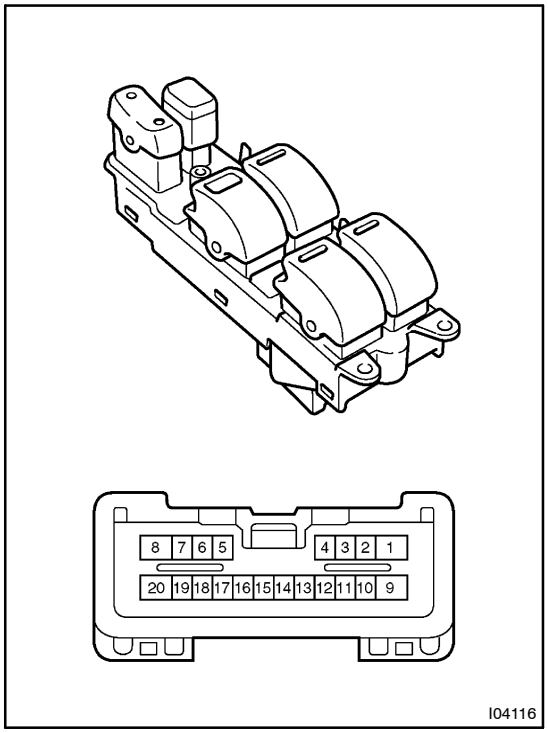
BE0TG–03

INSPECTION

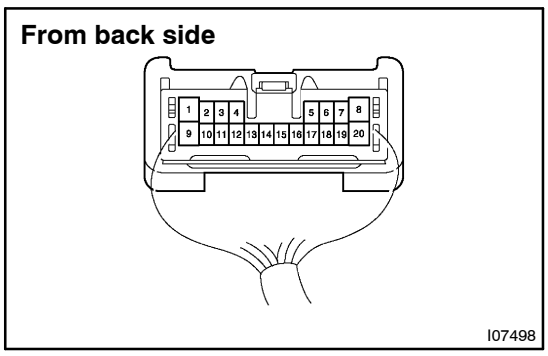


1. Connector disconnected:
INSPECT POWER WINDOW MASTER SWITCH CIRCUIT

Disconnect the connectors from the switch and inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
9 – Ground	Constant	Continuity
1 – Ground	Constant	Battery positive voltage
3 – Ground	Ignition switch LOCK	No voltage
3 – Ground	Ignition switch ACC or ON	Battery positive voltage

If the circuit is not as specified, inspect the circuits connected to other parts.



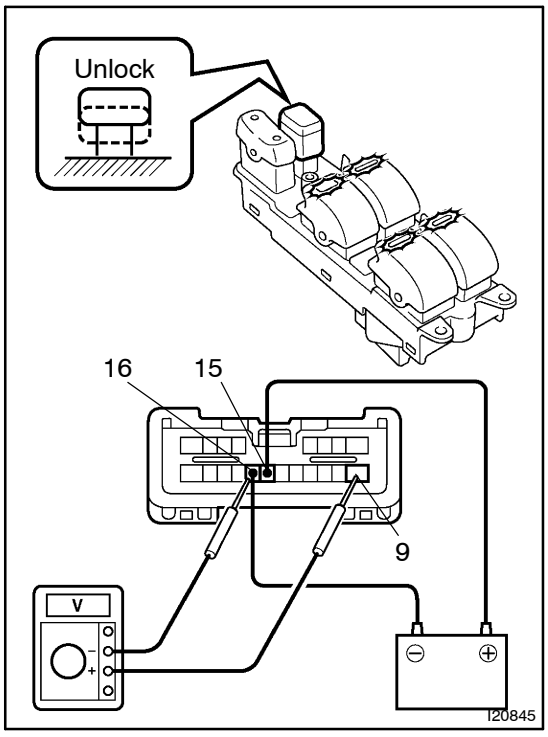
2. Connector connected:
INSPECT POWER WINDOW MASTER SWITCH CIRCUIT

Connect the wire harness side connector to the power window switch and inspect the connector from the back side, as shown.

Tester connection	Condition	Specified condition
6 – Ground	Ignition switch ON and window lock switch OFF	Battery positive voltage
6 – Ground	Ignition switch ON and window lock switch ON	No voltage
8 – Ground	Ignition switch ON and master switch OFF	No voltage
8 – Ground	Ignition switch ON and master switch DOWN	9 V or more
8 – Ground	Ignition switch ON and driver door glass is closed	No voltage
8 – Ground	Ignition switch ON and master switch AUTO DOWN	9 V or more

8 – Ground	Ignition switch ON and driver door glass is opened	No voltage
10 – Ground	Constant	Continuity
12 – Ground	Power window operating	Approx. 5.5 V
13 – Ground	Master switch DOWN (driver door glass is opened)	Below 1 V
13 – Ground	Master switch UP (driver door glass is closed) and switch OFF	10 – 14 V → 0 V
18 – Ground	Ignition switch ON	2.5 V
20 – Ground	Ignition switch ON and master switch OFF	No voltage
20 – Ground	Ignition switch ON and master switch DOWN	9 V or more
20 – Ground	Ignition switch ON and driver door glass is closed	No voltage
20 – Ground	Ignition switch ON and master switch AUTO UP	9 V or more
20 – Ground	Ignition switch ON and driver door glass is opened	No voltage

If circuit is not as specified, inspect the wire harness.

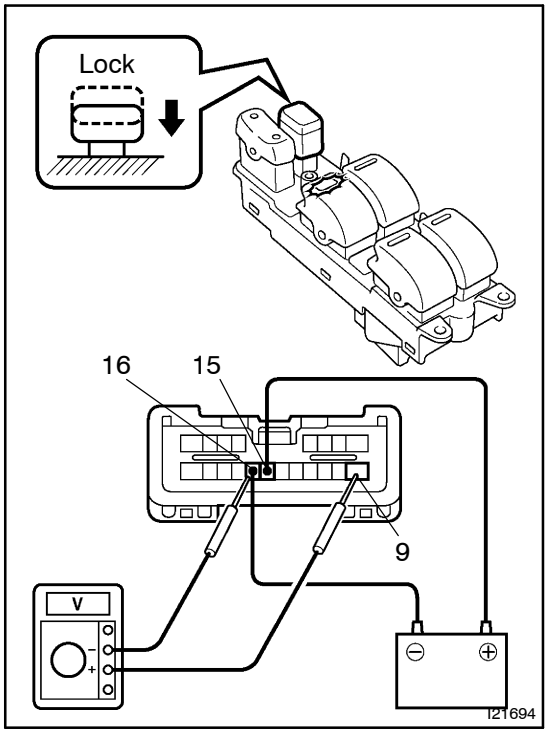


3. INSPECT POWER WINDOW MASTER SWITCH ILLUMINATION

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

(b) Connect the positive (+) lead from the battery to terminal 15 and the negative (–) lead to terminal 16, and check that all the illuminations light up.

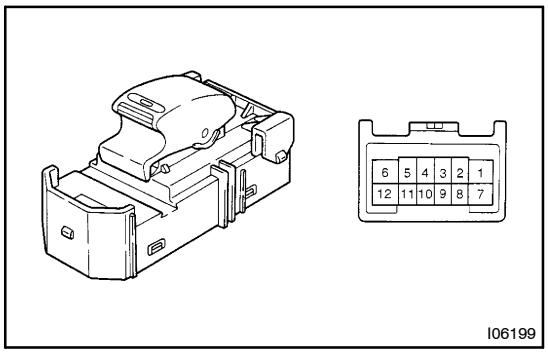
(c) Connect the positive (+) lead from the voltmeter to terminal 9 and negative (–) lead to terminal 16, and check that the voltage meter needle indicates battery positive voltage.



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

(e) Then, check that the voltage meter needle indicates no voltage.

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

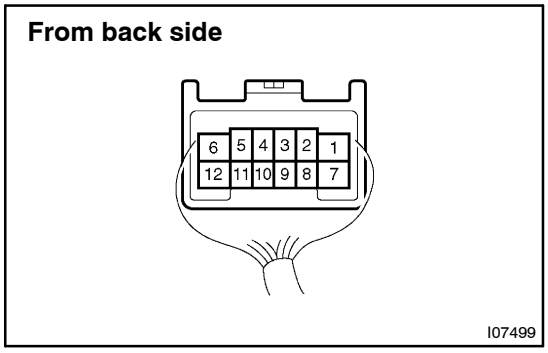


4. Connector disconnected:
INSPECT POWER WINDOW SWITCH CIRCUIT

Disconnect the connectors from the switch and inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
9 – Ground	Constant (Front LH side only)	Continuity
10 – Ground	Constant (Rear LH side only)	Continuity
12 – Ground	Constant	Continuity
7 – Ground	Constant	Battery positive voltage
8 – Ground	Ignition switch LOCK	No voltage
8 – Ground	Ignition switch ACC or ON	Battery positive voltage
11 – Ground	Ignition switch ON and power window master window lock switch OFF	Battery positive voltage
11 – Ground	Ignition switch ON and power window master window lock switch ON	No voltage

If the circuit is not as specified, inspect the circuits connected to other parts.

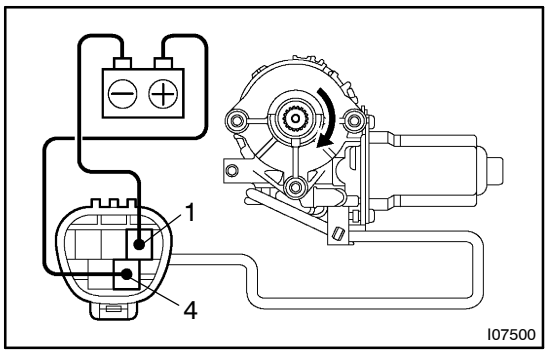


5. Connector connected:
INSPECT POWER WINDOW SWITCH CIRCUIT

Connect the wire harness side connector to the power window switch and inspect the connector from the back side, as shown.

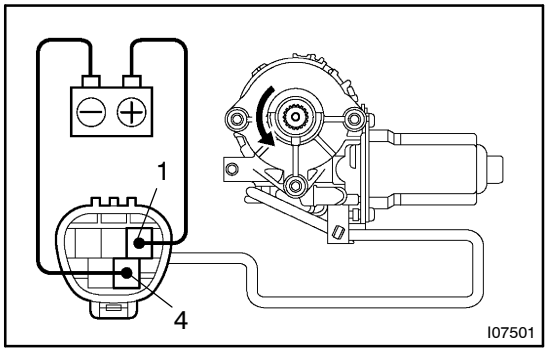
Tester connection	Condition	Specified condition
2 – Ground	Constant	Continuity
8 – Ground	Ignition switch ON	2.5 V
1 – Ground	Ignition switch ON and master switch OFF	No voltage
1 – Ground	Ignition switch ON and master switch DOWN	9 V or more
1 – Ground	Ignition switch ON and driver door glass is closed	No voltage
1 – Ground	Ignition switch ON and master switch AUTO UP	9 V or more
1 – Ground	Ignition switch ON and driver door glass is opened	No voltage
3 – Ground	Master switch DOWN (driver door glass is opened)	Below 1 V
3 – Ground	Master switch UP (driver door glass is closed) and switch OFF	10 – 14 V → 0 V
4 – Ground	Power window operating	Approx. 5.5 V
6 – Ground	Ignition switch ON and master switch OFF	No voltage
6 – Ground	Ignition switch ON and master switch DOWN	9 V or more
6 – Ground	Ignition switch ON and driver door glass is closed	No voltage
6 – Ground	Ignition switch ON and master switch AUTO DOWN	9 V or more
6 – Ground	Ignition switch ON and driver door glass is opened	No voltage

If circuit is not as specified, inspect the wire harness.



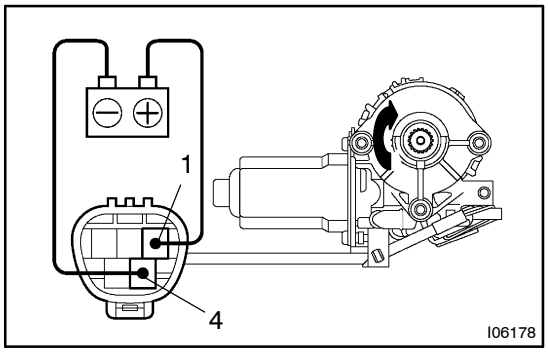
6. Driver's door and rear right door:
INSPECT POWER WINDOW MOTOR OPERATION

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



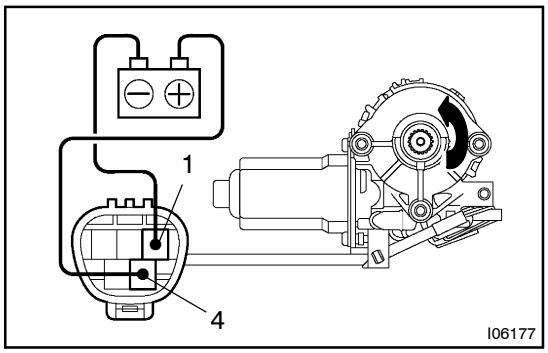
(b) Reverse the polarity, check that the motor turns clockwise.

If operation is not as specified, replace the motor.



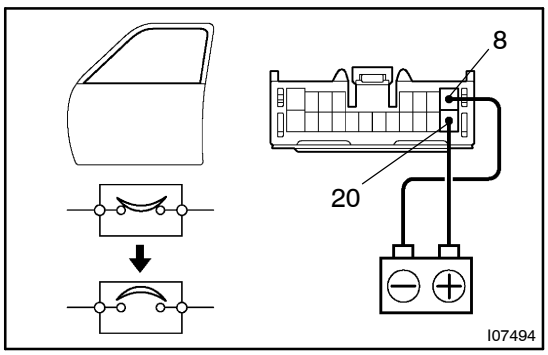
7. Passenger's door and rear left door:
INSPECT POWER WINDOW MOTOR OPERATION

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



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

If operation is not as specified, replace the motor.



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

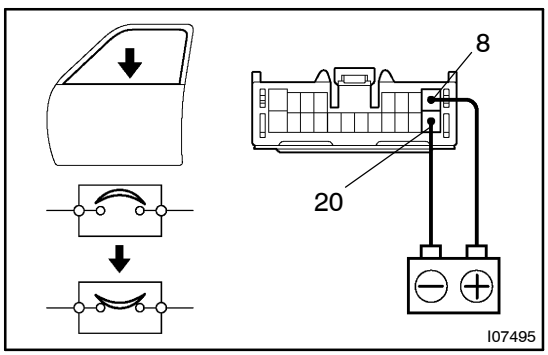
(a) Disconnect the connector from the master switch.

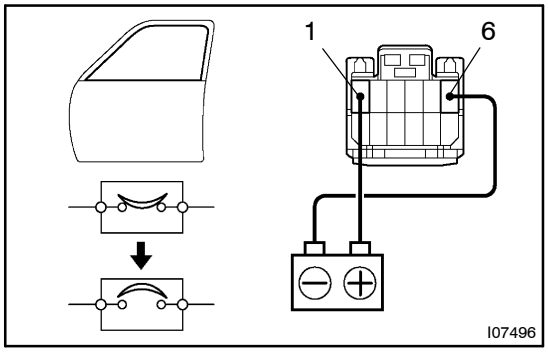
(b) Connect the positive (+) lead from the battery to terminal 20 and the negative (–) lead to terminal 8 on the wire harness side connector and raise the window to full closed position.

(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.

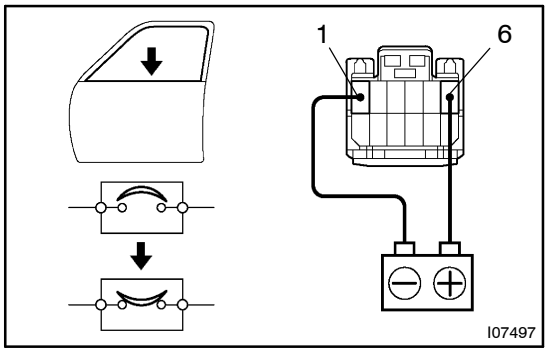


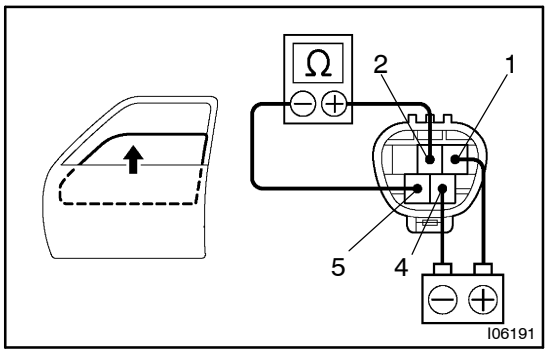


9. Front Passenger's Door:
INSPECT POWER WINDOW MOTOR PTC OPERATION

(a) Disconnect the connector from the power window switch.
(b) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 6 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.

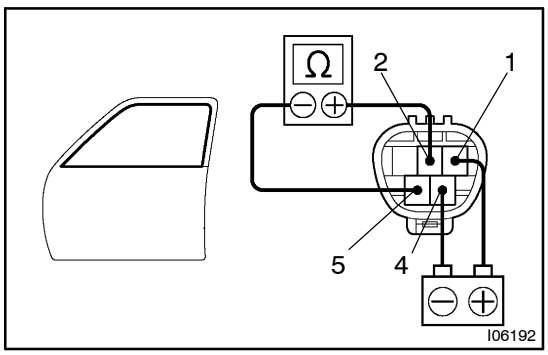
If operation is not as specified, replace the motor.





10. Window Up:
INSPECT JAM PROTECTION LIMIT SWITCH OPERATION

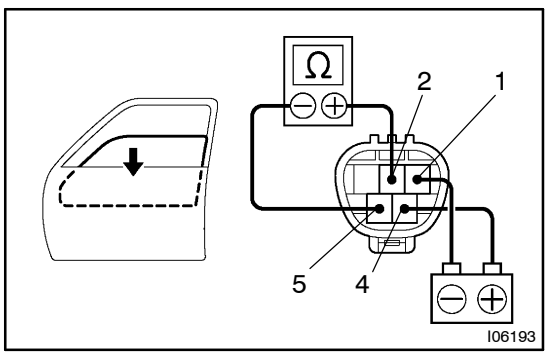
(a) Connect the positive (+) lead from the ohmmeter to terminal 2 and the negative (–) lead to terminal 5.
(b) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 4.
(c) Check that the continuity exists when the window goes up.



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

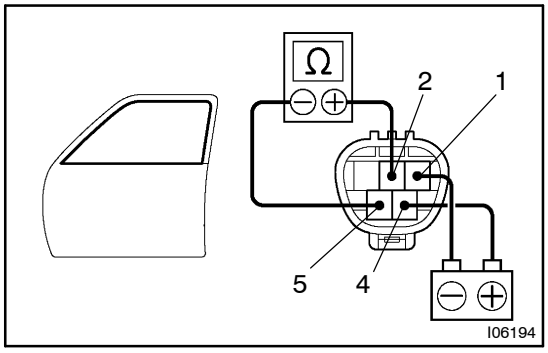
If operation is not as specified, replace the motor.

NOTICE:
If connecting the wire harness wrongly, the sensor might be damaged so caution is necessary.



11. Window Down:
INSPECT JAM PROTECTION LIMIT SWITCH OPERATION

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

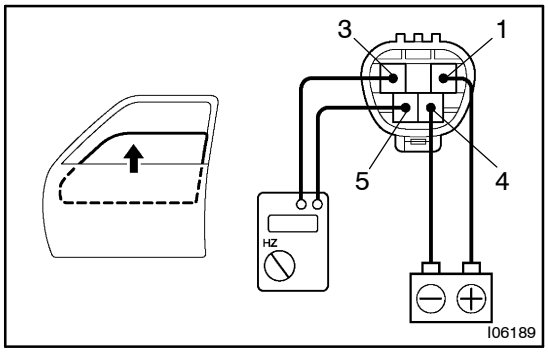


(d) Check that the no continuity exists when the window is in the fully opened position.

If operation is not as specified, replace the motor.

NOTICE:

If connecting the wire harness wrongly, the sensor might be damaged so caution is necessary.

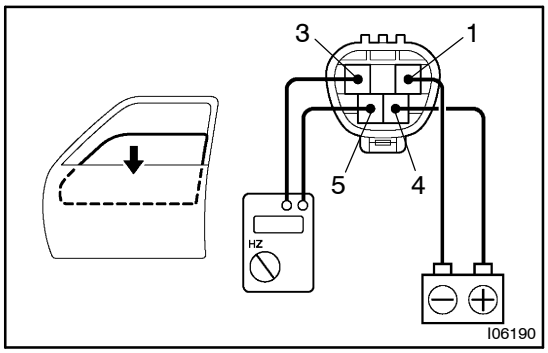


12. INSPECT JAM PROTECTION PULSE SWITCH OPERATION

(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 4.

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

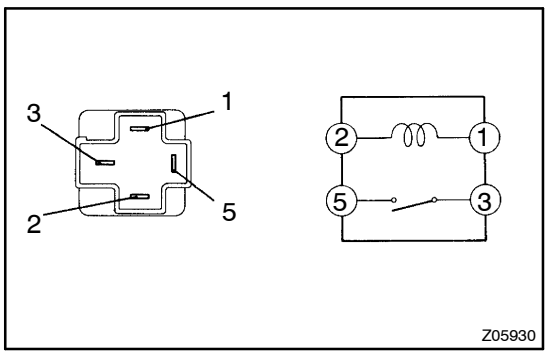


(d) Reverse the polarity and check that pulse is generated.

If operation is not as specified, replace the motor.

NOTICE:

If connecting the wire harness wrongly, the sensor might be damaged so caution is necessary.



13. INSPECT POWER MAIN RELAY CONTINUITY

Condition	Tester connection	Specified condition
Constant	1 – 2	Continuity
Apply B+ between terminals 1 and 2.	3 – 5	Continuity

If continuity is not as specified, replace the relay.

14. INSPECT POWER MAIN RELAY CIRCUIT (See Pub. No. RM616E on page BE–14)

15. 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 jam protection is not function properly, adjust power window motor reset switch and pulse switch.