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Part 3: Service Instructions for the 743-121

1. General

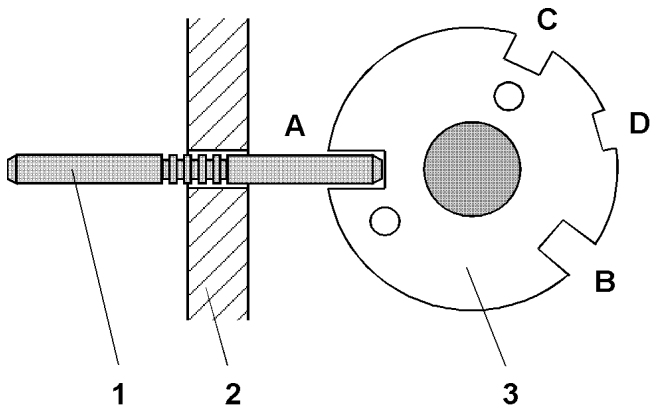
ATTENTION !

The tasks described in the service instructions must only be conducted by specialized personnel or persons with appropriate training !

Caution Risk of Injury !

Bei Reparatur-, UmFor repair, conversion and maintenance work the main switch must be turned off and the sewing unit disconnected from the pneumatic air supply.

Adjustment work and function testing on a machine under power must only be conducted with strict adherence to the safety measures and extreme caution.



The machine head is equipped with adjustment aids which make it possible to adjust the machine quickly and easily.

With the adjustment pin 1(in the accessories package) and an adjustment ring 3 attached to the pulley on the arm shaft the sewing unit can be arrested in 4 adjustment positions.

Dependent on the selected position, 2 to 5 grooves are visible on the adjustment pin 1 (2 = housing wall).

The positions **A**, **B**, **C** and **D** stamped into the handwheel for ease of location. The marking on the covering hood serves as an indicator.

A = 2 grooves visible

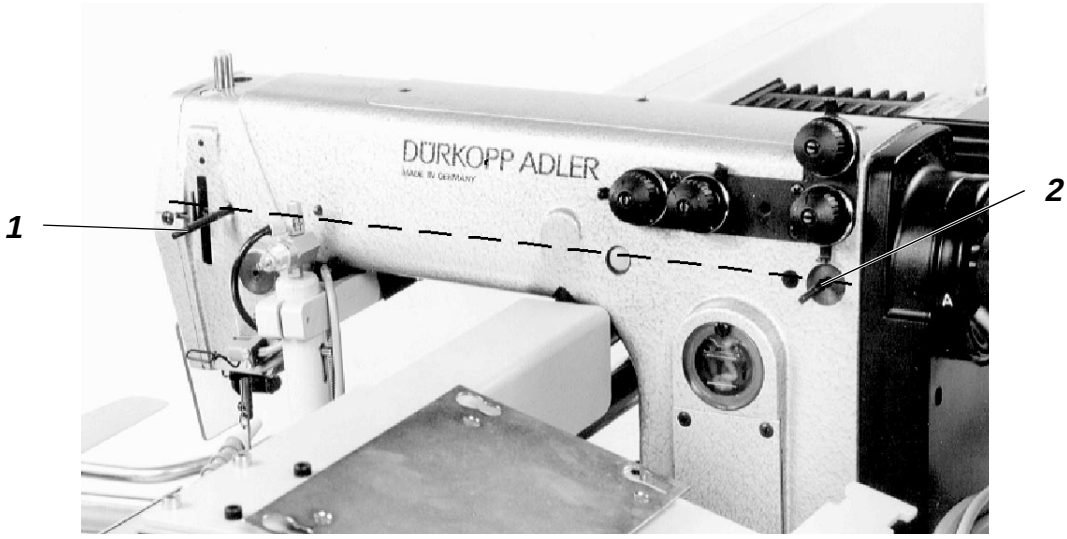
B = 3 grooves visible

C = 4 grooves visible

D = 5 grooves visible

2. Setting the Machine Head

2.1 Arm shaft crank



The tracing groove of the arm shaft crank and the slot **A** of the adjustment ring must be in-line.

Caution Risk of Injury !

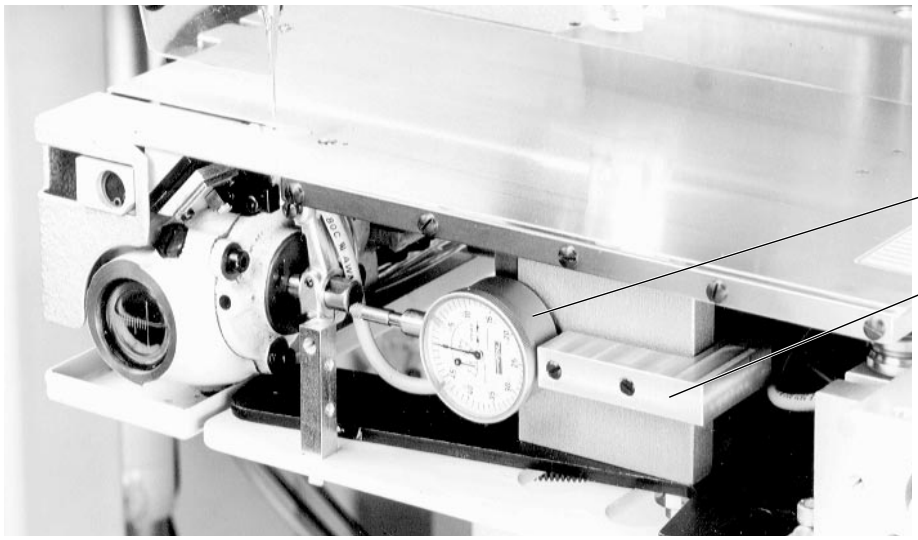
Turn main switch off before adjusting.

- Push the second adjustment pin 1 into the tracing hole and allow the arm shaft crank tracing groove to lock on.
  A pen or a 5 mm drill bit can also be used instead of the second adjustment pin.
- Check to see if in this position the adjustment pin 2 can be inserted into position **A** (2 grooves visible).
  If not, the arm shaft crank must be adjusted on the arm shaft.

Setting the arm shaft

- Remove the front cover.
- Loosen the arm shaft crank locking screws and adjust the crank appropriately.
- Tighten the locking screws.

2.2 Needle Evasion Movement



With needle evasion movement (ellipse width) is meant the movement which the hook makes in order to pass **behind** the needle when moving from right to left and **infront** of the needle when moving from left to right.

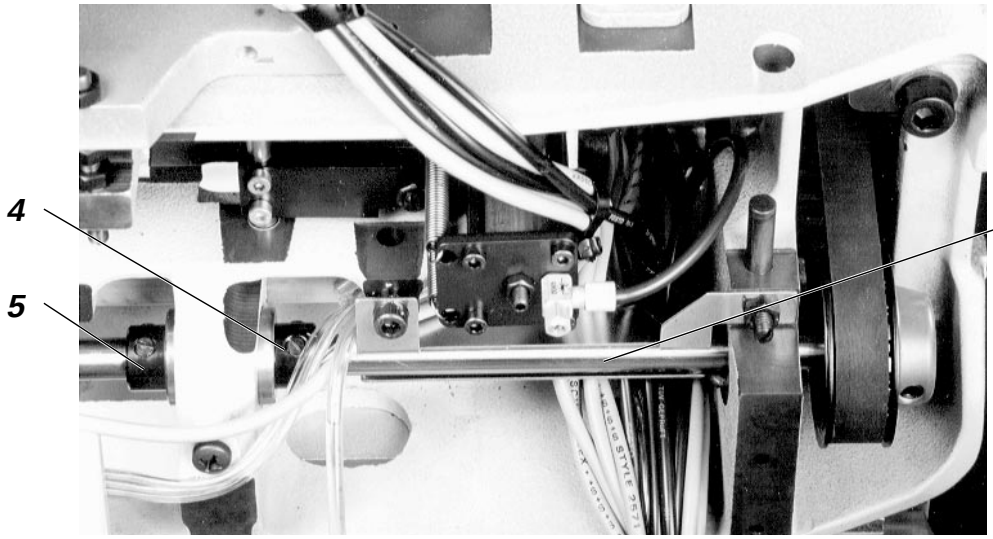
With this sewing unit the ellipse width should be 1.9 mm.
(Needle thickness Nm 90)

Caution Risk of Injury !

Turn the main switch off before measuring and adjusting.

Measuring the ellipse width

- Attach the measuring dail 1 with the parts kit 2 (Order no. 935 008021).
- Set the lowest and highest points by turning the handwheel. The difference should be 1.9 mm.



Setting the ellipse width

- Displace the lower shaft 3 along its axis
  To the right: Ellipse width decreases
  To the left: Ellipse width increases
- Then set the set collars 4 and 5 at the center bearing tight again. Check the lower shaft for ease of movement !

2.3 Symmetry of Looper Motion

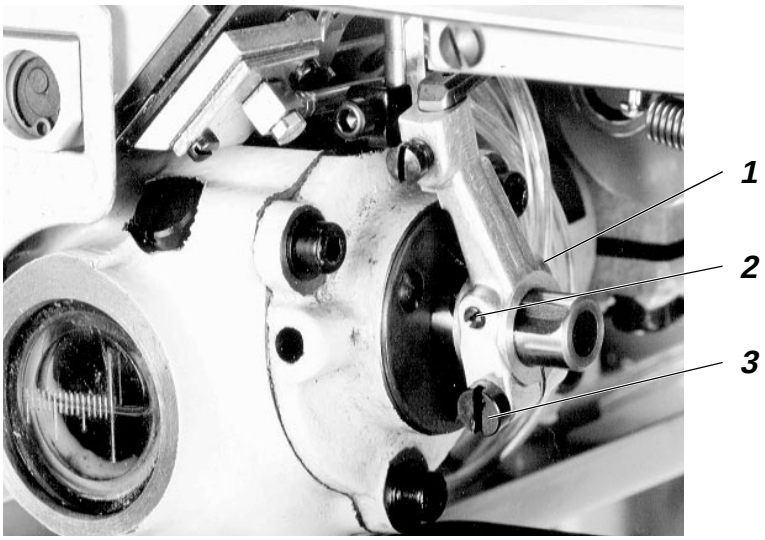
Looper motion symmetry is set with the gauges 1 and 2 (Order no. 0933 080192).

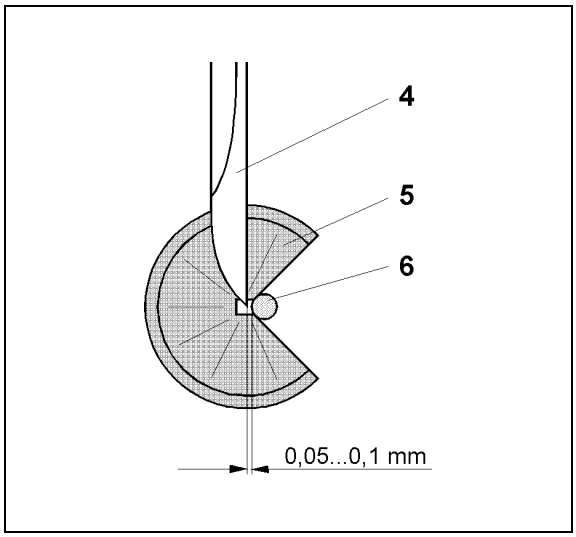
Caution Risk of Injury !

Turn the main switch off before adjusting.

- Arrest the sewing unit in position **A** (2 grooves visible).
- Attach angle 1 and pointer 2 (see illustration).
- Loosen the set screws on the lower pulley.
- Check to see if the pointer moves up by turning the lower shaft in the direction of rotation.
  If not, the lower shaft must be turned accordingly.
- Tighten the set screws on the lower pulley.
- Align the pointer to the measuring edge of the angle 2.
- Pull out the adjustment pin and move the sewing unit to position **D** (5 grooves visible) by turning the handwheel and arrest there.
  The pointer 2 should have made a pendulum movement up and back to the slit again.
  If not, loosen the set screws on the lower pulley.
  Reduce the distance between the pointer and the slit by **half** through turning the handwheel.
  Adjust the angle 1 (measuring edge to pointer).
  Repeat the adjustment as often as necessary until the pointer 2 lies exactly on the measuring edge in positions **A** and **D**.
- Withdraw the adjustment pin and move the machine to position **A** by turning the handwheel and arrest there.
  The pointer 2 should have made a pendulum movement down and back again to the measuring edge.
  This pendulum movement results automatically from the pendulum movement first set.

2.4 Hook at the Needle Center



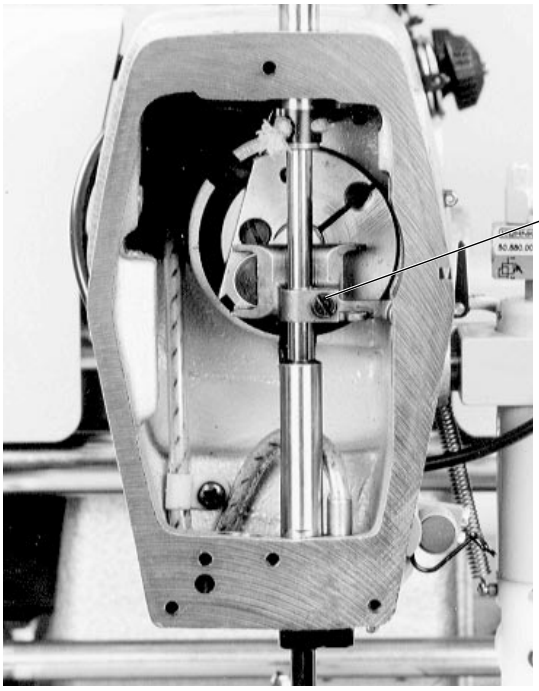


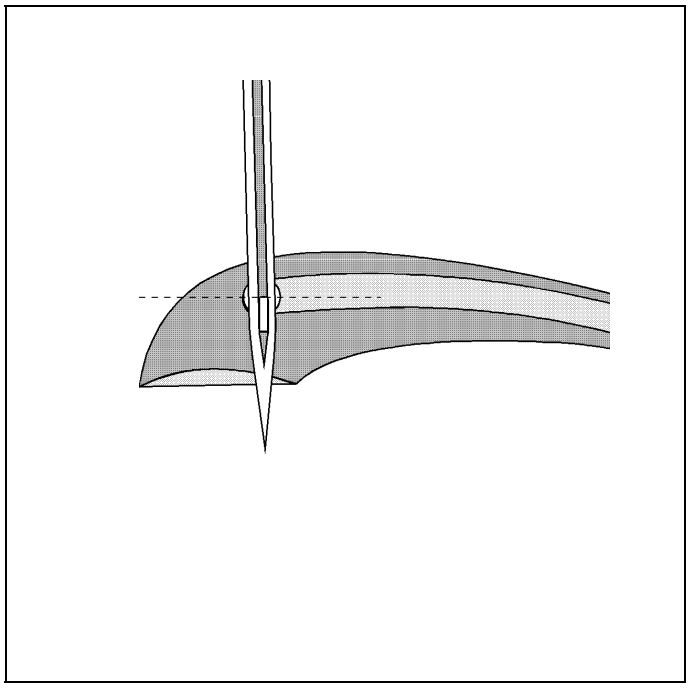
In position **C** the hook point should lie at the needle center.
The distance between the hook point and the needle is 0.05...0.1 mm.

Caution Risk of Injury !
Turn off the main switch before adjusting.

- Arrest the sewing unit in position **C** (4 grooves visible).
- Set the position of the hook with the stop screws 1 and 2.
- Set the distance to the needle by sliding the hook in the axial direction.
  Screw 3 fastens the hook.

2.5 Needle Bar Height





The height of the needle bar is correctly set when the hook eye lies at the center of the needle **and** the upper edge of the needle eye lies at the center of the hook eye.

Caution Risk of Injury !

Turn off main switch before adjusting.

- Unscrew front cover.
- Set needle bar height.
- Tighten the needle bar set screw 1.

2.6 Needle Guard

The needle guard 1 is to prevent a diversion of the needle into the path of the hook.

Caution Risk of Injury !

Turn main switch off before adjusting.

Preparation

– Remove thread trimmer (see Section 3.1).
  The needle guard mounting screws 2 and 3 are more accessable.

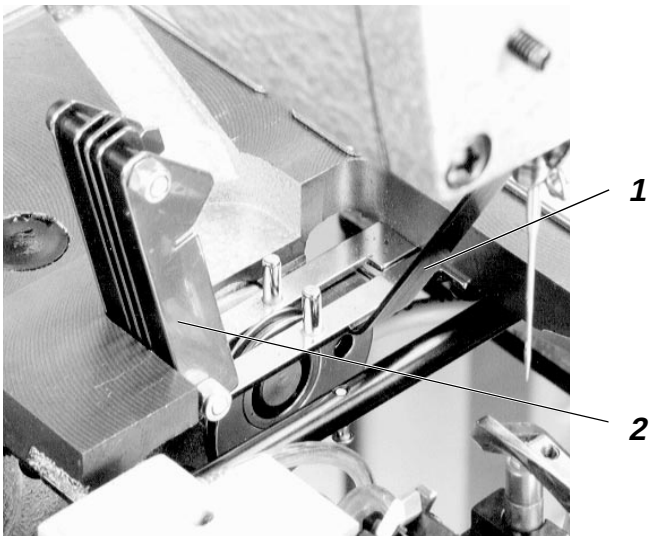
1. Setting height

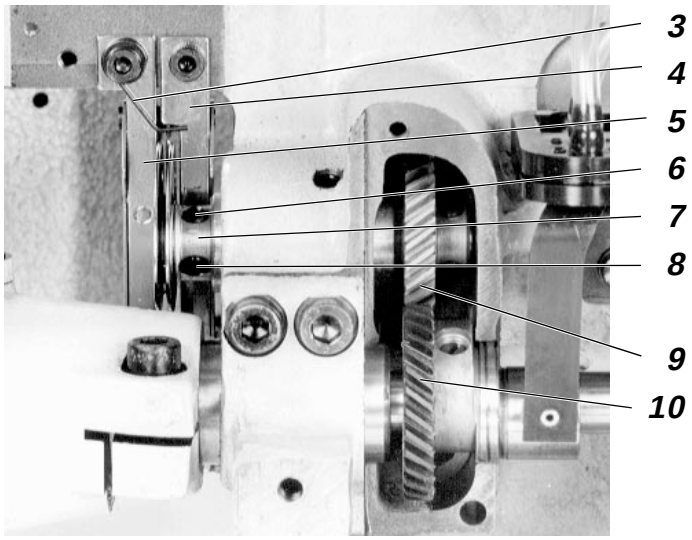
– Slide the needle guard 1 in the piston.
  The undersides of the piston and the needle guard should be flush.

2. Setting position

– Align the needle piston to the hook drive housing.
  When the hook point moves from right to left and reaches the needle, the needle should touch the needle guard.
  The needle should not be pushed aside by the needle guard when lowering.

2.7 Thread Take-up Disk

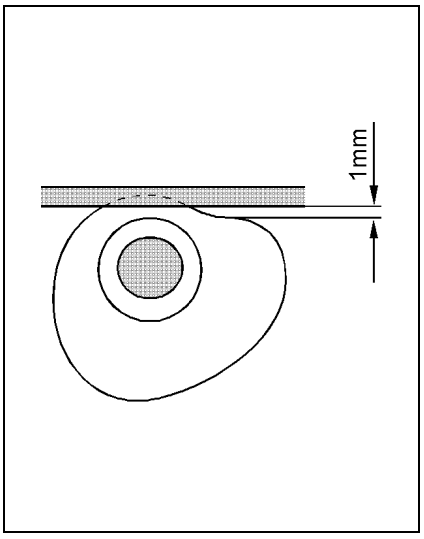




The thread take-up disk is to touch and pull back the bobbin thread when the hook begins its return movement from left to right.

Caution Risk of Injury !

Turn main switch off before adjusting.



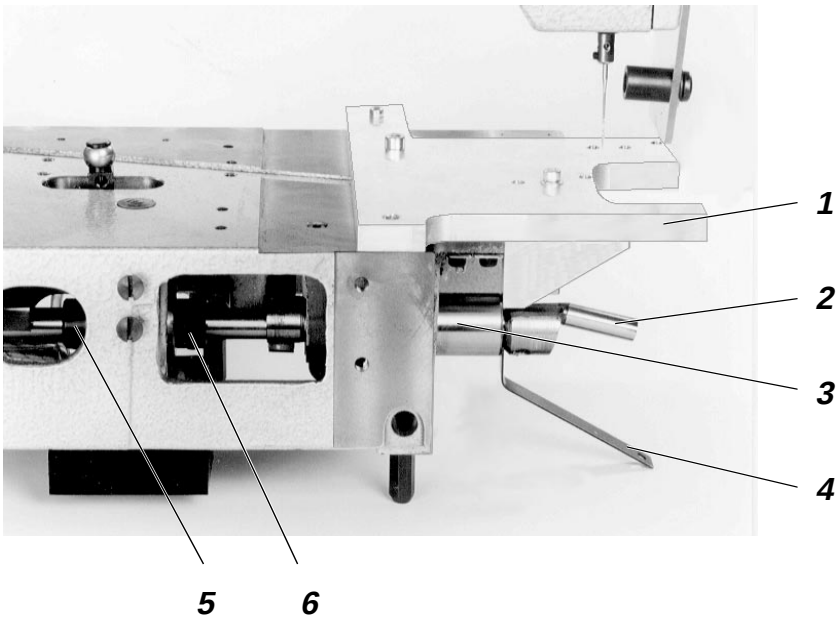
- Arrest sewing unit in position **B** (3 grooves visible).
- Check the distance between the thread take-up disk catch edge and the support plate. The distance should be 1 mm. The distance can be checked with the feeler gauge 1 (no. 0933 080200).
- If the distance is incorrect, the thread take-up disk is to be set accordingly.

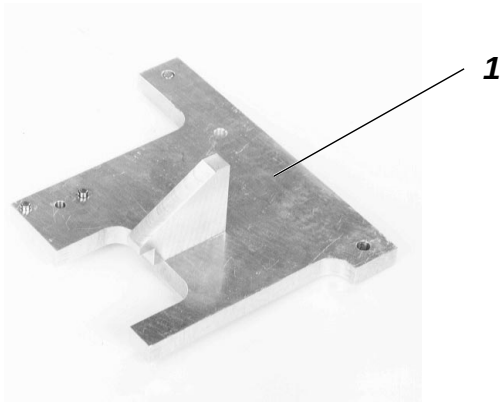
Setting the thread take-up disk

ATTENTION !
The thread take-up disk also acts as a set collar for the shaft.

- Completely loosen clamping screw 6.
  Loosen clamping screw 8 so far that the thread take-up disk can be turned by hand.
- If axial play is available, unscrew the gearing cover and set the thread take-up disk 7 and gear 9 tight.
  Hold the dimension 1mm with gauge 1 ! Tighten screws 6 and 8.
  Check the thread take-up disk for ease of movement.
- By moving the brackets 4 and 5 set the middle web of the flap 2 centered to the thread take-up disk.
- Press the brackets 4 and 5 apart and screw fast.
  The flap 2 must close without play and the spring 3 must lock in softly.

2.8 Rocker Bolt and Left Lower Shaft Bearing



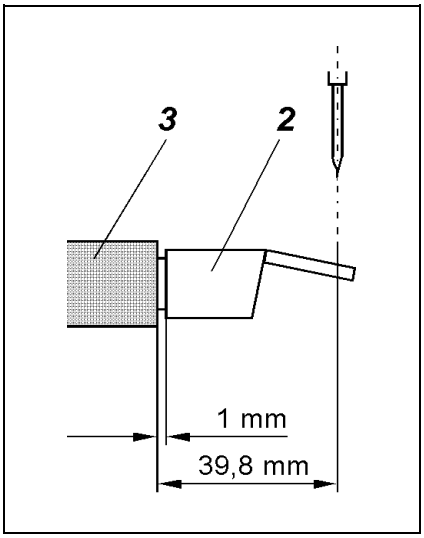


The distance from the needle center to the beginning of the lower shaft bearing should be 39.8 mm.

The distance from the beginning of the lower shaft bearing to the end of the rocker bolt should be 1 mm.

Caution Risk of Injury !

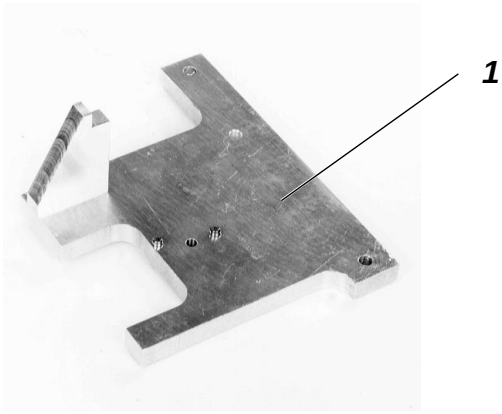
Turn main switch off before adjusting.



- Drain the oil from the hook drive housing.
- Remove the throat plate, facing cover, slider bed, hook, thread trimmer and hook drive housing.
- Prepare gauge 1 (Order no. 935 008001). Set on the base plate and screw fast.
- Push the left lower shaft bearing 3 onto the gauge 1 by sliding it along the axis and screw fast.
- Push the rocker bolt 2 onto the gauge 4 by sliding it along the axis and screw fast.
- Set the set collars 5 and 6 on the center bearing tight again. Check the lower shaft for ease of movement !
- Reinstall the hook drive housing and the other parts removed.

ATTENTION !
When installing observe the setting information provided in these service instructions.

2.9 Hook Drive Housing



The needle tip should point to the middle of the hook shaft. The distance from the upper edge of the hook shaft to the slider bed rest is 41 mm.

Caution Risk of Injury !

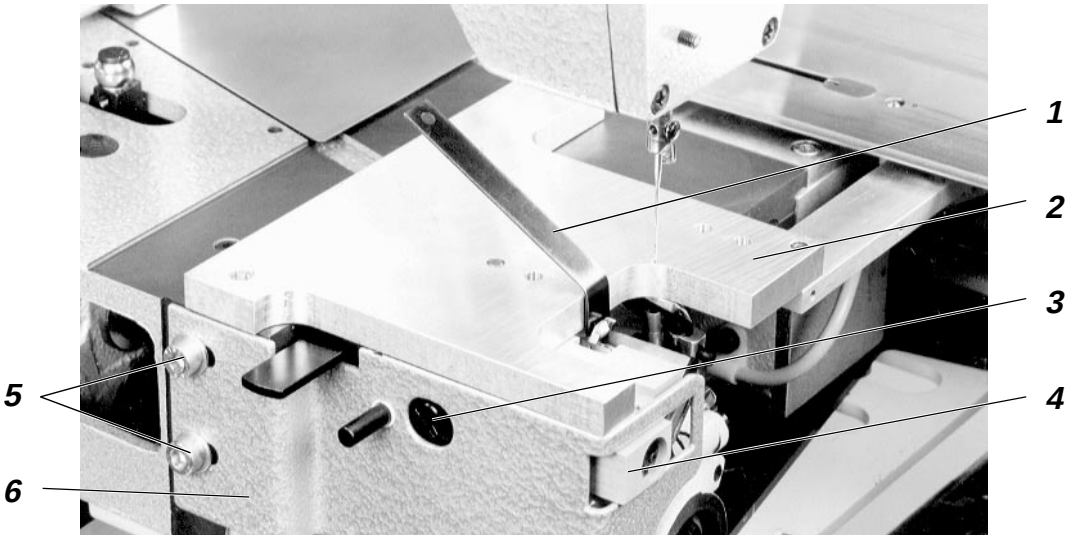
Turn main switch off before adjusting.

- Remove the facing cover, slider bed and hook with hook holder.
- Prepare gauge 1 (Order no. 935 008001). Set on the base plate and screw fast.
- Push the hook shaft 2 onto the gauge and screw the hook housing 3 fast.
- Reinstall the other parts removed.

ATTENTION !
When installing observe the setting information provided in these service instructions.

3. Setting the Sewing Unit

3.1 Thread Trimmer



Replacement and setting of the knives is to occur with the thread trimmer removed from the machine.

Caution Risk of Injury !

Turn the main switch off before removing the thread trimmer.

Removing the thread trimmer

- Unlock the slider bed and pull to the side.
- Unscrew screw 3. Unhook the draw spring and carefully remove the thread trimmer 4 from the support angle 6.
  The hoses are laid in a loop and can be pulled out a bit with the thread trimmer.

Installing the thread trimmer

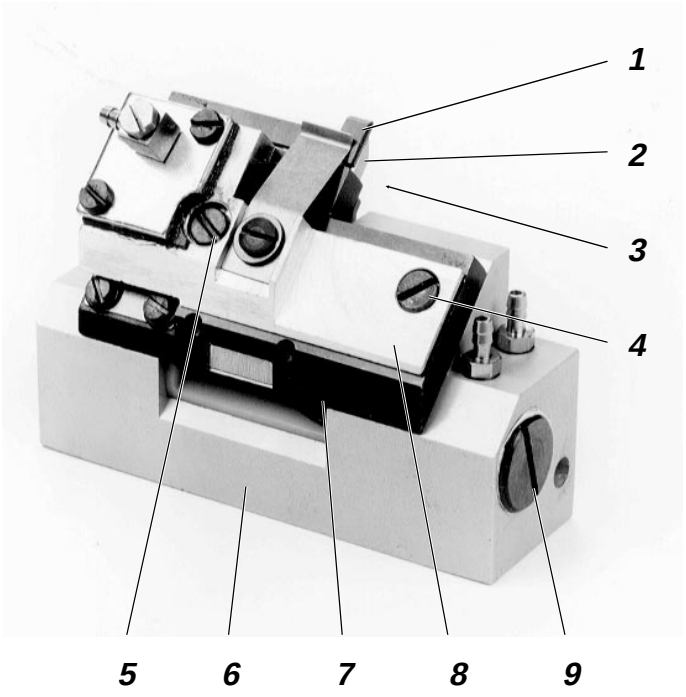
- Carefully insert the thread trimmer 4 in the support angle 6 and tighten screw 3.
  Take care to provide uniform clearance between the upper trimmer edge and the lower slider bed edge ! The trimmer hook knife is to run in the middle of the slot in the slider bed !
- Hook in the draw spring and pull the hoses back into their original position. Take to avoid having the hoses hit moving parts !

Setting the support angle

- Unscrew the guide strip for the slider bed (5 screws). Unlock the slider bed and place to the side on the support plate.
  The light barrier receptor need not be removed. Do not damage cables !
- Set the gauge 2 on the base plate and screw fast.
- Loosen screws 5. The upper edge of the support angle 6 should touch the lower edge of the gauge and be flush or parallel to it. Additionally the support angle is to be pushed horizontally in such a manner that the thread trimmer hook knife touches the pushed in gauge 1. Tighten the screws 5 in this position. With the slider bed inserted check to see if the hook knife runs in the middle of the slot.

Checking thread trimmer function

- The thread trimmer function can be checked with program 64 (see Instructions for programming DA-Microcontrol).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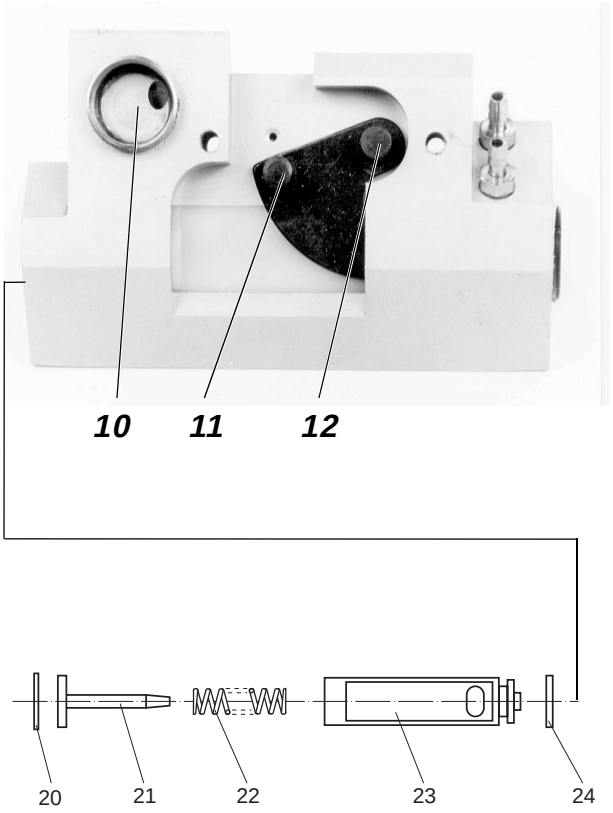
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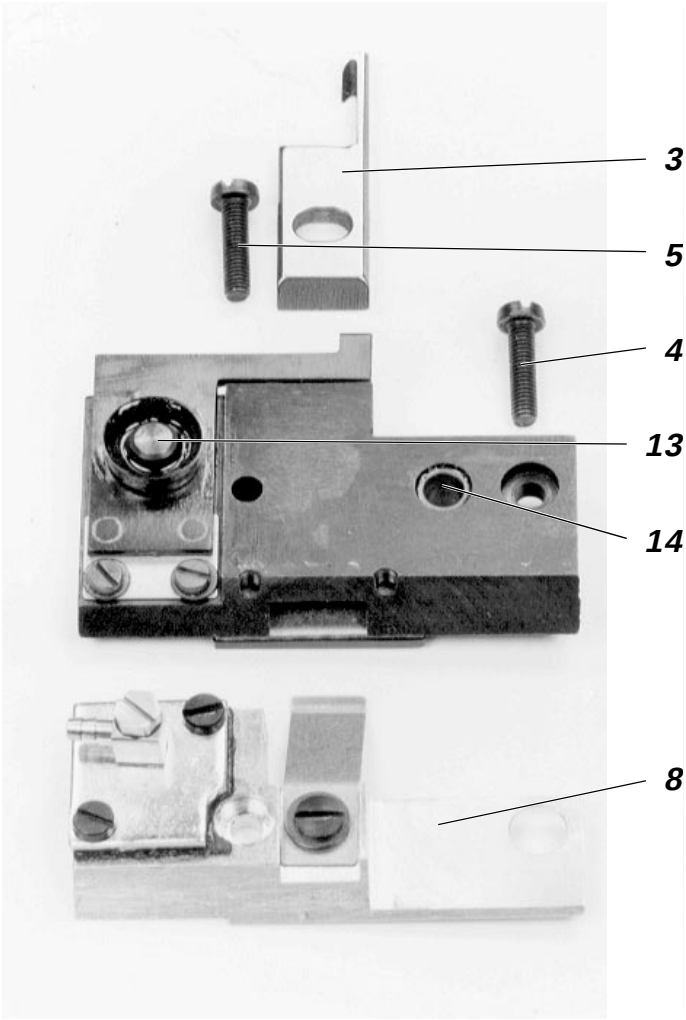
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14
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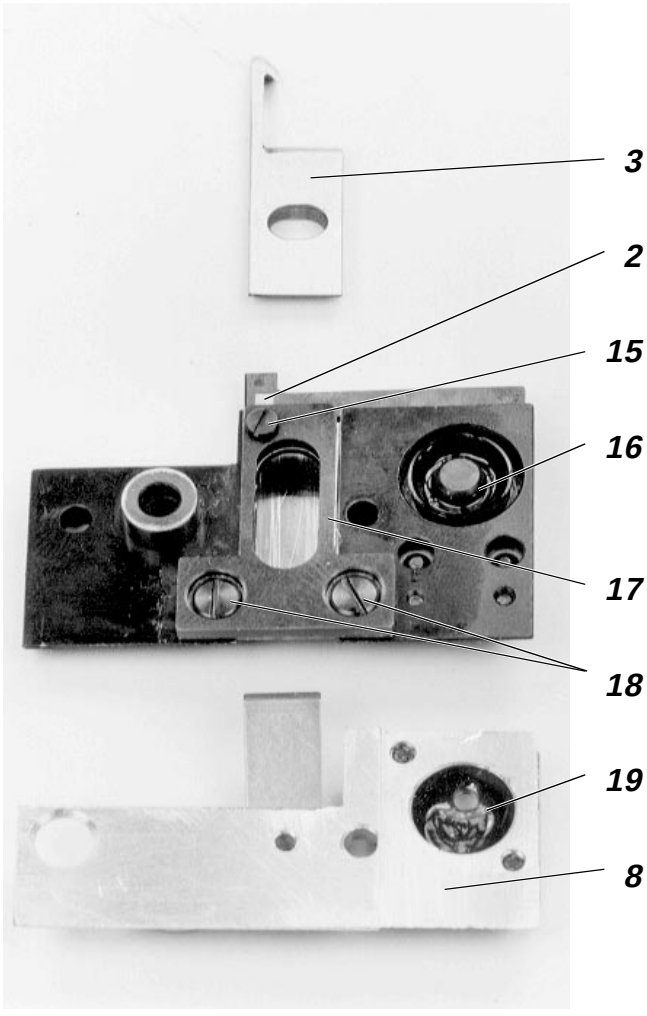
3
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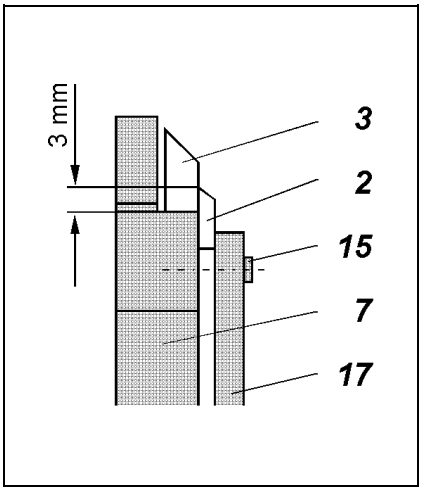
16
17
18
19
8

Removing the Knives

- Screw out screws 4 and 5 and remove the cover plate 8 and the knife guide plate 7.
- Remove the movable knife 3 **downward** out of the knife guide plate.
  This is necessary so that the knife is not damaged.
- Loosen screws 18 and remove the fixed knife 2.

Installing the Knives



- Screw on the fixed knife 2 with the pressure plate 17.
  The distance from the knife edge to the edge of the guide plate is 3 mm.
- Loosen pressure screw 15.
- Insert the movable knife 2 into the knife guide plate 7**from the bottom**.
  Check the knife for ease of movement.
- Tighten pressure screw 15 and set for the cutting pressure.
  The sewing threads are to be securely cut with the least pressure possible. Conduct a cutting trial (see also the section on function testing).
  The screw is slotted at the bottom. It can be spread slightly for a decure seating.
- Put on the knife guide plate 7.
  The collar 16 must catch in cylinder 10.
  Pin 12 must catch in hole 14.
  Pin 11 must catch in the slot in the movable knife.
- Put on cover plate 8.
  The collar 13 must catch in hole 19.
- Tighten screws 4 and 5.
- Setting the height of the movable knife 2.
  The height of the movable knife is set with screw 9. If screw 9 has been screwed out it is to be reinserted with PTFE tape and screwed in to its old position.
  the movable knife is to be set so that its cutting edge lies just below the cutting edge of the fixed knife.

Replacing the piston

The movable knife is lifted pneumatically.
The piston which operates the knife is to be found in the trimmer body.

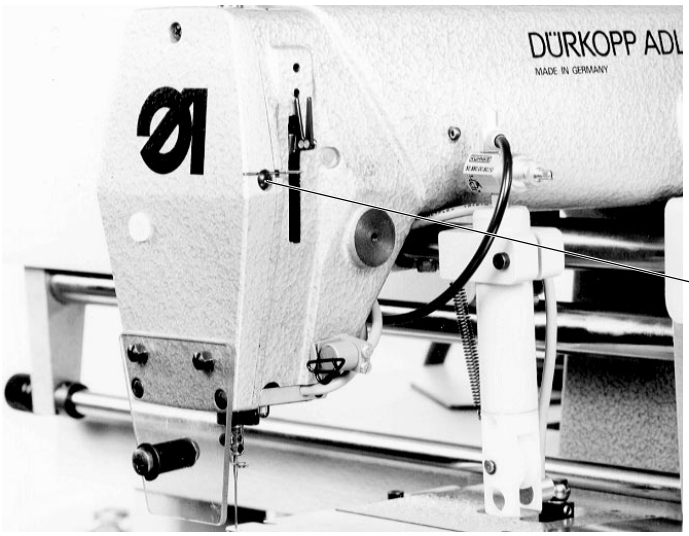
ATTENTION !
The running face of the hole is anodized.
The anodic layer should not be damaged when replacing the piston !

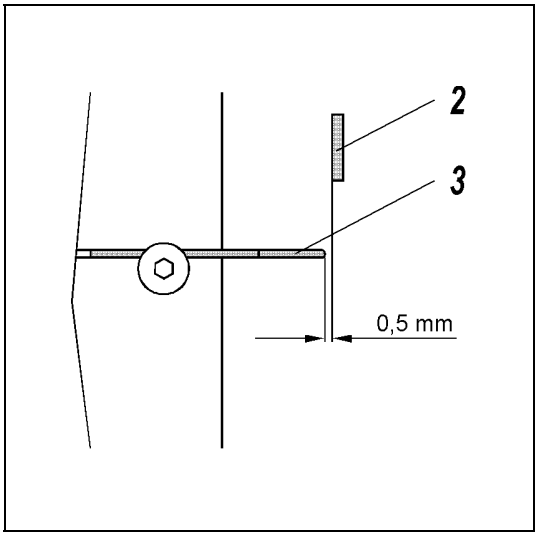
- Remove securing ring 20.

  ATTENTION !
  Disk 21 is under pressure !

- Remove disk 21, pressure spring 22 and piston 23 with O-Ring 24.
- Lubricate the running face of the hole with **ESSO fluid grease S420**.
  (DÜRKOPP ADLER AG Order no.: 0791 000304).
- Piston assembly is in the reverse order.
- Conduct a cutting trial with sewing threads (testing program).

3.2 Thread take-up Spring





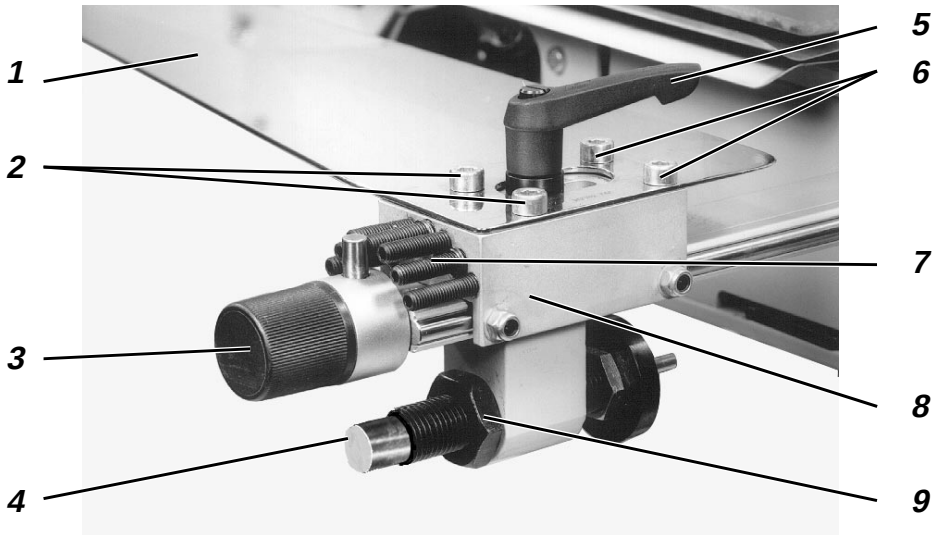
The distance between the thread take-up spring 3 and the thread lever 2 should be 0.5 mm.

Caution Risk of Injury !

Turn main switch off before adjusting.

– Loosen screw 1 and set the distance by moving the thread take-up spring 3.
(2 = thread lever)

4. Folding Table



Regulation and control

Depending on the thickness of the material the folding plate 1 should be in parallel with the slide plate at a height of 1.5 mm above it. So the height is determined by the thickness of the material.

In the 0° position the leading edge of the folding plate 1 runs parallel to that of the slide plate.

The insertion depth is determined by the material. The first penetration of the needle into the material should be as close as possible to the fold-over edge.

Caution Risk of Injury !

Turn main switch off before adjusting.
The folding table may only be adjusted with the sewing machine switched off.

Adjustment

1. Adjusting the Height

- Unscrew screws 2 and 6.
- Adjust the height of the folding plate 1 by inserting or removing separators (from the accessory kit) between the block 8 and the folding plate 1.
- Tighten screws 2 and 6.

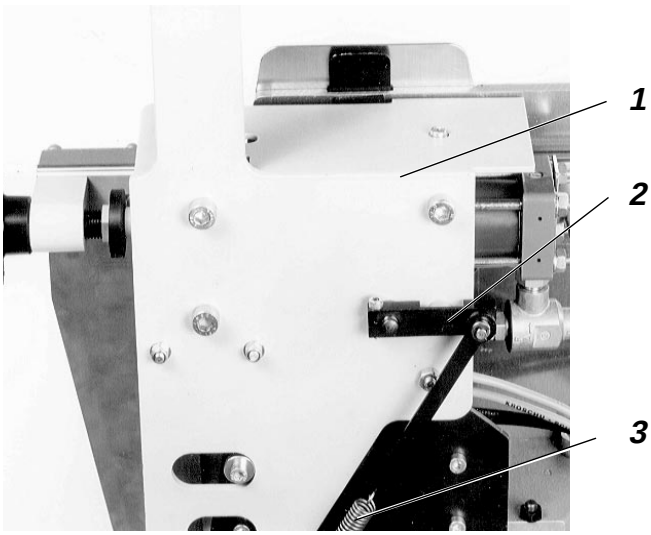
2. Adjusting the Position

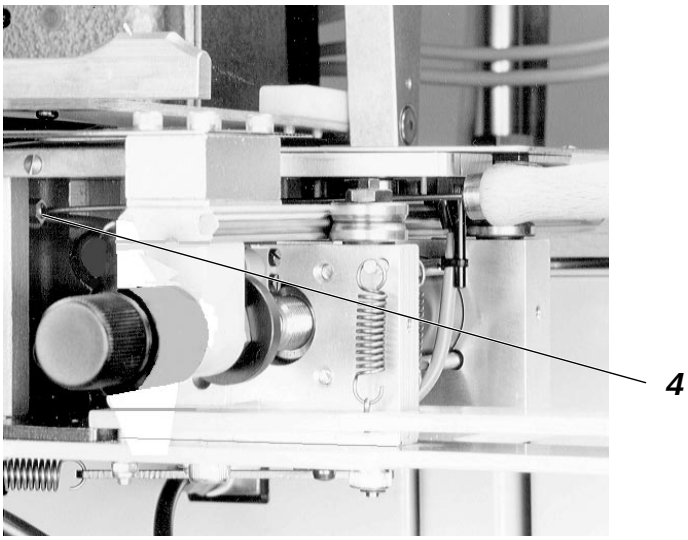
- Move the swivel arm to the 0° position.
- Undo screws 2 and 6 and the clamping lever 5.
- Align the folding plate 1 in parallel with the slide plate.
  The leading edge of the folding plate should be above the centre of the needle hole and of the 0° edge of the scale.
  The depth setting 4 must be adjusted if necessary.
- Retighten screws 2 and 6 and the clamping lever 5.

3. Adjusting the Insertion-depth

- Undo locknut 9.
- Adjust the depth setting 4.
  With medium-heavy material the first penetration of the needle into the material should be as close as possible to the fold-over edge.
- Retighten locknut 9.

4.1 Folding Table Retraction





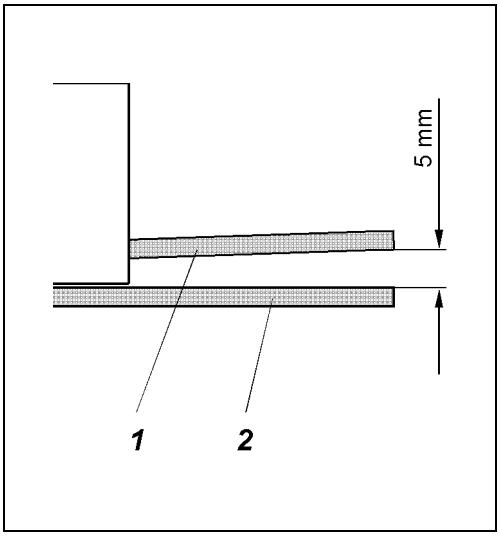
The folding table is run out by a pneumatic cylinder and retracted by a draw spring.

Caution Risk of Injury !

Turn main switch off before adjusting.
Do not reach into the running sewing unit during adjustment !

- Push in the folding table.
- Remove the right cover and unhook the draw spring 3.
- Press the contact roller into the guide curve and at the same time align the lever 2 parallel to edge 1 of the base plate and screw fast. The axial play of the shaft may not exceed 0.5 mm.
- Reattach draw spring 3.
- Set the run out speed of the folding table with the screw 4 on the throttle valve.
  The motion should be rapid but not jerky.
- Mount the right cover.

4.2 Angle Adjustment



Angle adjustment is made manually. The hand grip is pressed together and the angle set according to the scale.

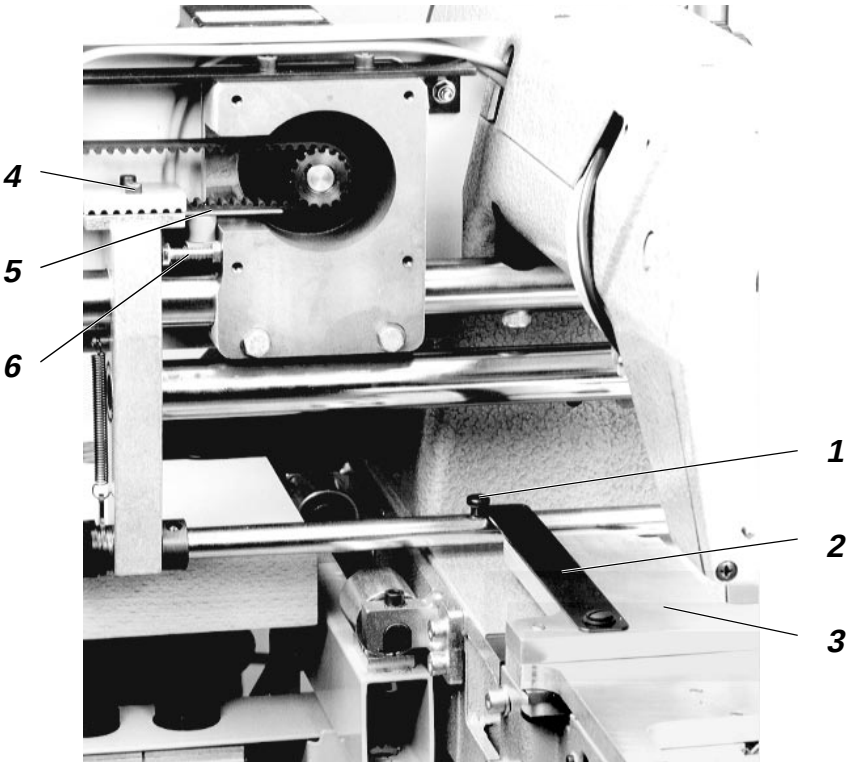
The set angle is held by a brake.

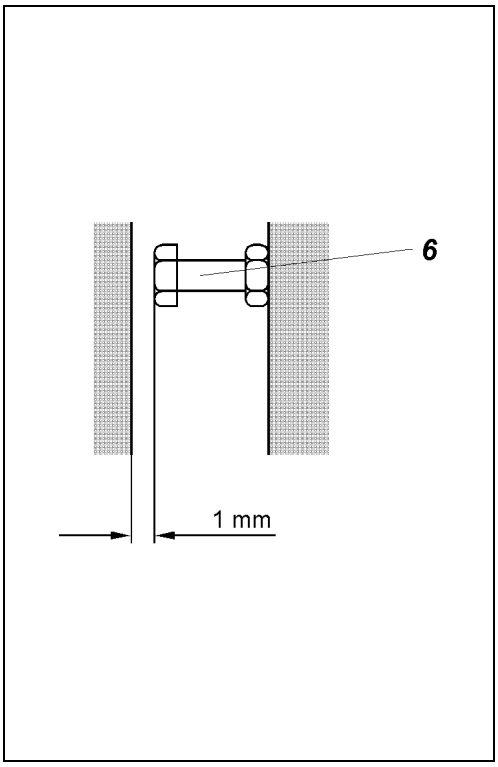
Caution Risk of Injury !

Turn main switch off before adjusting.

– Tighten screws 3.
  The hand grip 1 must press uniformly on pressure plate 4.
  The distance from the hand grip 1 to the base plate 2 is approx. 5 mm at the outer edge.
– Tighten counter nut 5.

5. Transport Carriage





The transport carriage accepts the configuration set and moves it according to the seam configuration.

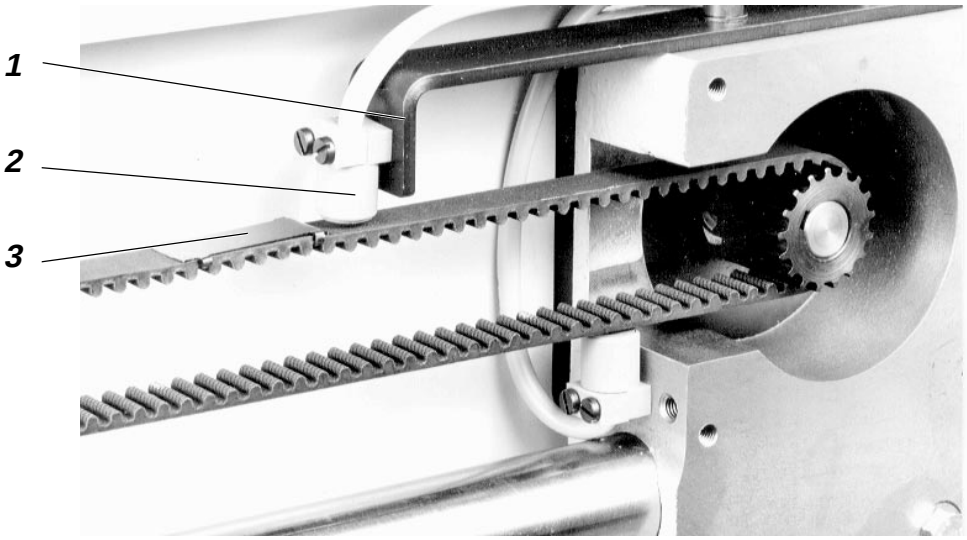
The reference point must be set.

Caution Risk of Injury !

Turn main switch off before adjusting.
Do not reach into the running sewing unit during adjustment !

- Remove the configuration set.
- Prepare gauge 3 (Order no. 935 008001) and place on the sewing unit base plate.
  Align the stopper plate 2 approx. 5° (counterclockwise) to the edge of the gauge 3.
- Push the transport carriage approx. 100 mm to the left.
- Select program 01 (sewing program) and turn main switch on.
  When the display **" <--- REF ---> "** or **" REF ---> "** appears press the **" Σ "** button.
  The transport carriage runs to the reference position.
  The stopper plate 2 is altered in its position through pin 1. In this position the stopper plate should be flush with the edge of the gauge.
- If not loosen screws 4 and adjust the switch plate.
- Recheck the positioning.
- Set the stop screw 6 and secure with the counter nut.
  The distance between the support and the screw head is approx. 1 mm.

5.1 Run-off Protection



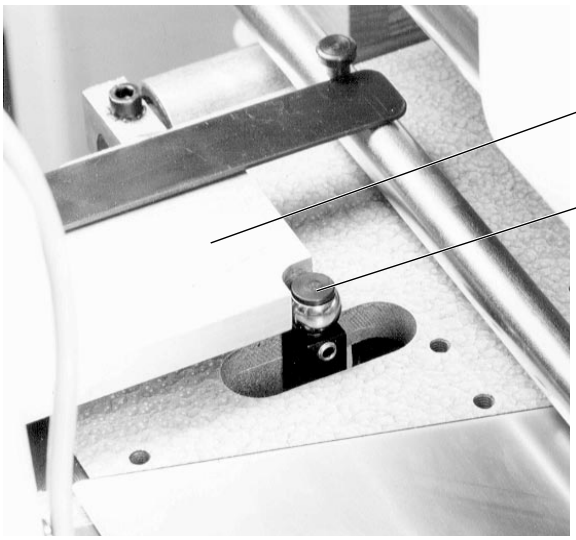
Left run-off protection for the transport carriage occurs via the approach switch b05.

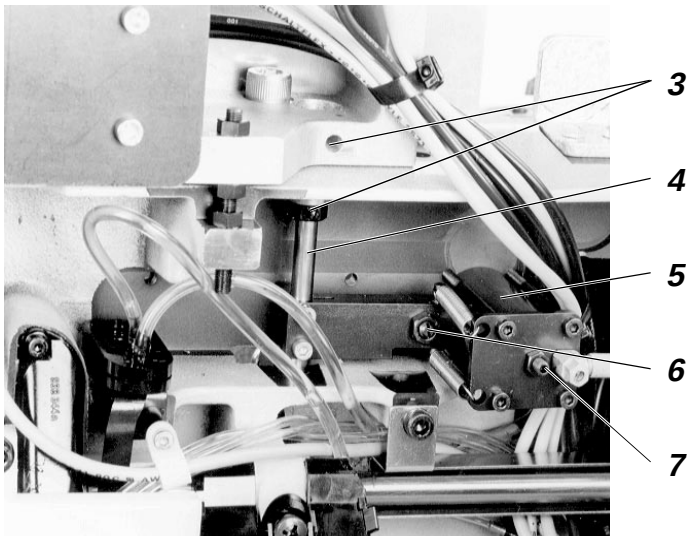
Caution Risk of Injury !

Turn main switch off before adjusting.
Do not reach into the running sewing unit during adjustment !

- Set the height of the approach switch 2 so that the switch plate 3 can run through without an air gap.
  If not bend the bracket 1 accordingly.
- Push the transport carriage into the left end position by hand.
- Select program 62 and turn main switch on.
  Press the **" STOP "** button.
  Set the **" Program "** switch to **" 05 "**.
- Push the switch plate 3 to the approach switch until it switches positively.
  Bend the metal tongues into the nearest tooth gaps.
- Check the switching function.

5.2 Guide Roller for the Configuration Set



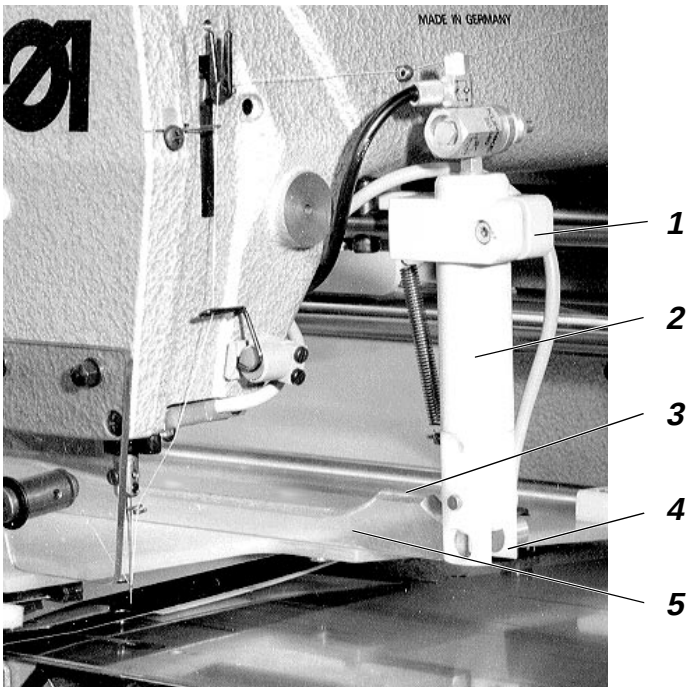


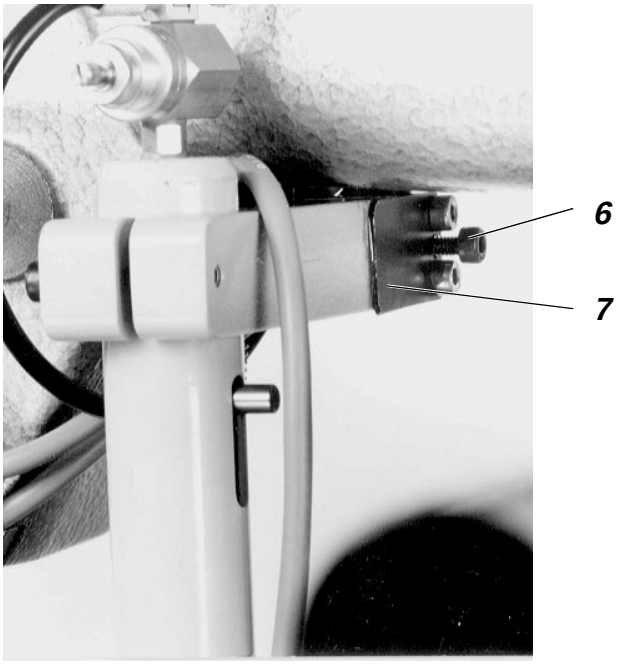
The position of the guide roller is set with the gauge 0935 008001.
The pneumatic cylinder 5 is only required by very curved seams.

Caution Risk of Injury !
Turn main switch off before adjusting.

- Place gauge 1 on the sewing unit base plate and screw on.
- Fold the upper part over to the left.
- Loosen the set collars 3.
  Press the guide roller 2 onto the first surface of the gauge by sliding it along the shaft 4.
  Fasten the set collars again.
- Loosen screw 6 and screw out a number of turns.
- Screw 7 press onto the piston rod.
  Press the guide roller 2 onto the second surface of the gauge 1 by adjusting the screw 7. Tighten the counter screw.
- Screw in screw 6 as far as possible and lock.
- Check to see that the guide roller touches both surfaces of the gauge 1. If not repeat the setting procedure.

6. Contact Cylinder for the Configuration Set





The contact cylinder locks the configuration set. The contact cylinder must be able to swing free according to the seam configuration.

Caution Risk of Injury !

Turn main switch off before adjusting.

1. Setting the height.

- Turn the handwheel until the needle is in the 2nd position **(OT)**.
- Move the configuration set. The contact cylinder 2 guide roller must press on the cam 3 of the guide curve 5.
- Move the contact cylinder 2 in the clamp block 1.
  The distance between the needle tip and the upper side of the configuration set is 2.5 mm.
  The inner surfaces of the roller fork 4 must be parallel to the guide curve 5.

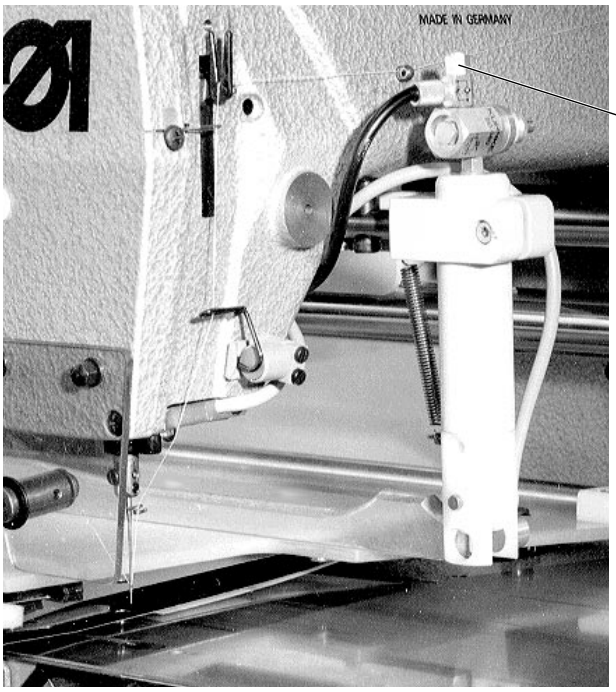
2. Setting the spring plate 5.

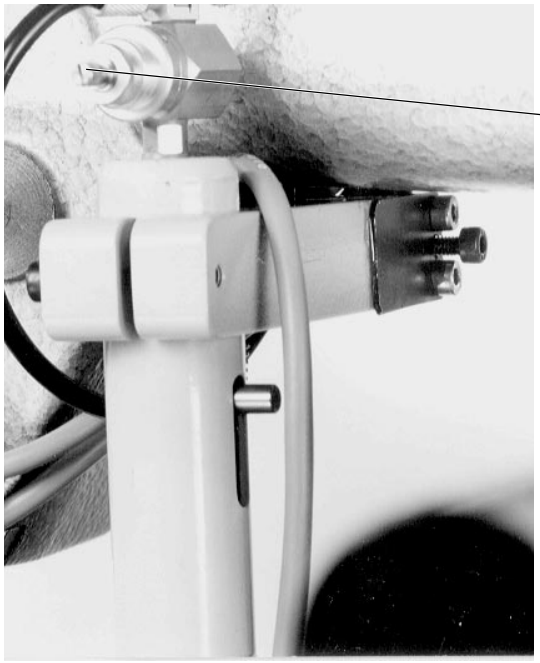
The clamp block 1 is bearinged on a shaft. The contact cylinder 2 can swing. The return movement occurs via the spring plate 7. When inserting the configuration set the roller fork lies opposite the guide curve 5.

The glide surface of the leaf spring 7 must be kept constantly greased !

- Loosen the clamping screw 6 and move the spring plate 7 on the shaft. The spring plate lay 5 mm onto the clamping block.
  The guide roller is centered over the guide curve.

6.1 Locking Movement for the Configuration Set





The locking movement for the configuration set is determined by the throttle and the locking force by the pressure regulator.

Caution Risk of Injury !

Turn main switch off before adjusting.
Do not reach into the running sewing unit during adjustment !

1. Setting the throttle 1.

– The locking movement of the cylinder should be rapid but not jerky.

2. Setting the pressure regulator 2.

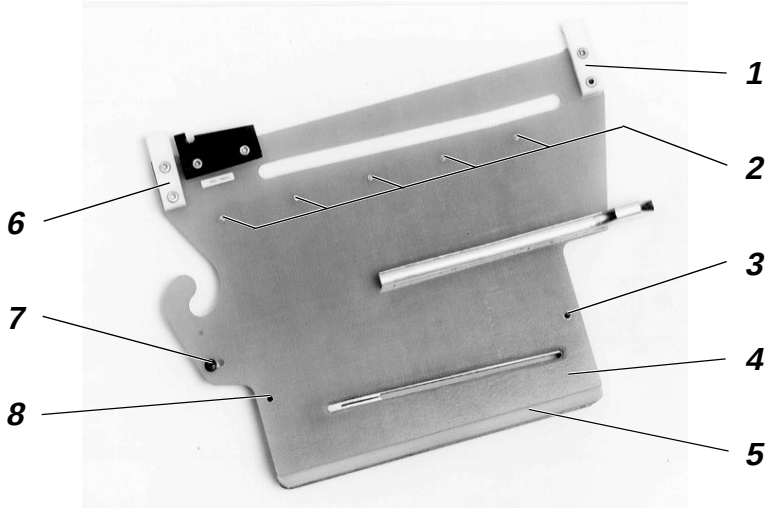
– Activate program 64 (selecting output elements).
Press the **" STOP "** button and set the **"Program"** switch to **"32"**.

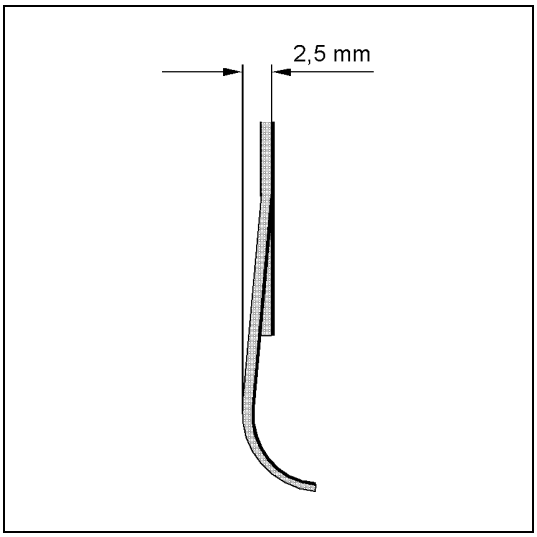
– Check for flawless material transfer.
Insert the thinnest material and push in the folding table. Press the **" Σ "** button. The cylinder is operated.
Check as to whether the material is held securely.

– Set the pressure regulator 2.
Increase pressure = screw in the locking screw.
A flawless material transfer with the lowest possible pressure is to be achieved.

ATTENTION !
The cylinder will not be ventilated if the pressure is too low.

7. Setting the Configuration Set





The sewing unit can be equipped with different configuration sets for diverse seam configurations.

0793 078001 Straight seam 2.5°
0793 078002 Curved seam
0793 078xxx Customer version

Caution Risk of Injury !

Turn the main switch off before adjusting and remove the configuration set from the sewing unit.

1. Fixing catches

– The configuration set should be seated without play on the carrier shaft.
If not move the fixing catches 1 and 6.

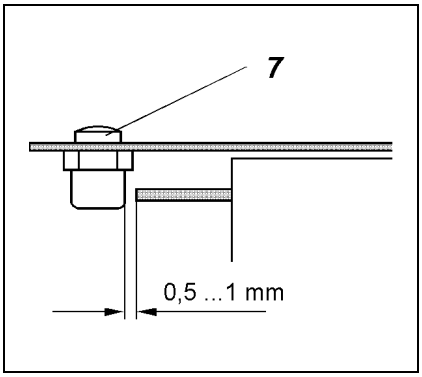
2. Position of the material clamps

– Press the configuration set apart (the same dimension as in the sewing unit).
The setting pins must fit through the holes 3 and 8.
If not loosen the screws 2 and set the plates accordingly.

3. Folding lip pressure

The folding lip pressure (pre-tensioning of the material clamps) is determined by the bow height.

– Bend the bow of the material clamps accordingly.
Standard setting 2.5 mm.
The gap must be the same along the whole length of the material clamp. the gap must also be the same on both plates.



4. Stopper

– Insert the configuration set and conduct a sewing procedure.

– Move the stopper.
The distance between the stopper 7 and the thread trimmer bracket is 0.5...1 mm.