

GENERAL MOTORS

MODEL IDENTIFICATION

Repair procedures in this article are identified by body type. The following table lists GM division, model name, and body type. Only cars with power windows are listed.

GM Division	Model Name	Body Type
Buick	Century, Regal	A
Chevrolet	El Camino, Malibu, Monte Carlo	A
Oldsmobile	Cutlass	A
Pontiac	LeMans, Grand Prix, Grand Am, Grand LeMans	A
Buick	Estate Wagon, LeSabre	B
Chevrolet	Impala, Caprice	B
Oldsmobile	88	B
Pontiac	Bonneville, Catalina	B
Buick	Electra	C
Cadillac	Fleetwood, DeVille	C
Oldsmobile	98	C
Cadillac	Limousine	D
Buick	Riviera	E
Cadillac	Eldorado	E
Oldsmobile	Toronado	E
Chevrolet	Camaro	F
Pontiac	Firebird	F
Cadillac	Seville	K
Buick	Skylark	X
Chevrolet	Citation	X
Oldsmobile	Omega	X
Pontiac	Phoenix	X
Chevrolet	Corvette	Y

DESCRIPTION

DOOR & VENT WINDOWS

Window regulators are powered by a reversible electric motor located in each door. The motor is secured to the regulator on power windows and connected by a drive cable on power vents. Each motor contains a circuit breaker and gear drive.

CIRCUIT BREAKER

A 30 amp circuit breaker protects the motor wiring for the power window system. It is mounted on the fuse panel on all models.

CONTROL SWITCHES

Individual switches are used for all passenger windows. The driver's door has a single, four-button switch or two, double-button switches. The Camaro, Firebird, and Corvette systems use a pair of single switches mounted on the console and no door switches. The motor cases are grounded on Camaro, Firebird, and Corvette. All other models are grounded through the master switch.

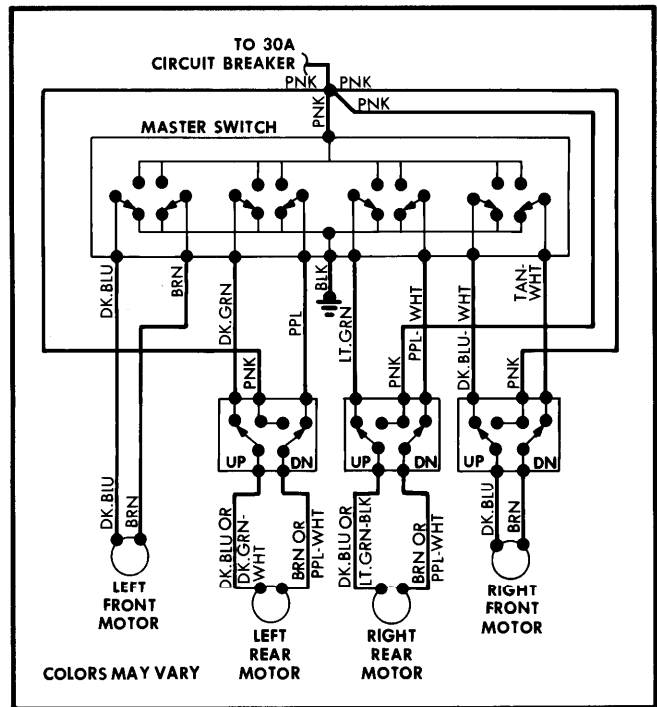


Fig. 1 GM Power Window Wiring Diagram 4-Door Models

ACCESSORY JUNCTION BLOCK

The junction block connects body power accessories to chassis wiring. It is located on the left shroud. The power window wiring harness plugs into the accessory block.

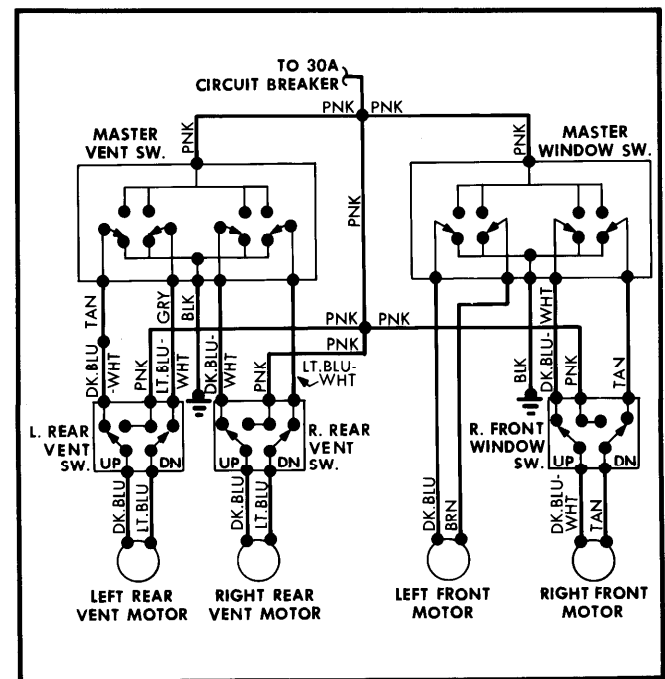


Fig. 2 GM Power Window Wiring Diagram Power Rear Vents

GENERAL MOTORS (Cont.)

OPERATION

CAMARO, FIREBIRD, CORVETTE

When the window switch is depressed, electrical current flows through the switch, actuates the motor in one direction, and is connected to ground through the motor case. Pressing the switch in the other direction provides power through the other feed wire, reversing the motor.

ALL OTHER MODELS

When the window switch is depressed, current flows through the switch, through one feed wire, the motor, and back to the master switch, where it is led to ground through a common ground wire. When the switch is pressed in the other direction, current flows through the other feed wire, through the motor, back to the master switch, and to ground.

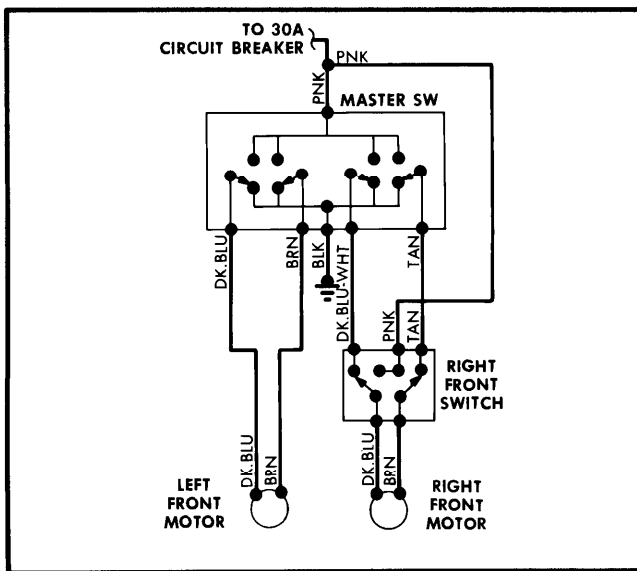


Fig. 3 GM Power Window Wiring Diagram
2-Door Models

TROUBLE SHOOTING

WINDOWS WILL NOT OPERATE

No power at circuit breaker or master switch. Ignition off. Bad ground connection at master switch. Switch defective.

INDIVIDUAL WINDOW DOES NOT OPERATE ALL OTHERS OPERATE

Defective motor. Open circuit in door. Defective window switch or master switch.

INDIVIDUAL WINDOW DOES NOT OPERATE FROM WINDOW SWITCH, OPERATES FROM MASTER SWITCH

Power feed (Pink wire) to window switch broken. Window switch defective.

TESTING

CIRCUIT BREAKER

Check power feed to circuit breaker. Test power feed after circuit breaker. Repair as necessary.

MASTER CONTROL SWITCH

Check for power at Pink wire. All other wires should have continuity to ground when switch is in rest position. Check for clean and tight ground connection.

WINDOW CONTROL SWITCH

Connect one lead of test lamp to Pink wire in switch connector, the other end to ground. If lamp does not light, check power feed wire. Locate wires to motor. Using jumper wires, connect Pink wire in switch connector to one motor wire, and ground the other wire on all but Camaro, Firebird, and Corvette. Motor should operate. Reverse wires and retest. If motor operates properly, replace switch. If not, test motor.

WINDOW MOTOR

Connect power to one motor lead and ground the other lead (except on Camaro, Firebird, and Corvette). Reverse connections and retest. If motor does not operate correctly in both directions, replace it.

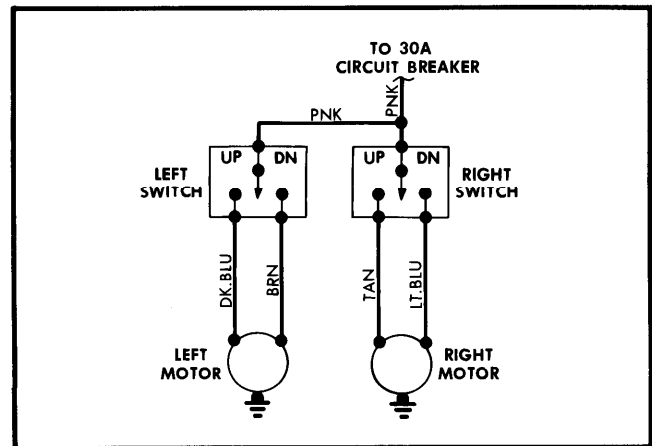


Fig. 4 GM Power Window Wiring Diagram
Camaro, Firebird, Corvette Only

REMOVAL & INSTALLATION

NOTE — Window motor can be removed from some models if window glass is intact and attached to regulator. In all other cases, window regulator and motor must be removed as an assembly, then separated when outside the door.

WINDOW MOTOR

Removal (A, E, F & Y Body Styles) — Remove inner door trim. Raise window and secure in raised position with blocks or tape. Drill $3 \frac{3}{4}$ " motor bolt access holes, using dimples in door panel (A & E Styles) or template (F & Y Styles) as a guide. Remove motor bolts, disconnect wiring, and remove motor.

GENERAL MOTORS (Cont.)

Installation — To install, lube regulator and reverse removal procedure.

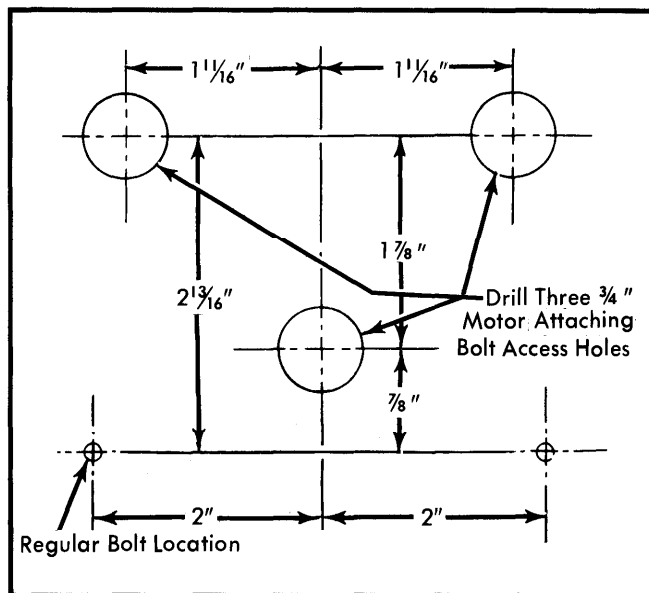


Fig. 5 Alignment Template, F and Y Body

Removal (X Body Styles) — Remove inner door trim and secure glass in raised position. Remove lower sash bolts. Drill out regulator rivets, move regulator rearward, and disconnect motor wiring. Drill out motor rivets and remove motor.

Installation — To install, reverse removal procedure and secure motor and regulator with nuts and bolts.

FRONT DOOR WINDOW REGULATOR AND MOTOR

CAUTION — To prevent personal injury after removing regulator and motor assembly, lock sector gear to back plate before removing motor. Drill a $\frac{1}{8}$ " hole through sector gear and back plate, no closer than $\frac{1}{2}$ " from edge of sector gear. Install a metal screw ($\frac{3}{4}$ " long) to lock gear, then remove motor.

Removal (A Body Style Coupe) — 1) Remove door trim and watershield. Prop window $\frac{1}{2}$ way up using rubber door stops between window and door panel. Mark panel and remove inner panel cam attaching bolts.

2) Remove vertical guide screws and guide. Disconnect wire harness at motor. Drive out rivet center pins, and drill out rivets. Remove sash cam-to-window glass nut. Slide regulator rearward to disengage rollers and remove through large access hole.

Installation — To install, reverse removal procedure using "U" nuts and screws to attach regulator.

Removal (A Body Style Sedan) — 1) Remove door trim and watershield. Raise window fully and tape or block in place. Mark locations and remove inner panel cam attaching bolts.

2) Remove door lock rod and disconnect wiring. Drive out rivet center pins and drill out rivets. Disengage regulator rollers from sash channel cam. Slide regulator rearward and remove.

Installation — To install, reverse removal procedure, using "U" nuts and bolts to secure regulator.

Removal (B and C Body Styles) — Remove door trim and water deflector. Raise window and tape in raised position. Remove lower sash channel bolts. Punch out rivet center pins and drill out regulator rivets. Disconnect wiring, then remove regulator and motor.

Installation — To install, reverse removal procedure, securing regulator with "U" bolts and nuts.

Removal (E Body Styles) — Raise window and tape in raised position. Remove inner panel cam screws and cam. Disconnect wiring, punch out rivet center pins and drill out rivets. Slide regulator backwards and forwards to disengage rollers through notch in channel cam, then remove through large access hole.

Installation — To install, reverse removal procedure, using "U" nuts and bolts to secure regulator.

Removal (F Body Styles) — 1) Remove front and rear up-travel stops. Loosen belt trim retainers across top of door. With window in $\frac{3}{4}$ down position, remove lower sash channel-to-glass nuts.

2) Remove window glass. Remove inner panel cam and disconnect motor wiring. Punch out rivet center pins and drill out regulator rivets. Remove regulator through access hole.

Installation — To install, reverse removal procedure, using "U" nuts and bolts to secure regulator.

Removal (K Body Styles) — 1) Lower glass until sash nuts are in line with access hole. Loosen front and rear glass stabilizers on top of door panel. Remove sash bolts and glass, guiding front glass stop through panel depression.

2) Punch out rivet center pins and drill out regulator rivets. Remove upper and lower regulator bolts and disconnect wiring. Push upper end of regulator into rear corner of door. Pull guide tube and sash plate out access hole, lower regulator, and remove to rear.

Installation — To install, reverse removal procedure, using "U" nuts and bolts to secure regulator.

Removal (X Body Styles) — 1) Tape glass in raised position. Remove lower sash bolts. Punch out rivet center pins and drill out rivets. Carefully pull lower window stop out of bottom of door. Lower window.

2) Disengage front corner of window from front run, then disengage plastic clip from rear run. Raise and remove glass in-board of door frame. Disconnect wiring and remove regulator.

Installation — To install, reverse removal procedure, securing regulator with "U" bolts and nuts.

REAR DOOR WINDOW REGULATOR AND MOTOR

Removal (B and C Body Styles) — Tape glass in raised position. Remove lower sash bolts. Punch out rivet center pins and drill out rivets. Disconnect wiring and remove regulator and motor.

GENERAL MOTORS (Cont.)

Installation — To install, reverse removal procedure, securing regulator with "U" bolts and nuts.

Removal (K Body Styles) — 1) Remove door remote locking rod and inside locking rod. Lower glass partially, remove glass attaching nuts, and remove glass. Punch out rivet center pins and drill out rivets.

2) Remove regulator lower support. Remove rear up-stop and regulator attaching nuts. Rotate regulator to disconnect wiring, then remove through access hole.

Installation — To install, reverse removal procedure, securing regulator with "U" nuts and bolts.

Removal (X Body Styles) — Tape glass in raised position. Drill out regulator rivets. Remove lower sash bolts, then lower and remove sash. Remove tape, then lower and tilt glass until guide clip can be removed from front run. Raise glass, rotate rearward, and remove. Move motor and regulator rearward, disconnect wiring, and remove.

Installation — To install, reverse removal procedure, securing regulator with "U" nuts and bolts.

REAR VENT AND ACTUATOR

Removal — Remove door trim panel. Working through access hole, remove rod-to-lever clip. Release drive cable clip from bracket. Carefully press rubber motor studs out of door panel. Disconnect wiring and remove actuator.

Installation — To install, reverse removal procedure. Soapy water should be applied to motor studs to ease insertion.

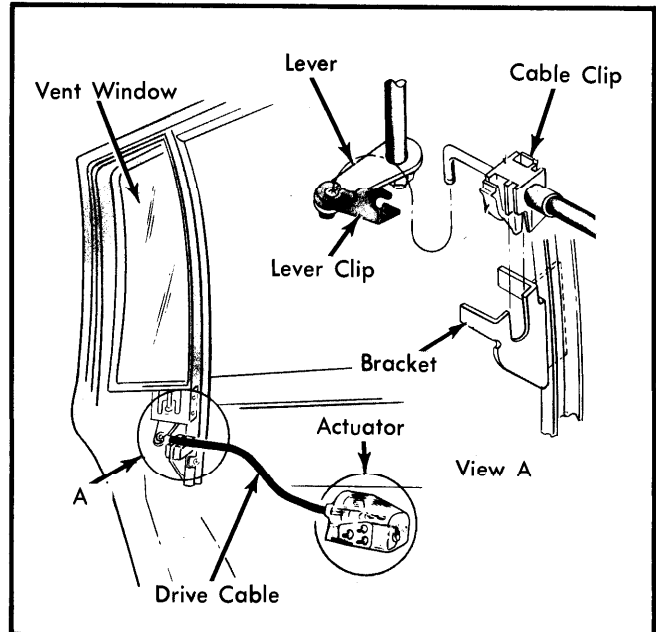


Fig. 6 Rear Door Vent Actuator Removal