

# POWER WINDOWS

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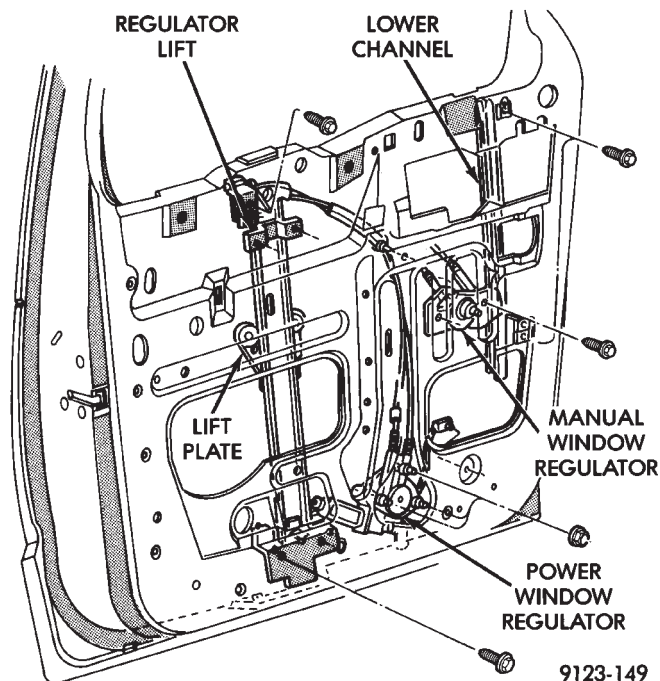
### GENERAL INFORMATION

Window lift motors are of the permanent magnet type. A positive and negative battery connection to either of the two motor terminals will cause the motor to rotate in one direction. Reversing current through these same two connections will cause the motor to rotate in the opposite direction.

Each individual motor is grounded through the master switch by a black wire attached to the left cowl panel.

It is necessary that the window be free to slide up and down in the glass channels or tubes and tracks. If the window is not free to move up and down, the window lift motor will not be able to move the glass.

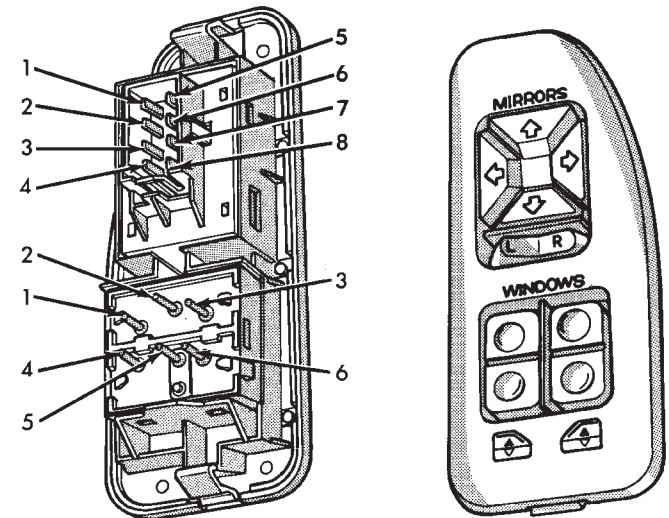
To determine if the glass is free, disconnect the electric window regulator lift plate from the glass (Fig. 1). Then slide the window up and down by hand.



**Fig. 1 Power Window Regulator**

### SWITCH VOLTAGE TEST

The following wiring test sequence determines whether or not voltage is continuous through the body harness to switch (Fig. 2).



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**Fig. 2 Mirror/Window Switch**

(1) After removing switch from trim panel for testing purposes, carefully separate multiple terminal block on wiring harness from switch body.

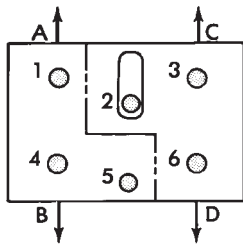
(2) Connect one lead of test light to black wire terminal and touch other test light lead to tan wire terminal.

(3) If the test light comes on, the wiring circuit between the battery and switch is functional.

(3) If light does not come on, check 30 amp circuit breaker or for a broken wire.

### SWITCH CONTINUITY TEST

To check the switch, remove the switch from its mounting position. Using an ohmmeter, and referring to the Switch Continuity (Figs. 3 and 4), determine if continuity is correct. If there is no continuity at any one of the switch positions, replace the switch.

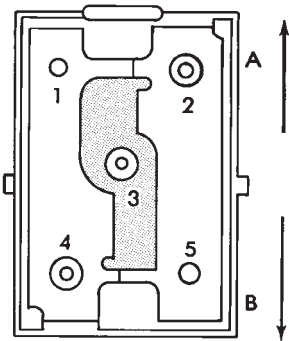


PIN IDENTIFICATION PIN SIDE OF SWITCH

SWITCH POSITION	CONTINUITY BETWEEN	
OFF	PINS 1 AND 2 PINS 2 AND 3	PINS 2 AND 4 PINS 2 AND 6
A	PINS 1 AND 5	PINS 2 AND 4
B	PINS 1 AND 2	PINS 4 AND 5
C	PINS 3 AND 5	PINS 2 AND 6
D	PINS 5 AND 6	PINS 2 AND 3

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Fig. 3 Master Switch Continuity



SWITCH POSITION	CONTINUITY BETWEEN
OFF	PINS 1 & 4 PINS 2 & 5
A	PINS 3 & 4 PINS 2 & 5
B	PINS 2 & 3 PINS 1 & 4

PIN IDENTIFICATION  
PIN SIDE OF SWITCH

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Fig. 4 Front Door Window or Rear Vent Window Switch Continuity

**WINDOW MOTOR TEST**

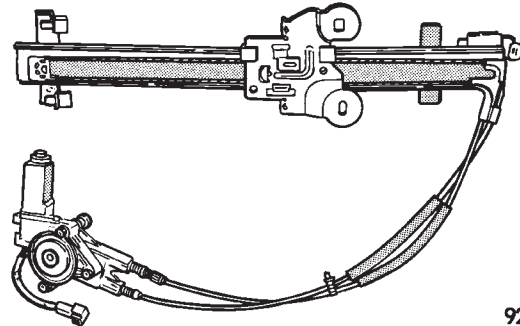
- (1) Connect positive (+) lead from a test battery to either of the two motor terminals.
- (2) Connect negative (-) lead from test battery to remaining motor terminal.
- (3) The motor should now rotate in one direction to either move window up or down.
  - (a) If window happens to be already in full UP position and motor is connected so to rotate in UP direction no movement will be observed.
  - (b) Also, the motor connected to DOWN direction rotation, no movement will be observed if window is already in full down position.

(4) Reverse battery leads (steps 1 and 2) and window should now move. If window does not move, remove motor. See below for motor removal from vehicle.

(5) If window moved completely up or down, motor should be reversed one more time (step 4) to complete a full window travel inspection.

**POWER WINDOW CABLE HOUSING/MOTOR REPLACEMENT**

- (1) Remove front door trim panel. Refer to group 23, Body.
- (2) Disconnect window lift plate from glass (Fig. 5).
- (3) Disconnect window track from door.



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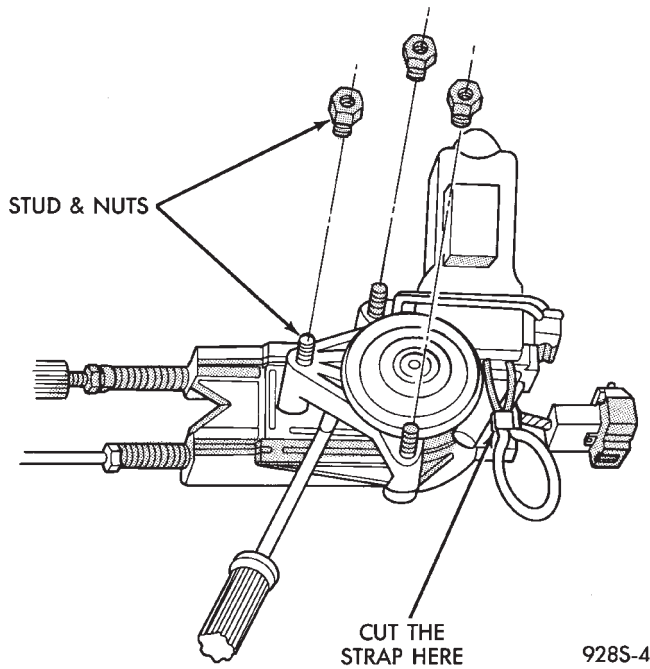
Fig. 5 Cable and Housing/Motor

- (4) Disconnect window lift motor and drive cables.
- (5) Disconnect electrical connections.
- (6) Carefully remove window track, cables and lift motor assembly from door.
- (7) For installation reverse above procedures.

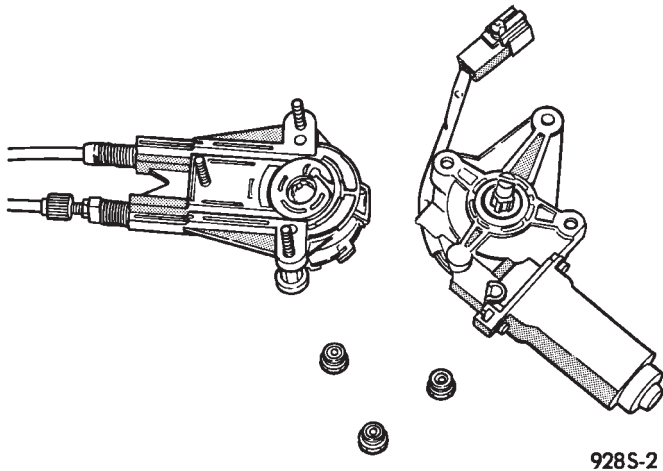
**MOTOR REPLACEMENT**

**REMOVAL**

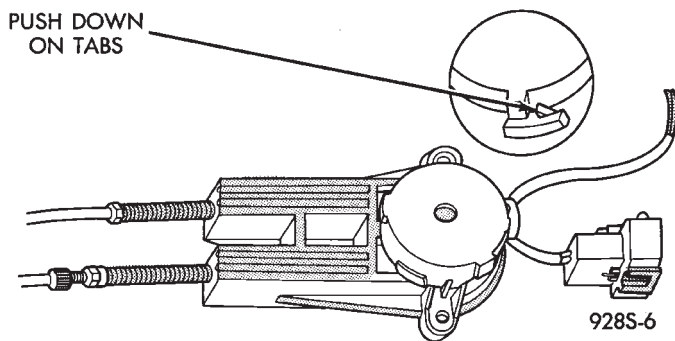
- (1) Refer to Front Door Window Regulator for removal.
- (2) The door glass must be in the full up position.
- (3) Tape glass to door frame to hold glass in the up position.
- (4) If the window is not in the full up position, remove only the motor from the door.
- (5) Remove nuts from motor and cable housing (Fig. 6).
- (6) Make sure motor is facing you before separating motor from housing.
- (7) Using a flat tool slowly separate motor from housing, making sure the cable drum under the motor stays in cable housing. When motor is fully separated the assist spring will be completely unwound (Fig. 7).
- (8) Remove assist spring by releasing the tabs on the opposite sides of the spring, do not remove spring from its case (Fig. 8).



**Fig. 6 Separating Motor from Housing**



**Fig. 7 Cable/Drum and Motor**



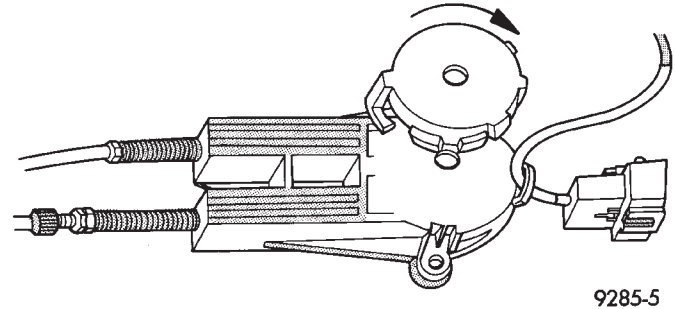
**Fig. 8 Assist Spring Cover**

**INSTALLATION**

(1) Install motor into housing with one stud and in center of housing to secure motor to housing.

(2) Before installing new spring, power the motor into the full-up position.

(3) Replace assist spring on cable housing. Wind spring clockwise 3 1/2 turns on the left door. The right door, wind spring counter clockwise 3 1/2 turns (Fig. 9).



**Fig. 9 Wind Assist Spring Cover**

(4) Install the other two studs and nuts and tighten to 4 to 5 M•m (35 to 45 in. lbs.).

(5) Inspect that cables are not twisted prior to installing motor and housing into door.

**POWER VENT WINDOWS**

AS-body vehicles have, as an option, power rear vent windows. The windows are operated by switches mounted in the overhead console. A separate switch is used for each window.

The vent window motors are of the permanent magnet type. A positive and negative battery connection to either of the two motor terminals will cause the motor to rotate in one direction. Reversing current through these same two connections will cause the motor to rotate in the opposite direction.

**VENT WINDOW SWITCH TEST**

For power vent window switch testing, see power windows Switch Test.

**VENT WINDOW MOTOR TEST**

(1) Connect positive (+) lead from a test battery to either of the two motor terminals.

(2) Connect negative (-) lead from test battery to remaining motor terminal.

(3) The motor should now rotate in one direction to either move the window OPEN or CLOSED.

(a) If window happens to be already in the full CLOSED position and motor is connected to rotate toward the CLOSED position no movement will be observed.

(b) Also, the motor connected to rotate OPEN, no movement will be observed if the window is already in full OPEN position.

(4) Reverse battery leads (opposite steps 1 and 2) and window should now move, or move in the opposite direction. If window does not move, remove motor and cable assembly.

(5) If window moved completely OPEN and CLOSED, motor should be reversed one more time (reverse leads from step 4) to complete a full window movement inspection.

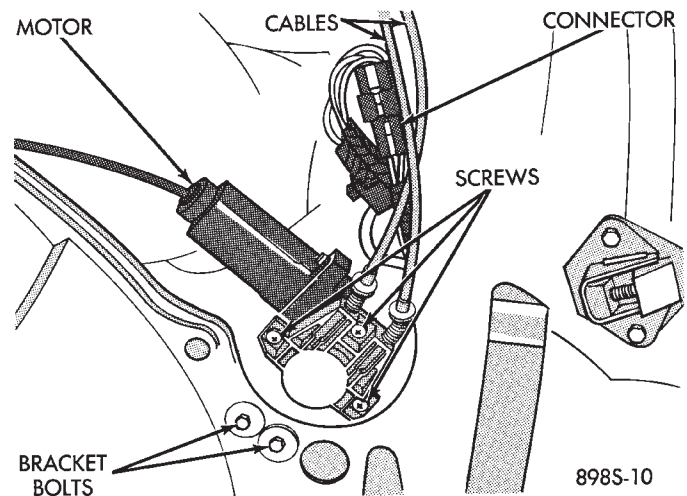
### VENT CABLE AND CRANK MECHANISM

#### REMOVAL

- (1) Remove windshield side garnish molding.
- (2) Remove rear seat(s).
- (3) Remove front door and liftgate scuff plates.
- (4) If servicing right side cable, remove side door scuff plate and upper track cover.
- (5) Remove B-pillar garnish molding and seat belt.
- (6) Remove upper and lower trim panels for the left side or one piece trim panel for the right side.
- (7) Remove two bolts attaching crank mechanism to quarter panel (Fig. 10).
- (8) Remove three screws attaching cable to motor.
- (9) Disengage pivot from quarter glass.
- (10) Remove cable retaining clip and remove cable assembly.

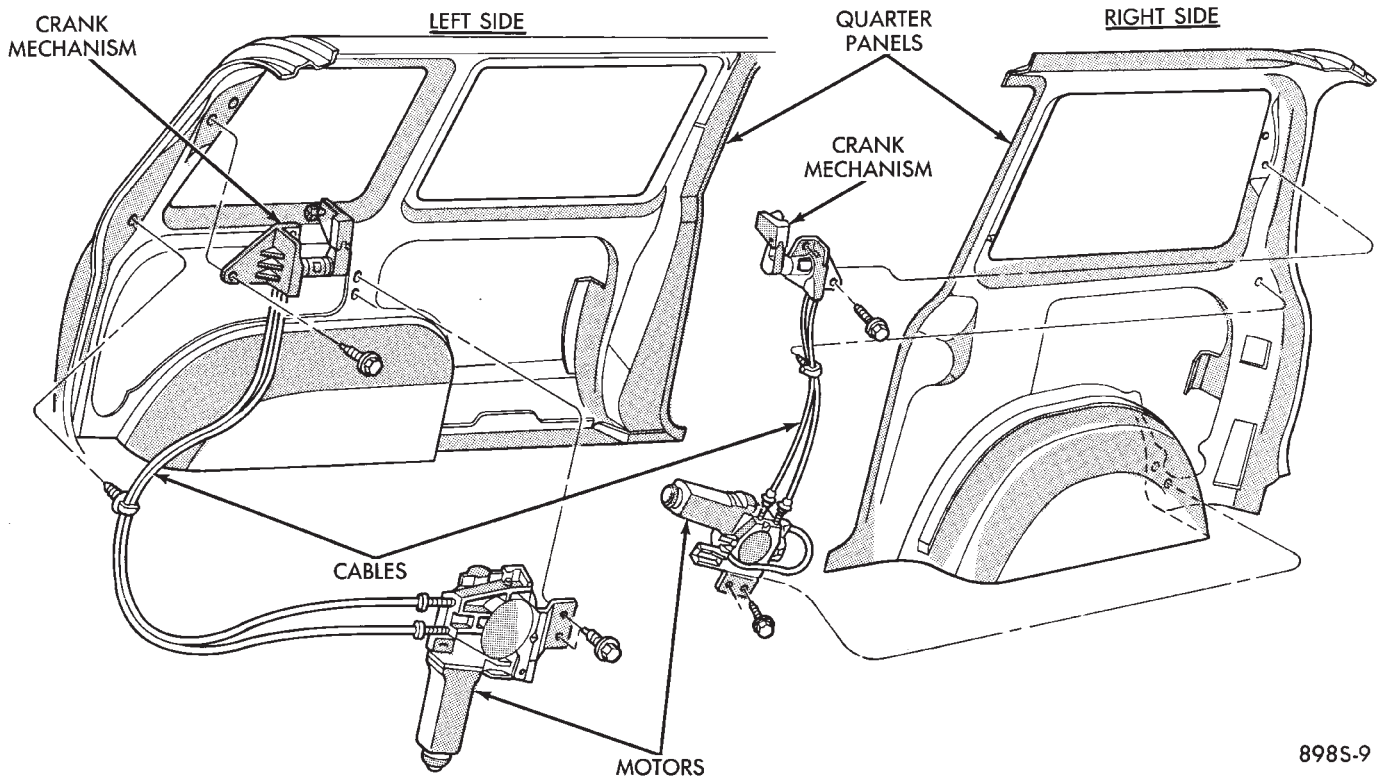
#### INSTALLATION

- (1) Position cable to motor making sure cable pulley engages with motor and install three screws (Fig. 11).
- (2) Engage pivot to quarter glass.
- (3) Install crank mechanism bolts and pull mechanism rearward while tightening (Proper alignment is required for smooth non-binding operation).



**Fig. 11 Cable Attaching Screws**

- (4) Install cable retaining clip.
- (5) Install upper and lower trim panels for the left side or one piece trim panel right side.
- (6) Install B pillar garnish molding and seat belt.
- (7) Install side door scuff plate and upper track cover.
- (8) Install front door scuff plate, liftgate scuff plate, rear seat(s) and windshield side garnish molding.



**Fig. 10 Motor and Cable Assemblies**

### VENT WINDOW MOTOR REPLACEMENT

The following procedure describes replacement of a defective motor without removing the cable assembly from the vehicle.

#### REMOVAL

- (1) Remove rear quarter trim panel.
- (2) Disconnect wiring connector.
- (3) Remove three screws attaching motor to cable (Fig. 11).
- (4) Remove two bolts attaching motor bracket to quarter panel.

- (5) Remove motor.

#### INSTALLATION

- (1) Position motor to cable assembly making sure cable pulley engages with motor and install three screws.
- (2) Install motor bracket to quarter panel bolts.
- (3) Connect wiring connector.
- (4) Install rear quarter trim panel.

