

POWER WINDOWS

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GENERAL INFORMATION

Front and rear door 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 is to disconnect the regulator from the glass lift plate, and slide the window up and down by hand. For conventional arm-sector regulators, after the lift plate is detached from the glass, it will slide off the regulator drive arm. Flex-drive regulators may be detached the same way or by removing one screw holding the flex rack to the lift plate drive arm.

WIRING VOLTAGE TEST

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

(1) After removing switch for testing purposes, carefully separate multiple terminal block on wiring harness from switch body. With ignition switch ON connect one lead of test light to black (or gray) wire terminal and touch other test light lead to tan wire terminal. If the test light comes on, the wiring circuit between the battery and switch is functional. If light does not come on, check 30 amp main fuse (circuit breaker) or for a broken wire. For wiring, specific connector type and location, refer to Group 8W, Wiring Diagrams.

WINDOW LIFT SWITCH TEST

For switch testing, remove the switch from its mounting. Using an ohmmeter, refer to Window Switch Continuity Charts to determine if continuity is correct. If the results are not obtained, replace the switch.

AC and AY Bodies are equipped with an Auto-Down feature. This feature allows the operator to lower the driver's window without having to hold the switch in the down position. The Auto-Down feature can be activated by pressing the down switch past the first detent (Stop).

To test the auto-down feature, operate the window in the normal up and down mode. If the window works correctly in the normal mode, but not in the auto-down mode, replace the switch.

To test the window switch (other than Auto-Down mode), install a known good switch.

WINDOW LIFT 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.

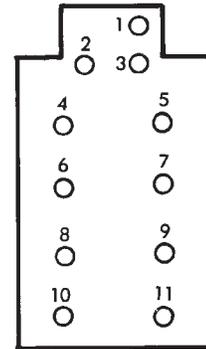
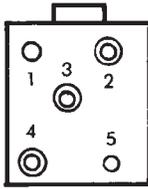
(3) The motor should now rotate in one direction to either move window up or down.

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

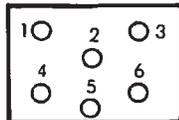
(b) Likewise, motor connected to DOWN direction rotation, no movement will be observed if window is already in full DOWN position.

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

WINDOW SWITCH CONTINUITY



DOOR SWITCH	BODY	
	PASSENGER DOOR	REAR DOORS
	AC, AJ, AY	AA, AG
	AA, AC, AP, AY	
SWITCH POSITION	CONTINUITY BETWEEN	CONTINUITY BETWEEN
OFF	PINS 1 & 4 PINS 2 & 5	PINS 1 & 4 PINS 2 & 5
UP	PINS 3 & 4 PINS 2 & 5	PINS 2 & 3 PINS 1 & 4
DOWN	PINS 2 & 3 PINS 1 & 4	PINS 3 & 4 PINS 2 & 5



MASTER SWITCH	BODY	
	AJ	AG
SWITCH POSITION	CONTINUITY BETWEEN	CONTINUITY BETWEEN
OFF	PINS 1 & 2 PINS 2 & 3 PINS 2 & 4 PINS 2 & 6	PINS 1 & 2 PINS 2 & 3 PINS 2 & 4 PINS 2 & 6
UP	DRIVER'S	PINS 3 & 5 PINS 2 & 6
	PASSENGER'S	PINS 1 & 5 PINS 2 & 4
DOWN	DRIVER'S	PINS 5 & 6 PINS 2 & 3
	PASSENGER'S	PINS 1 & 2 PINS 4 & 5

MASTER SWITCH	BODY	
	SWITCH POSITION	CONTINUITY BETWEEN
OFF		PINS 2 & 4 PINS 2 & 5 PINS 2 & 6 PINS 2 & 7 PINS 2 & 8 PINS 2 & 9 PINS 2 & 10 PINS 2 & 11
	DRIVER'S	PINS 3 & 5 PINS 2 & 7
	RIGHT FRT	PINS 2 & 7 PINS 2 & 6
	LEFT RR	PINS 3 & 9 PINS 2 & 11
UP	RIGHT RR	PINS 3 & 8 PINS 2 & 10
	DRIVER'S	PINS 3 & 7 PINS 2 & 5
	RIGHT FRT	PINS 3 & 6 PINS 2 & 4
	LEFT RR	PINS 3 & 11 PINS 2 & 9
DOWN	RIGHT RR	PINS 2 & 8 PINS 3 & 10
	WINDOW LOCK	PINS 1 & 3

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

GEAR AND PINION REPLACEMENT AND LUBRICATION

The window glass and mechanism have been found to move freely. The window motor works. But the glass does not move up or down. The motor gear and pinion will need to be replaced (Fig. 1).

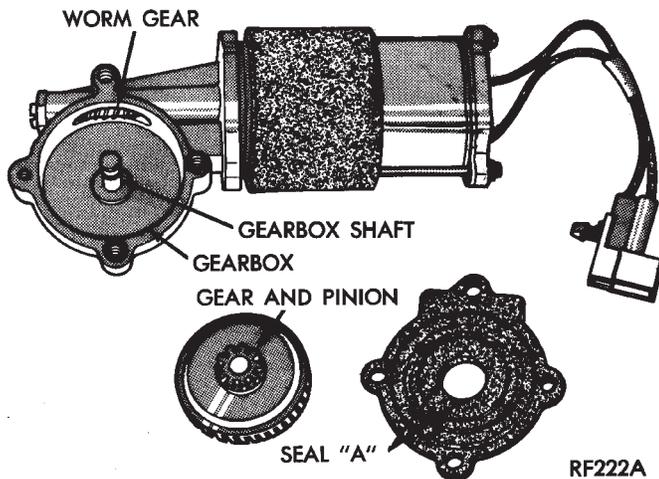


Fig. 1 Motor Lubrication

When gear and pinion assembly is replaced in gear box, lubrication of gear box, gear pinion and seal is necessary.

In the event there is no lubricant in gear box, fill with MOPAR multi-mileage lubricant or equivalent. Apply a liberal amount of lubricant to inside area of seal marked A as illustrated in Fig. 1 and sealing surface at center area of gear and pinion coupling. Also lubricate center gear box shaft and worm gear.

MOTOR REPLACEMENT CONVENTIONAL REGULATORS

The following procedure describes replacement of a defective motor without removing window regulator or detaching any window system components. This method of motor replacement is not acceptable if any of window system parts are loosened or removed from door such as:

- Lift channels
- Up stops
- Tracks and pivot brackets
- Are already loose by deficiency
- Are to be loosened or removed from the door.

Then use method of repair where entire regulator is removed from door (Fig. 2 through 9).

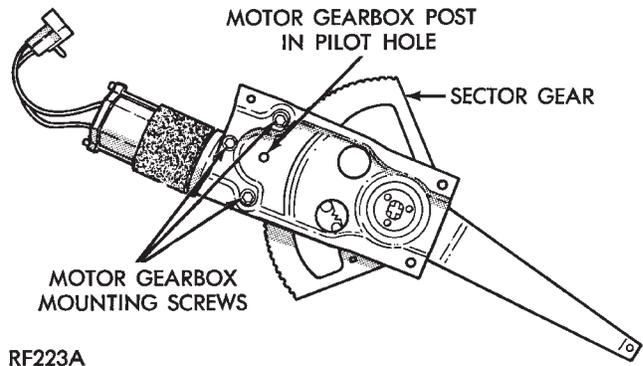


Fig. 2 Electric Motor Mounting — Conventional Regulators

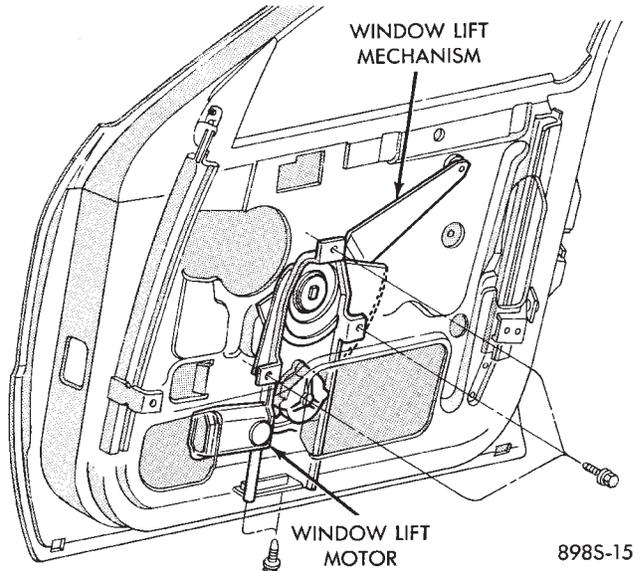


Fig. 3 Front Door Power Window — AA Body

REMOVAL

(1) Raise window to full UP position and keep it there at all times while replacing motor. If window is in any position other than full UP and motor is separated from spring loaded regulator, then regulator counterbalance spring will tend to propel window upwards.

WARNING: PLACE A WINDOW BLOCK IN DOOR THAT WILL POSITIVELY PREVENT WINDOW FROM GOING DOWN. THIS ACTION WILL PREVENT INJURY THAT COULD BE CAUSED BY INCORRECT INSTALLATION OF COUNTERBALANCE SPRING OR UPWARD MOVEMENT OF THE WINDOW.

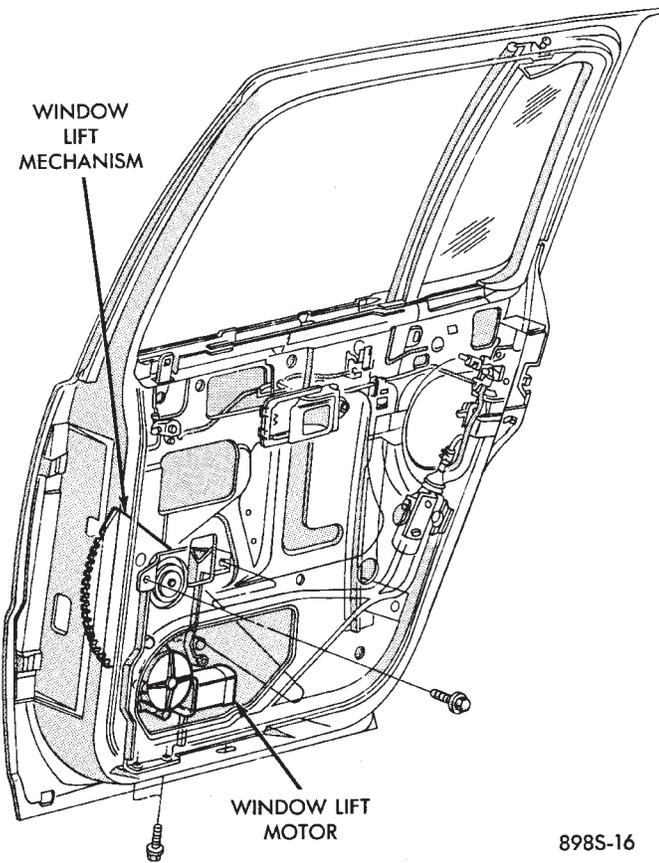


Fig. 4 Rear Door Power Window — AA Body

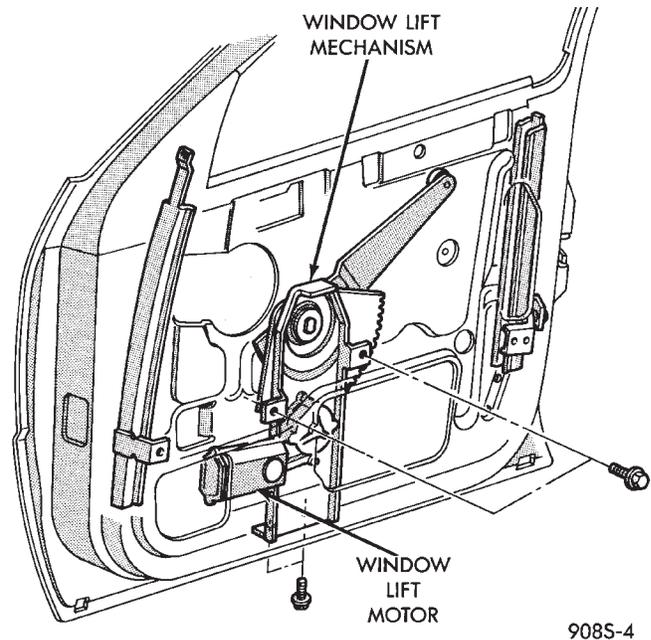


Fig. 6 Power Window Four Door — AP Body

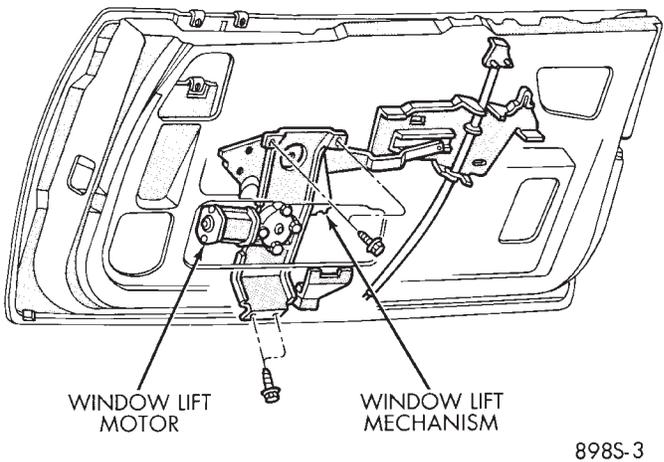


Fig. 7 Power Window Convertible — AJ Body

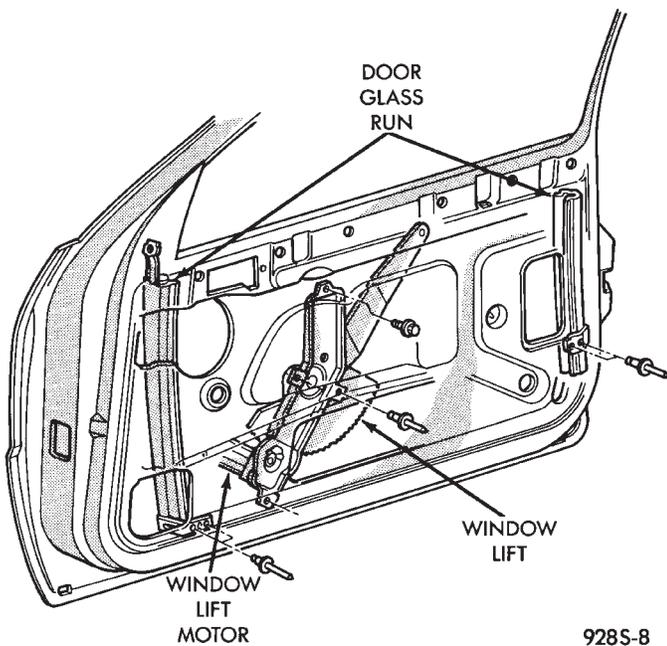


Fig. 5 Power Window Two Door — AP Body

(2) Disconnect wiring connector from motor which is located about eleven inches from motor.

(3) Remove three mounting screws that hold motor gearbox to regulator. Remove third screw that secures motor tie-down bracket to inner panel if so equipped.

There are three holes in inner panel which provide access to three mounting screws that secure gearbox to regulator (Fig. 2).

For AJ body vehicles, it will be necessary to reach through opening in inner door panel and around behind regulator to gain access to motor gearbox retaining screws.

(4) To remove motor from regulator, grip motor housing and pull motor towards inner or outer panel, depending on regulator type. Some rocking or twisting action may be necessary to disengage motor from regulator.

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

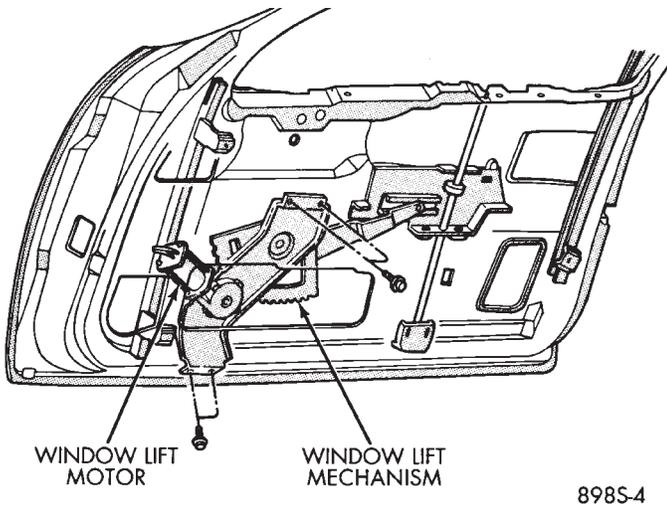


Fig. 8 Power Window — AJ Body

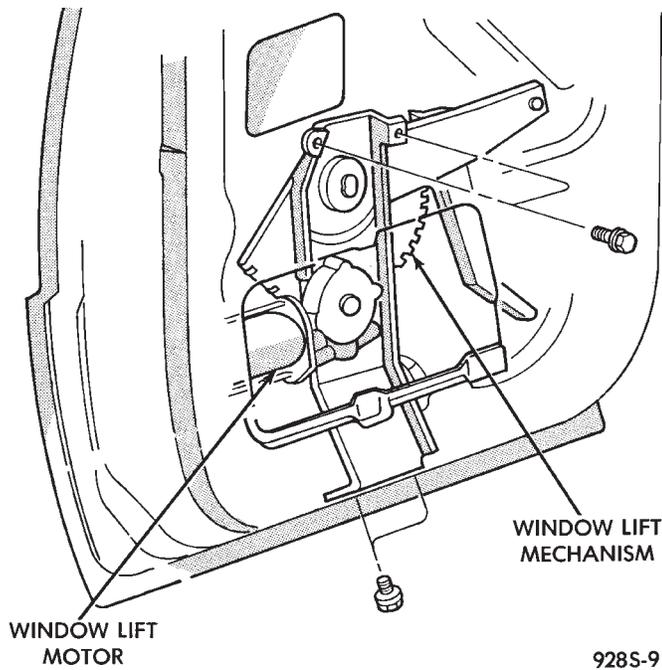


Fig. 9 Rear Door Power Window — AC, and AY Body

INSTALLATION

New motor gearbox retaining screw holes are not threaded. It may be desirable to tap holes before attempting assembly.

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

(2) Position motor so that center post gearbox fits into its pilot hole in plate. 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 to 7 N·m (50 to 60 in. lbs.) torque.

(4) Connect pigtail wiring harness connector.

- (5) Remove window block.
- (6) Actuate regulator with switch to verify satisfactory operation.

BENCH REPAIR OF REGULATOR AND MOTOR CONVENTIONAL REGULATORS

To repair or inspect the entire electric window regulator, remove from the door as follows:

REMOVAL

- (1) Disconnect wiring connector from motor.
- (2) Hold glass in the up position.
- (3) Remove rivets and/or screws that hold regulator and motor to inner door panel.
- (4) Maneuver regulator assembly by hand to disengage the drive arm slider from the glass lift channel. Remove from door.

REPAIR

If entire regulator is not being replaced, repair as follows:

WARNING: REMOVE COUNTER BALANCE SPRING BEFORE THE MOTOR IS REMOVED. IF IT IS NOT, THE SPRING TENSION WILL CAUSE THE REGULATOR ARMS TO CLOSE AS SOON AS THE MOTOR IS REMOVED AND COULD SERIOUSLY INJURE YOUR FINGERS.

- (1) Remove regulator as described above.
- (2) Secure regulator in vise to prevent sector gear from rotating.
- (3) Remove counter balance spring.
- (4) Remove three motor attaching screws and remove motor.
- (5) Inspect regulator for:
 - (a) Sector gear teeth must not be broken or severely worn.
 - (b) All rivets and sliders must be securely attached.
 - (c) Parts must not be bent or cracked.
 - (d) Sector gear must rotate freely.
 - (e) Perform window lift motor test as described above.

INSTALLATION

(1) Install motor and attach with three motor attaching screws. If installation of new motor is necessary, it may be desirable to tap motor retaining screw holes.

(2) Install counter balance spring.

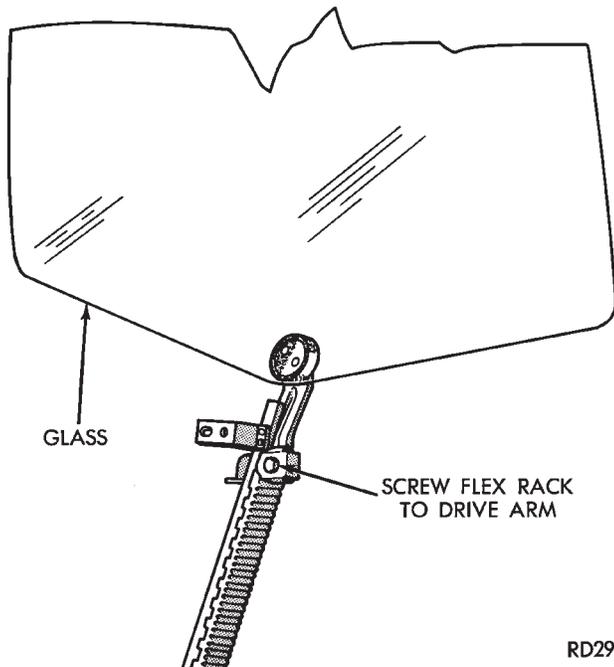
(3) Replace regulator in door by reversing Removal steps 1, 2 and 3.

(4) Regulators may be secured to door panel using rivets or 1/4-20 X 1/2 screws and nuts.

MOTOR REPLACEMENT-FLEX DRIVE REGULATORS

REMOVAL

(1) Raise or lower window to the proper access hole position and remove screw that attaches the flex rack to the drive arm (Fig. 10). Hold the glass in that position.



RD29

Fig. 10 Window Regulator Flex Rack to Drive Arm

(2) Remove the regulator attaching rivets by knocking out the rivet center mandrel and drilling rivet with a 1/4 inch diameter drill. Remove retaining screws if necessary (Fig. 11 through 14).

(3) Maneuver the motor end of the flex drive regulator outside of the large inside panel access hole and rotate regulator out of door.

(4) If the window motor cannot be actuated and is stuck or frozen in any position other than at the access hole, the removal procedure is as follows:

(a) Remove the regulator attaching rivets by knocking out the rivet center mandrel and drilling the rivets with a 1/4 inch diameter drill. Remove retaining screws if necessary.

(b) Manually lift the window upward with the unriveted flex drive electric regulator still attached until the screw can be removed. If more access is needed, remove the two screws that hold the T-track to the motor gearbox. This will allow removal of the motor from the T-track.

(5) Remove two screws that fasten the motor gearbox to the metal T-track.

(6) Perform bench test.

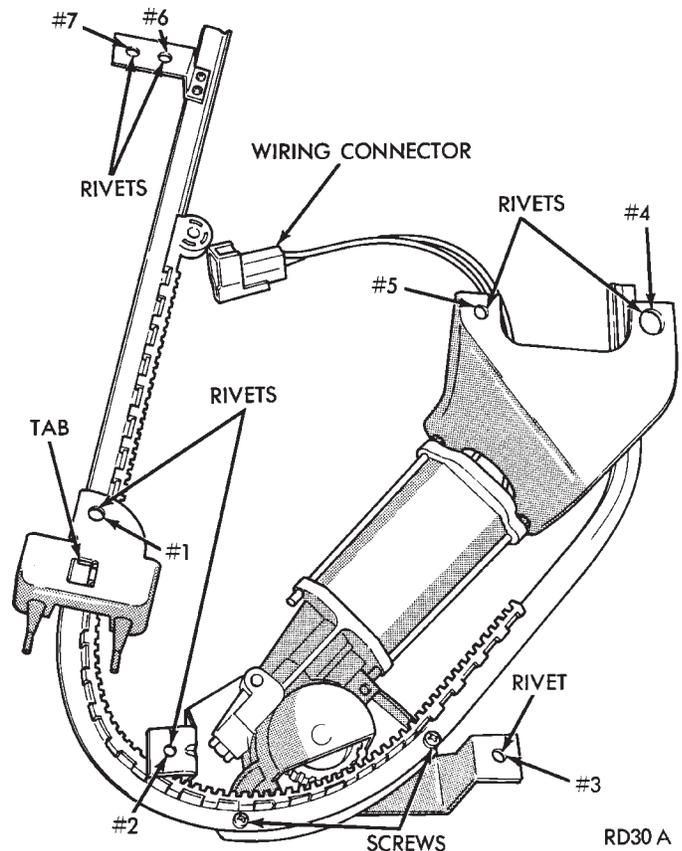


Fig. 11 Flex Drive Window Regulator Rear Door — AP Body

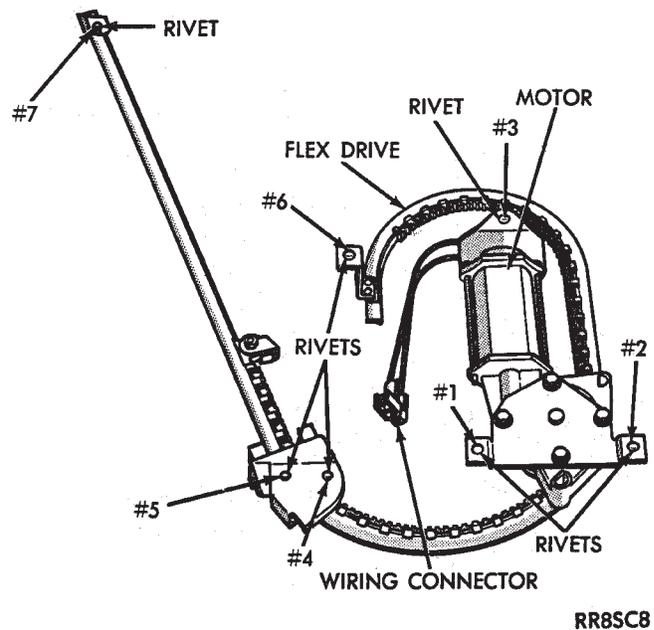


Fig. 12 Flex Drive Window Regulator Front Door — AG Body

BENCH TEST

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

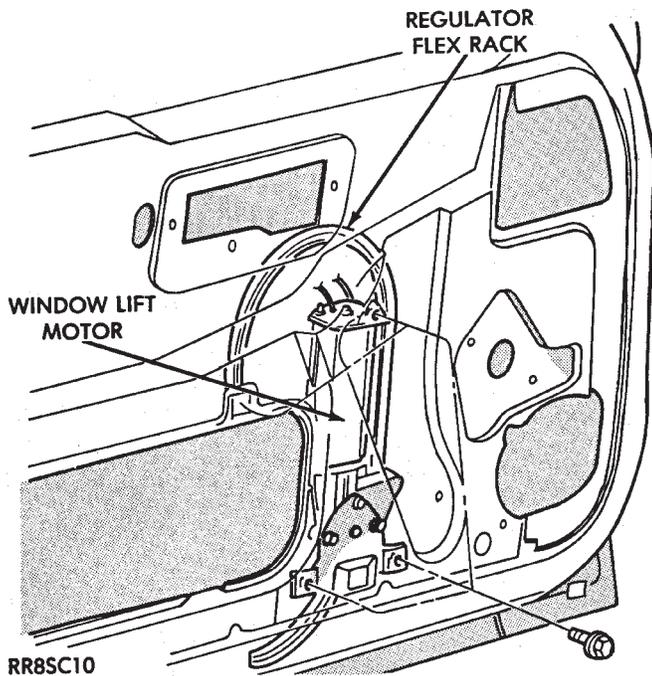


Fig. 13 Door Power Window — AG Body

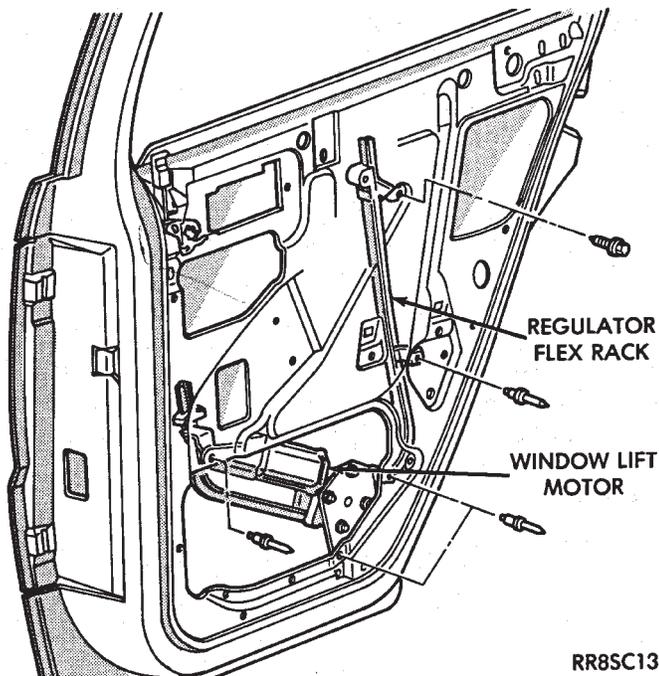


Fig. 14 Rear Door Power Window — AP Body

- (2) Connect negative (-) lead from test battery to remaining motor terminal.
- (3) The motor will now rotate in one direction.
- (4) Reverse the battery leads and the motor should now rotate in the opposite direction.
- (5) If the motor does not rotate in both directions, replace the motor.

INSTALLATION

- (1) Install new motor on T-track using No. 8-32 X 1/2 screws torqued to 4 N·m (40 in. lbs.).

- (2) Feed top of T-track into access hole and point and rotate it towards the hinge pillar until regulator motor is approximately horizontal. Then rotate regulator in the opposite direction about a 1/4 turn and line up bracket tab to inner panel slot.

- (3) Fasten regulator with the rivet sequence shown in (Figs. 10 and 11).

- (4) Actuate the motor until the flex rack is visible within the access slot. Attach the window and drive arm assembly to the flex rack with the screws. Tighten screws to 4 N·m (40 in. lbs.) torque.

POWER WINDOW CABLE HOUSING/MOTOR REPLACEMENT—AC and AY Bodies

WARNING: REMOVAL OF THE WINDOW LIFT MOTOR FROM THE REGULATOR WILL CAUSE THE ASSIST SPRING TO UNWIND RAPIDLY WITH THE POTENTIAL OF CAUSING PHYSICAL INJURY. IF THE WINDOW LIFT MOTOR REQUIRES REPLACEMENT, SEE REGULATOR REPLACE CABLE AND DRUM IN THIS GROUP OF THIS MANUAL.

- (1) Remove front door trim panel. Refer to group 23, Body.

- (2) Disconnect window lift plate from glass (Fig. 15).

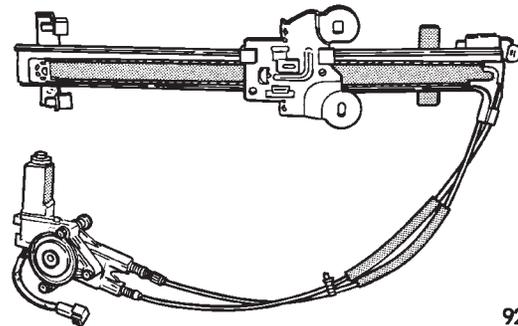


Fig. 15 Cable and Housing/Motor

- (3) Disconnect window track from door.
- (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

- (1) Refer to Front Door Window Regulator for removal.
- (2) The door glass must be in the down 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. 16).

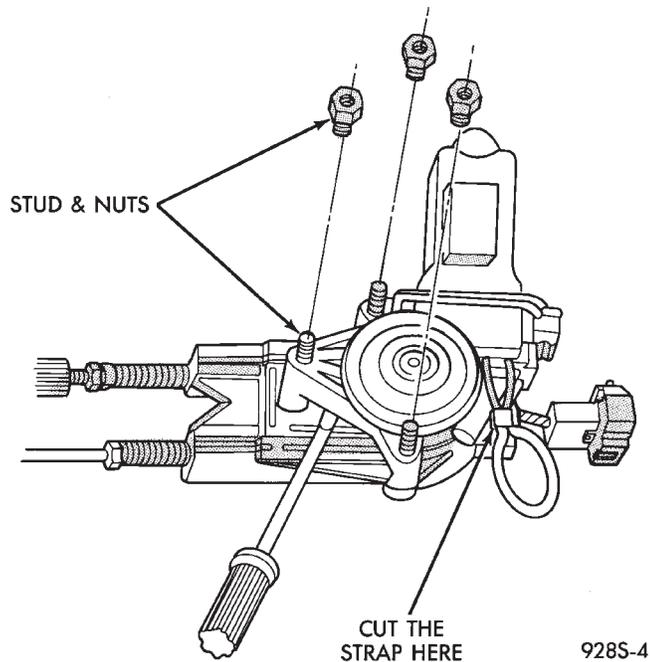


Fig. 16 Separating Motor from Housing

(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. 17).

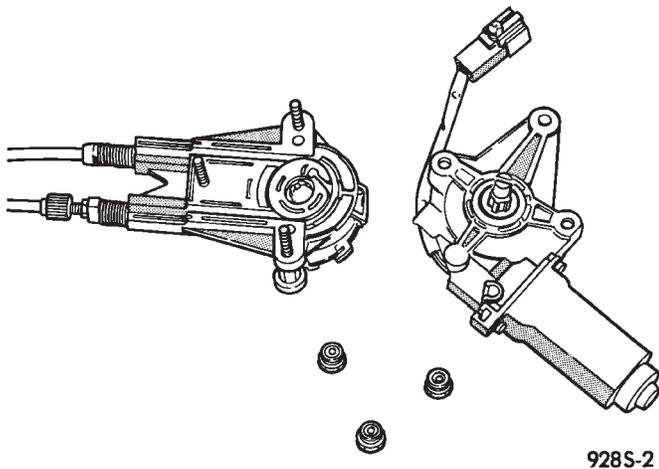


Fig. 17 Cable/Drum and Motor

(8) Remove assist spring by releasing the tabs on the opposite sides of the spring, do not remove spring from its case (Fig. 18).

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.

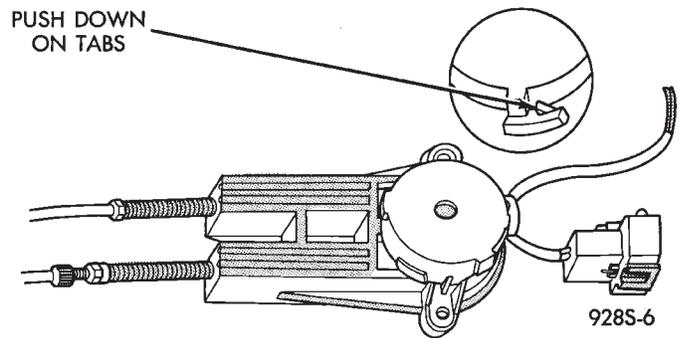


Fig. 18 Assist Spring Cover

(3) Replace assist spring on cable housing. Wind spring counter clockwise 3 1/2 turns on the left door. The right door, wind spring clockwise 3 1/2 turns (Fig. 19).

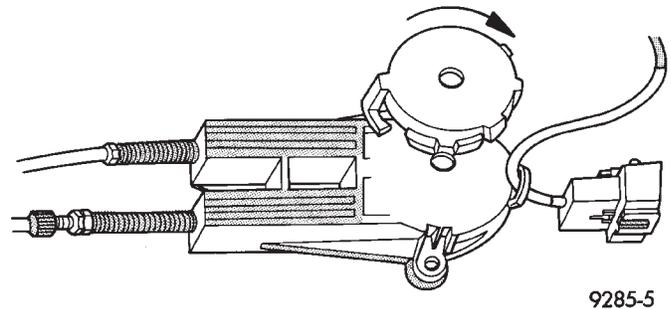


Fig. 19 Wind Assist Spring Cover

(4) Install the other two studs and nuts and tighten to 4 to 5 N·m (35 to 45 in. lbs.) torque.

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

QUARTER WINDOW REPLACEMENT-AJ BODY

For steps (1) through (5) refer to Group 23, Body, for complete procedures.

- (1) Remove the folding top sling well assembly.
- (2) Remove the quarter trim upper moldings.
- (3) Remove the cowl trim and scuff plate panels.
- (4) Remove the rear seat cushion.
- (5) Remove the quarter trim and rear seat back assembly.
- (6) Remove quarter windows assembly (Fig. 20).
 - (a) Position window approximately one-third the way up.
 - (b) Remove glass stabilizer.
 - (c) Disconnect window motor wiring.
 - (d) Remove three quarter window assembly attaching screws and lift window assembly out of vehicle.
- (7) For installation reverse above procedure. Refer to Group 23, Body, for window glass adjustment.

QUARTER WINDOW MOTOR REPLACEMENT-AJ BODY

(1) Remove window assembly from car and have window in mid position (halfway up).

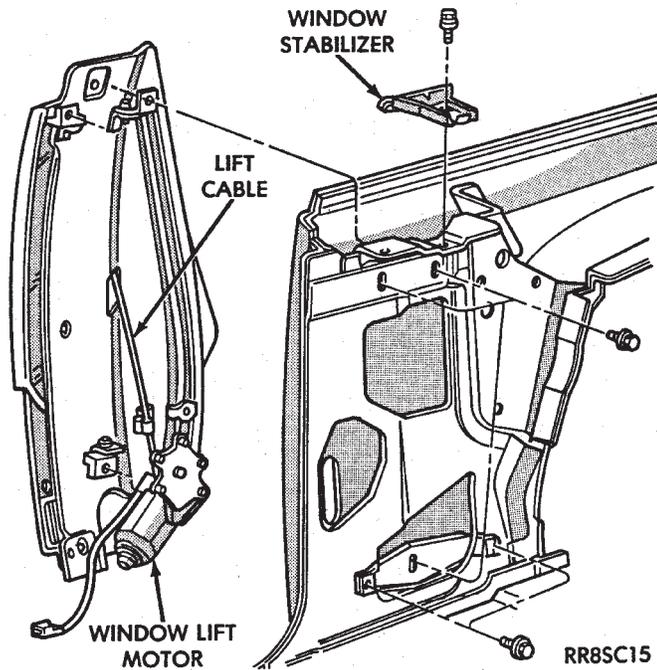


Fig. 20 Power Quarter Window — AJ Body

(2) Remove No. 1 and No. 2 lower motor mounting screws (Fig. 21) and loosen No. 3 to allow the motor to pivot around the third screw. This will allow easy removal of the glass and lift plate assembly and also allow some tension to be relieved from the cables.

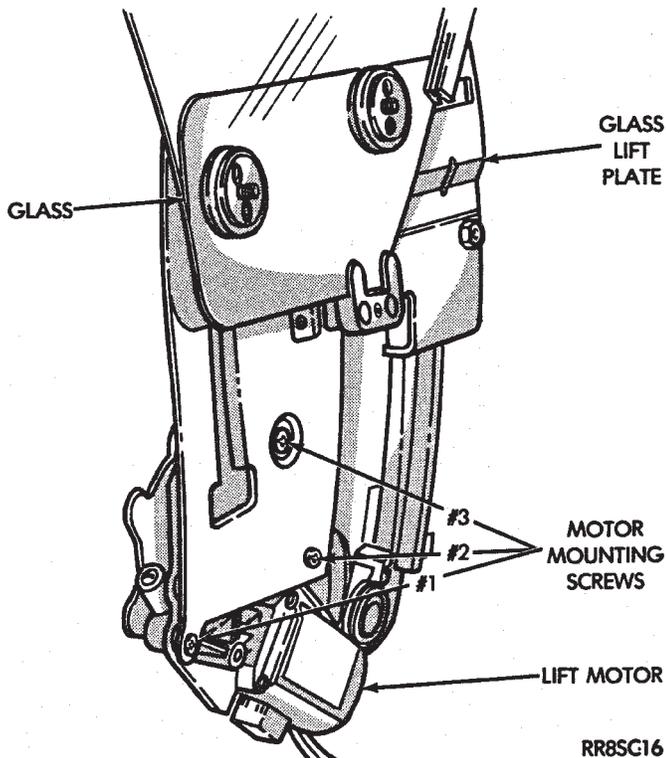


Fig. 21 Quarter Window Lift Mechanism — AJ Body

- (3) Remove the mounting nuts on the lift plate and remove the glass and lift plate assembly.
- (4) Remove motor from regulator plate.
- (5) Remove cover plate on cable drum housing (Fig. 22).

CAUTION: Cable drum may pop up and out of housing due to residual tension remaining on cables.

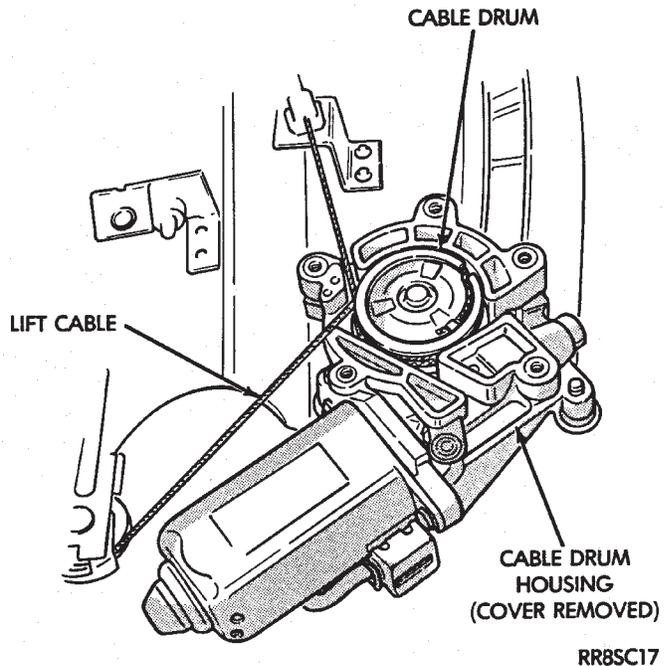


Fig. 22 Cable Drum and Lift Cable — AJ Body

(6) Pull drum out of the motor housing. Remove cables from drum, paying very close attention to the cable routing on the drum.

(7) Inspect the cables for signs of wear. If necessary, replace the cables with Mopar Cable Replacement Package.

(8) Rewind cables on new cable drum.

(9) Dab grease on internal motor shocks. Place in drum and install drum into the new housing.

(10) Install housing cover plate.

(11) Mount motor on regulator plate by inserting a guide pin through No. 3 motor mount screw hole and pivot motor around this point. Install No. 1 mounting screw and bushing. Replace remaining screws and tighten to 2 N·m (20 in. lbs.) torque.

(13) Run assembly up and down to verify correct cable routing.

(14) Loosen motor mounting screws to allow reassembly of lift plate onto regulator. Tighten lift plate nuts to 5 N·m (50 in. lbs.) torque. Retighten motor mounting screws to 2 N·m (20 in. lbs.) torque.

