POWER WINDOWS

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GENERAL INFORMATION

INTRODUCTION

The window lift motors are of the permanent magnet type. A battery positive and negative 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.

NOTE: This group covers both Left-Hand Drive (LHD) and Right-Hand Drive (RHD) versions of this model. Whenever required and feasible, the RHD versions of affected vehicle components have been constructed as mirror-image of the LHD versions. While most of the illustrations used in this group represent only the LHD version, the diagnostic and service procedures outlined can generally be applied to either version. Exceptions to this rule have been clearly identified as LHD, RHD, or Export if a special illustration or procedure is required.

DIAGNOSIS AND TESTING

WIRING TEST

The following wiring test determines whether or not voltage is continuous through the body harness to switch.

Remove switch for testing. Connect a voltmeter positive lead to Pin 4 and negative lead to Pin 3 of the switch connector (Fig. 1). Turn ignition switch to the ON position. Voltmeter should read battery voltage. If OK, go to Window Switch Test. If not OK, check the 30 amp circuit breaker behind the fuse block or for a broken wire. For wiring, specific connector type and location, refer to Group 8W, Wiring Diagrams.

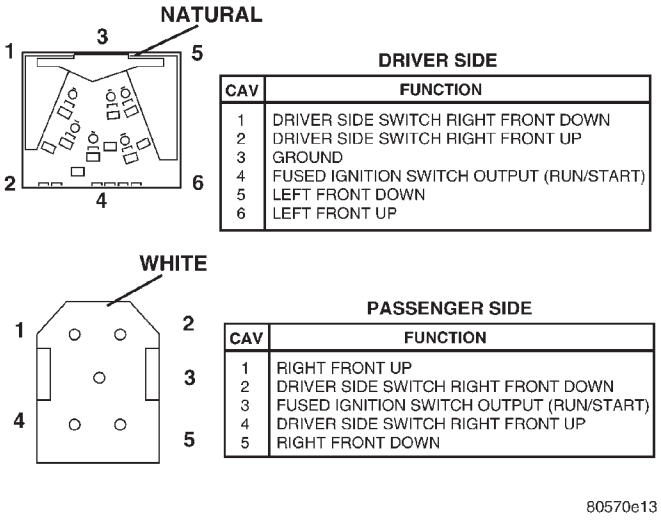

Fig. 1 Window Switch Connectors

WINDOW SWITCH TEST

Remove the switch from its mounting, refer to the Window Switch Removal and Installation procedures.. Using an ohmmeter, refer to the test procedures below, Driver Side or Passenger Side Window Switch Continuity Test to determine if continuity is correct (Fig. 2) and (Fig. 3). If the results are not obtained, replace the switch.

WINDOW MOTOR TEST

(1) Remove door trim panel, refer to Group 23 Body for removal procedures.

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

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

(4) The motor should now rotate in one direction to either move window up or down.

(a) If window happens to already be in full UP position and motor is connected so as to move it in UP direction no movement will be observed.

DIAGNOSIS AND TESTING (Continued)

SWITCH POSITION	CONTINUITY BETWEEN TERMINALS
OFF	PIN 1 TO 2 PIN 1 TO 4 PIN 1 TO 5 PIN 1 TO 6 PIN 2 TO 4 PIN 2 TO 5 PIN 2 TO 6 PIN 4 TO 5 PIN 4 TO 6 PIN 5 TO 6
DRIVER SIDE UP	PIN 1 TO 3 PIN 2 TO 4
DRIVER SIDE DOWN	PIN 1 TO 4 PIN 2 TO 3
PASSENGER SIDE UP	PIN 3 TO 5 PIN 4 TO 6
PASSENGER SIDE DOWN	PIN 3 TO 6 PIN 4 TO 5

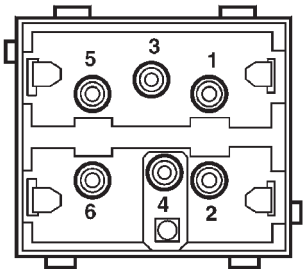

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Fig. 2 Driver Side Window Switch Continuity Test

SWITCH POSITION	CONTINUITY BETWEEN TERMINALS
OFF	PIN 2 TO 5 PIN 1 TO 4
UP	PIN 1 TO 4 PIN 3 TO 5
DOWN	PIN 1 TO 3 PIN 2 TO 5

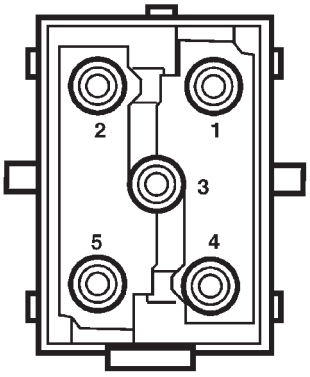

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Fig. 3 Passenger Side Window Switch Continuity Test

(b) Likewise, motor connected to move window in DOWN direction no movement will be observed if window is already in full DOWN position.

(c) Reverse battery leads in Step 2 and Step 3 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, the test leads should be reversed one more time to complete a full window travel inspection.

(6) If window does not move, check to make sure that it is free.

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

(8) To determine if the glass is free, disconnect the regulator from the glass lift plate. Remove the two attaching nuts, and slide the window up and down by hand. This check can not be made on a four door vehicle.

REMOVAL AND INSTALLATION

WINDOW SWITCH

REMOVAL

(1) Using a flat tool, insert tool in the slot on the bottom of the switch bezel (Fig. 4).

(2) Pry the bezel from the door trim panel.

(3) Disconnect wire connector from switch.

(4) Remove switch by releasing the tabs from bezel.

INSTALLATION

For installation, reverse above procedures.

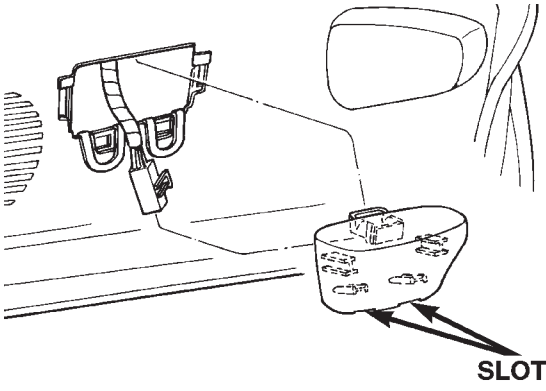

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Fig. 4 Switch Removal

2 DOOR WINDOW MOTOR

WARNING: DO NOT HAVE ANY HANDS OR FINGERS IN SECTOR GEAR AREA WHERE THEY CAN BE PINCHED BY SMALL MOVEMENTS OF REGULATOR LINKAGE.

REMOVAL

(1) Move the window to the full-up position, if possible.

(2) Remove door trim panel and window regulator, refer to Group 23 Body for removal procedures.

REMOVAL AND INSTALLATION (Continued)

WARNING: FAILURE TO CLAMP THE SECTOR GEAR TO THE MOUNTING PLATE WHEN REMOVING THE MOTOR CAN RESULT IN INJURY.

(3) Secure the sector gear and mounting plate with a C clamp or similar clamping tool. This will prevent a sudden and forceful movement of the regulator when the motor is removed.

(4) Remove three mounting screws that hold motor gearbox to regulator (Fig. 5).

(5) Remove motor from regulator.

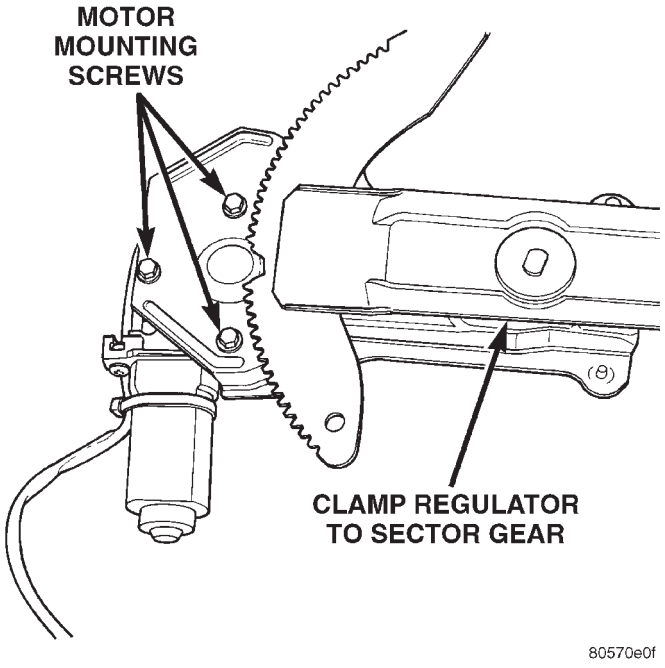

Fig. 5 2 Door Motor Removal

INSTALLATION

(1) Install new motor on regulator by positioning motor gearbox so that it engages regulator sector teeth.

(2) A slight rotational or rocking movement may be necessary to bring three motor gearbox screw holes into proper position.

(3) Install three gearbox screws and one tie down bracket screw, if applicable. Tighten to 5.6 to 8 N·m (50 to 70 in. lbs.) torque.

(4) Install regulator, using the switch, test operation of motor.

4 DOOR WINDOW MOTOR

REMOVAL

(1) Move the window so it is not in the full up or down position, if possible.

(2) Remove door trim panel, refer to Group 23 Body for removal procedures.

(3) Disconnect wiring connector from motor.

(4) Remove the three nuts attaching the window regulator motor/housing to the door inner panel. This will allow the motor/housing to be moved to the lower door inner panel opening since the cables will flex (Fig. 6).

(5) Turn the motor/housing to gain access to the three nuts attaching the motor to the housing.

(6) Remove the three nuts attaching the motor to the housing.

(7) Remove the motor from the housing. Be careful not to pull the cable drum from the housing, as the motor shaft will tend to pull the drum with it.

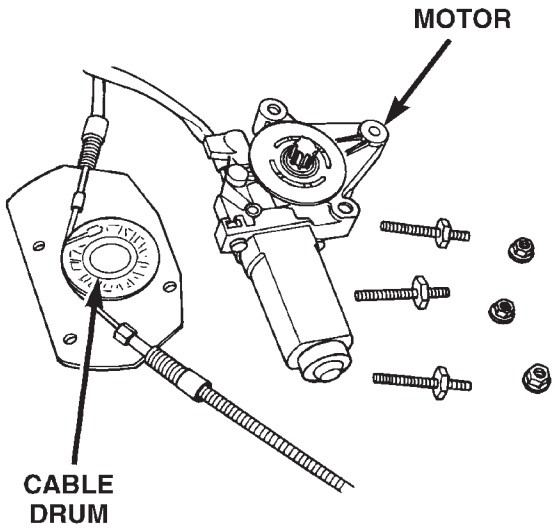

Fig. 6 4 Door Motor Removal

INSTALLATION

For installation, reverse above procedures.