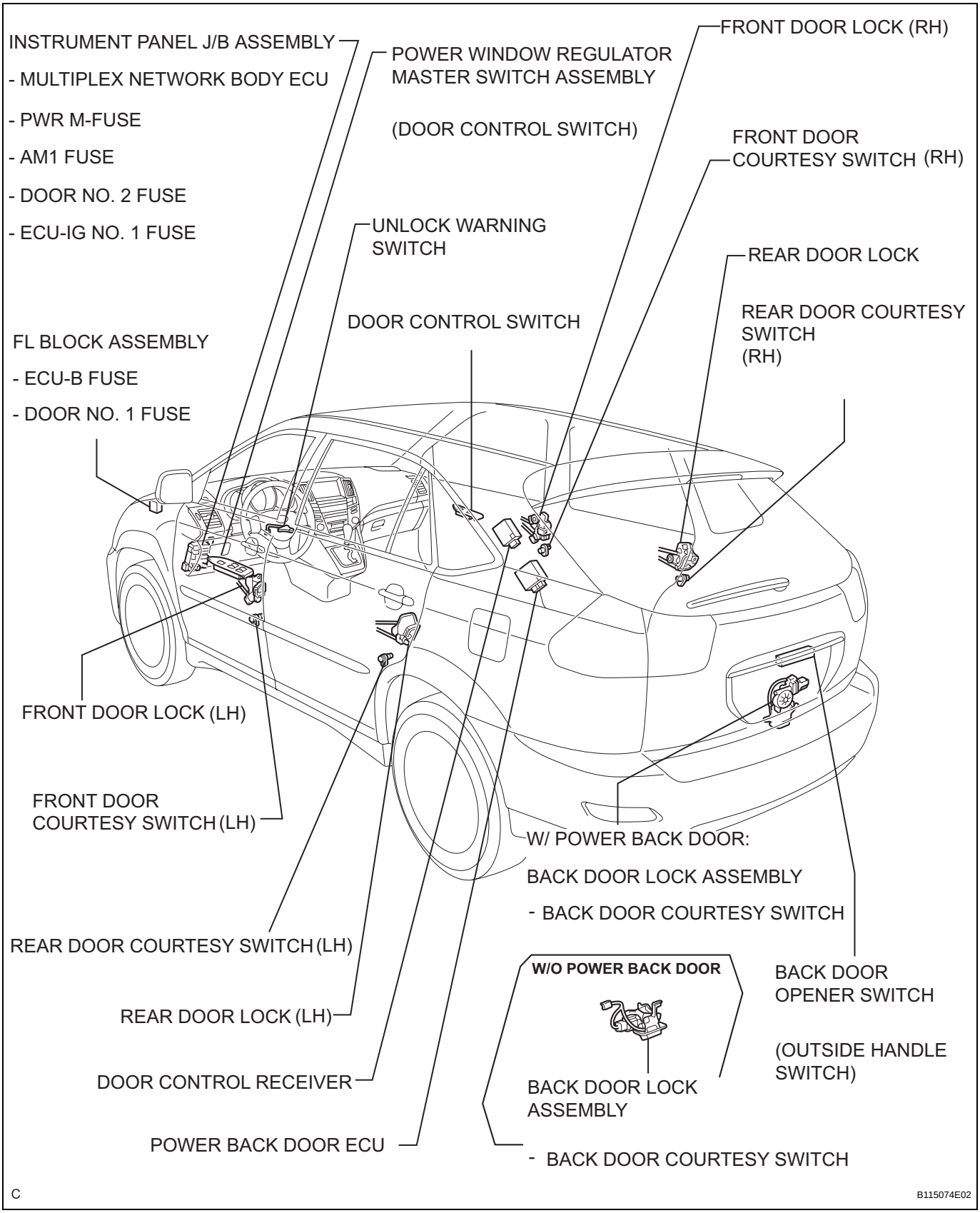
POWER DOOR LOCK CONTROL SYSTEM

PRECAUTION

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

System	See procedure
Lighting system (Adaptive Front-Lighting System)	LI-17
Sliding roof control system	RF-4 RF-22
Power window control system	WS-12
Power back door system	DL-8

PARTS LOCATION



DL

SYSTEM DESCRIPTION

1. POWER DOOR LOCK CONTROL SYSTEM DESCRIPTION

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

The master switch and the door control switch on the passenger door send "lock/unlock" request signals to the body ECU. Then, the body ECU sends these request signals to the lock motors in each door to lock/unlock all the doors at once in response to the inputs. (The BEAN is used when the master switch sends request signals to the body ECU.)

Operating the driver's door lock using a key sends request signals to lock/unlock the doors to the body ECU via the master switch. "2-step unlock function" is optional for unlocking procedures of the key-linked lock for the driver side door.

2. FUNCTION OF MAIN COMPONENT

Components	Function
Multiplex network master switch assembly	Door control switch on master switch assembly locks/unlocks all doors.
Door control switch	Door control switch on passenger side door locks/unlocks all doors.
Door courtesy switch	Placed on each door. Detects door status (open or closed) and outputs data to body ECU. Turns on when door is open and turns off when door is closed.
Driver side door lock	• Built-in motor locks/unlocks door. • Built-in door control switch (key-linked) detects door key operation's door status (locked or unlocked) and outputs data to body ECU. • Built-in position switch detects door status (locked or unlocked) and outputs data to body ECU. This switch turns off when door is locked and turns on when door is unlocked.
Passenger side door lock and rear LH and RH door locks	• Built-in motor locks/unlocks door. • Built-in position switch detects door status (locked or unlocked) and outputs data to body ECU. This switch turns off when door is locked and turns on when door is unlocked.
Back door lock	Built-in courtesy switch detects door status (open or closed) and outputs data to body ECU and power back door ECU*. Turns on when door is open and turns off when door is closed.

HINT:

*: w/ Power back door system

3. SYSTEM FUNCTION

(a) This system is controlled by the body ECU. The body ECU outputs signals to each door lock motor. The door lock control system in the RX400h has the following functions:

Function	Outline
Key-linked lock and unlock function	This function, which is linked with the key cylinder, can lock or unlock all the doors when a lock or unlock operation is effected.
Manual unlock prohibition function	Performing the door lock operation with a transmitter or an ignition key will prohibit the unlock operation by the door lock control switch.
Key lock-in prevention function	If you perform the door lock operation when the key is inserted in the ignition key cylinder, all the doors will be unlocked.

Function	Outline
2-step unlock function	This function is provided to unlock the driver's door by turning the key cylinder first and to unlock remaining doors by turning it the second time.
Shift-linked automatic door lock	When the conditions listed below are met consecutively, this function causes all the doors to be automatically locked. • The ignition switch is turned from the "ACC" position or off to the "ON" position. • All doors are closed. • The shift lever is moved out of P position. • Any of the doors are unlocked.
Speed-sensitive automatic door lock	When the conditions listed below are met consecutively, this function causes all the doors to be automatically locked. • Vehicle speed is higher than approximately 20 km/h (13 mph). • All doors are closed. • The shift lever position is out of P and N position. • Any one of the doors are unlocked.
Shift-linked automatic door unlock	When the ignition switch is in the "ON" position, by shifting the shift lever to P position from any position other than P, all the doors will be automatically unlocked.
Ignition switch-linked automatic door unlock	When the driver's door is closed, by turning the ignition switch from ON position to off and opening the driver's door within 10 seconds, all the doors will be automatically unlocked.
Collision door lock release	If the SRS airbag system has been deployed, and the body ECU has detected the signal that is output by the airbag sensor assembly, the body ECU unlocks all the doors.

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

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

1 VEHICLE BROUGHT TO WORKSHOP

NEXT

2 CUSTOMER PROBLEM ANALYSIS

(a) Interview the customer to confirm the trouble (See page IN-36).

NEXT

3 INSPECT COMMUNICATION FUNCTION OF MULTIPLEX COMMUNICATION SYSTEM (BEAN)

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

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

B → **GO TO MULTIPLEX COMMUNICATION SYSTEM**

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 → **After repair, go to step 7**

A

5 OVERALL ANALYSIS AND TROUBLESHOOTING

(a) Terminals of ECU

DL

(See page DL-9)
(b) DATA LIST/ACTIVE TEST
(See page DL-16)

NEXT

6	**REPAIR OR REPLACE**

NEXT

7	**CONFIRMATION TEST**

NEXT

END

OPERATION CHECK

1. DOOR LOCK FAIL-SAFE

(a) When a malfunction in the door control switch (manual switch, interlocked with key operation) has been detected, door lock/unlock operation becomes disabled.

2. CHECK ELECTRICAL DOOR LOCK OPERATION

(a) Check the basic function.

(1) Check that all doors lock when the door control switch (for manual operation) is turned to LOCK and all doors unlock when turned to UNLOCK.

(2) Check that all doors lock when the driver side door lock key cylinder is turned to LOCK using the key.

(3) Check that only the driver side door unlocks when the driver side door lock key cylinder is turned to UNLOCK and all doors unlock when turned to UNLOCK once again within 3 seconds using the key (2-step unlocking function).

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

NOTICE:

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

(1) Have the key inserted into the ignition key cylinder.

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

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

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

(c) Check the security function.

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

(2) Pull out the key, open the driver side door and then close and lock the door without using the key. Under this condition, check that all doors do not unlock when the door control switch (for manual operation) is turned to UNLOCK from outside the vehicle.

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

(4) Pull out the key, close the driver side door and lock the door by wireless door lock operation. Under this condition, check that all doors do not unlock when the door control switch (for manual operation) is turned to UNLOCK from outside the vehicle.
HINT:
Check that the security function is canceled under the following conditions:
- The ignition switch is turned ON.
- The driver side door is unlocked using the key.
- The door control switch (for manual operation) is turned to UNLOCK after the door control knob is turned to UNLOCK manually.

(d) Check the illumination function.
(1) Set the interior light switch in the DOOR position.
(2) With all doors locked, check that all doors unlock when the driver side door lock cylinder is turned to UNLOCK using the key. At the same time, the interior light comes on.
(3) Check that the interior light goes off in approximately 15 seconds if the doors have not been opened for a while.

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

CUSTOMIZE PARAMETERS

1. CUSTOMIZING FUNCTION WITH INTELLIGENT TESTER (REFERENCE)

HINT:

The following items can be customized.

NOTICE:

- **After confirming whether the items requested by the customer are applicable or not for customization, perform customize operations.**
- **Be sure to record the current settings before customizing.**
- **When troubleshooting, make sure that the item in question is not set to "OFF" as a result of customization.**

BODY

Display (Item)	Default	Contents	Setting
AUTO LOCK DELAY	30s	Function that selects AUTO LOCK time 30 sec. or 60 sec.	30s/60s
AUTO LOCK (Auto Lock)	OFF	Function that locks doors when vehicle reaches a vehicle speed of 20 km/h (13 mph)	ON/OFF
UNLK/KEY TWICE (Unlock w/ 2 times D key operation)	ON	• Function that unlocks only driver side door when driver side door key cylinder is turned to unlock once and unlocks all the doors when it is turned to unlock twice • In OFF setting, turning it once unlocks all doors	ON/OFF
ALL UNLK/OPN-CL (All unlock w/ D door open-close)	OFF	Function that unlocks all other doors when opening driver side door within 10 seconds after turning the ignition switch off from ON	ON/OFF
UNLOCK/PARK (Unlock w/ IG ON, shift P, speed 0 (0 mph)	OFF	Function that unlocks doors when lever is shifted to P position from any position other than P while the ignition switch is ON	ON/OFF
AUTO LOCK/SHIFT (Auto Lock/shift not P)	ON	Function that locks doors when lever is shifted from P position to any position other than P	ON/OFF

INITIALIZATION

1. BACK DOOR LOCK

(a) When the battery is reconnected:
If the back door is locked and therefore cannot be opened, it is necessary to unlock the back door using the door control switch or transmitter switch.

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

PROBLEM SYMPTOMS TABLE

HINT:
Inspect the fuse and relay before investigating the suspected areas shown in the table below.

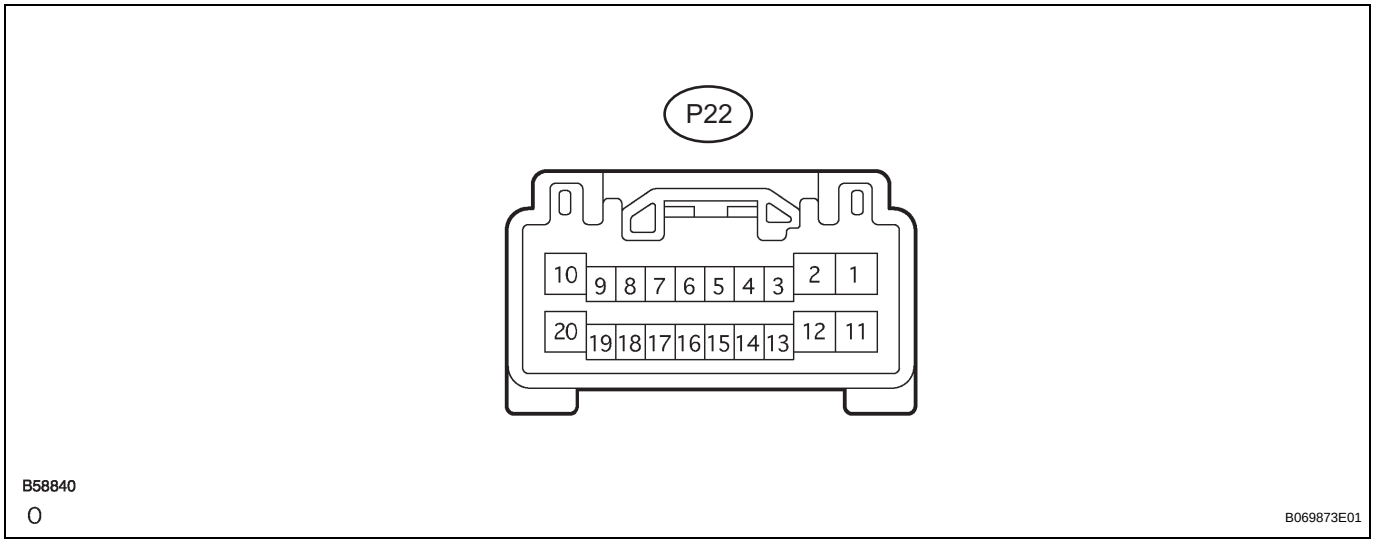
POWER WINDOW CONTROL SYSTEM

Symptom	Suspected area	See page
All doors cannot be locked/unlocked simultaneously by neither door control switch nor door key cylinder	1. Power source circuit (Body ECU)	DL-9
	2. Body ECU	-
All doors cannot be locked/unlocked simultaneously by driver side door control switch	1. Multiplex network master switch assembly	DL-16
	2. Body ECU	-
All doors cannot be locked/unlocked simultaneously by front passenger	1. Door control switch circuit (Front passenger side door)	DL-54
	2. Body ECU	-
All doors cannot be locked/unlocked simultaneously by door key cylinder	1. Driver side door key lock and unlock switch circuit	DL-51
	2. Multiplex network master switch assembly	DL-16
	3. Body ECU	-
Driver side door lock does not operate	1. Driver side door lock motor circuit	DL-39
	2. Body ECU	-
Passenger side door lock does not operate	1. Front passenger side door lock motor circuit	DL-42
	2. Body ECU	-
Rear LH side door lock does not operate	1. Rear door lock motor LH circuit	DL-45
	2. Body ECU	-
Rear RH side door lock does not operate	1. Rear door lock motor RH circuit	DL-48
	2. Body ECU	-
Key lock-in prevention function does not work properly (manual operation and key-linked lock are active)	1. Door courtesy switch circuit (Driver side)	LI-130
	2. Unlock warning switch circuit	DL-107
	3. Body ECU	-
One or more doors cannot be locked/unlocked simultaneously (Wireless key operation)	1. Troubleshooting	DL-61
	2. Driver side door unlock detection switch circuit	DL-27
	3. Front passenger door unlock detection switch circuit	DL-30
	4. Rear door unlock detection switch LH circuit	DL-33
	5. Rear door unlock detection switch RH circuit	DL-48
	6. Body ECU	-
One or more doors cannot be locked/unlocked simultaneously (Theft deterrent operation)	1. Troubleshooting	TD-4
	2. Driver side door unlock detection switch circuit	DL-27
	3. Front passenger door unlock detection switch circuit	DL-42
	4. Rear door unlock detection switch LH circuit	DL-33
	5. Rear door unlock detection switch RH circuit	DL-36

TERMINALS OF ECU

1. CHECK MULTIPLEX NETWORK MASTER SWITCH ASSEMBLY

(a) Disconnect the P22 switch connector.



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

Standard

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
CPUB (P22-9) - Body ground	L-B - Body ground	+B (CPUB) power supply	Always	10 to 14 V
BDR (P22-10) - Body ground	G - Body ground	+B (BDR) power supply	Always	10 to 14 V
SIG (P22-20) - Body ground	BR - Body ground	+B (SIG) power supply	Ignition switch OFF → ON	Below 1 V → 10 to 14 V
GND (P22-2) - Body ground	W-B - Body ground	Ground	Constant	Below 1 Ω
KL (P22-4) - Body ground	BR - Body ground	Driver door key linked door lock input	Driver door key cylinder OFF → LOCK	10 kΩ or higher → Below 1 Ω
KUL (P22-14) - Body ground	GR - Body ground	Driver door key linked door unlock input	Driver door key cylinder OFF → UNLOCK	10 kΩ or higher → Below 1 Ω
LSW (P22-16) - Body ground	P - Body ground	Driver door lock position switch input	Driver door UNLOCK → LOCK	10 kΩ or higher → Below 1 Ω

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

(c) Reconnect the switch connector and measure the voltage according to the value(s) in the table below.

Standard voltage

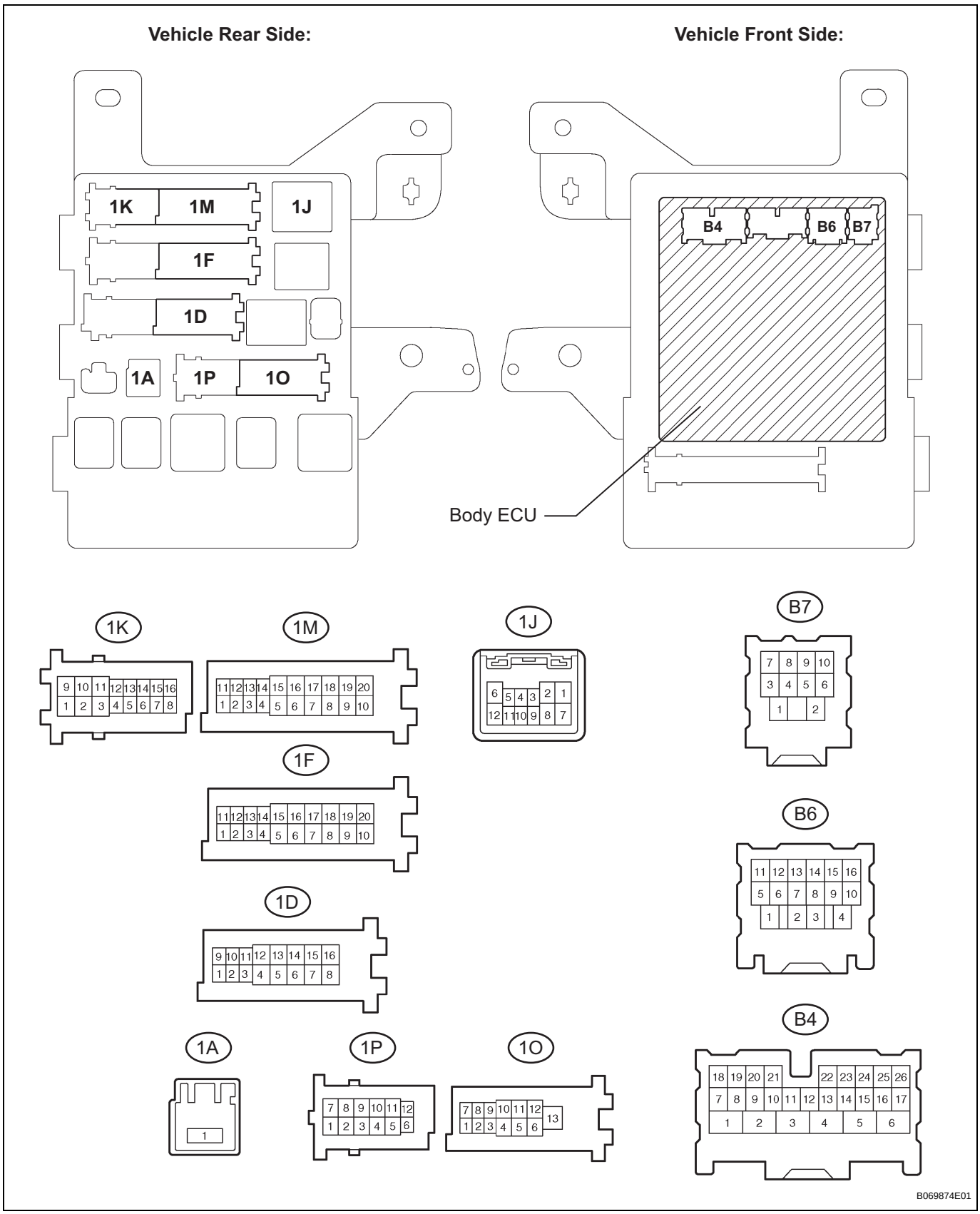
Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
KL (P22-4) - Body ground	BR - Body ground	Driver door key linked door lock input	Driver door key cylinder OFF → LOCK	10 to 14 V → Below 1 V
KUL (P22-14) - Body ground	GR - Body ground	Driver door key linked door unlock input	Driver door key cylinder OFF → UNLOCK	10 to 14 V → Below 1 V
LSW (P22-16) - Body ground	P - Body ground	Driver door lock position switch input	Driver door UNLOCK → LOCK	Below 1 V → 10 to 14 V (or pulse generation)

HINT:

- Use an oscilloscope to check the output voltages of terminal LSW.
- If the result is not as specified, the switch (door ECU) may have a malfunction.

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

(a) Disconnect the 1A, 1D, 1F, 1J, 1M, 1O, B4, B5 and B6 connectors.



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

Standard

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
BECU (1D-10) - Body ground	L-B - Body ground	+B (BECU) power supply	Always	10 to 14 V
ALTB (1D-16) - Body ground	W - Body ground	+B (power system, generator system) power supply	Always	10 to 14 V
BATB (1A-1) - Body ground	W - Body ground	+B (power system, battery system) power supply	Always	10 to 14 V
KSW (B4-21) - Body ground	B - Body ground	Key unlock warning switch input	No key in ignition key cylinder → Key inserted	10 kΩ or higher → Below 1 Ω
GND1 (1F-10) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
GND2 (1M-9) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
L1 (1J-3) - Body ground	V - Body ground	Passenger door control switch LOCK input	Passenger door control switch OFF → LOCK	10 kΩ or higher → Below 1 Ω
UL1 (1J-4) - Body ground	BR - Body ground	Passenger door control switch UNLOCK input	Passenger door control switch OFF → UNLOCK	10 kΩ or higher → Below 1 Ω
DCTY (B6-14) - Body ground	L - Body ground	Driver door courtesy switch input	Driver door CLOSED → OPEN	10 kΩ or higher → Below 1 Ω
PCTY (B5-23) - Body ground	L - Body ground	Passenger door courtesy switch input	Passenger door CLOSED → OPEN	10 kΩ or higher → Below 1 Ω
LCTY (1O-7) - Body ground	B - Body ground	Rear left door courtesy switch input	Rear left door CLOSED → OPEN	10 kΩ or higher → Below 1 Ω
RCTY (B6-16) - Body ground	GR - Body ground	Rear right door courtesy switch input	Rear right door CLOSED → OPEN	10 kΩ or higher → Below 1 Ω
PBDS (B5-2)*1 - Body ground	V - Body ground	Power back door opener/closer switch input	Power back door opener/close switch OFF → ON	10 kΩ or higher → Below 1 Ω
BDSU (B5-3)*2 - Body ground	W - Body ground	Back door opener switch (outside handle switch) input	Back door opener switch OFF → ON	10 kΩ or higher → Below 1 Ω
BCTY (B5-25) - Body ground	P - Body ground	Back door courtesy switch input	Back door CLOSED → OPEN	10 kΩ or higher → Below 1 Ω

HINT:

- If the result is not as specified, there may be a malfunction on the wire harness side.
- *1: w/ Power back door
- *2: w/o Power back door

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

Standard voltage

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
IG (1F-11) - Body ground	Y - Body ground	Ignition power supply	Ignition switch OFF → ON	10 to 14 V → Below 1 V

DL

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
ACT+ (1K-2) - Body ground	L - Body ground	Door lock motor LOCK drive output (Driver door)	Door control switch (Master switch or passenger side switch) or driver side door key cylinder OFF → LOCK → OFF	Below 1 V → 10 to 14 V → Below 1 V
ACT+ (1J-1) - Body ground	L - Body ground	Door lock motor LOCK drive output (Passenger door)	Door control switch (Master switch or passenger side switch) or driver side door key cylinder OFF → LOCK → OFF	Below 1 V → 10 to 14 V → Below 1 V
ACT+ (1P-11) - Body ground	R-Y - Body ground	Door lock motor LOCK drive output (Rear left door)	Door control switch (Master switch or passenger side switch) or driver side door key cylinder OFF → LOCK → OFF	Below 1 V → 10 to 14 V → Below 1 V
ACT+ (1F-5) - Body ground	L - Body ground	Door lock motor LOCK drive output (Rear right door)	Door control switch (Master switch or passenger side switch) or driver side door key cylinder OFF → LOCK → OFF	Below 1 V → 10 to 14 V → Below 1 V
TR+ (B4-1)* - Body ground	BR - Body ground	Door lock motor LOCK drive output (Back door)	Door control switch (Master switch or passenger side switch) or driver side door key cylinder OFF → LOCK → OFF	Below 1 V → 10 to 14 V → Below 1 V
ACTD (B6-4) - Body ground	R - Body ground	Door lock motor UNLOCK drive output (Driver door)	Door control switch (Master switch or passenger side switch) or driver side door key cylinder OFF → UNLOCK → OFF	Below 1 V → 10 to 14 V → Below 1 V
ACT- (1J-2) - Body ground	R - Body ground	Door lock motor UNLOCK drive output (Passenger door)	Door control switch (Master switch or passenger side switch) or driver side door key cylinder OFF → UNLOCK → OFF	Below 1 V → 10 to 14 V → Below 1 V
ACT- (1P-6) - Body ground	P - Body ground	Door lock motor UNLOCK drive output (Rear left door)	Door control switch (Master switch or passenger side switch) or driver side door key cylinder OFF → UNLOCK → OFF	Below 1 V → 10 to 14 V → Below 1 V

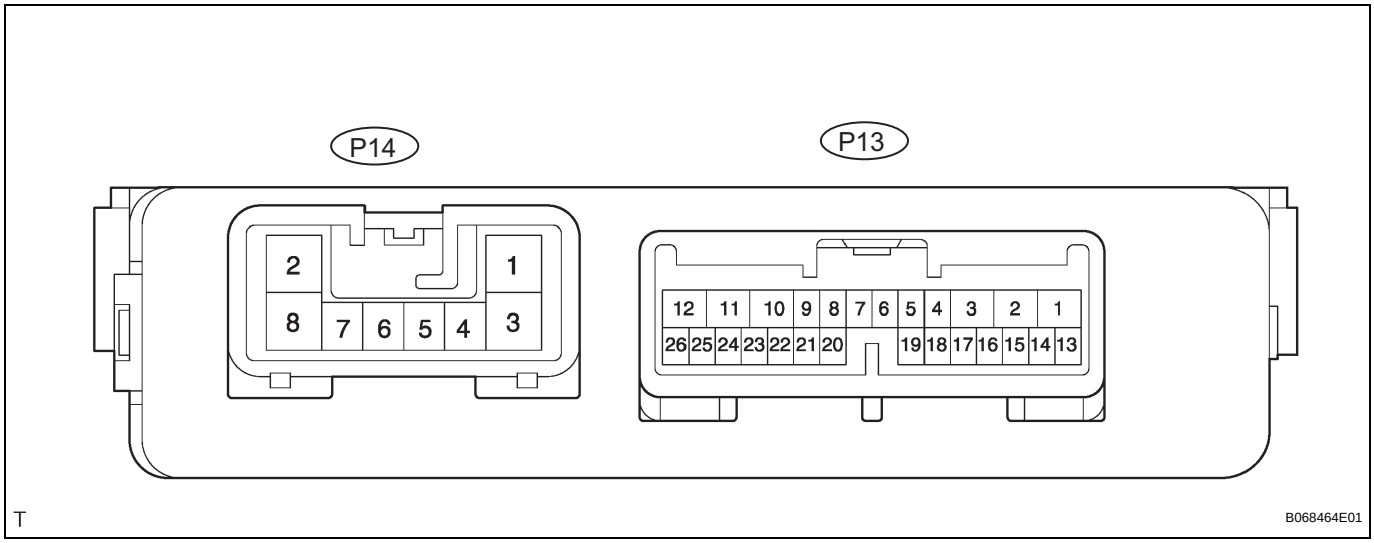
Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
ACT- (1F-18) - Body ground	R - Body ground	Door lock motor UNLOCK drive output (Rear right door)	Door control switch (Master switch or passenger side switch) or driver side door key cylinder OFF → UNLOCK → OFF	Below 1 V → 10 to 14 V → Below 1 V
LSWP (B5-27) - Body ground	Y - Body ground	Passenger door lock position switch input	Passenger door UNLOCK → LOCK	Below 1 V → 10 to 14 V (or pulse generation)
LSWL (1P-5) - Body ground	GR - Body ground	Rear left door lock position switch input	Rear left door UNLOCK → LOCK	Below 1 V → 10 to 14 V (or pulse generation)
LSWR (B5-5) - Body ground	B - Body ground	Rear right door lock position switch input	Rear right door UNLOCK → LOCK	Below 1 V → 10 to 14 V (or pulse generation)

HINT:

- *: w/o Power Back Door
- Use an oscilloscope to check the output voltages of terminals LSWP, LSWL and LSWR.
- If the result is not as specified, the J/B (body ECU) may have a malfunction.

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

(a) Disconnect the P13 and P14 ECU connectors.



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

Standard voltage and resistance

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
ECUB (P13-10) - Body ground	BR - Body ground	ECU (ECUB) power supply	Always	10 to 14 V
B (P14-2) - Body ground	Y - Body ground	+B (ECUB) power supply	Always	10 to 14 V
GND (P14-8) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
IG (P13-9) - Body ground	GR - Body ground	Ignition switch input	Ignition switch OFF → ON	Below 1 V → 10 to 14 V

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
CTYE (P13-7) - Body ground	P - Body ground	Back door courtesy switch input	Back door CLOSED → OPEN	10 kΩ or higher → Below 1 Ω
CTYO (P13-19) - Body ground	BR - Body ground	Back door courtesy switch output	Back door CLOSED → OPEN	10 kΩ or higher → Below 1 Ω
HSW (P13-3) - Body ground	GR - Body ground	Back door opener switch (outside handle switch) input	Back door opener switch OFF → ON	10 kΩ or higher → Below 1 Ω

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

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

Standard voltage

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
POS (P13-21) - Body ground	LG - Body ground	Back door lock position switch input	Back door OPEN → Closer in operation → CLOSED	Below 1 V → 10 to 14 V → Below 1 V →
FUL (P13-18) - Body ground	V - Body ground	Back door lock full-latch switch input	Back door CLOSED → OPEN	10 to 14 V → Below 1 V
HAF (P13-8) - Body ground	R - Body ground	Back door lock half-latch switch input	Back door OPEN → Closer in operation → CLOSED	Below 1 V → 10 to 14 V → Below 1 V →
DC+ (P13-12) - Body ground	G - Body ground	Back door lock closer motor drive output (Close)	Back door OPEN → Not completely closed → Motor in normal rotation → Motor in reverse rotation → Operation completed (Back door CLOSED)	Below 1 V → Below 1 V → 10 to 14 V → Below 1 V → Below 1 V →
DC- (P13-11) - Body ground	B - Body ground	Back door lock closer motor drive output (Release)	Back door OPEN → Not completely closed → Motor in normal rotation → Motor in reverse rotation → Operation completed (Back door CLOSED)	Below 1 V → Below 1 V → Below 1 V → 10 to 14 V → Below 1 V →

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

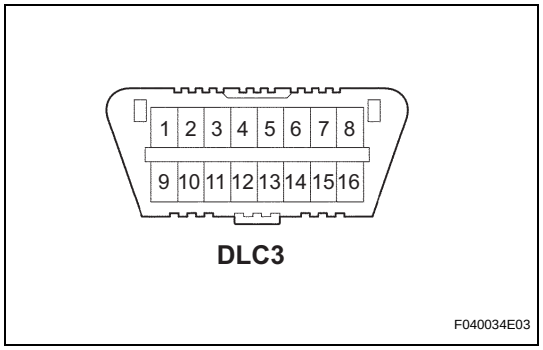
DIAGNOSIS SYSTEM

1. DESCRIPTION

Power door lock control system data can be read through the Data Link Connector 3 (DLC3) of the vehicle. When the system seems to be malfunctioning, use the intelligent tester to check for malfunctions and perform repairs.

2. CHECK DLC3

(a) The vehicle's ECU uses ISO 9141-2 for communication.
The terminal arrangement of the DLC3 complies with SAE J1962 and matches the ISO 9141-2 format.



Symbols (Terminal No.)	Terminal Description	Condition	Specified Condition
SIL (7) - SG (5)	Bus "+" line	During transmission	Pulse generation
CG (4) - Body ground	Chassis ground	Always	Below 1 Ω
SG (5) - Body ground	Signal ground	Always	Below 1 Ω
BAT (16) - Body ground	Battery positive	Always	11 to 14 V
CANH (6) - CANL (14)	HIGH-level CAN bus line	Ignition switch OFF	54 to 67 Ω
CANH (6) - Battery positive	HIGH-level CAN bus line	Ignition switch OFF	1 MΩ or higher
CANH (6) - CG (4)	HIGH-level CAN bus line	Ignition switch OFF	3 kΩ or higher
CANL (14) - Battery positive	LOW-level CAN bus line	Ignition switch OFF	1 MΩ or higher
CANL (14) - CG (4)	LOW-level CAN bus line	Ignition switch OFF	3 kΩ or higher

HINT:
If the display shows a communication error message after connecting the intelligent tester to the DLC3 and turning the ignition switch to the ON position, there is a problem with either the vehicle or the intelligent tester.

- If communication is normal when the tester is connected to another vehicle, inspect the DLC3 on 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 operator's manual.

DATA LIST / ACTIVE TEST

1. READ DATA LIST

HINT:

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

(a) Connect the intelligent tester with CAN VIM to the DLC3.

(b) Turn the ignition switch ON.

(c) Read the DATA LIST.

MASTER SW:

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
DOOR LOCK SW	Door control switch lock signal /ON or OFF	ON: Door control switch is in the LOCK position OFF: Door control switch is not in the LOCK position	-
DOOR UNLOCK SW	Door control switch unlock signal /ON or OFF	ON: Door control switch is in the UNLOCK position OFF: Door control switch is not in the UNLOCK position	-
LOCK POS SW	Door unlock detection switch signal /ON or OFF	ON: Any door is unlocked OFF: All door is locked	-
DOOR KEY LOCK*	Driver door lock/unlock switch lock signal (key-linked-lock switch) /ON or OFF	ON: Driver side door key cylinder is turned to LOCK OFF: Driver side door key cylinder is not turned to LOCK	-
DOOR KEY UNLOCK*	Driver door lock/unlock switch unlock signal (key-linked-unlock switch) /ON or OFF	ON: Driver side door key cylinder is turned to UNLOCK OFF: Driver side door key cylinder is not turned to UNLOCK	-

HINT:

*: Driver door only

BODY:

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
KEY UNLK WRN SW	Unlock warning switch signal /ON or OFF	ON: Key is in ignition key cylinder OFF: No key is in ignition key cylinder	-
IG SW	Ignition switch signal/ON or OFF	ON: Key is in ON or START position OFF: Key is in OFF or ACC position	-
BACK DOR OPEN	Back door open judgment/PROHIBIT or PERMIT	PROHIBIT: Back door is in LOCK position (prohibited from being unlatched) PERMIT: Back door is in UNLOCK position (permitted to be unlatched)	-
D DOR CTY SW	Driver side door courtesy switch signal /ON or OFF	ON: Driver side door is open OFF: Driver side door is closed	-
P DOR CYT SW	Passenger side door courtesy switch signal /ON or OFF	ON: Passenger side door is open OFF: Passenger side door is closed	-
Rr DOR CTY SW	Rear door courtesy switch signal /ON or OFF	ON: Right or left rear door is open OFF: Right and left rear doors are closed	-
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	-

DL

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
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	-
B DOR OPEN SW*1	Back door opener switch signal (Outside handle switch) /ON or OFF	ON: Back door opener switch is pushed OFF: Back door opener switch is not pushed	-
B DOR OPER SW	Power back door opener/closer switch signal /ON or OFF	ON: Power back door opener/closer switch is pushed OFF: Power back door opener/closer switch is not pushed	-
D/L SW-LOCK	Door lock switch*2 signal/ON or OFF	ON: Door lock switch is pushed/turned to LOCK position OFF: Door lock switch is not pushed/not turned to LOCK position	-
D/L SW-UNLOCK	Door unlock switch*2 signal/ON or OFF	ON: Door lock switch is pushed/turned to UNLOCK position OFF: Door lock switch is not pushed/not turned to UNLOCK position	-
AUTO LOCK DELAY	Door courtesy switch signal/30s or 60s	30s: Door auto locking time is 30 sec. 60s: Door auto locking time is 60 sec.	-
UNLOCK/2 OPER	2 times operation wireless unlock signal/ ON or OFF	ON: All doors unlock when wireless UNLOCK switch pressed twice OFF: All doors unlock when wireless UNLOCK switch pressed once	-
AUTO LOCK	Vehicle speed signal (approx. 20 km/h (13 mph))/ON or OFF	ON: Doors lock at a vehicle speed of 20 km/h (13 mph) OFF: Doors do not lock at a vehicle speed of 20 km/h (13 mph)	-
UNLK/KEY TWICE	Key operation driver door 2-step unlock switch signal/ON or OFF	ON: All doors are unlocked when driver side door key cylinder is turned to unlock twice (2-step unlocking function) OFF: Only driver side door is unlocked when driver side door key cylinder is turned to unlock once	-
ALL UNLK/OPN-CL	Driver side door courtesy switch signal/ ON or OFF	ON: All doors unlock when driver side door is opened OFF: Other doors do not unlock when driver side door is opened	-
UNLOCK/PARK	Ignition switch ON, shift lever P position, vehicle speed 0 km/h signal/ON or OFF	ON: All doors unlock when shift lever is shifted to P position from any position other than P while the ignition switch is ON OFF: No door unlocks even when shift lever is shifted to P position from any position other than P while ignition switch is ON	-
AUTO LOCK/SHIFT	Shift lever in any position other than P position signal/ON or OFF	ON: All doors lock when shift lever is shifted to any position other than P from P position OFF: No door locks when shift lever is shifted to any position other than P from P position	-

HINT:

- *1: w/o Power back door system
- *2: Master switch, door control switch, transmitter switch or key-linked switch.

DL

BACK DOOR:

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
COURTESY SW	Back door courtesy switch signal (built in power back door lock) /ON or OFF	ON: Driver side door is open OFF: Driver side door is closed	-
HALF RATCHET* SW	Back door lock half-latch* switch signal /ON or OFF	OFF: Back door is closed ON: Back door is not completely closed	-
DOOR HANDLE SW	Back door opener switch signal (Outside handle switch) /ON or OFF	ON: Back door opener switch is pushed OFF: Back door opener switch is not pushed	-

HINT:
*: "RATCHET" appears on the display of the intelligent tester, however, the name of the part corresponding to the display of the tester is "half-latch".

2. PERFORM ACTIVE TEST

HINT:
Performing the intelligent tester's ACTIVE TEST allows relay, VSV, actuator, and other items to be operated without removing any parts. Performing the ACTIVE TEST early in troubleshooting is one way to save time. The DATA LIST can be displayed during the ACTIVE TEST.

(a) Connect the intelligent tester with CAN VIM to the DLC3.
(b) Turn the ignition switch ON.
(c) Perform the ACTIVE TEST.

DL

BODY:

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

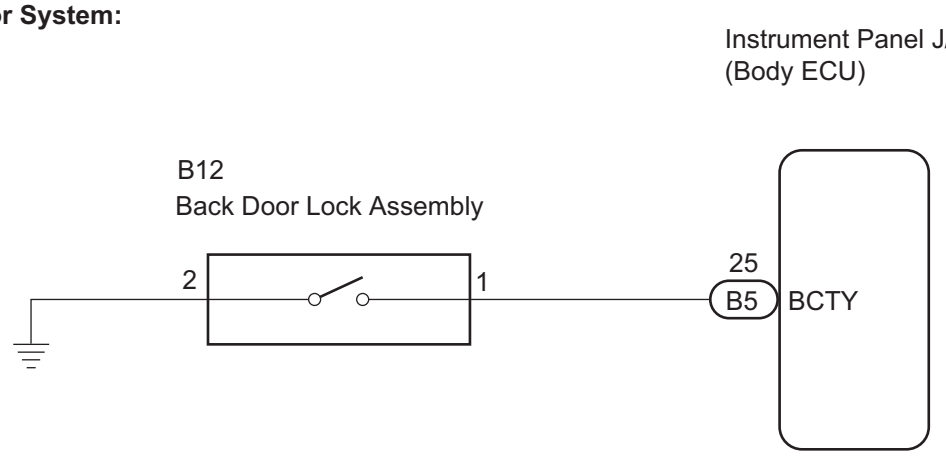
Back Door Courtesy Switch Circuit

DESCRIPTION

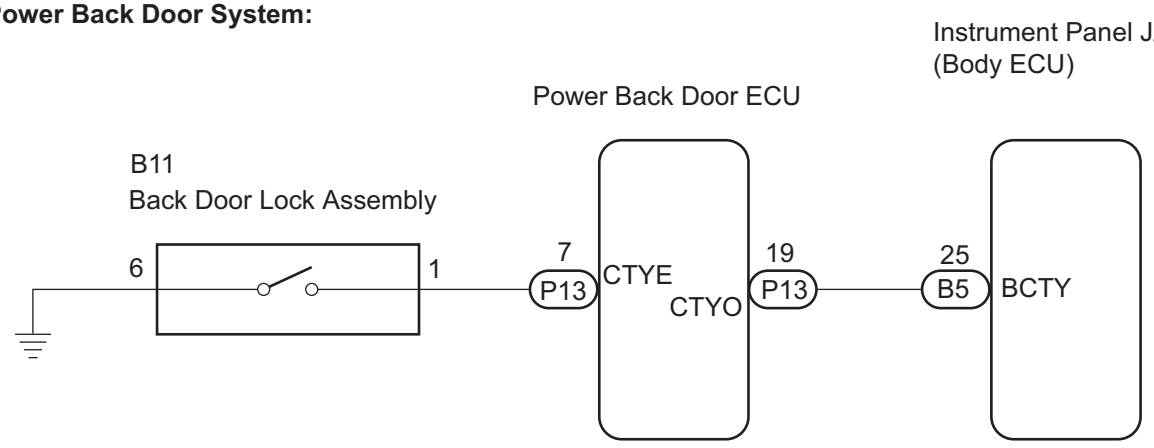
w/o power back door system:
The back door courtesy switch is built into the back door lock assembly. The switch turns on when the back door is opened and turns off when the door is closed. The body ECU applies voltage to the back door lock assembly via terminal BCTY. Back door open/close state signals are input to the body ECU.
w/ power back door system:
The back door courtesy switch is built into the back door lock assembly. The switch turns on when the back door is opened and turns off when the door is closed. The power back ECU applies voltage to the back door lock assembly via terminal CTYE. Back door open/close state signals are input to the power back door ECU. The back door ECU sends the back door open/close state signals to the body ECU.

WIRING DIAGRAM

w/o Power Back Door System:



w/ Power Back Door System:



B112754E01

DL

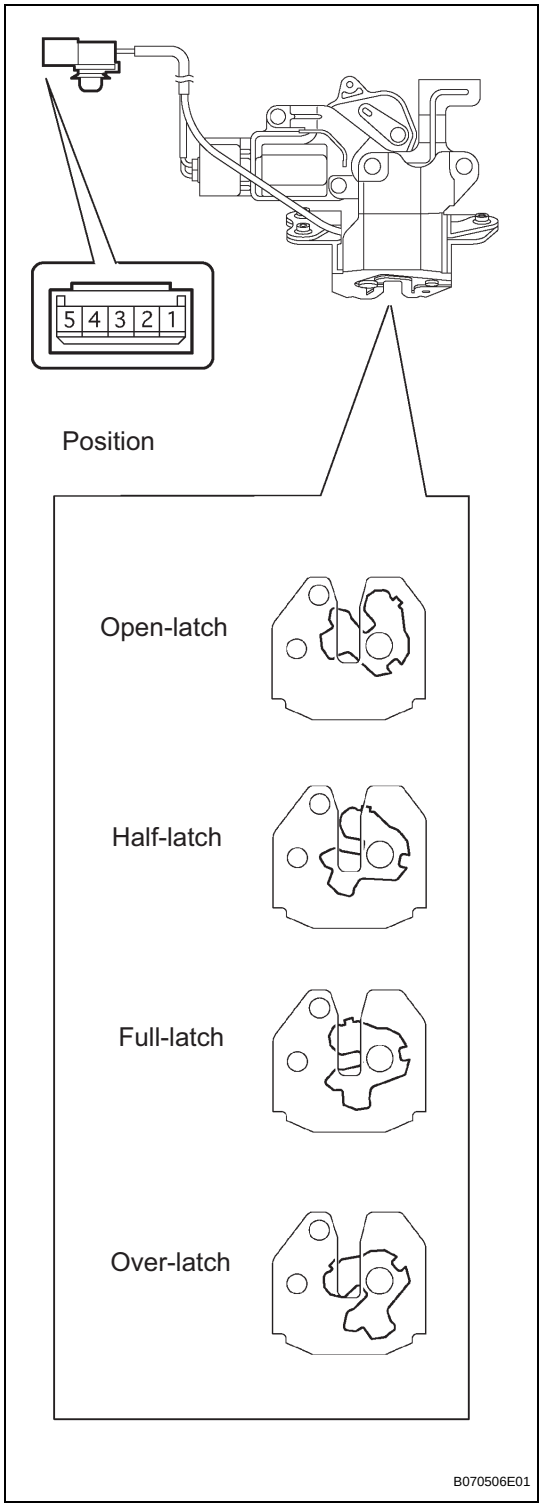
1	**CHECK VEHICLE TYPE**

Vehicle type	Proceed to
w/o Power back door system	A
w/ Power back door system	B

B → **Go to step 4**

A

2	**INSPECT BACK DOOR LOCK ASSEMBLY**



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

Standard resistance (Courtesy switch)

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

NG → **REPLACE BACK DOOR LOCK ASSEMBLY**

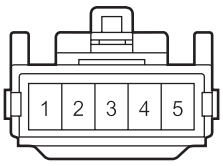
OK

DL

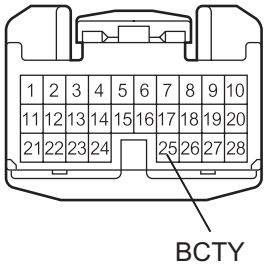
3	CHECK WIRE HARNESS (BACK DOOR LOCK ASSEMBLY - INSTRUMENT PANEL J/B (BODY ECU))

Wire Harness Side:

B12
Back Door Lock Assembly



B5
Instrument Panel J/B (Body ECU)



B112756E01

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

Standard resistance

Tester Connection	Condition	Specified Condition
B12-1 - B5-25 (BCTY)	Always	Below 1 Ω
B12-2 - Body ground	Always	Below 1 Ω

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

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

4	READ VALUE OF DATA LIST

(a) Check the DATA LIST to ensure proper function of the back door courtesy switch.

BACK DOOR:

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

OK:

The display is as specified in the normal condition.

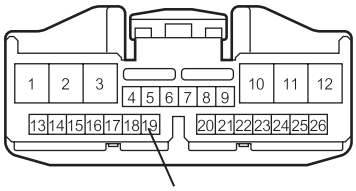
NG → **Go to step 6**

OK

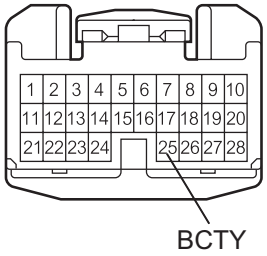
5	CHECK WIRE HARNESS (POWER BACK DOOR ECU - INSTRUMENT PANEL J/B)

Wire Harness Side:

P13
Power Back Door ECU



B5
Instrument Panel J/B (Body ECU)



B112755E01

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

Standard resistance

Tester Connection	Condition	Specified Condition
P13-19 (CTYO) - B5-25 (BCTY)	Always	Below 1 Ω

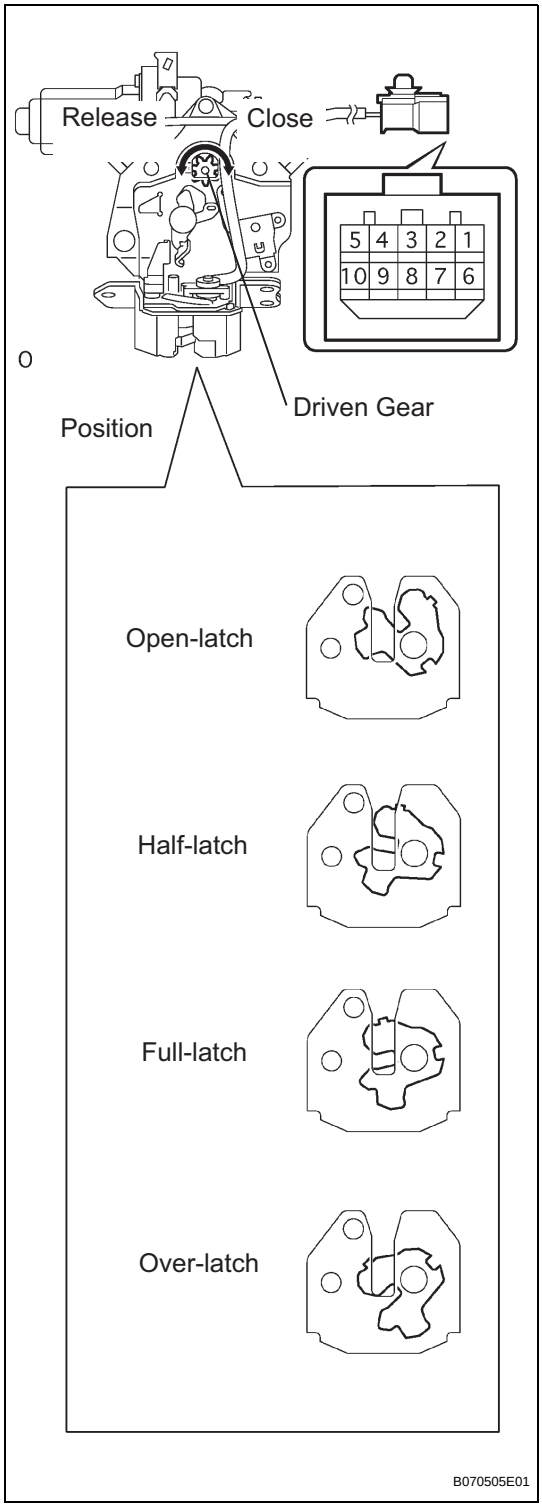
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

DL

6	**INSPECT BACK DOOR LOCK ASSEMBLY**



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

Standard resistance (Courtesy switch)

Tester Connection	Door Lock Latch Position	Specified Condition
1 - 6	Open-latch	Below 1 Ω
1 - 6	Half-latch	Below 1 Ω
1 - 6	Full-latch	10 kΩ or higher
1 - 6	Over-latch	10 kΩ or higher

NG → **REPLACE BACK DOOR LOCK ASSEMBLY**

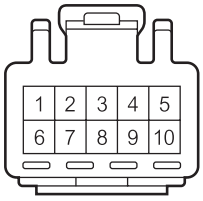
OK

DL

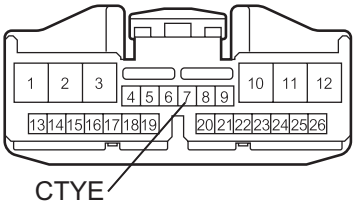
7	CHECK WIRE HARNESS (BACK DOOR LOCK ASSEMBLY - POWER BACK DOOR ECU)

Wire Harness Side:

B11
Back Door Lock Assembly



P13
Power Back Door ECU



H

B111702E08

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

Standard resistance

Tester Connection	Condition	Specified Condition
B11-1 - P13-7 (CTYE)	Always	Below 1 Ω
B11-6 - Body ground	Always	Below 1 Ω

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

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

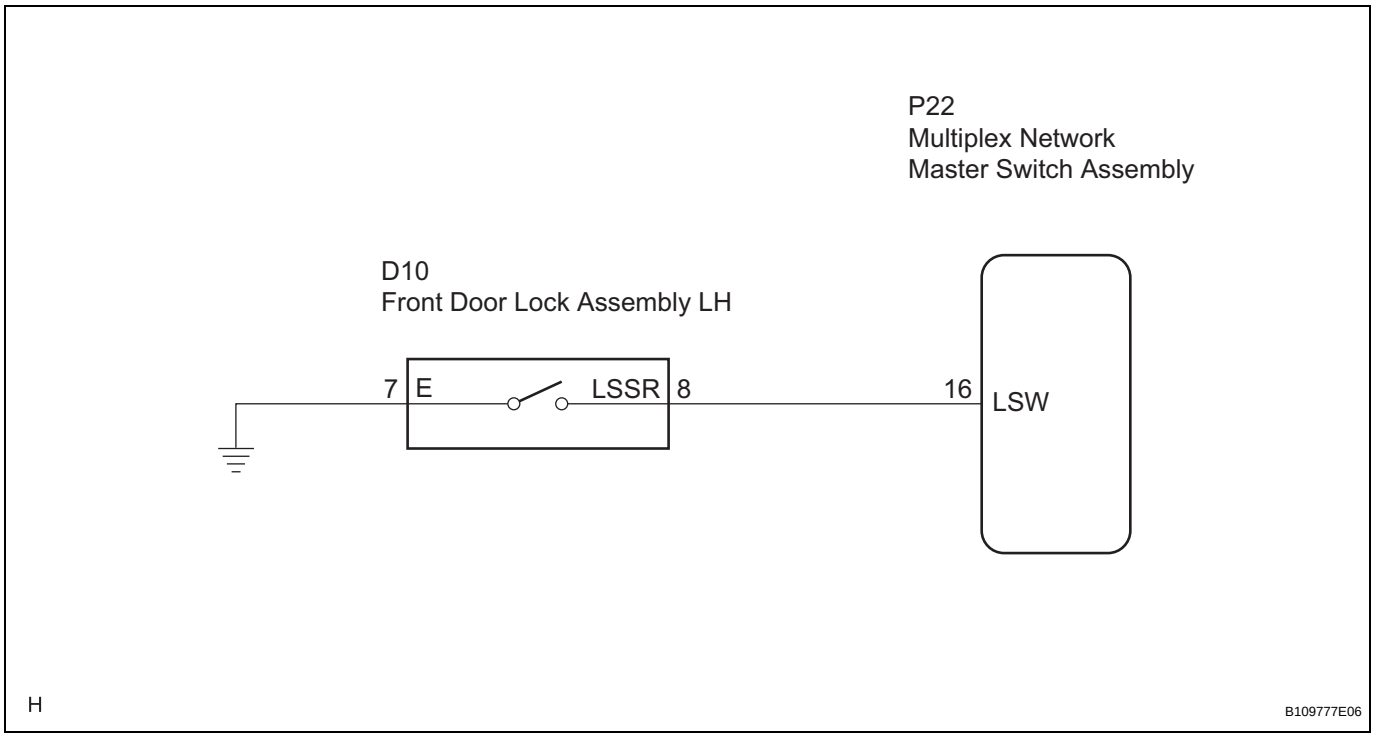
DL

Driver Side Door UNLOCK Detection Switch Circuit

DESCRIPTION

The driver's door unlock detection switch is built into the driver's door lock assembly. The switch turns on when the driver's door is locked and turns off when the door is unlocked.
The multiplex network master switch assembly is connected to the driver's door lock assembly via terminal LSW and driver's door lock/unlock state signals are input to the multiplex network master switch assembly.
The multiplex network master switch assembly applies voltage to the door unlock detection switch via terminal LSW. When the door unlock detection switch is on (there is continuity between the switch terminals), a lock state signal is input to the multiplex network master switch assembly. When the switch is off (there is no continuity between the switch terminals), an unlock state signal is input.
The multiplex network master switch assembly sends driver's door lock/unlock state information to the body ECU using multiplex communication.

WIRING DIAGRAM



DL

1	READ VALUE OF DATA LIST (DOOR UNLOCK DETECTION SWITCH)

(a) Check the DATA LIST to ensure proper function of the door unlock detection switch.

MASTER SW:

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

OK:

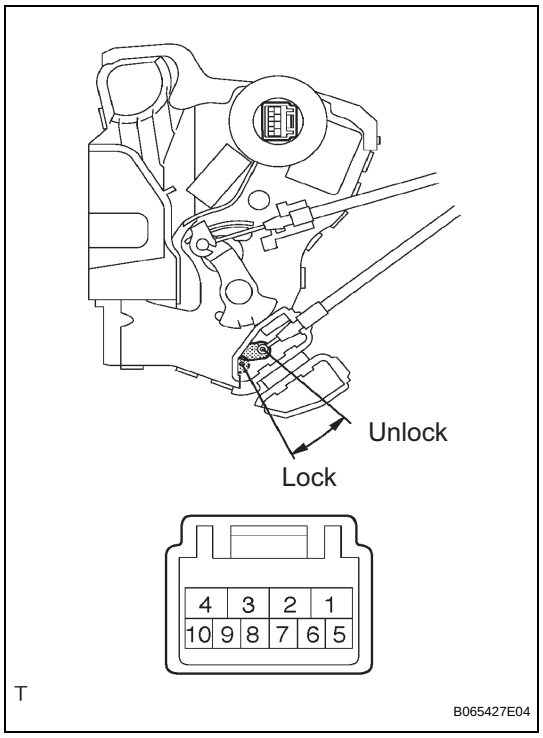
The display is as specified in the normal condition.

NG → **Go to step 2**

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

2 INSPECT FRONT DOOR LOCK ASSEMBLY (DOOR UNLOCK DETECTION SWITCH)



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

Standard resistance

Measurement Condition	Door Lock Condition	Specified Condition
Battery positive (+) → Terminal 4 Battery negative (-) → Terminal 1	Lock	7 - 8 (10 kΩ or higher)
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 4	Unlock	7 - 8 (Below 1 Ω)

NG → **REPLACE FRONT DOOR LOCK ASSEMBLY**

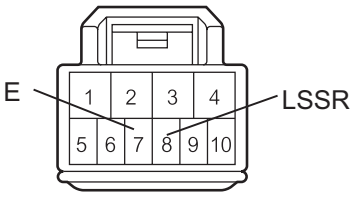
OK

DL

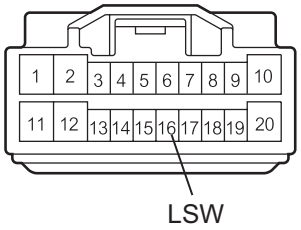
3	CHECK WIRE HARNESS (FRONT DOOR LOCK ASSEMBLY - MULTIPLEX NETWORK MASTER SWITCH)

Wire Harness Side:

D10
Front Door Lock Assembly LH



P22
Multiplex Network Master
Switch Assembly



H

B111707E01

(a) Disconnect the front door lock assembly connector.
(b) Disconnect the multiplex network master switch assembly connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
D10-8 (LSSR) - P22-16 (LSW)	Always	Below 1 Ω
D10-7 (E) - Body ground	Always	Below 1 Ω

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

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

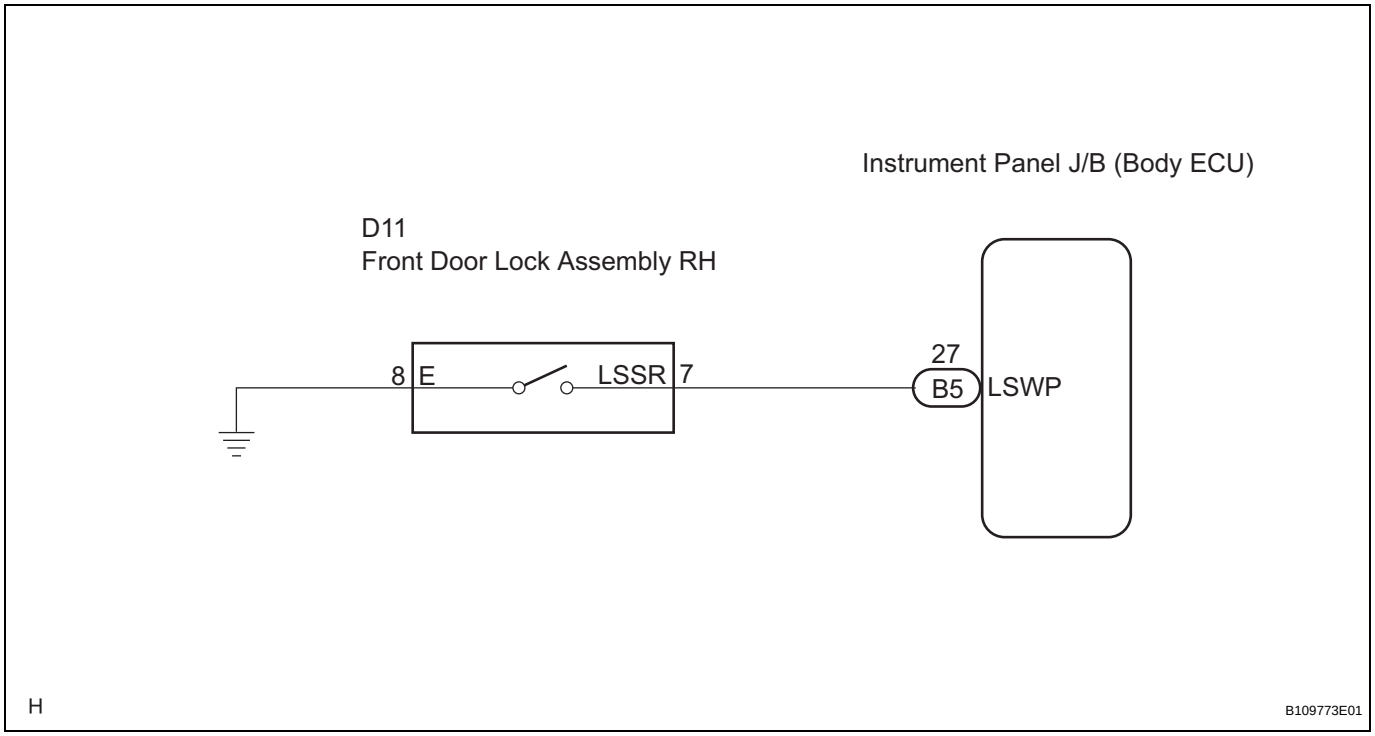
DL

Front Passenger Side Door UNLOCK Detection Switch Circuit

DESCRIPTION

The front passenger door unlock detection switch is built into the front passenger door lock assembly. The switch turns on when the front passenger door is locked and turns off when the door is unlocked.
The body ECU is connected to the front passenger door lock assembly via terminal LSWP and front passenger door lock/unlock state signals are input to the ECU.
The body ECU applies voltage to the door unlock detection switch via terminal LSWP. When the door unlock detection switch is on (there is continuity between the switch terminals), a lock state signal is input to the ECU. When the switch is off (there is no continuity between the switch terminals), an unlock state signal is input.

WIRING DIAGRAM



DL

1	READ VALUE OF DATA LIST (DOOR UNLOCK DETECTION SWITCH)

(a) Check the DATA LIST to ensure proper function of the door unlock detection switch.

BODY:

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
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	-

OK:

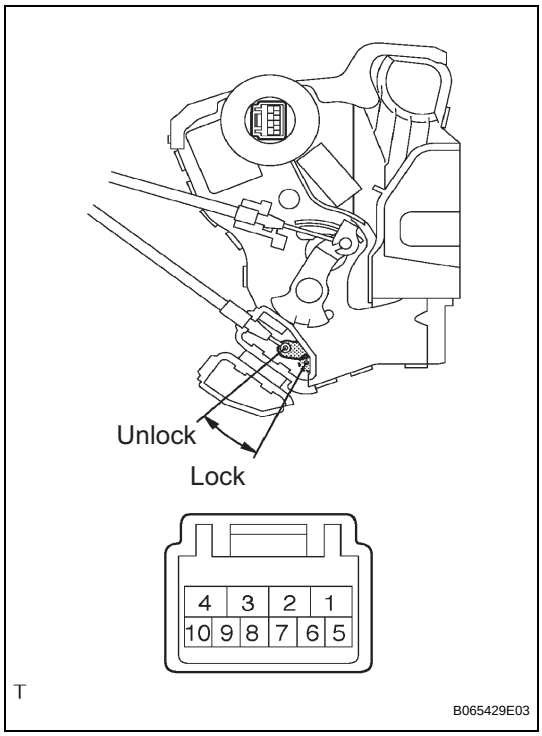
The display is as specified in the normal condition.

NG → **Go to step 2**

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

2 **INSPECT FRONT DOOR LOCK ASSEMBLY (DOOR UNLOCK DETECTION SWITCH)**



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

Standard resistance

Measurement Condition	Door Lock Condition	Specified Condition
Battery positive (+) → Terminal 4 Battery negative (-) → Terminal 1	LOCK	7 - 8 (10 kΩ or higher)
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 4	UNLOCK	7 - 8 (Below 1 Ω)

NG → **REPLACE FRONT DOOR LOCK ASSEMBLY**

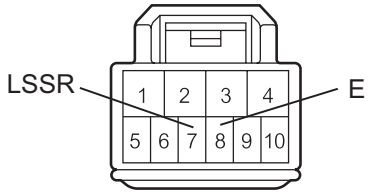
OK

DL

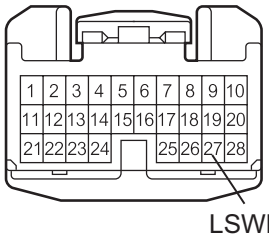
3	CHECK WIRE HARNESS (FRONT DOOR LOCK ASSEMBLY - INSTRUMENT PANEL J/B)

Wire Harness Side:

D11
Front Door Lock Assembly RH



B5
Instrument Panel J/B (Body ECU)



H

B111708E01

(a) Disconnect the front door lock assembly connector.
(b) Disconnect the instrument panel J/B connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
D11-7 (LSSR) - B5-27 (LSWP)	Always	Below 1 Ω
D11-8 (E) - Body ground	Always	Below 1 Ω

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

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

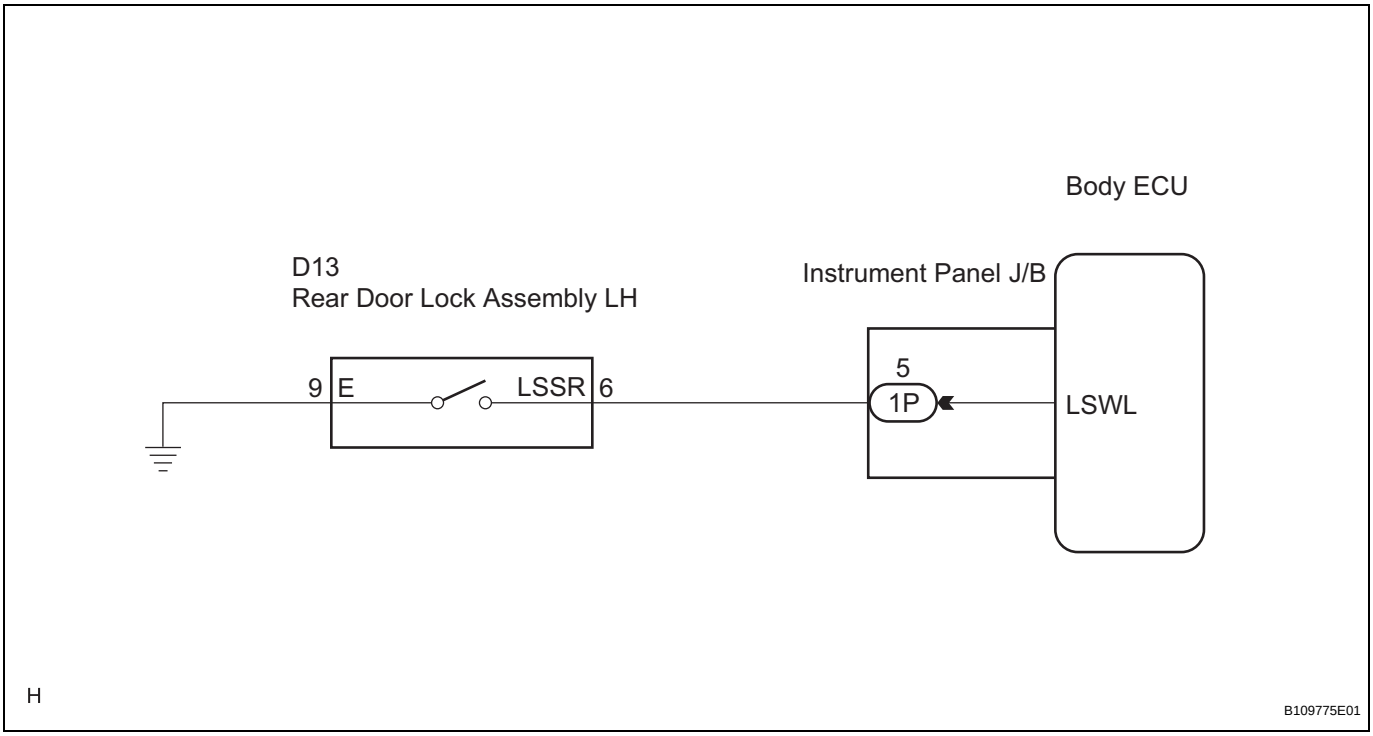
DL

Rear Door UNLOCK Detection Switch LH Circuit

DESCRIPTION

The rear left side door unlock detection switch is built into the rear left side door lock assembly. The switch turns on when the rear left side door is locked and turns off when the door is unlocked.
The body ECU is connected to the rear left side door lock assembly via terminal LSWL and rear left side door lock/unlock state signals are input to the ECU.
The body ECU applies voltage to the door unlock detection switch via terminal LSWL. When the door unlock detection switch is on (there is continuity between the switch terminals), a lock state signal is input to the ECU. When the switch is off (there is no continuity between the switch terminals), an unlock state signal is input.

WIRING DIAGRAM



DL

1	READ VALUE OF DATA LIST (UNLOCK DETECTION SWITCH)

(a) Check the DATA LIST to ensure proper function of the door unlock detection switch.

BODY:

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
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	-

OK:

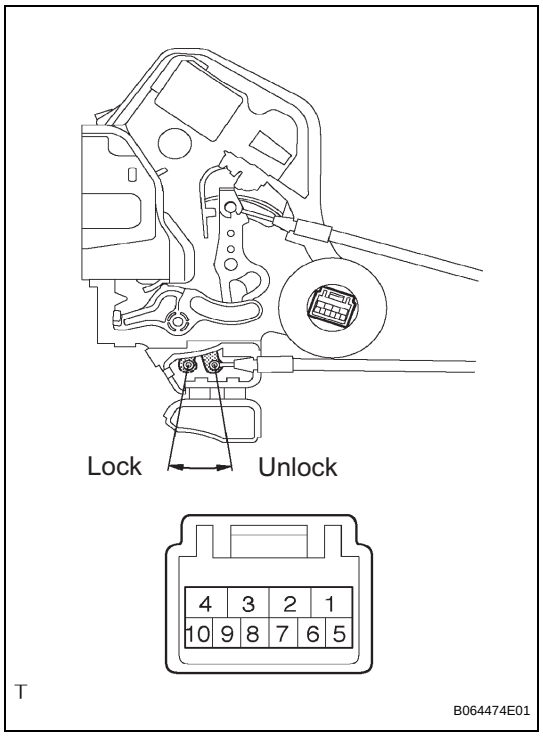
The display is as specified in the normal condition.

NG → **Go to step 2**

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

2 INSPECT REAR DOOR LOCK ASSEMBLY (UNLOCK DETECTION SWITCH)



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

Standard resistance

Measurement Condition	Door Lock Condition	Specified Condition
Battery positive (+) → Terminal 4 Battery negative (-) → Terminal 1	Lock	6 - 9 (10 kΩ or higher)
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 4	Unlock	6 - 9 (Below 1 Ω)

NG → **REPLACE REAR DOOR LOCK ASSEMBLY**

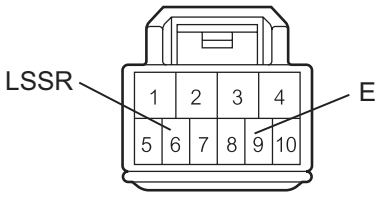
OK

DL

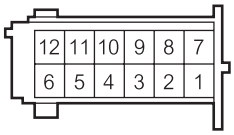
3	CHECK WIRE HARNESS (REAR DOOR LOCK ASSEMBLY - INSTRUMENT PANEL J/B (BODY ECU))

Wire Harness Side:

D13
Rear Door Lock Assembly LH



1P
Instrument Panel J/B (Body ECU)



H

B111700E01

(a) Disconnect the rear door lock assembly connector.
(b) Disconnect the instrument panel J/B connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
D13-6 (LSSR) - 1P-5	Always	Below 1 Ω
D13-9 (E) - Body ground	Always	Below 1 Ω

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

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

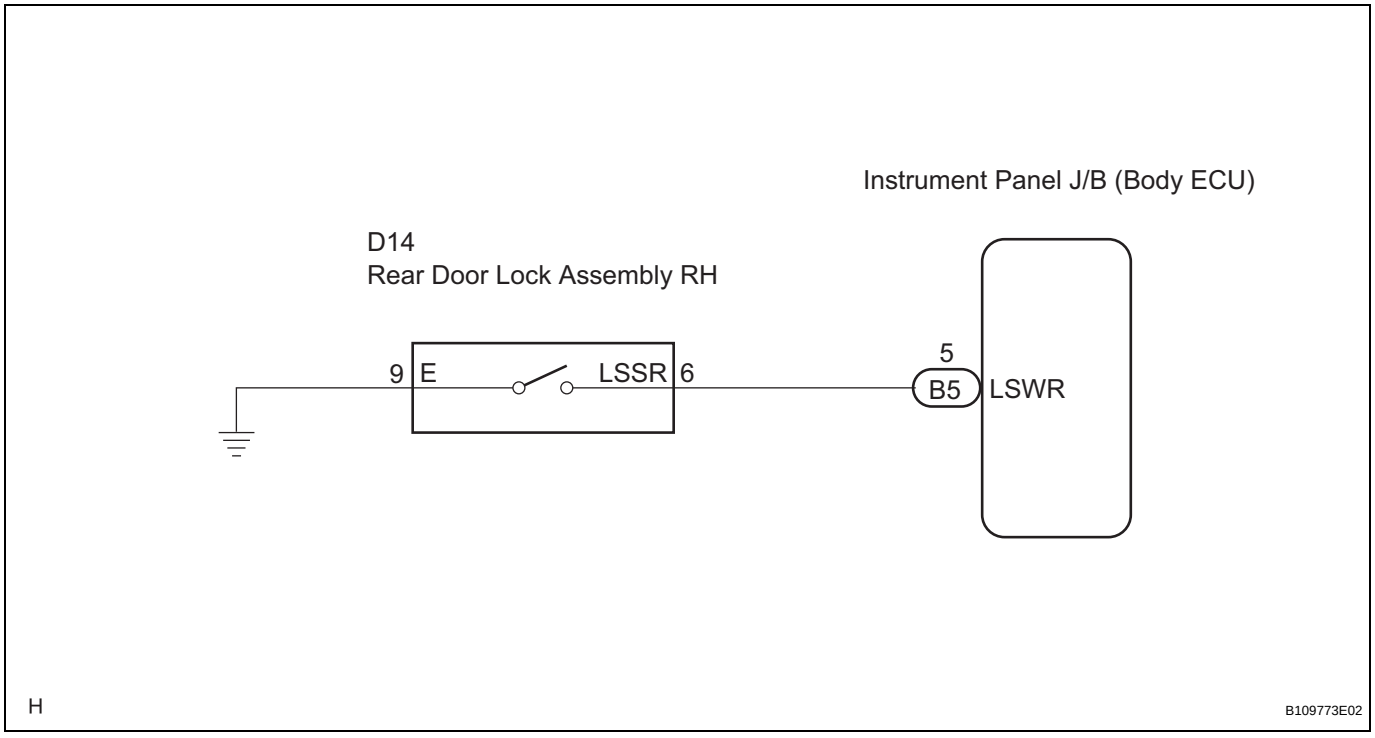
DL

Rear Door UNLOCK Detection Switch RH Circuit

DESCRIPTION

The rear left side door unlock detection switch is built into the rear left side door lock assembly. The switch turns on when the rear left side door is locked and turns off when the door is unlocked.
The body ECU is connected to the rear left side door lock assembly via terminal LSWR and rear left side door lock/unlock state signals are input to the ECU.
The body ECU applies voltage to the door unlock detection switch via terminal LSWR. When the door unlock detection switch is on (there is continuity between the switch terminals), a lock state signal is input to the ECU. When the switch is off (there is no continuity between the switch terminals), an unlock state signal is input.

WIRING DIAGRAM



DL

1	READ VALUE OF DATA LIST (UNLOCK DETECTION SWITCH)

(a) Check the DATA LIST to ensure proper function of the door unlock detection switch.

BODY:

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
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	-

OK:

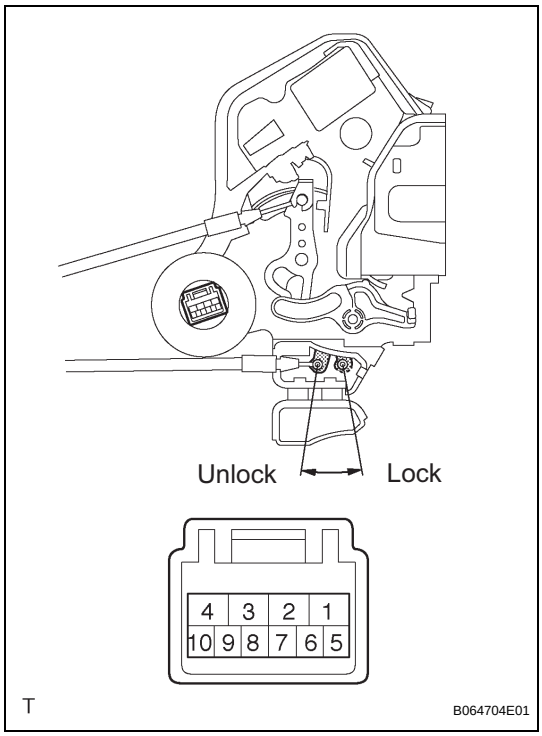
The display is as specified in the normal condition.

NG → **Go to step 2**

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

2 INSPECT REAR DOOR LOCK ASSEMBLY (UNLOCK DETECTION SWITCH)



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

Standard resistance

Measurement Condition	Door Lock Condition	Specified Condition
Battery positive (+) → Terminal 4 Battery negative (-) → Terminal 1	Lock	7 - 8 (10 kΩ or higher)
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 4	Unlock	7 - 8 (Below 1 Ω)

NG → **REPLACE REAR DOOR LOCK ASSEMBLY**

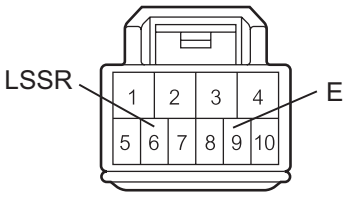
OK

DL

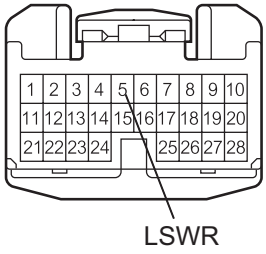
3	**CHECK WIRE HARNESS (REAR DOOR LOCK ASSEMBLY - INSTRUMENT PANEL J/B (BODY ECU))**

Wire Harness Side:

D14
Rear Door Lock Assembly RH



B5
Instrument Panel J/B (Body ECU)



H

B111708E02

(a) Disconnect the rear door lock assembly connector.
(b) Disconnect the instrument panel J/B connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
D14-6 (LSSR)- B5-5 (LSWR)	Always	Below 1 Ω
D14-9 (E) - Body ground	Always	Below 1 Ω

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

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

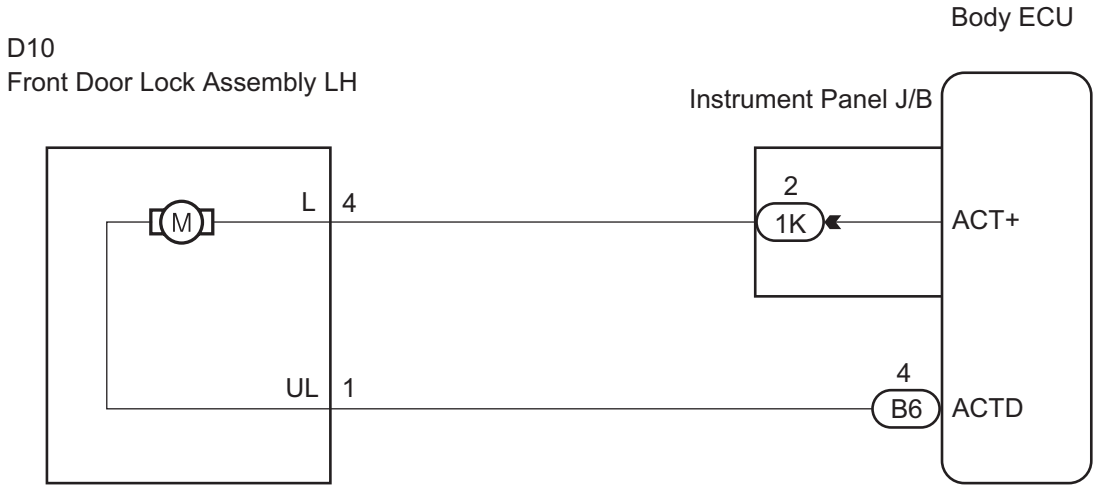
DL

Driver Side Door Lock Motor Circuit

DESCRIPTION

The driver's door lock motor is built into the driver's door lock assembly.
The body ECU controls the driver's door lock motor to lock/unlock the driver's door. This ECU applies current from terminal ACT+ to terminal ACTD to operate the motor to lock the door. It reverses the direction of the current flow to operate the motor to unlock the door.

WIRING DIAGRAM

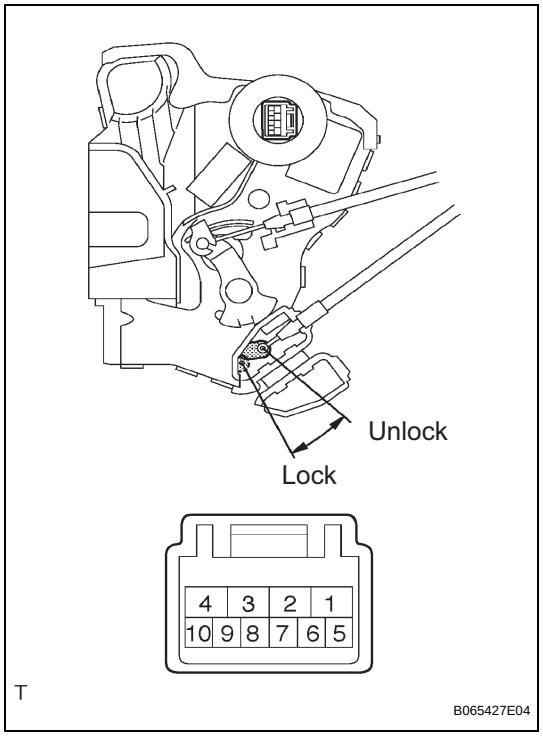


H

B109770E01

DL

1	**INSPECT FRONT DOOR LOCK ASSEMBLY (DOOR LOCK MOTOR)**



(a) Remove the front door lock assembly.
(b) Apply battery voltage and check operation of the door lock motor.
OK

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 4 Battery negative (-) → Terminal 1	Lock
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 4	Unlock

NG → **REPLACE FRONT DOOR LOCK ASSEMBLY**

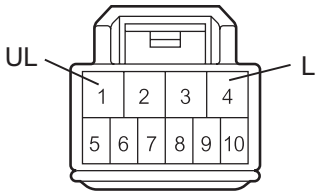
OK

DL

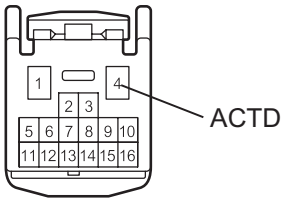
2	CHECK WIRE HARNESS (FRONT DOOR LOCK ASSEMBLY - INSTRUMENT PANEL J/B)

Wire Harness Side:

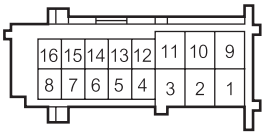
D10
Front Door Lock Assembly LH



B6
Instrument Panel J/B (Body ECU)



1K
Instrument Panel J/B (Body ECU)



H

B111705E03

(a) Disconnect the front door lock assembly connector.
(b) Disconnect the instrument panel J/B connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
D10-4 (L) - 1K-2	Always	Below 1 Ω
D10-1 (UL) - B6-4 (ACTD)	Always	Below 1 Ω

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

OK

OTHERS PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

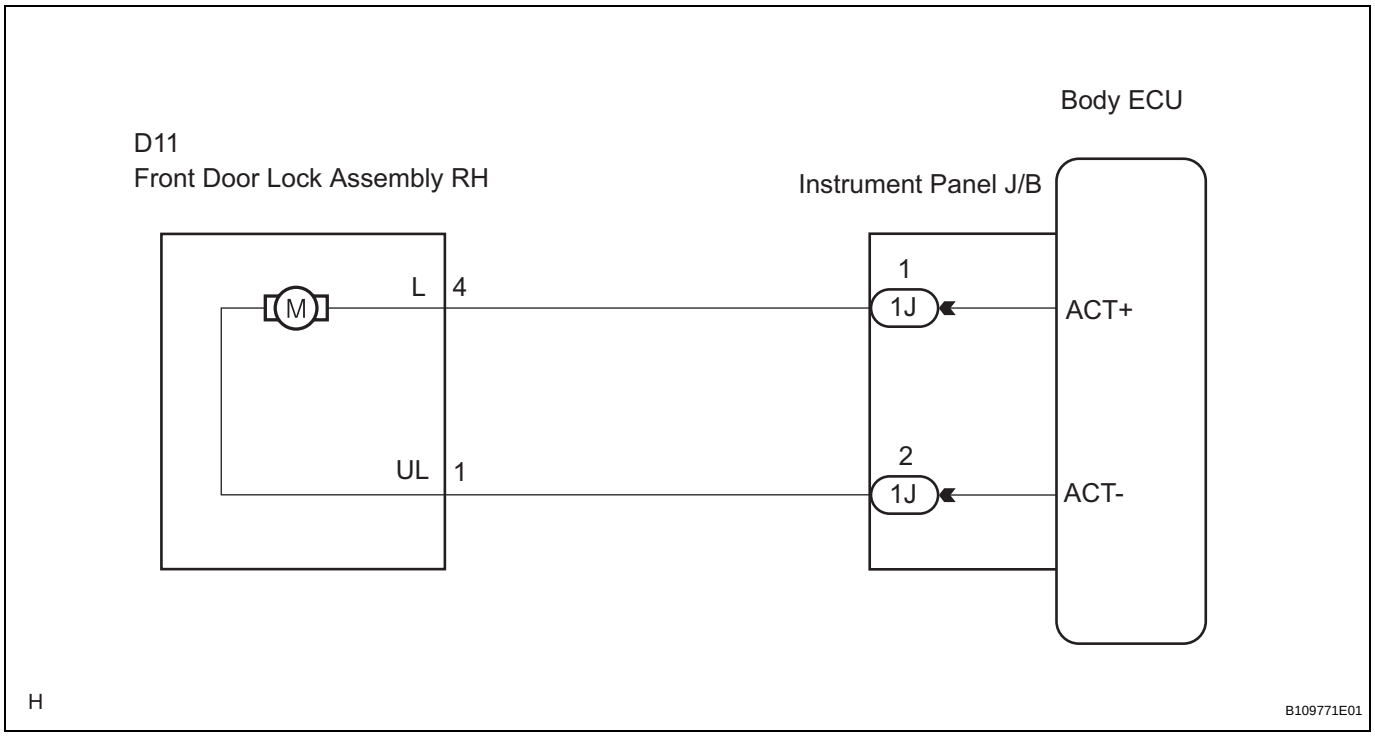
DL

Front Passenger Side Door Lock Motor Circuit

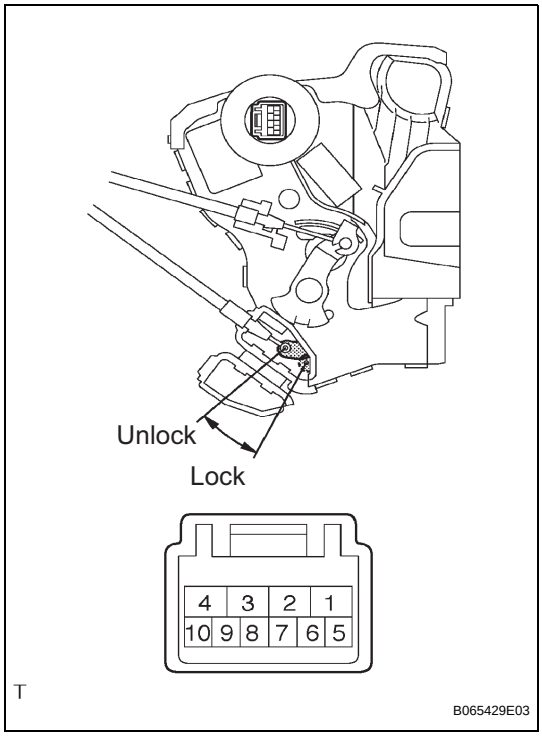
DESCRIPTION

The front passenger door lock motor is built into the front passenger door lock assembly.
The body ECU controls the front passenger door lock motor to lock/unlock the front passenger door. This ECU applies current from terminal ACT+ to terminal ACT- to operate the motor to lock the door. It reverses the direction of the current flow to operate the motor to unlock the door.

WIRING DIAGRAM



1	INSPECT FRONT DOOR LOCK ASSEMBLY (DOOR LOCK MOTOR)



(a) Remove the front door lock assembly.
(b) Apply battery voltage and check operation of the door lock motor.
OK

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 4 Battery negative (-) → Terminal 1	Lock
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 4	Unlock

NG → **REPLACE FRONT DOOR LOCK ASSEMBLY**

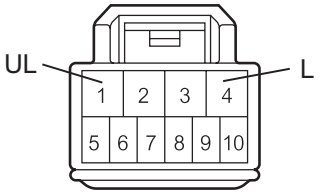
OK

DL

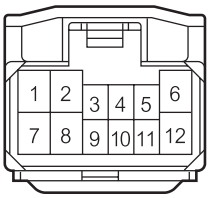
2	CHECK WIRE HARNESS (FRONT DOOR LOCK ASSEMBLY - INSTRUMENT PANEL J/B)

Wire Harness Side:

D11
Front Door Lock Assembly RH



1J
Instrument Panel J/B (Body ECU)



H

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(a) Disconnect the front door lock assembly connector.
(b) Disconnect the instrument panel J/B connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
D11-4 (L) - 1J-1	Always	Below 1 Ω
D11-1 (UL) - 1J-2	Always	Below 1 Ω

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

OK

OTHERS PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

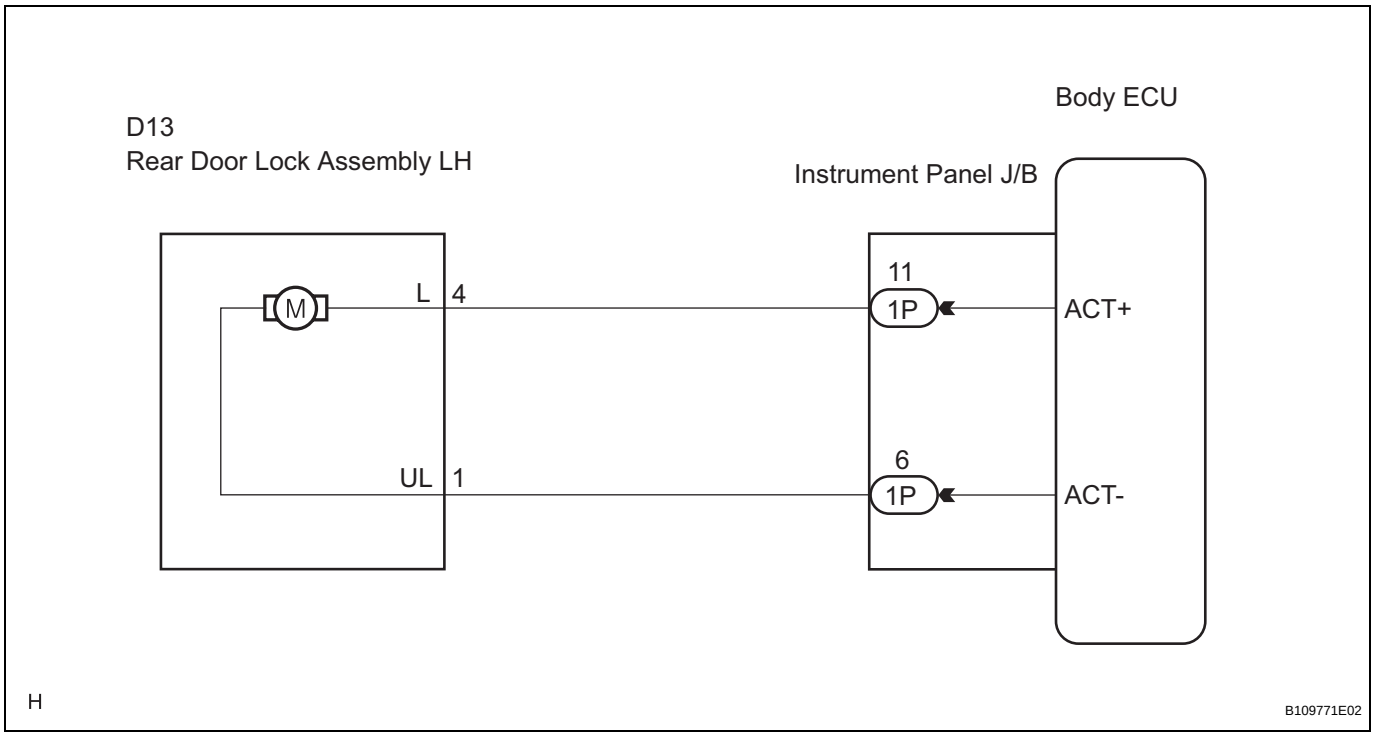
DL

Rear Door Lock Motor LH Circuit

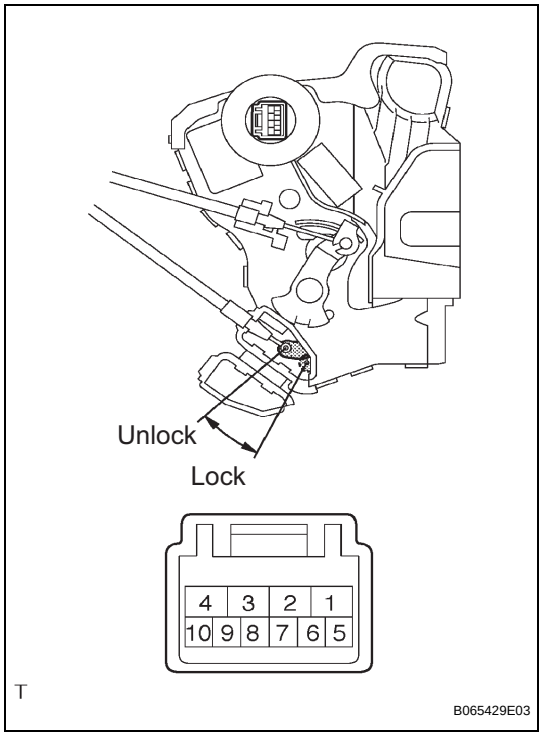
DESCRIPTION

The rear left side door lock motor is built into the rear left side door lock assembly.
The body ECU controls the rear left side door lock motor to lock/unlock the rear left side door. This ECU applies current from terminal ACT+ to terminal ACT- to operate the motor to lock the door. It reverses the direction of the current flow to operate the motor to unlock the door.

WIRING DIAGRAM



1	**INSPECT REAR DOOR LOCK ASSEMBLY**



(a) Remove the rear door lock assembly.
(b) Apply battery voltage and check operation of the door lock motor.
OK

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 4 Battery negative (-) → Terminal 1	Lock
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 4	Unlock

NG → **REPLACE REAR DOOR LOCK ASSEMBLY**

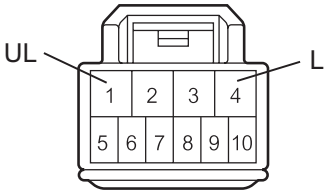
OK

DL

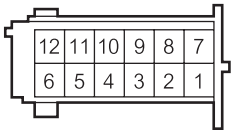
2	CHECK WIRE HARNESS (REAR DOOR LOCK ASSEMBLY - INSTRUMENT PANEL J/B)

Wire Harness Side:

D13
Rear Door Lock Assembly LH



1P
Instrument Panel J/B (Body ECU)



H

B111700E03

(a) Disconnect the rear door lock assembly connector.
(b) Disconnect the instrument panel J/B connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
D13-4 (L) - 1P-11	Always	Below 1 Ω
D13-1 (UL) - 1P-6	Always	Below 1 Ω

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

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

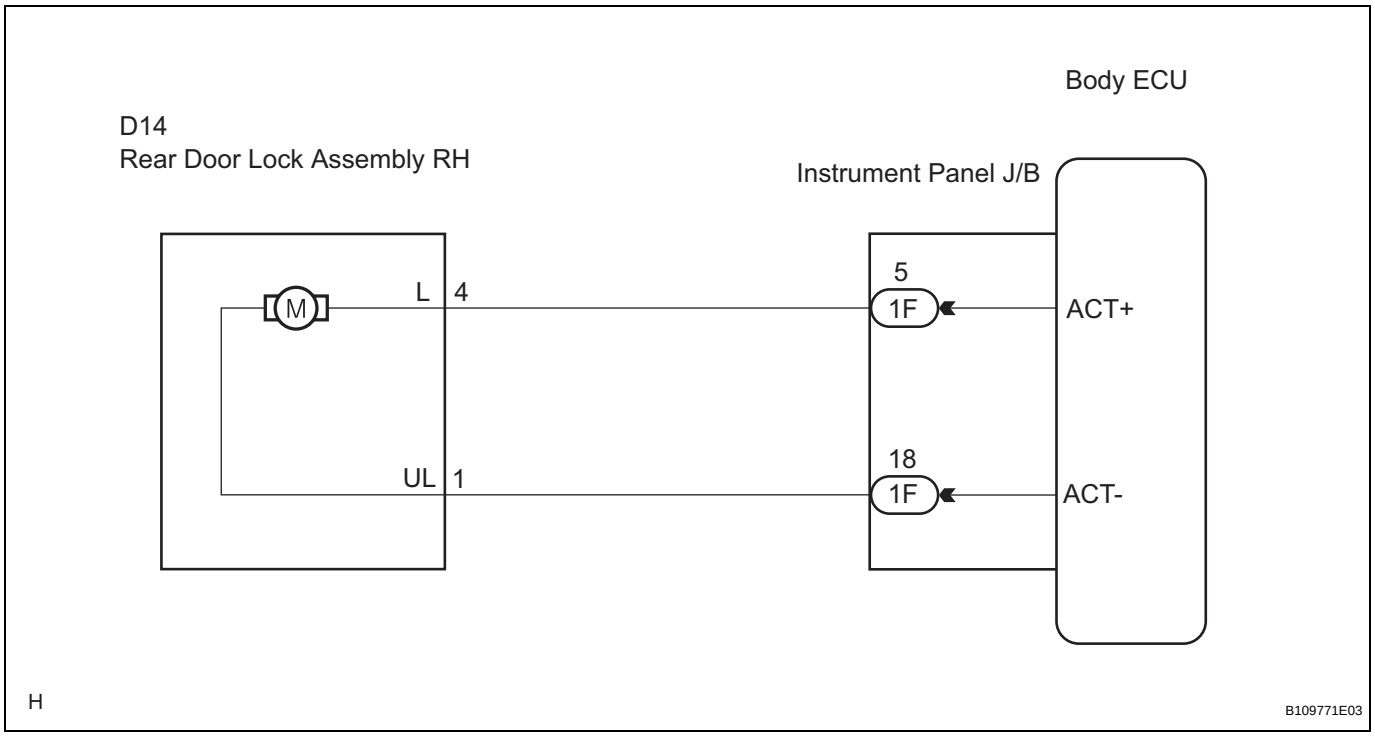
DL

Rear Door Lock Motor RH Circuit

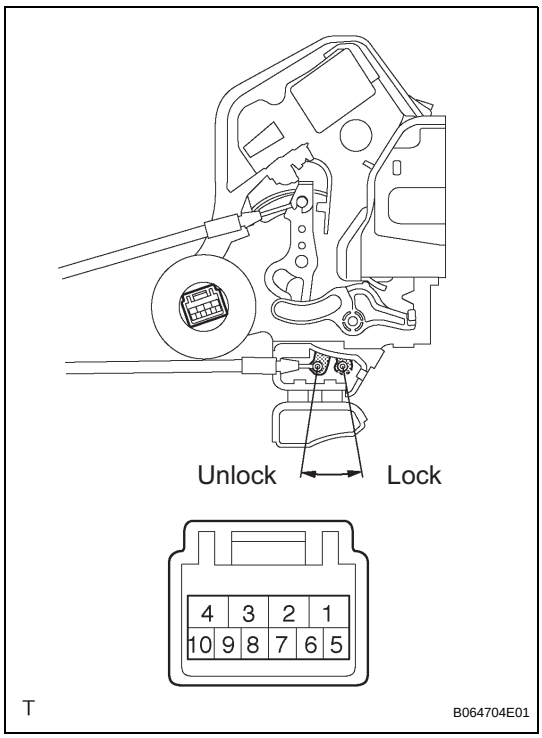
DESCRIPTION

The rear right side door lock motor is built into the rear right side door lock assembly.
The body ECU controls the rear right side door lock motor to lock/unlock the rear right side door. This ECU applies current from terminal ACT+ to terminal ACT- to operate the motor to lock the door. It reverses the direction of the current flow to operate the motor to unlock the door.

WIRING DIAGRAM



1	**INSPECT REAR DOOR LOCK ASSEMBLY**



(a) Remove the rear lock assembly.
(b) Apply battery voltage and check operation of the door lock motor.
OK

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 4 Battery negative (-) → Terminal 1	**Lock**
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 4	**Unlock**

NG → **REPLACE REAR DOOR LOCK ASSEMBLY**

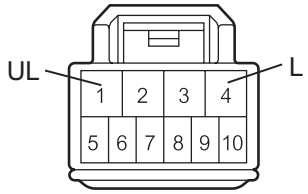
OK

DL

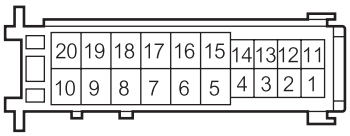
2	CHECK WIRE HARNESS (REAR DOOR LOCK ASSEMBLY - INSTRUMENT PANEL J/B)

Wire Harness Side:

D14
Rear Door Lock Assembly RH



1F
Instrument Panel J/B (Body ECU)



H

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(a) Disconnect the rear door lock assembly connector.
(b) Disconnect the instrument panel J/B connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
D14-4 (L) - 1F-5	Always	Below 1 Ω
D14-1 (UL) - 1F-18	Always	Below 1 Ω

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

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

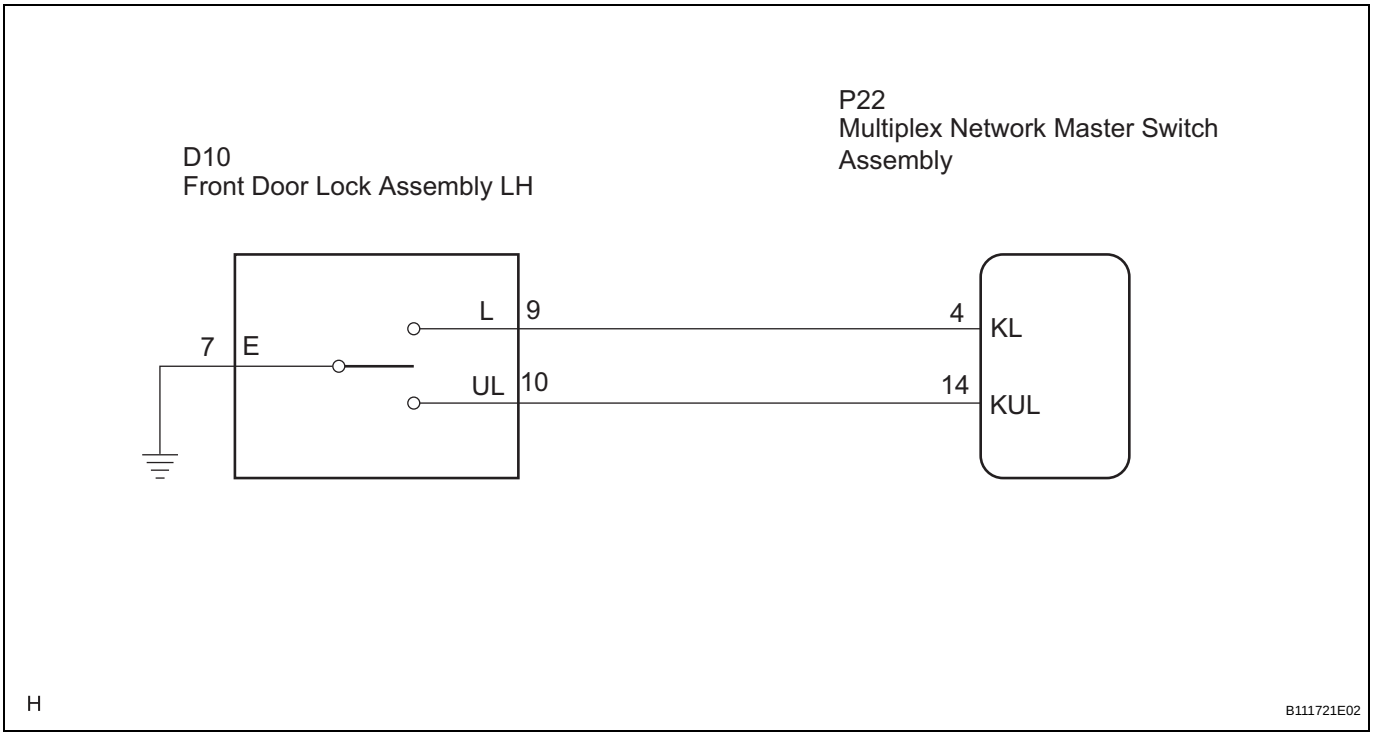
DL

Driver Side Door Key Lock and Unlock Switch Circuit

DESCRIPTION

The driver's door key lock and unlock switch is built into the driver's door lock assembly.
When the driver's door key cylinder is turned to lock all the doors by key, there is continuity between terminals L and E of the key lock and unlock switch. When the cylinder is turned to unlock the door(s), there is continuity between terminals UL and E.
Terminals KL and KUL of the multiplex network master switch assembly are connected to the door lock assembly, and door lock/unlock request signals (by key) are input to the multiplex network master switch assembly.
The multiplex network master switch assembly constantly applies voltage to terminal L of the driver's door lock assembly via terminal KL. When the driver's door key cylinder is turned to lock all the doors by key, current flows from terminal KL to terminal L. The multiplex network master switch assembly determines that this is door lock request signal input and sends a door lock signal to the body ECU using multiplex communication.
The multiplex network master switch assembly also applies constant voltage to terminal UL of the door lock assembly via terminal KUL. When the door key cylinder is turned in the direction to unlock the door(s) by key, current flows from terminal KUL to terminal UL. The multiplex network master switch assembly determines that this is door unlock request signal input and sends a door unlock signal to the body ECU using multiplex communication.

WIRING DIAGRAM



1	READ VALUE OF DATA LIST

(a) Check the DATA LIST to ensure proper function of the door unlock detection switch.

MASTER SW:

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
DOOR KEY LOCK	Driver door lock/unlock switch lock signal (key-linked-lock switch) /ON or OFF	ON: Driver side door key cylinder is turned to LOCK OFF: Driver side door key cylinder is not turned to LOCK	-
DOOR KEY UNLOCK	Driver door lock/unlock switch unlock signal (key-linked-unlock switch) /ON or OFF	ON: Driver side door key cylinder is turned to UNLOCK OFF: Driver side door key cylinder is not turned to UNLOCK	-

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

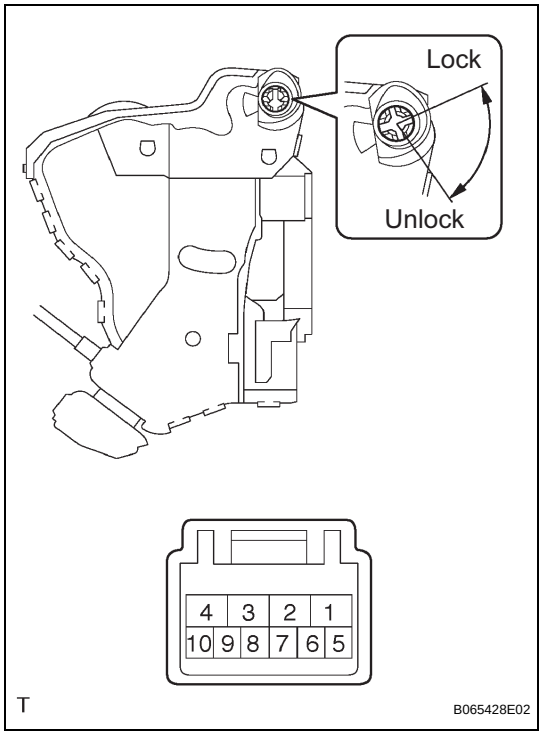
NG → **Go to step 2**

OK

OTHERS PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

DL

2	INSPECT FRONT DOOR LOCK ASSEMBLY (DOOR KEY LOCK AND UNLOCK SWITCH)



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

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

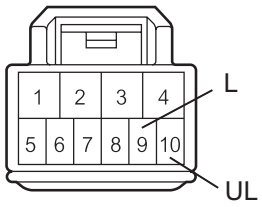
NG → **REPLACE FRONT DOOR LOCK ASSEMBLY**

OK

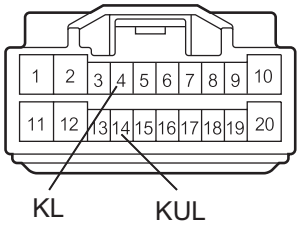
3	CHECK WIRE HARNESS (FRONT DOOR LOCK ASSEMBLY - MULTIPLEX NETWORK MASTER SWITCH)

Wire Harness Side:

D10
Front Door Lock Assembly LH



P22
Multiplex Network Master Switch Assembly



H

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(a) Disconnect the front door lock assembly connector.
(b) Disconnect the multiplex network master switch assembly connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
D10-9 (L) - P22-4 (KL)	Always	Below 1 Ω
D10-10 (UL) - P22-14 (KUL)	Always	Below 1 Ω
D10-7(E) - Body ground	Always	Below 1 Ω

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

OK

OTHERS PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

DL

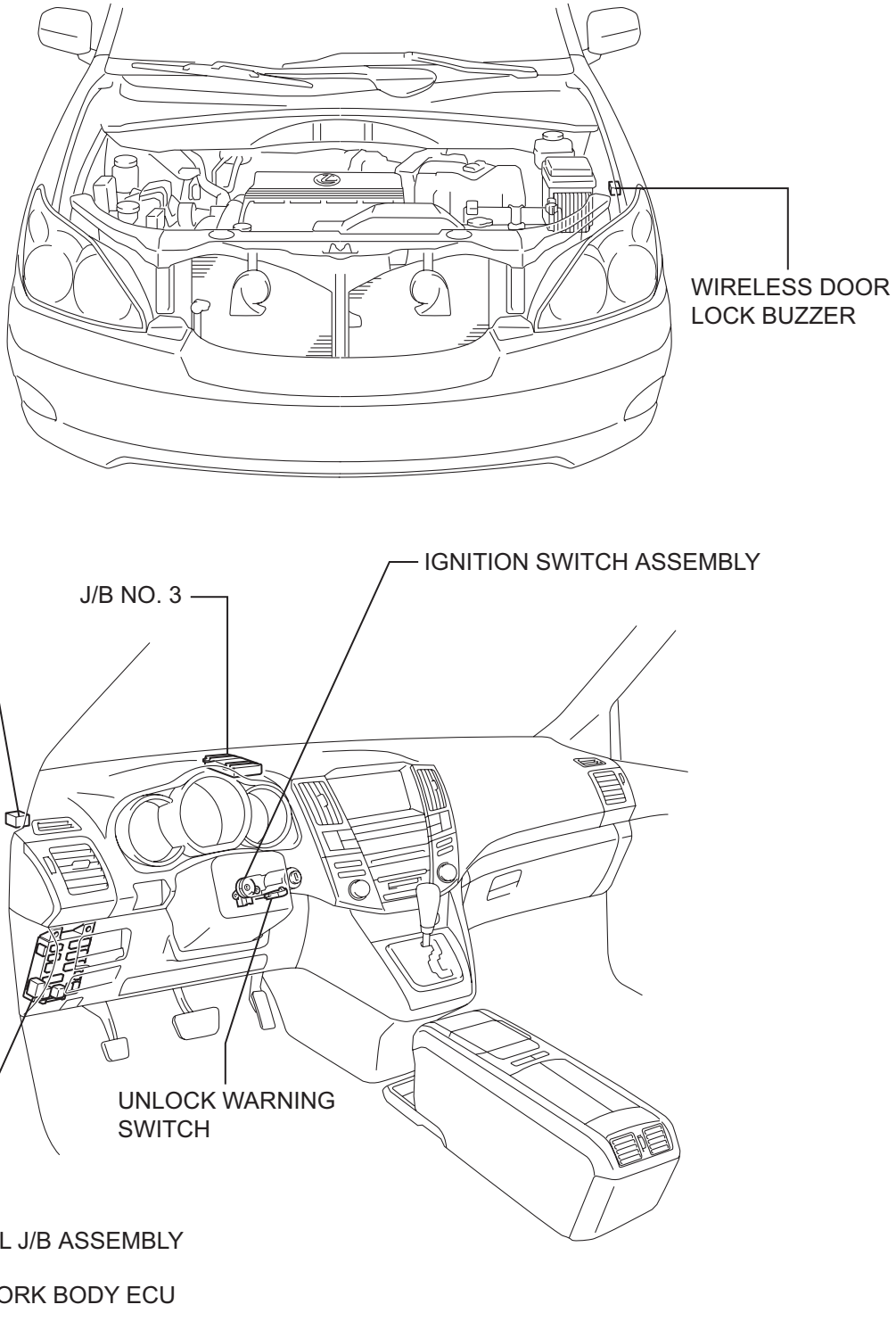
WIRELESS DOOR LOCK CONTROL SYSTEM

PRECAUTION

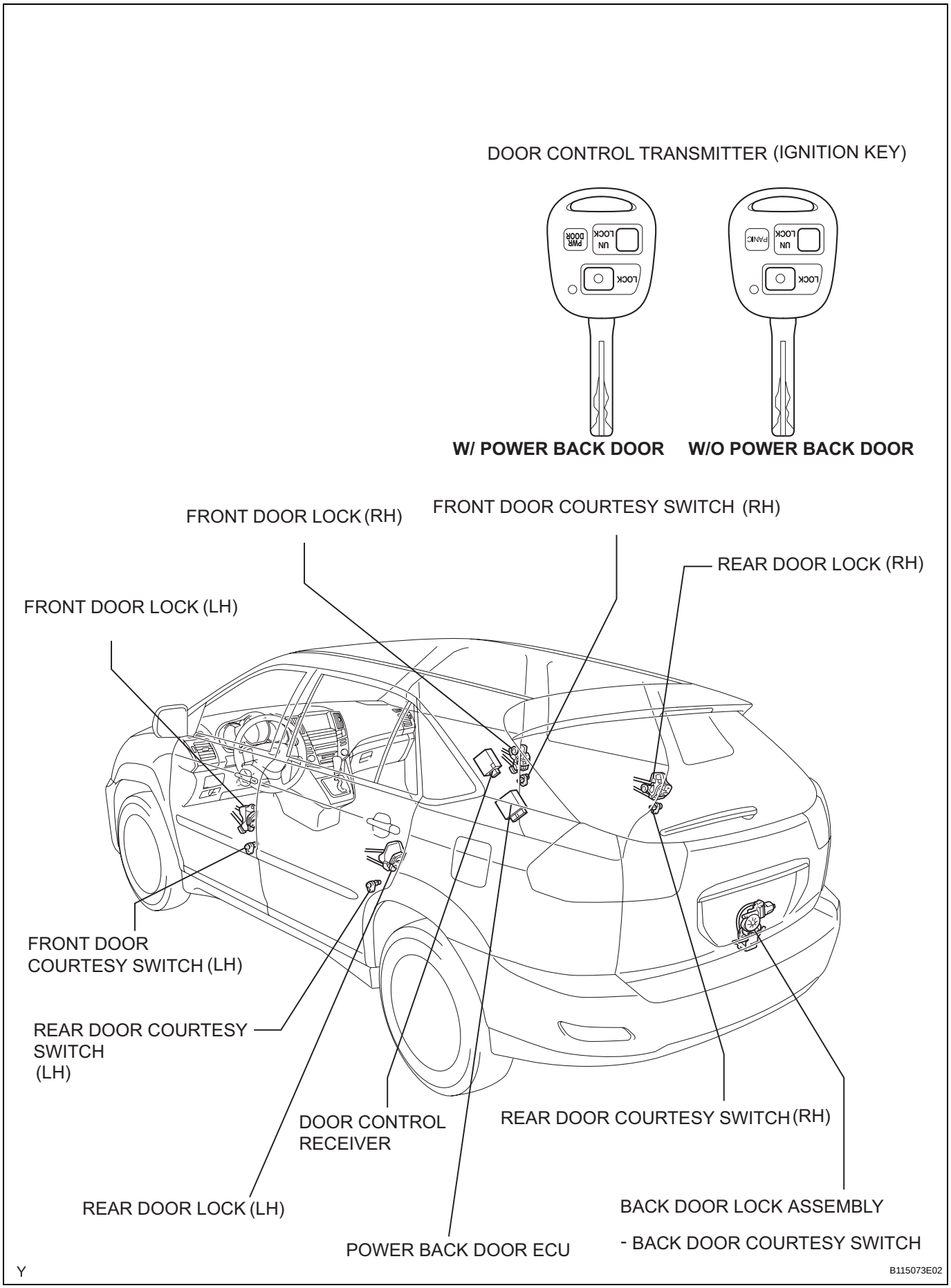
NOTICE:
After the battery terminal has been disconnected, initialize the following systems when the terminal is reconnected.

System	See procedure
Lighting system (Adaptive Front-Lighting System)	LI-17
Sliding roof control system	RF-4 RF-22
Power window control system	WS-12
Power back door system	DL-8

PARTS LOCATION



DL


DOOR CONTROL TRANSMITTER (IGNITION KEY)
W/ POWER BACK DOOR
W/O POWER BACK DOOR
FRONT DOOR LOCK (RH)
FRONT DOOR COURTESY SWITCH (RH)
REAR DOOR LOCK (RH)
FRONT DOOR LOCK (LH)
FRONT DOOR COURTESY SWITCH (LH)
REAR DOOR COURTESY SWITCH (LH)
DOOR CONTROL RECEIVER
REAR DOOR COURTESY SWITCH (RH)
REAR DOOR LOCK (LH)
POWER BACK DOOR ECU
BACK DOOR LOCK ASSEMBLY
- BACK DOOR COURTESY SWITCH
Y
B115073E02

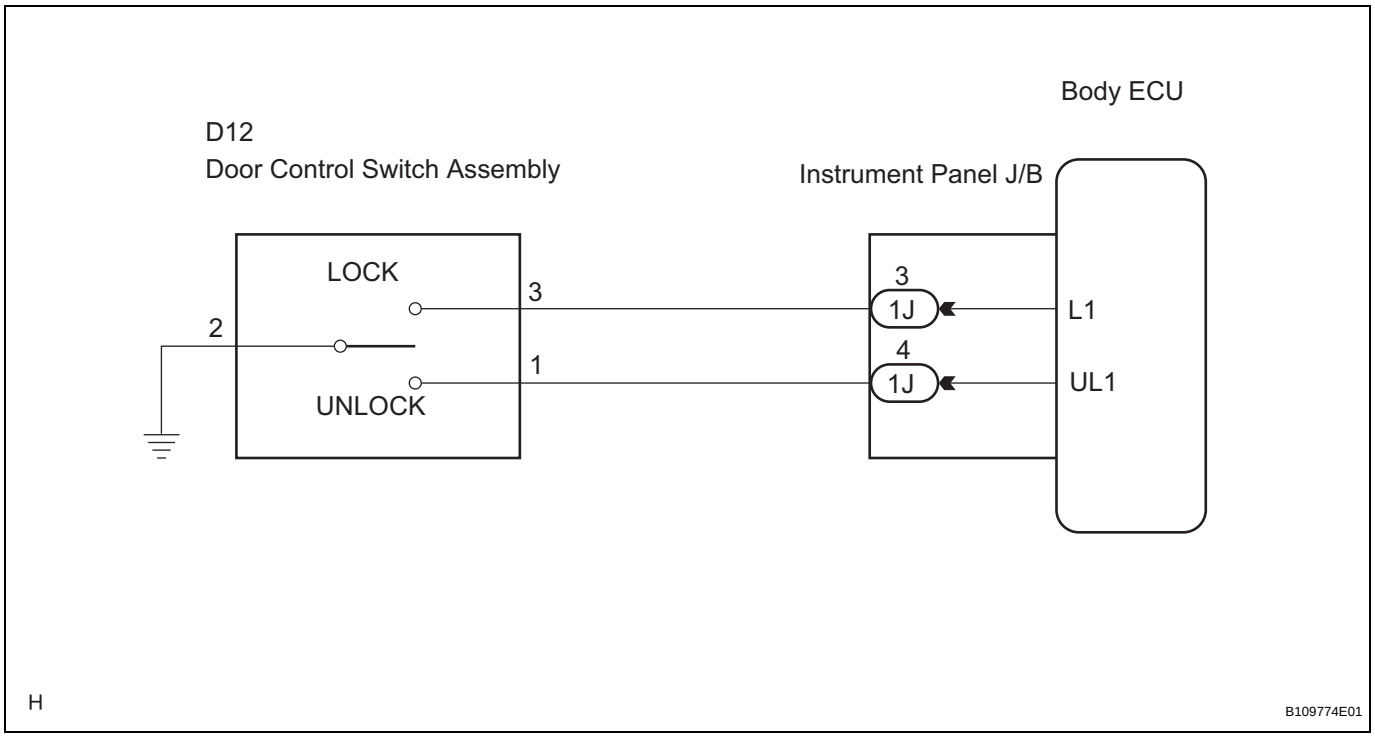
DL

Door Control Switch Circuit

DESCRIPTION

When the lock side of the door control switch is pressed, continuity is established between terminals 3 and 2 of the switch. When the unlock side of the switch is pressed, continuity is established between terminals 1 and 2.
Terminals L1 and UL1 of the body ECU are connected to the door control switch and door lock/unlock request signals (by door control switch operation) are input to the ECU.
The body ECU constantly applies voltage to terminal 3 of the door control switch via terminal L1. When the door control switch is operated to lock all doors, current flows from terminal L1 to terminal 3. The body ECU determines that this is door lock request signal input.
The body ECU also applies constant voltage to terminal 1 of the door control switch via terminal UL1. When the door control switch is operated to unlock the doors, current flows from terminal UL1 to terminal 1. The body ECU determines that this is door unlock request signal input.

WIRING DIAGRAM



DL

1	READ VALUE OF DATA LIST (FRONT PASSENGER SIDE DOOR CONTROL SWITCH ASSEBLY)

(a) Check the DATA LIST to ensure proper function of the front passenger door lock switch.

BODY:

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
D/L SW-LOCK	Door lock switch signal /ON or OFF	ON: Door lock switch is pushed to LOCK position OFF: Door lock switch is not pushed to LOCK position	-

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
D/L SW-UNLOCK	Door unlock switch signal /ON or OFF	ON: Door lock switch is pushed to UNLOCK position OFF: Door lock switch is not pushed to UNLOCK position	-

OK:

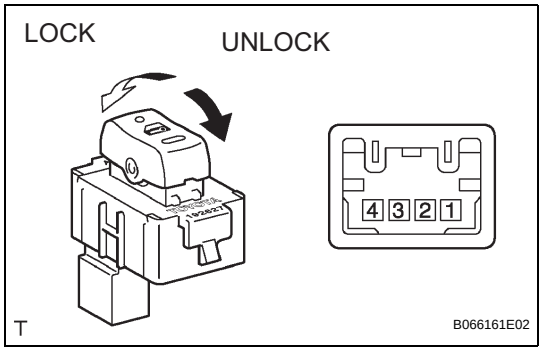
The display is as specified in the normal condition.

NG → **Go to step 2**

OK

OTHERS PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

2 INSPECT DOOR CONTROL SWITCH ASSEMBLY



(a) Remove the door control switch assembly.

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

Standard resistance

Tester Connection	Condition	Specified Condition
2 - 3	Lock	Below 1 Ω
2 - 3 1 - 2	OFF (Free)	10 kΩ or higher
1 - 2	Unlock	Below 1 Ω

NG → **REPLACE DOOR CONTROL SWITCH ASSEMBLY**

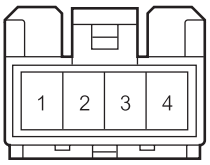
OK

DL

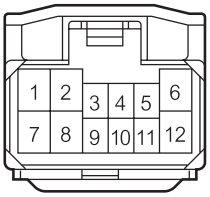
3	CHECK WIRE HARNESS (DOOR CONTROL SWITCH ASSEMBLY - INSTRUMENT PANEL J/B)

Wire Harness Side:

D12
Door Control Switch Assembly



1J
Instrument Panel J/B (Body ECU)



H

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

Standard resistance

Tester Connection	Condition	Specified Condition
D12-3 - 1J-3	Always	Below 1 Ω
D12-1 - 1J-4	Always	Below 1 Ω
D12-2 - Body ground	Always	Below 1 Ω

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

OK

OTHERS PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

DL

SYSTEM DESCRIPTION

1. WIRELESS DOOR LOCK CONTROL SYSTEM DESCRIPTION

(a) This system is a convenient system for locking and unlocking all the doors at a distance. The wireless control system has the following features:

- In this system, 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 the multiplex network body ECU.
- w/ Power back door:
  A key-integrated type transmitter is used. It contains the following 3 switches: the LOCK (PANIC) switch, UNLOCK switch and PWR DOOR (power back door) switch.
- w/o Power back door:
  A key-integrated type transmitter is used. It contains the following 3 switches: the LOCK switch, UNLOCK switch and PANIC switch.
- A power window down function and a sliding roof (normal type only) open function are included in the wireless door lock control system.
- A LED (Light Emitting Diode) is mounted on the transmitter to indicate if the battery is discharged.

(b) The wireless door lock control system has the following functions:

Function	Outline
All-door lock operation	Pressing LOCK locks all doors
All-door unlock operation (2-step unlock operation)	Pressing UNLOCK twice within 3 seconds unlocks all doors after driver's door is unlocked
Power back door open/close operation (w/ Power back door)	Holding down PWR DOOR for longer than about 1 second opens or closes the back door
Power window and sliding roof (normal type only) open operation	Holding down UNLOCK for longer than about 3 seconds opens all power windows and power sliding roof
Answer-back operation	• Hazard warning lights flash once when doors are locked and flash twice when doors are unlocked to indicate that the operation has been completed • The wireless door lock buzzer sounds once when doors are locked and sounds twice when doors are unlocked to indicate that the operation has been completed • When the transmitter is used for opening/closing the power back door or for opening a power window, the buzzer will sound (once for power window, twice for power back door) to indicate that the operation has been completed
Panic alarm operation (w/ Power back door)	Holding down the LOCK for longer than about 3 seconds sets off the theft deterrent alarm (the horn sounds, headlights, taillights and hazard warning lights flash)
Panic alarm operation (w/o Power back door)	Holding down the PANIC sets off the theft deterrent alarm (the horn sounds, headlights, taillights and hazard warning lights flash)
Automatic lock function	If none of the doors is opened within 30 seconds after they are unlocked by the wireless door lock control, all doors will lock again automatically
Illuminated entry function	When all doors are locked, pressing door UNLOCK causes the interior lights to come on simultaneously with unlocking operation
Door ajar warning function	If any door is open or ajar, pressing LOCK will cause the wireless door lock buzzer to sound for about 10 seconds
Transmitter recognition code registration function	Enables registering (writing and storing) of 4 types of transmitter recognition codes in the EEPROM that is built into the body ECU
Self-diagnosis	If there is a malfunction in the system, the body ECU sets a DTC in its memory

Function	Outline
Repeat function	If a door is not locked in response to the locking operation of the transmitter, the body ECU will output a lock signal after 1 second
Security function	Sends an operation signal as a rolling code

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.
- The intelligent tester can be used at steps 4, 5, 8, 11 and 14.

1	VEHICLE BROUGHT TO WORKSHOP

NEXT

2	CUSTOMER PROBLEM ANALYSIS

(a) Interview the customer to confirm the trouble (See page IN-36).

NEXT

3	PROBLEM SYMPTOM CONFIRMATION

NEXT

4	CHECK BODY MULTIPLEX COMMUNICATION SYSTEM

(a) Check for output DTCs (See page MP-20).
HINT:
The ECM of this system is connected to the multiplex communication system. Therefore, before starting troubleshooting, make sure to check that there is no trouble in the multiplex communication system.

→	MULTIPLEX SYSTEM DTC IS OUTPUT: PROCEED TO MULTIPLEX COMMUNICATION SYSTEM
→	NO MULTIPLEX SYSTEM DTC: GO TO STEP 5

5	DTC CLEAR

NEXT

6	PROBLEM SYMPTOM SIMULATION

→ SYMPTOM DOES NOT OCCUR: GO TO STEP 7

→ SYMPTOM OCCURS: GO TO STEP 8

7	SYMPTOM SIMULATION

NEXT

8	DTC CHECK (OTHER THAN MULTIPLEX SYSTEM DTC)

(a) Check for output DTCs (See page DL-78).

→ DTC IS OUTPUT: GO TO STEP 9

→ NO DTC: GO TO STEP 10

9	DTC CHART

NEXT

GO TO STEP 11

10	PROBLEM SYMPTOMS TABLE

NEXT

11	CIRCUIT INSPECTION

NEXT

12	IDENTIFICATION OF PROBLEM

NEXT

13	ADJUSTMENT, REPAIR OR REPLACEMENT

NEXT

14	**CONFIRMATION TEST**

NEXT

END

OPERATION CHECK

1. NOTICE WHEN CHECKING THE FOLLOWING

(a) Power door lock/unlock function:
The wireless door lock control function operates only when the following 3 conditions are met:
(1) No key is inserted in the ignition key cylinder.
(2) All the doors are closed.
(3) The power door lock system operates normally.
HINT:
The unlock function operates even when a door is open.

(b) Power window open and sliding roof (normal type only) open function:
The wireless door lock control function operates only when the following 3 conditions are met:
(1) No key is inserted in the ignition key cylinder.
(2) Any door is unlocked.
(3) The power window system and sliding roof system operate normally.

(c) Power back door open function:
The wireless door lock control function operates only when the following 4 conditions are met:
(1) No key is inserted in the ignition key cylinder.
(2) The power back door OFF switch is ON (switch free: the state in which the switch is pressed).
(3) The back door is between the fully closed position and the half-open position (When the door is in the fully closed position, the door will be unlocked).
(4) The power back door system operates normally.

(d) Power back door close function:
The wireless door lock control function operates only when the following 4 conditions are met:
(1) No key is inserted in the ignition key cylinder.
(2) The power back door OFF switch is ON (switch free: the state in which the switch is pressed).
(3) The back door is between the half-open position and the fully open position.
(4) The power back door system operates normally.

(e) Remote panic function:
The wireless door lock control function operates only when the following condition is met:
(1) The ignition switch is turned off.
HINT:
The key can be inserted, however it must be in the off position.

(f) The wireless door lock control operational area differs depending on the situation.
(1) The operational area differs depending on the user and the ways the transmitter is held.

(2) In certain areas, the remote control function will only operate partially for the operational area, which will be reduced due to the vehicle body shape and the influence of the surrounding environment.

(3) Since the transmitter uses faint radio waves, strong radio waves or noise in the frequency used by the transmitter may reduce the operational area and the remote control may not function.

(4) When the battery is weakened, the operational area is reduced and the remote control may not function.
HINT:
If the door control transmitter 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

HINT:

- The switch described in this text is a switch for transmitting signals. This switch is built into the door control transmitter.
- All the functions listed below must be checked in comparison with the remote control operational area.

(a) Make sure that the vehicle is placed in conditions that allow the wireless control function to be operated.

(b) Check basic functions.

(1) Check whether the LED of the transmitter comes on 3 times when each switch is pressed 3 times.
HINT:
If the LED does not come on when the switch has been pressed 3 times or more, it may have a dead battery.

(2) Check that all the doors lock when LOCK is pressed.

(3) Check that only the driver side door unlocks when UNLOCK is pressed once and that the other doors unlock when UNLOCK is pressed again within 3 seconds.

(4) w/ Power back door:
Check that the power back door opens or closes when PWR DOOR (power back door switch) has been held down for 0.8 seconds or more.

(5) w/ Power back door:
Check that the power back door reverses immediately when PWR DOOR (power back door switch) is pressed again while the door is automatically moving (no delay).

(6) Check that all the power windows and the sliding roof (normal type only) open when UNLOCK has been held down for 2.5 seconds or more and that they stop operation when the switch is released (manual operation).

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

(d) Check the automatic locking function.
(1) Check that all the doors lock automatically as long as none of them has been opened or locked within approx. 30 seconds after they are unlocked by pressing UNLOCK.
(2) Check that the automatic locking function does not operate when any door has been opened or all of them have been locked, within approx. 30 seconds after they are unlocked by pressing UNLOCK.

(e) Check the switch operation fail-safe function.
(1) Check that the doors cannot be locked by the switch while the key is in the ignition key cylinder.
However, this does not apply when the system is in the recognition code registration mode.

(f) Check the operation stop function when a door is open or not completely closed.
(1) Check that the doors are not locked by the switch while any door is open or not completely closed and the wireless door lock buzzer sounds for 10 seconds.

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

(h) Check the hazard warning lights flashing and wireless door lock buzzer sounding functions (answer-back).
(1) When LOCK is pressed, check that the lights flash once and the buzzer sounds once simultaneously with the locking of all the doors.
(2) When UNLOCK is pressed once, check that the lights flash twice and the buzzer sounds twice simultaneously with the unlocking of the driver side door.
(3) When UNLOCK has been pressed again within 3 seconds, check that the lights flash twice and the buzzer sounds twice simultaneously with the unlocking of all the doors.

(4) When UNLOCK is held down for 2.5 seconds or more, check that the buzzer sounds once and all the power windows and the sliding roof (normal type only) start opening.
(5) w/ Power back door:
When PWR DOOR has been held down for 0.8 seconds or more, check that the buzzer sounds twice simultaneously with the operation of the power back door.

(i) Check the illuminated entry function.
(1) When all the doors are locked, pressing UNLOCK causes the interior light (when the switch is in the DOOR position) to come on simultaneously with the unlock operation.
(2) Check that the interior light goes off in approx. 15 seconds if no door has been opened.

(j) Check the remote panic function.
(1) w/ Power back door:
Check that the horn sounds, the headlights and taillights flash for 60 seconds (the theft alarm function) when LOCK (PANIC) is held down for 2.5 seconds or more. Also, check that the horn stops sounding and lights stop flashing when either switch of the transmitter is pressed.
(2) w/o Power back door:
Check that the horn sounds, the headlights and taillights flash for 60 seconds (the theft alarm function) when PANIC is held down for 0.8 seconds or more. Check also that the horn stops sounding and the lights stop flashing when either switch of the transmitter is pressed.

REGISTRATION

HINT:

- Register the recognition code when replacing the door control transmitter or the door control receiver.
- 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.
- Rewrite mode is used to erase all the previously registered recognition codes in order to register all-new recognition codes. This mode is used when the transmitter or the door control receiver is replaced with a new one.
- Confirmation mode is used to confirm how many recognition codes have already been registered before another recognition code is registered.
- Prohibition mode is used to erase all the registered codes and disable the wireless door lock function.
  This mode is used when the transmitter is lost.
- All the following registration procedures must be performed in order.

1. PROCEDURE FOR RECOGNITION CODE REGISTRATION (MANUAL OPERATION:)

(a) Ensure that the following conditions are met:
  (1) No key is in the ignition key cylinder.
  (2) Driver side door is open (Other doors are closed).
  (3) Driver side door is unlocked.

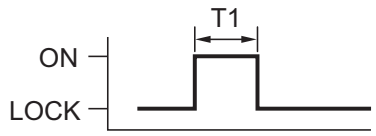
(b) When the above conditions are met, perform the following:
  (1) Insert and remove the key from the ignition key cylinder twice.
  HINT:
  Complete this step within 5 seconds.
  (2) Close and open the driver side door twice.
  (3) Insert and remove the key from the ignition key cylinder.
  HINT:
  Complete this step within 40 seconds.
  (4) Close and open the driver side door twice.
  (5) Insert the key into the ignition key cylinder and close all doors.
  HINT:
  Complete this step within 40 seconds.

(6) Turn the ignition switch from the ON to the LOCK position at approximately 1 second intervals according to the number of times shown below.

Number of ON-LOCK Operations of the Ignition Switch

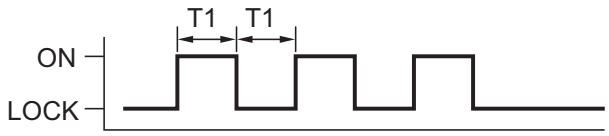
Add Mode:

ON-LOCK operation: 1 time



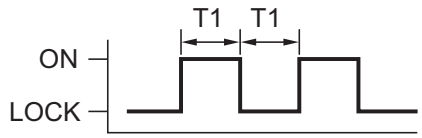
Confirmation Mode:

ON-LOCK operation: 3 times



Rewrite Mode:

ON-LOCK operation: 2 times



Prohibition Mode:

ON-LOCK operation: 5 times

T1: Approx. 1 second

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HINT:
If the number of ON-LOCK operations of the ignition switch 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.

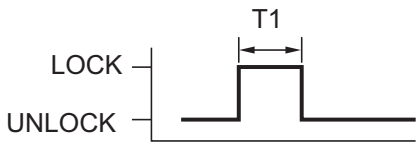
(7) Remove the key from the ignition key cylinder.
HINT:
Complete this step within 40 seconds.

(8) The body ECU automatically performs the power door LOCK-UNLOCK operation within 3 seconds after the mode has been selected and informs the technician of the selected mode using the following response patterns.

Response to a Selected Mode (Power Door Lock Operation)

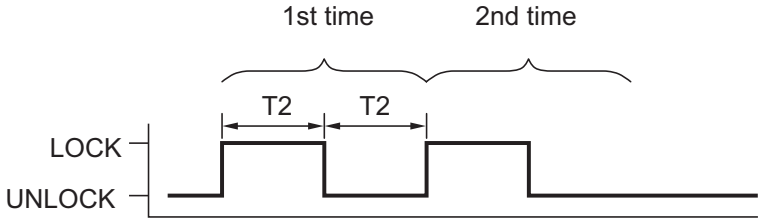
Add Mode:

LOCK-UNLOCK operation: 1 time



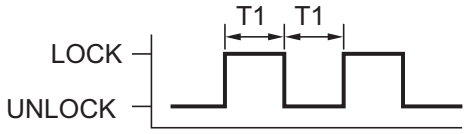
Confirmation Mode:

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



Rewrite Mode:

LOCK-UNLOCK operation: 2 times



Prohibition Mode:

LOCK-UNLOCK operation: 5 times

T1: Approx. 1 second T2: Approx. 2 seconds

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HINT:

- When the confirmation mode or prohibition mode has been selected, the registration procedure will be completed.
- In the confirmation mode, when the LOCK-UNLOCK operation is performed twice, the number of registered recognition codes is 2.
- In the confirmation mode, when 0 codes are registered, the LOCK-UNLOCK operation is automatically performed 5 times.

(c) Registration of the door control transmitter.

(1) If the add mode or rewrite mode has been selected, press LOCK and UNLOCK on the transmitter simultaneously.

(2) Press either of the switches on the door control transmitter again.

HINT:

- Switches must be pressed for at least 1 second each time. The second operation must be performed within 3 seconds after the first operation.

DL

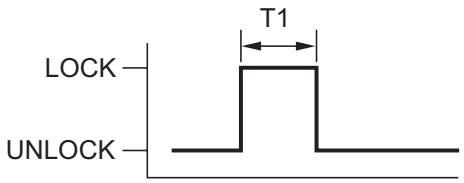
- A recognition code must be registered in the door control transmitter within 40 seconds after a selected mode is responded to.

(3) The body ECU automatically performs the power door LOCK-UNLOCK operation within 3 seconds after the switch on the door control transmitter is turned off, in order to indicate whether registration has been completed correctly or not.

Response to Registration Completion

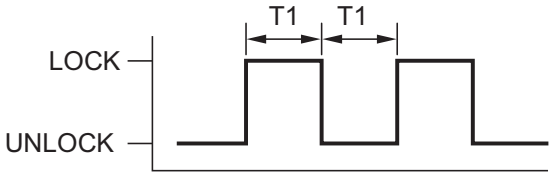
LOCK-UNLOCK Occurs Once:

Registration of recognition code has been completed.



LOCK-UNLOCK Occurs Twice:

Registration of recognition code has failed.



T1: Approx. 1 second

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HINT:
If the LOCK-UNLOCK operation is performed twice, registration of the recognition code has failed. Perform registration procedures from the beginning once again.

(4) If registration is continued, the next recognition code must be registered in the door control transmitter within 40 seconds.
HINT:
Up to four recognition codes can be registered.

(d) Completing the registration mode.
(1) The registration mode will cease when any of the following occurs:
- 40 seconds or more have elapsed after a previous registration mode is input.
- Any of the doors is opened.
- The key is inserted into the ignition key cylinder.

(e) Perform the following after registration is completed.
(1) Perform the wireless door lock control operation check (See page DL-63).
HINT:
If the wireless door lock control does not operate, perform the registration procedure again.

2. PROCEDURE FOR RECOGNITION CODE REGISTRATION (USING INTELLIGENT TESTER:)

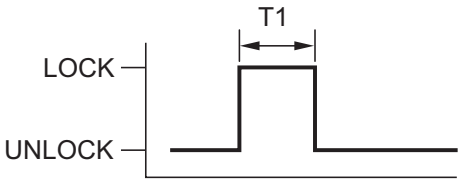
(a) Turn the ignition switch to the ON position.

(b) Select the add or rewrite mode according to the intelligent tester display.
(c) The number of registered codes is indicated.
(d) Registration of the door control transmitter.
  (1) If the add mode or rewrite mode has been selected, press LOCK and UNLOCK on the transmitter simultaneously.
  (2) Press either of the switches on the door control transmitter again.
  HINT:
  Switches must be pressed for at least 1 second each time. The second operation must be performed within 3 seconds after the first operation.
  (3) The body ECU automatically performs the power door LOCK-UNLOCK operation after the switch on the door control transmitter is turned off, in order to indicate whether registration has been completed correctly or not.

Response to Registration Completion

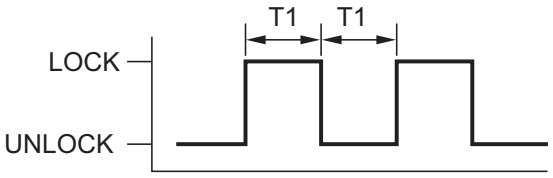
LOCK-UNLOCK Occurs Once:

Registration of recognition code has been completed.



LOCK-UNLOCK Occurs Twice:

Registration of recognition code has failed.



T1: Approx. 1 second

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  HINT:
  If the LOCK-UNLOCK operation is performed twice, registration of the recognition code has failed. Perform registration procedures from the beginning once again.
  (4) If registration is continued, the next recognition code must be registered in the door control transmitter within 40 seconds.
  HINT:
  Up to four recognition codes can be registered.
(e) Completing the registration mode.
  (1) The registration mode will cease when any of the following occurs:
    • 40 seconds or more have elapsed after a previous registration mode is input.
    • The intelligent tester is used to order completion.
    • The intelligent tester is disconnected.

(f) Perform the following after registration is completed.
(1) Perform the wireless door lock control operation check (See page DL-63).
HINT:
If the wireless door lock control does not operate, perform the registration procedure again.

CUSTOMIZE PARAMETERS

HINT:
The following items 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.**

Display (Item)	Default	Contents	Setting
OPEN DOOR WARN (Open door warning)	ON	If a door is not completely closed and LOCK is pressed, this function sounds a buzzer for 10 seconds.	ON / OFF
WIRLS BUZZ RESP (Buzzer answer-back of Wireless)	ON	This function makes the wireless door lock buzzer sound for answer-back when LOCK/ UNLOCK is pressed.	ON / OFF
WIRELESS OPER (Wireless door lock control function)	ON	This function turns the wireless door lock function on or off.	ON / OFF
ALARM FUNCTION (Panic function)	ON	This function operates the theft deterrent system when PANIC is pressed and held for 0.8 (*1) or 2.5 (*2) seconds.	ON / OFF
UNLOCK/2OPER (Wireless unlock operated twice)	ON	This function unlocks the driver side door when UNLOCK is pressed once, and unlocks all doors when pressed twice. If set to OFF, pressing UNLOCK once unlocks all doors.	ON / OFF
AUTO LOCK DELAY (Auto lock time)	30 s	This function controls the amount of time from unlocking doors to automatic re-locking.	30 s / 60 s
HAZARD ANS BACK (Hazards answer-back for wireless door lock operation)	ON	When LOCK is pressed, all hazard warning lights flash once. When UNLOCK is pressed, all hazard warning lights flash twice.	ON / OFF

HINT:

- (*1): w/ Power Back Door
- (*2): w/o Power Back Door

PROBLEM SYMPTOMS TABLE

HINT:
Inspect the fuse and relay before investigating the suspected areas shown in the table below.

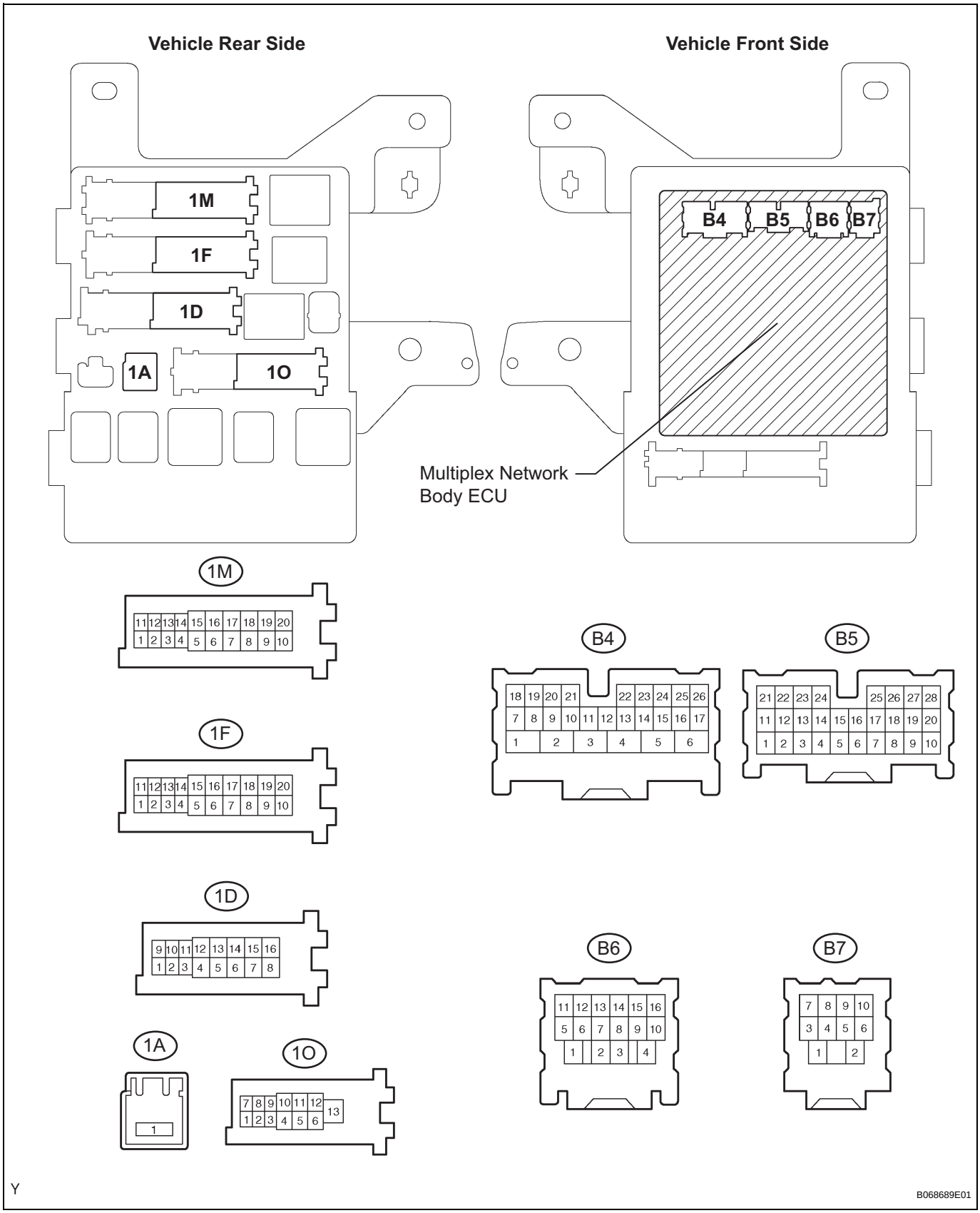
WIRELESS DOOR LOCK CONTROL SYSTEM:

Symptom	Suspected area	See page
Only wireless control function is inoperative	1. Transmitter battery	DL-84
	2. Door control transmitter	DL-84
	3. Door control receiver	DL-84
	4. Unlock warning switch	DL-84
	5. Wire harness	DL-84
	6. Multiplex network body ECU	DL-84
	7. Instrument panel J/B	DL-84
No answer-back (Hazard warning light and wireless door lock buzzer)	1. Wireless door lock buzzer	DL-93
	2. Lighting system	DL-93
	3. Wire harness	DL-93
	4. Multiplex network body ECU	DL-93

TERMINALS OF ECU

1. INSTRUMENT PANEL JUNCTION BLOCK (MULTIPLEX NETWORK BODY ECU)

(a) Disconnect the instrument panel J/B and multiplex network body ECU connectors.


Vehicle Rear Side
Vehicle Front Side
1M
1F
1D
1A
1O
B4
B5
B6
B7
Multiplex Network
Body ECU
1M
11 12 13 14 15 16 17 18 19 20
1 2 3 4 5 6 7 8 9 10
1F
11 12 13 14 15 16 17 18 19 20
1 2 3 4 5 6 7 8 9 10
1D
9 10 11 12 13 14 15 16
1 2 3 4 5 6 7 8
1A
1
1O
7 8 9 10 11 12 13
1 2 3 4 5 6
B4
18 19 20 21 22 23 24 25 26
7 8 9 10 11 12 13 14 15 16 17
1 2 3 4 5 6
B5
21 22 23 24 25 26 27 28
11 12 13 14 15 16 17 18 19 20
1 2 3 4 5 6 7 8 9 10
B6
11 12 13 14 15 16
5 6 7 8 9 10
1 2 3 4
B7
7 8 9 10
3 4 5 6
1 2
Y
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(b) Check the voltage or resistance according to the value(s) in the table below (wire harness side connector).

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
BATB (1A-1) - Body ground	W*1 - Body ground	+B (power system, generator system) power supply	Always	10 to 14 V
BATB (1A-1) - Body ground	B*2 - Body ground	+B (power system, generator system) power supply	Always	10 to 14 V
BECU (1D-10) - Body ground	L-B - Body ground	+B (BECU) power supply	Always	10 to 14 V
ALTB (1D-16) - Body ground	W - Body ground	+B (power system, generator system) power supply	Always	10 to 14 V
GND1 (1F-10) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
GND2 (1M-9) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
LCTY (1O-7) - Body ground	B - Body ground	Rear courtesy light switch LH input	Rear door LH closed → opened	10 kΩ or higher → Below 1 Ω
KSW (B4-21) - Body ground	B - Body ground	Unlock warning switch input	No key in ignition key cylinder → key inserted	10 kΩ or higher → Below 1 Ω
PCTY (B5-23) - Body ground	L - Body ground	Passenger side courtesy light switch input	Passenger side door closed → opened	10 kΩ or higher → Below 1 Ω
BCTY (B5-25) - Body ground	P - Body ground	Back door courtesy light switch input	Back door closed → opened	10 kΩ or higher → Below 1 Ω
DCTY (B6-14) - Body ground	L - Body ground	Driver side courtesy light switch input	Driver side door closed → opened	10 kΩ or higher → Below 1 Ω
RCTY (B6-16) - Body ground	GR - Body ground	Rear courtesy light switch RH input	Rear door RH closed → opened	10 kΩ or higher → Below 1 Ω

HINT:

- *1: w/ Air suspension system
- *2: w/o Air suspension system
- If the result is not as specified, there may be a malfunction on the wire harness side.

(c) Reconnect the instrument panel J/B and multiplex network body ECU connectors.

(d) Check the voltage according to the value(s) in the table below (ECU side connector).

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
HAZ (B4-2) - Body ground	Y - Body ground	Hazard warning light signal	Answer-back OFF → answer-back ON	10 to 14 V → Pulse generation
KSW (B4-21) - Body ground	B - Body ground	Unlock warning switch input	No key in the ignition key cylinder → key inserted	10 to 14 V → 0 V
BZR (B7-2) - Body ground	W - Body ground	Wireless door lock buzzer	Wireless door lock buzzer OFF → ON	0 V → Pulse generation
RDA (B6-12) - Body ground	LG - Body ground	Door control receiver input	No key in ignition key cylinder, all doors closed and transmitter switch OFF → ON	Below 1 V → Approx. 6 to 7 → Below 1 V

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

DL

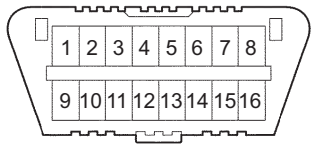
DIAGNOSIS SYSTEM

1. DESCRIPTION

The ECM stores trouble codes when trouble occurs on the vehicle.
The diagnostic system allows for reading of the trouble codes from the DLC3.
Use the intelligent tester or SST to check and solve the problem.

2. CHECK DLC3

(a) The vehicle's ECM uses ISO 9141-2 for communication.
The terminal arrangement of the DLC3 complies with SAE J1962 and matches the ISO 9141-2 format.



DLC3

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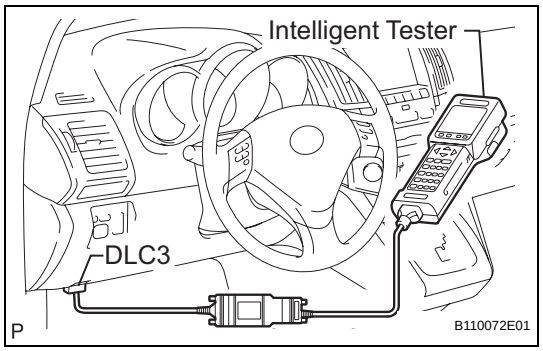
Symbols (Terminal No.)	Terminal Description	Condition	Specified Condition
SIL (7) - SG (5)	Bus "+" line	During transmission	Pulse generation
CG (4) - Body ground	Chassis ground	Always	Below 1 Ω
SG (5) - Body ground	Signal ground	Always	Below 1 Ω
BAT (16) - Body ground	Battery positive	Always	11 to 14 V
CANH (6) - CANL (14)	HIGH-level CAN bus line	Ignition switch OFF	54 to 67 Ω
CANH (6) - Battery positive	HIGH-level CAN bus line	Ignition switch OFF	1 MΩ or higher
CANH (6) - CG (4)	HIGH-level CAN bus line	Ignition switch OFF	3 kΩ or higher
CANL (14) - Battery positive	LOW-level CAN bus line	Ignition switch OFF	1 MΩ or higher
CANL (14) - CG (4)	LOW-level CAN bus line	Ignition switch OFF	3 kΩ or higher

HINT:
If the display shows a communication error message after connecting the intelligent tester to the DLC3 and turning the ignition switch to the ON position, there is a problem with either the vehicle or the tool (intelligent tester only).

- If communication is normal when the tester is connected to another vehicle, inspect the DLC3 on 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 operator's manual.



DTC CHECK / CLEAR

1. DTC CHECK/CLEAR (USING INTELLIGENT TESTER:)

(a) DTC check
  (1) Connect the intelligent tester to the DLC3.
  (2) Turn the ignition switch to the ON position.
  (3) Read the DTCs on the tester screen.

(b) DTC clear
  (1) Connect the intelligent tester to the DLC3.
  (2) Turn the ignition switch to the ON position.
  (3) Clear the DTCs following the prompts on the tester screen.
  HINT:
  Refer to the intelligent tester operator's manual for further details.

DATA LIST / ACTIVE TEST

1. DATA LIST

(a) The wireless door lock control data list can be displayed while the intelligent tester is connected to the DLC3 with the ignition switch in the ON position. Follow the prompts on the tester screen to access the DATA LIST.

BODY:

Item (Display)	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
IG SW	Ignition switch signal / ON or OFF	ON: Ignition switch ON or START OFF: Ignition switch OFF or ACC	-
KEY UNLK WRN SW	Unlock warning switch / ON or OFF	ON: Ignition key is inserted OFF: Ignition key is not inserted	-
WIRELESS OPER	Wireless door lock control function / ON or OFF	ON: Operates OFF: Does not operate	-
HAZARD ANS BACK	Hazard answer-back of wireless / ON or OFF	ON: Operates OFF: Does not operate	-
OPEN DOOR WARN	Open door warning / ON or OFF	ON: Operates OFF: Does not operate	-
AUTO LOCK DELAY	Automatic lock time / 60 s or 30 s	60 s: 60 seconds 30 s: 30 seconds	-
UNLOCK/2 OPER	2 times operation of wireless unlock / ON or OFF	ON: All doors unlock when UNLOCK pressed twice OFF: All doors unlock when UNLOCK pressed once	-
ALARM FUNCTION	Panic function / ON or OFF	ON: Operates OFF: Does not operate	-
WIRLS BUZZ RESP	Wireless door lock buzzer response / ON or OFF	ON: Operates OFF: Does not operate	-

DL

2. ACTIVE TEST

HINT:

Performing the ACTIVE TEST using the intelligent tester allows components such as the relay, VSV and actuator to operate without removing parts. Performing the ACTIVE TEST as the first step in troubleshooting is one way to shorten labor time.

It is possible to display the DATA LIST during the ACTIVE TEST.

(a) Connect the intelligent tester to the DLC3.

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

(c) According to the display on the tester, preform the ACTIVE TEST.

HINT:

The ignition switch must be turned to the ON position to proceed with the ACTIVE TEST using the intelligent tester.

BODY:

Item (Display)	Vehicle Condition / Test Details	Diagnostic Note
HAZARD	Turns turn signal flasher relay ON / OFF	-
BUZZ RESP SOUND	Turns wireless door lock buzzer ON / OFF	-

DIAGNOSTIC TROUBLE CODE CHART

HINT:

- If a trouble code is displayed during the DTC check, inspect the circuit listed for that code. For details of the code, refer to the "See page" in the DTC chart.
- Inspect the fuse and relay before investigating the suspected areas shown in the table below.

WIRELESS DOOR LOCK CONTROL SYSTEM:

DTC No.	Detection Item	Suspected Area	See page
B1242	Wireless Door Lock Tuner Circuit Malfunction	1. Wire harness 2. Door control receiver 3. Instrument panel J/B (Multiplex network body ECU)	DL-80

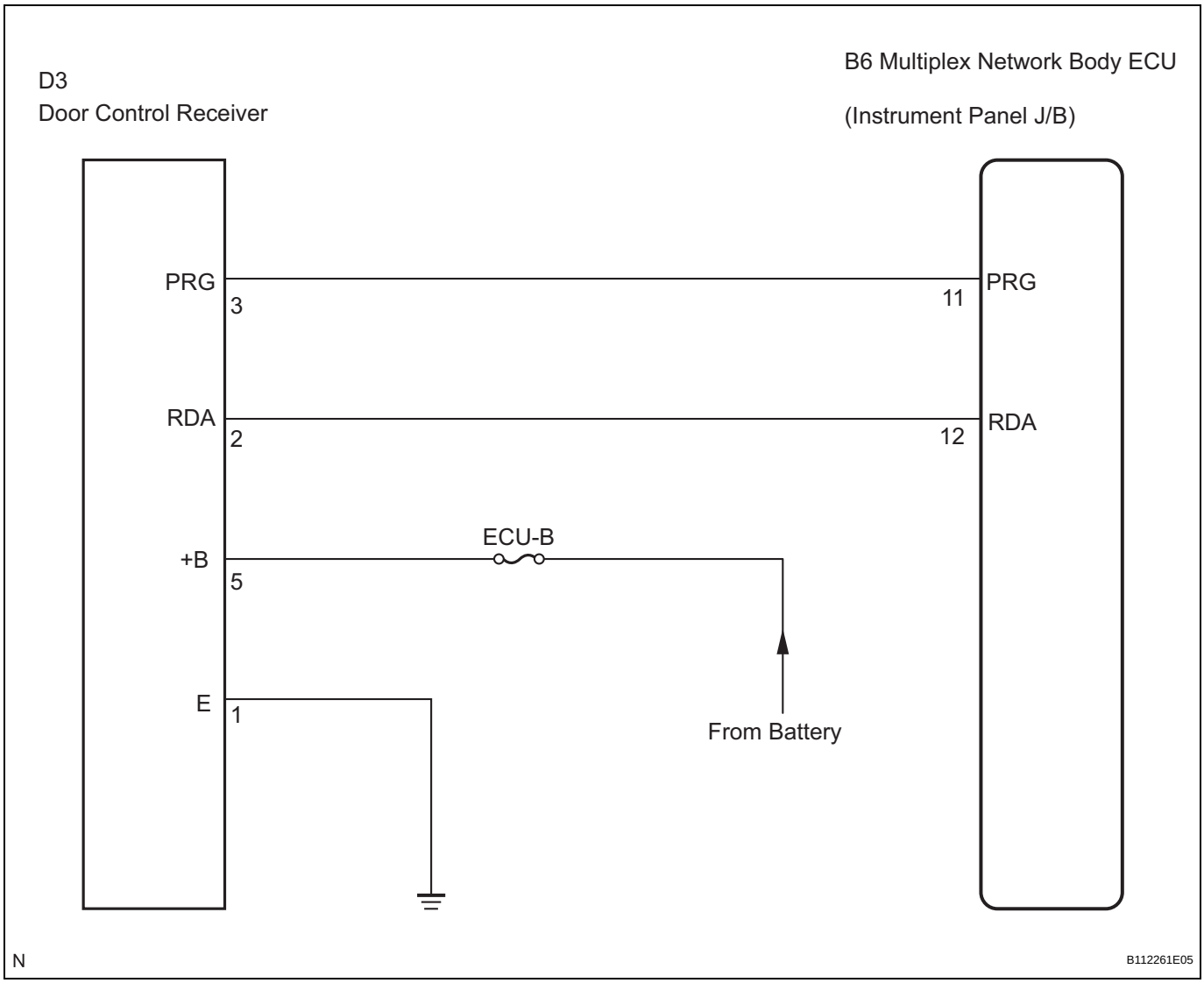
DTC	B1242	Wireless Door Lock Tuner Circuit Malfunction

DESCRIPTION

When a RDA signal is not input to the door control receiver within 1 second after the multiplex network body ECU outputs a PRG signal, this DTC is set.

DTC No.	DTC Detection Condition	Suspected 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	• Wire harness • Door control receiver • Multiplex network body ECU

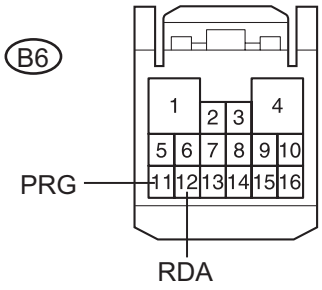
WIRING DIAGRAM



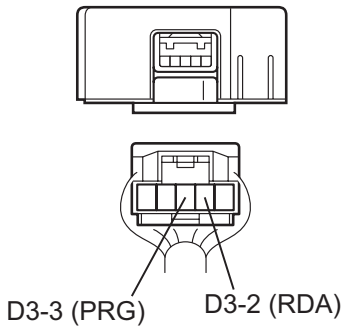
DL

1	**CHECK HARNESS AND CONNECTOR (MULTIPLEX NETWORK BODY ECU - DOOR CONTROL RECEIVER)**

Multiplex Network Body ECU (Wire Harness Side) Connector Front View:



Door Control Receiver Wire Harness View:



N

B110073E01

(a) Disconnect the multiplex network body ECU (B6) connector and door control receiver connector.

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

Resistance

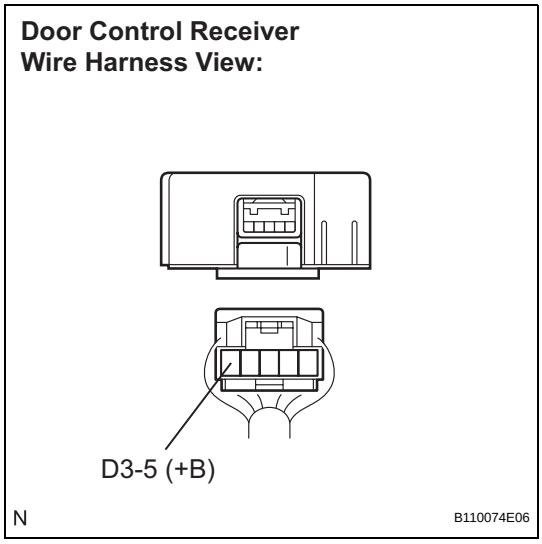
Tester Connection	Condition	Specified Condition
B6-11 (PRG) - D3-3 (PRG)	Always	Below 1 Ω
B6-11 (PRG) - Body ground	Always	10 kΩ or higher
B6-12 (RDA) - D3-2 (RDA)	Always	Below 1 Ω
B6-12 (RDA) - Body ground	Always	10 kΩ or higher

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

OK

DL

2 INSPECT DOOR CONTROL RECEIVER (+B TERMINAL)



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

Voltage

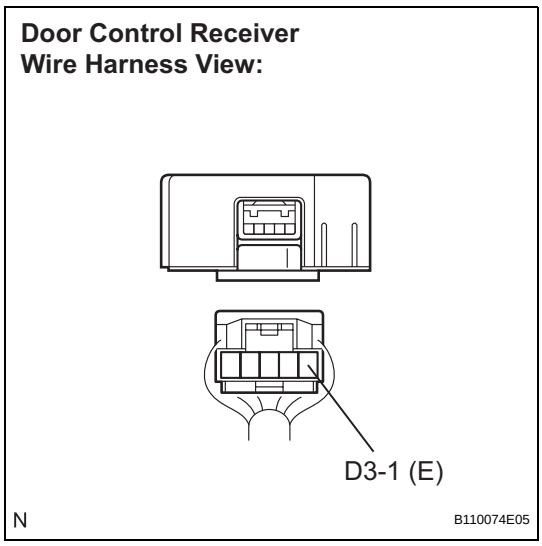
Tester Connection	Condition	Specified Condition
D3-5 (+B) - Body ground	Always	10 to 14 V

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR (+B CIRCUIT)**

OK

3 INSPECT DOOR CONTROL RECEIVER (E TERMINAL)

DL



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

Resistance

Tester Connection	Condition	Specified Condition
D3-1 (E) - Body ground	Always	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR (E CIRCUIT)**

OK

4 REPLACE DOOR CONTROL RECEIVER

(a) Reconnect the multiplex network body ECU connector.
(b) Replace the door control receiver.
(c) Perform the REGISTRATION procedures (See page DL-66).

HINT:
If there is a new door control receiver or one functioning normally available, connect it and check if the wireless door lock function is normal or the DTC is output. If the alternative receiver functions normally, replace the original door control receiver.

NEXT

5	RECHECK DTC

(a) Clear the DTC (See page DL-78).
(b) Check if the same DTC is detected.
HINT:
Reinstall the sensors, connector, etc. and restore the vehicle to its previous condition before rechecking for DTCs.

Result

Condition	Proceed To
DTC (B1242) is output	A
DTC (B1242) is not output	B

B → END

A

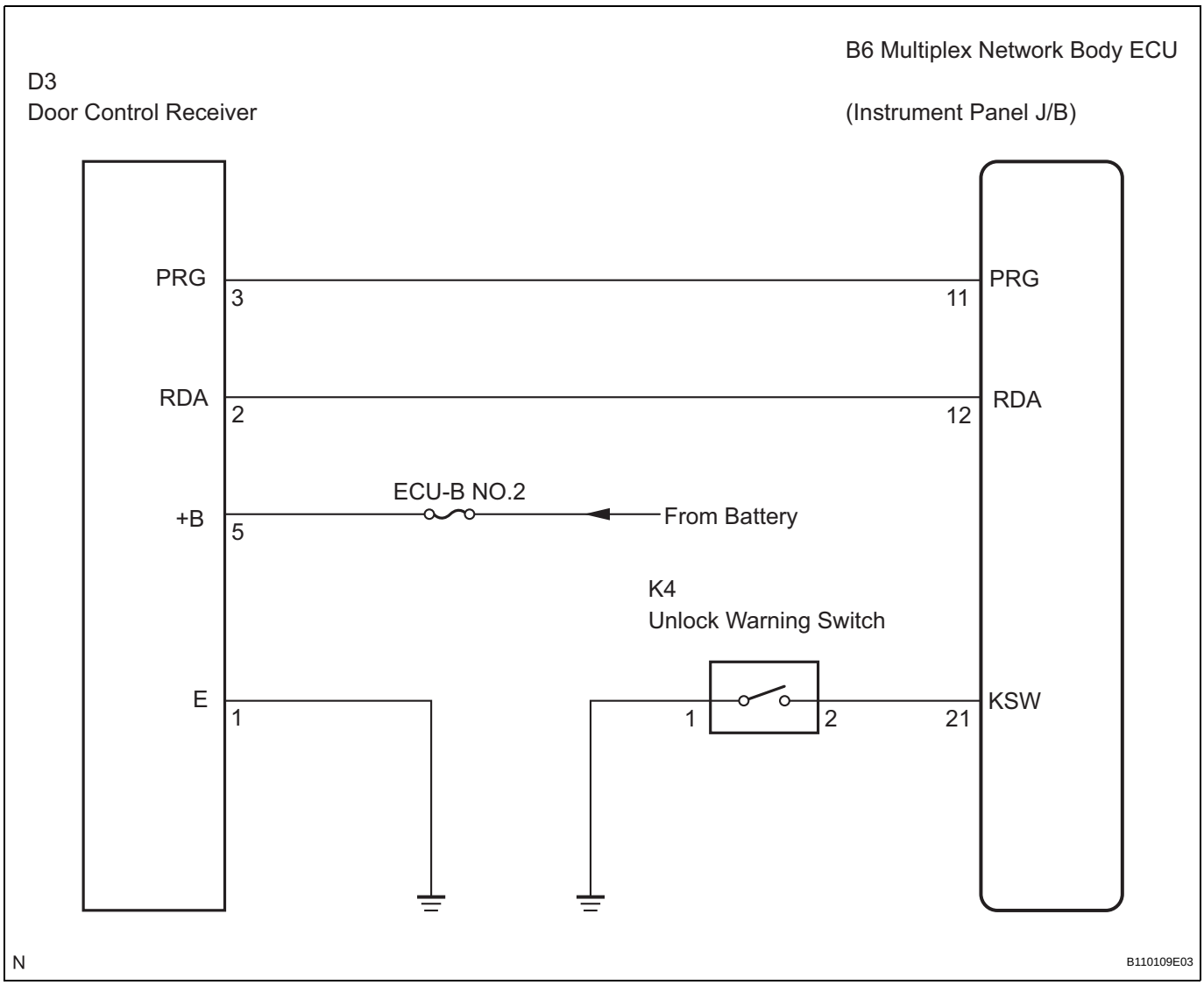
REPLACE MULTIPLEX NETWORK BODY ECU

Only Wireless Control Function is Inoperative

DESCRIPTION

The door control receiver receives a signal from the transmitter and sends this signal to the multiplex network body ECU. The multiplex network body ECU then controls operation of the door locks, power windows and sliding roof. The power back door ECU also causes the power back door to open or close when it receives a signal from the transmitter via the door control receiver and multiplex network body ECU.

WIRING DIAGRAM



1	CHECK WIRELESS DOOR LOCK CONTROL FUNCTION

(a) Check the wireless door lock control system (See page DL-63).

NG	Go to step 2

OK

END

2	CHECK DOOR CONTROL TRANSMITTER (LED)

(a) Check that the door control transmitter's LED comes on 3 times when the switch is pressed 3 times.
OK:
The door control transmitter's LED comes on 3 times when the switch is pressed 3 times.

NG → **Go to step 8**

OK

3	CHECK WIRELESS DOOR LOCK CONTROL FUNCTION (NORMAL OPERATION)

(a) Check that UNLOCK-LOCK operates in normal operation.
HINT:
Standardized test procedure: Press the transmitter switch for 1 second, directing the beam to the driver's door outside handle from a distance of 1 m (3.28 ft). The transmitter should be pointed directly at the door handle, i.e. at 90° angle to the vehicle body.

NG → **REPLACE TRANSMITTER SUB-ASSEMBLY MODULE SET DOOR CONTROL**

OK

4	CHECK WIRELESS DOOR LOCK BUZZER

(a) Check if the wireless door lock buzzer sounds.

Result

Condition	Proceed To
Buzzer sounds	A
Buzzer does not sound	Go to "No Answer-Back (Hazard Warning Light and Wireless Door Lock Buzzer)" (See page DL-93)

A

5	SWITCH TO SELF-DIAGNOSTIC MODE

(a) Switch to self-diagnostic mode using the intelligent tester.
(1) Connect the intelligent tester to the DLC3.
(2) Turn the ignition switch to the ON position and turn the intelligent tester main switch on.

HINT:
Refer to the intelligent tester operator's manual for further details.

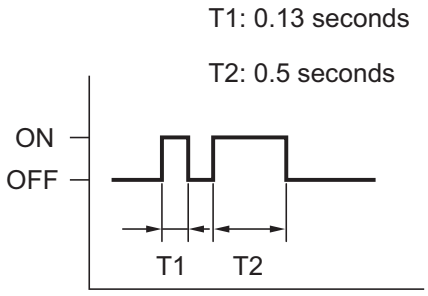
(b) Switch to self-diagnostic mode by performing the following:
(1) Put the vehicle under the initial condition (See page DL-63). (Procedure "A")
(2) Insert the key into the ignition key cylinder and remove it. (Procedure "B")
(3) Within 5 seconds after the key is removed, insert the key into the ignition key cylinder again. (Procedure "C")
(4) Turn the ignition switch to the ON position and turn it back to the LOCK position. (Procedure "D")
(5) Within 30 seconds of turning the ignition switch off again, perform the following 9 times: Turn the ignition switch to the ON position and turn it back to the LOCK position. (Procedure "E")
HINT:
- Turning the ignition switch to the ON position after Procedure "E" has been completed will end the self-diagnostic mode.
- Do not lock or unlock doors during the self-diagnostic mode.

NOTICE:
If the self-diagnostic mode cannot be achieved, the system will return to normal mode.

DL

(c) Check that the system has switched to self-diagnostic mode by checking the sound of the wireless door lock buzzer.
OK:
The sound pattern of the wireless door lock buzzer should be the same as the patterns shown in the timing chart on the left.

Buzzer Output:



NG → **Go to step 10**

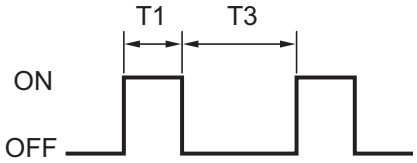
OK

6	CHECK BY SELF-DIAGNOSTIC MODE

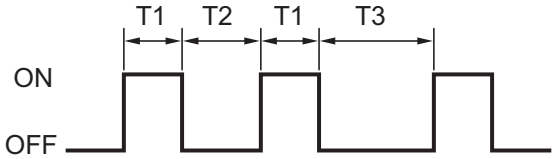
(a) Check the diagnostic outputs when the door control transmitter switch is held down. The diagnostic outputs can be checked by the sound of the wireless door lock buzzer.

Buzzer Output:

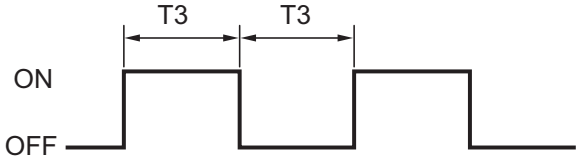
Normal Wave (LOCK Switch):



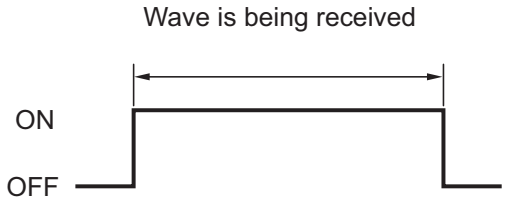
Normal Wave (UNLOCK Switch):



Normal Wave (PANIC Switch or PWR DOOR Switch):



Unmatched Recognition Code:



No Diagnostic Output:

T1: 0.13 seconds

T2: 0.25 seconds

T3: 0.5 seconds

N

B110076E03

DL

Result

Condition	Proceed To
Unmatched recognition code is output	A
Normal waves patterns from the wireless door lock buzzer are output for LOCK, UNLOCK, PANIC and PWR DOOR	B
No diagnostic outputs are recorded	C

B → REPLACE INSTRUMENT PANEL J/B

C → Go to step 9

A

7 REGISTER RECOGNITION CODE

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

OK:

The system can switch to the rewrite mode or add mode, and a recognition code can be registered.

NG → Go to step 17

OK

END

8	CHECK TRANSMITTER BATTERY

(a) Replace the existing battery with a new or normally functioning one and check that the transmitter LED comes on 3 times when the switch is pressed 3 times.

NG → REPLACE TRANSMITTER SUB-ASSEMBLY MODULE SET DOOR CONTROL

OK

REPLACE TRANSMITTER BATTERY

9	CHECK DOOR CONTROL RECEIVER

(a) Press and hold down any switch on a new or normal door control transmitter for the same vehicle type and check that an unmatched recognition code is output.
OK:
Unmatched recognition code is output.

NG → Go to step 14

OK

REPLACE TRANSMITTER SUB-ASSEMBLY MODULE SET DOOR CONTROL

10	CONFIRM INPUT METHOD FOR SELF-DIAGNOSTIC MODE

(a) Confirm input method for self-diagnostic mode.

Result

Condition	Proceed To
Method for changing system self-diagnostic mode works	A
Method for changing system self-diagnostic mode does not work	B

B → Go to step 5

A

11	READ VALUE OF INTELLIGENT TESTER (UNLOCK WARNING SWITCH)

(a) Connect the intelligent tester to the DLC3.

(b) Turn the ignition switch to the ON position and turn the intelligent tester main switch on.
(c) Select the item below in the DATA LIST and read the display on the intelligent tester.

BODY:

Item (Display)	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
KEY UNLK WRN SW	Unlock warning switch / ON or OFF	ON: Ignition key is inserted OFF: Ignition key is not inserted	-

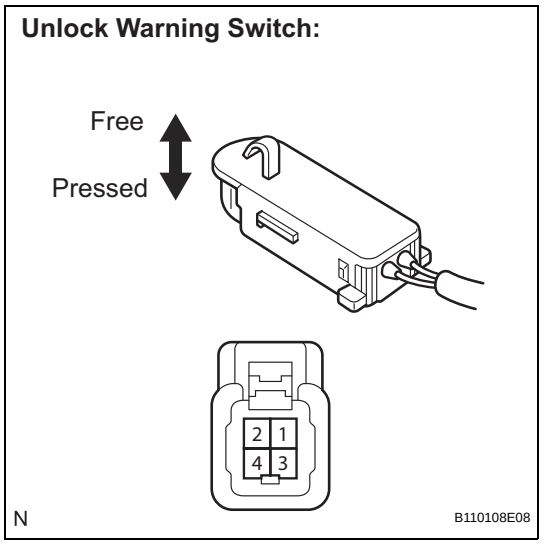
OK:
When the ignition key is operated, the display changes as shown above.

OK → **Go to step 14**

NG

12 INSPECT UNLOCK WARNING SWITCH

Unlock Warning Switch:



(a) Disconnect the unlock warning switch connector.
(b) Measure the resistance according to the value(s) in the table below.
Standard resistance

Tester Connection	Condition	Specified Condition
1 - 2	Switch pressed (Key set)	Below 1 Ω
1 - 2	Switch free (Key removed)	10 kΩ or higher

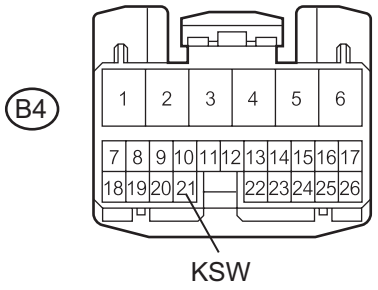
NG → **REPLACE UNLOCK WARNING SWITCH**

OK

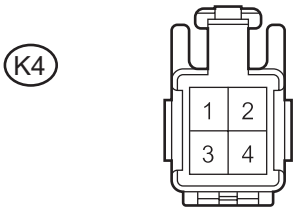
DL

13	CHECK HARNESS AND CONNECTOR (MULTIPLEX NETWORK BODY ECU - UNLOCK WARNING SWITCH)

Multiplex Network Body ECU (Wire Harness Side) Connector Front View:



Unlock Warning Switch (Wire Harness Side) Connector Front View:



H

B110078E02

(a) Disconnect the multiplex network body ECU (B4) connector.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

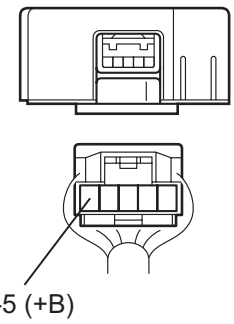
Tester Connection	Condition	Specified Condition
B4-21 (KSW) - K4-2	Always	Below 1 Ω
B4-21 (KSW) - Body ground	Always	10 kΩor higher
K4-1 - Body ground	Always	Below 1 Ω

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

OK

14	INSPECT DOOR CONTROL RECEIVER (+B TERMINAL)

Door Control Receiver Wire Harness View:



N

B110074E06

(a) Disconnect the door control receiver connector.
(b) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester Connection	Condition	Specified Condition
D3-5 (+B) - Body ground	Always	10 to 14 V

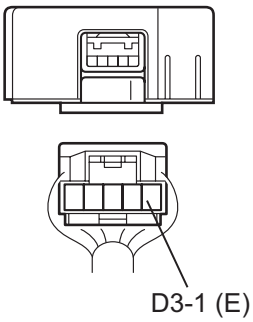
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR (+B CIRCUIT)**

DL

OK

15	INSPECT DOOR CONTROL RECEIVER (E TERMINAL)

Door Control Receiver
Wire Harness View:



N B110074E07

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

Standard resistance

Tester Connection	Condition	Specified Condition
D3-1 (E) - Body ground	Always	Below 1 Ω

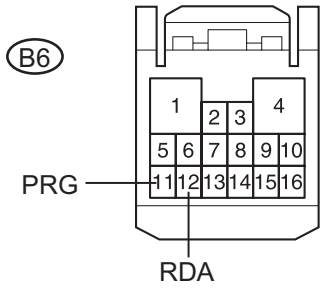
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR (E CIRCUIT)**

OK

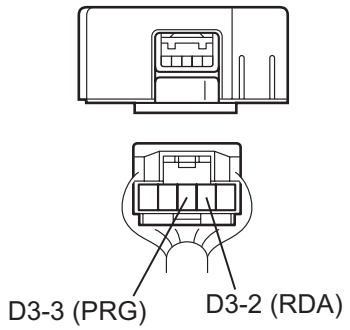
DL

16	CHECK HARNESS AND CONNECTOR (MULTIPLEX NETWORK BODY ECU - DOOR CONTROL RECEIVER)

Multiplex Network Body ECU (Wire Harness Side) Connector Front View:



Door Control Receiver Wire Harness View:



N

B110073E01

(a) Disconnect the multiplex network body ECU (B6) connector.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
B6-11 (PRG) - D3-3 (PRG)	Always	Below 1 Ω
B6-11 (PRG) - Body ground	Always	10 kΩor higher
B6-12 (RDA) - D3-2 (RDA)	Always	Below 1 Ω
B6-12 (RDA) - Body ground	Always	10 kΩor higher

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

OK

17	REPLACE DOOR CONTROL RECEIVER

(a) Replace the door control receiver with normal one.
OK:
The system returns to normal operation.

NG → **REPLACE INSTRUMENT PANEL J/B**

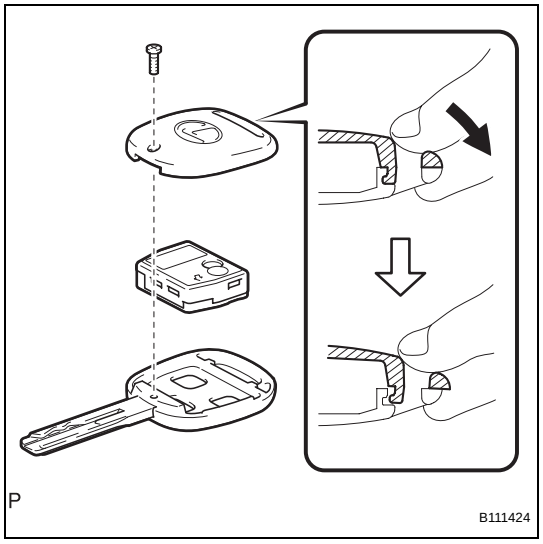
OK

REPLACE DOOR CONTROL RECEIVER

DL

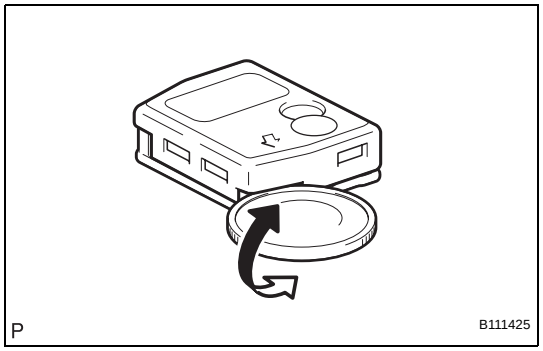
TRANSMITTER BATTERY

REPLACEMENT



1. REMOVE TRANSMITTER BATTERY

(a) Remove the cover.

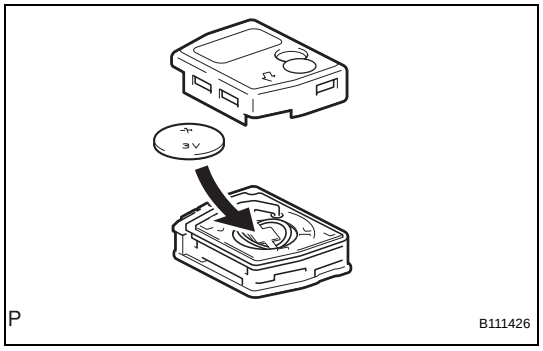


(b) Using a coin, or other flat object, pry open the transmitter cover.

(c) Remove the transmitter battery (lithium battery).

NOTICE:

- **Do not push the terminals with your finger.**
- **Forcibly prying up the battery (lithium battery) to remove it will deform the terminals.**
- **Do not touch the battery with wet hands. Water may cause rust.**
- **Do not touch or move any components inside the transmitter because handling the components may interfere with proper operation of the transmitter.**



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 correctly.**
- **Be careful not to bend the terminals of the transmitter battery during installation.**
- **Be careful that dust and oil do not come into contact with the transmitter case.**

(b) Install the cover.

NOTICE:

If the screws are loose, it may cause faulty contact between the battery (lithium battery) and the terminals.

DL

No Answer-Back (Hazard Warning Light and Wireless Door Lock Buzzer)

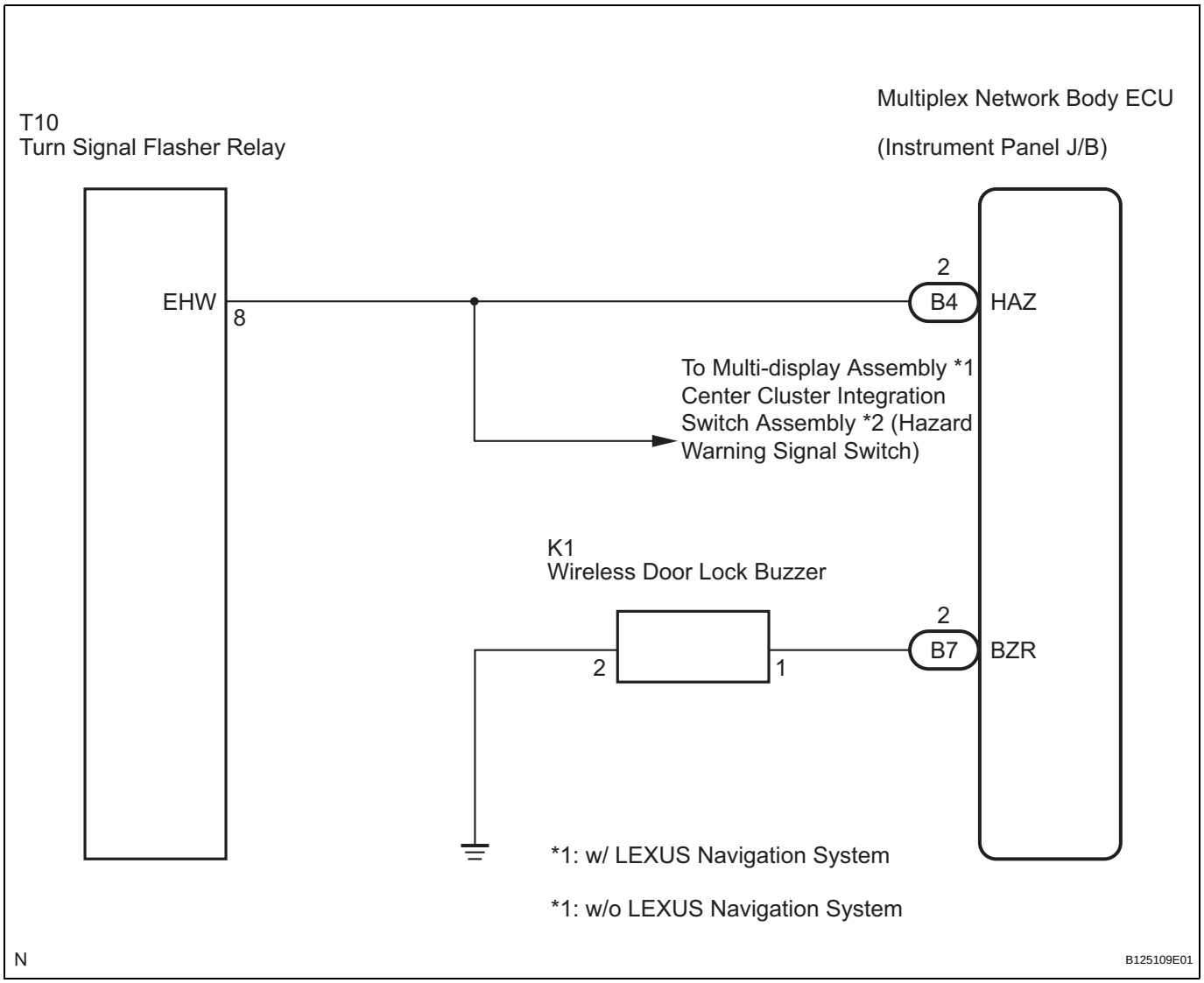
DESCRIPTION

If there is no answer-back of the hazard warning lights and wireless door lock buzzer while the wireless control function is operating normally, the hazard light signal and the wireless door lock buzzer signal output from the multiplex network body ECU may be malfunctioning.

NOTICE:

Confirm that the answer-back function has been switched on as a result of customization before starting troubleshooting.

WIRING DIAGRAM



DL

1	CHECK WIRELESS DOOR LOCK FUNCTION

(a) Check that the wireless door lock functions operate when the transmitter is used (See page DL-63).

Result

Condition	Proceed To
Wireless door lock functions operate normally but hazard warning light answer-back does not occur	A
Wireless door lock functions operate normally but wireless door lock buzzer answer-back does not occur	B
Wireless door lock functions do not operate	Go to "Only Wireless Control Function is Inoperative" (See page DL-84)

B → Go to step 4

A

2 PERFORM ACTIVE TEST BY INTELLIGENT TESTER (HAZARD WARNING LIGHT)

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch to the ON position and turn the intelligent tester main switch on.
(c) Select the ACTIVE TEST mode on the intelligent tester.

BODY:

Item (Display)	Vehicle Condition / Test Details	Diagnostic Note
HAZARD	Turns the turn signal flasher relay ON / OFF	Observe headlight and rear combination light for correct operation

(d) Check that "ON" and "OFF" of the hazard warning lights on the headlight and rear combination light turn on and off when the intelligent tester is used.
OK:
The hazard warning lights turn on or off in accordance with commands of the intelligent tester.

NG → Go to step 3

OK

REPLACE INSTRUMENT PANEL J/B

3 CHECK HAZARD WARNING LIGHTS

(a) Check that the hazard warning lights flash continuously when the hazard warning light switch is pressed.
OK:
Hazard warning lights flash continuously.

NG → **INSPECT LIGHTING SYSTEM**

OK

REPLACE INSTRUMENT PANEL J/B

4	PERFORM ACTIVE TEST BY INTELLIGENT TESTER (WIRELESS DOOR LOCK BUZZER)

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch to the ON position and turn the intelligent tester main switch on.
(c) Select the ACTIVE TEST mode on the intelligent tester.

BODY:

Item (Display)	Vehicle Condition / Test Details	Diagnostic Note
BUZZ RESP SOUND	Turns wireless door lock buzzer ON / OFF	Buzzer can be heard

(d) Check that the buzzer sounds/stops when turning the wireless door lock buzzer on/off by using the intelligent tester.

Result

Condition	Proceed To
Buzzer sounds/stops	**A**
Buzzer does not sound or sounds constantly	**B**

B → **Go to step 5**

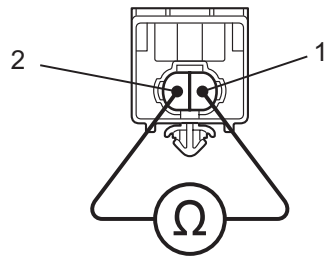
A

REPLACE INSTRUMENT PANEL J/B

DL

5	INSPECT WIRELESS DOOR LOCK BUZZER

Wireless Door Lock Buzzer:



N B110079E04

(a) Disconnect the wireless door lock buzzer connector.
(b) Measure the resistance according to the value(s) in the table below.
HINT:
The buzzer circuit is built into the ECU, not into the buzzer itself. When battery voltage is applied directly to the buzzer, the buzzer does not sound.

Resistance

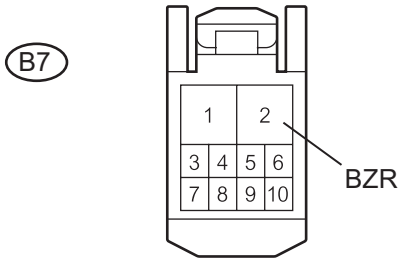
Tester Connection	Condition	Specified Condition
1 - 2	**Always**	**Approx. 1 kΩ**

NG → **REPLACE WIRELESS DOOR LOCK BUZZER**

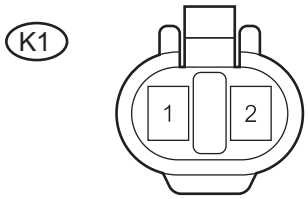
OK

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

Multiplex Network Body ECU (Wire Harness Side) Connector Front View:



Wireless Door Lock Buzzer (Wire Harness Side) Connector Front View:



H

B110080E03

(a) Disconnect the multiplex network body ECU (B7) connector.

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

Resistance

Tester Connection	Condition	Specified Condition
B7-2 (BZR) - K1-1	Always	Below 1 Ω
B7-2 (BZR) - Body ground	Always	10 kΩ or higher
K1-2 - Body ground	Always	Below 1 Ω

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

OK

REPLACE INSTRUMENT PANEL J/B

DL

DOOR CONTROL TRANSMITTER

INSPECTION

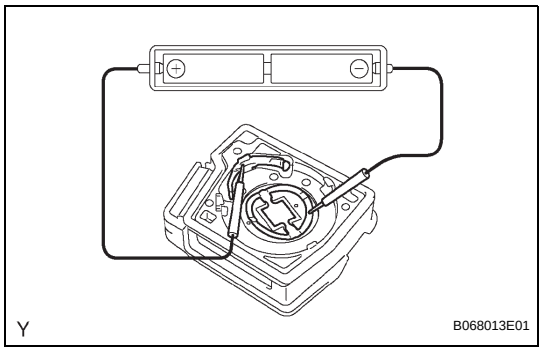
1. INSPECT ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY

(a) Inspect operation of the transmitter.

(1) Remove the battery (lithium battery) from the transmitter (See page DL-97).

(2) Install a new or normal battery (lithium battery).

(3) If a new or normal battery is not available, connect 2 new 1.5 V batteries in a series. Connect the positive (+) battery electrode to the battery receptacle side terminal, and the negative (-) battery electrode to the bottom terminal, and apply a voltage of 3 V to the transmitter.



(4) In a location that is approximately 1 m (3.28 ft.) away from the driver side outside door handle, point the key plate of the transmitter at the vehicle and check operation of the transmitter by pressing the transmission switches on the transmitter body.

Standard:

The door lock can be operated via remote control.

The LED lights up more than once.

HINT:

- The minimum operational distance differs depending on the operator, the way the transmitter is held, and the location.
- Since the transmitter uses faint electric waves, the operational distance might be shortened if noise or a strong electric wave occurs in the area where the frequency is used.

(5) Install the battery (lithium battery).

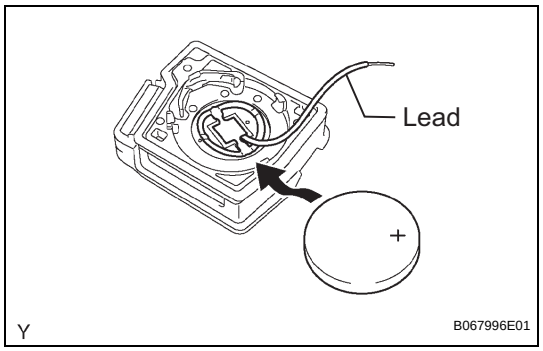
(b) Inspect the battery capacity.

HINT:

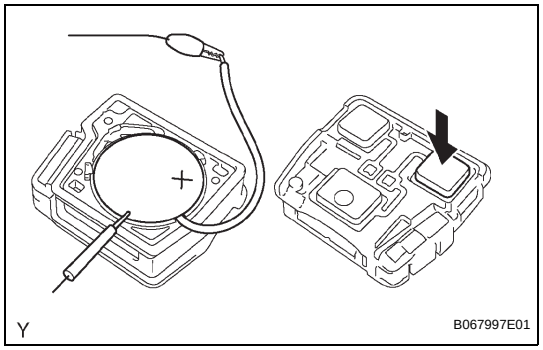
- The capacity of the battery can be determined only when the battery is installed in the transmitter. For a lithium battery used in the transmitter, a voltage of more than 2.5 V is shown on the tester until the energy is completely consumed without the battery installed in the transmitter. Therefore, it is necessary to measure the voltage with the battery installed in the transmitter (a resistance of 1.2 kΩ is applied to the battery) to check the amount of energy left in the battery.
- If the transmitter is faulty, the amount of energy left in the battery might not be checked correctly.

(1) Remove the battery (lithium battery) from the transmitter (See page DL-97).

DL



(2) Connect the lead to the negative (-) terminal of the transmitter and install the battery.



(3) Connect the positive (+) tester probe to the positive (+) side of the battery (lithium battery) and the negative (-) tester probe to the lead respectively.
(4) Press one of the transmission switches on the transmitter for approximately 1 second.
(5) Press the same or another transmission switch again and check the voltage.
Voltage:
2.2 V or higher
NOTICE:
- **If the temperature of the battery is low, the inspection cannot be done correctly. If 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 of 18°C (64°F) for more than 30 minutes.**
- **The automatic power-off function causes the battery voltage to be 2.5 V or more (with no resistance applied to the battery) when 0.8 seconds have passed after the switch is pressed. Therefore, make sure to read the voltage immediately after the switch is pressed.**

(6) Disconnect the lead.
(7) Set the battery (lithium battery) in the transmitter.

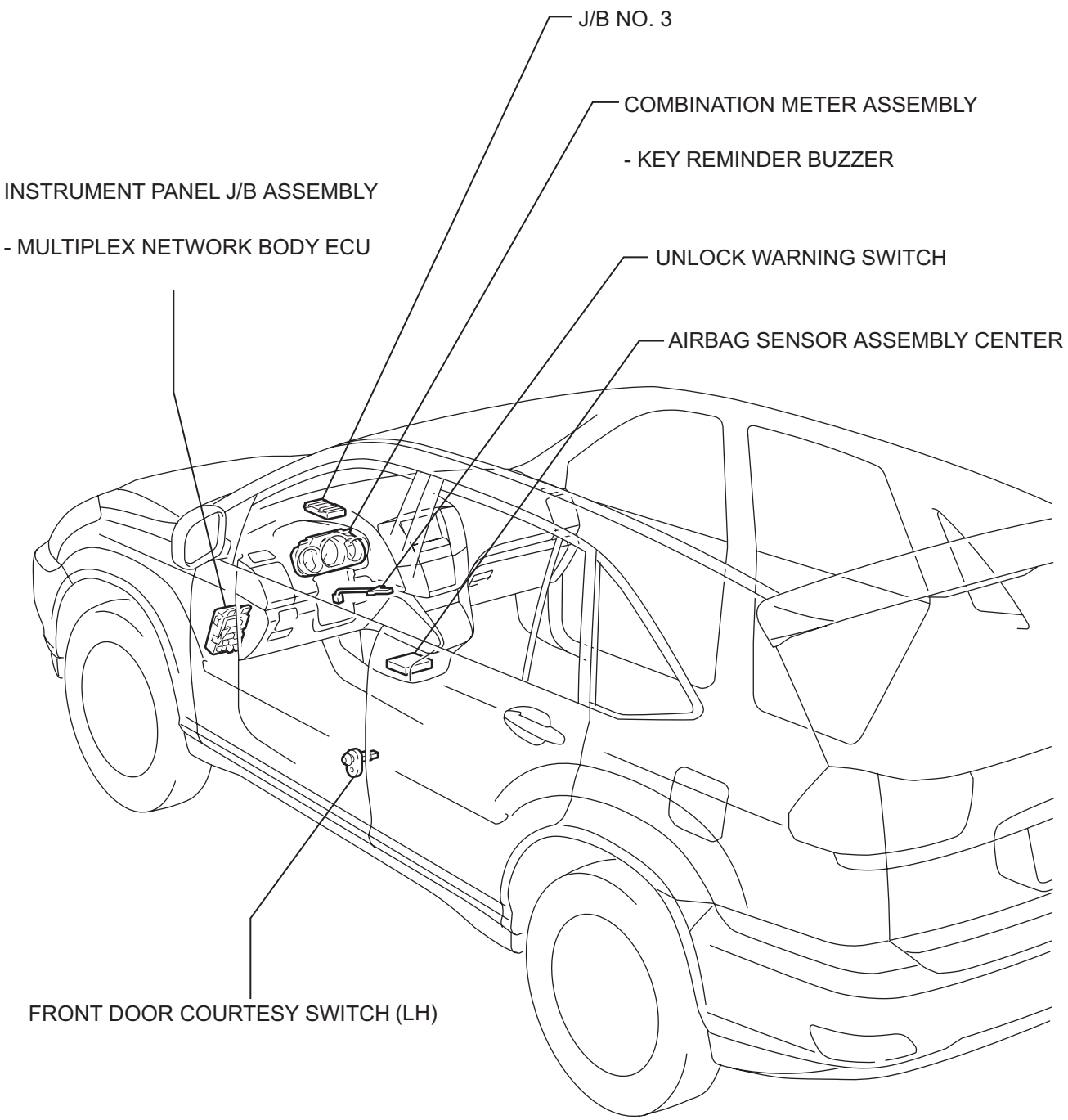
KEY REMINDER WARNING SYSTEM

PRECAUTION

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

System	See procedure
Lighting system (Adaptive Front - Lighting System)	LI-17
Sliding roof control system	RF-4 RF-22
Power window control system	WS-12
Power back door system	DL-8

PARTS LOCATION



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DL

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 a buzzer to sound in order to warn the driver that the ignition key has not been removed.

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use these procedures to troubleshoot the key reminder warning system.
- The intelligent tester should be used in steps 3 and 5.

1 VEHICLE BROUGHT TO WORKSHOP

NEXT

2 CUSTOMER PROBLEM ANALYSIS

(a) Interview the customer to confirm the trouble (See page IN-36).

NEXT

3 INSPECT COMMUNICATION FUNCTION OF MULTIPLEX COMMUNICATION SYSTEM (BEAN)

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

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

B → **GO TO MULTIPLEX COMMUNICATION SYSTEM**

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 → **After repair, go to step 7**

A

5 OVERALL ANALYSIS AND TROUBLESHOOTING

(a) Terminals of ECU
(See page DL-104)
(b) DATA LIST/ACTIVE TEST

(See page DL-106)

NEXT

6	REPAIR OR REPLACE

NEXT

7	CONFIRMATION TEST

NEXT

END

OPERATION CHECK

1. REMOVE 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 if the driver side door is opened.

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

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

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

PROBLEM SYMPTOMS TABLE

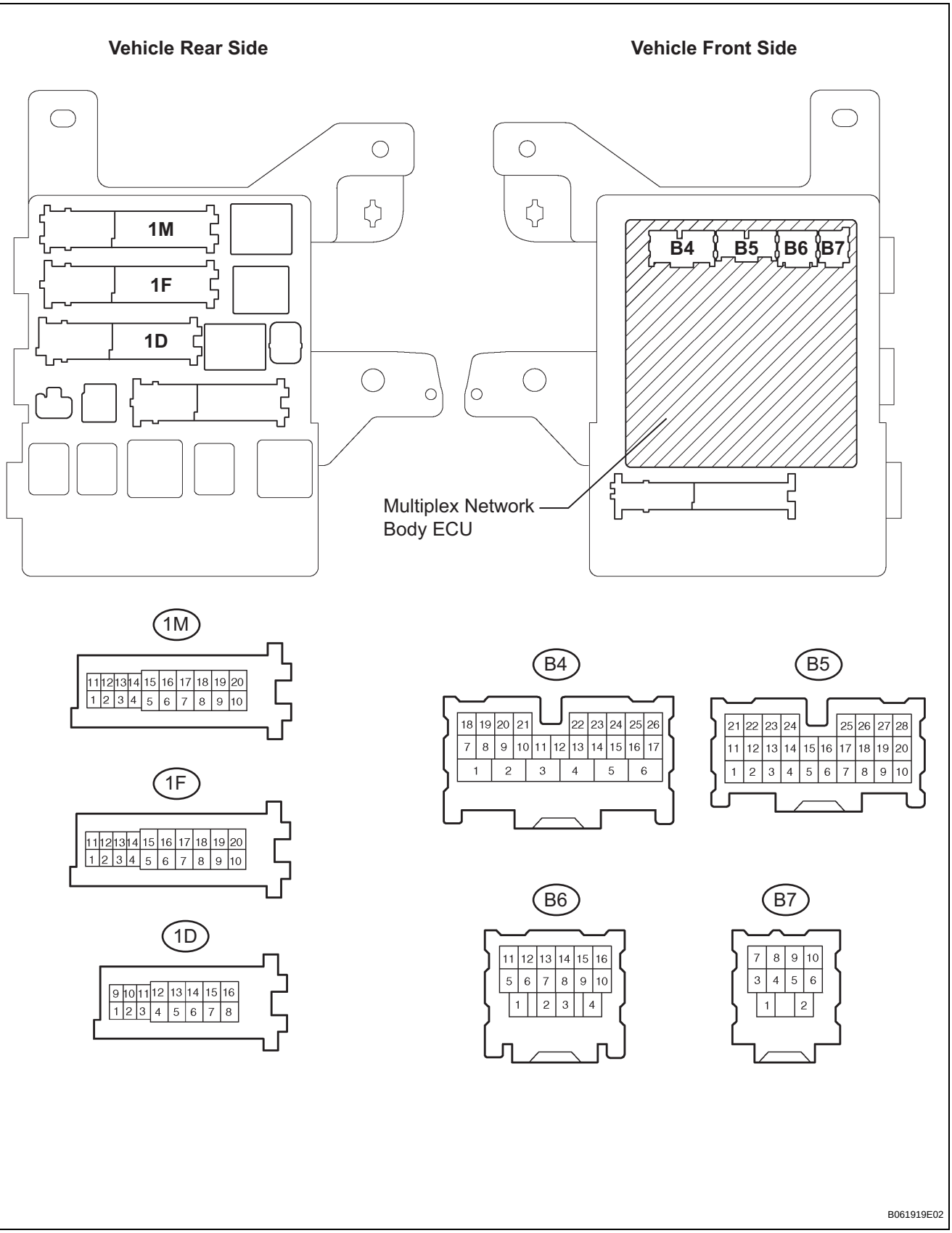
KEY REMINDER WARNING SYSTEM

Symptom	Suspected area	See page
Key reminder buzzer does not sound	1. Unlock warning switch circuit	DL-107
	2. Front door courtesy light switch circuit (Driver side)	LI-130
	3. Combination meter assembly (Key reminder buzzer)	ME-21
	4. Body ECU	-

TERMINALS OF ECU

1. CHECK INSTRUMENT PANEL J/B ASSEMBLY (BODY ECU)

(a) Disconnect the B4, 1D, 1F and 1M J/B connectors.



DL

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

Standard resistance

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
BECU (1D-10) - Body ground	L-B - Body ground	+B (BECU) power supply	Always	10 to 14 V
BECU (1F-1) - Body ground	SB - Body ground	+B (BECU) power supply	Always	10 to 14 V
GND1 (1F-10) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
GND2 (1M-9) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
KSW (B4-21) - Body ground	B - Body ground	Key unlock warning switch input	No key in ignition key cylinder → Key inserted	10 kΩ or higher → Below 1 Ω

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

(c) Reconnect the 1D, 1F, 1M and B4 connectors.

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

Standard voltage

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
DCTY (B6-14) - Body ground	L - Body ground	Driver door courtesy switch input	Driver door CLOSED → OPEN	10 to 14 → 0 V

DL

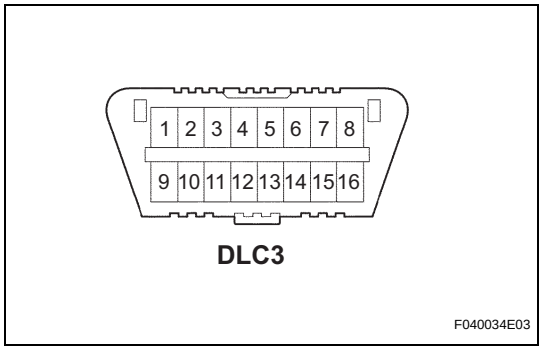
DIAGNOSIS SYSTEM

1. DESCRIPTION

Key reminder warning system data can be read through the Data Link Connector 3 (DLC3) of the vehicle. When the system seems to be malfunctioning, use the intelligent tester to check for malfunctions and perform repairs.

2. CHECK DLC3

(a) The vehicle's ECU uses ISO 9141-2 for communication.
The terminal arrangement of the DLC3 complies with SAE J1962 and matches the ISO 9141-2 format.



Symbols (Terminal No.)	Terminal Description	Condition	Specified Condition
SIL (7) - SG (5)	Bus "+" line	During transmission	Pulse generation
CG (4) - Body ground	Chassis ground	Always	Below 1 Ω
SG (5) - Body ground	Signal ground	Always	Below 1 Ω
BAT (16) - Body ground	Battery positive	Always	11 to 14 V
CANH (6) - CANL (14)	HIGH-level CAN bus line	Ignition switch OFF	54 to 67 Ω
CANH (6) - Battery positive	HIGH-level CAN bus line	Ignition switch OFF	1 MΩ or higher
CANH (6) - CG (4)	HIGH-level CAN bus line	Ignition switch OFF	3 kΩ or higher
CANL (14) - Battery positive	LOW-level CAN bus line	Ignition switch OFF	1 MΩ or higher
CANL (14) - CG (4)	LOW-level CAN bus line	Ignition switch OFF	3 kΩ or higher

DL

HINT:
If the display shows a communication error message after connecting the intelligent tester to the DLC3 and turning the ignition switch to the ON position, there is a problem with either the vehicle or the intelligent tester.

- If communication is normal when the tester is connected to another vehicle, inspect the DLC3 on 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 operator's manual.

DATA LIST / ACTIVE TEST

1. READ DATA LIST

HINT:

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

(a) Connect the intelligent tester with CAN VIM to the DLC3.

(b) Turn the ignition switch ON.

(c) Read the DATA LIST.

BODY (Body ECU):

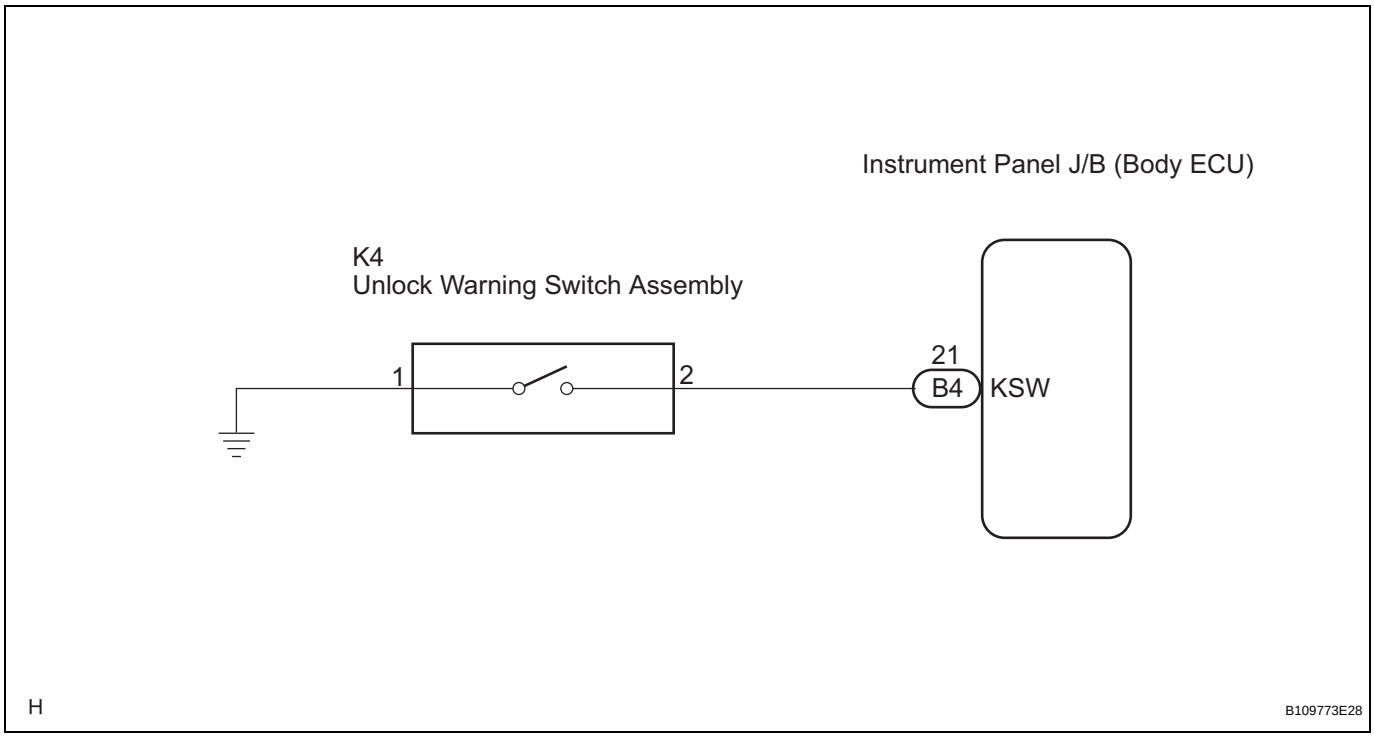
Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
KEY UNLK WRN SW	Unlock warning switch signal /ON or OFF	ON: Key is in ignition key cylinder OFF: No key is in ignition key cylinder	-
D DOR CTY SW	Driver side door courtesy switch signal /ON or OFF	ON: Driver side door is open OFF: Driver side door is closed	-

Unlock Warning Switch Circuit

DESCRIPTION

The unlock warning switch detects if the key is in the ignition key cylinder.
The unlock warning switch turns on when the key is inserted into the ignition key cylinder and turns off when the key is removed from the cylinder.
The body ECU is connected to the unlock warning switch via terminal KSW and key detection status signals are input to the ECU.
The body ECU applies voltage to the unlock warning switch via terminal KSW. When the unlock warning switch is on (there is continuity between the switch terminals), a signal indicating that the key is in the ignition key cylinder is input to the body ECU. When the switch is off (there is no continuity between the switch terminals), a signal indicating that the key is not in the cylinder is input.

WIRING DIAGRAM



DL

1	READ VALUE OF DATA LIST (UNLOCK WARNING SWITCH)

(a) Check the DATA LIST to ensure proper function of the door unlock detection switch.

BODY:

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
KEY UNLK WRN SW	Unlock warning switch signal /ON or OFF	ON: Key is in ignition key cylinder OFF: No key is in ignition key cylinder	-

OK:

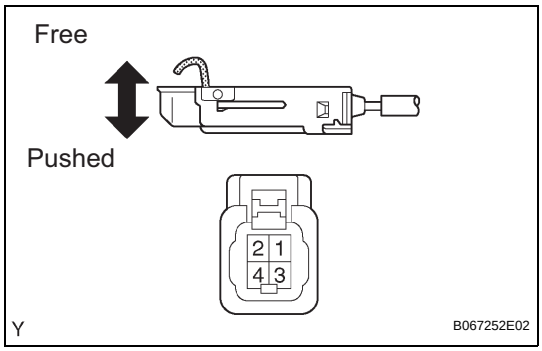
The display is as specified in the normal condition.

NG → **Go to step 2**

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

2 INSPECT UNLOCK WARNING SWITCH ASSEMBLY



(a) Remove the unlock warning switch assembly.
(b) Measure the resistance according to the value(s) in the table below.

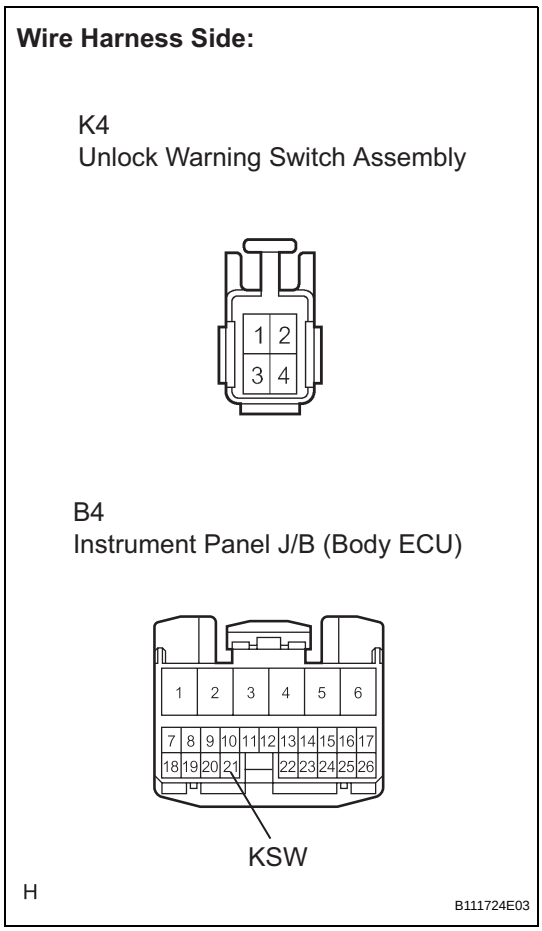
Standard resistance

Tester Connection	Condition	Specified Condition
1 - 2	Free	10 kΩ or higher
1 - 2	Pushed	Below 1 Ω

NG → **REPLACE UNLOCK WARNING SWITCH ASSEMBLY**

OK

3 CHECK WIRE HARNESS (UNLOCK WARNING SWITCH - INSTRUMENT PANEL J/B (BODY ECU))



(a) Disconnect the K4 unlock warning switch assembly connector.
(b) Disconnect the B4 instrument panel J/B connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

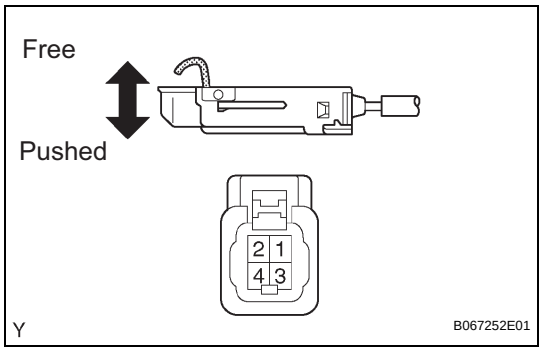
Tester Connection	Condition	Specified Condition
K4-2 - B4-21 (KSW)	Always	Below 1 Ω
K4-1 - Body ground	Always	Below 1 Ω

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

DL

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE



UNLOCK WARNING SWITCH

INSPECTION

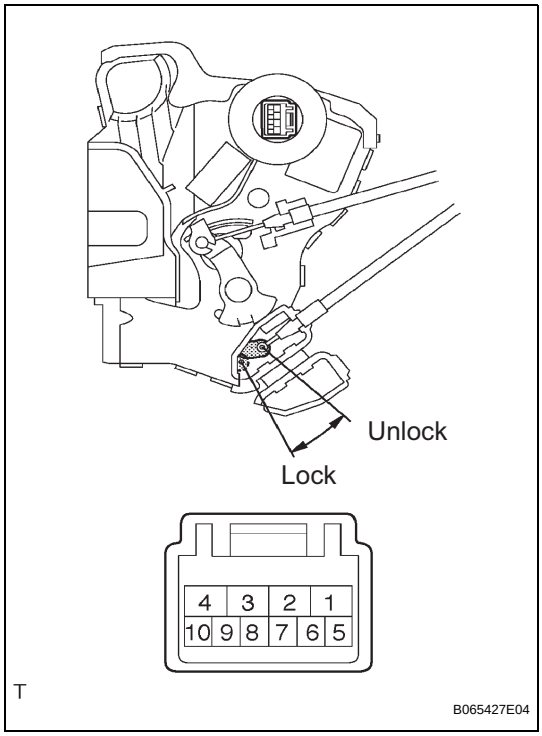
1. INSPECT UNLOCK WARNING SWITCH ASSEMBLY

(a) Remove the unlock warning switch assembly .

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

Standard resistance

Tester Connection	Switch Position	Specified Condition
1 - 2	Free	10 kΩ or higher
1 - 2	Pushed	Below 1 Ω



FRONT DOOR LOCK

INSPECTION

1. INSPECT FRONT DOOR LOCK ASSEMBLY LH

(a) Apply battery voltage to the door lock and check operation of the motor.
OK

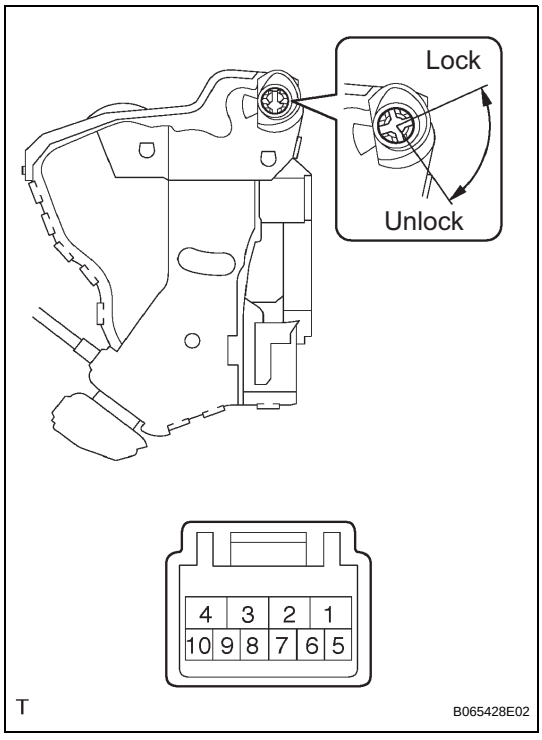
Measurement Condition	Specified Condition
Battery positive (+) → Terminal 4 Battery negative (-) → terminal 1	Lock
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 4	Unlock

HINT:
If the result is not as specified, replace the door lock assembly.

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

Tester Connection	Door Lock Position	Specified Condition
7 - 8	Lock	10 kΩ or higher
7 - 8	Unlock	Below 1 Ω

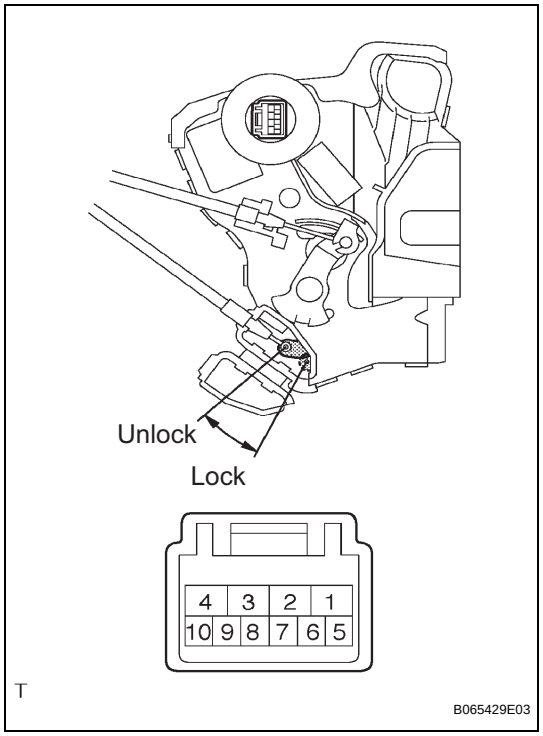
HINT:
If the result is not as specified, replace the door lock assembly.



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

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

HINT:
If the result is not as specified, replace the door lock assembly.



2. INSPECT FRONT DOOR LOCK ASSEMBLY RH

(a) Apply battery voltage to the door lock and check operation of the motor.

OK

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 4 Battery negative (-) → Terminal 1	Lock
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 4	Unlock

HINT:

If the result is not as specified, replace the door lock assembly.

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

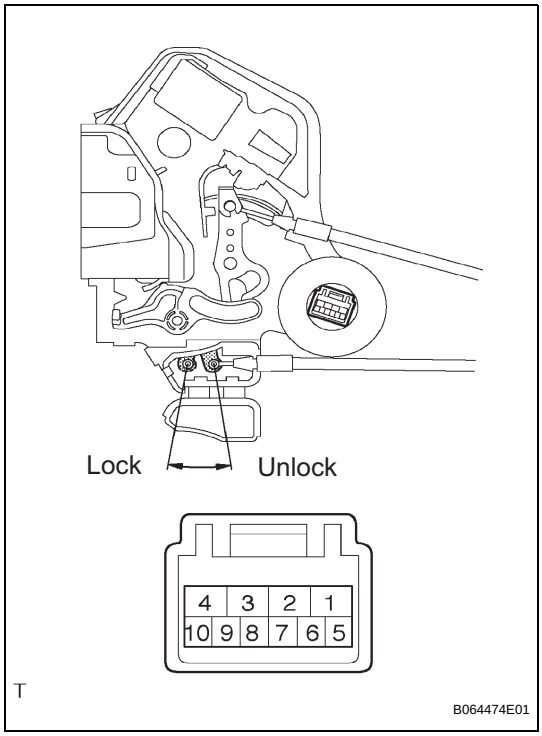
Standard resistance

Tester Connection	Door Lock Position	Specified Condition
7 - 8	Lock	10 kΩ or higher
7 - 8	Unlock	Below 1 Ω

HINT:

If the result is not as specified, replace the door lock assembly.

DL



REAR DOOR LOCK

INSPECTION

1. INSPECT REAR DOOR LOCK ASSEMBLY LH

(a) Apply battery voltage to the door lock and check operation of the motor.

OK

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 4 Battery negative (-) → Terminal 1	Lock
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 4	Unlock

HINT:

If the result is not as specified, replace the door lock assembly.

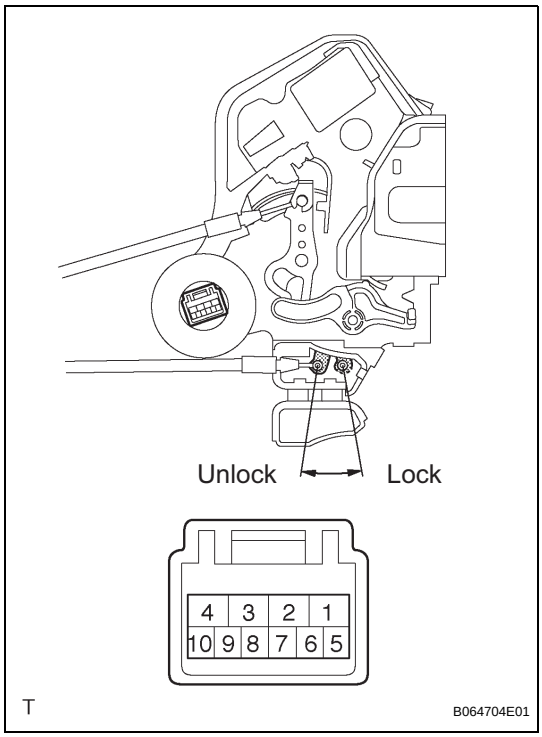
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Door Lock Position	Specified Condition
6 - 9	Lock	10 kΩ or higher
6 - 9	Unlock	Below 1 Ω

HINT:

If the result is not as specified, replace the door lock assembly.



2. INSPECT REAR DOOR LOCK ASSEMBLY RH

(a) Apply battery voltage to the door lock and check operation of the motor.

OK

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 4 Battery negative (-) → Terminal 1	Lock
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 4	Unlock

HINT:

If the result is not as specified, replace the door lock assembly.

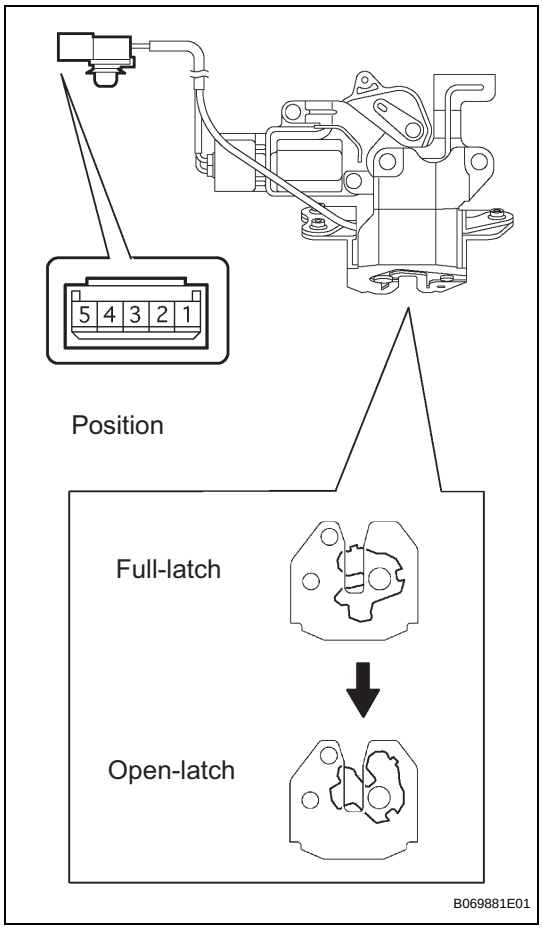
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Door Lock Position	Specified Condition
6 - 9	Lock	10 kΩ or higher
6 - 9	Unlock	Below 1 Ω

HINT:

If the result is not as specified, replace the door lock assembly.



BACK DOOR LOCK

INSPECTION

1. INSPECT BACK DOOR LOCK ASSEMBLY (W/O POWER BACK DOOR SYSTEM)

(a) Check operation of the door lock.

(1) Using a screwdriver, push the latch in order to put the back door lock in the locked condition (full-latch position).

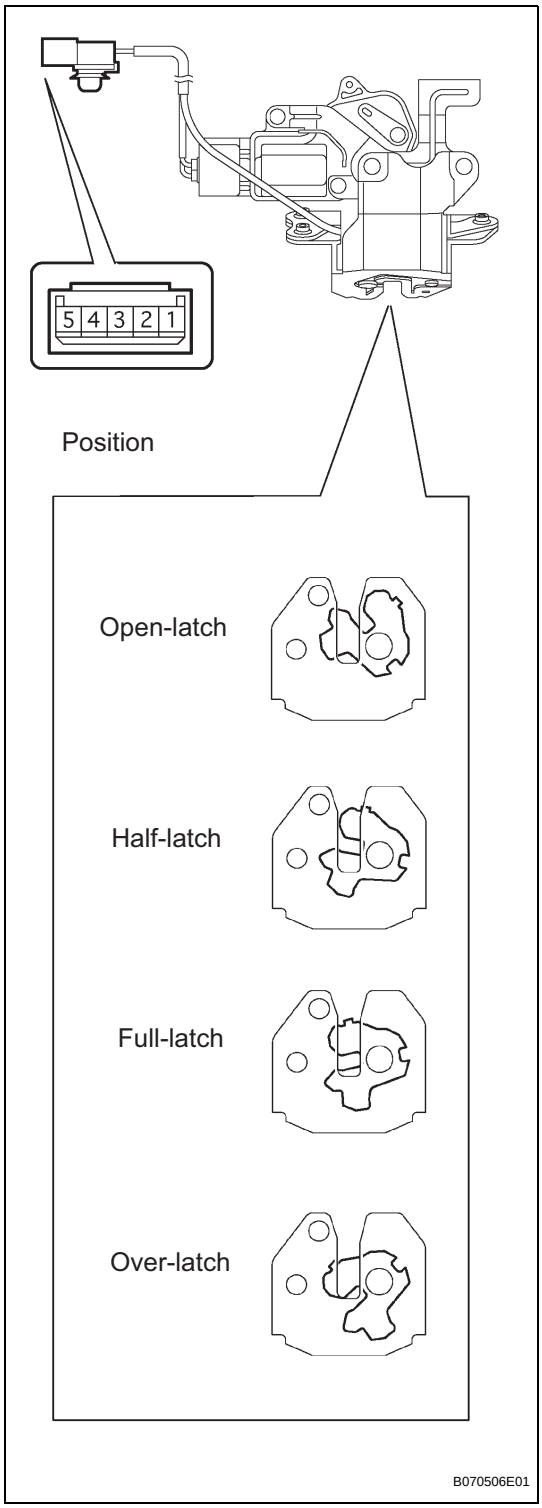
(2) Apply battery voltage to the door lock and check operation of the latch.

OK

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 5 Battery negative (-) → Terminal 3	Latch turns to open-latch position

HINT:

If the result is not as specified, replace the door lock assembly.



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

Standard resistance (Courtesy switch)

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

HINT:
If the result is not as specified, replace the door lock assembly.

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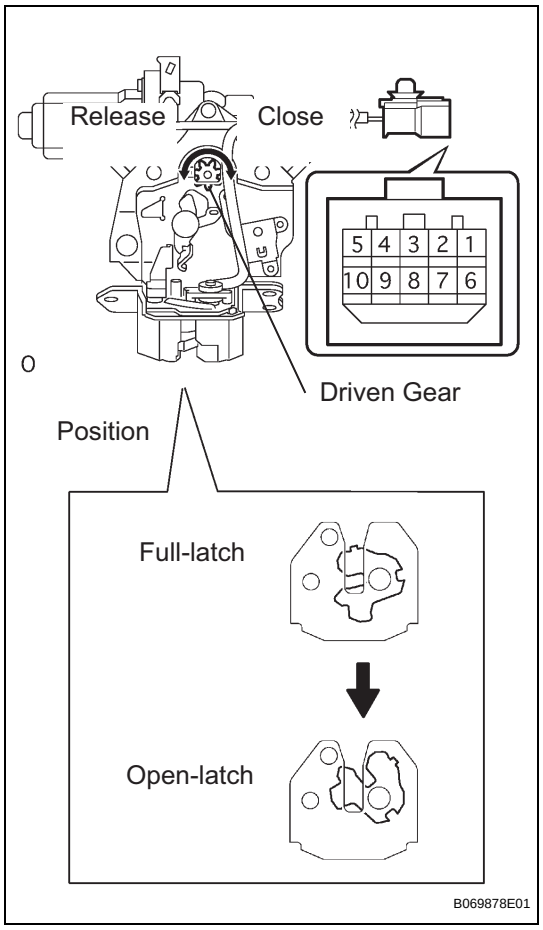


2. INSPECT BACK DOOR LOCK ASSEMBLY (W/ POWER BACK DOOR SYSTEM)

(a) Check operation of the door lock.

(1) Using a screwdriver, push the latch in order to put the back door lock in the locked condition (full-latch position).

(2) Apply battery voltage to the door lock and check operation of the latch.

OK

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

HINT:

If the result is not as specified, replace the door lock assembly.

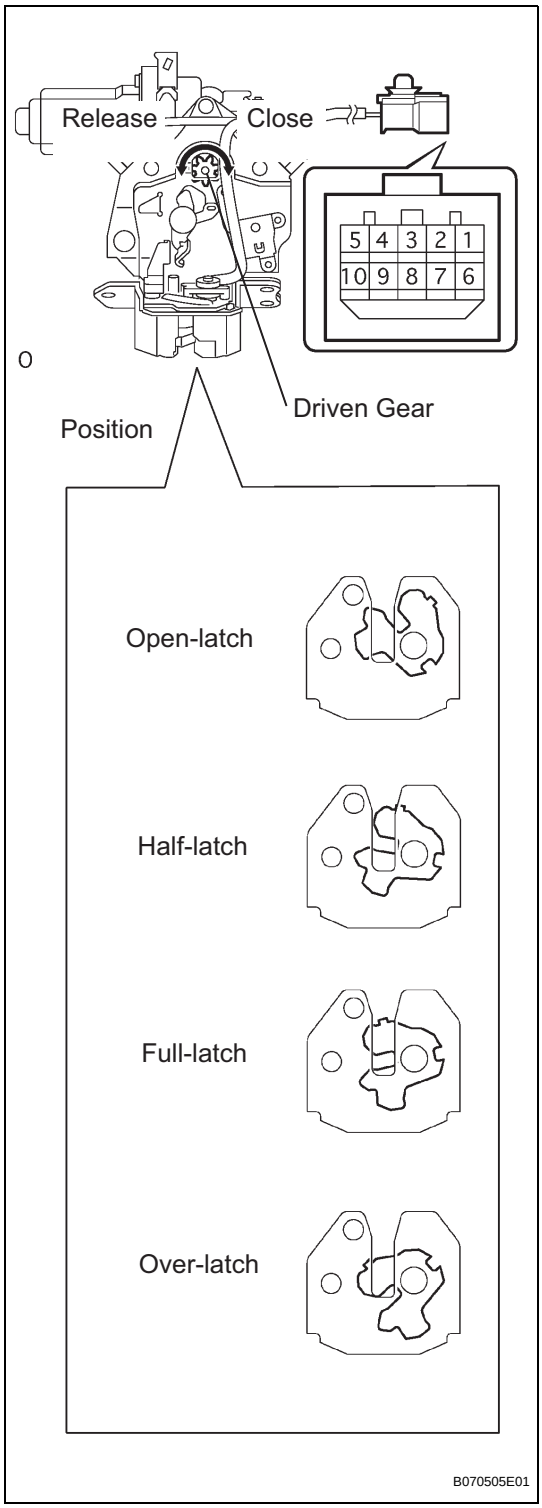
(3) Apply battery voltage to the door lock motor and check operation of the motor.

OK

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 5 Battery negative (-) → Terminal 7	Close operation (Clockwise rotation)
Battery positive (+) → Terminal 7 Battery negative (-) → Terminal 5	Release operation (Counterclockwise rotation)

HINT:

If the result is not as specified, replace the door lock assembly.



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

Standard resistance (Courtesy switch)

Tester Connection	Door Lock Latch Position	Specified Condition
1 - 6	Open-latch	Below 1 Ω
1 - 6	Half-latch	Below 1 Ω
1 - 6	Full-latch	10 kΩ or higher
1 - 6	Over-latch	10 kΩ or higher

HINT:
If the result is not as specified, replace the door lock assembly.

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

Standard resistance (Full-latch switch)

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

HINT:
If the result is not as specified, replace the door lock assembly.

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

Standard resistance (Half-latch switch)

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

HINT:
If the result is not as specified, replace the door lock assembly.

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

(1) Full-latch:
Connect the battery positive (+) lead to connector terminal 7 and the negative (-) lead to connector terminal 5.

Standard resistance

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

HINT:
If the result is not as specified, replace the door lock assembly.

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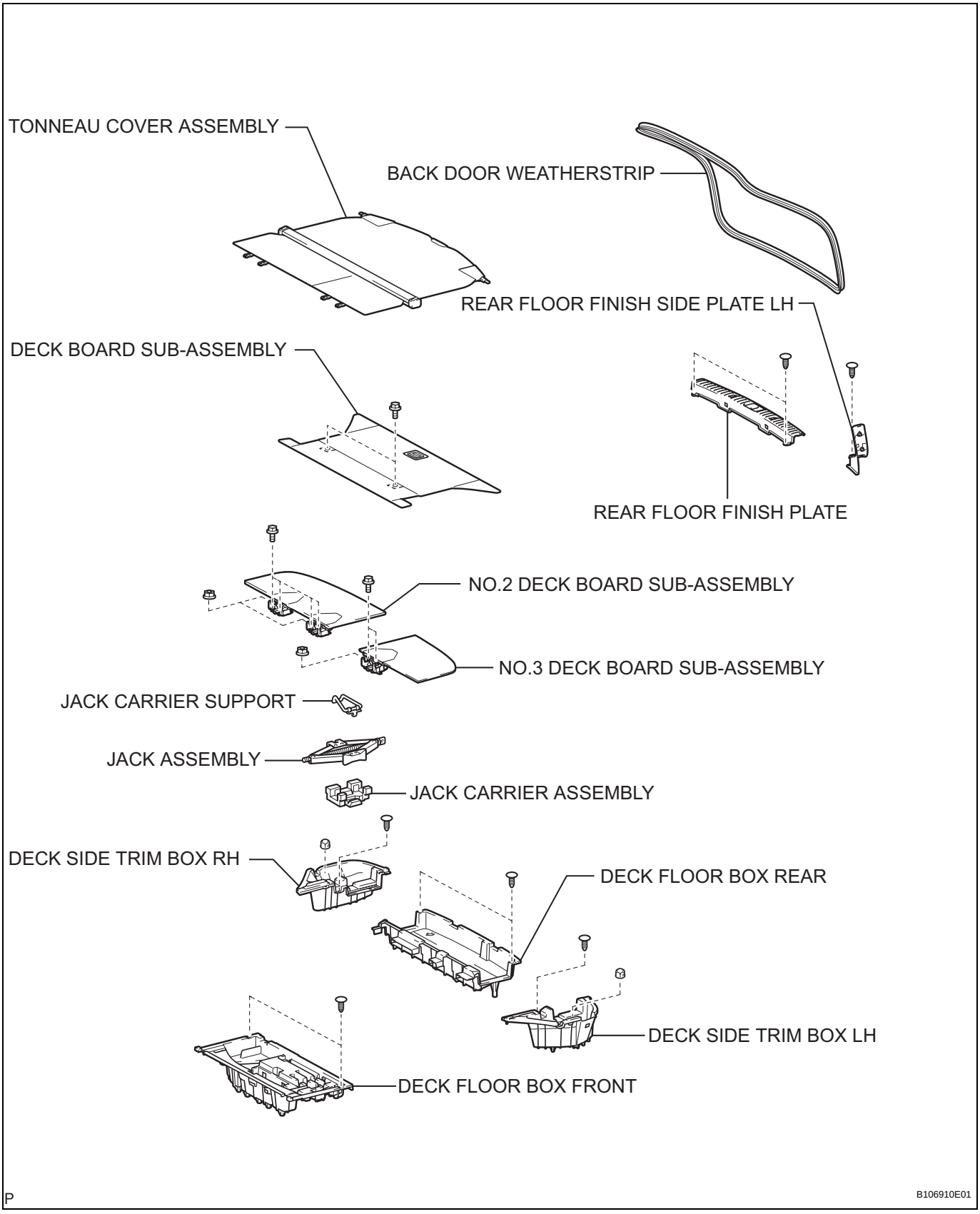
(2) Over-latch:
Connect the battery positive (+) lead to connector terminal 5 and the negative (-) lead to connector terminal 7.
Standard resistance

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

HINT:
If the result is not as specified, replace the door lock assembly.

DOOR CONTROL RECEIVER

COMPONENTS



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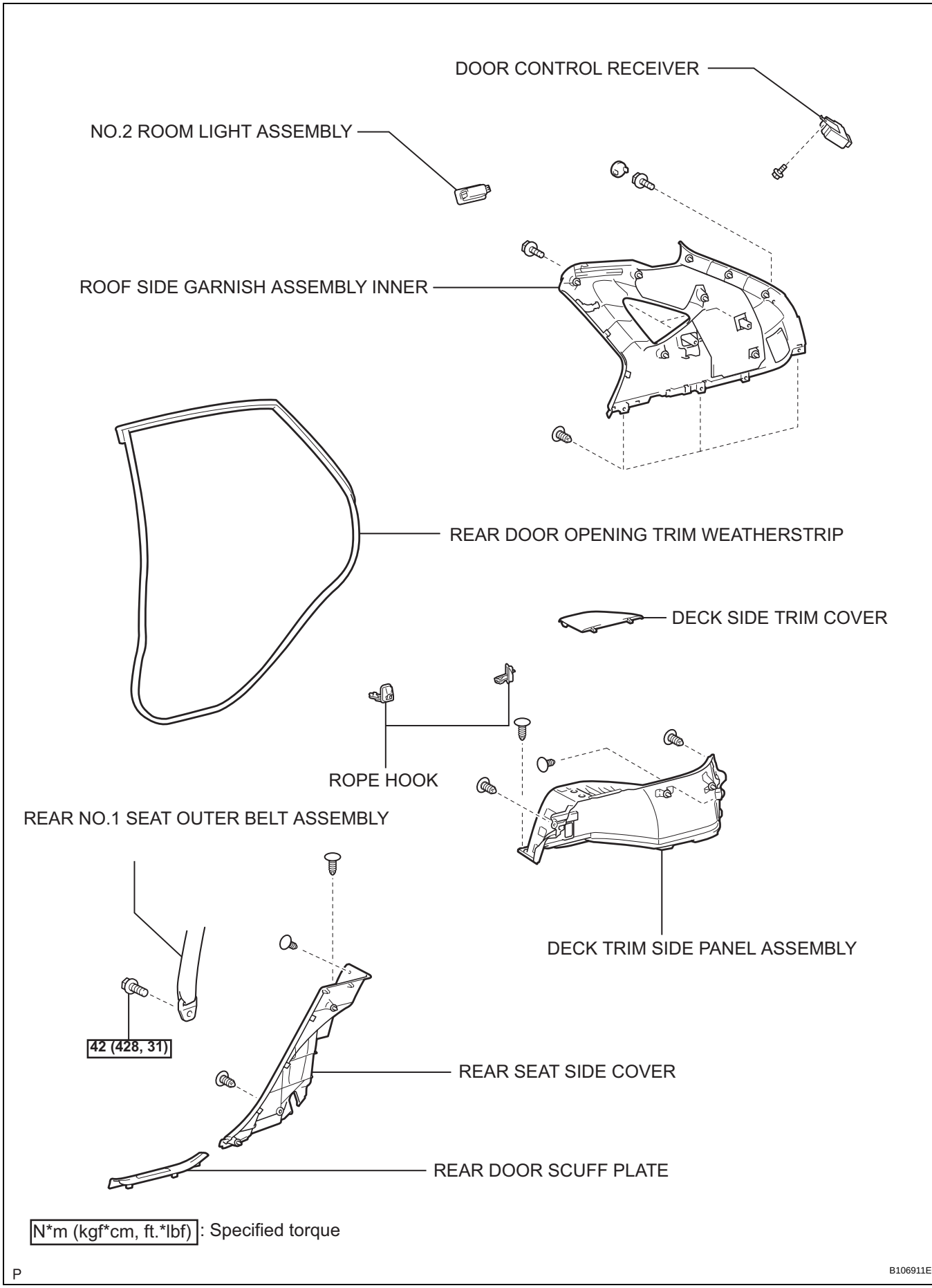

N*m (kgf*cm, ft.*lbf) : Specified torque

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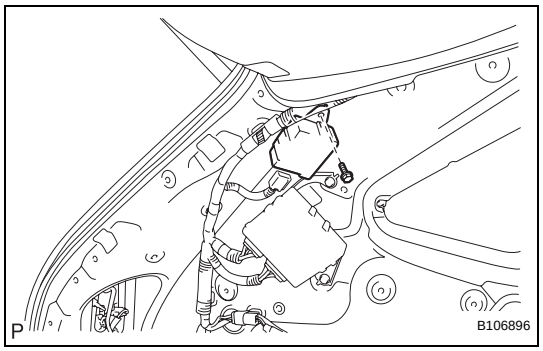
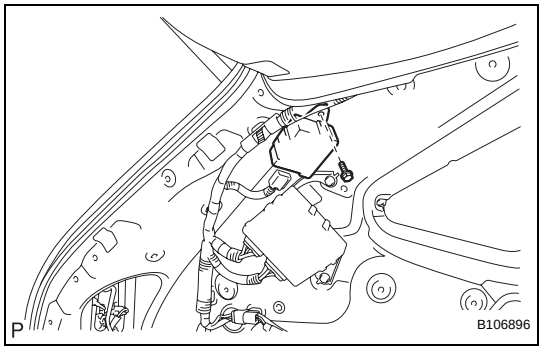
REMOVAL

1. **REMOVE TONNEAU COVER ASSEMBLY**
2. **REMOVE DECK BOARD SUB-ASSEMBLY (See page IR-7)**
3. **REMOVE DECK FLOOR BOX FRONT (See page IR-8)**
4. **REMOVE DECK FLOOR BOX REAR (See page IR-8)**
5. **REMOVE NO.3 DECK BOARD SUB-ASSEMBLY (See page IR-8)**
6. **REMOVE NO.2 DECK BOARD SUB-ASSEMBLY (See page IR-8)**
7. **REMOVE BACK DOOR WEATHERSTRIP**
8. **REMOVE REAR FLOOR FINISH PLATE (See page IR-8)**
9. **REMOVE DECK SIDE TRIM BOX LH (See page IR-8)**
10. **REMOVE DECK SIDE TRIM BOX RH (See page IR-8)**
11. **REMOVE REAR DOOR SCUFF PLATE (See page IR-6)**
12. **REMOVE REAR DOOR OPENING TRIM WEATHERSTRIP**
13. **REMOVE DECK SIDE TRIM COVER (See page IR-8)**
14. **SEPARATE REAR NO.1 SEAT OUTER BELT ASSEMBLY**
    (a) Remove the bolt, and separate rear No.1 seat outer belt assembly.
15. **REMOVE REAR SEAT SIDE COVER (See page IR-9)**
16. **REMOVE REAR FLOOR FINISH SIDE PLATE (See page IR-8)**
17. **REMOVE ROPE HOOK (See page IR-9)**
18. **REMOVE DECK TRIM SIDE PANEL ASSEMBLY (See page IR-9)**
19. **REMOVE NO.2 ROOM LIGHT ASSEMBLY (See page IR-9)**
20. **REMOVE ROOF SIDE GARNISH ASSEMBLY INNER (See page IR-10)**
21. **REMOVE DOOR CONTROL RECEIVER**
    (a) Disconnect the connector.



(b) Remove the bolt and the door control receiver.



INSTALLATION

1. **INSTALL DOOR CONTROL RECEIVER**
   (a) Install the door control receiver with the bolt.
   (b) Connect the connector.
2. **INSTALL ROOF SIDE GARNISH ASSEMBLY INNER**
3. **INSTALL NO.2 ROOM LIGHT ASSEMBLY**
4. **INSTALL DECK TRIM SIDE PANEL ASSEMBLY**
5. **INSTALL ROPE HOOK**
6. **INSTALL REAR FLOOR FINISH SIDE PLATE**
7. **INSTALL REAR SEAT SIDE COVER**
8. **INSTALL REAR NO.1 SEAT OUTER BELT ASSEMBLY**
   (a) Install the rear No.1 seat outer belt assembly with the bolt.
   Torque: 42 N*m (428 kgf*cm, 31 ft.*lbf)
9. **INSTALL DECK SIDE TRIM COVER**
10. **INSTALL REAR DOOR OPENING TRIM WEATHERSTRIP**
11. **INSTALL REAR DOOR SCUFF PLATE**
12. **INSTALL DECK SIDE TRIM BOX LH**
13. **INSTALL DECK SIDE TRIM BOX RH**
14. **INSTALL REAR FLOOR FINISH PLATE**
15. **INSTALL BACK DOOR WEATHERSTRIP**
16. **INSTALL NO.3 DECK BOARD SUB-ASSEMBLY**
17. **INSTALL NO.2 DECK BOARD SUB-ASSEMBLY**
18. **INSTALL DECK FLOOR BOX REAR**
19. **INSTALL DECK FLOOR BOX FRONT**
20. **INSTALL DECK BOARD SUB-ASSEMBLY**
21. **INSTALL TONNEAU COVER ASSEMBLY**