

# Technical Service Bulletin

**Dodge****Dodge Cars**Of Interest ☐ General Manager ☐ Sales Manager ☐ Service Manager ☐ Parts Manager ☐ Service Technicians

An electrically-operated motor-driven Sunroof, Figures 1 and 2, is available as an optional feature on the 1971 Charger and Challenger when equipped with vinyl roofs. The Sunroof permits opening of a sliding roof panel to admit sunshine and outside air into the passenger compartment.

March 24, 1971

No. D71-23-16

## OPERATION

The Sunroof is operated by a two-position switch, Figure 3, located on the left side of the roof panel. To open roof panel, with ignition ON, the control switch is moved toward "OPEN" position. The roof panel then retracts down and rearward, moving on guide rails, Figure 2, from the flush roof position back into a storage space between the headlining and the roof. To close the roof panel, the switch is moved to the "CLOSED" position. The panel then moves forward in the guide rails and, as it nears the end of forward travel, the rear portion moves upward on two ramps, Figure 2. This positions the panel flush with the roof and seals it tightly in the opening.

BODY

Electric  
Sunroof

The Sunroof can be left partially open by releasing the control switch at any position in either direction of its travel.

## MANUAL OPERATION

The Sunroof can be closed manually in the event it should fail to close when the control switch is moved to the "CLOSED" position. To do this, remove the small round plug located in the center of the headlining near the front edge of the roof opening to gain access to the winding gear. Remove the plug by grasping with fingers and pulling outward, Figure 4. Remove the screw, which is visible when the plug is removed.

MODELS: 1971  
Charger and  
Challenger  
Two-Door  
Hardtop

**CAUTION:** Observe the number and type of washers removed with the screw. The screw and washers provide adjustment for the auxiliary drive clutch.

(Over)

P-793-C

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**Dodge****CHRYSLER**  
MOTORS CORPORATION

CHALLENGER / CHARGER / CORONET / DART / MONACO / POLARA



## GENERAL DESCRIPTION

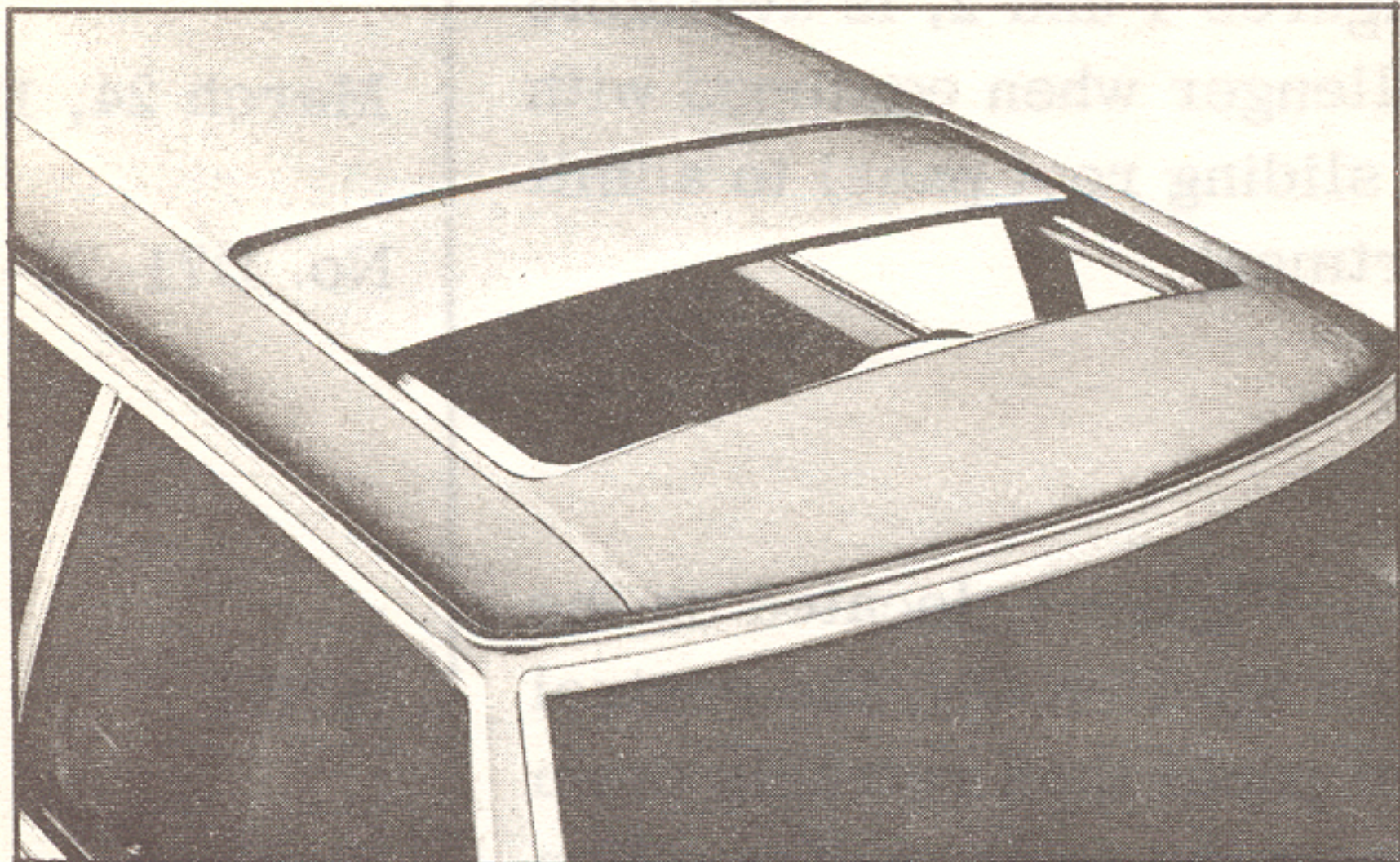


Fig. 1. Sunroof - Partially Opened

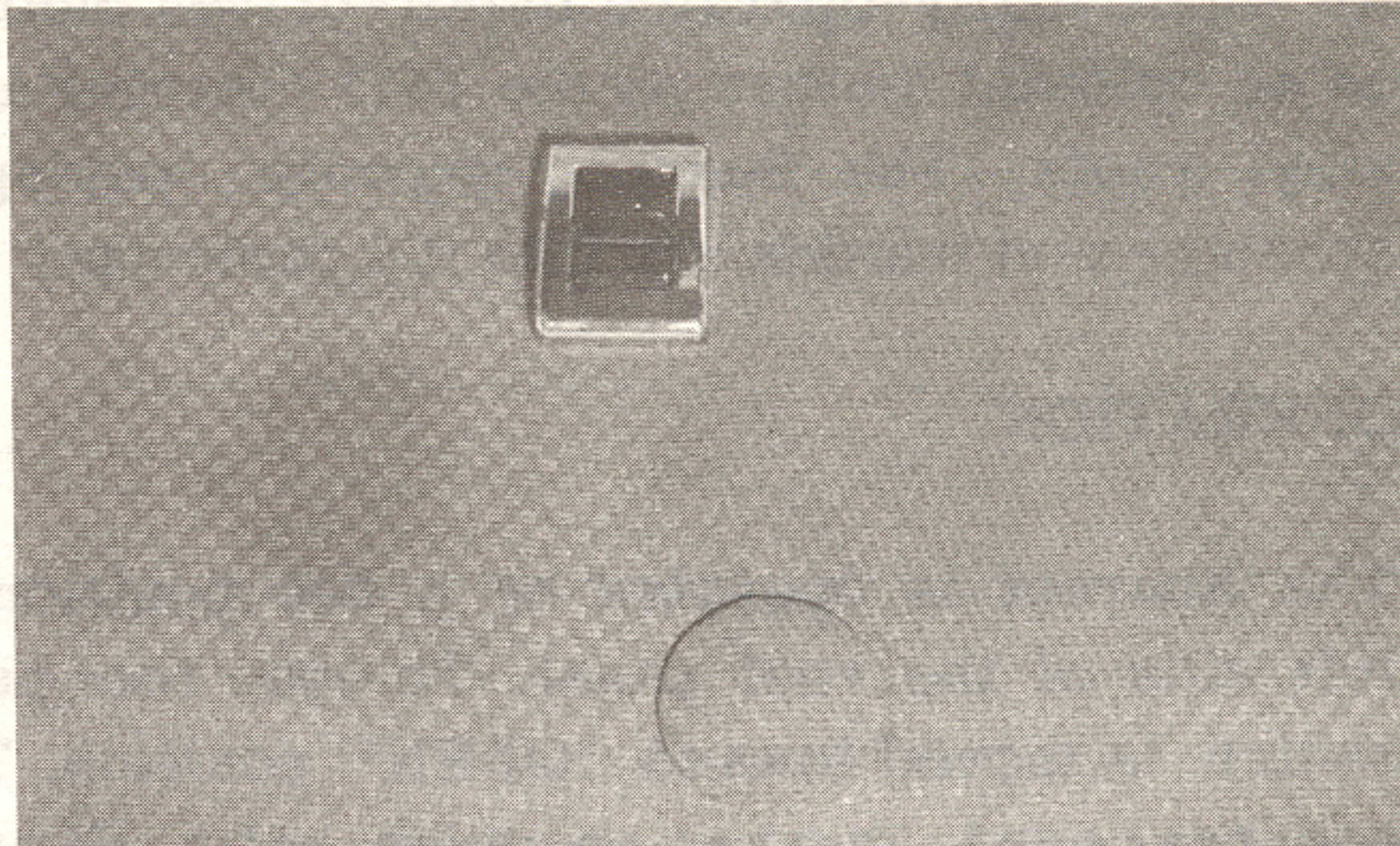


Fig. 3. Control Switch

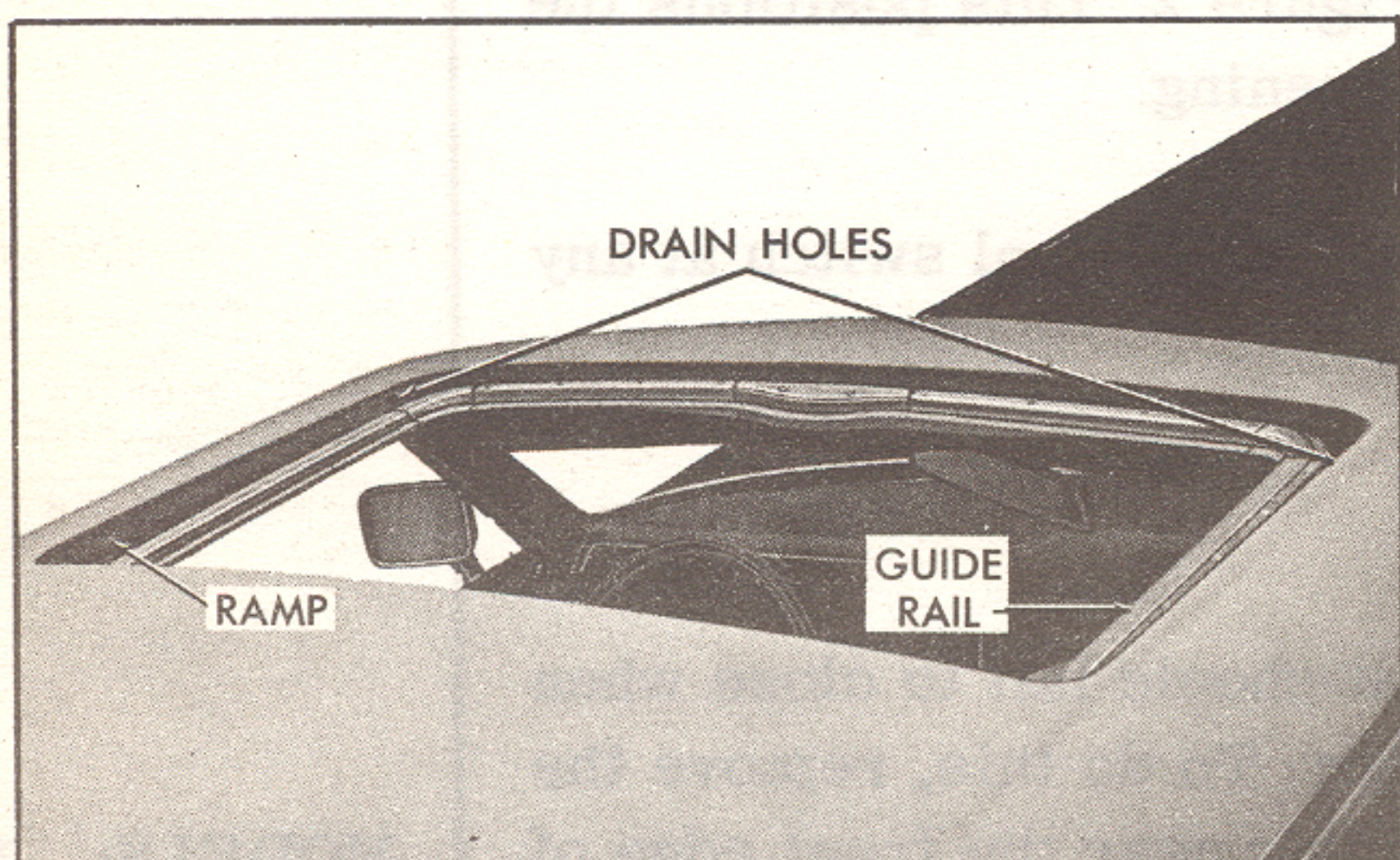


Fig. 2. Sunroof - Fully Opened

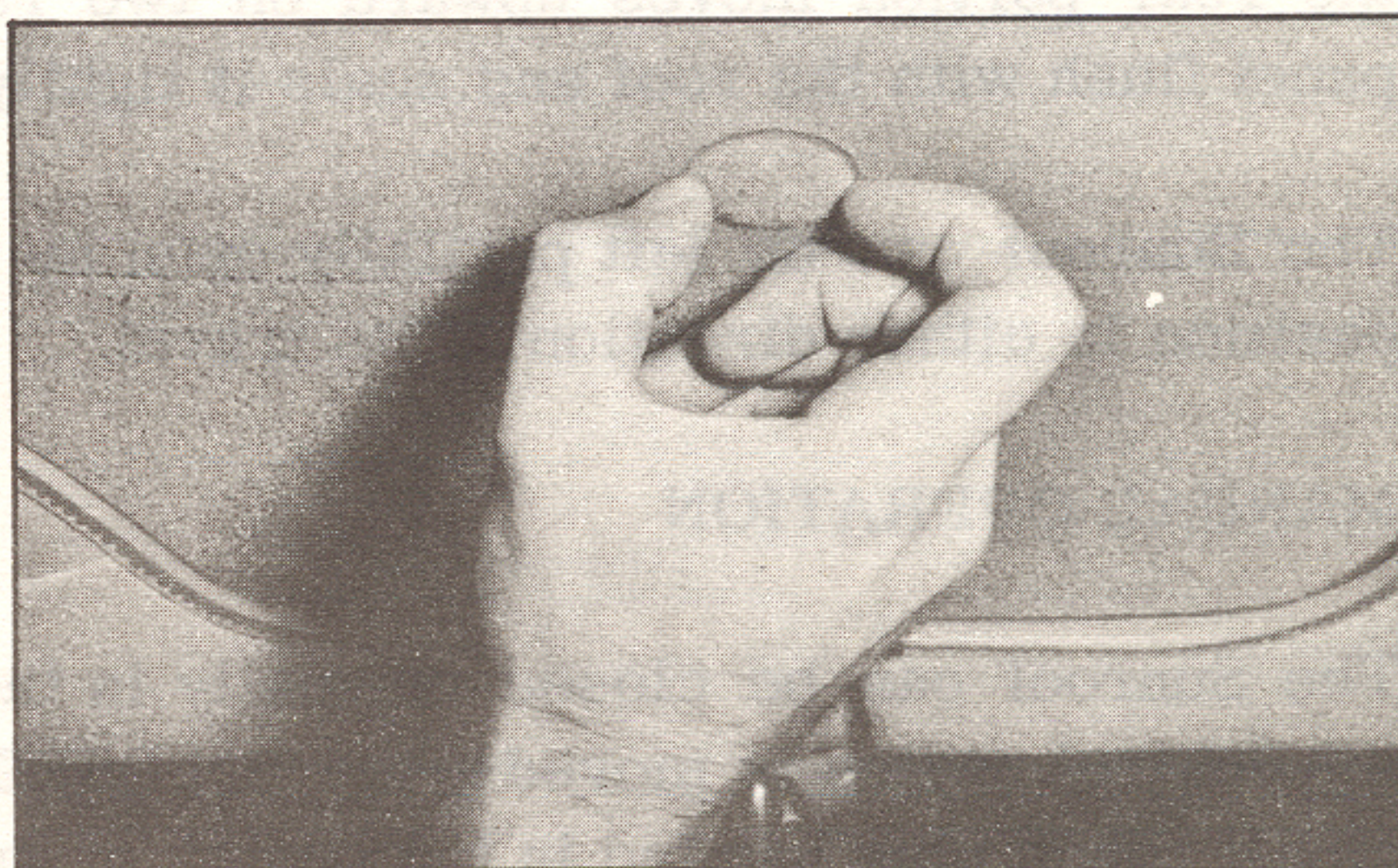


Fig. 4. Removing Winding Gear Access Plug

Using the crank handle, which is provided in the glove box, insert the threaded end into the socket in the winding gear, Fig. 5. Turn crank handle clockwise to close the roof. Remove the crank handle, install the screw with washers in their proper order, and tighten the screw securely. Then replace the round plug.

**NOTE:** The Crank handle can be used only to close the roof.



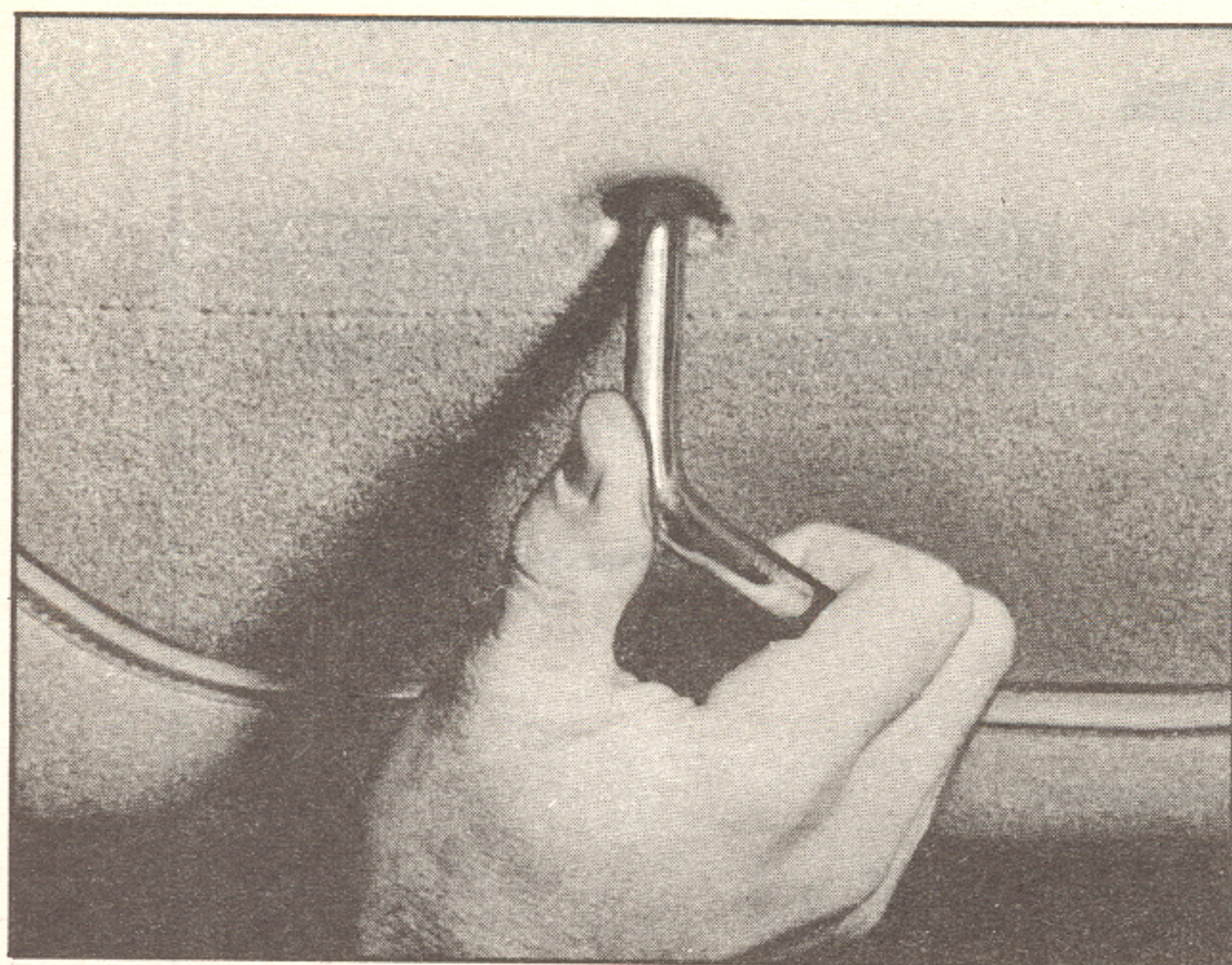


Fig. 5. Closing Sunroof With Crank Handle

### DESIGN AND CONSTRUCTION FEATURES

The Sunroof is actuated by a two-way electric motor mounted near the center of the windshield header area, Fig. 6. The motor turns a sleeve that drives an auxiliary unit with a gear on the output shaft. This gear, in turn, drives two flexible gear cables that are attached to the roof panel and control its movement, Fig. 7.

Four plastic drain tubes, two on each side, are incorporated in the windshield pillar area and in the rear quarter area to catch water seepage that may bypass the weatherstrip seal around the roof opening. The two forward tubes, Fig. 8, are routed from the roof panel trough down through the right and left windshield pillars, and out through the rocker panels. The rear drain tubes are routed through the rear quarter panel and drain through the rear wheel housings.

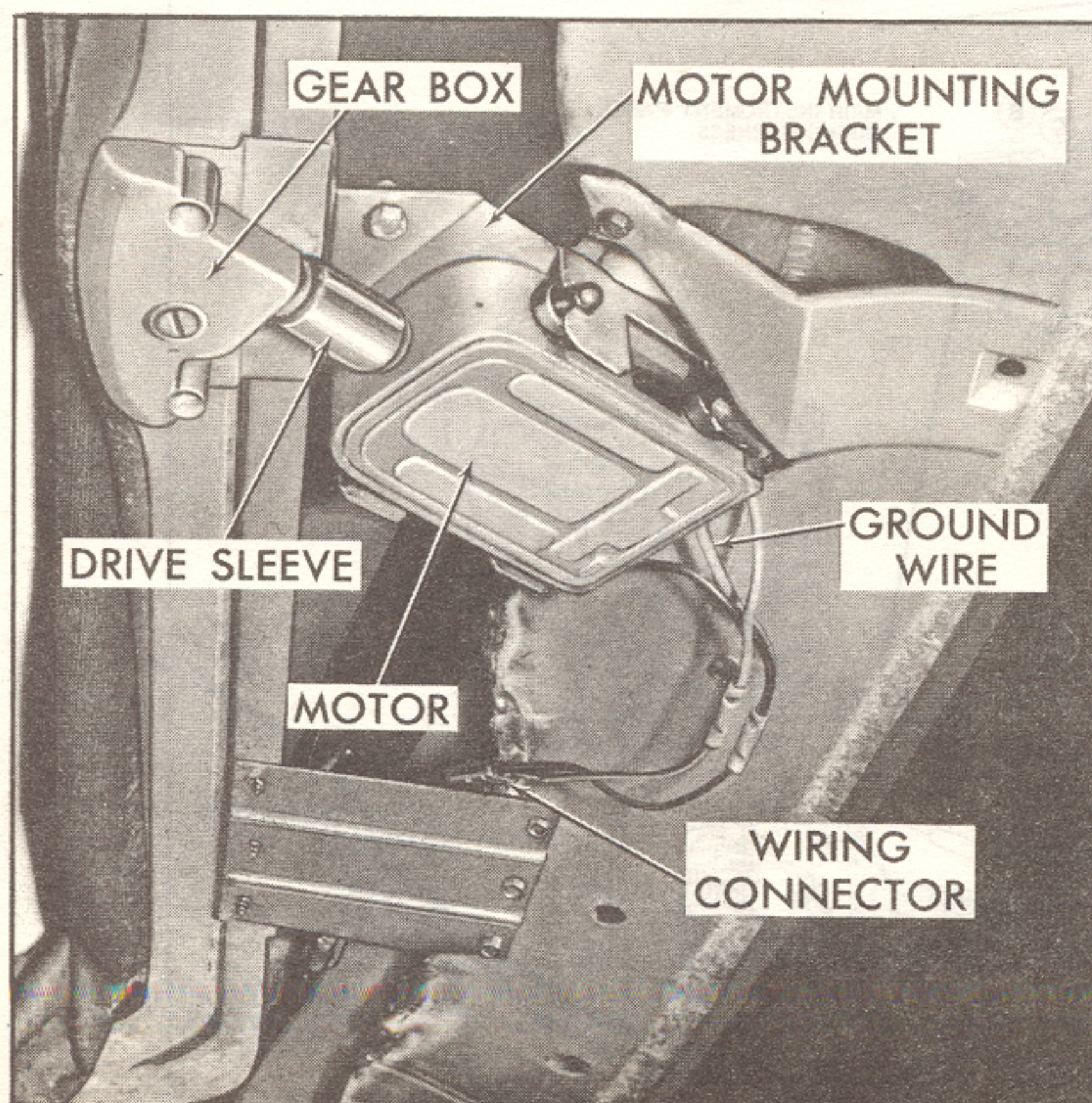


Fig. 6. Motor and Auxiliary Drive Unit Location

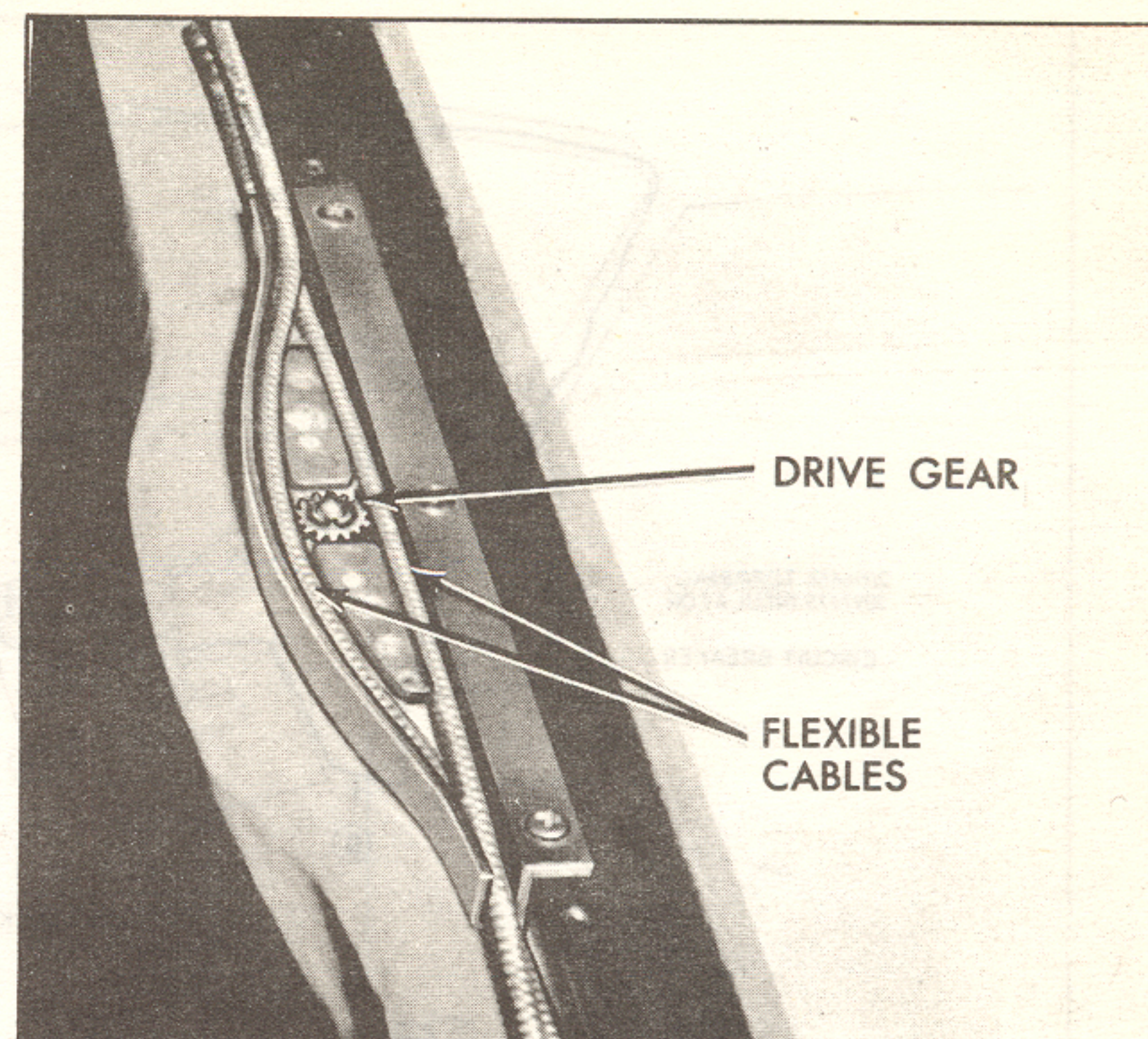


Fig. 7. Drive Gear and Cables

### ELECTRICAL SYSTEM

The electrical circuit for the Sunroof is protected by a 25-amp circuit breaker located on the left side kick panel.

Electrical power for the system, Fig. 9, is supplied from the fuse block through a red wire to the 25-amp circuit breaker. Another red wire is routed from the circuit breaker that leads to the control switch on the roof panel. Two wires--one for the open cycle and one for the close cycle--are routed from the switch to the motor. A wire from the motor is grounded to the windshield header by a screw.

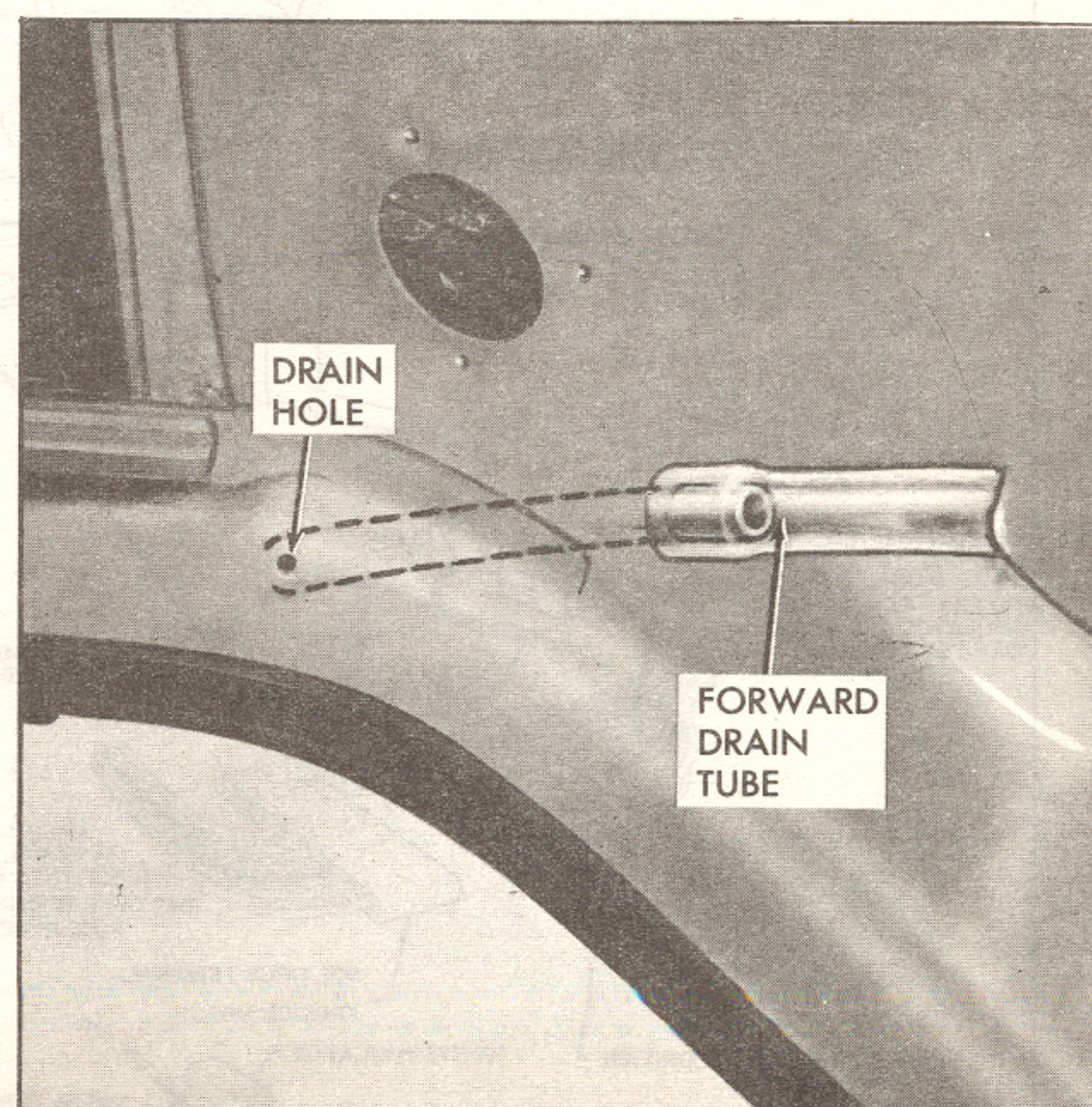


Fig. 8. Forward Drain Tubes - Left Side



# SUNROOF

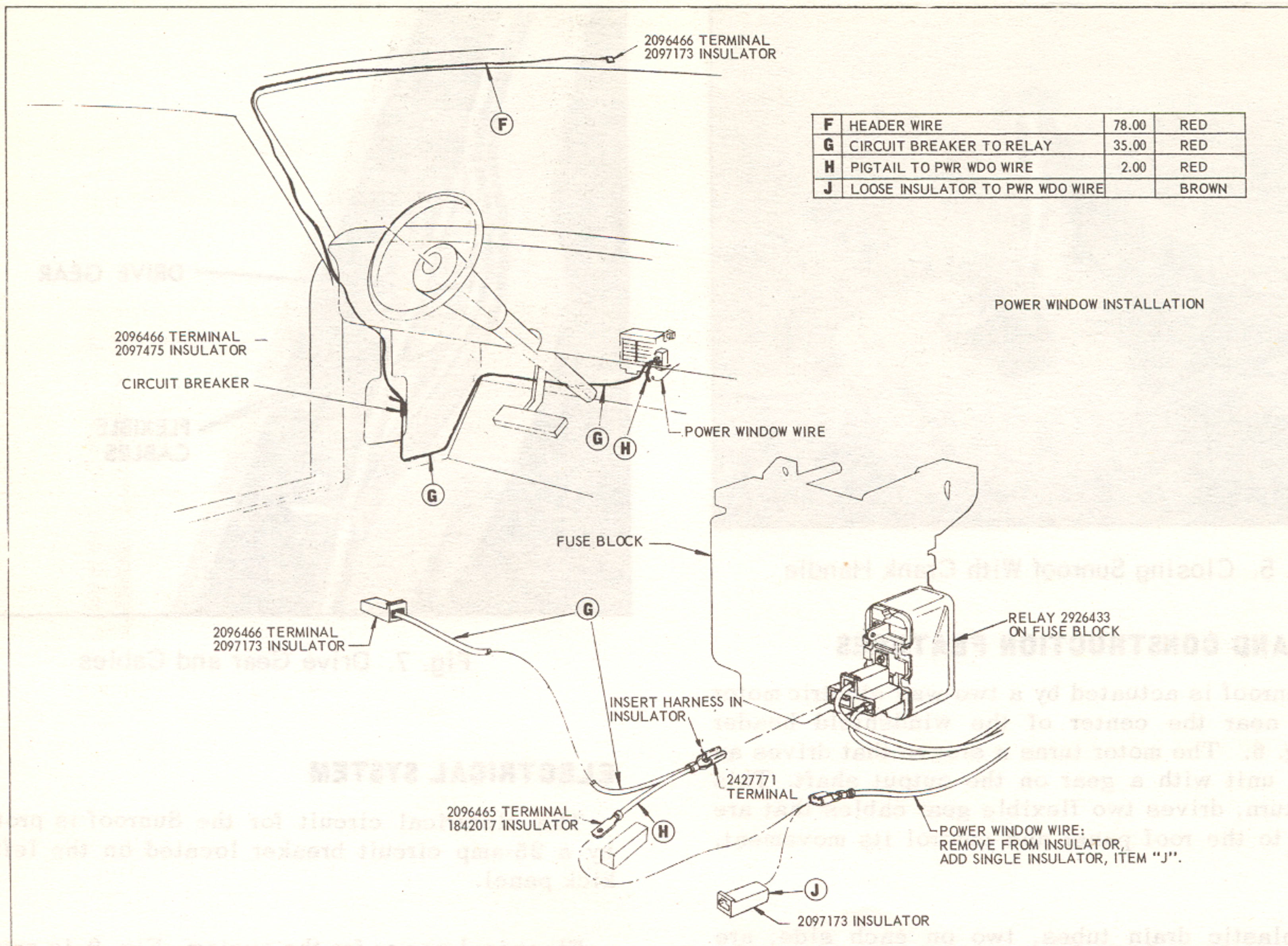


Fig. 9. Power Windows

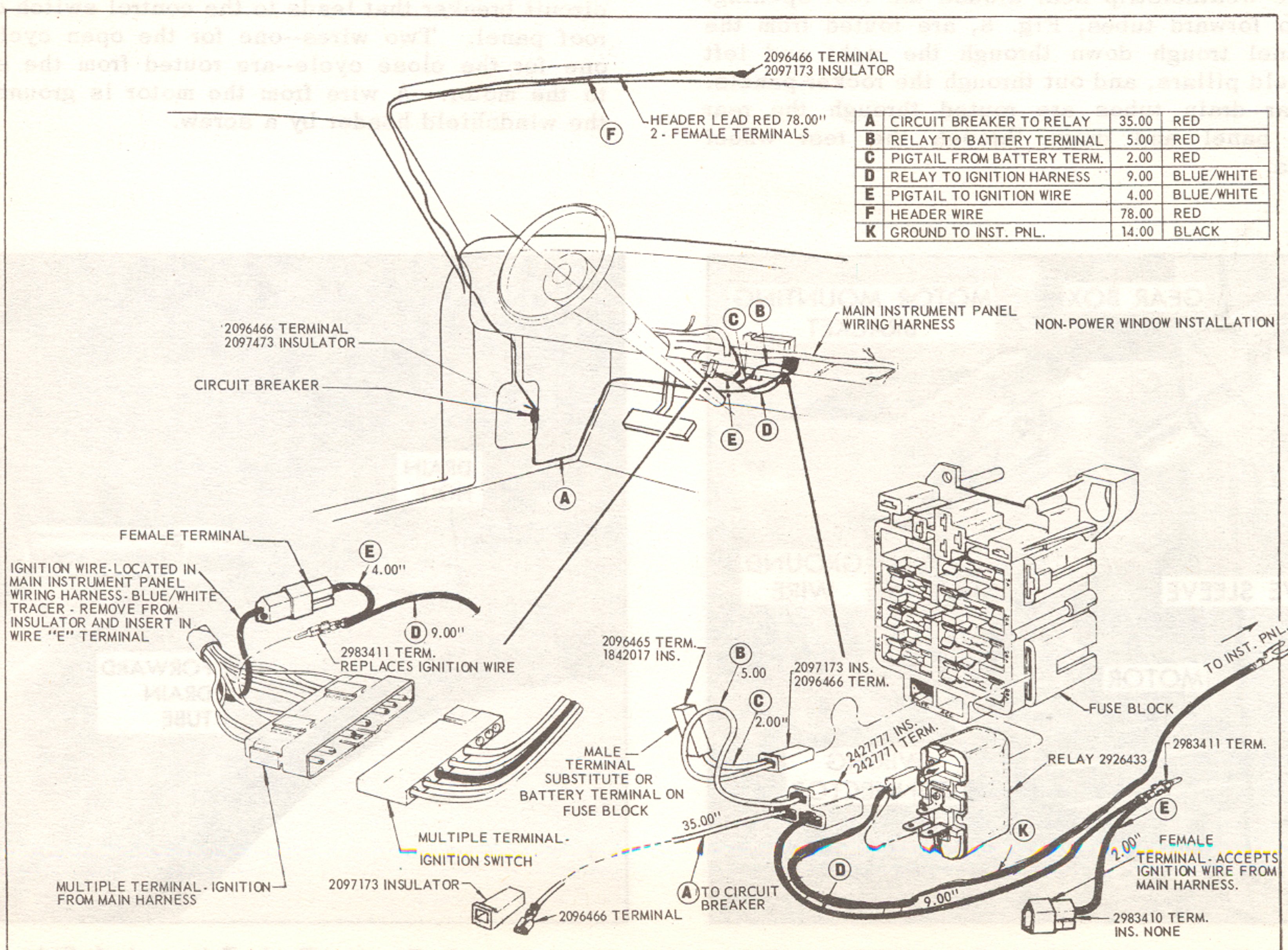


Fig. 9A. Non-Power Windows



## SERVICE INFORMATION

### 1. PERIODIC MAINTENANCE

#### a. Lubrication

1. During cable replacement, lubricate cables with Lubriplate or equivalent.
2. Periodically clean off any dirt that may have accumulated on guide rail covers.
3. It is not necessary to lubricate top surface of guide rail covers or slide tracks.

#### b. Drain Tubes

1. During regular maintenance, check the two drain holes at the front corners of the roof panel, Fig. 2, to make certain they are open and free of foreign material. If drains are plugged, they can be cleaned with an air hose or flexible wire. If they cannot be cleaned in this manner, they must be replaced.
2. To clean rear drain tubes, use an air hose or flexible wire from the bottom of the tubes.

### 2. ADJUSTMENTS AND RELATED REPAIRS

#### a. Panel Alignment, Front Left or Right

1. To obtain a flush fit with the roof on one side of front of roof panel, loosen both front slide screws, Fig. 10.
2. Turn knurled nuts clockwise to raise roof panel and counterclockwise to lower panel. Fig. 10.
3. After proper alignment is obtained, tighten screws.
4. Adjust opposite front slide in same manner if required.

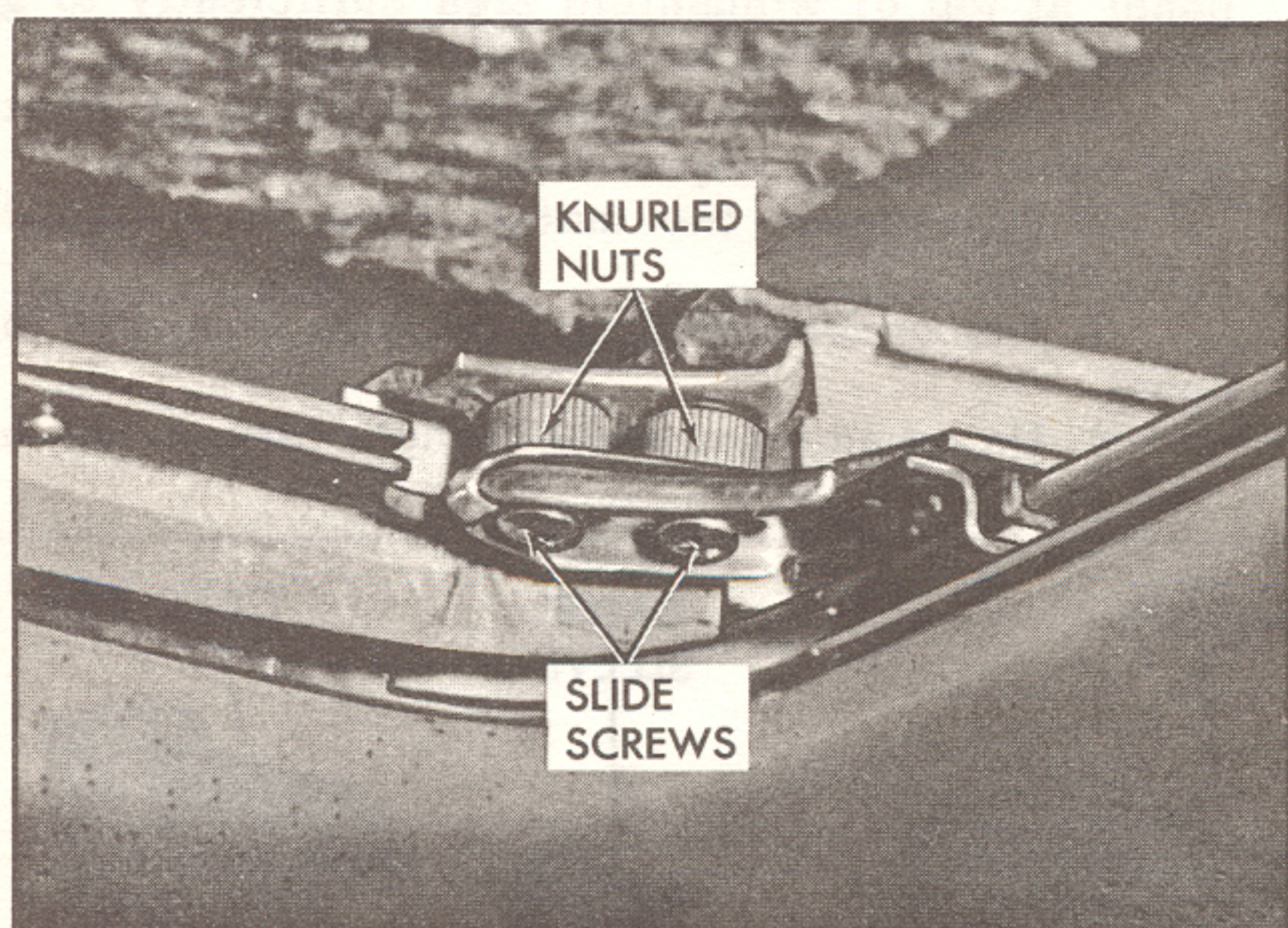


Fig. 10. Front Panel Alignment

#### b. Panel Alignment, Rear Left or Right

1. To obtain a flush fit with the roof on one side of rear of roof panel, loosen 3/8" locknut on rear slide, Fig. 11.
2. Using a screwdriver, turn adjusting screw clockwise to raise roof panel and counterclockwise to lower panel, Fig. 11.

3. After proper alignment is obtained, tighten locknut.
4. Adjust opposite rear slide in same manner, if required.

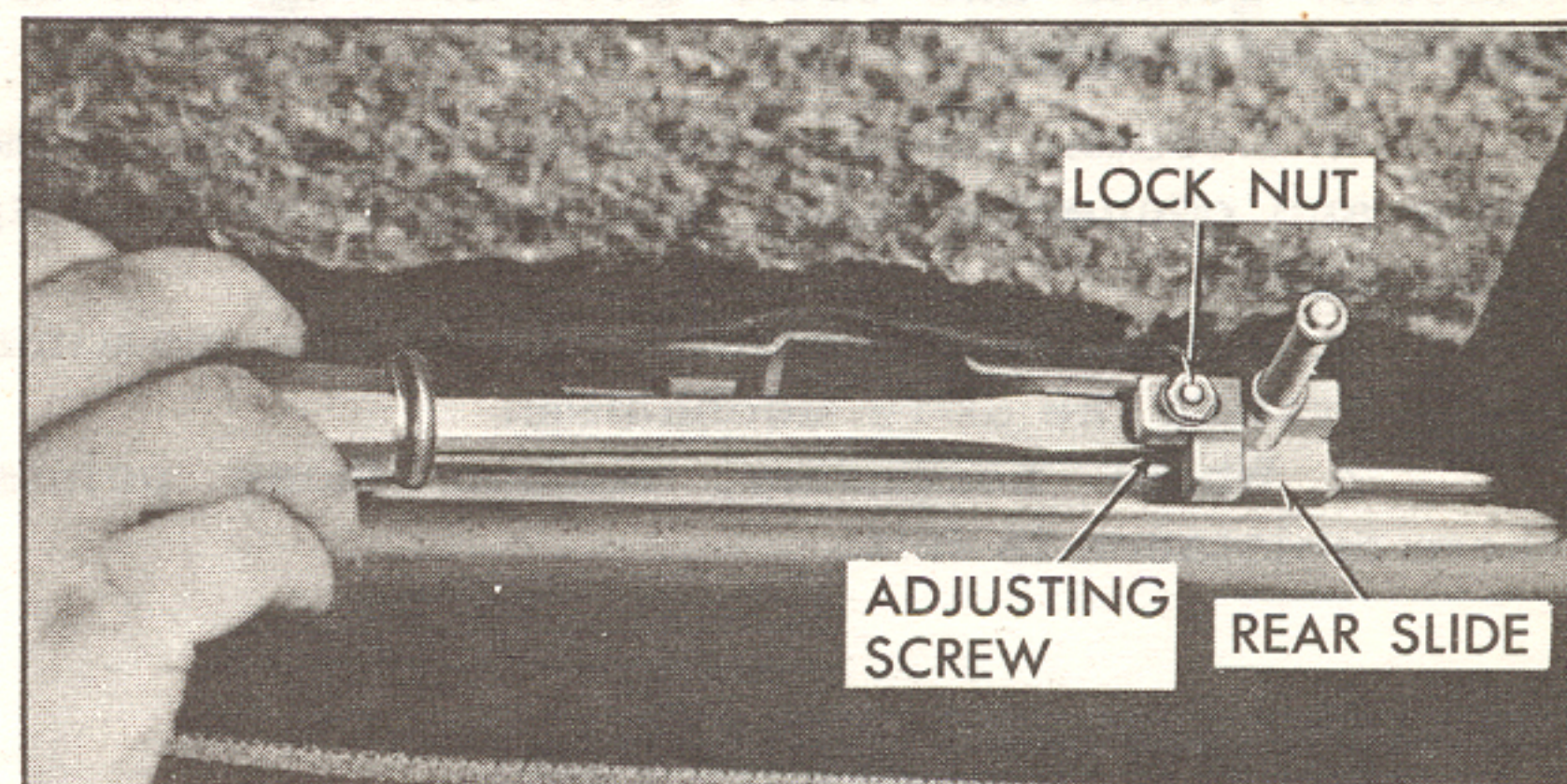


Fig. 11. Rear Panel Alignment

#### c. Ramp Alignment

1. If roof panel does not rise into roof opening during closing cycle, remove headlining panel from roof panel and open roof panel to full rearward position.
2. Examine ramps in drainage channel, Fig. 2, to determine if they are properly aligned with lifting elements at rear of panel.

**NOTE:** The point where lifting element makes contact with ramp can be clearly seen on rearward slope of ramp.

3. Using a screwdriver or similar tool, pry ramp up and move ramp side to side until it is centered with lifting element.
4. Close roof panel and note lifting action of panel.
5. If necessary, readjust ramps up or down and side to side, until proper lifting action of roof panel is obtained.

#### d. Panel Does Not Run True

1. Close roof panel to determine which side of panel jams.
2. Open roof panel, remove drive housing center cover and pry off drive cable retaining clip. Fig. 12.

**CAUTION:** The clip is made of spring steel. Hold hand over clip when removing to prevent rapid spring-up.

3. To move right hand side of roof panel forward, lift right cable at front of pinion and pull it one or more teeth to the left.
4. Install retaining clip and drive housing cover and check operation.
5. To move left hand side of roof panel forward, perform similar operation on left cable.

**NOTE:** Do not accidentally move panel while cable is off pinion.



### e. Cable Guide Alignment

1. If roof panel jams during its travel, check both front corner lower elbow guides for alignment with front and side guides.

2. If necessary, shim lower elbow guides to move guides inboard for alignment with adjacent guides.

3. If panel fails to rise, the joints of cable slides are out of alignment (guide rail, corner and connector guides and cable drive housing) and are jamming cable drive.

a. Loosen screws retaining the guide rails, corner and connector rails, and cable drive housing a few turns.

b. Retighten the screws one by one, continually activating the drive mechanism.

c. Where necessary, realign those points where resistance is felt.

### f. Diagnosis of Inoperative Panel

1. Motor runs, panel fails to rise.

a. Panel does not run true due to mechanical resistance. See item d, Panel Does Not Run True, and e, Cable Guide Alignment. Drive cables may be disconnected or broken.

b. Front slides are tilted and require realignment. See item a, Panel Alignment.

c. Check alignment of ramp and lifting elements. See item c, Ramp Alignment.

(1) Remove winding gear access plug, Fig. 4.

(2) Unscrew slotted-head screw, and add another washer (shim) to those already in position.

**NOTE:** Special washers (shims) can be ordered from the Factory Parts Warehouse.

(3) Replace screw and check operation.

(4) Tighten slotted-head screw securely.

2. Motor Fails to Run (Fig. 9)

a. Check continuity of circuit breaker and wiring connector at control switch.

b. Check control switch to assure electrical continuity to motor.

c. Check wiring and connections to motor. Check motor ground wire.

d. Replace motor.

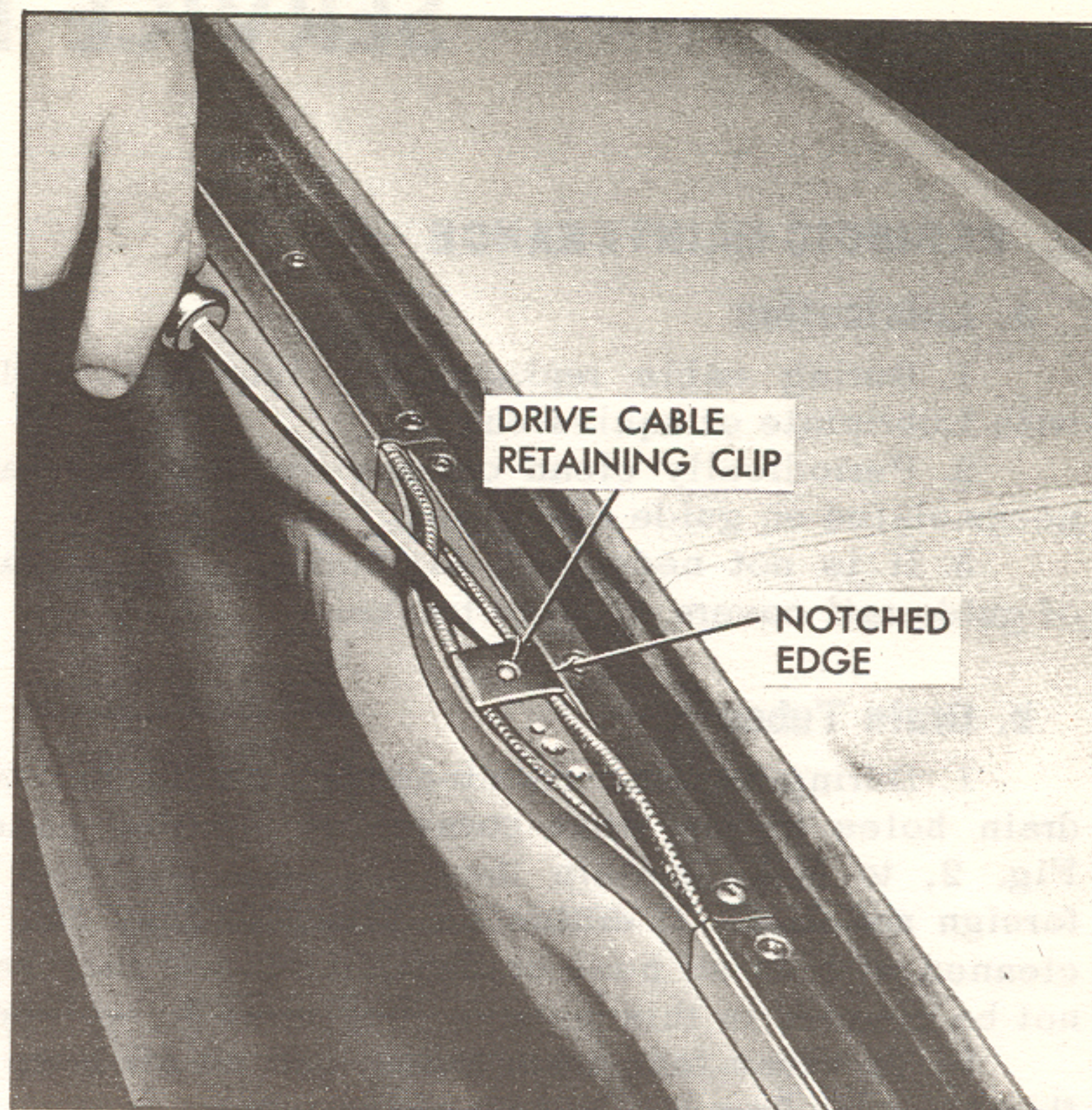


Fig. 12. Removing Drive Cable Retaining Clip

## 3. MOTOR AND DRIVE SLEEVE

### a. Removal

1. Disconnect battery ground cable.

2. Remove left and right windshield side garnish moldings, roof side rail garnish moldings, both sun visor assemblies, and center sun visor bracket.

3. Remove left and right windshield upper garnish moldings, and mirror center support.

4. Carefully pull headlining from front roof inner panel at top of windshield area sufficiently to gain access to Sunroof motor and drive sleeve, Fig. 6.

5. Remove foam insulation padding in front of roof panel opening adjacent to motor and drive.

6. Disconnect two motor wires from electrical connector.

7. Disconnect motor ground wire from roof inner panel.

8. Using an adjustable wrench, remove two hex-

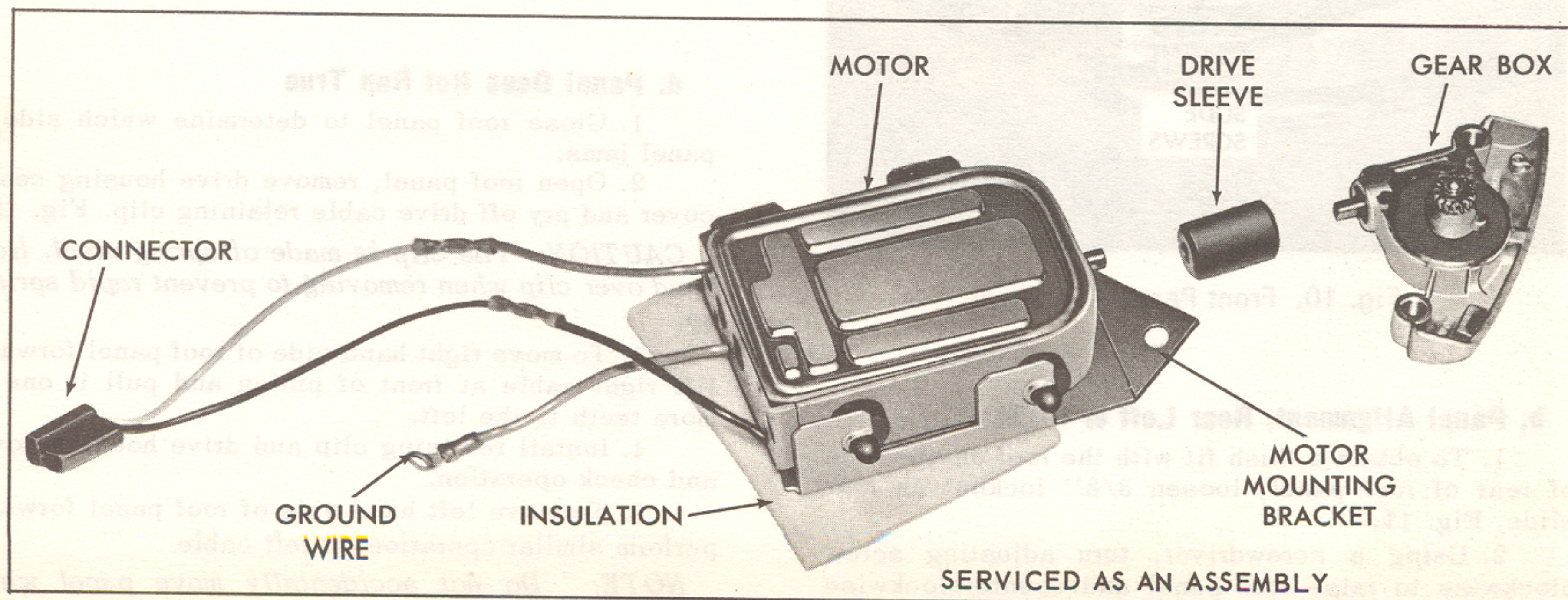


Fig. 13. Motor and Gear Box Disassembled



head motor mounting screws and lock washers. Remove motor.

**NOTE:** When replacing motor, mounting bracket, drive sleeve and foam vibration dampener pad from old motor can be installed on new motor.

## b. Installation

1. Install drive sleeve on motor drive shaft, Fig. 13.
2. Install motor and sleeve assembly to gear box drive shaft, align assembly and secure motor by installing mounting screws and lockwashers.
3. Connect motor wires, ground wire, and battery cable, and check operation of system.
4. Apply cement to foam insulation padding and install padding.
5. Apply trim cement sparingly to forward edge of roof panel. Starting at center, position headlining to front roof inner panel forward edge. Smooth out all wrinkles, working from center to outboard ends.
6. Install roof side rail garnish moldings, windshield upper and side garnish moldings, mirror center support, center sun visor bracket, and sun visors.

**CAUTION:** Be careful not to pinch drain tubes when installing windshield side garnish moldings.

## 4. CONTROL SWITCH

### a. Removal

1. Disconnect battery ground cable.
2. Carefully grip switch toggle with pliers and pull switch out from instrument panel bezel.
3. Pull electrical connector through opening and disconnect wires.

### b. Installation

1. Install connector wires on switch.
2. Install switch through front of instrument



Fig. 14. Removing Drive Cable Housing Cover

panel bezel by pressing switch in until retaining tabs engage.

3. Connect battery cable.

## 5. GEAR BOX ASSEMBLY

### a. Removal

1. Open Sunroof to full open position.
2. Perform steps 2, 3, 4 and 5 in Note 3a.
3. Remove drive cable housing cover, Fig. 14.
4. Remove left and right upper front guides.
5. Using a small screwdriver, carefully pry up drive cable retaining clip, Fig. 12.

**CAUTION:** The clip is made of spring steel. Hold hand over clip when removing to prevent rapid spring-up.

6. Pull drive cables out of lower front guides, observing routing of cables in guides for installation purposes.
7. Remove left and right lower front guides.
8. Remove three screws retaining drive cable housing and remove housing.
9. From top area, remove two gear box assembly retaining screws and remove gear box assembly.

### b. Installation

1. Install gear box assembly and connect motor drive sleeve to gear box.
2. Install two retaining screws.
3. Install drive cable housing with three retaining screws.
4. Install left and right lower front guides.
5. Insert ends of cables into guides, observing same cable routing as when removed. Lubricate cables and drive gear with Lubriplate or equivalent.
6. Install cable retaining clip by pressing down firmly with thumb.

**NOTE:** Narrow (notched) edge of clip is positioned toward front of vehicle, Fig. 12.

7. Install upper front guides and drive cable housing cover.
8. Check operation of Sunroof through complete cycle.
9. Complete installation of padding, headlining, garnish moldings, sun visors, and bracket, as described in Note 3b, Steps 4, 5 and 6.

## 6. SUNROOF PANEL, REAR SLIDE AND CABLE (FIG. 15)

### a. Sunroof Panel Removal

1. Open Sunroof approximately three inches.
2. Remove two screws from front of headlining panel that secure headlining to roof panel.
3. Slide headlining panel forward and out of seven retaining clips on roof panel frontedge, Fig. 16. Close roof and push headlining panel to full rearward position.



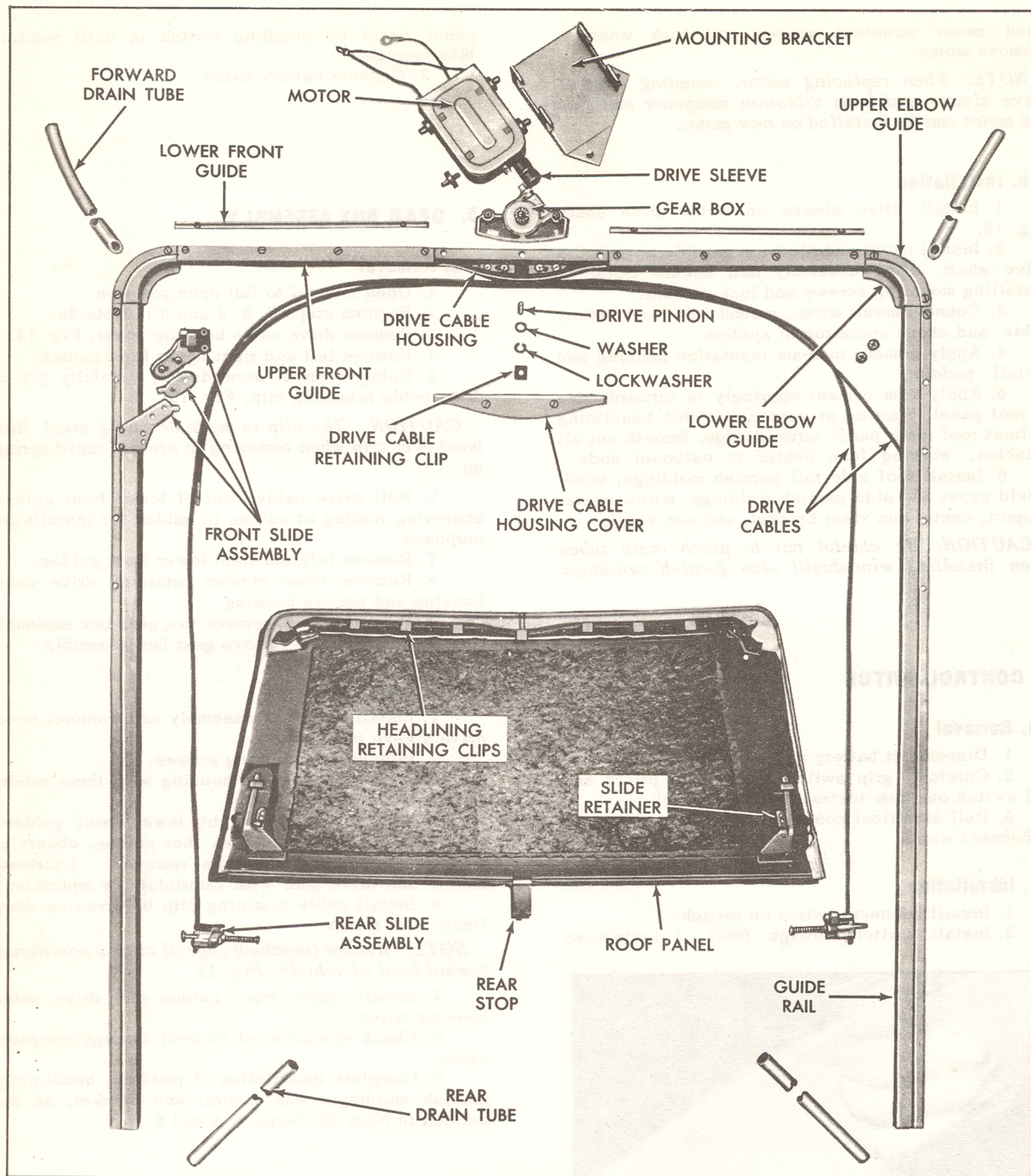


Fig. 15. Roof Panel Disassembled

4. Remove outboard screw from each front slide assembly, Fig. 17.

5. Loosen inboard slide screw and rotate each front slide assembly inboard to clear guide rail, Fig. 18.

6. Pull each rear slide and cable assembly inboard and out of slide retainer hole in roof panel, Fig. 19.

7. Lift roof panel at front edge and pull panel forward and out of roof opening.

#### b. Rear Slide and Cable Removal

**NOTE:** If only one cable is defective, replace both. This assures parallel travel of roof panel.

1. Remove drive cable housing cover, Fig. 14.

2. Remove both front upper elbow guides.

3. Using screwdriver, pry off drive cable retaining clip.

**CAUTION:** The clip is made of spring steel. Hold hand over clip when removing to prevent rapid spring-up.



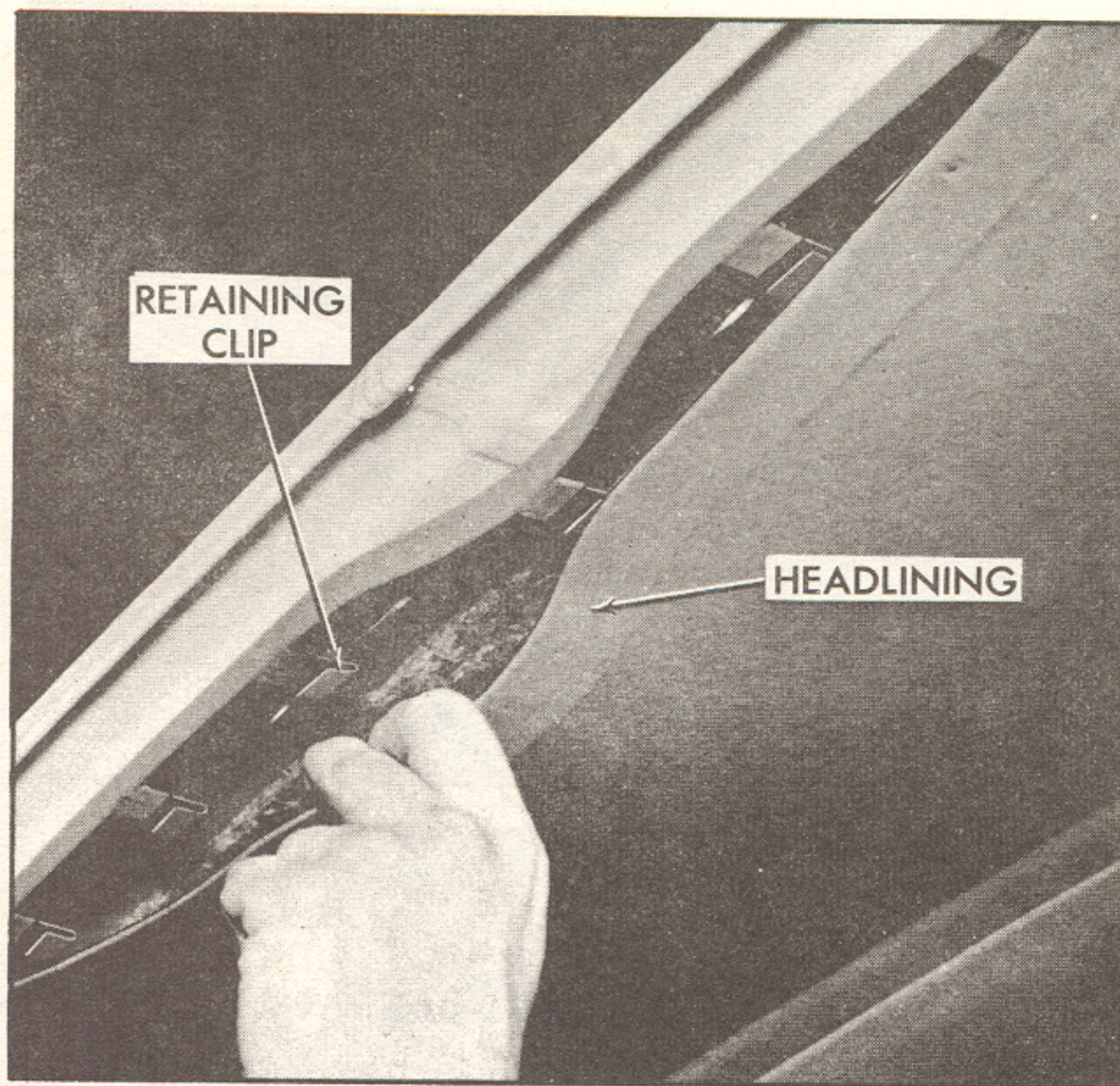


Fig. 16. Headlining Panel Removal

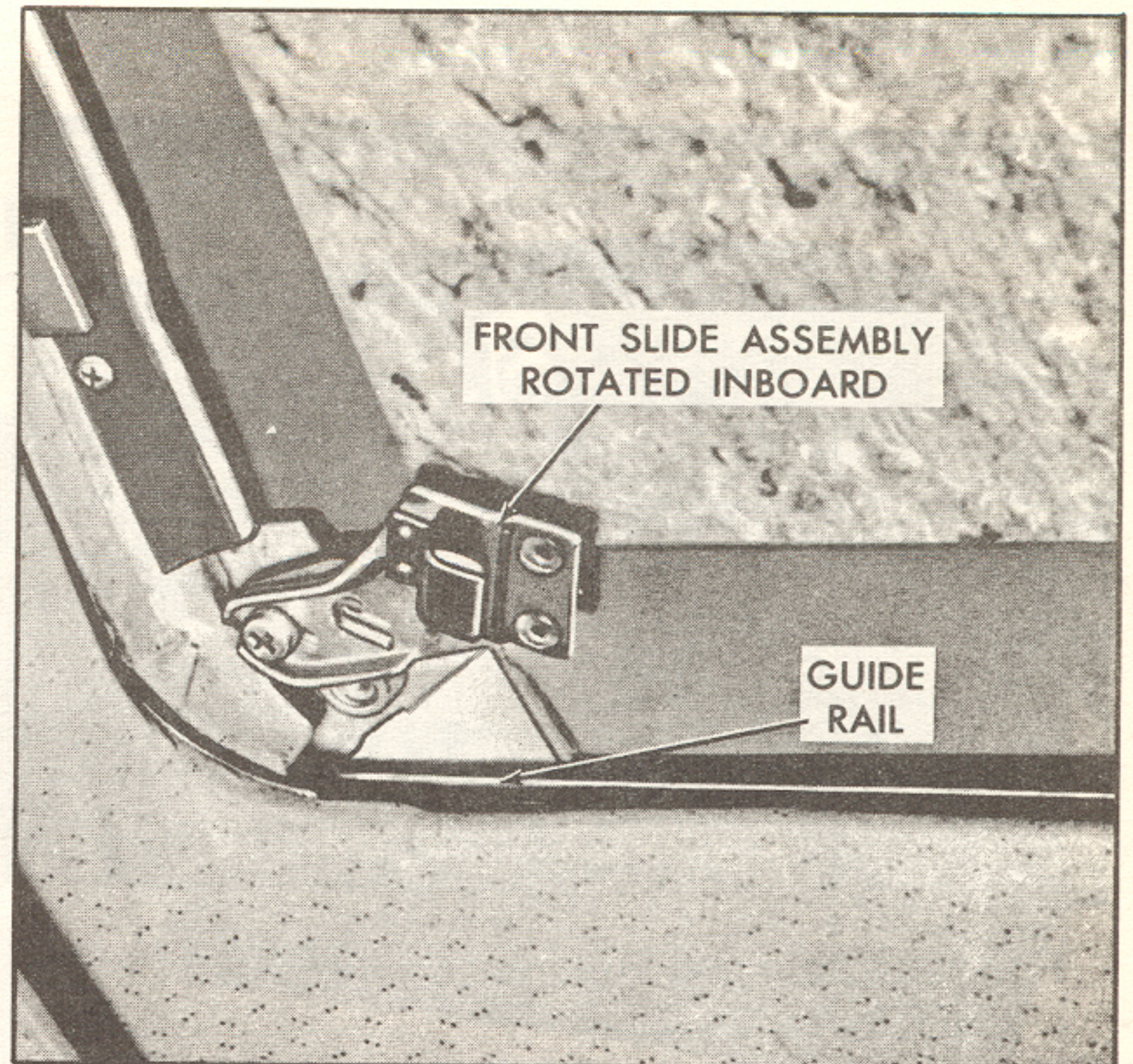


Fig. 18. Front Slide Assembly Clear of Guide Rail

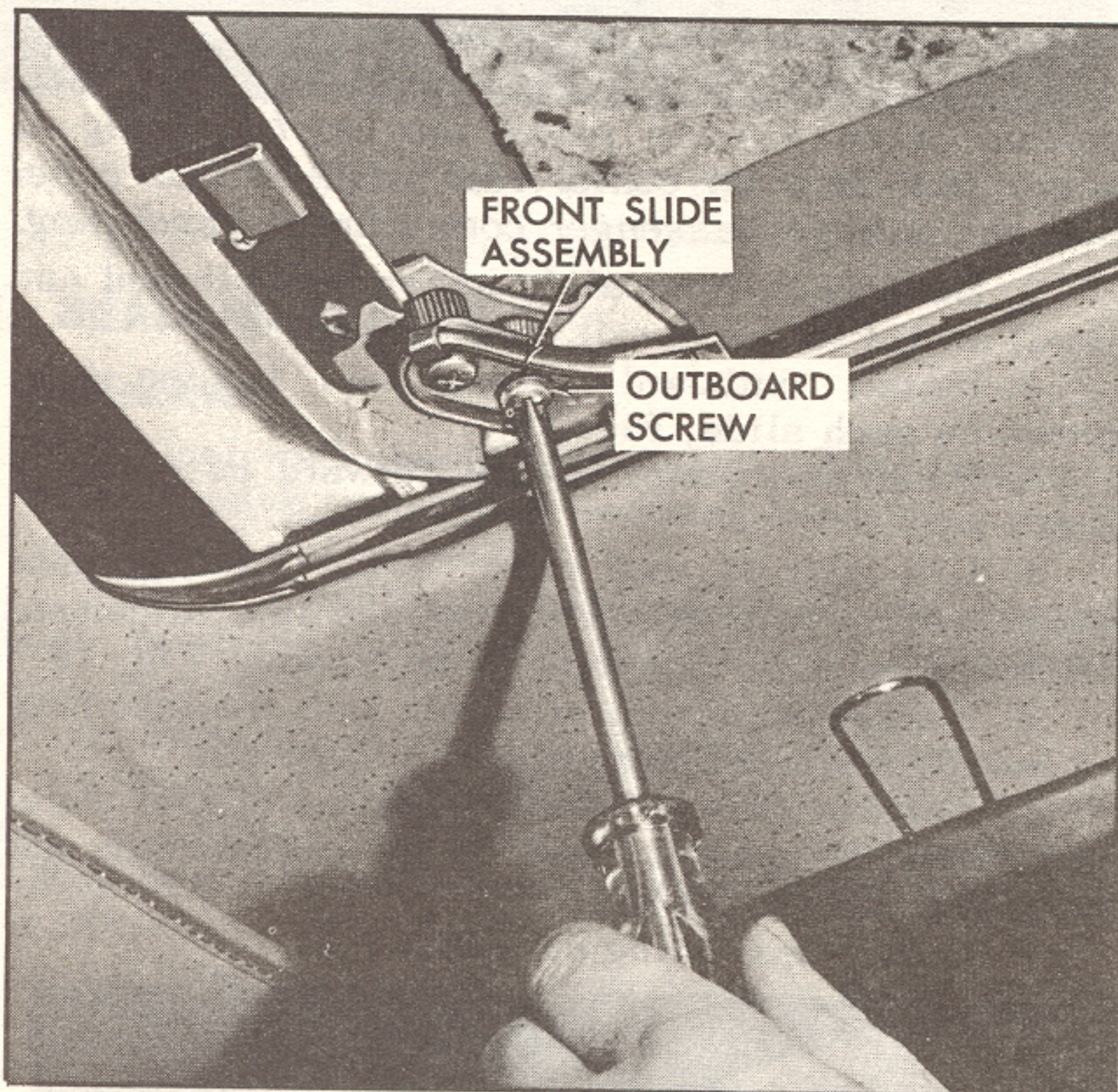


Fig. 17. Removing Outboard Screw From Front Slide Assembly

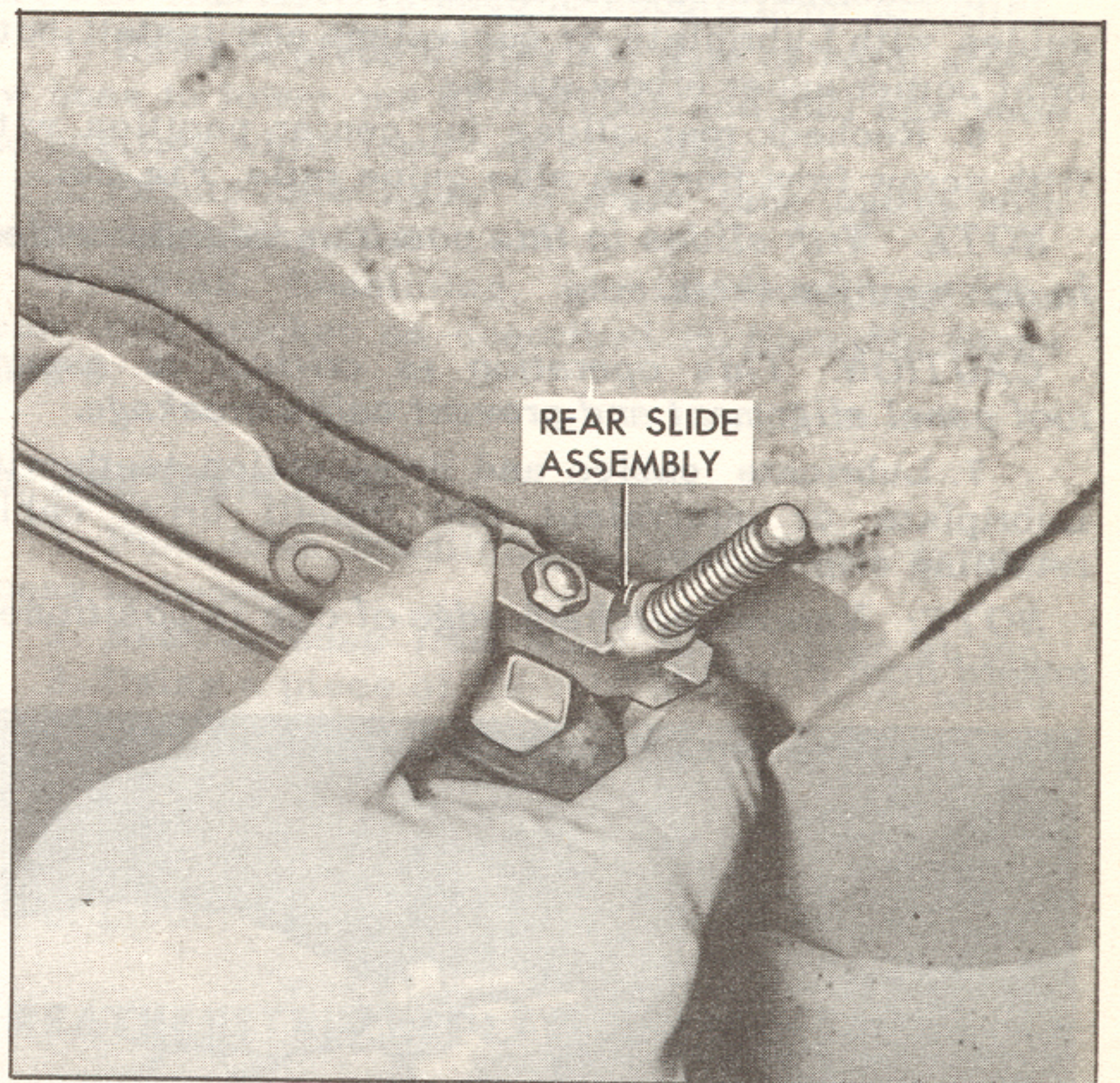


Fig. 19. Removing Rear Slide and Cable Assembly From Retainer

4. Pull free end of one cable out of guide rail and drive housing, and pull cable and rear slide assembly forward to front corner, Fig. 20.
5. Remove slide from guide track and pull cable out of front guide, Fig. 21.
6. Remove opposite cable in same manner.

## c. Rear Slide and Cable Installation

1. Position left rear slide in guide track and move slide and cable assembly back until slide is centered with the fifth side guide rail screw from the front, Fig. 22.

2. Slide free end of cable into upper front guide, Fig. 23, and route cable through the curved front center track in drive cable housing and into lower track on right side. Do not engage cable in drive pinion teeth, Fig. 24.

3. Install right slide and cable assembly in same manner as left slide and cable assembly, except that right cable is routed in straight center track in drive cable housing and into lower track on left side, Fig. 24.

**NOTE:** Make sure right slide is centered with

fully pull headlining away from top of windshield area sufficiently to gain access to either front drain hose

scribed in Step 3.

**NOTE:** Roof panel must be in closed position.



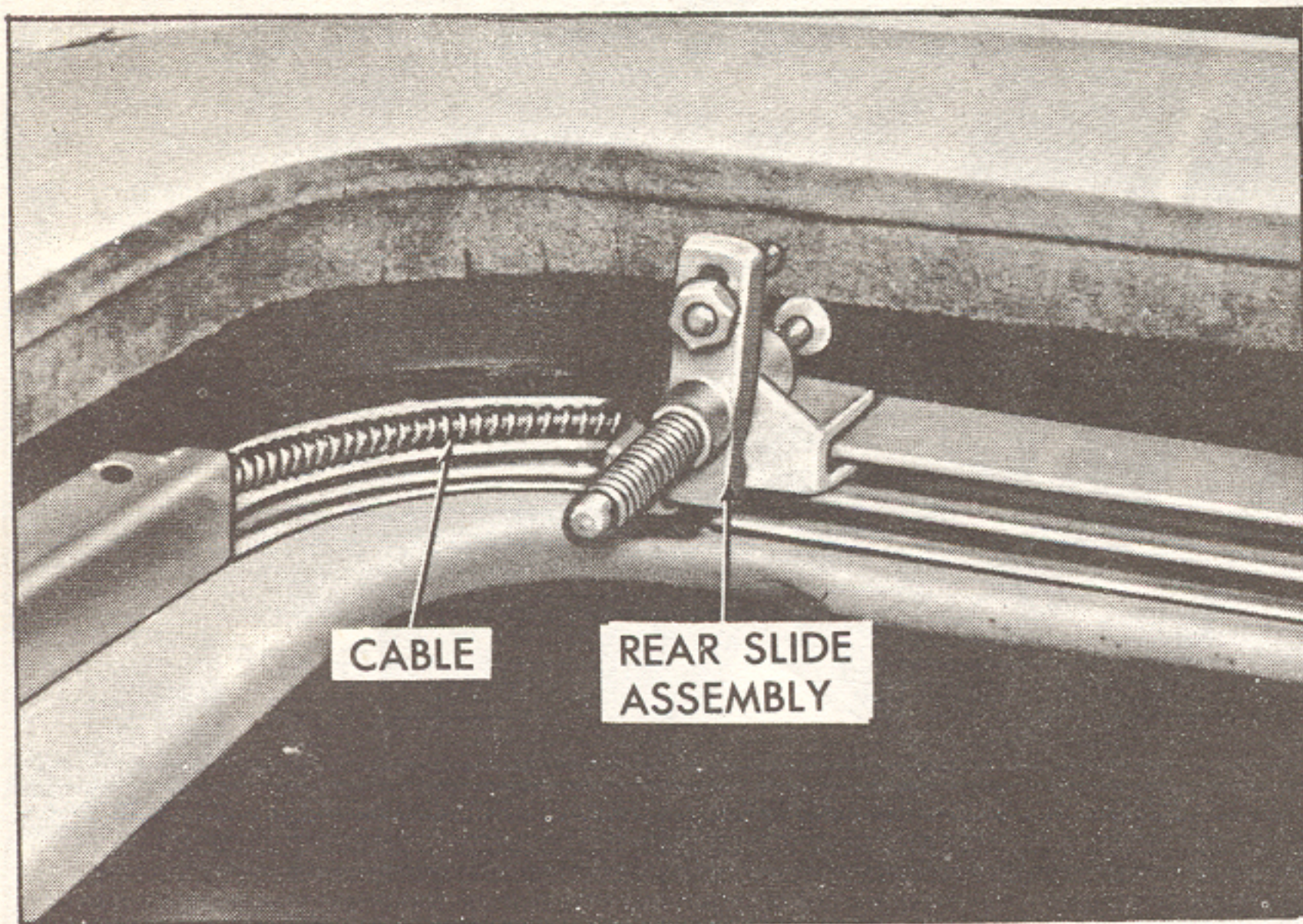


Fig. 20. Cable and Slide Assembly Pulled Forward

*fifth screw from front right guide rail. Do not engage cable in drive pinion teeth.*

4. Check both front corner lower elbow guides for alignment with front and side guides. If necessary, shim lower elbow guide to move guide inboard for alignment with adjacent guides.

5. Lubricate cables at the areas of the elbow guides with Lubriplate or equivalent and install both front corner upper elbow guides.

6. Recheck rear slides for center position with fifth screw from front on side guide rails, Fig. 22.

**NOTE:** With slides in this position, engage cables in drive pinion teeth.

**CAUTION:** This operation is critical to assure roof panel alignment and prevent cable breakage.

7. Lubricate cables and drive pinion teeth with Lubriplate or equivalent and install drive cable retaining clip.

**NOTE:** Narrow (notched) edge of clip is positioned toward front of vehicle.

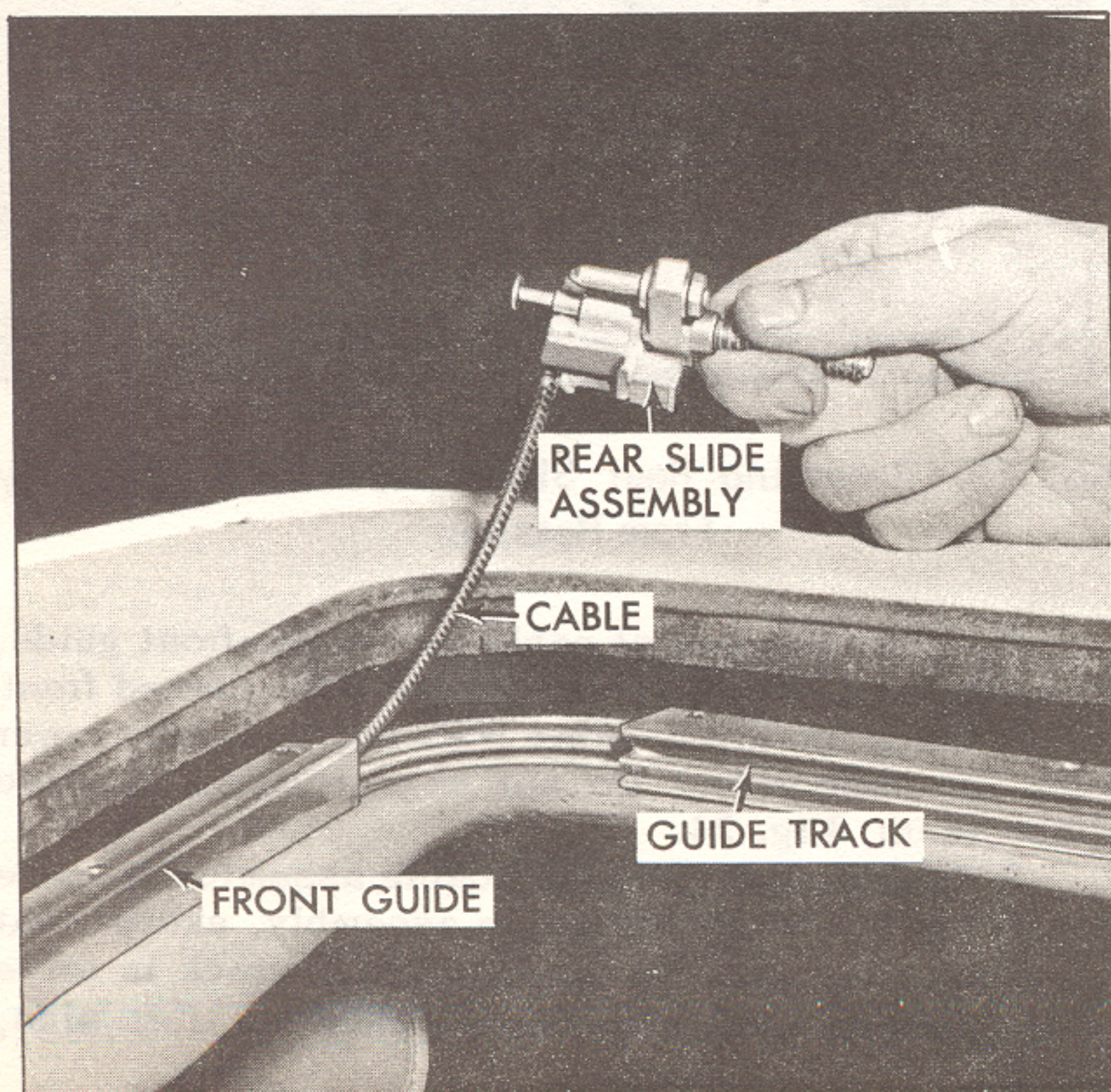


Fig. 21. Removal of Rear Slide and Cable

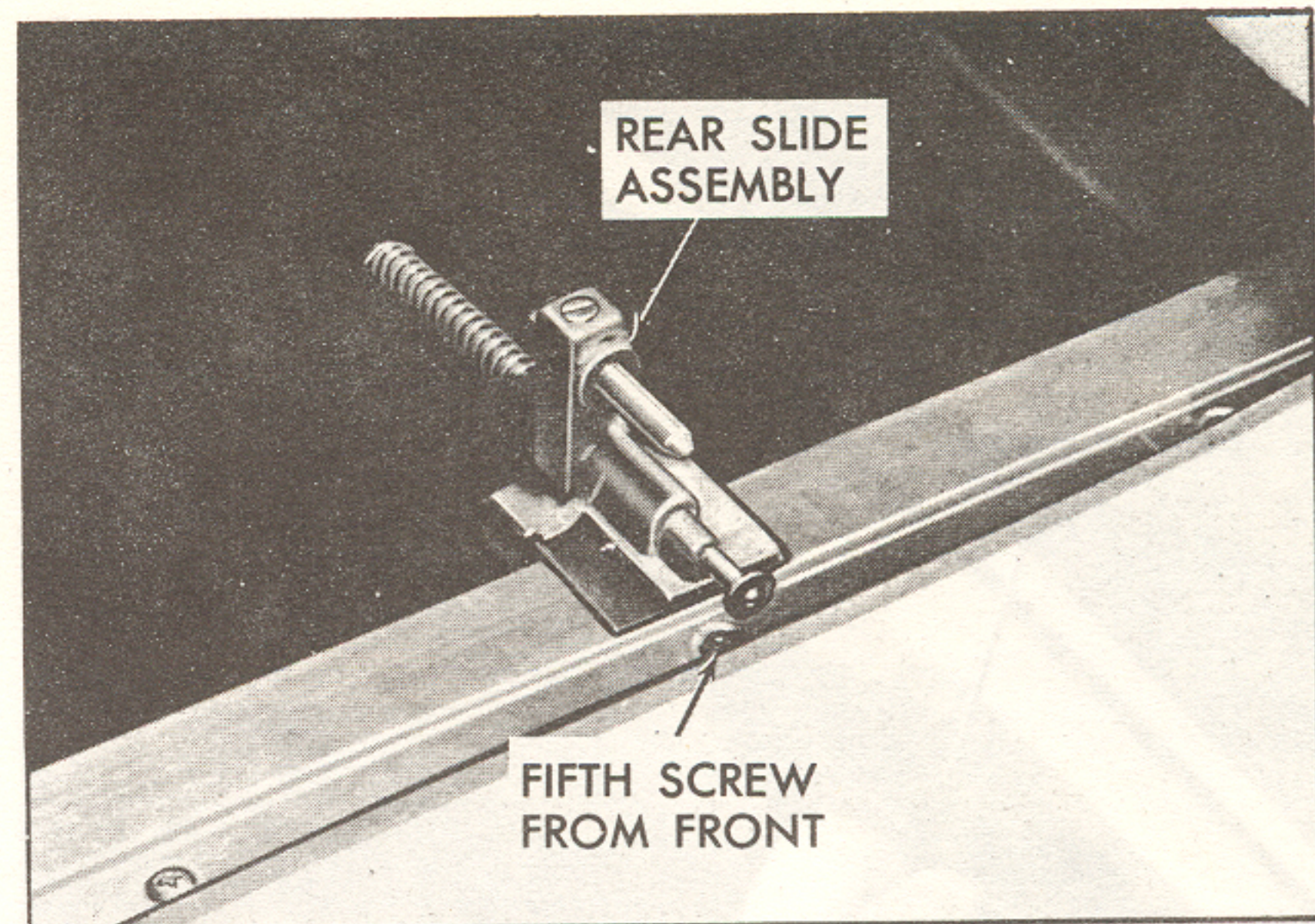


Fig. 22. Rear Slide in Centered Position

8. Install drive cable housing cover, being careful not to overtighten screws.

9. Actuate switch to check cable operation, then return rear slides to fifth screw from front on side guide rails.

#### d. Roof Panel Installation

1. With headlining panel in full rearward position, install roof panel into roof opening.

**CAUTION:** Hold roof panel in a nearly horizontal position when placing panel into roof opening to assure that stop on center rear edge of roof panel does not damage passenger compartment headlining.

2. Move each front slide assembly outboard and install slides on guide rail upper tracks.

3. Install outboard screws and tighten both screws on each slide, Fig. 10.

4. Push roof panel to full forward position by hand.

5. Lift rear of roof panel upward and actuate control switch to position rear slides into alignment with holes on slide retainers on roof panel, Fig. 19.

6. Engage each rear slide pin into retainer hole and install retainer spring plate on slide pin.

7. Actuate switch, check operation of roof panel and note fit of panel to roof. If any adjustments are necessary, refer to Note 2.

8. Install headlining on roof panel.

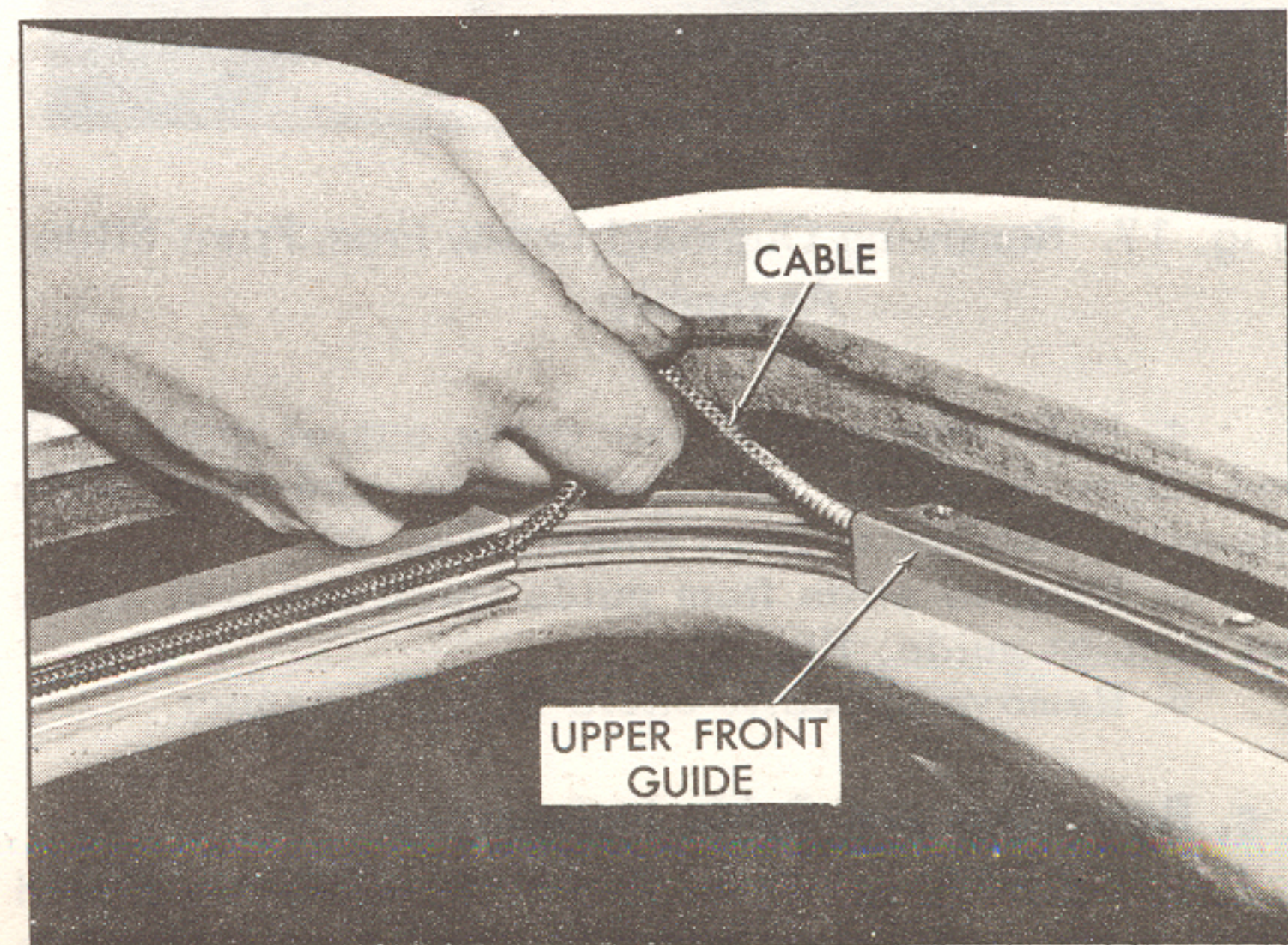


Fig. 23. Installing Cable into Upper Front Guide



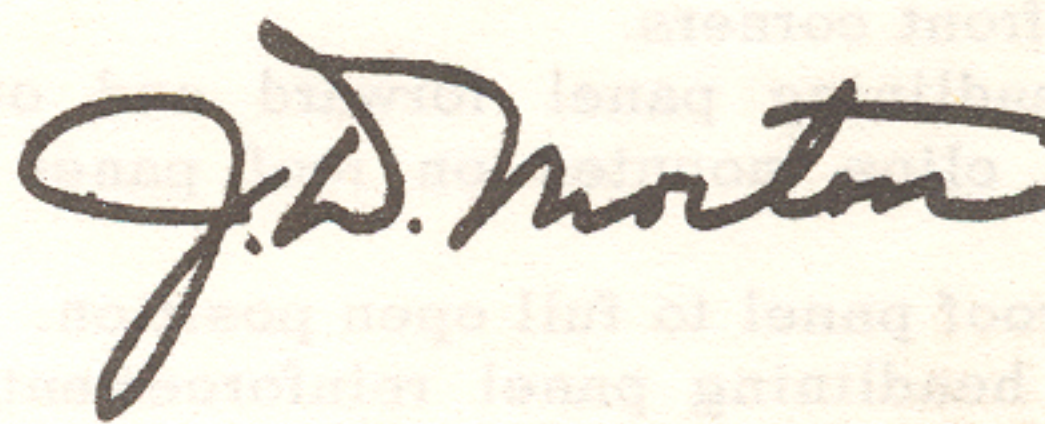
Chrysler Parts will carry for field service repair, a number of important parts that are used on the Sunroof.

The parts list is as follows:

1. Motor, Gear Box, Drive Coupling - As an Assembly	3571 510
2. Switch	3412 550
3. Drive Pinion	3412 552
4. Screw - Clutch Adjusting	3412 553
5. Cable and Rear Slide Assembly	3412 554
6. Weatherstrip - Front	3412 555
7. Weatherstrip - Rear	3412 556
8. Crank - Emergency	3412 558

Should any other parts be required due to unforeseen reasons, they can be ordered by description from the American Sunroof Corporation - 18640 Walnut Street - Southgate, Michigan 48192.

#### POLICY: INFORMATION ONLY



J. D. MORTON  
Manager - Technical Services  
U. S. AUTOMOTIVE SALES & SERVICE