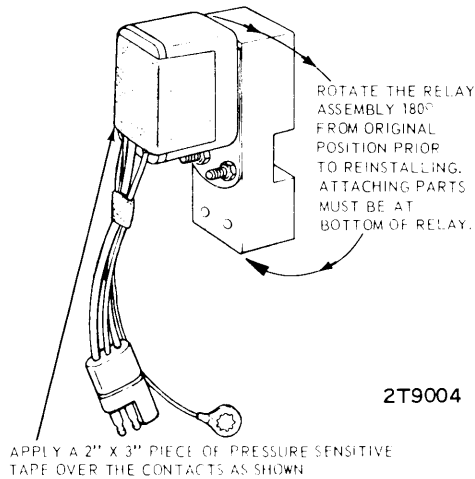


1970-73 FORD MOTOR CO.

►CHANGES, CAUTIONS, CORRECTIONS

- **1969-70 FORD POWER WINDOWS STICKING IN UP POSITION:** Problem is caused by the nylon gear "growing" or distorting due to moisture. Problem is solved by replacing gear with later type "Delrin" gear, not affected by moisture.
- **1970 ALL FoMoCo VEHICLES EQUIPPED WITH POWER WINDOWS:** When servicing a 1970 vehicle for power window malfunctions, the door drain seals should be removed to prevent the possibility of water accumulation in the area of power window motor.
- **1970-71 THUNDERBIRD INOPERATIVE POWER WINDOWS AND AIR CONDITIONING:** This malfunction can be caused by an inoperative power window relay which provides power for both systems.
- **1971 FoMoCo POWER WINDOWS INOPERATIVE-PREVENTING WATER CONTAMINATION OF RELAY:** Inoperative power windows may be caused by water entering power window relay. To correct condition, remove relay and apply a 2" x 3" piece of pressure sensitive tape over terminals (see illustration). Rotate relay 180° and reinstall with attaching parts at bottom of relay.



PROTECTION FROM WATER CONTAMINATION

DESCRIPTION

Power windows are operated by a reversible type motor combined with each individual window regulator assembly. Individual switches are located at each window for separate control. A master switch is on left front door to control all windows. A lock-out switch on master control unit enables windows to be operated only by the driver of the car. On all windows, a safety relay on firewall in engine compartment prevents window operation except when ignition switch is in ON or ACC positions. **NOTE** - For power operated station wagon tailgate window, see "Ford Motor Co. Tailgate Window" in this section.

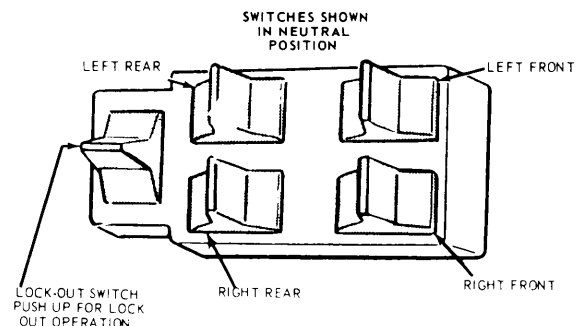
TESTING

Window Motor - With motor removed from vehicle, connect a fully charged battery to motor with an ammeter in series.

Current draw for this no load test should not exceed 5 amps @ 12.8 volts, and should not fluctuate. Reversal of battery connections should reverse the rotation of motor, while the current draw should remain the same. Replace motor if current draw exceeds specifications. With motor installed, normal current draw should be about 12 amps. With window against a stop, current draw should be about 20 amps.

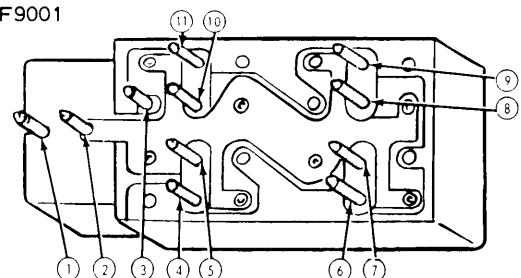
Window Switch - With switch removed from vehicle, use a self-powered test light or ohmmeter to perform the following tests. See illustration for pin numbers.

- 1) Clip one test lead probe on switch pin No. 3 which is grounded. With all switches in neutral position, pins No. 4 through 11 should have continuity to pin No. 3.
- 2) Push any one or all four of the switches forward. All odd numbered pins of the switches pushed forward should lose continuity to pin No. 3.
- 3) Push any one or all four switches rearward and all even numbered pins (4 through 10) of the switches pushed rearward should lose continuity to pin No. 3.
- 4) Remove test lead clip from pin No. 3 and connect it to pin No. 2. With all switches in neutral position, only pin No. 1 should have continuity to pin No. 2.
- 5) Push any one or all four switches forward and hold in that position. All odd numbered pins of switches pushed forward should have continuity to pin No. 2.
- 6) Pull any one or all switches rearward and hold in that position. All even numbered pins of the switches pulled rearward should have a continuity to pin No. 2.
- 7) If any one switch does not test as above, replace switch.



- 1-----LOCK-OUT SWITCH TERMINAL
- 2-----HOT FEED WHEN IGNITION SWITCH IS "ON"
- 3-----GROUND TERMINAL
- 4 & 5 ---MOTOR TERMINALS - LEFT REAR
- 6 & 7 ---MOTOR TERMINALS - LEFT FRONT
- 8 & 9 ---MOTOR TERMINALS - RIGHT FRONT
- 10 & 11 ---MOTOR TERMINALS - RIGHT REAR

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WINDOW SWITCH PIN CONNECTIONS & NUMBERS

1970-73 FORD MOTOR CO. (Cont.)

Power Window Relay

On all models except Lincoln Continental (1970-71), the relay is located in the engine compartment, either on the firewall or the right hand wheel house. On Lincoln Continentals (1970-71) relay is located in the luggage compartment, mounted on the package tray. Test relay as follows:

1) Connect one lead of a test lamp to ground. Connect the other lead to the output side of relay. Place the ignition switch in ON or ACC position and the bulb of the test lamp should light. If it does not, test continuity of wiring from ignition switch to actuating terminal of relay. Check voltage availability at input terminal of relay. If wiring and voltage OK, replace relay.

COMPONENT REPLACEMENT

POWER WINDOW SWITCH

Ford, Mercury, Meteor (1970) – Locate notch at each end of switch bezel. Insert a small screwdriver in notch and depress the bezel locking tab until the bezel is released. Release other end of bezel using same procedure. Remove switch by carefully prying it out of retainer with small screwdriver.

Ford, Mercury, Meteor (1971-72) – Fabricate a tool from a strip of metal 1/8" thick, 1/4" wide and 4" long. Bend metal 1" from end to form a 45° angle. Insert 1" end of tool in hole behind bezel and push retaining clip from retaining ear at top of hole. Repeat at other end of bezel. Pry switch from connector with screwdriver. On Brougham models, remove screw from bezel and lift bezel and switch from armrest.

Fairlane, Montego, Cougar, Mustang, Torino (1970-72) – Remove trim panel, disconnect wiring, remove switch retaining screws and switch.

Lincoln, Continental Mark III (1970-72), Thunderbird (1970) – Remove armrest, remove switch retaining screws from bottom of armrest, remove switch.

Thunderbird (1971-72) – Remove armrest from finish panel. Remove speaker from armrest (if equipped). Remove bezel and nut from mirror remote control unit (left door only). Pull armrest away from trim panel and disconnect power window switch wires and vacuum switch hoses, and feed mirror control cable out of armrest. Remove two screws and remove switch from armrest.

Ford, Mercury, Meteor, Thunderbird, Continental Mark IV (1973) – Remove screw from front of bezel. Lift bezel and switch from arm rest. On drivers side of car, bezel and nut for remote control mirror must also be removed. Switch can then be separated from connector.

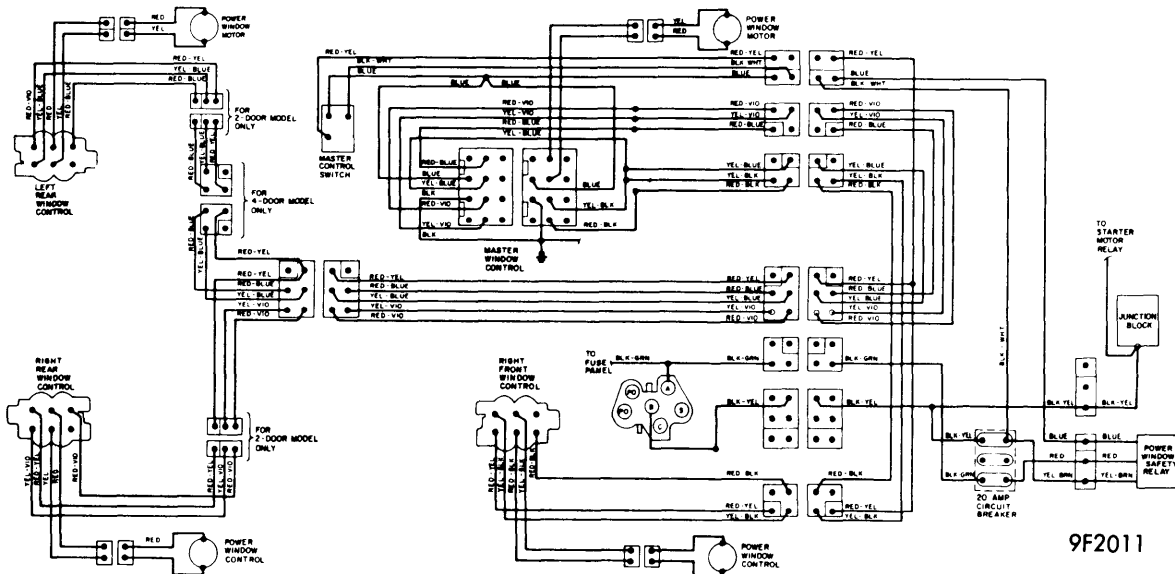
Torino, Montego, Mustang, Cougar (1973) – Remove switch bezel retaining screw from bottom side of switch. Then pivot lower edge of bezel out and up. Switch is held in place by electrical contact pins. Carefully pry switch from connector with a small screwdriver.

Lincoln Continental (1973) – Remove arm rest. From bottom of arm rest, remove switch retaining screws. Disconnect switch and remove it from arm rest.

FRONT DOOR WINDOW REGULATOR & MOTOR

All Models (1970-72) – Remove door trim panel and watershield. On some models of Montego and Torino, it will be necessary to remove bolts attaching regulator to door panel and lay regulator in bottom of door while removing glass from door. After removing glass, regulator may be removed. It is not necessary to remove glass on other models.

Lincoln Continental (1973) – Remove door trim panel and watershield. Disconnect motor wires. Support glass in UP position. Disconnect window regulator arms from glass channel and door inner panels at pivots. Disconnect glass channel brackets from glass channel. Disconnect remote control rod from door latch. Remove rear weatherstrip and molding from door. Remove center pins from regulator attaching rivets with a drift punch. Then remove rivets with a 1/4" drill. Remove regulator from door.

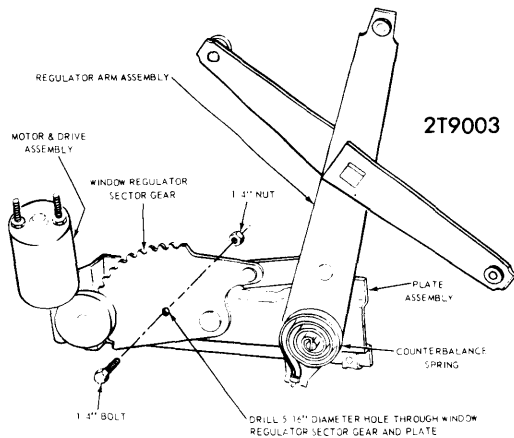


1970 THUNDERBIRD POWER WINDOW WIRING DIAGRAM

1970-73 FORD MOTOR CO. (Cont.)

All Other Models (1973) – Remove door trim panel and watershield. Support glass in an UP position. Remove center pins from motor bracket-to-inner panel attaching rivets with a drift. Then remove rivets with a 1/4" drill. Disconnect motor wires at connector. Remove center pins from regulator attaching rivets with a drift, then drill out rivets with a 1/4" drill. Disconnect regulator arm from glass bracket and remove regulator from door.

CAUTION ALL MODELS (1970-73) – After removing regulator and motor from vehicle, mount assembly in vise and drill a 5/16" hole in the regulator sector gear and the regulator plate. Install a 1/4" bolt and nut in the hole. This **MUST BE** done to prevent gear from moving when the motor and drive assembly is removed from regulator. This also will prevent the chance of personal injury.

**MOTOR & DRIVE ASSEMBLY REMOVAL CAUTION**

NOTE – To remove window without having to remove regulator, obtain suitable template showing location of three motor and drive mounting bolts behind inner door panel. Template may be used for either door by reversing it, use template as follows:

1) Remove trim panel and watershield. Properly position template on door and center-punch location of mounting bolts. Raise glass to UP position. With pilot drill as short as possible (1/4"), drill three holes at the center-punched points with a 3/4" hole saw.

2) Remove motor support bracket and wires. Working through 3/4" holes, remove the three motor and drive to regulator screw. Remove motor and drive assembly.

REAR DOOR WINDOW REGULATOR & MOTOR

NOTE – On some 1972-73 models, a motor support bracket is held in place at inner door panel by pop-rivets that must be drilled out.

Torino, Montego, Fairlane (Station Wagon 1970-72) – Remove door trim panel and watershield. Lower glass and remove screw attaching division bar to door frame. Remove screw attaching rear run to bracket and bracket to inner panel, and remove bracket. Remove rear run from retainer and remove division bar from door. Raise and support glass and remove three screws from channel bracket to glass and remove glass from door. Remove equalizer arm to inner panel attaching screw. Remove four screws attaching the regulator to inner door panel and remove regulator.

Ford, Mercury, Meteor, Lincoln Continental (1970-72) – Remove door trim panel and watershield. Support glass and remove drive arm bracket from glass rear bracket. Remove screw attaching front end of equalizer arm bracket to inner door panel. Disconnect window regulator motor wires and bracket. Remove regulator attaching screws and remove regulator from door.

Thunderbird (1970-72) – Remove rear door trim panel and watershield. Lower glass and support it 3/4 of the way down. Remove two screws attaching regulator arm bracket to glass channel and remove bracket. Remove nut and washer from regulator arm to glass channel pivot, and remove pivot, bushing and washer. Disconnect motor wires and motor bracket. Remove nut, washer, screw and bushing attaching the regulator arm pivot to door inner panel. Raise glass all the way up and support it. Remove screws attaching regulator to door inner panel and remove regulator.

Ford, Mercury, Meteor, Torino, Montego, Continental (1973) – Remove door trim panel and watershield. Support glass in the UP position. Remove center pins from regulator, and motor support bracket rivets with a drift. Drill out rivets with a 1/4" drill. Also drill out motor bracket-to-inner panel attaching rivets. Disengage regulator arm roller from glass bracket and remove regulator.

Ford, Mercury, Meteor (4 Door Hardtop Models 1973) – Remove door trim panel and watershield. Support glass in an UP position. Remove the center pins from the regulator attaching rivets, then remove rivets with a 1/4" drill. Remove lower window stop. Remove front guide lower attaching screw. Remove drive arm bracket from glass. Disconnect motor wires and remove regulator.

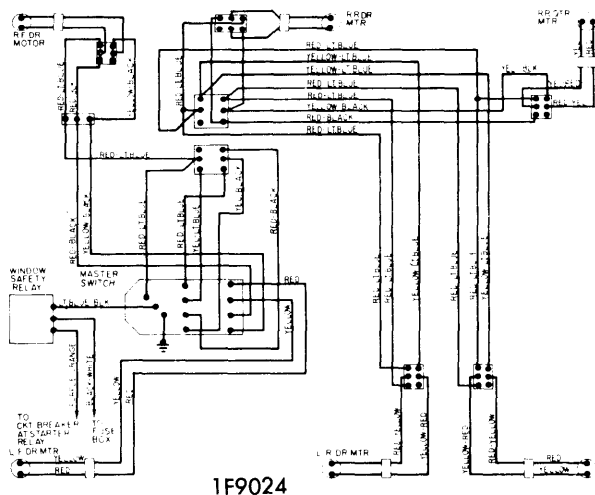
CAUTION ALL MODELS (1970-73) – After removing regulator and motor from vehicle, mount assembly in vise and drill a 5/16" hole in the regulator sector gear and the regulator plate. Install a 1/4" bolt and nut in the hole. – This **MUST BE** done to prevent gear from moving when the motor and drive assembly are removed from regulator. This will also prevent the chance of personal injury.

NOTE – To remove window without having to remove regulator, obtain suitable template showing location of three motor and drive mounting bolts behind inner door panel. Template may be used for either door by reversing it, use template as follows:

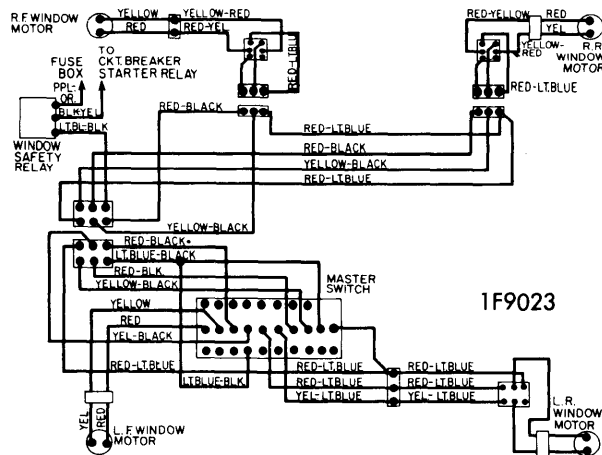
1) Remove trim panel and watershield. Properly position template on door and center-punch location of mounting bolts. Raise glass to UP position. With pilot drill as short as possible (1/4"), drill three holes at the center-punched points with a 3/4" hole saw.

2) Remove motor support bracket and wires. Working through 3/4" holes, remove the three motor and drive to regulator screws. Remove motor and drive assembly.

1970-73 FORD MOTOR CO. (Cont.)



**1971-73 POWER WINDOW WIRING DIAGRAM
FORD & MERCURY**



**1970-73 POWER WINDOW WIRING DIAGRAM
MUSTANG & COUGAR**

QUARTER WINDOW REGULATOR & MOTOR

Torino, Montego (1970-72) – Remove quarter trim panel and watershield. Remove equalizer arm to inner panel attaching screw. Remove glass channel rear bracket and disconnect motor wires. Remove four window regulator attaching screws. Disengage regulator arm rollers from glass channel and remove regulator.

Lincoln Continental, Ford, Mercury (1970-72) – On convertible models raise the top partially. Remove trim panel front retainer bracket. Remove window regulator equalizer to inner panel attaching screw. Lower glass and remove front guide. Then remove upper rear stop. Support the glass and remove glass channel bracket. Disconnect motor wires and support bracket. Remove window regulator attaching screws and disengage arm roller from glass channel. Raise glass slightly and remove it from rear guide. Remove rear guide and remove regulator from quarter panel.

Continental Mark III & IV (1970-72) – Remove trim panel and watershield. Remove light from roof quarter trim panel and remove panel. Remove headlining from tacking strip at window opening and remove tacking strip. Remove the two nut and washer assemblies from lower adjusting screws. Remove ten screws attaching window regulator panel and remove panel. Loosen two screws retaining the quarter window assembly at pillar. Remove quarter window assembly screws, disconnect motor wires and remove assembly from vehicle. Remove six screws retaining the outer panel to inner panel and separate both panels. Remove the stop from slide carrier. Remove cable clamp from regulator. Separate glass and carrier assembly from regulator and motor.

Thunderbird (1970-72) – Remove trim panel and watershield. Disconnect motor wires and remove window glass. Remove plates retaining guide plates to quarter panel. Remove hair pin clip retaining regulator arm to glass channel assembly. Remove regulator retaining bolts. Support glass and remove regulator arm from glass. Remove regulator out through access hole in quarter panel.

Mustang & Cougar (1970) – Remove rear seat cushion and seat back. Remove quarter trim panel and watershield. Lower glass and disconnect regulator arm from glass channel. Raise glass and support it in an UP position. Remove four regulator attaching screws and remove regulator.

Mustang, Cougar (1971-73) – Remove quarter trim panel and watershield. Support glass and remove spring retainer and washer from glass bracket stud. Remove regulator arm and washer from stud. Remove four screws attaching regulator to inner panel and remove regulator.

Thunderbird, Mark IV, Torino, Montego (1973) – Remove quarter trim panel and watershield. Remove center pins from motor bracket-to-inner panel attaching rivets with a drift. Drill out rivets with a 1/4" drill, also drill out regulator attaching rivets if necessary. Disengage arm from drive arm bracket, lower regulator to bottom of panel and remove through lower opening.

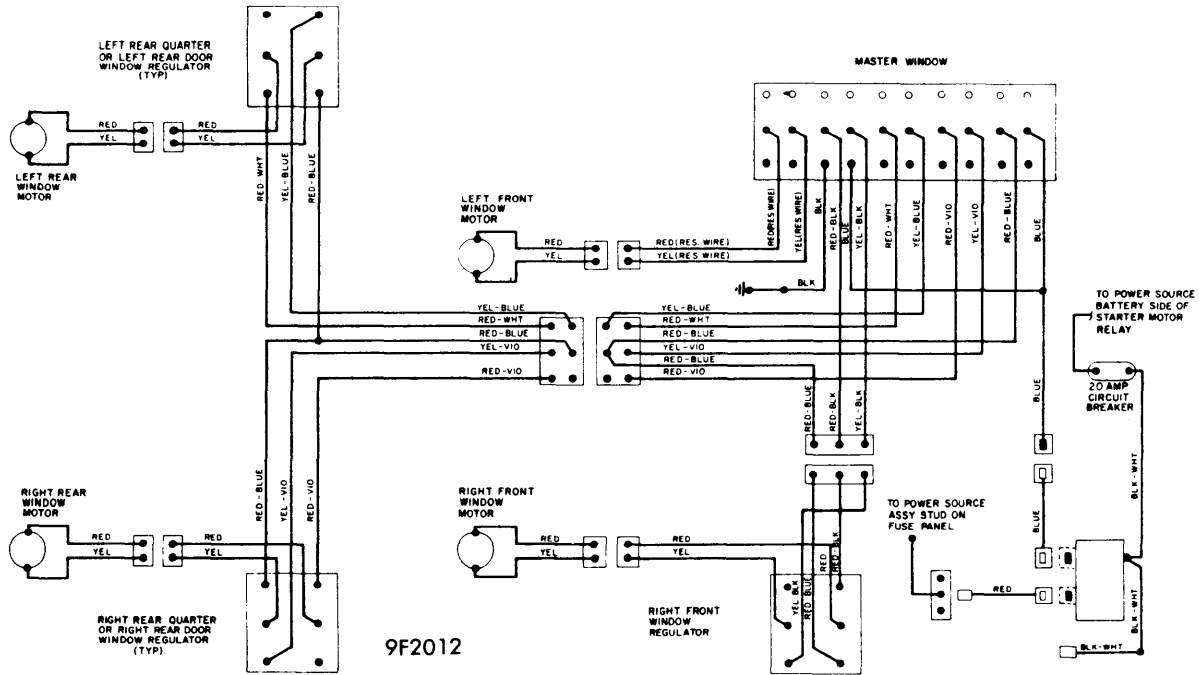
Lincoln Continental (1973) – Remove quarter trim panel and watershield. Remove window regulator equalizer arm-to-inner panel attaching screw. Lower glass and remove front guide. Remove rear upper stop, support glass and remove glass channel bracket. Remove center pins from regulator and motor support attaching rivets with a drift. Remove rivets with a 1/4" drill. Disengage regulator arm roller from glass channel. Raise glass partially and remove it from rear guide. Remove regulator from quarter panel.

Ford, Mercury, Meteor (1973) – Remove quarter trim panel and watershield. Mark location of the three guide attaching screws and remove screws. Disconnect motor leads. Remove center pins from regulator attaching rivets. Support glass and remove rivets with a 1/4" drill. Disengage regulator arms from glass bracket channel and equalizer bracket and remove regulator.

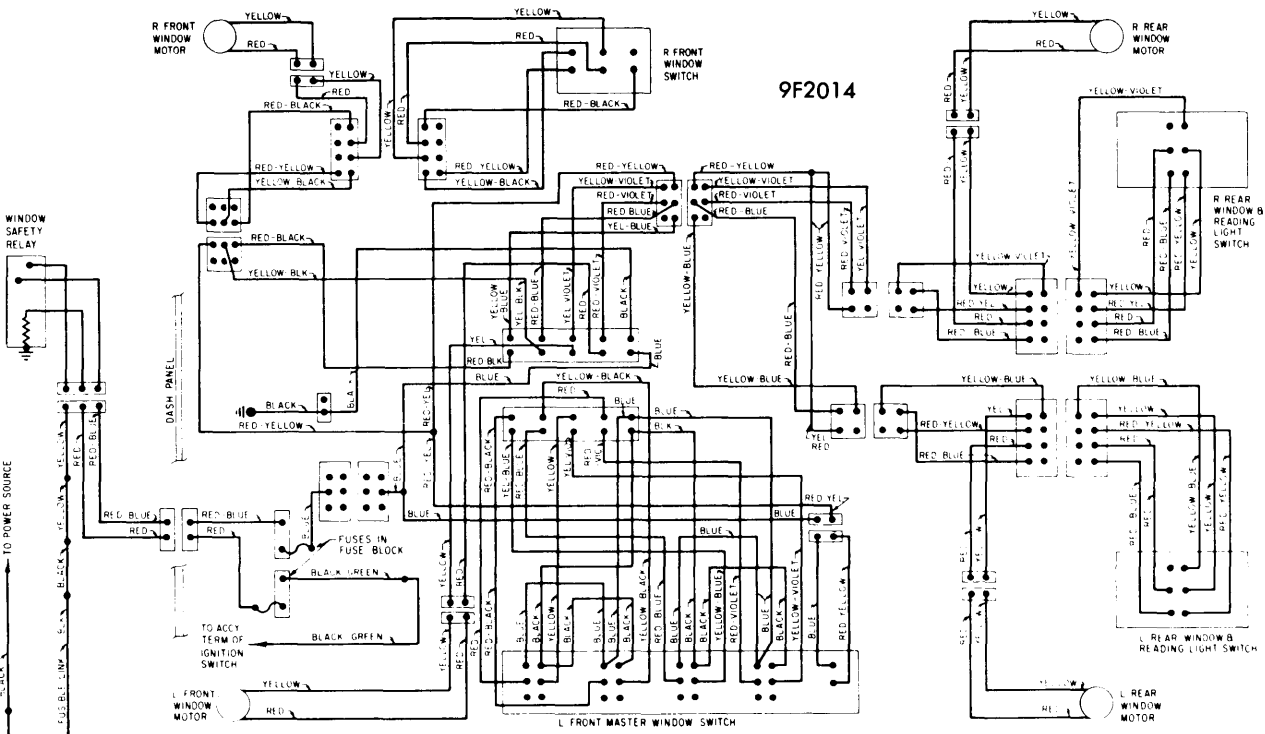
CAUTION ALL MODELS (1970-73) – After removing regulator and motor from vehicle, mount assembly in vise and drill a 5/16" hole in the regulator sector gear and the regulator plate. Install a 1/4" bolt in hole. This must be done to prevent gear from moving when motor and drive assembly are removed from regulator. This will also prevent the chance of personal injury.

Electric Window Controls

1970-73 FORD MOTOR CO. (Cont.)



1970 POWER WINDOW WIRING DIAGRAM FORD & MERCURY



1970-72 POWER WINDOW WIRING DIAGRAM LINCOLN CONTINENTAL

