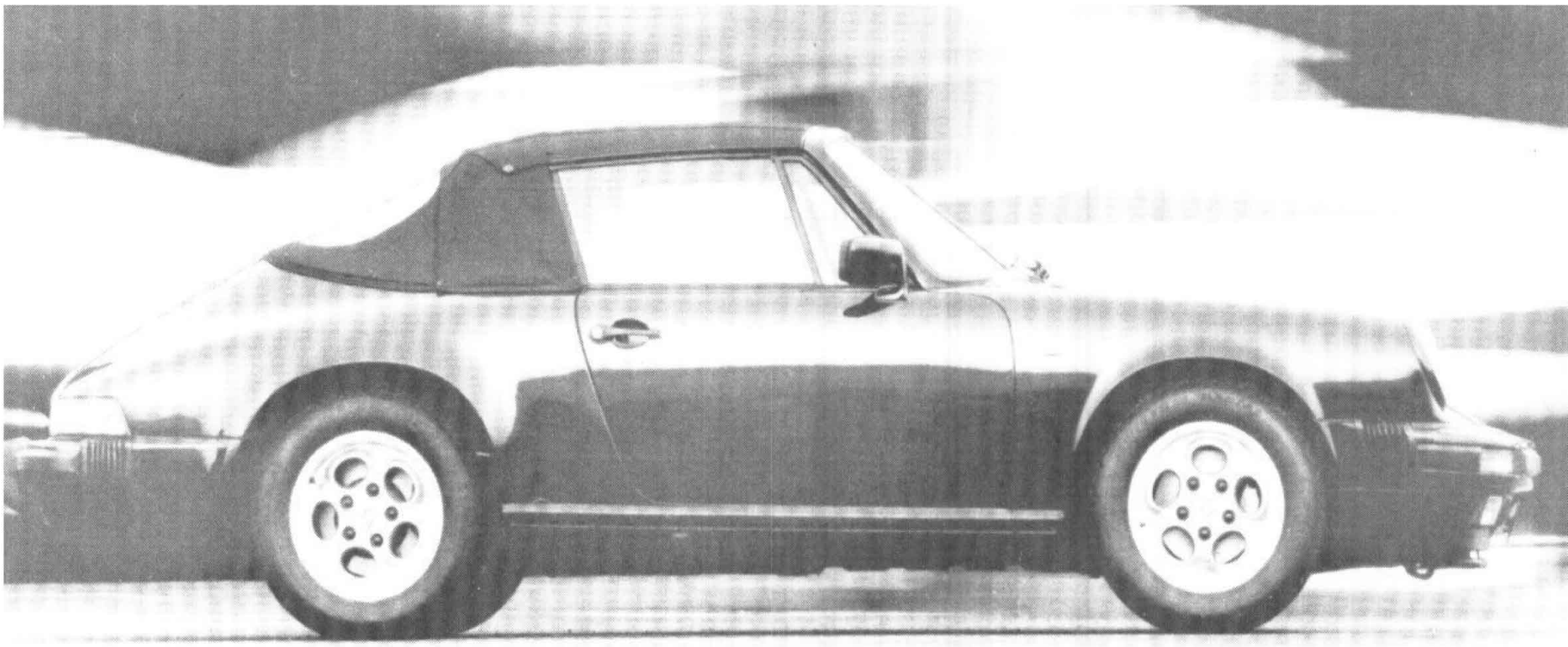
Convertible Top: Description and Operation

Introduction

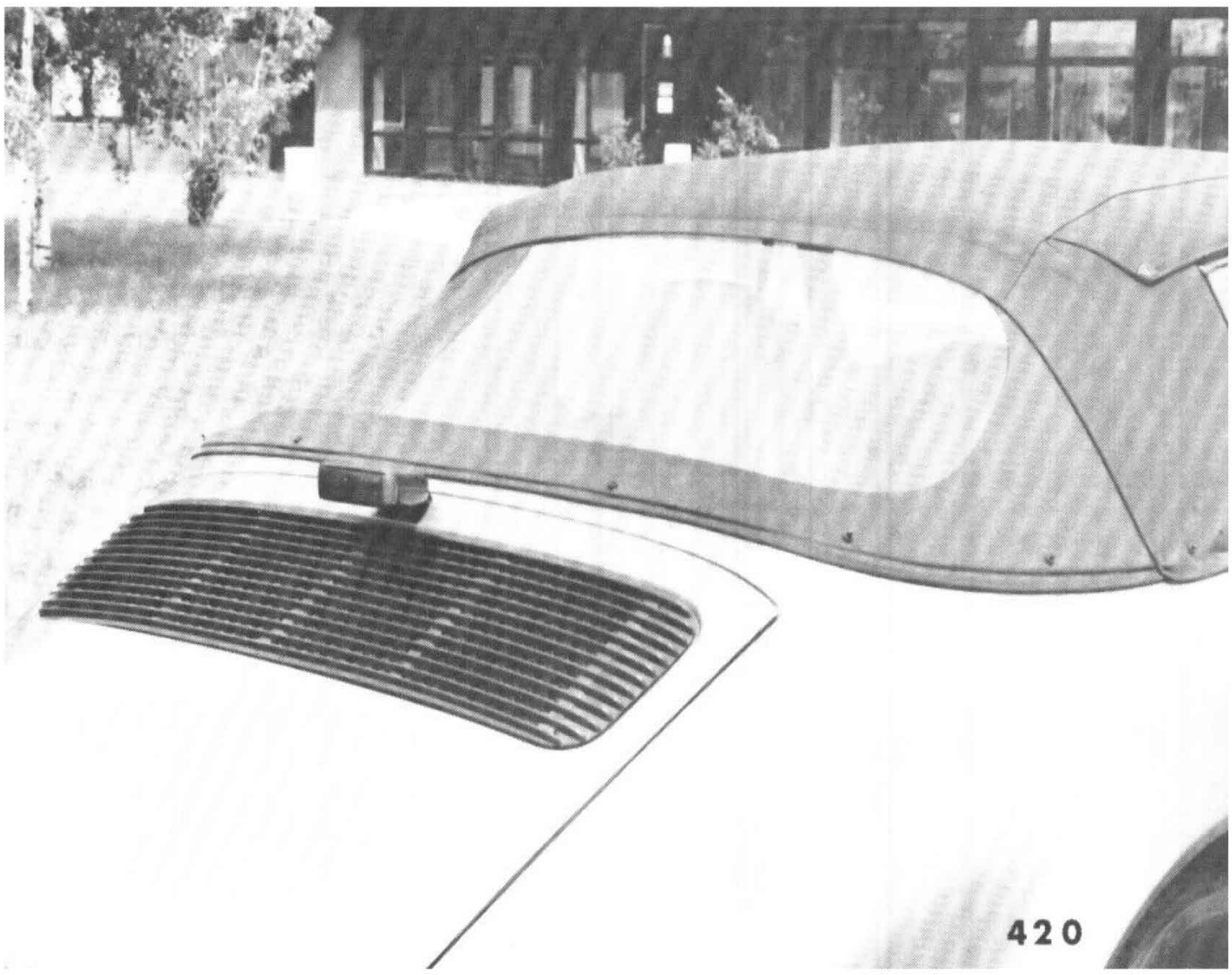
INTRODUCTION

The electric cabriolet top is one of a new generation of tops incorporating a series of important modifications for improved comfort and safety.

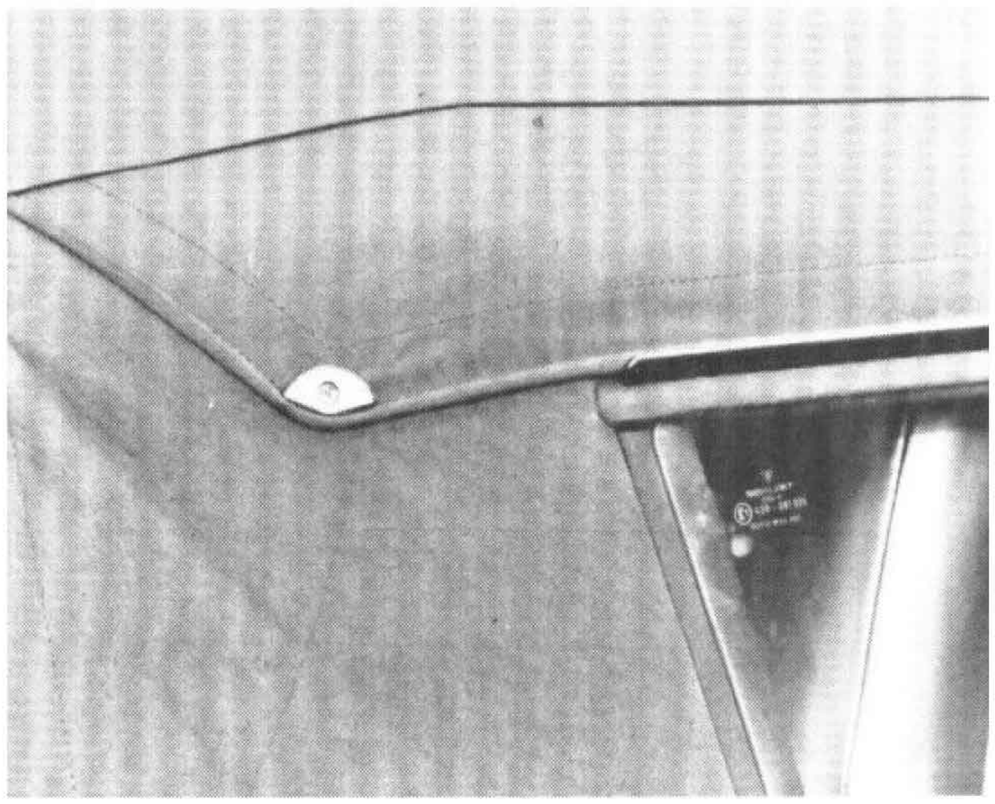
Application of a pushbutton is all that is required to open or close the top, with no manual operations whatsoever.



The chief aid in recognizing the new generation of soft-tops is the rounded lower corners of the rear window.

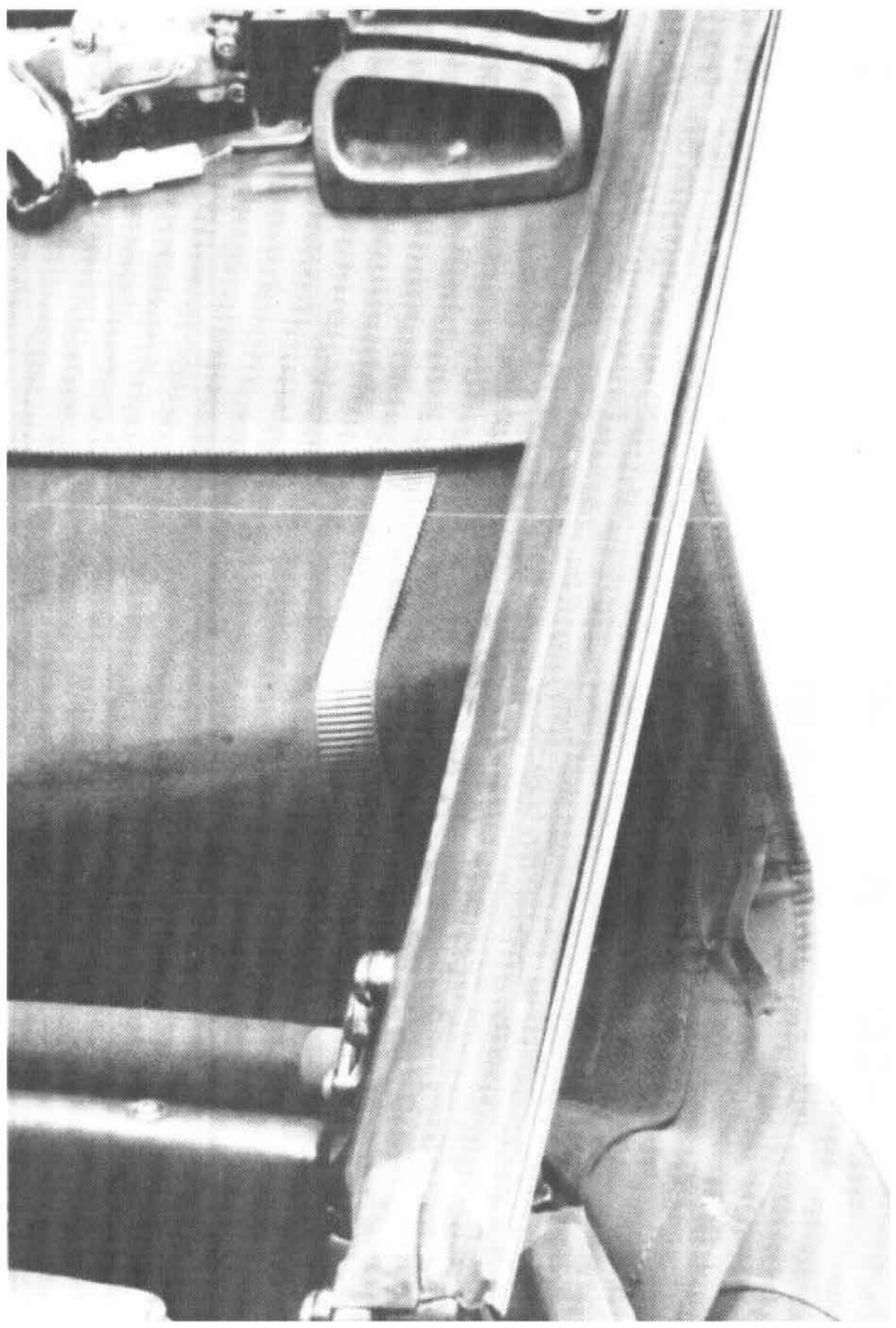


Other identifying features are:



New-style rain channels...

...and cloth covered seals.



OPENING/CLOSING FUNCTIONS

The control unit permits the electrically operated cabriolet top to be opened and closed with a conventional pressbutton switch.

Application of the switch in the direction for opening moves the roof from its forward, closed position to its open position at the rear. In detail, the process is as follows. The two locking motors in the roof frame rotate out of their locked position to unlock and release the mechanical connection between the windshield frame and roof frame. When this process is completed, the control unit switches over from the locking motors to the top drive motors located in the back of the vehicle. The drive motors fold the roof towards the rear by acting on a series of mechanical components. Once the rear end-position is reached, the rear limit switch (top open) is disconnected from the chassis. The control unit cuts out the drive system and the indicator

lamp, which had come on with the start of the unlocking process, goes out.

Application of the pressbutton in the direction for closing activates the drive motors to return the top to the closed position. The indicator lamp lights up; the top opens out towards the front. When the roof frame comes into contact with the windshield frame, the two roof limit switches are connected to the chassis. This means that the two locking motors are in the correct position relative to the sliding block guides in the windshield frame. The control unit then switches over from the drive motors to the locking motors, which rotate to re-establish the mechanical connection between the roof frame and windshield frame. When both locking motors have reached their final locked positions, the power supply to the locking motors is cut out and the indicator lamp goes out.

The electric top can only be operated with the car radio contact active and the ignition switched off (terminal 15) and at speeds below 10 kph If the vehicle speed is greater than this, operation of the top cannot occur until the speed falls below 5 kph. The vehicle speed is determined by the evaluation of the tachometer pulse rate. If the operating button is released, the initiated process must be capable of being interrupted and reversed by selecting the opposite direction at any time. A check must be made as to whether both the control disks are in contact by not more than 0.3 seconds after the releasing activation of the locking motors. If this is not the case, the unlocking process preceding top opening should be broken off. Resumption of the opening process is only possible by renewed application of the operating pressbutton. The locking process is not involved in this check. In both the locking and unlocking processes, a check must be made to ensure that both locking motors reach their end-position before the completion of the process is indicated or activation of the top drive motor is initiated, respectively.

The two locking motors are checked individually (control disk positions), started and braked by short-circuiting. To prevent the electric motors being overloaded, maximum operating periods of 2 seconds and 30 seconds are allowed for the locking and drive motors respectively. If either of these periods is exceeded, the operating process is broken off. To resume operation, the pressbutton.must be reapplied. A telltale lamp should indicate that the top is not in either of its end-positions. The actual position of the top must be stored in the memory bank via terminal 30 after withdrawal of the ignition key and redisplayed when the ignition lock is returned to its radio contact position. If terminal 15 is activated, the telltale lamp should light up for approximately 5 seconds for checking purposes. If, when the roof is being closed, the locking motors are prevented by a mechanical fault from assuming the correct position relative to the windshield frame, a limit switch interrupts the closing operation before the rear gear elements reach their dead center.

CONTROL CHARACTERISTICS

If the operating process is interrupted with the locking motors in the unlocked position and both the top limit switches active, it is only possible to operate the top in the closing direction.

If the interruption occurs as a result of a fault, i. e. when the dead center limit switch is activated, it will only be possible to operate the top electrically again when the dead center limit switch re-releases the "close top" operating sequence as a result of the adjusting screw being unscrewed.

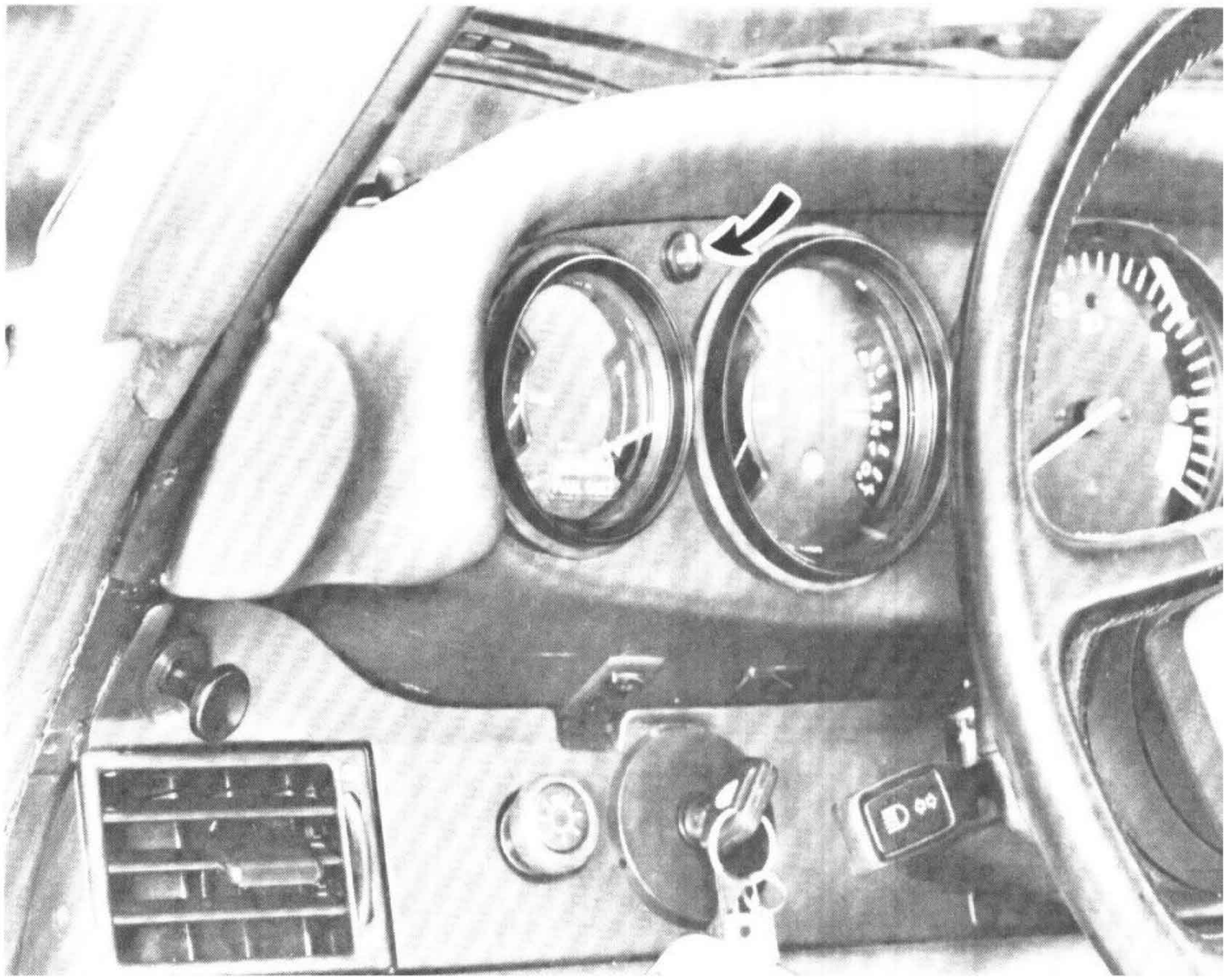
If the "top open" limit switch is activated during the top opening process through e. g. adjustment operations, further operation in the opening direction cannot occur once the limit switch is open. If it is wished to resume operation in the opening direction, this must be preceded by briefly selecting the closing direction mode.

If the indicator lamp does not go out when the top is closed, a check must be made as to whether the locking motors are correctly adjusted vertically, i. e. in a position mechanically to lock completely.

If the top moves excessively slow (correct operating time 20 - 30 seconds), the power consumption by the control unit should be tested. A permanent current in excess of 20 A is an indication of impaired mechanical movement.

Convertible Top: Description and Operation
Opening / Closing Operation

To operate the top, the ignition key must be turned to position I of the ignition lock, i.e. the radio or X-contact position. It the rocker switch is now depressed in the direction for opening, the indicator lamp will light up and the top will unlock, open and move to the rear into its end position. When it reaches this position, the indicator lamp will go out. The rocker switch must be held down throughout the entire opening operation.



Thanks to the new-type seals, the top can be operated without the doors being opened or the side windows lowered.

The rear window with reduced corners stows neatly into the back, so it is no longer necessary to open the zip fastener beforehand.

NOTE: The window must, however, be opened if the outside temperature is below 0 °C.

If the rear window is badly soiled, it should be washed with a mild soap solution to prevent scratches before the top is opened. Clean water will do to remove dust.

To close the top, the ignition key must be in the same position and the rocker switch depressed in the direction for closing.

As soon as the top touches the windshield frame, the locking action begins.

The locking procedure is completed when the indicator lamp goes out. When opening or closing the top, it is important to keep the rocker switch depressed until the lamp goes out. Only then is the top properly secured in the respective end position, i. e.

closed and locked, or
open and fully stowed.

As a function check, the indicator lamp lights up for a few seconds when the ignition is switched on, then goes out.

Operation is safeguarded by a series of logical safety circuits.

1. The top can only be opened or closed with the ignition key in the X-contact position. As a result, any unintentional or careless operation while driving is excluded.

2. To prevent actuation when the vehicle is under way, the electronic control system prevents the mechanism from functioning at speeds above approximately 10 kph.

3. If the top is impeded by an obstruction or stiffness, the control unit will Cut out the drive motors after 30 seconds to prevent overloading.

4. The locking motors in the roof frame are cut out if they have not reached their end position within two seconds.

5. If the top is unable to assume its correct position on the windshield frame, the drive system is similarly cut out.

This may occur, for instance, when the fully loaded vehicle is parked with one wheel on a high curbstone. The resulting distortion of the vehicle body may impair the opening or closing process. For this reason the vehicle must be driven onto a level surface before operating the top.

For the same reason it should not be operated when the vehicle is jacked up on one of its jacking points.

Convertible Top: Description and Operation

Opening / Closing Sequence

OPENING SEQUENCE

- Left and right roof microswitches signal "top closed" to control unit.
- Control disks in locking motors signal "position locked".
- Rocker switch initiates command "open top,,
- Indicator tamp is on.
- The locking motors unlock, control disks signal "end position reached". Locking motors cut out.
- Left and right roof microswitches switch on drive motors via the control unit.
- Limit switch on gear system reports "top fully open" and cuts out drive motors through the control unit.
- Indicator lamp goes out.

CLOSING SEQUENCE

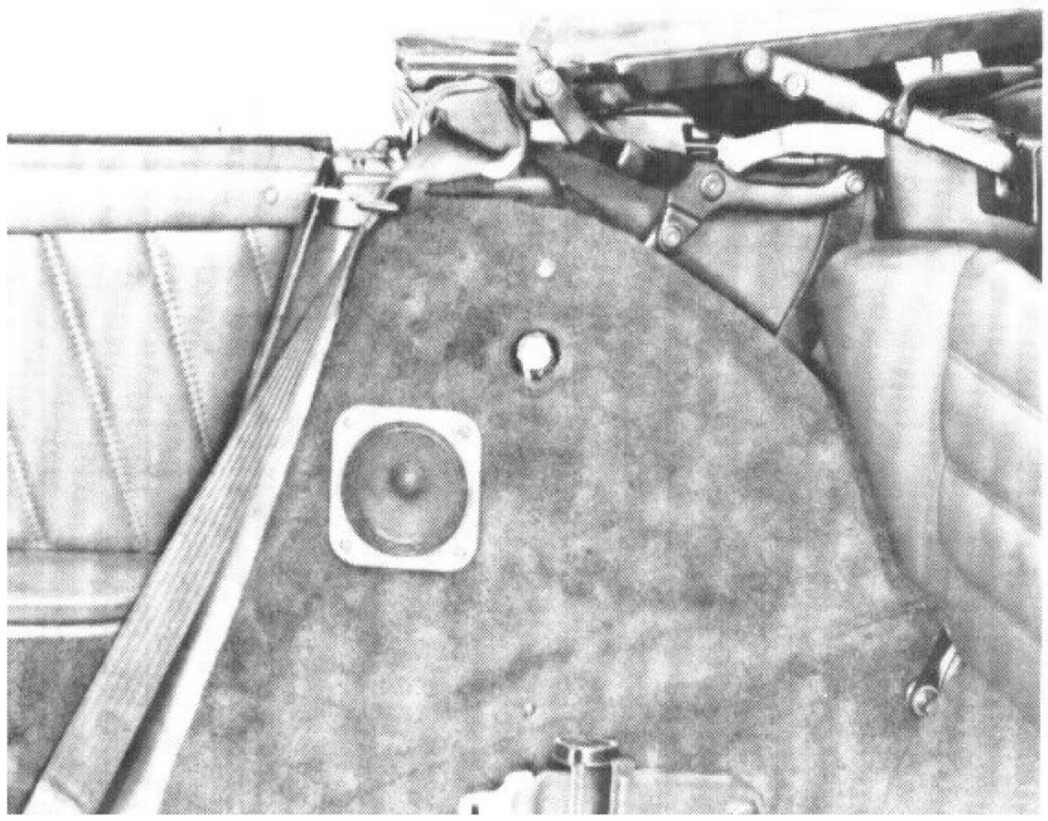
- Limit switch on gear system reports "roof open" to control unit.
- Control disks in locking motors signal "position unlocked".
- Rocker switch initiates command to close.
- Indicator lamp is on.
- The drive motors are switched on by the control unit.
- Left and right roof microswitches report "top positioned on windshield frame". Drive motors cut out via control unit.
- Locking motors switched on.
- Control disks in locking motors signal "end position reached". Locking motors cut out.
- Indicator lamp goes out.

Convertible Top: Description and Operation

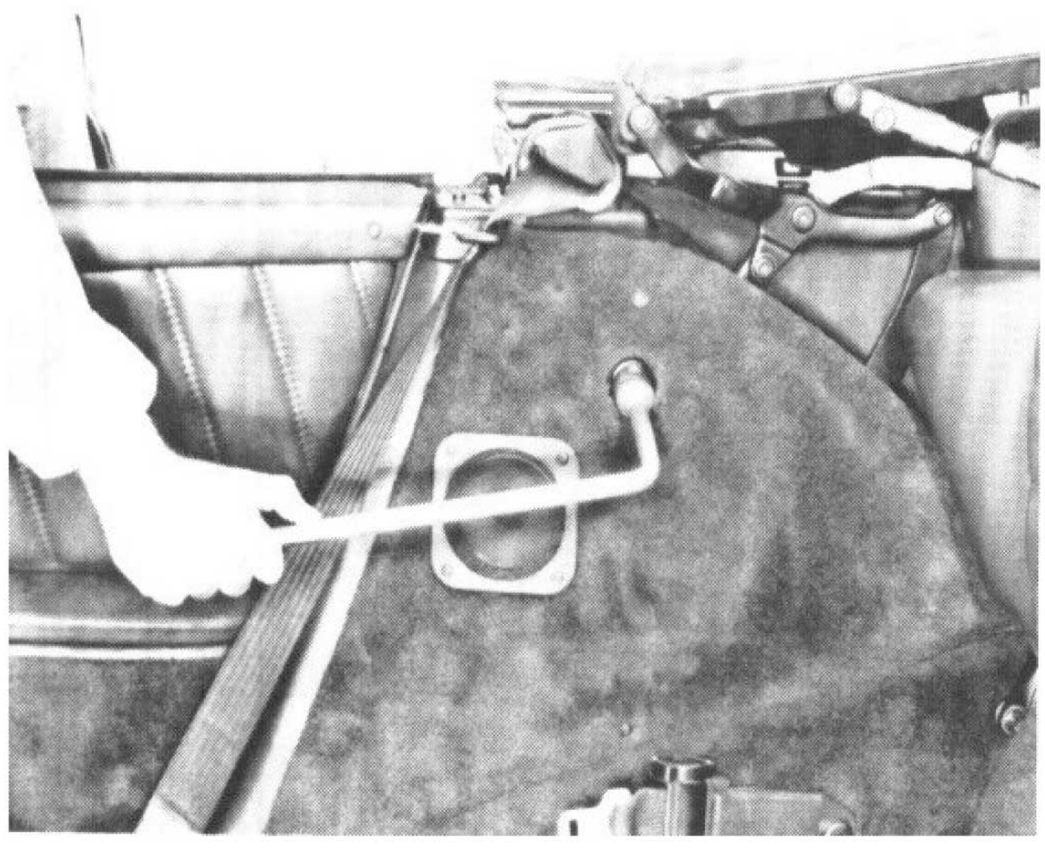
Emergency Operation

EMERGENCY OPERATION

If the electrical system fails, the top can be operated manually.

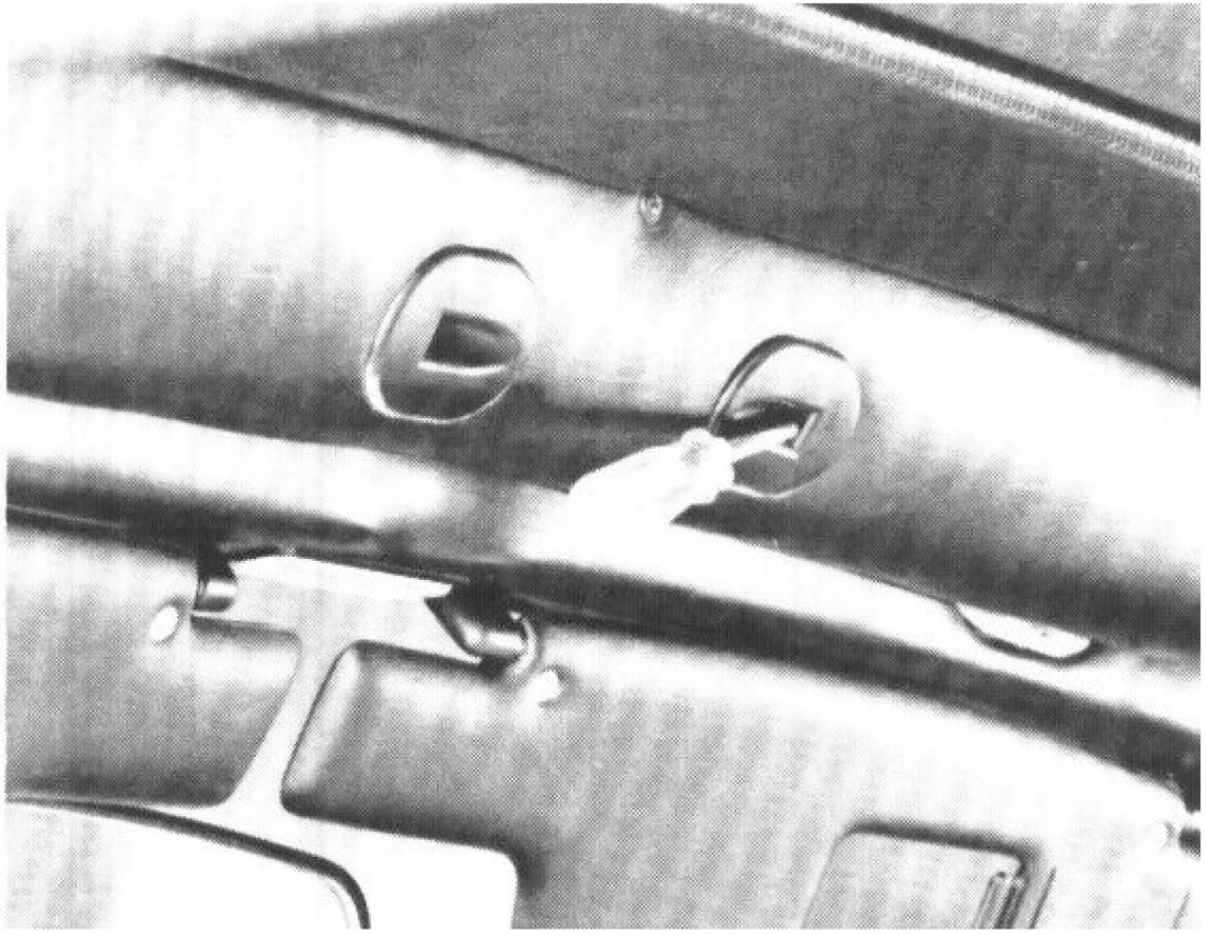


First remove the caps in the trim panels on each side.



With the wheel nut wrench, loosen the screws on the left and right hand gears by at least four turns.

This action releases the steering arms of the top-frame from the gears, allowing the top to be raised and placed in position on the windshield frame.



The top is then locked by applying the rocker switch, provided the locking motors are operational.

If not, they can be turned manually with a screwdriver, which should be inserted into the apertures in the windshield frame.

The locking motors must be turned alternately until you feel the stop of the closing crank in the sliding block guide in the roof.

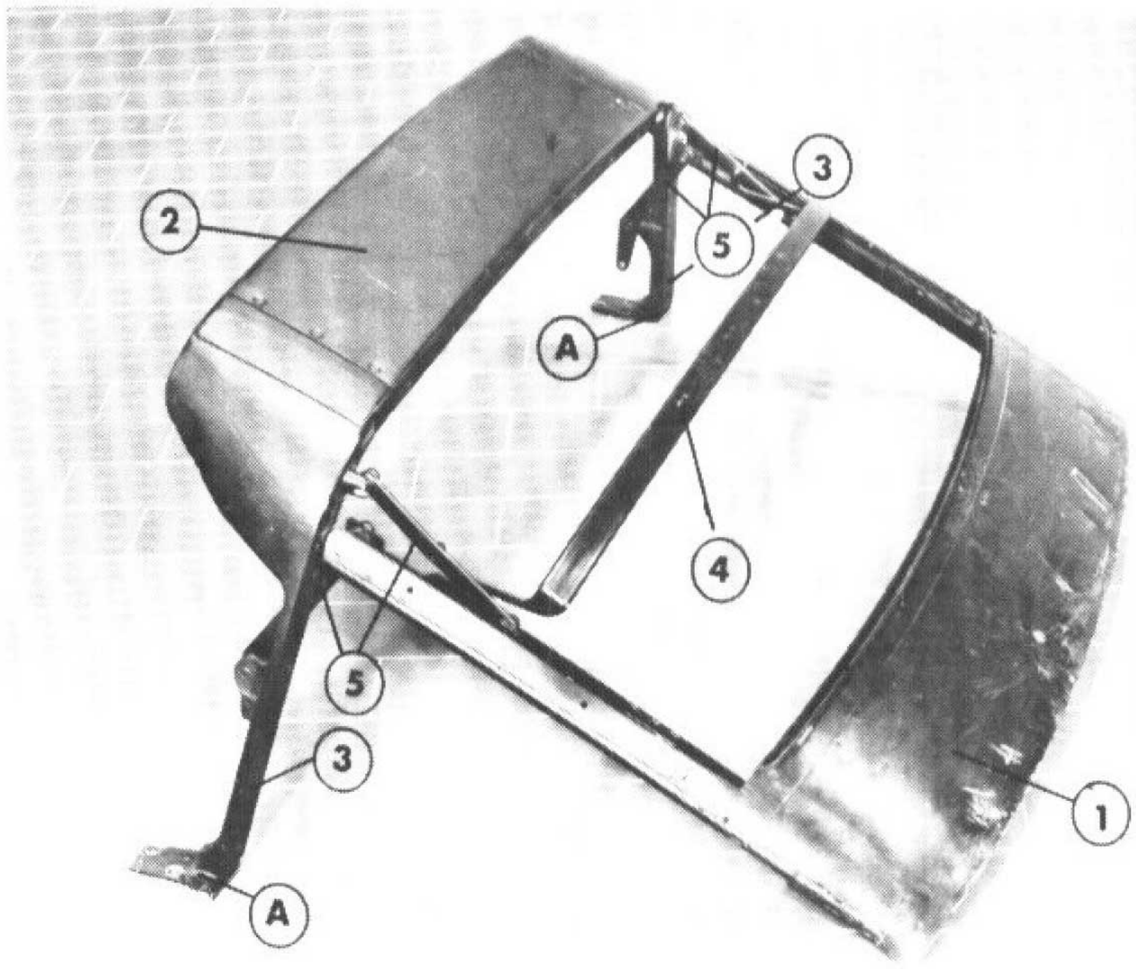
Convertible Top: Description and Operation

Operating Process

OPERATING PROCESS

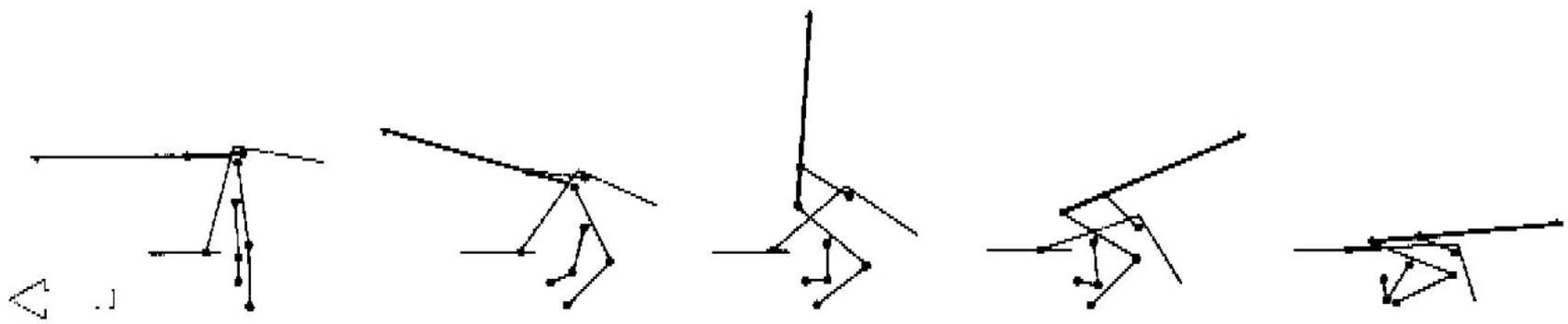
During the opening process, the entire top-frame rotates to the rear about pivot point A.

The front roof frame is folded by means of linking arms (5). When the roof is fully open, the rear roof frame is stowed behind the occasional seats with the front frame resting on it.



1 – Front roof frame
2 – Rear roof frame
3 – B-pillars
4 – Auxiliary latch
5 – Linking arm
A – Pivot point

Top linkage geometry



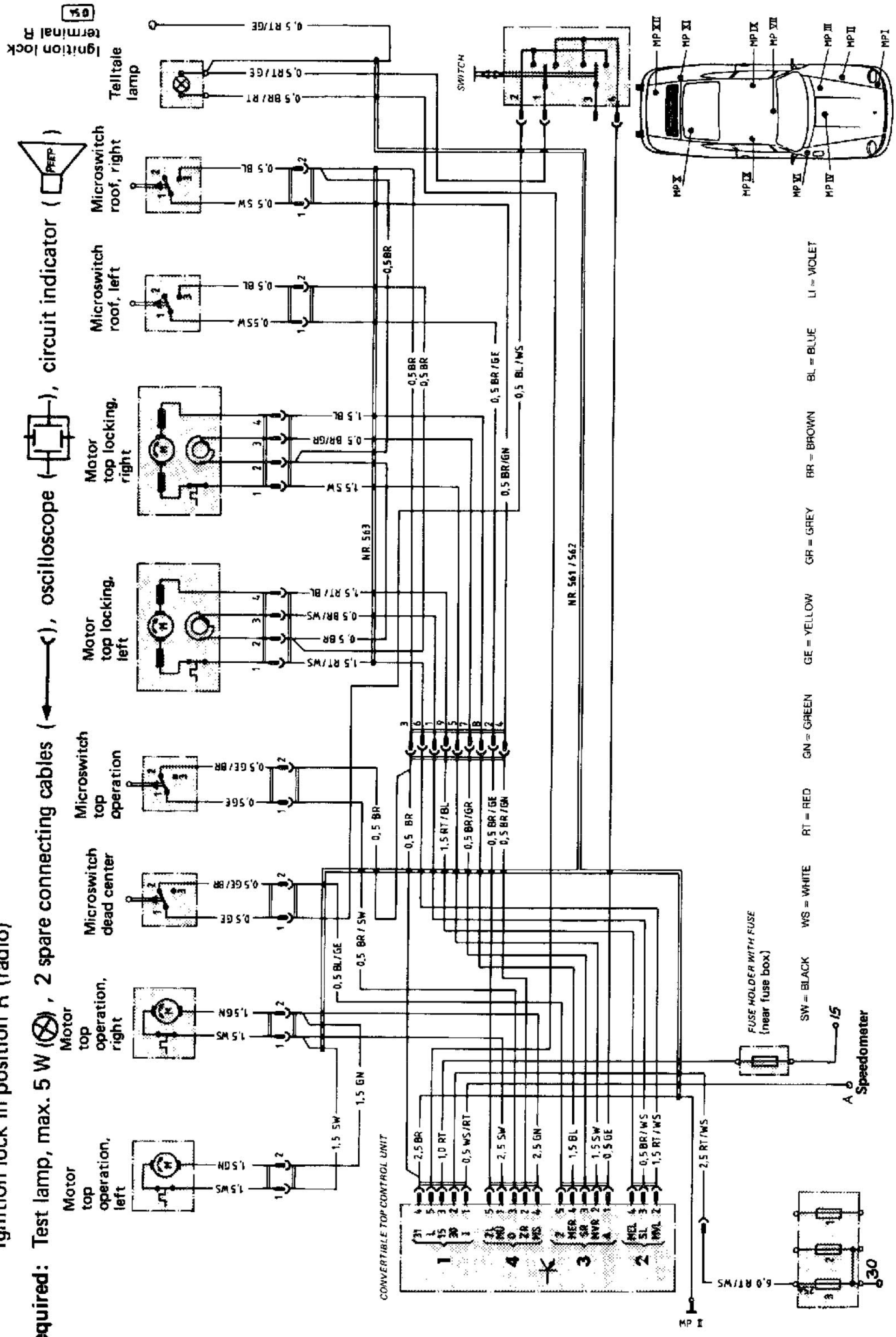
Convertible Top: Testing and Inspection

Test conditions:

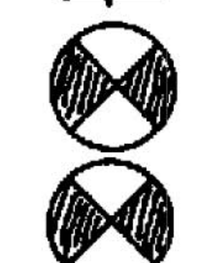
Battery fully charged
Top open, positioned vertically upwards
Ignition lock in position R (radio)

Tools/equipment required: Test lamp, max. 5 W (⊗), 2 spare connecting cables (⟵), oscilloscope (⟵|⟶), circuit indicator

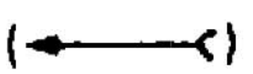
Circuit diagram:



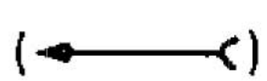
1. Plug

Condition	Terminal No.	Tool	Specified signal	Tested
Ignition on, rear wheels turning	**I** (1)		Square-wave voltage	Speedometer (dry-reed contact) signal
None	**30** (2)		Glows	Power supply, terminal 30
Ignition on	**15** (3)		Glows	Power supply, terminal 15
Ignition lock in radio position R spare cable to ground and terminal:	**L** (5)		Roof telltale lamp glows	Ground terminal to telltale lamp
Test lamp to + and terminal	**31** (4)		Glows	Ground terminal 31

2. Plug

Condition	Terminal No.	Tool	Specified signal	Tested
Not occupied	(1)	–	–	–
Connect spare cable to + Connect spare cable to – Connect cable ends alternately to terminals	**MVL** and **MEL** (2 and 4)		Left locking motor must unlock and lock	Left locking motor function + at terminal 2 = lock – at terminal 2 = unlock **Caution:** Heavy current flow!
Test lamp to + and terminal	**SL** (3)		Glows	Left locking motor limit switch must be grounded with locking motor between locked and unlocked positions. No ground connection in either locked or unlocked end position.
Not occupied	(5)	–	–	

3. Plug

Condition	Terminal No.	Tool	Specified signal	Tested
Ignition lock in radio position R Depress top operating switch towards OPEN	**A** (1)		Glows	Power supply from terminal (R) via top switch (switch function)
Connect spare cable to + Connect spare cable to – Connect cable ends alternately to terminal	**MVR** and **MER** (2 and 4)		Right locking motor must unlock and lock	Right locking motor function + at terminal 2 = lock – at terminal 2 = unlock **Cauton:** Heavy current flow!
Test lamp to + and terminal	**SR** (3)		Glows	Right locking motor limit switch must be grounded with locking motor between locked and unlocked positions. No ground connection on either locked or unlocked end-position.
Ignition lock in radio position R Depress top operating switch towards CLOSE	**Z** (5)		Glows	Power supply from terminal R via top switch and dead center of microswitch on right gear unit (switch function).

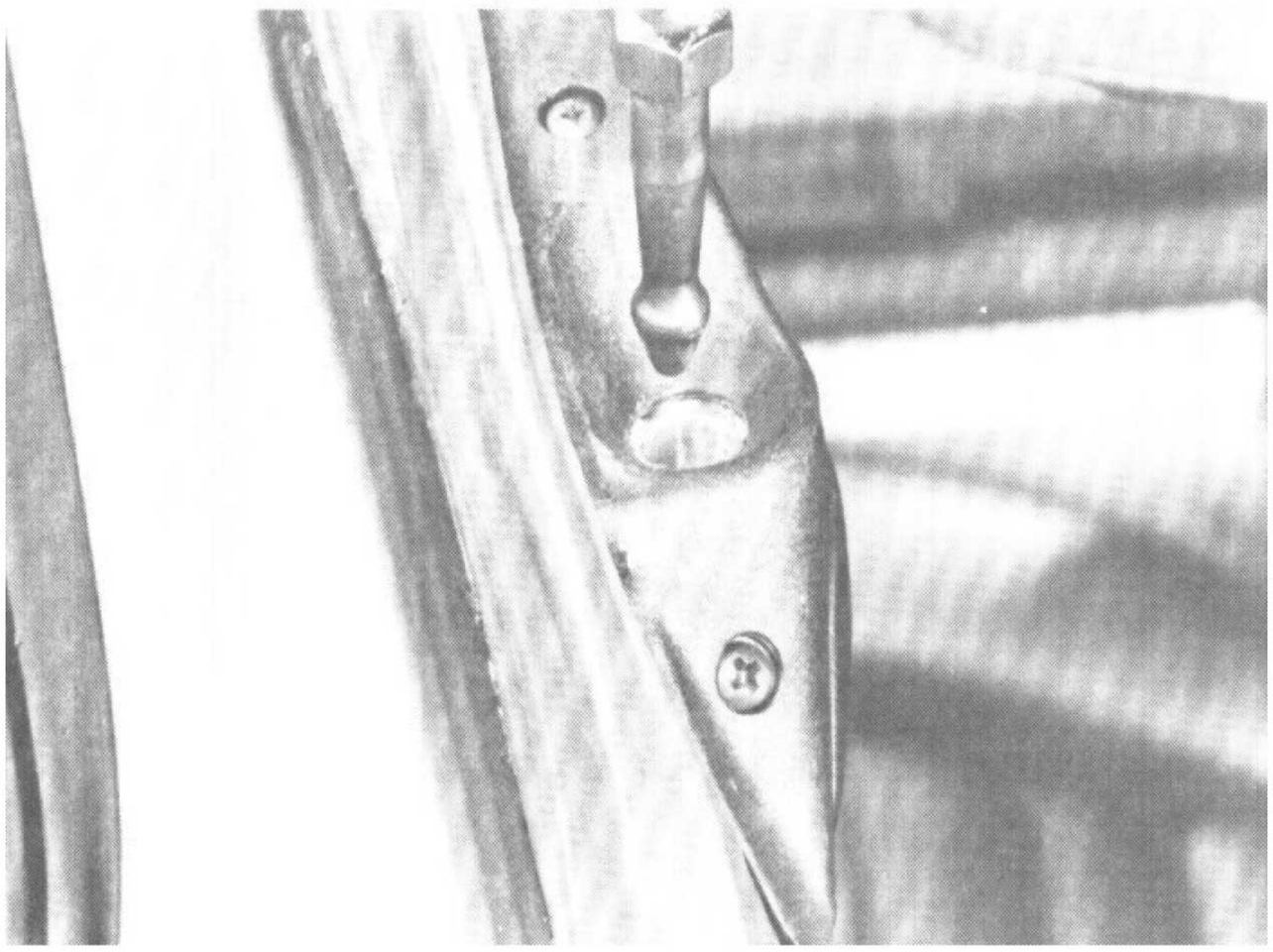
4. Plug

Condition	Terminal No.	Tool	Specified signal	Tested
Connect spare cable to + Connect spare cable to – Connect cable ends alternately to terminals	**MÖ** and **MS** (1 and 4)	(⟵)	Top motors must open/close top	Top motor functions + at terminal 1 = open – at terminal 1 = close **Caution:** Heavy current flow!
Circuit indicator to terminals	**ZL** and **ground** (5)	(Peep)	Circuit complete (peep)	Left roof microswitch. With microswitch closed (depressed) = circuit complete open = no circuit
Circuit indicator	**ZR** and **ground** (2)	(Peep)	Circuit complete (peep)	Right roof microswitch. With microswitch closed (depressed) = circuit complete open = no circuit
Circuit indicator to ground and terminal	**O** (3)	(Peep)	Circuit complete (peep)	Top operation microswitch to right gear unit top closed = circuit complete top fully open = no circuit

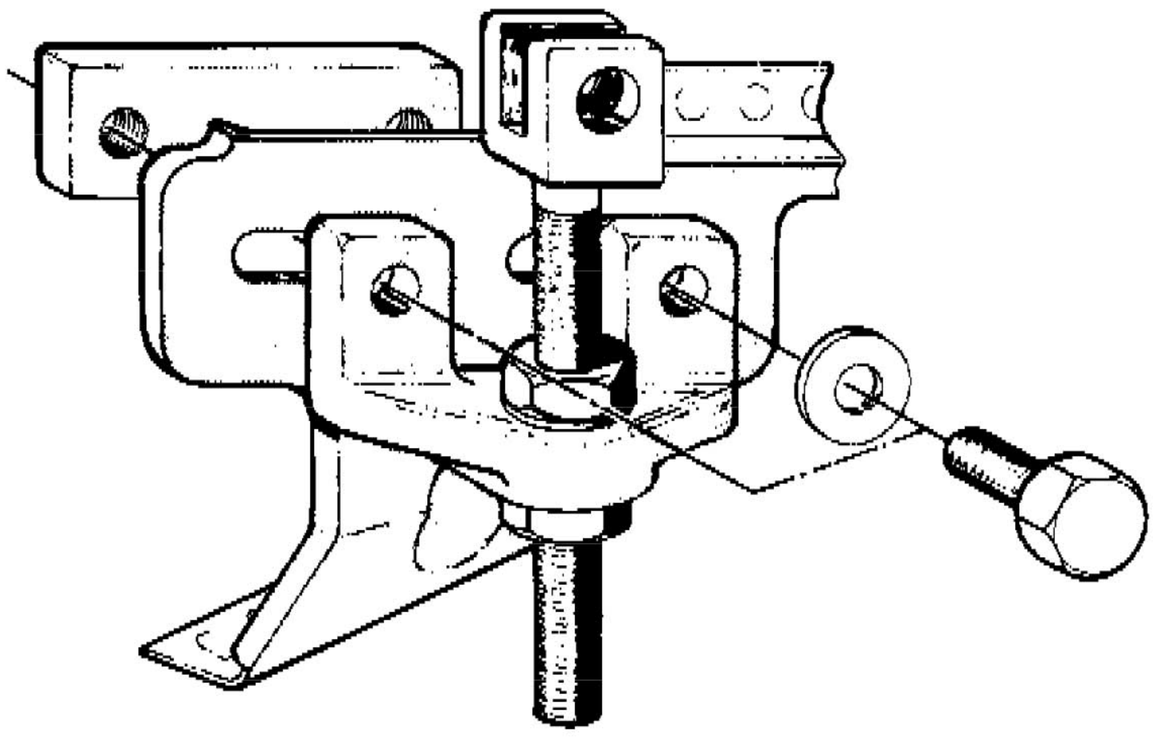
Convertible Top: Adjustments

Basic Adjustment

BASIC ADJUSTMENT



The centering lugs move through a semicircular arc. They should be adjusted in such a way that they come into contact with the rear rims of the guide sleeves and locate centrally in them.

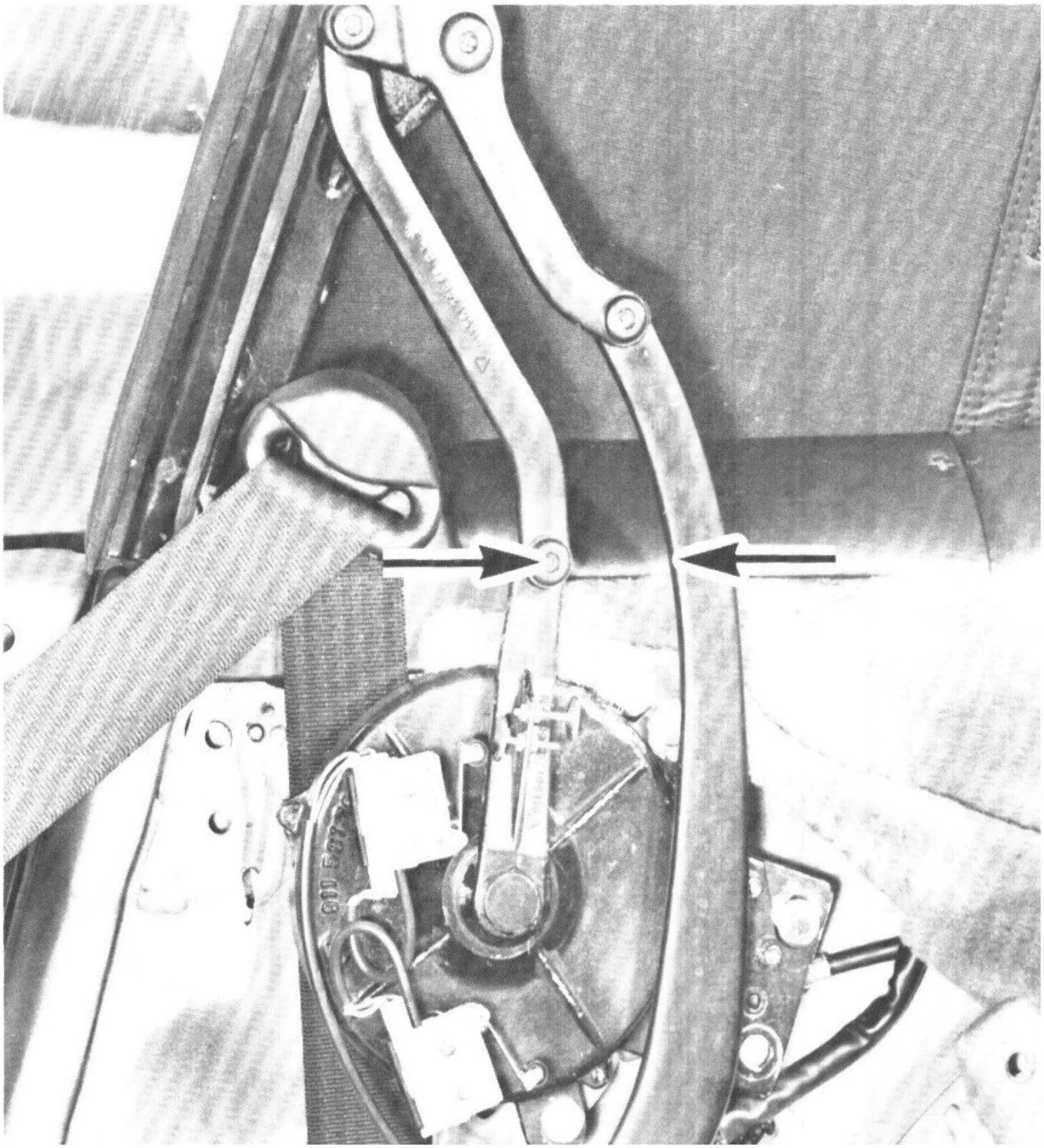


Failing this, the movement of the top must be corrected at the bearing bracket.

Adjustment of the threaded fork upwards produces a longitudinal adjustment forwards, a vertical adjustment downwards and a slight lateral displacement.

The bearing bracket should be centrally located for basic adjustment. Displacement from this position also results in slight longitudinal and lateral displacements.

Both these adjustments affect the movement of the top mechanism and should therefore be carried out with appropriate care. If necessary the opposite side will also have to be adjusted.



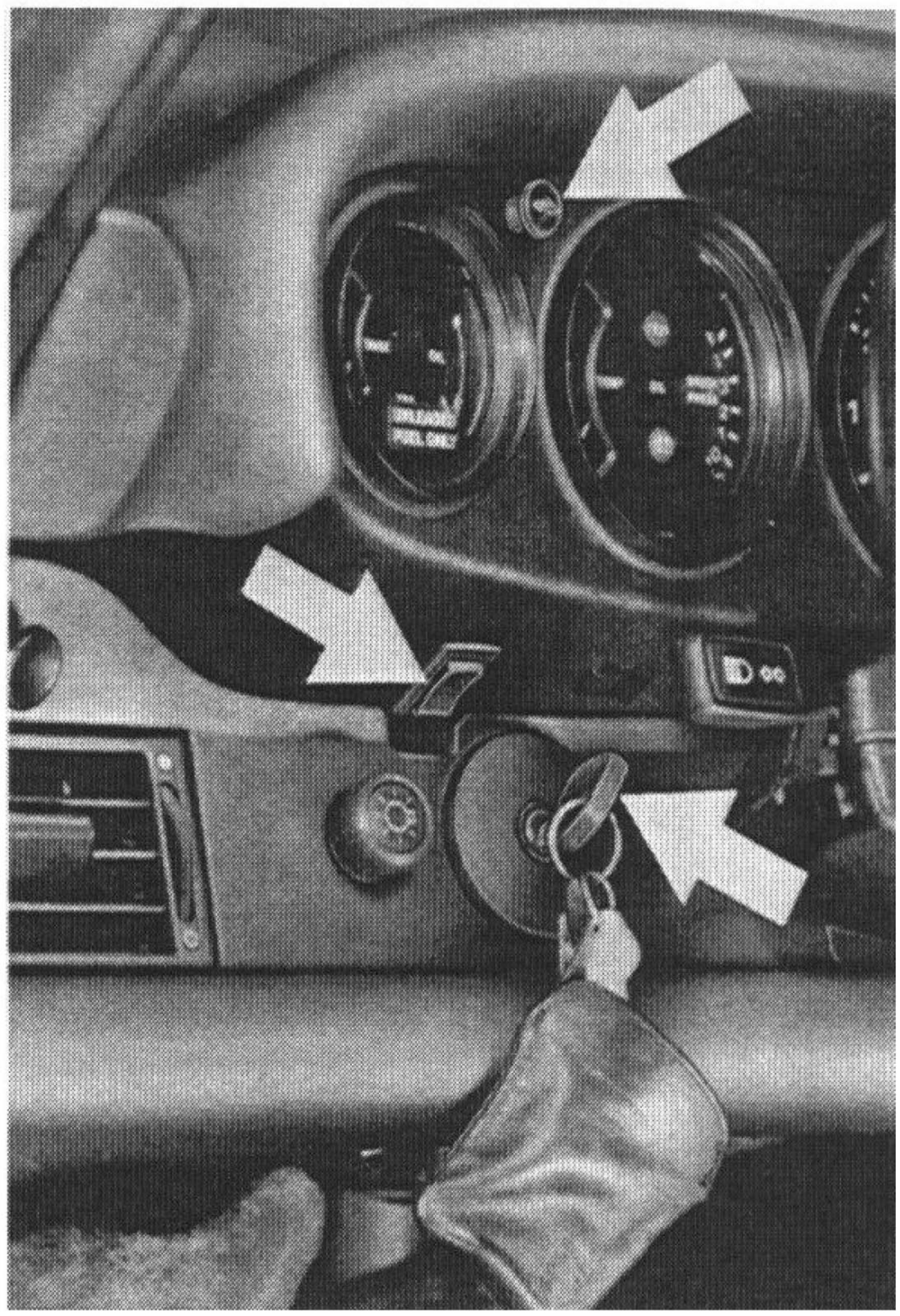
A check must also be carried out to ensure that both swivel gears are operating synchronously. A loud running noise on one side during operation is an indication that the drives are out of sync.

As a check, the distance between the point of attachment of the steering arm to the thrust rod and the top frame arm must be the same on both sides of the vehicle.

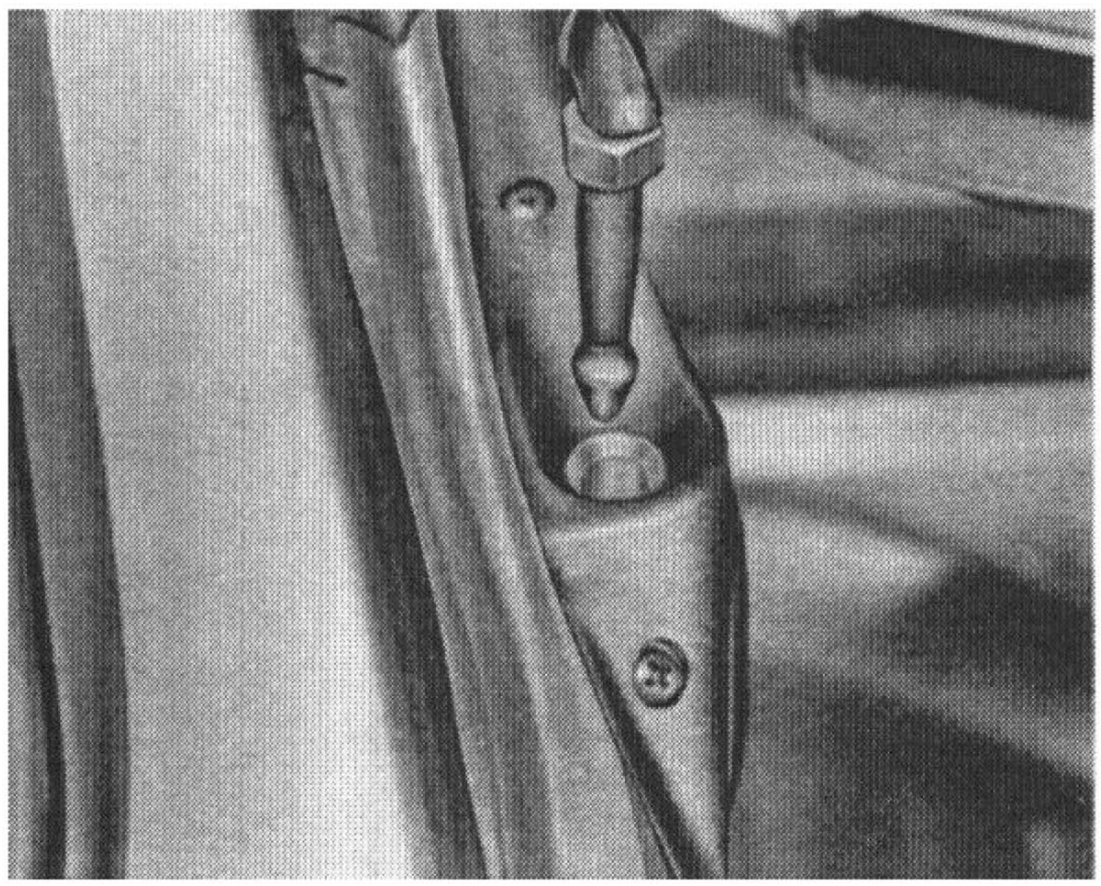
Failing this, the swivel gear unit screw fastenings must be loosened and the spacings equalized on both sides.

Convertible Top: Adjustments
Adjusting Convertible Top

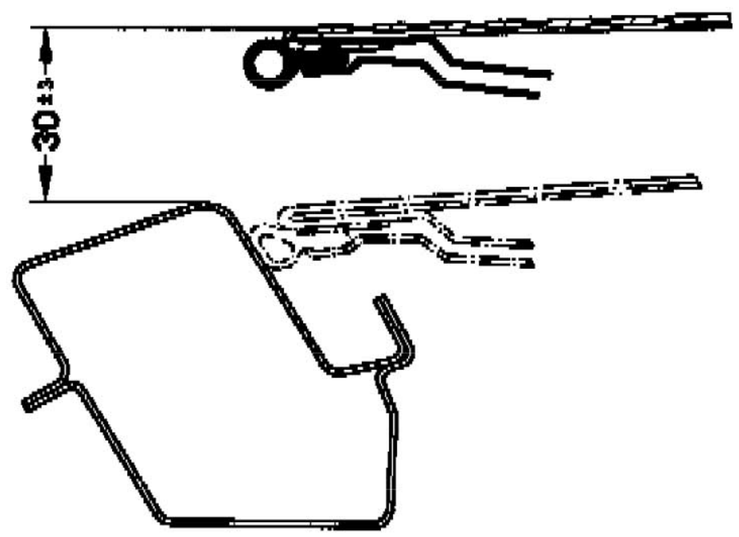
Adjusting Electric Convertible Top



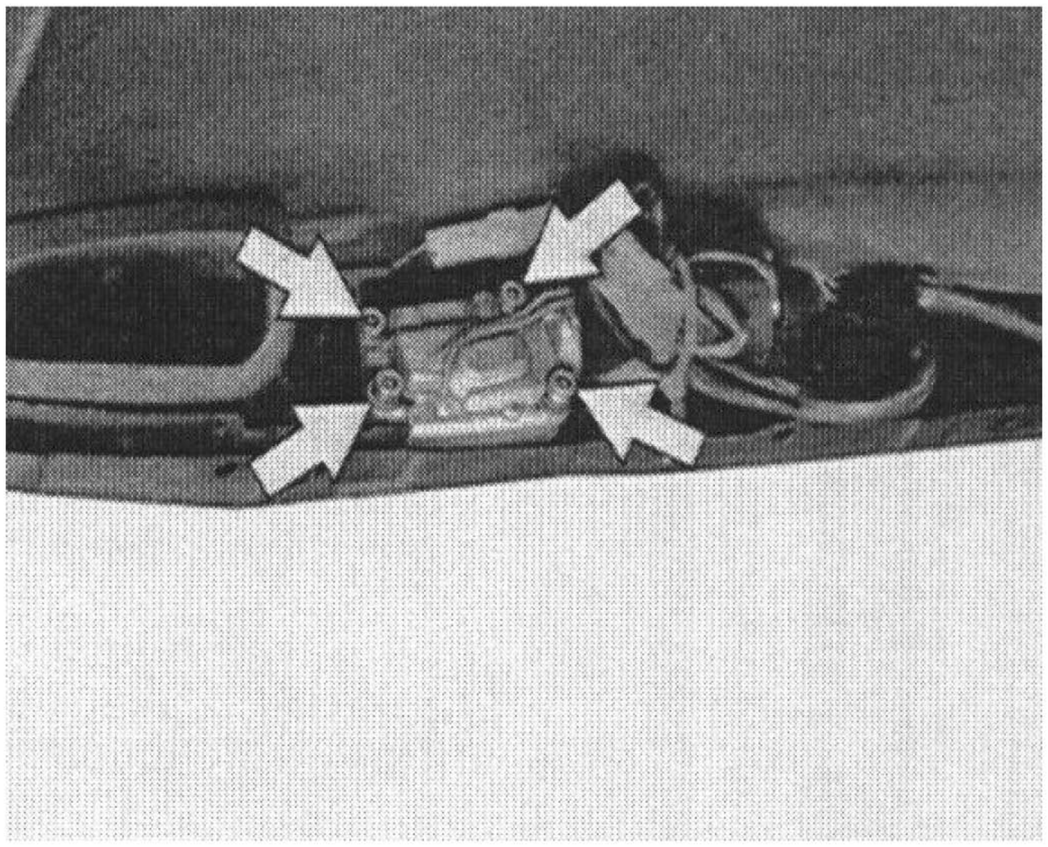
1. To operate the convertible top, the ignition key must be turned to the radio position. When opening and closing the top, the indicator lamp must come on until the opening or closing operation is completed. The rocker switch must be kept pressed throughout the entire operation.



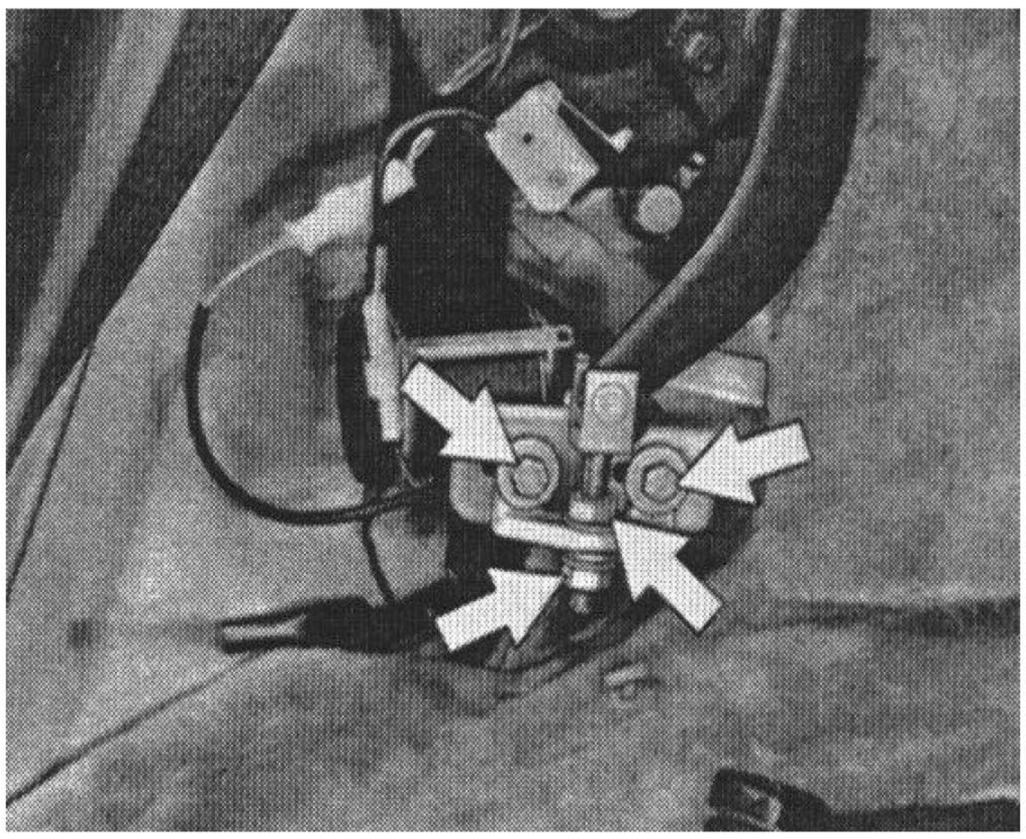
2. Adjust the centering pegs so that they come up against the rear edge of the guide sleeves and engage them centrally.



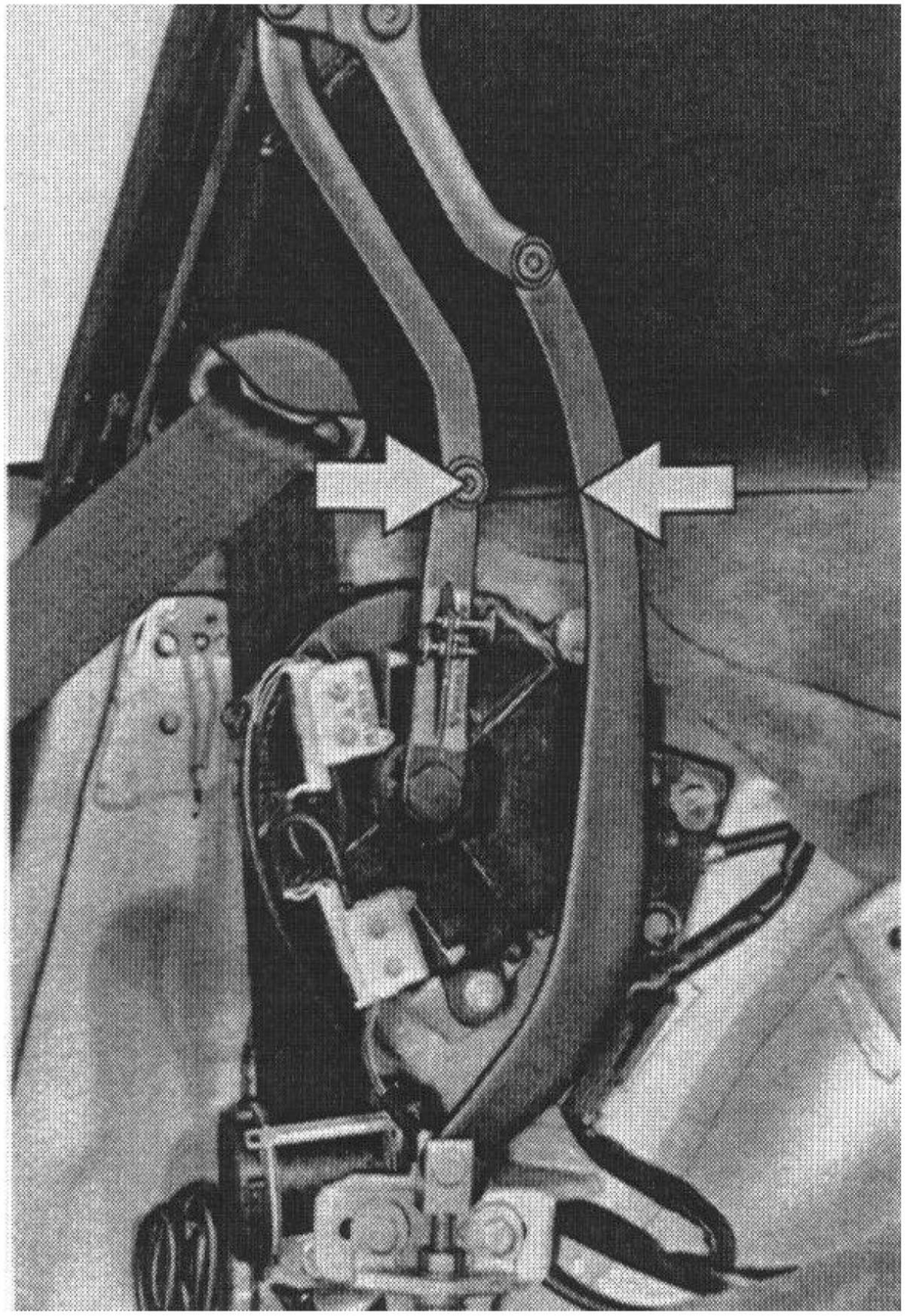
3. To adjust the microswitches, the convertible top must be at a distance of 30 + 3 mm from the top edge of the windshield frame. The microswitches are adjusted so that, at this distance, they touch the guide sleeves.



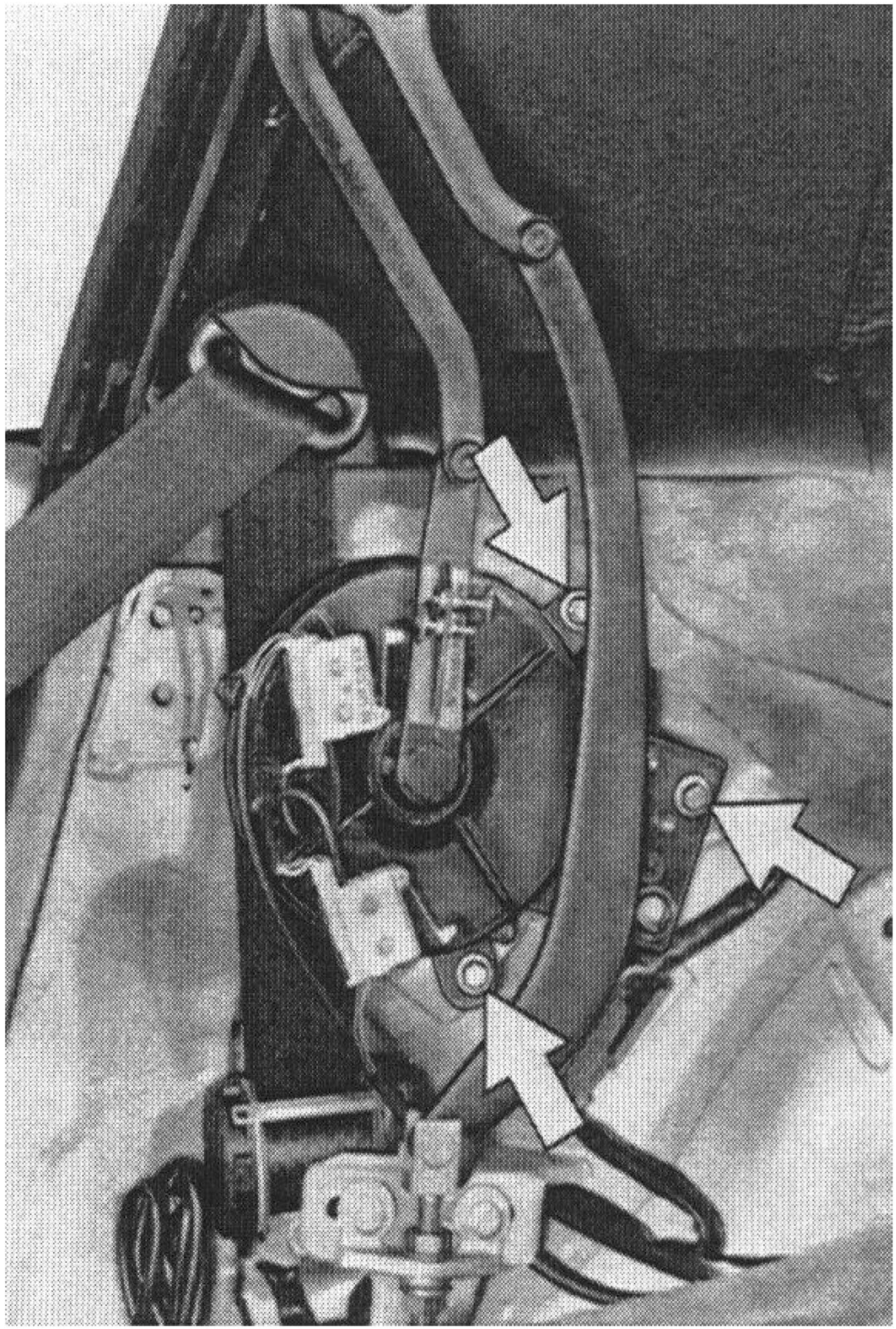
4. To adjust the locking motors, loosen the fastening screws, set the convertible top flush with the top edge of the windshield frame and re-tighten fastening screws.



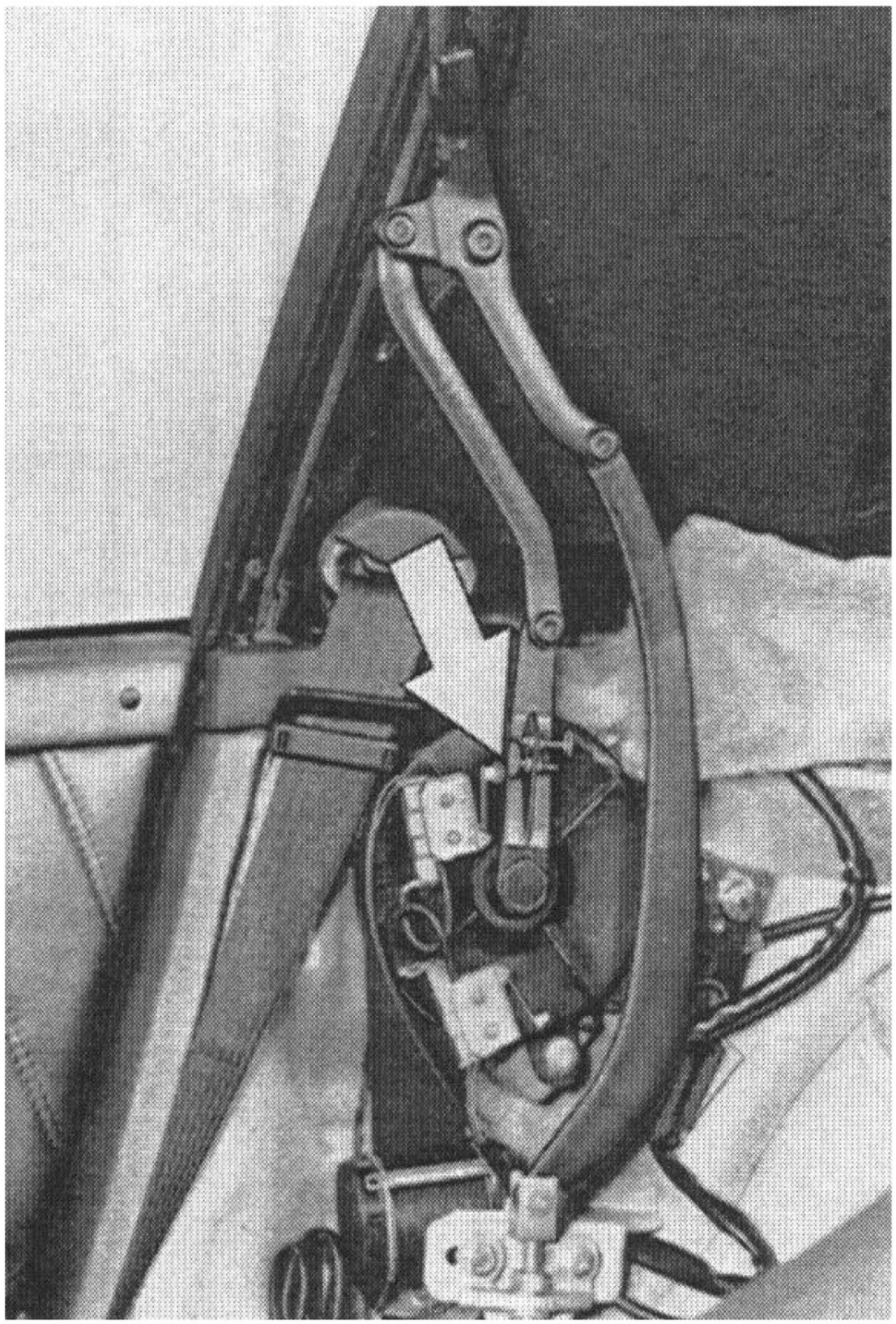
5. The forward-movement and height adjustment can be made at the bearing blocks of the reverse transfer levers by means of minor corrections so that the guide pegs latch into the windshield frame exactly.



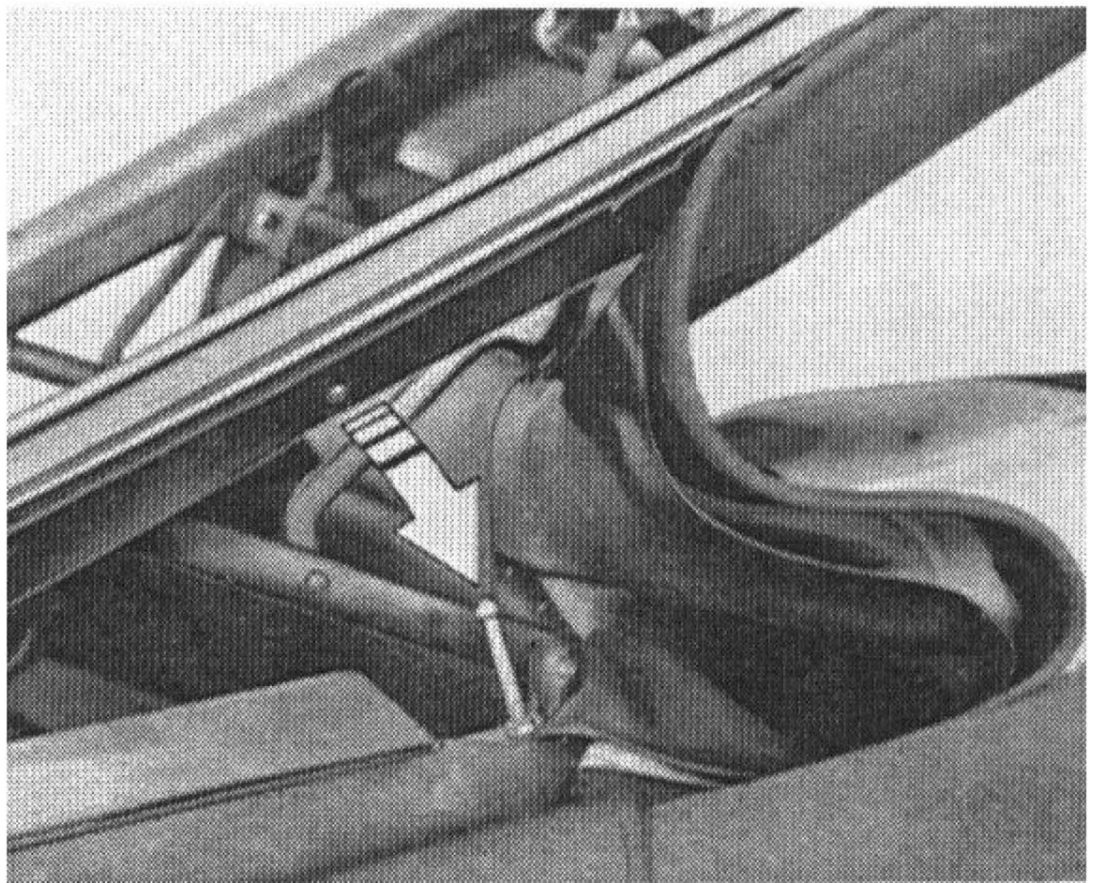
6. The dimension at the screwing point - push-rod guide lever to lever of convertible-top frame - must be identical on left and right.

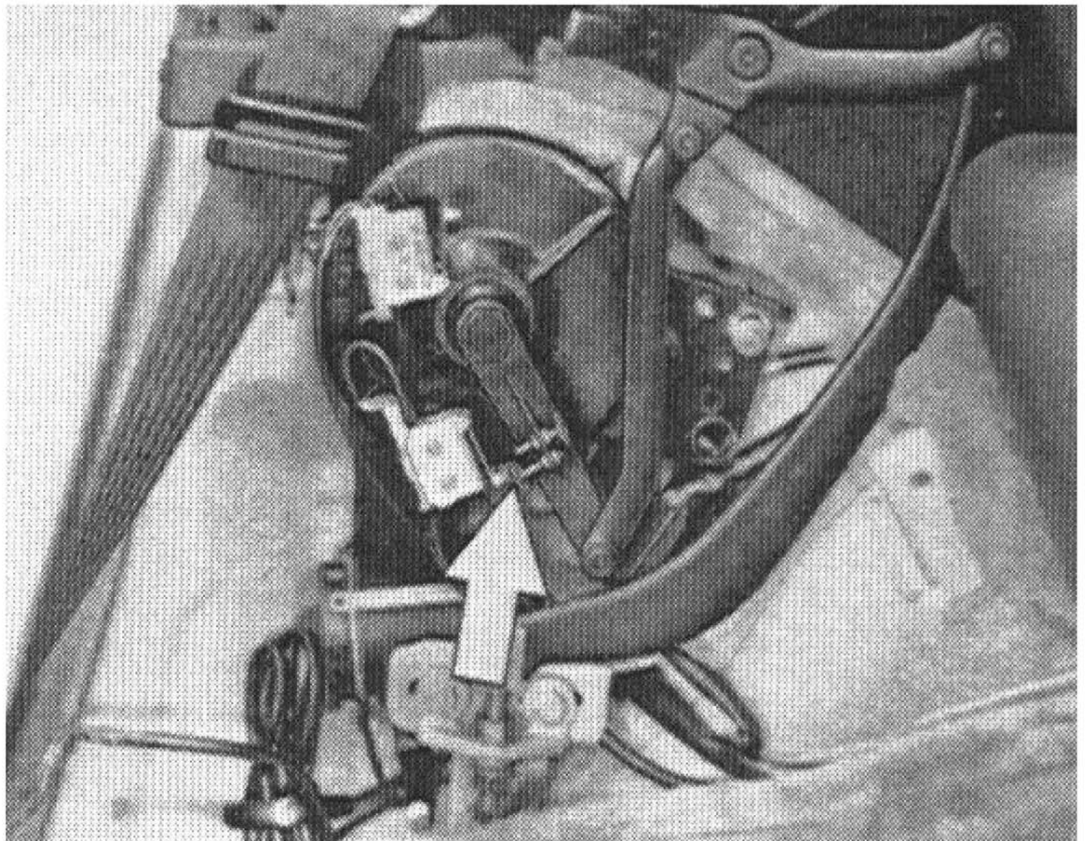


7. If necessary, loosen the fastening screws of the swivel drives and set the gap on both sides to the same dimension.



8. The upper microswitch is adjusted with the convertible top closed. The gap between the adjusting screw and the microswitch must be 3 mm.





9. The lower microswitch is adjusted with the convertible top open. Adjust the adjusting screw so that the microswitch switches off when the top engages the holding pegs.

Convertible Top: Locations

12-pole cable harness plug: at right rear, on inside of rear compartment panel (below top gear system, right side)

Technical Service Bulletin # **69613** Date: **961205**

Cabriolet Top Control Unit - Revised

Group
6

Number
9613

Model
911

Part Identifier
6182

December 5, 1996

Subject:
Cabriolet Top Control Unit

ATTENTION: Service Manager / Service Technician

Models Affected:

911 Carrera, 911 Turbo, M.Y. 1986-89 and 911 Carrera 2/4, M.Y. 1990 to 1994 and 911 Turbo, M.Y. 1991, 92 and 94

Concern:

The Cabrio top control unit is now superceded to the type used in the 911 Carrera (993). The original equipment part for the above mentioned models is no longer available.

General Information:

As a result of the parts supersession, when the 993 618 313 00 control unit is installed, additional wiring work is necessary.

For the 911 Carrera and 911 Turbo M.Y. 1986 through 1989, refer to the wiring diagrams and specific instructions found on pages 2 through 5 of this bulletin.

For the 911 Carrera 2/4 and 911 Turbo M.Y. 1990 through 1994, refer to the wiring diagrams and specific instructions found on pages 6 through 8 of this information.

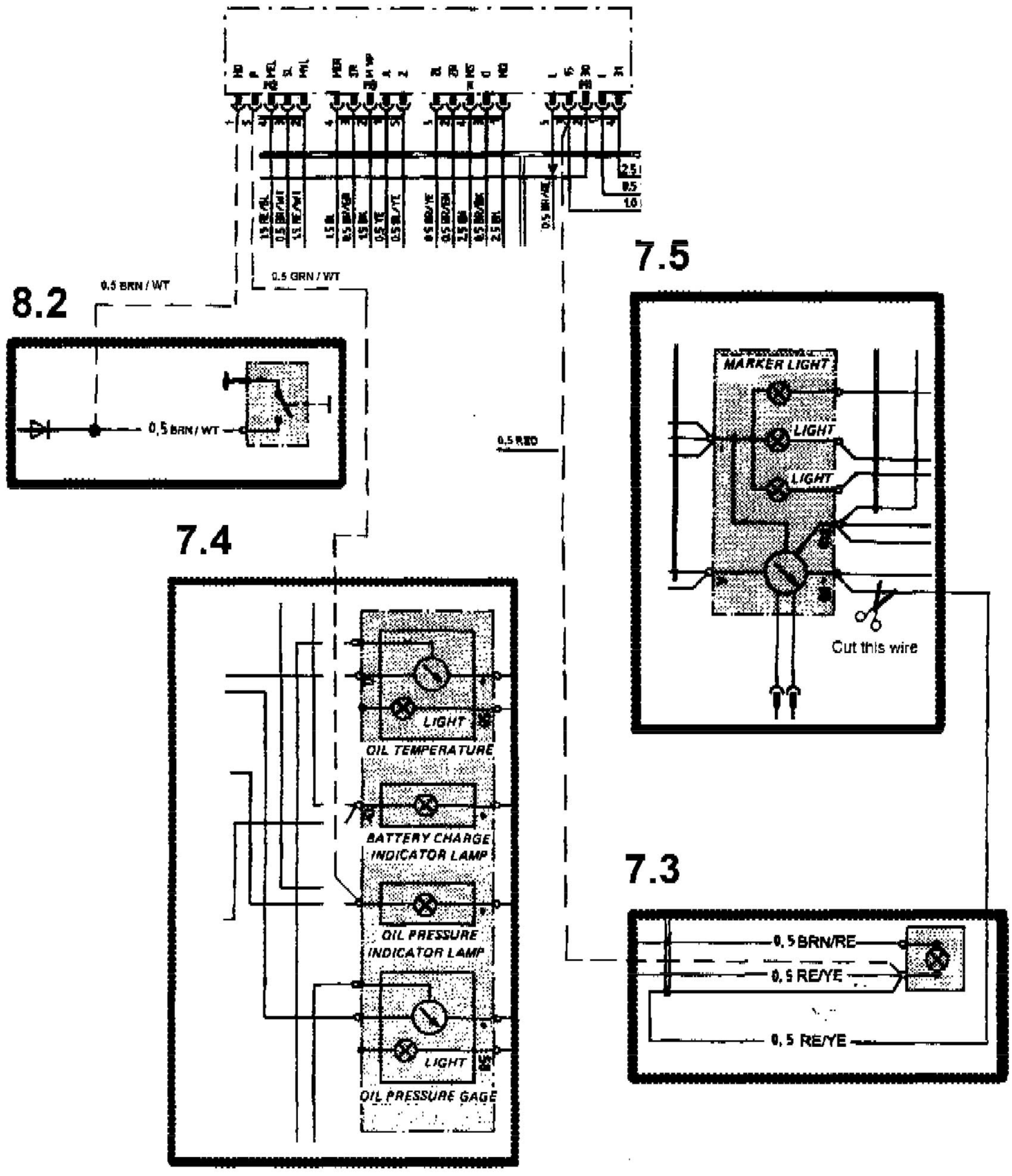
Parts Information:

Part Number	Description	Quantity
993 618 313 00	Control unit	1
999 652 351 22	Round connector	2
N 017 242 11	Flat connector (male)	1
999 652 119 40	Flat connector housing	1
911 617 106 01	Diode	1
----------	0.5 mm x 150 cm red wire*	1
----------	0.5 mm x 150 cm brown / white wire*	1
----------	0.5 mm x 150 cm green / white wire*	1
----------	Electrical tape	-
----------	Cable ties	-

* Locally obtained

The additional parts will be required when installing the 993 618 313 00 control unit into the 911 Carrera or 911 Turbo M.Y. 1986 through 1989 as shown.

Work Procedure 1 - 7.2



Refer to the wiring diagrams.

1 - Move the front seats to rearmost position. Note the radio code and disconnect the battery negative clamp.

2 - Remove the passenger's side foot board.

3 - Remove the old cabrio top control unit and install the new 993 618 313 00 control unit.

4 - Remove and disassemble plug M1. Locate the 1.0 mm red wire (Pin 3, Term 15).

4.1 - Join the additional 0.5 mm red wire (locally obtained) to the existing 1.0 mm red wire (term 15, pin 3) and solder. Insulate the connection with electrical tape.

4.2 - Reassemble plug M1 and reinstall onto the control unit.

5 - Solder the 2.4 mm round connectors onto one end of the additional 0.5 mm brown / white and green / white wires.

6 - Remove plug M2 from the control unit.

6.1 - Install the round connector of the additional brown / white wire into the M2 connector position 1 (term. hd).

6.2 - Install the round connector of the additional green / white wire into the M2 connector position 5 (term. P).

6.3 - Reassemble plug M2 and reconnect into the control unit.

7 - Route the additional 0.5 mm red wire and green / white wire along the under dash and up to the area of the oil pressure/oil temp. gauge. Route the additional wires along the existing harness and secure using cable ties.

7.1 - Pull the oil pressure / oil temperature gauge from the dash panel.

7.2 - Pull the 0.5 mm red / yellow wire connector from the cabrio top control light.

7.3 - Join the additional 0.5 mm red wire to the existing 0.5 mm red / yellow wire and solder (see wiring diagram 7.3). Insulate the connection with electrical tape and reconnect onto the Cabrio top control light terminal.

7.4 - Pull the additional green / white wire through the flat connector housing (999 652 199 40) and crimp the flat male connector (N 017 242 11) onto the end of the wire. Insert the flat connector into the flat connector housing. Connect the additional green / white wire onto terminal G of the oil pressure / oil temperature gauge (see wiring Diagram 7.4).

7.5 - Pull the speedometer from the dash panel. Remove the red / yellow wire on terminal + (plus). Cut off the flat connector. Insulate and tape this wire to the back of the harness.

7.6 - Reinstall the speedometer and oil pressure/oil temperature gauges.

8 - Route the additional brown / white wire along the center tunnel to the area of the shift coupler cover.

8.1 - Remove the shift coupler cover. Locate the wiring harness inside the tunnel and very carefully cut the harness open with a knife.

8.2 - Locate the 0.5 mm brown / white wire (from the hand brake switch) in the harness. Connect the additional 0.5 mm brown / white wire to the existing brown/white wire in the harness and solder. Insulate the connection with electrical tape. Approximately 2 cm from the solder connection and toward the rear of the vehicle, cut the brown / white wire in the harness and install the diode (911 617 106 01). Pay attention to the correct installation position of the diode (see wiring diagram 8.2, page 5). Solder the diode into place and insulate the connections with electrical tape. Close the harness using electrical tape and reinstall the shift coupler cover.

9 - Reinstall the passenger's foot board and related parts. Reconnect the battery, reset the vehicle clock, and recode the radio.

10 - Function test the system.

10.1 - Pull the hand brake lever up.

10.2 - Place the ignition key in position 2 (ignition on or engine running).

10.3 - Open and close the Cabrio top using the control switch.

The folding top can only be opened or closed with the parking brake set.

1. **Turn the ignition key to position 2 (engine run- or stopped).**

2. **Press the rocker switch without interruption, if possible, until the indicator light goes out (fully open position). In the event of danger, release the switch; the operation of the top will be interrupted immediately.**

Copy this page, cut it down to the size of the owners manual and insert it into the clear sleeve in the front of the owners manual.

For 911 Carrera, 911 Carrera 2/4 and 911 Turbo M.Y. 1986 through 1994.

11 - Ensure that the vehicle owner is aware of the change in operating instructions for the Cabrio top.The changed operating instructions for the owner's manual are found in this bulletin. Copy the page, cut it down to the size of the owner's manual, and insert it into the clear sleeve in the front of the owner's manual.

11.1 - In the vehicle owners manual find the section...." Electrical Operation of Top". Locate the text....." 1. Turn ignition key to ignition lock position 1". Strike out this text with a solid line through the center. At this location in the owner's manual, note the following:

Cabrio top operation changed. Refer to the new information in the front of the owners manual.

11.2 - The abbreviated operating instructions found on page 8 of this bulletin are to be copied, cut down to the correct size, and placed on the back side of the driver's sun visor over the old information.

12 - Discuss the new operating instructions directly with the vehicle owner. Show the customer where the new information can be found in the vehicle and demonstrate the Cabrio top operation.

Labor Information: 210 TU

For the 911 Carrera 2/4 and 911 Turbo M.Y. 1990 through 1994:

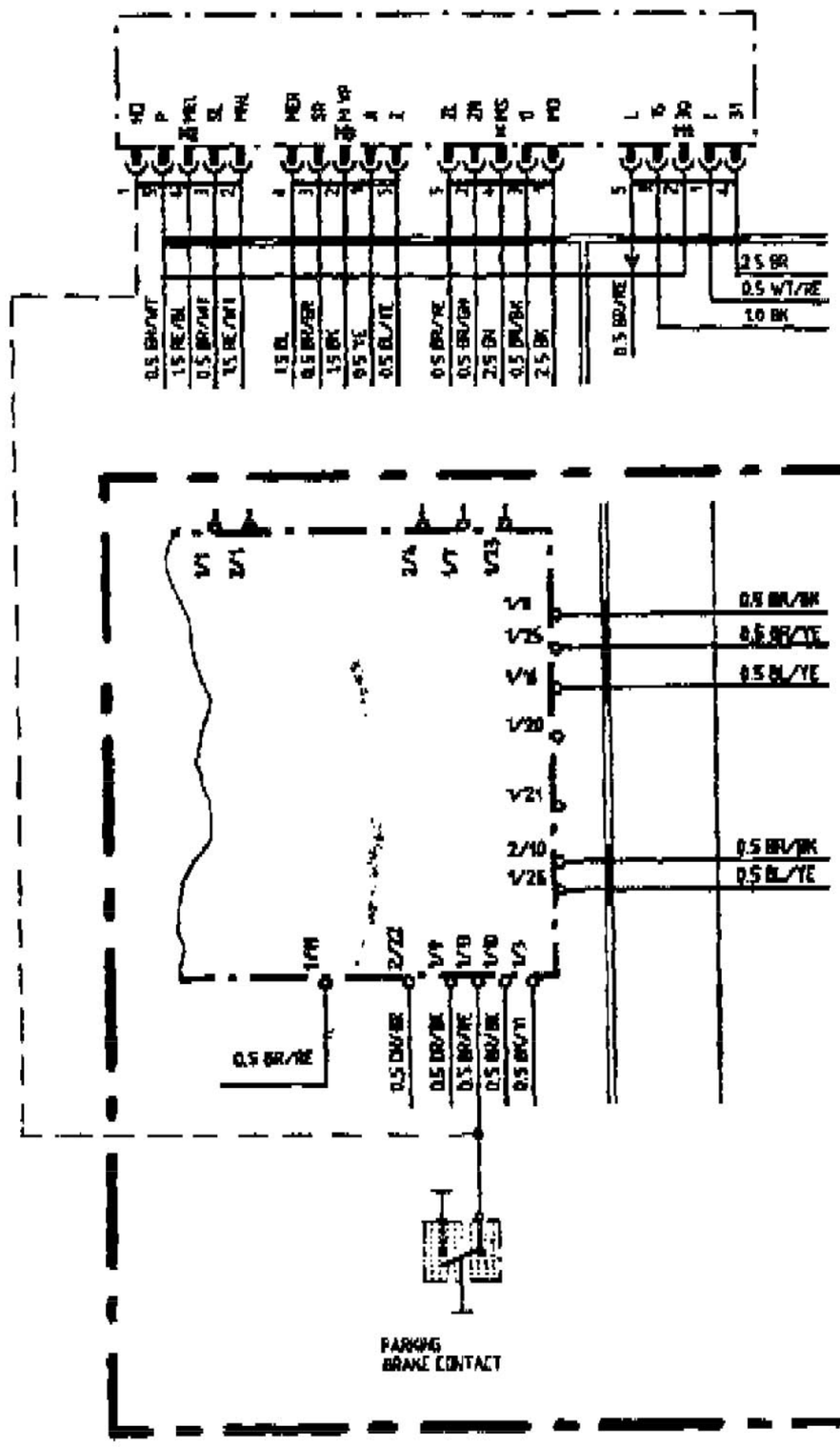
Parts information:

Part Number	Description	Quantity
993 618 313 00	Control unit	1
999 652 351 22	Round connector	1
----------	0.5 mm x 40 cm Brown/Red wire*	1
----------	Electrical tape	-

* locally obtained

The additional parts will be required when installing the 993 618 313 00 control unit into the 911 Carrera 2/4 or 911 Turbo MY. 1990 through 1994:

Work Procedure 1 - 8.1



1 - Move the drivers seat to the rear most position. **Note** the radio code and disconnect the battery negative clamp.

2 - Loosen the central informer and remove the old Cabrio top control unit located in the area under the dash panel on the left side above the knee bar.

3 - Pry open plug connector M2.

3.1 - Solder the round connector (999 652 351 22) to one end of the additional brown / red wire.

3.2 - Install the round connector into plug M2 in position 1 (term. Hd. see diagram 4.1). Close the M2 connector. Install the 993 618 313 00 control unit and connect all wiring plugs.

4 - Remove plug 1 from the central informer.

4.1 - Join the additional 0.5 mm brown / red wire and the existing 0.5 mm brown / red wire from pin 13, plug 1 of the central informer and solder (see diagram 4.1). Insulate the connection with electrical tape and reinstall plug 1 into the central informer.

5 - Reinstall the cabrio top control unit and the central informer.

Caution:
Be certain not to dislodge the headlight switch connector while working under the dashboard in this area. Secure the additional brown / red wire with electrical tape.

6 - Reconnect the battery, reset the vehicle clock and recode the radio.

7 - Function test the system.

7.1 - Pull the hand brake lever up.

7.2 - Place the ignition key in position 2 (ignition on or engine running).

7.3 - Open and close the cabrio top using the control switch.

8 - Make the vehicle owner aware of the change in operating instructions for the cabrio top.The changed operating instructions are found in this information. Copy the page, cut it down to the size of the owner's manual, and insert it into the clear sleeve in the front of the owner's manual.

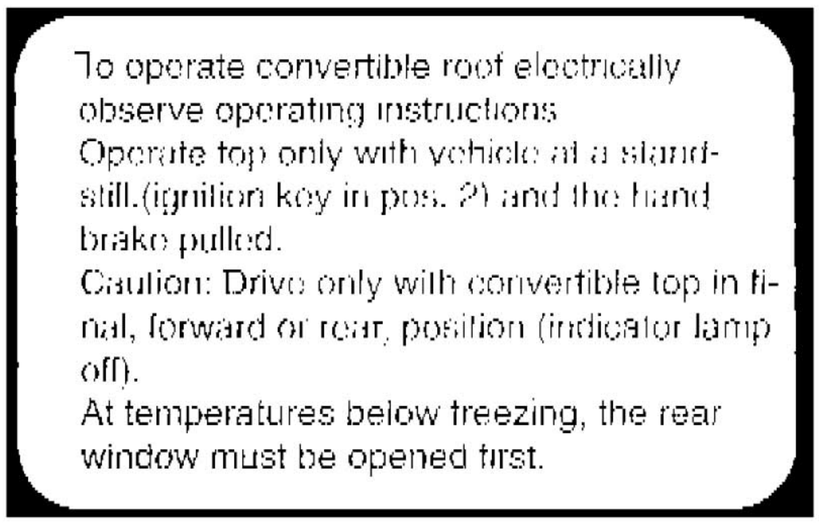
8.1 - In the vehicle owner's manual find the section...." Electrical Operation of Top". Locate the text....."1. Turn ignition key to ignition lock position 1". Strike out this text with a solid line through the center. At this location in the owners manual, note the following:

Cabrio top operation changed. Refer to the new information in the front of the owner's manual.

8.2 - The abbreviated operating instructions found on this page are to be copied, cut down to the correct size and placed on the back side of the driver's sun visor over the old information.

9 - Discuss the new operating instructions directly with the vehicle owner. Show the customer where the new information can be found in the vehicle and demonstrate the Cabrio top operation.

Labor Information: 100 TU



Abbreviated cabrio top operating instructions to be copied, cut to size and placed on the back of the driver's sun visor.

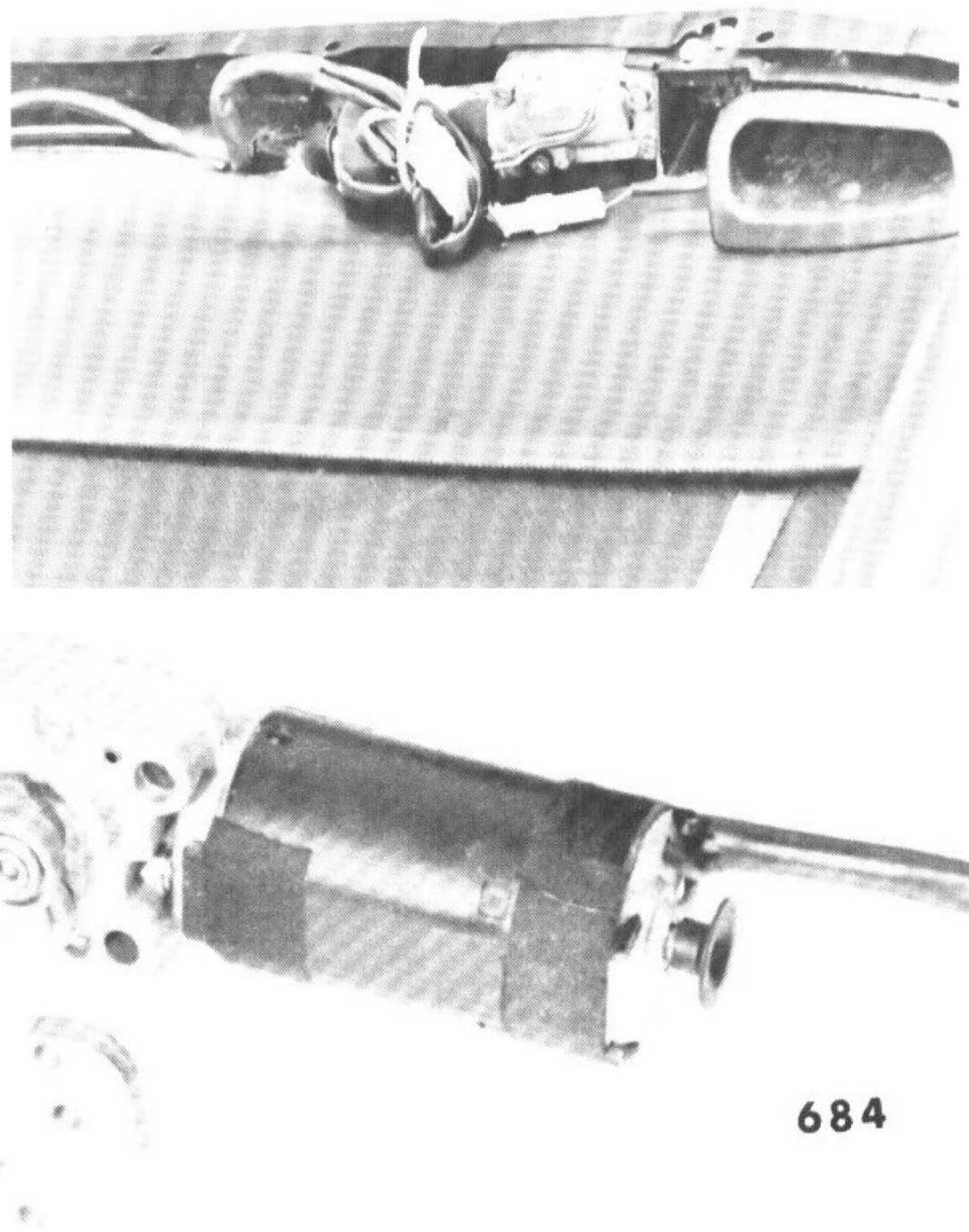
For 911 Carrera, 911 Carrera 2/4 and 911 Turbo M.Y. 1986 through 1994

Convertible Top Locking Motor: Description and Operation

LOCKING MOTORS

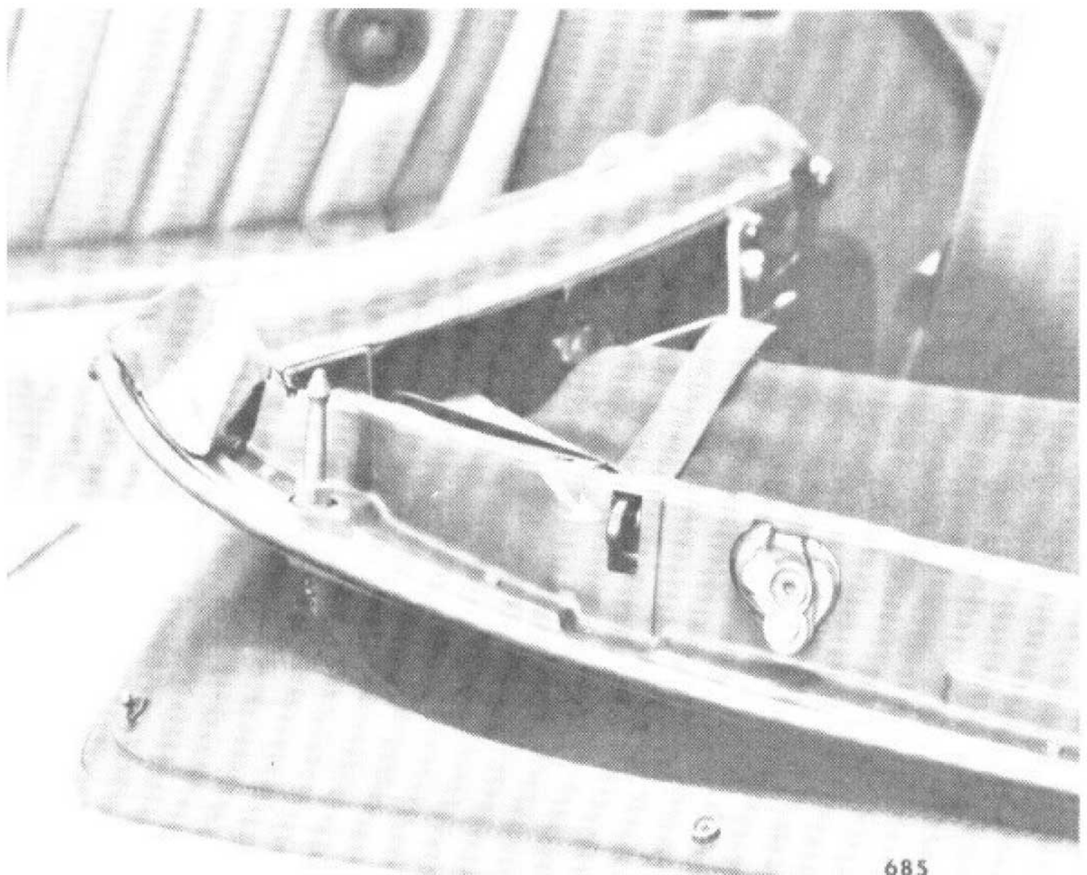
An electric motor is arranged on each side at the front of the top-frame. The closing cranks are actuated by a worm gear.

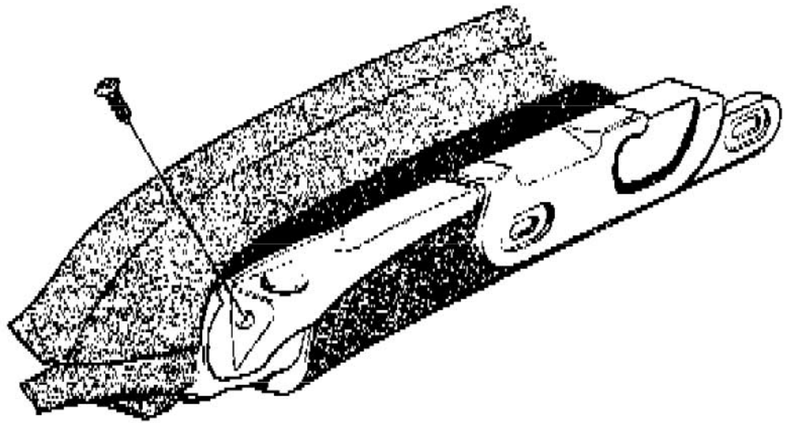
The locking motors are bolted to a tapped plate and are capable of adjustment.



locking motor with mounting plate

A microswitch on each side generates the signal to cut out the drive motors and start the locking motors as soon as the top frame comes to rest on the windshield frame.

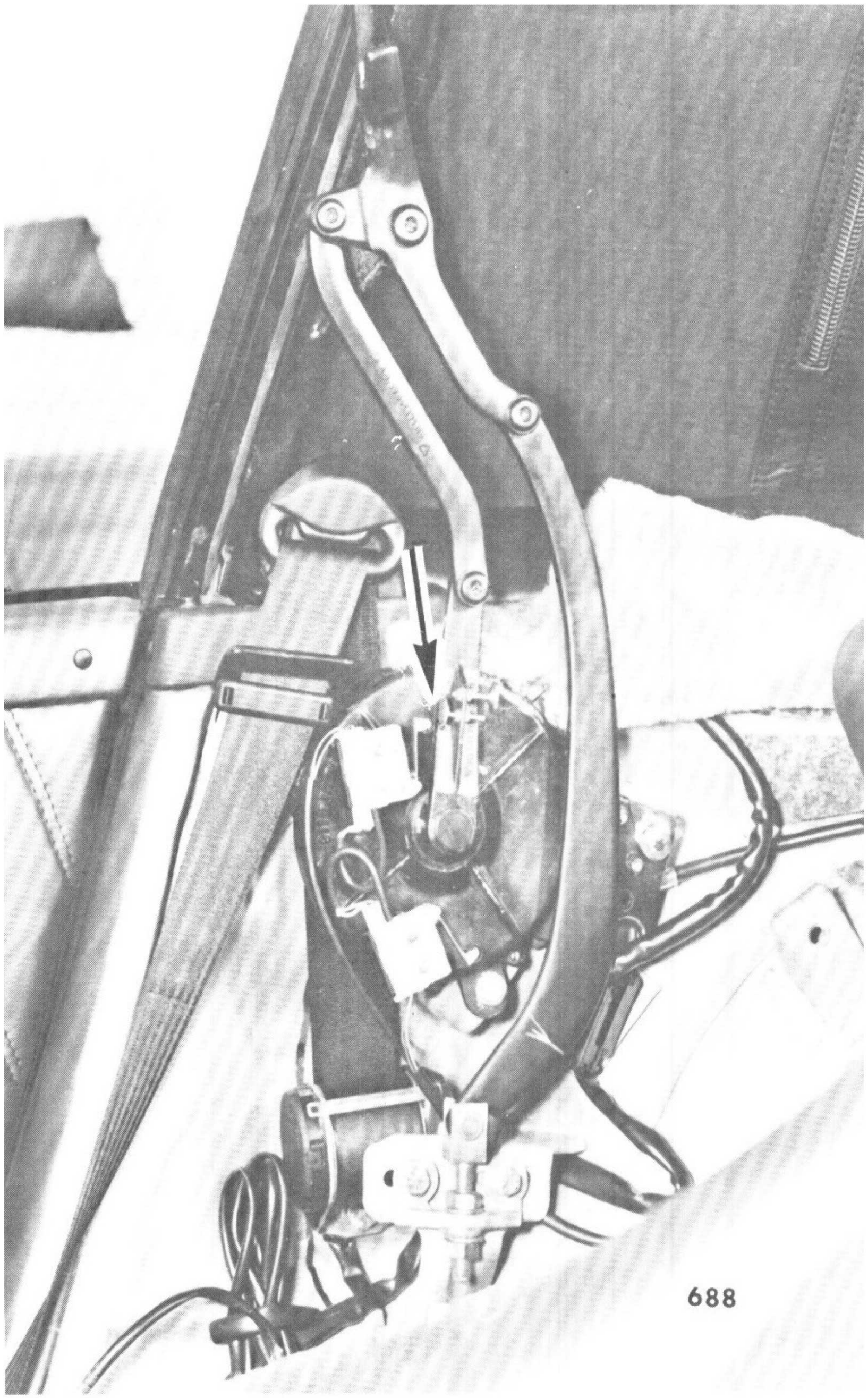




The closing cranks lock the top by engaging the sliding block guides on each side, establishing a fastening between the root and windshield frame.

A control disk inside the gear signals the control unit when the respective end position is reached.

If a mechanical fault arises, preventing the locking motors from being correctly positioned relative to the windshield frame when the top closes, the steering arm of the right-hand gear comes into contact with the dead center switch and the drive motors are stopped.



If the opening sequence is interrupted immediately after unlocking and while the top limit switches are still closed, it is only possible to resume operation of the system in the closing direction.

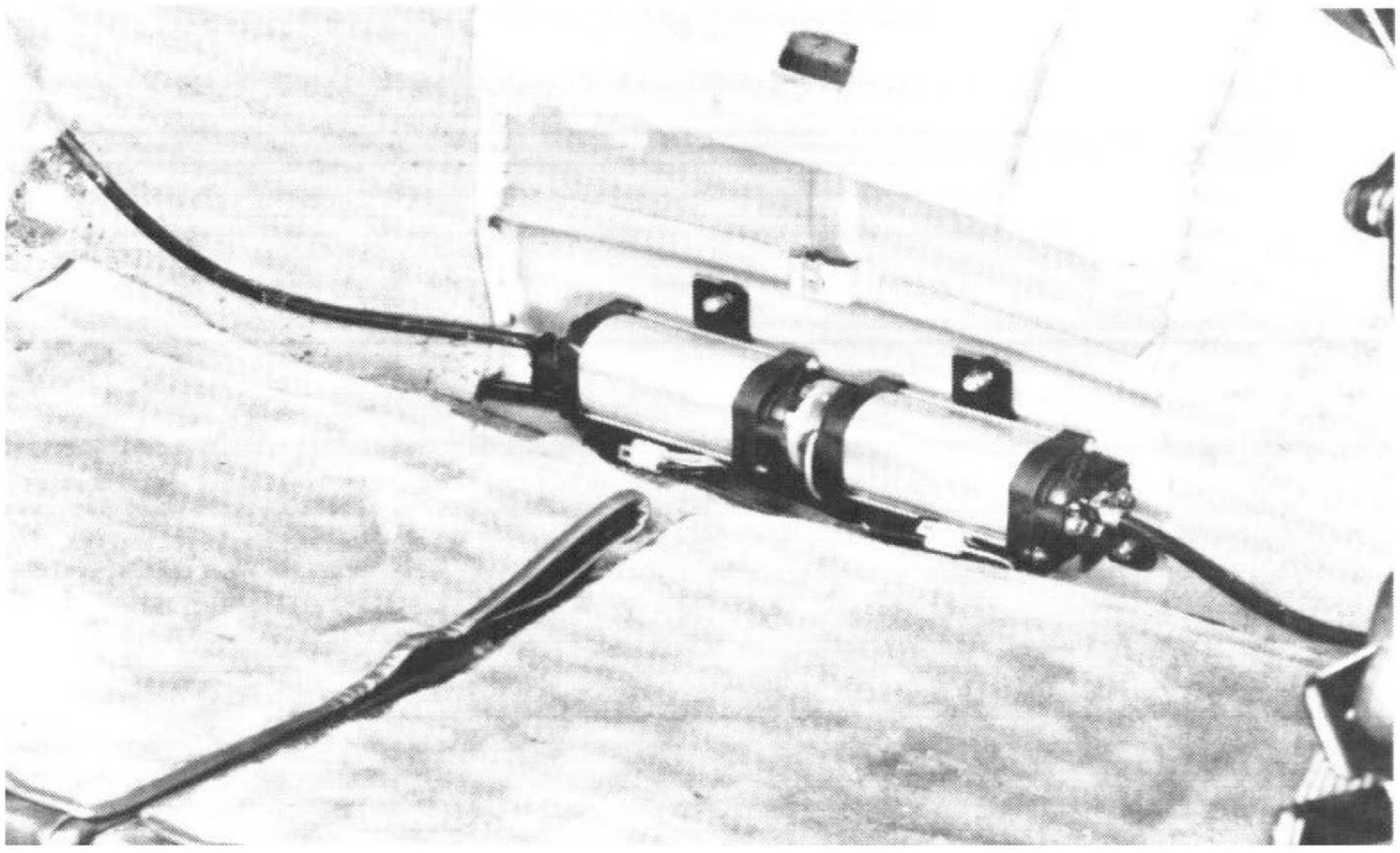
Once the switch has been released, the fact that the limit switches are still closed means that any further operation is restricted by the control unit to the locking sequence

Convertible Top Motor: Description and Operation

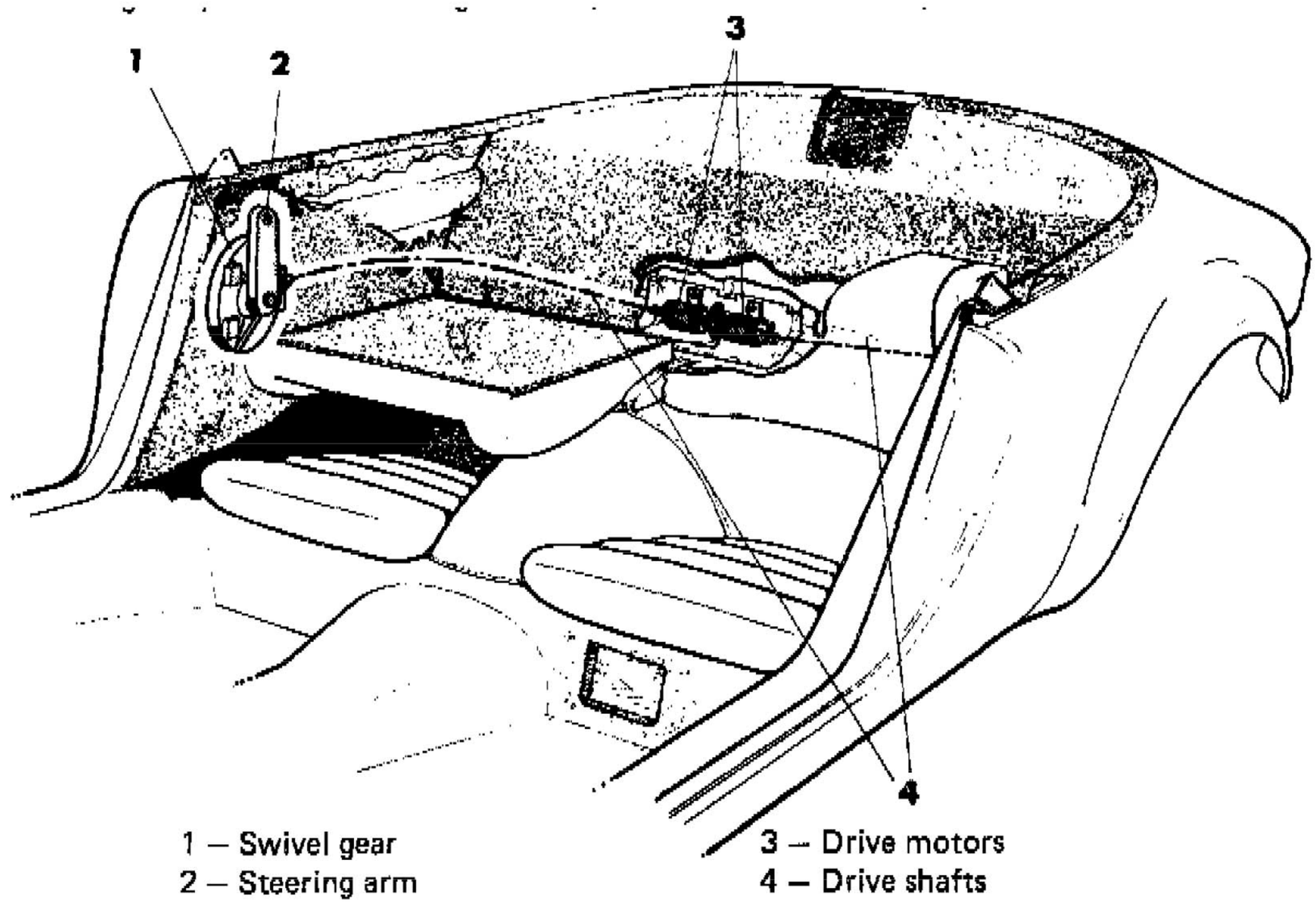
Top Actuation System

TOP ACTUATION SYSTEM

The top actuation system consists of two mechanically coupled electric motors, each driving a swivel gear unit on each side by way of a flexible shaft.

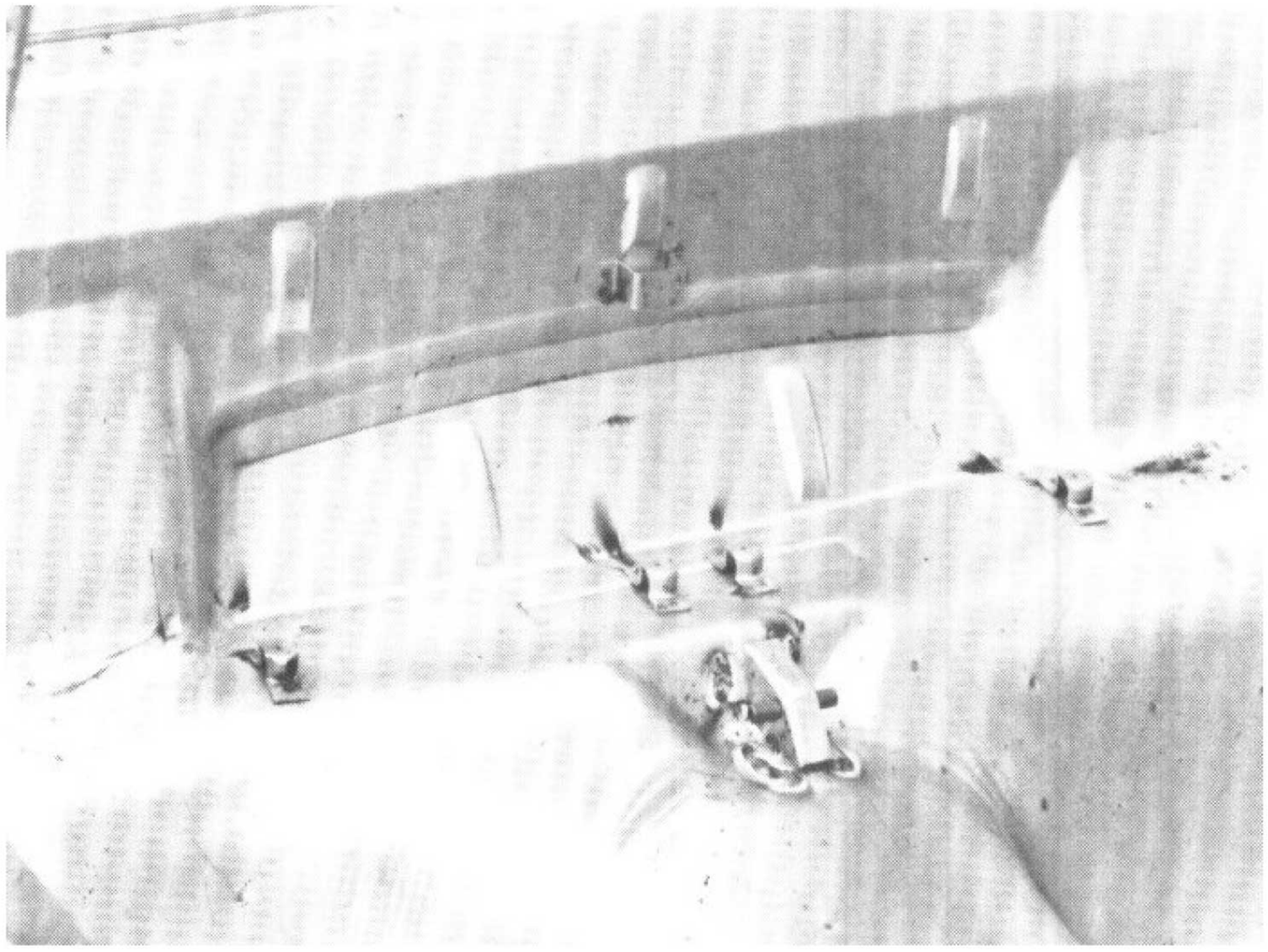


A steering arm, mounted on the gear shaft, transmits the necessary movement to the top linkage.

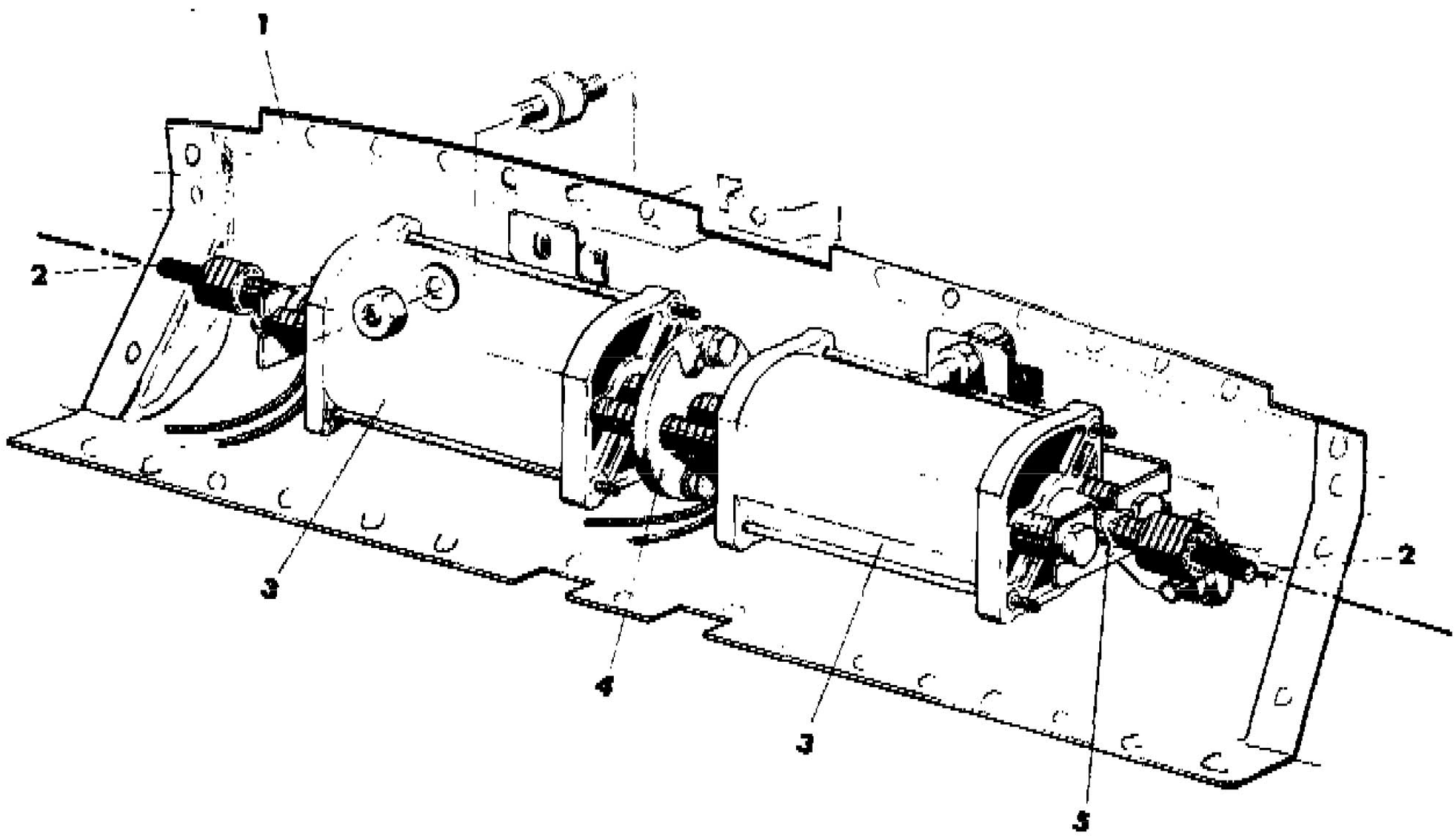


The drive motors are screwed to a mounting plate and installed in a recess in the rear bulkhead behind the rear seats.

They are accessed by removing the rear bulkhead trim and lifting up the insulation.



The flexible drive shafts are plugged into the motor shafts, bonded and additionally secured by means of a clip.

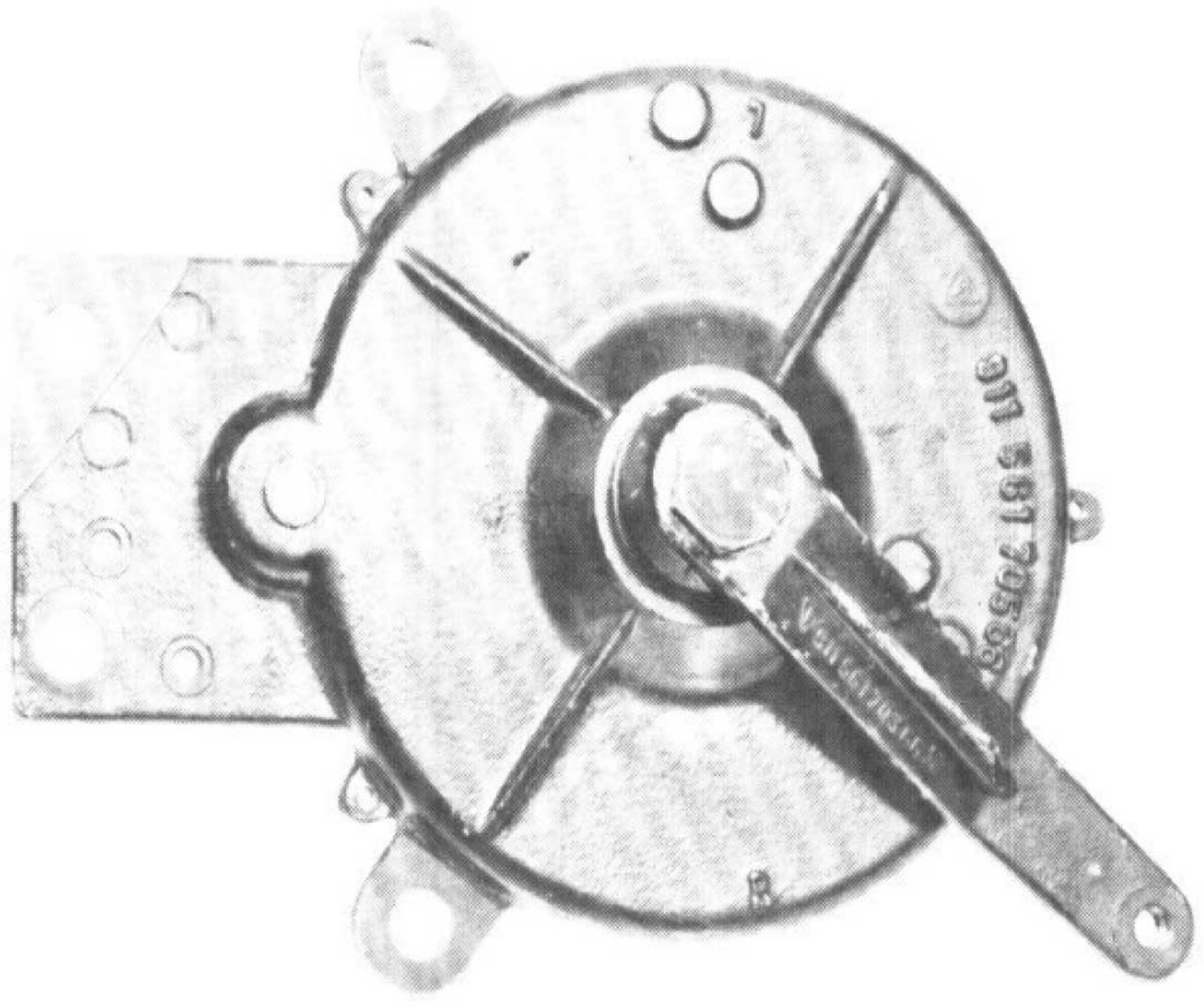


1 — Mounting plate
2 — Drive shafts
3 — Drive motors
4 — Coupling
5 — Retaining clip

Convertible Top Motor: Description and Operation

Drive Gearbox

SWIVEL GEAR

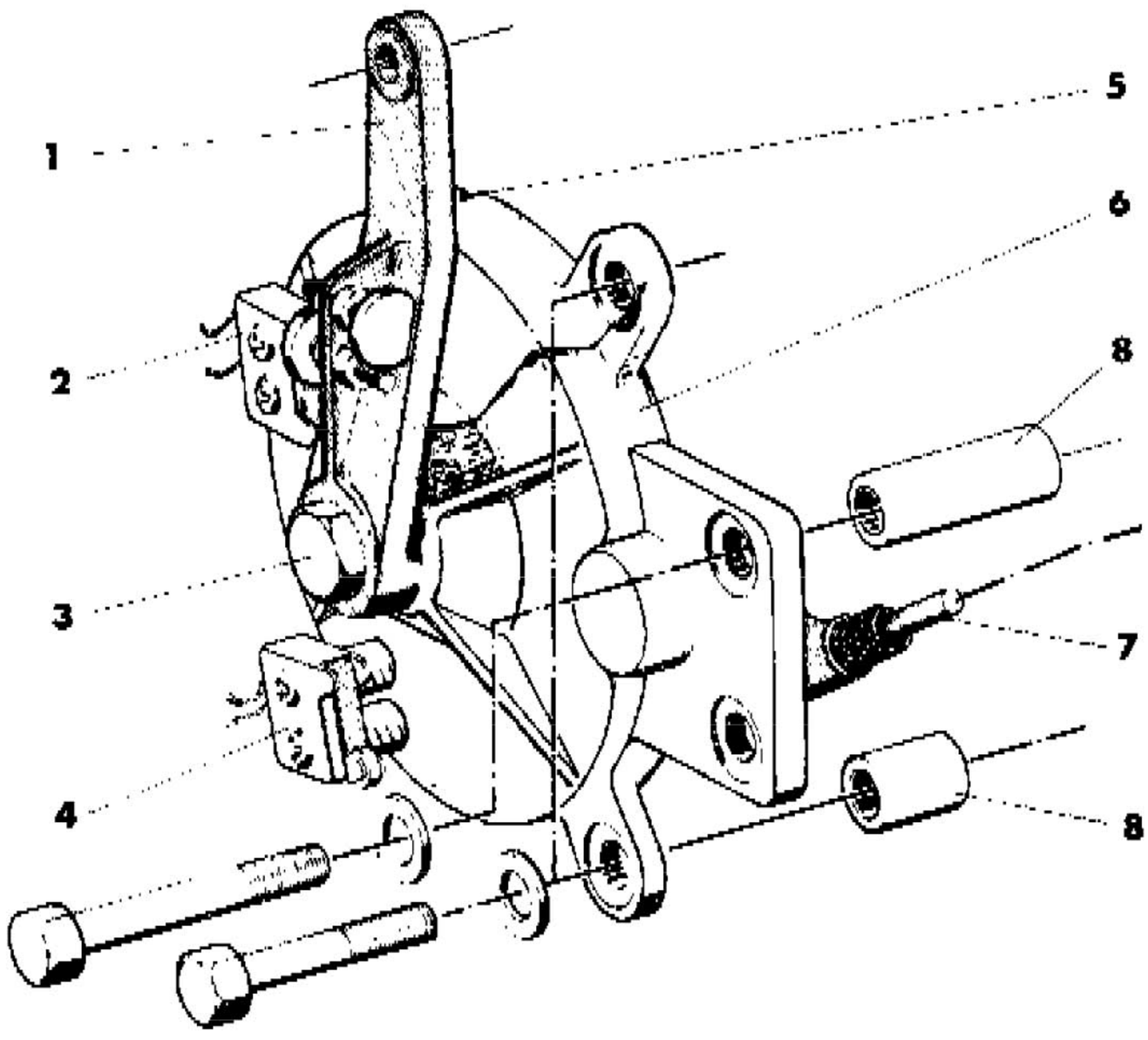


Left-hand gear

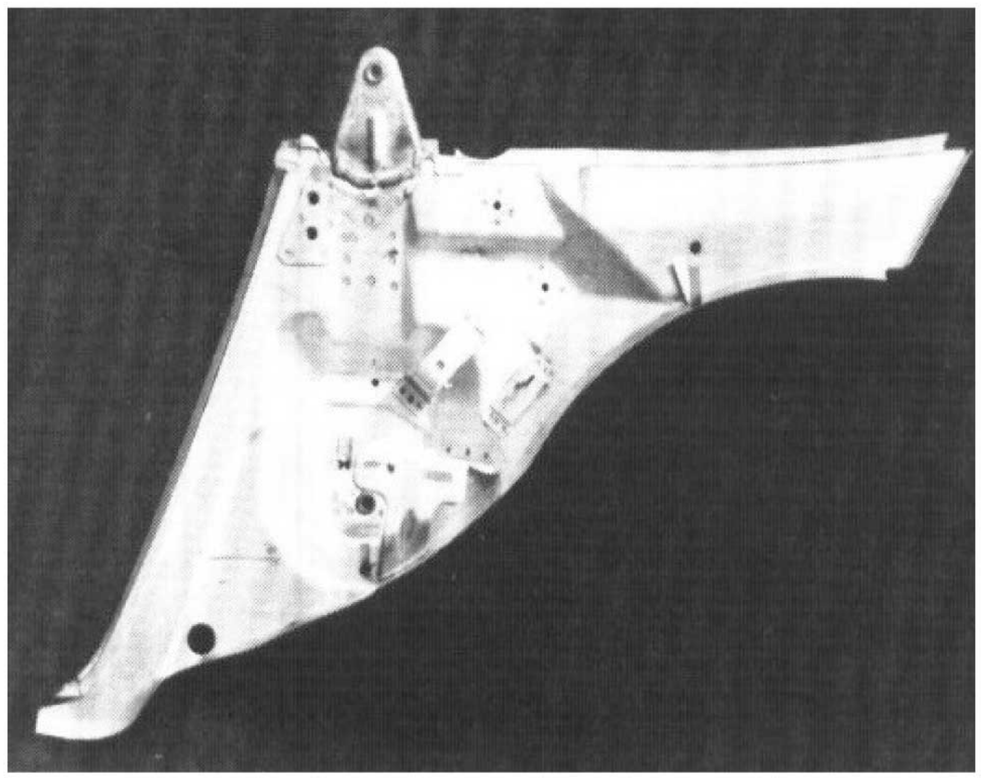
The swivel gears on each side are different.

The right-hand gear is identified by the additional threads for the limit switches.

The steering arm and gear shaft are toothed, ensuring that their relative position is fixed.



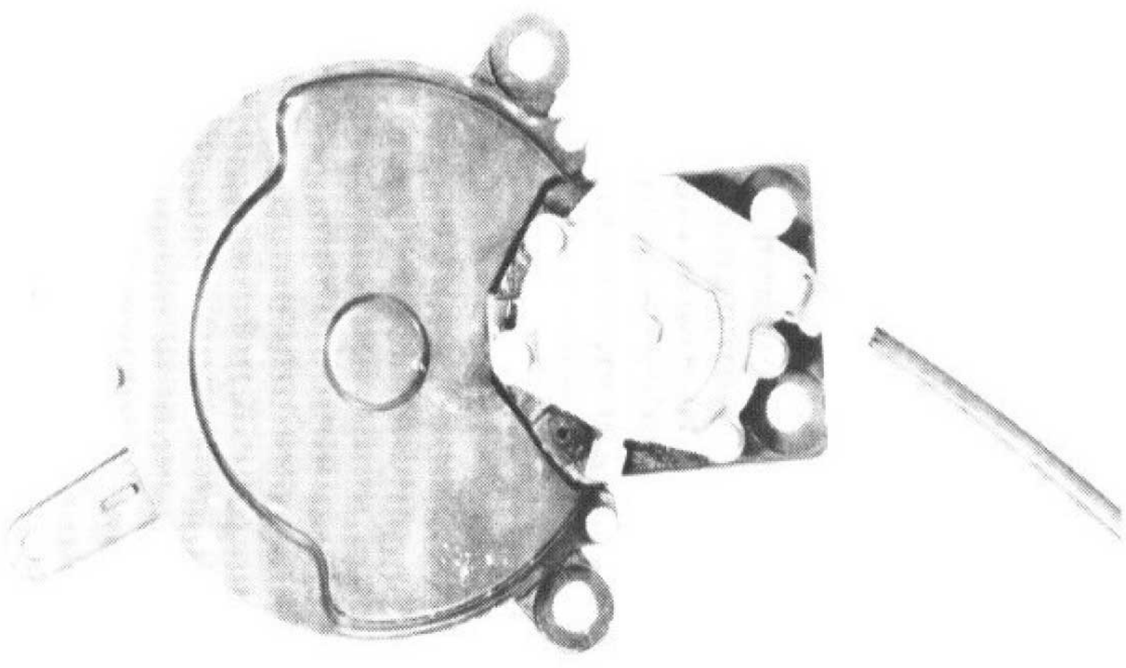
1 – Steering arm
2 – Microswitch
3 – Securing screw (loosen for emergency operation)
4 – Microswitch (top open)
5 – Notches for steering arm adjustment
6 – Worm drive
7 – Drive shaft
8 – Spacers

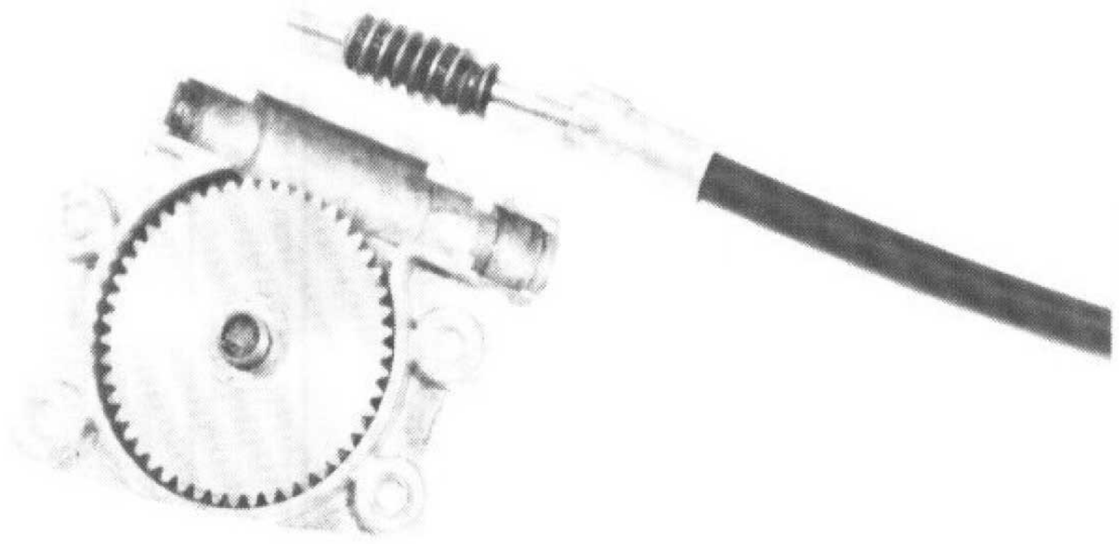


The swivel gears are bolted to each side of the rear compartment.

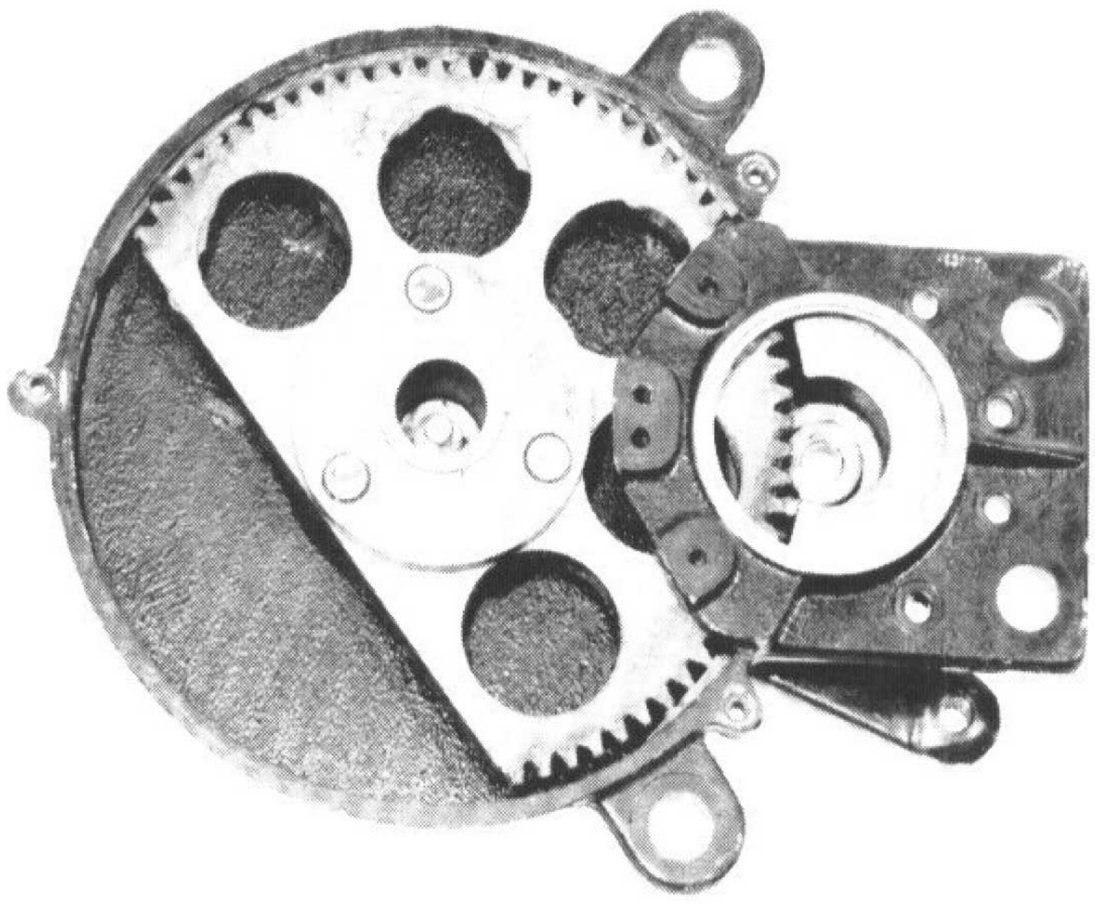
They are accessed by removing the side trim panels.

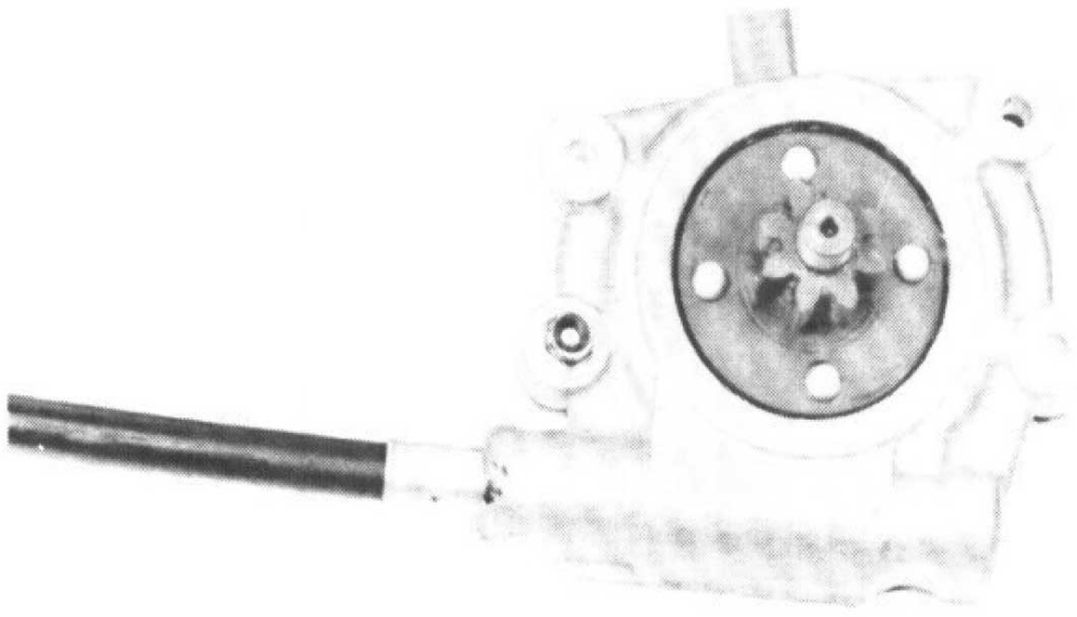
A worm drive is mounted at the back of each swivel gear. The worm transmits drive shaft movement to the ring gear.





A pinion on the ring gear shaft drives the toothed segment of the swivel gear.

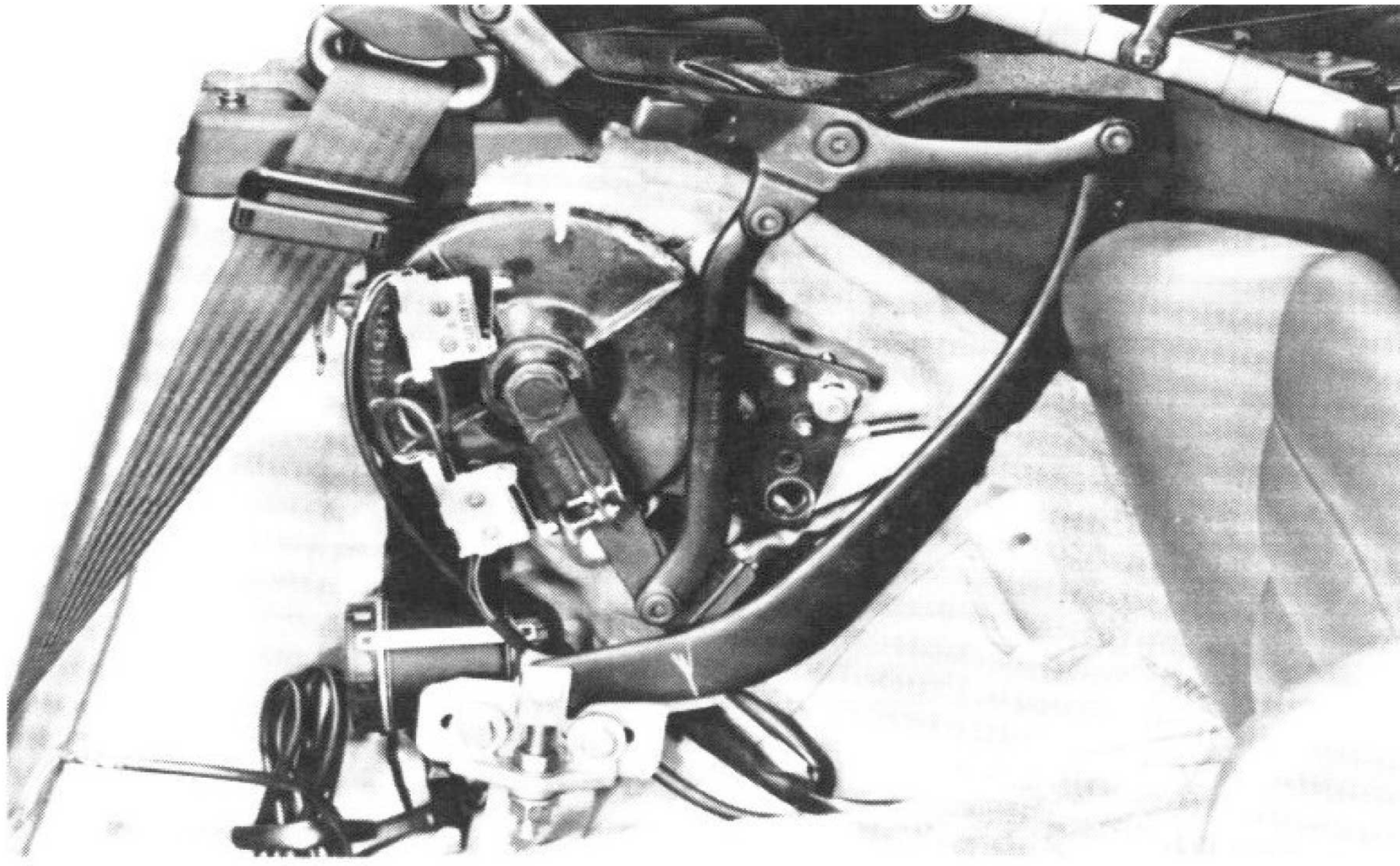




Convertible Top Position Sensor / Switch: Locations

Top Open & Dead Center Switches

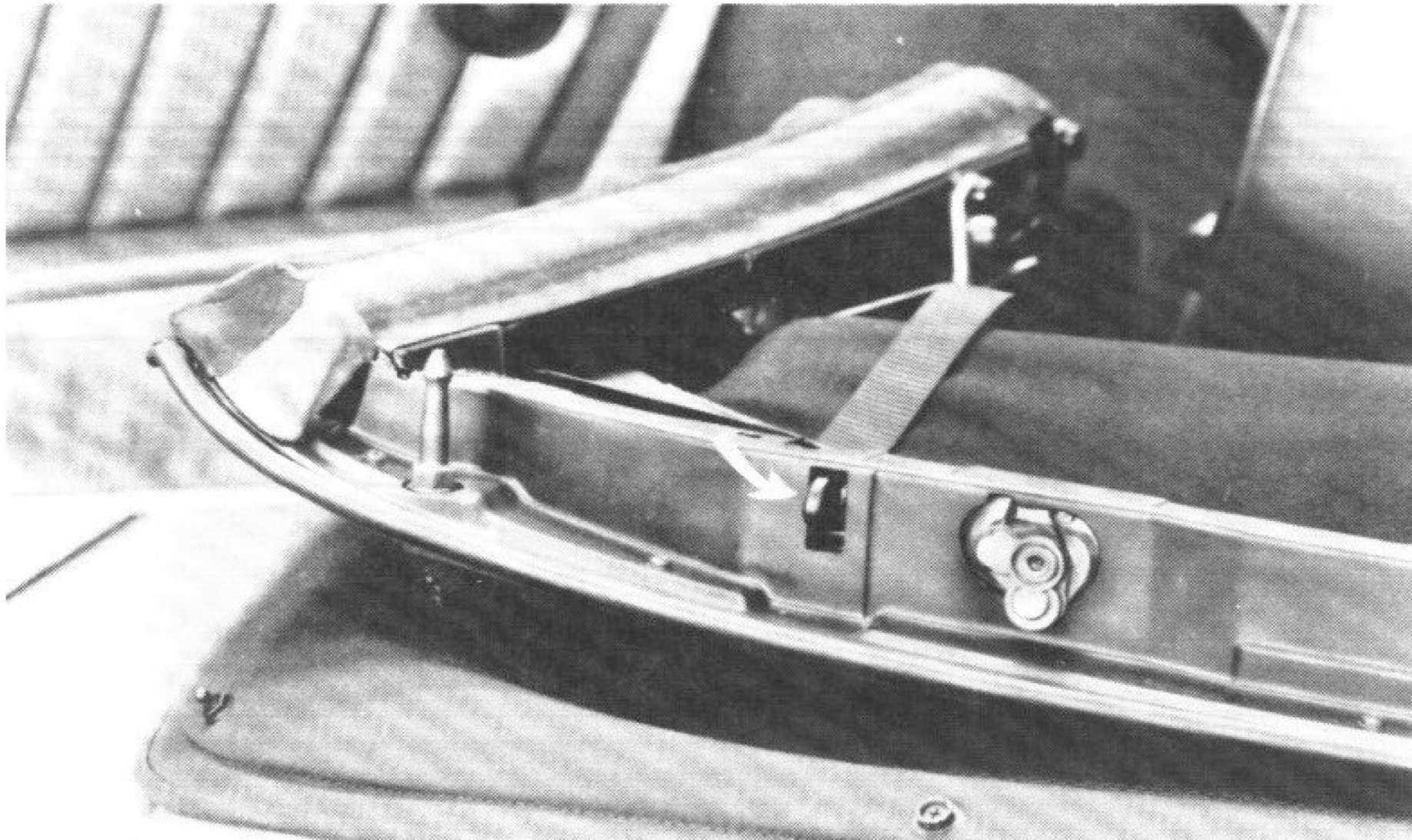
Top gear system microswitch: on gear housing, right side



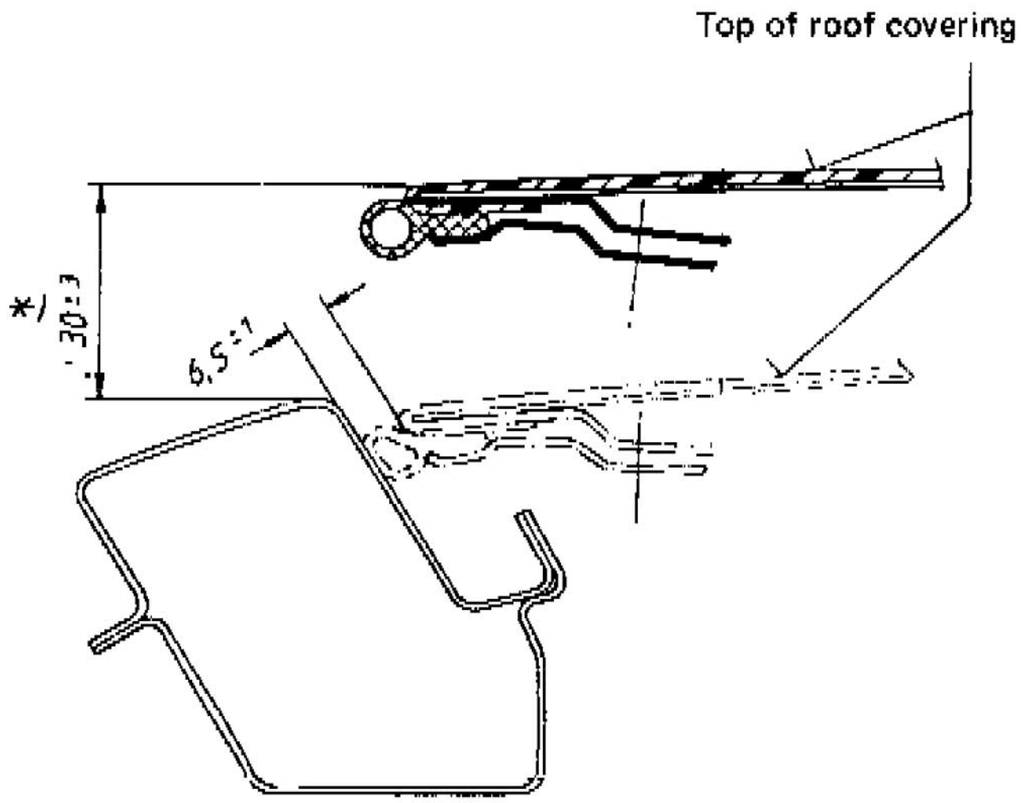
Convertible Top Position Sensor / Switch: Locations

Locking Switches

Top microswitches: adjacent to top locking motors

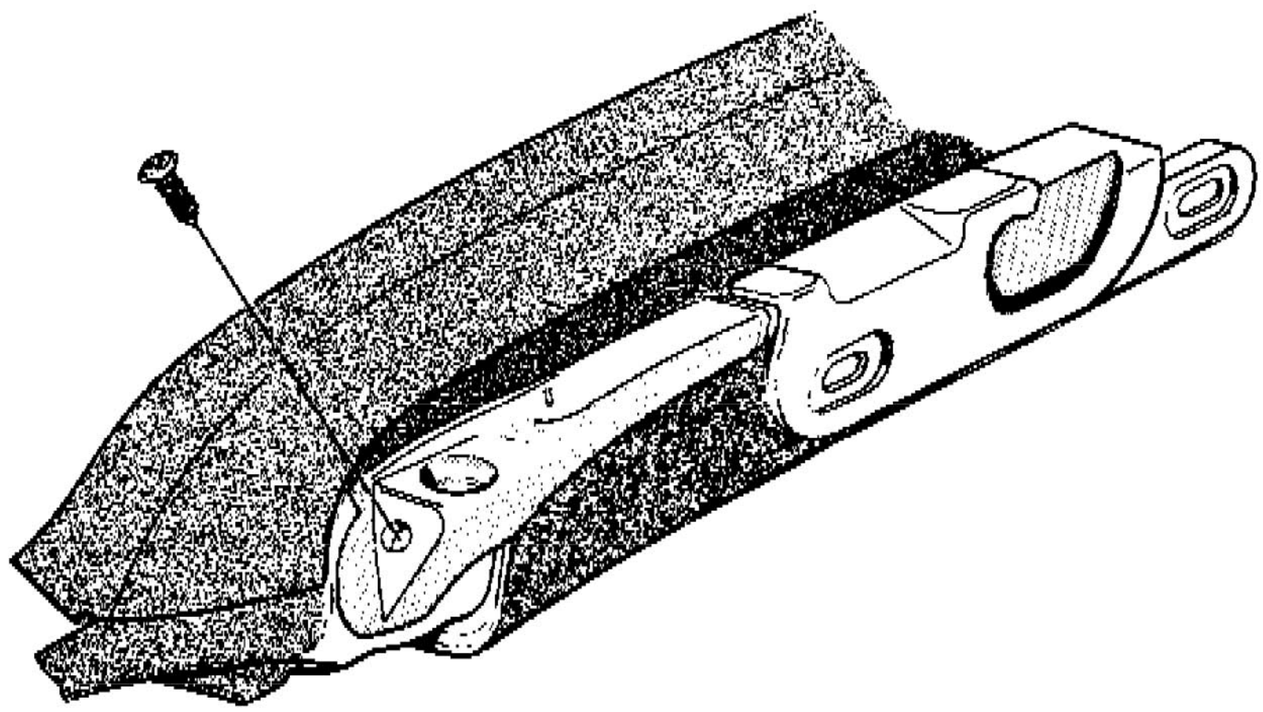


Convertible Top Position Sensor / Switch: Adjustments
Roof Frame Microswitches
ROOF FRAME MICROSWITCHES

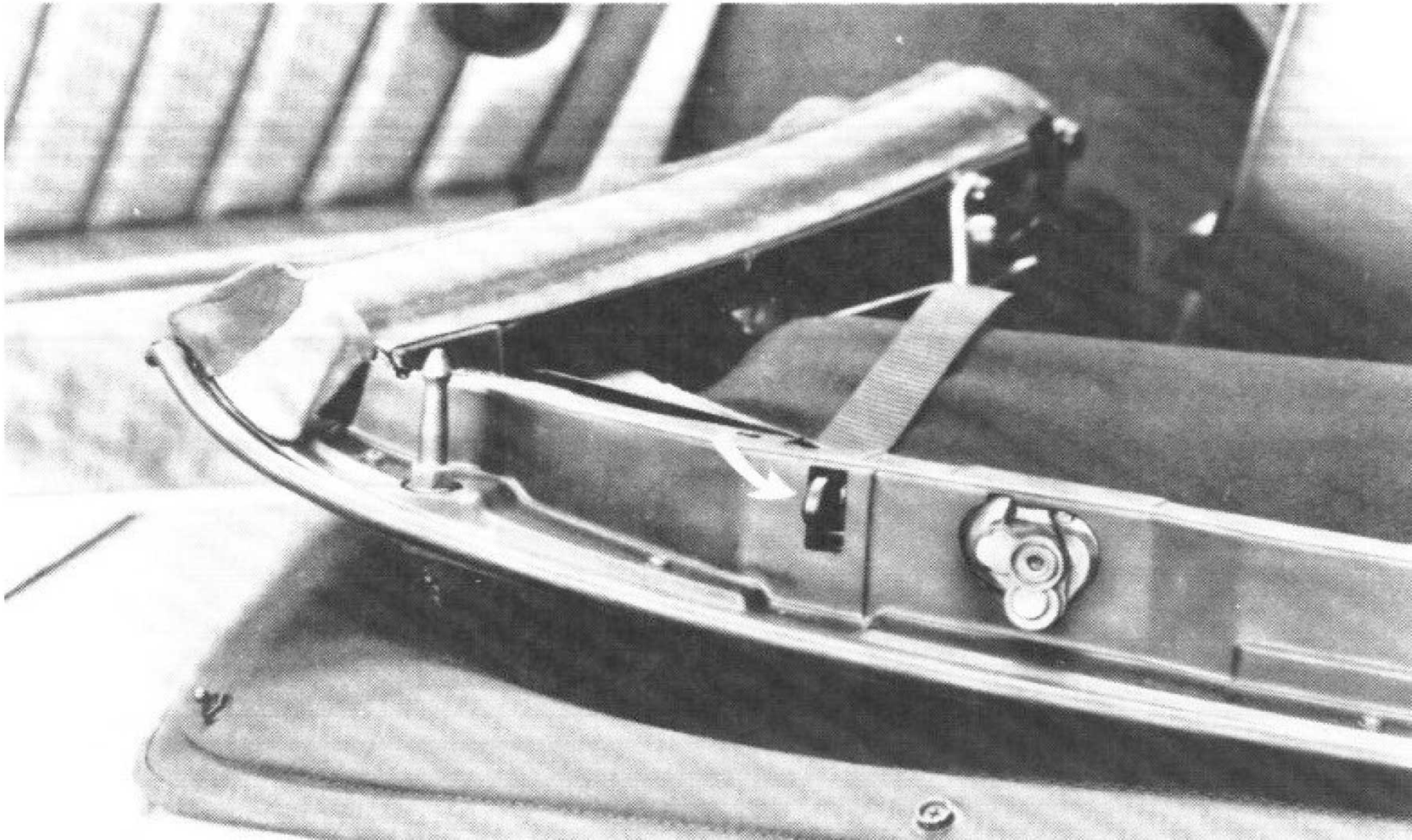


*) = Earliest microswitch closed contact at 33 mm
= Latest microswitch closed contact at 27 mm

To adjust the roof frame micro- switches, the upper edge of the roof frame must be positioned at a distance of 30 + 3 mm from the upper edge of the windshield frame.



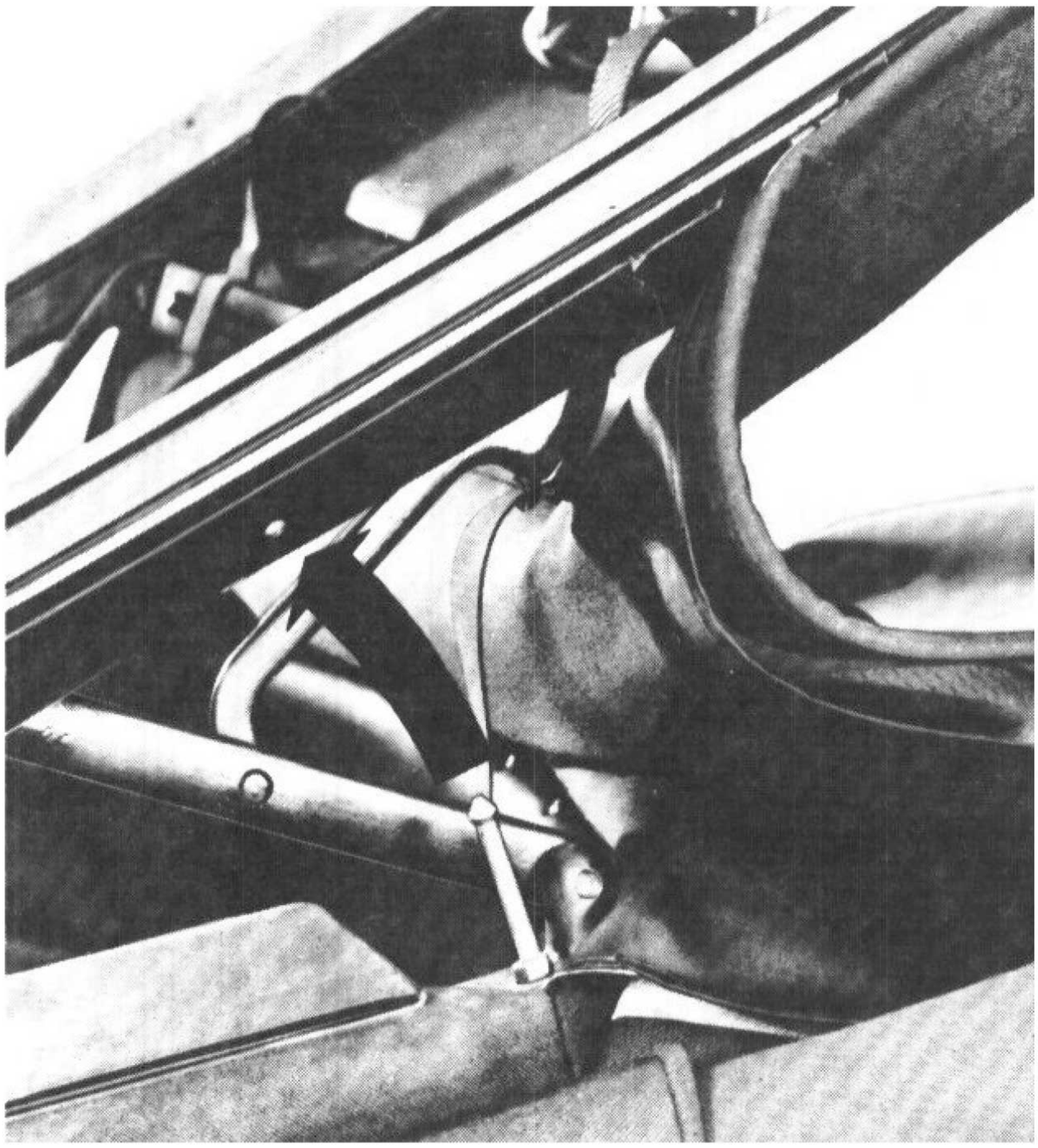
The microswitches should be adjusted so that they touch the sliding block guides at this spacing (30+3 mm).



Convertible Top Position Sensor / Switch: Adjustments

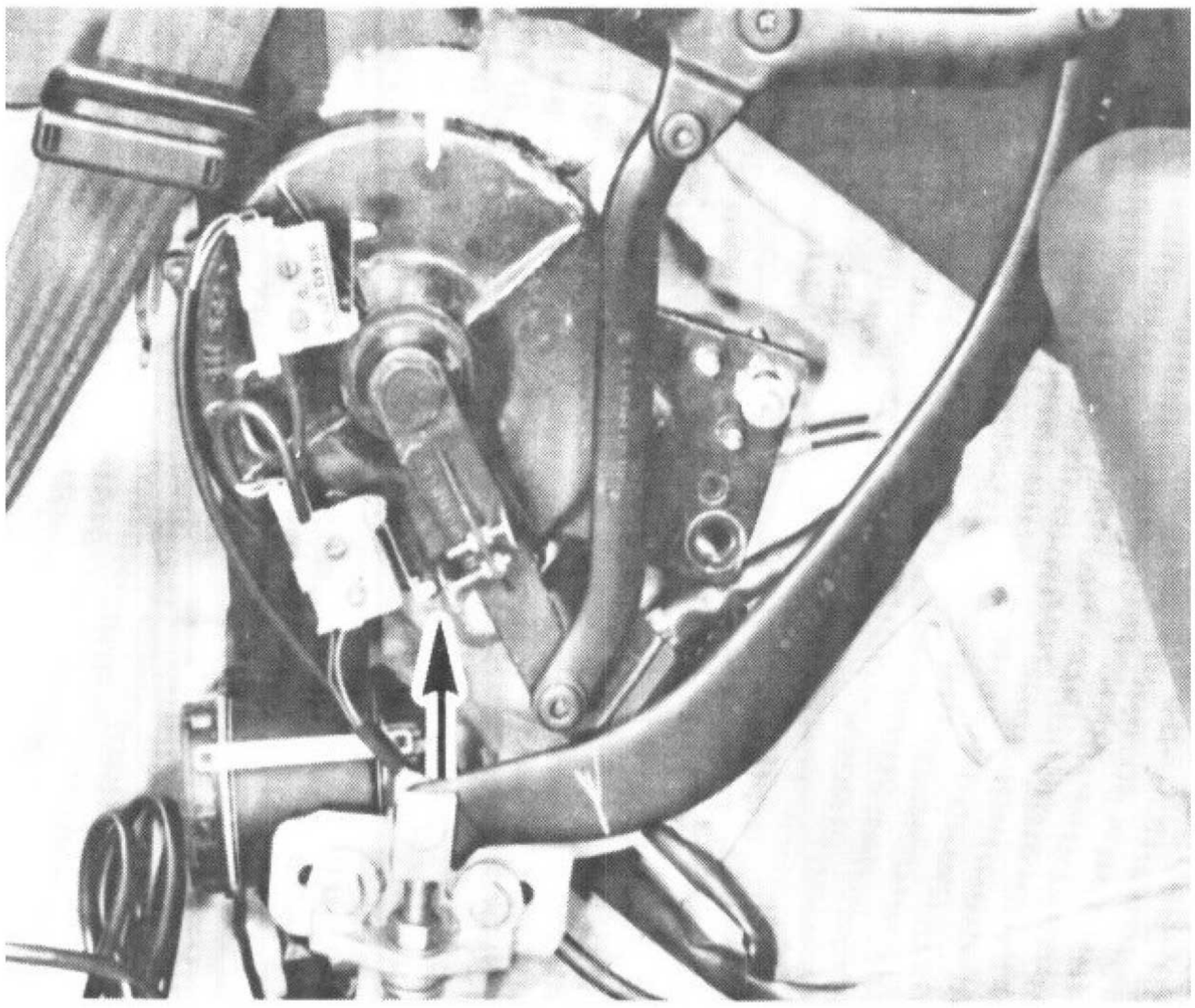
Top Open Microswitch

MICROSWITCH: TOP OPEN



The top has reached its end position at the rear when it locates in the retaining lugs and clicks home.

At this moment the TOP OPEN limit switch is tripped.

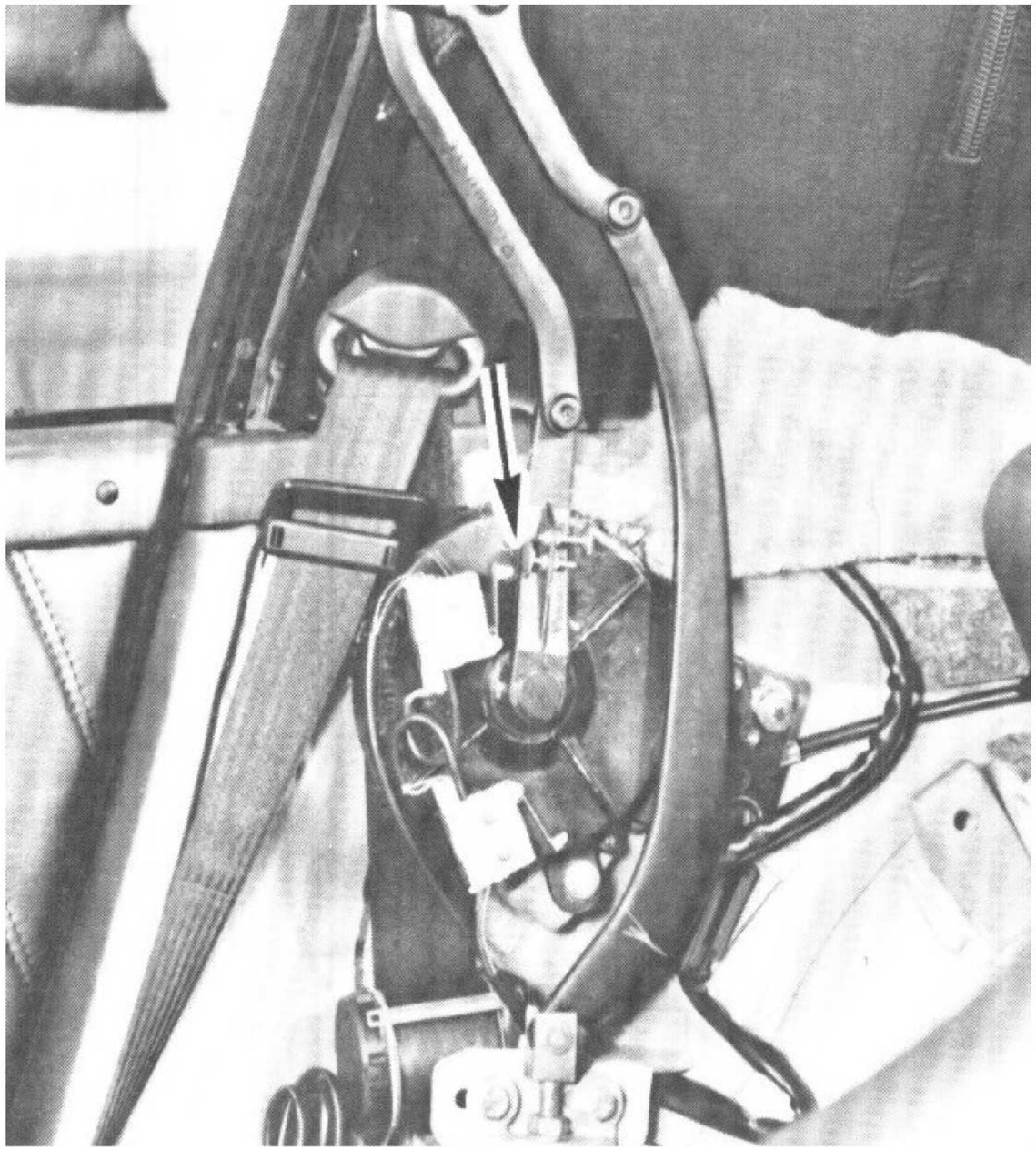


The correct trip setting can be adjusted by means of the adjusting screw on the right steering arm.

Convertible Top Position Sensor / Switch: Adjustments

Dead Center Microswitch

MICROSWITCH: DEAD CENTER



This trip position does not come into effect during normal operation.

Adjustments should be carried out with the top closed. The distance between the adjusting screw on the right-hand steering arm and microswitch must be at least 3 mm.