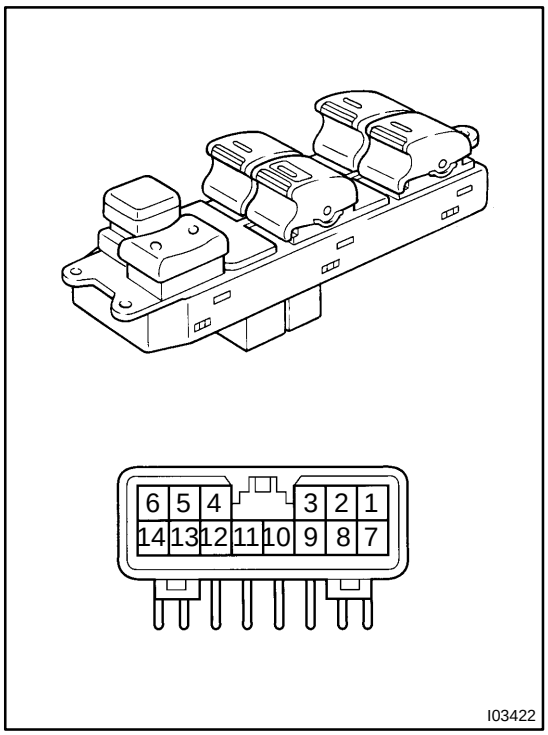
BE0CB–02

INSPECTION



1. INSPECT POWER WINDOW MASTER SWITCH CONTINUITY

Front Driver's Switch

Switch position	Tester connection	Specified condition
UP AUTO	4 – 10, 5 – 10	Continuity
UP	4 – 10	Continuity
OFF	–	No continuity
DOWN	10 – 12	Continuity
DOWN AUTO	10 – 12, 5 – 10	Continuity

Front Passenger's Switch

Switch position	Tester connection	Specified condition
UP AUTO	1 – 8, 1 – 9	Continuity
UP	1 – 8	Continuity
OFF	–	No continuity
DOWN	1 – 7	Continuity
DOWN AUTO	1 – 7, 1 – 9	Continuity

Rear Left Switch

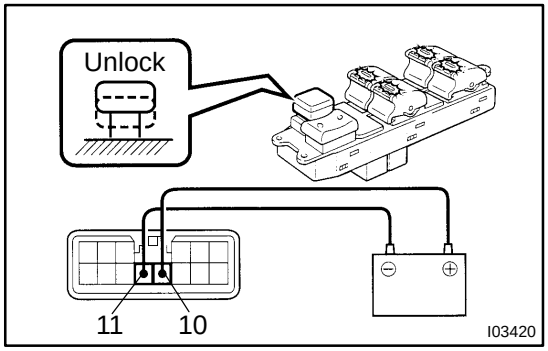
Switch position	Tester connection	Specified condition
UP AUTO	3 – 8, 7 – 9	Continuity
UP	3 – 8	Continuity
OFF	–	No continuity
DOWN	3 – 7	Continuity
DOWN AUTO	3 – 7, 3 – 9	Continuity

Rear Right Switch

Switch position	Tester connection	Specified condition
UP AUTO	2 – 8, 2 – 9	Continuity
UP	2 – 8	Continuity
OFF	–	No continuity
DOWN	2 – 7	Continuity
DOWN AUTO	2 – 7, 2 – 9	Continuity

If continuity is not as specified, replace the master switch.
If continuity is as specified, inspect the master switch circuit.

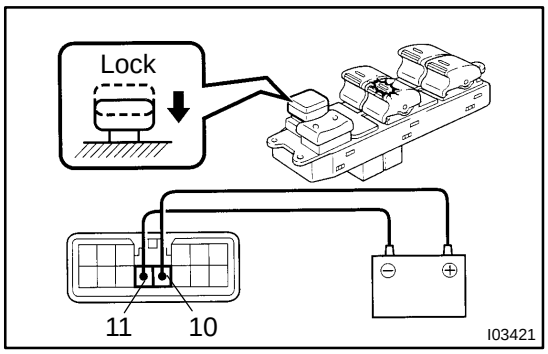
2. INSPECT POWER WINDOW MASTER SWITCH CIRCUIT (See page DI–737)



3. INSPECT POWER WINDOW MASTER SWITCH ILLUMINATION

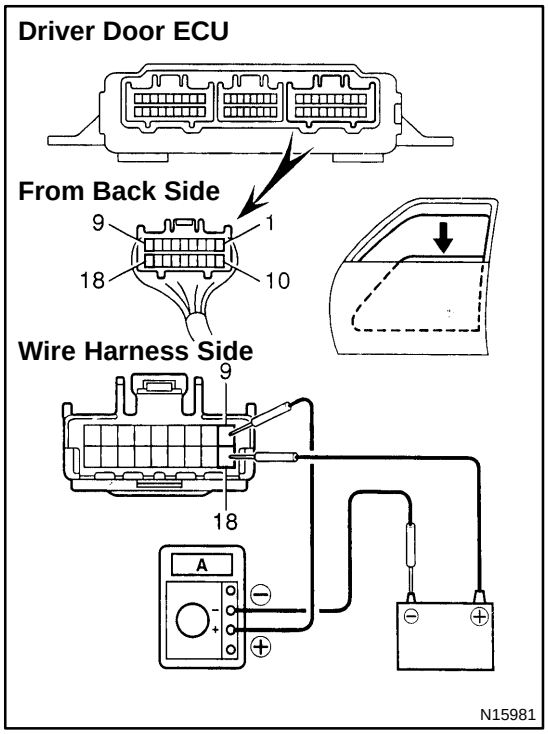
(a) Set the window lock switch to the unlock position.

(b) Connect the positive (+) lead from the battery to terminal 10 and the negative (–) lead to terminal 11, and check that all the illuminations light up.



(c) Set the window lock switch to the lock position and check that all the passenger's power window switch illuminations go out.

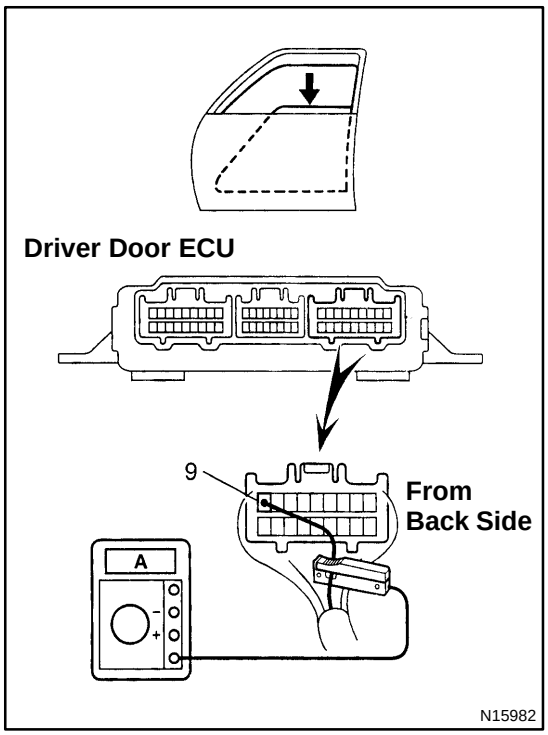
If operation is not as specified, replace the master switch.



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

(a) Disconnect the connector from the driver door ECU.
(b) Connect the positive (+) lead from the ammeter to terminal 9 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 18 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.

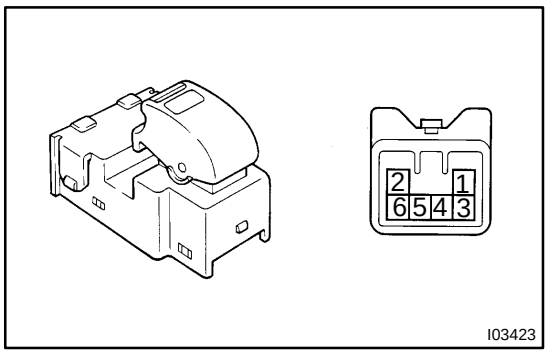
HINT:
The PTC opens some 4 – 90 seconds after the window stops going down, so check must be made before the PTC operates.
If the operation is as specified, replace the driver door ECU.



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

(a) Remove the driver door ECU with connector connected.
(b) Attach a current–measuring probe to terminal 9 of the wire harness.
(c) Turn the ignition 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 PTC opens some 4 – 90 seconds after the window stops going down, so check must be made before the PTC operates.
If operation is as specified, replace the driver door ECU.



6. Front Passenger's Door:
INSPECT POWER WINDOW SWITCH CONTINUITY

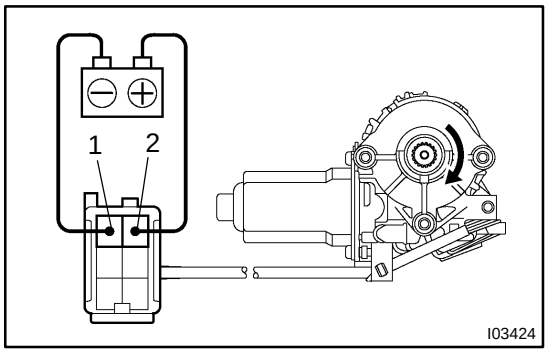
Switch position	Tester connection	Specified condition
UP AUTO	1 – 6, 2 – 6	Continuity
UP	2 – 6	Continuity
OFF	–	No continuity
DOWN	5 – 6	Continuity
DOWN AUTO	1 – 6, 5 – 6	Continuity

If continuity is not as specified, replace the switch.
If continuity is as specified, inspect the switch circuit.

7. Front passenger's door:
INSPECT POWER WINDOW SWITCH CIRCUIT
(See page DI–779)

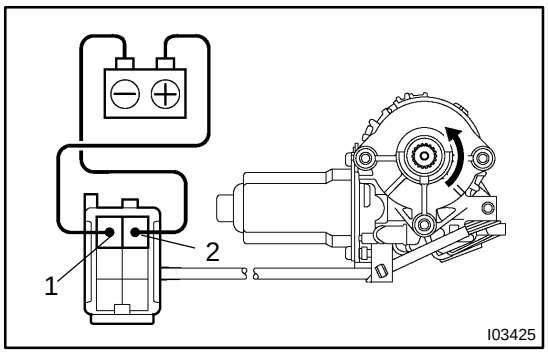
8. Rear left door:
INSPECT POWER WINDOW SWITCH CIRCUIT
(See page DI–807)

9. Rear left door:
INSPECT POWER WINDOW SWITCH CIRCUIT
(See page DI–830)



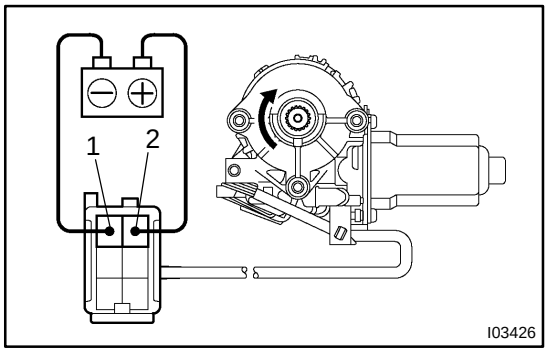
10. Driver's door:
INSPECT POWER WINDOW MOTOR OPERATION

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



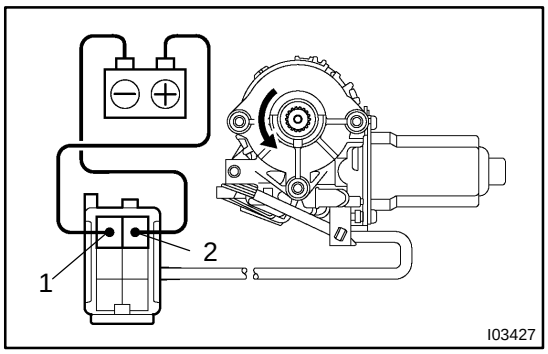
(b) Reverse the polarity and check that the motor turns counterclockwise.

If operation is not as specified, replace the motor.
HINT:
Since the jam protection may not work properly be sure to conduct procedures described in "How to Reset Power Window Motor (Reset switch and pulse switch)" after this inspection.



11. Front passenger's:
INSPECT POWER WINDOW MOTOR OPERATION

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

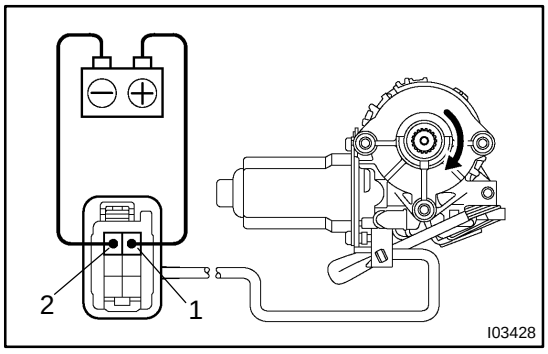


(b) Reverse the polarity and check that the motor turns counterclockwise.

If operation is not as specified, replace the motor.

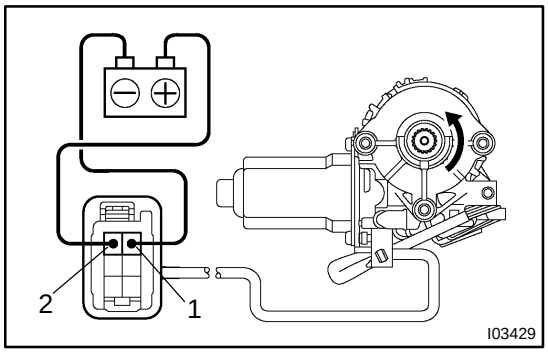
HINT:

Since the jam protection may not work properly be sure to conduct procedures described in ”How to Reset Power Window Motor (Reset switch and pulse switch)” after this inspection.



12. Rear left side:
INSPECT POWER WINDOW MOTOR OPERATION

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

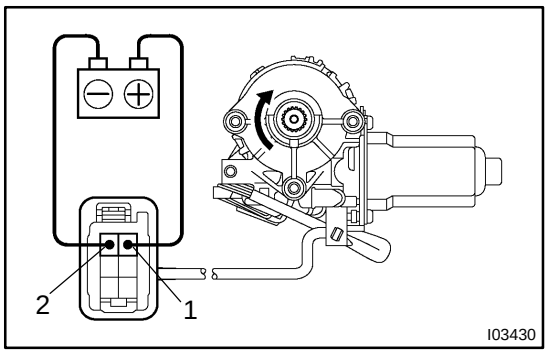


(b) Reverse the polarity and check that the motor turns counterclockwise.

If operation is not as specified, replace the motor.

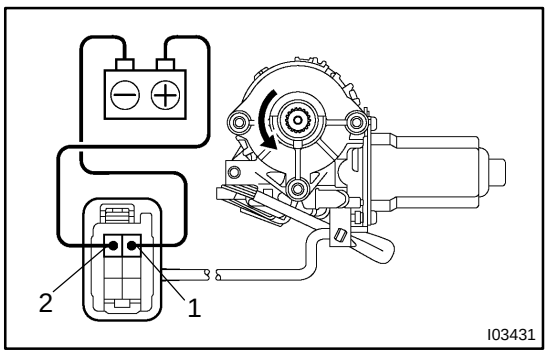
HINT:

Since the jam protection may not work properly be sure to conduct procedures described in ”How to Reset Power Window Motor (Reset switch and pulse switch)” after this inspection.



13. Rear right side:
INSPECT POWER WINDOW MOTOR OPERATION

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

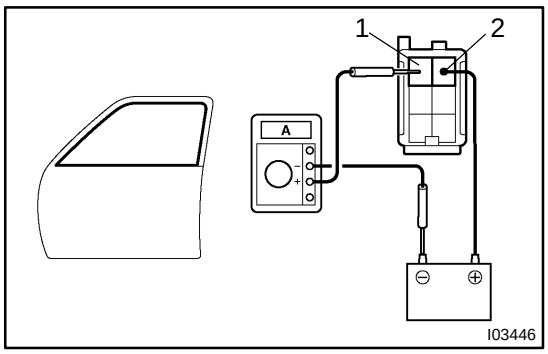


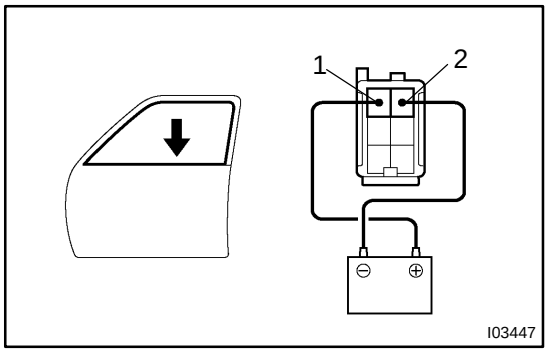
(b) Reverse the polarity and check that the motor turns counterclockwise.

If operation is not as specified, replace the motor.

HINT:

Since the jam protection may not work properly be sure to conduct procedures described in ”How to Reset Power Window Motor (Reset switch and pulse switch)” after this inspection.

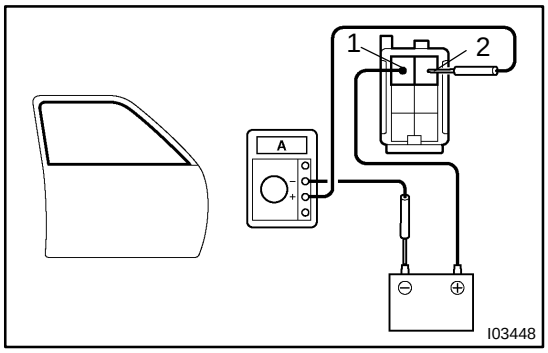


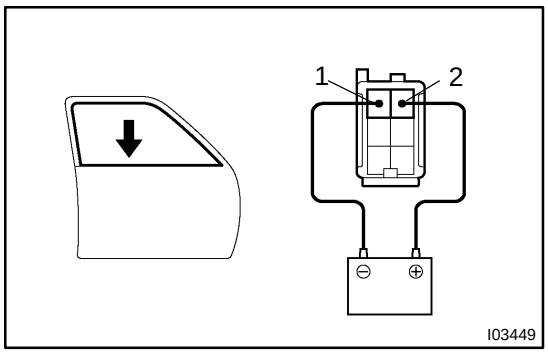


14. Driver's door:
INSPECT POWER WINDOW MOTOR PTC THERMISTOR OPERATION

(a) Disconnect the connector from the driver door ECU.
(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, and raise the window to the fully position.
(d) Continue to apply voltage, and check that the current changes to less than 1 A with 4 to 90 seconds.
(e) Disconnect the leads from terminals.
(f) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 1 and negative (–) lead to terminal 2, and check that the window begins to descend.

If operation is not as specified, replace the motor.

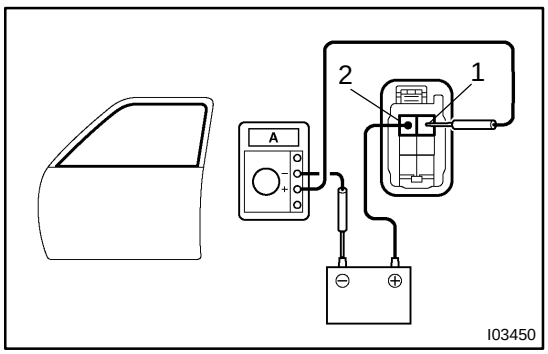




15. Front Passenger's door:
INSPECT POWER WINDOW MOTOR PTC THERMISTOR OPERATION

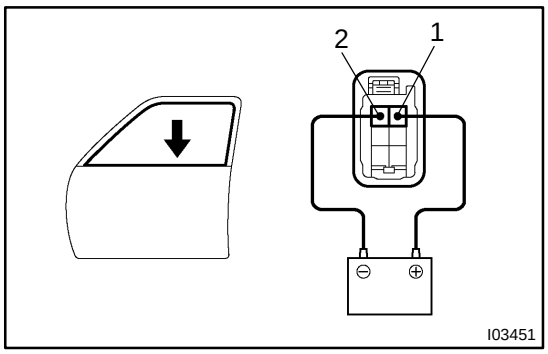
(a) Disconnect the connector from the front passenger door ECU .
(b) Connect the positive (+) lead from the ammeter to terminal 2 on the wire harness side connector and the negative (–) lead to negative terminal of the battery.
(c) Connect the positive (+) lead from the battery to terminal 1 on the wire harness side connector, and raise the window to the fully position.
(d) Continue to apply voltage and check that the current changes to less than 1 A within 4 to 90 seconds.
(e) Disconnect the leads from the terminals.
(f) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 1, and check that the window begins to descend.

If operation is not as specified, replace the motor.



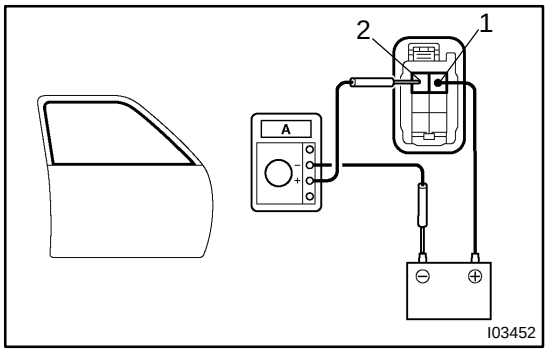
16. Rear LH door:
INSPECT POWER WINDOW MOTOR PTC THERMISTOR OPERATION

(a) Disconnect the connector from the Rear LH door ECU.
(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, and raise the window to the fully position.



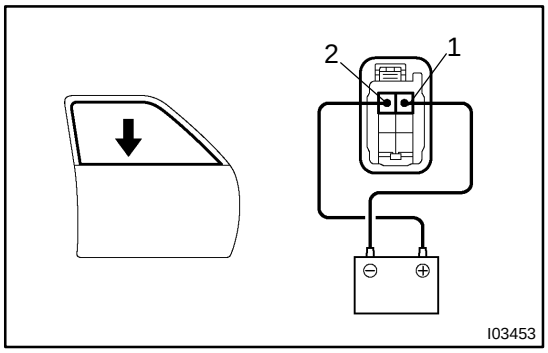
(d) Continue to apply voltage and check that the current changes to less than 1 A within 4 to 90 seconds.
(e) Disconnect the leads from the terminals.
(f) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2, and check that the window begins to descend.

If operation is not as specified, replace the motor.



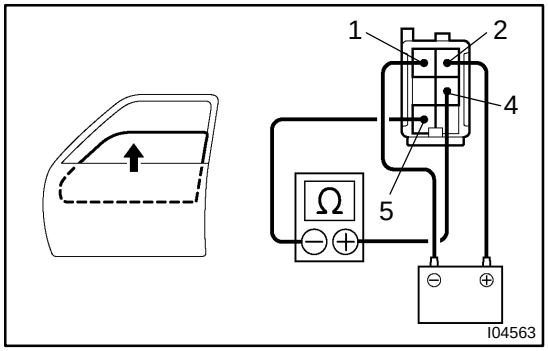
17. Rear RH door:
INSPECT POWER WINDOW MOTOR PTC THERMISTOR OPERATION

(a) Disconnect the connector from the Rear RH door ECU.
(b) Connect the positive (+) lead from the ammeter to terminal 2 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 1 on the wire harness side connector, and raise the window to the fully position.



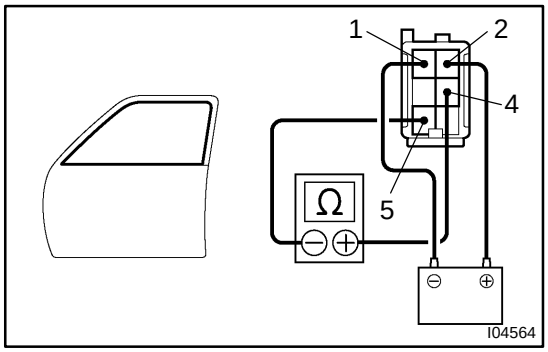
(d) Continue to apply voltage and check that the current changes to less than 1 A within 4 to 90 seconds.
(e) Disconnect the leads from the terminals.
(f) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 1, and check that the window begins to descend.

If operation is not as specified, replace the motor.



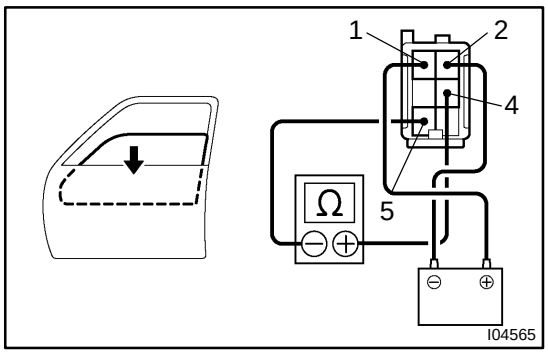
18. Driver's Door (Window Up):
INSPECT JAM PROTECTION LIMIT SWITCH

(a) Connect the positive (+) lead from the ohmmeter to terminal 4 and the negative (–) lead to terminal 5.
(b) Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 1.
(c) Check that the continuity exists when the window goes up.



(d) Check that the no continuity exists when the window is in the fully closed position.

If operation is not as specified, replace the motor.

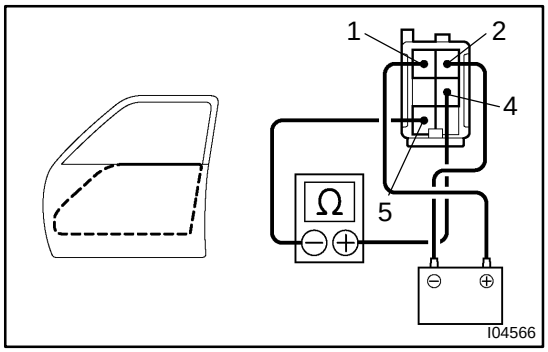


19. Driver's Door (Window Down): INSPECT JAM PROTECTION LIMIT SWITCH

(a) Connect the positive (+) lead from the ohmmeter to terminal 4 and the negative (–) lead to terminal 5.

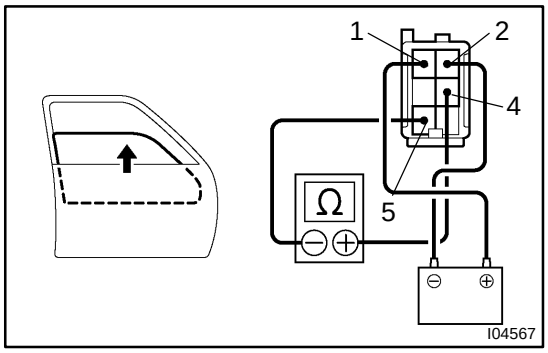
(b) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2.

(c) Check that the continuity exists when the window goes down.



(d) Check that the no continuity exists when the window is in the fully opened position.

If operation is not as specified, replace the motor.

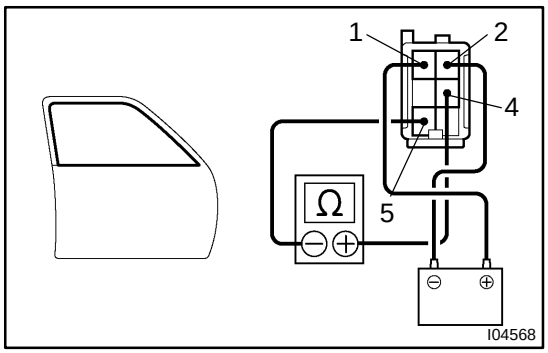


20. Front Passenger's Door (Window Up): INSPECT JAM PROTECTION LIMIT SWITCH

(a) Connect the positive (+) lead from the ohmmeter to terminal 4 and the negative (–) lead to terminal 5.

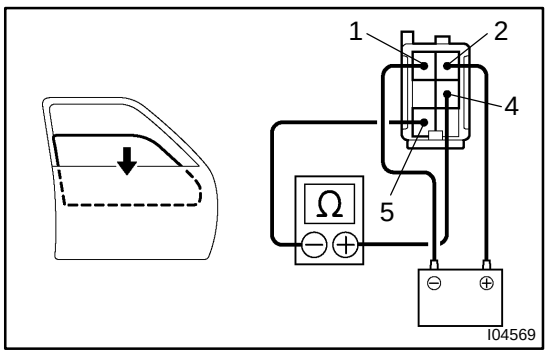
(b) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2.

(c) Check that the continuity exists when the window goes up.



(d) Check that the no continuity exists when the window is in the fully closed position.

If operation is not as specified, replace the motor.

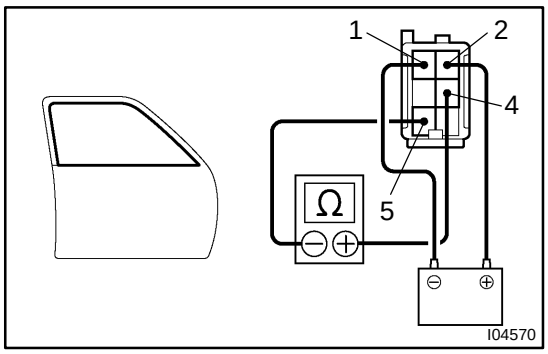


21. Front Passenger's Door (Window Down): INSPECT JAM PROTECTION LIMIT SWITCH

(a) Connect the positive (+) lead from the ohmmeter to terminal 4 and the negative (–) lead to terminal 5.

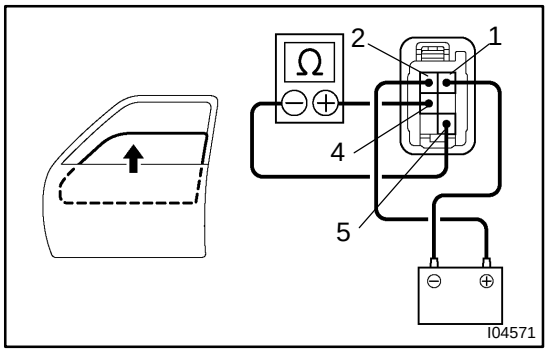
(b) Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 1.

(c) Check that the continuity exists when the window goes down.



(d) Check that the no continuity exists when the window is in the fully opened position.

If operation is not as specified, replace the motor.

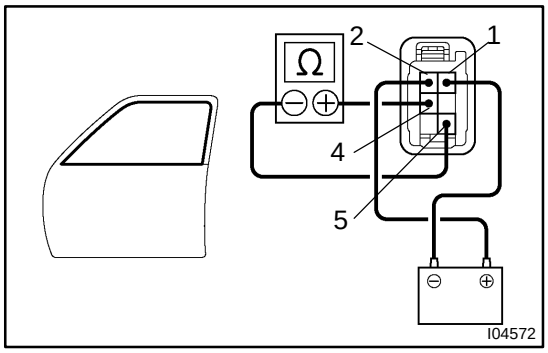


22. Rear LH Door (Window Up):
INSPECT JAM PROTECTION LIMIT SWITCH

(a) Connect the positive (+) lead from the ohmmeter to terminal 4 and the negative (–) lead to terminal 5.

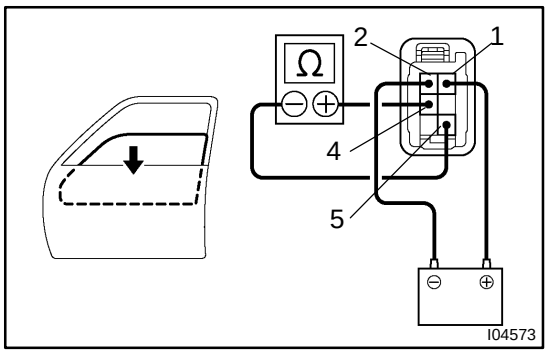
(b) Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 1.

(c) Check that the continuity exists when the window goes up.



(d) Check that the no continuity exists when the window is in the fully closed position.

If operation is not as specified, replace the motor.

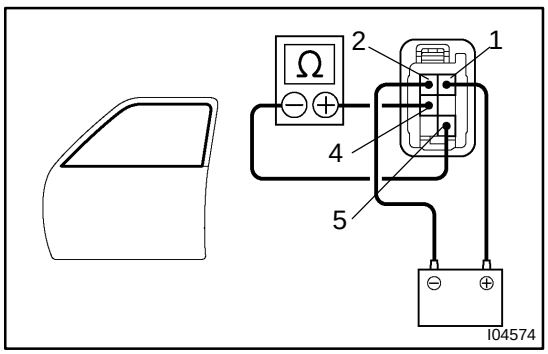


23. Rear LH Door (Window Down):
INSPECT JAM PROTECTION LIMIT SWITCH

(a) Connect the positive (+) lead from the ohmmeter to terminal 4 and the negative (–) lead to terminal 5.

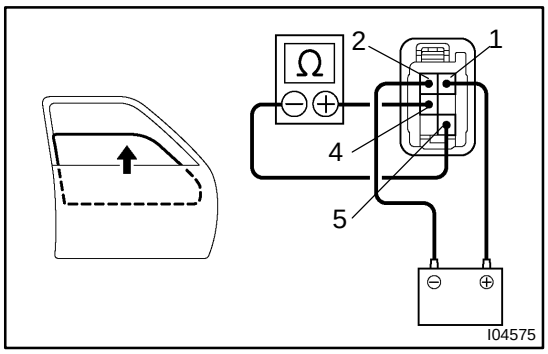
(b) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2.

(c) Check that the continuity exists when the window goes down.



(d) Check that the no continuity exists when the window is in the fully opened position.

If operation is not as specified, replace the motor.

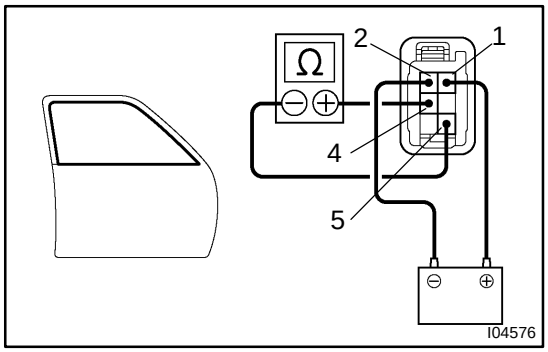


24. Rear RH Door (Window Up):
INSPECT JAM PROTECTION LIMIT SWITCH

(a) Connect the positive (+) lead from the ohmmeter to terminal 4 and the negative (–) lead to terminal 5.

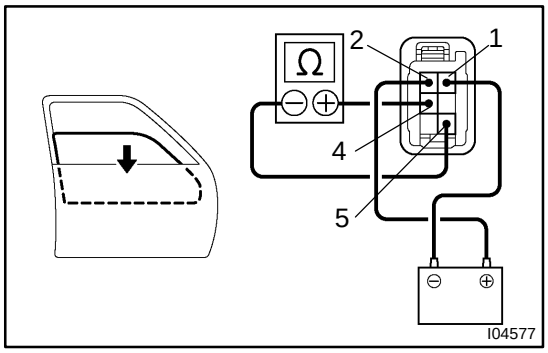
(b) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2.

(c) Check that the continuity exists when the window goes up.



(d) Check that the no continuity exists when the window is in the fully closed position.

If operation is not as specified, replace the motor.

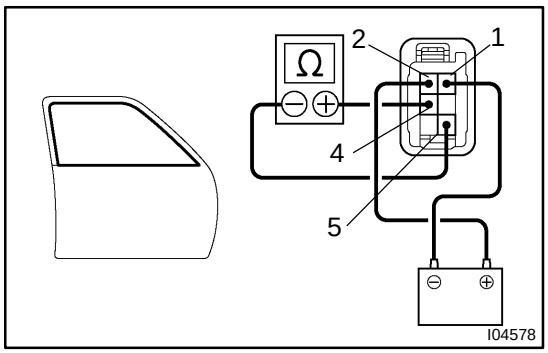


25. Rear RH Door (Window Down):
INSPECT JAM PROTECTION LIMIT SWITCH

(a) Connect the positive (+) lead from the ohmmeter to terminal 4 and the negative (–) lead to terminal 5.

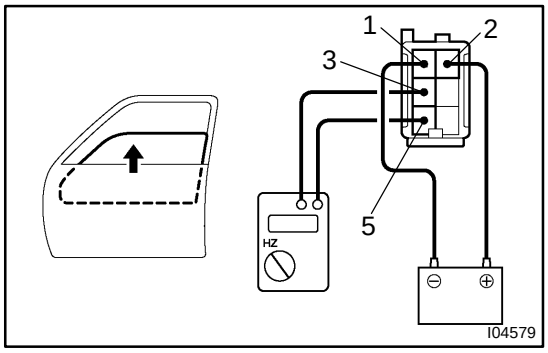
(b) Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 1.

(c) Check that the continuity exists when the window goes down.



(d) Check that the no continuity exists when the window is in the fully opened position.

If operation is not as specified, replace the motor.

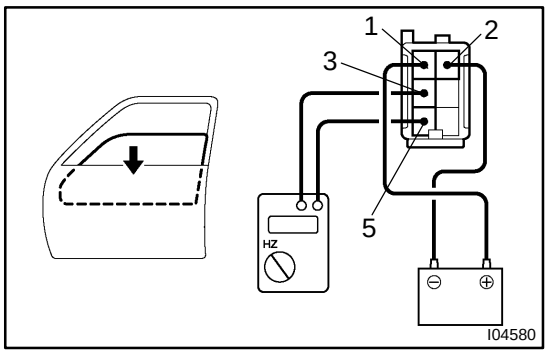


26. Driver's Door:
INSPECT JAM PROTECTION PULSE SWITCH

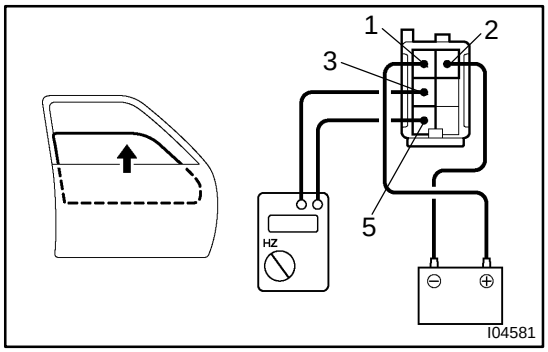
(a) Connect the positive (+) lead from the TOYOTA electrical tester to terminal 3 and the negative (–) lead to terminal 5.

(b) Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 1.

(c) Check that pulse is generated during the motor running.

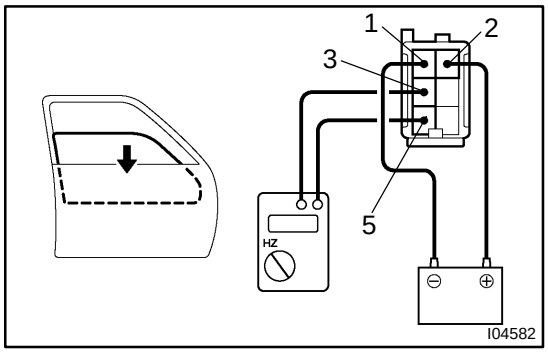


(d) Reverse the polarity and check that pulse is generated.
If operation is not as specified, replace the motor.

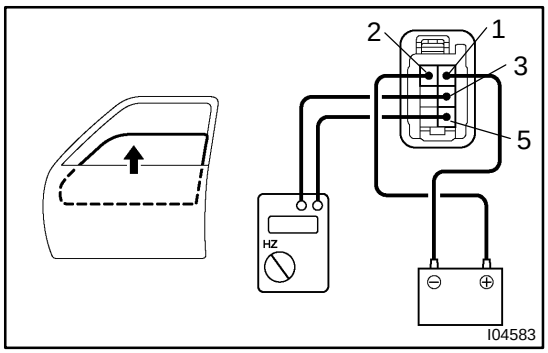


27. Front Passenger's Door:
INSPECT JAM PROTECTION PULSE SWITCH

(a) Connect the positive (+) lead from the TOYOTA electrical tester to terminal 3 and the negative (–) lead to terminal 5.
(b) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2.
(c) Check that pulse is generated during the motor running.

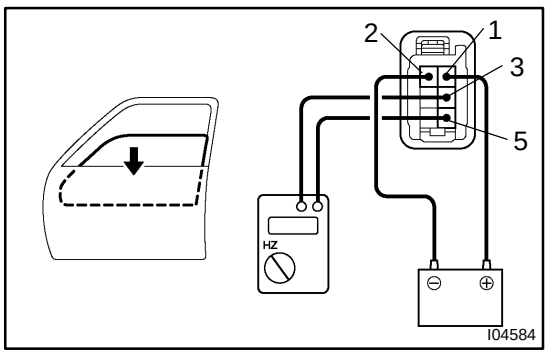


(d) Reverse the polarity and check that pulse is generated.
If operation is not as specified, replace the motor.

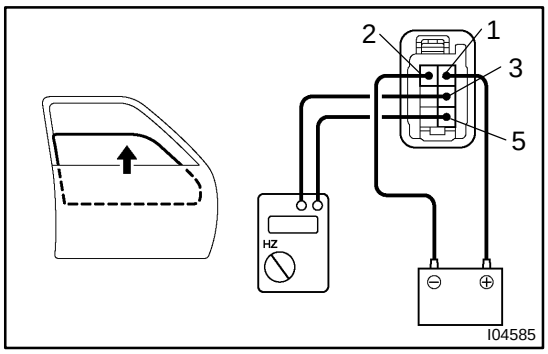


28. Rear LH Door:
INSPECT JAM PROTECTION PULSE SWITCH

(a) Connect the positive (+) lead from the TOYOTA electrical tester to terminal 3 and the negative (–) lead to terminal 5.
(b) Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 1.
(c) Check that pulse is generated during the motor running.



(d) Reverse the polarity and check that pulse is generated.
If operation is not as specified, replace the motor.

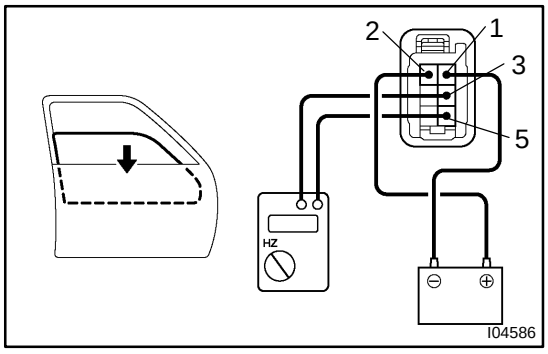


29. Rear RH Door:
INSPECT JAM PROTECTION PULSE SWITCH

(a) Connect the positive (+) lead from the TOYOTA electrical tester to terminal 3 and the negative (–) lead to terminal 5.

(b) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2.

(c) Check that pulse is generated during the motor running.



(d) Reverse the polarity and check that pulse is generated.

If operation is not as specified, replace the motor.

30. INSPECT 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.

If the jamprotection is not function properly, adjust power window motor reset switch and pulse switch.