Part 3: Service Instructions Cl. 975 - 1 - 5

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1. General

These Service Instructions for the **975 - 1 - 5** describe the settings for the sewing unit.

ATTENTION

The tasks described in the Service Instructions may only be carried out by specialists or appropriately trained personnel !

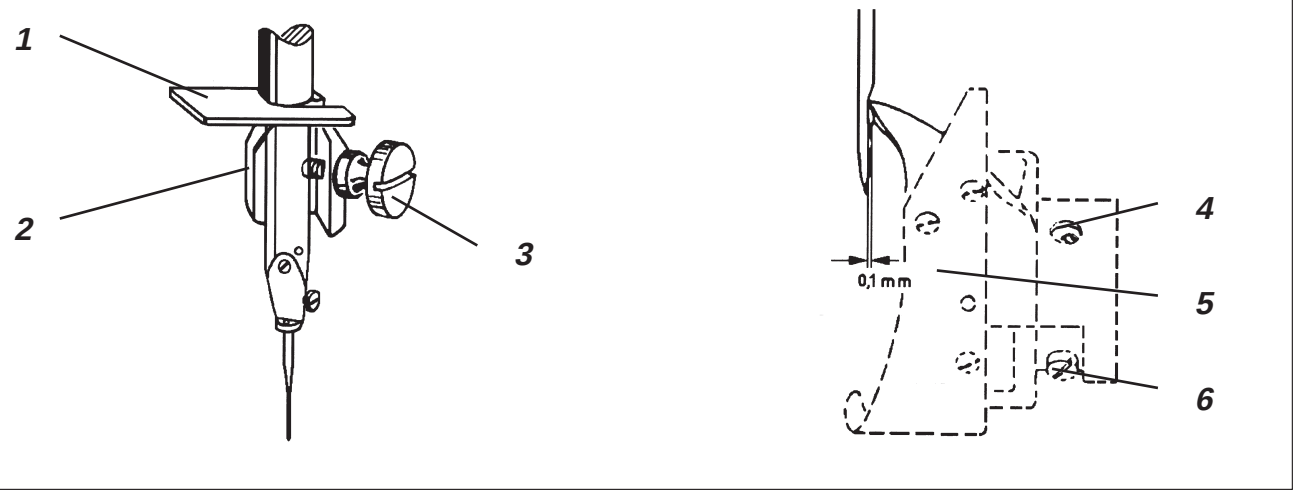
Caution Risk of Injury

During repair, conversion and maintenance work turn the main switch off.

Adjustment work and function testing with the machine running may only be conducted with greatest caution under strictest observence of all safety measures.

2. Machine Head

2.1 Looping Stroke



The looping stroke is the path of the needle bar from lower dead center up to the point where the hook point lies at the center of the needle.

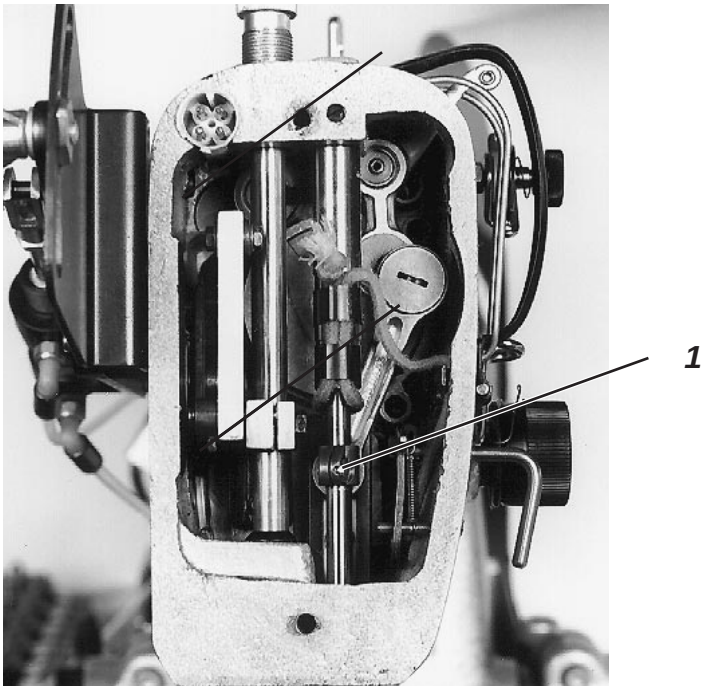
Caution Risk of Injury !

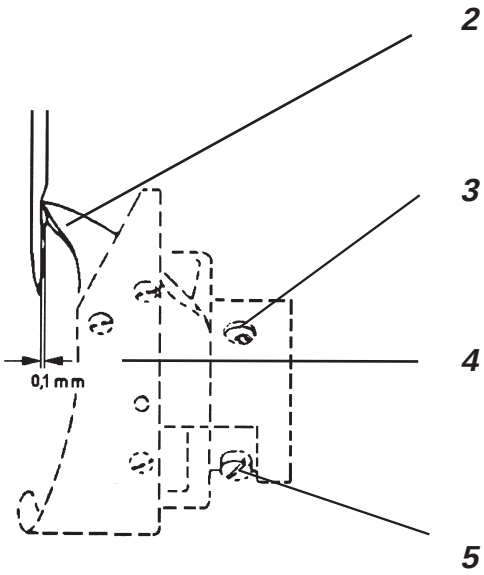
Conduct adjustment work and function testing only with greatest possible caution.

- Lower the sewing head.
  Set the program switch to **44** and press the " **STOP** " key.
  The sewing head is lowered.
- Turn the needle bar into the lowest position with the handwheel.
- With the block 2 press the gauge 1 against the needle bar bushing.
- Tighten screw 3.
- Pull out the gauge and turn the handwheel in the direction of run until the block touches the needle bar bushing.
  In this position the hook point must be at the center of the needle.
- Loosen screws 4 and 6.
- Turn hook 5 on the drive shaft.
- Tighten screws 4 and 6.

Block Order no. : 981 150002
Gauge Order no. : 981 150003

2.2 Needle Bar Height and Clearance of the Hook Point to the Needle





In the looping stroke position the hook point 2 lies at the center of the furrow.

In the looping stroke position the clearance of the hook point to the furrow should be 0.1 mm.

Caution Risk of Injury !

Conduct adjustment work and function testing only with greatest possible caution.

– Lower the sewing head.
  Set the program switch to **44** and press the " **STOP** " key.
  The sewing head is lowered.

Needle bar height

– Bring the needle bar into the looping stroke position with the handwheel.
– Loosen screw 1.
– Move the needle bar.
  The center of the furrow must lie at the hook point 2.
– Tighten screw 1.

Clearance to the hook point

– Loosen screws 3 and 5.
– Axially slide the hook 4 on the shaft.
  The clearance between the hook point and the furrow is 0.1 mm.
  Do not turn the hook.
  Do not push the oil whizzer disk too far to the back.
– Tighten screws 3 and 5.

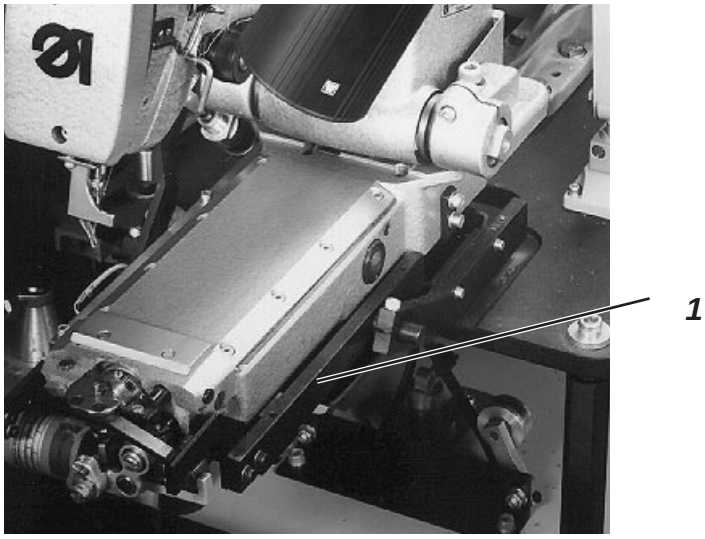
2.3 Needle Plate

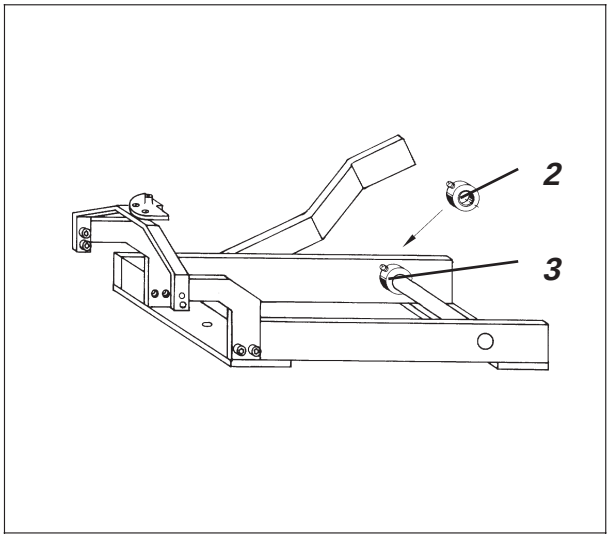
During the sewing sequence the needle plate is always in the upper position.

The needle hole mushroom is bevelled on the inside so that the trim, at the beginning of the sewing procedure, cannot be pushed away and builds no folds.

The functions “ **needle plate up** ” and “ **machine head down** ” are triggered simultaniously. The function “ **needle plate down** ” occurs only after the machine head has left its lower position and operated the valve. With this function sequence, the cut-off end of the needle thread is pulled out of the area of the needle plate before this has a chance to clamp the thread.

2.3.1 Lateral Position of the Needle Plate Carrier





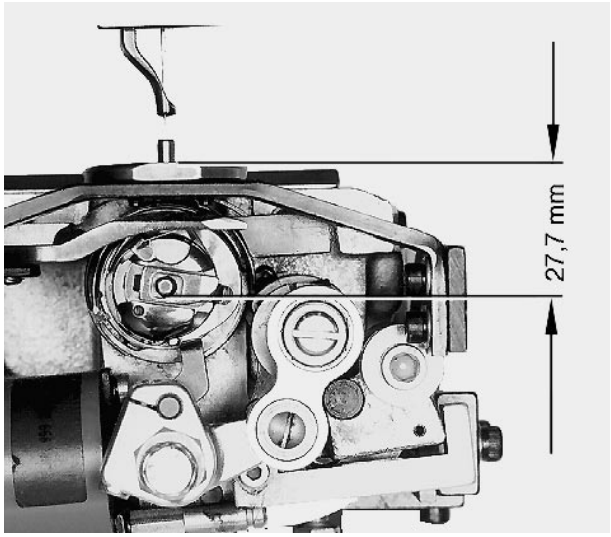
The needle should enter the needle hole of the raised needle plate centered.

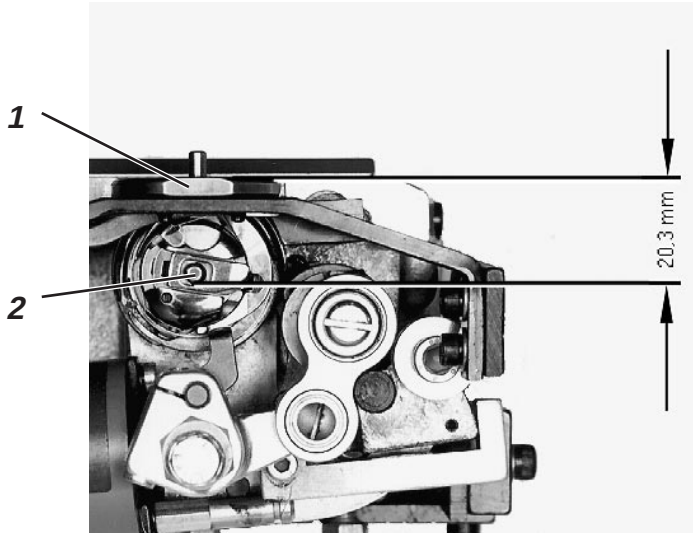
Caution Risk of Injury !

Turn the main switch off.
Adjust the position only with the sewing unit turned off.

- Remove the oilpan.
- Loosen the set collars 2 and 3 on the left side the shaft.
- Align the needle plate carrier 1 sideways.
  The needle hole must lie centered under the needle.
- Place the set collars 2 and 3 tight and tighten the screws.
- Attach the oilpan again.

2.3.2 Upper and Lower Position of the Needle Plate Carrier



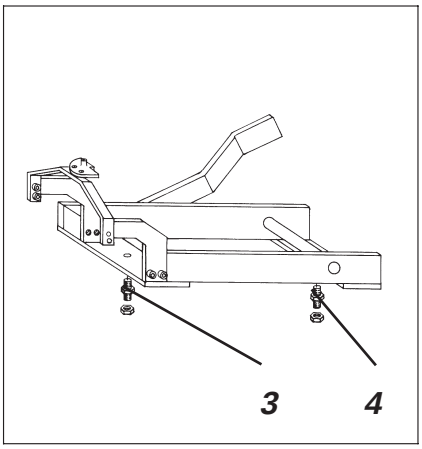


In the **upper position** there is a clearance of 27.7 mm between the upper edge the needle plate 1 and the lower edge of the pin 2.

In the **lower position** there is a clearance of 20.3 mm between the upper edge the needle plate 1 and the lower edge of the pin 2.

Caution Risk of Injury !

Conduct adjustment work and function testing only with greatest possible caution.



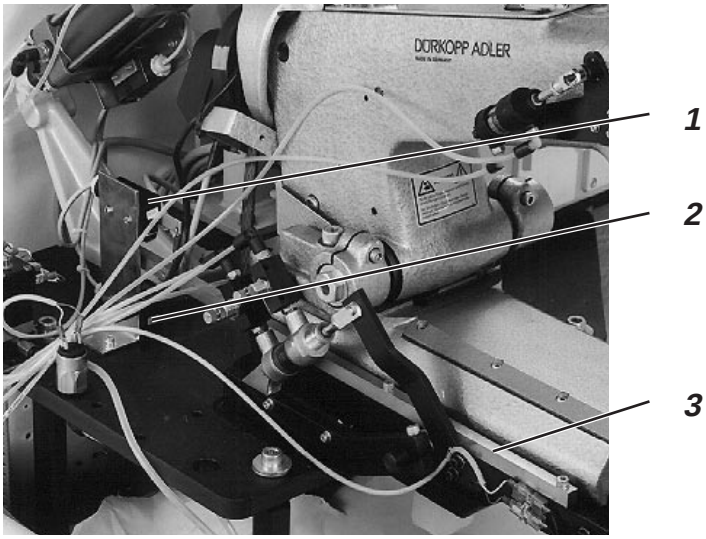
Upper Position

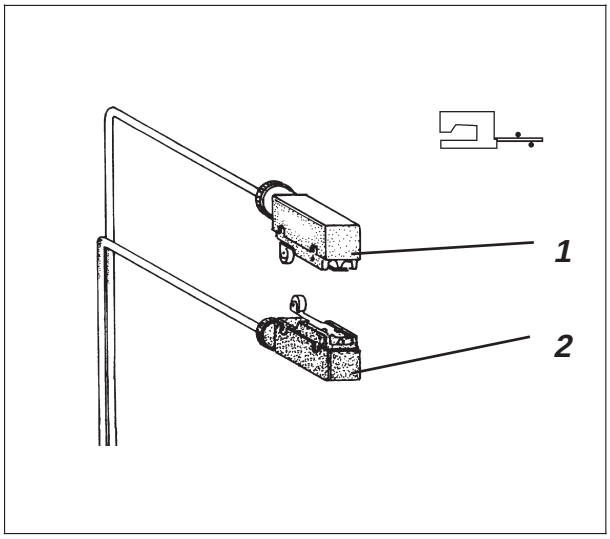
- Lower the sewing head.
  Set the program switch to **44** and press the " **STOP** " key.
  The sewing head is lowered.
- Loosen the lock nut and adjust the stop screw 3.
  The clearance between the upper edge of the needle plate 1 and the lower edge of the pin 2 is 27.7 mm.
- Tighten the lock nut.

Lower Position

- Remove the oilpan.
- Set the program switch to **44** and press the " **STOP** " key. The sewing head is lowered and the needle plate and pressure foot are raised.
- Press the " **START** " key.
  With the " Σ " key the sewing head can now be raised and lowered again as often as desired.
- Loosen the lock nut and adjust the stop screw 4.
  The clearance between the upper edge of the needle plate 1 and the lower edge of the pin 2 is 20.3 mm.
  The hook must run through freely under the needle plate.
- Tighten the lock nut.
- Attach the oilpan again.

2.3.3 Timing of the Switch Operation





In the upper position of the needle plate switch 2 (b20) should be triggered by the strip 3.

In the lower position of the needle plate switch 1 (b19) should be triggered by the strip 3.

Caution Risk of Injury !

Conduct adjustment work and function testing only with greatest possible caution.

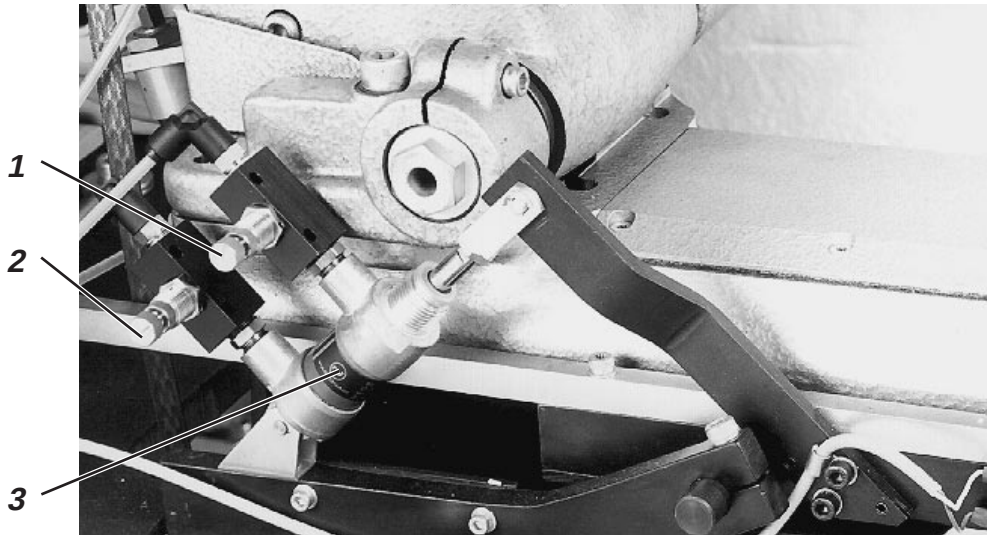
Upper position switch

- Set the program switch to **63** and press the " **STOP** " key.
- Set the program switch to **20**.
- Bring the needle plate manually into the lower position.
  The display must show "- **b20** ".
  If not, the switch position must be corrected.

Lower position switch

- Set the program switch to **63** and press the " **STOP** " key.
- Set the program switch to **19**.
- Bring the needle plate manually into the upper position.
  The Display must show "**- b19** ".
  If not, the switch position must be corrected.

2.3.4 Speed of “ Needle Plate Up and Down ”



The needle plate is brought into the upper or lower position by cylinder 3.

Caution Risk of Injury !

Conduct adjustment work and function testing only with greatest possible caution.

“ Needle plate up ” speed

– Set the throttle 1.
– Conduct a function test.

Set the program switch to **44** and press the “ **STOP** ” key. The sewing head is lowered and the needle plate and pressure foot raised.
Press the “ **START** ” key.
With the “ Σ ” key the sewing head, needle plate and pressure foot can now be raised and lowered again as often as desired.
The needle plate should move up quickly, but not with a jerk.
If not, then the throttle 1 must be set again.

“ Needle plate down ” speed

– Set the throttle 2.
– Conduct a function test.

Set the program switch to **44** and press the “ **STOP** ” key. The sewing head, the needle plate and the presser foot will be lowered.
Press the “ **START** ” key.
With the “ Σ ” key the sewing head, needle plate and presser foot can now be raised and lowered again as often as desired.
The needle plate should move down quickly, but not with a jerk.
If not, then the throttle 2 must be set again.

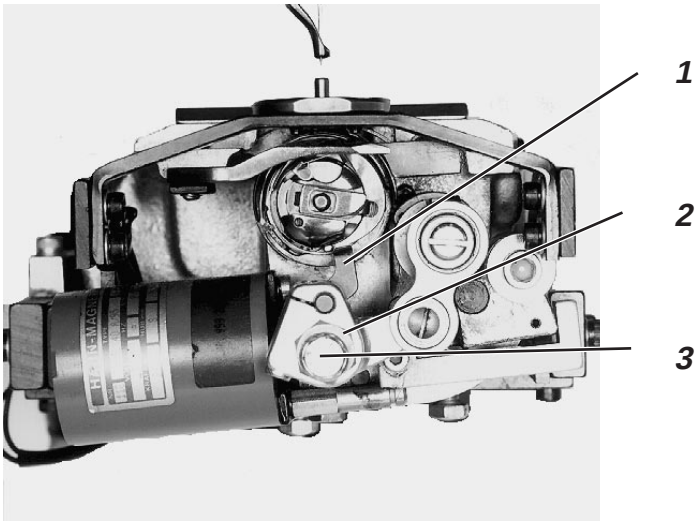
2.4 Bobbin Case Opener

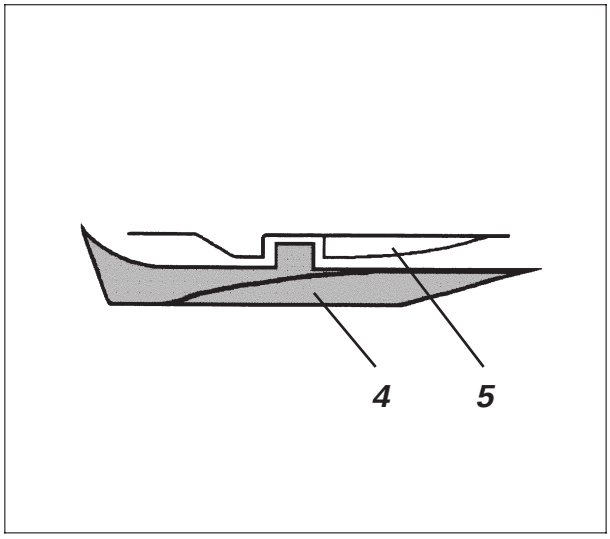
The thread lever must pull the thread through between the middle piece 5 and its holder 4.
In order for this procedure to occur unimpaired, the middle piece must at this moment be opened by the bobbin case opener.
This allows the desired seam formation to be achieved with the lowest possible thread tension.

False setting can have the following effects:

- Thread breakage.
- Eyes on the reverse of the cloth.
- Loud noises.

2.4.1 Height of the Finger





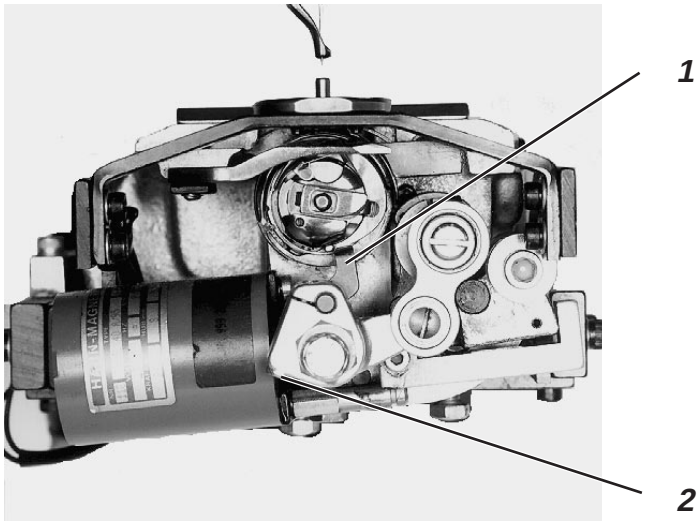
The finger 1 should be at the same height as the nose of the middle piece.

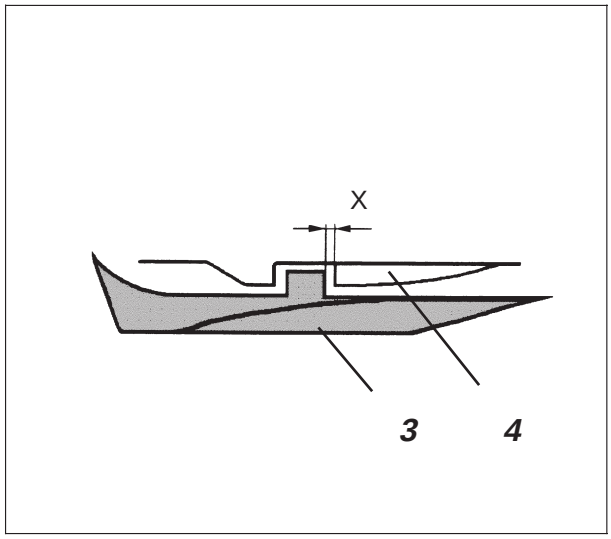
Caution Risk of Injury !

Conduct adjustment work and function testing only with greatest possible caution.

- Lower the sewing head.
  Set the program switch to **44** and press the " **STOP** " key.
  The sewing head is lowered and the needle plate and pressure foot raised.
- Loosen the screw 2.
- Turn the eccentric 3.
- Tighten screw 2.

2.4.2 Size of the Opening Gap (Position of the Finger Run) and Finger Depth





The gap x between the opened middle piece 4 and its holder 3 should be appropriate for the thickness the thread to be sewn.

The finger should have a clearance of approx. 0.6 mm to the middle piece.
At this clearance the thread can slip through unhindered between the finger and middle piece.

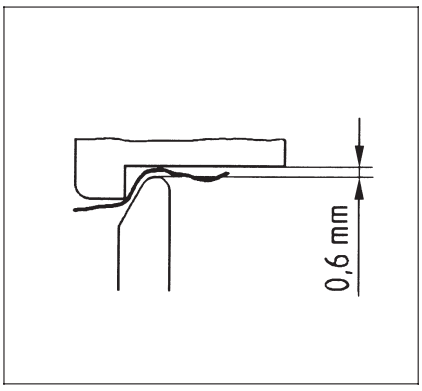
Caution Risk of Injury !

Conduct adjustment work and function testing only with greatest possible caution.

– Lower the sewing head.
  Set the program switch to **44** and press the " **STOP** " key.
  The sewing head is lowered and the needle plate and pressure foot raised.

Opening gap

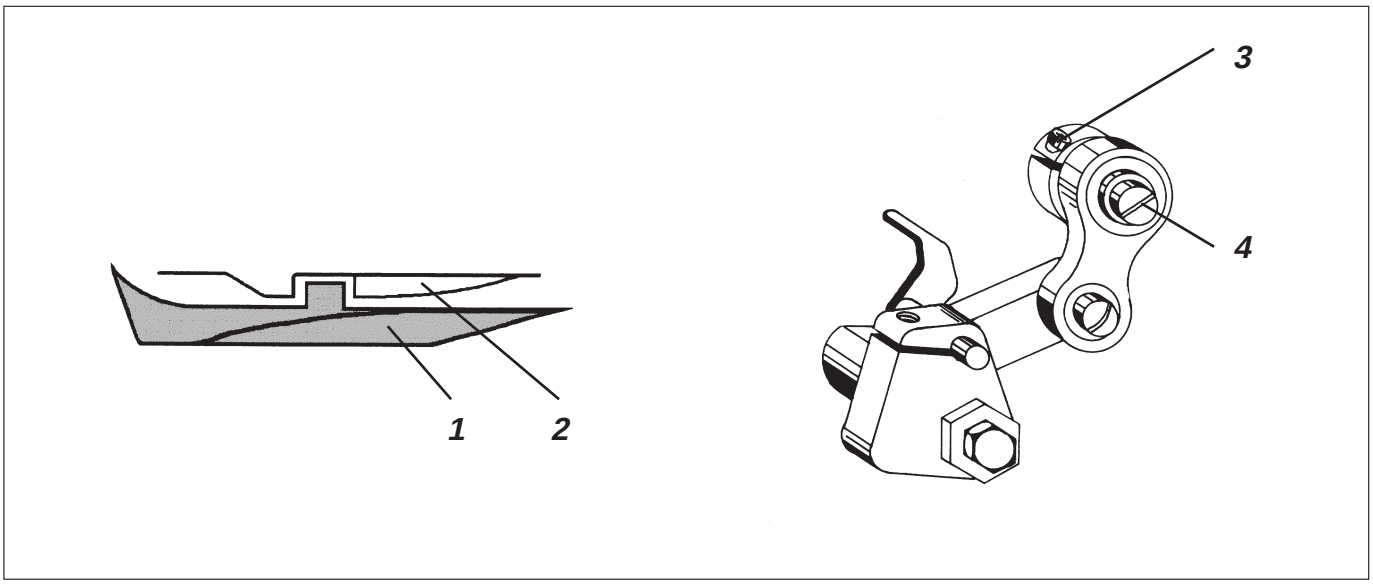
– Loosen screw 2.
– Alter the position of the finger 1.
– Tighten screw 2.



Depth

– Loosen screw 2.
– Alter the depth of the finger 1.
  The gap between the middle piece and the finger must be 0.6 mm.
– Tighten screw 2.

2.4.3 Timing the Opening



The middle piece should be opened at the moment the thread slips through between the middle piece 2 and its holder 1.

Caution Risk of Injury !

Conduct adjustment work and function testing only with greatest possible caution.

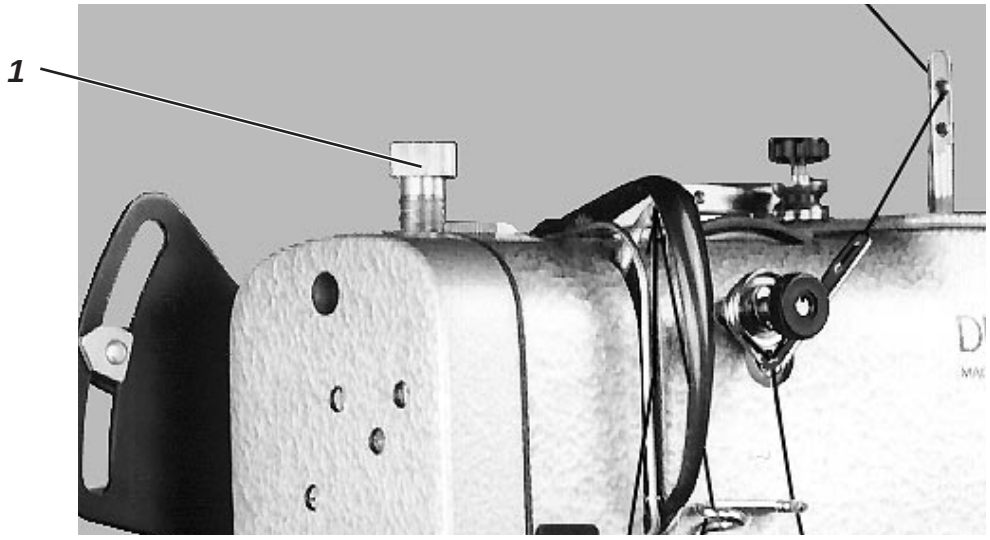
- Lower the sewing head.
  Set the program switch to **44** and press the " **STOP "** key.
  The sewing head is lowered and the needle plate and pressure foot raised.
- Loosen screw 3.
- With the handwheel bring the needle bar 1 mm behind the upper dead center (seen in the direction of run).
- Turn eccentric 4 until the finger is at the forward reversing point.
  The middle piece 2 must be completely open.
- Tighten screw 3.

2.5 Pressure Foot

In the cross seam the opened beard clamp can no longer clamp the material. In order to avoid missing stitches the pressure foot is lowered.

The lowering of the pressure foot occurs at the same time as the opening of the beard clamp.

2.5.1 Pressure Foot Pressure



The pressure foot should follow the triggering mechanism during the downward movement.

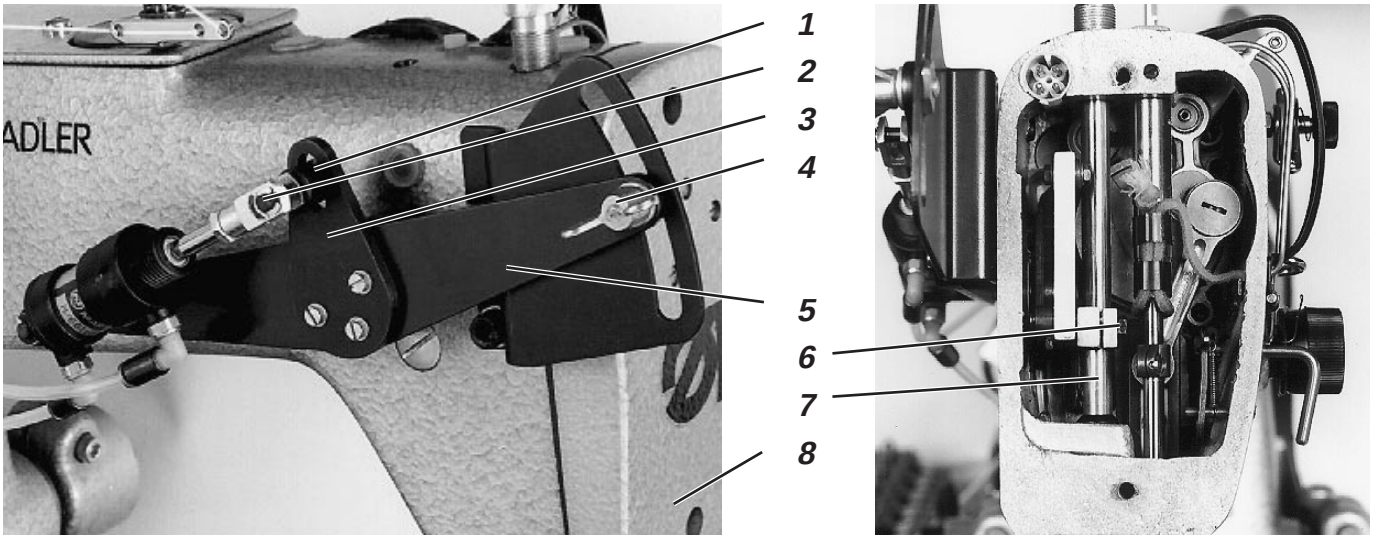
Too low pressure foot pressure can lead to missing stitches.

Caution Risk of Injury !

Turn the main switch off.
Adjust pressure foot pressure only with the sewing unit turned off.

– Set the pressure foot pressure with screw 1.

2.5.2 Height Adjustment Range



When the lowest stroke position is in effect the pressure foot at the lower dead center should have a clearance of 2.5 mm to the needle hole mushroom.

Caution Risk of Injury !

Conduct adjustment work and function testing only with greatest possible caution.

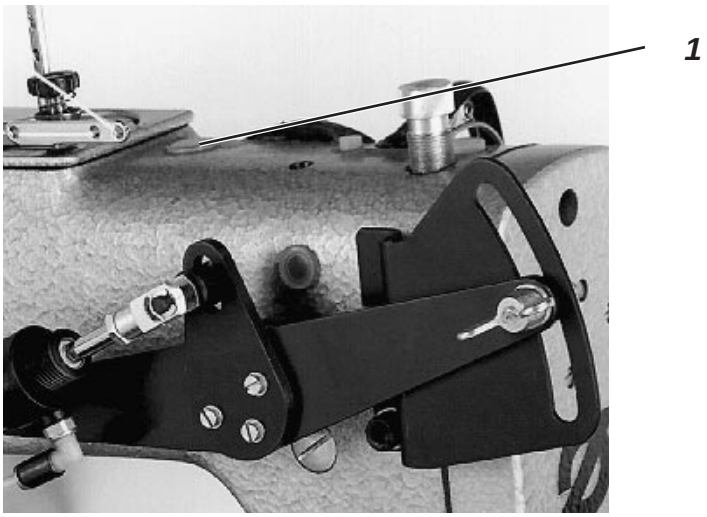
- Lower the sewing head.
  Set the program switch to **44** and press the " **STOP** " key.
  The sewing head is lowered and the needle plate and pressure foot raised.
- Loosen the wing nut 4 and arrest the lever 5 in the lowest position.
- Loosen nut 1.
- Press bolt 2 down to the end of the slot.
- Tighten nut 1.
- Pull lever 3 forward until the piston rod of the cylinder is run out completely.
- With the handwheel bring the pressure foot into the low position.

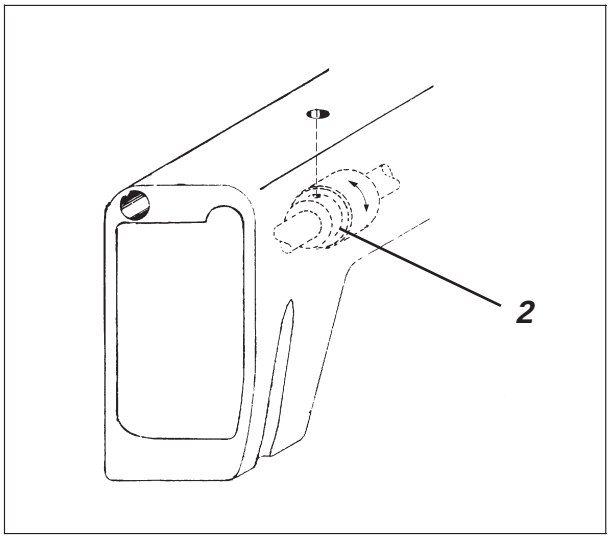
- Screw off the head cover 8.
- Loosen screw 6.
- Set the presser bar 7.
  The clearance between the pressure foot and the needle hole mushroom must be 2.5 mm.
- Tighten screw 6.
- Screw the head cover 8 on again.

ATTENTION !

After setting the height adjustment range set the pressure foot stroke position (see Operating Instructions).

2.5.3 Timing of the Pressure Foot Movement





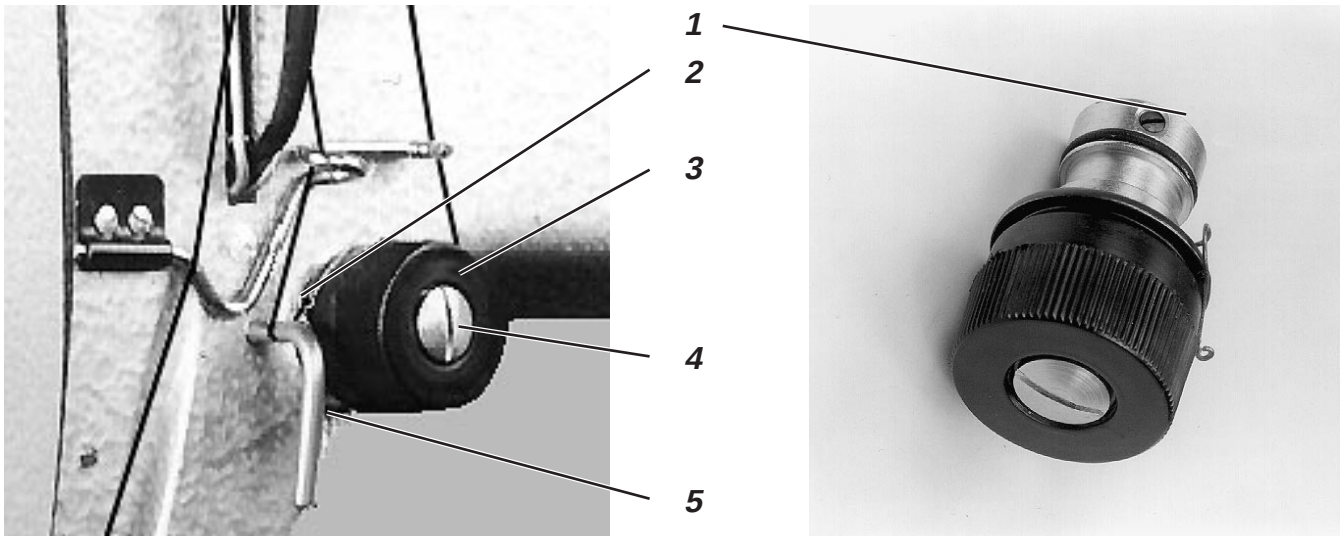
The pressure foot should reach lower dead center together with the needle bar. The upward movement of the pressure foot begins only after the looping stroke.

Caution Risk of Injury !

Conduct adjustment work and function testing only with greatest possible caution.

- Lower the sewing head.
  Set the program switch to **44** and press the " **STOP** " key.
  The sewing head is lowered and the needle plate and pressure foot raised.
- Remove plug 1.
- Loosen both screws on the stroke eccentric.
- Turn the stroke eccentric 2 on the shaft.
  The axial position may not be changed.
- Tighten both screws on the stroke eccentric again.
- Insert plug 1 again.

2.6 Thread Controller Spring



The thread controller spring 2 should have just reached its lowest position when the needle has entered the cloth up to the eye.

Caution Risk of Injury !

Turn the main switch off.
Set the thread controller spring only with the sewing unit turned off.

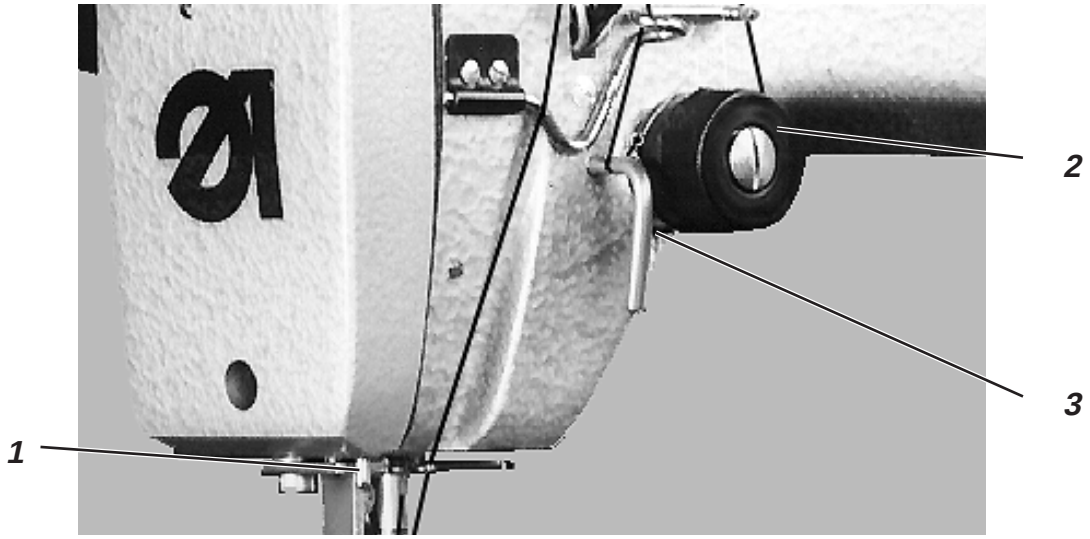
Run

- Turn the handwheel until the needle has entered the cloth up to the eye.
- Loosen screw 5.
- With the bolt 4 turn the whole thread tension unit 3.
  The thread controller spring 2 must just have reached its lowest position.
- Tighten screw 5 again.

Tension

- Loosen screw 5.
- Pull the thread tension unit 3 out.
- Loosen screw 1.
- Adjust bolt 4.
- Tighten screw 1 again.
- Reinsert the thread tension unit 3 again.
- Tighten screw 5 again.

2.7 Thread Tension Opening



The thread tension opening occurs during the trimming sequence via the magnet in the head cover or manually by pressing the pin 1.

Caution Risk of Injury !

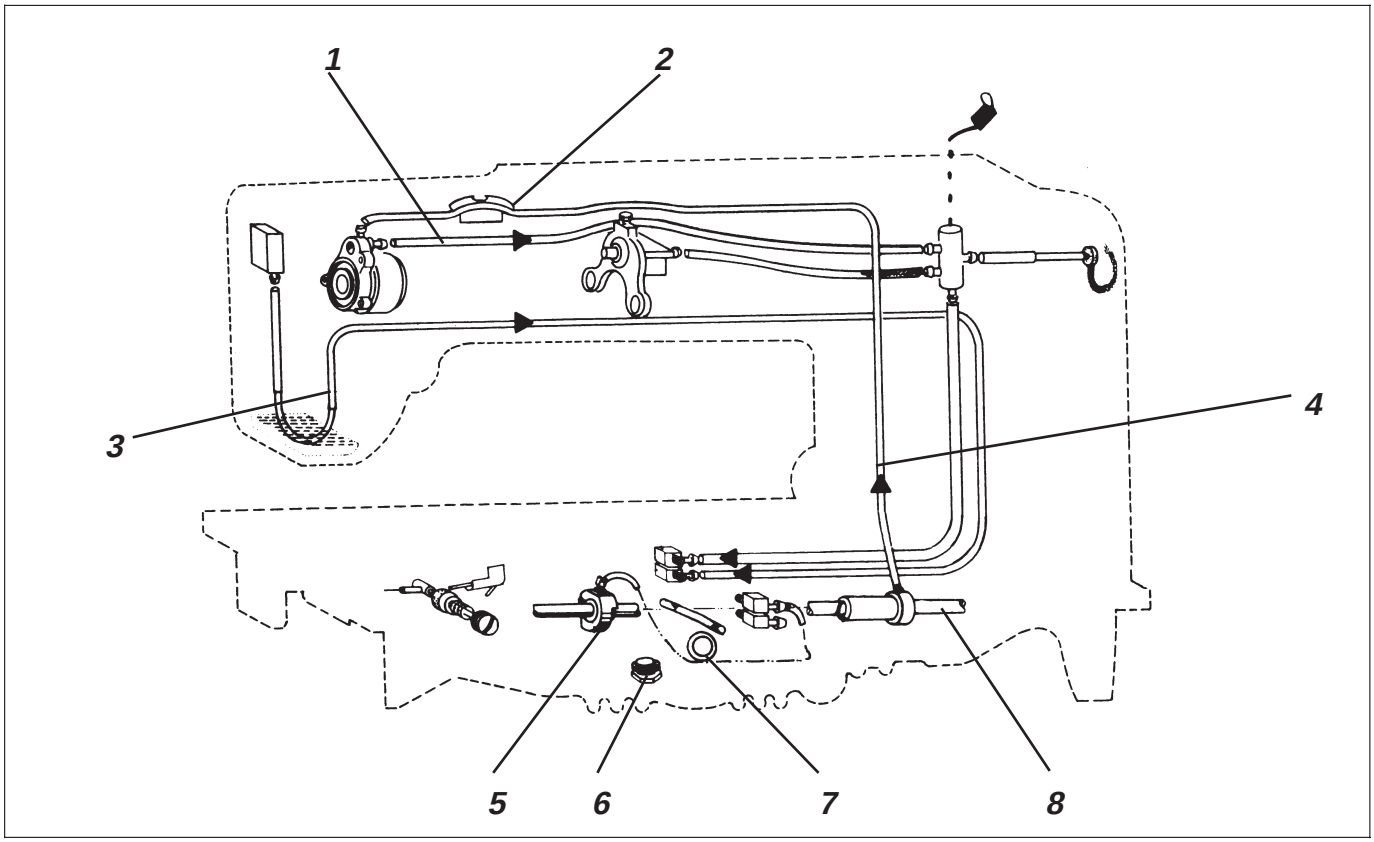
Turn the main switch off.
Set the thread tension opening only with the sewing unit turned off.
Conduct a function test only with the greatest possible caution.

– Loosen screw 3.
– Displace the thread tension unit 2 axially.
With pin 1 pressed in the thread must be able to be manually pulled unhindered through the opened tension.
– Tighten screw 3 again.

Function test

– Turn the main switch on.
– Set the program switch to **64** and press the “ **STOP** ” key.
Set the program switch to **9**.
– Press the “ **O** ” key.
The tread tension unit is opened by the magnet.
The thread must be able to be manually pulled unhindered through the opened tension.

2.8 Lubrication



Oil feed to the sewing head

The hook drive shaft 8 feeds the oil from the pan through the tube 4 to the sewing head via spiral grooves . The window 2 over the tube makes possible a check of the oil feed. A part of the oil fed to the sewing head is used for the lubrication of the mechanical parts in the sewing head. The other part of the oil runs through the tube 1 to the filler neck. From here the arm shaft bearings and the foot stroke mechanism are lubricated via wicks.

Oil return from the sewing head

The oil spun off in the sewing head collects in the lower part of the sewing head where there is also the suction tube 3 with the metal filter. Via this tube the pump 5 on the hook drive shaft sucks the oil back again.

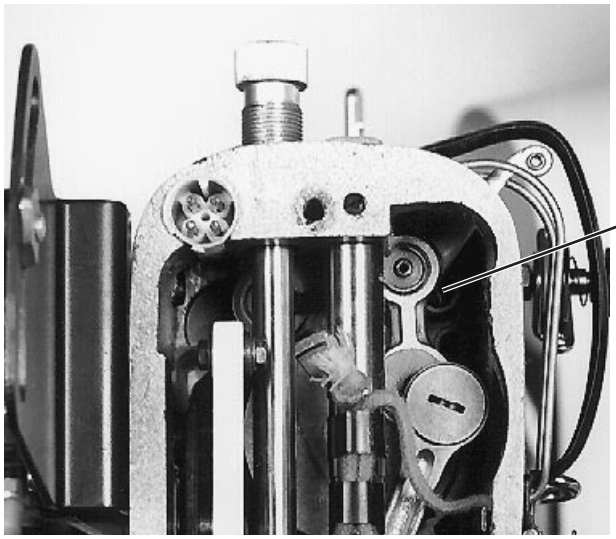
Oil feed to the hook

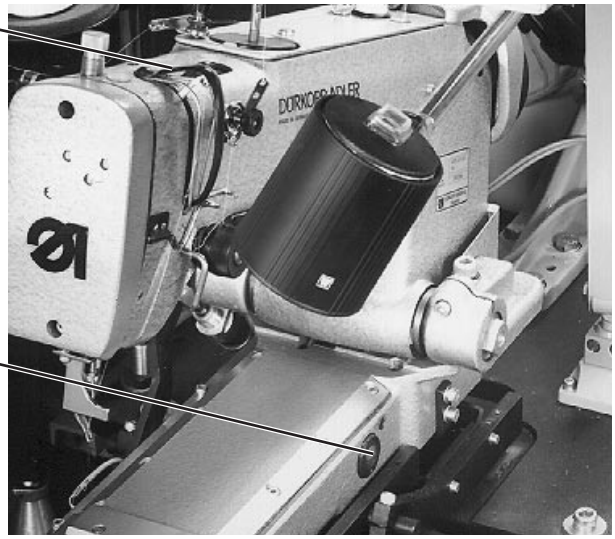
Along with the oil from the sewing head the pump 5 also sucks oil out of the oilpan. This oil reaches the pump via a tube. A rubber gasket prevents the tube end from lying directly on the bottom of the oilpan. This avoids dirt particles from being sucked in which could block the channel to the hook.
The pump transports the sucked-in oil through a pressure tube in a channel. From here the oil reaches the hook via the oil whizzer disk. The oil not required for lubrication of the hook flows off beforehand through a hole in the pressure tube.

6 = Oil drain screw

7 = Viewing glass

2.8.1 Regulating the Lubrication





Caution Risk of Injury !

Regulating the lubrication and checking are only to be conducted with greatest possible caution.

Checking the oil level and the oil feed

- Turn the sewing unit off and wait until the oil has collected.
  The viewing glass 3 must be half filled.
  If not, then fill **ESSO SP-NK 10** oil up to the top edge of the viewing glass.
- Turn the sewing unit on.
  At the window 1 check if enough oil is being fed to the sewing head.

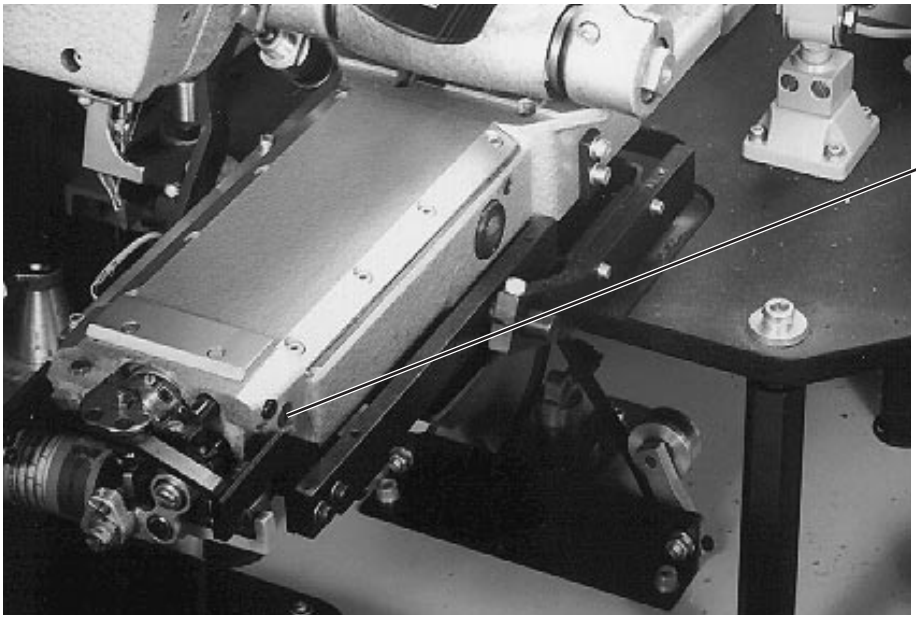
Regulating the sewing head lubrication

The set oil quantity should be considerably greater than the actually required oil quantity. The pump sucks the oil from the lowest point of the head back into the pan again.

- Screw the head cover off.
- Turn screw 2 completely in and then loosen by approx. 1/2 of a turn.
- Let the sewing unit run approx. 2 minutes.
- Hold a piece of paper between the presser bar and the cast wall.
- Let the sewing unit run at intervals and check if sufficient oil is being spun onto the paper.
  If not, then adjust screw 2 accordingly.

  Increase the quantity of oil = Turn screw 2 to the left
  Decrease the quantity of oil = Turn screw 2 to the right.

Continued on the next page !



Caution Risk of Injury !

Regulating the lubrication and checking are to be conducted only with the greatest caution.

Regulating the hook lubrication

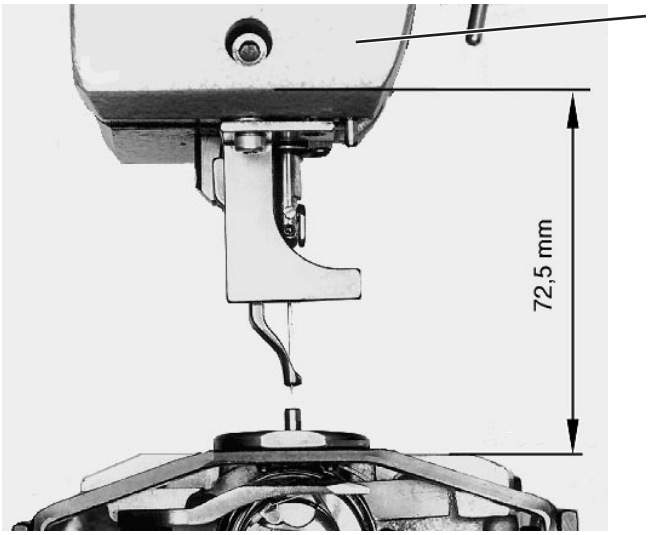
The hook can only be lubricated if the oil whizzer disk is in the shell area of the hook. The hook should be safely lubricated with a smallest possible amount of oil so that a little oil as possible is consumed.

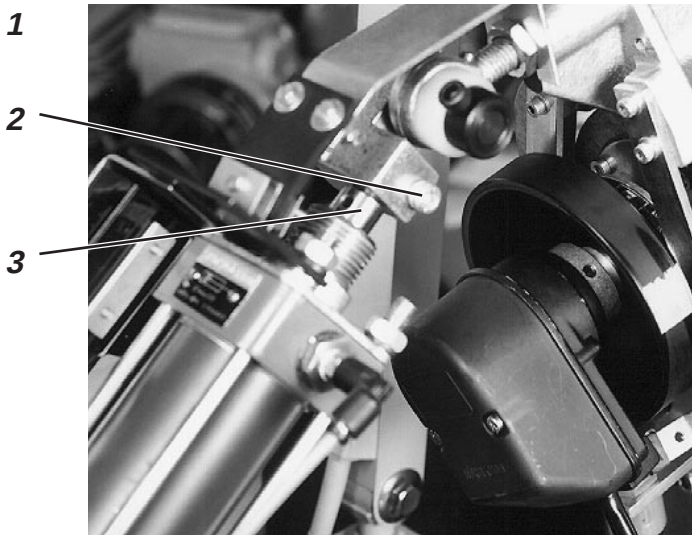
- Turn screw 1 completely in and then loosen by approx. 1/8 turn.
- Let the sewing unit run approx. 2 minutes.
- Hold a piece of paper under the hook.
- Let the sewing unit run at intervals and check if sufficient oil is being spun off onto the paper.
  If not, then adjust screw 1 accordingly.

  Increase the quantity of oil = Turn screw 1 to the left
  Decrease the quantity of oil = Turn screw 1 to the right.

2.9 Sewing Arm

2.9.1 Position of the Sewing Arm

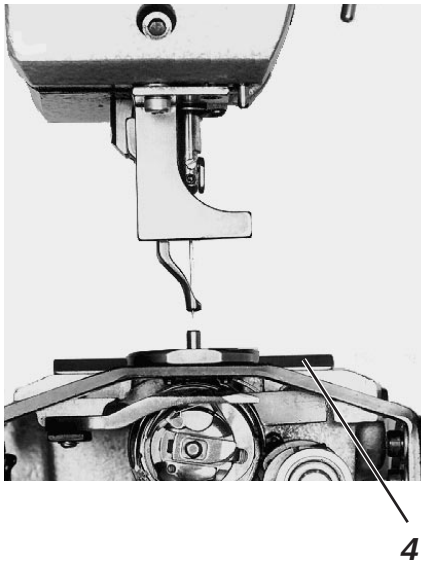




With lowered sewing arm 1 the clearance between the milled bottom of the sewing arm and the lower arm surface should be 72.5 mm.

Caution Risk of Injury !

Conduct adjustment work and function testing only with greatest possible caution.



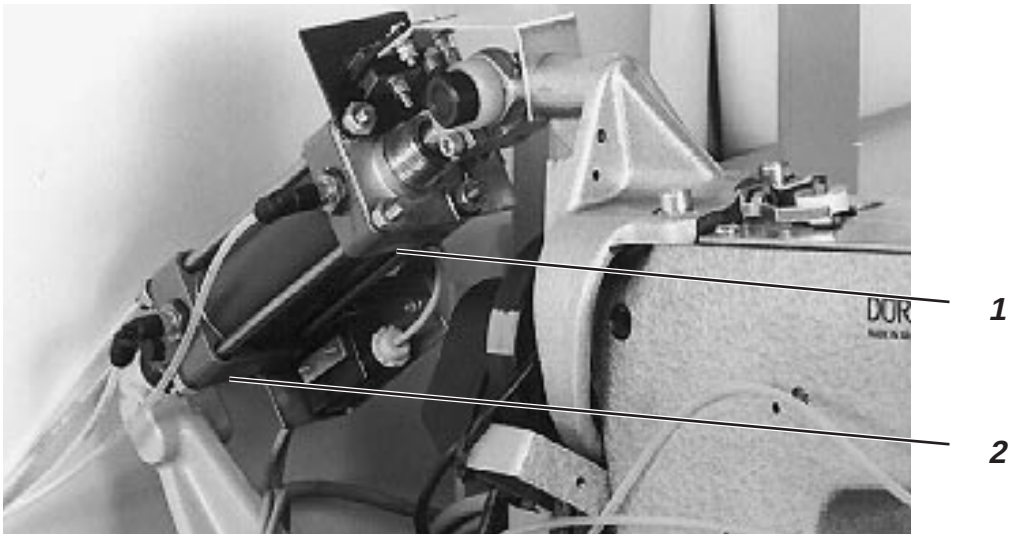
Lower position

- Remove the feed plate 4.
- Lower the sewing head.
  Set the program switch to **44** and press the " **STOP** " key.
  The sewing head is lowered and the needle plate and pressure foot raised.
- Loosen screw 2 and turn piston rod 3.
  With lowered sewing arm 1 the clearance between the milled bottom of the sewing arm and the lower arm surface should be 72.5 mm.
- Tighten screw 2.

Upper position

The upper position need not be set.
It results from the piston rod run of the cylinder.

2.9.2 End Position Dampening of the Cylinder



The speed of the piston rod is reduced approx. 10 mm in front of the end position in order to softly brake the heavy sewing head.

Caution Risk of Injury !

Conduct adjustment work and function testing only with greatest possible caution.

End position dampening “ raise sewing head ”

- Set the throttle 2.
- Conduct a function test.

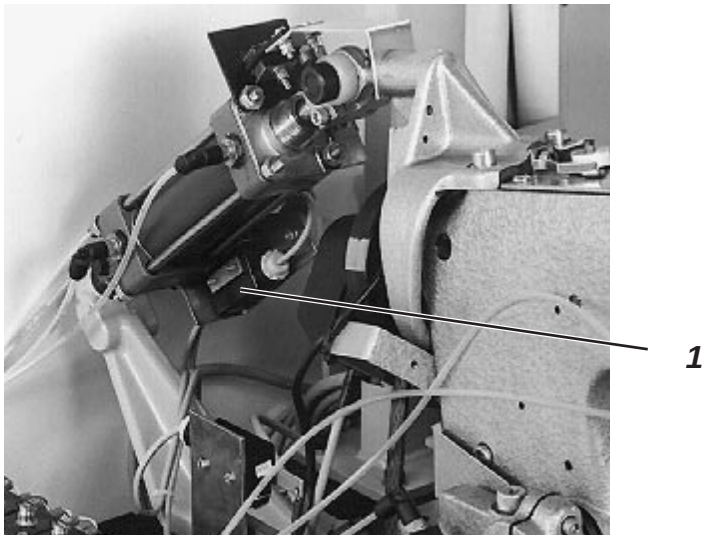
  Set the program switch to **44** and press the “ **STOP** ” key. The sewing head is lowered and the needle plate and pressure foot raised.
  Press the “ **START** ” key.
  With the “ Σ ” key the sewing head can now be raised and lowered again as often as desired.
  The sewing head should run softly into the end position.
  If not, then throttle 2 must be reset.

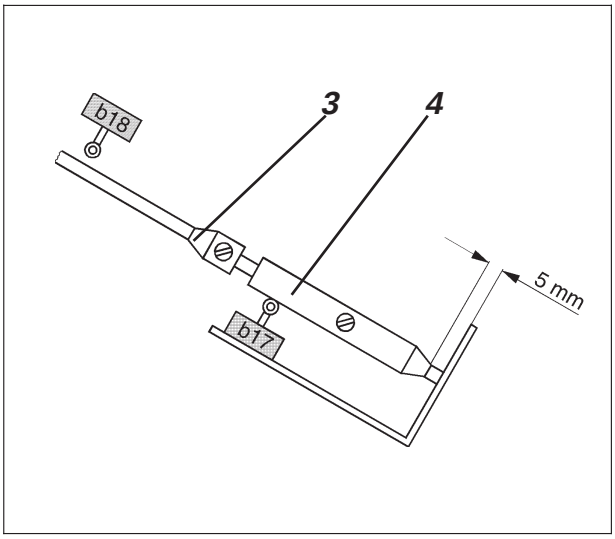
End position dampening “ lower sewing head ”

- Adjust throttle 1.
- Conduct a function test.

  Set the program switch to **44** and press the “ **STOP** ” key. The sewing head is lowered and the needle plate and pressure foot raised.
  Press the “ **START** ” key.
  With the “ Σ ” key the sewing head can now be raised and lowered again as often as desired.
  The sewing head should run softly into the end position.
  If not, then throttle 1 must be reset.

2.9.3 Timing of the Operation of the Switches



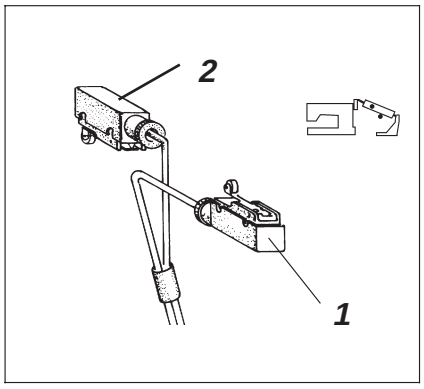


In the upper position of the sewing arm switch 2 (b17) should be triggered.

In the lower position of the sewing arm switch 1 (b18) should be triggered.

Caution Risk of Injury !

Conduct adjustment work and function testing only with greatest possible caution.



Upper switch position (b17)

- Set the program switch to **63** and press the " **STOP** " key.
- Set the program switch to **17**.
- Bring the sewing head manually into the upper position.
  The display must show " **- b17** ".

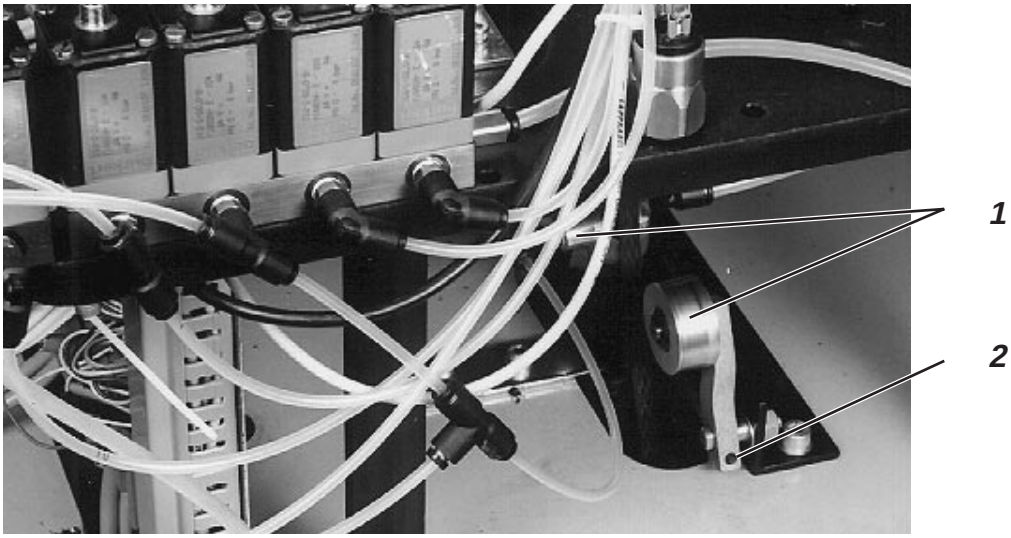
  If not, then the switching point (switch 1) must be adjusted.
- Adjust bushing 4 (switching point).
  The bushing 4 should, in this position, have approx. 5 mm clearance from the plate.

Lower switch position (b18)

- Set the program switch to **63** and press the " **STOP** " key.
- Set the program switch to **18**.
- Bring the sewing head manually into the lower position.
  The display must show " **- b18** ".

  If not, then the switching point (switch 2) must be adjusted.
- Adjust bushing 3 (switching point).
  The roller of switch 2 (b18) should lie at the center of the cylindrical part of the bushing 3 in this position.

2.10 Adjustment Screws for the Timing Belt



The two contact rollers 1 prevent the timing belt from jumping off the belt pulley when the sewing head is raised.

Caution Risk of Injury !

Conduct adjustment work and function testing only with greatest possible caution.

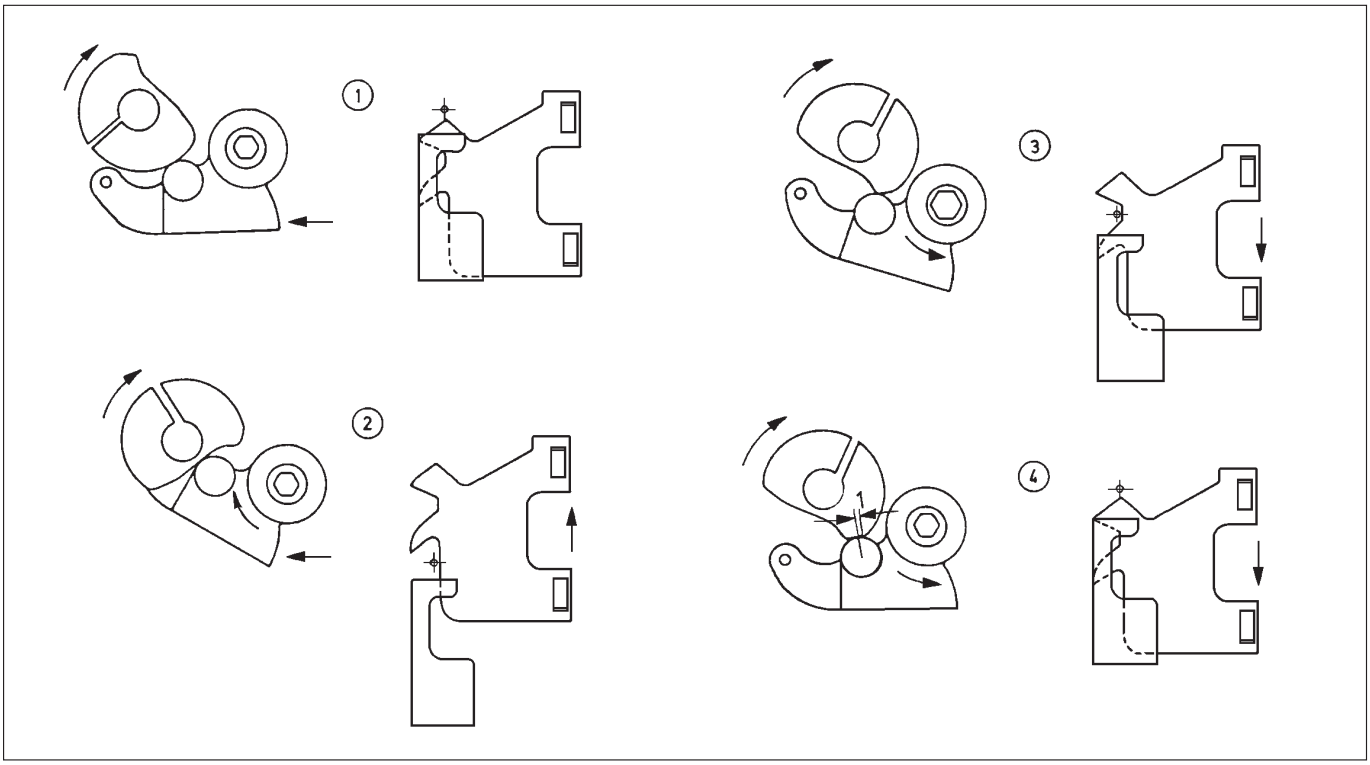
Switch upper position

- Set the program switch to **44** and press the " **STOP** " key.
  The sewing head is lowered .
- Loosen screw 2 and set the lever with the contact roller 1. Thereby lightly press the contact roller 1 onto the belt.
- Tighten screw 2 again.
- Repeat the procedure with the 2nd contact roller.

  The belt must run easily.
  If not, then the two contact rollers must be set again.

3. Thread Trimmer

3.1 Function Sequence



When, after the “ seam end ” signal, the 1st position is reached, the thread trimmer magnet is switched on and the drive segment pressed against the guide curve. The thread tension is opened and the sewing unit runs at the cutting rpm of 160 min^{-1} .

When the drive segment of the magnet is pulled into the recess of the guide curve, then the thread pull knife is swung into the needle thread loop. The needle thread and the underthread fall behind the thread pull hook of the knife.

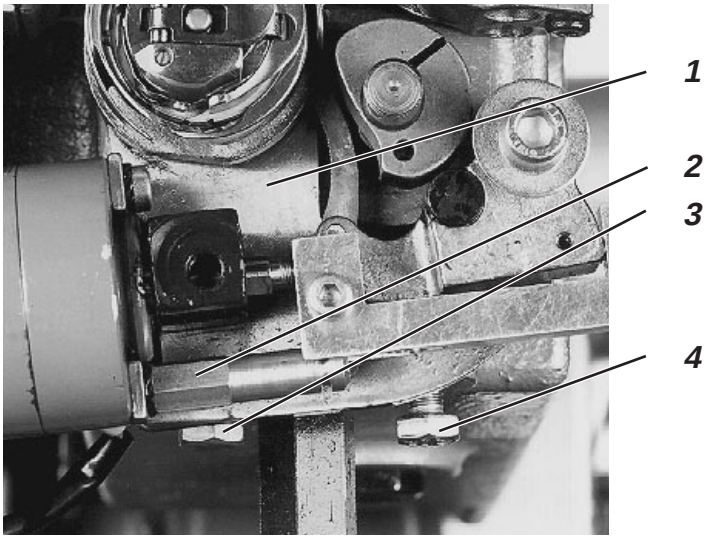
When the drive segment is pressed out of the guide curve recess, then both threads are pulled to the counter knife and cut shortly before the thread lever high position.

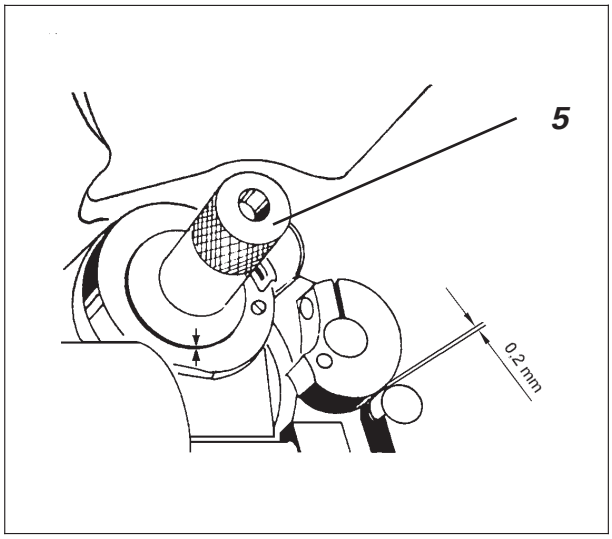
When the thread lever high position and thereby the 2nd position are reached the motor stops. The magnet for the thread tension opening is turned off and the magnet for the thread trimmer is turned off.

General information

- The needle thread length is influenced by the pre-tension.
- After a missing stitch the needle thread is not cut.
- Replace dull knives only as pairs.
- When checking and correcting the settings proceed in the order described.

3.2 Position of the Base Plate and the Guide Curve



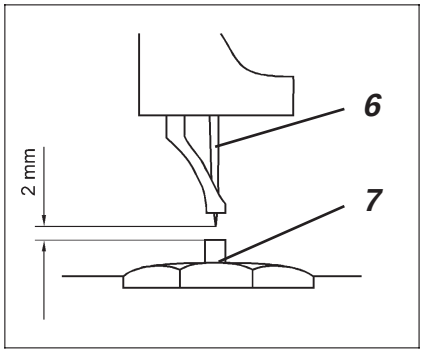


The height of the base plate determines the clearance of the thread pull knife to the hook.

The position of the guide curve determines the timing of the swinging in and out of the thread pull knife.

Caution Risk of Injury !

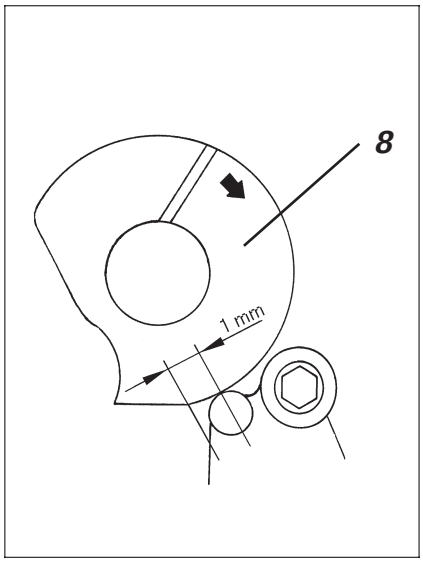
Turn the main switch off.
Set the base plate only with the sewing unit turned off.



Base plate

- Remove the hook.
- Loosen screws 3 and 4.
- Loosen the hex-head bolt 2.
- Place gauge 5 on the shaft.
- Press the base plate 1 up against the gauge.
- Tighten screws 3 and 4.
- Tighten the hex-head bolt 2.

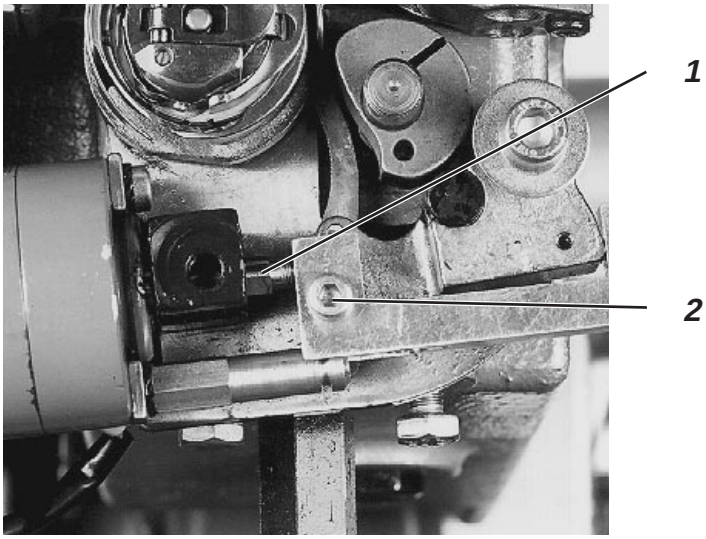
Gauge Order no.: 396 351050

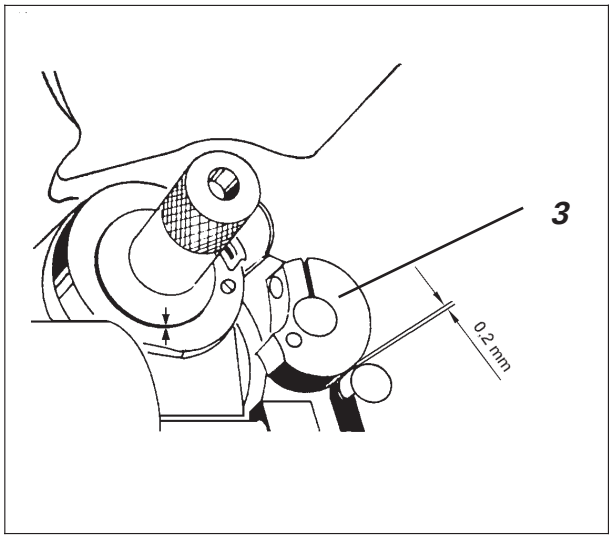


Guide curve

- Turn the handwheel until the needle 6 lies approx. 2 mm above the top edge the needle plate 7.
- Loosen the screw.
- Turn guide curve 8.
  The drive segment should touch the guide curve approx. 1 mm behind the flat part.
- Align the guide curve axially.
  The guide curve should lie centered to the drive segment.
- Tighten the screw.

3.3 Clearance between the Drive Segment and the Guide Curve

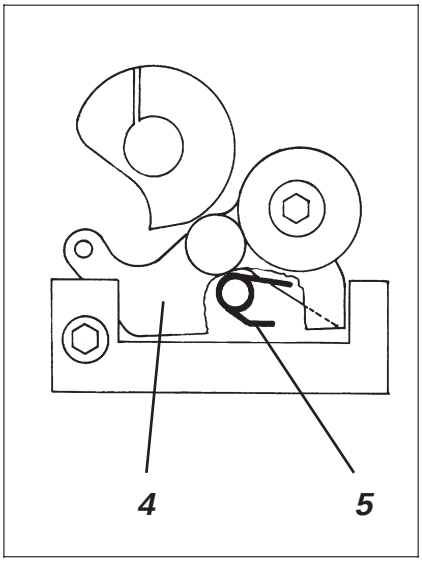




When the drive segment 4 is swung completely back there should be a clearance of 0.2 mm between it and the guide curve 3.

Caution Risk of Injury !

Turn the main switch off.
Set the clearance only with the sewing unit turned off.

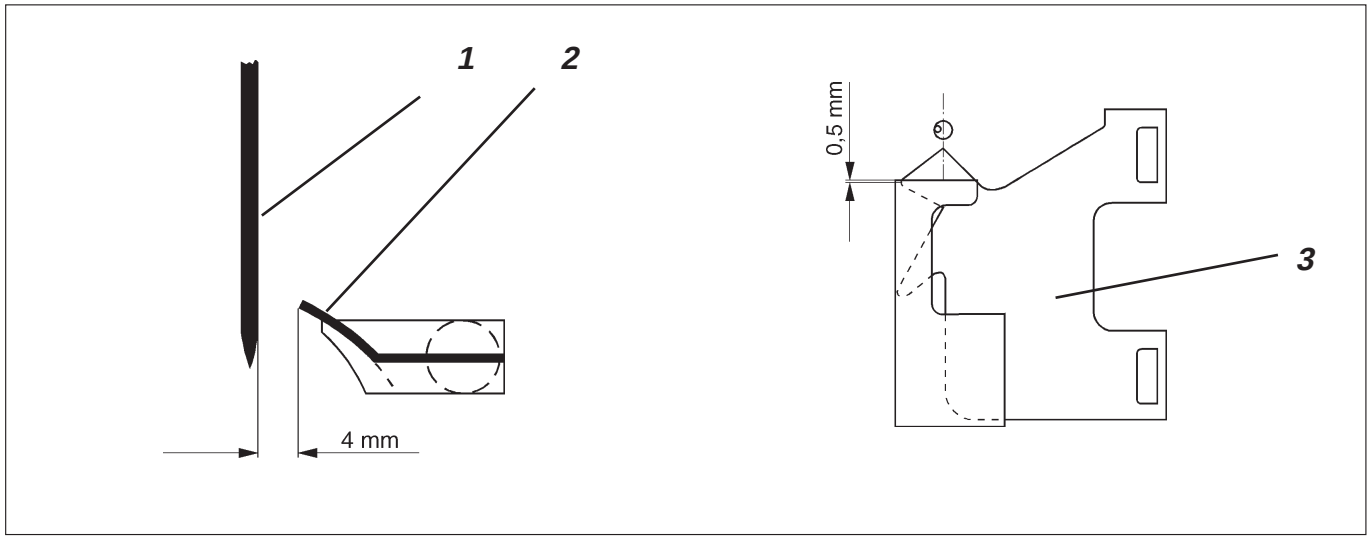


- Loosen screw 2.
- Turn the magnet anchor 1.
  The clearance between the drive segment 4 and guide curve 3 should be 0.2 mm.
- Tighten screw 2.

Note

- With too much play the thread pull knife cannot swing far enough to the back and not capture the threads.
- At this setting the function of the spring 5 in the drive segment and the easy movement of the drive segment 4 should be checked at the same time.

3.4 Counter Knife and Thread Pull Knife

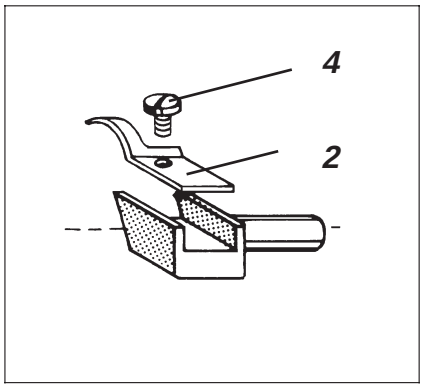


The clearance of the counter knife 2 to the needle 1 should be 4 mm.

The position of the thread pull knife 3 to the counter knife determines the knife overlapping and the timing of the cutting.

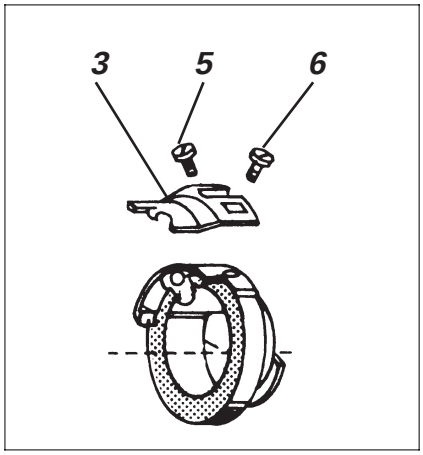
Caution Risk of Injury !

Turn the main switch off.
Set the thread pull knife and counter knife only with the sewing unit turned off.



Counter knife

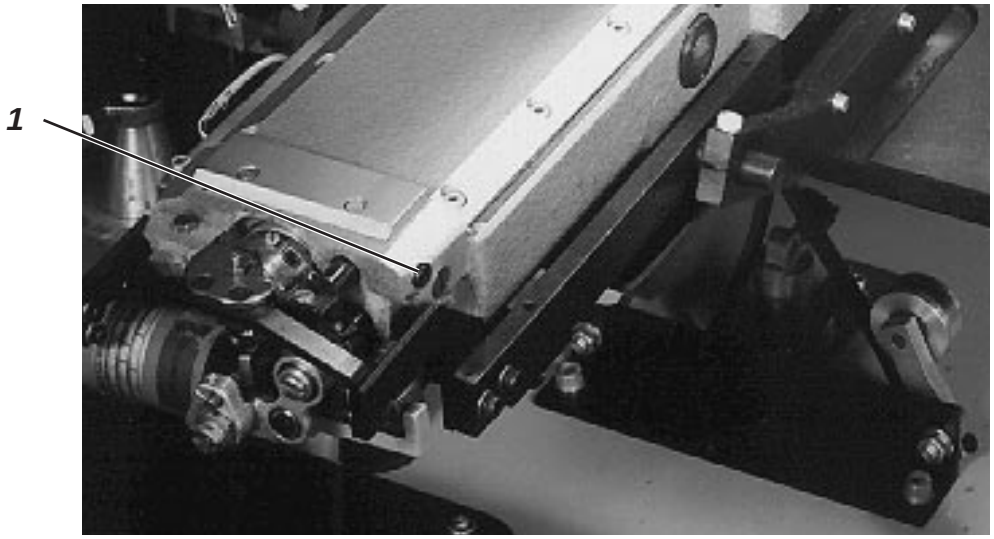
- Loosen screw 4.
- Set the clearance.
  The clearance between needle and counter knife 2 is 4 mm.
- Tighten screw 4.



Thread pull knife

- Turn the handwheel until the thread lever is in its highest position.
- Loosen screws 5 and 6.
- Set the position of the thread pull knife 3.
  The blades should be overlapped 0.5 mm.
  The tip of the thread pull knife should lie centered to the needle.
- Tighten screws 5 and 6 again.

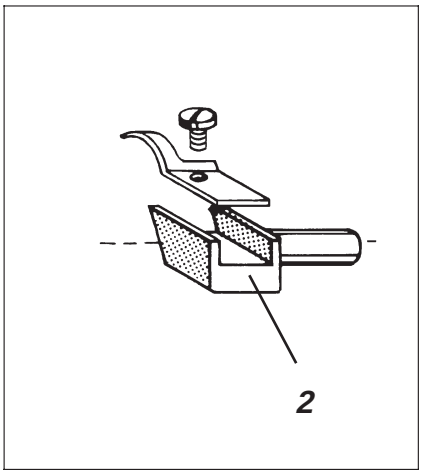
3.5 Counter Knife Pressure



The knife should securely cut with the least possible amount of pressure.

Caution Risk of Injury !

Turn the main switch off.
Set the guide plate and counter knife pressure only with the sewing unit turned off.

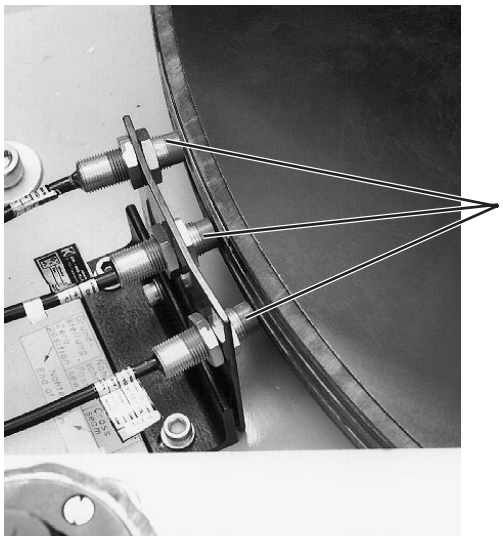


Counter knife pressure

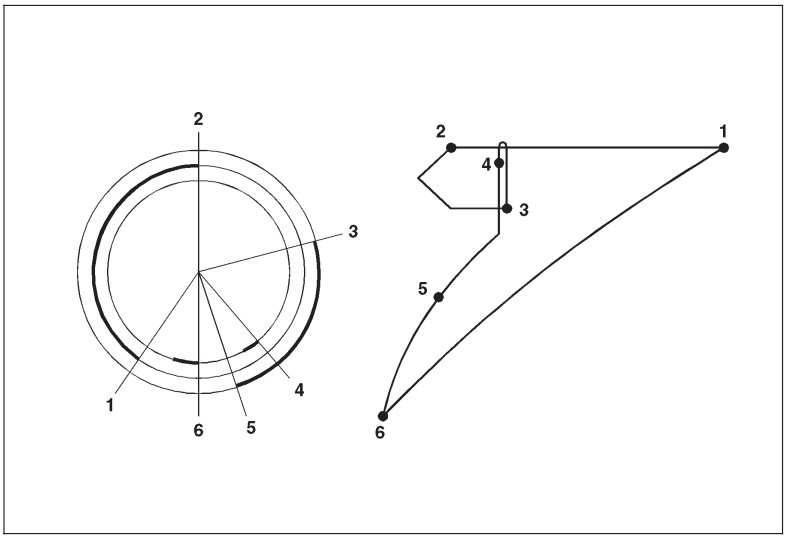
- Loosen screw 1.
- Swing the carrier 2 with counter knife.
- Tighten screw 1.
- Conduct a check.
  Place a thread behind the pulling hook of the swung-back thread pull knife. Swing the thread pull knife manually to the counter knife. If the thread is not cut flawlessly the counter knife pressure must be reset.

4. Clamping Table

4.1 Large Guide Curve



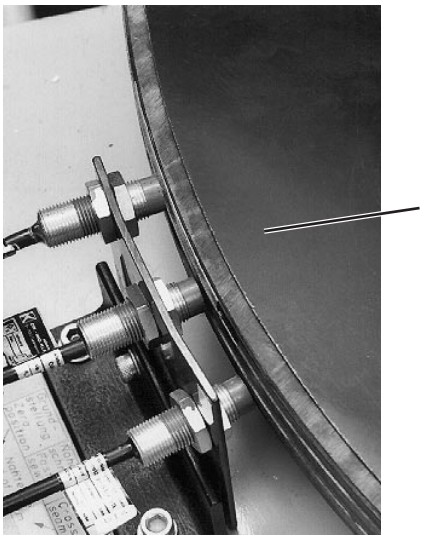
1



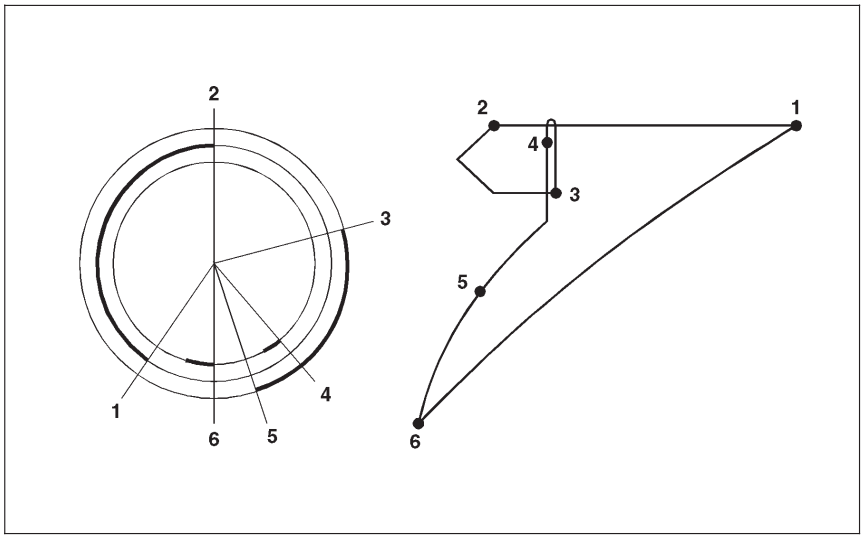
During the automatic operation the aluminium strips trigger the functions listed in the table via the initiators.

Pos.	Function	Effect of an incorrect activation point
1	Starting the sewing cycle after a set time.	- Thread breakage through sewing in place. - Lowered sewing head collides with the clamp. - Maximum sewing length not possible.
2	Slow sewing	- Time loss - Unequal seam interval
3	Opening the beard clamp Lower the pressure foot	- Unequal seam interval. - Seam run not squared off. - Beard clamp collides with the pressure foot. - “ Tearing ” of the cloth. - Missing stitches.
4	Stop the sewing cycle	- Bartacking too short. - Bartacking too long.
5	Bring the folding device into the “removal position”	- Insignificant
6	Stopping the clamping table in the initial position	- Insignificant

4.1.1 Attaching the Aluminium Strips



1



The aluminium strips are attached to the side surfaces of the large guide curve 1.

The position of the aluminium strips is shown for the right clamping table. For the left clamping table it is a mirror image.

Caution Risk of Injury !

Turn the main switch off.
Attach the strips only with the sewing unit turned off.

– With the hand crank run the clamping table to the switching points 1, 2, 3, 4 and 6. Mark each of the switching points on the side surface of the guide curve.
Switching point 1 is reached when the direction of movement of the clamping table no longer changes.
Switching point 5 results from the length of the strip.

– Mark the delay distances on the guide curve.
Because of the reaction times the signals must be triggered earlier accordingly.

Points: 1, 2 ,6 Delay distance approx. 20 mm
Points: 3, 4 Delay distance approx. 10 mm

– Cut the strip to size.
1 to 2: appropriate to the marking (taking delay distances into account)
3 to 5: 400 mm
4: 70 mm
6: 80 mm

– Attach the strips.
4 and 6: Top
1 until 2: Center
3 until 5: Bottom

– Check the switching points in automatic operation.

Caution Risk of Injury !

Conduct a function test with the greatest possible caution.

If necessary correct the position and length of the aluminium strips.

4.2 Changing the Stitch Length

The tension pulley 2 on the V-belt determines the stitch length.

The belt adjustment gearing on the motor is changed by the tension. A stitch length of 1.8 mm is set at the factory.

Caution Risk of Injury !

Turn the main switch off.
Change the stitch length only with the sewing unit turned off.

- Loosen lock nut 1.
- Turn the star knob 3.

  Shorter stitches = Tension pulley lower
  Longer stitches = Tension pulley higher
- Tighten the lock nut 1.

ATTENTION !

After a stitch length change the following points must be observed.

- The performance of the sewing unit has changed.
- The position of the sew-on point has changed.

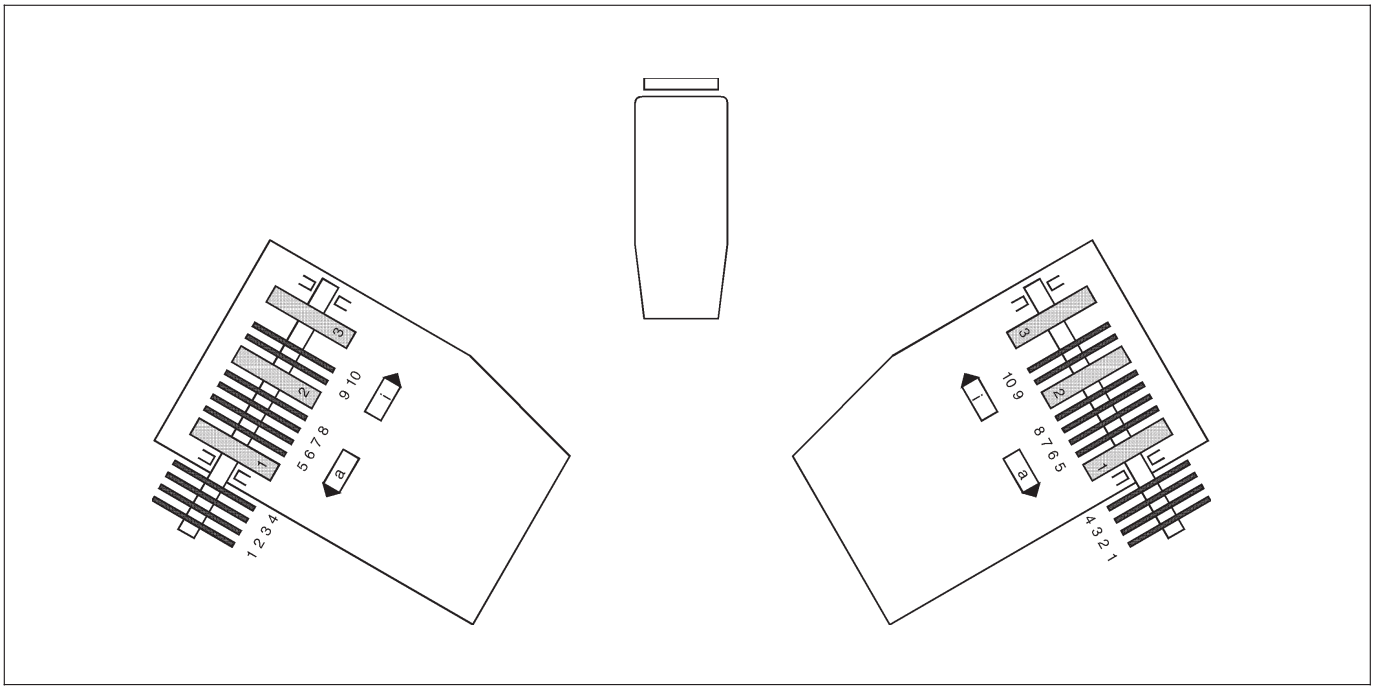
  Set the seam beginning again !

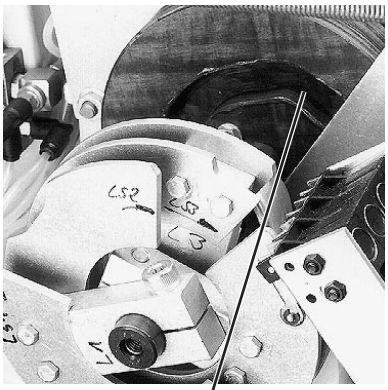
- If the positions of the sew-on points of the right and left clamping tables do not agree, then the stitch length has been set differently.

  Set the stitch length again !

4.3 Small Guide Curves

4.3.1 Function of the Guide Curves





1

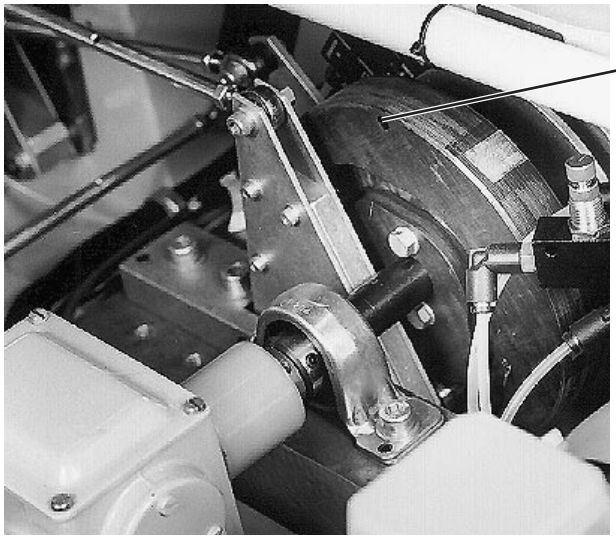
The 3 guide curves no.s 1 to 3 mechanically trigger the functions listed in the table via the inner and outer curve runs 1.

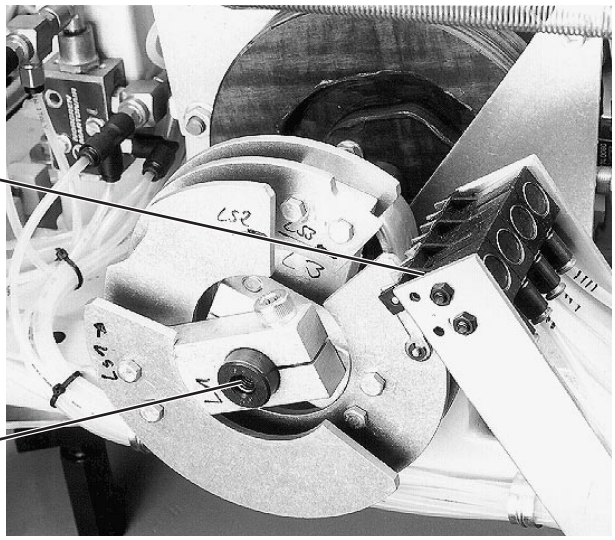
a = Outer guide curve

i = Inner guide curve

Guide Curve	Function
No. 1 outer	Side slides - Fixed table forward and back
No. 1 inner	Outer forward slide forward and back
No. 2 outer	Center forward slide and side slides - Swing table forward and back
No. 3 outer	Sleeve table up and down
No. 3 inner	Swing table turn forward and back

4.3.2 Position of the Guide Curves on the Shaft



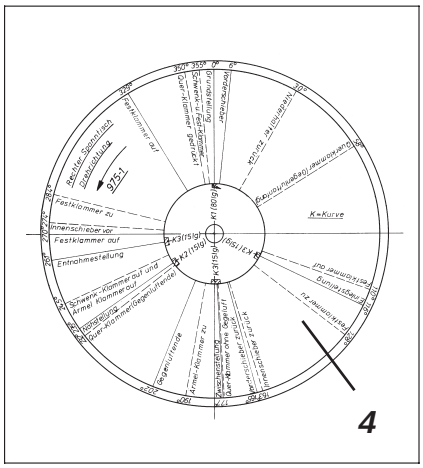


The guide curve no. 1 should, after a turn of 20°, start with the forward movement of the side slides of the fixed table.

The drilled orientation hole 1 in the guide curves no. 2 and no. 3 must be in line with the drilled orientation hole of the guide curve no. 1.

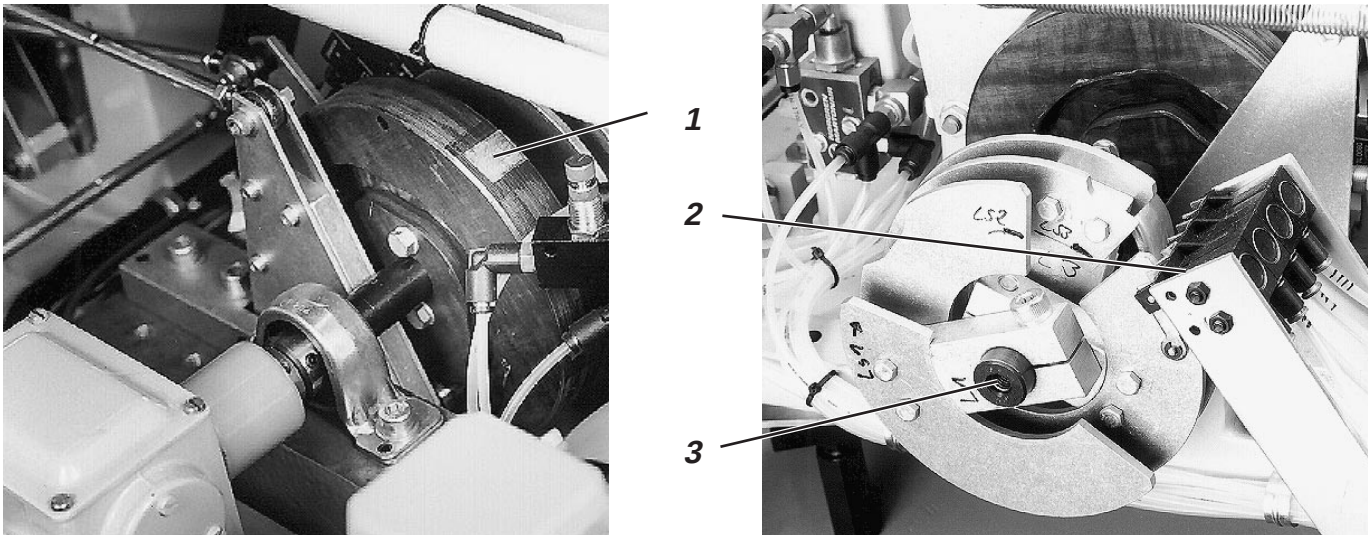
Caution Risk of Injury !

Turn the main switch off.
Set the guide curves only with the sewing unit turned off.



- Bring the folding device of the clamping tables into the base position.
- Screw the setting disk 4 onto the shaft 3.
  Align the setting disk so that the 0° position agrees with the edge 2 of the mounting plate for the valves.
- Set the program switch to **40** and press the " **STOP** " key.
  Turn the shaft with the guide curves using the " **REPEAT** " key.
  At 20° the forward movement of the side slides of the fixed table must begin.
  If not, then turn guide curve no. 1 on the shaft.
- Align the guide curves no.s 2 and 3 so that the drilled orientation holes are in line.
  Check with a 5 mm diameter pin.

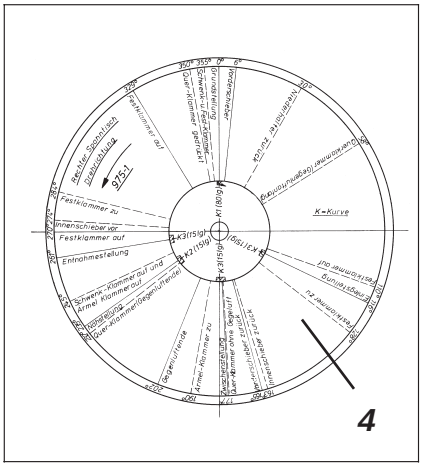
4.3.3 Position of the Aluminium Strips on the Guide Curves



The aluminium strips 1 on the faces of the 3 guide curves stop their turning movement according to the function sequence.

Caution Risk of Injury !

Turn the main switch off.
Attach the aluminium strips to the guide curves only with the sewing unit turned off.



Guide Curve		Function
No. 1	**A = 0°**	Initial position of the folding device
No. 2	**B = 235°**	Sewing position of the folding device
No. 3	**C = 116°**	Insert the sleeve
	D = 177°	Short intermediate stop
	E = 261°	Remove the cloth

- Bring the folding device of the clamping table into the base position.
- Cut the aluminium strips to size.
  A = 80 mm. B, C, D, E = 15 mm.
- Screw the setting disk 4 onto the shaft 3.
  Align the setting disk so that the 0° position agrees with the edge 2 of the mounting plate for the valves.
- Set the program switch to **40** and press the " **STOP** " key.
  Turn the shaft with the guide curves into the individual positions using the " **REPEAT** " key.
- Attach the aluminium strips.
- Check the switching points in automatic operation.

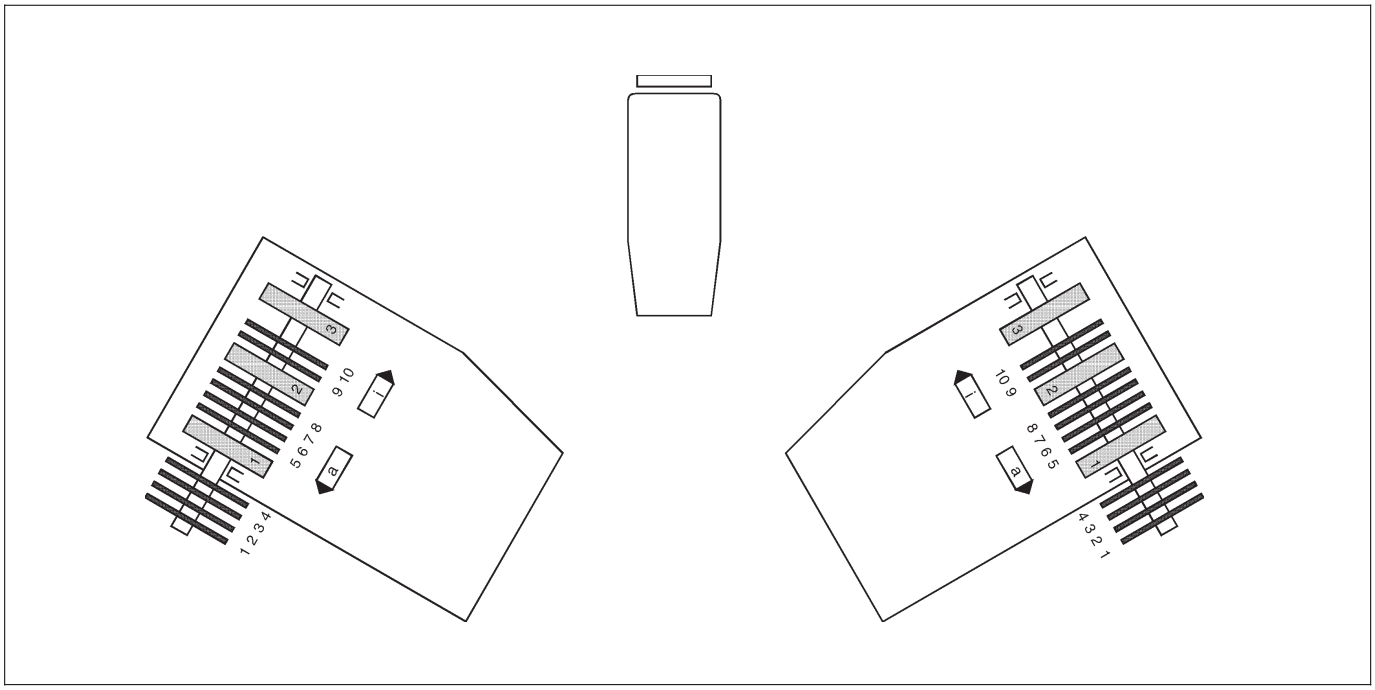
Caution Risk of Injury !

Conduct a function test with the greatest possible caution.

If necessary correct the position and length of the aluminium strips.

4.4 Switching Disks

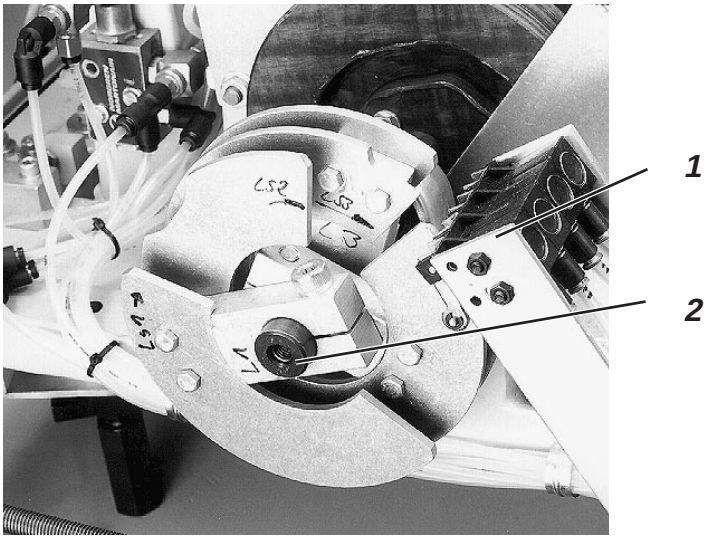
4.4.1 Function of the Switching Disks

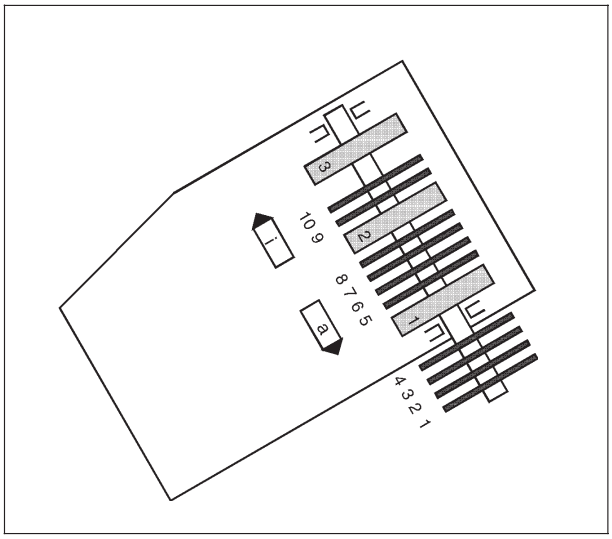


The switching disks no.s 1 to 10 trigger the function of various clamping table elements via the pneumatic valves.

Switching Disk	Function
No. 1	Forward slide - Inner forward and back
No. 2 and 3	Fixed clamp and sleeve clamp of the fixed table close (full pressure) close (half pressure) open and pressure-free
No. 4	Swing clamp open and close
No. 5	Sleeve clamp of the sleeve table open and close
No. 6	Hold-down hold open and closed
No. 7 and 8	Interior slides forward and back
No. 9 and 10	Trim clamp cylinder for swing clamp open and close Cross clamp cylinder for swing clamp Piston rod run in Cylinder pressure-free Piston rod run out (with half and with full pressure)

4.4.2 Position of the Switching Disks on the Shaft



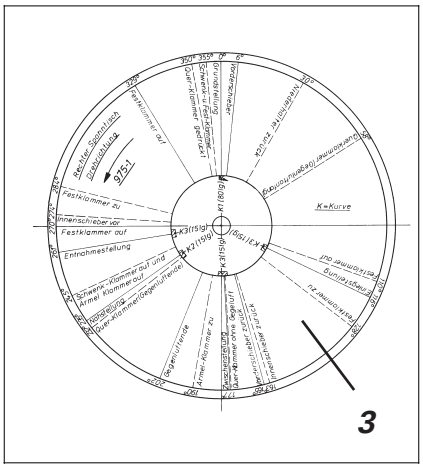


The switching disks no.s 1 to 10 are arranged as per the setting disk.

The switching disks no.s 3 to 10 are deployed as pairs (3 + 4, 5 + 6, 7 + 8, 9 +10).

Caution Risk of Injury !

Turn the main switch off.
Set the switching disks only with the sewing unit turned off.



Switching Disk		Function	
No. 1	**165°**	Valve released	- Inner forward slide forward
No. 2	**245°**	Valve released	- Fixed clamp pressure-free
No. 4	**245°**	Valve operated	- Swing clamp opens
No. 6	**30°**	Valve operated	- Hold-down back
No. 8	**163°**	Valve operated	- Interior slides operated
No. 10	**232°**	Valve released	- Cross clamp cylinder has full pressure

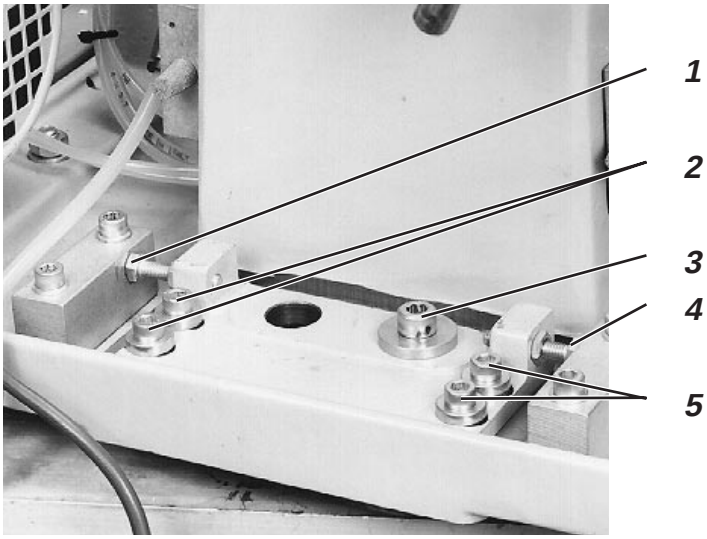
- Bring the folding device of the clamping table into the base position.
- Screw setting disk 3 onto the shaft 2.
  Align the setting disk so that the 0° position agrees with the edge 1 of the mounting plate for the valves.
- Set the program switch to **40** and press the " **STOP** " key.
  With the " **REPEAT** " key turn the shaft with the switching disks to the various positions and align.
- Check the switching points in automatic operation.

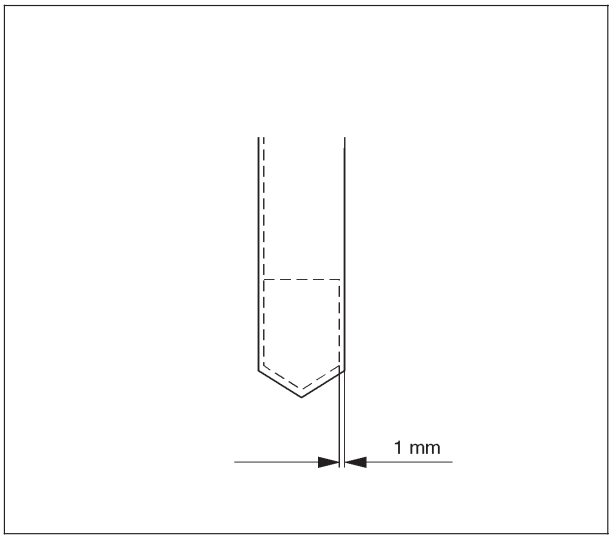
Caution Risk of Injury !

Conduct a function test with the greatest possible caution.

If necessary correct the position of the switching disks.

4.5 Position of the Clamping Tables





The position of the clamping table determines the position of the seam formation on the trim.

Before the contour determining elements are set, the position of the clamping table must first be set.

Caution Risk of Injury !

Turn the main switch off.
Set the position of the clamping table only with the sewing unit turned off.

- Loosen screws 2, 3 and 5.
- Loosen the lock nuts.
- Set the adjustment screws 1 and 4.
  Set the position of the clamping table so that the clearance of the short side seam is 1 mm.
  The smaller the edge interval is to be, the farther the clamping table must be distanced from the machine head.
- Tighten the lock nuts.
- Tighten screws 2, 3 and 5.

The two clamping plates are present at each clamping table !

The setting is to be made with both clamping plates !

- Conduct a function test with low cutting rpm.
  Set the program switch to **41** and press the “ **STOP** ” key.

Caution Risk of Injury !

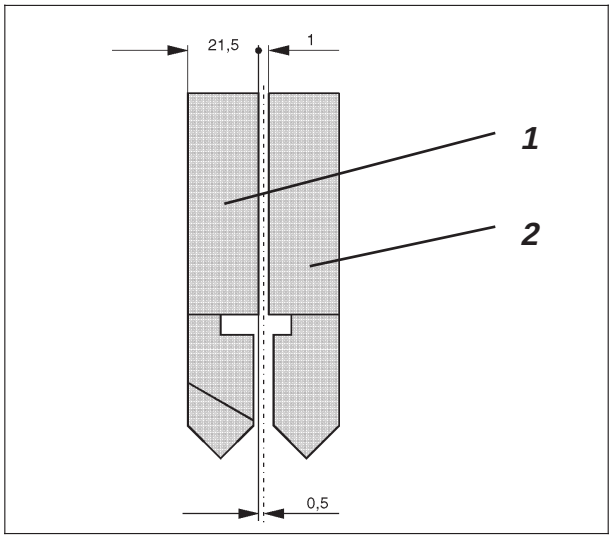
Conduct a function test with the greatest possible caution.

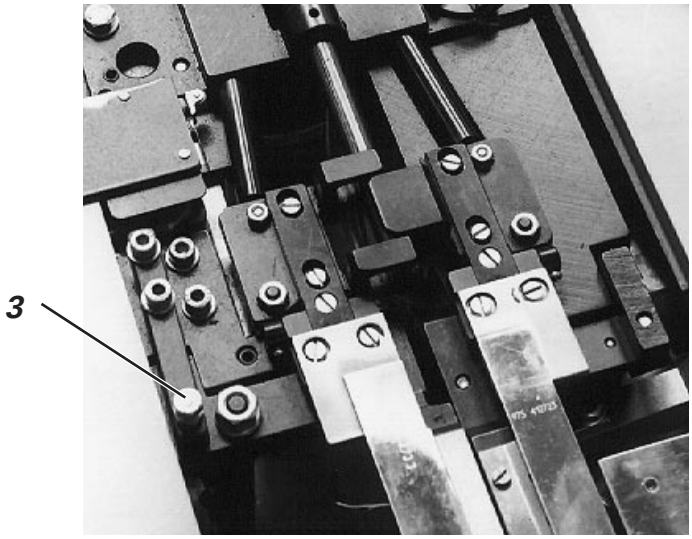
The needle hole mushroom should not touch the fixed clamp !

The needle should not touch the fixed clamp !

If necessary correct the position of the clamping table.

4.6 Fixed Clamp





During folding the fixed clamp 1 (clamping table left) is pressed against the hold-down and then against the outer forward slide with half pressure.

When sewing the fixed clamp is pressed against the swing clamp at full pressure.

When sewing the cross seam the forward part of the fixed clamp is swung to the side by the needle hole mushroom. A spring swings the forward part of the fixed clamp back into the initial position again.

Caution Risk of Injury !

Turn the main switch off.
Set the fixed clamp only with the sewing unit turned off.
Conduct a function test with the greatest possible caution.

Sideways clearance to the rotation axis

The clearance to the rotation axis is 0.5 mm.
It is set at the factory with a gauge and may not be altered.

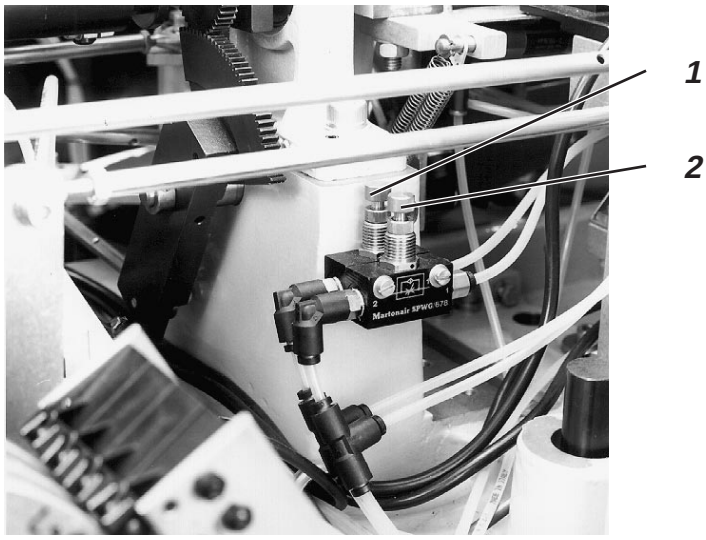
Height of the fixed clamp

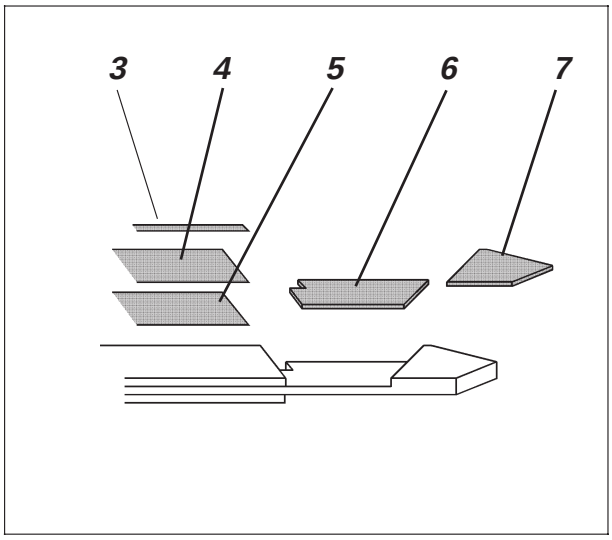
- Remove the swing clamp 2 (clamping table left).
- Loosen the lock nut and turn the adjustment screw 3.
  The fixed clamp should be 3 mm higher in the forward area than in the rear area.
- Reinstall the swing clamp again.
- Set the adjustment screw.
  During sewing the fixed clamp should have a clearance of 0.5 mm to the needle plate.
- Set the program switch to **41** and press the “ **STOP** ” key.
  Check the clearance in the (key) interval operation and correct if necessary.
- Tighten the lock nut.

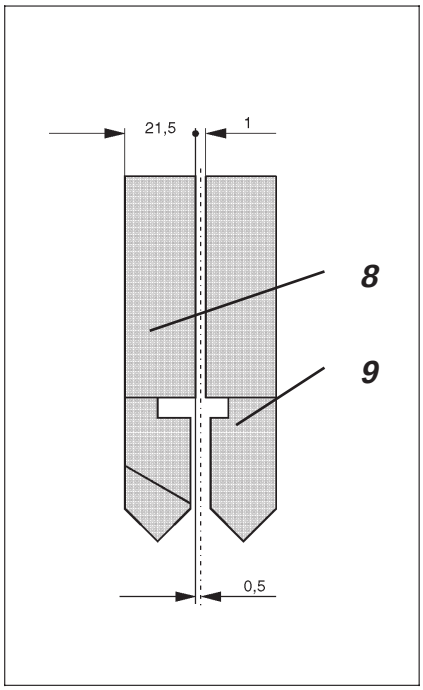
Sideways clearance to the needle hole mushroom

The clearance results from the position of the clamping table.

If the needle hole mushroom still presses the fixed clamp to the side, then the position of the side frame must be checked and possibly corrected.







Speed of opening and closing

- Set the program switch to **41** and press the " **STOP** " key.
  With the " **REPEAT** " key run through the function sequence in interval operation.
- Observe the movement of the fixed clamp 8 when opening and closing.
  The fixed clamp should move quickly and uniformly.
  If not, then the throttles 1 and 2 are to be set appropriately.

Renewing the coatings

The rubber clamps the cloth in the area of the forward slides.

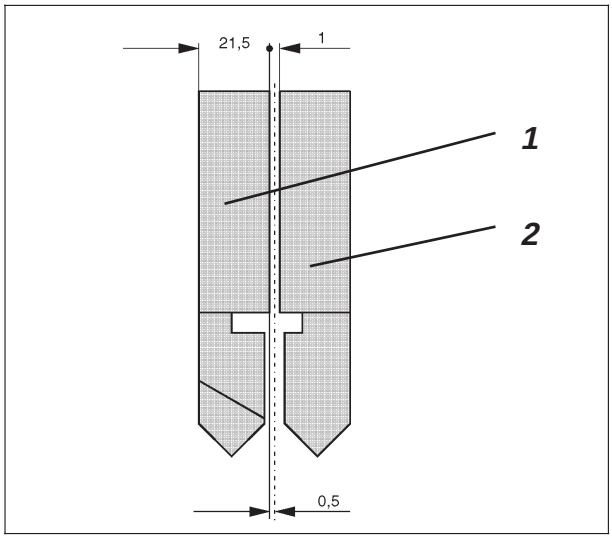
- Pull off damaged rubber.
- Clean the adhesive surfaces.
- Cut the rubbers 6 and 7 to size and affix.

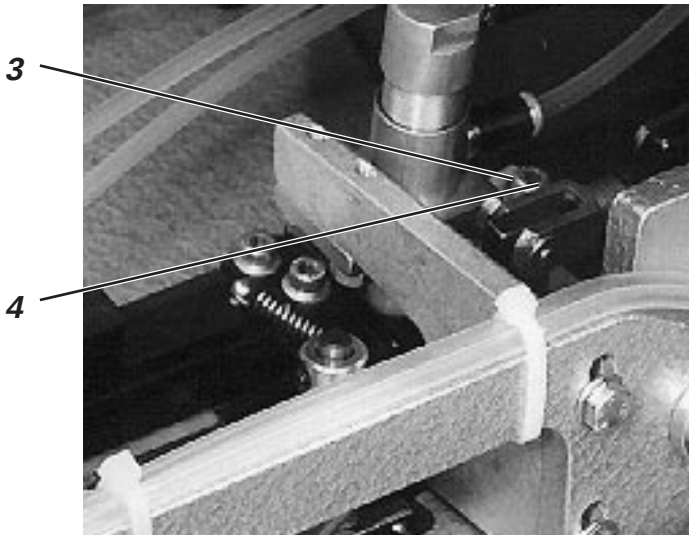
The Delrin 5 should support the cloth as close as possible to the needle.

Because of its rough surface the chrome foil 4 on the Delrin 5 should prevent the cloth from being pulled out of the clamp during sewing.

- Pull off damaged Delrin 5 with the chrome foil 4.
- Cut strips from the chrome foil and Delrin.
  In the same widths as before.
- Clean the adhesive surfaces.
- Affix the Delrin 5 to the fixed clamp.
  The Delrin should end in line with the inner side of the fixed clamp.
- Cut 2 mm wide antislip foil 3 and affix to the chrome foil.
  The antislip foil should end in line with the outer side of the fixed clamp.
- Affix the chrome foil 4 with the rough side up onto the Delrin.
- Check the clearance of the Delrin to the needle.
  Set the program switch to **41** and press the " **STOP** " key.
  With the " **REPEAT** " key run through the function sequence in interval operation.
- If necessary correct the clearance by filing the Delrin.

4.7 Swing Clamp





During sewing the fixed clamp 1 (clamping table left) is pressed against the swing clamp 2.

The beard clamp on the swing clamp is opened by the guide curve so that the machine head can press the beard clamp to the side when sewing the cross seam.

Caution Risk of Injury !

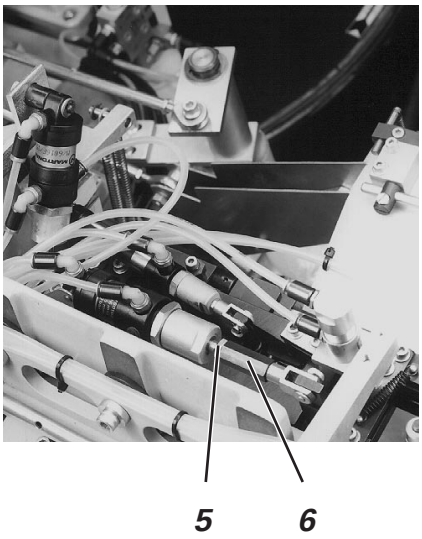
Turn the main switch off.
Set the fixed clamp only with the sewing unit turned off.
Conduct a function test with the greatest possible caution.

Sideways clearance to the fixed clamp

The clearance to the fixed clamp is 1 mm.
The clearance is set in the base position of the folding device.

- Loosen the screws 4.
- Turn the eccentric bushings 2 (one each right and left).
  The eccentric bushings must be set tight.
- Tighten the screws 4.

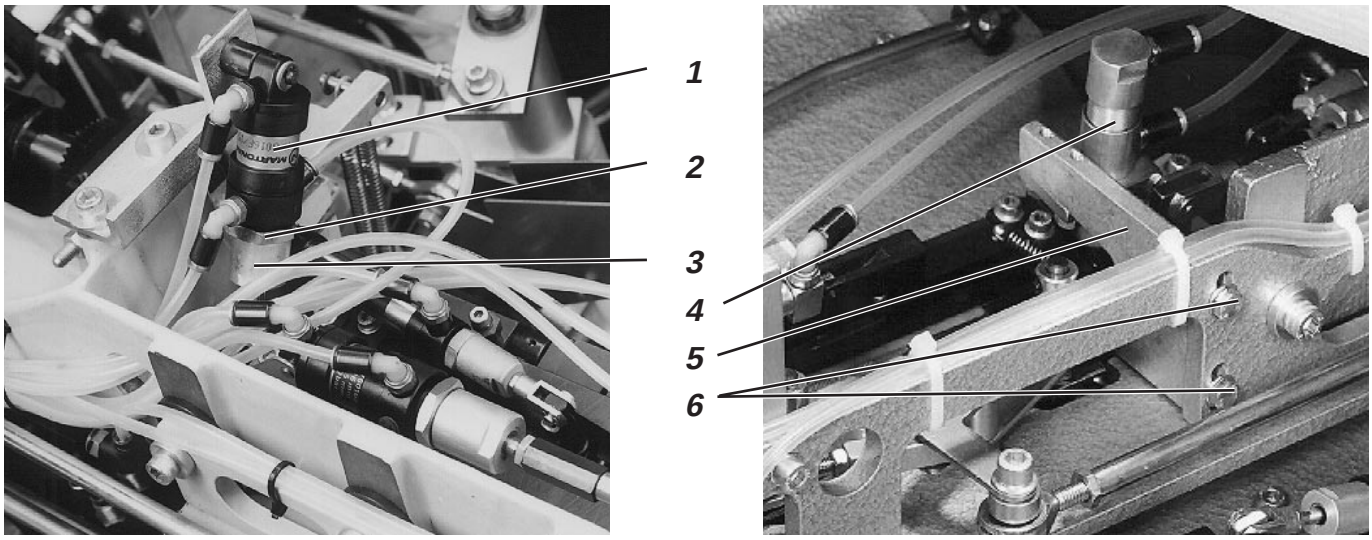
Height of the closed swing clamp



The swing clamp should press the fixed clamp downward.
In all seam segments the clearance to the needle plate should be 0.5 mm.

- Loosen lock nut 5.
- Turn the piston rod extension 6.
- Tighten lock nut 5.
- Check the clearance to the needle plate.
  Set the program switch to **41** and press the “ **STOP** ” key.
  With the “ **REPEAT** ” key run through the function sequence in interval operation.

  If necessary correct the clearance.



Cross clamp cylinder

Just before the folding device reaches the sewing position the cross clamp cylinder 1 turns the swing clamp against the fixed clamp at full pressure. This sufficiently clamps the cloth in the area of the lengthwise seam.

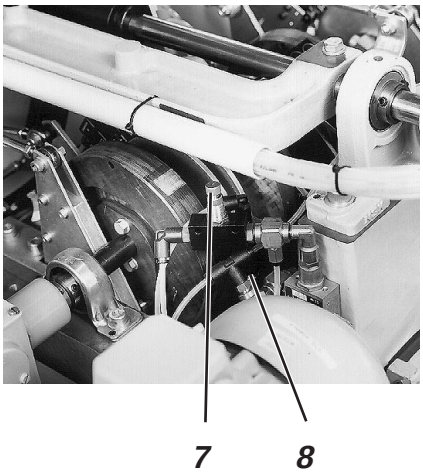
– Loosen lock nut 2.
– Turn the extension 3.
  The pressure against the fixed clamp must be sufficiently strong in the area of the lengthwise seam.
– Tighten lock nut 2.

Trim clamp cylinder

When the folding device has reached the sewing position the trim clamp cylinder 4 presses the swing clamp in the rear area downward against the fixed clamp.

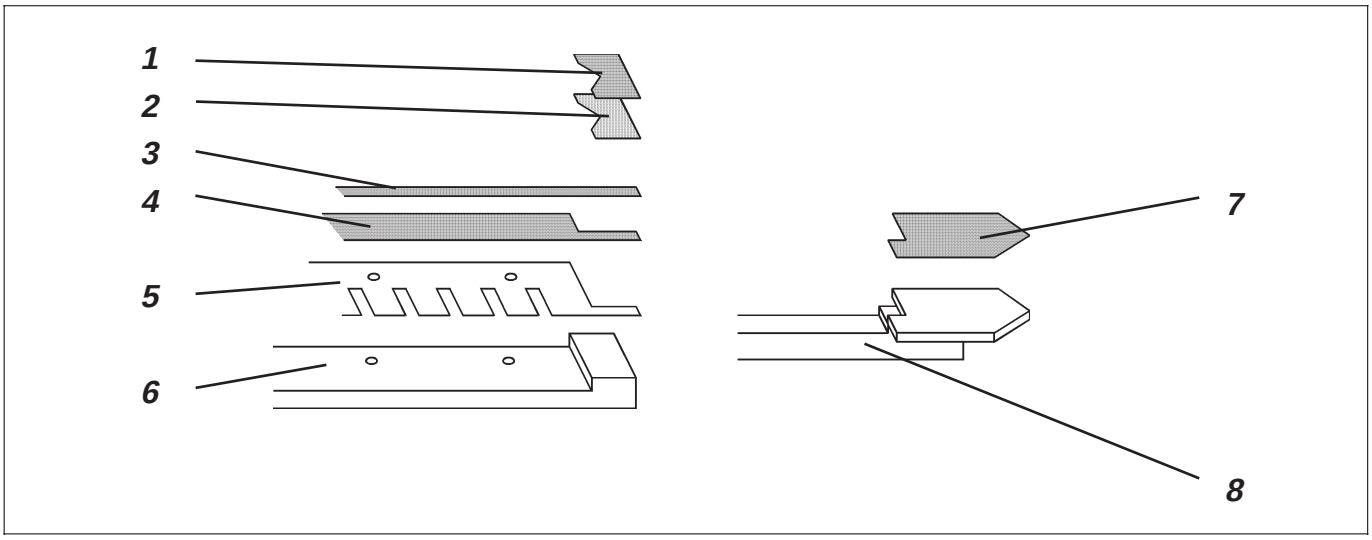
– Loosen screws 6
– Alter the position of the cylinder holder 5 appropriately.
– Tighten screws 6 again.

Speed when opening and closing



– Set the program switch to **41** and press the " **STOP** " key.
  With the " **REPEAT** " key run through the function sequence in interval operation.
– Observe the movement of the swing clamp when opening and closing.
  The swing clamp should move quickly and uniformly. If not, set the throttles 7 and 8 accordingly.

4.7.1 Renewing the Coatings on the Swing Clamp



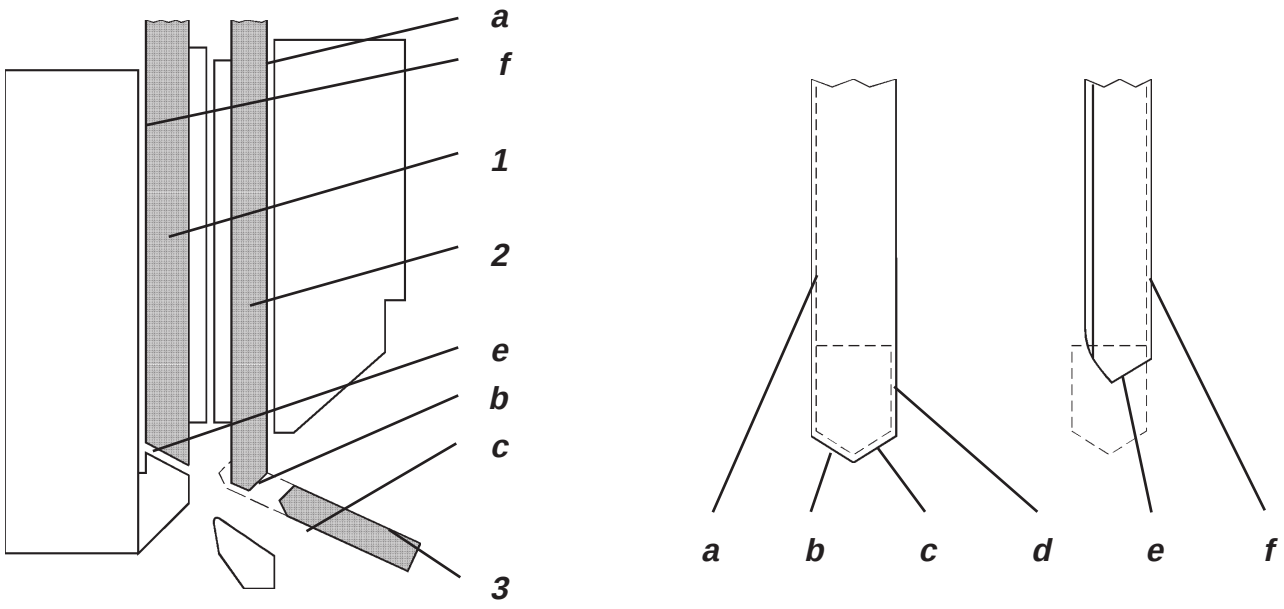
Swing clamp

- Remove damaged sponge rubber 4 and antislip foil 3 from the spring plate 5 of the swing clamp 6.
- Cut sponge rubber to size in 9 mm width and affix to the spring plate 5.
- Cut antislip foil to size in 2.5 mm width and affix to the sponge rubber.
  The antislip foil should end in line with the outer side of the swing clamp.
- Remove the antislip foil 1 and Delrin 2 from the swing clamp 6.
- Cut the Delrin 2 to size as before and affix to the swing clamp 6.
- Cut the antislip foil 1 to size as before and affix to the Delrin.

Beard clamp

- Remove damaged antislip foil 7 from the beard clamp 8.
- Cut antislip foil 7 to size as before and affix to the beard clamp.

4.8 Interior Slides



The interior slides 1 and 2 determine the clearance between the seam and trim edge in the following seam segments.

Seam Segment Trim Edge	Element
a	2 Interior slides-Swing table
b	2 Interior slides-Swing table
c	3 Inner forward slide
d	- Position of the clamping table
e	1 Interior slides-Fixed table
f	1 Interior slides-Fixed table

In order that the interior slides, during their movement into the initial position, do not pull the folded trim with them, the inner forward slide 3 in this phase must still be in the extended position. The inner forward slide is thus brought into the initial position 2° later.

The clearance between seam and trim edge is:

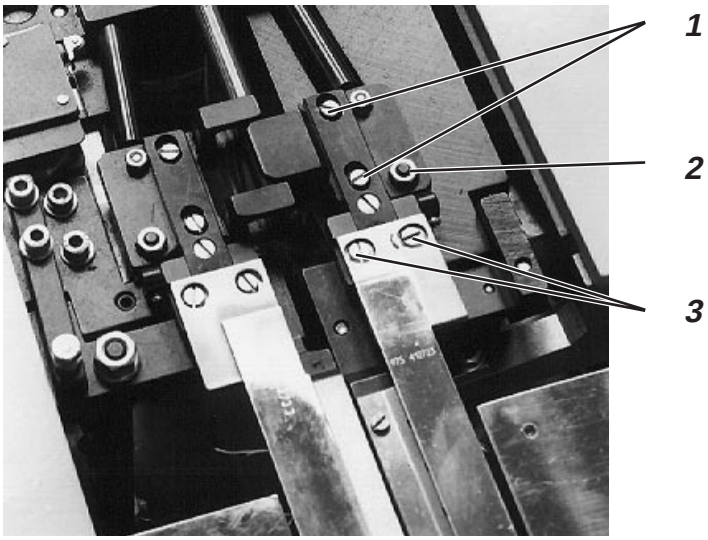
a and b = 1 mm

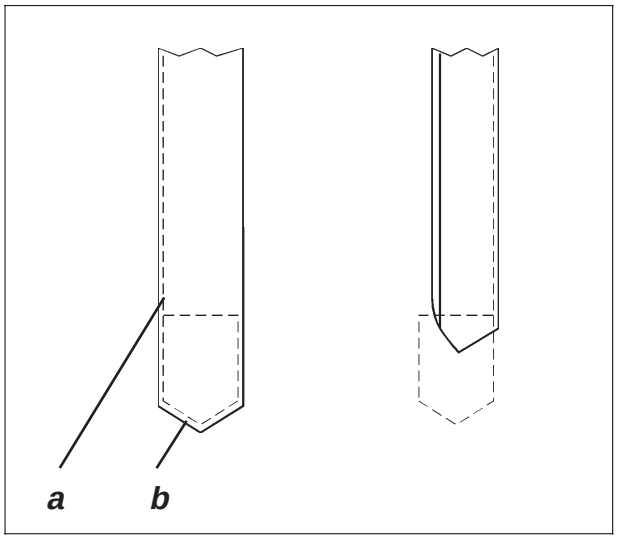
f = 1.5 mm

ATTENTION !

Scratches can occur on the interior slides if the folding device is activated without cloth.

4.8.1 Setting the Interior Slides





Prerequisite for the setting of the interior slides is the correct positioning of the clamping table (short side seam d see Page 44).

Caution Risk of Injury !

Turn the main switch off.
Set the interior slides only with the sewing unit turned off.

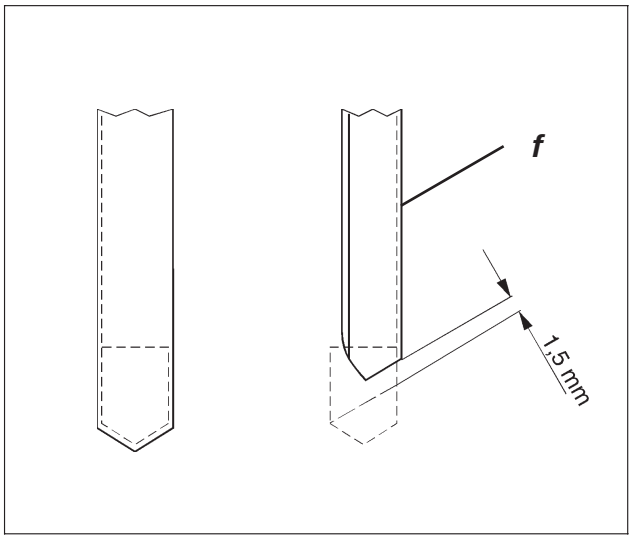
Position of the interior slide-Swing table

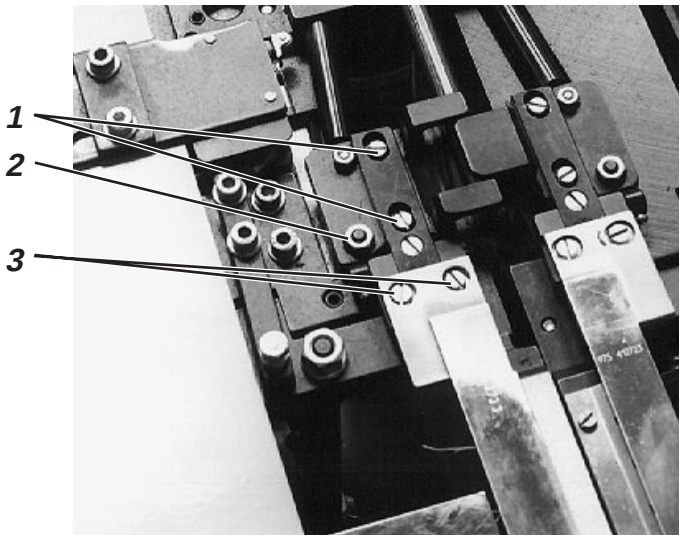
The clearance of the trim edge a to the long side seam is 1mm.
The clearance of the trim edge b to the pointed seam is 1mm.

- Loosen nut 2.
  Align the interior slide parallel to the swing clamp.
  Tighten nut 2 again.
- Loosen screws 3.
  Set the interior slide so that this extends sideways 1.5 mm relative to the swing clamp.
  Tighten screws 3 again.
- Loosen screws 1.
  Set the interior slide so that this extends forward 1.5 mm relative to the swing clamp.
  Tighten screws 1 again.

ATTENTION !

If the interior slide was changed in the sideways direction,
then the position of the side slide of the swing table is to be checked and possibly to be corrected.





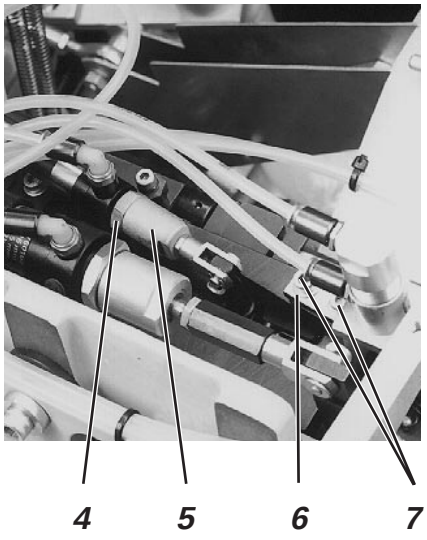
Position of the interior slide-Fixed table

The clearance between trim edge f at the lower edge and the long side seam is 1.5 mm.

– Loosen nut 2.
  Align the interior slide parallel to the fixed clamp.
  Tighten nut 2 again.
– Loosen screws 3.
  Set the interior slide so that this extends 2 mm sideways relative to the fixed clamp.
  Tighten screws 3 again.
– Loosen screws 1.
  Set the interior slide so that forward this is set back 1.5 mm relative to the rubber of the fixed clamp.
  Tighten screws 1 again.

ATTENTION !

If the interior slide was changed in the sideways direction, then the position of the side slide of the fixed table is to be checked and possibly to be corrected.



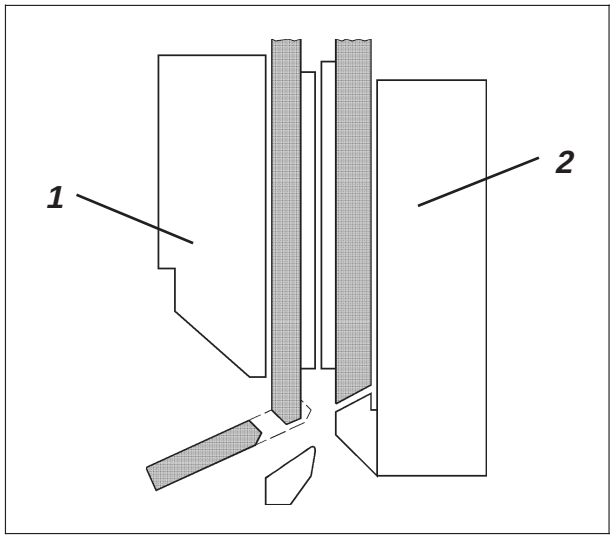
The interior slides must be run back in the sewing position and in the removal position.

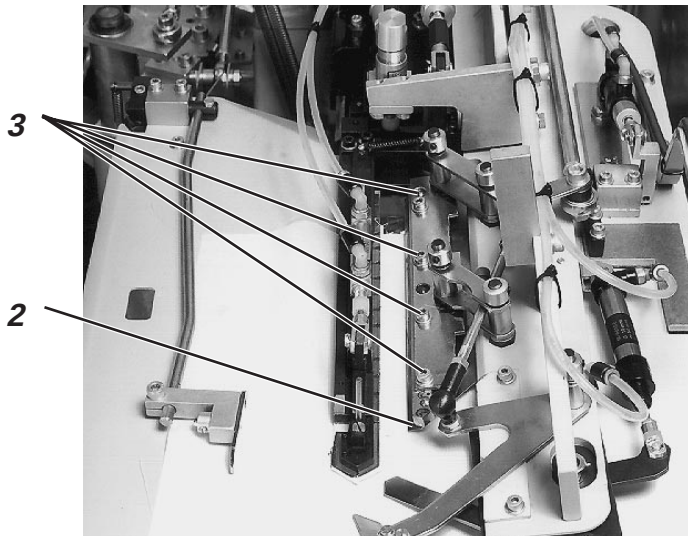
– Bring the folding device into sewing position.
– Loosen lock nut 4.
  Turn the extension 5.
  The run-back interior slide of the fixed table should have a clearance of 2 mm to the fixed clamp in the sideways direction.
  Tighten lock nut 4 again.

The extended piston rod of the interior slide cylinder is fixed laterally by a plastic guide. The side slides should not push away the interior slides during the folding sequence.

– Loosen screws 7.
  Set the position of the carrier 6 with the plastic guide.
  The piston rod must run into the slot of the plastic guide without deflection.
  The stroke of the piston rod may not be limited by the plastic guide.
  Tighten screws 7 again.

4.9 Side Slides





The side slides fold the trim around the interior slides.

1 = Side slide-Swing table

2 = Side slide-Fixed table

In the sleeve feed position of the folding device the interior slide should hang down. It is therefore held by 2 pins of the swung-forward side slide.

The hold-down is only then swung back when the side slide is somewhat above the interior slides.

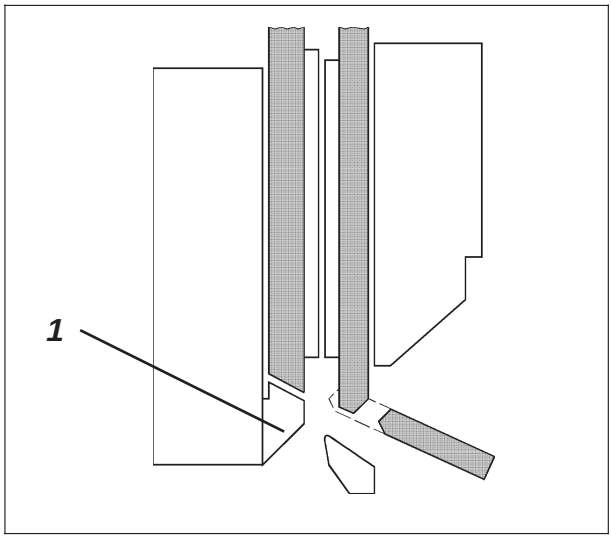
During of the folding sequence the outer forward slide is swung under the side slide. The strip below the side slide may not extend into the slewing area of the outer forward slide. This leads to the trim at this position not being folded around the side slides with sharp edges. Slightly variing edge intervals on the side seam cannot be avoided.

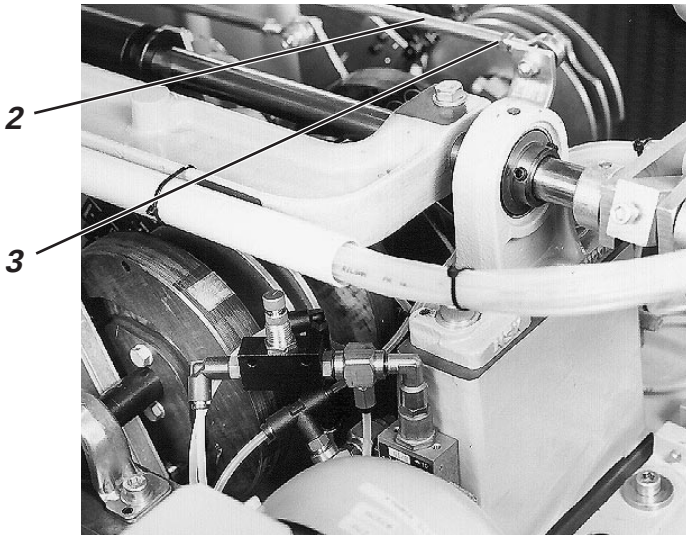
Caution Risk of Injury !

Turn the main switch off.
Set the side slides only with the sewing unit turned off.
Conduct a function test with the greatest possible caution.

- Loosen screws 3.
- Align the side slides 2.
  The swung-completely-forward side slides should have a clearance in agreement with the median material thickness.
  The smaller the gap to the side slides the sharper is the folding.
  The side slide should not collide with the retracted inner forward slide during its forward movement.
- Tighten screws 3.
- Set the program switch to **41** and press the “ **STOP** ” key.
  With the “ **REPEAT** ” key run through the function sequence in interval operation.

4.10 Outer Forward Slide





During the folding sequence the fixed clamp presses the interior slide first against the hold-down and then against the swung-in outer forward slide 1 at half pressure.

Caution Risk of Injury !

Turn the main switch off.
Set the outer forward slide only with the sewing unit turned off.
Conduct a function test with the greatest possible caution.

Clearance to the interior slide

- Loosen lock nut 3.
- Set the tie rod 2
  The outer forward slide should, in its initial position, have a clearance of 1 to 2 mm to the interior slide.
- Tighten lock nut 3.

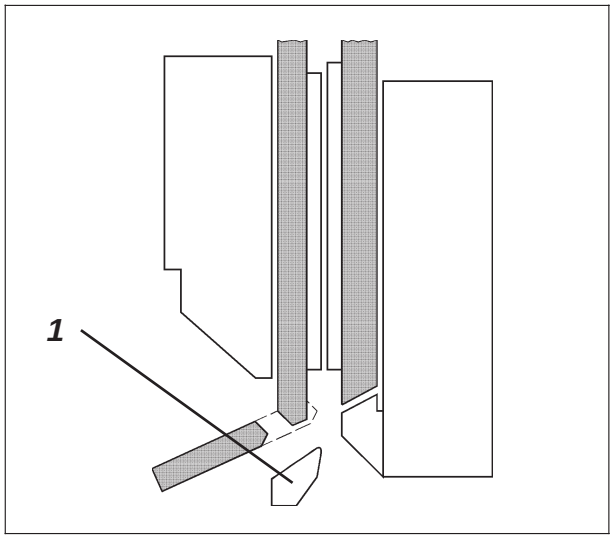
Sideways position

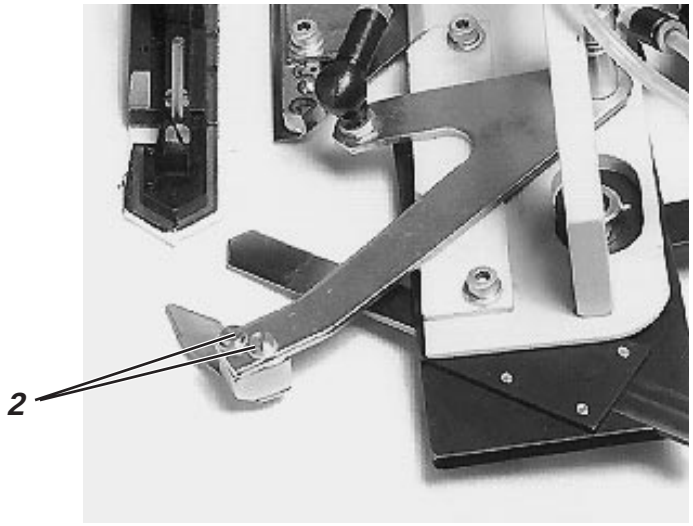
- Loosen screw.
- Align the position of the outer forward slide on the carrier.
- Tighten the screws.

Conduct a function test

- Set the program switch to **41** and press the " **STOP** " key.
  With the " **REPEAT** " key run through the function sequence in interval operation.

4.11 Center Forward Slide





The center forward slide 1 folds the trim around the interior slide and the inner forward slide above it.

The trim fold created during folding should be in the recess in the center forward slide. This is necessary for the folded trim to be held while the inner forward slide runs back into the initial position.

Caution Risk of Injury !

Turn the main switch off.
Set center forward slide only with the sewing unit turned off.
Conduct a function test with the greatest possible caution.

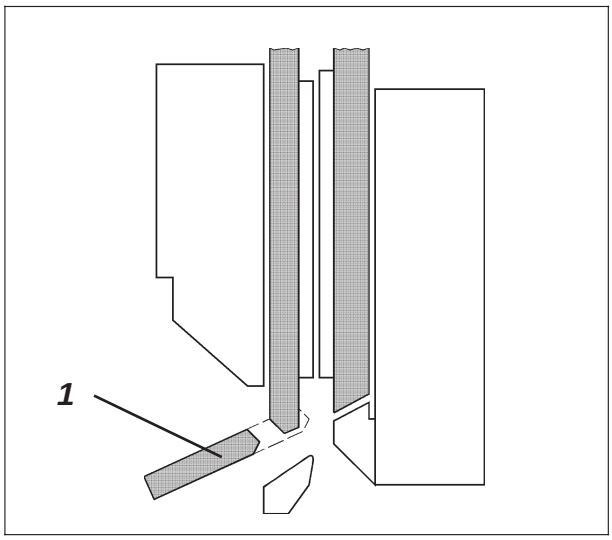
Setting the position

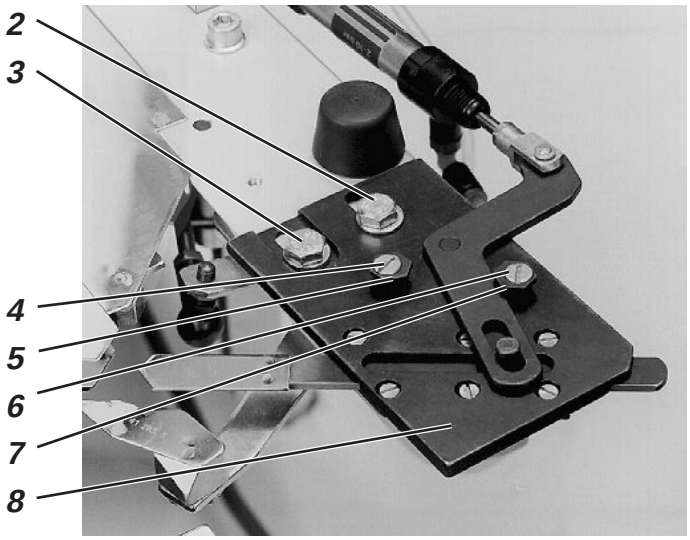
- Loosen screws 2.
- Align the center forward slide.
- Tighten screws 2 again.

Conduct a function test

- Set the program switch to **41** and press the “ **STOP** ” key. With the “ **REPEAT** ” key run through the function sequence in interval operation.

4.12 Inner Forward Slide





The inner forward slide 1 folds the trim around the interior slide. Then the center forward slide folds the trim around the inner forward slide.

The inner forward slide holds the folded trim tight when the interior slides are pulled back. It is therefore pulled back into the initial position 2° later.

Caution Risk of Injury !

Turn the main switch off.
Set the inner forward slide only with the sewing unit turned off.
Conduct a function test with the greatest possible caution.

Setting the position of the edge

– Loosen screws 2 and 3.
– Align the position of the inner forward slide with the carrier 8. The trim edge should have a clearance of 1 mm to the pointed seam.
– Tighten screws 2 and 3 again.

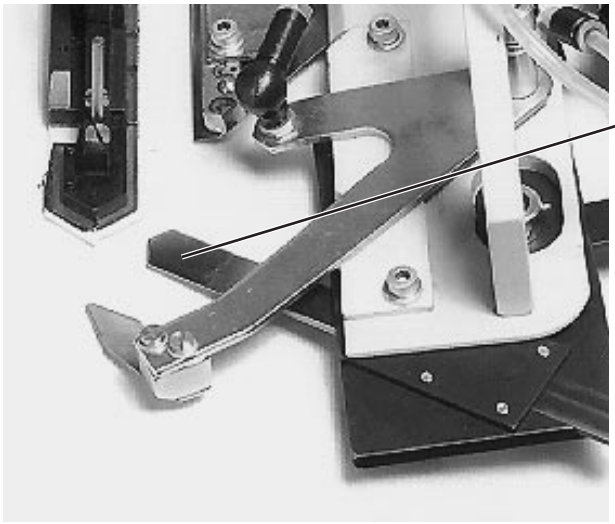
Setting the position of the run-forward forward slide

– Loosen screw 4.
– Set eccentric 5.
The front edge of the inner forward slide should lie at the same height as the beard clamp.
– Tighten screw 4 again.

Setting the position of the run-back forward slide

– Loosen screw 6.
– Set eccentric 7.
The inner forward slide should have a clearance of 5 to 6 mm to the interior slides.
– Tighten screw 6 again.

Continued on the next page !



Setting the height

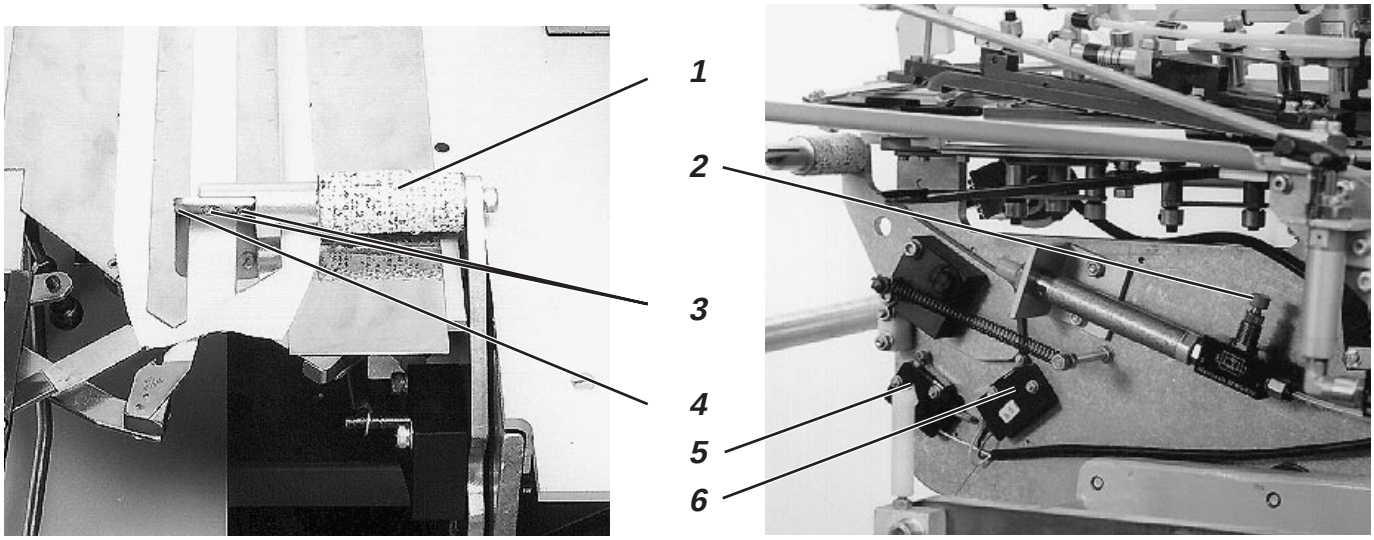
During the folding sequence the swing clamp presses the interior slide upward against the retracted inner forward slide at half pressure. The height of the inner forward slide also determines the height of the swing clamp and of the interior slide.

– Turn the setting wheel 2 into position 1.
– Bend the inner forward slide.

Speed of the forward slide forward and back

– Set the program switch to **41** and press the “ **STOP** ” key.
With the “ **REPEAT** ” key run through the function sequence in interval operation.
– Observe the movement of the inner forward slide.
The slide should move quickly but not jerk.
– Set the movement with the throttle.

4.13 Hold-down



The hold-down 1 is manually swung upward and presses the interior slides down against the clamps.

At the end of the folding sequence the hold-down is swung into the base position by a pneumatic cylinder.

Caution Risk of Injury !

Turn the main switch off.
Set the hold-down only with the sewing unit turned off.
Conduct a function test with the greatest possible caution.

Setting the position

- Set the dial for setting the material thickness to 1.
- Loosen screws 3.
- Set the position of the hold-down by relocating the stop 4.
  There should be a clearance of 2 to 3 mm between the casing of the hold-down and the side slides .
- Tighten screws 3 again.

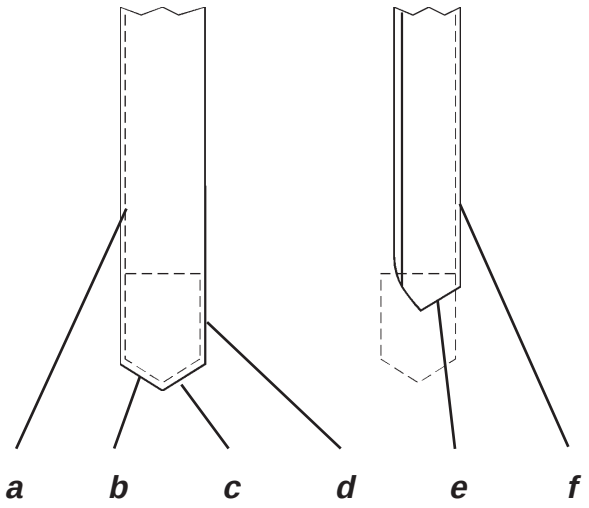
Setting the speed

- Set the program switch to **41** and press the " **STOP** " key.
  With the " **REPEAT** " key run through the function sequence in interval operation.
- Observe the movement of the hold-down.
  The hold-down should move quickly but not with a jerk.
- Set the movement with the throttle 2.

Setting the limit switch

- Loosen the screws.
- Relocate switches 5 and 6.
  The switches 5 and 6 (b23 and b24 or b27 and b28) must be triggered in both end positions of the hold-down.
- Tighten the screws again

5. Causes of Unequal Edge Intervals



Listed in the table are the contour-determining elements.

Seam Segment Trim Edge	Trim Side	Element
a	upper	Interior slide-Swing table
b	upper	Interior slide-Swing table
c	upper	Inner forward slide
d	upper	Position of the clamping table
e	lower	Interior slide-Fixed table
f	lower	Interior slide-Fixed table

The possible causes for unequal edge intervals are listed in the following table.

Possible Causes of Unequal Edge Intervals

Possible Cause	Effect on Edge a	b	c	d	e	f
Folding Device						
Position of the interior slides	•	•	-	-	•	•
Position of the inner forward slide	-	•	•	•	-	-
Position of the clamping table	-	-	-	•	-	-
Interior slides scratched	•	•	•	-	•	•
Position of the side slides	•	-	-	-	-	•
Position of the hold-down	•	•	•	-	•	•
Inner forward slide run too far in	-	-	-	•	-	-
Center forward slide in the wrong position	-	-	•	•	-	-
Dial for material thickness set incorrectly	•	•	•	-	•	•
Position of the guide curves and switching disks	•	•	•	-	•	•

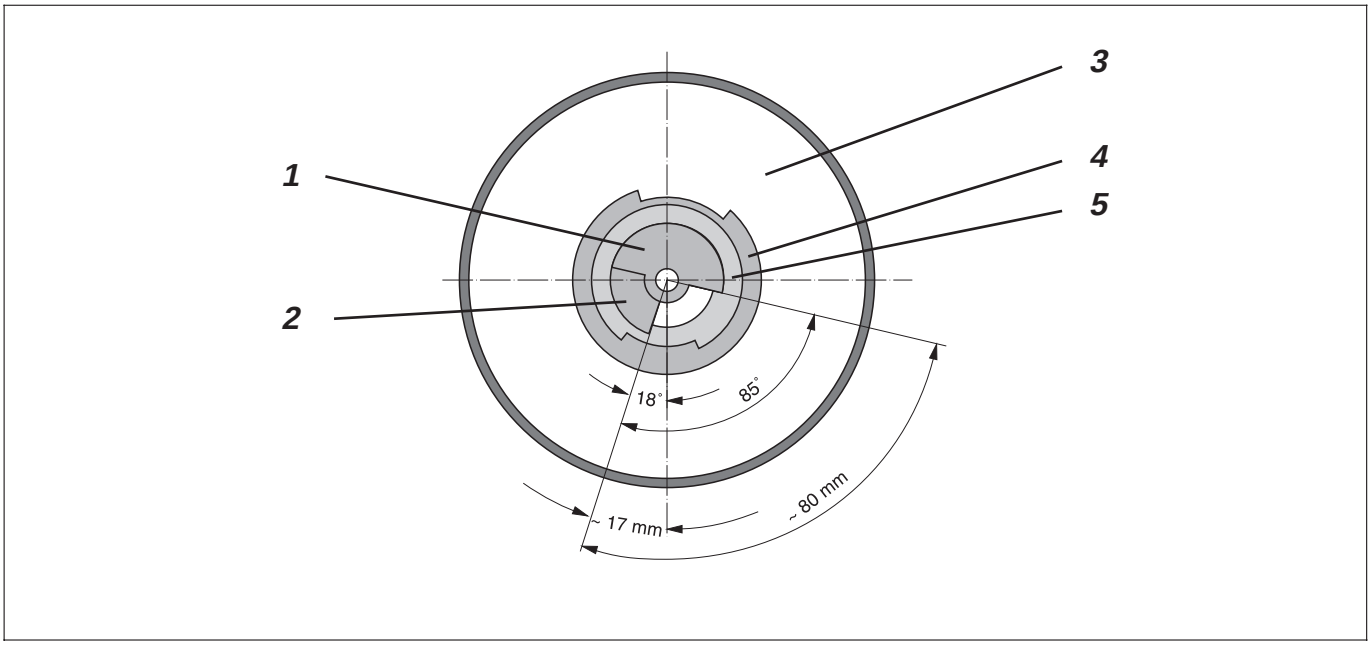
Continued on the next page !

Possible Cause	Effect on Edge a	b	c	d	e	f
Fixed Clamp / Swing Clamp						
Delrin and rubber damaged	•	•	•	-	-	•
Delrin deflects the needle	•	•	•	•	-	•
Trim clamp cylinder in the wrong position	•	-	-	-	-	-
Cross clamp cylinder in the wrong position	•	-	-	-	-	-
Machine Head						
Needle thread tension too high	•	•	•	•	-	-
Stitch length too great	•	•	•	•	-	-
Sewing speed “ house-shaped seam cutting rpm ” too high	•	•	•	•	-	-
Height of the needle plate too high	•	•	•	•	-	-
Pressure foot stroke position too low	•	•	•	•	-	-
Guide Curve						
Position and length of the aluminium strips wrong	-	•	-	•	-	•
Trim Blanks						
Size of the blank wrong	•	•	•	-	-	•
Trim incorrectly inserted	•	•	•	-	-	•

• = has an effect on the edge

- = has no effect on the edge

6. Synchronizer

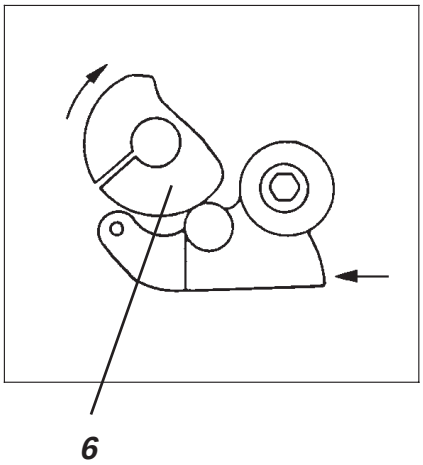


With the synchronizer first the 2nd position and then the 1st position must be set.

The disks 1 and 2 of the synchronizer must be set according to the sketch for the 3rd position (threading).

Caution Risk of Injury !

Turn the main switch off.
Set the synchronizer only with the sewing unit turned off.



Setting the 2nd position

- Turn the handwheel 3 until the thread lever high position is reached.
- Set disk 5 accordingly.

Setting the 1st position

- Turn the handwheel 3 until the guide curve 6 has reached the position shown in the picture.
- Set disk 4 accordingly.
- Check that both threads are being cut correctly.
  Correct the position of the disk if necessary.

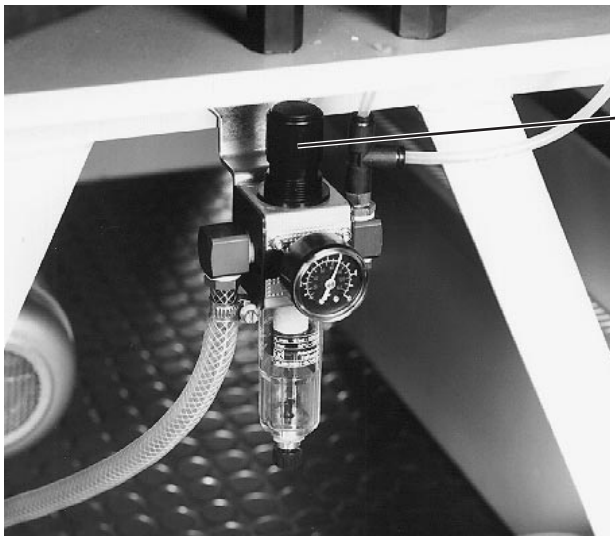
Setting the 3rd position

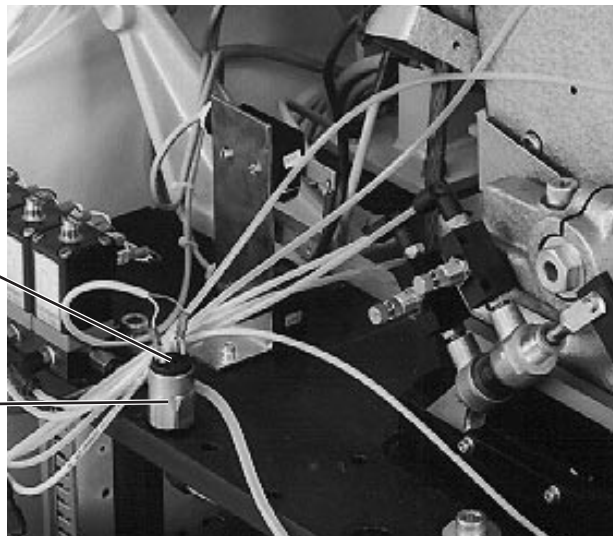
- Turn the handwheel 3 until the thread lever high position is reached.
- Set disks 1 and 2 according to the sketch.
  The flank of the 3rd position (disk 2) must lie within the 2nd position.

  1st position = Disk 4
  2nd position = Disk 5
  3rd position = Disk 1 and 2

The setting of the synchronizer can be checked with the program 45.
See Short Description-Microcontrol.

7. Pneumatics





The operating pressure for the pneumatic system of the sewing unit is set at 6 bar by the maintenance unit.

The compressed air monitor 3 switches the sewing unit off when the minimum operating pressures drops below 4.2 bar.

Caution Risk of Injury !

Set the compressed air monitor with the sewing unit turned off and with the greatest possible caution.

– Pull up the knob 1 and reduce the operating pressure until the pressure monitor turns the sewing unit off.

  The maintenance unit should show a pressure of 4.2 bar.
  If the value shown is greater or smaller reset the pressure monitor with the screw 2.

8. Maintenance

Caution Risk of Injury !

Turn the main switch off.
The maintenance work on the sewing unit may only be conducted with the machine turned off !

The maintenance tasks to be conducted by the operating personnel on the sewing unit daily or weekly (cleaning and lubricating) are described in Part 1: Operating Instructions Chapter 7. They are included in the following table only for the sake of completeness !

Work to be done	Operating Hours			
	8	40	160	500
Machine Head				
Remove lint accumulations in the area of the needle plate, hook and thread trimmer	•			
Check the oil level in the oilpan	•			
Check the oil feed at the window	•			
Check hook lubrication		•		
Check the timing belt			•	
Drive Unit for the Machine Head and Guide Curve				
Check the ventilator wheel on the motor	•			
Check the condition and tension of the V-belt		•		
Guide Curve				
Lubricate the curve paths with liquid grease			•	
Lubricate the roller		•		
Clamping Table				
Clean the running surfaces of the clamping table with compressed air	•			
Clean the ball elements with an oil-soaked rag	•			
Check the play of the worm gear		•		
Lubricate the curve paths of the guide curves with liquid grease			•	
Pneumatic System				
Check the water level in the pressure regulator	•			
Clean the filter insert in the maintenance unit			•	
Check the system for leaks			•	