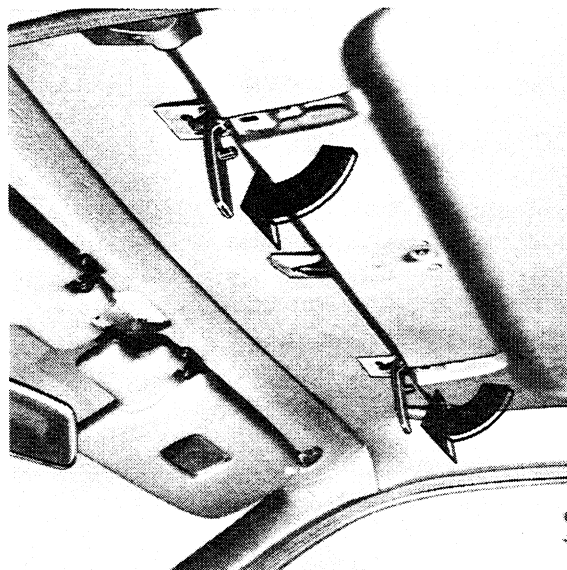
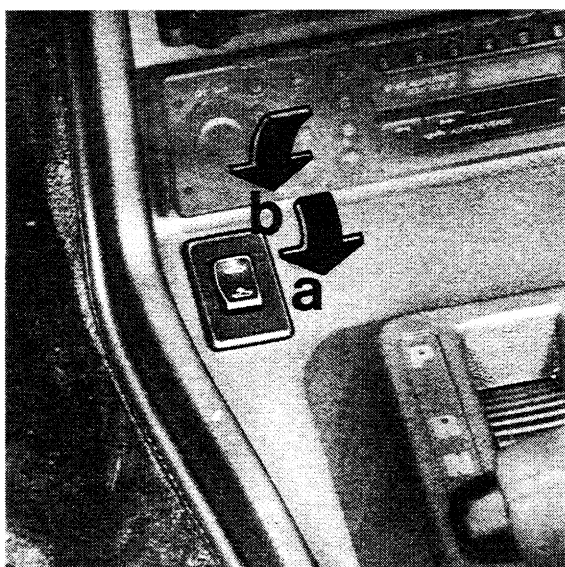


## OPERATING INSTRUCTIONS FOR REMOVABLE SUN ROOF SINCE 1984 MODELS

The electrically operated and removable sun roof can be opened in infinite steps up to final position with a switch in the center console after turning on the ignition.

Roof opened = tumbler switch pushed back (a).

Roof closed = tumbler switch pushed forward (b).



3. Lift and remove roof.
4. If applicable, place removed roof in protective cover provided for storage of roof.

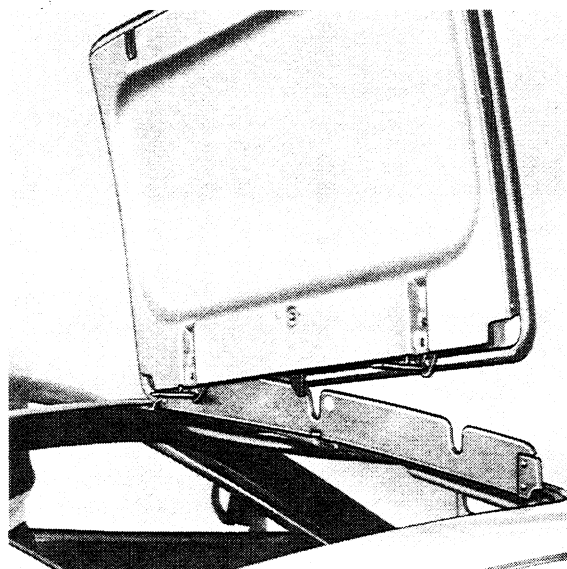
### Mounting Roof

1. Slide roof over wind deflector and front guides from above at an angle.

### Removing Roof

The roof should be cleaned first to avoid scratching the roof on deposits of dirt while removing.

1. Turn off ignition and push back (a) tumbler switch until drive elements unlock the roof.
2. Release front fasteners.

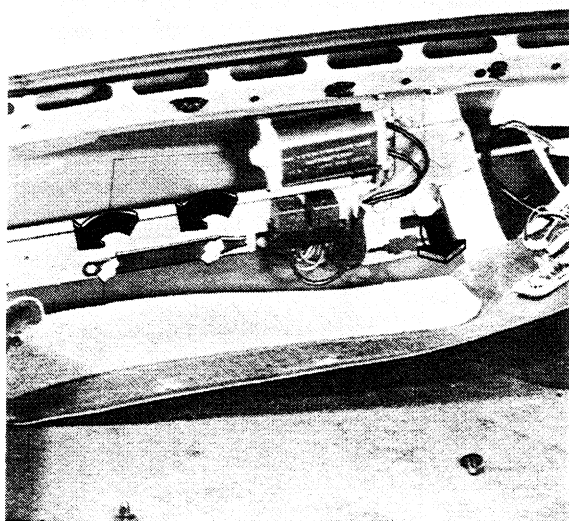


2. Lower roof toward rear.
3. Turn off ignition and push tumbler switch forward (b) until drive elements lock the roof.
4. Lock front fasteners.

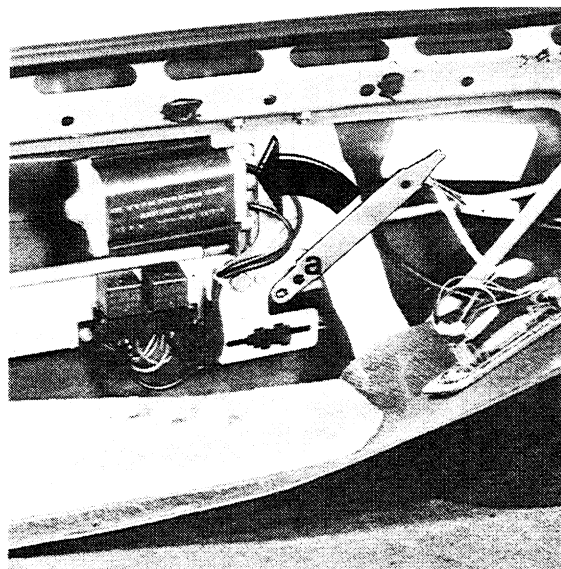
### Closing Roof Manually

Should the electric sun roof operation fail, the roof could also be closed manually. The drive motor and wrench are located behind the carpet on the left side section of the luggage compartment.

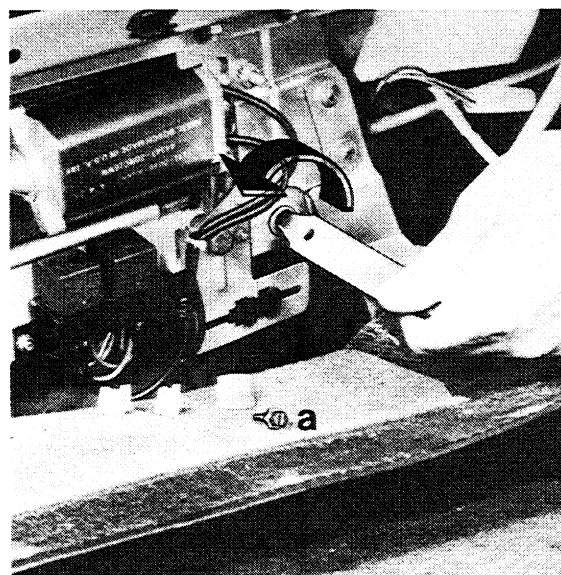
1. Unclip and fold back carpet.
2. Unscrew winged screws on wrench and take cap off of adjusting screw.



3. Unscrew and remove adjusting screw (a) with the wrench.



4. Turn the now visible threaded sleeve anticlockwise with the wrench until the roof is closed.



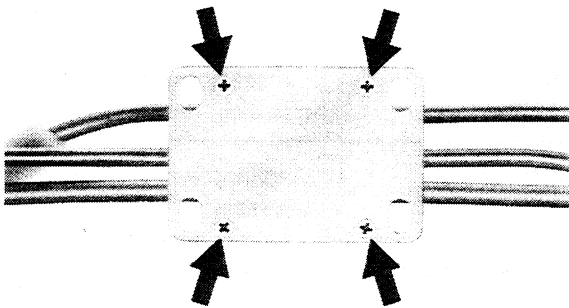
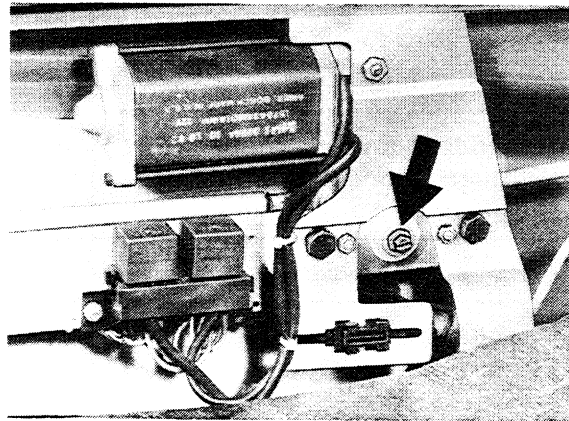
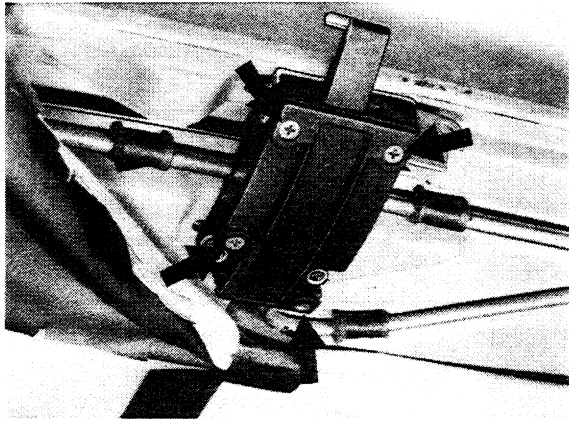
5. Screw in adjusting screw (a) again and adjust the slip clutch (see page 61 - 18).

## TROUBLESHOOTING SUN ROOF

Condition	Cause	Correction
Roof motor runs, but roof does not unlock or lift.	Riser cable on drive pinion defective. Dog broken. Drive pinion faulty.	Replace assembly set. Check and adjust clutch. Replace dog. Replace pinion on motor.
Roof does not run, no noise when operating switch.	Power supply for motor and drive. Microswitch faulty.	Check power supply for motor and drive. Check microswitch.
Roof opens onesidedly.	Gearbox faulty.	Replace assembly set.
Roof protrudes at rear in locked state.	Roof maladjusted.	Adjust gates. Adjust elements. If necessary, correct collar in roof opening.
Roof protrudes at front in locked state.	Centering wedges too high.	Use washers underneath centering wedges.
Roof leaks (water enters).	Seal damaged. Collar in roof opening does not fit correctly.	Replace seal. Correct collar in roof opening.
Rattling noise.	a) Gates loose.  b) Screws of assembly set loose. c) Roof fasteners and centering wedges loose. d) Wind deflector loose.	Check gates, replacing if necessary. Tighten screws. Tighten screws.  Tighten screws.  Tighten screws.
Loud noise (knocking) in rear roof beam and drive elements do not move.	Gearbox faulty.	Replace assembly set.

### Important Information

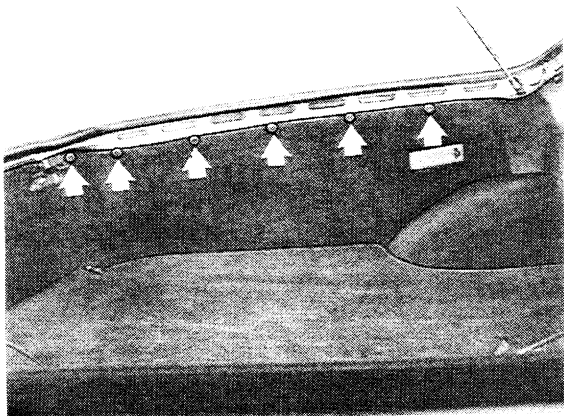
1. Never open element guides and gearbox on assembly set.
2. Do not turn adjusting screw of slip clutch, if not absolutely necessary.



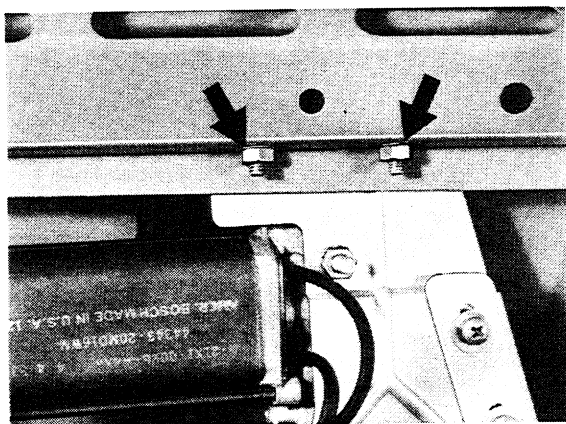
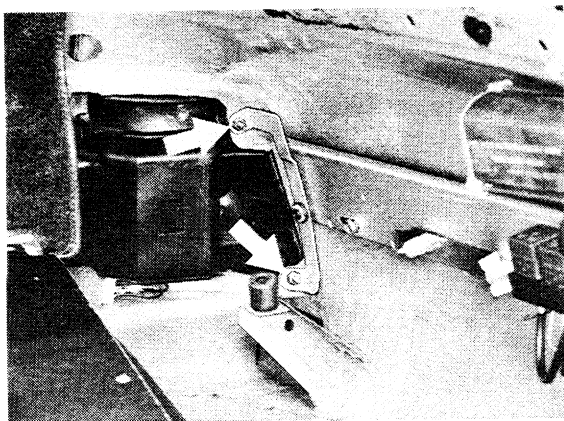
## REMOVING AND INSTALLING ELECTRIC SUN ROOF DRIVE AND ASSEMBLY SET

### Removing

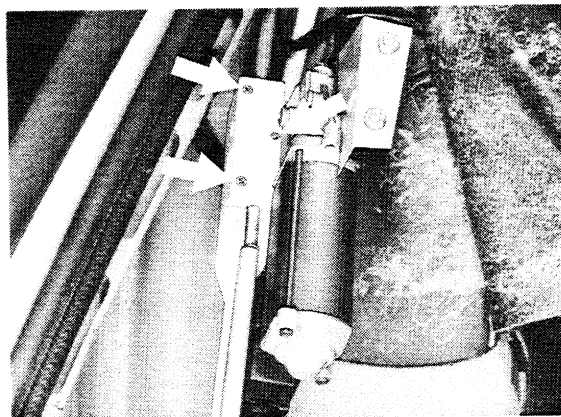
1. Raise tailgate, remove trim panel clips and place trim panel aside.



2. Unscrew nuts on studs and disengage electric drive in mounting points.



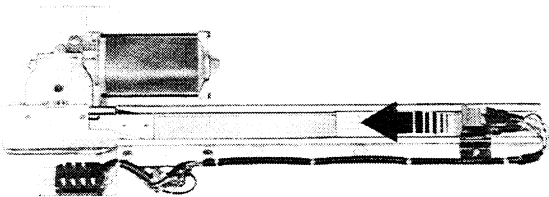
3. Swing electric drive into inside of car slightly. Unscrew cover mounting screws and remove cover.



4. Disconnect plug on electric drive.

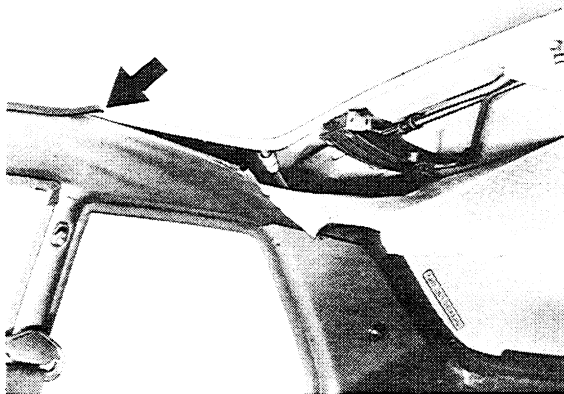


5. Unclip drive cam and remove electric drive with guide rail.



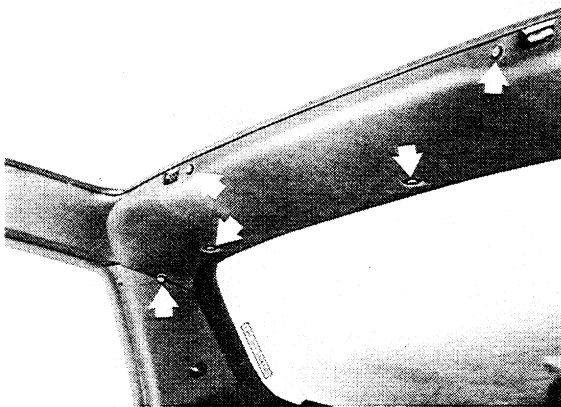
9. Pull off edge guard partially (arrow).

10. Loosen roof liner on body partially.

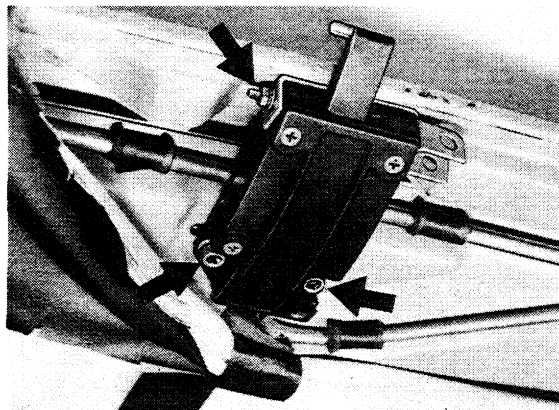


6. Remove lifting sun roof.

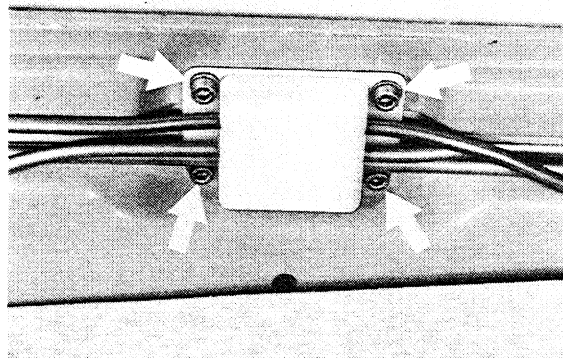
7. Remove caps on heads of bolts.



11. Remove mounting screws of element guides and transfer gearbox.



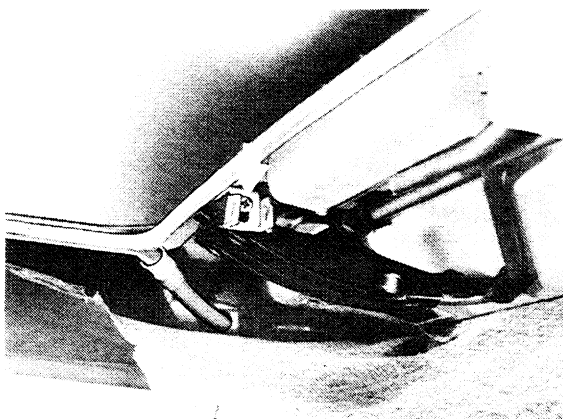
8. Remove mounting bolts and washers, and take off trim panel.



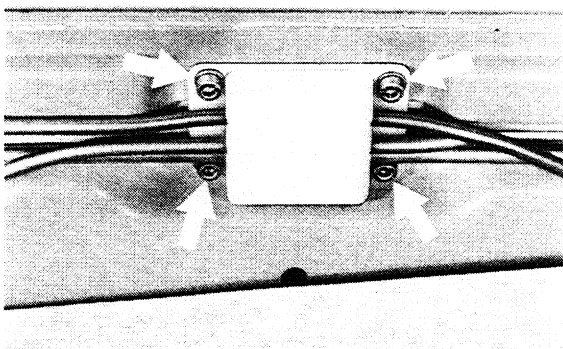
12. Remove assembly set from car by pulling long pipe out of C pillar.

## Installing

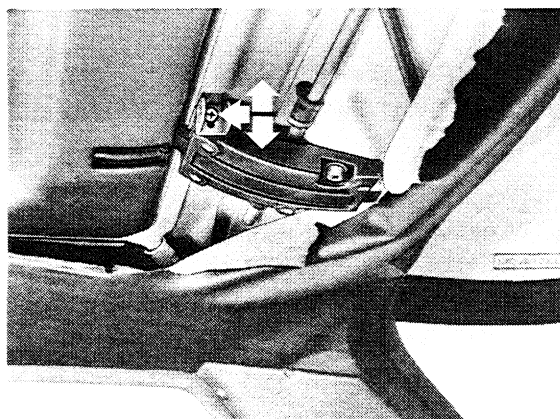
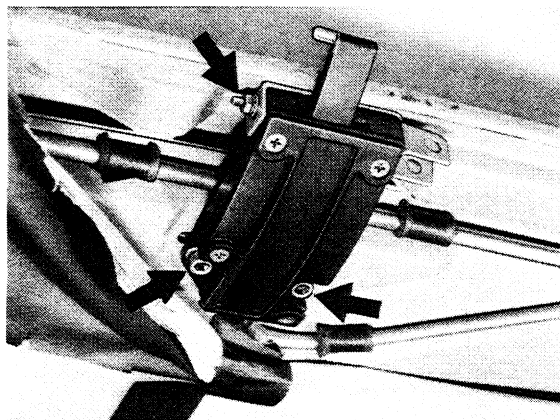
1. Guide long pipe of assembly set into assembly opening of body. Slide pipe through the C pillar by turning the entire part. Never use force, the pipe must not be bent.
2. Secure element guides of assembly set in holders on both sides lightly.



3. Mount transfer gearbox in center of roof beam.  
Use new, non-microencased screws.

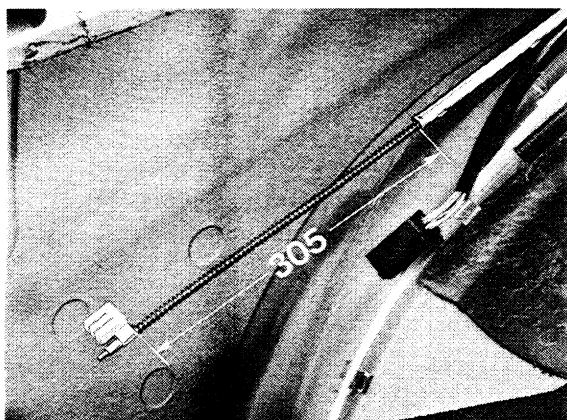


4. Bolt rear end of element guides on roof hoopsticks (without tension). Adjust front mounting points of element guides (see adjusting sun roof).

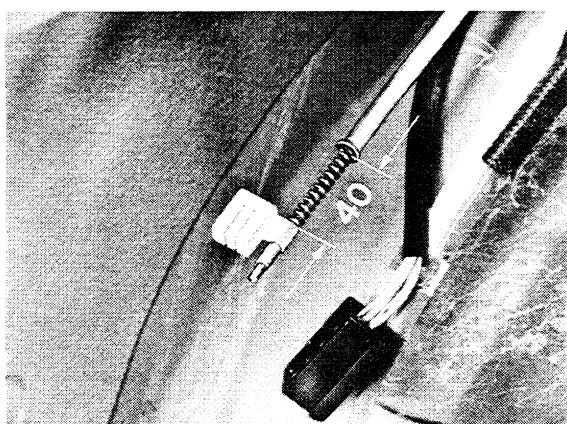
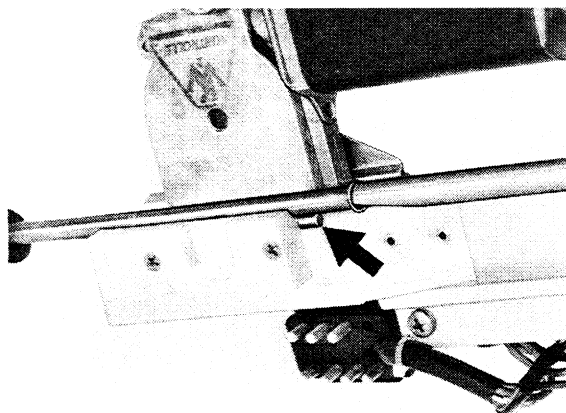


5. The pipe with the raising cable must protrude into the trunk parallel to the side panel. The distance between the end of the pipe and drive is  $305 + 1.0$  mm in pulled state and  $40 + 1.0$  mm in pushed state. If these distances are not reached, the assembly set has to be replaced. Adjustment of the raising cable is not possible. It must be possible to move the raising cable back and forth by hand.

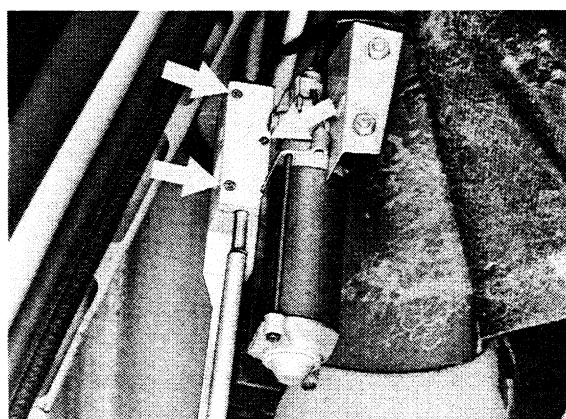




7. The pipe must be placed in the pinion housing precisely with the cams.

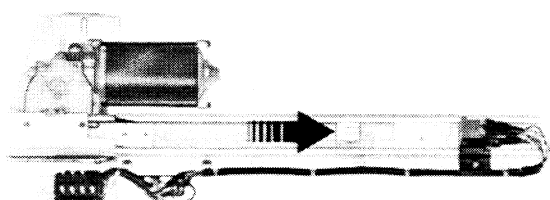


8. Mount and bolt down cover.



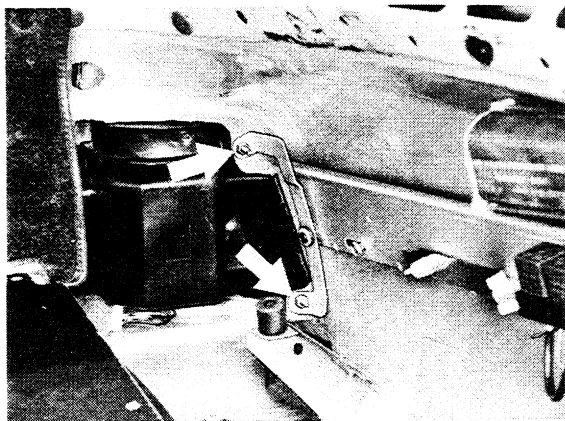
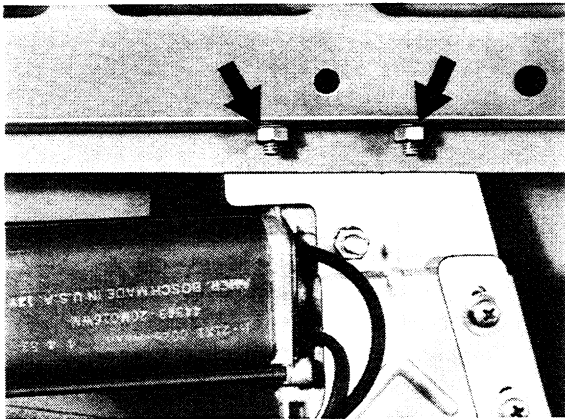
6. Work drive with raising cable into guide rail of electric drive, route along the rail and clip on counterpiece in cam.

9. Connect plugs. Place holder on end of rail on studs of tailgate and screw on nuts.





10. Engage console of electric drive in rear frame profile, screw on nuts and plug console claws on edge guard. Tighten all nuts.



11. Adjust lifting sun roof.

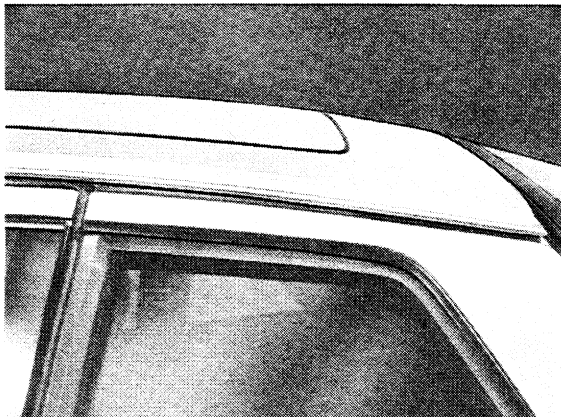
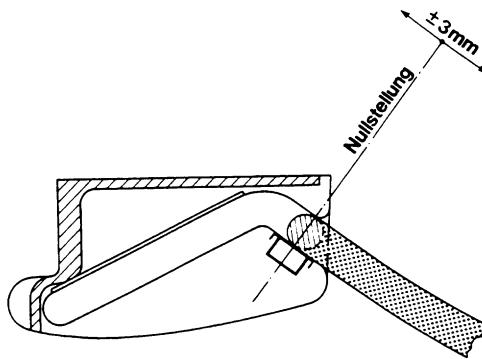
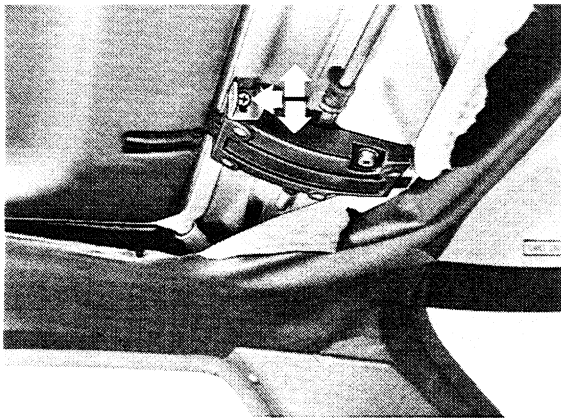
## ADJUSTING LIFTING SUN ROOF

Following jobs must be completed before adjusting.

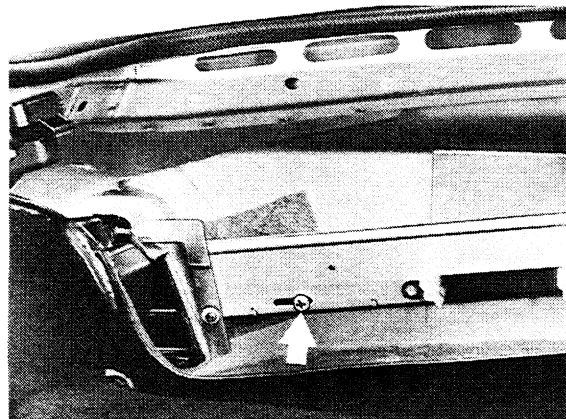
- Lifting sun roof removed.
- Trim on rear roof frame removed.
- Edge guard and roof liner on rear roof frame loosened on body partially (see "Removing Electric Drive and Assembly Set" - points 6 through 10).

### Adjusting

1. Place edge guard on collar, install roof, arrest and adjust element guides in slots that lifting roof lid and car roof are in same plane.  
Tighten mounting screws.
3. If staybolts of element guides are not in neutral position  $\pm 3$  mm (see sketch), left trim panel must be removed in luggage compartment and excessive deviation eliminated by adjusting the switch lever on the rail.

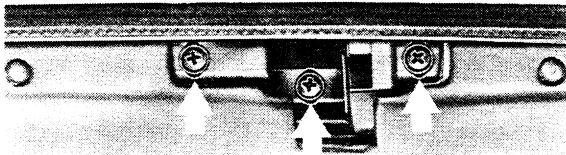


2. Remove roof and pull off edge guard, cement roof liner on body and slide on edge guard. Screw trim panel on roof frame and install caps on heads of screws.

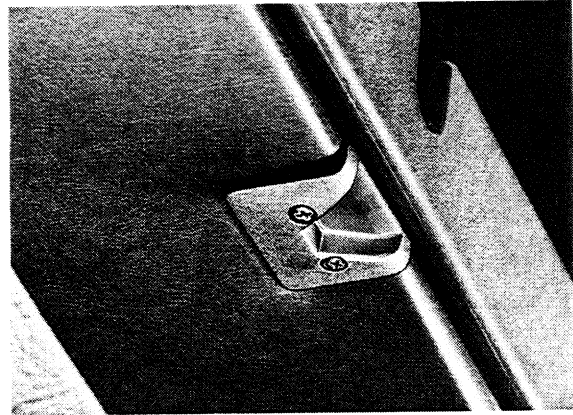


4. Install trim panel again after finishing adjustment.

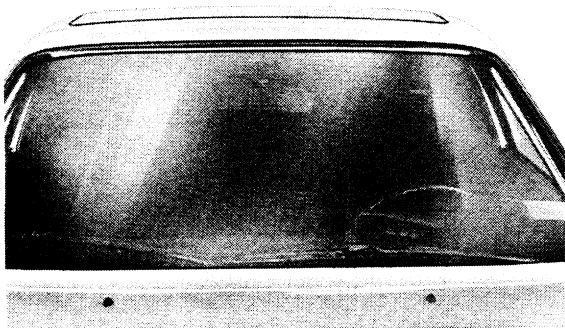
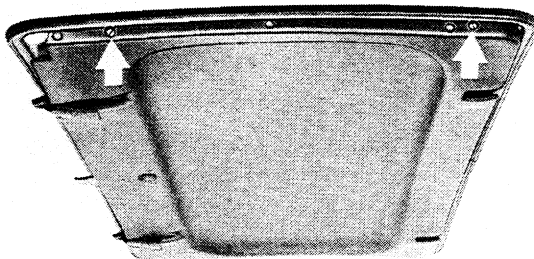
5. The gates bolted on the lifting roof lid have slots, with which the lifting roof lid and car roof panel can be adjusted to be in the same plane. Check gate guides, replacing if worn or damaged.



7. Should the lifting roof lid protrude at the front, the centering wedges must be unscrewed on the roof beam and installed again with washers underneath.



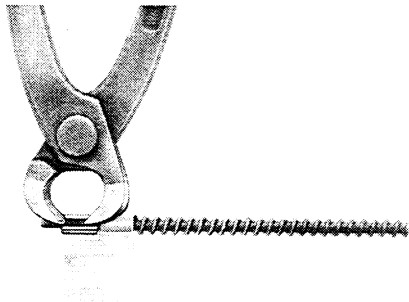
6. Cable anchors located in the lifting roof lid must be adjusted that the cable of the lifting roof runs parallel to the cable of the car roof.



## REPLACING DRIVE DOG

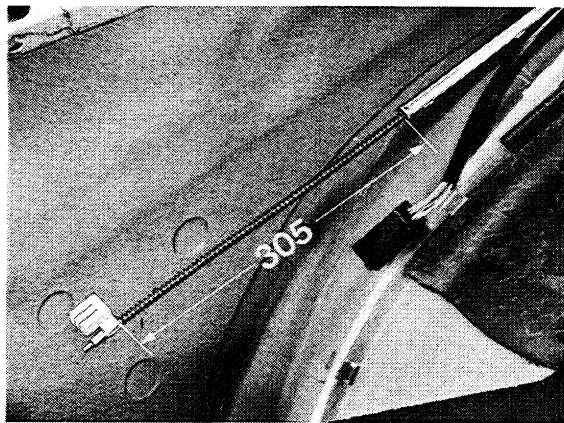
### Removing

1. Remove electric drive, see "Removing and Installing Electric Sun Roof Drive and Assembly Set",
2. Spread clamping sleeve with a suitable pliers and take off clamping sleeve and drive dog.



### Installing

1. Slide drive dog on to raising cable.
2. Clamp clamping sleeve to distance on the raising cable and with the gap in alignment with beads on the pipe.



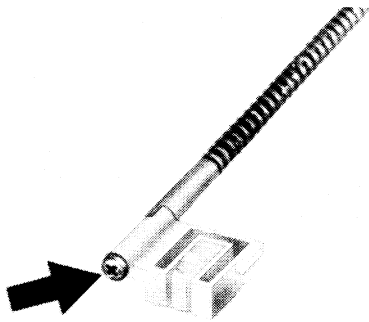
305 + 1.0 mm / 40 + 1.0 mm

3. Install electric drive.

## REPLACING UNSCREWING - TYPE DRIVE DOG

### Removing

1. Remove electric drive, see "Removing and Installing Electric Sun Roof Drive and Assembly Set".
2. Unscrew mounting screw and lift off drive dog.
2. Install electric drive.



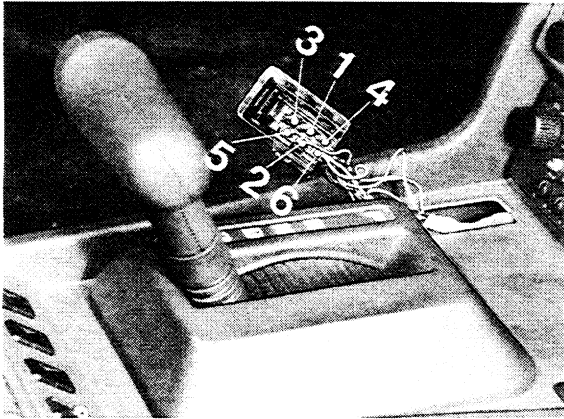
### Installing

1. Adjust drive dog on raising cable and install screw with washer on raising cable. Drive dog must be aligned with beads on pipe.

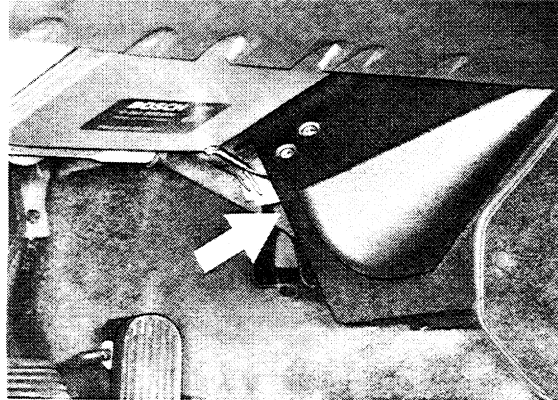


### CHECKING CONTROLS OF POWER SUN ROOF DRIVE

1. Check fuse no. 8 (8 amps).
2. Take sun roof switch out of center console with help of a spatula. Unfold plug connection cover for switch.



Check lines or replace control unit for sun roof/radio, if voltage values are not as specified.



3. Perform following tests with a volt-meter or test lamp.
  - 3.1 Terminal 2 must have battery voltage with the ignition turned on.
  - 3.2 Terminal 3 must have battery voltage with the ignition turned off and the ignition key inserted (radio position).
  - 3.3 Terminal 4 must have battery voltage when the left front wheel is lifted and rotated (speed above 5 km/h).

4. Check microswitch in roof opening.

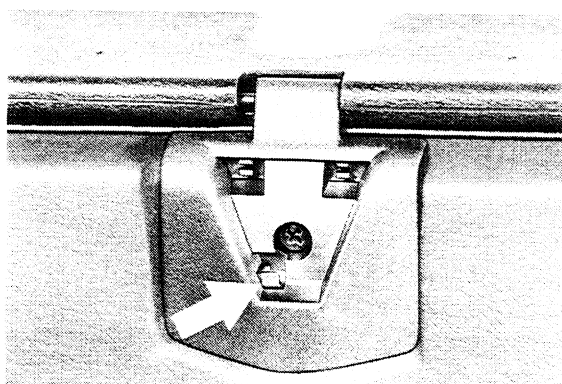
#### Note

The microswitch will prevent running out the lifting elements unintentionally after removing the roof.

Check microswitch - see next page.

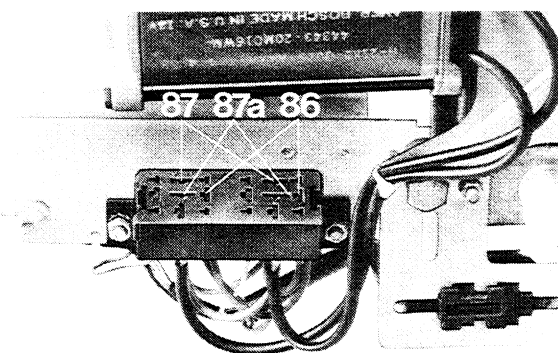


- 4.1 Microswitch must remain in closed position with the roof installed up to the maximum lifting position. The switching point can be identified by a loud "click".
- 4.2 The roof cannot be lifted when the microswitch is open or a wire is interrupted.
- 4.3 The operating lever on the microswitch must move easily.



#### CHECKING POWER SUPPLY FOR SUN ROOF MOTOR

1. Check fuse no. 9 (25 amps) in extra fuse box.
2. If fuse is okay, loosen trim panel in luggage compartment at rear left and pull off relay on sun roof drive.

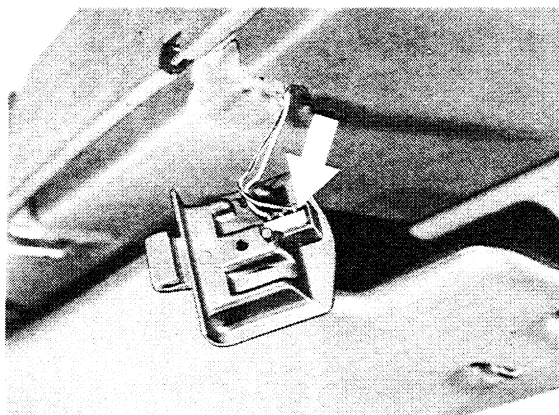
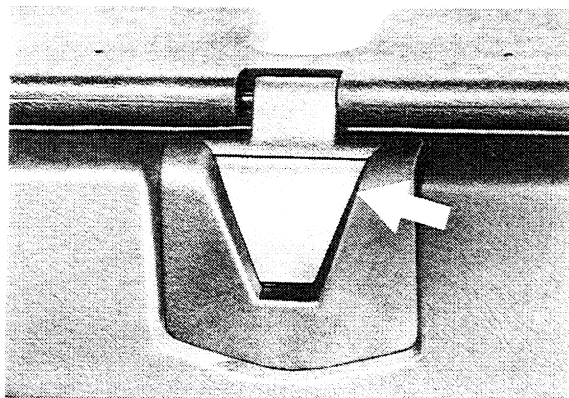


3. Perform following tests with a voltmeter or test lamp.
  - 3.1 Both relay socket terminals 87 must have battery voltage.
  - 3.2 Terminals 86 and 87a must have ground potential.

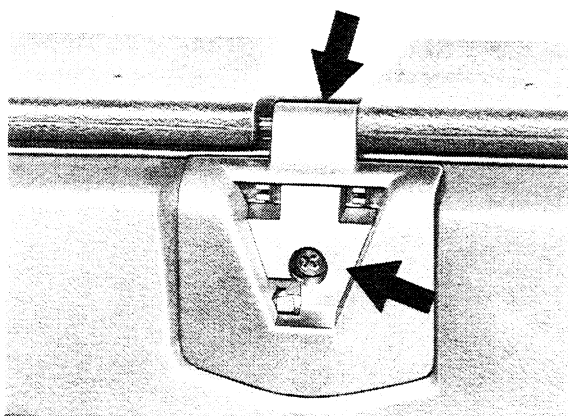
## REMOVING AND INSTALLING SUN ROOF MICROSWITCH IN ROOF OPENING

### Removing

1. Unlock and remove lifting roof lid.  
Disengage operating flap in lifting roof mount with a body spatula.
3. Take microswitch out of lifting roof mount and unsolder wires.



2. Unscrew lifting roof mount and press out of wind deflector.



### Installing

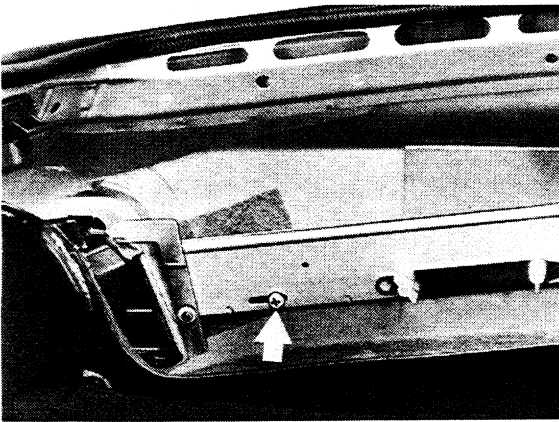
#### Note

Be careful not to pinch wires when tightening screws.  
The operating lever on the microswitch must not clamp.

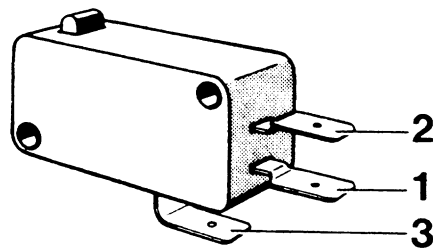
## REMOVING AND INSTALLING SUN ROOF MICROSWITCH ON ELECTRIC DRIVE

### Removing

1. Loosen trim panel in luggage compartment at rear left.
2. Unscrew mounting bolt on micro-switch holder.



### Wire connections on microswitch 1

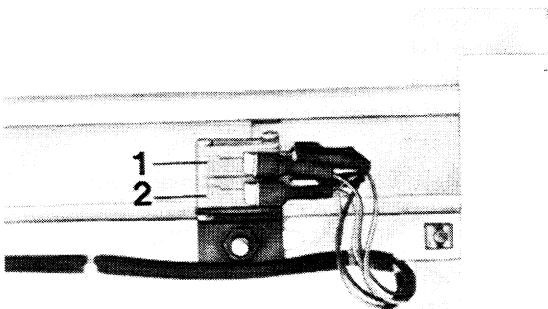


- 3 = black/red
- 1 = green/red
- 2 = black

3. Pull out holder and unscrew micro-switch.

### Installing

Rear view of installed microswitch.



### Wire connections on microswitch 2

- 3 = gray/green
- 1 = not connected
- 2 = gray/black

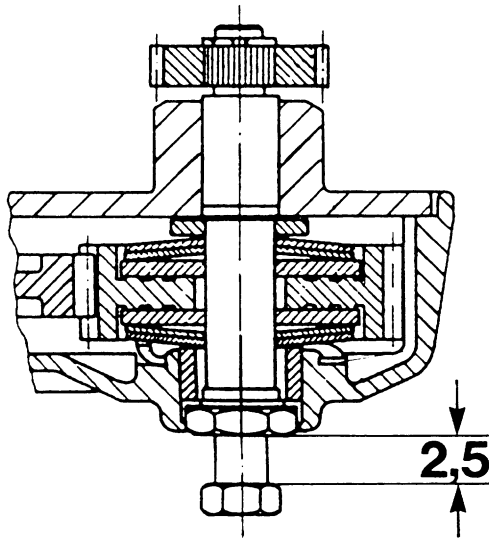
- 1 = Three wires connected
- 2 = Two wires connected

## ADJUSTING SLIP CLUTCH ON SUN ROOF MOTOR

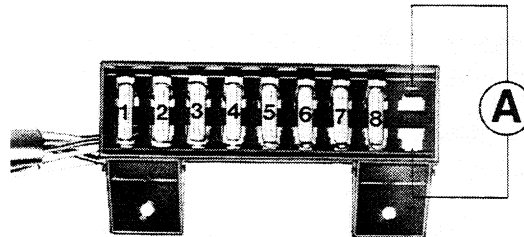
## Note

The slip clutch was adjusted in the factory and only has to be readjusted, if the adjusting screw had been removed for manual operation of the roof.

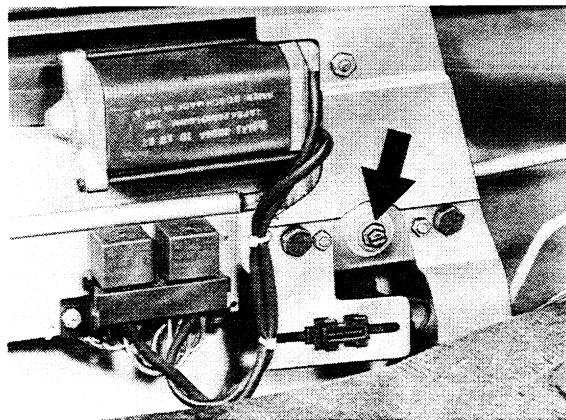
The lock nut is cemented on the adjusting screw at a distance of 2.5 mm from the screw's head.



To guarantee perfect operation of the slip clutch, the adjustment should be made by measuring the power input of the sun roof motor.



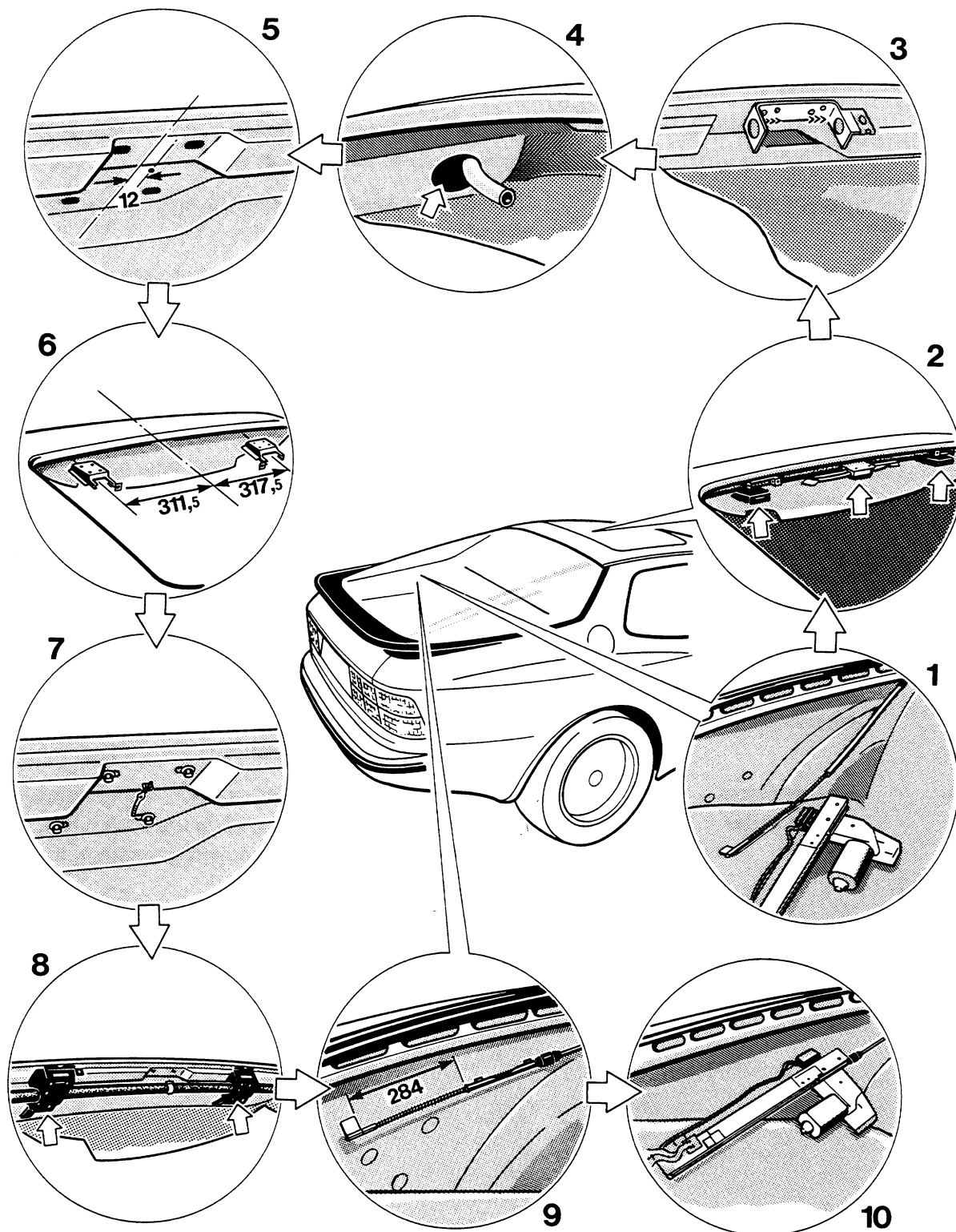
2. Screw in adjusting screw on slip clutch and tighten slightly.



1. Remove fuse no. 9 in extra fuse box. Connect ammeter on fuse carrier no. 9.
3. Turn on ignition and operate switch to move lifting roof lid to final position of drive. Measure power input in final position (clutch slips).
4. Tighten adjusting screw until power input is 12 to 14 amperes.
5. Disconnect ammeter and install 25 ampere fuse again.

## Converting the lifting roof

Converting the lifting mechanism of the lifting roof to the new version (as of February, 1986)



## Converting the lifting mechanism

Converting the lifting mechanism of the lifting roof to the new version (as of February, 1986)

No.	Operation	Instructions
	Remove the lifting roof	
	Remove interior in the rear roof rail area	Remove roof lining, pull off rear edge protector and loosen adjacent areas of roof lining.
	Loosen side panel lining	Open tailgate, loosen side panel lining clips and move side panel lining aside.
	Loosen mounting of electrical drive	Screw mounting nuts off the threaded studs and disengage electrical drive from its mounting locations. Move electrical drive aside and disconnect plug connectors.
1	Separate fitting kit from electrical drive.	Loosen fastening screws at housing of electrical drive and remove cover. Unclip yoke from switching cam and remove yoke complete with lift cable from guide rail.
	Separate yoke from lift cable	Loosen fastening screw and pull yoke off the lift cable.
2	Loosen fitting kit in roof area	Loosen fastening screws for right-hand and left-hand segment guide and for transfer box.
	Pull out fitting kit	
3	Separate spotwelds of support panels	Separate spotwelds between support panels and roof rail using a spotweld cutter. Separate MIG weld seams between support panels (front side) and roof rail.
4	Enlarge cutout for drain hose	<b>Right-hand side only:</b> Enlarge cutout for drain hose in the body panel just enough to allow the short tube – including the covering – of the mounting assembly to be introduced into the cutout.
5	Drill mounting hole for tie-wrap	Drill a <b>7.3 mm</b> dia. hole for the tie-wrap in a position offset <b>12 mm</b> to the left (in forward direction).



No.	Operation	Instructions
6	Position adapter plates	<b>Positioning the left-hand adapter plate:</b> Center of vehicle to center of adapter plate <b>317.5 mm</b> . <b>Positioning of right-hand adapter plate:</b> Center of vehicle to center of adapter plate <b>311.5 mm</b> . Drill blind rivet holes in roof rail.
	Prime body sections affected	Apply primer to body sections worked with grinding, drilling or cutting equipment.
	Rivet adapter plates in place and fit tie-wraps	Rivet adapter plates to roof rail. Fit tie-wraps.
7	Block threaded plates for fitting of transfer case	Tighten threaded plates of old transfer case mounting to prevent rattle (use short bolts).
8	Insert and tighten fitting kit	Insert assembly kit into body, tighten segment guides and tighten up tie-wraps.
9	Assemble and adjust lift cable	Fit connector and connecting tube to lift cable. Use connector to install tube assembly kit and connecting tube. Screw yoke to lift cable. Turn protruding section of lift cable to adjust length to <b>284 mm</b> (measured between connecting tube and yoke). <b>Note:</b> When adjusting, the arc segments must be engaged to stop into the segment guides.
10	Connect fitting kit to electrical drive	Insert yoke complete with lift cable into guiding sleeve of the electrical drive and clip into actuating cam. Insert connecting tube into housing, install and tighten cover.
	Fit electrical drive	Close connector for electrical drive. Engage electrical drive into mounting points and tighten.
	Install side panel lining	
	Install interior	Glue roof liner to edge of body panel (roof aperture), put edge protector back on and install roof lining.
	Insert lifting roof	
	Check operation of lifting roof	