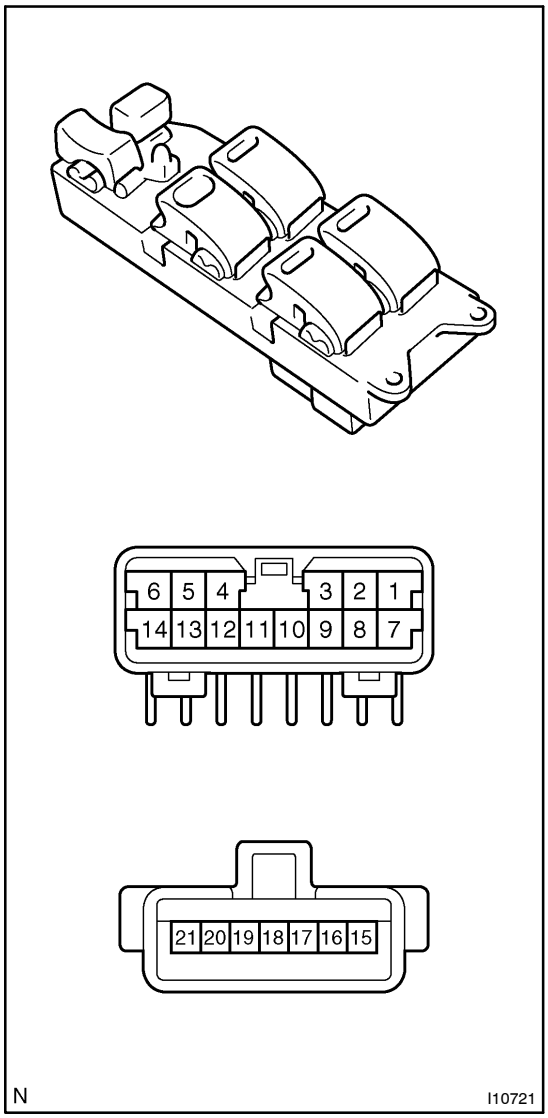
BE12V–02



INSPECTION

1. INSPECT POWER WINDOW MASTER SWITCH CONTINUITY

Connect the battery positive (+) lead to terminal 3 and 10, and battery negative (–) lead to terminal 4 and 5.

Front Driver's Switch (Window unlock and lock):

Switch position	Tester connection	Specified condition
UP	1 – 2	Battery positive voltage
UP	1 – 3 2 – 4 – 5	Continuity
OFF	1 – 2 – 4 – 5	Continuity
DOWN	1 – 2	Battery positive voltage
DOWN	1 – 4 – 5 2 – 3	Continuity

Front Passenger's Switch (Window unlock):

Switch position	Tester connection	Specified condition
UP	7 – 8	Battery positive voltage
UP	4 – 5 – 8 7 – 10	Continuity
OFF	4 – 5 – 7 – 8	Continuity
DOWN	7 – 8	Battery positive voltage
DOWN	4 – 5 – 7 8 – 10	Continuity

Front Passenger's Switch (Window lock):

Switch position	Tester connection	Specified condition
UP	7 – 8	Battery positive voltage
UP	7 – 10	Continuity
OFF	7 – 8	Continuity
DOWN	7 – 8	Battery positive voltage
DOWN	8 – 10	Continuity

Rear Left Switch (Window unlock):

Switch position	Tester connection	Specified condition
UP	9 – 11	Battery positive voltage
UP	4 – 5 – 11 9 – 10	Continuity
OFF	4 – 5 – 9 – 11	Continuity
DOWN	9 – 11	Battery positive voltage
DOWN	4 – 5 – 9 10 – 11	Continuity

Rear Left Switch (Window lock):

Switch position	Tester connection	Specified condition
UP	9 – 11	Battery positive voltage
UP	9 – 10	Continuity
OFF	9 – 11	Continuity
DOWN	9 – 11	Battery positive voltage
DOWN	10 – 11	Continuity

Rear Right Switch (Window unlock):

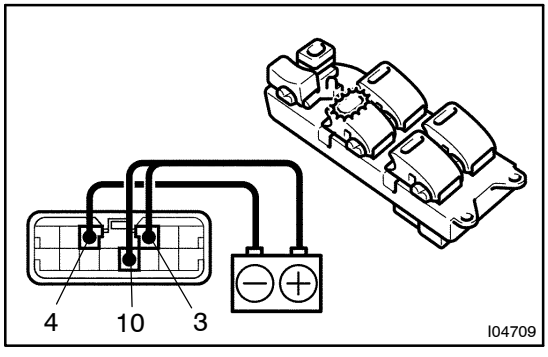
Switch position	Tester connection	Specified condition
UP	13 – 14	Battery positive voltage
UP	4 – 5 – 14 10 – 13	Continuity
OFF	4 – 5 – 13 – 14	Continuity
DOWN	13 – 14	Battery positive voltage
DOWN	4 – 5 – 13 10 – 14	Continuity

Rear Right Switch (Window lock):

Switch position	Tester connection	Specified condition
UP	13 – 14	Battery positive voltage
UP	10 – 13	Continuity
OFF	13 – 14	Continuity
DOWN	13 – 14	Battery positive voltage
DOWN	10 – 14	Continuity

Switch position	Tester connection	Specified condition
Driver Door Courtesy Switch OFF	18 – Ground	Battery positive voltage

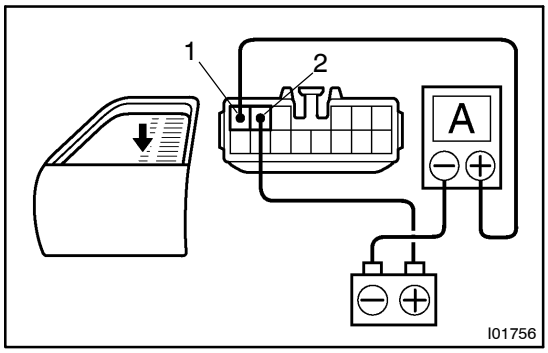
If continuity and voltage is not as specified, replace the master switch.

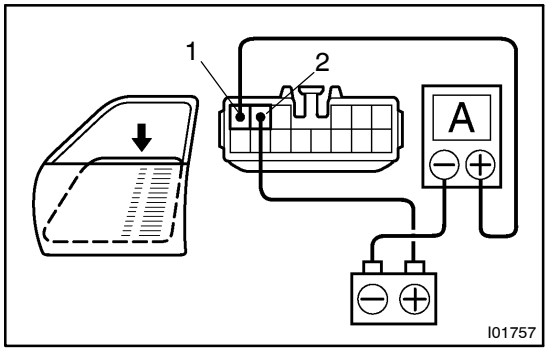


2. INSPECT POWER WINDOW MASTER SWITCH ILLUMINATION

Connect the positive (+) lead from the battery to terminal 3 and 10, and the negative (–) lead to terminal 4, and check that all the illuminations light up.

If operation is not as specified, replace the master switch.

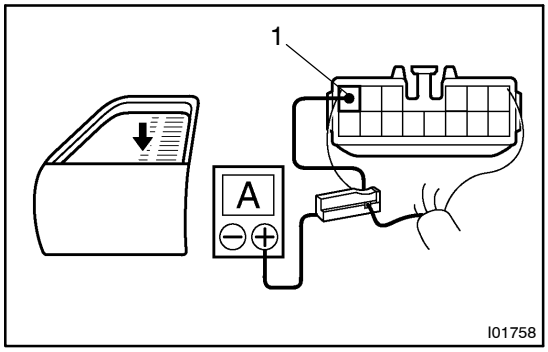




3. Using an ammeter:
INSPECT ONE TOUCH POWER WINDOW SYSTEM/ CURRENT OF CIRCUIT

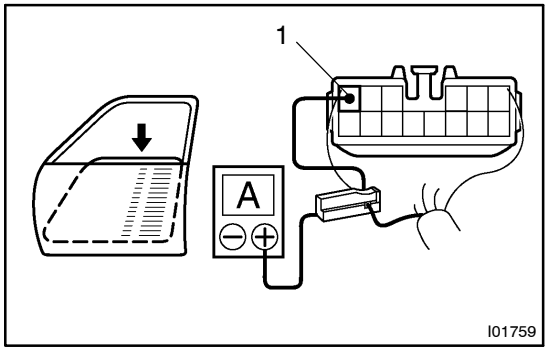
(a) Disconnect the connector from the master switch.
(b) Connect the positive (+) lead from the ammeter to terminal 1 on the wire harness side connector and the negative (–) lead to negative (–) terminal of the battery.
(c) Connect the positive (+) lead from the battery to terminal 2 on the wire harness side connector.
(d) As the window goes down, check that the current flow is approximately 7 A.
(e) Check that the current increases up to approximately 14.5 A or more when the window stops going down.

HINT:
The circuit breaker opens some 4 – 40 seconds after the window stops going down, so that check must be made before the circuit breaker operates.
If the operation is not as specified, replace the master switch.



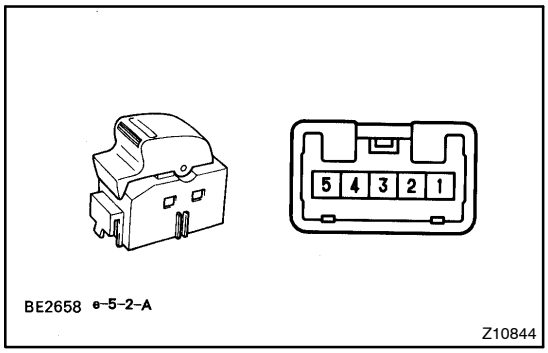
4. Using an ammeter with a current–measuring probe:
INSPECT ONE TOUCH POWER WINDOW SYSTEM/ CURRENT OF CIRCUIT

(a) Remove the master switch with connector connected.
(b) Attach a current–measuring probe to terminal 1 of the wire harness.
(c) Turn the motor switch ON and set the power window switch in the down position.
(d) As the window goes down, check that the current flow is approximately 7 A.



(e) Check that the current increases up to approximately 14.5 A or more when the window stops going down.

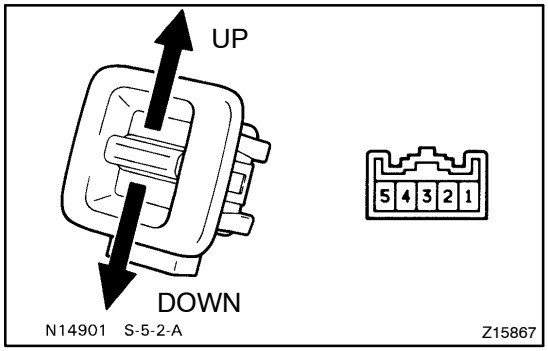
HINT:
The circuit breaker opens some 4 – 40 seconds after the window stops going down, so that check must be made before the circuit breaker operates.
If operation is not as specified, replace the master switch.



5. INSPECT FRONT PASSENGER'S POWER WINDOW SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
UP	1 – 2, 3 – 4	Continuity
OFF	1 – 2, 3 – 5	Continuity
DOWN	1 – 4, 3 – 5	Continuity

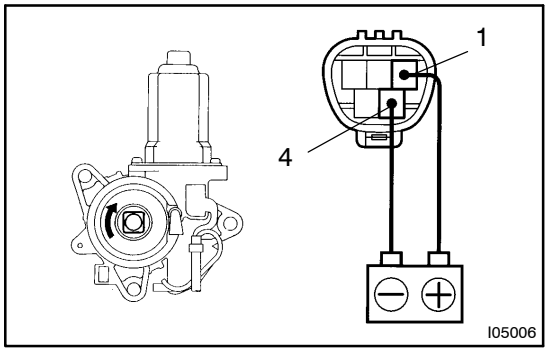
If continuity is not as specified, replace the switch.



6. INSPECT REAR POWER WINDOW SWITCH CONTINUITY

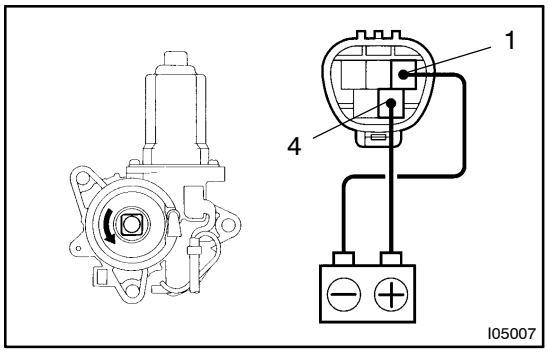
Switch position	Tester connection	Specified condition
UP	1 – 2, 3 – 4	Continuity
OFF	1 – 2, 4 – 5	Continuity
DOWN	2 – 3, 4 – 5	Continuity

If continuity is not as specified, replace the switch.



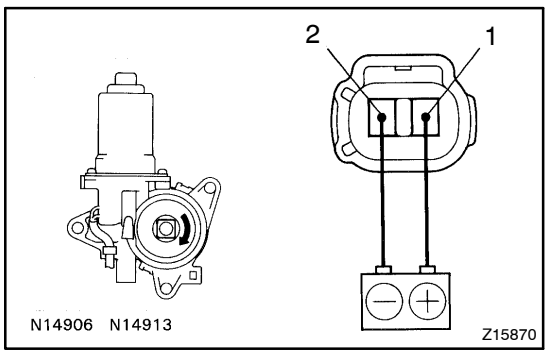
7. Driver's Door:
INSPECT POWER WINDOW MOTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 4, check that the motor turns clockwise.



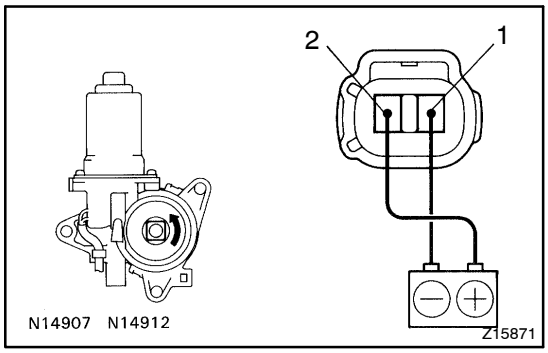
(b) Reverse the polarity, check that the motor turns counter-clockwise.

If operation is not as specified, replace the motor.



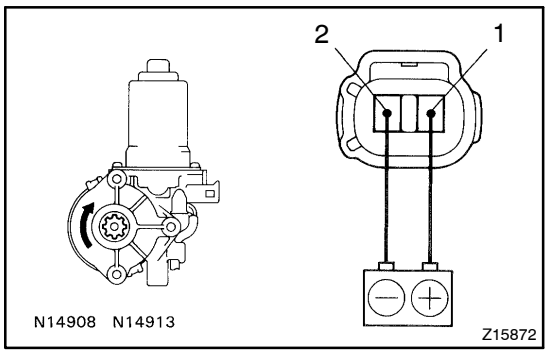
8. Front Passenger's Door:
INSPECT POWER WINDOW MOTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2, check that the motor turns clockwise.



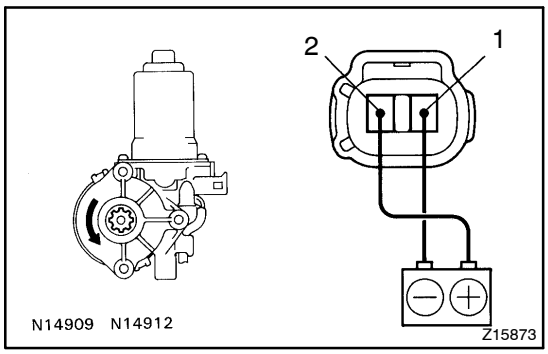
(b) Reverse the polarity, check that the motor turns counter-clockwise.

If operation is not as specified, replace the motor.



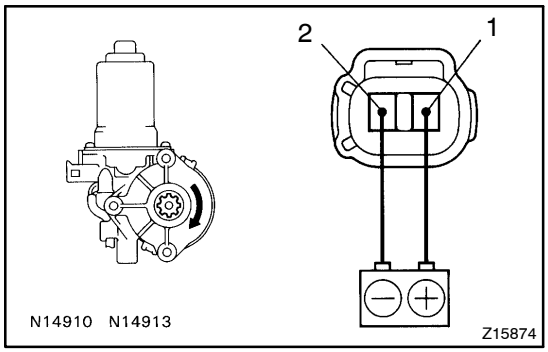
9. Rear LH:
INSPECT POWER WINDOW MOTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2, check that the motor turns clockwise.



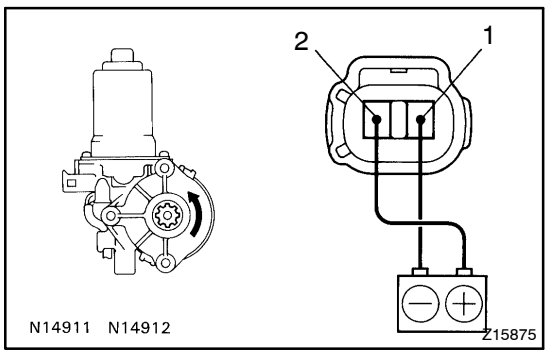
(b) Reverse the polarity, check that the motor turns counter-clockwise.

If operation is not as specified, replace the motor.



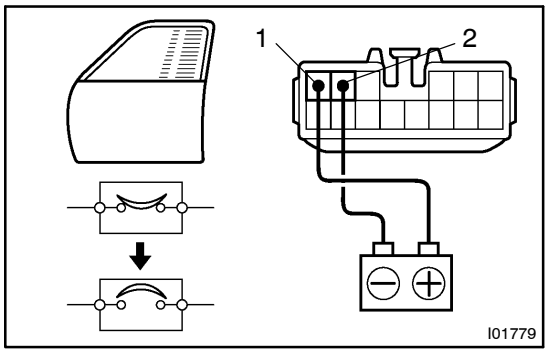
10. Rear RH:
INSPECT POWER WINDOW MOTOR OPERATION

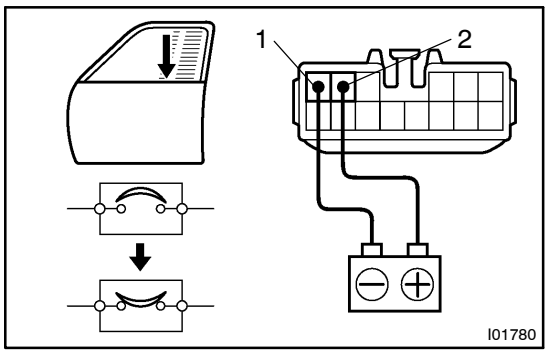
(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2, check that the motor turns clockwise.



(b) Reverse the polarity, check that the motor turns counter-clockwise.

If operation is not as specified, replace the motor.

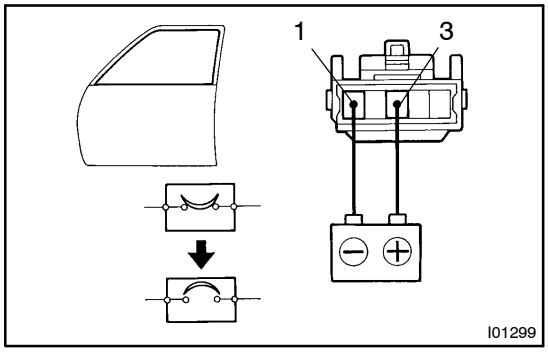




11. Driver's Door:
INSPECT POWER WINDOW MOTOR PTC OPERATION

(a) Disconnect the connector from the master switch.
(b) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2 on the wire harness side connector and raise the window to full closed position.
(c) Continue to apply voltage, check that there is a PTC operation noise within approximately 4 to 90 seconds.
(d) Reverse the polarity, check that the window begins to descend within approximately 60 seconds.

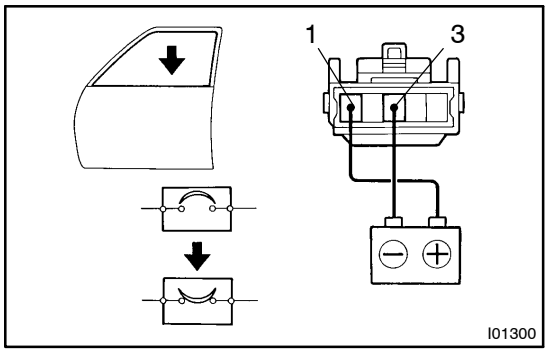
If operation is not as specified, replace the motor.



12. Front Passenger's Door:
INSPECT POWER WINDOW MOTOR PTC OPERATION

(a) Disconnect the connector from the power window switch.
(b) Connect the positive (+) lead from the battery to terminal 3 and the negative (–) lead to terminal on the wire harness side connector, and raise the window to full closed position.
(c) Continue to apply voltage, check that there is a PTC operation noise within approximately 4 to 90 seconds.
(d) Reverse the polarity, check that the window begins to descend within approximately 60 seconds.

If operation is not as specified, replace the motor.



13. Rear Door:
INSPECT POWER WINDOW MOTOR PTC OPERATION

See Driver's door and passenger door

14. INSPECT POWER MAIN RELAY(See page BE–56)

15. CHECKING OF THE JAM PROTECTION FUNCTION

NOTICE:

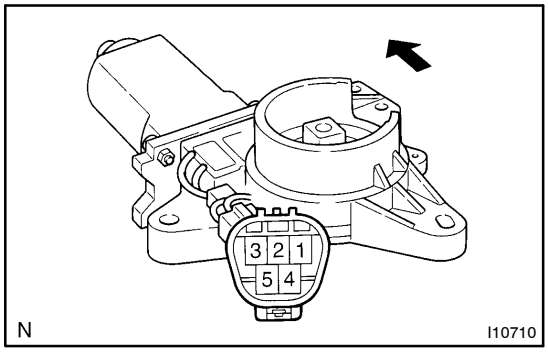
Never, ever be caught any part of your body when checking.

HINT:
In case of performing resetting of the limit switch, do checking after repeating up and down of the glass with automatic operation.

(a) Confirmation of AUTO up operation:
Confirm that the window will be fully close with AUTO up operation.

(b) Checking of the operation of the jam protection function:
(1) Move up the window with AUTO up operation and check that the window will go down when it touches the handle of the hammer stetted.
(2) Confirm that the window will then stop going down about 200 mm.

HINT:
In case of removing the glass, glass guide, regulator and etc. be sure to perform checking of the jam protection function.



16. HOW TO RESET DRIVER WINDOW MOTOR

HINT:
- When performing the operation described below, it is necessary to reset the power window (Initial setting of limit switch).
- When the window regulator is separated from the power window motor.
- When the window regulator is operated with the door glass not installed.

(a) Remove the power window motor.

(b) Connect the positive lead from the battery to terminal 5 of connector and negative lead to 4 terminal. After rotating the power window motor to UP side more than 6 turns (more than 4 seconds), assemble the motor to regulator.

HINT:
When applying the battery voltage to 1, 2 and 3 terminal of the driver power window motor connector, it might damage the pulse sensor. Never apply the battery voltage.

(c) Assemble the driver door.

17. CHECK POWER WINDOW FUNCTION

HINT:
After reset operation, because the jam protection function does not work, after repeating AUTO UP ← → AUTO DOWN, inspect the function.