

AUTO UP OPERATION DOES NOT FULLY CLOSE POWER WINDOW (JAM PROTECTION FUNCTION IS ACTIVATED)

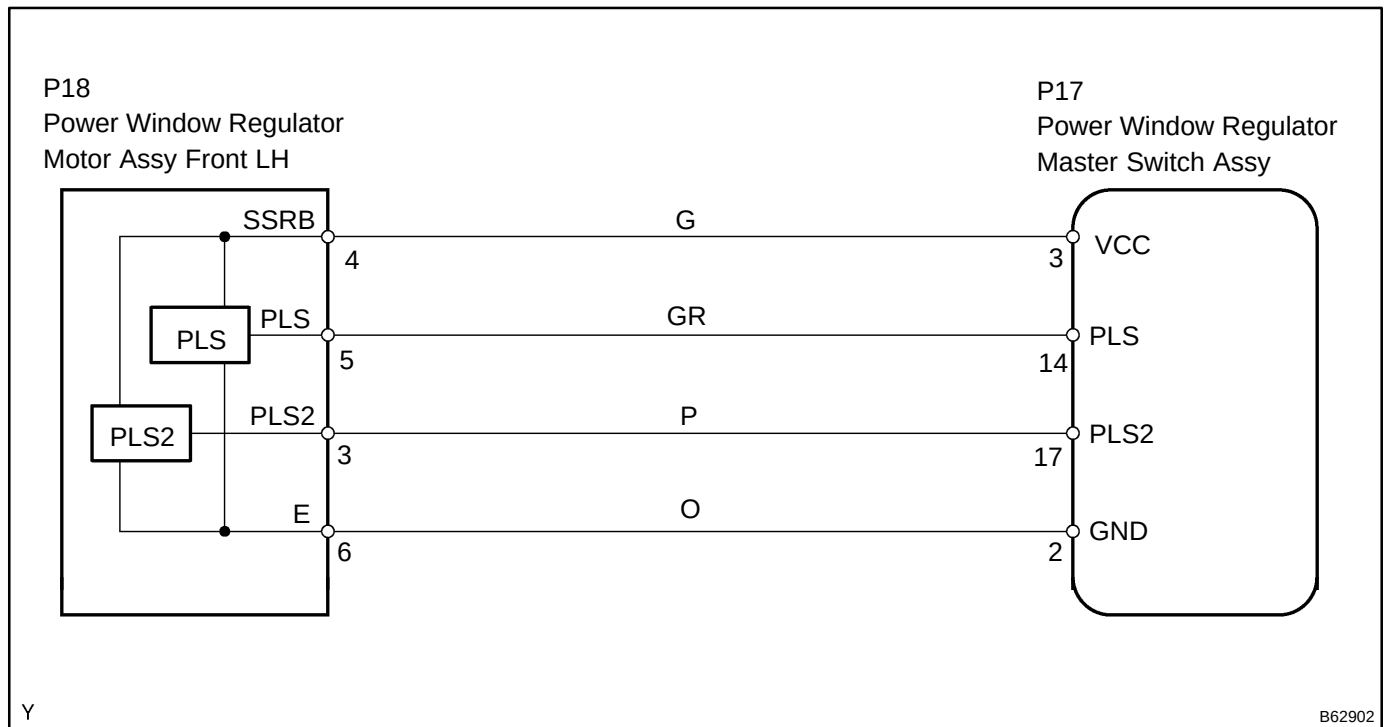
CIRCUIT DESCRIPTION

If the door glass or the power window regulator motor does not operate smoothly, the jam protection function may trigger automatically, resulting in the AUTO UP function being unable to fully close the window.

HINT:

The jam protection function is only available on the driver side power window.

WIRING DIAGRAM



INSPECTION PROCEDURE**1 RESET POWER WINDOW REGULATOR MOTOR**

- (a) Reset the power window regulator motor (see page [05-2028](#)).
(b) Check if the power window AUTO UP/DOWN function operates normally.

OK: AUTO UP/DOWN function operates normally.

NG

Go to step 2

OK

END

2 CHECK FRONT DOOR WINDOW REGULATOR ASSY LH

- (a) Remove the door glass (see page [70-2](#)).
(b) Operate the front door window regulator assembly using the switch.
(c) Check if the power window regulator assembly operates smoothly.

OK: Power window regulator assembly operates smoothly.

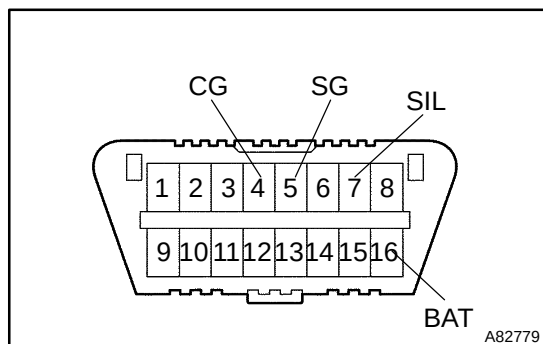
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REPLACE FRONT DOOR WINDOW REGULATOR ASSY LH

OK

REPLACE DOOR GLASS RUN

DIAGNOSIS SYSTEM



1. CHECK DLC3

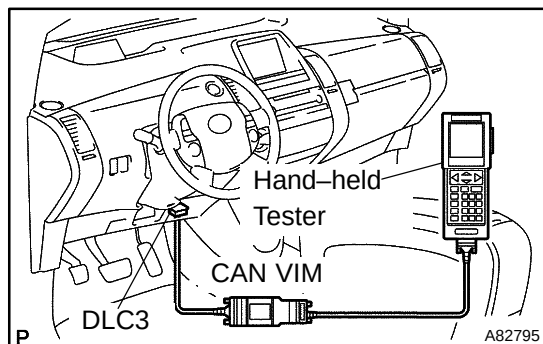
HINT:

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

05J70-01

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

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



HINT:

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

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

2. CHECK BATTERY VOLTAGE

Standard: 11 to 14 V

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

DATA LIST/ACTIVE TEST

1. DATA LIST

HINT:

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

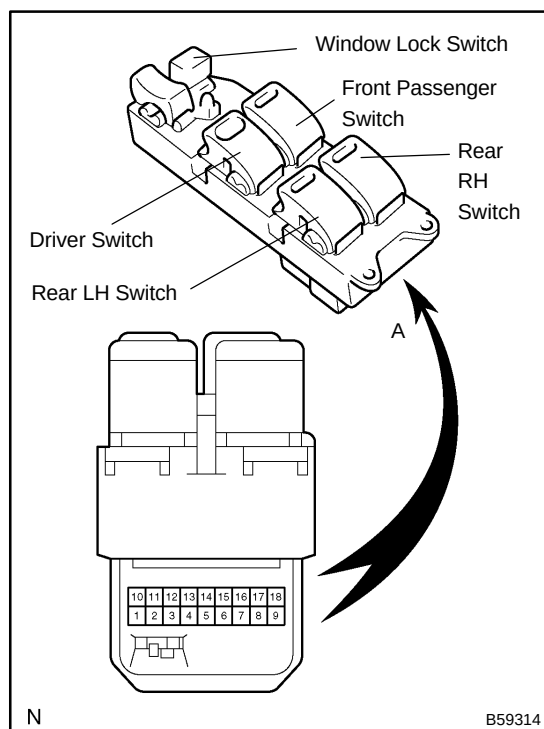
- (a) Connect the hand-held tester (with CAN VIM) to the DLC3.
- (b) Turn the the power switch ON (IG).
- (c) Read the DATA LIST according to the display on the tester.

Standard:

Multiplex network body ECU:

Item	Measurement Item/ Display (Range)	Normal Condition	Diagnostic Note
D DOR CTY SW	Driver side door courtesy switch signal/ON or OFF	ON: Driver side door is open OFF: Driver side door is closed	–
P DOR CTY SW	Passenger side door courtesy switch signal/ON or OFF	ON: Passenger side door is open OFF: Passenger side door is closed	–

INSPECTION



1. INSPECT POWER WINDOW REGULATOR MASTER SWITCH ASSY

- Remove the master switch (see page 75-9).
- Measure the resistance between the terminals of the connector when the switch is operated.

Standard:

Driver switch

Window Lock Switch Condition	Power Window Switch Condition	Tester Connection	Specified Condition
Constant (ON/OFF)	UP	1 – 9 4 – 7	Below 1 Ω
Constant (ON/OFF)	AUTO UP	1 – 9 4 – 7	Below 1 Ω
Constant (ON/OFF)	OFF	1 – 4 1 – 9	Below 1 Ω
Constant (ON/OFF)	DOWN	1 – 4 7 – 9	Below 1 Ω
Constant (ON/OFF)	AUTO DOWN	1 – 4 7 – 9	Below 1 Ω

Passenger switch

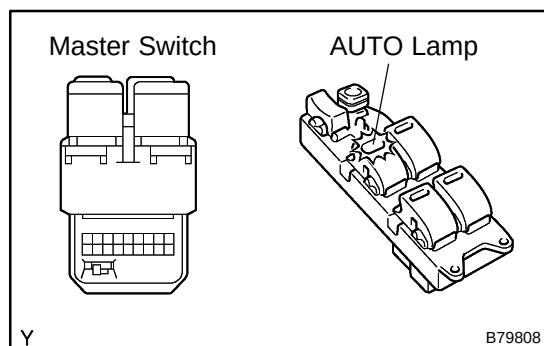
Window Lock Switch Condition	Power Window Switch Condition	Tester Connection	Specified Condition
OFF	UP	1 – 15 6 – 13	Below 1 Ω
OFF	OFF	1 – 13 1 – 15	Below 1 Ω
OFF	DOWN	1 – 13 6 – 15	Below 1 Ω
ON	UP	1 – 15 6 – 13	10 k Ω or higher Below 1 Ω
ON	OFF	13 – 15	Below 1 Ω
ON	DOWN	1 – 13 6 – 15	10 k Ω or higher Below 1 Ω

Rear LH switch

Window Lock Switch Condition	Power Window Switch Condition	Tester Connection	Specified Condition
OFF	UP	1 – 10 6 – 12	Below 1 Ω
OFF	OFF	1 – 12 1 – 10	Below 1 Ω
OFF	DOWN	1 – 12 6 – 10	Below 1 Ω
ON	UP	1 – 10 6 – 12	10 k Ω or higher Below 1 Ω
ON	OFF	12 – 10	Below 1 Ω
ON	DOWN	1 – 12 6 – 10	10 k Ω or higher Below 1 Ω

Rear RH switch

Window Lock Switch Condition	Power Window Switch Condition	Tester Connection	Specified Condition
OFF	UP	1 – 16 6 – 18	Below 1 Ω
OFF	OFF	1 – 18 1 – 16	Below 1 Ω
OFF	DOWN	1 – 18 6 – 16	Below 1 Ω
ON	UP	1 – 16 6 – 18	10 k Ω or higher Below 1 Ω
ON	OFF	18 – 16	Below 1 Ω
ON	DOWN	1 – 18 6 – 16	10 k Ω or higher Below 1 Ω

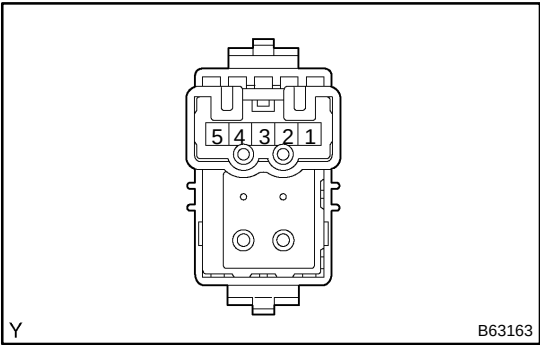


(c) Check the AUTO lamp master switch.

Standard:

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 11 Battery negative (–) → Terminal 1	AUTO lamp illuminates

If the result is not as specified, replace the master switch assy.



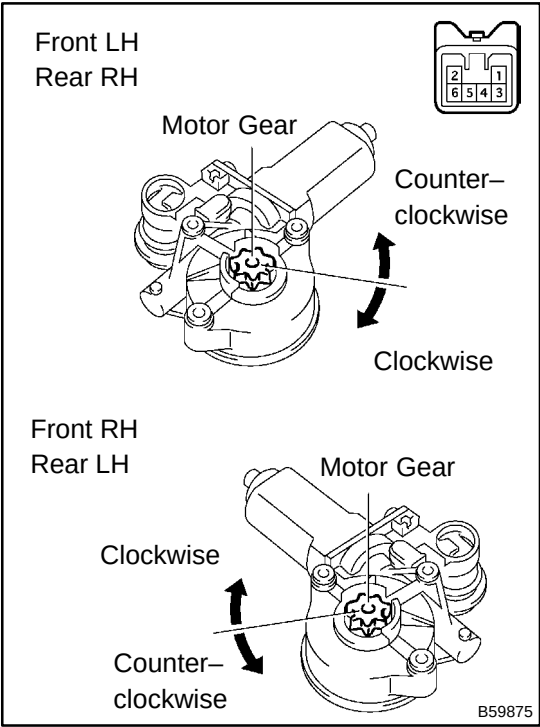
2. INSPECT POWER WINDOW REGULATOR SWITCH ASSY

- (a) Remove the power window regulator switch (see page [75-9](#)).
- (b) Measure the resistance between the terminals of the connector when the switch is operated.

Standard:

Switch Condition	Tester Connection	Specified Condition
UP	1 – 2 3 – 4	Below 1 Ω
OFF	1 – 2 3 – 5	Below 1 Ω
DOWN	1 – 4 3 – 5	Below 1 Ω

If the result is not as specified, replace the regulator switch assy.



3. INSPECT POWER WINDOW REGULATOR MOTOR ASSY

(a) Check motor operation of the regulator motor.

HINT:

- The front LH and rear RH regulator motors should be inspected using the same procedure.
 - The front RH and rear LH regulator motors should be inspected using the same procedure.
- (1) Remove the power window regulator motor (see page 75-9).
 - (2) Apply battery voltage to the motor terminals.
 - (3) Check that the motor operates smoothly.

NOTICE:

Do not apply voltage to the terminals except 1 and 2.

OK:

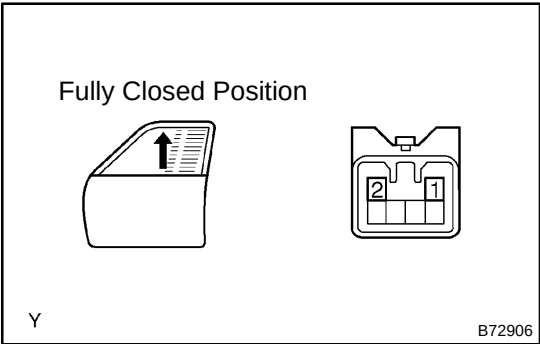
Front LH and rear RH

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 2 Battery negative (-) → Terminal 1	Motor gear rotates clockwise
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 2	Motor gear rotates counterclockwise

Front RH and rear LH

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 2	Motor gear rotates clockwise
Battery positive (+) → Terminal 2 Battery negative (-) → Terminal 1	Motor gear rotates counterclockwise

If the result is not as specified, replace the motor assy.



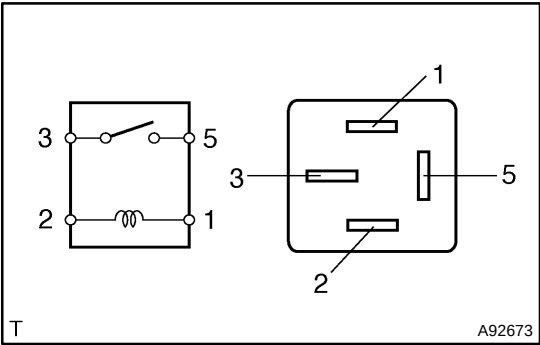
(b) Check the PTC operation inside the regulator motor.

NOTICE:

The work must be performed with the power window regulator and door glass installed in the vehicle.

- (1) Disconnect the driver side power window regulator motor.
- (2) Connect the ammeter's positive (+) lead to terminal 2 of the wire harness side connector and the negative (-) lead to battery's negative terminal.
- (3) Connect the battery's positive (+) lead to terminal 1 of the wire harness side connector, and raise that window to the fully closed position.
- (4) Continue to apply voltage, and check that the current changes to less than 1A within 4 to 90 seconds.
- (5) Disconnect the leads from the terminals.
- (6) Approximately 60 seconds later, connect the battery's positive (+) lead to terminal 2 and the negative (-) lead to terminal 1, and check that the window begins to lower.

If the result is not as specified, replace the motor assy.



4. INSPECT RELAY (IG1)

- (a) Remove the IG1 relay from the instrument panel J/B.
- (b) Measure the resistance.

Standard:

Tester Connection	Specified Condition
3-5	10 k Ω or higher
3-5	Below 1 Ω (when battery voltage is applied to terminals 1 and 2)

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

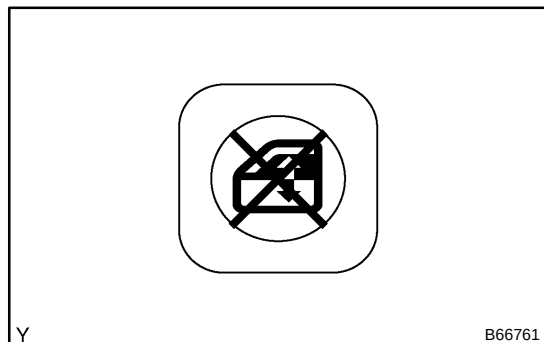
INITIALIZATION

1. RESET (INITIALIZE) POWER WINDOW REGULATOR MOTOR (DRIVER SIDE)

NOTICE:

- Resetting the power window regulator motor (initializing the pulse sensor) is necessary if: 1) the battery terminal cable is disconnected; 2) the power window regulator master switch assembly, wire harness, power window regulator switch, power window regulator assembly and power window regulator motor are replaced or removed/installed; or 3) the POWER fuse, FR DOOR fuse, GAUGE fuse and ECU-IG fuses are replaced. If resetting is not performed, the master switch assembly will not be able to operate the AUTO operation function, jam protection function and remote operation function.
- (a) Turn the power switch ON (IG).
 - (b) Open the power window halfway by pressing the power window switch.
 - (c) Fully pull up on the switch until the power window is fully closed and continue to hold the switch for at least 1 second.
 - (d) Check that the AUTO UP/DOWN function operates normally.
- If the AUTO UP/DOWN function operates normally, reset operations are complete. If abnormal, follow steps (e) to (g) below.
- (e) Disconnect the negative battery terminal cable for 10 seconds.
 - (f) Connect the battery terminal cable.
 - (g) Perform steps (a) to (d) again.

ON-VEHICLE INSPECTION



1. CHECK WINDOW LOCK SWITCH

- (a) Check that the power windows except the driver side operation are disabled when the window lock switch of the power window regulator master switch assembly is pressed.
- (b) Check that the power windows except the driver side can be operated when the window lock switch is pressed again.

2. CHECK MANUAL UP/DOWN FUNCTION

- (a) Check that the driver side power window operates as follows:

OK:

Condition	Master Switch	Switch Operation	Power Window
Power switch ON (IG)	Driver side	Pulled halfway up	UP (closed)
Power switch ON (IG)	Driver side	Pushed halfway down	DOWN (open)

- (b) Check that the front RH side power window operates as follows:

OK:

Condition	Regulator Switch	Switch Operation	Power Window
• Power switch ON (IG) • Window lock switch OFF	Front RH side	Pulled up	UP (closed)
• Power switch ON (IG) • Window lock switch OFF	Front RH side	Pushed down	DOWN (open)

- (c) Check that the rear LH side power window operates as follows:

OK:

Condition	Regulator Switch	Switch Operation	Power Window
• Power switch ON (IG) • Window lock switch OFF	Rear LH side	Pulled up	UP (closed)
• Power switch ON (IG) • Window lock switch OFF	Rear LH side	Pushed down	DOWN (open)

- (d) Check that the rear RH side power window operates as follows:

OK:

Condition	Regulator Switch	Switch Operation	Power Window
• Power switch ON (IG) • Window lock switch OFF	Rear RH side	Pulled up	UP (closed)
• Power switch ON (IG) • Window lock switch OFF	Rear RH side	Pushed down	DOWN (open)

3. CHECK AUTO UP/DOWN FUNCTION

- (a) Check that the driver side power window operates as follows:

OK:

Condition	Master Switch	Switch Operation	Power Window
Power switch ON (IG)	Driver side	Pulled fully up	AUTO UP (fully closed)
Power switch ON (IG)	Driver side	Pushed fully down	AUTO DOWN (fully open)

4. CHECK REMOTE UP/DOWN FUNCTION

- (a) Check that the front RH side power window operates as follows:

OK:

Condition	Master Switch	Switch Operation	Power Window
• Power switch ON (IG) • Window lock switch OFF	Front RH side	Pulled up	UP (closed)
• Power switch ON (IG) • Window lock switch OFF	Front RH side	Pushed down	DOWN (open)

- (b) Check that the rear LH side power window operates as follows:

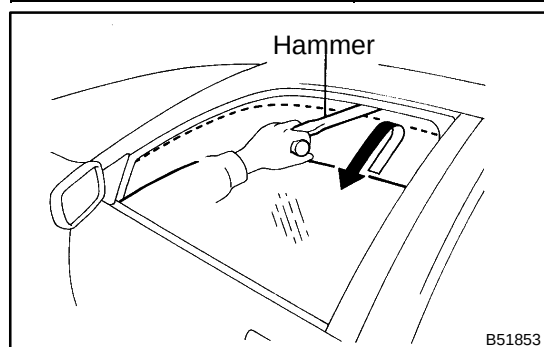
OK:

Condition	Master Switch	Switch Operation	Power Window
• Power switch ON (IG) • Window lock switch OFF	Rear LH side	Pulled up	UP (closed)
• Power switch ON (IG) • Window lock switch OFF	Rear LH side	Pushed down	DOWN (open)

- (c) Check that the rear RH side power window operates as follows:

OK:

Condition	Master Switch	Switch Operation	Power Window
• Power switch ON (IG) • Window lock switch OFF	Rear RH side	Pulled up	UP (closed)
• Power switch ON (IG) • Window lock switch OFF	Rear RH side	Pushed down	DOWN (open)



5. CHECK JAM PROTECTION FUNCTION

HINT:

- The jam protection function prevents any part of your body from getting caught by accident between the door frame and the door glass during power window operation.
- The jam protection function is only available on the driver side power window.

NOTICE:

If the power window motor has just been reset, raise and lower the door glass several times manually before performing the check.

- (a) Check that the door glass lowers by approximately 50 mm (1.97 in.) when something is caught between the door frame and door glass during power window operation. However, when the opening between the door frame and the door glass is less than 200 mm (7.87 in.), the door glass continues to lower and does not stop until an opening of 200 mm (7.87 in.) is achieved.

Operative conditions:

- AUTO UP
- AUTO UP function after turning power switch OFF
- MANUAL UP function after turning power switch OFF

6. CHECK POWER WINDOW FAIL-SAFE FUNCTION

- (a) The power window regulator motor's pulse sensors detect when an object has been jammed in the window. If a pulse sensor has a malfunction, the fail-safe function starts operating and the AUTO UP/DOWN function will be disabled.

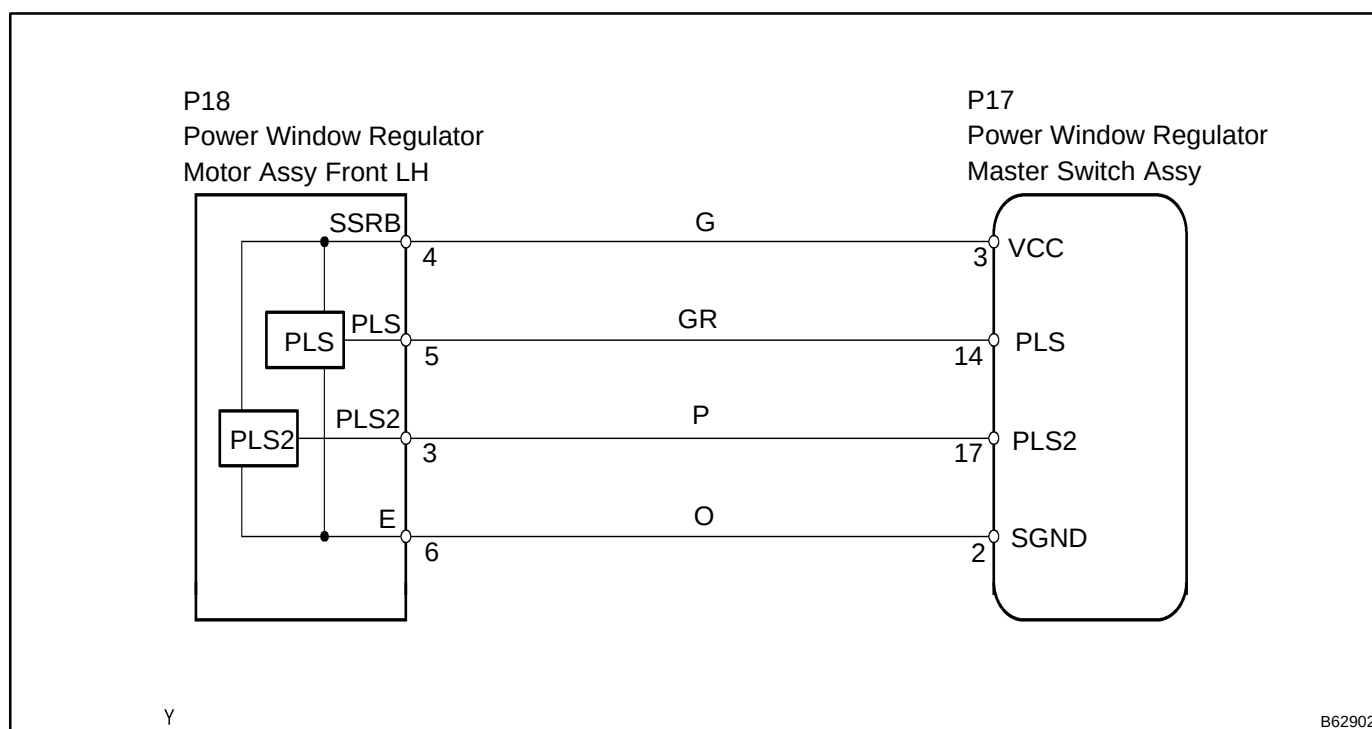
AUTO UP/DOWN FUNCTION DOES NOT OPERATE

CIRCUIT DESCRIPTION

If the AUTO UP/DOWN function does not operate, the cause may be one or more of the following:

- The recorded power window fully closed position, which is stored in the power window regulator master switch assembly, was erased as a result of: 1) the POWER fuse or the power window relay (PWR) being replaced; or 2) the battery cable and the master switch assembly's switch connector being disconnected.
- The master switch assembly has a malfunction.
- The pulse sensors in the driver side power window regulator motor have a malfunction.
- The wiring between the master switch assembly and the driver side power window regulator motor is open or short circuited.

WIRING DIAGRAM



INSPECTION PROCEDURE

1 CHECK MANUAL UP/DOWN FUNCTION (DRIVER SIDE)

- (a) Check if the manual UP/DOWN function operates normally.

OK: Manual UP/DOWN function operates normally.

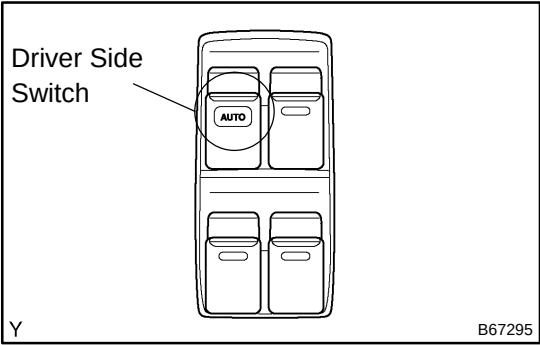
NG

OTHER PROBLEM (See page 05-2029)

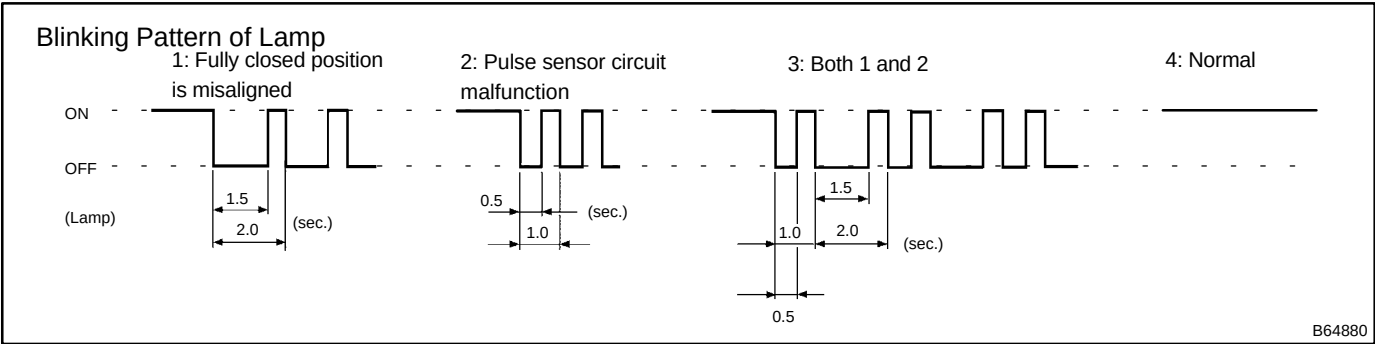
OK

2

CHECK LAMP OF POWER WINDOW MASTER SWITCH



- (a)
- Turn the power switch ON (IG).
- (b)
- Operate the master switch assembly's driver side switch shown in the illustration on the left.
- (c)
- Check the blinking pattern of the AUTO lamp. Compare the blinking pattern with the illustration below.



Result:

Blinking Pattern	Proceed to
1	A
2 or 3	B
4	C

B

Go to step 4

C

REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSY

A

3

RESET POWER WINDOW REGULATOR MOTOR ASSY FRONT LH(See page 05-2028)

- (a)
- Check if the power window operates normally after the reset.
OK: Power window operates normally.

NG

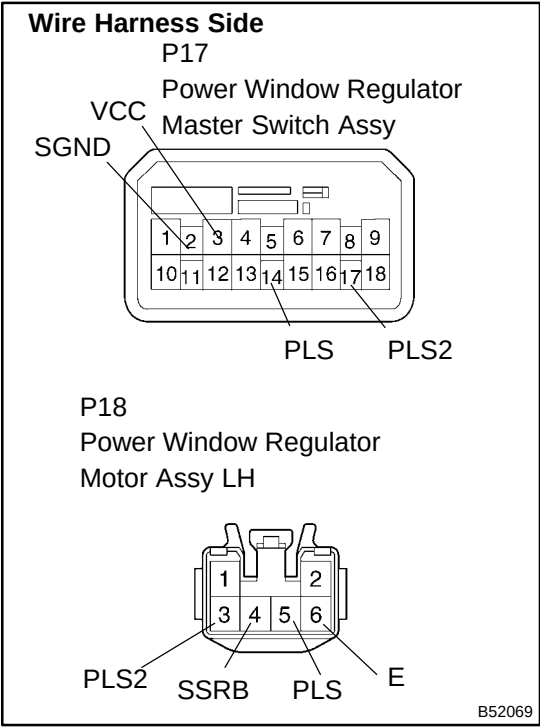
Go to step 4

OK

END

4

CHECK WIRE HARNESS (POWER WINDOW REGULATOR MASTER SWITCH ASSY – POWER WINDOW REGULATOR MOTOR ASSY FRONT LH AND BODY GROUND)



- (a) Disconnect the P17 master switch connector.
- (b) Disconnect the P18 power window motor connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard:

Tester Connection	Specified Condition
P17-3 (VCC) – P18-4 (SSRB)	Below 1 Ω
P17-14 (PLS) – P18-5 (PLS)	Below 1 Ω
P17-17 (PLS2) – P18-3 (PLS2)	Below 1 Ω
P17-2 (SGND) – P18-6 (E)	Below 1 Ω
P17-3 (VCC) – Body ground	10 kΩ or higher
P17-14 (PLS) – Body ground	10 kΩ or higher
P17-17 (PLS2) – Body ground	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

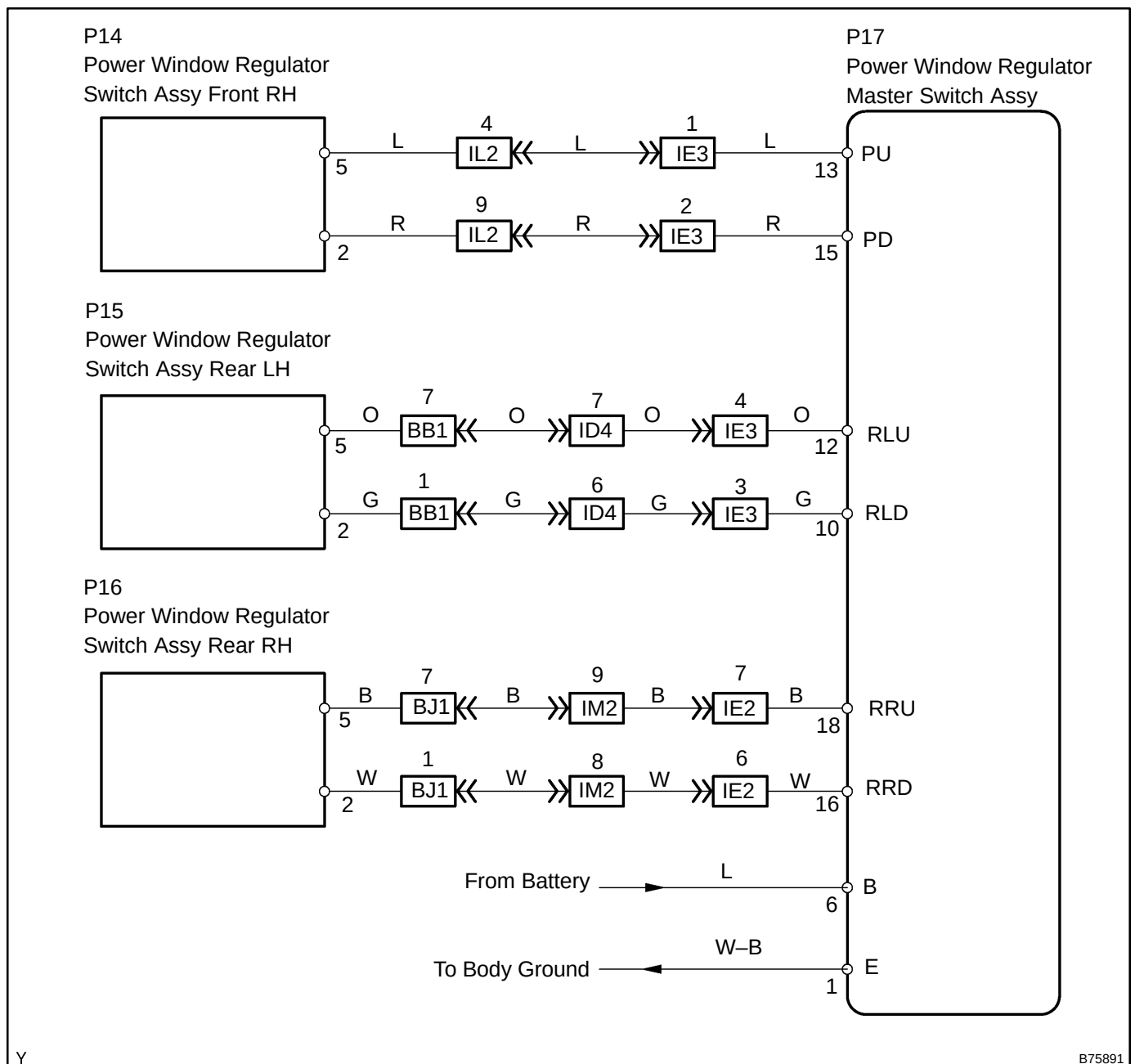
REPLACE POWER WINDOW REGULATOR MOTOR ASSY FRONT LH (DRIVER SIDE)

REMOTE UP/DOWN FUNCTION DOES NOT OPERATE

CIRCUIT DESCRIPTION

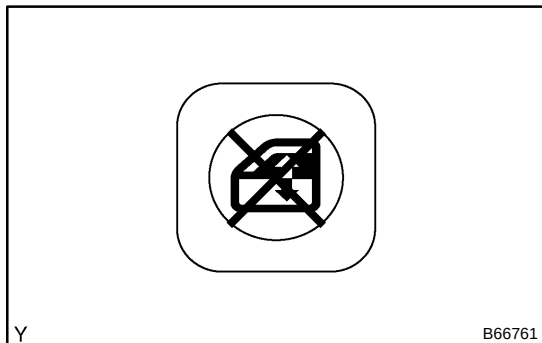
With the power switch mode at ON (IG), the power window regulator master switch assembly transmits remote switch signals to the regulator switches of the passenger door power window and rear door power windows. Then, the regulator switches drive the power window regulator motors.

WIRING DIAGRAM



cardiagn.com

INSPECTION PROCEDURE

1 CHECK POWER WINDOW LOCK SWITCH

- (a) Turn the window lock switch OFF and operate the master switch, passenger door switch and rear door switches. Check that the remote UP/DOWN function operates normally.

OK: Remote UP/DOWN function operates normally.

NG

Go to step 2

OK

END

2 CHECK MANUAL UP/DOWN FUNCTION

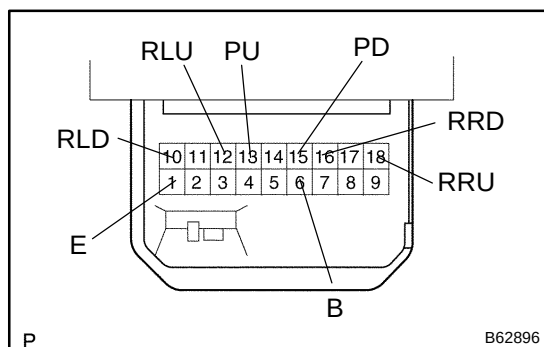
- (a) Check that the passenger door power window and rear door power windows' manual UP/DOWN functions operate normally.

OK: Manual UP/DOWN functions operate normally.

NG

OTHER PROBLEM (See page 05-2029)

OK

3 INSPECT POWER WINDOW REGULATOR MASTER SWITCH ASSY

- (a) Inspect the master switch, passenger door switch and rear door switches.

- (1) Remove the master switch.
- (2) Disconnect the P17 master switch connector.
- (3) Measure the resistance between the terminals of the connector when the switch is operated.

Standard:**Passenger side switch**

Window Lock Switch Condition	Power Window Switch Condition	Tester Connection	Specified Condition
OFF	UP	1 – 15 6 – 13	Below 1 Ω
OFF	OFF	1 – 13 1 – 15	Below 1 Ω
OFF	DOWN	1 – 13 6 – 15	Below 1 Ω
ON	UP	1 – 15 6 – 13	10 k Ω or higher Below 1 Ω
ON	OFF	13 – 15	Below 1 Ω
ON	DOWN	1 – 13 6 – 15	10 k Ω or higher Below 1 Ω

Rear LH switch

Window Lock Switch Condition	Power Window Switch Condition	Tester Connection	Specified Condition
OFF	UP	1 – 10 6 – 12	Below 1 Ω
OFF	OFF	1 – 12 1 – 10	Below 1 Ω
OFF	DOWN	1 – 12 6 – 10	Below 1 Ω
ON	UP	1 – 10 6 – 12	10 k Ω or higher Below 1 Ω
ON	OFF	12 – 10	Below 1 Ω
ON	DOWN	1 – 12 6 – 10	10 k Ω or higher Below 1 Ω

Rear RH switch

Window Lock Switch Condition	Power Window Switch Condition	Tester Connection	Specified Condition
OFF	UP	1 – 16 6 – 18	Below 1 Ω
OFF	OFF	1 – 18 1 – 16	Below 1 Ω
OFF	DOWN	1 – 18 6 – 16	Below 1 Ω
ON	UP	1 – 16 6 – 18	10 k Ω or higher Below 1 Ω
ON	OFF	18 – 16	Below 1 Ω
ON	DOWN	1 – 18 6 – 16	10 k Ω or higher Below 1 Ω

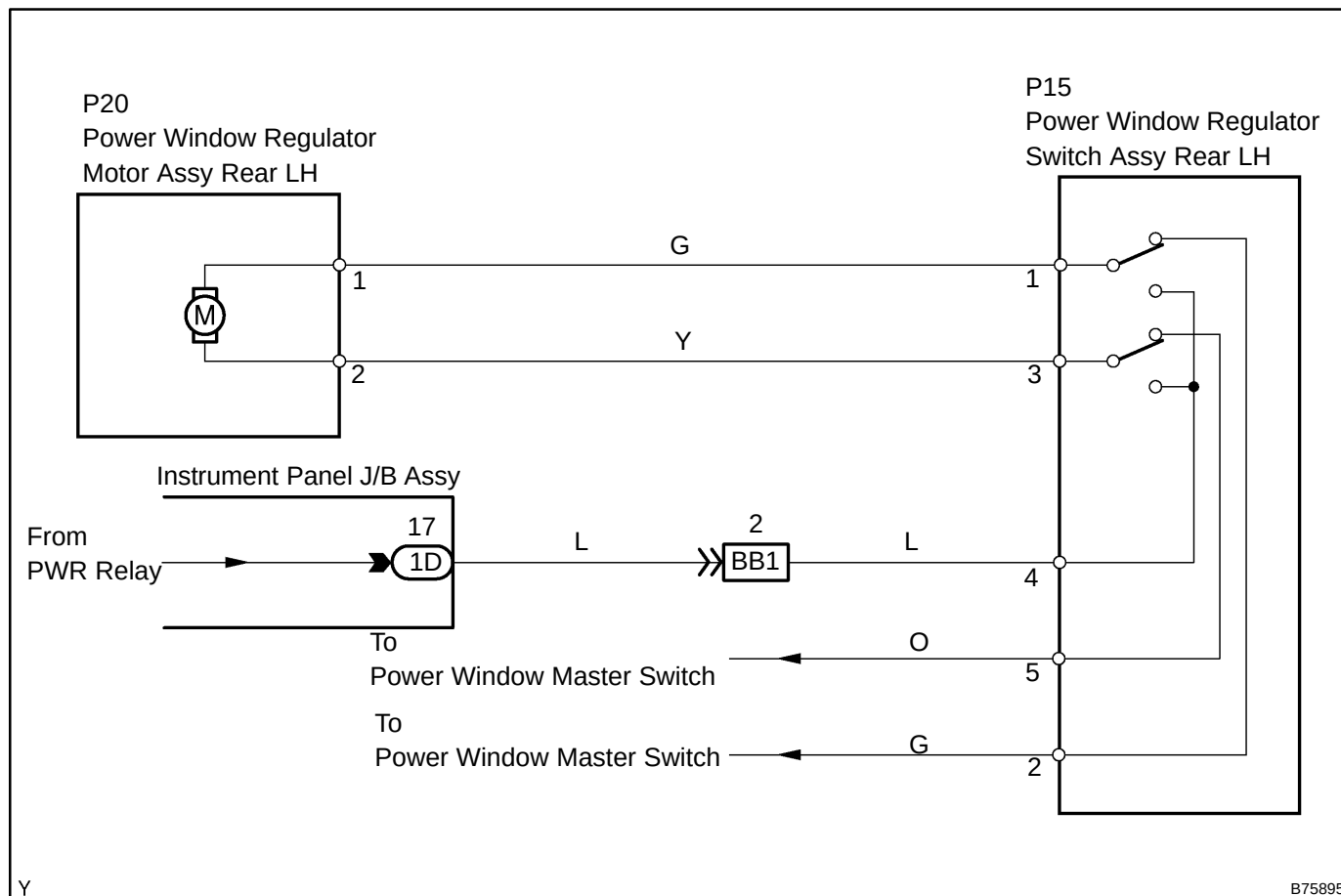
NG**REPLACE POWER WINDOW REGULATOR
MASTER SWITCH ASSY****OK****REPAIR OR REPLACE HARNESS AND CONNECTOR (POWER WINDOW REGULATOR MASTER
SWITCH ASSY – POWER WINDOW REGULATOR SWITCH ASSY)**

MANUAL UP/DOWN FUNCTION DOES NOT OPERATE ON REAR LH SIDE ONLY

CIRCUIT DESCRIPTION

If the rear LH side manual UP/DOWN function does not operate, a malfunction may be present in the power window regulator motor assembly rear LH, the power window regulator switch assembly rear LH or the wire harness.

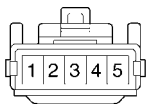
WIRING DIAGRAM



INSPECTION PROCEDURE

1 CHECK POWER WINDOW REGULATOR SWITCH ASSY REAR LH (VOLTAGE)**Wire Harness Side**

P15

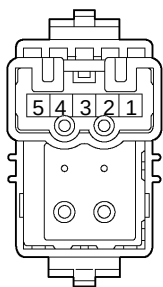
Power Window Regulator
Switch Assy Rear LH

B62901

- (a) Disconnect the P15 regulator switch connector.
- (b) Turn the power switch ON (IG).
- (c) Measure the voltage of the wire harness side connector.

Standard:

Tester Connection	Condition	Specified Condition
P15-4 – Body ground	Power switch ON (IG)	10 to 14 V

NG**REPAIR OR REPLACE HARNESS AND CONNECTOR (INSTRUMENT PANEL J/B ASSY – POWER WINDOW REGULATOR SWITCH)****OK****2 INSPECT POWER WINDOW REGULATOR SWITCH ASSY REAR LH (SWITCH OPERATION)**

Y

B63163

- (a) Remove the regulator switch.
- (b) Measure the resistance between the terminals of the connector when the switch is operated.

Standard:

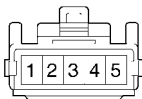
Tester Connection	Regulator Switch	Specified Condition
1 – 2 3 – 4	UP	Below 1 Ω
1 – 2 3 – 5	OFF	Below 1 Ω
1 – 4 3 – 5	DOWN	Below 1 Ω

NG**REPLACE POWER WINDOW REGULATOR SWITCH ASSY****OK**

3 CHECK WIRE HARNESS (POWER WINDOW REGULATOR SWITCH ASSY REAR LH – POWER WINDOW REGULATOR MOTOR ASSY REAR LH AND BODY GROUND)

Wire Harness Side

P15
Power Window Regulator
Switch Assy Rear LH



P20
Power Window Regulator
Motor Assy Rear LH



B63164

- Disconnect the P15 switch connector.
- Disconnect the P20 motor connector.
- Measure the resistance of the wire harness side connectors.

Standard:

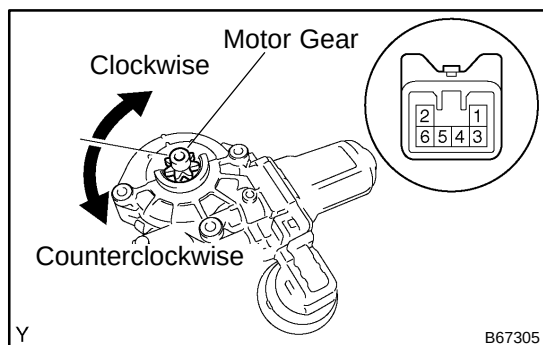
Tester Connection	Specified Condition
P15-1 – P20-1	Below 1 Ω
P15-3 – P20-2	Below 1 Ω
P15-1 – Body ground	10 k Ω or higher
P15-3 – Body ground	10 k Ω or higher

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

4 INSPECT POWER WINDOW REGULATOR MOTOR ASSY REAR LH



Y

B67305

- Remove the motor (see page 75-22).
- Apply battery voltage to connector terminals 1 and 2.
- Check that the motor smoothly rotates.

NOTICE:

Do not apply battery voltage to any terminals except terminals 1 and 2.

OK:

Terminal No.	Specified Condition
Battery positive (+) → 1 Battery negative (-) → 2	Motor gear rotates clockwise
Battery positive (+) → 2 Battery negative (-) → 1	Motor gear rotates counterclockwise

NG

REPLACE POWER WINDOW REGULATOR MOTOR ASSY REAR LH

OK

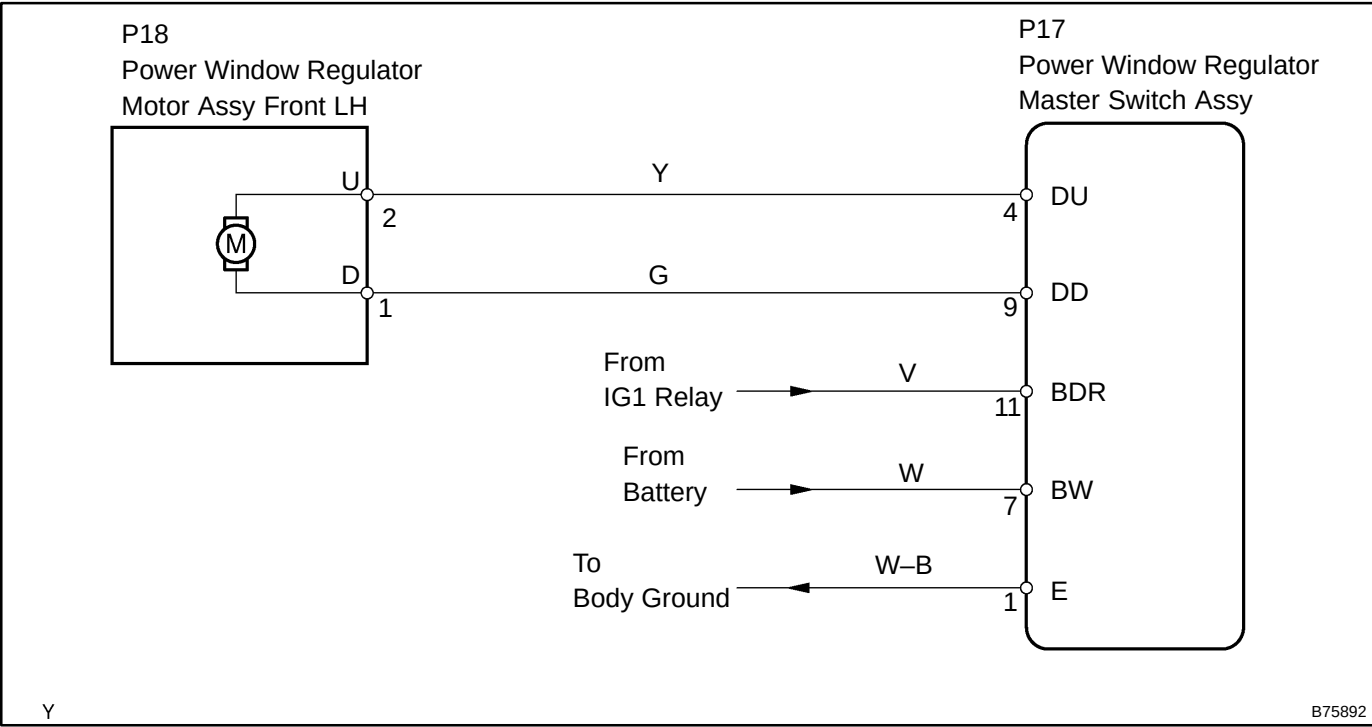
REPAIR OR REPLACE HARNESS AND CONNECTOR (POWER WINDOW REGULATOR MASTER SWITCH ASSY – POWER WINDOW REGULATOR SWITCH ASSY REAR LH)

MANUAL UP/DOWN FUNCTION DOES NOT OPERATE ON DRIVER SIDE

CIRCUIT DESCRIPTION

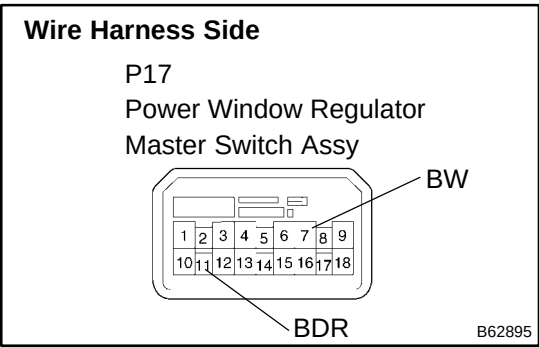
If the manual UP/DOWN function does not operate, a malfunction may be present in the power window regulator master switch assembly, the power window regulator motor assembly or the wire harness.

WIRING DIAGRAM



INSPECTION PROCEDURE

1 CHECK POWER WINDOW REGULATOR MASTER SWITCH ASSY



- (a) Turn the power switch ON (IG).
- (b) Disconnect the P17 master switch connector.
- (c) Measure the voltage between the terminal of the wire harness side connector and body ground.

Standard:

Tester Connection	Condition	Specified Condition
P17-7 (BW) – Body ground	Constant	10 to 14 V
P17-11 (BDR) – Body ground	Power switch ON (IG)	10 to 14 V

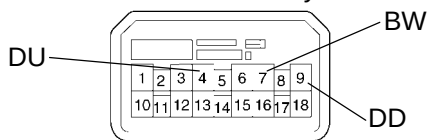
NG

REPAIR OR REPLACE HARNESS AND CONNECTOR (INSTRUMENT PANEL J/B ASSY – POWER WINDOW MASTER SWITCH)

OK

2 CHECK POWER WINDOW REGULATOR MOTOR ASSY FRONT LH**Wire Harness Side**

P17

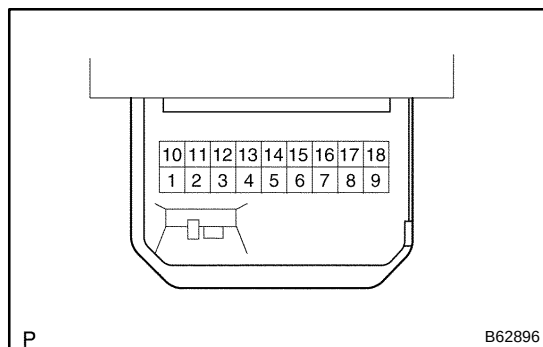
Power Window Regulator
Master Switch Assy

B62895

- (a) Disconnect the P17 master switch connector.
- (b) Using a service wire, connect the terminals according to the table below.
- (c) Check operation of the power window regulator motor assy front LH.

OK:

Connection	Specified Condition
P17-4 (DU) – P17-7 (BW) P17-9 (DD) – Body ground	Power window moves UP
P17-4 (DU) – Body ground P17-7 (BW) – P17-9 (DD)	Power window moves DOWN

NG**Go to step 3****OK****REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSY****3 INSPECT POWER WINDOW REGULATOR MASTER SWITCH ASSY (SWITCH OPERATION)**

P

B62896

- (a) Remove the master switch.
- (b) Measure the resistance between the terminals of the connector when the switch is operated.

Standard:

Tester Connection	AUTO Switch	Specified Condition
1 – 9 4 – 7	UP	Below 1 Ω
1 – 4 1 – 9	OFF	Below 1 Ω
1 – 9 4 – 7	DOWN	Below 1 Ω

NG**REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSY****OK**

4

CHECK WIRE HARNESS (POWER WINDOW REGULATOR MASTER SWITCH ASSY – POWER WINDOW REGULATOR MOTOR ASSY AND BODY GROUND)

Wire Harness Side

P17
Power Window Regulator
Master Switch Assy

DD

DU

P18
Power Window Regulator
Motor Assy Front LH

D

U

B52069

- (a) Disconnect the P17 master switch connector.
- (b) Disconnect the P18 motor connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard:

Tester Connection	Specified Condition
P17-9 (DD) – P18-1 (D)	Below 1 Ω
P17-4 (DU) – P18-2 (U)	Below 1 Ω
P17-9 (DD) – Body ground	10 k Ω or higher
P17-4 (DU) – Body ground	10 k Ω or higher

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

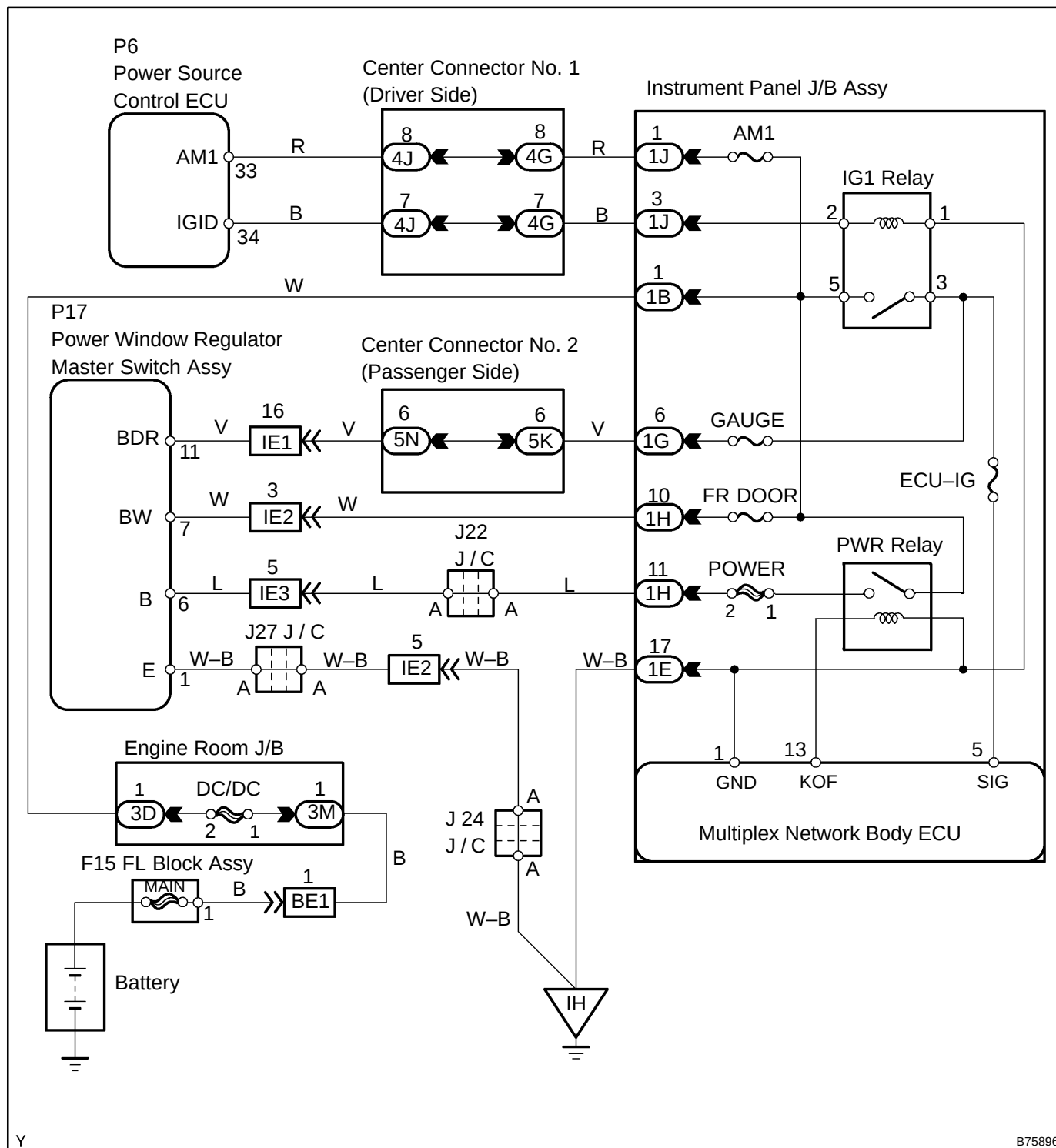
REPLACE POWER WINDOW REGULATOR MOTOR ASSY FRONT LH

POWER WINDOWS DO NOT OPERATE AT ALL

CIRCUIT DESCRIPTION

If all of the power windows do not operate, the power window regulator master switch assembly may have no power or may be malfunctioning.

WIRING DIAGRAM



Y

B75896

1	INSPECT FUSE (AM1, GAUGE, FR DOOR, ECU-IG, POWER)
---	---

- Standard: Below 1 Ω**

REPLACE FUSE

OK

2	INSPECT RELAY (IG1)
---	---------------------



REPLACE RELAY

OK

3	CHECK WIRE HARNESS (POWER WINDOW REGULATOR MASTER SWITCH ASSY – BODY GROUND)
---	--

B62895

- Standard:**

Go to step 4

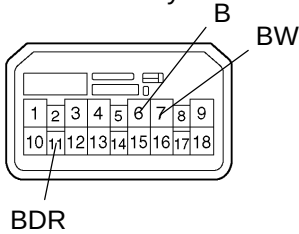
OK

REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSY

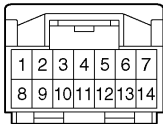
4 CHECK WIRE HARNESS (INSTRUMENT PANEL J/B ASSY – POWER WINDOW REGULATOR MASTER SWITCH ASSY)

Wire Harness Side

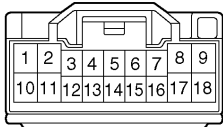
P17
Power Window Regulator
Master Switch Assy



1G
Instrument Panel J/B Assy



1H
Instrument Panel J/B Assy



- (a) Disconnect the 1G and 1H J/B connectors.
- (b) Disconnect the P17 master switch connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard:

Tester Connection	Specified Condition
1G-6 – P17-11 (BDR)	Below 1 Ω
1H-10 – P17-7 (BW)	Below 1 Ω
1H-11 – P17-6 (B)	Below 1 Ω
1G-6 – Body ground	10 k Ω or higher
1H-10 – Body ground	10 k Ω or higher
1H-11 – Body ground	10 k Ω or higher

Y

B75899

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

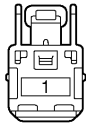
OK

5

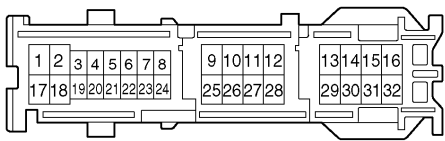
CHECK WIRE HARNESS (FOR POWER SOURCE OF INSTRUMENT PANEL J/B ASSY)

Wire Harness Side

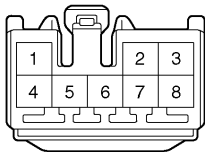
1B
Driver side J/B Assy



1E
Instrument Panel J/B Assy



1J
Instrument Panel J/B Assy



Y B75900

- (a) Disconnect the 1B, 1E and 1J J/B connectors.
- (b) Measure the voltage and resistance of the wire harness side connectors.

Standard:

Tester Connection	Condition	Specified Condition
1B-1 – Body ground	Constant	10 to 14 V
1E-17 – Body ground	Constant	Below 1 Ω
1J-3 – Body ground	Power switch ON (IG)	10 to 14 V
1J-1 – Body ground	Constant	10 to 14 V

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

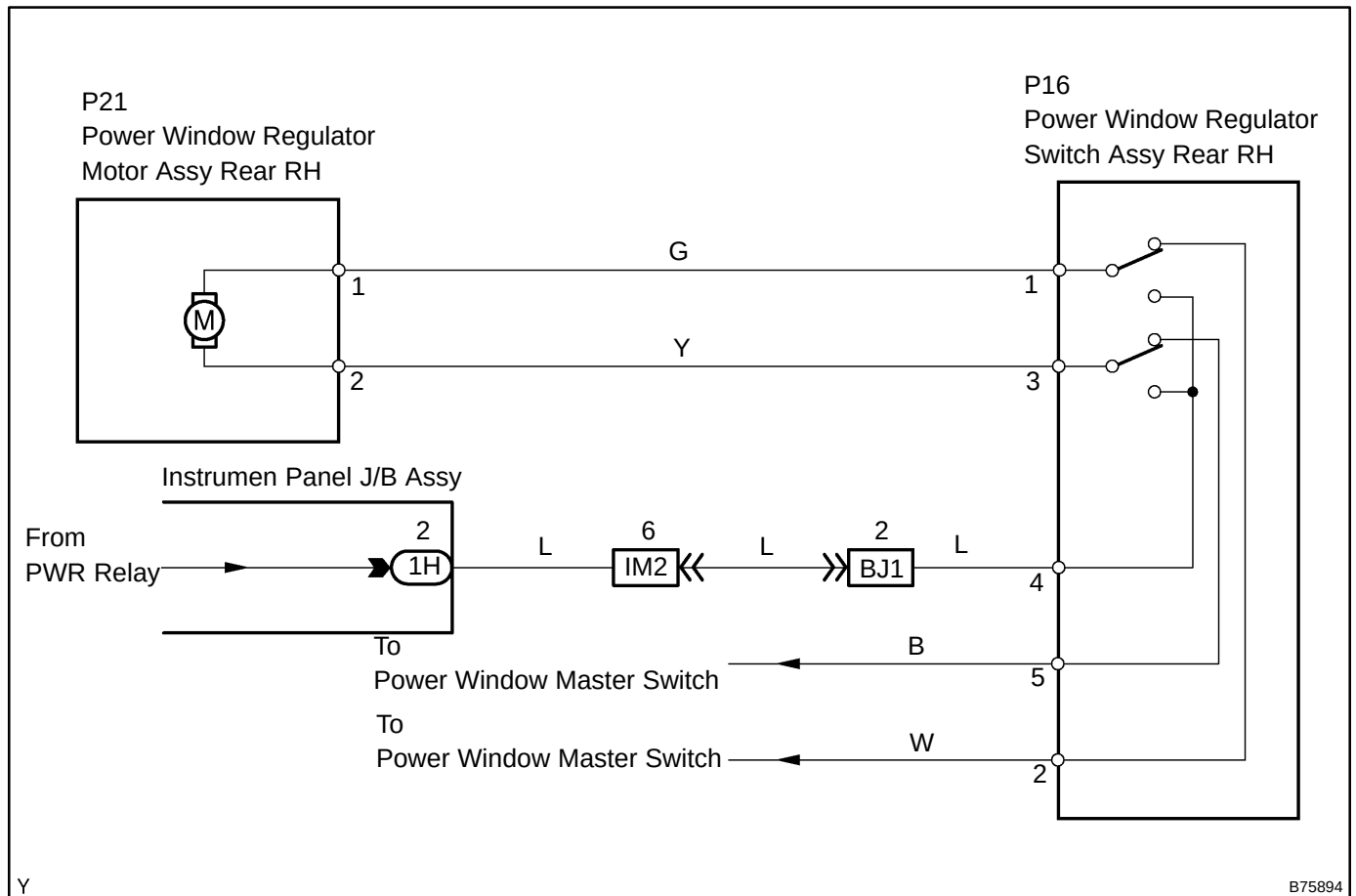
REPLACE INSTRUMENT PANEL J/B ASSY

MANUAL UP/DOWN FUNCTION DOES NOT OPERATE ON REAR RH SIDE ONLY

CIRCUIT DESCRIPTION

If the rear RH side manual UP/DOWN function does not operate, a malfunction may be present in the power window regulator motor assembly rear RH, the power window regulator switch assembly rear RH or the wire harness.

WIRING DIAGRAM

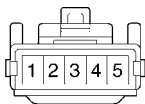


cardiagn.com

INSPECTION PROCEDURE

1 CHECK POWER WINDOW REGULATOR SWITCH ASSY REAR RH (VOLTAGE)**Wire Harness Side**

P16

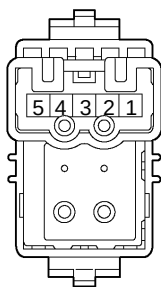
Power Window Regulator
Switch Assy Rear RH

B62901

- (a) Disconnect the P16 regulator switch connector.
- (b) Turn the power switch ON (IG).
- (c) Measure the voltage of the wire harness side connector.

Standard:

Tester Connection	Condition	Specified Condition
P16-4 – Body ground	Power switch ON (IG)	10 to 14 V

NG**REPAIR OR REPLACE HARNESS AND CONNECTOR (INSTRUMENT PANEL J/B ASSY – POWER WINDOW REGULATOR SWITCH)****OK****2 INSPECT POWER WINDOW REGULATOR SWITCH ASSY REAR RH (SWITCH OPERATION)**

Y

B63163

- (a) Remove the regulator switch.
- (b) Measure the resistance between the terminals of the connector when the switch is operated.

Standard:

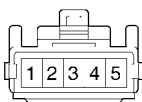
Tester Connection	Regulator Switch	Specified Condition
1 – 2 3 – 4	UP	Below 1 Ω
1 – 2 3 – 5	OFF	Below 1 Ω
1 – 4 3 – 5	DOWN	Below 1 Ω

NG**REPLACE POWER WINDOW REGULATOR SWITCH ASSY****OK**

3 CHECK WIRE HARNESS (POWER WINDOW REGULATOR SWITCH ASSY REAR RH – POWER WINDOW REGULATOR MOTOR ASSY REAR RH AND BODY GROUND)

Wire Harness Side

P16
Power Window Regulator
Switch Assy Rear RH



P21
Power Window Regulator
Motor Assy Rear RH



B63164

- Disconnect the P16 switch connector.
- Disconnect the P21 motor connector.
- Measure the resistance of the wire harness side connectors.

Standard:

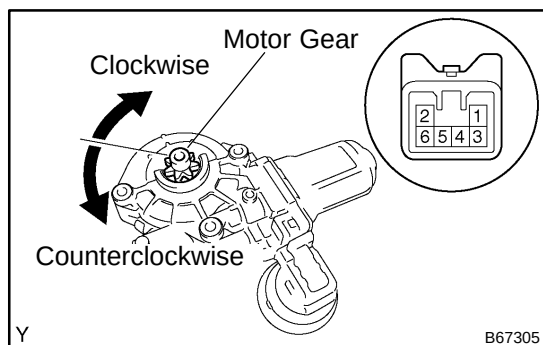
Tester Connection	Specified Condition
P16-1 – P21-1	Below 1 Ω
P16-3 – P21-2	Below 1 Ω
P16-1 – Body ground	10 k Ω or higher
P16-3 – Body ground	10 k Ω or higher

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

4 INSPECT POWER WINDOW REGULATOR MOTOR ASSY REAR RH



Y

B67305

- Remove the motor (see page 75-22).
- Apply battery voltage to connector terminals 1 and 2.
- Check that the motor smoothly rotates.

NOTICE:

Do not apply battery voltage to any terminals except terminals 1 and 2.

OK:

Terminal No.	Specified Condition
Battery positive (+) → 2 Battery negative (-) → 1	Motor gear rotates clockwise
Battery positive (+) → 1 Battery negative (-) → 2	Motor gear rotates counterclockwise

NG

REPLACE POWER WINDOW REGULATOR MOTOR ASSY REAR RH

OK

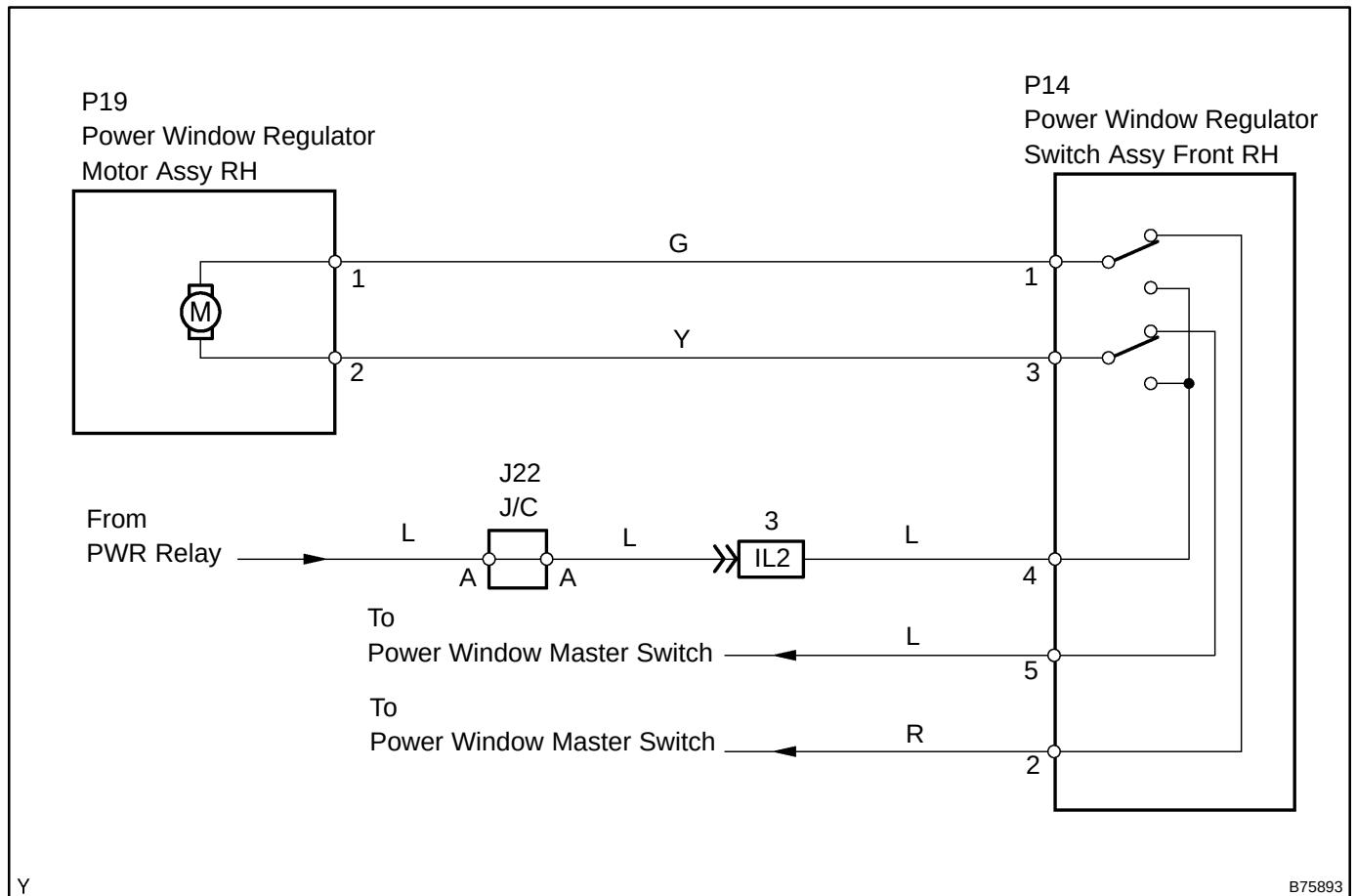
REPAIR OR REPLACE HARNESS AND CONNECTOR (POWER WINDOW REGULATOR MASTER SWITCH ASSY – POWER WINDOW REGULATOR SWITCH ASSY REAR RH)

MANUAL UP/DOWN FUNCTION DOES NOT OPERATE ON PASSENGER SIDE ONLY

CIRCUIT DESCRIPTION

If the passenger side manual UP/DOWN function does not operate, a malfunction may be present in the power window regulator motor assembly front RH, the power window regulator switch assembly front RH or the wire harness.

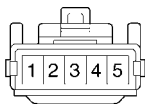
WIRING DIAGRAM



INSPECTION PROCEDURE

1 CHECK POWER WINDOW REGULATOR SWITCH ASSY FRONT RH (VOLTAGE)**Wire Harness Side**

P14

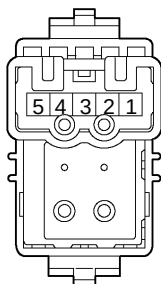
Power Window Regulator
Switch Assy Front RH

B62901

- (a) Disconnect the P14 regulator switch connector.
- (b) Turn the power switch ON (IG).
- (c) Measure the voltage of the wire harness side connector.

Standard:

Tester Connection	Condition	Specified Condition
P14-4 – Body ground	Power switch ON (IG)	10 to 14 V

NG**REPAIR OR REPLACE HARNESS AND CONNECTOR (INSTRUMENT PANEL J/B ASSY – POWER WINDOW REGULATOR SWITCH)****OK****2 INSPECT POWER WINDOW REGULATOR SWITCH ASSY FRONT RH**

Y

B63163

- (a) Remove the regulator switch.
- (b) Measure the resistance between the terminals of the connector when the switch is operated.

Standard:

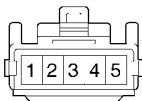
Tester Connection	Regulator Switch	Specified Condition
1 – 2 3 – 4	UP	Below 1 Ω
1 – 2 3 – 5	OFF	Below 1 Ω
1 – 4 3 – 5	DOWN	Below 1 Ω

NG**REPLACE POWER WINDOW REGULATOR SWITCH ASSY****OK**

3 CHECK WIRE HARNESS (POWER WINDOW REGULATOR SWITCH ASSY FRONT RH – POWER WINDOW REGULATOR MOTOR ASSY FRONT RH AND BODY GROUND)

Wire Harness Side

P14
Power Window Regulator
Switch Assy Front RH



P19
Power Window Regulator
Motor Assy Front RH



B63164

- Disconnect the P14 switch connector.
- Disconnect the P19 motor connector.
- Measure the resistance of the wire harness side connectors.

Standard:

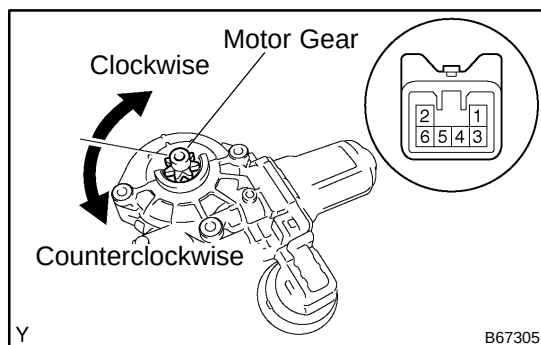
Tester Connection	Specified Condition
P14-1 – P19-1	Below 1 Ω
P14-3 – P19-2	Below 1 Ω
P14-1 – Body ground	10 k Ω or higher
P14-3 – Body ground	10 k Ω or higher

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

4 INSPECT POWER WINDOW REGULATOR MOTOR ASSY FRONT RH



Y

B67305

- Remove the motor (see page 70-2).
- Apply battery voltage to connector terminals 1 and 2.
- Check that the motor smoothly rotates.

NOTICE:

Do not apply battery voltage to any terminals except terminals 1 and 2.

OK:

Terminal No.	Specified Condition
Battery positive (+) → 1 Battery negative (-) → 2	Motor gear rotates clockwise
Battery positive (+) → 2 Battery negative (-) → 1	Motor gear rotates counterclockwise

NG

REPLACE POWER WINDOW REGULATOR MOTOR ASSY FRONT RH

OK

REPAIR OR REPLACE HARNESS AND CONNECTOR (POWER WINDOW REGULATOR MASTER SWITCH ASSY – POWER WINDOW REGULATOR SWITCH ASSY FRONT RH)

JAM PROTECTION FUNCTION DOES NOT OPERATE

CIRCUIT DESCRIPTION

The power window regulator master switch assembly controls the driver side power window regulator motor. The jam protection function only operates within a specified range during AUTO UP operation or key-off manual UP operation.

HINT:

The jam protection function is only available on the driver side power window.

INSPECTION PROCEDURE

1 RESET POWER WINDOW REGULATOR MOTOR

- (a) Reset the power window regulator motor (see page [05-2028](#)).
- (b) Check if the power window AUTO UP/DOWN function operates normally.

OK: AUTO UP/DOWN function operates normally.

NG

OTHER PROBLEM (See page [05-2029](#))

OK

2 CHECK JAM PROTECTION FUNCTION OPERATING RANGE

- (a) Check that the jam protection function operates normally (see page [05-2063](#)).

HINT:

The jam protection function does not operate from the fully closed position of the door glass to 4 mm (0.16 in.) below that.

NG

REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSY

OK

END

SYSTEM DESCRIPTION

1. POWER WINDOW CONTROL SYSTEM DESCRIPTION

The power window control system controls the power windows' UP/DOWN function using the regulator motors.

The main controls of this system are: the power window regulator master switch assembly, which is built into the driver side door, and the power window regulator switches, which are built into the passenger side door and rear doors. Pressing each regulator switch or any either of the switches on the master switch assembly transmits an UP/DOWN signal to the corresponding power window regulator motor.

The jammed window detection mechanism consists of a magnet on the worm gear of the power window motor assy and the two Hall ICs on the connector.

2. FUNCTION OF MAIN COMPONENT

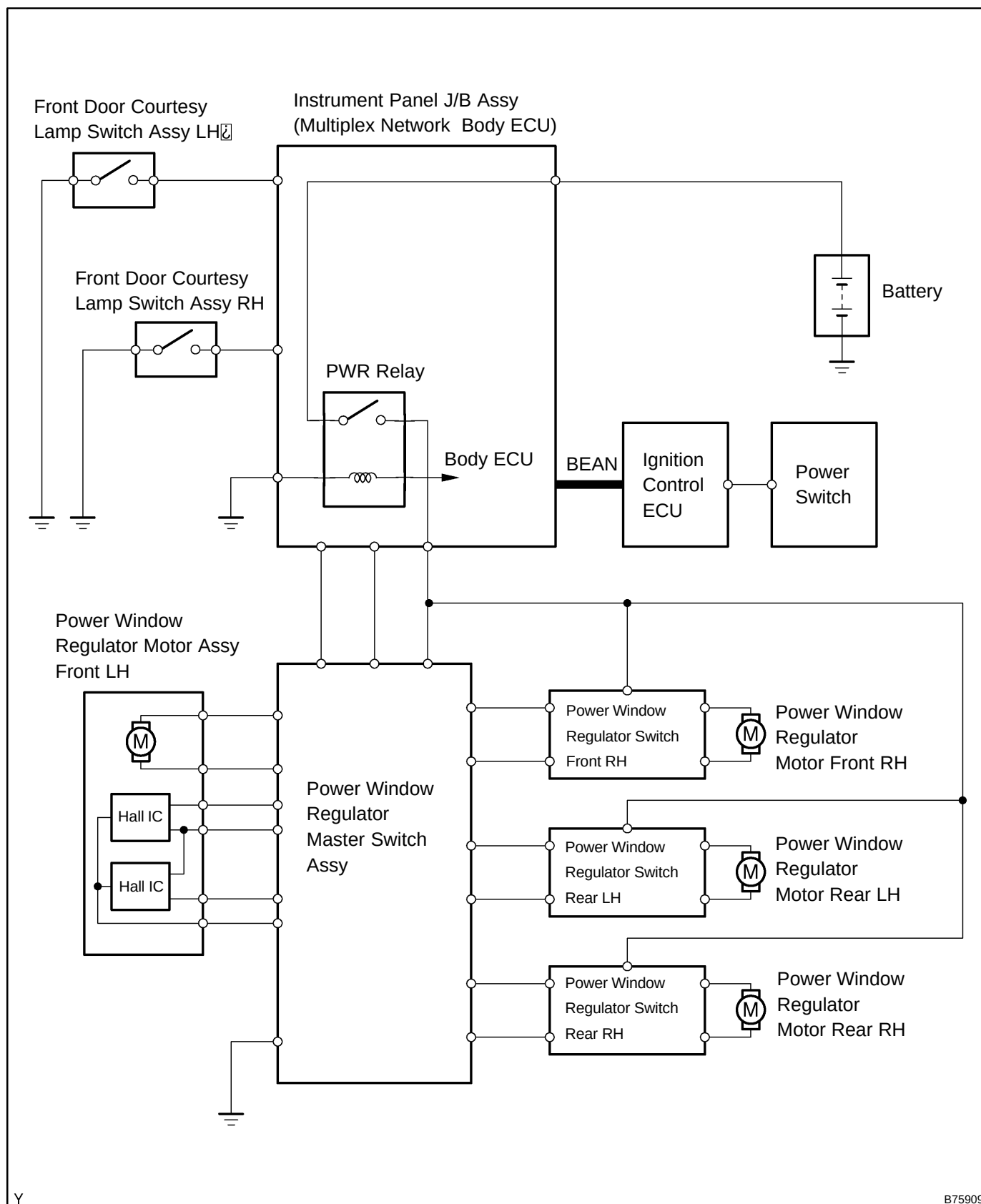
Component	Outline
Power Window Regulator Master Switch Assy	Controls window operations for all windows. Also, when window lock switch is set to lock position, window operation will only be possible for driver side power window.
Power Window Regulator Switch Assy	Located on passenger side door and rear doors. Each regulator switch assy controls window operations for its respective window.
Power Window Regulator Motor Assy	Receives switch signals and changes signals into motor activation. As a result, window position changes. Also, driver side regulator motor assy uses pulse sensors to detect window position.
Door Courtesy Lamp Switch Assy	During key–off operation function, illuminates when doors are open and turns off when doors are closed.
Halfway switch / Full switch	During key–off operation function, check that key slot does not have key inserted and that power switch's power mode is OFF.

3. SYSTEM FUNCTION

The power window control system has the following functions.

Function	Outline
Manual UP/DOWN function	Driver side power window: Function that causes window to raise while power window switch is pulled halfway up, and to lower while pushed halfway down. Window stops as soon as switch is released. Other power windows: Function that causes window to raise while power window switch is pulled up and to lower while pushed down. Window stops as soon as switch is released.
AUTO UP/DOWN function	Function that enables window of driver side door to be fully opened or fully closed by one full push downward on power window switch or one full pull upward on power window switch, respectively. AUTO UP/DOWN function is only available on driver side power window.
Jam protection function	Function that automatically stops driver side power window and moves it downward if object is jammed in driver side power window during AUTO UP operation. During key–off operation function, jam protection function works for manual UP and AUTO UP operation. Jam protection function is only available on driver side power window.
Remote control function	Function that allows power window master switch assy to control manual UP/DOWN operations of passenger door power window and rear door power windows.
Key–off operation function	Function that makes it possible to operate power window for approx. 43 seconds after power switch's power mode is changed to ON (ACC) or OFF when either front door is closed.
Window lock function	Function where passenger door power window and rear door power windows' operations are disabled when window lock switch of the master switch assy is pressed. Passenger door power window and rear door power windows can be operated when window lock switch is pressed again.
Diagnosis	Function where power window switch can detect malfunctions in power window system and make diagnoses. Power window switch light illuminates or starts blinking to inform driver.
Fail–safe	Function that disables driver side power window AUTO UP/DOWN function if pulse sensor (Hall IC) in power window regulator motor has malfunction. Manual operation is possible through power switches.

SYSTEM DIAGRAM



Y

B75909

INSPECTION PROCEDURE

1 CHECK OPERATION FUNCTION AFTER POWER SWITCH'S POWER MODE IS CHANGED TO OFF

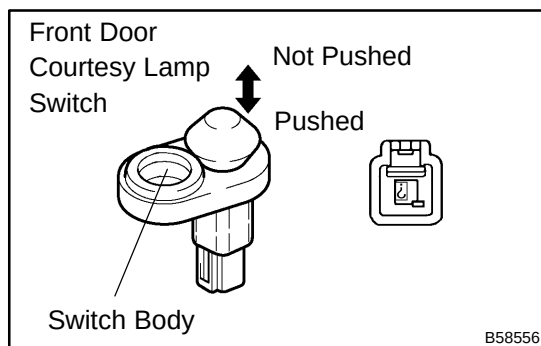
- (a) After turn the power switch OFF:
- (1) Either front door is opened within 43 seconds but the power window can still operate. Proceed to A.
 - (2) 43 seconds pass and the power window can still operate. Proceed to B.

B**REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSY****A****2 READ VALUE OF HAND-HELD TESTER**

- (a) Connect the hand-held tester (with CAN VIM) to the DLC3.
 (b) Turn the power switch ON (IG) and press the hand-held tester main switch ON.
 (c) Read the DATA LIST according to the displays on the tester.

Multiplex network body ECU:

Item	Measurement Item/Range (Display)	Normal Condition	Diagnostic Note
D DOR CTY SW	Driver side door courtesy switch signal/ON or OFF	ON: Driver side door is open OFF: Driver side door is closed	–
P DOR CTY SW	Passenger side door courtesy switch signal/ON or OFF	ON: Passenger side door is open OFF: Passenger side door is closed	–

OK: "ON" (door is open) appears on the screen.**NG****Go to step 3****OK****REPLACE INSTRUMENT PANEL J/B****3 INSPECT FRONT DOOR COURTESY LAMP SWITCH ASSY**

- (a) Remove the courtesy D7 or D8 lamp switch.
 (b) Measure the switch resistance.

Standard:

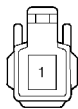
Tester Connection	Condition	Specified Condition
1 – Switch body	Pushed	10 k Ω or higher
1 – Switch body	Not pushed	Below 1 Ω

NG**REPLACE FRONT DOOR COURTESY LAMP SWITCH ASSY****OK**

4 CHECK WIRE HARNESS (FRONT DOOR COURTESY LAMP SWITCH ASSY – INSTRUMENT PANEL J/B ASSY)

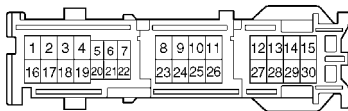
Wire Harness Side

D7*1 or D8*2
Front Door
Courtesy Lamp Switch Assy



*1: LH
*2: RH

1D
Instrument Panel J/B



Y

B75898

- (a) Disconnect the D7 or D8 lamp switch connector.
- (b) Disconnect the 1D J/B connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard:

Tester Connection	Specified Condition
D7-1 – 1D-21	Below 1 Ω
D8-1 – 1D-24	Below 1 Ω
D7-1 – Body ground	10 kΩ or higher
D8-1 – Body ground	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

REPLACE INSTRUMENT PANEL J/B ASSY

CUSTOMER PROBLEM ANALYSIS CHECK

POWER WINDOW CONTROL SYSTEM Check Sheet

Inspector's name: _____

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

Date Problem First Occurred		/ /
Frequency Problem Occurs		☐ Constant ☐ Sometimes (times per day, month) ☐ Once only
Weather Conditions When Problem Occurred	Weather	☐ Fine ☐ Cloudy ☐ Rainy ☐ Snowy ☐ Various/Others
	Outdoor Temperature	☐ Hot ☐ Warm ☐ Cool ☐ Cold (°C [°F])

Malfunction Symptoms	☐ AUTO UP/DOWN function does not operate	
	☐ Remote UP/DOWN function does not operate	
	☐ Driver side door window glass lowers during AUTO UP operation	
	☐ Manual UP/DOWN function does not operate	
	☐ All ☐ Driver side ☐ Passenger side ☐ Rear LH ☐ Rear RH	
	☐ Window cannot be operated after power switch's power mode is changed to OFF	
Condition When Returned to Normal		☐ Power switch ON ☐ Engine started ☐ () Switch operated
Condition When Problem Occurred	Yes ☐ No ☐	☐ Power switch OFF ☐ ON ☐ () Switch operated ☐ Other ()

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use this procedure to troubleshoot the smart key system.
- The hand-held tester should be used in step 3 and 5.

1 VEHICLE BROUGHT TO WORKSHOP



2 CUSTOMER PROBLEM ANALYSIS CHECK AND SYMPTOM CHECK



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

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

B

Go to **MULTIPLEX COMMUNICATION SYSTEM**
(See page [05-2027](#))

A

4 PROBLEM SYMPTOMS TABLE (See page [05-2029](#))

- (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) DATA LIST/ACTIVE TEST
Inspection with the hand-held tester (DATA LIST).
- (b) On-vehicle Inspection (see page [05-2063](#)).
- (c) Inspection (see page [05-2065](#)).
- (d) Terminals of ECU (see page [05-2030](#)).



6	ADJUST, REPAIR OR REPLACE
----------	----------------------------------

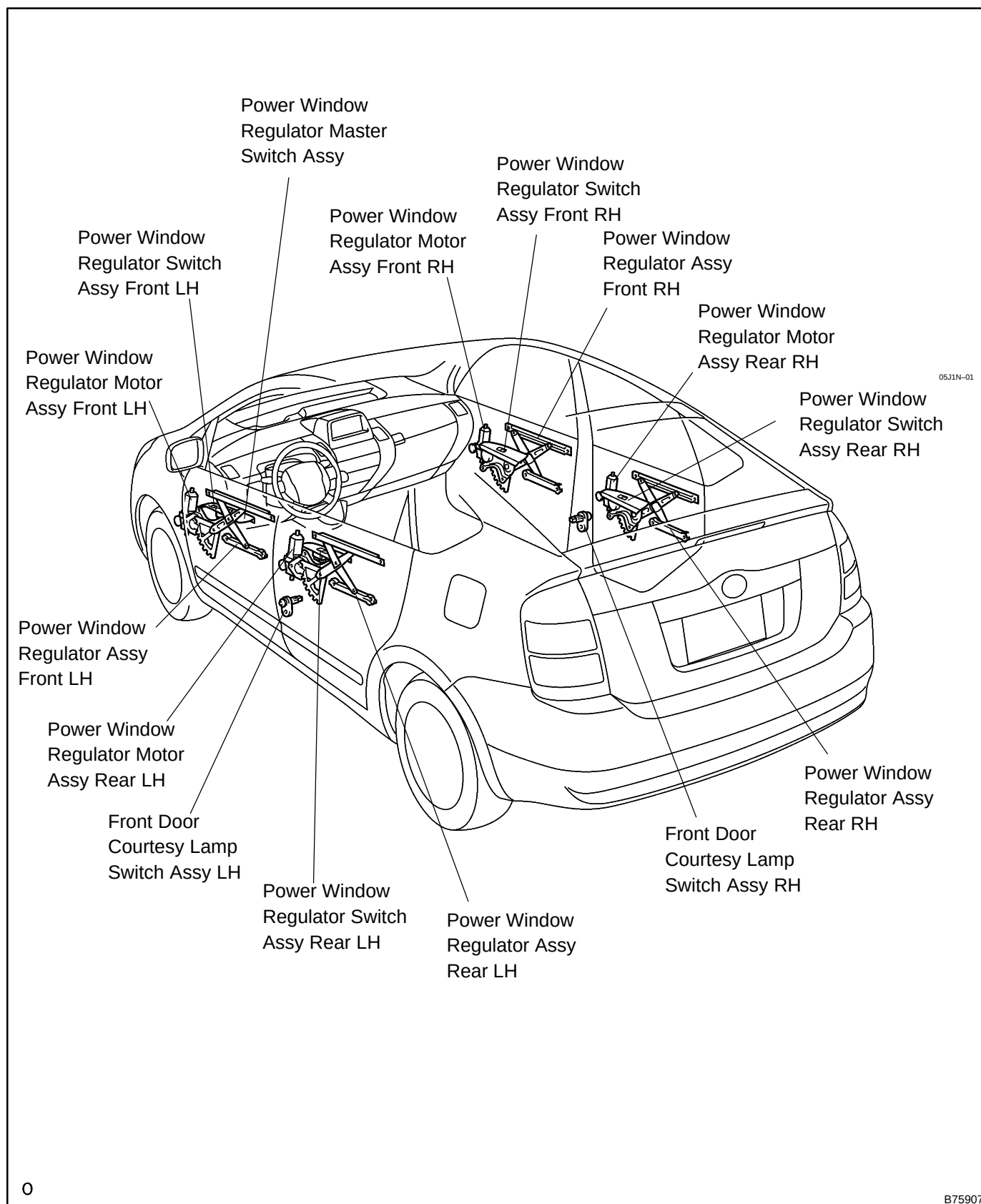


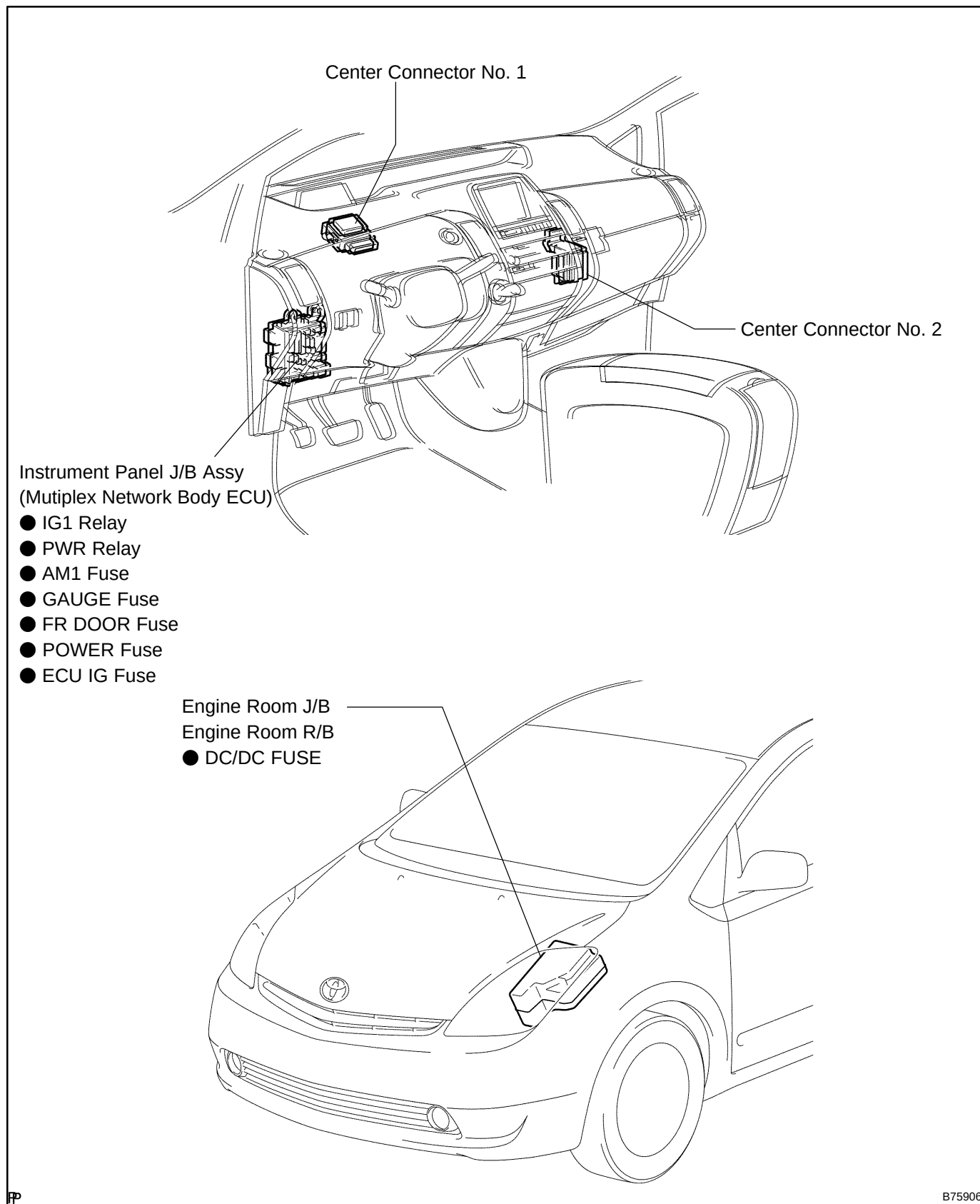
7	CONFIRMATION TEST
----------	--------------------------



END

LOCATION





POWER WINDOW CONTROL SYSTEM

05EZ7-02

PRECAUTION

NOTICE FOR INITIALIZATION:

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

System Name	See Page
Power Window Control System	05-2028

NOTICE FOR HYBRID SYSTEM ACTIVATION:

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

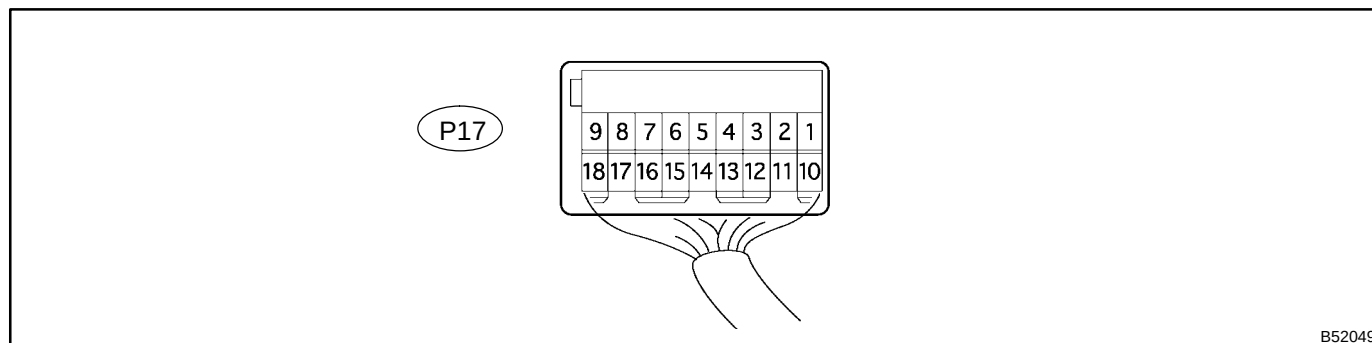
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PROBLEM SYMPTOMS TABLE

Symptoms	Suspected Area	See Page
AUTO UP/DOWN function does not operate	1. Power window regulator motor assy front LH 2. Wire harness 3. Power window regulator master switch assy	05-2035
Remote UP/DOWN function does not operate	1. Power window regulator master switch assy 2. Wire harness	05-2038
Manual UP/DOWN function does not operate on driver side	1. FR DOOR fuse 2. Power window regulator master switch assy 3. Power window regulator motor assy front LH 4. Wire harness	05-2041
Manual UP/DOWN function does not operate on passenger side only	1. Power window regulator switch assy front RH 2. Power window regulator motor assy front RH 3. Wire harness	05-2044
Manual UP/DOWN function does not operate on rear LH side	1. Power window regulator switch assy rear LH 2. Power window regulator motor assy rear LH 3. Wire harness	05-2047
Manual UP/DOWN function does not operate on rear RH side	1. Power window regulator switch assy rear RH 2. Power window regulator motor assy rear RH 3. Wire harness	05-2050
Jam protection function does not operate	1. Power window regulator master switch assy	05-2062
Power windows do not operate at all	1. AM1 fuse 2. GAUGE fuse 3. POWER fuse 4. ECU-IG fuse 5. FR DOOR fuse 6. PWR relay 7. IG1 relay 8. Power window regulator master switch assy 9. Wire harness 10. Multiplex network body ECU	05-2053
Power window can be operated after power switch's power mode is changed to OFF even when certain conditions are not met	1. Power window regulator master switch assy 2. Front door courtesy lamp switch 3. Wire harness 4. Multiplex network body ECU	05-2057
AUTO UP operation does not fully close power window (jam protection function is activated)	1. Front door window regulator assy 2. Power window regulator motor assy front LH 3. Power window regulator master switch assy	05-2060

TERMINALS OF ECU

1. CHECK POWER WINDOW REGULATOR MASTER SWITCH



- (a) Disconnect the P17 switch connector.
- (b) Measure the voltage and resistance of each terminal of the wire harness side connector.

Standard:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
E (P17-1) – Body ground	W-B – Body ground	Ground	Constant	Below 1 Ω
BW (P17-7) – E (P17-1)	W – W-B	Regulator motor power supply	Constant	10 to 14 V
B (P17-6) – E (P17-1)	L – W-B	Master switch power supply	Power switch OFF → ON (IG)	0 V → 10 to 14 V
BDR (P17-11) – E (P17-1)	V – W-B	Master switch power supply	Power switch OFF → ON (IG)	0 V → 10 to 14 V
DU (P17-4) – DD (P17-9)	Y – G	- Power window motor UP output - Power window motor DOWN output	Constant	Below 1 Ω

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

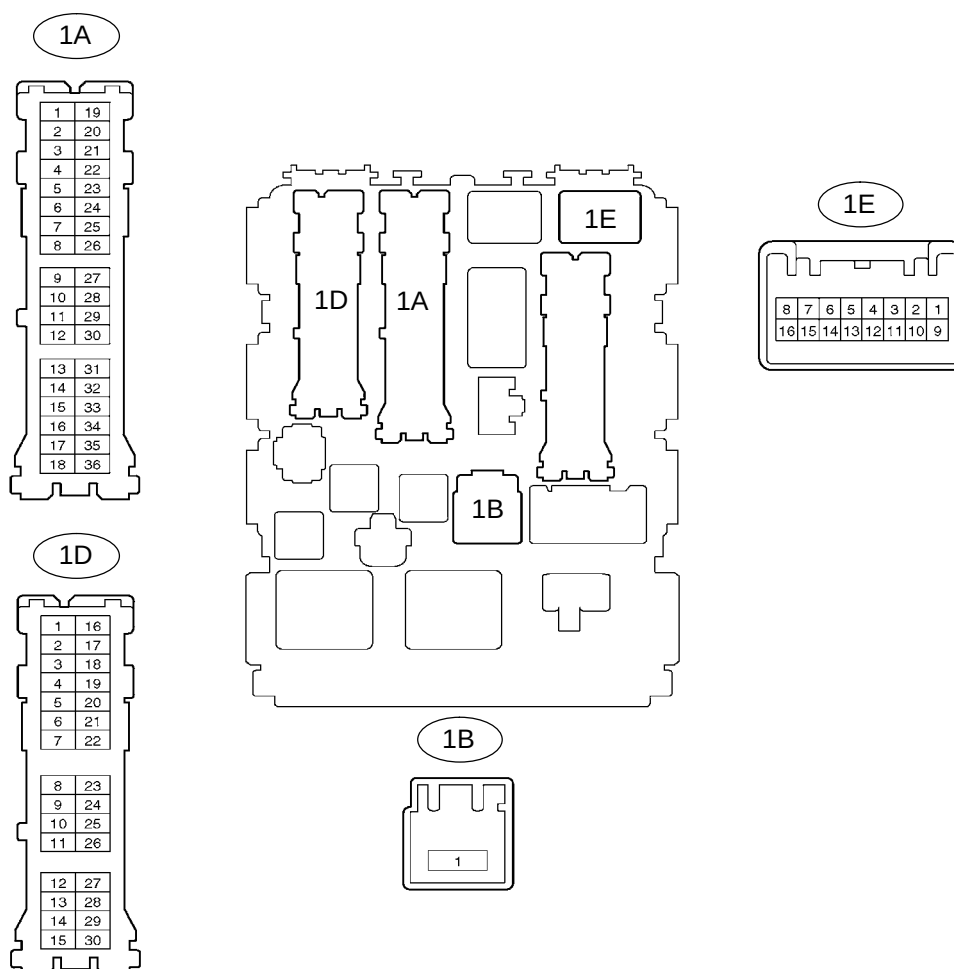
- (c) Reconnect the P17 switch connector.
- (d) Reset the power window motor (see page 05-2028).
- (e) Measure the voltage of each terminal of the connector.

Standard:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
DU (P17-4) – E (P17-1)	Y – W-B	Power window motor UP output	Power switch ON (IG), driver side power window switch OFF → UP (manual operation)	0 V → 10 to 14 V
DU (P17-4) – E (P17-1)	Y – W-B	Power window motor UP output	Power switch ON (IG), driver side power window fully open → driver side power window switch UP (AUTO operation) → driver side power window fully closed	0 V → 10 to 14 V → 0 V
DD (P17-9) – E (P17-1)	G – W-B	Power window motor DOWN output	Power switch ON (IG), driver side power window switch OFF → DOWN (manual operation)	0 V → 10 to 14 V
DD (P17-9) – E (P17-1)	G – W-B	Power window motor DOWN output	Power switch ON (IG), driver side power window fully closed → driver side power window switch DOWN (AUTO operation) → driver side power window fully open	0 V → 10 to 14 V → 0 V
VCC (P17-3) – GND (P17-2)	G – O	- Power window motor power source - Power window motor sensor ground	Constant	10 to 14 V

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

- (f) Check that the AUTO lamp illumination.
- (1) When turning the power switch ON (IG), check that the AUTO lamp illuminates (green).
2. **CHECK INSTRUMENT PANEL J/B ASSY (MULTIPLEX NETWORK BODY ECU)**



Y

B79741

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

Standard:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
ECUB (1A-30) – Body ground	R – Body ground	+B (ECUB) power supply	Constant	10 to 14 V
ALTB (1B-1) – Body ground	W – Body ground	+B (power system, generator system) power supply	Constant	10 to 14 V
KSW (1E-26) – Body ground	Y – Body ground	Key unlock warning switch input	No key in key slot → Key inserted	10 kΩ or higher → Below 1 Ω
DCTY (1D-21) – Body ground	V – Body ground	Driver side courtesy switch input	Driver side door CLOSED → OPEN	10 kΩ or higher → Below 1 Ω
PCTY (1D-24) – Body ground	BR – Body ground	Passenger side courtesy switch input	Passenger side door CLOSED → OPEN	10 kΩ or higher → Below 1 Ω
GND (1E-17) – Body ground	W-B – Body ground	Ground	Constant	Below 1 Ω

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

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

Standard:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
KSW (1E-26) – Body ground	Y – Body ground	Key unlock warning switch input	No key in key slot → Key inserted	10 to 14 V → 0 V

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