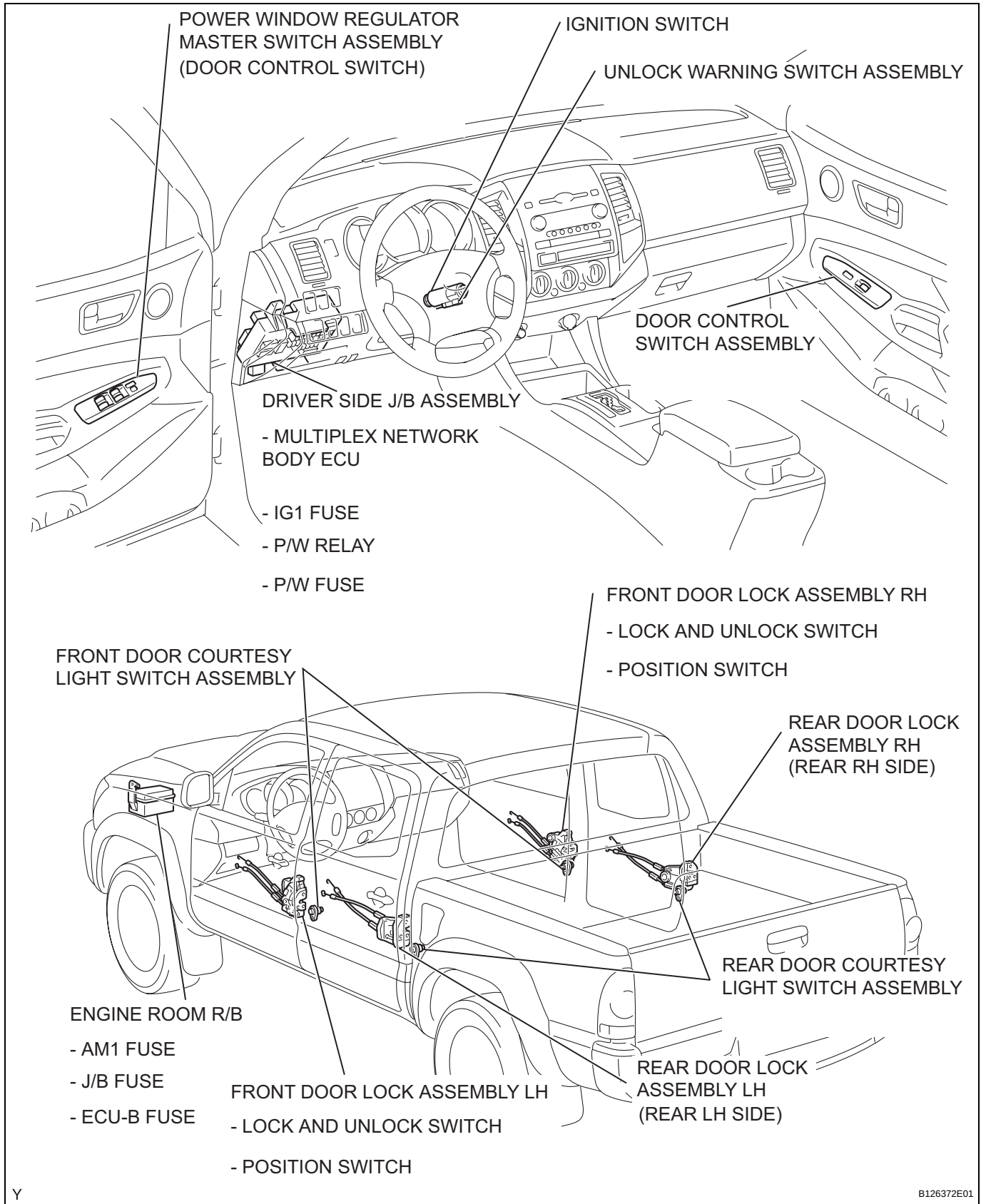
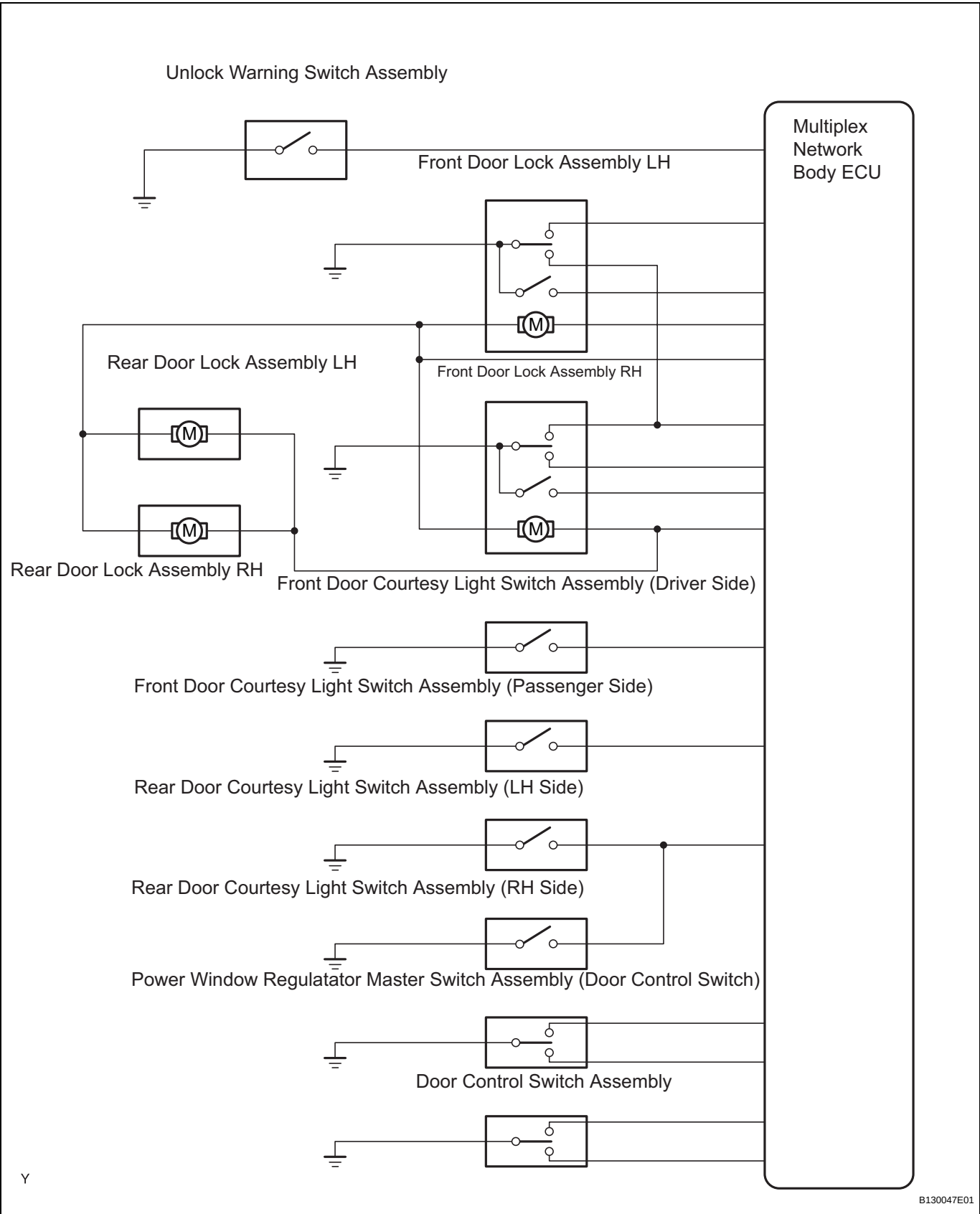


POWER DOOR LOCK CONTROL SYSTEM

PARTS LOCATION



SYSTEM DIAGRAM



SYSTEM DESCRIPTION

1. POWER DOOR LOCK CONTROL SYSTEM DESCRIPTION

- (a) The power door lock system locks/unlocks all the doors simultaneously.
- The master switch and the door control switch (on the passenger side door) send lock/unlock request signals to the multiplex network body ECU. Then, the multiplex network body ECU transmits these requests to the lock motors in each door to lock/unlock all the doors simultaneously.
 - Operating the driver side and passenger side door locks using a key sends lock/unlock request signals to the multiplex network body ECU. The driver side door key-linked lock function has an optional unlock method called the "2-step unlock function." Refer to the chart below in step (b) for details on this function.
- (b) The power door lock control system has the following functions:

Function	Description
Key-linked lock and unlock function	This function locks/unlocks all doors simultaneously when driver side or passenger side door key cylinder (linked with driver side and passenger side door lock) is turned with key.
Key lock-in prevention function	When key is inserted into ignition key cylinder and door lock operation is performed with driver side door open, all doors are unlocked.
Door control switch* unlock prohibition function	Performing door lock operation with transmitter or key prohibits the unlock operation by door lock control switch.
2-step unlock function	Driver side door can be unlocked by turning key cylinder once; remaining doors can be unlocked by turning key cylinder second time.

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

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

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

1 VEHICLE BROUGHT TO WORKSHOP

NEXT

2 CUSTOMER PROBLEM ANALYSIS CHECK SYMPTOM CHECK)

NEXT

3 PROBLEM SYMPTOMS TABLE

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

B

Go to step 6

A

4 OVERALL ANALYSIS AND TROUBLESHOOTING

- (a) On-vehicle inspection (See page [DL-7](#))
- (b) Inspection
- (c) Terminals of ECU (See page [DL-5](#))

NEXT

5 ADJUSTMENT, REPAIR OR REPLACEMENT

NEXT

6 CONFIRMATION TEST

NEXT

END

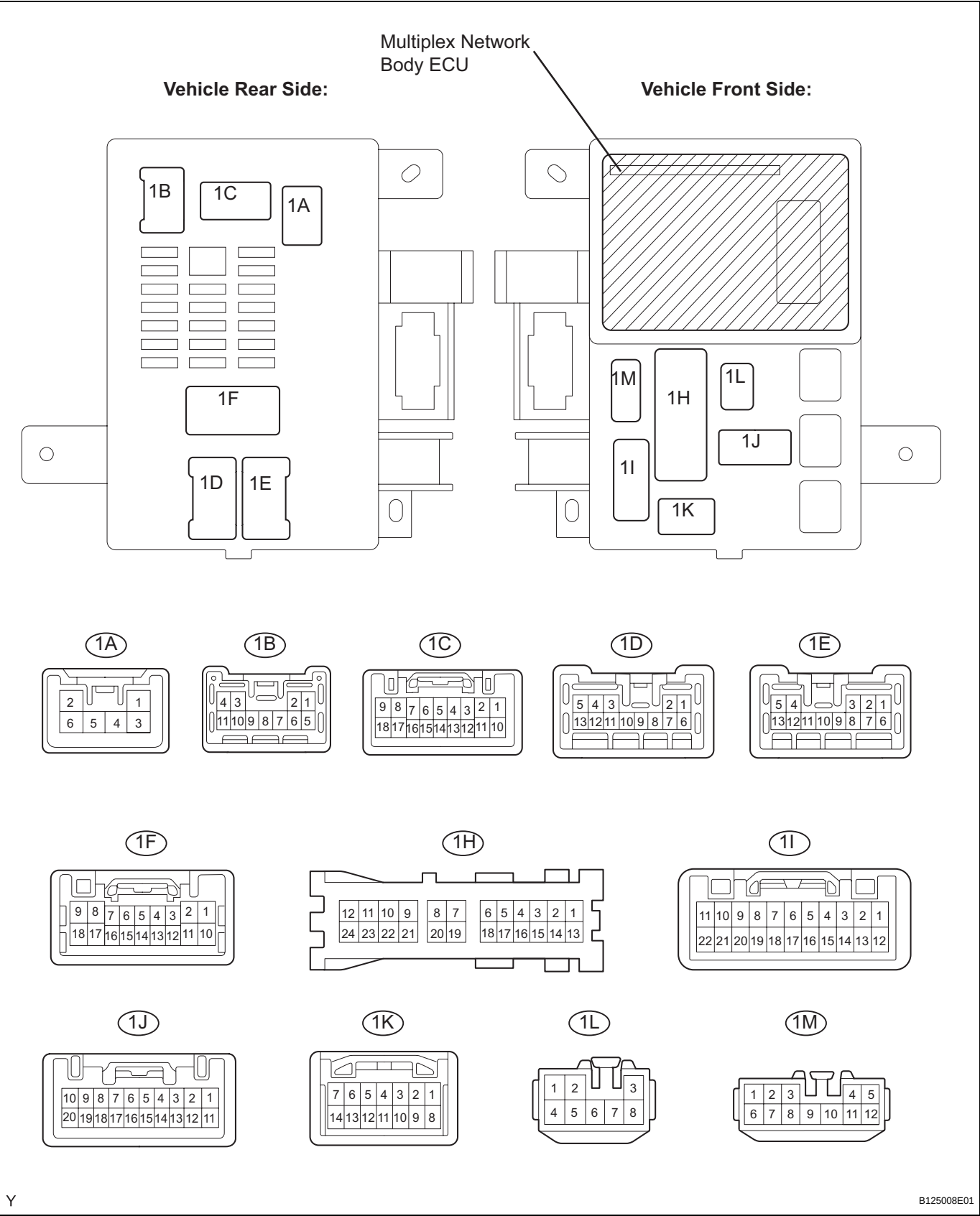
PROBLEM SYMPTOMS TABLE

Power door lock control system

Symptom	Suspected area	See page
All doors cannot be locked/unlocked simultaneously	DR LOCK fuse	DL-10
	J/B fuse	
	ECU-B fuse	
	ALT fuse	
	Power window regulator master switch assembly	
	Front door lock assembly LH	
	Door control switch assembly	
	Driver side J/B assembly (multiplex network body ECU)	
	Wire harness	
Key lock-on prevention function does not work properly (manual operation and key-linked lock are available)	Unlock warning switch assembly	DL-29
	Front door courtesy light switch assembly (driver side)	
	Driver side J/B assembly (multiplex network body ECU)	
	Wire harness	

TERMINALS OF ECU

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



- (a) Disconnect the 1A, 1C, 1F, 1H, 1I and 1K driver side J/B connectors.
- (b) Disconnect the B5 multiplex network body ECU connectors.
- (c) Measure the voltage and resistance of each of the wire harness side connectors.

Standard:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
ALTB (1A-6) - Body ground	L - Body ground	+B (power system, generator system) power supply	Always	10 to 14 V
ECUB (1C-16) - Body ground	R - Body ground	+B (ECUB) power supply	Always	10 to 14 V
GND (1H-18) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
KSW (1K-10) - Body ground	G-B - Body ground	Key unlock warning switch input	No key in ignition key cylinder	10 k Ω or higher
			Key inserted in ignition key cylinder	Below 1 Ω
DCTY (1F-7) - Body ground	G-Y - Body ground	Driver side courtesy switch input	Driver side door closed	10 k Ω or higher
			Driver side door open	Below 1 Ω
PCTY (1I-8) - Body ground	R-B - Body ground	Pssenger side courtesy switch input	Passenger side door closed	10 k Ω or higher
			Passenger side door open	Below 1 Ω
L1 (1I-7) - Body ground L1 (1I-18) - Body ground	L-W - Body ground	Door control switch (master switch and passenger side switch) lock input	Door control switch (master switch or passenger side switch) OFF	10 k Ω or higher
			Door control switch (master switch or passenger side switch) LOCK	Below 1 Ω
UL1 (1I-3) - Body ground UL1 (1I-1) - Body ground	GR - Body ground	Door control switch (master switch and passenger side switch) lock input	Door control switch (master switch or passenger side switch) OFF	10 k Ω or higher
			Door control switch (master switch or passenger side switch) UNLOCK	Below 1 Ω
LSWD (B5-20) - Body ground	W-R - Body ground	Driver side door lock position switch input	Driver side door UNLOCK	10 k Ω or higher
			Driver side door LOCK	Below 1 Ω
LSWP (B5-11) - Body ground	B-W - Body ground	Driver side door lock position switch input	Driver side door UNLOCK	10 k Ω or higher
			Driver side door LOCK	Below 1 Ω
L2 (1I-17) - Body ground	V - Body ground	Driver side door key-linked door lock input	Driver side door key cylinder OFF	10 k Ω or higher
			Driver side door key cylinder LOCK	Below 1 Ω
L2 (1I-4) - Body ground	V - Body ground	Passenger side door key-linked door lock input	Passenger side door key cylinder OFF	10 k Ω or higher
			Passenger side door key cylinder LOCK	Below 1 Ω
UL3 (B5-23) - Body ground	G-B - Body ground	Driver side door key-linked door unlock input	Driver side door key cylinder OFF	10 k Ω or higher
			Driver side door key cylinder UNLOCK	Below 1 Ω

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
UL2 (1I-19) - Body ground	P - Body ground	Passenger side door key-linked door unlock input	Passenger side door key cylinder OFF	10 k Ω or higher
			Passenger side door key cylinder UNLOCK	Below 1 Ω

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

- (d) Reconnect the 1A, 1C, 1F, 1H, 1I and 1K J/B connectors.
- (e) Reconnect the B5 multiplex network body ECU connectors.
- (f) Measure the voltage of the connectors.

Standard:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
ACT+ (1H-24) - Body ground ACT+ (1H-23) - Body ground ACT+ (1F-1) - Body ground ACT+ (1H-22) - Body ground	L-R - Body ground	Door lock motor LOCK drive output (all doors)	Door control switch (master switch or passenger side switch) or door key cylinder (driver or passenger side) OFF	Below 1 V
			Door control switch (master switch or passenger side switch) or door key cylinder (driver or passenger side) LOCK	10 to 14 V
ACTD (B5-3) - Body ground	L-B - Body ground	Door lock motor UNLOCK drive output (driver side doors)	Door control switch (master switch or passenger side switch) or door key cylinder (driver or passenger side) OFF	Below 1 V
			Door control switch (master switch or passenger side switch) or door key cylinder (driver or passenger side) LOCK	10 to 14 V
ACT- (1H-5) - Body ground ACT- (1F-2) - Body ground ACT- (1H-4) - Body ground	L-B - Body ground	Door lock motor LOCK drive output (passenger and rear LH and rear RH side door)	Door control switch (master switch or passenger side switch) or door key cylinder (driver or passenger side) OFF	Below 1 V
			Door control switch (master switch or passenger side switch) or door key cylinder (driver or passenger side) LOCK	10 to 14 V

If the result is not as specified, the multiplex network body ECU may have a malfunction.

ON-VEHICLE INSPECTION

1. CHECK ELECTRICAL DOOR LOCK OPERATION

- (a) Check the basic function.
 - (1) The door control switch (manual operation): 1) pushing LOCK locks all the doors and 2) pushing UNLOCK unlocks all the doors.
 - (2) The door key cylinder lock function: turning the driver or passenger side door key cylinder to the LOCK position locks all the doors.
 - (3) The door key cylinder unlock function: 1) turning the driver or passenger side door key cylinder to the UNLOCK position once unlocks only the driver side door, and 2) turning it to the UNLOCK position again within 3 seconds unlocks all the doors (2-step unlock function).
- (b) Check the key lock-in prevention function.

NOTICE:

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

- (1) Have the key inserted into the ignition key cylinder.
 - (2) With the driver side door open, turn the driver side door lock knob to the LOCK position 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 the LOCK position, 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 the 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 and then close and lock the door without using the key. Check that pushing UNLOCK on the door control switch (manual operation) from outside the vehicle does not unlock the doors.
 - (3) Pull out the key, close and lock the driver side door by key operation. Check that pushing UNLOCK on the door control switch (manual operation) from outside the vehicle does not unlock the doors.

- (4) Pull out the key, close the driver side door and lock the door by wireless door lock operation. Check that pushing UNLOCK on the door control switch (manual operation) from outside the vehicle does not unlock the doors.

HINT:

Check that the security function is canceled when any of the following conditions are met:

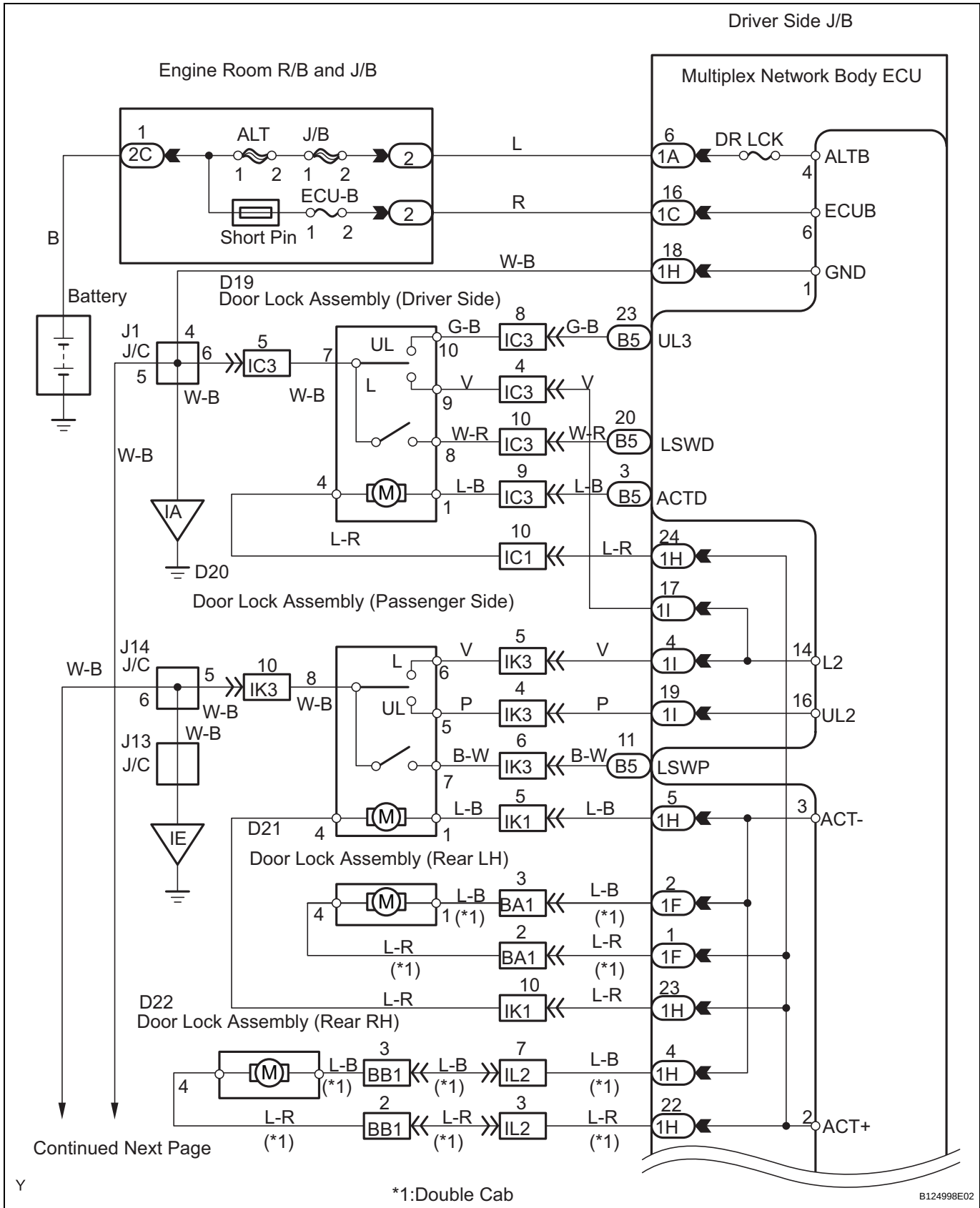
- The ignition switch is turned ON.
- The driver side door is unlocked using the key.
- UNLOCK on the door control switch (manual operation) is pushed after the door control knob is turned to the UNLOCK position manually.
- The doors are unlocked with wireless operation.

- (d) Check the illumination function.
- (1) Set the room light switch to the DOOR position.
 - (2) With all doors locked, check that all the doors unlock when the driver side door lock cylinder is turned to the UNLOCK position using the key. At the same time, the room light should turn ON.
 - (3) Check that the room light turns off in approximately 15 seconds if the doors have not been opened.

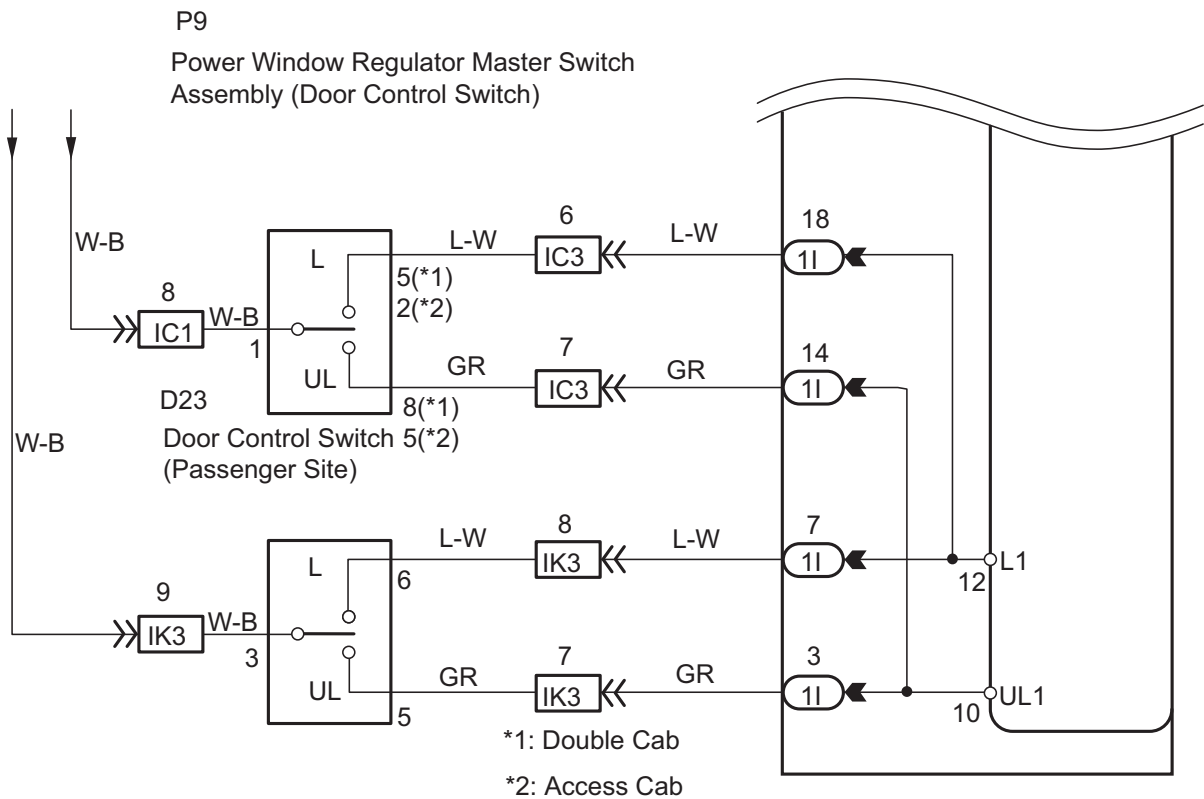
All Doors cannot be Locked / Unlocked Simultaneously**DESCRIPTION**

The multiplex network body ECU activates the door lock motors with switch signals from the master switch, door control switch and driver/passenger side door key cylinder.

WIRING DIAGRAM



Continued from previous page

**1****INSPECT ALL DOORS LOCK/UNLOCK OPERATION**

All the doors can be locked/unlocked simultaneously using the following items:

- Door control switch on the master switch (switch operation)
- Door control switch on the front passenger side (switch operation)
- Door key cylinder linked with driver and passenger side door lock (key operation)

If all the doors cannot be locked/unlocked simultaneously, proceed to the next step according to the malfunctioning part shown in the table below.

Result:

Malfunctioning Part	Proceed to
Driver side doors	A
Passenger side doors	B
All items are malfunctioning	C

B**Go to step 3****C****Go to step 14****DL**

A

2**INSPECT DRIVER SIDE DOORS LOCK/UNLOCK OPERATION**

Malfunctioning Part	Proceed to
Door control switch on master switch	A
Driver side door key cylinder	B
Door control switch on master switch and driver side door key cylinder	C

A

Go to step 4

B

Go to step 6

C

Go to step 9

3**INSPECT PASSENGER SIDE DOORS LOCK/UNLOCK OPERATION**

Malfunctioning Part	Proceed to
Door control switch on passenger side switch	A
Passenger side door key cylinder	B
Door control switch on passenger side and passenger side door key cylinder	C

A

Go to step 16

B

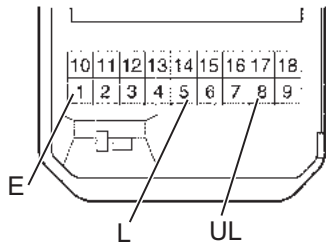
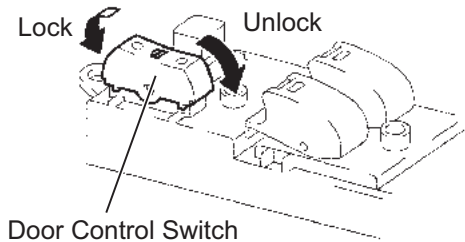
Go to step 18

C

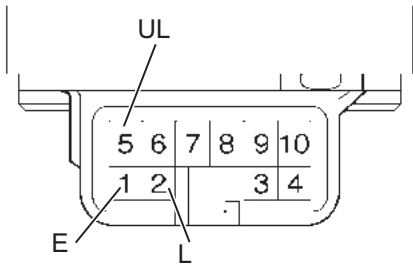
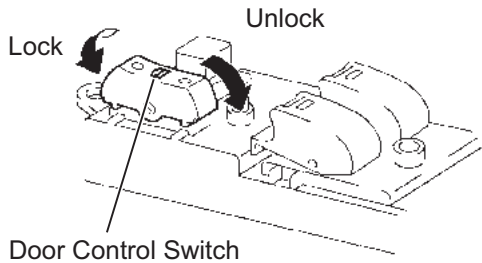
Go to step 21

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

Component Side (Double Cab):



Component Side (Access Cab):



Y

B128473E01

- (a) Remove the power window regulator master switch assembly.
- (b) Measure the resistance of the door control switch.

Standard (Double cab)

Tester Connection	Switch Condition	Specified Condition
1 (E) - 5 (L)	Lock	Below 1 Ω
1 (E) - 5 (L) 1 (E) - 8 (UL)	OFF	10 k Ω or higher
1 (E) - 8 (UL)	Unlock	Below 1 Ω

Standard (Access cab)

Tester Connection	Switch Condition	Specified Condition
1 (E) - 2 (L)	Lock	Below 1 Ω
1 (E) - 2 (L) 1 (E) - 5 (UL)	OFF	10 k Ω or higher
1 (E) - 5 (UL)	Unlock	Below 1 Ω

- (c) Reinstall the power window regulator master switch assembly.

NG

REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY

OK

DL

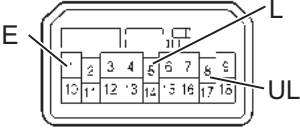
5

CHECK HARNESS AND CONNECTOR (MASTER SWITCH (SWITCH) - DRIVER SIDE J/B AND BODY GROUND)

Wire Harness Side (Double Cab):

Power Window Regulator Master Switch

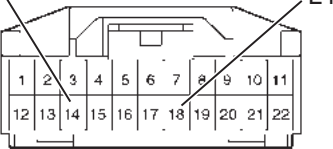
P9



Front View

Driver Side J/B

11

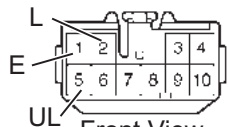


Front View

Wire Harness Side (Access Cab):

Power Window Regulator Master Switch

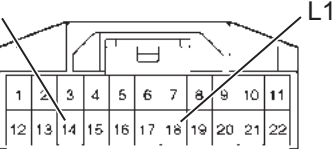
P9



Front View

Driver Side J/B

11



Front View

Y

B128474E01

(a) Disconnect the P9 power window regulator master switch connector.

(b) Disconnect the 11 driver side J/B connector.

(c) Measure the resistance.

Standard (Double cab)

Tester Connection	Specified Condition
P9-5 (L) - 11-18 (L1)	Below 1 Ω
P9-8 (UL) - 11-14 (UL1)	Below 1 Ω
P9-1 (E) - Body ground	Below 1 Ω
P9-5 (L) or 11-18 (L1) - Body ground	10 kΩ or higher
P9-8 (UL) or 11-14 (UL1) - Body ground	10 kΩ or higher

Standard (Access cab)

Tester Connection	Specified Condition
P9-2 (L) - 11-18 (L1)	Below 1 Ω
P9-5 (UL) - 11-14 (UL1)	Below 1 Ω
P9-1 (E) - Body ground	Below 1 Ω
P9-2 (L) or 11-18 (L1) - Body ground	10 kΩ or higher
P9-5 (UL) or 11-14 (UL1) - Body ground	10 kΩ or higher

(d) Reconnect the power window regulator master switch connector.

(e) Reconnect the driver side J/B connector.

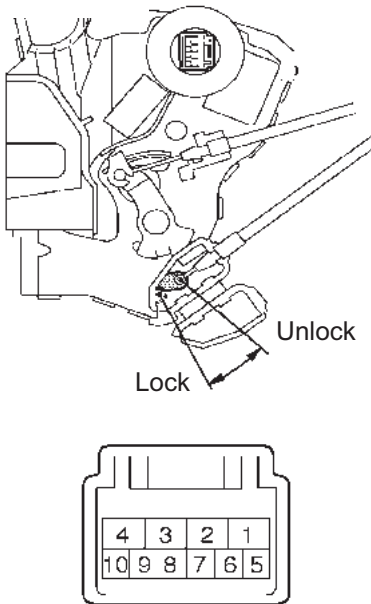
NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DRIVER SIDE JUNCTION BLOCK

DL

6**INSPECT FRONT DOOR LOCK ASSEMBLY LH (DOOR LOCK MOTOR)****Component Side:**

T

B065427E16

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

NOTICE:

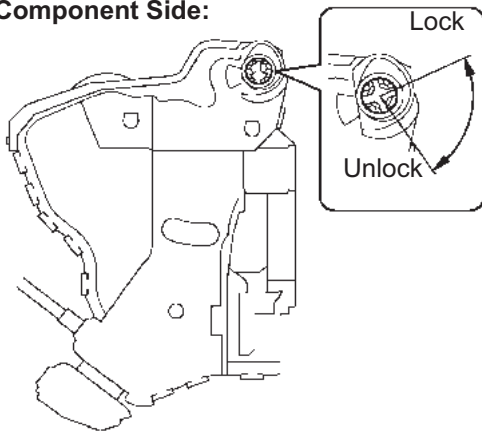
Do not apply battery voltage to any terminals except terminals 1 and 4.

OK

Terminal No	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 LH

OK**7****INSPECT FRONT DOOR LOCK ASSEMBLY LH (DOOR LOCK AND UNLOCK SWITCH AND POSITION SWITCH)****Component Side:**

T

B065428E06

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

Standard (Door lock and unlock switch)

Tester Connection	Door Lock Condition	Specified Condition
7 - 9	Lock	Below 1 Ω
7 - 9, 7 - 10	OFF	10 k Ω or higher
7 - 10	Unlock	Below 1 Ω

Standard (Position switch)

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

NG

REPLACE FRONT DOOR LOCK ASSEMBLY LH

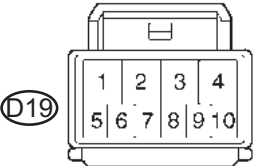
OK

8

CHECK HARNESS AND CONNECTOR (FRONT DOOR LOCK LH - ECU, DRIVER SIDE J/B AND BODY GROUND)

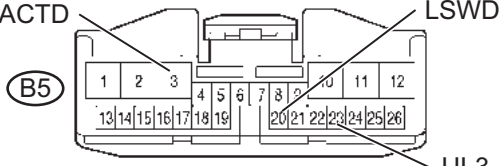
Wire Harness Side:

Front Door Lock Assembly LH



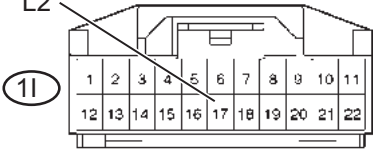
Front View

Multiplex Network Body ECU

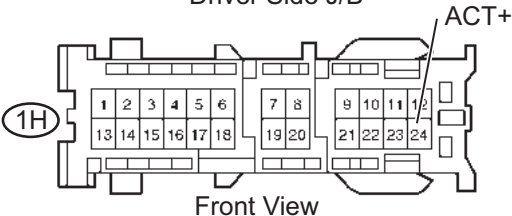


Front View

Driver Side J/B



Driver Side J/B



Front View

T

B088348E01

- (a) Disconnect the D19 front door lock connector.
- (b) Disconnect the B5 multiplex network body ECU connector.
- (c) Disconnect the 1H and 1I driver side J/B connectors.
- (d) Measure the resistance.

Standard

Tester Connection	Specified Condition
D19-4 - 1H-24 (ACT+)	Below 1 Ω
D19-1 - B5-3 (ACTD)	Below 1 Ω
D19-9 - 1I-17 (L2)	Below 1 Ω
D19-10 - B5-23 (UL3)	Below 1 Ω
D19-8 - B5-20 (LSWD)	Below 1 Ω
D19-7 - Body ground	Below 1 Ω
D19-4 or 1H-24 (ACT+) - Body ground	10 kΩ or higher
D19-1 or B5-3 (ACTD) - Body ground	10 kΩ or higher
D19-9 or 1I-17 (L2) - Body ground	10 kΩ or higher
D19-10 or B5-23 (UL3) - Body ground	10 kΩ or higher
D19-8 or B5-20 (LSWD) - Body ground	10 kΩ or higher

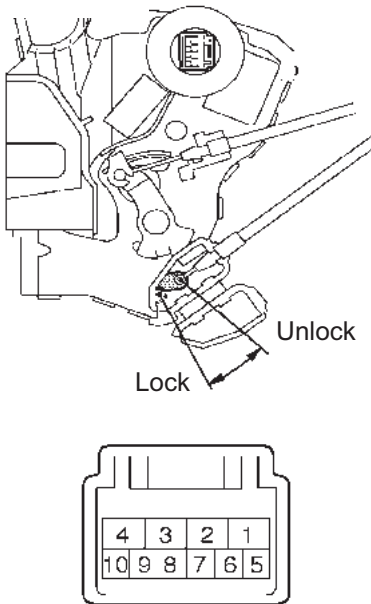
- (e) Reconnect the front door lock connector.
- (f) Reconnect the multiplex network body ECU connector.
- (g) Reconnect the driver side J/B connectors.

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DRIVER SIDE JUNCTION BLOCK (MULTIPLEX NETWORK BODY ECU)

9**INSPECT FRONT DOOR LOCK ASSEMBLY LH (DOOR LOCK MOTOR)****Component Side:**

T

B065427E16

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

NOTICE:

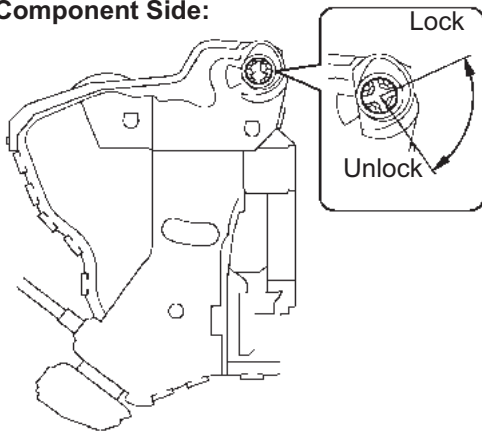
Do not apply battery voltage to any terminals except terminals 1 and 4

OK

Terminal No	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 LH

OK**10****INSPECT FRONT DOOR LOCK ASSEMBLY LH (DOOR LOCK AND UNLOCK SWITCH AND POSITION SWITCH)****Component Side:**

T

B065428E06

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

Standard (Door lock and unlock switch)

Tester Connection	Door Lock Condition	Specified Condition
7 - 9	Lock	Below 1 Ω
7 - 9 7 - 10	OFF	10 k Ω or higher
7 - 10	Unlock	Below 1 Ω

Standard (Position switch)

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

NG

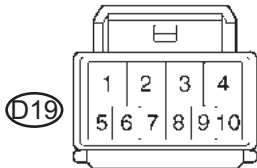
REPLACE FRONT DOOR LOCK ASSEMBLY LH

OK

11

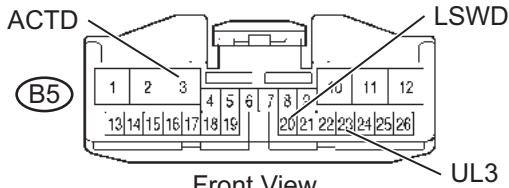
CHECK HARNESS AND CONNECTOR (FRONT DOOR LOCK LH - ECU, DRIVER SIDE J/B AND BODY GROUND)**Wire Harness Side:**

Front Door Lock Assembly LH



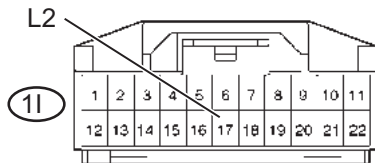
Front View

Multiplex Network Body ECU

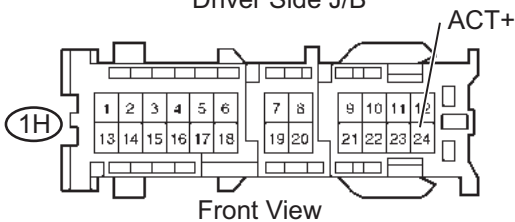


Front View

Driver Side J/B



Driver Side J/B



Front View

T

B088348E01

- Disconnect the D19 front door lock connector.
- Disconnect the B5 multiplex network body ECU connector.
- Disconnect the 1H and 1I driver side J/B connectors.
- Measure the resistance of the wire harness side connectors.

Standard

Tester Connection	Specified Condition
D19-4 - 1H-24 (ACT+)	Below 1 Ω
D19-1 - B5-3 (ACTD)	Below 1 Ω
D19-9 - 1I-17 (L2)	Below 1 Ω
D19-10 - B5-23 (UL3)	Below 1 Ω
D19-8 - B5-20 (LSWD)	Below 1 Ω
D19-7 - Body ground	Below 1 Ω
D19-4 or 1H-24 (ACT+) - Body ground	10 k Ω or higher
D19-1 or B5-3 (ACTD) - Body ground	10 k Ω or higher
D19-9 or 1I-17 (L2) - Body ground	10 k Ω or higher
D19-10 or B5-23 (UL3) - Body ground	10 k Ω or higher
D19-8 or B5-20 (LSWD) - Body ground	10 k Ω or higher

- Reconnect the front door lock connector.
- Reconnect the multiplex network body ECU connector.
- Reconnect the driver side J/B connectors.

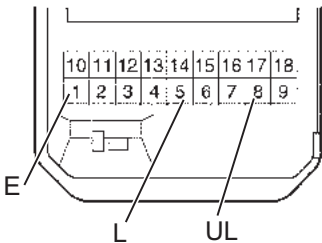
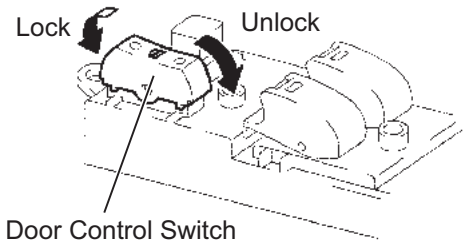
NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

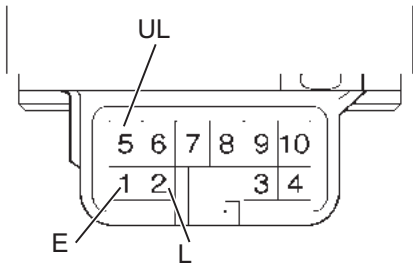
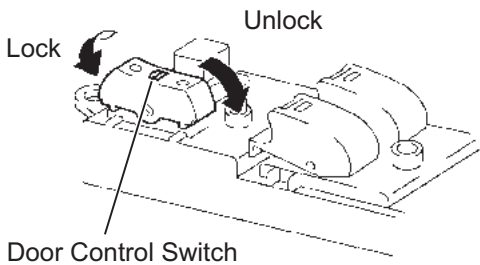
OK

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

Component Side (Double Cab):



Component Side (Access Cab):



Y

B128473E01

- (a) Remove the power window regulator master switch assembly.
- (b) Measure the resistance of the door control switch.

Standard (Double cab)

Tester Connection	Switch Condition	Specified Condition
1 (E) - 5 (L)	Lock	Below 1 Ω
1 (E) - 5 (L) 1 (E) - 8 (UL)	OFF	10 k Ω or higher
1 (E) - 8 (UL)	Unlock	Below 1 Ω

Standard (Access cab)

Tester Connection	Switch Condition	Specified Condition
1 (E) - 2 (L)	Lock	Below 1 Ω
1 (E) - 2 (L) 1 (E) - 5 (UL)	OFF	10 k Ω or higher
1 (E) - 5 (UL)	Unlock	Below 1 Ω

- (c) Reinstall the power window regulator master switch assembly.

NG

REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY

OK

DL

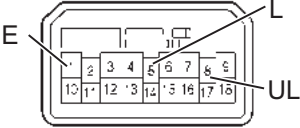
13

CHECK HARNESS AND CONNECTOR (MASTER SWITCH (SWITCH) - DRIVER SIDE J/B AND BODY GROUND)

Wire Harness Side (Double Cab):

Power Window Regulator Master Switch

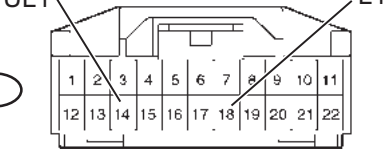
P9



Front View

Driver Side J/B

11

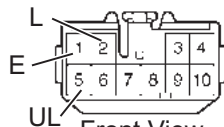


Front View

Wire Harness Side (Access Cab):

Power Window Regulator Master Switch

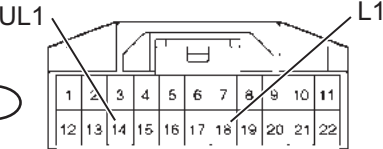
P9



Front View

Driver Side J/B

11



Front View

Y

B128474E01

(a) Disconnect the P9 power window regulator master switch connector.

(b) Disconnect the 11 driver side J/B connector.

(c) Measure the resistance.

Standard (Double cab)

Tester Connection	Specified Condition
P9-5 (L) - 11-18 (L1)	Below 1 Ω
P9-8 (UL) - 11-14 (UL1)	Below 1 Ω
P9-1 (E) - Body ground	Below 1 Ω
P9-5 (L) or 11-18 (L1) - Body ground	10 kΩ or higher
P9-8 (UL) or 11-14 (UL1) - Body ground	10 kΩ or higher

Standard (Access cab)

Tester Connection	Specified Condition
P9-2 (L) - 11-18 (L1)	Below 1 Ω
P9-5 (UL) - 11-14 (UL1)	Below 1 Ω
P9-1 (E) - Body ground	Below 1 Ω
P9-2 (L) or 11-18 (L1) - Body ground	10 kΩ or higher
P9-5 (UL) or 11-14 (UL1) - Body ground	10 kΩ or higher

(d) Reconnect the power window regulator master switch connector.

(e) Reconnect the driver side J/B connector.

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DRIVER SIDE JUNCTION BLOCK

DL

14 INSPECT FUSE (DR LCK, J/B, ECU-B, ALT)

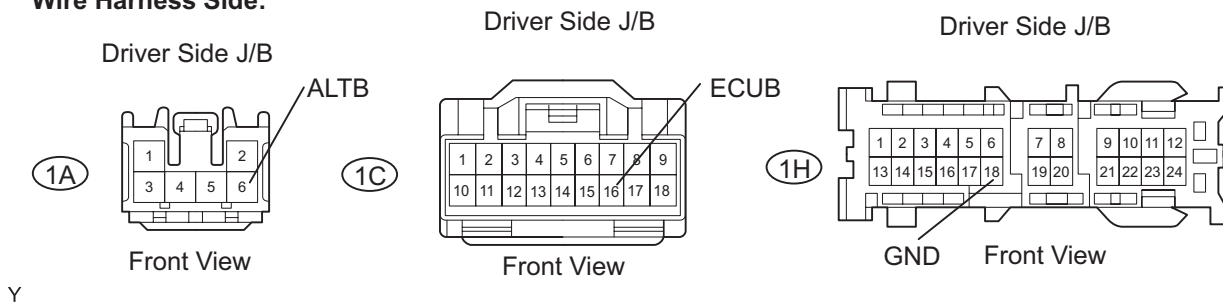
- Remove the DR LCK fuse from the driver side J/B.
- Remove the J/B, ECU-B and ALT fuses from the engine room R/B.
- Measure the resistance of the fuse.

Standard:**Below 1 Ω**

- Reinstall the DR LCK fuse.
- Reinstall the J/B, ECU-B and ALT fuses.

NG**REPLACE FUSE****OK****15 CHECK HARNESS AND CONNECTOR (DRIVER SIDE J/B ASSEMBLY - BODY GROUND)**

- Disconnect the 1A, 1C, and 1H driver side J/B connectors.
- Measure the voltage and resistance.

Wire Harness Side:

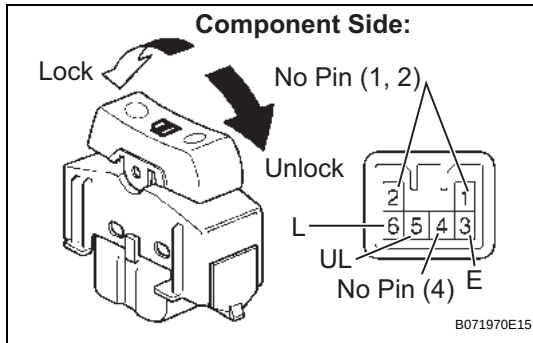
B125003E01

Standard

Tester Connection	Specified Condition
1A-6 (ALTB) - Body ground	10 to 14 V
1H-18 (GND) - Body ground	Below 1 Ω
1C-16 (ECUB) - Body ground	10 to 14 V

- Reconnect the driver side J/B connectors.

NG**REPAIR OR REPLACE HARNESS OR CONNECTOR****OK****REPLACE DRIVER SIDE JUNCTION BLOCK**

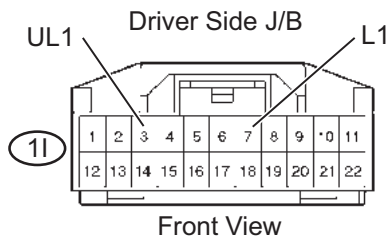
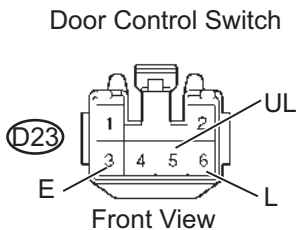
16 INSPECT DOOR CONTROL SWITCH ASSEMBLY

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

Standard

Tester Connection	Switch Condition	Specified Condition
3 (E) - 6 (L)	Lock	Below 1 Ω
3 (E) - 5 (UL) 3 (E) - 6 (L)	OFF	10 k Ω or higher
3 (E) - 5 (UL)	Unlock	Below 1 Ω

- (c) Reinstall the door control switch.

NG**REPLACE DOOR CONTROL SWITCH ASSEMBLY****OK****17 CHECK HARNESS AND CONNECTOR (DOOR CONTROL SWITCH - DRIVER SIDE J/B AND BODY GROUND)****Wire Harness Side:**

- (a) Disconnect the D23 door control switch connector.
 (b) Disconnect the 11 driver side J/B connector.
 (c) Measure the resistance.

Standard

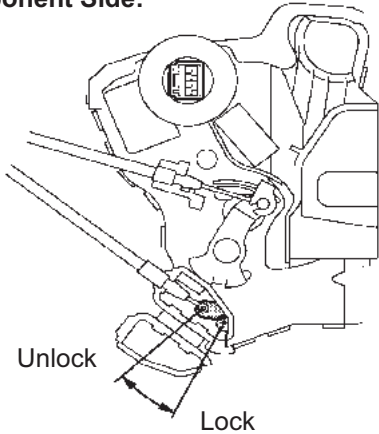
Tester Connection	Specified Condition
D23-6 (L) - 11-7 (L1)	Below 1 Ω
D23-5 (UL) - 11-3 (UL1)	Below 1 Ω
D23-3 (E) - Body ground	Below 1 Ω
D23-6 (L) or 11-7 (L1) - Body ground	10 k Ω or higher
D23-5 (UL) or 11-3 (UL1) - Body ground	10 k Ω or higher

- (d) Reconnect the door control switch connector.
 (e) Reconnect the driver side J/B connector.

NG**REPAIR OR REPLACE HARNESS OR CONNECTOR****OK****REPLACE DRIVER SIDE JUNCTION BLOCK**

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

Component Side:



T

B065429E16

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

NOTICE:

Do not apply battery voltage to any terminals except terminals 1 and 4.

OK

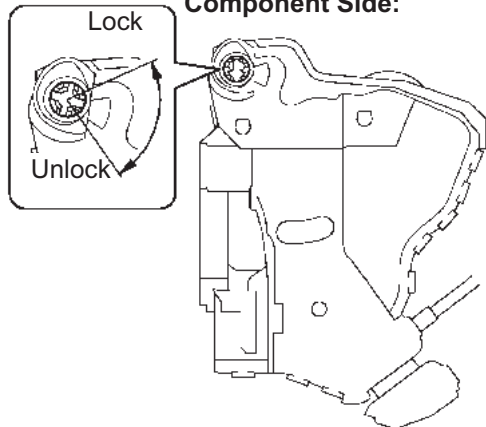
Terminal No	Specified Condition
Battery positive (+) → Terminal 4 Battery negative (-) → Terminal 1	Lock
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 4	Unlock

NG

REPLACE FRONT DOOR LOCK ASSEMBLY RH

OK**19 INSPECT FRONT DOOR LOWER FRAME BRACKET GARNISH RH (DOOR LOCK AND UNLOCK SWITCH AND POSITION SWITCH)**

Component Side:



T

B065430E14

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

Standard (Door lock and unlock switch)

Tester Connection	Door Lock Condition	Specified Condition
6 - 8	Lock	Below 1 Ω
5 - 8, 6 - 8	OFF	10 k Ω or higher
5 - 8	Unlock	Below 1 Ω

Standard (Position switch)

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

NG

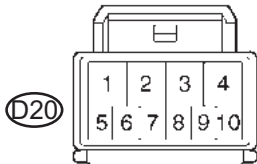
REPLACE FRONT DOOR LOCK ASSEMBLY RH

OK

20

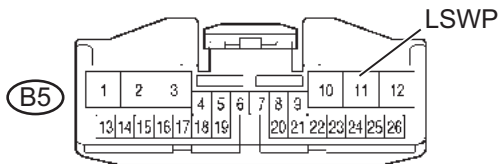
CHECK HARNESS AND CONNECTOR (FRONT DOOR LOCK RH - ECU, DRIVER SIDE J/B AND BODY GROUND)**Wire Harness Side:**

Front Door Lock Assembly RH



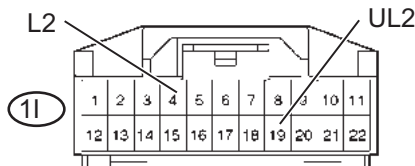
Front View

Multiplex Network Body ECU

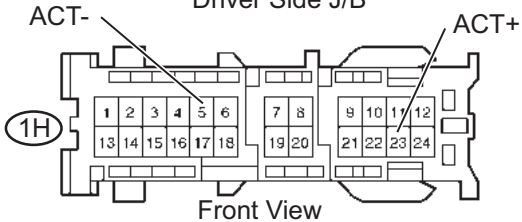


Front View

Driver Side J/B



Driver Side J/B



Front View

T

B088348E02

- Disconnect the D20 front door lock connector.
- Disconnect the B5 multiplex network body ECU connector.
- Disconnect the 1H and 1I driver side J/B connectors.
- Measure the resistance.

Standard

Tester Connection	Specified Condition
D20-4 - 1H-23 (ACT+)	Below 1 Ω
D20-1 - 1H-5 (ACT-)	Below 1 Ω
D20-6 - 1I-4 (L2)	Below 1 Ω
D20-5 - 1I-19 (UL2)	Below 1 Ω
D20-7 - B5-11 (LSWP)	Below 1 Ω
D20-8 - Body ground	Below 1 Ω
D20-4 or 1H-23 (ACT+) - Body ground	10 k Ω or higher
D20-1 or 1H-5 (ACT-) - Body ground	10 k Ω or higher
D20-6 or 1I-4 (L2) - Body ground	10 k Ω or higher
D20-5 or 1I-19 (UL2) - Body ground	10 k Ω or higher
D20-7 or B5-11 (LSWP) - Body ground	10 k Ω or higher

- Reconnect the front door lock connector.
- Reconnect the multiplex network body ECU connector.
- Reconnect the driver side J/B connectors.

NG

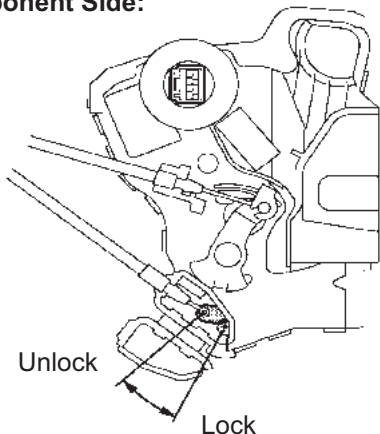
REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DRIVER SIDE JUNCTION BLOCK (MULTIPLEX NETWORK BODY ECU)

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

Component Side:



T

B065429E16

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

NOTICE:

Do not apply battery voltage to any terminals except terminals 1 and 4.

OK

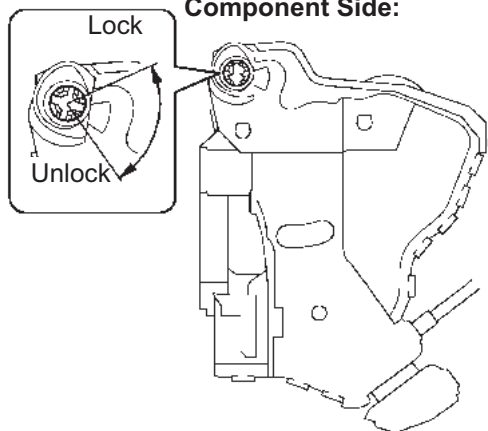
Terminal No	Specified Condition
Battery positive (+) → Terminal 4 Battery negative (-) → Terminal 1	Lock
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 4	Unlock

NG

REPLACE FRONT DOOR LOCK ASSEMBLY RH

OK**22 INSPECT FRONT DOOR LOCK ASSEMBLY RH (DOOR LOCK AND UNLOCK SWITCH AND POSITION SWITCH)**

Component Side:



T

B065430E14

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

Standard (Door lock and unlock switch)

Tester Connection	Door Lock Condition	Specified Condition
6 - 8	Lock	Below 1 Ω
5 - 8, 6 - 8	OFF	10 k Ω or higher
5 - 8	Unlock	Below 1 Ω

Standard (Position switch)

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

NG

REPLACE FRONT DOOR LOCK ASSEMBLY RH

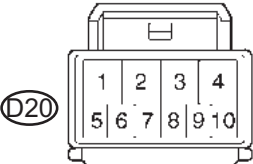
OK

23

CHECK HARNESS AND CONNECTOR (FRONT DOOR LOCK RH - ECU, DRIVER SIDE J/B AND BODY GROUND)

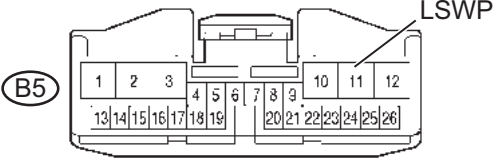
Wire Harness Side:

Front Door Lock Assembly LH



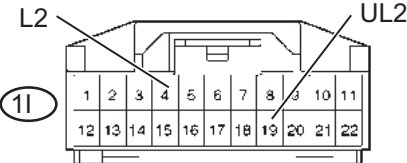
Front View

Multiplex Network Body ECU

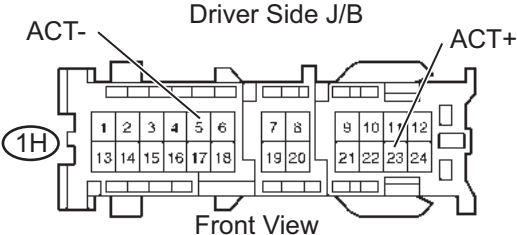


Front View

Driver Side J/B



Driver Side J/B



Front View

T

B088348E03

OK

- (a) Disconnect the D20 front door lock connector.
- (b) Disconnect the B5 multiplex network body ECU connector.
- (c) Disconnect the 1H and 1I driver side J/B connectors.
- (d) Measure the resistance.

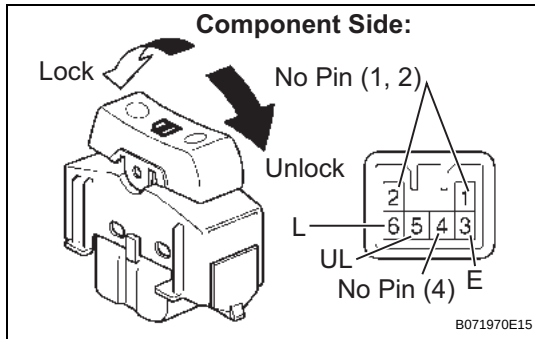
Standard

Tester Connection	Specified Condition
D20-4 - 1H-23 (ACT+)	Below 1 Ω
D20-1 - 1H-5 (ACT-)	Below 1 Ω
D20-6 - 1I-4 (L2)	Below 1 Ω
D20-5 - 1I-19 (UL2)	Below 1 Ω
D20-7 - B5-11 (LSWP)	Below 1 Ω
D20-8 - Body ground	Below 1 Ω
D20-4 or 1H-23 (ACT+) - Body ground	10 kΩ or higher
D20-1 or 1H-5 (ACT-) - Body ground	10 kΩ or higher
D20-6 or 1I-4 (L2) - Body ground	10 kΩ or higher
D20-5 or 1I-19 (UL2) - Body ground	10 kΩ or higher
D20-7 or B5-11 (LSWP) - Body ground	10 kΩ or higher

- (e) Reconnect the front door lock connector.
- (f) Reconnect the multiplex network body ECU connector.
- (g) Reconnect the driver side J/B connectors.

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

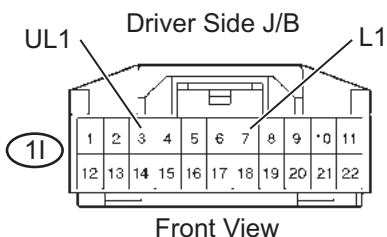
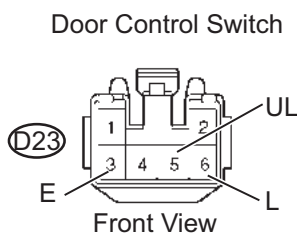
24 INSPECT DOOR CONTROL SWITCH ASSEMBLY

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

Standard

Tester Connection	Switch Condition	Specified Condition
3 (E) - 6 (L)	Lock	Below 1 Ω
3 (E) - 5 (UL) 3 (E) - 6 (L)	OFF	10 k Ω or higher
3 (E) - 5 (UL)	Unlock	Below 1 Ω

- (c) Reinstall the door control switch.

NG**REPLACE DOOR CONTROL SWITCH ASSEMBLY****OK****25 CHECK HARNESS AND CONNECTOR (DOOR CONTROL SWITCH - DRIVER SIDE J/B AND BODY GROUND)****Wire Harness Side:**

- (a) Disconnect the D23 door control switch connector.
 (b) Disconnect the 1I driver side J/B connector.
 (c) Measure the resistance.

Standard

Tester Connection	Specified Condition
D23-6 (L) - 1I-7 (L1)	Below 1 Ω
D23-5 (UL) - 1I-3 (UL1)	Below 1 Ω
D23-3 (E) - Body ground	Below 1 Ω
D23-6 (L) or 1I-7 (L1) - Body ground	10 k Ω or higher
D23-5 (UL) or 1I-3 (UL1) - Body ground	10 k Ω or higher

- (d) Reconnect the door control switch connector.
 (e) Reconnect the driver side J/B connector.

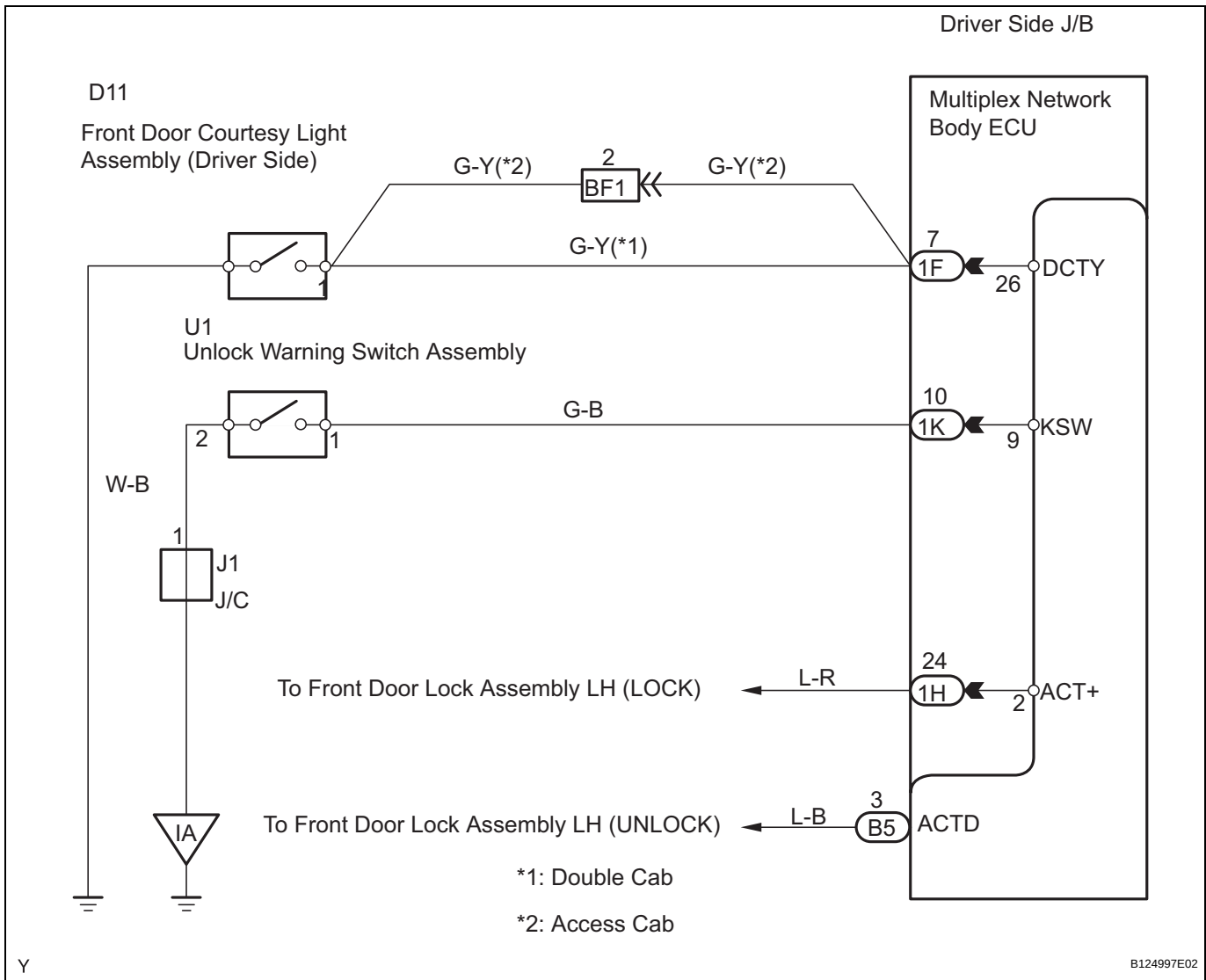
NG**REPAIR OR REPLACE HARNESS OR CONNECTOR****OK****REPLACE DRIVER SIDE JUNCTION BLOCK**

Key Lock-in Prevention Function does not Work Properly

DESCRIPTION

To prevent the key from being locked in the vehicle, the multiplex network body ECU prevents the 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 driver side courtesy light switch, which turns ON when the driver side door is opened.

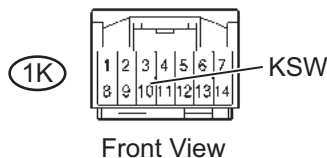
WIRING DIAGRAM



1 CHECK HARNESS AND CONNECTOR (DRIVER SIDE JUNCTION BLOCK - BODY GROUND)

Wire Harness Side:

Driver Side J/B



B063404E02

- Disconnect the 1K driver side J/B connector.
- Measure the resistance.

Standard

Tester Connection	Connection	Specified Condition
1K-10 (KSW) - Body ground	No key in ignition key cylinder	10 k Ω or higher
1K-10 (KSW) - Body ground	Key inserted in ignition key cylinder	Below 1 Ω

- Reconnect the driver side J/B connector.

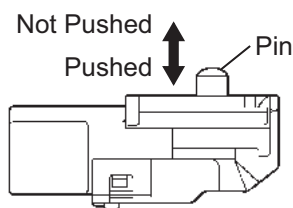
OK

Go to step 4

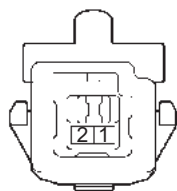
NG

2 INSPECT UNLOCK WARNING SWITCH ASSEMBLY

Component Side:



Unlock Warning Switch Assembly
(Driver Side)



Y

I044492E01

- Remove the unlock warning switch.
- Measure the resistance.

Standard

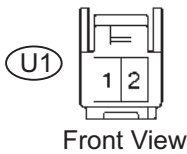
Tester Connection	Switch Connection	Specified Condition
1 - 2	Not pushed	10 k Ω or higher
1 - 2	Pushed	Below 1 Ω

- Reinstall the unlock warning switch.

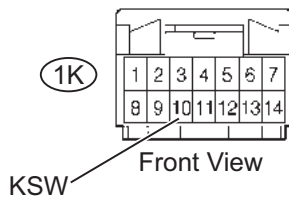
NG

REPLACE UNLOCK WARNING SWITCH ASSEMBLY

OK

3**CHECK HARNESS AND CONNECTOR (SWITCH ASSEMBLY - DRIVER SIDE J/B ASSEMBLY AND BODY GROUND)****Wire Harness Side:**Unlock Warning Switch
(Driver Side)

Driver Side J/B



Y

I044490E02

- Disconnect the U1 unlock warning switch connector.
- Disconnect the 1K driver side J/B connector.
- Measure the resistance of the wire harness side connectors.

Standard

Tester Connection	Specified Condition
U1-1 - 1K-10 (KSW)	Below 1 Ω
U1-2 - Body ground	Below 1 Ω

- Reconnect the unlock warning switch connector.
- Reconnect the driver side J/B connector.

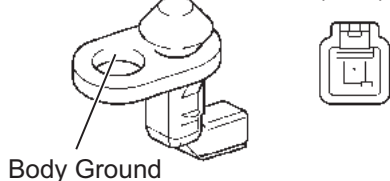
NG**REPAIR OR REPLACE HARNESS OR CONNECTOR****OK****4****CHECK FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY (DRIVER SIDE)**

- Move the room light switch to the DOOR position and open the driver side door. Check that the room light turns ON.

OK:**Room light turns ON.****OK****REPLACE DRIVER SIDE JUNCTION BLOCK ASSEMBLY****NG****5****INSPECT FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY (DRIVER SIDE)****Component Side:**

Not Pushed (ON)

Pushed (OFF)



Y

B087741E02

- Remove the front door courtesy light switch assembly.
- Measure the resistance of the switch.

Standard

Tester Connection	Switch Condition	Specified Condition
1 - Body ground	Not pushed (ON)	Below 1 Ω
1 - Body ground	Pushed (OFF)	10 k Ω or higher

- Reinstall the front door courtesy light switch assembly.

NG

REPLACE FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY

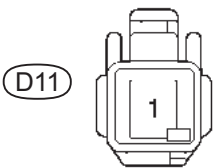
OK

6

CHECK HARNESS AND CONNECTOR (SWITCH ASSEMBLY (DRIVER SIDE) - DRIVER SIDE J/B ASSEMBLY)

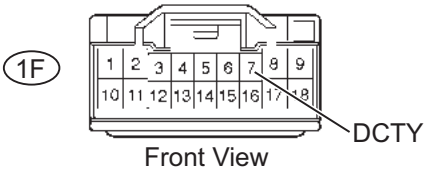
Wire Harness Side:

Unlock Warning Switch (Driver Side)



Front View

Driver Side J/B



Front View

- (a) Disconnect the D11 front door courtesy light switch connector.
- (b) Disconnect the 1F driver side J/B connector.
- (c) Measure the resistance.

Standard

Tester Connection	Specified Condition
D11-1 - 1F-7 (DCTY)	Below 1 Ω

- (d) Reconnect the front door courtesy light switch connector.
- (e) Reconnect the driver side J/B connector.

NG

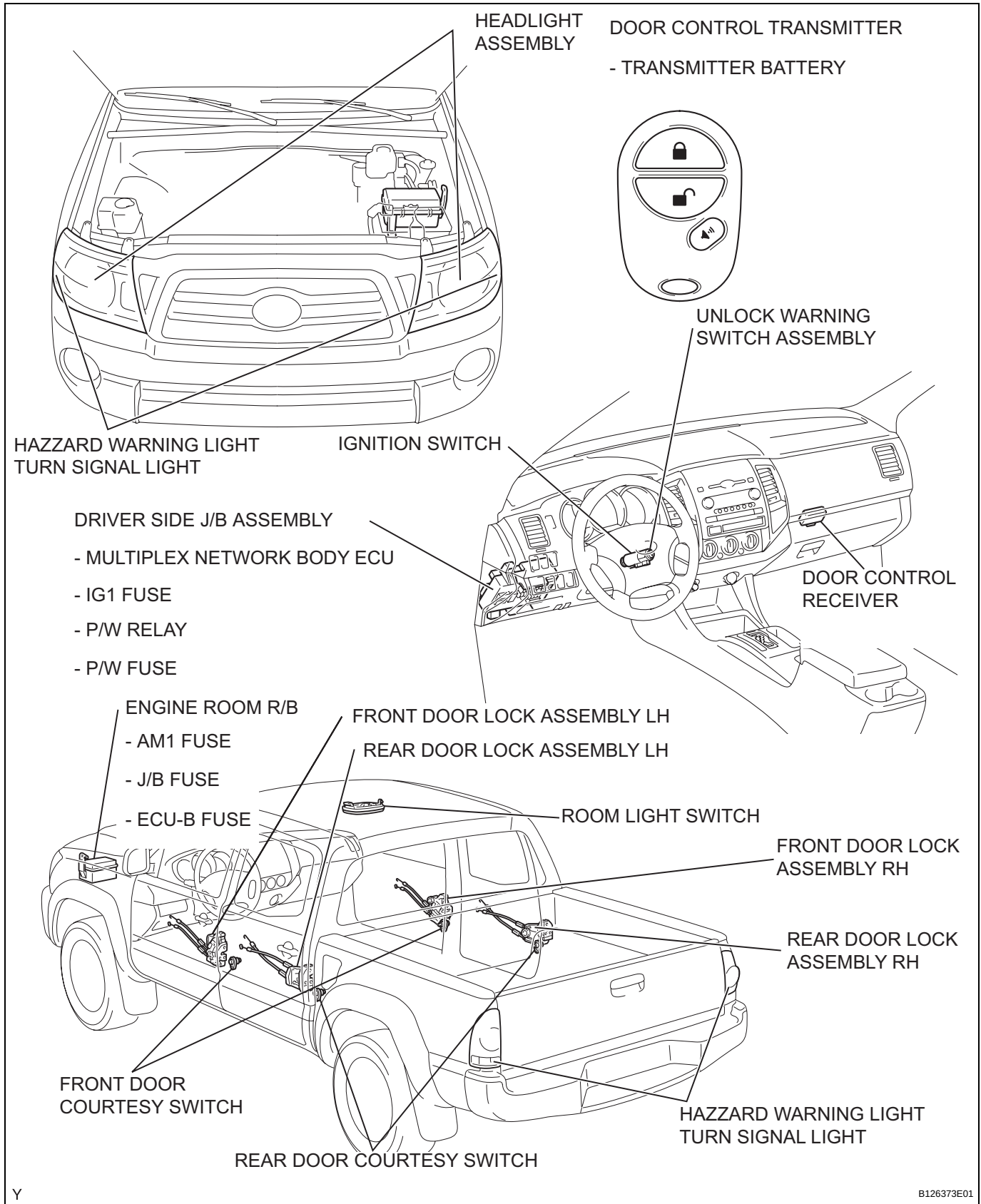
REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

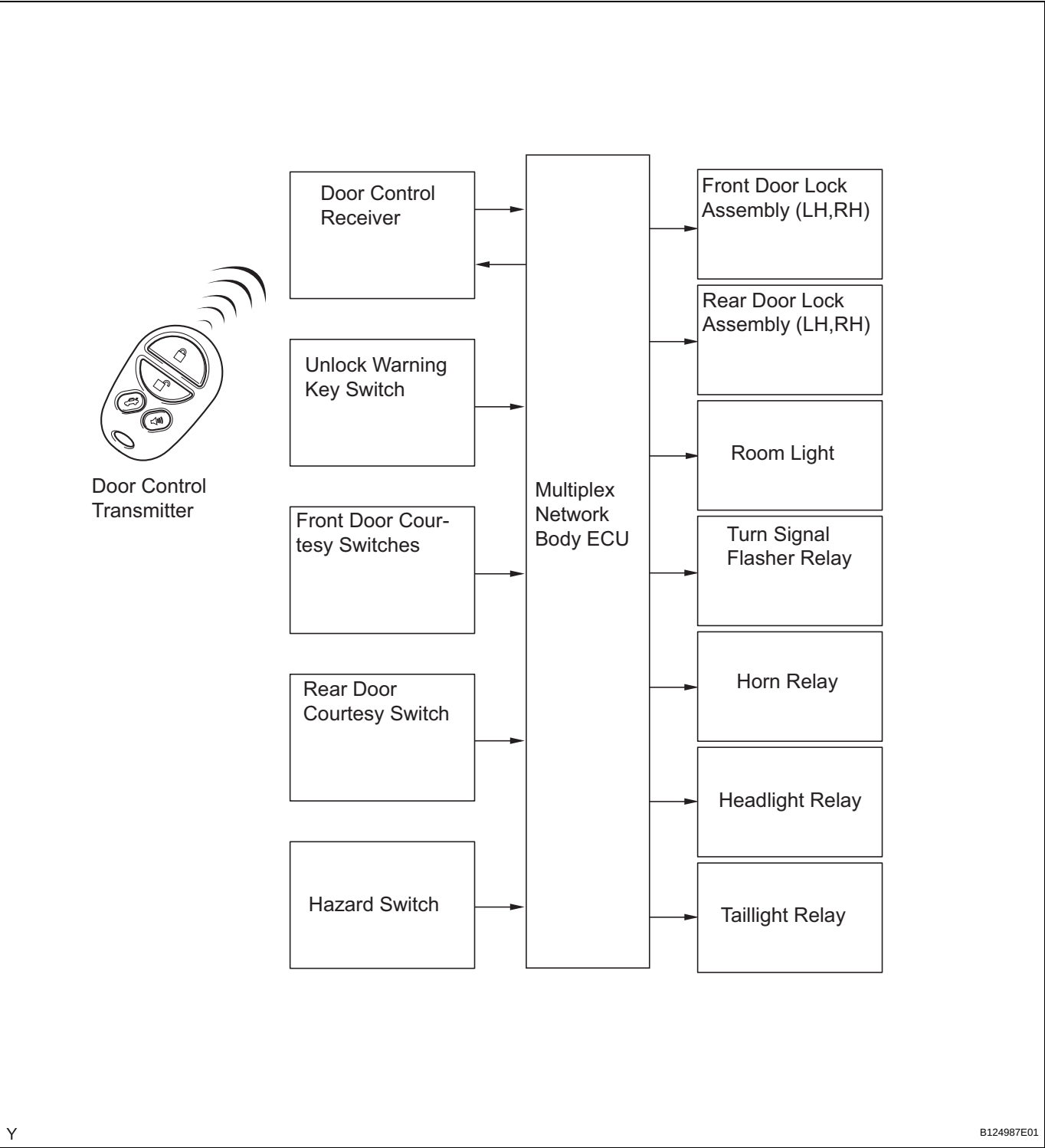
REPLACE DRIVER SIDE JUNCTION BLOCK

WIRELESS DOOR LOCK CONTROL SYSTEM

PARTS LOCATION



SYSTEM DIAGRAM



SYSTEM DESCRIPTION

1. WIRELESS DOOR CONTROL SYSTEM DESCRIPTION

- (a) This system locks and unlocks the vehicle's doors remotely. The wireless control system has the following features:
- The door control receiver performs the code identification process and the multiplex network body ECU operates the door lock control. A serial data link is provided for communication between the door control receiver and the multiplex network body ECU.
 - A key-holder type transmitter is used and it contains the following 3 switches: the door lock switch, door unlock switch and panic switch.
- (b) The wireless door lock control system has the following functions:

Function	Outline
All doors lock operation	Pressing LOCK switch locks all doors.
All doors unlock operation (2-step unlock operation)	Pressing UNLOCK switch once unlocks driver side door. Pressing UNLOCK switch again within 3 seconds unlocks remaining doors.
Answer-back operation	Hazard warning lights flash once when doors are locked, and flash twice when doors are unlocked. These flashes indicate that operation has been completed.
Panic alarm operation	Holding down PANIC switch sets off theft deterrent alarm, which consists of sounding horn, flashing headlights, taillights and hazard warning lights and turning room light on.
Automatic lock function	If no doors are opened within 30 seconds of being unlocked by wireless door lock remote control, all doors lock again automatically.
Repeat function	If a door is not locked in response to locking operation of transmitter, multiplex network body ECU outputs lock signal after 1 second.
Illumination entry function	With all doors locked, pressing UNLOCK switch causes room light to illuminate simultaneously with unlocking operation.
Security function	Sends signal as rolling code.
Transmitter recognition code registration function	Enables registering (writing and storing) of 4 different transmitter recognition codes in EERPOM, which is built into multiplex network body ECU.

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- The wireless door lock control system troubleshooting procedures are based on the premise that the power door lock system is operating normally. Check the power door lock system first before troubleshooting the wireless door lock control system.
- Use these procedures to troubleshoot the wireless door lock control system.
- *: Use the intelligent tester.

1 VEHICLE BROUGHT TO WORKSHOP

NEXT

2 CUSTOMER PROBLEM ANALYSIS CHECK AND SYMPTOM CHECK

NEXT

3 PROBLEM SYMPTOMS TABLE*

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

B

Go to step 5

A

4 OVERALL ANALYSIS AND TROUBLESHOOTING

- (a) Terminals of ECU (See page [DL-42](#))
 (b) On-vehicle Inspection (See page [DL-43](#))

NEXT

5 ADJUSTMENT, REPAIR OR REPLACEMENT

NEXT

6	CONFIRMATION TEST
---	-------------------

NEXT

END

REGISTRATION

1. REGISTER RECOGNITION CODES

HINT:

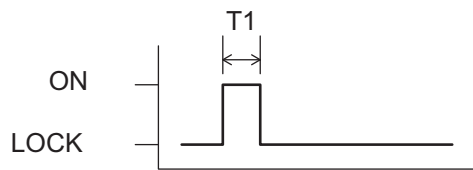
- Recognition code registration is necessary when the door control transmitter or the door control receiver is replaced with a new one.
 - Add Mode is used to register new recognition codes while retaining the previously registered codes. This mode is used when new transmitters are added. If the number 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 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 any additional recognition codes are registered.
 - Prohibition Mode is used to erase all the registered codes and disable the wireless door lock function. This mode is used when the transmitters are lost.
 - The registration procedure described on the following pages must be performed in order.
- (a) Check that the following conditions are met.
 - No key in the ignition key cylinder.
 - Only driver side door is open.
 - (b) Insert the key into the ignition key cylinder, and remove it twice within 5 seconds.
 - (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 remove it.
 - (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 all doors.

- (e) Perform the following operations within 40 seconds.
- (1) Turn the ignition switch from LOCK to ON and back to LOCK 1 to 5 times at approximately 1 second intervals to select a mode (see the table below).

Number of ON-LOCK operations of ignition switch:

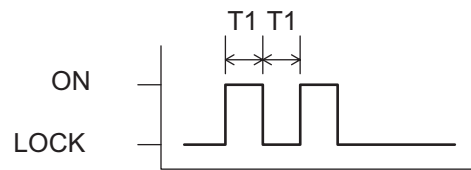
Add Mode

ON-LOCK operation: Once



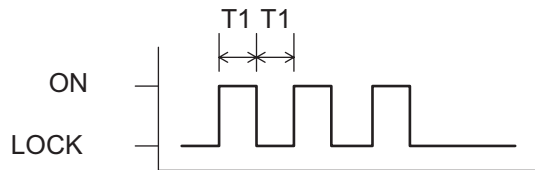
Rewrite Mode

ON-LOCK operation: Twice



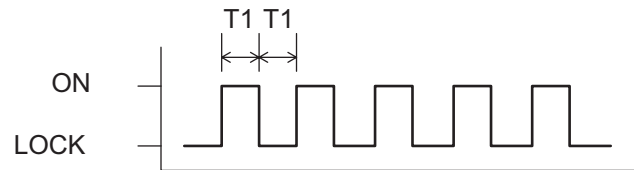
Confirmation Mode

ON-LOCK operation: 3 times



Prohibition Mode

ON-LOCK operation: 5 times



T1: Approximately 1 second

B111914E03

HINT:

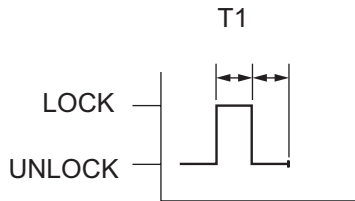
If the number of ignition switch ON-LOCK operations is 0, 4, 6 or more, there will be no response (power DOOR LOCK and UNLOCK operation) to show which mode has been selected.

- (2) Remove the key from the ignition key cylinder.

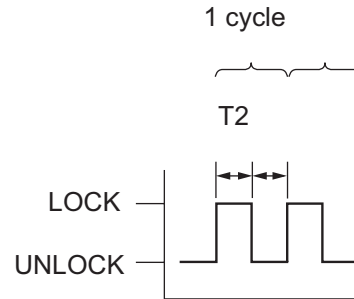
- (f) The main body ECU automatically performs power door LOCK-UNLOCK operations to indicate which mode has been selected.

Response to mode selection (Power door lock operation):

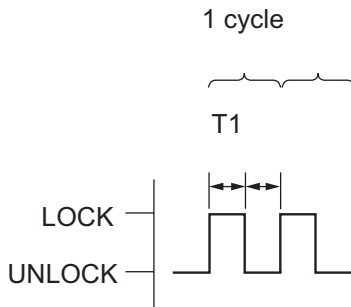
Add Mode LOCK-UNLOCK operation: Once



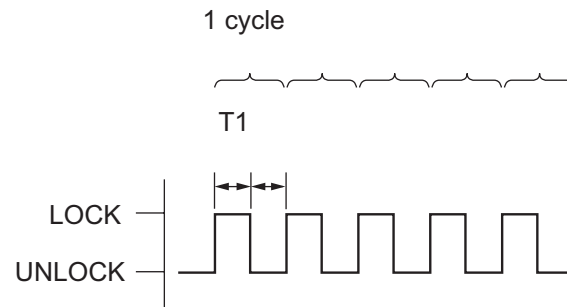
Confirmation Mode LOCK-UNLOCK operation:
The number of registered codes (1 to 5 times)



Rewrite Mode LOCK-UNLOCK operation: Twice



Prohibition Mode LOCK-UNLOCK operation: 5 times



T1: Approximately 1 second T2: Approximately 2 seconds

Y

B106703E01

HINT:

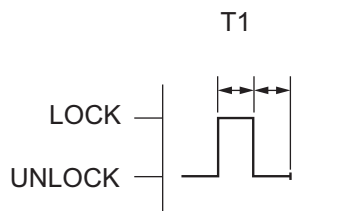
- In Confirmation Mode, LOCK-UNLOCK operation will occur once for each recognition code that has been registered. For example, if 2 recognition codes have been registered, the LOCK-UNLOCK operation will occur twice.
- In Confirmation Mode, if no recognition codes have been registered, LOCK-UNLOCK operation will occur 11 times.
- If Confirmation Mode or Prohibition Mode is selected, the operation ends after the response to the selected mode is completed.

- (g) Register a new recognition code (Add Mode or Rewrite Mode) in accordance with the following procedure.
- (1) Within 45 seconds of Add Mode or Rewrite Mode being selected, press the LOCK and UNLOCK switches on the transmitter switch of the key simultaneously for 1.0 to 1.5 seconds. Within 3 seconds of moving your finger away from the switches, press either switch of the key for more than 1.0 second.
 - (2) Within 5 seconds of the transmitter switch being released, the LOCK-UNLOCK operation will be automatically performed once if the registration of the recognition code is correctly completed. If the LOCK-UNLOCK operation is performed twice, the registration of the recognition code has failed, so perform the registration procedure from the beginning once again.

Response to registration completion:

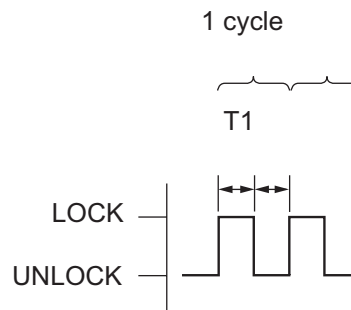
LOCK-UNLOCK Occurs Once

Registration of recognition code has been completed.



LOCK-UNLOCK Occurs Twice

Registration of recognition code has failed.



T1: Approximately 1 second

Y

B106704E01

- (h) If multiple transmitters need to be registered, repeat the registration of a new recognition code procedure within 45 seconds of the previous registration.
- (i) If any of the following conditions is met, the registration mode will end.
- (1) The key is inserted into the ignition key cylinder.
 - (2) Any doors are opened.

- (3) 45 seconds or more elapse after code registration.
- (j) Registration of the recognition codes (Add Mode and Rewrite Mode) is completed.

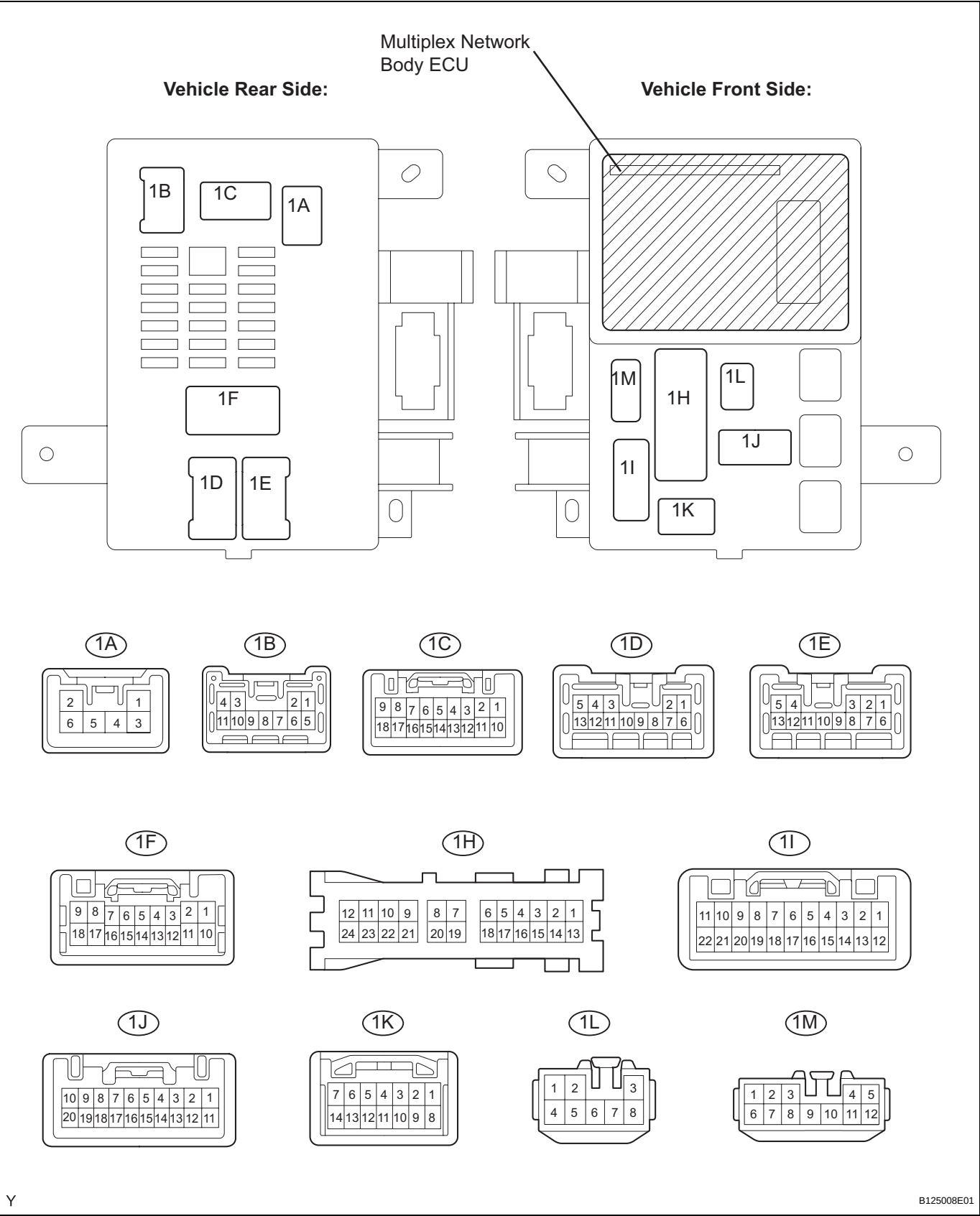
PROBLEM SYMPTOMS TABLE

Wireless Doorlock Control

Symptom	Suspected area	See page
Only wireless control function is inoperative	Transmitter battery	DL-47
	Door control transmitter	
	Door control receiver	
	Unlock warning switch assembly	
	Wire harness	
	Driver side J/B assembly (Multiplex network body ECU)	
No answer-back (hazard warning light)	Turn signal flasher relay	DL-54
	Wire harness	
	Driver side J/B assembly (Multiplex network body ECU)	

TERMINALS OF ECU

1. CHECK COWL SIDE JUNCTION BLOCK RH ASSEMBLY (MULTIPLEX NETWORK BODY ECU)



- (a) Disconnect the 1A, 1C, 1F, 1H, 1I, 1J, and 1K driver side J/B connectors.
- (b) Measure the resistance and voltage of the wire harness side connectors.

Standard:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
IG (1A-4) - Body ground	L-Y - Body ground	Ignition power supply	Ignition switch OFF	0 V
			Ignition switch ON	10 to 14 V
ECUB (1C-16) - Body ground	R - Body ground	+B (ECUB) power supply	Always	10 to 14 V
ALTB (1A-6) - Body ground	L - Body ground	+B (power system, generator system) power supply	Always	10 to 14 V
KSW (1K-10) - Body ground	G-B - Body ground	Key unlock warning switch input	No key in ignition key cylinder	10 k Ω or higher
			Key inserted in ignition key cylinder	Below 1 Ω
DCTY (1F-7) - Body ground	G-Y - Body ground	Driver side courtesy switch input	Driver side door Closed	10 k Ω or higher
			Driver side door Open	Below 1 Ω
PCTY (1I-8) - Body ground	R-B - Body ground	Passenger side courtesy switch input	Passenger side door Closed	10 k Ω or higher
			Passenger side door Open	Below 1 Ω
RCTY (1F-6) - Body ground	P-B - Body ground	Rear LH side courtesy switch input	Rear LH side door Closed	10 k Ω or higher
			Rear LH side door Open	Below 1 Ω
RCTY (1J-15) - Body ground	P-B - Body ground	Rear LH side courtesy switch input	Rear LH side door Closed	10 k Ω or higher
			Rear LH side door Open	Below 1 Ω
GND (1H-18) - 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 driver side J/B connectors.
- (d) Measure the voltage of the connectors.

Standard:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
HAZ (1L-8) - Body ground	W - Body ground	Hazard light drive	Answer-back ON	Pulse generation
			Answer-back OFF	10 to 14 V
RDA (B5-7) - Body ground	L - Body ground	Door control receiver input	No key in ignition key cylinder and all doors closed and transmitter switch OFF	Below 1 V
			No key in ignition key cylinder and all doors closed and transmitter switch ON	Approx. 6 to 7 V

If the result is not as specified, there may be a malfunction on the driver side J/B assembly (multiplex network body ECU).

ON-VEHICLE INSPECTION

1. NOTICES WHEN CHECKING

(a) Wireless door LOCK / UNLOCK function:

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

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

HINT:

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

(b) Remote panic function:

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

- (1) The ignition switch is in the LOCK position.

HINT:

The key can be inserted. However the ignition switch must be in the LOCK position.

(c) The wireless transmitter operational area differs depending on the situation.

- (1) The operational area differs depending on the user, the way the transmitter is held and the location.
- (2) In certain areas, the operational area is reduced due to the vehicle body shape and the influence of the surroundings.
- (3) Since the transmitter uses faint electric waves, the operational area may be reduced if noise or strong electric waves occur in the area where the transmitter is used. In some cases, the transmitter may not function.
- (4) When the battery weakens, the operational area is reduced or the transmitter may not function.

HINT:

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

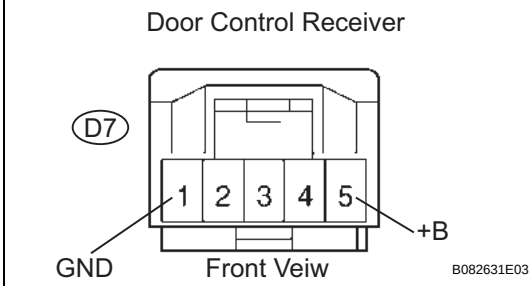
2. CHECK WIRELESS DOOR LOCK CONTROL SYSTEM

HINT:

- The switches described below transmit signals and are built into the door control transmitter.
 - The operational area must be taken into account while checks are being made.
- (a) Put the vehicle under conditions that allow the wireless control functions to operate.
 - (b) Check the basic functions.
 - (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 that the remaining doors unlock when the UNLOCK switch is pressed again within 3 seconds.
- (c) Check the chattering prevention function.
 - (1) Check that pressing a switch causes the switch's operation to occur only once. Also check that when the switch is held down, the operation is not repeated continuously. Then, make sure that when the switch is pressed repetitively at approximately 1 second intervals, the switch's operation occurs each time.
- (d) Check the automatic locking function.
 - (1) Check that if all 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 if all of the doors are unlocked with the UNLOCK switch and a door is opened or locked within approximately 30 seconds, the automatic locking function does not operate.
- (e) Check the switch operation fail-safe function.
 - (1) Check that the doors cannot be locked by a switch while the key is in the ignition key cylinder. However, this does not apply when the system is in recognition code registration mode.
- (f) Check the operation stop function when a door is open or not completely closed.
 - (1) Check that if a door is open or not completely closed, the doors cannot be locked by the LOCK switch.
- (g) Check the repeat function.
 - (1) Check that if the LOCK switch is pressed while the movement of the driver side door control knob (in the unlocked state) is restricted, the repeat function attempts to lock all of the doors again 1 second later.
- (h) Check the answer-back function.
 - (1) When the LOCK switch is pressed, check that the lights flash once simultaneously with the locking of all the doors.
 - (2) When the UNLOCK switch is pressed once, check that the lights flash twice simultaneously with the unlocking of the driver side door.
 - (3) When the UNLOCK switch is pressed again within 3 seconds, check that the lights flash twice simultaneously with the unlocking of all the doors.

- (i) Check the illuminated entry function.
 - (1) When all the doors are locked, pressing the UNLOCK switch causes the room light (when the light switch is in the DOOR position) to illuminate simultaneously with the unlock operation.
 - (2) Check that the room light turns off in approximately 15 seconds if doors have not been opened.
- (j) Check the remote panic function.
 - (1) Check that if the PANIC switch is pushed once, the theft deterrent alarm function sounds the horn, flashes the headlights, taillights and hazzard warning lights and turns the room light on. And, with the theft alarm function active, check that pressing panic or unlock switch on the transmitter causes the horn to stop sounding and the headlights, taillights and hazzard warning lights to stop flashing and the room light to turn off.

Wire Harness Side:**3. INSPECT DOOR CONTROL RECEIVER**

- (a) Disconnect the D7 door control receiver connector.
- (b) Measure the voltage and resistance of the wire harness side connector.

Standard Voltage

Tester Connection	Specified Condition
D7-5 (+B) - Body ground	10 to 14 V

Standard Resistance

Tester Connection	Specified Condition
D7-1 (GND) - Body ground	Below 1 Ω

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

- (c) Reconnect the door control receiver connector.
- (d) Measure the voltage of the connector.

Standard Voltage

Tester Connection	Condition	Specified Condition
D7-2 (RDA) - Body ground	Each transmitter switch OFF (No key in ignition key cylinder and all doors closed)	Below 1 V
D7-2 (RDA) - Body ground	Each transmitter switch ON (No key in ignition key cylinder and all doors closed)	Alternates between 6 V and 7 V

If the result is not as specified, there may be a malfunction on the receiver.

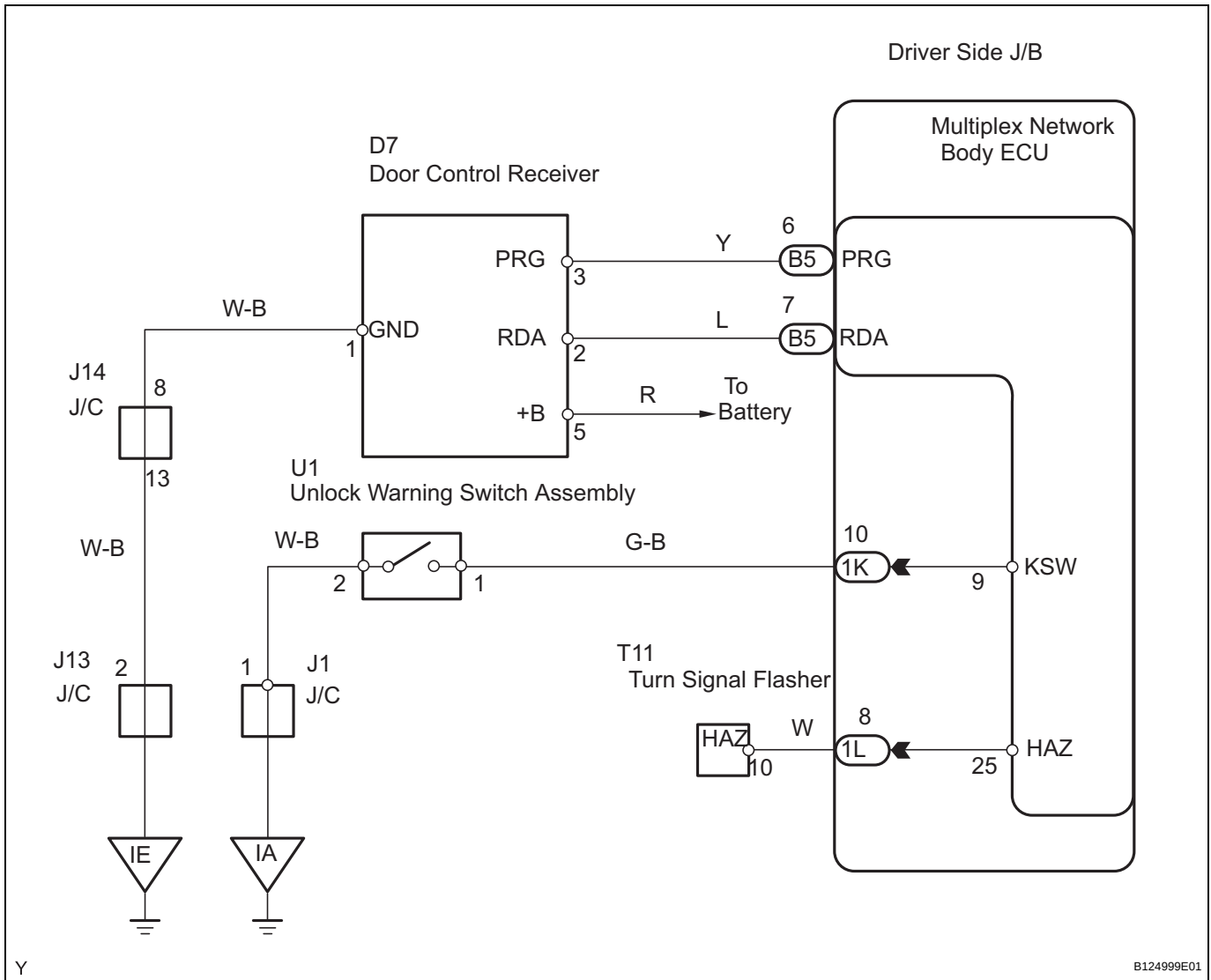
Component Side:

Only Wireless Control Function is Inoperative

DESCRIPTION

The door control receiver receives signals from the transmitter and sends these signals to the multiplex network body ECU. The multiplex network body ECU then controls the door operation by sending LOCK/ UNLOCK signals to the appropriate door lock actuator.

WIRING DIAGRAM



1

CHECK WIRELESS DOOR LOCK CONTROL FUNCTIONS

OK

NORMAL

NG

DL

2 REPLACE TRANSMITTER BATTERY

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

OK:

Doors can be locked and unlocked with transmitter.

OK

END

NG

3 CHECK WIRELESS DOOR LOCK FUNCTIONS (STANDARD OPERATION)

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

NOTICE:

Standardized test procedure: press the transmitter switch for 1 second, directing the beam 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 a 90° angle to the vehicle body.

OK

NORMAL

NG

4 CONFIRM ROOM LIGHT ON

- (a) Check that the room light comes on.

OK:

Room light comes on.

NG

REPAIR OR REPLACE ROOM LIGHT ASSEMBLY

OK

5 SWITCH TO SELF-DIAGNOSTIC MODE

- (a) Switch to self-diagnostic mode by operating the ignition key cylinder.
- (1) Put the vehicle into its initial condition (See page [DL-43](#)), and insert the key into the ignition key cylinder and remove it.
 - (2) Within 5 seconds of the key being removed (step 1), insert the key into the ignition key cylinder again (ignition key in the LOCK position). Then turn the ignition switch ON and return it to the LOCK position.

- (3) Within 30 seconds of the ignition switch being returned to the LOCK position (step 2), perform the following 9 times: turn the ignition switch ON and return it to the LOCK position.

NOTICE:

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

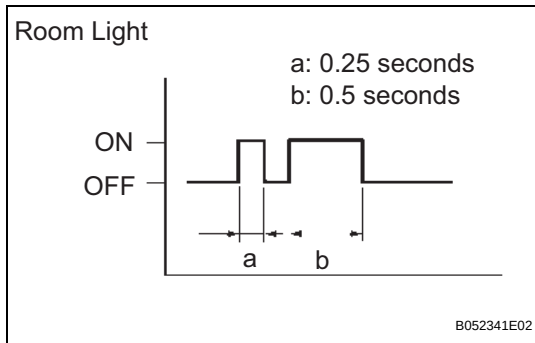
HINT:

- Turning the ignition switch ON after step (a)-(3) has been completed ends self-diagnostic mode.
- Do not lock or unlock any doors during self-diagnostic mode.

- (b) Check that the system has switched to self-diagnostic mode by checking the blinking frequency of the room light.

OK:

The room light output should be as shown in the timing chart on the left.



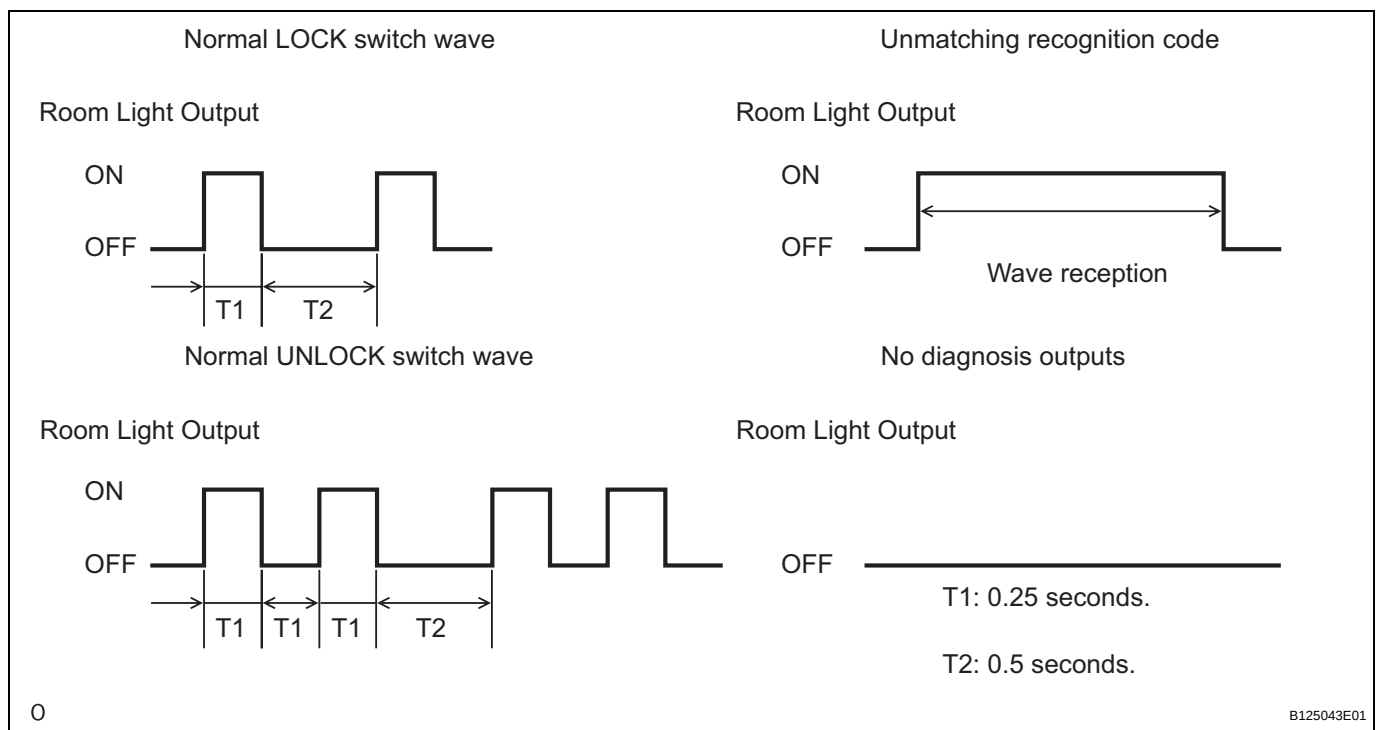
OK

NG

Go to step 9

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.



Result

Result	Proceed to
Normal waves (room light blinking) for LOCK and UNLOCK switches are output.	A
An unmatching recognition code is output and room light stays ON.	B
No diagnosis outputs are present and the room light is OFF.	C

B

REPLACE DRIVER SIDE JUNCTION BLOCK

C

Go to step 8

A

7

REGISTER RECOGNITION CODE

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

OK:

Recognition code can be registered.

NG

Go to step 15

OK

NORMAL

8

CHECK RESPONSE OF DOOR CONTROL RECEIVER

- (a) Prepare a new or correctly functioning door control transmitter switch for the same vehicle model. Press and hold a switch on the transmitter and check that an unmatching recognition code is output.

OK:

Unmatching recognition code is output.

NG

Go to step 12

OK

REPLACE DOOR CONTROL TRANSMITTER

9

CONFIRM INPUT METHOD OF SELF-DIAGNOSTIC MODE

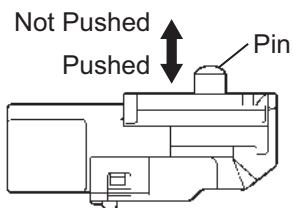
Result

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

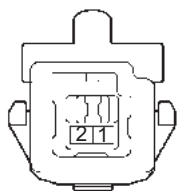
B

Go to step 5

A

10 INSPECT UNLOCK WARNING SWITCH ASSEMBLY**Component Side:**

Unlock Warning Switch Assembly
(Driver Side)



Y

I044492E01

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

Standard Resistance

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

- (c) Reinstall the unlock warning switch.

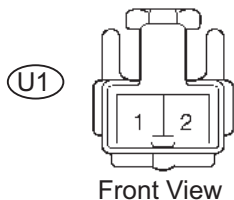
NG

**REPLACE UNLOCK WARNING SWITCH
ASSEMBLY**

OK

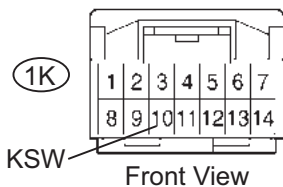
11 CHECK HARNESS AND CONNECTOR (UNLOCK WARNING SWITCH - DRIVER SIDE J/B AND BODY GROUND)**Wire Harness Side:**

Unlock Warning Switch



Front View

Driver Side J/B



Front View

Y

B087976E02

- (a) Disconnect the U1 unlock warning switch connector.
- (b) Disconnect the 1K driver side J/B connector.
- (c) Check the resistance.

Standard Resistance

Tester Connection	Specified Condition
U1-1 - 1K-10 (KSW)	Below 1 Ω
U1-2 - Body ground	Below 1 Ω

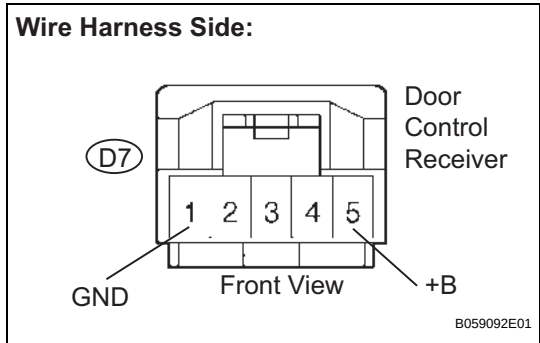
- (d) Reconnect the unlock warning switch connector.
- (e) Reconnect the driver side J/B connector.

NG

**REPAIR OR REPLACE HARNESS OR
CONNECTOR**

OK

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



- (a) Disconnect the D7 door control receiver connector.
- (b) Check the voltage and resistance.

Standard

Tester Connection	Specified Condition
D7-5 (+B) - Body ground	10 to 14 V
D7-1 (GND) - Body ground	Below 1 Ω

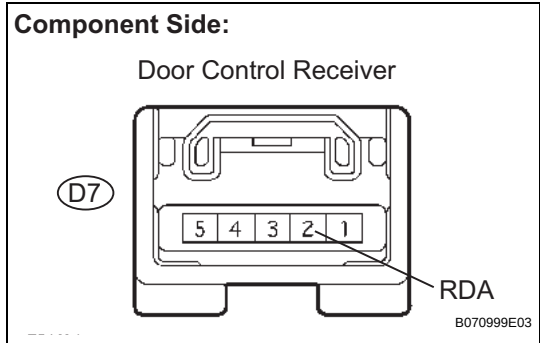
- (c) Reconnect the door control receiver connector.

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

13 CHECK DOOR CONTROL RECEIVER (OUTPUT)



- (a) Turn the ignition switch ON.
- (b) Measure the voltage of the connector.

Standard Voltage

Tester Connection	Condition	Specified Condition
D7-2 (RDA) - Body ground	Each transmitter switch OFF (No key in ignition key cylinder and all doors closed)	Below 1 V
D7-2 (RDA) - Body ground	Each transmitter switch ON (No key in ignition key cylinder and all doors closed)	Alternates between 6V and 7V

NG

Go to step 15

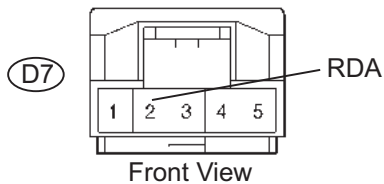
OK

14

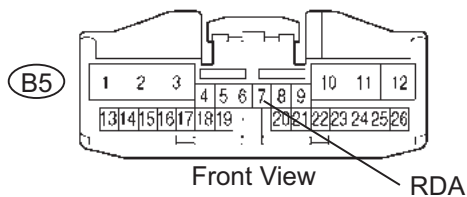
CHECK HARNESS AND CONNECTOR (DOOR CONTROL RECEIVER - DRIVER SIDE J/B (ECU AND GROUND))

Wire Harness Side:

Door Control Receiver



Multiplex Network Body ECU



Y

B087977E01

- (a) Disconnect the D7 door control receiver connector.
- (b) Disconnect the B5 multiplex network body ECU connector.
- (c) Check the resistance.
Standard Resistance
- | Tester Connection | Specified Condition |
|--------------------------|---------------------|
| D7-2 (RDA) - B5-7 (RDA) | Below 1 Ω |
| D7-2 (RDA) - Body ground | 10 kΩ or higher |
| B5-7 (RDA) - Body ground | 10 kΩ or higher |
- (d) Reconnect the door control receiver connector.
- (e) Reconnect the multiplex network body ECU connector.

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

15

REPLACE DOOR CONTROL RECEIVER WITH NORMAL ONE

NG

REPLACE DRIVER SIDE JUNCTION BLOCK

OK

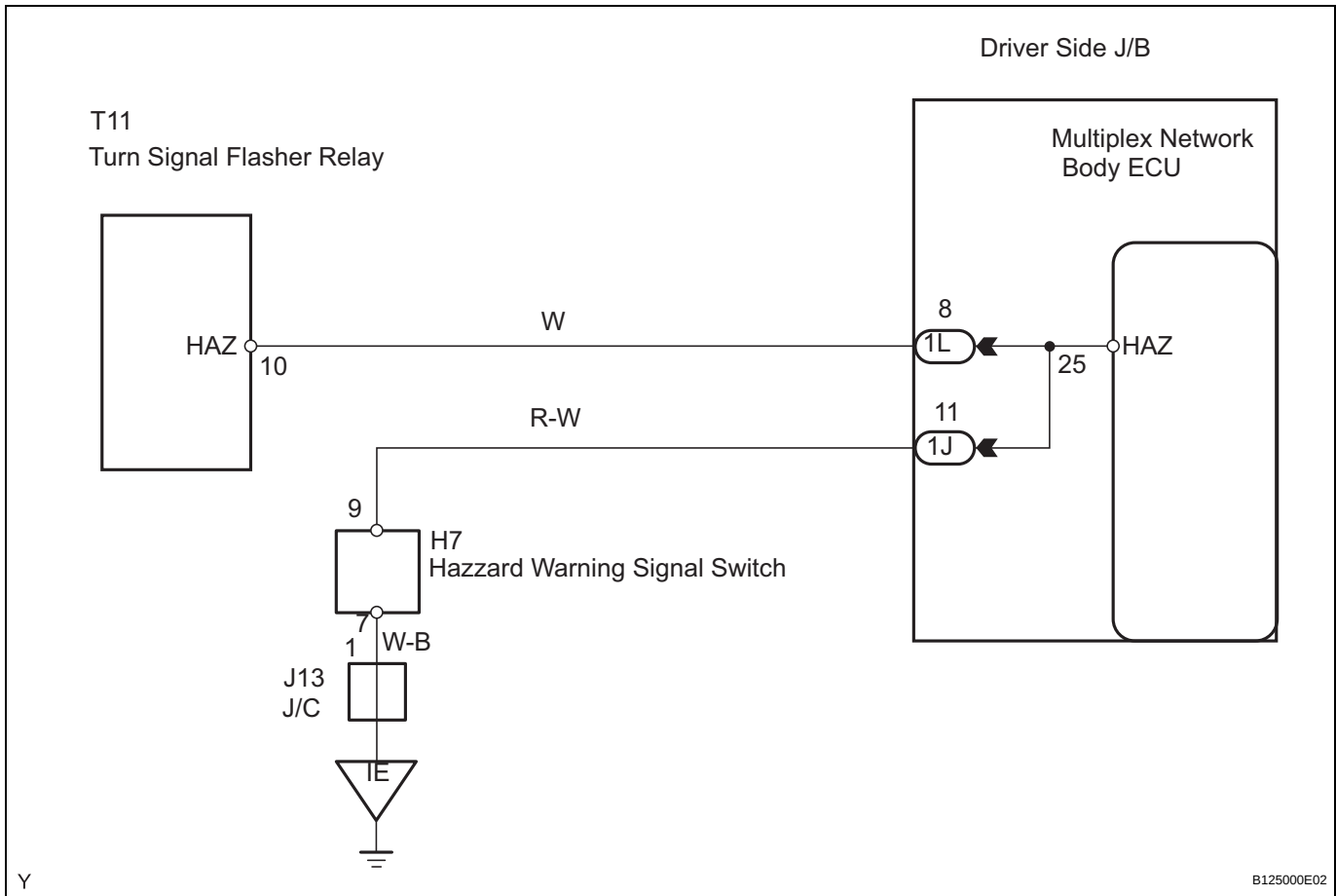
REPLACE DOOR CONTROL RECEIVER

No Answer-Back

DESCRIPTION

In some cases, wireless control functions are normal but the hazard warning light answer-back function is not. In such a case, the multiplex network body ECU hazard warning light signal output may be malfunctioning.

WIRING DIAGRAM



1

CHECK WIRELESS DOOR LOCK FUNCTIONS

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

HINT:

When the wireless door LOCK/UNLOCK operation functions normally, it can be assumed that the transmitter signal is being properly input to the multiplex network body ECU.

NG

GO TO FLOW CHART

DL

OK

2 CHECK HAZARD WARNING LIGHTS

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

OK:

Hazard warning lights blink.

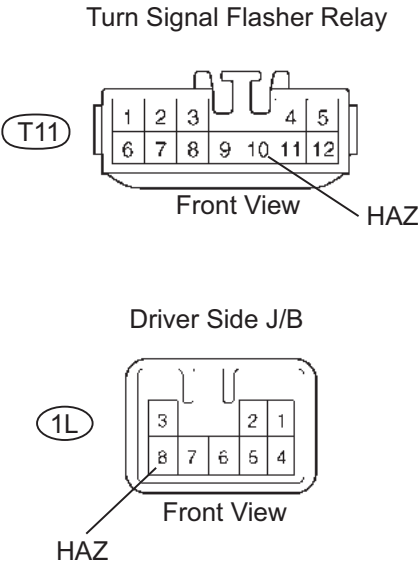
NG

REPAIR OR REPLACE HAZARD WARNING SWITCH ASSEMBLY

OK

3 CHECK HARNESS AND CONNECTOR (TURN SIGNAL FLASHER RELAY - DRIVER SIDE J/B ASSEMBLY)

Wire Harness Side:



- (a) Disconnect the T11 turn signal flasher relay connector.
(b) Disconnect the 1L driver side J/B connector.
(c) Check the resistance.

Standard Resistance

Tester Connection	Specified Condition
T11-10 (HAZ) - 1L-8 (HAZ)	Below 1 Ω

- (d) Reconnect the turn signal flasher relay connector.
(e) Reconnect the driver side J/B connector.

NG

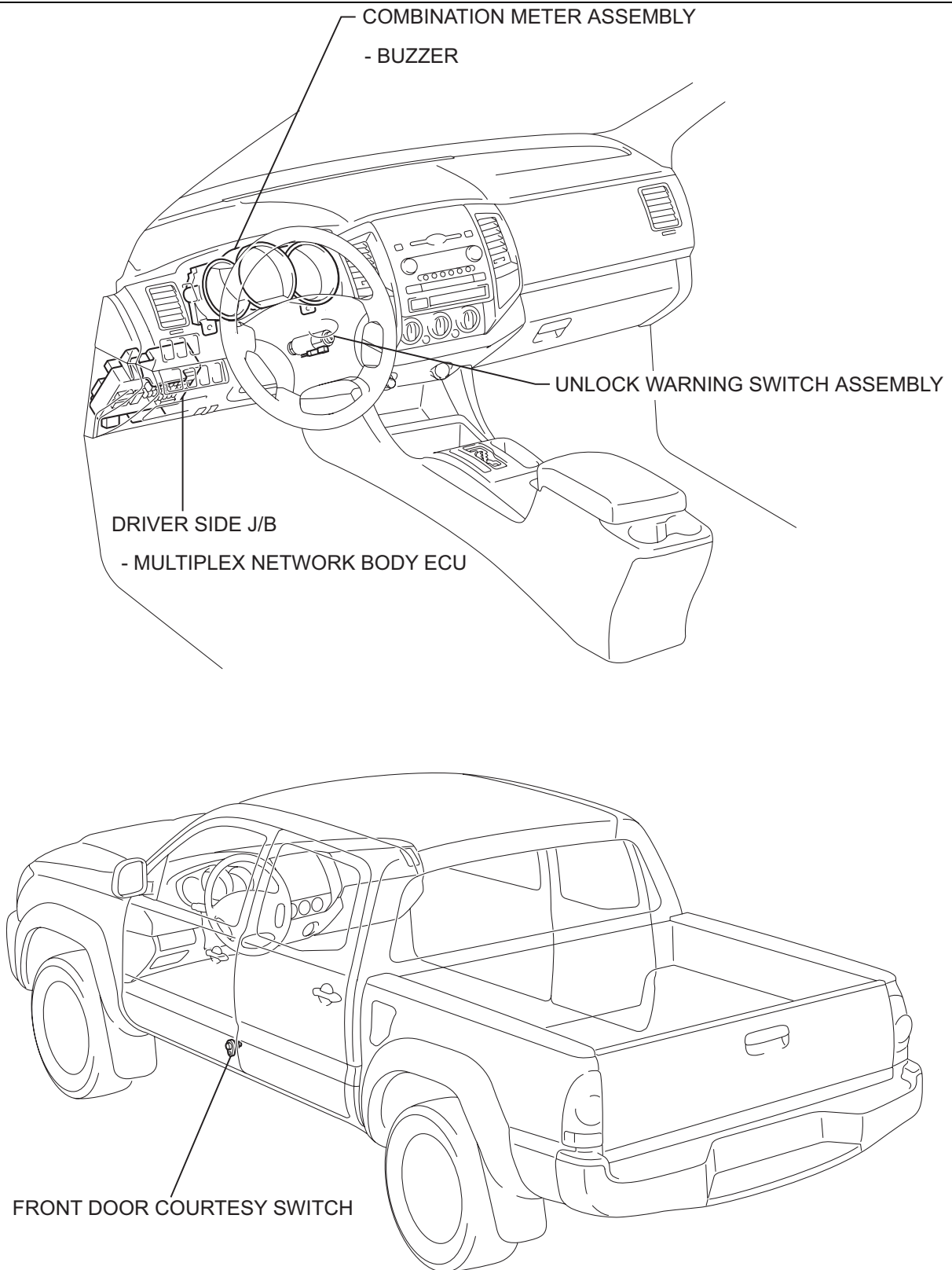
REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

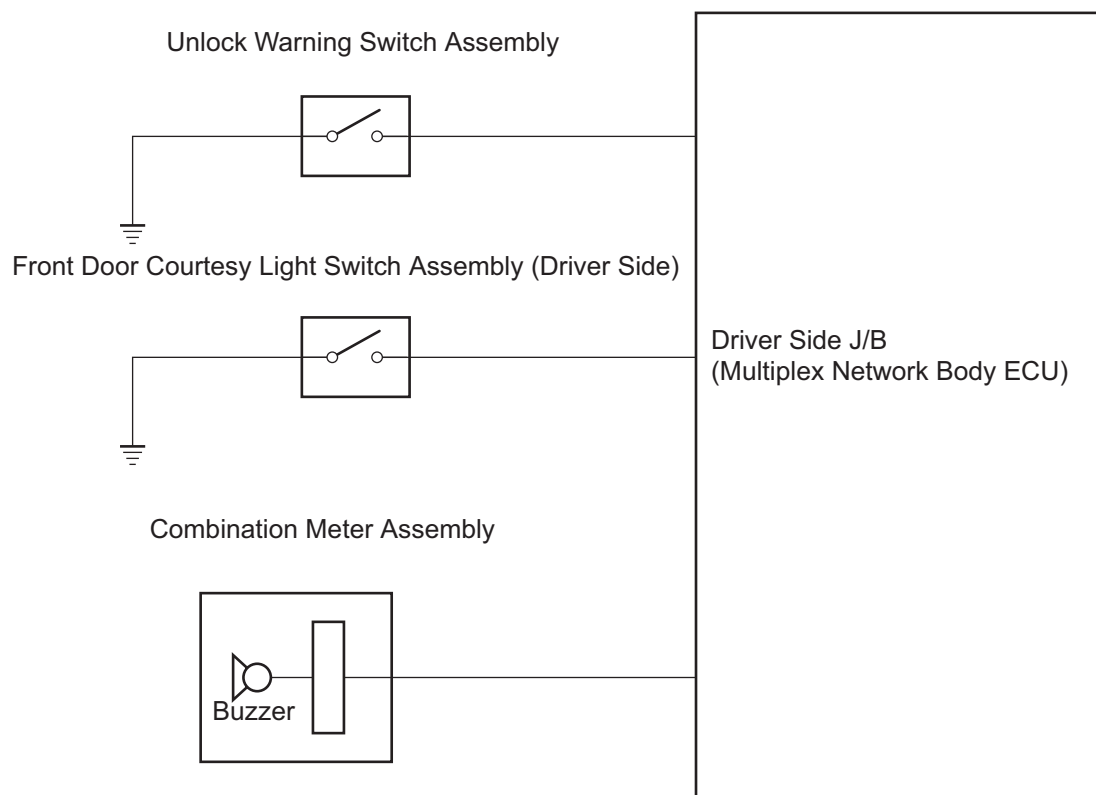
REPLACE DRIVER SIDE JUNCTION BLOCK (MULTIPLEX NETWORK BODY ECU)

KEY REMINDER WARNING SYSTEM

PARTS LOCATION



SYSTEM DIAGRAM



SYSTEM DESCRIPTION

1. KEY REMAINDER WARNING SYSTEM DESCRIPTION

- (a) When the driver side door is open with the ignition switch in the ACC or LOCK position, this system sounds a buzzer to warn the driver that the ignition key has not been removed.

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

Use this procedure to troubleshoot the key reminder warning system.

1 VEHICLE BROUGHT TO WORKSHOP

NEXT

2 CUSTOMER PROBLEM ANALYSIS AND SYMPTOM CHECK

NEXT

3 BATTERY VOLTAGE INSPECTION

(a) Check the battery voltage.

Standard Voltage:

11 to 14 V

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

NEXT

4 PROBLEM SYMPTOMS TABLE

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

B

Go to step 6

A

5 OVERALL ANALYSIS AND TROUBLESHOOTING

- (a) On-vehicle inspection (See page [DL-61](#)).
- (b) Terminals of ECU (See page [DL-60](#)).

NEXT

6 ADJUSTMENT, REPAIR OR REPLACEMENT

NEXT

7	CONFIRMATION TEST
---	-------------------

NEXT

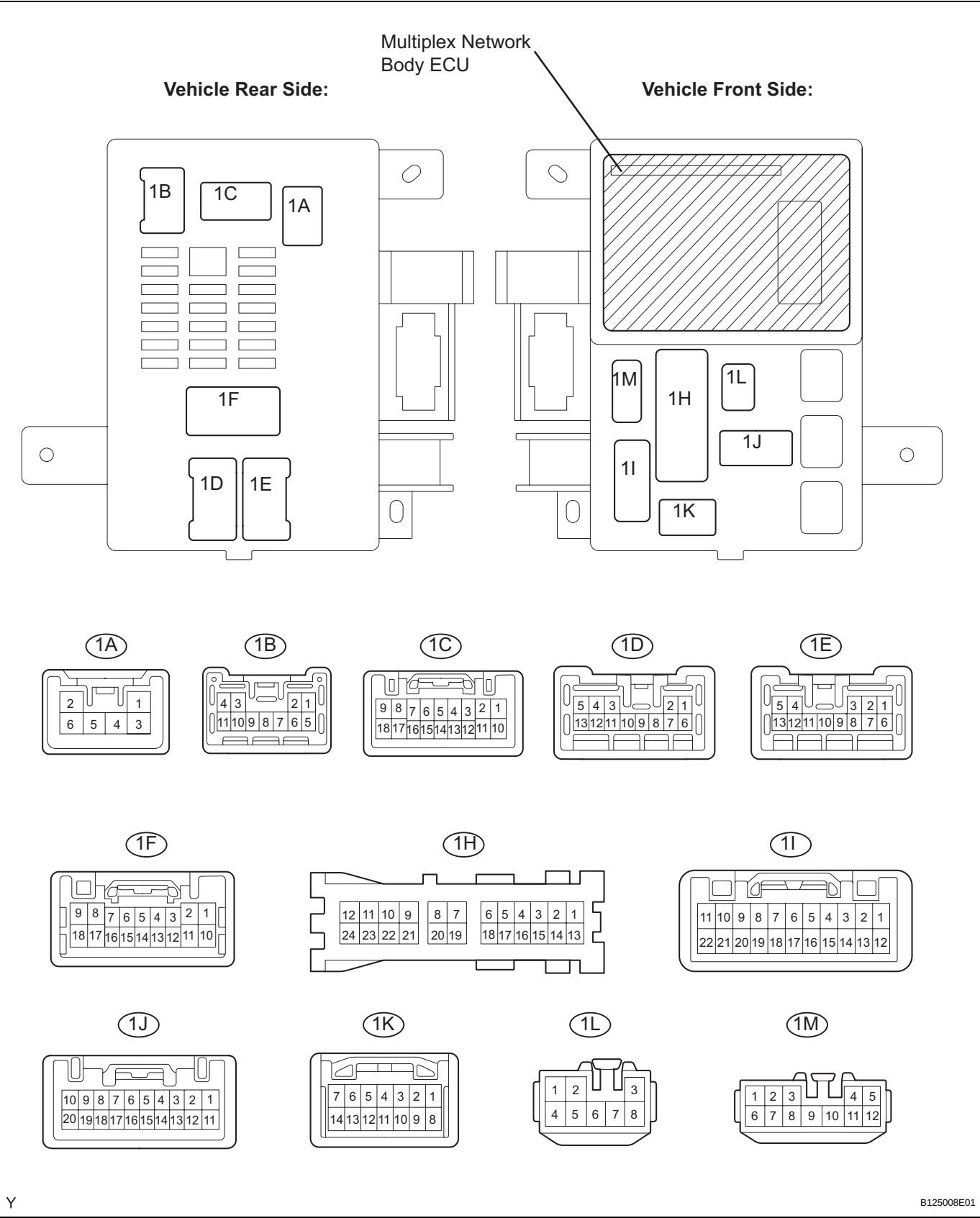
END

PROBLEM SYMPTOMS TABLE

Symptom	Suspected area	See page
Key reminder buzzer does not sound	Unlock warning switch assembly	DL-62
	Front door courtesy light switch assembly (driver side)	
	Instrument panel J/B assembly (multiplex network body ECU)	
	Wire harness	
	Combination meter assembly	

TERMINALS OF ECU

1. CHECK DRIVER SIDE J/B (MULTIPLEX NETWORK BODY ECU)



(a) Disconnect the 1A, 1H, 1F and 1K connectors.

- (b) Measure the voltage and resistance between each terminal of the wire harness side connectors.

Standard

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
ALTB (1A-6) - Body ground	L-Y - Body ground	+B (power system, generator system) power supply	Always	10 to 14 V
ECUB (1H-16) - Body ground	R - Body ground	+B (ECUB) power supply	Always	10 to 14 V
GND (1H-18) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
KSW (1K-10) - Body ground	G-B - Body ground	Key unlock warning switch input	No key in ignition key cylinder	10 k Ω or higher
			Key inserted	Below 1 Ω
DCTY (1F-7) - Body ground	G-Y - Body ground	Driver side courtesy switch input	Driver side door closed	10 k Ω or higher
			Driver side door open	Below 1 Ω

HINT:

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

ON-VEHICLE INSPECTION

1. CHECK KEY REMINDER WARNING SYSTEM

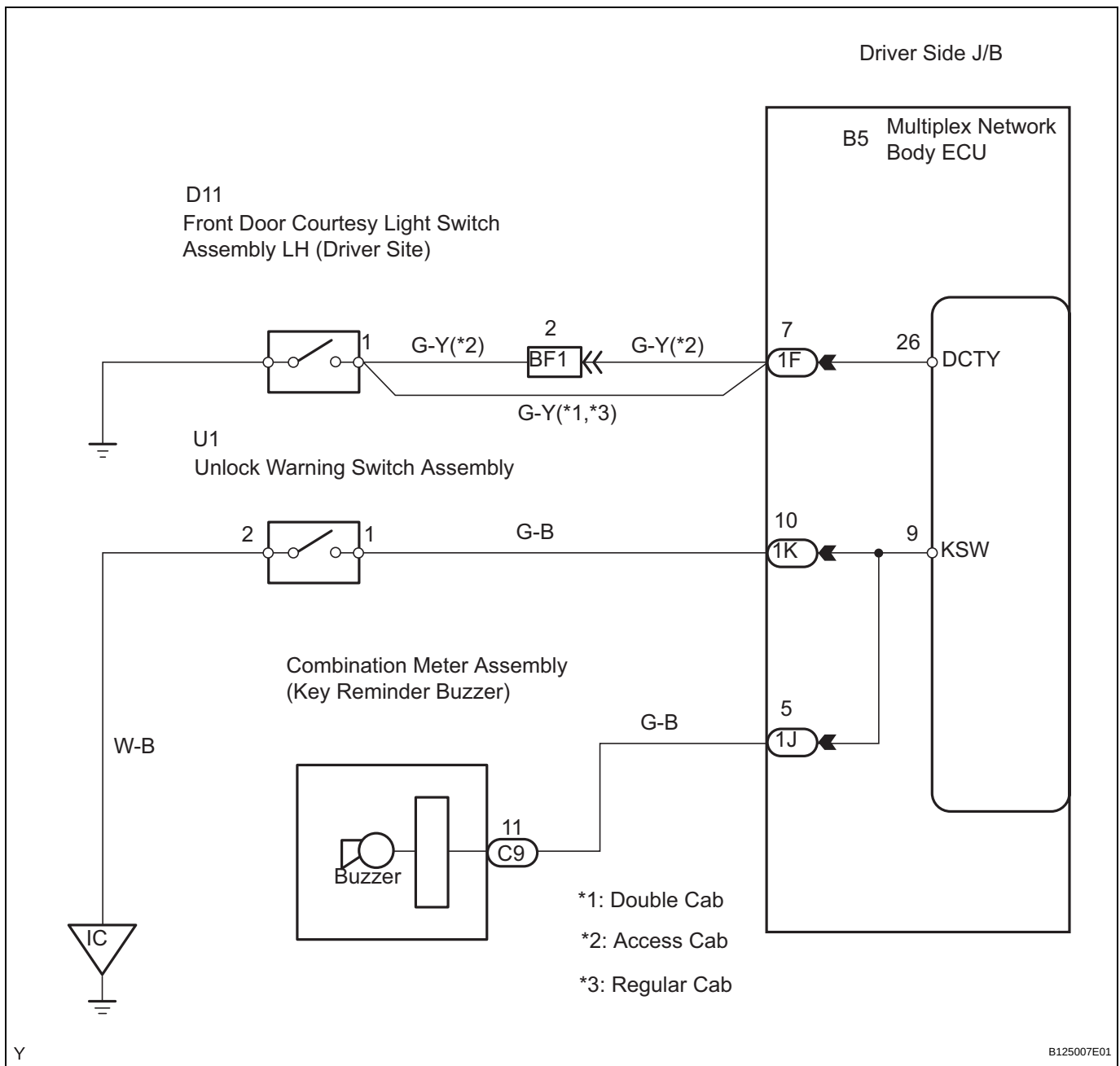
- (a) Check that the key reminder buzzer sounds.
 - (1) With the driver side door closed, insert the key into the ignition key cylinder and then turn the key to the LOCK or ACC position.
 - (2) Check that the buzzer sounds intermittently when the driver side door is open.
- (b) Check that the key reminder buzzer stops.
 - (1) Check that the buzzer stops sounding when any of the following operations is performed while the buzzer is sounding:
 - Close the driver side door (the front door courtesy light switch is off).
 - Turn the ignition switch ON.
 - Remove the key from the ignition key cylinder.

Key Reminder Buzzer does not Sound

DESCRIPTION

When the ignition switch is in the LOCK or ACC position, the key is in the ignition key cylinder and the driver side door is open, the key reminder buzzer sounds. The key reminder buzzer is activated when the multiplex network body ECU transmits a key switch signal and a driver side courtesy switch signal to the combination meter.

WIRING DIAGRAM

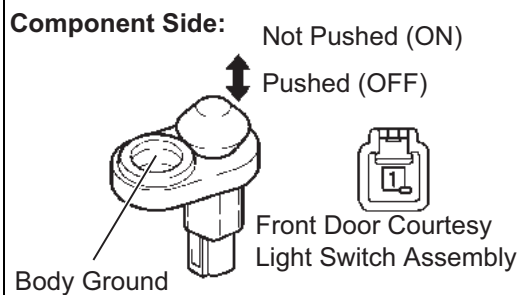


1 CHECK FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY (DRIVER SIDE)

- (a) Move the room light switch to the DOOR position and open the driver side door. Then check that the room light turns ON.

OK:

Room light turns ON.

OK**Go to step 4****NG****2 INSPECT FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY (DRIVER SIDE)**

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

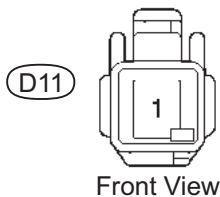
Standard Resistance

Tester Connection	Switch condition	Specified Condition
1 - Body ground	Not pushed (ON)	Below 1 Ω
1 - Body ground	Pushed (OFF)	10 k Ω or higher

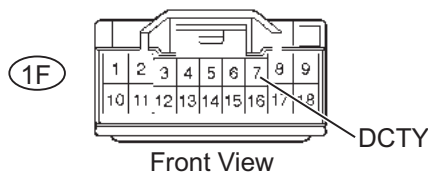
- (c) Reinstall the front door courtesy light switch assembly.

NG**REPLACE FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY (DRIVER SIDE)****OK****3 CHECK WIRE HARNESS (FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY LH - BODY ECU)****Wire Harness Side:**

Front Door Courtesy Light Switch Connector (Driver Side)



Driver Side J/B Connector



- (a) Disconnect the D11 front door courtesy light switch assembly connector.
(b) Disconnect the 1F driver side J/B connector.
(c) Measure the resistance.

Standard Resistance

Tester Connection	Specified Condition
(D11-1) - DTCY (1F-7)	Below 1 Ω

- (d) Reconnect the front door courtesy light switch assembly connector.
(e) Reconnect the driver side J/B connector.

NG**REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

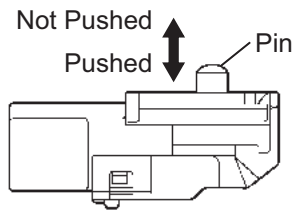
4 CHECK BUZZER (COMBINATION METER)

- (a) Check that the buzzer built into the combination meter sounds (See page [ME-21](#)).

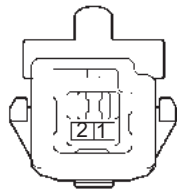
NG

REPLACE COMBINATION METER ASSEMBLY

OK

5 INSPECT UNLOCK WARNING SWITCH ASSEMBLY**Component Side:**

Unlock Warning Switch Assembly
(Driver Side)



Y

I044492E04

- (a) Remove the U1 unlock warning switch assembly.
(b) Measure the resistance of the switch.

Standard Resistance

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

- (c) Reinstall the unlock of the switch assembly.

NG

REPLACE UNLOCK WARNING SWITCH ASSEMBLY

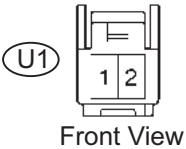
OK

6

CHECK WIRE HARNESS (SWITCH (DRIVER SIDE) - ECU AND BODY GROUND)

Wire Harness Side:

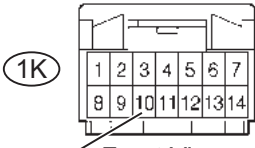
Unlock Warning Switch Connector
(Driver Side)



U1

Front View

Driver Side J/B Connector



1K

KSW

Front View

Y

I044490E01

- (a) Disconnect the U1 unlock warning switch assembly connector.
- (b) Disconnect the 1K driver side J/B connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard Resistance

Tester Connection	Specified Condition
(U1-1) - KSW (1K-10)	Below 1 Ω
(U1-2) - Body ground	Below 1 Ω

- (d) Reconnect the unlock warning switch assembly connector.
- (e) Reconnect the driver side J/B connector.

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

REPLACE DRIVER SIDE JUNCTION BLOCK (MULTIPLEX NETWORK BODY ECU)