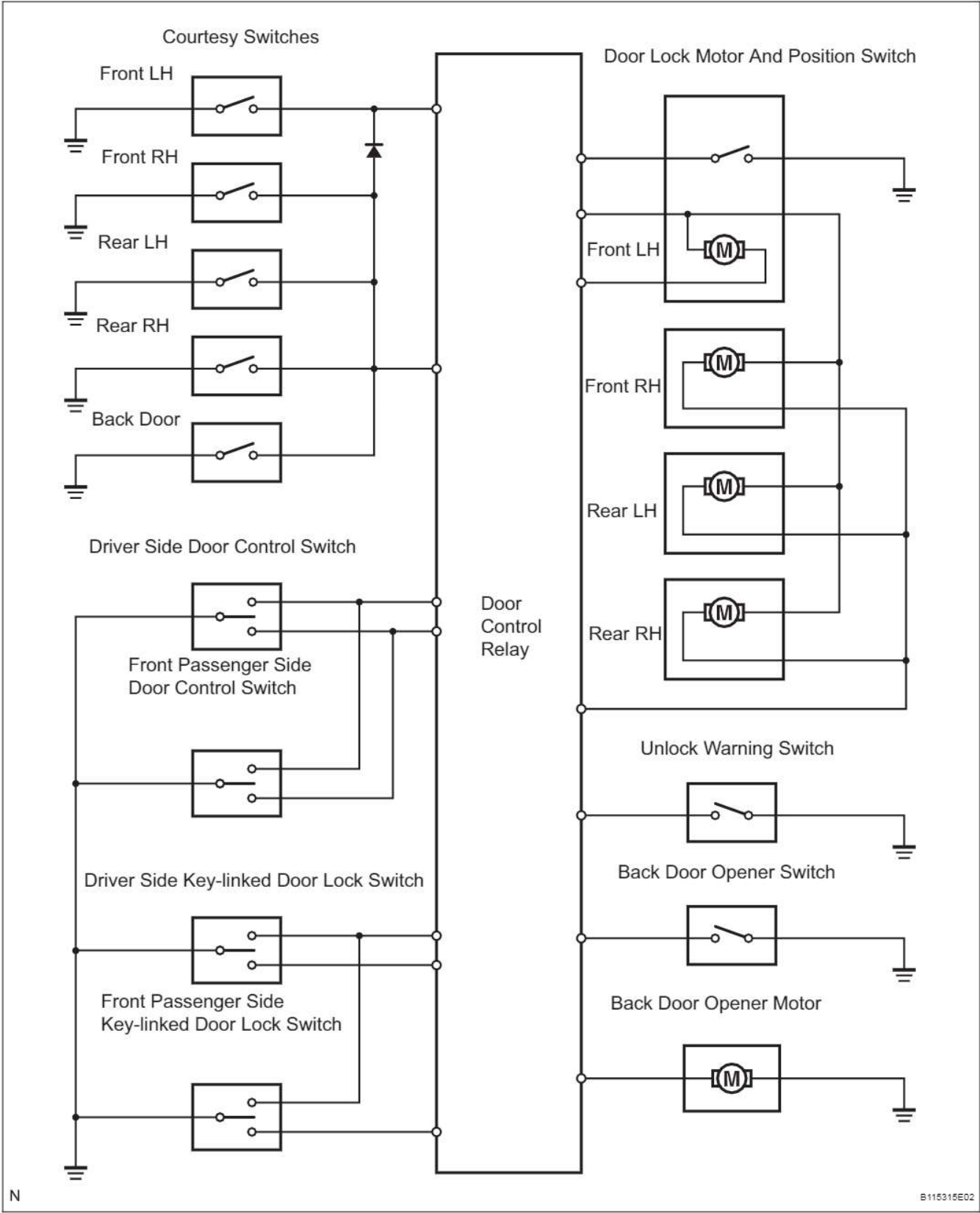


DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM

SYSTEM DIAGRAM

DL



DL

SYSTEM DESCRIPTION

1. POWER DOOR LOCK CONTROL SYSTEM DESCRIPTION

- (a) Step 1: The power door lock control system locks/unlocks all the doors simultaneously.
The master switch and the door control switch on the front passenger side door send "lock/unlock" request signals to the door control relay. Then, the door control relay sends these requests to the lock motors in each door to lock/unlock all the doors simultaneously.
Inserting the key into the driver side or passenger side door key cylinder and performing a lock/unlock operation also sends lock/unlock request signals to the door lock control rely. The driver side door key-linked lock function has an unlock method called the "2-step unlock function". Please refer to the chart below in step 2 for details of this function.
- (b) Step 2: The power door lock control system has the following functions:

Function	Description
Key-linked lock and unlock function	This function locks/unlocks all doors at once when door key cylinder linked with driver side door lock is turned with key.
Key lock-in prevention function	When key is inserted into ignition key cylinder and you perform door lock operation with driver side door open, all doors will be unlocked.
Door control switch* unlock prohibition function	Performing door lock operation with transmitter or key will prohibit unlock operation by door control switch.
2-step unlock function	Driver side door can be unlocked by turning door key cylinder once; remaining doors can be unlocked by turning door key cylinder a second time.

HINT:

*: Master switch and door control switch (front passenger side)

- (c) Step 3: When the battery is reconnected, 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.

DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:
Use these procedures to troubleshoot the power door lock control system.

1 VEHICLE BROUGHT TO WORKSHOP

NEXT

2 INSPECT BATTERY VOLTAGE

Standard voltage:
11 to 14 V
If the voltage is below 11 V, recharge or replace the battery before proceeding.

NEXT

3 PROBLEM SYMPTOMS TABLE

Result

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

B

Go to step 6

A

4 OVERALL ANALYSIS AND TROUBLESHOOTING

- (a) On-vehicle inspection (see page [DL-8](#))
- (b) Terminals of ECU (see page [DL-6](#))

NEXT

5 REPAIR OR REPLACEMENT

NEXT

6 CONFIRMATION TEST

NEXT

END

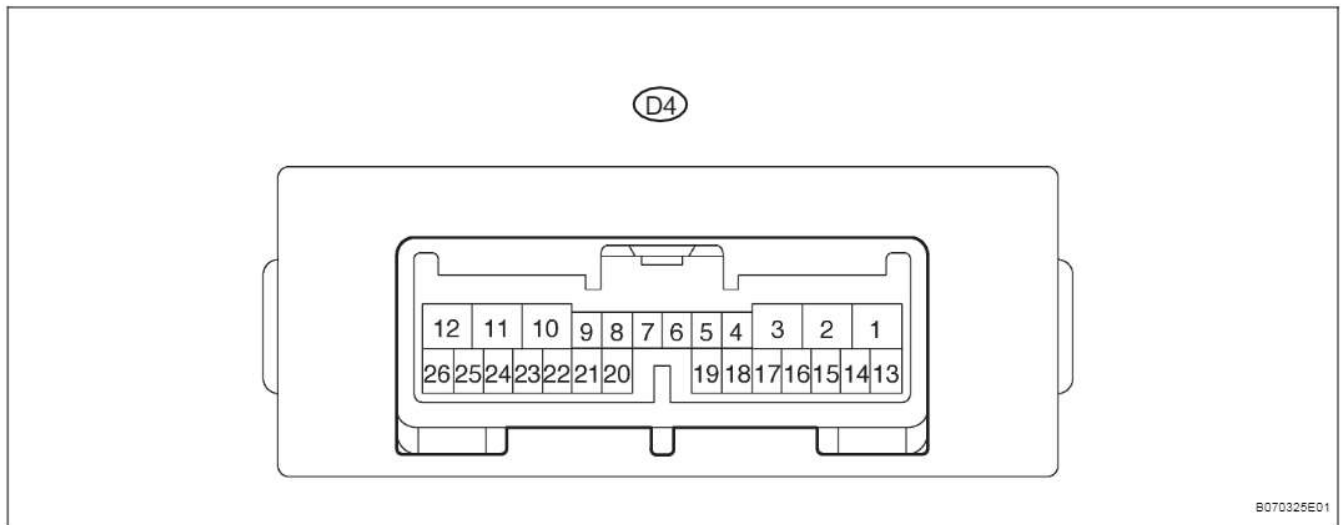
DL

PROBLEM SYMPTOMS TABLE

HINT:
Use the table below to help determine the cause of the problem symptom. The potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

Power door lock control system

Symptom	Suspected area	See page
All Doors cannot be Locked / Unlocked Simultaneously	1. D/L fuse	DL-11
	2. GAUGE fuse	DL-11
	3. Power window regulator master switch assembly	DL-11
	4. Front door lock actuator assembly LH	DL-11
	5. Door control switch assembly	DL-11
	6. Front door lock actuator assembly RH	DL-11
	7. Door control relay assembly	DL-11
	8. Wire harness	DL-11
Key Lock-in Prevention Function does not Work Properly	1. Unlock warning switch assembly	DL-29
	2. Front door courtesy light switch assembly (driver side)	DL-29
	3. Door control relay assembly	DL-29
	4. Wire harness	DL-29
Only Back Door cannot be Opened	1. Back door lock assembly	DL-32
	2. Back door opener switch assembly	DL-32
	3. Door control relay assembly	DL-32
	4. Wire harness	DL-32

DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM**DL-7****TERMINALS OF ECU****1. CHECK DOOR CONTROL RELAY ASSEMBLY**

- (a) Disconnect the D4 relay connector.
 (b) Measure the voltage and resistance of the wire harness side connector.

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
B (D4-1) - Body ground	L-W - Body ground	+B (B) power supply	Always	10 to 14 V
E (D4-12) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
IG (D4-26) - Body ground	R-B - Body ground	Ignition power supply	Ignition switch ON	10 to 14 V
KSW (D4-8) - Body ground	Y - Body ground	Unlock warning switch input	No key in ignition key cylinder	10 kΩ or higher
			Key inserted	Below 1 Ω
DCTY (D4-5) - Body ground	R - Body ground	Driver side courtesy switch input	Driver side door Closed	10 kΩ or higher
			Driver side door Open	Below 1 Ω
PCTY (D4-7) - Body ground	R-W - Body ground	Courtesy switch input other than driver side door	Front passenger side door, rear door (LH, RH) or back door Closed	10 kΩ or higher
			Front passenger side door, rear door (LH, RH) or back door Open	Below 1 Ω
L1 (D4-18) - Body ground	BR-Y - Body ground	Door control switch (master switch and front passenger side switch) lock input	Door control switch (master switch or front passenger side switch) OFF	10 kΩ or higher
			Door control switch (master switch or front passenger side switch) LOCK	Below 1 Ω
UL1 (D4-19) - Body ground	G-B - Body ground	Door control switch (master switch and front passenger side switch) unlock input	Door control switch (master switch or front passenger side switch) OFF	10 kΩ or higher
			Door control switch (master switch or front passenger side switch) UNLOCK	Below 1 Ω
LSWD (D4-6) - Body ground	L-R - Body ground	Driver side door lock position switch input	Driver side door UNLOCK	10 kΩ or higher
			Driver side door LOCK	Below 1 Ω

DL-8**DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM**

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
L2 (D4-20) - Body ground	L-W - Body ground	Driver and front passenger side door key-linked door lock input	Driver side or front passenger side door key cylinder OFF	10 kΩ or higher
			Driver side or front passenger side door key cylinder LOCK	Below 1 Ω
UL3 (D4-21) - Body ground	Y-B - Body ground	Driver side door key-linked door unlock input	Driver side door key cylinder OFF	10 kΩ or higher
			Driver side door key cylinder UNLOCK	Below 1 Ω
UL2 (D4-22) - Body ground	L-R - Body ground	Front passenger side door key-linked door unlock input	Front passenger side door key cylinder OFF	10 kΩ or higher
			Front passenger side door key cylinder UNLOCK	Below 1 Ω
BDSU (D4-17) - Body ground	BR-Y - Body ground	Back door opener switch input	Back door opener switch (outside handle switch) OFF	10 kΩ or higher
			Back door opener switch (outside handle switch) ON	Below 1 Ω

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

(c) Reconnect the D4 relay connector.

(d) Measure the voltage of the connector.

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
ACT+ (D4-2) - Body ground	L-O - Body ground	Door lock motor LOCK drive output (driver, front passenger, rear LH and rear RH doors)	Door control switch (master switch or front passenger side switch) or door key cylinder (driver or front passenger) 1. OFF → 2. LOCK → 3. OFF	1. Below 1 V → 2. 10 to 14 V → 3. Below 1 V
ACTD (D4-11) - Body ground	Y-G - Body ground	Door lock motor UNLOCK drive output (driver door)	Door control switch (master switch or front passenger side switch) or door key cylinder (driver or front passenger) 1. OFF → 2. UNLOCK → 3. OFF	1. Below 1 V → 2. 10 to 14 V → 3. Below 1 V
ACT- (D4-3) - Body ground	L-B - Body ground	Door lock motor UNLOCK drive output (front passenger, rear LH and rear RH doors)		
BACT (D4-10) - Body ground	L-Y - Body ground	Back door lock motor OPEN drive output	Back door unlocked, back door opener switch (outside handle switch) 1. OFF → 2. ON → 3. OFF	1. Below 1 V → 2. 10 to 14 V → 3. Below 1 V

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

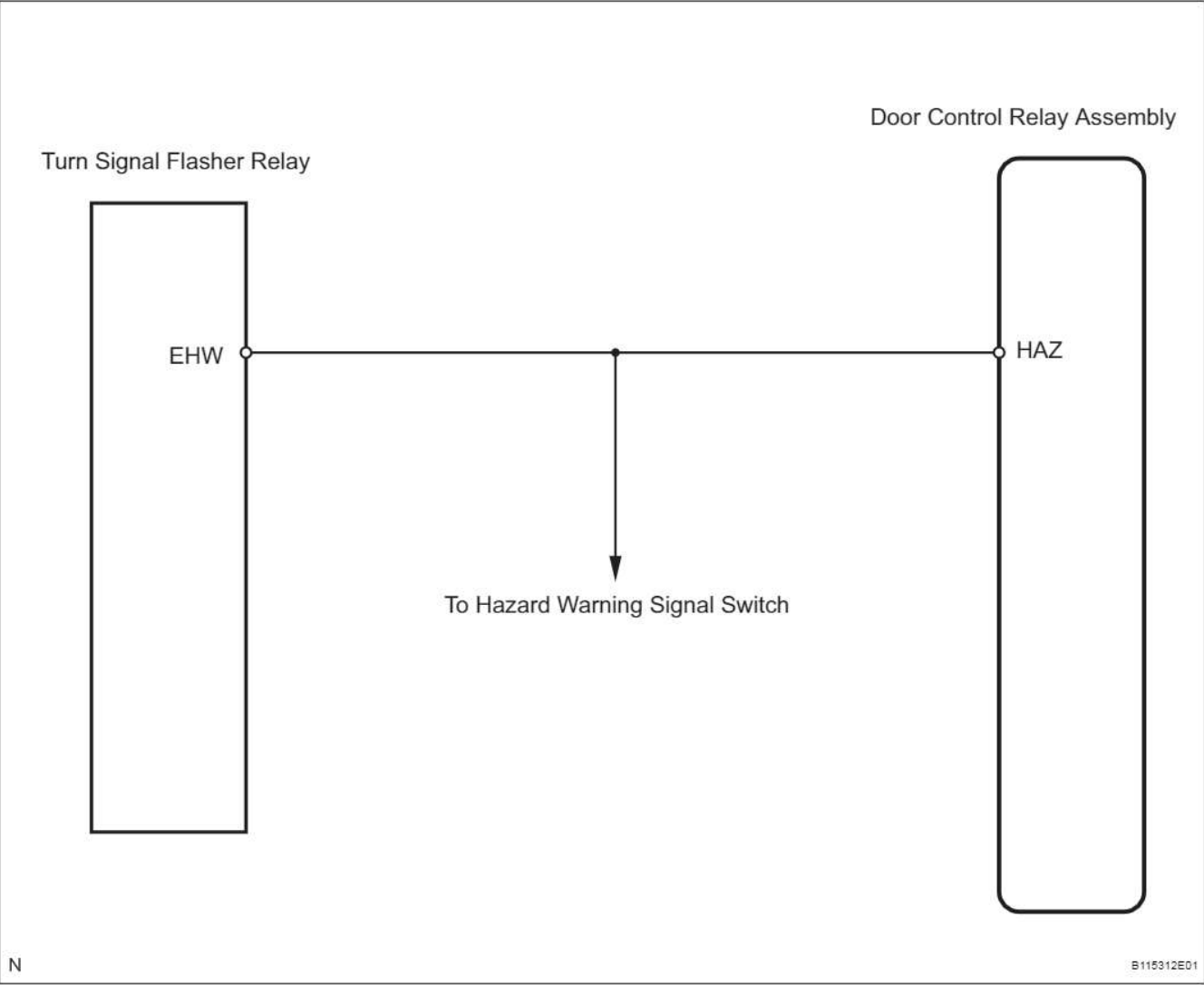
DL-50

DOOR LOCK – WIRELESS DOOR LOCK CONTROL SYSTEM

No Answer-Back

DESCRIPTION
If there is no answer-back of the hazard warning light although the wireless door lock / unlock function is operating normally, there might be a malfunction in the hazard warning light signal that is output from the door control relay.

WIRING DIAGRAM



INSPECTION PROCEDURE

1

CHECK WIRELESS DOOR LOCK FUNCTIONS

- (a) Check whether the wireless door lock functions operate by operating the transmitter switch.
HINT:
When the wireless door LOCK / UNLOCK operation can be performed, it means that the wireless signal from the transmitter is properly input to the door control relay.

DOOR LOCK – WIRELESS DOOR LOCK CONTROL SYSTEM

NG

Go to ONLY WIRELESS CONTROL
FUNCTION DOES NOT OPERATE

OK

2

CHECK HAZARD WARNING LIGHT

- (a) Check that the hazard warning lights blink when the hazard warning signal switch is pressed.

NG

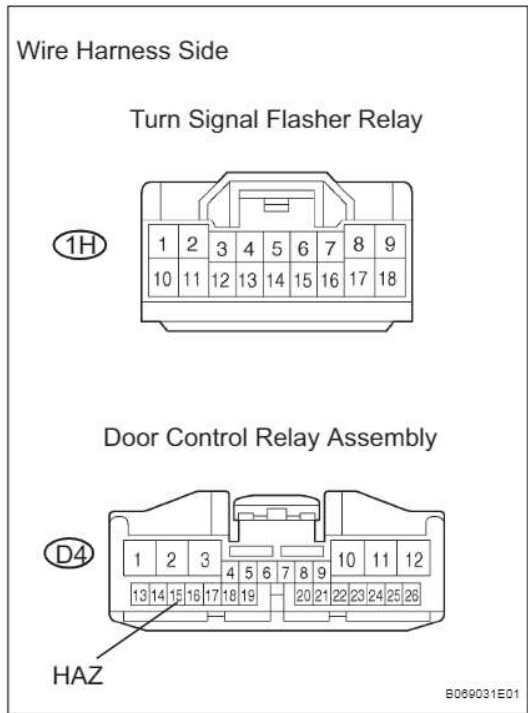
Go to LIGHTING SYSTEM

OK

DL

3

CHECK WIRE HARNESS (TURN SIGNAL FLASHER RELAY - DOOR CONTROL RELAY)



- (a) Disconnect the 1H junction block connector.
(b) Disconnect the D4 relay connector.
(c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
1H-1 -D4-15 (HAZ)	Below 1 Ω

NG

REPAIR OR REPLACE HARNESS AND
CONNECTOR

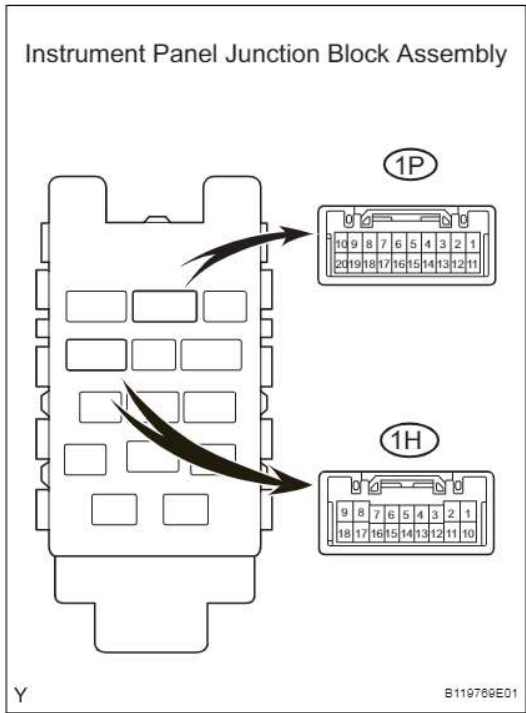
OK

DL-52

DOOR LOCK – WIRELESS DOOR LOCK CONTROL SYSTEM

4

INSPECT INSTRUMENT PANEL JUNCTION BLOCK (TURN SIGNAL FLASHER RELAY)



- (a) Disconnect the 1H and 1P junction block connectors.
(b) Measure the resistance of the junction block terminals.

Standard resistance

Tester Connection	Specified Condition
1H-1 - 1P-9	Below 1 Ω

NG **REPLACE INSTRUMENT PANEL JUNCTION BLOCK**

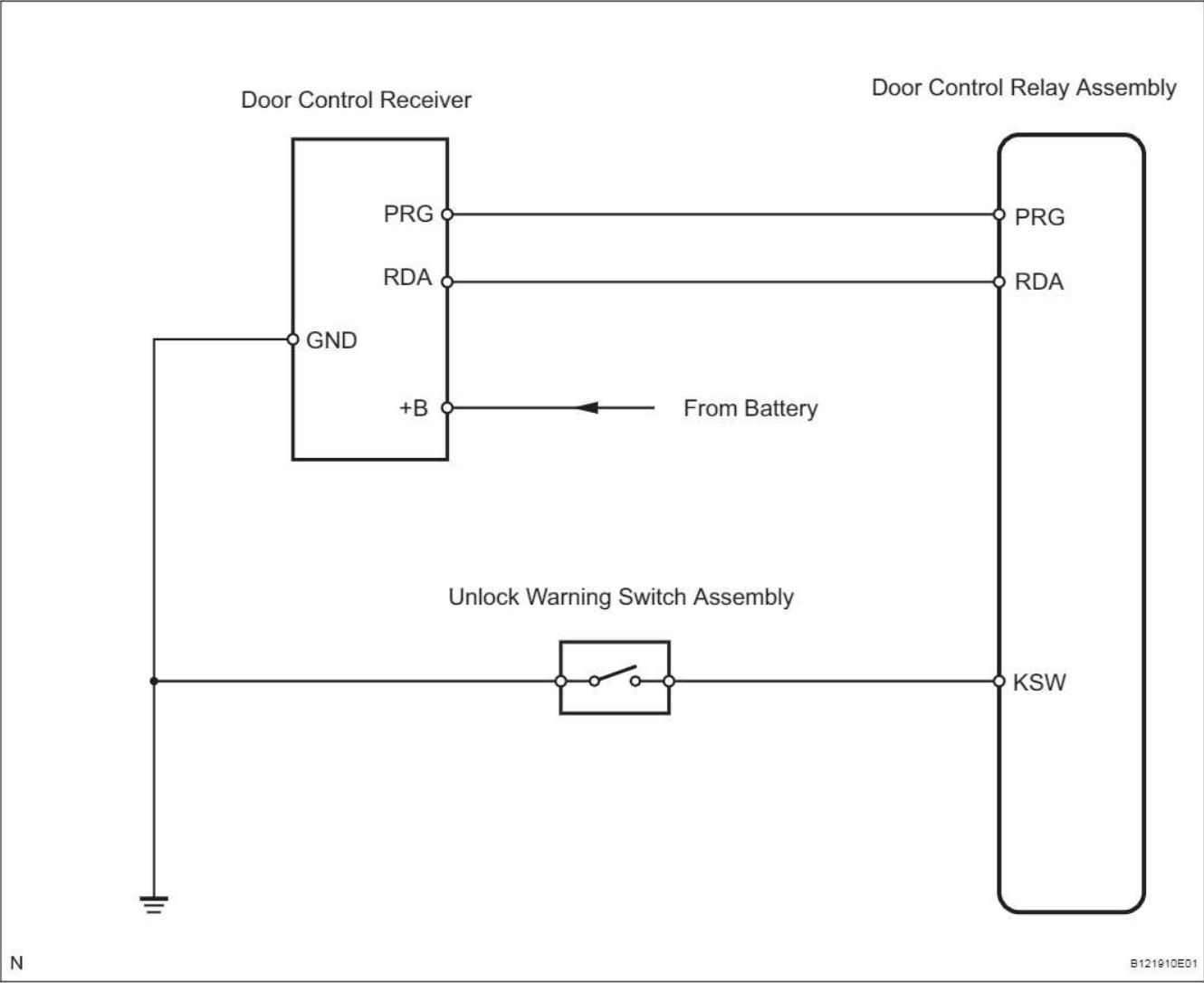
OK

REPLACE DOOR CONTROL RELAY ASSEMBLY

Only Wireless Door Lock Control Function does not Operate

DESCRIPTION
The door control receiver receives a signal from the transmitter and sends this signal to the door control relay. Then, the door control relay controls the door operation by sending a door LOCK / UNLOCK signal to each door lock motor.

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:
The switches described below transmit signals and are built into the door control transmitter.

1CHECK WIRELESS DOOR LOCK CONTROL FUNCTIONS

- (a) Check the wireless door lock control functions (see page [DL-47](#)).

OK

NORMAL

DL-54

DOOR LOCK – WIRELESS DOOR LOCK CONTROL SYSTEM

NG

2 REPLACE TRANSMITTER BATTERY WITH NORMAL ONE

- (a) After replacing the transmitter battery with a new or normal one, check that the wireless LOCK / UNLOCK operation is normal.

OK:

Wireless LOCK / UNLOCK operation is normal.

OK

REPLACE TRANSMITTER BATTERY

DL

NG

3 CHECK WIRELESS DOOR LOCK CONTROL FUNCTIONS (STANDARD OPERATION)

- (a) Check if UNLOCK-LOCK operates in standard operation.

NOTICE:

Standardized test procedure: Press the transmitter switch for 1 second while pointing the transmitter at the driver side 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 DOOR CONTROL TRANSMITTER

OK

4 CONFIRM ROOM LIGHT ILLUMINATES

- (a) Check that the room light illuminates.

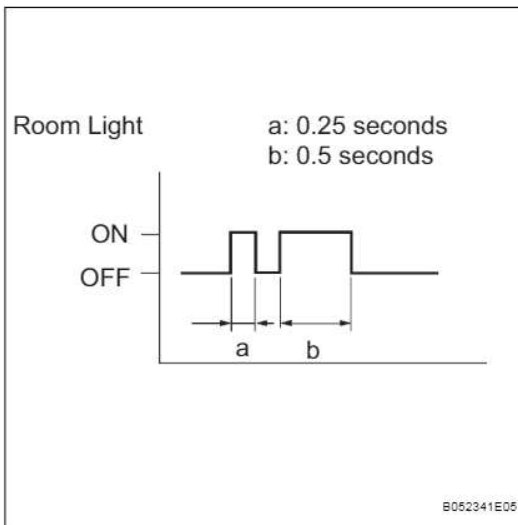
HINT:

When the room light does not illuminate, proceed to self-diagnostic mode after repairing the room light.

NEXT

DOOR LOCK – WIRELESS DOOR LOCK CONTROL SYSTEM

DL-55

5 SWITCH TO SELF-DIAGNOSTIC MODE

(a) Switch to self-diagnostic mode by operating the ignition key cylinder.

- (1) Step 1: Ensure that the vehicle is in its initial condition (see page [DL-47](#)), insert the key into the ignition key cylinder and remove it.
- (2) Step 2: Within 5 seconds of removing the key (step 1), insert the key into the ignition key cylinder (ignition switch OFF) and perform the following once: Turn the ignition switch to ON and return it to OFF.
- (3) Step 3: Within 30 seconds of turning the ignition switch OFF (step 2), perform the following 9 times: Turn the ignition switch to ON and return it to OFF.

NOTICE:

If the operation has failed, the system will return to normal mode.

HINT:

- Turning the ignition switch ON after step 3 has been completed will end self-diagnostic mode.
 - Do not lock or unlock doors during self-diagnostic mode.
- (b) Check that the system has switched to self-diagnostic mode by the blinking frequency of the room light.

NG

Go to step 9

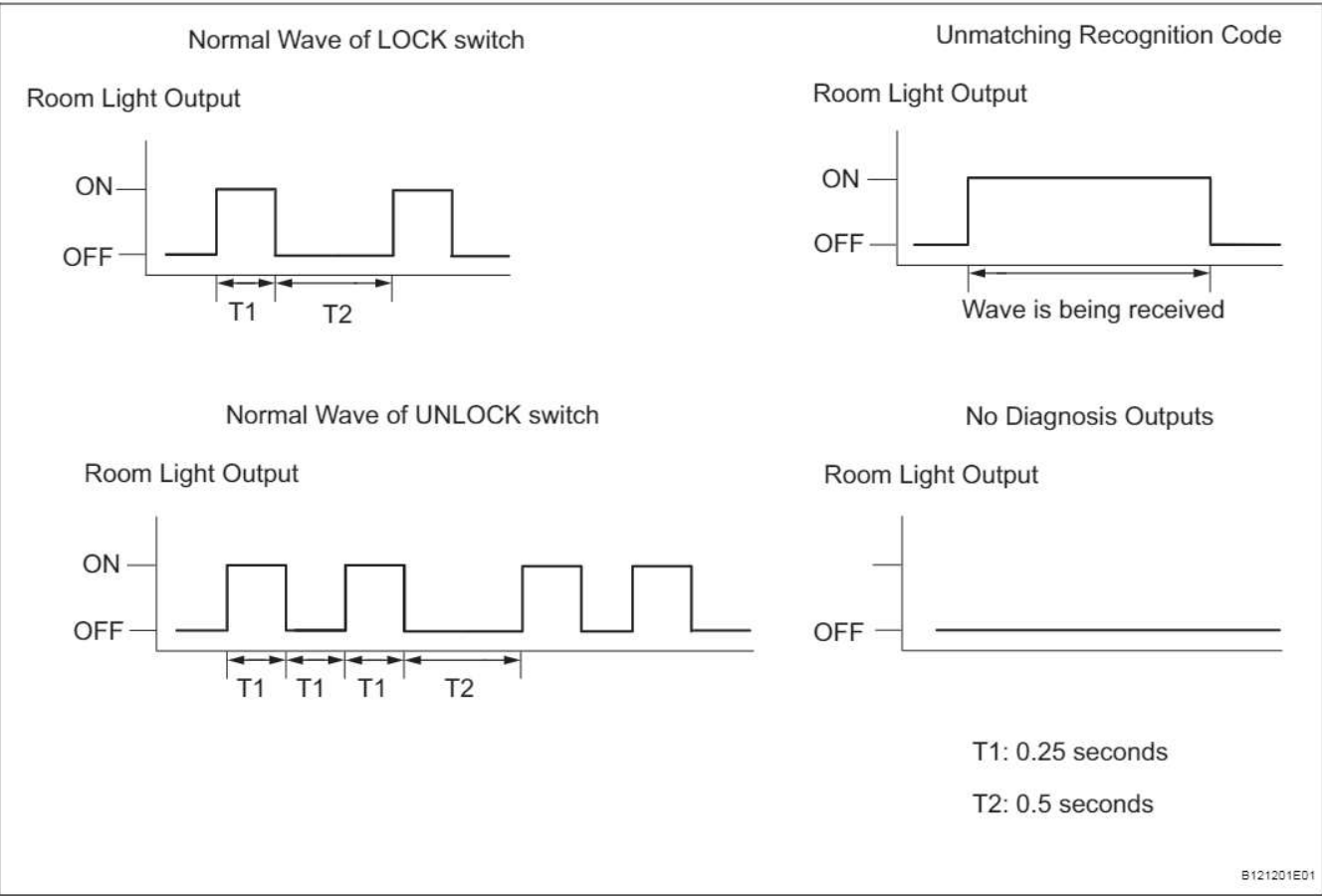
OK

6 CHECK BY SELF-DIAGNOSTIC MODE

- (a) Inspect the diagnosis outputs when the door control transmitter switch is held down (the diagnosis outputs can be checked with the outputs of the room light).

DL-56

DOOR LOCK – WIRELESS DOOR LOCK CONTROL SYSTEM



Result

Result	Proceed to
The normal wave of the door LOCK and UNLOCK switch (room light blinking)	A
An unmatching recognition code (room light ON)	B
No diagnosis outputs (room light OFF)	C

A

REPLACE DOOR CONTROL RELAY ASSEMBLY

C

Go to step 8

B

7

REGISTER RECOGNITION CODE

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

OK

NG

Go to step 15

NORMAL (CARRY OUT INSPECTION OF FUNCTIONS)

8

CHECK RESPONSE OF DOOR CONTROL RECEIVER

- (a) When a new or normal door control transmitter switch of the same type vehicle is held down, check that a diagnosis of unmatching recognition code is output.

NG

Go to step 12

OK

REPLACE DOOR CONTROL TRANSMITTER

DL

9

CONFIRM INPUT METHOD OF SELF-DIAGNOSTIC MODE

Result

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

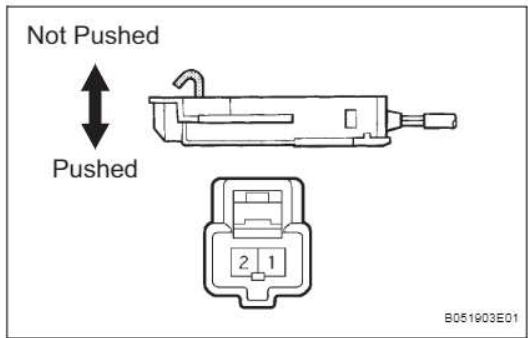
B

Go to step 5

A

10

INSPECT UNLOCK WARNING SWITCH ASSEMBLY



- (a) Measure the resistance of the switch.

Standard resistance

Tester Connection	Switch Condition	Specified Condition
1 - 2	Not pushed	10 kΩ or higher
1 - 2	Pushed	Below 1 Ω

NG

REPLACE UNLOCK WARNING SWITCH ASSEMBLY

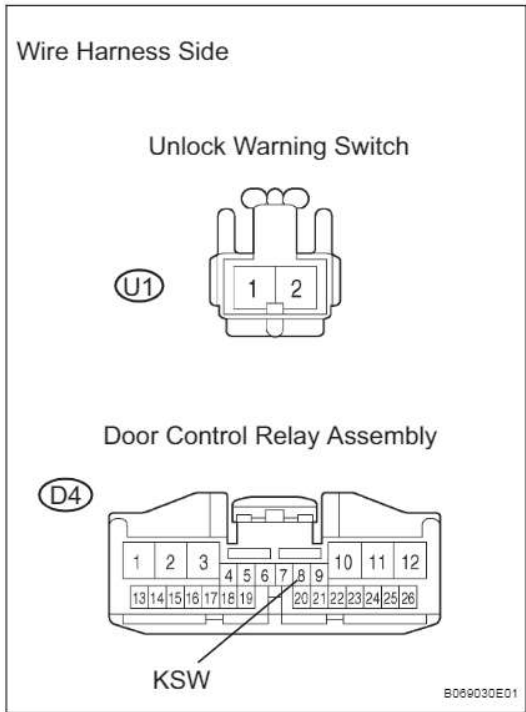
OK

DL-58

DOOR LOCK – WIRELESS DOOR LOCK CONTROL SYSTEM

11

CHECK WIRE HARNESS (UNLOCK WARNING SWITCH - DOOR CONTROL RELAY AND BODY GROUND)



- (a) Disconnect the U1 switch connector.
- (b) Disconnect the D4 relay connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
U1-2 - D4-8 (KSW)	Below 1 Ω
U1-1 - Body ground	Below 1 Ω

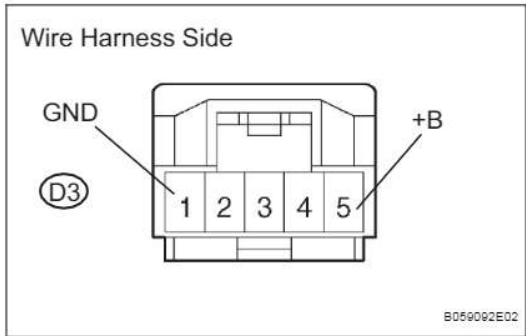
NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

12

CHECK WIRE HARNESS (DOOR CONTROL RECEIVER - BATTERY AND BODY GROUND)



- (a) Disconnect the D3 receiver connector.
- (b) Measure the voltage of the wire harness side connector.

Standard voltage

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

- (c) Measure the resistance of the wire harness side connector.

Standard resistance

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

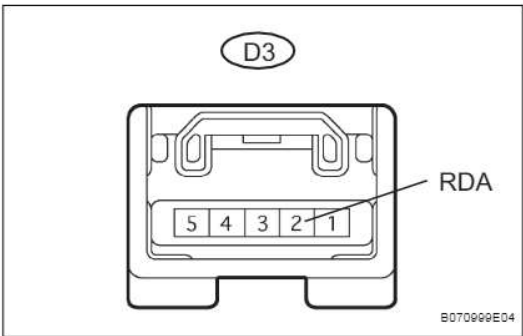
NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

DOOR LOCK – WIRELESS DOOR LOCK CONTROL SYSTEM

13 CHECK DOOR CONTROL RECEIVER (OUTPUT)



- (a) Reconnect the D3 receiver connector.
- (b) Measure the voltage of the connector.

Standard voltage

Tester Connection	Condition	Specified Condition
D3-2 (RDA) - Body ground	No key in ignition key cylinder, all doors closed and each transmitter switch OFF → ON	Below 1 V → Approximately 6 to 7 V → Below 1 V

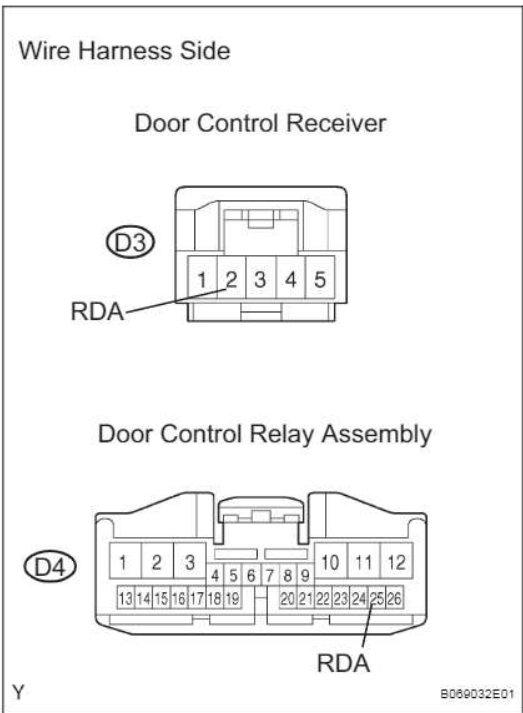
NG

Go to step 15

DL

OK

14 CHECK WIRE HARNESS (DOOR CONTROL RECEIVER - DOOR CONTROL RELAY)



- (a) Disconnect the D3 receiver connector.
- (b) Disconnect the D4 relay connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
D3-2 (RDA) - D4-25 (RDA)	Below 1 Ω
D3-2 (RDA) - Body ground	10 kΩ or higher
D4-25 (RDA) - Body ground	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

15 REPLACE DOOR CONTROL RECEIVER WITH NORMAL ONE

- (a) After replacing the door control receiver with a new or normal one, check that the wireless LOCK / UNLOCK operation is normal.

OK:

Wireless LOCK / UNLOCK operation is normal.

NG

REPLACE DOOR CONTROL RELAY ASSEMBLY

DL-60

DOOR LOCK – WIRELESS DOOR LOCK CONTROL SYSTEM

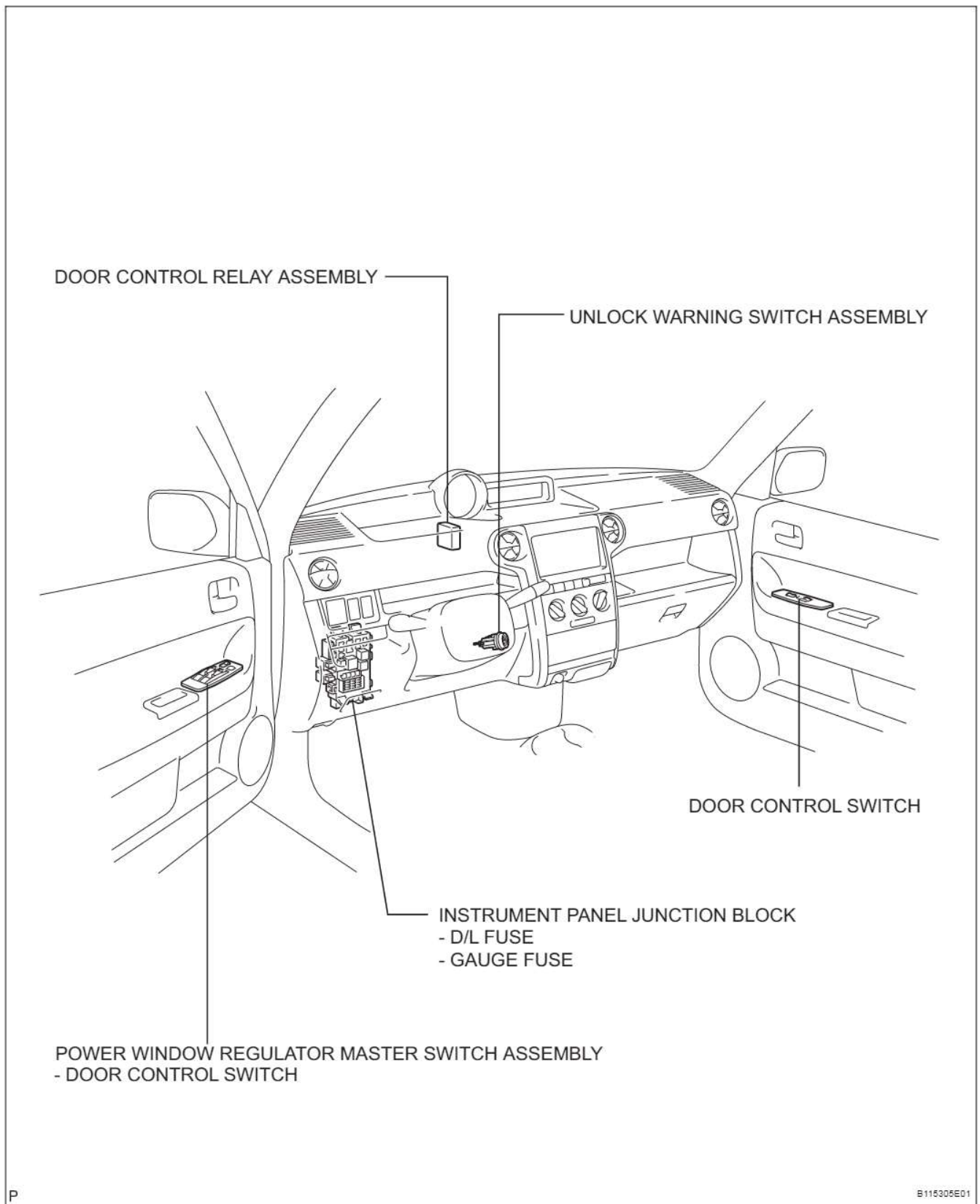


REPLACE DOOR CONTROL RECEIVER

DL

DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM

DL-1

POWER DOOR LOCK CONTROL SYSTEM**PARTS LOCATION**

DL-2

DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM

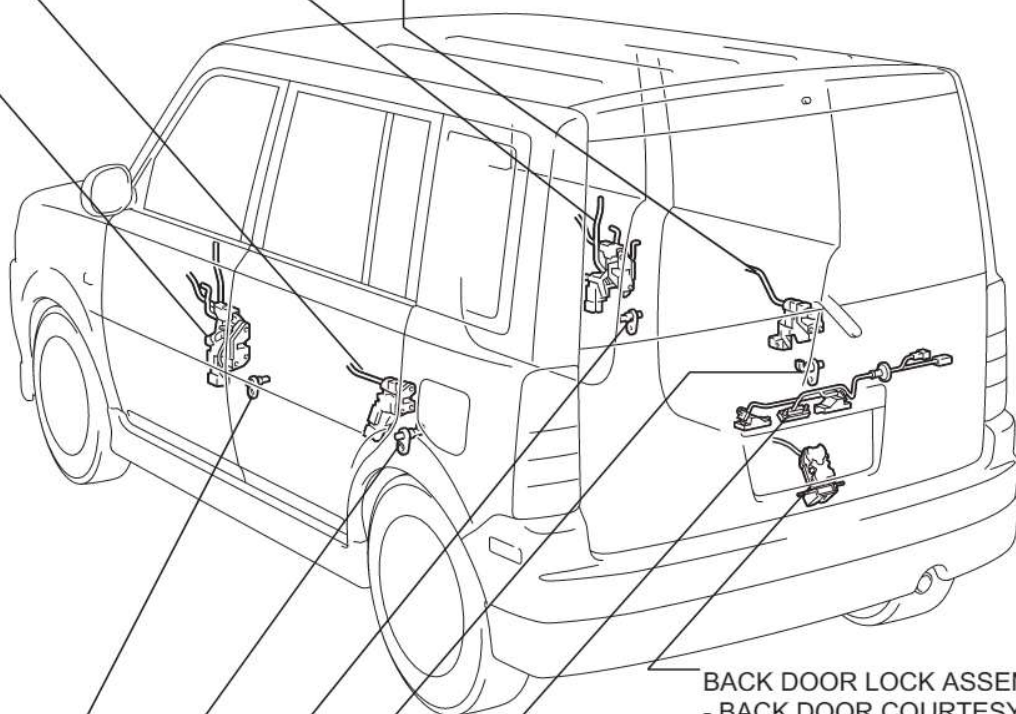
FRONT DOOR LOCK ASSEMBLY LH
- FRONT DOOR LOCK ACTUATOR ASSEMBLY LH

REAR DOOR LOCK ASSEMBLY LH
- REAR DOOR LOCK ACTUATOR ASSEMBLY LH

FRONT DOOR LOCK ASSEMBLY RH
- FRONT DOOR LOCK ACTUATOR ASSEMBLY RH

REAR DOOR LOCK ASSEMBLY RH
- REAR DOOR LOCK ACTUATOR ASSEMBLY RH

DL



BACK DOOR LOCK ASSEMBLY
- BACK DOOR COURTESY SWITCH

BACK DOOR OPENER SWITCH ASSEMBLY
(OUTSIDE HANDLE SWITCH)

REAR DOOR COURTESY LIGHT SWITCH ASSEMBLY RH

FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY RH

REAR DOOR COURTESY LIGHT SWITCH ASSEMBLY LH

FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY LH

P

B115308E01

ON-VEHICLE INSPECTION

1. CHECK POWER DOOR LOCK OPERATION

- (a) Check these basic functions.
 - (1) For the door control switch (manual operation):
 - 1) pushing LOCK causes all the doors to lock
 - and 2) pushing UNLOCK causes all the doors to unlock.
 - (2) For the driver side door key cylinder lock function: turning the driver side door lock cylinder to LOCK causes all the doors to lock.
 - (3) For the driver side door key cylinder unlock function: 1) turning the driver side door key cylinder to UNLOCK once causes the driver side door to unlock, and 2) turning it again to UNLOCK within 3 seconds causes the remaining doors to unlock (2-step unlock function).

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

NOTICE:

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

- (1) Insert the key into the ignition key cylinder.
 - (2) With the driver side door open, turn the driver side door lock knob to LOCK and check that all the doors unlock immediately.
 - (3) With the driver side door open, push LOCK on the door control switch (manual operation) and check that all the doors unlock immediately.
 - (4) With the driver side door open, turn the driver side door lock knob to LOCK, hold it for 2 seconds or more and then close the driver side door. Check that all the doors unlock.
- (c) Check the security function.
 - (1) Close all doors and leave 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, lock it using the door lock knob and close the door. Check that when the door control switch (manual operation) is turned to UNLOCK from outside the vehicle, all doors do not unlock.
 - (3) Pull out the key, and close and lock the driver side door by the key operation. Check that when the door control switch (manual operation) is turned to UNLOCK from outside the vehicle, all doors do not unlock.

DL

DL-10

DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM

DL

- (4) Pull out the key, close the driver side door and lock the door by the wireless operation. Check that when the door control switch (manual operation) is turned to UNLOCK from outside the vehicle, all doors do not unlock.

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 (manual operation) is turned to UNLOCK after the door lock knob is turned to UNLOCK manually.
- The doors are unlocked by the wireless operation.

2. CHECK ILLUMINATION

- (a) Check the door unlock illuminated system.

HINT:

"All doors" is a phrase used to refer to: the driver side door, front passenger side door, rear left door, rear right door and back door.

- (1) Set the room light switch to the DOOR position.
- (2) Close all doors and lock them (using the door control switch, wireless operation or key operation).
- (3) When the wireless operation or key operation is used to unlock the doors, check that the room light illuminates and then fades out after 15 seconds.

HINT:

Starting the next step (illuminated entry system) while the room light is still illuminated will stop the door unlock illuminated system and begin the illuminated entry system.

- (b) Check the illuminated entry system.

HINT:

"All doors" is a phrase used to refer to: the driver side door, front passenger side door, rear left door, rear right door and back door. "One of the doors" is a phrase used to refer to any one of the doors mentioned above.

- (1) Set the room light switch to the DOOR position.
- (2) With all doors closed, open one of the doors and the room light will illuminate. Check that closing the opened door causes the room light to fade out after 15 seconds.
- (3) With all doors closed and the room light illuminated, check that setting the doors to LOCK (using the door control switch, wireless operation or key operation) causes the room light to immediately fade out.

DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM**DL-11**

- (4) With all doors closed and the room light illuminated, check that turning the ignition switch from OFF to ON causes the room light to immediately fade out.

HINT:

- If the room light remains illuminated for 20 minutes, the room light will enter battery save mode and automatically fade out.
- The battery save mode timer is reset if: 1) the key is inserted into the ignition key cylinder, or 2) one of the doors is opened or closed.

3. BACK DOOR LOCK

- (a) When the battery is disconnected and reconnected, 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 before opening it.

DL

WIRELESS DOOR LOCK CONTROL SYSTEM

PRECAUTION

1. NOTICES WHEN CHECKING

(a) Wireless door LOCK / UNLOCK function:

This function operates only when the following 3 conditions are met.

- (1) No key is inserted into the ignition key cylinder.
- (2) All the doors are closed.
- (3) The power door lock control system operates normally.

HINT:

- The UNLOCK function operates even when a door is open.
- The UNLOCK function operates even when the key is in the ignition key cylinder. However, the ignition switch must be OFF.

(b) Panic alarm function:

This function operates only when the following condition is met.

- (1) The ignition switch is OFF.

HINT:

The key can be inserted, but the ignition switch must be OFF.

(c) The wireless transmitter 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 operational area will be shortened due to the vehicle body shape and the influence of the surrounding environment.
- (3) The transmitter's faint electric waves may be affected if the area has strong electric waves or noise. The transmitter's operational area may be shortened or the transmitter may not function.
- (4) When the battery weakens, the operational area is reduced or the transmitter may not function.

HINT:

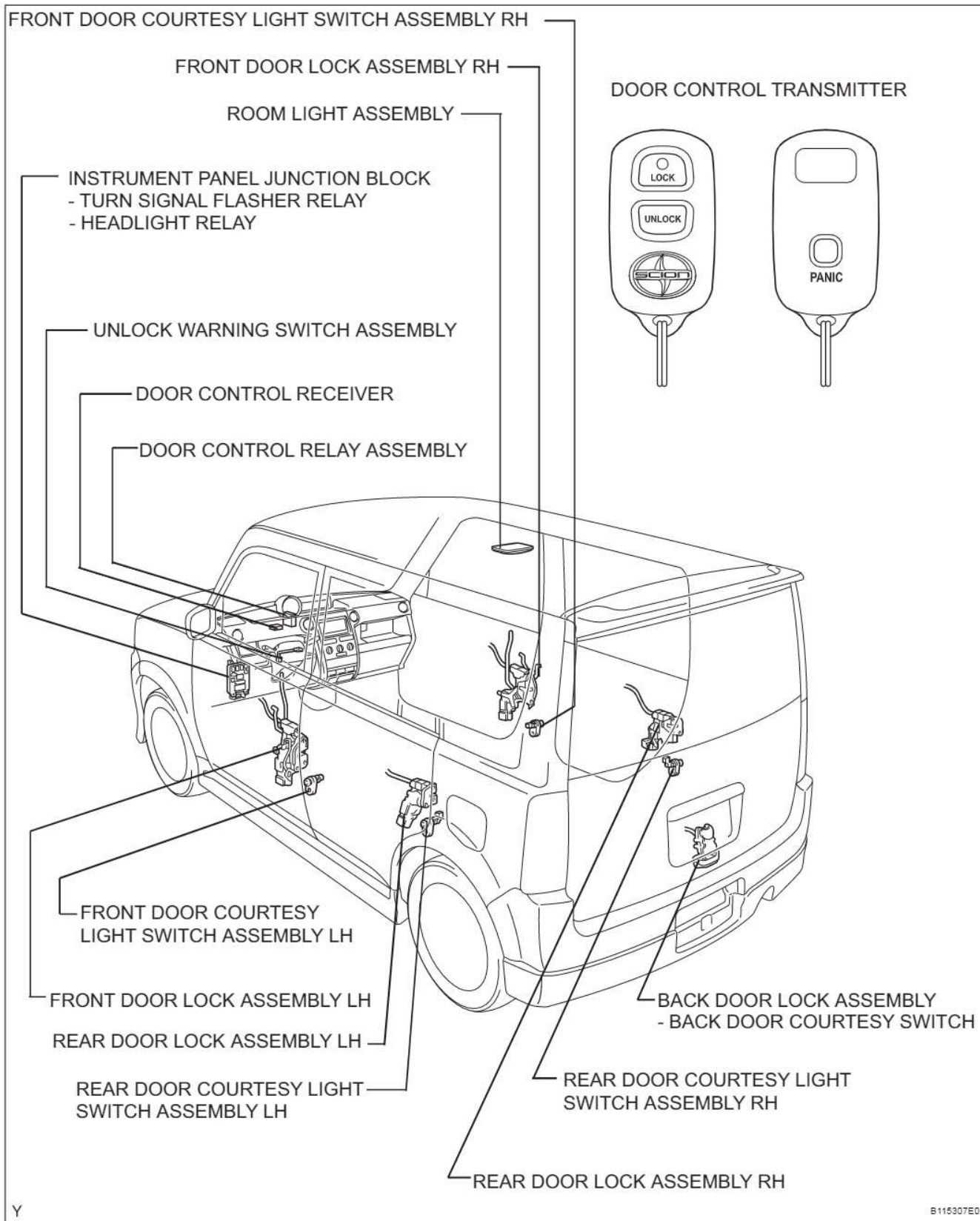
If the door control transmitter has had prolonged exposure to direct sunlight, such as on the instrument panel, it may cause the battery to weaken or cause other such problems.

DL

DL-38

DOOR LOCK - WIRELESS DOOR LOCK CONTROL SYSTEM

PARTS LOCATION



DL-12

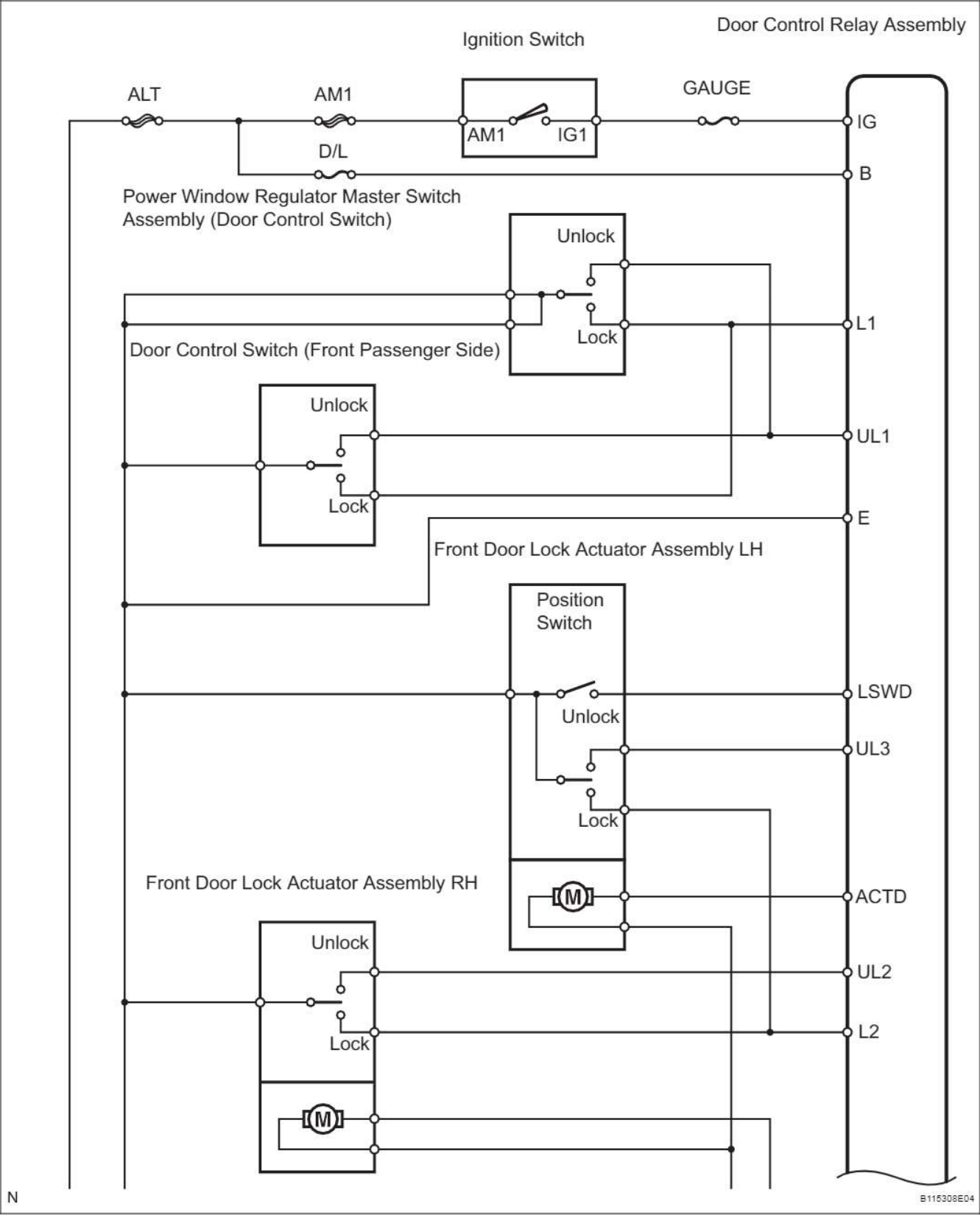
DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM

All Doors cannot be Locked / Unlocked Simultaneously**DESCRIPTION**

The door control relay drives the door lock motors with switch signals from the master switch, door control switch, and driver / front passenger side door key cylinder.

DL

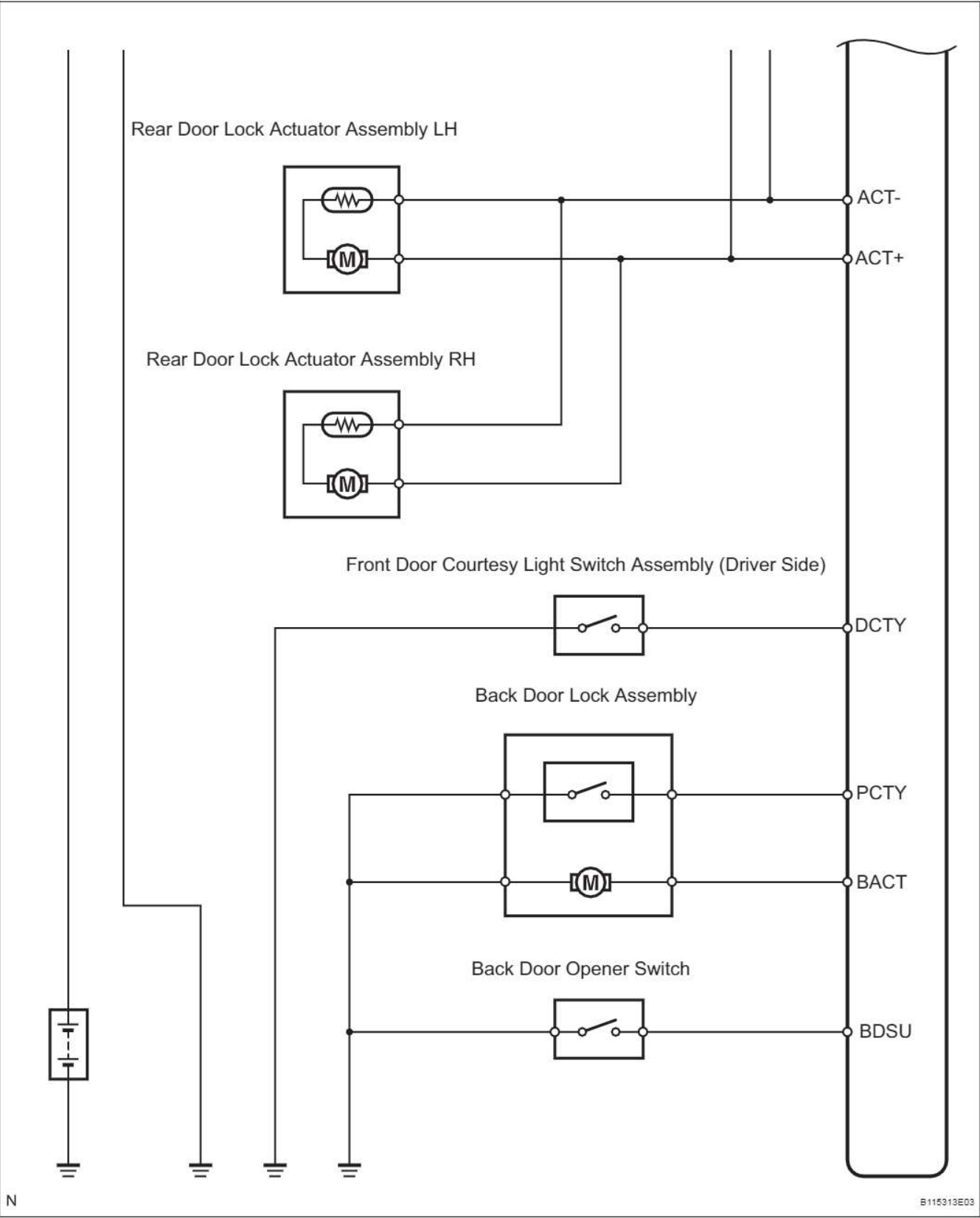
WIRING DIAGRAM



DL-14

DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM

DL



DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM**DL-15****INSPECTION PROCEDURE****1 INSPECT ALL DOOR LOCK / UNLOCK OPERATION**

- (a) All doors can be locked/unlocked at once using the following:
- Door control switch on the master switch (switch operation)
 - Door control switch on the front passenger side (switch operation)
 - Door key cylinder linked with door lock on the driver side (key operation)
 - Door key cylinder linked with door lock on the front passenger side (key operation)
- (b) Proceed to the next step according to the symptom if all the doors cannot be locked/unlocked at once.

Symptom	Proceed to
All doors cannot be locked / unlocked at once using door control switch on master switch or door key cylinder on driver side	A
All doors cannot be locked / unlocked at once using door control switch on front passenger side or door key cylinder on front passenger side	B
All items listed above are malfunctioning	C

B ➤**Go to step 3****C** ➤**Go to step 24****A** ➤**2 CHECK DRIVER SIDE SWITCH AND KEY OPERATION**

- (a) Proceed to the next step according to the symptom listed in the table below.

Symptom	Proceed to
All doors cannot be locked / unlocked at once using door control switch on master switch.	A
All doors cannot be locked / unlocked at once using door key cylinder on driver side.	B
All doors cannot be locked / unlocked at once using either door control switch on master switch or door key cylinder on driver side.	C

A ➤**Go to step 4****B** ➤**Go to step 8****C** ➤**Go to step 14****3 CHECK FRONT PASSENGER SWITCH AND KEY**

- (a) Proceed to the next step according to the symptom listed in the table below.

DL-16

DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM

Symptom	Proceed to
All doors cannot be locked / unlocked at once using door control switch on front passenger side.	A
All doors cannot be locked / unlocked at once using door key cylinder on front passenger side.	B
All doors cannot be locked / unlocked at once using either door control switch or door key cylinder on front passenger side.	C

A

Go to step 6

B

Go to step 11

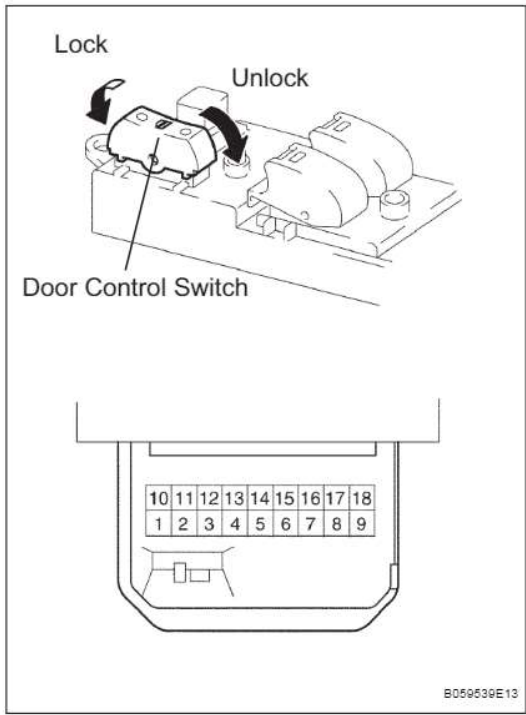
C

Go to step 19

DL

4

INSPECT POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY (DOOR CONTROL SWITCH)



- (a) Remove the master switch.
- (b) Measure the resistance of the door control switch.
- Standard resistance

Tester Connection	Switch Condition	Specified Condition
1 - 5, 3 - 5	Lock	Below 1 Ω
1 - 5, 3 - 5 1 - 8, 3 - 8	OFF	10 k Ω or higher
1 - 8, 3 - 8	Unlock	Below 1 Ω

NG

REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY

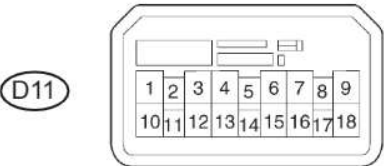
OK

5

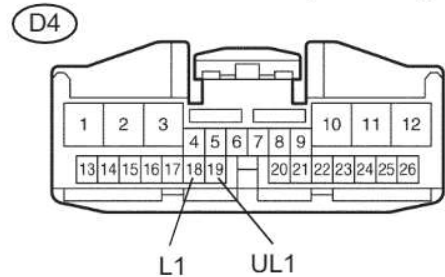
CHECK WIRE HARNESS (MASTER SWITCH - DOOR CONTROL RELAY AND BODY GROUND)

Wire Harness Side

Power Window Regulator Master Switch Assembly



Door Control Relay Assembly



B071904E01

- (a) Disconnect the D11 switch connector.
- (b) Disconnect the D4 relay connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
D11-5 - D4-18 (L1)	Below 1 Ω
D11-8 - D4-19 (UL1)	Below 1 Ω
D11-1 - Body ground	Below 1 Ω
D11-3 - Body ground	Below 1 Ω

NG

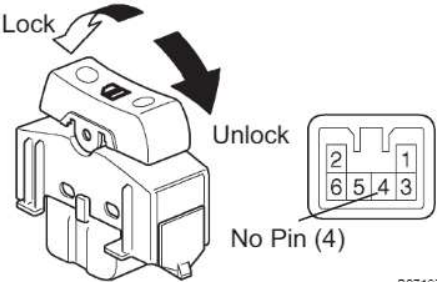
REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

REPLACE DOOR CONTROL RELAY ASSEMBLY

6

INSPECT DOOR CONTROL SWITCH ASSEMBLY



B071970E12

- (a) Remove the door control switch.
- (b) Measure the resistance of the switch.

Standard resistance

Tester Connection	Switch Condition	Specified Condition
3 - 6	Lock	Below 1 Ω
3 - 5, 3 - 6	OFF	10 kΩ or higher
3 - 5	Unlock	Below 1 Ω

NG

REPLACE DOOR CONTROL SWITCH ASSEMBLY

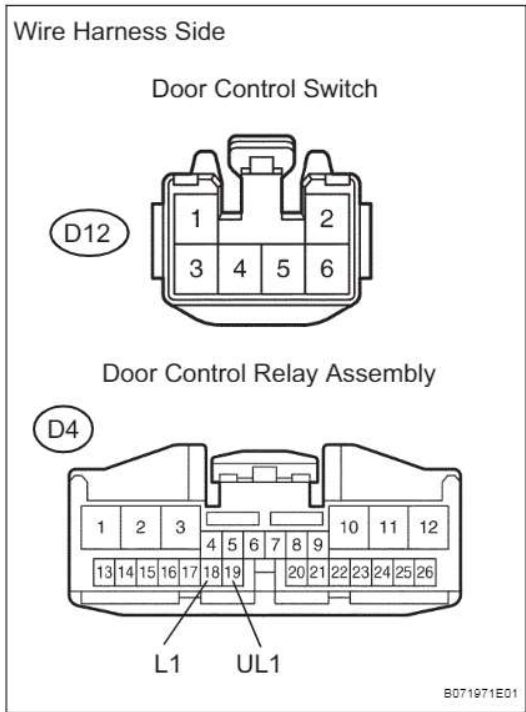
OK

DL-18

DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM

7

CHECK WIRE HARNESS (DOOR CONTROL SWITCH - DOOR CONTROL RELAY AND BODY GROUND)



- (a) Disconnect the D12 switch connector.
- (b) Disconnect the D4 relay connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard resistance	
Tester Connection	Specified Condition
D12-5 - D4-19 (UL1)	Below 1 Ω
D12-6 - D4-18 (L1)	Below 1 Ω
D12-3 - Body ground	Below 1 Ω

NG

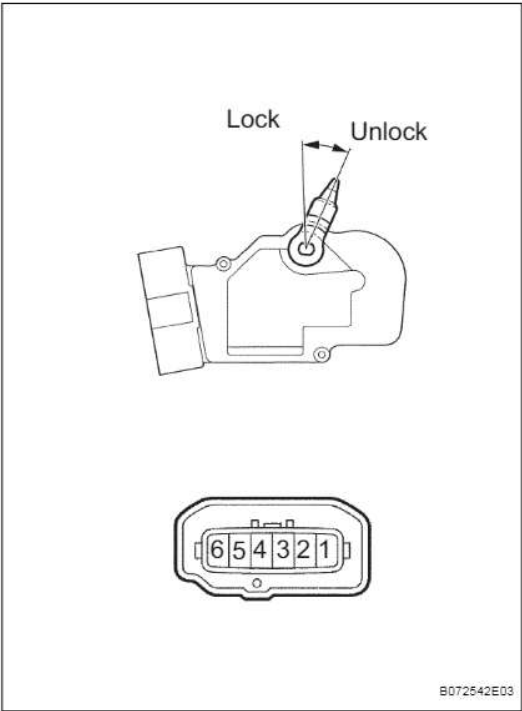
REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

REPLACE DOOR CONTROL RELAY ASSEMBLY

DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM

8 INSPECT FRONT DOOR LOCK ACTUATOR ASSEMBLY LH (DOOR LOCK MOTOR)



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

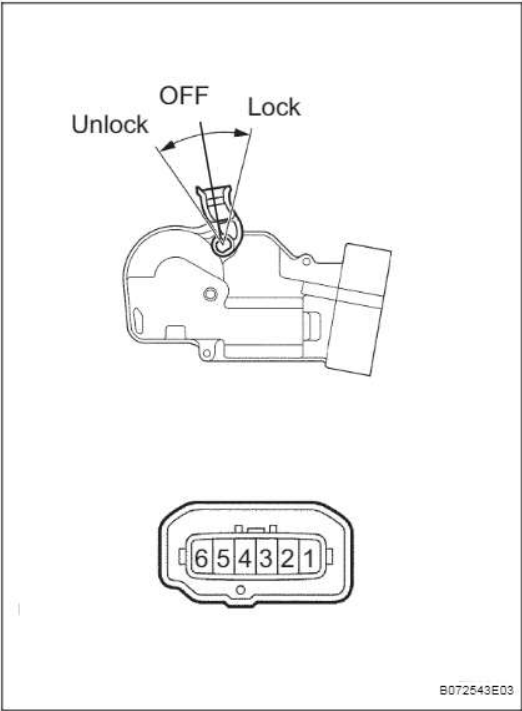
Measurement Condition	Specified Condition
Battery positive (+) → Terminal 2 Battery negative (-) → Terminal 1	Lock
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 2	Unlock

NG → REPLACE FRONT DOOR LOCK ACTUATOR ASSEMBLY LH

DL

OK

9 INSPECT FRONT DOOR LOCK ACTUATOR ASSEMBLY LH (DOOR LOCK AND UNLOCK SWITCH, POSITION SWITCH)



- (a) Measure the resistance of the door lock and unlock switch and position switch.
- Standard resistance:**
Door lock and unlock switch

Tester Connection	Switch Condition	Specified Condition
3 - 5	Lock	Below 1 Ω
3 - 5, 3 - 6	OFF	10 k Ω or higher
3 - 6	Unlock	Below 1 Ω

Position switch

Tester Connection	Switch Condition	Specified Condition
3 - 4	Lock	10 k Ω or higher
3 - 4	Unlock	Below 1 Ω

NG → REPLACE FRONT DOOR LOCK ACTUATOR ASSEMBLY LH

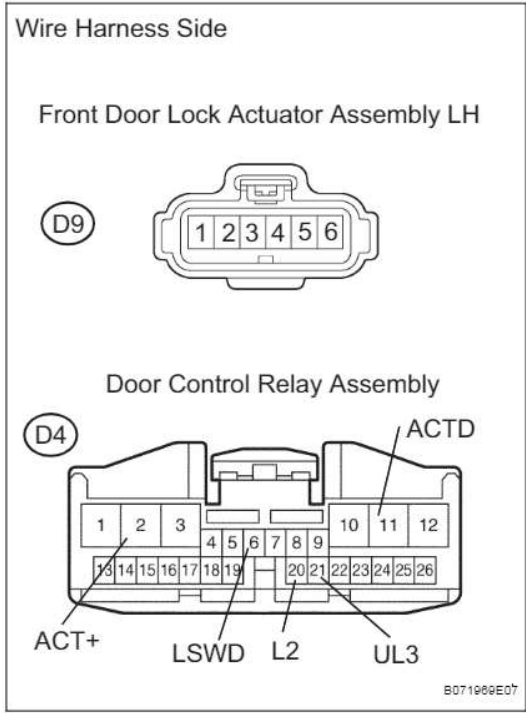
DL-20

DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM

OK

10

CHECK WIRE HARNESS (ACTUATOR - DOOR CONTROL RELAY AND BODY GROUND)



- (a) Disconnect the D9 actuator connector.
 - (b) Disconnect the D4 relay connector.
 - (c) Measure the resistance of the wire harness side connectors.
- Standard resistance**

Tester Connection	Specified Condition
D9-1 - D4-11 (ACTD)	Below 1 Ω
D9-2 - D4-2 (ACT+)	Below 1 Ω
D9-4 - D4-6 (LSWD)	Below 1 Ω
D9-5 - D4-20 (L2)	Below 1 Ω
D9-6 - D4-21 (UL3)	Below 1 Ω
D9-3 - Body ground	Below 1 Ω

NG

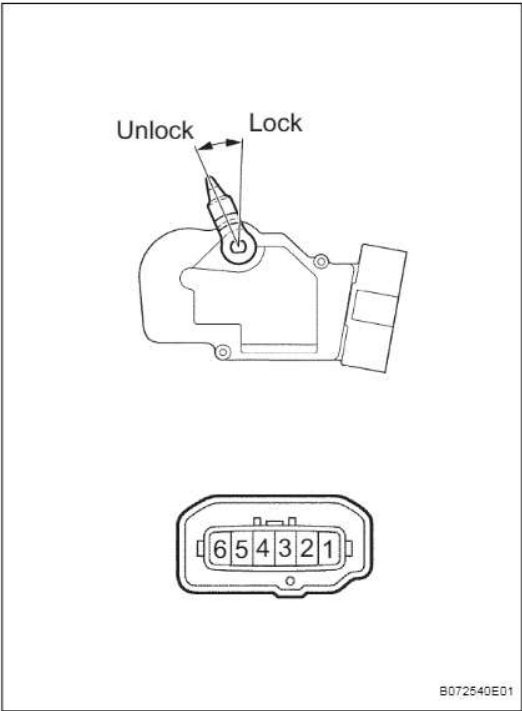
REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

REPLACE DOOR CONTROL RELAY ASSEMBLY

11

INSPECT FRONT DOOR LOCK ACTUATOR ASSEMBLY RH (DOOR LOCK MOTOR)



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

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 6 Battery negative (-) → Terminal 5	Lock
Battery positive (+) → Terminal 5 Battery negative (-) → Terminal 6	Unlock

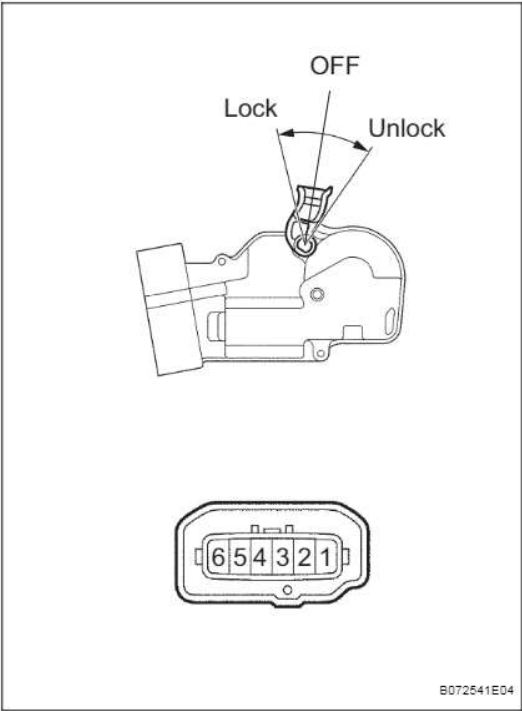
NG → **INSPECT FRONT DOOR LOCK ACTUATOR ASSEMBLY RH**

DL

OK

12

INSPECT FRONT DOOR LOCK ACTUATOR ASSEMBLY RH (DOOR LOCK AND UNLOCK SWITCH)



- (a) Measure the resistance of the door lock and unlock switch.
- Standard resistance**

Tester Connection	Switch Condition	Specified Condition
2 - 4	Lock	Below 1 Ω
1 - 4, 2 - 4	OFF	10 k Ω or higher
1 - 4	Unlock	Below 1 Ω

NG → **REPLACE FRONT DOOR LOCK ACTUATOR ASSEMBLY RH**

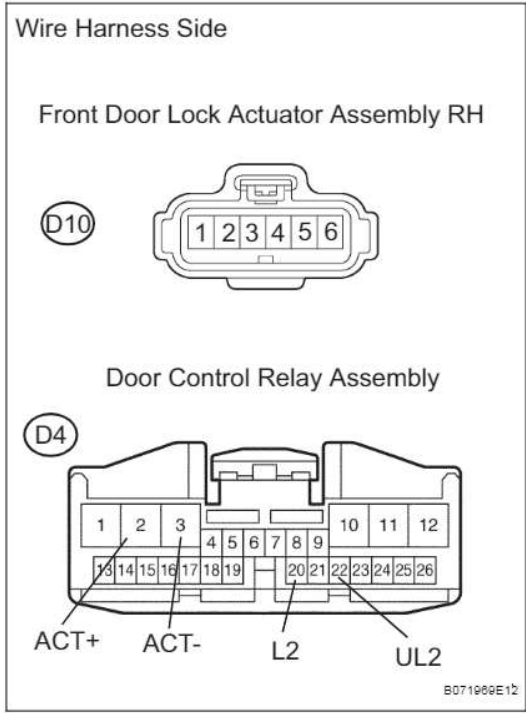
DL-22

DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM

OK

13

CHECK WIRE HARNESS (ACTUATOR - DOOR CONTROL RELAY AND BODY GROUND)



- (a) Disconnect the D10 actuator connector.
 - (b) Disconnect the D4 relay connector.
 - (c) Measure the resistance of the wire harness side connectors.
- Standard resistance**

Tester Connection	Specified Condition
D10-1 - D4-22 (UL2)	Below 1 Ω
D10-2 - D4-20 (L2)	Below 1 Ω
D10-5 - D4-3 (ACT-)	Below 1 Ω
D10-6 - D4-2 (ACT+)	Below 1 Ω
D10-4 - Body ground	Below 1 Ω

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

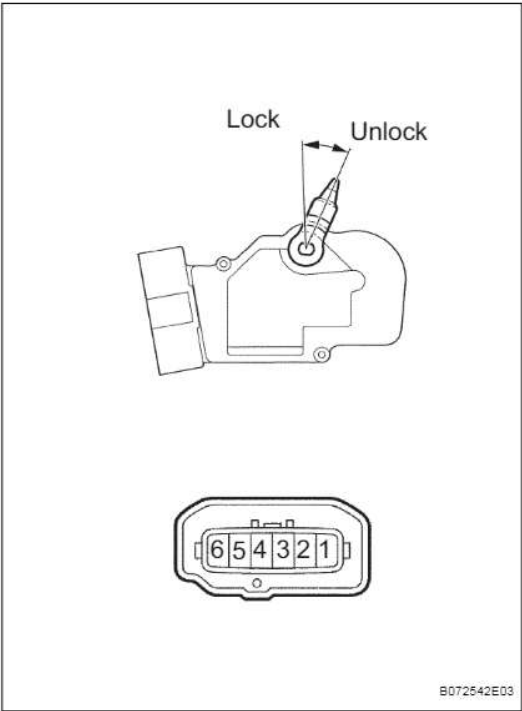
OK

REPLACE DOOR CONTROL RELAY ASSEMBLY

DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM

DL-23

14 INSPECT FRONT DOOR LOCK ACTUATOR ASSEMBLY LH (DOOR LOCK MOTOR)



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

OK

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 2 Battery negative (-) → Terminal 1	Lock
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 2	Unlock

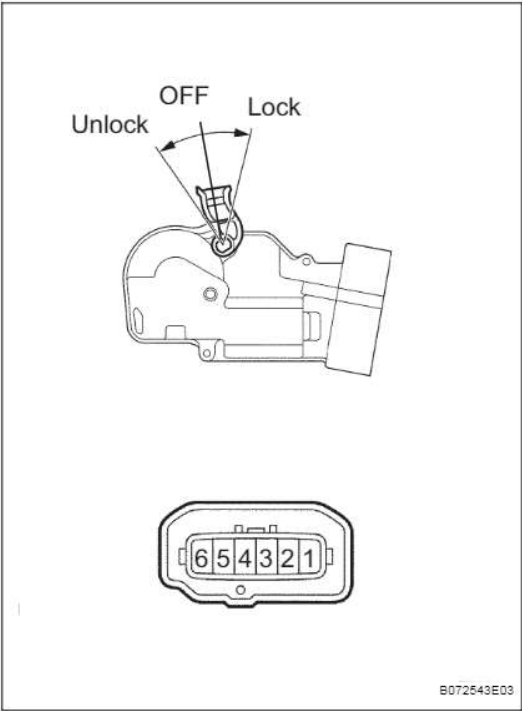
NG

REPLACE FRONT DOOR LOCK ACTUATOR ASSEMBLY LH

DL

OK

15 INSPECT FRONT DOOR LOCK ACTUATOR ASSEMBLY LH (DOOR LOCK AND UNLOCK SWITCH, POSITION SWITCH)



- (a) Measure the resistance of the door lock and unlock switch and position switch.

Standard resistance:

Door lock and unlock switch

Tester Connection	Switch Condition	Specified Condition
3 - 5	Lock	Below 1 Ω
3 - 5, 3 - 6	OFF	10 k Ω or higher
3 - 6	Unlock	Below 1 Ω

Position switch

Tester Connection	Switch Condition	Specified Condition
3 - 4	Lock	10 k Ω or higher
3 - 4	Unlock	Below 1 Ω

NG

REPLACE FRONT DOOR LOCK ACTUATOR ASSEMBLY LH

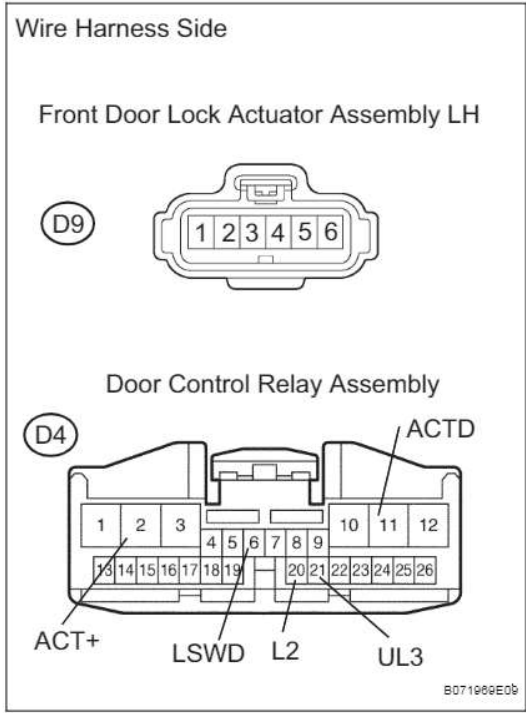
DL-24

DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM

OK

16

CHECK WIRE HARNESS (ACTUATOR - DOOR CONTROL RELAY AND BODY GROUND)



- (a) Disconnect the D9 actuator connector.
- (b) Disconnect the D4 relay connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
D9-1 - D4-11 (ACTD)	Below 1 Ω
D9-2 - D4-2 (ACT+)	Below 1 Ω
D9-4 - D4-6 (LSWD)	Below 1 Ω
D9-5 - D4-20 (L2)	Below 1 Ω
D9-6 - D4-21 (UL3)	Below 1 Ω
D9-3 - Body ground	Below 1 Ω

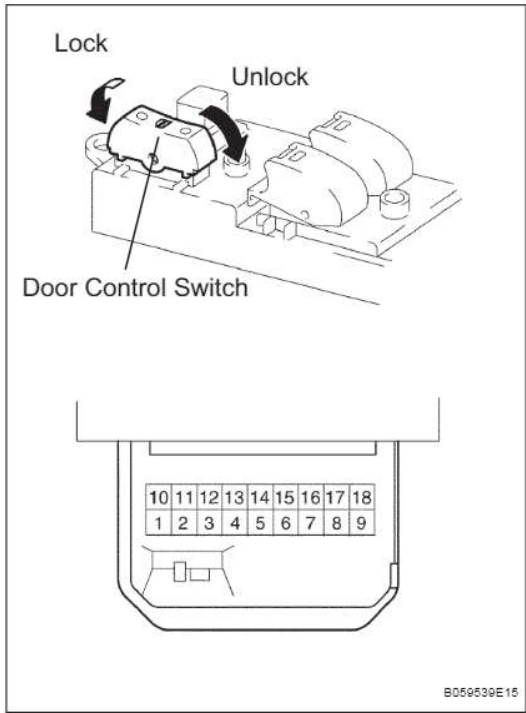
NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

17

INSPECT POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY



- (a) Remove the master switch.
- (b) Measure the resistance of the door control switch.

Standard resistance

Tester Connection	Switch Condition	Specified Condition
1 - 5, 3 - 5	Lock	Below 1 Ω
1 - 5, 3 - 5	OFF	10 kΩ or higher
1 - 8, 3 - 8	Unlock	Below 1 Ω

NG

REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY

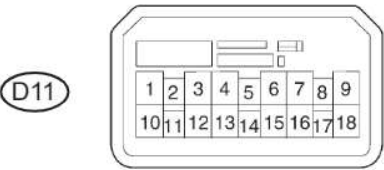
DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM

OK

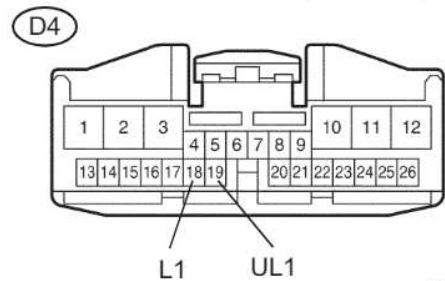
18 CHECK WIRE HARNESS (MASTER SWITCH - DOOR CONTROL RELAY AND BODY GROUND)

Wire Harness Side

Power Window Regulator Master Switch Assembly



Door Control Relay Assembly



B071984E01

- (a) Disconnect the D11 switch connector.
- (b) Disconnect the D4 relay connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
D11-5 - D4-18 (L1)	Below 1 Ω
D11-8 - D4-19 (UL1)	Below 1 Ω
D11-1 - Body ground	Below 1 Ω
D11-3 - Body ground	Below 1 Ω

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

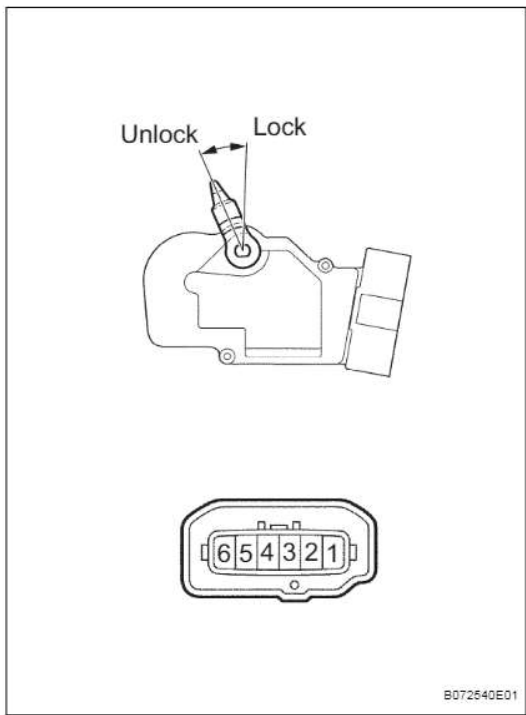
REPLACE DOOR CONTROL RELAY ASSEMBLY

DL-26

DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM

19

INSPECT FRONT DOOR LOCK ACTUATOR ASSEMBLY RH (DOOR LOCK MOTOR)



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

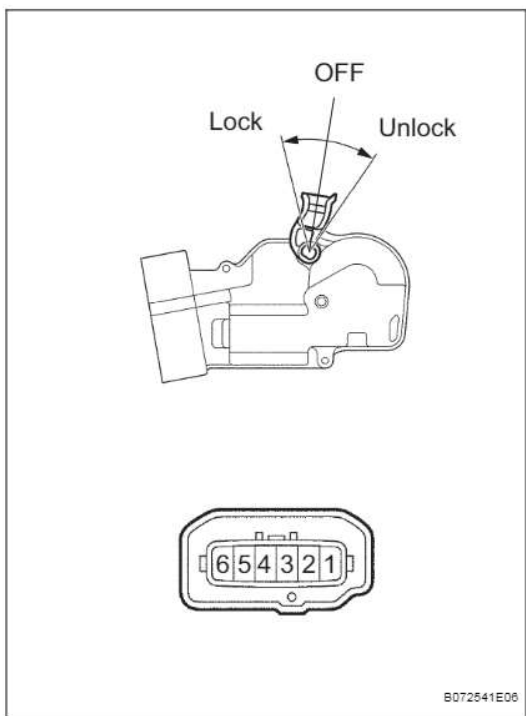
Measurement Condition	Specified Condition
Battery positive (+) → Terminal 6 Battery negative (-) → Terminal 5	Lock
Battery positive (+) → Terminal 5 Battery negative (-) → Terminal 6	Unlock

NG → REPLACE FRONT DOOR LOCK ACTUATOR ASSEMBLY RH

OK

20

INSPECT FRONT DOOR LOCK ACTUATOR ASSEMBLY RH (DOOR LOCK AND UNLOCK SWITCH)



- (a) Measure the resistance of the door lock and unlock switch.
- Standard resistance**

Tester Connection	Door Lock Condition	Specified Condition
2 - 4	Lock	Below 1 Ω
1 - 4, 2 - 4	OFF	10 kΩ or higher
1 - 4	Unlock	Below 1 Ω

NG → REPLACE FRONT DOOR LOCK ACTUATOR ASSEMBLY RH

DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM

OK

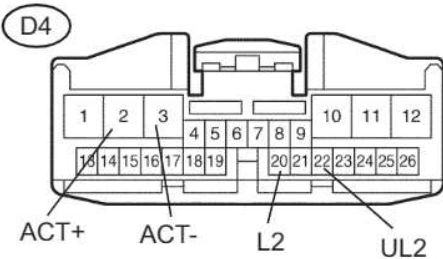
21 CHECK WIRE HARNESS (ACTUATOR - DOOR CONTROL RELAY AND BODY GROUND)

Wire Harness Side

Front Door Lock Actuator Assembly RH



Door Control Relay Assembly



B071909E10

- (a) Disconnect the D10 actuator connector.
- (b) Disconnect the D4 relay connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard resistance

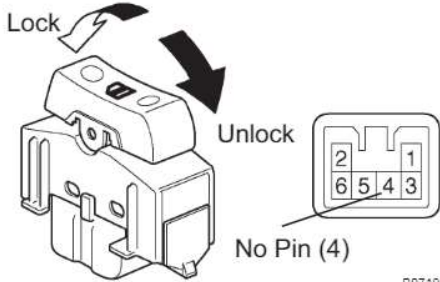
Tester Connection	Specified Condition
D10-1 - D4-22 (UL2)	Below 1 Ω
D10-2 - D4-20 (L2)	Below 1 Ω
D10-5 - D4-3 (ACT-)	Below 1 Ω
D10-6 - D4-2 (ACT+)	Below 1 Ω
D10-4 - Body ground	Below 1 Ω

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

22 INSPECT DOOR CONTROL SWITCH ASSEMBLY



B071970E13

- (a) Remove the door control switch.
- (b) Measure the resistance of the switch.

Standard resistance

Tester Connection	Switch Condition	Specified Condition
3 - 6	Lock	Below 1 Ω
3 - 5, 3 - 6	OFF	10 kΩ or higher
3 - 5	Unlock	Below 1 Ω

NG

REPLACE DOOR CONTROL SWITCH ASSEMBLY

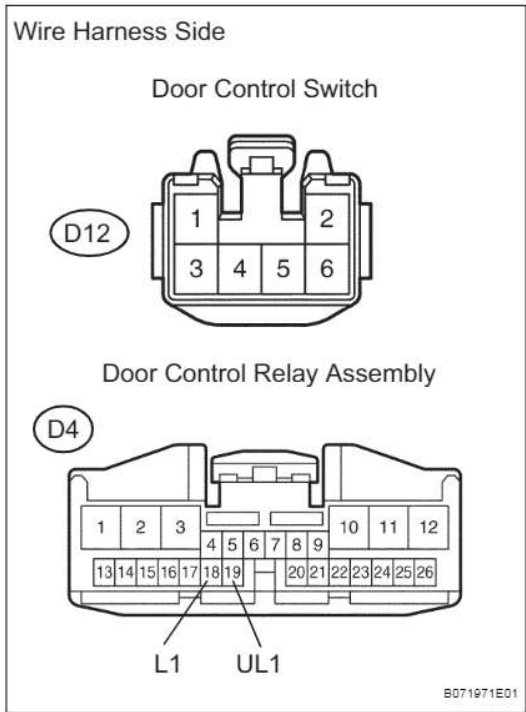
OK

DL-28

DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM

23

CHECK WIRE HARNESS (DOOR CONTROL SWITCH - DOOR CONTROL RELAY AND BODY GROUND)



- (a) Disconnect the D12 switch connector.
- (b) Disconnect the D4 relay connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
D12-5 - D4-19 (UL1)	Below 1 Ω
D12-6 - D4-18 (L1)	Below 1 Ω
D12-3 - Body ground	Below 1 Ω

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

REPLACE DOOR CONTROL RELAY ASSEMBLY

24

INSPECT FUSE (D/L, GAUGE)

- (a) Remove the D/L and GAUGE fuses from the instrument panel junction block.
- (b) Measure the resistance of the switch.

Standard resistance:
Below 1 Ω

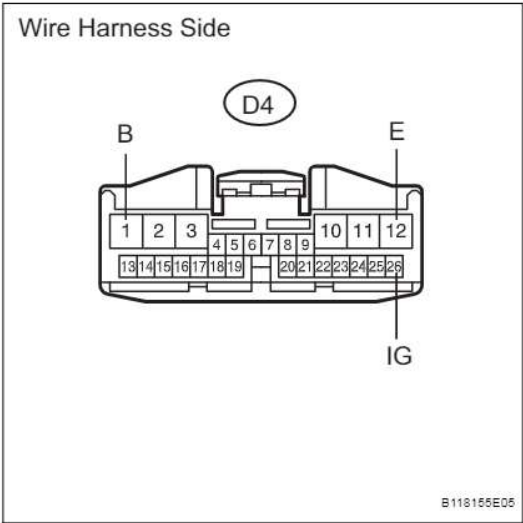
NG

REPLACE FUSE

OK

DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM

25 CHECK WIRE HARNESS (DOOR CONTROL RELAY - BODY GROUND)



- (a) Disconnect the D4 relay connector.
(b) Check the voltage of the wire harness side connector.
Standard voltage

Tester Connection	Condition	Specified Condition
D4-1 (B) - Body ground	Always	10 to 14 V
D4-26 (IG) - Body ground	Ignition switch ON	10 to 14 V

- (c) Check the resistance of the wire harness side connector.
Standard resistance

Tester Connection	Specified Condition
D4-12 (E) - Body ground	Below 1 Ω

NG REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

REPLACE DOOR CONTROL RELAY ASSEMBLY

DL

DL-60

DOOR LOCK – TRANSMITTER BATTERY

TRANSMITTER BATTERY REPLACEMENT

1. REMOVE TRANSMITTER BATTERY

NOTICE:

Take extra care when handling these precision electronic components.

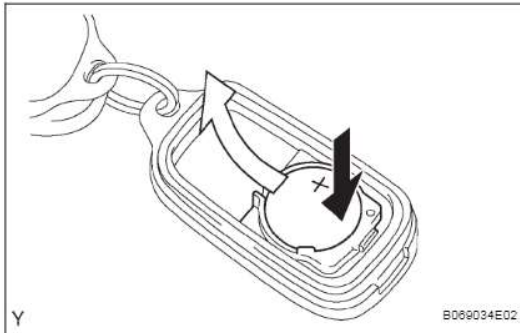
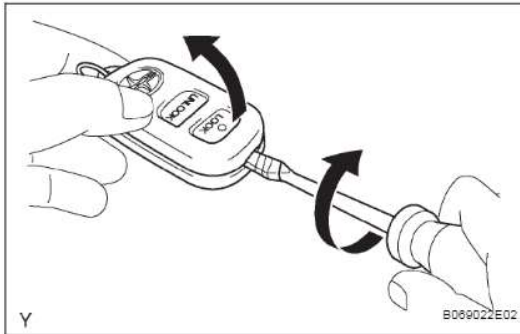
- (a) Using a screwdriver, pry out the transmitter case.

HINT:

Tape the screwdriver tip before use.

NOTICE:

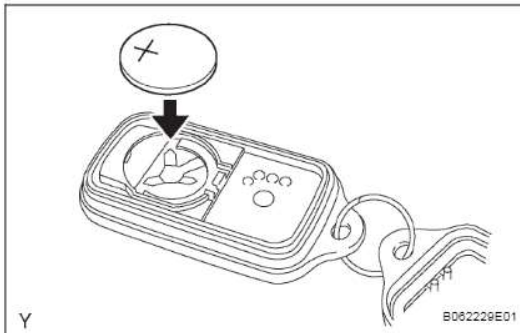
Do not forcibly pry out the case.



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

NOTICE:

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



2. INSTALL TRANSMITTER BATTERY

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

NOTICE:

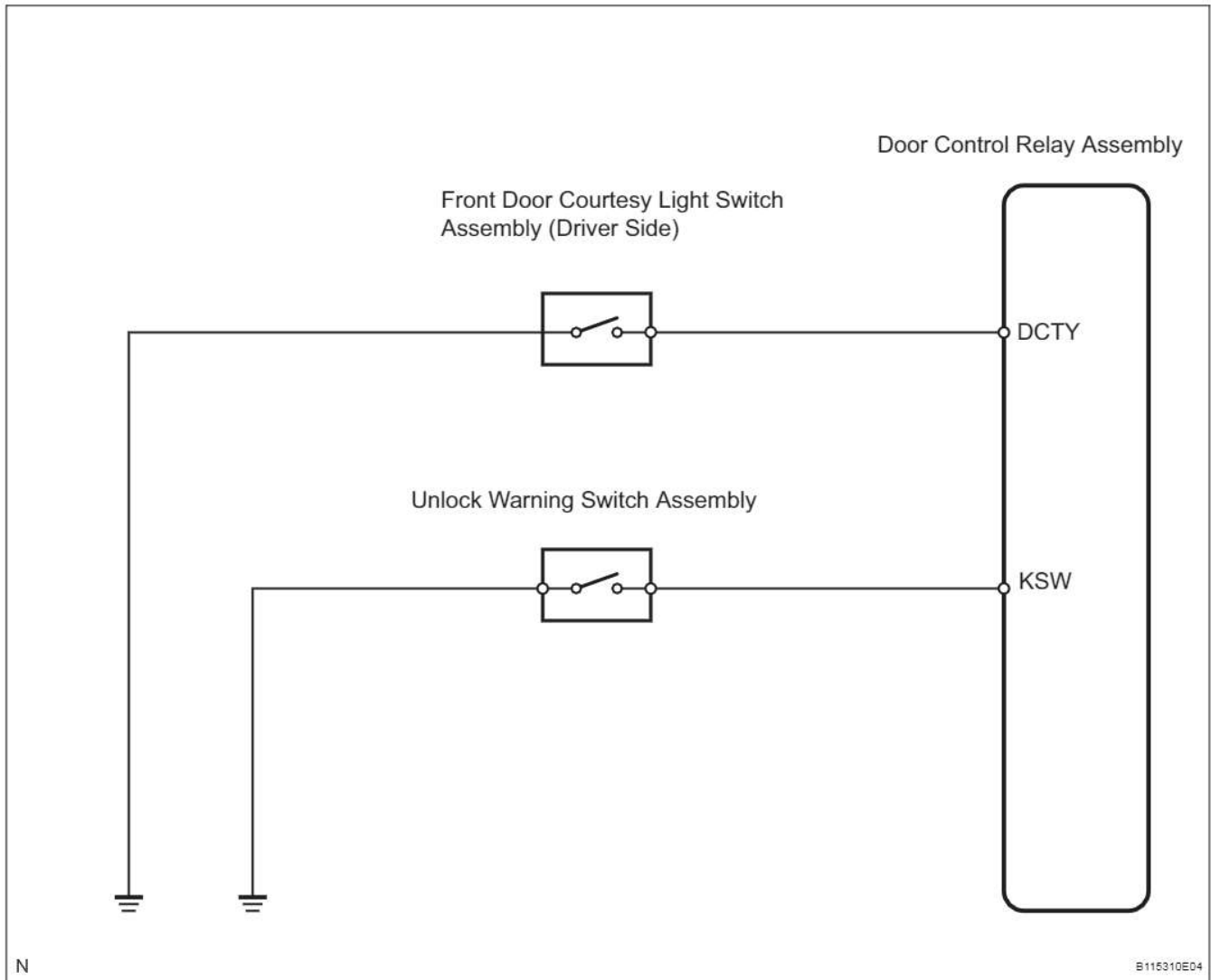
- Be sure that the positive (+) and negative (-) sides of the transmitter battery are correctly matched up to the transmitter terminals.
- Be careful not to bend the transmitter battery electrode during insertion.
- Keep the transmitter case interior free of dust and oil.

- (b) Install the case securely.

DL-30

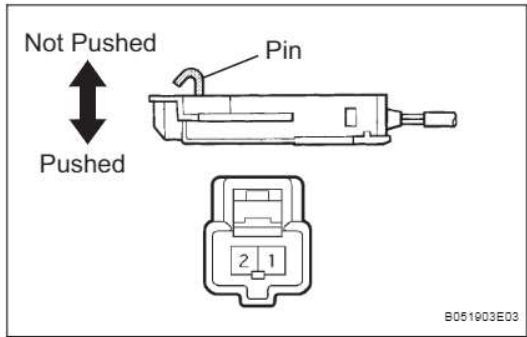
DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM**Key Lock-in Prevention Function does not Work Properly****DESCRIPTION**

To prevent the key from being locked in the vehicle, the door control relay assembly prevents doors from being locked by monitoring 2 switches: 1) the unlock warning switch, which turns ON when the key is inserted into the ignition key cylinder; and 2) the front door courtesy light switch assembly (driver side), which turns ON when the driver side door is opened.

WIRING DIAGRAM

INSPECTION PROCEDURE

1 INSPECT UNLOCK WARNING SWITCH ASSEMBLY



- (a) Remove the unlock warning switch.
- (b) Measure the resistance of the switch.

Standard resistance

Tester Connection	Switch Condition	Specified Condition
1 - 2	Not pushed	10 kΩ or higher
1 - 2	Pushed	Below 1 Ω

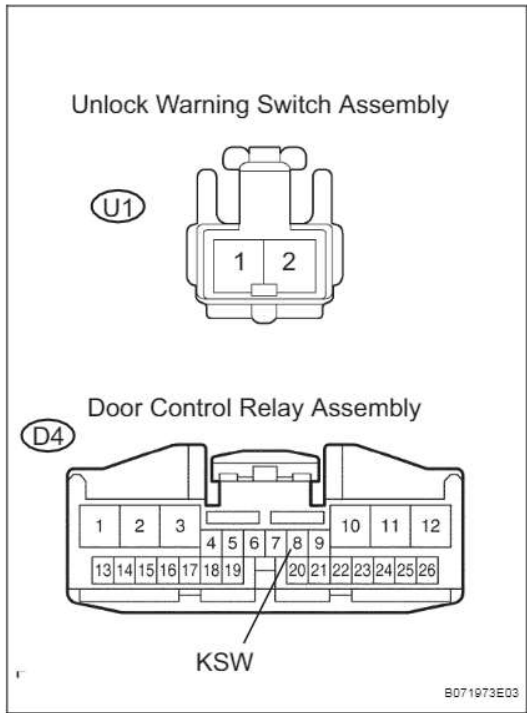
NG

REPLACE UNLOCK WARNING SWITCH ASSEMBLY

DL

OK

2 CHECK WIRE HARNESS (UNLOCK WARNING SWITCH - DOOR CONTROL RELAY AND BODY GROUND)



- (a) Disconnect the U1 switch connector.
- (b) Disconnect the D4 relay connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
U1-2 - D4-8 (KSW)	Below 1 Ω
U1-1 - Body ground	Below 1 Ω

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

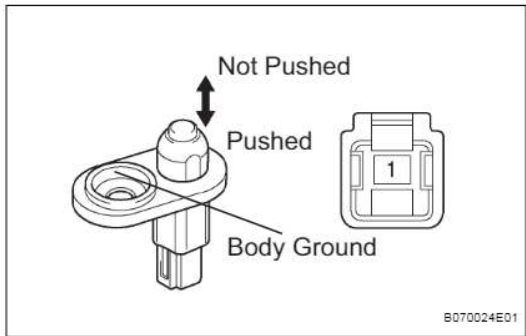
OK

DL-32

DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM

3

INSPECT FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY (DRIVER SIDE)



- (a) Remove the courtesy light switch.
(b) Measure the resistance of the switch.

Standard resistance

Tester Connection	Switch Condition	Specified Condition
1 - Body ground	Not pushed	Below 1 Ω
1 - Body ground	Pushed	10 kΩ or higher

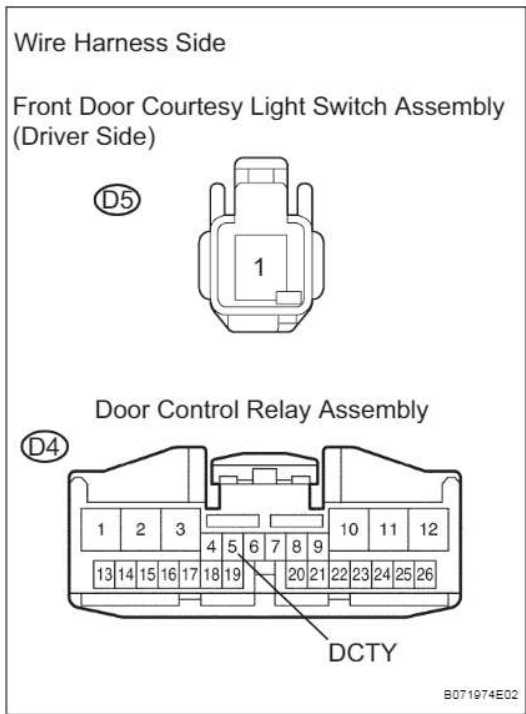
NG

REPLACE FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY (DRIVER SIDE)

OK

4

CHECK WIRE HARNESS (FRONT DOOR COURTESY LIGHT SWITCH LH - DOOR CONTROL RELAY)



- (a) Disconnect the D5 switch connector.
(b) Disconnect the D4 relay connector.
(c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
D5-1 - D4-5 (DCTY)	Below 1 Ω

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

REPLACE DOOR CONTROL RELAY ASSEMBLY

DOOR CONTROL TRANSMITTER INSPECTION

1. INSPECT DOOR CONTROL TRANSMITTER

(a) Inspect operation of the transmitter.

(1) Remove the battery (lithium battery) from the transmitter (see page DL-60).

(2) Temporarily install a new or normal battery (lithium battery).

HINT:

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

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

OK:

The door lock can be operated via the transmitter.

HINT:

- The operational area differs depending on the user, the way the transmitter is held and the location.
- The transmitter's faint electric waves may be affected if the area has strong electric waves or noise. The transmitter's operational area may be reduced or the transmitter may not function.

(4) Install the battery (lithium battery).

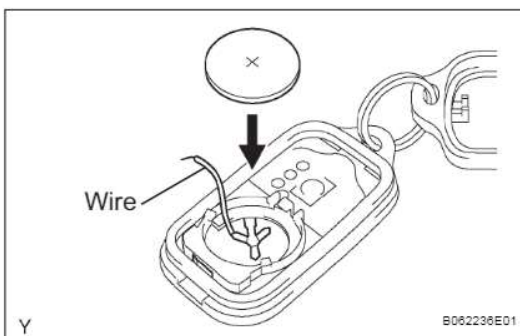
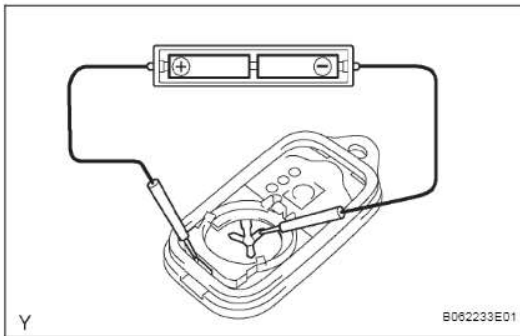
(b) Inspect the battery capacity.

HINT:

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

(1) Remove the battery (lithium battery) from the transmitter (see page DL-60).

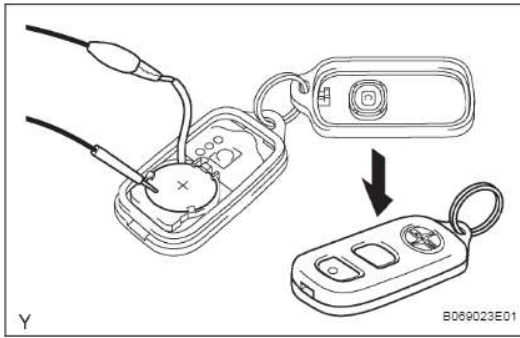
(2) Connect a wire to the negative (-) terminal of the transmitter and install the battery.



DL

DL-62

DOOR LOCK – DOOR CONTROL TRANSMITTER



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

Standard voltage:

2.2 V or higher

HINT:

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

DL

Only Back Door cannot be Opened**DESCRIPTION**

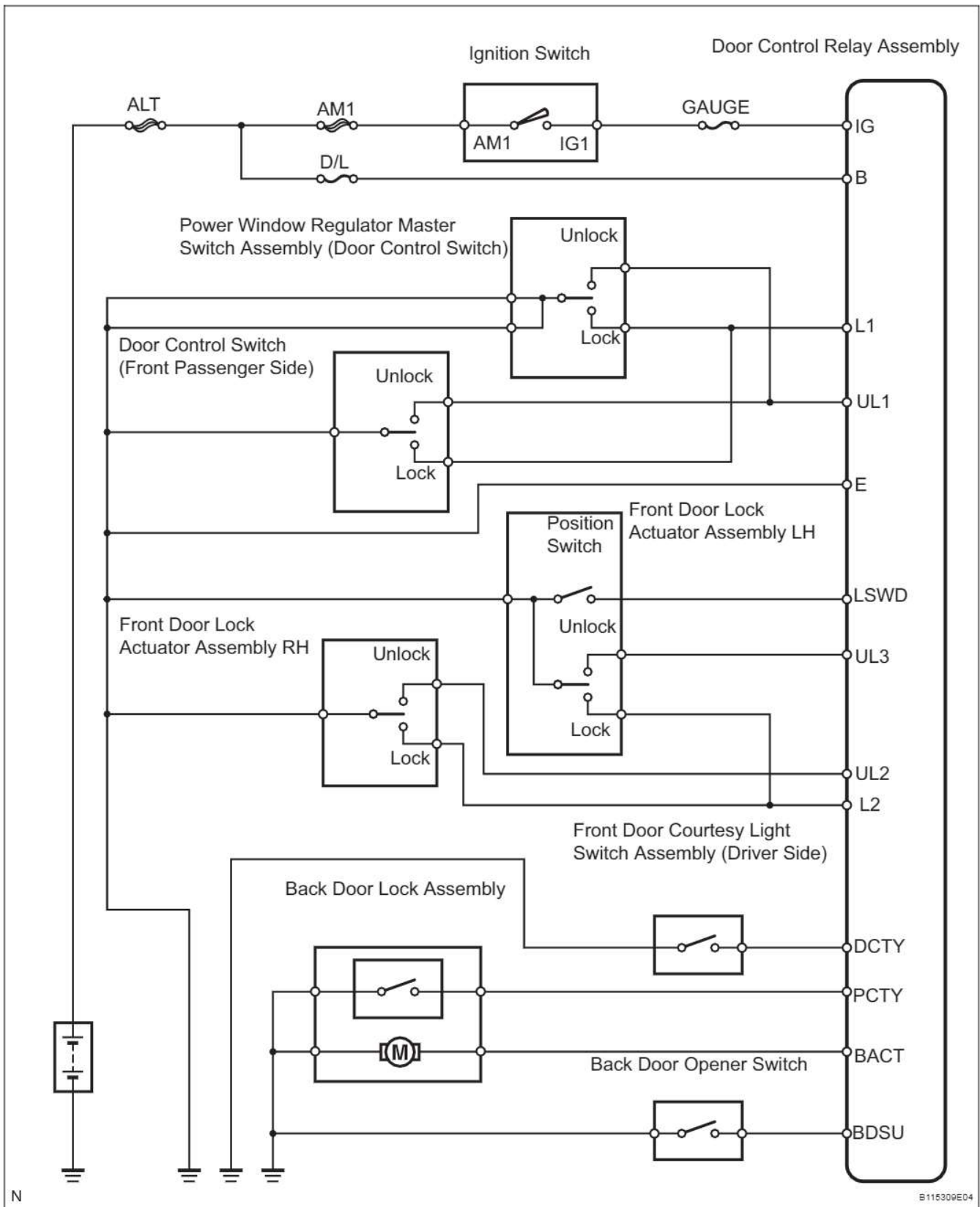
Manual unlock signals and key-linked unlock signals (from the driver or front passenger side door) are sent to the door control relay which then unlocks all the doors simultaneously. Pressing the opener switch (outside handle switch) when the back door is unlocked will release the latch and move it to the open position. This enables the back door to open.

DL

DL-34

DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM

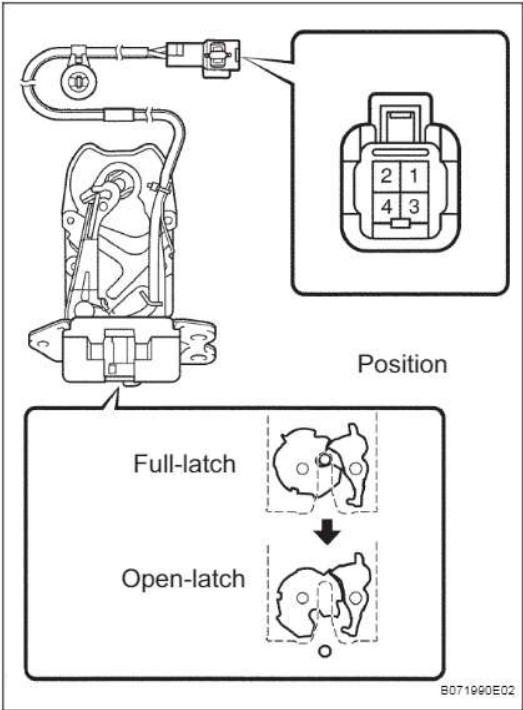
WIRING DIAGRAM



DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM

INSPECTION PROCEDURE

1 INSPECT BACK DOOR LOCK ASSEMBLY (DOOR LOCK MOTOR)



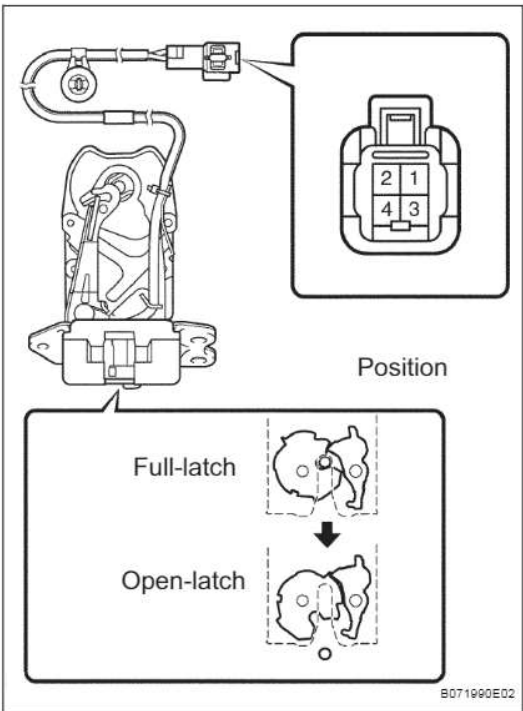
- (a) Using a screwdriver, move the latch to the full-latch position.
- (b) Apply battery voltage to the door lock terminals and check operation of the latch.
- OK**

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 3	Latch turns to open-latch position
Battery negative (-) → Terminal 4	

NG → **REPLACE BACK DOOR LOCK ASSEMBLY**

OK

2 INSPECT BACK DOOR LOCK ASSEMBLY (COURTESY SWITCH)



- (a) Measure the resistance of the courtesy switch.
- Standard resistance**

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

NG → **REPLACE BACK DOOR LOCK ASSEMBLY**

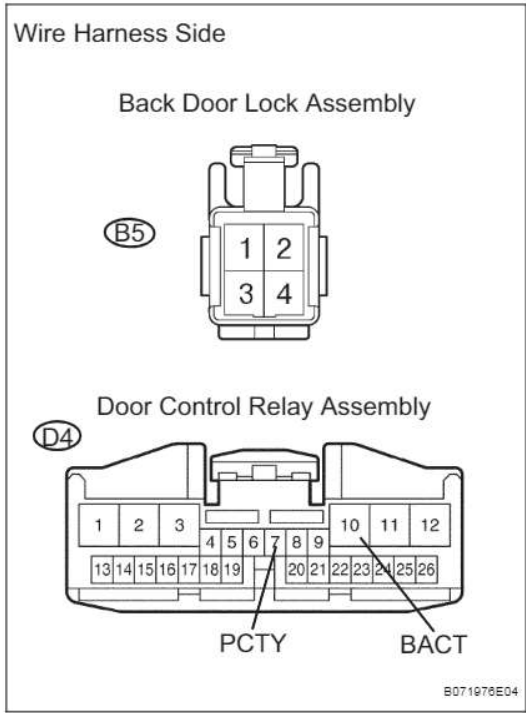
DL-36

DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM

OK

3

CHECK WIRE HARNESS (BACK DOOR LOCK - DOOR CONTROL RELAY AND BODY GROUND)



- (a) Disconnect the B5 lock connector.
- (b) Disconnect the D4 relay connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Condition	Specified Condition
B5-3 - D4-10 (BACT)	Below 1 Ω
B5-2 - D4-7 (PCTY)	Below 1 Ω
B5-1 - Body ground	Below 1 Ω
B5-4 - Body ground	Below 1 Ω

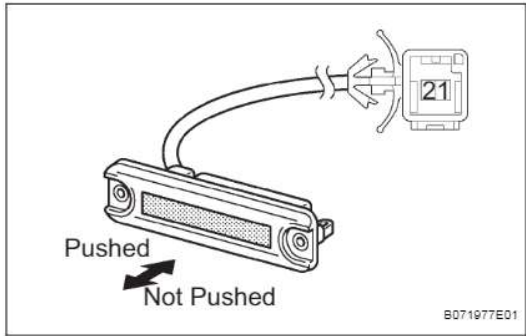
NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

4

INSPECT BACK DOOR OPENER SWITCH ASSEMBLY (OUTSIDE HANDLE SWITCH)



- (a) Remove the back door opener switch.
- (b) Measure the resistance of the switch.

Standard resistance

Tester Connection	Switch Condition	Specified Condition
1 - 2	Not pushed	10 kΩ or higher
1 - 2	Pushed	Below 1 Ω

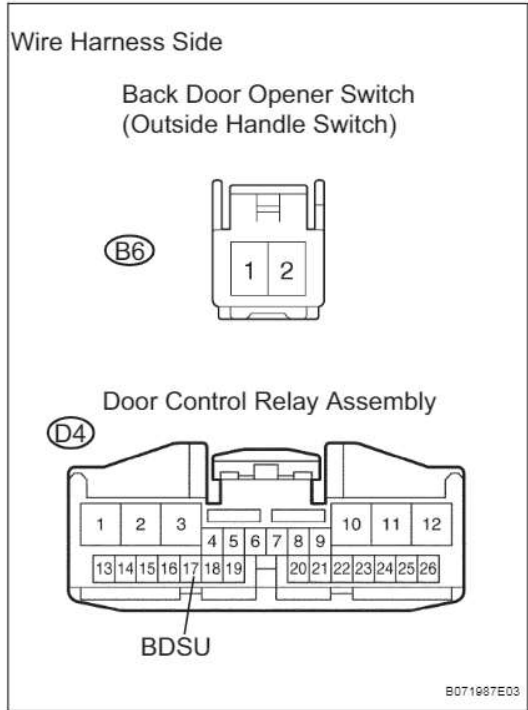
NG

REPLACE BACK DOOR OPENER SWITCH ASSEMBLY

OK

DOOR LOCK – POWER DOOR LOCK CONTROL SYSTEM

5 CHECK WIRE HARNESS (BACK DOOR OPENER SWITCH (OUTSIDE HANDLE SWITCH) - DOOR CONTROL RELAY AND BODY GROUND)



- (a) Disconnect the B6 switch connector.
- (b) Disconnect the D4 relay connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
B6-2 - D4-17 (BDSU)	Below 1 Ω
B6-1 - Body ground	Below 1 Ω

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

DL

OK

REPLACE DOOR CONTROL RELAY ASSEMBLY

DOOR LOCK – FRONT DOOR LOCK

FRONT DOOR LOCK

INSPECTION

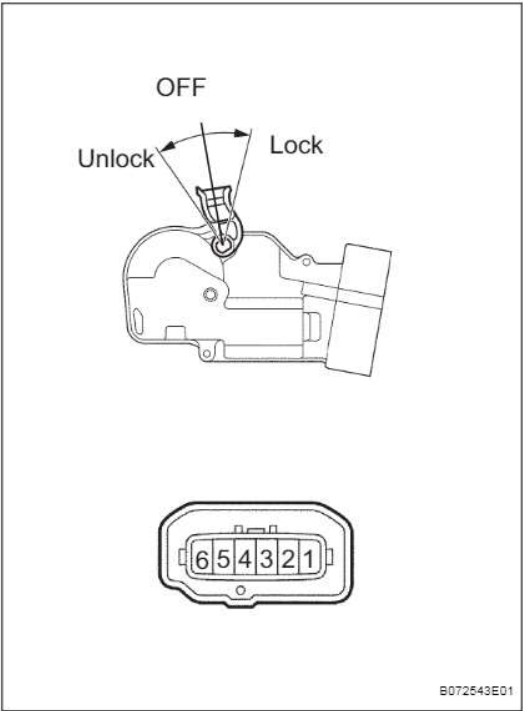
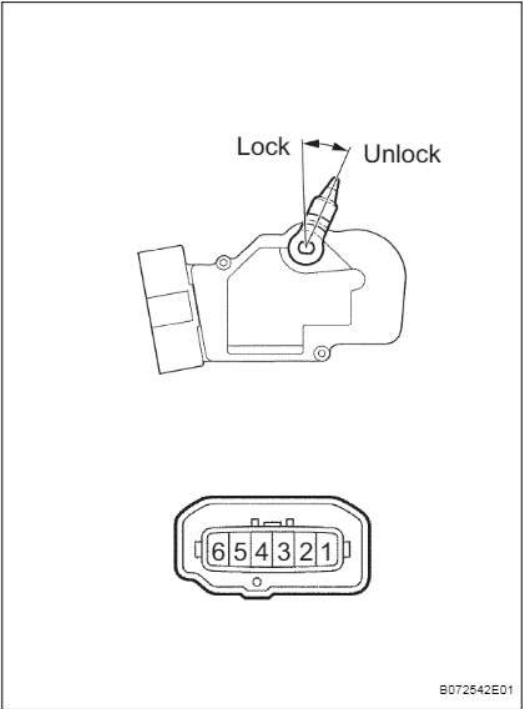
1. INSPECT FRONT DOOR LOCK ACTUATOR
ASSEMBLY LH

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

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 2 Battery negative (-) → Terminal 1	Lock
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 2	Unlock

If the result is not as specified, replace the actuator.

DL



- (b) Measure the resistance of the door lock and unlock switch.

Standard resistance

Tester Connection	Switch Condition	Specified Condition
3 - 5	Lock	Below 1 Ω
3 - 5, 3 - 6	OFF	10 kΩ or higher
3 - 6	Unlock	Below 1 Ω

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

- (c) Measure the resistance of the position switch.

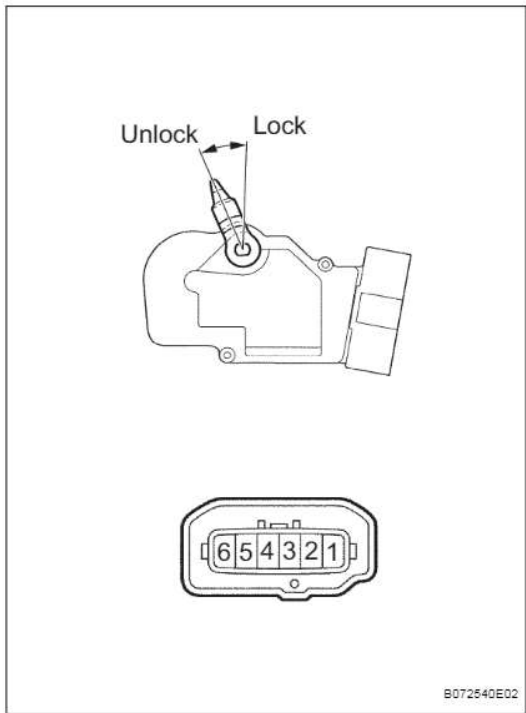
Standard resistance

Tester Connection	Switch Condition	Specified Condition
3 - 4	Lock	10 kΩ or higher
3 - 4	Unlock	Below 1 Ω

If the result is not as specified, replace the actuator.

DL-64

DOOR LOCK – FRONT DOOR LOCK



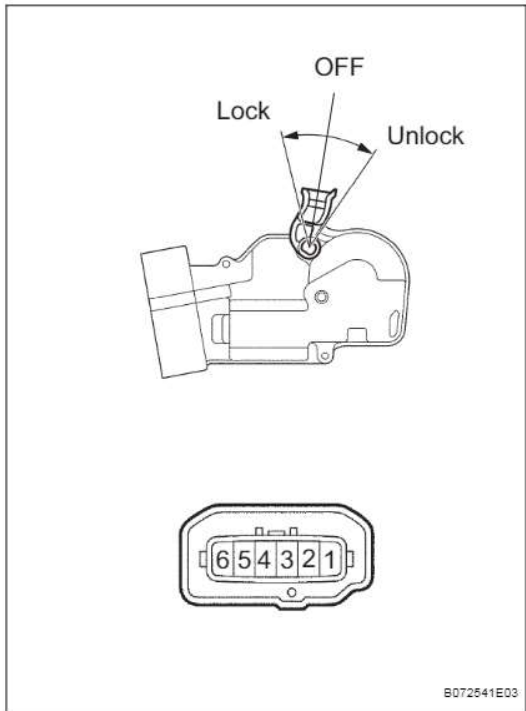
2. INSPECT FRONT DOOR LOCK ACTUATOR ASSEMBLY RH

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

OK

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 6 Battery negative (-) → Terminal 5	Lock
Battery positive (+) → Terminal 5 Battery negative (-) → Terminal 6	Unlock

If the result is not as specified, replace the actuator.



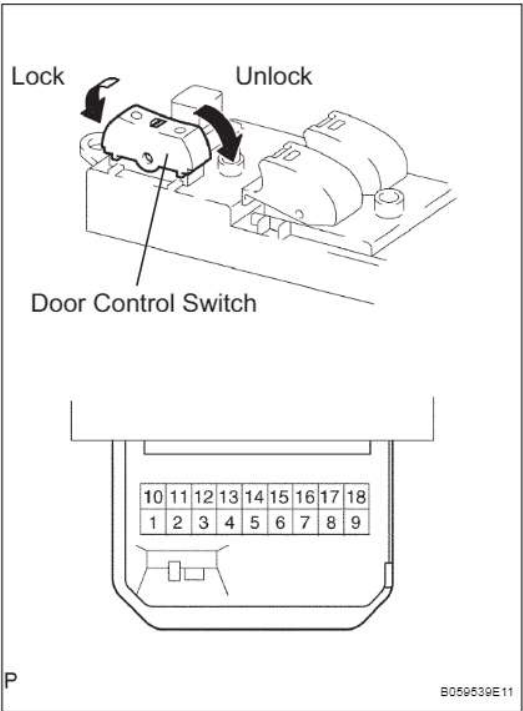
- (b) Measure the resistance of the door lock and unlock switch.

Standard resistance

Tester Connection	Switch Condition	Specified Condition
2 - 4	Lock	Below 1 Ω
1 - 4, 2 - 4	OFF	10 kΩ or higher
1 - 4	Unlock	Below 1 Ω

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

DOOR LOCK – FRONT DOOR LOCK



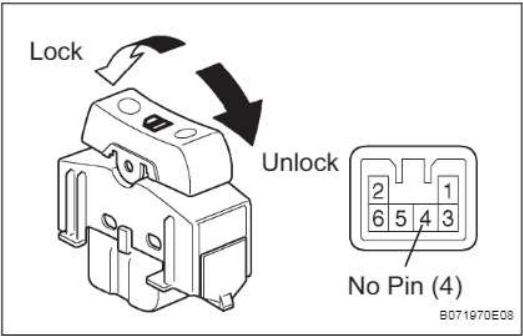
3. INSPECT POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY (DOOR CONTROL SWITCH)

- (a) Measure the resistance of the door control switch.
Standard resistance

Tester Connection	Switch Condition	Specified Condition
1 - 5, 3 - 5	Lock	Below 1 Ω
1 - 5, 3 - 5, 1 - 8, 3 - 8	OFF	10 kΩ or higher
1 - 8, 3 - 8	Unlock	Below 1 Ω

If the result is not as specified, replace the switch assembly.

DL



4. INSPECT DOOR CONTROL SWITCH ASSEMBLY

- (a) Measure the resistance of the door control switch.
Standard resistance

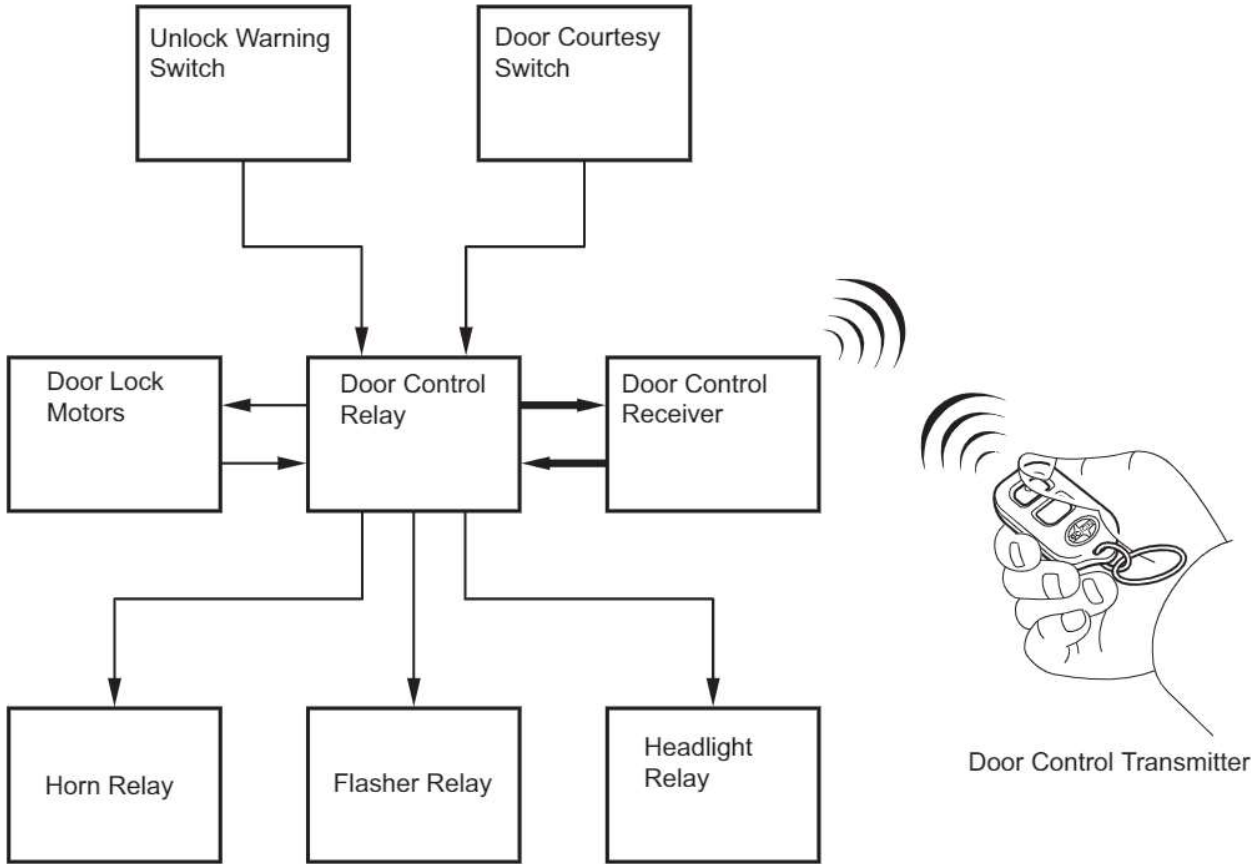
Tester Connection	Switch Condition	Specified Condition
3 - 6	Lock	Below 1 Ω
3 - 5, 3 - 6	OFF	10 kΩ or higher
3 - 5	Unlock	Below 1 Ω

If the result is not as specified, replace the switch assembly.

DOOR LOCK – WIRELESS DOOR LOCK CONTROL SYSTEM

SYSTEM DIAGRAM

DL



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DL-40**DOOR LOCK – WIRELESS DOOR LOCK CONTROL SYSTEM****SYSTEM DESCRIPTION****1. WIRELESS DOOR LOCK CONTROL SYSTEM DESCRIPTION**

- (a) This system locks and unlocks the vehicle's doors remotely. The wireless door lock control system has the following features:
- The door control receiver performs the code identification process and the door control relay operates the door lock control. A serial data link is provided for communication between the door control receiver and the door control relay.
 - A key ring type transmitter is used and it contains the following 3 switches: the door lock switch, door unlock switch and panic switch.
 - An LED (light emitting diode) is mounted on the transmitter and illuminates when the battery is depleted.
- (b) The wireless door lock control system has the following functions:

Function	Outline
All door lock operation	Pressing LOCK switch locks all doors
All door unlock operation (2-step unlock operation)	Pressing UNLOCK switch twice within 3 seconds unlocks all doors after driver side door is unlocked
Answer-back operation	Hazard warning lights flash once when doors are locked and flash twice when doors are unlocked to inform that operation has been completed
Panic alarm function	Holding down PANIC switch sets off theft deterrent alarm (horn sounds, headlights and hazard warning lights flash)
Automatic lock function	If none of doors are opened within 30 seconds after they are unlocked by wireless door lock remote control, all doors will lock again automatically
Repeat function	If door cannot be locked in response to locking operation of transmitter, door control relay will output a lock signal after 1 second
Illuminated entry function	When all doors are locked, pressing UNLOCK switch causes room light to illuminate simultaneously with unlock operation
Security function	Sends operation signal as rolling code
Switch operation fail-safe function	When key is in ignition key cylinder or any door is not closed completely, wireless door lock control is temporarily canceled to prevent misoperation
Transmitter recognition code registration function	Enables registering (writing and storing) 4 types of transmitter recognition codes in EERPOM that is built into door control relay
Self-diagnosis	Determines whether or not signals sent from transmitter during diagnostic mode is normal and operates room light in accordance with switches that have been held down

DL

REAR DOOR LOCK

INSPECTION

1. INSPECT REAR DOOR LOCK ACTUATOR
ASSEMBLY LH

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

OK

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 2 Battery negative (-) → Terminal 1	Lock
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 2	Unlock

If the result is not as specified, replace the actuator.

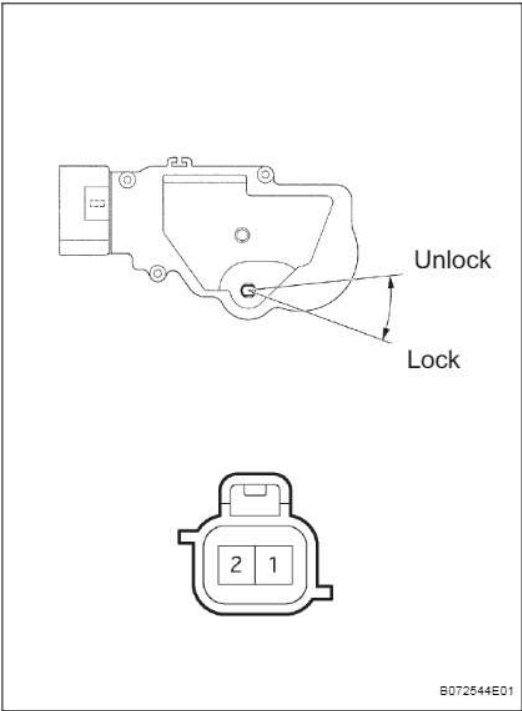
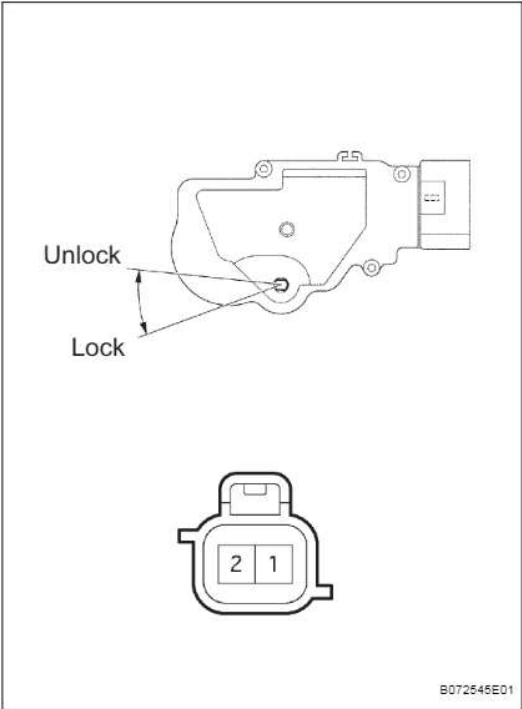
2. INSPECT REAR DOOR LOCK ACTUATOR
ASSEMBLY RH

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

OK

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 2 Battery negative (-) → Terminal 1	Lock
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 2	Unlock

If the result is not as specified, replace the actuator.



HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

Use these procedures to troubleshoot the wireless door lock control system.

1 VEHICLE BROUGHT TO WORKSHOP

NEXT

2 INSPECT BATTERY VOLTAGE

Standard voltage:
11 to 14 V

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

NEXT

3 PROBLEM SYMPTOMS TABLE

Result

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

B

Go to step 5

A

4 OVERALL ANALYSIS AND TROUBLESHOOTING

- (a) On-vehicle inspection (See page [DL-47](#)).
- (b) Terminals of ECU (See page [DL-46](#)).

NEXT

5 REPAIR OR REPLACEMENT

NEXT

6 CONFIRMATION TEST

NEXT

END

DL

REGISTRATION

HINT:

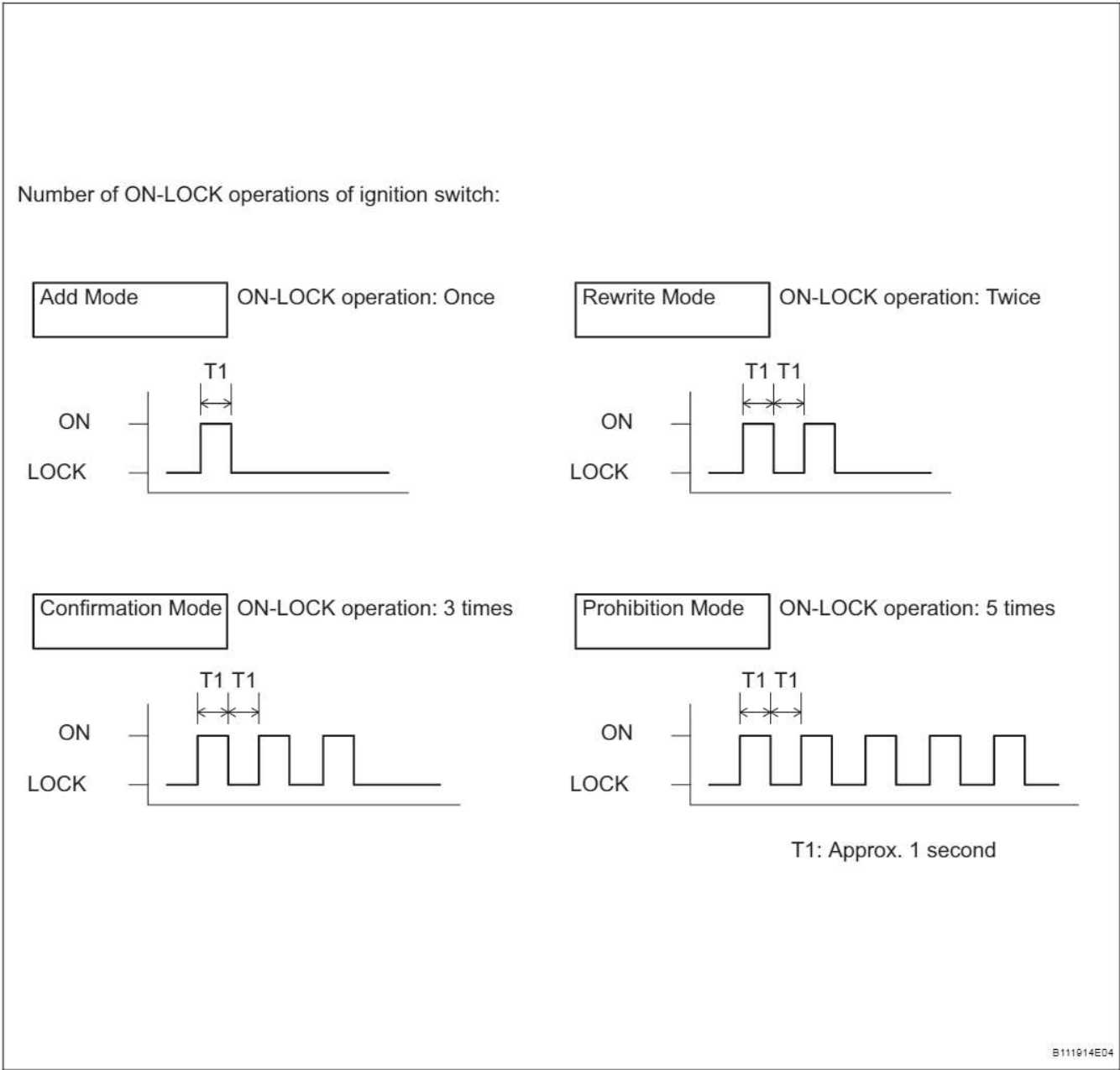
- Register the recognition code when replacing the door control transmitter or the door control receiver.
- Add mode is used to register new recognition codes while still retaining codes already registered. This mode is used when a new transmitter is added. If the number of registered codes exceeds 4, the previously registered codes will be erased, 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.
- Confirmation mode is used to confirm how many recognition codes have already been registered before another registration code is registered.
- Prohibition mode is used to erase all the registered codes and disables the wireless door lock function. This mode is used when the transmitter is lost.
- All the following registration procedures must be performed in order.

1. REGISTER RECOGNITION CODE

- (a) Procedure "A": Check that the following conditions are met.
 - There is no key in ignition key cylinder.
 - Driver side door is open (other doors are closed).
 - Driver side door is unlocked.
- (b) Procedure "B": Insert the key into the ignition key cylinder, then pull it out. Repeat twice within 5 seconds.
- (c) Procedure "C": Perform the following operations within 40 seconds.
 - (1) Close and open the driver side door twice.
 - (2) Insert the key into the ignition key cylinder, then pull it out.
- (d) Procedure "D": Perform the following operations within 40 seconds.
 - (1) Close and open the driver side door twice.
 - (2) Insert the key into the ignition key cylinder and close the driver side door.

DOOR LOCK – WIRELESS DOOR LOCK CONTROL SYSTEM

- (e) Procedure "E": Perform the following operations within 40 seconds.
- (1) Turn ignition switch from LOCK to ON and back to LOCK at approximately 1 second intervals according to the number of times shown below.



HINT:

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

Remove the key from the ignition key cylinder.

DL-44

DOOR LOCK – WIRELESS DOOR LOCK CONTROL SYSTEM

- (f) Procedure "F": Check that the response to the selected mode occurs within 3 seconds.

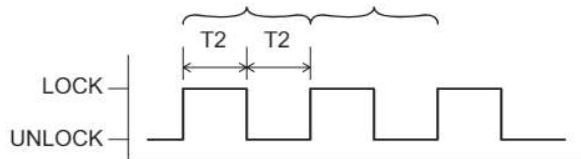
Response to selected mode (power door lock operation):

Door control relay automatically performs power door LOCK-UNLOCK operations to indicate which mode has been selected.

Add Mode LOCK-UNLOCK operation: Once **Rewrite Mode** LOCK-UNLOCK operation: Twice

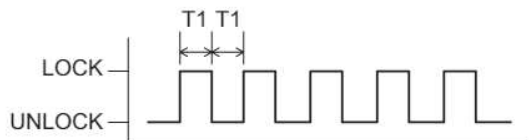


Confirmation Mode LOCK-UNLOCK operation: The number of registered codes (1 to 5 times)
1st Time 2nd Time



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

Prohibition Mode LOCK-UNLOCK operation: 5 times



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HINT:

- In confirmation mode, the LOCK-UNLOCK operation will occur once for each recognition code that has been registered. For example, if 2 recognition codes have been registered, the LOCK-UNLOCK operation will occur 2 times.
- In confirmation mode, if no recognition codes have been registered, the LOCK-UNLOCK operation will occur 5 times.
- If confirmation mode or prohibition mode is selected, the operation ends after the response to the selected mode completes.

DOOR LOCK – WIRELESS DOOR LOCK CONTROL SYSTEM

DL-45

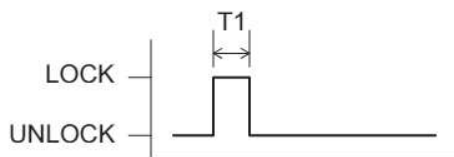
- (g) Procedure "G": Perform the following operations of completing the response to the Add or Rewrite mode.
- (1) Press the LOCK and UNLOCK switches on the transmitter simultaneously.
 - (2) Within 3 seconds of the previous step, press the LOCK or UNLOCK switch.
- (h) Procedure "H": After completing the above procedure, check that the response to the registration completion occurs within 3 seconds.

Response to registration completion:

Door control relay automatically performs power door LOCK-UNLOCK operation to show whether registration has been completed correctly or not.

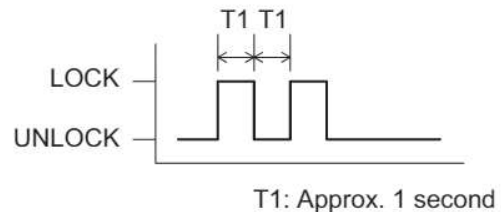
LOCK-UNLOCK Occurs Once

Registration of recognition code has been completed.



LOCK-UNLOCK Occurs Twice

Registration of recognition code has failed.



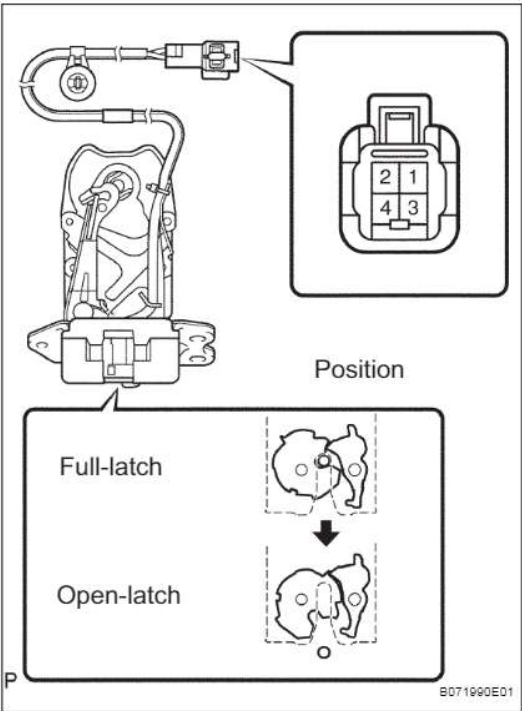
T1: Approx. 1 second

B111915E02

HINT:

- If the registration of the recognition code has failed, perform the registration procedures from the beginning.
 - If registering another transmitter, return to Procedure "G" within 40 seconds of responding to the selected mode confirmation. All 4 recognition codes can be registered consecutively.
- (i) Perform either of the following to complete registration of the recognition codes (add mode and rewrite mode).
- (1) Open the door.
 - (2) Insert the key into the ignition key cylinder.

DOOR LOCK – BACK DOOR LOCK



BACK DOOR LOCK
INSPECTION

1. INSPECT BACK DOOR LOCK ASSEMBLY

- (a) Check operation of the door lock.
- (1) Using a screwdriver, move the latch to the full-latch position.
 - (2) Apply battery voltage to the door lock terminals and check operation of the latch.

OK

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 3	Latch turns to open-latch position
Battery negative (-) → Terminal 4	

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

- (b) Measure the resistance of the back door courtesy switch.

Standard resistance

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

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

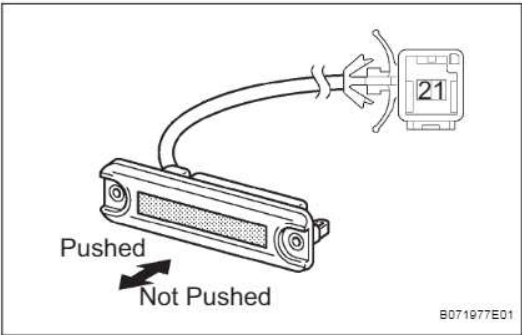
2. INSPECT BACK DOOR OPENER SWITCH ASSEMBLY

- (a) Measure the resistance of the switch.

Standard resistance

Tester Connection	Door Lock Latch Condition	Specified Condition
1 - 2	Not pushed	10 kΩ or higher
1 - 2	Pushed	Below 1 Ω

If the result is not as specified, replace the switch assembly.



PROBLEM SYMPTOMS TABLE

Use the table below to help determine the cause of the problem symptom. The potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

Wireless door lock control system

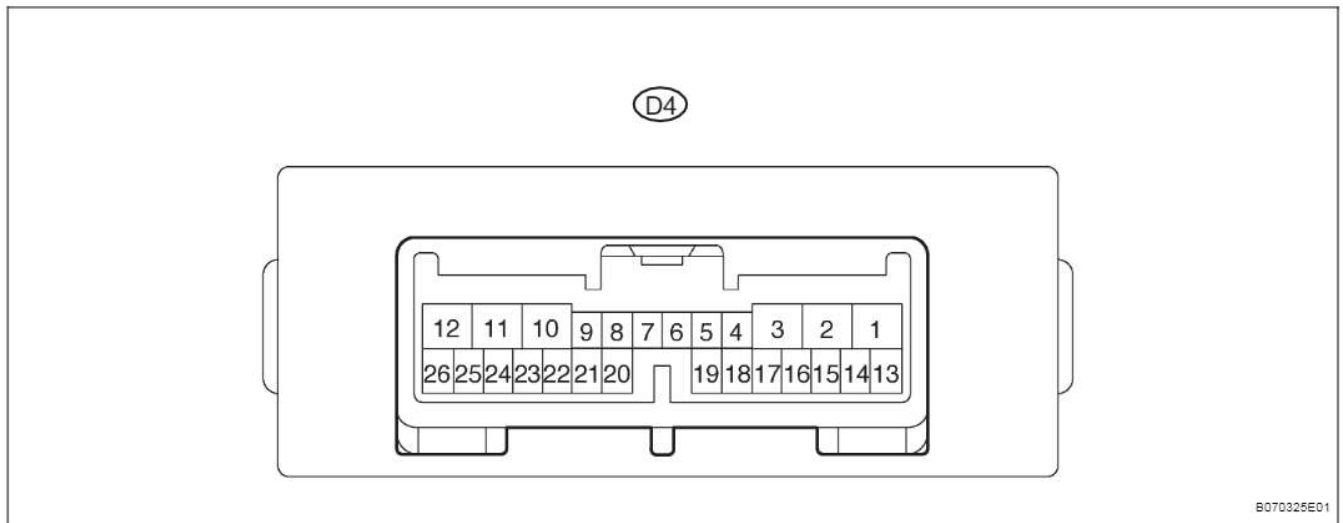
Symptom	Suspected area	See page
No Answer-Back	1. Lighting system	LI-26
	2. Wire harness	DL-49
	3. Instrument panel junction block assembly	DL-49
	4. Door control relay assembly	DL-49
Only Wireless Door Lock Control Function does not Operate	1. Transmitter battery	DL-60
	2. Door control transmitter	DL-61
	3. Door control receiver	DL-68
	4. Unlock warning switch assembly	DL-52
	5. Wire harness	DL-52
	6. Door control relay assembly	DL-52

DOOR LOCK – WIRELESS DOOR LOCK CONTROL SYSTEM

DL-47

TERMINALS OF ECU

1. CHECK DOOR CONTROL RELAY ASSEMBLY



- (a) Disconnect the D4 relay connector.
- (b) Measure the voltage and resistance of the wire harness side connector.

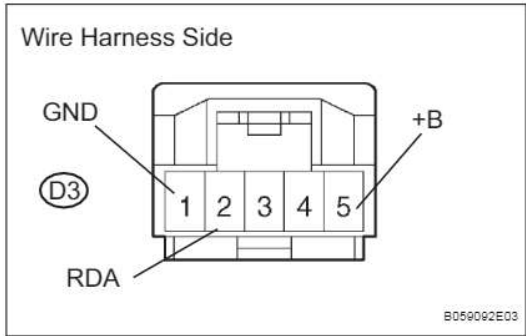
Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
B (D4-1) - Body ground	L-W - Body ground	+B (B) power supply	Always	10 to 14 V
IG (D4-26) - Body ground	R-B - Body ground	Ignition power supply	Ignition switch ON	10 to 14 V
KSW (D4-8) - Body ground	Y - Body ground	Unlock warning switch input	No key in ignition key cylinder	10 kΩ or higher
KSW (D4-8) - Body ground	Y - Body ground	Unlock warning switch input	Key inserted	Below 1 Ω
DCTY (D4-5) - Body ground	R - Body ground	Driver side courtesy switch input	Driver side door Closed	10 kΩ or higher
DCTY (D4-5) - Body ground	R - Body ground	Driver side courtesy switch input	Driver side door Open	Below 1 Ω
PCTY (D4-7) - Body ground	R-W - Body ground	Courtesy switches input other than driver side	Front passenger side door, rear door (LH, RH) or back door Closed	10 kΩ or higher
PCTY (D4-7) - Body ground	R-W - Body ground	Courtesy switches input other than driver side	Front passenger side door, rear door (LH, RH) or back door Open	Below 1 Ω
E (D4-12) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

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

- (c) Reconnect the D4 relay connector.
- (d) Measure the voltage of the connector.

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
HAZ (D4-15) - Body ground	G-O - Body ground	Hazard warning light drive	Answer-back OFF	10 to 14 V
HAZ (D4-15) - Body ground	G-O - Body ground	Hazard warning light drive	Answer-back ON	Pulse generation
RDA (D4-25) - Body ground	L - 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 V → Below 1 V

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



DOOR CONTROL RECEIVER

ON-VEHICLE INSPECTION

1. CHECK DOOR CONTROL RECEIVER
- (a) Disconnect the receiver connector.
 - (b) Measure the voltage of the wire harness side connector.

Standard voltage

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

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

- (c) Measure the resistance of the wire harness side connector.

Standard resistance

Tester Connection	Specified Condition
1 (GND) - Body ground	Below 1 Ω

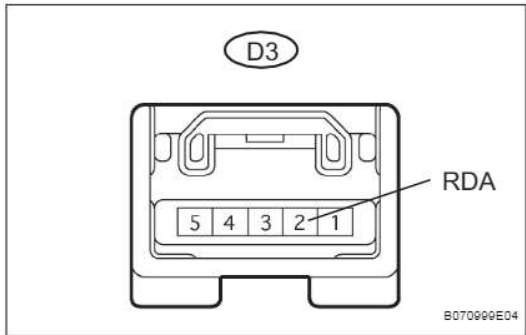
If the result is not as specified, there may be a malfunction on the wire harness side.

- (d) Reconnect the connector and measure the voltage of the connector.

Standard voltage

Tester Connection	Condition	Specified Condition
2 (RDA) - Body ground	No key in ignition key cylinder, all doors closed and each transmitter switch OFF → ON	Below 1 V → Approximately 6 to 7 V → Below 1 V

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



DL

ON-VEHICLE INSPECTION

1. CHECK WIRELESS DOOR LOCK CONTROL FUNCTION

HINT:

- The switches described below transmit signals and are built into the door control transmitter.
 - The transmitter's operational area must be taken into account while checks are being made.
- (a) Make sure that the vehicle is in a condition in which the wireless door lock control functions can be operated (see page [DL-37](#)).
 - (b) Check the basic function.
 - (1) Check that all the doors lock when the LOCK switch is pressed.
 - (2) Check that only the driver side door unlocks when the UNLOCK switch is pressed once and the remaining doors unlock when the UNLOCK switch is pressed again within 3 seconds.
 - (c) Check the chattering prevention function.
 - (1) When a switch is pressed, check that the corresponding operation occurs only once. When the switch is held down, check that the corresponding operation occurs only once and does not repeatedly activate. Lastly, when a switch is pressed at 1 second intervals, check that the corresponding operation activates once for every press of the switch.
 - (d) Check the automatic lock function.
 - (1) Check that when all of the doors are unlocked with the UNLOCK switch and none of the doors are opened or locked within approximately 30 seconds, the doors automatically relock.
 - (2) Check that when all of the doors are unlocked with the UNLOCK switch and a door is opened or locked within approximately 30 seconds, the automatic lock function does not operate.
 - (e) Check the switch operation fail-safe function.
 - (1) When the key is in the ignition key cylinder, check that doors cannot be locked by the LOCK switch.
 - (f) Check the operation stop function when a door is open or not completely closed.
 - (1) When a door is open or not completely closed, check that doors cannot be locked by the LOCK switch.
 - (g) Check the repeat function.
 - (1) When the lock switch is pressed while the movement of the driver side door control knob is restricted, check that 1 second later, the repeat function attempts to lock all of the doors again.

DOOR LOCK – WIRELESS DOOR LOCK CONTROL SYSTEM**DL-49**

- (h) Check the hazard warning light flashing functions (answer-back).
 - (1) When the LOCK switch is pressed, check that the lights flash once and all doors lock.
 - (2) When the UNLOCK switch is pressed once, check that the lights flash twice and the driver side door unlocks.
 - (3) When the UNLOCK switch is pressed again within 3 seconds, check that the lights flash twice and all remaining doors unlock.
- (i) Check the illuminated entry function.
 - (1) When all the doors are locked, pressing the UNLOCK switch causes the room light (when the light switch is in the DOOR position) to illuminate simultaneously and all doors unlock.
 - (2) Check that the room light turns off in approximately 15 seconds if doors have not been opened.
- (j) Check the panic alarm function.
 - (1) Check that when the PANIC switch is pressed, the theft alarm function sounds the horn, and flashes the headlights and taillights for 60 seconds. And, with the theft alarm function active, check that pressing any switch on the transmitter causes the horn to stop sounding and the headlights and taillights to stop flashing.

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