



# Service Information

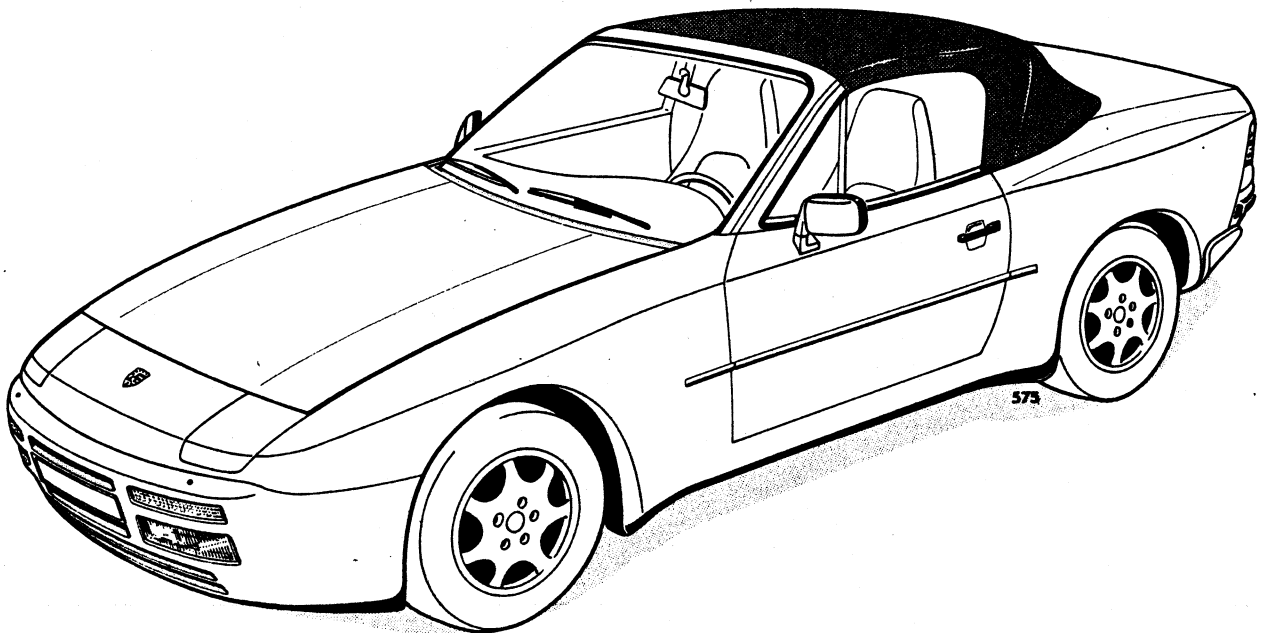
## Technik

---

**944 S 2**

# Sealing Body

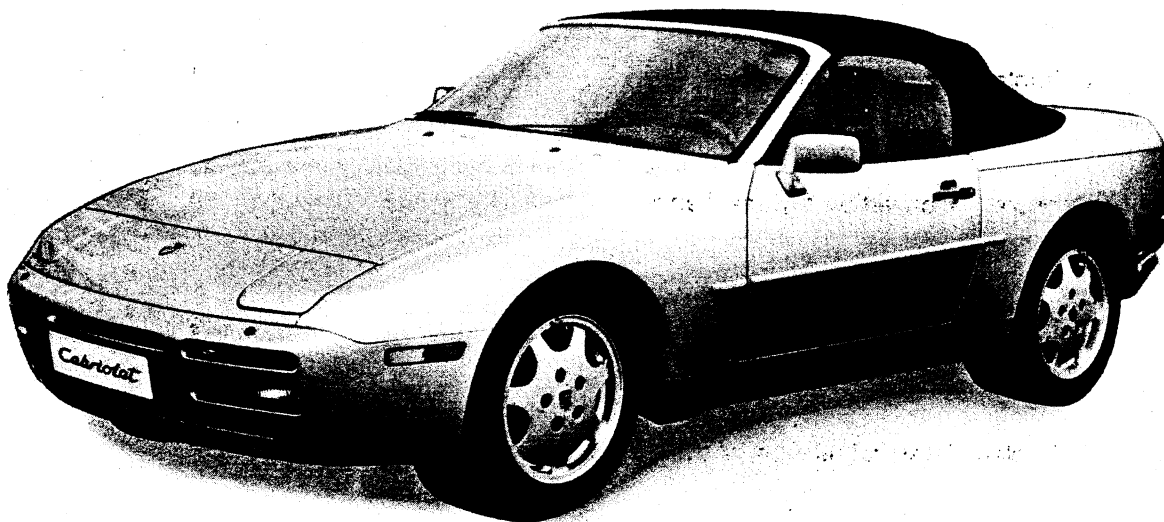
# Cabriolet



## SEALING OF PORSCHE 944 S2

---

### Preface



89/29

Consistently changing loads and strains that a car is subjected to when driven on the road cause changes to the mounting position of doors, hoods and soft tops. If such changes are not remedied professionally and in time, rattles, squeaks and wind noise as well as drafts and water leaks into the interior of the car may result.

Adjustment and sealing operations in practice often are one and the same and require skilled personnel to be performed properly. All rubber components exposed to the elements require regular care. Special care must be applied at the Cabriolet soft-top since its fabric materials are subject to constant folding.

This brochure is up-to-date as of February 8, 1991

PORSCHE SERVICE TRAINING CENTER

**Contents**

	<b>Page</b>
<b>Bonding of seals</b>	<b>3</b>
<b>Cabriolet - Convertible top covering</b>	<b>4</b>
<b>Cabriolet - Convertible top mechanism</b>	<b>8</b>
<b>Cabriolet - Adjusting the convertible top</b>	<b>9</b>
<b>Cabriolet - Basic adjustment of the electric convertible top</b>	<b>12</b>
<b>Door glass/door seals</b>	<b>14</b>
<b>Cabriolet - Windshield frame seal</b>	<b>18</b>
<b>Cabriolet - Convertible top seals</b>	<b>19</b>
<b>Cabriolet - Electric convertible top closing mechanism</b>	<b>21</b>
<b>Cabriolet - Maintenance Instructions</b>	<b>23</b>
<b>Drain tube below trunk lid</b>	<b>24</b>
<b>Recommended adhesives</b>	<b>25</b>

**Bonding of seals****Test steps**

1. Are seals damaged or are severe deformations evident?
2. Are the seals seated tightly in the panel laps, are they bonded at the transition points and are they fitted properly?
3. Do the door frames and door windows have sufficient pretension and do they contact the seals properly?
4. Have all moving and sliding parts been greased, have the water shields in the doors been bonded properly and are the drain holes unobstructed?

**Preparation**

1. Remove damaged seals.
2. If required, trim flange to fit.
3. Remove residual adhesive with suitable solvent, e.g. benzene.
4. Align and tighten door window frames, make sure clearance to door flange is correct.
5. Check alignment of doors in front and rear fender area.
6. Retighten door lock screws.
7. Apply marks for the transition of the seals to the windshield frame and roof post at the junction of door inner panel to door window frame.

**Bonding**

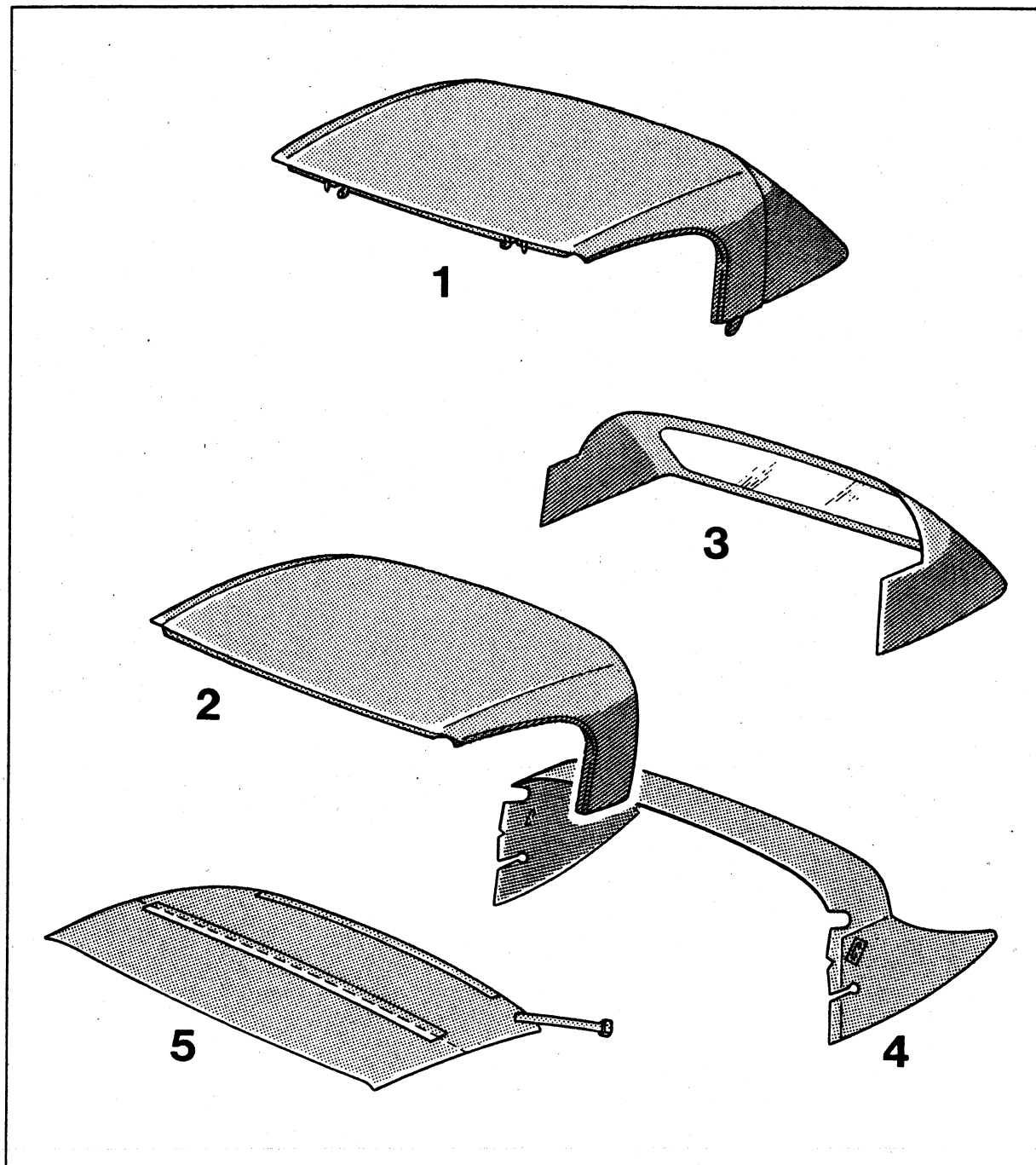
1. Prime the new door seal and the body flange with a coat of thinned down adhesive.
2. Apply adhesive to the new door seal one section at a time and bond to the body flange, starting at the marks and tensioning the seal slightly. The contours of the sealing lip must follow the mating panels uniformly.
3. Check the sealing pressure of door and window frame by placing a strip of paper in between. Removal of the paper from the closed door should only be possible by tearing the paper or by overcoming increased resistance.
4. If required, readjust door lock striker (grease lock pin and striker lightly).

**Note:**

The door should be kept shut for several hours to allow the adhesive to set and to prevent the door seal from shifting.

Convertible top covering

- |   |                                 |                             |       |
|---|---------------------------------|-----------------------------|-------|
| 1 | Convertible top assy.           | Part no. 941.561.901.10 2XW | black |
| 2 | Convertible top covering, front | Part no. 941.561.051.10 2XW | black |
| 3 | Convertible top covering, rear  | Part no. 941.561.053.10 2XW | black |
| 4 | Headlining, rear                | Part no. 941.561.149.10 A20 | black |
| 5 | Headlining, front               | Part no. 941.561.150.10 A20 | black |
| - | Perspex screen                  | Part no. 941.561.359.10     |       |



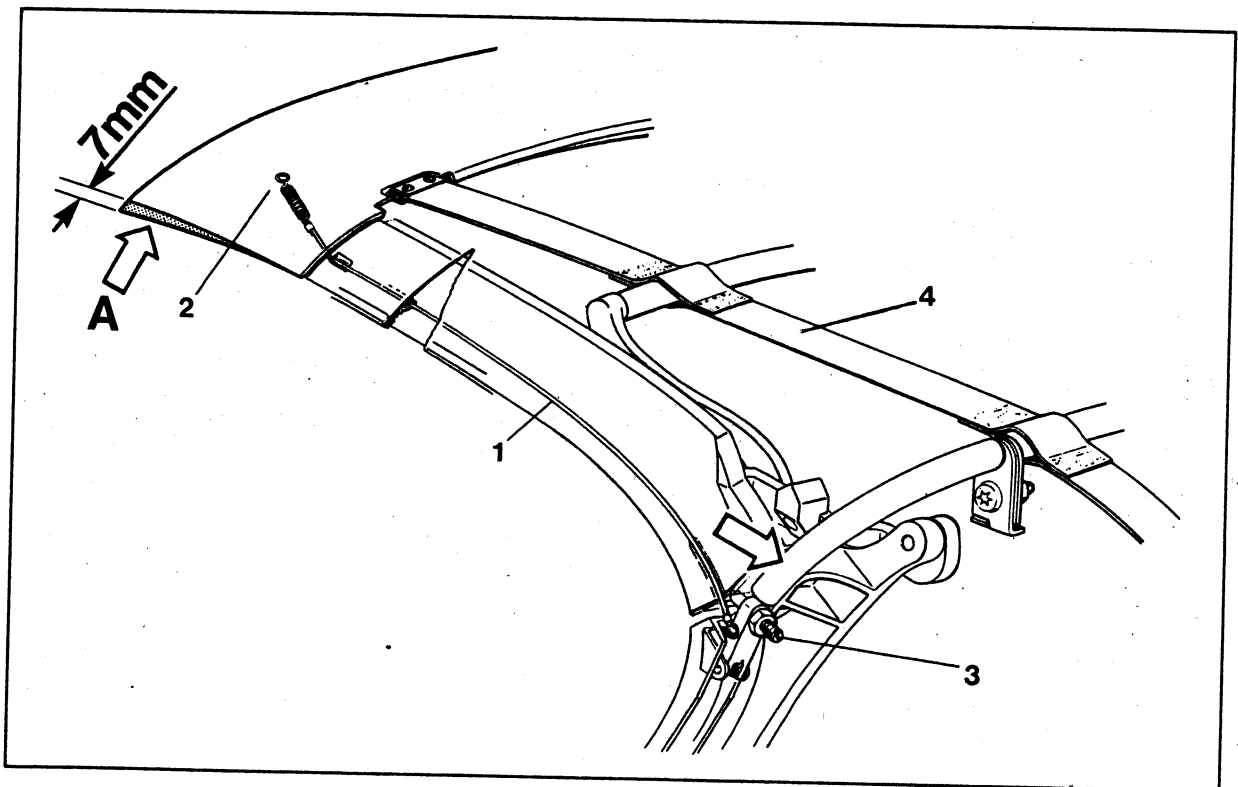
### Convertible top covering

The sides of the convertible top covering are held in place by a spring-loaded wire (1). The spring (2) is mounted to the front roof rail and may be retensioned using stud (3). The cap of stud (3) is of the replaceable type as of Model Year '90. To ensure that the convertible top linkage and the convertible top covering fold down correctly, a side strap (4) has been inserted.

### Convertible top linkage

As of May 15, 1989, a convertible top frame widened by 7 mm on each side (area A) is used for production vehicles. If the outer covering of a convertible top made prior to May 15, 1989, must be replaced (vehicles prior to VIN WOPZZZ94ZKN430528), note the following details:

- Only late-model outer coverings are supplied for replacement.
- If the **convertible top frame** of this car is to be **retained**, the roof rail must be widened by welding on sheetmetal strips to both sides in order to ensure proper fit of the outer covering.



2

**Convertible top covering**

The convertible top cloth is bonded to the front end of the roof frame. A tubular-section rubber seal (1) with molded end pieces is used to seal the convertible top at the windshield frame and is mounted to the front roof rail using a retaining strip (2) (section A-A).

The convertible top cloth rests on the lateral roof rail.

The rear convertible top bow that is made up of a strip molding connects the front convertible top covering (3) to the rear section (4). The rear section is bonded to this strip molding (section C-C).

The front convertible top covering is bonded to a retaining strip bolted to the strip molding.

The rear retaining bracket with the threads for mounting the convertible top is made of a single-piece sheetmetal strip. The rear section is bonded to this bracket.

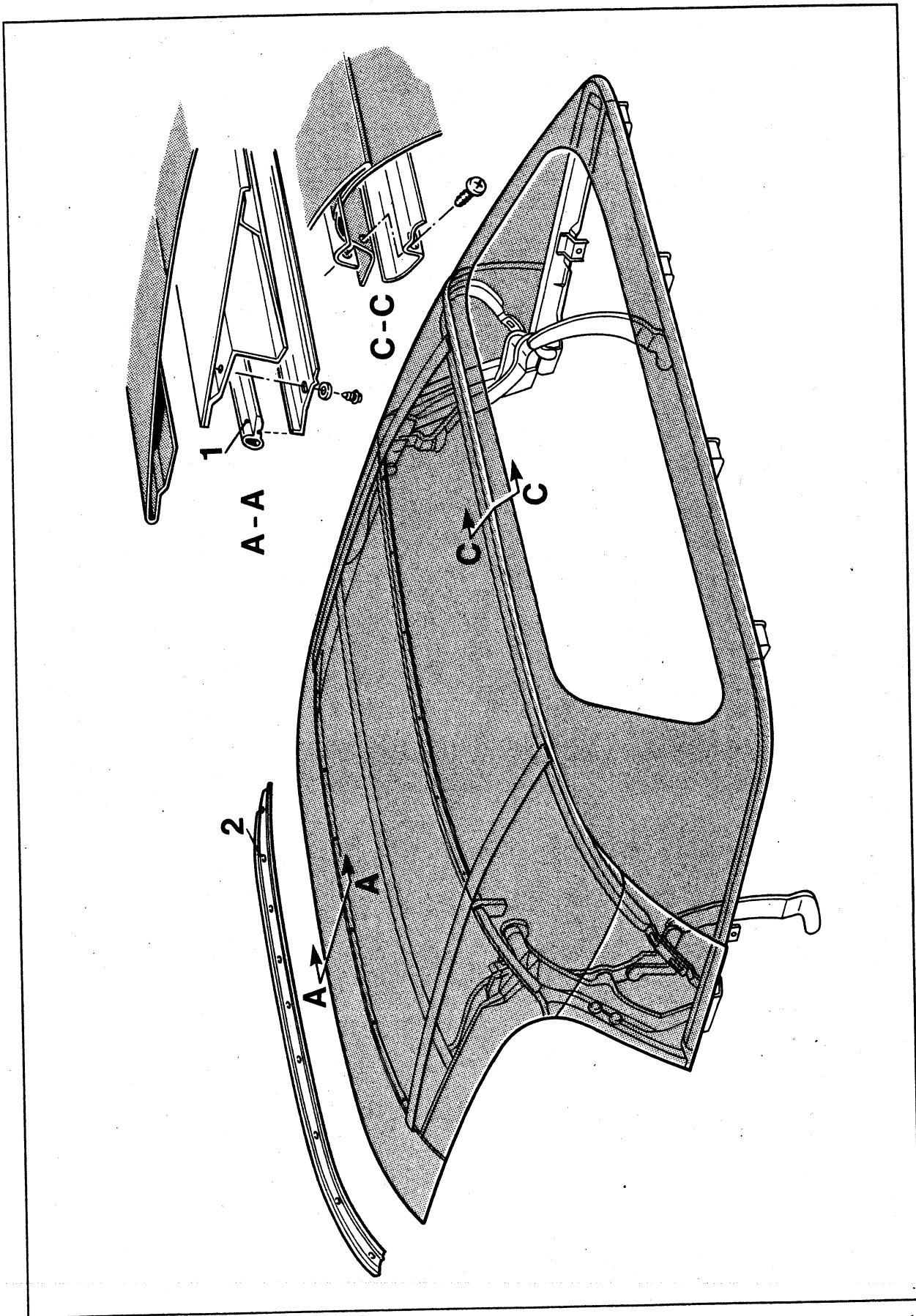
This retaining bracket also locates the lower parts of the Tenax snap fasteners used to fit the convertible top cover.

**Headlining**

The headlining is made up of two parts and covers the convertible top linkage. The rear headlining is bonded to a retaining strip and screwed to the convertible top bow (section C-C); with the convertible top closed, the headlining is then bonded to the next bow, making sure all creases in the lining are eliminated.

Another retaining strip is fitted to the top bow.

The front headlining is suspended at this retaining strip and is stretched to the front up to the bow (section A-A), without any creases remaining. Another retaining strip is fitted to the front bow, followed by the bow covering. The tensioning strips are bonded to the auxiliary bow, making sure the seams run straight.

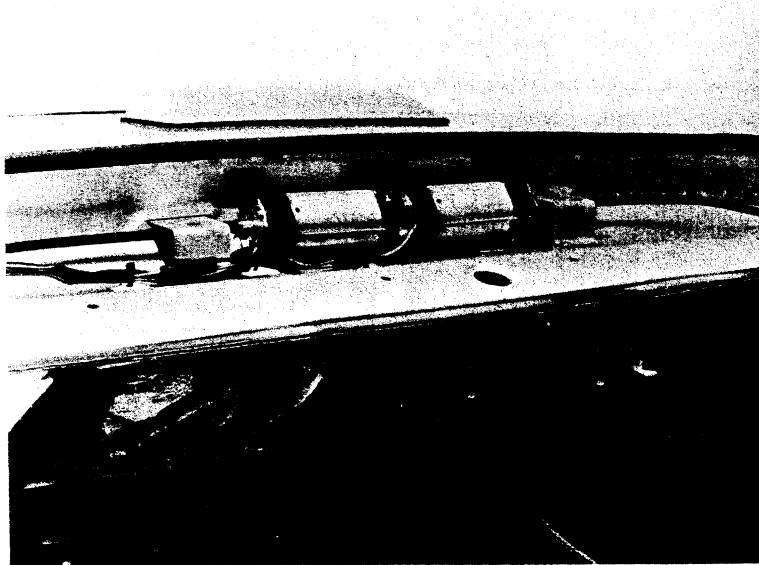




**Convertible top mechanism**

The convertible top mechanism consists of two electromotors coupled mechanically. Each of these drives a swivel gear on the left and right-hand side, respectively, across a flexible shaft (similar to 911 Cabriolet).

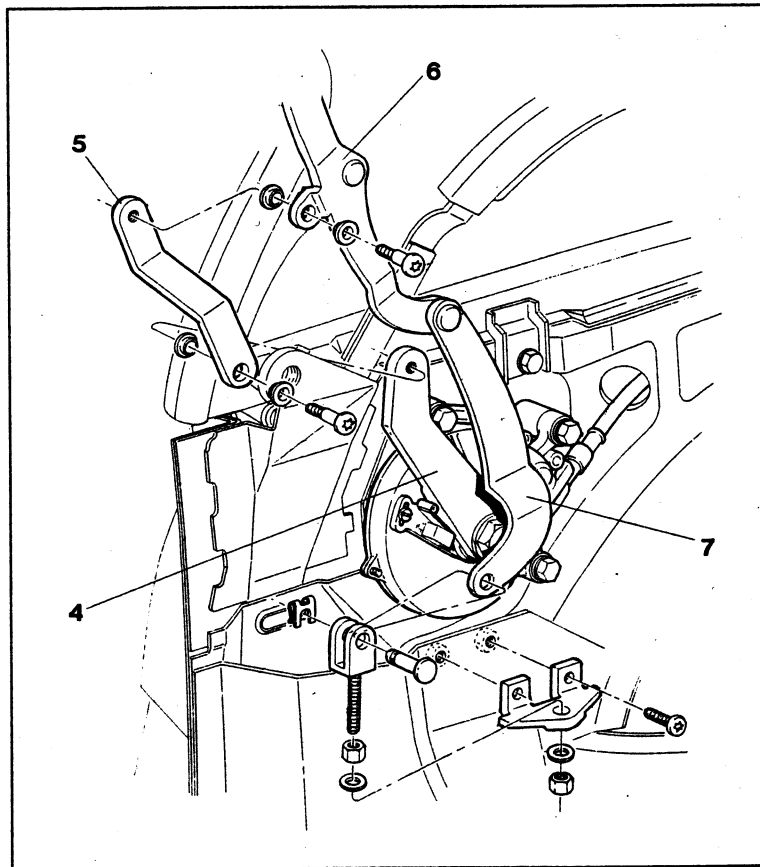
The drive motors are bolted to the crossmember behind the seat backrests and are accessible after removal of the cover.



89/38

Operating lever (4) is mounted on the gear shaft of the swivel gear and transmits the movement across tie rod I (5) to the intermediate lever (6) on the main bow. Another link of the intermediate lever (6) at the main bow serves as the union to the body mounting saddles across tie rod II (7).

When a vehicle is serviced following emergency operation, replace the bolts removed at the gears with new items. Tightening torque: 35 Nm.



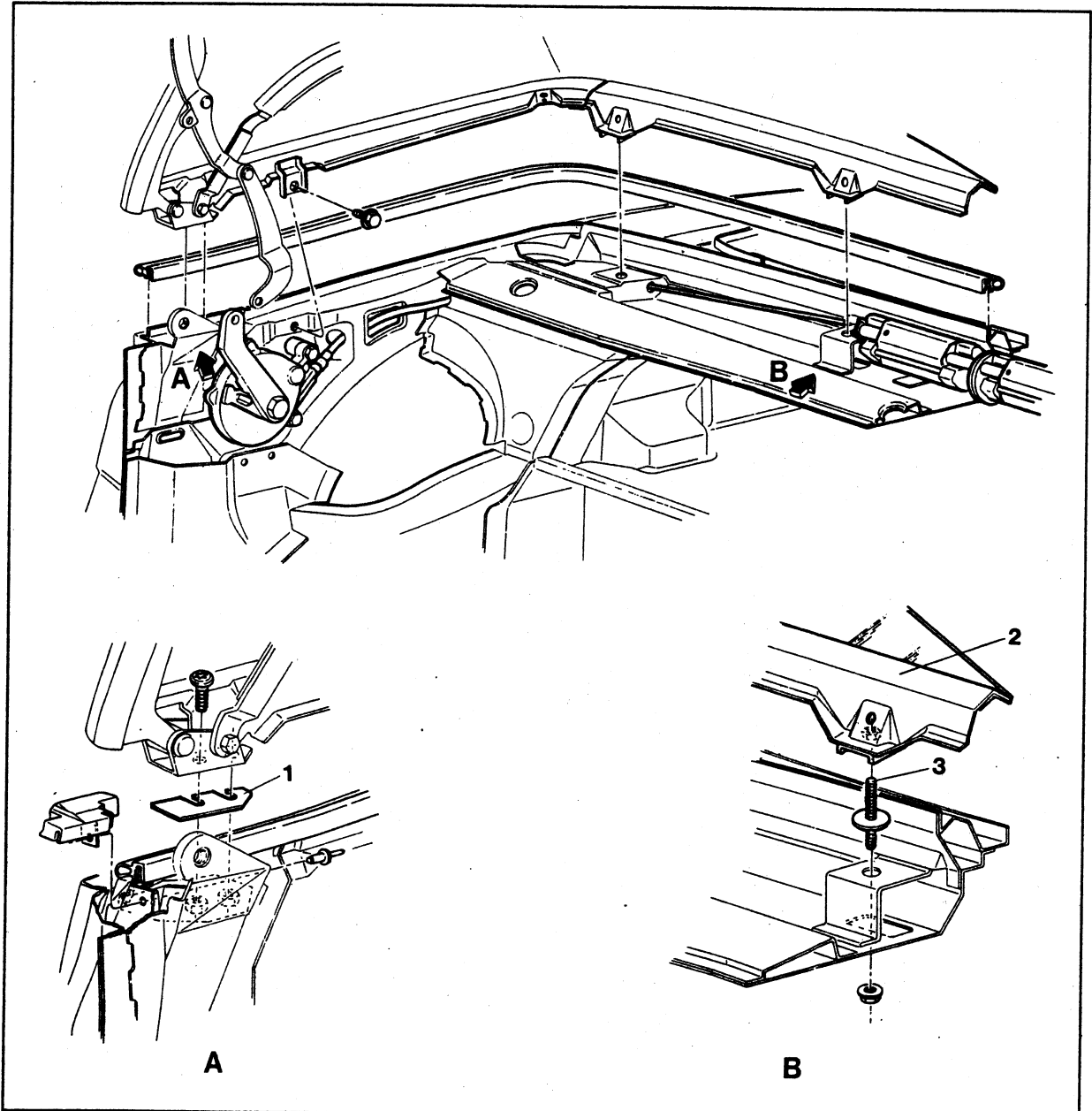
551 a

### Adjusting the convertible top

A smooth alignment of the convertible top with the body and the mating parts may be achieved by adjusting the convertible top supports (A) and the retaining bracket (B). The convertible top linkage is fitted to the welded convertible top supports using two Allen screws.

For fore/aft adjustment of the top towards the door glass and for height adjustment, use shims (1) so as not to influence the kinematics of the convertible top linkage.

To adjust and mount the single-piece retaining bracket (2), locate it sideways at the inner panel and use four adjustment screws (3) in the crossmember area (accessible after removing the trunk lining). Height adjustment to ensure smooth fit of the conv. top is carried out using those adjustment screws.



551

551 b

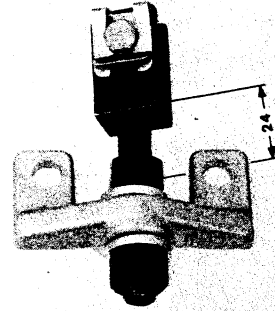
**Adjusting the convertible top**

When the top is closed, the centering lugs must enter the sleeves at the front of the roof rail in a centered position.

If required, readjust the threaded forks at the mounting saddles.

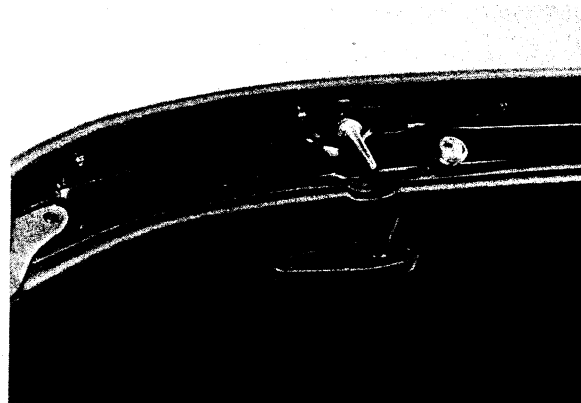
Basic adjustment dimension at the threaded fork is 24 mm.

Tightening torque of the lock nuts: 55 Nm.  
Tightening torque of threaded fork mounting to body: 28 Nm.



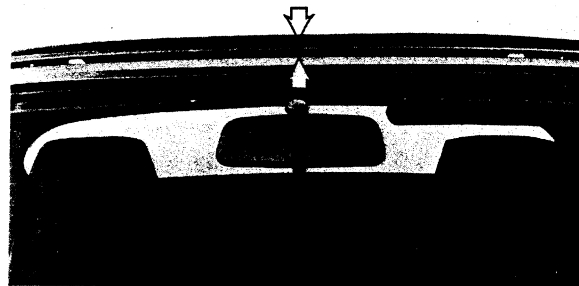
89/77

Adjusting the threaded fork results, above all, in a change of length to the front or rear as well as a change of height and a slight lateral offset. This adjustment acts on the kinematics of the convertible top. Care should therefore be taken when adjusting the top. If required, correct adjustment on the opposite side.



89/61

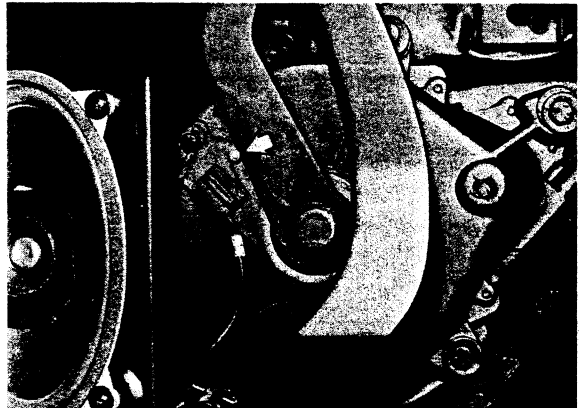
Adjust convertible top advance in such a manner that the bottom edge of the roof rail is  $25 \pm 5$  mm above the windshield panel.



89/83

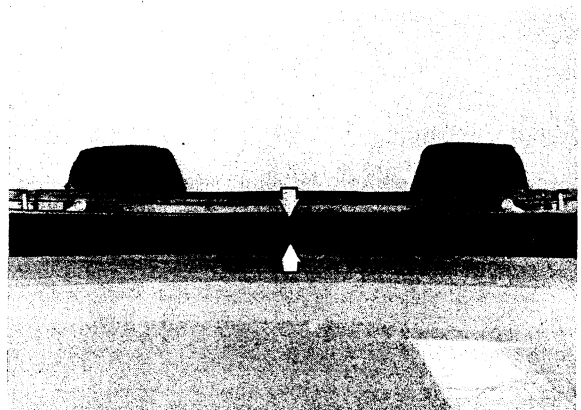
**Adjusting the convertible top**

The „Convertible top closed limit switch of the electric top closing mechanism must be adjusted at the right-hand swivel gear in such a way that the operating lever actuates the limit switch when the adjustment dimension of  $25 \pm 5$  mm is attained.



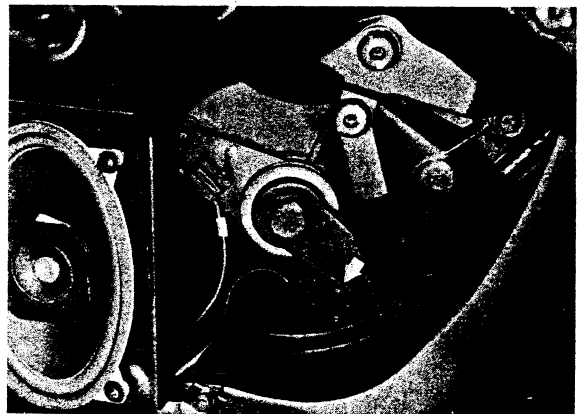
89/40

The „Convertible top open” limit switch is adjusted in such a way that the operating lever actuates the limit switch when the adjustment dimension of  $50 \pm 5$  mm is attained in the middle between the roof rail and the retaining bracket.



89/84

Limit switch „Convertible top open”.

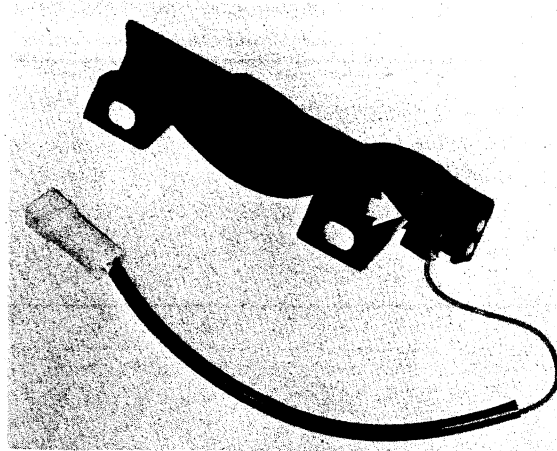


89/41

**Microswitches in the sliding block**

Those microswitches prevent the drive motors from being actuated when the convertible top is still locked or when the microswitches are still actuated by the guiding lugs.

**This is why the convertible top must be lifted slightly after it has been unlocked.**



89/75

**Basic adjustment of the electric convertible top**

If a change of the position of the centering lugs is required, the threaded forks of the mounting saddles have to be readjusted.

Adjusting the threaded forks results, above all, in a change of the length to the front or rear as well as in a change of height and a slight lateral offset.

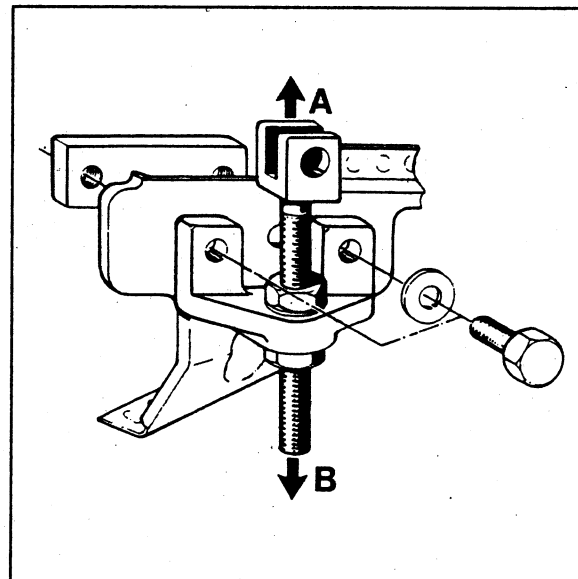
Adjustment in direction:

- „A” = Convertible top moved forward.
- „B” = Convertible top moved back.

Both adjustment procedures „A” and „B” act on the kinematics of the convertible top, i.e. adjust in small increments only.

If required, correct adjustments on the opposite side.

After each adjustment step, operate the electric system to open and close the convertible top.



4

**Checking synchronization of the convertible top kinematics**

A pronounced operating noise emanating from one side only indicates insufficient synchronization of both drives.

**Checking**

With the convertible top closed, measure distance „X” of levers (1) and (2) on both sides.

The operating levers at the swivel gears (left-hand and right-hand side) must be in an identical position, i.e. the notch at the gear housing and the center of lever (1) must line up.

With correct adjustment, distance „X” must be virtually equal on both sides.

If the „X” values on the left-hand and right-hand sides differ from each other by more than 5 mm and in order to avoid excessive strain on the kinematics of the convertible top, proceed as follows:

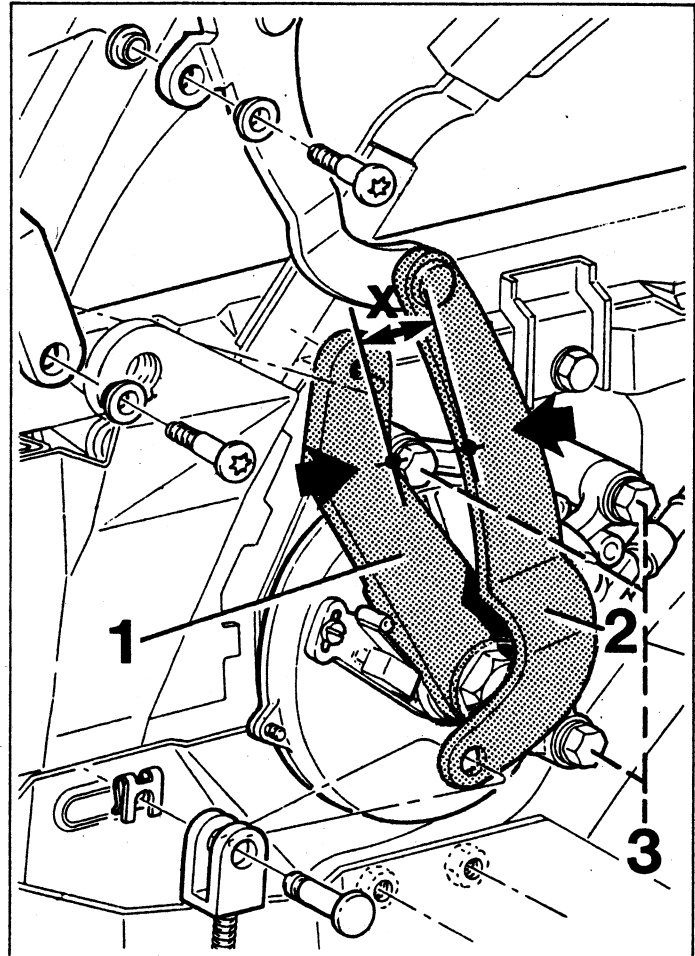
Top closed and locked.

Slacken mounting screws of the swivel gear (3) and pull both levers (1) and (2) towards each other (direction of arrow).

At the same time, the swivel gear should be pulled back as far as possible in the slots.

Tighten the mounting screws (3) in this position.

Adjust both sides in this way. The convertible top should be opened and closed repeatedly while adjustments are made. Check dimension „X” on both sides again.



## Door glass

The window lifter rail complete with plastic guide is assembled and bolted to the door glass.  
The door glass is inserted through the door gutter to enter the guide rollers of the window regulator.  
To adjust the door glass to mate up with the adjacent areas, readjust the small window lifter rail (3).

### Adjustment

Moving mounting **A** upwards in the elongated slot, the rear of the window pivots upwards.

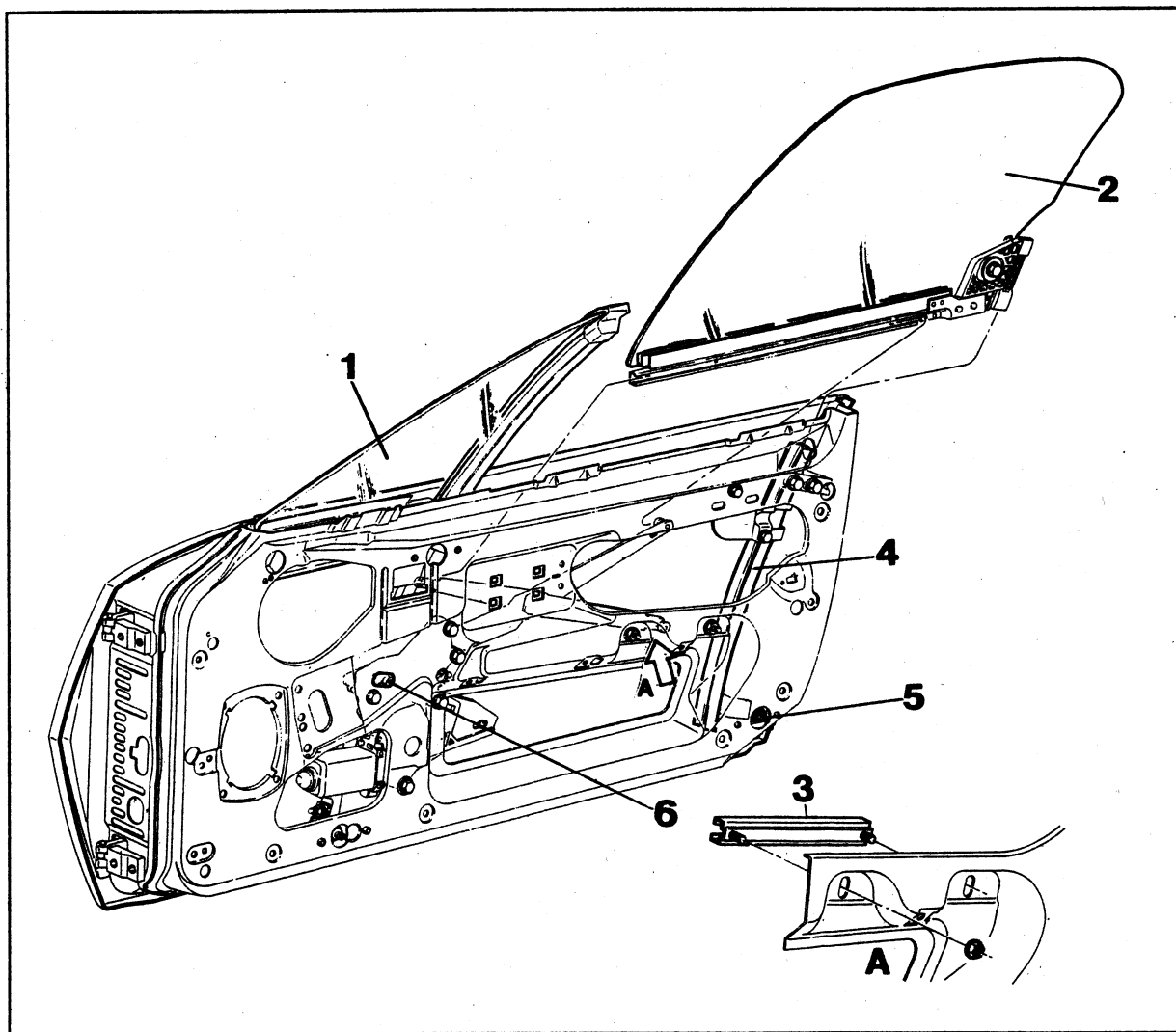
Moving mounting **A** downwards, the rear of the window pivots downwards.

The seating of the door glass against the seals is adjusted at the rear door glass mounting channel (4).

Turning mounting screw (5) to the right, the door glass moves **outwards**.

Turning mounting screw (5) to the left, the door glass moves **towards the inside**.

To adjust the door glass height, move window regulator stop **6**.



553

### Quarter window and mounting channel assembly

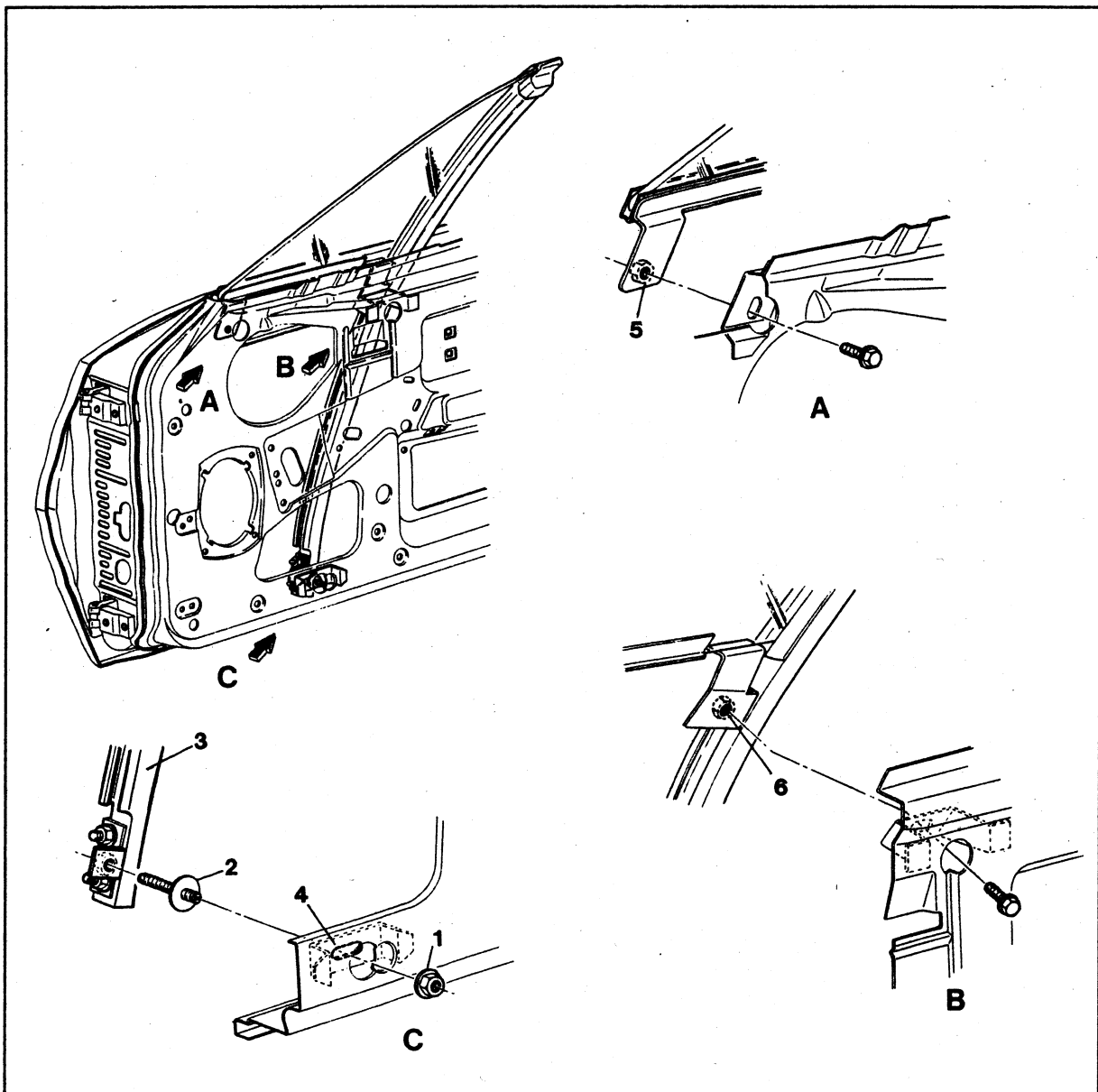
The preassembled front mounting channel with quarter window is inserted through the door gutter and is bolted to the door inner panel, allowing for adjustment.

#### Adjustment

After slackening the lock nut (1), turn adjustment screw (2) to the left: mounting channel(3) moves towards the **inside**.

Turn adjustment screw (2) to the right: mounting channel moves **outwards**.

The slot (4) in the door inner panel allows for fore/aft and up/down adjustment of the window mounting channel, as do mountings (5) and (6).

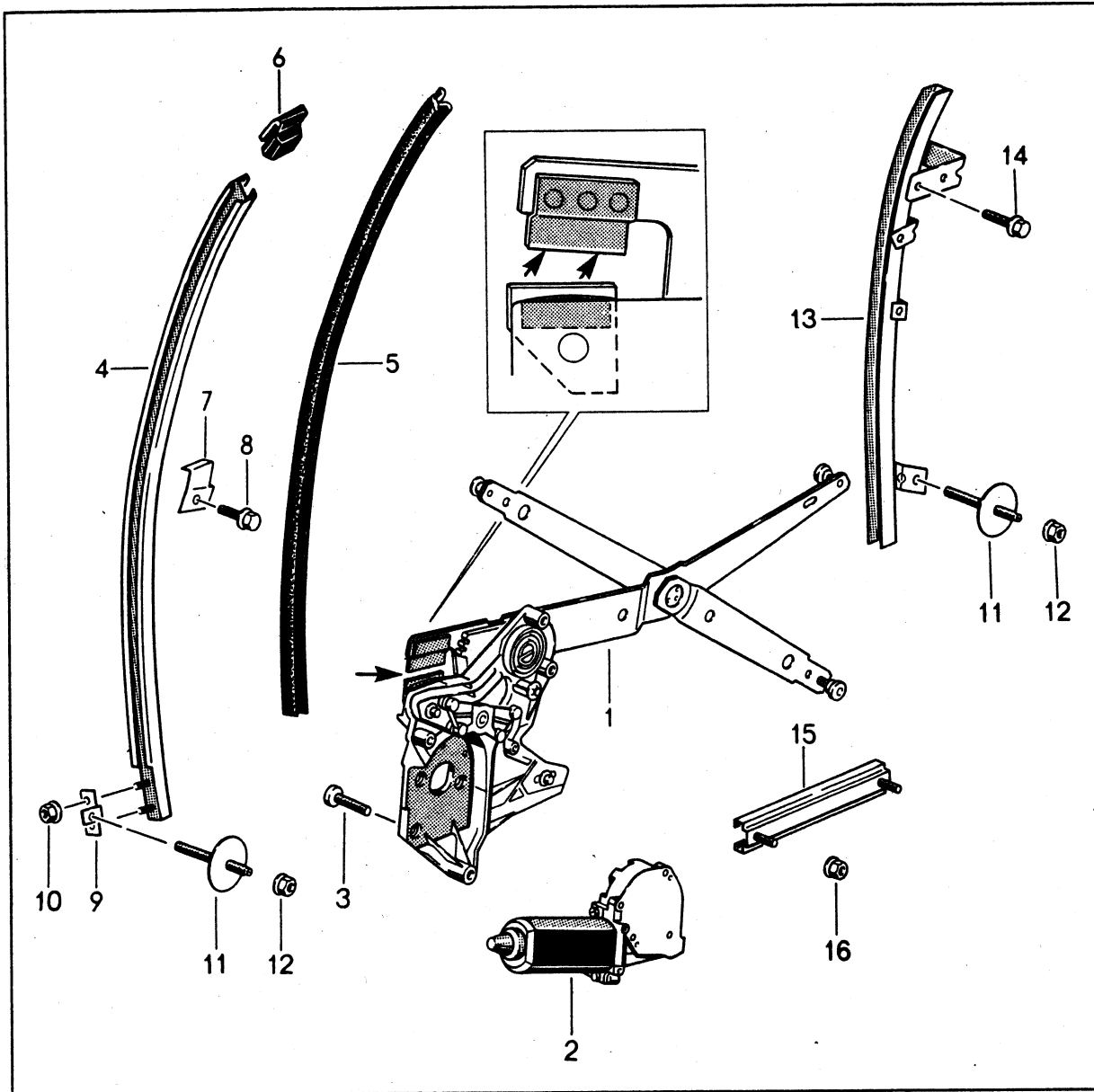




**Replacing the finisher at the center rail**

Part no. 941.531.527.10 left  
 Part no. 941.531.528.10 right

When replacing the finisher, remove all adhesive residue carefully. Apply sealing compound part no. 999.915.400.40 to the new part, spray frame rail with some lubricant, install finisher immediately and position.

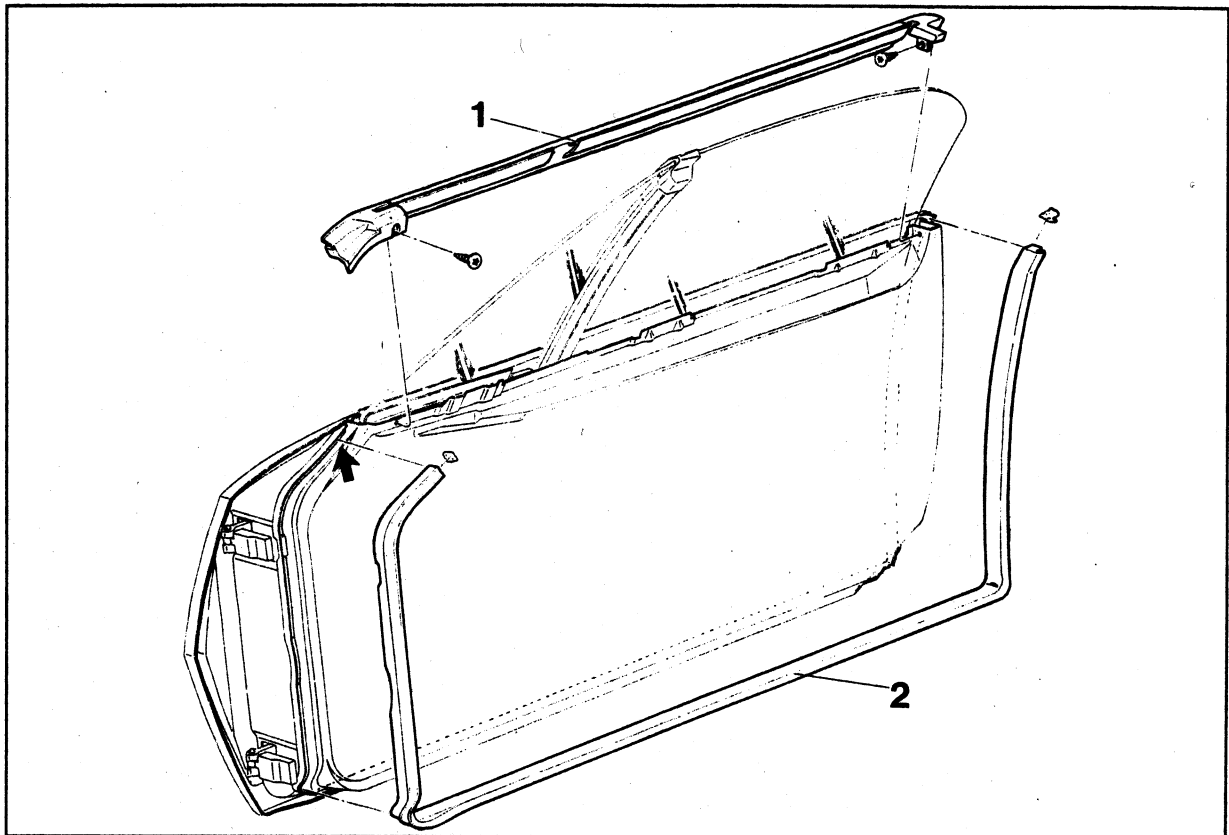


**Note:**

When the door glass is closed, it must line up flush with the quarter window and the finisher at the center rail. If required, readjust window regulator stop.

On cars produced prior to December, 1989, also deburr and/or rework the window regulator edge (arrow) towards the stop (part no. 477.837.397 left, 477.837.398 right).

## Door gutter weatherstrip and door seal



556

1 – Door gutter weatherstrip  
 Part no. 941.537.093.10 left  
 Part no. 941.537.094.10 right

2 – Door seal  
 Part no. 941.537.091.10 left  
 Part no. 941.537.092.10 right

**Replacing the door gutter weatherstrip**

On MY '89 and certain MY '90 cars, start by covering the panel aperture in the upper front area of the door (near the A-post flange (arrow)), using e.g. an 8 mm hard rubber sheet such as part no. 911.505.311.00 that is cut to shape and inserted into the door panel aperture and is then bonded in place. Any openings remaining or uneven surfaces must be filled or smoothed with sealing compound. This lining is required to stabilize the door gutter finisher molding in this seating area. From April, 1990, the cutout at the door has been changed in such a way that this lining is no longer required.

Before fitting the weatherstrip, apply sealing compound to the edge of the body, then apply a thin bead of adhesive to the mounting channel of the weatherstrip and press firmly against the door edge. Be sure to check for tight sealing in the front area near the mating face for the A-post.

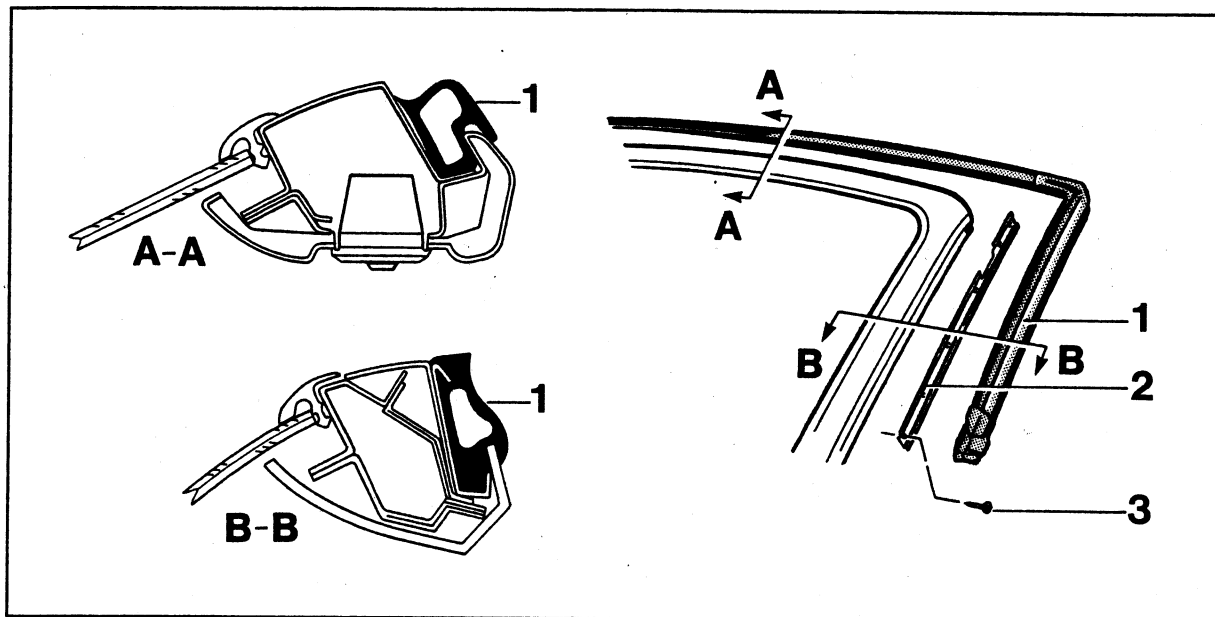
**Door seal**

If required, increase the sealing pressure of the door seal against the body shell in the door aperture area by inserting additional lining strips into the rubber section. Make sure the drain holes at the door bottom are unobstructed.

**Windshield frame seal**

Part no. of windshield frame seal (1): 941.555.546.10

The left-hand/right-hand part of this seal features an additional continuous lip along the A post; this seal is used for production cars since May, 1990. This seal may also be retrofitted to earlier Cabriolet models.



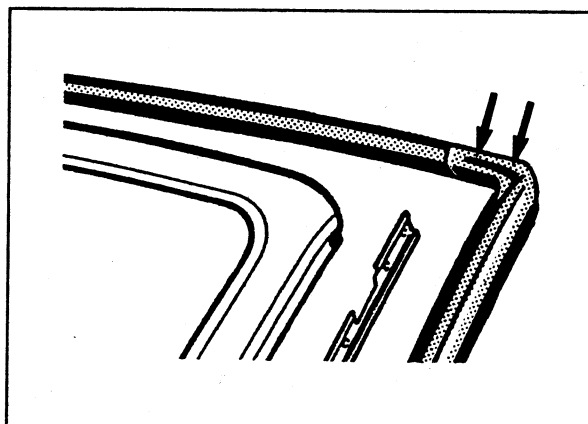
7

**Notes on bonding a windshield frame seal**

To bond this seal, use an appropri. adhesive, e.g. Terokal 2444 or adhesive part no. 999.915.400.40. Apply adhesive liberally on body flange, pull the red strip off the seal and press the seal into the adhesive coat, i.e. the body flange, starting in one edge. Make sure the seal is located correctly with regard to the adjacent parts, close doors and convertible top.

On the left-hand and right-hand side of the A-post, the seal is bonded 1 mm below the windshield frame edge.

If the rubber lip on the left-hand/right hand edges is squeezed by the soft-top frame or if it is deformed, allowing water to enter into the passenger compartment, cut off this rubber lip with a knife and smooth the cutting line using a hot soldering iron.



7 a

## Convertible top seals

The lateral convertible top seals are molded sections and consist of an inner (1) and outer (2) seal. The outer seal is covered with fabric. The seals are fitted in a retaining rail (3) mounted to the lateral roof frame and screwed in place at both ends.

### Inner seal

Part no. 941.561.385.10 left

Part no. 941.561.386.10 right

### Outer seal

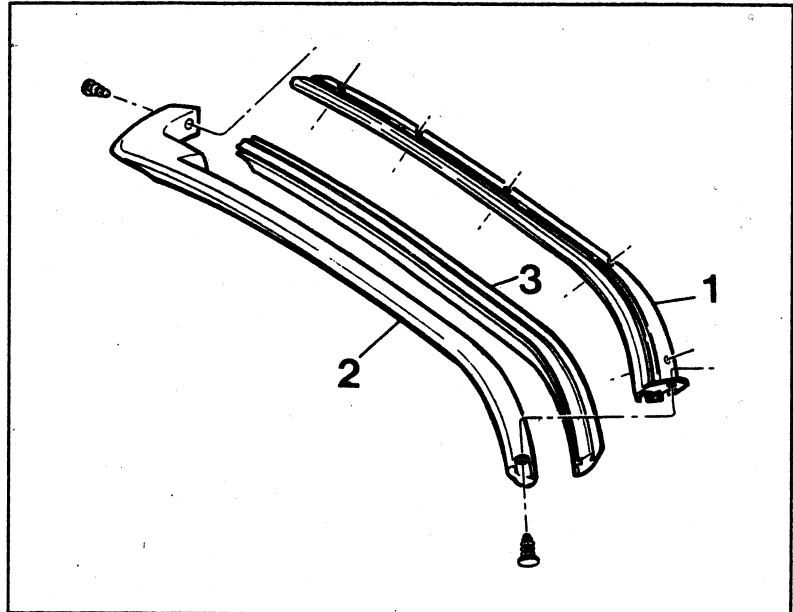
Part no. 941.561.387.10 left

Part no. 941.561.388.10 right

### Mounting rail

Part no. 941.561.389.10 left

Part no. 941.561.390.10 right



550 a

If the sealing pressure of the tubular outer roof rail seal frame against the door glass is insufficient, the tubular seal may be cut open at the bonded finisher and a filler section (rubber tube, approx. 6 mm dia., length acc. to requirements) may be inserted to improve fit. To bond the butt edges, use some instantly curing adhesive.

Close the convertible top, check fit and alignment of the roof rail seal. If required, loosen retaining rail and move roof rail seal about, seal and refit.

### Note:

From December, 1990, the fabric lining on the outer convertible top seals has been deleted; at the same time, door windows with more heavily rounded edges were introduced. Keep this difference in mind when fitting those seals into earlier Cabriolet models.

**Convertible top seals**

The B post seal also consists of an inner (5) and an fabric-lined outer seal (6) that are fitted to the convertible top linkage using a retaining rail (7). In addition, the seals are screwed in place at both ends.

**Inner seal**

Part no. 941.561.519.10 left

Part no. 941.561.520.10 right

**Outer seal**

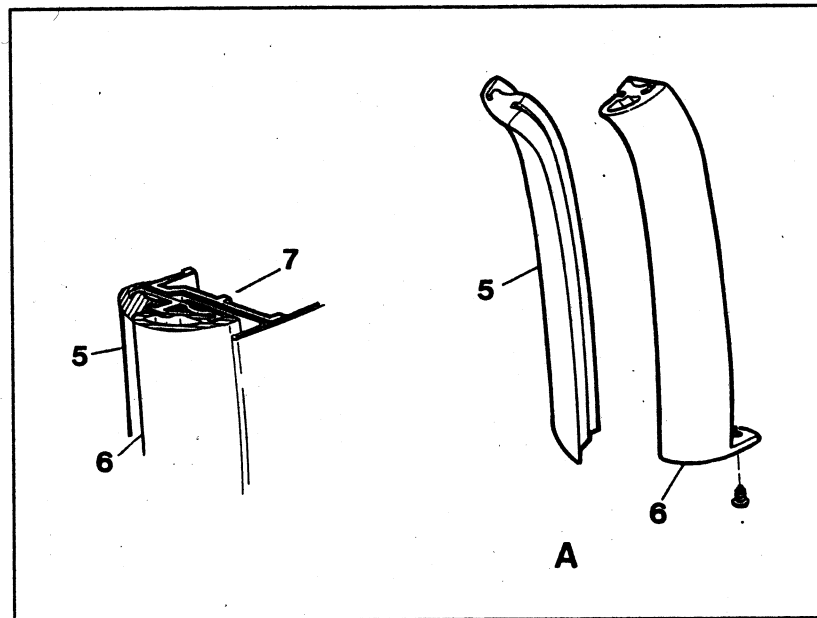
Part no. 941.561.517.10 left

Part no. 941.561.518.10 right

**Mounting rail**

Part no. 941.561.551.10 left

Part no. 941.561.552.10 right



550 b

**Check mounting surface of door glass to B post seal, readjust if required (convertible top closed)**

Make sure no gap remains between B post seal and door glass. If a gap remains, the sealing requires improvement. To start with, open convertible top halfway. Then loosen the mounting at the bottom of the B post and remove the inner rubber seal part no. 941.561.519.10 from the mounting rail. Loosen the four sheetmetal screws at the mounting screw and adjust the gap to the door glass using 6 mm washers.

Before reassembling the B post seal, the gap produced by the washers inserted must be sealed using sealing tape between the mounting rail and the B post.

**Note:**

From December, 1990, the fabric lining on the outer convertible top seals has been deleted; at the same time, door windows with more heavily rounded edges were introduced. Keep this difference in mind when fitting those seals into earlier Cabriolet models.

## Electric convertible top closing mechanism

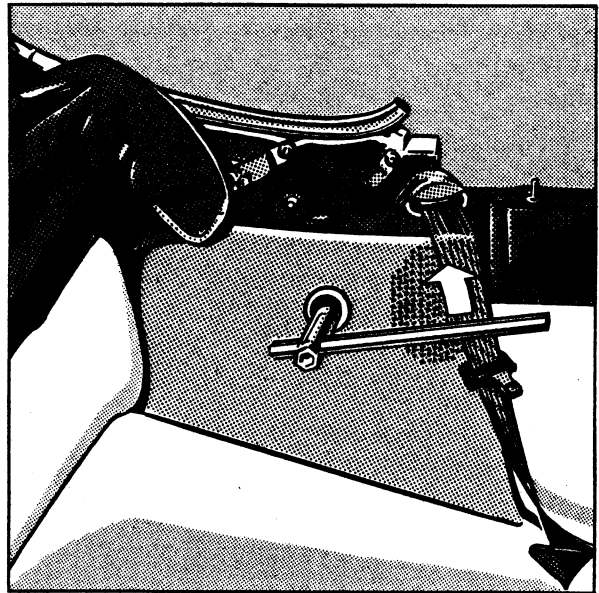
### Emergency operation

If a fault occurs in the electric convertible top closing mechanism, the convertible top may be operated manually.

1. Remove plugs from rear side trim.
2. Loosen both bolts by approx. 4 turns using the wheel nut wrench.
3. Fold convertible top forward and lock.

Have the fault remedied immediately by an authorized PORSCHE dealer.

Do not attempt to operate the top electrically any further since this would cause mechanical damage.

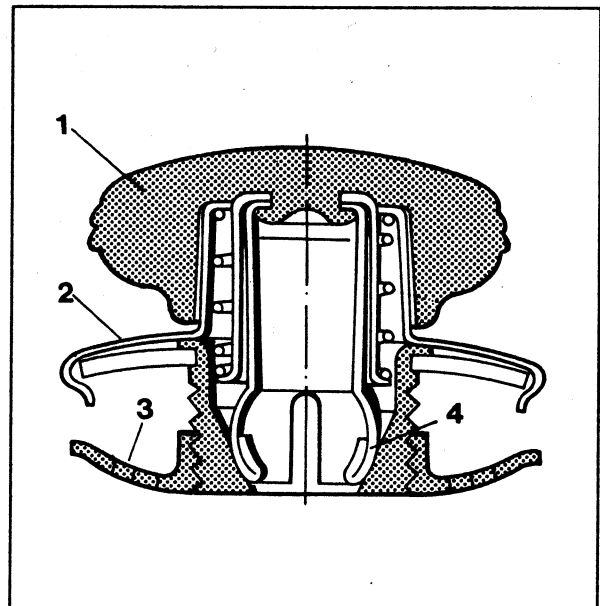


8

### Notes on Tenax snap fasteners

To fasten the convertible top protective cover, Tenax snap fasteners consisting of an upper part and a lower part are used.

The upper part is comprised of the operating knob (1) and the housing (2) with collar and outside thread. The escutcheon (3) is screwed onto this thread. Three tensioning springs (4) are inserted into this housing. Pulling the operating knob releases the tension of the tensioning springs.

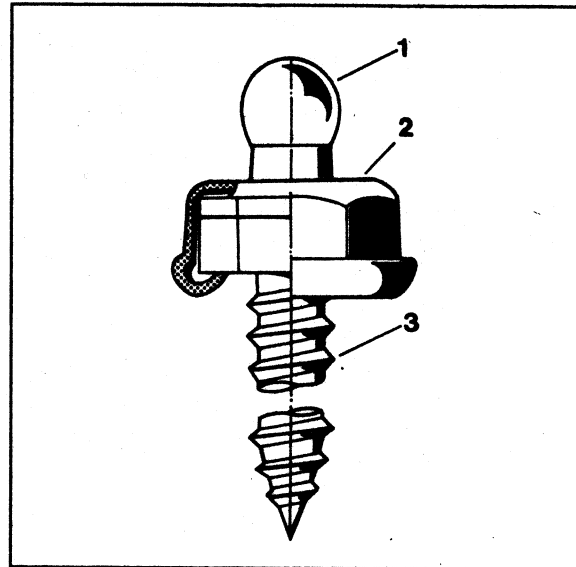


540

The lower part of the fastener consists of the ball socket (1), the hex head (2) with collar and the threaded fitting (3).  
When pressed together, the three tensioning springs retain the ball socket of the lower part and ensure optimum fit.

**Note:**

**Press on and release the Tenax buttons only in a vertical direction, pulling the operating knob. Otherwise the tensioning springs might be damaged, resulting in the retaining force being impaired.**



541

## Maintenance Instructions

### Cleaning and Care of the Convertible Top

Life and appearance of the convertible top are largely dependent on proper care and operation.

Whenever possible, park the car in a shady place. Prolonged sunlight exposure has a detrimental effect on fabrics, rubber and color of the convertible top.

Remove bird droppings immediately since their acid contents cause the rubber coating to swell and produce leaks.

**Open the convertible top only if it is completely dry, otherwise water stains and rubbing marks might result that cannot be removed anymore.**

If the convertible top is dusty or prior to washing the car, brush the top carefully using a soft brush, following the line of the fabric, clean rear screen with a soft, anti-static cloth or with PORSCHE screen cleaner with spray head. It is not necessary to wash the convertible top each time the car is washed.

Normally, hosing or rinsing with clear water is sufficient. If the convertible top is very dirty, wet with lukewarm soapy water (e.g. light-duty detergent), spread with sponge or soft brush and clean with light strokes. Then rinse the convertible top with clear water until no residues of the soapy solution remain.

#### **Avoid car washes.**

**The brushes used in automatic car washes may leave scratch marks on the rear screen.**

Do not apply decoration strips, decals or plastic sheets to the rear screen since this may cause damage or discoloration of the screen.

For drying, leave the convertible top closed.

To remove stains from the convertible top and rear screen, **do not** use fuel, liquid stain remover, lacquer thinners or solvents as these agents may attack the rubber layer underneath the fabric, impairing waterproofness and life of the convertible top fabrics. Try removing the stains by rubbing carefully with soft crepe rubber.

**Never** use sharp or pointed objects to remove snow or ice. For de-icing the rear screen, proprietary de-icing sprays are suitable.

Improper care and operation of the convertible top may damage the top or produce leaks. For repairs, please refer to your local authorized PORSCHE dealer.

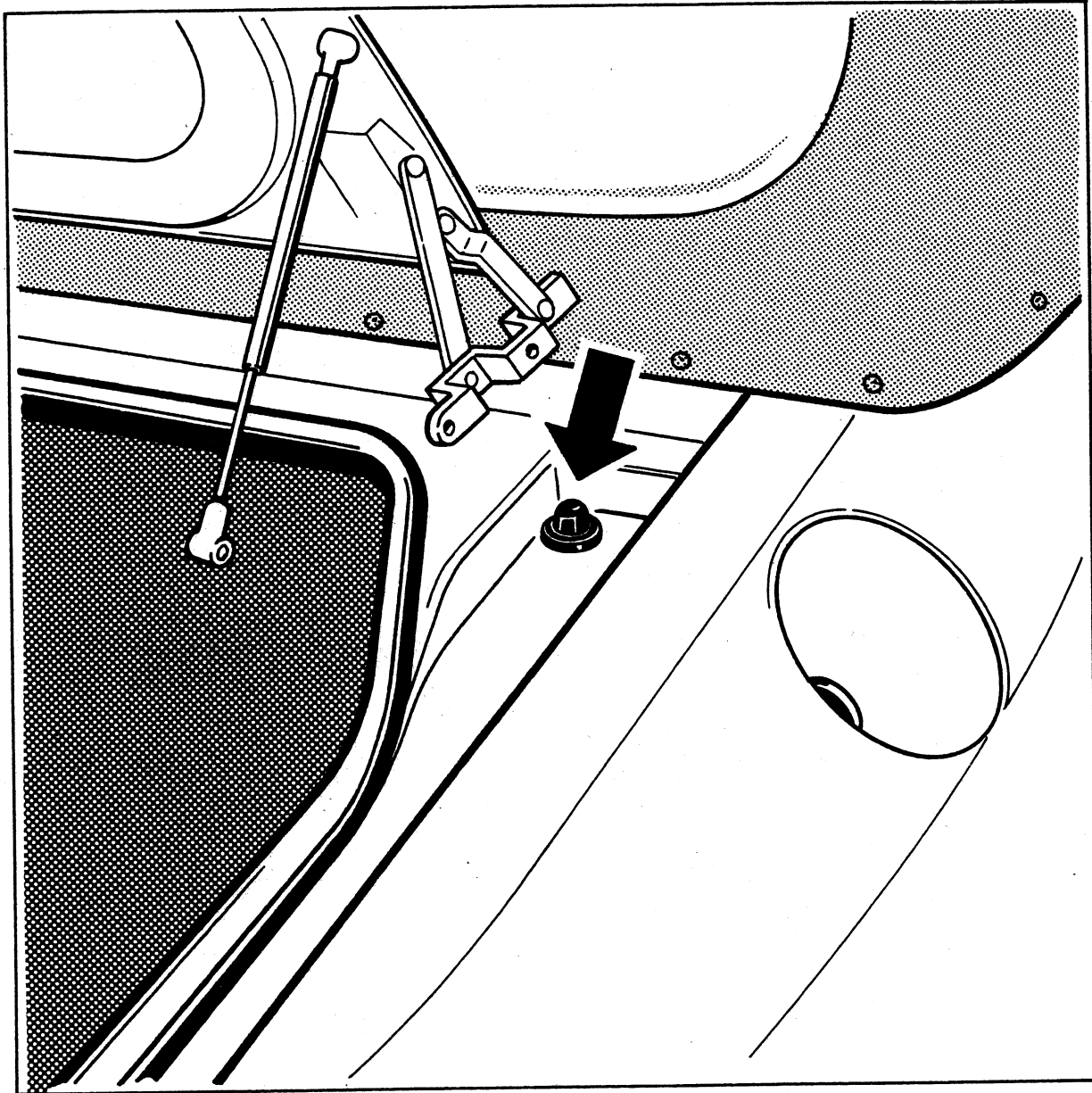


**Drain tube****Drain tube below trunk lid**

Hints for retrofitting; part numbers:

2 pc. 911.631.259.02

2 pc. 964.564.725.04



9

Remove plugs fitted, bond drain grommet (part no. 911.631.259.02) and tube (part no. 964.564.725.04) with adhesive (part no. 999.915.400.40), then apply adhesive to the outside of the drain grommet. Pull tube and drain grommet from top down into the trunk. Route tube downwards towards the exit behind the wheel housings in such a manner that the tube cannot be kinked or squeezed. For the left-hand drain tube, fit a shop-made spacer ahead of the drain tube below the trunk floor carpet to prevent the drain tube from being kinked.

**Recommended adhesives****Terocal 2444 for bonding seals and weatherstripping**

Manufacturer: Teroson-Werke GmbH  
6900 Heidelberg 1  
Postfach 1720  
Tel. (0 62 21) 70 40, Telex 461 42 80

**Dekalin 3649 for fitting of soft trim on sheetmetal or plastics**

Manufacturer: Deutsche Klebstoffwerke GmbH  
Rödiger & Sohn  
6450 Hanau/Main  
Tel. (0 61 81) 8 10 05, Telex 418 48 48

**J.S. Sekundenkleber, J.S. 12 or J.S. 04 E  
for butt bonding of seals (cutoff faces)**

Manufacturer: Loctite Deutschland GmbH  
Postfach 810 580  
Arabellastr. 5  
8000 München 81  
Tel. (089) 92 68-0, Telex 523 266

**Planex 60%lg N and K Gummikleber (for bonding of fabrics to fabrics)**

Manufacturer: Erwin Epple  
Am Mühlkanal 10  
7000 Stuttgart-Berg  
Tel. (07 11) 2 62 27 03

**Door lock grease**

Part no. 999.917.751.00 (5 gr tube)

**To remove adhesive residue, the following products may be used:**

- Petroleum benzine
- Ethyl alcohol (thinned with water)
- Adhesive thinners
- Cellulose lacquer thinners
- Adhesive remover

Part no. 000.056.003.20

**Note:**

Do not use any of those products on trim and interior upholstery.

**fako Cleaning and polishing compound for Perspex screens**

Manufacturer: Messrs. Curt Kopperschmidt  
2000 Hamburg 76  
Tel. (040) 29 10 71

**PU two-pack adhesive**

Part no. 999.915.359.40

**Klebt und Dichtet (Messrs. Würth)**

Part no. 999.915.400.40

**Adhesive for bonding metal to glass (mirror base)**  
Aktivator NF 736 Part no. 000.043.052.00

Loctite 312 Part no. 000.043.051.00

**Soft top Spray**  
**Soft top Cleaner**

Part no. 000.043.123.00  
Part no. 000.043.123.10

**Hide food**

Part no. 000.043.007.00

**Windshield cleaner spray bottle**

Part no. 999.917.803.00

**Car care set (bag)**

Part no. 999.571.062.00

**Adhesive remover**

Part no. 000.056.003.20  
**Caution:**  
Mask off trim parts and paint surfaces  
prior to application.  
Apply only on bonding flange.