

1971-74 GENERAL MOTORS

GENERAL INFORMATION

DOOR WINDOWS

Window regulators are individually powered by a reversible electric motor located in each door. The motor which is secured to the regulator assembly, contains an internal circuit breaker and a self-locking gear drive. Two way switches, located on each door, with a master control switch located on left door, control window operation. Some models also have power operated vent windows.

BODY TYPE

References will be made in the following text to certain body types. The table below will identify these body types by GM division and car name. Only cars with power windows available are listed.

GM Division	Body Type	Car Name
Buick	A	Century, Regal
Chevrolet	A	Chevelle, Monte Carlo
Oldsmobile	A	Cutlass
Pontiac	A	Grand Am, Grand Prix
	A	LeMans
Buick	B	Estate Wagon, LeSabre
Chevrolet	B	Biscayne, Bel Air Impala, Caprice
Oldsmobile	B	Delta
Pontiac	B	Catalina, Bonneville
	B	Grand Ville
Buick	C	Electra, Limited
Cadillac	C	Fleetwood, Calais
	C	DeVille
Oldsmobile	C	Ninety Eight
Buick	E	Riviera
Cadillac	E	Eldorado
Oldsmobile	E	Toronado
Chevrolet	F	Camaro
Pontiac	F	Firebird
Chevrolet	X	Nova
Pontiac	X	Ventura II

Circuit Breaker – Circuitry and wiring for power equipment is protected by a plug-in type 40 Amp circuit breaker. Breaker is mounted on the fuse panel for all GM vehicles, except for some Chevrolet "A" styles. These models use a bolt on type circuit breaker which is located in engine compartment on dash panel.

Control Switches – In addition to individual control switches adjacent to individual windows, a master control switch is mounted either in the arm rest or on the trim pad. Master switch is a four button switch for front and rear windows.

Blockout Switch (Cadillac Only) – A two position (LOCK/NORMAL) switch is installed on left front door armrest. Switch should be left in NORMAL position to permit normal operation from all switch positions. In LOCK position, the windows will operate only from master control switch.

Ignition Relay – All GM divisions except Cadillac use a relay in the window circuit to prevent window operation until ignition is turned on. The feed circuit for Cadillac is through the ignition switch. Relay is located on left shroud side panel for all styles except "F" style which is located on steering column lower support.

Accessory Junction Block – Located on the reinforcement at the left shroud. Used to supply current to power operated circuits. Current is supplied to junction block from the circuit breaker, the power window harness plugs into the junction block.

TESTING

POWER WINDOW CIRCUITS

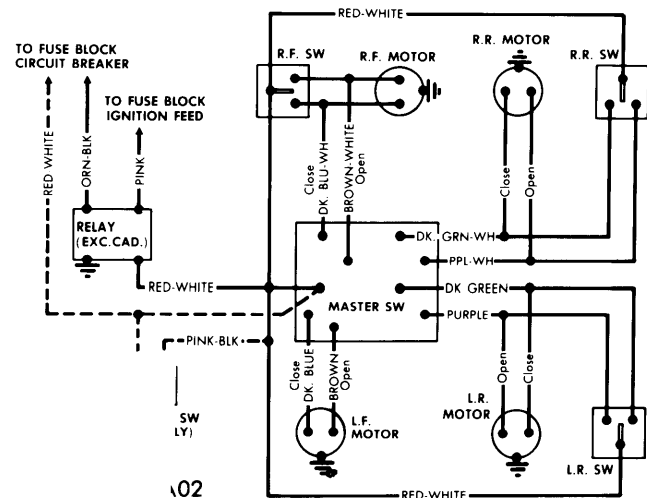
Circuit Breaker – Check power feed to circuit breaker, with no power available, feed wire is open or shorted, Test breaker output terminal, if power fails, breaker is inoperative.

Ignition Relay – Test relay feed ORANGE-BLACK wire for voltage, without voltage available, check wire leading to circuit breaker. Turn ignition "ON" and test relay RED-WHITE wire terminal. If power fails, test relay coil voltage PINK or TAN wire terminal. If power is now available, replace relay. If power fails, check circuit along PINK or TAN wire and check fuse.

Master Control Switch – Check power feed RED-WHITE wire at switch, if power fails, test wire between relay and master switch. *NOTE* – If power fails at master switch on Cadillac models, check blockout switch. With power available, by-pass switch using a jumper wire between feed terminal and one of the motor lead terminals. Test each motor terminal, if each circuit operates properly, check switch connections or replace switch.

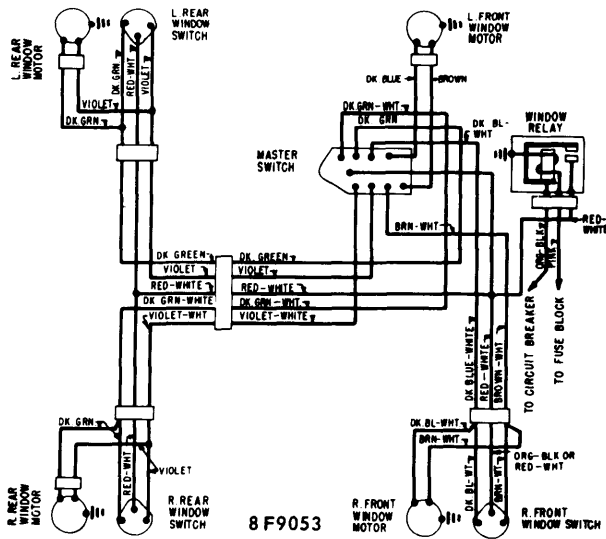
Blockout Switch (Cadillac Only) – With ignition "ON", test blockout switch using a jumper wire between the RED-WHITE wire and PINK-BLACK wire terminals. Operate control switches, if windows operate with jumper, but not with blockout switch, the switch is defective.

Window Motor – Check power feed wire to motor terminals, if power is available, check motor ground. Inspect window regulator and channels for possible binding. Connect a jumper wire to power source and one of the motor terminals, then connect to other motor terminal. Motor should operate window up and down, if not, replace motor.



"C" "E" BODY POWER WINDOW WIRING DIAGRAM (TYPICAL)

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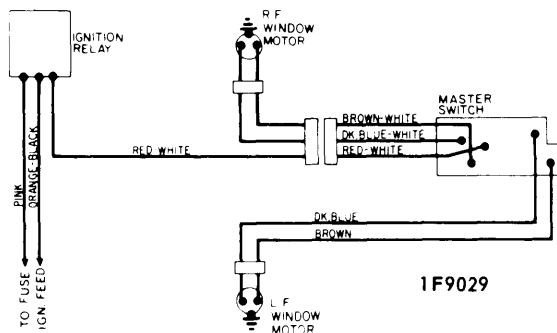


"A" BODY 4 DR. POWER WINDOW WIRING DIAGRAM

REGULATOR MOTOR REMOVAL & INSTALLATION

ALL DOORS & QUARTER WINDOWS (EXC. "A" BODY STYLE FRONT DOORS)

- 1) Remove door trim and watershield. Disconnect harness connector at motor. Refer to template illustrations for appropriate template for locating window motor to regulator attaching bolts. Use window regulator to door inner panel attaching bolts as reference points.
- 2) Align regulator bolt location specified on template with appropriate regulator attaching bolts on door. Secure template in place with tape. Using a center punch, dimple door inner panel at center of each 3/4" holes to be drilled as indicated on template. Using a 3/4" hole saw, drill three 3/4" motor to regulator attaching bolt access holes.
- 3) Remove motor attaching bolts through the 3/4" access holes, and remove motor from panel. *NOTE - Although window regulator lift arm is under tension of counterbalance spring, weight of window assembly prevents lift arm from moving. If necessary window can be moved manually to clear access holes.*



"F" BODY POWER WINDOW WIRING DIAGRAM

4) To install, reverse removal procedure noting that after replacing motor and prior to trim installation, waterproof tape must be applied to seal any hole outside of water deflector area.

"A" BODY STYLE FRONT DOORS

CAUTION - Regulator lift arms are under tension from counterbalance spring and weight of glass is required to neutralize spring during motor removal. Two motor removal procedures are given for use depending on condition of glass.

Glass Intact & Attached to Regulator - With glass intact, remove motor from regulator as follows: Remove upper and lower door trim assemblies and watershield. Use a 7/16" socket to remove motor attaching bolts from outboard side of motor. Lift motor to gain access to wire harness, disconnect harness and remove motor. To install motor, reverse removal procedure. Lubricate motor drive gear and sector teeth with suitable grease (cold weather approved to a minimum of -20°F).

Glass Broken Or Not Attached To Regulator - 1) With glass broken, motor and regulator must be removed as an assembly. See *Front Door Window Regulator Removal & Installation for "A" body doors.*

2) After removing motor and regulator from door, lock sector gear before removing motor from regulator by drilling a 1/8" hole through regulator sector gear and back plate. Install a suitable sheet metal screw 3/4" in length in drilled hole to lock gear position.

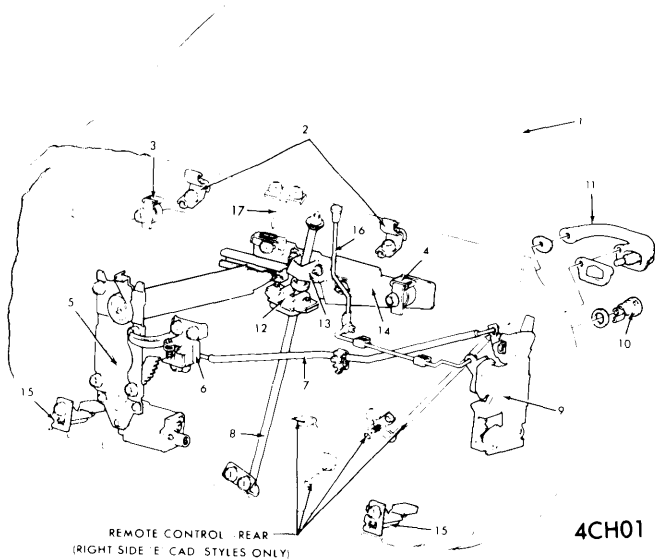
3) Remove motor attaching screws and remove motor from regulator. To install, reverse removal procedure. Lubricate motor drive gear and sector teeth with suitable grease (cold weather approved to minimum of -20°F).

FRONT DOOR WINDOW REGULATOR REMOVAL & INSTALLATION

NOTE - For body identification see Model Identification Chart.

SAFETY NOTE - After removing regulator and motor assembly, lock sector gear to back plate before removing motor as follows: Drill a 1/8" hole through sector gear and back plate. Do not drill closer than 1/2" to edge of sector gear. Install a suitable metal screw (3/4" in length) to lock gear, then remove motor. This must be done to prevent personal injury.

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- 1 - Front Door Window Assembly
- 2 - Belt Trim Support
- 3 - Stop, Window Front Upper
- 4 - Stop, Window Rear Upper
- 5 - Electric Window Regulator
- 6 - Door Lock Remote Control & Handle Assembly
- 7 - Remote Control-to-Lock Rod
- 8 - Window Guide Tube Assembly
- 9 - Door Lock
- 10 - Door Lock Cylinder
- 11 - Outside Door Handle
- 12 - Lower Sash, Lower Guide Assembly
- 13 - Lower Sash, Upper Guide Assembly
- 14 - Lower Sash Guide Assembly
- 15 - Window Bumper Support
- 16 - Inside Locking Rod
- 17 - Guide Pin Stabilizer (On Belt Reinforcement)

"B", "C", "E", BODY 2 DR. HARDTOP DOOR HARDWARE

"A" Body (Closed Style Door - 1971-72) - 1) If equipped with crank type vent window assembly, vent must be removed as follows: With door window in full up position, remove door trim panel and watershield. Remove ventilator regulator-to-inner panel attaching bolts, and ventilator "T" shaft bolt. Pull regulator down to disengage it from regulator "T" shaft, and remove regulator through access hole. Vent glass may now be removed. Loosen down stop support attaching bolts, and remove support.

2) Lower window to full down position, and remove bolt securing ventilator lower frame to door outer panel. Remove division channel lower adjusting stud nut. Remove ventilator-to-door upper frame attaching screws. Disengage upper front end of glass channel run from door upper frame to permit removal of vent, through inboard side of door upper frame. Remove main door window. Slide window lower sash channel cam off window regulator lift arm. Balance arm rollers on two door styles, and lift off roller on four door styles. Disconnect wires on regulator motor, remove regulator attaching bolts, and remove regulator through access hole.

"A" Body (Closed Style Door - 1973-74) - Remove upper and lower door trim panel and watershield. Prop window in full up position by inserting a rubber door stop between window and door inner panel. Mark location, and remove inner panel cam attaching bolts. Remove regulator attaching bolts. Disconnect wire harness at window motor. Slide front regulator upper balance arm off sash cam, then slide rear lift arm forward off sash cam. Slide regulator forward, and remove through rear access hole. To install, reverse removal procedure.

"A" Body (Hardtop Style Door - 1971-72) - Remove door trim assembly and watershield. Slide front locking rod-to-door inner panel plastic retainer toward rear of door, and slide rear plastic retainer toward front of door. Disengage rod from lock, and lower locking rod through beltline to remove. Lower window to half down position, and remove regulator attaching bolts. Disengage regulator lift arm roller from lower sash channel cam, and prop window in full up position. Rotate regulator assembly clockwise so motor portion of regulator comes out of access hole first. To install, reverse removal procedure.

"A" Body (Hardtop Style Door - 1973-74) - Remove upper and lower door trim panel and watershield. Prop window in full up position by inserting a rubber door stop between window and door inner panel. Mark location, and remove inner panel cam attaching bolts. Mark location, and remove rear guide upper and lower attaching bolts, and remove rear guide. Mark location and remove down travel stop, and front window glass stabilizer plate. Disconnect wire harness at motor. Remove regulator bolts and front lower sash channel cam-to-glass attaching nut. Slide regulator forward until front upper balance arm roller is out of sash channel cam. Lift regulator to clear roller on glass, and slide rear lift arm rearward until it disengages from rear of sash channel cam. Remove regulator through rear access hole. To install, reverse removal procedure.

"B", "C", "E" Body (Hardtop & Convertible Style Doors) - Remove door trim panel and watershield. Remove inside locking rod as follows: Slide front locking rod-to-door inner panel plastic retainer toward rear of door, and slide rear plastic retainer toward front of door. Disengage rod from lock, and lower locking rod through beltline to remove. Lower window to half down position and remove regulator attaching bolts. Disengage regulator lift arm roller from lower sash channel cam and prop window in full up position. Rotate regulator assembly clockwise so that motor portion of regulator comes out of access hole first. To install, reverse removal procedure.

"B" & "C" Body (Four Door Styles) - Remove upper and lower portion of door trim panel and watershield. Remove front and rear window up-travel stops. Loosen front and rear window stabilizer strips. With window in 3/4 down position, remove lower sash channel cam-to-glass attaching nuts. Remove window by lifting straight up and aligning rollers with notches provided in inner door panel. Remove rear end of window first, then front end. Disconnect wire harness connector at regulator motor. Remove regulator attaching bolts, and regulator. To install, reverse removal procedure.

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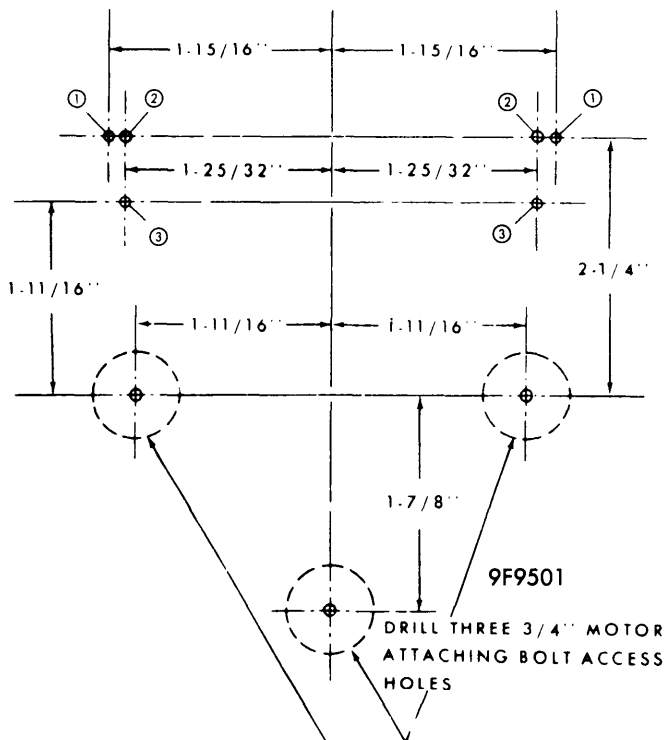
"F" Body, Door — Remove door trim assembly and watershield. Mark location and remove front and rear window up-travel stops. Loosen front and rear window stabilizer strips. With window in $\frac{3}{4}$ down position, remove lower sash channel cam-to-glass attaching nuts. Remove window by lifting straight up and aligning rollers with notches provided in door inner panel. Disconnect wire harness connector at regulator motor. Remove regulator attaching bolts and remove regulator. To install, reverse removal procedure.

REAR DOOR WINDOW REGULATOR REMOVAL & INSTALLATION

NOTE — For body identification see Model Identification chart.

SAFETY NOTE — After removing regulator and motor assembly, lock sector gear to back plate before removing motor as follows: Drill a $\frac{1}{8}$ " hole through sector gear and back plate. Do not drill closer than $\frac{1}{2}$ " to edge of sector gear. Install a suitable metal screw ($\frac{3}{4}$ " in length) to lock gear, then remove motor. This must be done to prevent personal injury.

"A" Body Styles (Hardtop Door) — Remove upper and lower door trim assembly, and watershield. Loosen belt trim support retainer attachments. Remove front and rear-up travel stops. Remove lower sash guide plate assembly-to-glass attaching stud nuts. Tilt upper edge of glass inboard to disengage glass from guide plate. Remove window by lifting straight up. Remove four regulator attaching bolts. Then disengage regulator lift arm from sash plate guide cam. Remove upper and lower guide tube assembly attaching screws, and remove guide tube and lower sash guide plate assembly from door. Disconnect wire harness and remove regulator from door. To install, reverse removal procedure.



- ① — "B", "C", & "E"-37,47,57 & 67 Style Front Doors.
- ② — "C"-69 Rear Doors.
- ③ — "B"-35,39,45,69 & "C"-49 Front & Rear Doors, "C"-69 Front Doors.

ALIGNMENT TEMPLATE

"A" Body (Closed Style Door) — Remove door trim panel and watershield. With window in a $\frac{3}{4}$ down position, remove lower sash channel cam attaching screws. Rotate rear edge of glass downward, and remove window by lifting front edge of glass upward on outboard side of door upper frame. Remove inner panel cam attaching bolts. Disconnect wire harness from regulator motor. Remove regulator attaching bolts, and remove regulator.

"B" Body (Closed Style Doors) — Remove upper and lower portion of door trim panel and watershield. Lower window to a $\frac{3}{4}$ down position, remove lower sash channel cam-to-glass attaching stud nuts. While supporting glass, disengage cam from rollers on regulator lift balance arms and remove cam. Raise window to full up position and secure with cloth-backed body tape. Remove inner panel cam attaching bolts. Loosen window regulator attaching bolts and remove regulator through access hole. To install, reverse removal procedure.

"B" & "C" Body Hardtop Door (Exc. Cad. Fleetwood) — Remove upper portion of door trim panel and watershield. Prop window in full up position, remove center guide cam upper and lower attaching bolts. Pull guide downward to disengage from window lower sash guide plate roller assembly. Remove guide through access hole. Prop glass in a full up position by placing rubber door wedge stops between glass and inner panel (at belt) at front and rear of glass. Remove regulator attaching bolts, slide regulator lift arm roller out of lower sash channel cam and remove regulator through large access hole. To install, reverse removal procedure.

"C" Body Cadillac Fleetwood — Remove upper and lower portion of door trim assembly and inner panel watershield. Remove window regulator attaching bolts, disconnect regulator lift arm roller from lower sash channel cam and prop window in full up position. Rotate regulator assembly clockwise so motor portion of regulator assembly comes out first. To install, reverse removal procedure.

REAR QUARTER WINDOW REGULATOR REMOVAL & INSTALLATION

"B", "C", "E" Body (Hardtop & Convertible Styles) — Remove rear seat cushion, seat back, rear quarter trim and watershield or loading hole cover. With convertible styles, lower top. Lower glass to half down position. Remove rear up-travel stop bolt and stop from inner panel. Remove lower down-travel stop bolt and stop. Remove attaching bolts from upper support assembly-to-inner panel. Remove attaching bolts from lower guide support. Disconnect regulator lift arm from sash channel cam and remove glass and guide as an assembly. Disconnect motor wire harness and remove

1971-74 GENERAL MOTORS (Cont.)

regulator attaching bolts. Remove regulator through access hole. To install, reverse removal procedure.

"A-27", "A-77" & "X-27" Body (1971-72) – Remove quarter trim panel assembly, watershield, and access hole cover. Disconnect wire harness at motor. While supporting window, disengage clip retainer securing regulator lift arm to glass. Prop window in full up position. Remove regulator attaching bolts, and remove regulator.

"A" Body (Hardtop & Convertible – 1971-72) – Remove quarter trim panel assembly, watershield, and access cover. Disconnect wire harness at motor. Prop window in an up position, and remove all window guide assembly attaching bolts. Remove regulator-to-quarter inner panel attaching bolts, disengage lift arm roller from sash channel, and remove regulator through access hole.

