

971 - 805; - 825

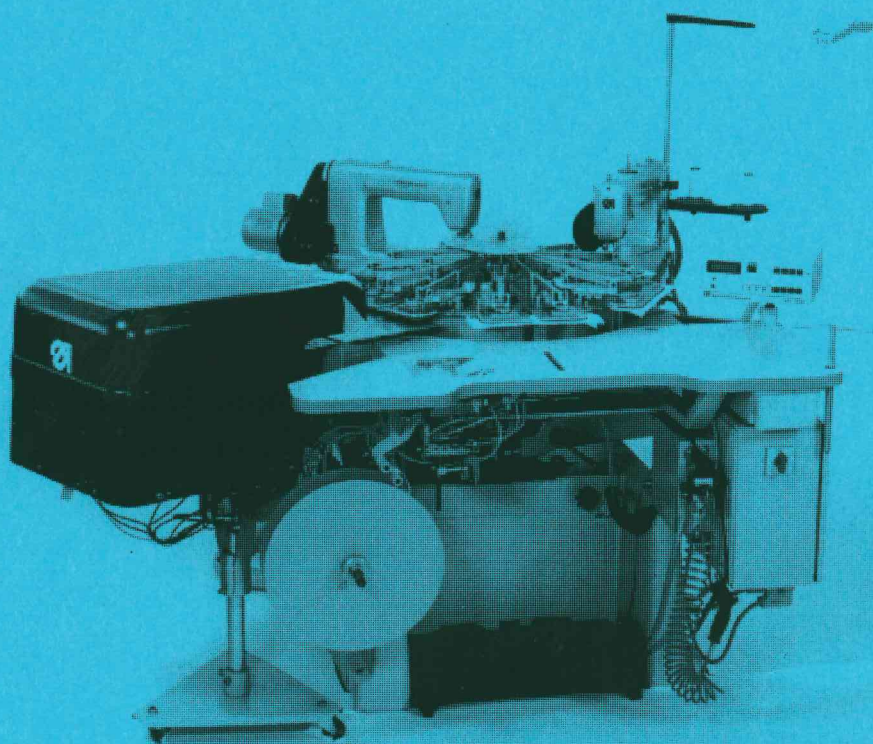
Rotary sewing unit for small parts

Instructions for operating

Installing instruction

Instructions for service

Short description of the microcontrol



Foreword

This instruction manual is intended to help the user to become familiar with the machine and take advantage of its application possibilities in accordance with the recommendations.

The instruction manual contains important information on how to operate the machine securely, properly and economically. Observation of the instructions eliminates danger, reduces costs for repair and down-times, and increases the reliability and life of the machine.

The instruction manual is intended to complement existing national accident prevention and environment protection regulations.

The instruction manual must always be available at the machine/sewing unit.

The instruction manual must be read and applied by any person that is authorized to work on the machine/sewing unit. This means:

- Operation, including equipping, troubleshooting during the work cycle, removing of fabric waste,
- Service (maintenance, inspection, repair and/or
- Transport.

The user also has to assure that only authorized personnel work on the machine.

The user is obliged to check the machine at least once per shift for apparent damages and to immediately report any changes (including the performance in service), which impair the safety.

The user company must ensure that the machine is only operated in perfect working order.

Never remove or disable any safety devices.

If safety devices need to be removed for equipping, repairing or maintaining, the safety devices must be remounted directly after completion of the maintenance and repair work.

Unauthorized modification of the machine rules out liability of the manufacturer for damage resulting from this.

Observe all safety and danger recommendations on the machine/unit! The yellow-and-black striped surfaces designate permanent danger areas, eg danger of squashing, cutting, shearing or collision.

Besides the recommendations in this instruction manual also observe the general safety and accident prevention regulations!

General safety instructions

The non-observance of the following safety instructions can cause bodily injuries or damages to the machine.

1. The machine must only be commissioned in full knowledge of the instruction book and operated by persons with appropriate training.
2. Before putting into service also read the safety rules and instructions of the motor supplier.
3. The machine must be used only for the purpose intended. Use of the machine without the safety devices is not permitted. Observe all the relevant safety regulations.
4. When gauge parts are exchanged (e.g. needle, presser foot, needle plate, feed dog and bobbin) when threading, when the workplace is left, and during service work, the machine must be disconnected from the mains by switching off the master switch or disconnecting the mains plug.
5. Daily servicing work must be carried out only by appropriately trained persons.
6. Repairs, conversion and special maintenance work must only be carried out by technicians or persons with appropriate training.
7. For service or repair work on pneumatic systems the machine must be disconnected from the compressed air supply system. Exceptions to this are only adjustments and functions checks made by appropriately trained technicians.
8. Work on the electrical equipment must be carried out only by electricians or appropriately trained persons.
9. Work on parts and systems under electric current is not permitted, except as specified in regulations DIN VDE 0105.
10. Conversion or changes to the machine must be authorized by us and made only in adherence to all safety regulations.
11. For repairs, only replacement parts approved by us must be used.
12. Commissioning of the sewing head is prohibited until such time as the entire sewing unit is found to comply with EC directives.



It is absolutely necessary to respect the safety instructions marked by these signs.

Danger of bodily injuries !

Please note also the general safety instructions.

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Preface and General Safety Notes

Part 1: Operating Instructions CI.971-805, -825

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1. Product Description

1.1 Short Description

The 971 is a rotary unit for the sewing of e.g. flaps, strips and waistband extensions as well as for the runstitching of cuffs.

The rotation concept makes possible an overlapping work method and thus leads to high quantity outputs. Through an optimal work place design, short reach distances and a high operational comfort are achieved.

The 971 has work stations for feeding the material, for sewing, for trimming the protruding cloth ends and for stacking the finished pieces when sewn. They are feed via a turntable on which are mounted the individual material holders. Depending on the sub-class partitions with 4, 6 or 8 material holders are available. When sewing cuffs the size can be adjusted. The speed of rotation is continuously adjustable and can be adjusted to meet the appropriate requirements.

Through a special tape roll holder cuffs whose face fabric has previously been basted to a feed tape by a cuff basting unit and then wound onto a tape roll can be runstitched.

The double chain stitch sewing head of the 971 is equipped with a needle and hook thread monitor which automatically stops the sewing unit by thread breakage or the end of the yarn.

Parallel trimming and the cutting of the warp is conducted at the trimming head. With appropriate parts sets the trimming clearance can be changed.

For drawing off the trimming residue suction units with single or two sided suction are available. The appropriate air compressor can be supplied in versions with different voltages.

1.2 Description of the Proper Use and the Proper Application

The 971 is a sewing unit designed for use in sewing from very light to medium weight material. Such material is, as a rule, material composed of textile fibers. This sewing material is used in the garment industry.

In general, only dry material may be worked on this sewing unit. The material may not be thicker than 3 mm when it is pressed together by the closed material holder. The material may contain no hard elements because the sewing and trimming heads must otherwise be operated only with eye protection. Such an eye protection is, however, not available at this time.

The seam is generally made with sewing yarns of textile fibers in the size 80/2 Nm (synthetic) or 140/3 Nm (covering twist). Those wishing to use other threads must first calculate the dangers arising from this and take appropriate safety measures.

This sewing unit may only be installed and operated in dry and well cared-for areas. If the sewing unit is used in other areas, which are not dry and well cared-for, comprehensive, to be agreed upon, steps may become necessary (see EN 60204-3-1:1990).

We as a manufacturer of industrial sewing machines assume that at least semi-skilled personnel will work on our products, so that it can be presumed all normal operations and, if applicable, their dangers are known and recognized.

1.3 Sub-classes

971-805	Rotary sewing unit for sewing small pieces. Single needle-double chain stitch machine with needle and hook thread monitors, trimming head, trimming clearance dependent on parts set, magnetic roller control for sewing and trimming head, 4, 6 or 8 non -adjustable material holders.
971-825	Rotary sewing unit for runstitching of cuffs. Single needle-double chain stitch machine with needle and hook thread monitors, trimming head, trimming clearance dependent on parts set, magnetic roller control for sewing and trimming head, adjustable frame for accepting 6 adjustable material holders.

1.4 Technical Data

Noise level Lc = 83 dB (A)

Workstation related emission according to DIN 45635-48-B-1
Sewing material: G1 DIN 23328 2x
Measuring point to DIN 4895 Part 1
x = 1000 mm y = -320 mm z = 300 mm

Nominal voltage

The final number of the sub-class designation represents the nominal voltage of the Sewing unit.

971-805/1	for 3 x 380 - 415 V+N 50Hz
971-805/2	for 3 x 220 - 240 V 50 Hz
971-805/3	for 3 x 220 - 240 V 60 Hz

971-825/1	for 3 x 380 - 415 V+N 50Hz
971-825/2	for 3 x 220 - 240 V 50 Hz
971-825/3	for 3 x 220 - 240 V 60 Hz

Sewing / trimming drive

AM 63 FX2

Turntable drive

AM 63 KY 4Q4

Motor protection switch

Setting by	3 x 220V = 4,8 A
	3 x 230V = 4,8 A
	3 x 240V = 5,0 A
	3 x 380V = 2,5 A
	3 x 400V = 2,5 A
	3 x 415V = 2,7 A

Sewing head

Needle system:	971-B/1cf
Maximum number of stitches:	2800 rpm
Maximum stitch length:	2 mm
Maximum thread thickness:	
Synthetic:	80/2 Nm
Covering twist:	140/3 Nm

Trimming head

Trim clearance: 3.5 mm, 4.5 mm, 5.5 mm dependent on parts set

Compressed air

Operating pressure:	5 +/- 0,5 bar
Line pressure:	7-10 bar
Air consumption per work cycle:	90-100 l/min

Dimensions / Weights

Space requirement:	2,0 x 2,0 m
Weight net / gross:	423/555 kg

1.5 Optional Equipment (depending on type of application)

Optional Equipment for Class 971-805

550 447529	AS2, suction unit with 2 collecting boxes, refuse container, filter, hose and connector piece
999 260032	Compressor 200 (380V/ 50HZ)
999 260033	Compressor 200 (220V/ 60HZ)
999 260034	Compressor 200 (440V/ 50HZ)
971 427604	Stacker ST5, Size of the stacking compartment: 300 x 165 mm

Optional Equipment for Material Holder 971-805

971 414220	Guide curve supplement for felling a corner
971 417543	Guide curve supplement for trimming a corner
971 417513	Fullness bar for material holder with interchangeable clamp set

Optional Equipment for Class 971-825

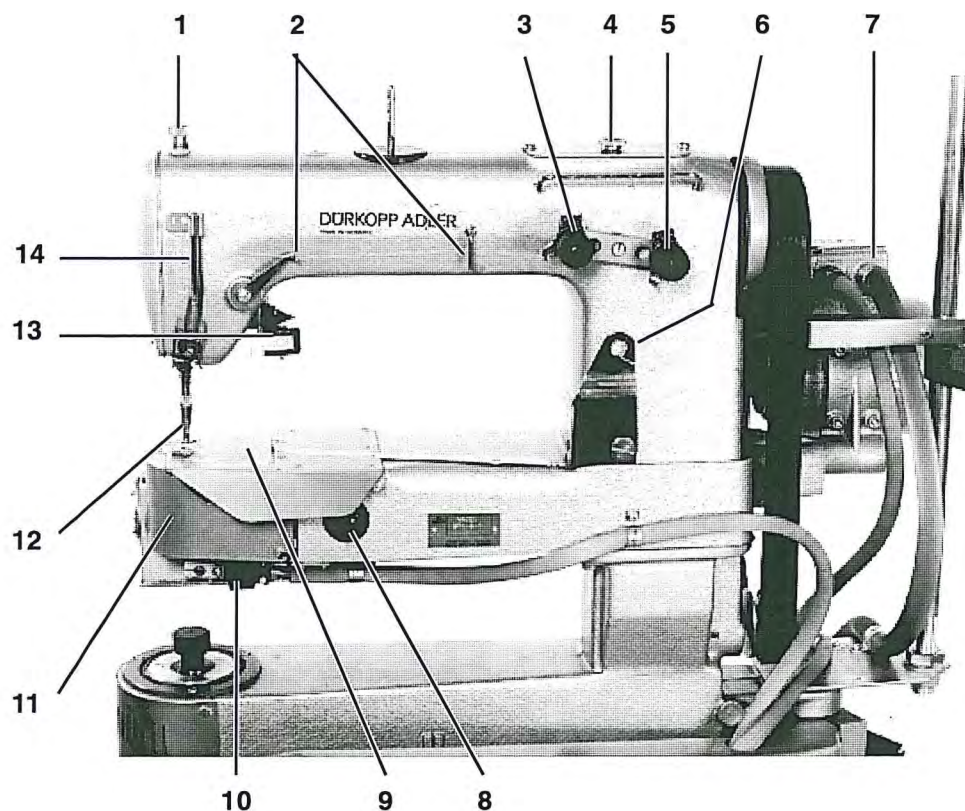
971 458104	Depth stop for cuff material holder
971 407599	Warp catcher set
971 407593	Activation lever for warp catcher
550 447529	AS2, suction unit with 2 collecting boxes, refuse container, filter, hose and connector piece
999 260032	Compressor 200 (380V/ 50HZ)
999 260033	Compressor 200 (220V/ 60HZ)
999 260034	Compressor 200 (440V/ 50HZ)
971 427604	Stacker ST5, size of the stacking compartment: 300 x 165 mm
971 407604	Tape roll holder Roll mounting and pneumatic shears for cutting the feed tape

Optional Equipment for Material Holder 971-825

971 458114	Guide curve supplement for felling a corner
971 458124	Guide curve supplement for trimming a corner

2. Elements and Their Function

2.1 Elements at the Sewing Head



Element

Function

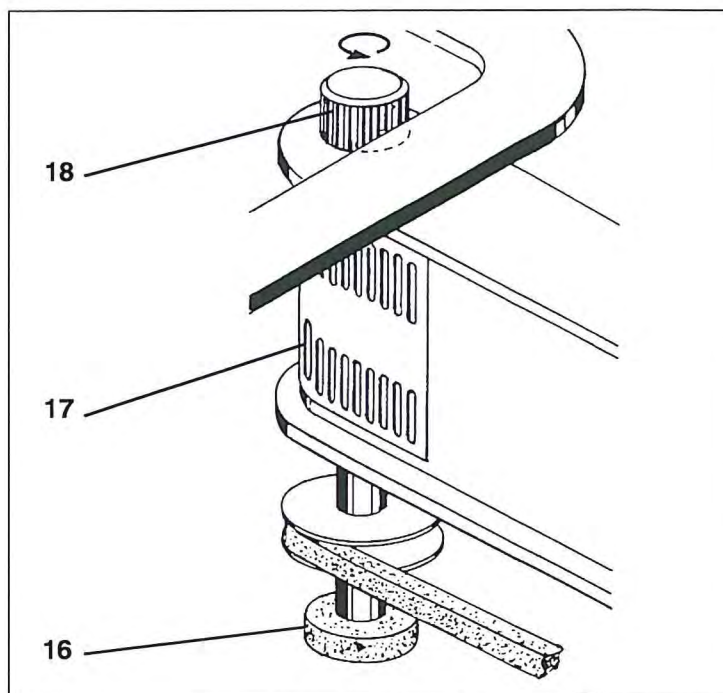
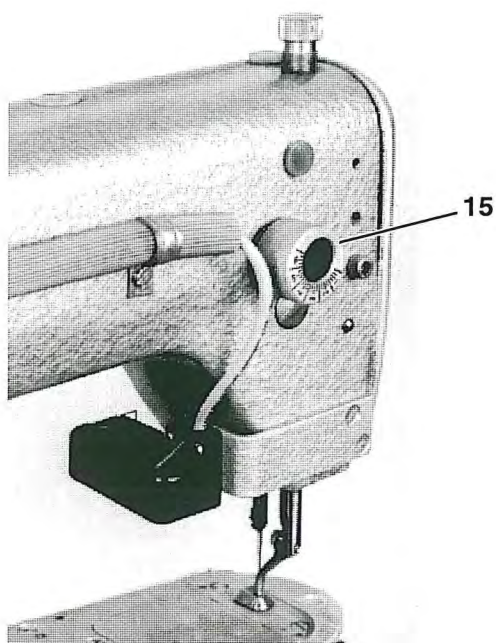
1 -	Knurled screw	- Setting of the pressure foot pressure
2 -	Thread guide	- Guiding the needle thread
3 -	Knob	- Setting needle thread tension
4 -	Viewing glass	- Checking the oil feed for the sewing head
5 -	Knob	- Setting hook thread tension
6 -	Guide plate	- Thread guide for the hook thread
7 -	Motor	- Drive motor for the sewing head
8 -	Oil level gauge	- Indicating the oil level in the oilpan
9 -	Covering plate	- Cover for the take-up lever. Remove for threading.
10 -	Thread monitor	- Signals hook thread breakage
11 -	Flap	- Cover for the hook area. Flip out for threading.
12 -	Needle	- System 971-B-1



Caution Risk of Injury!

Before threading turn the main switch off.

13 -	Thread monitor	- Signals needle thread breakage
14 -	Thread regulator	- Setting the correct needle thread quantity

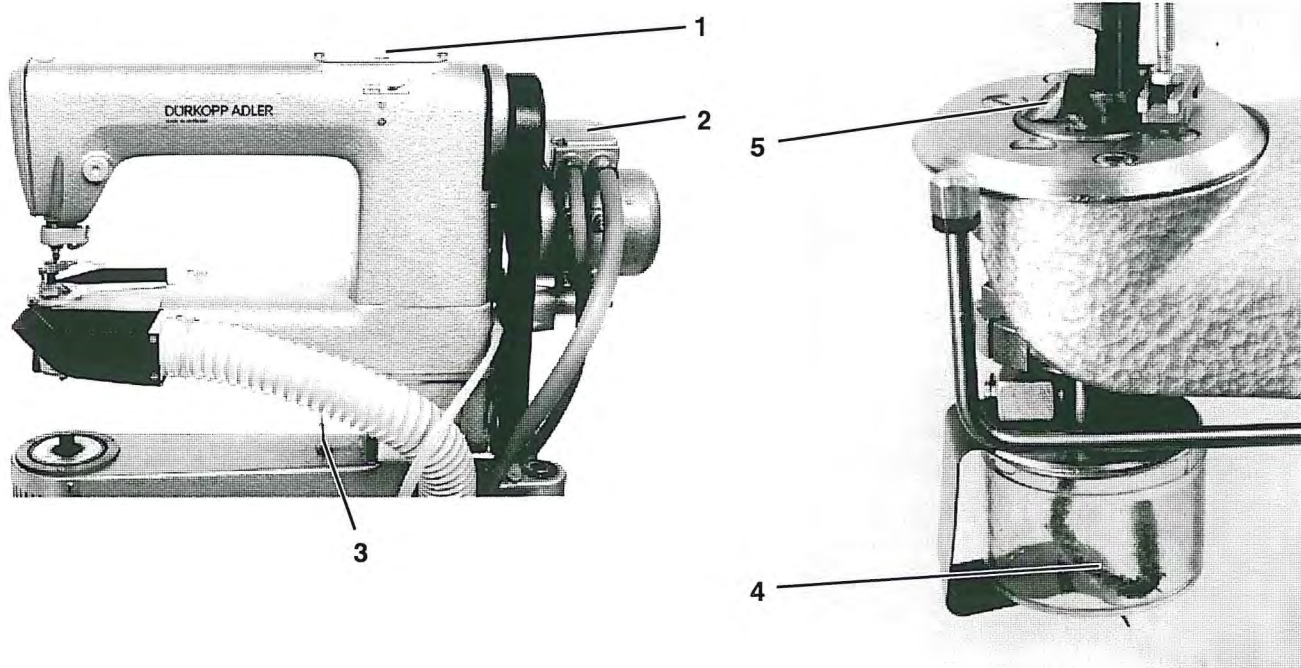


Element

Function

- | | | |
|------|------------------|--|
| 15 - | Knob | - Setting the pressure foot stroke position |
| 16 - | Plastic washer | - Pulling down the magnetic roller to swing out the sewing head |
| 17 - | Magnet | - Creating the magnetic field for the magnetic roller |
| 18 - | Transport roller | - Moving the sewing head along the template of the material holder |

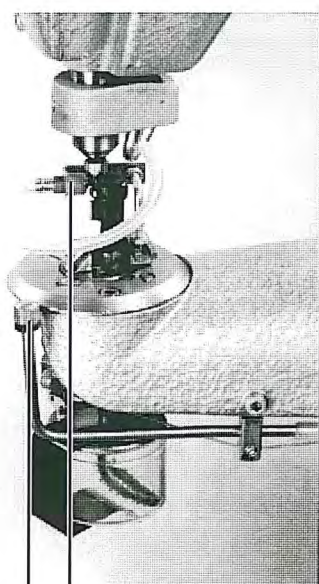
2.2 Elements at the Trimming Head



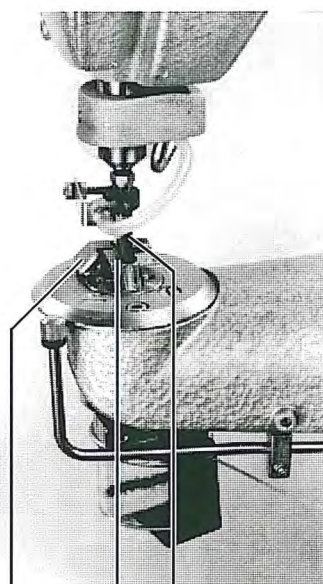
Elements

Function

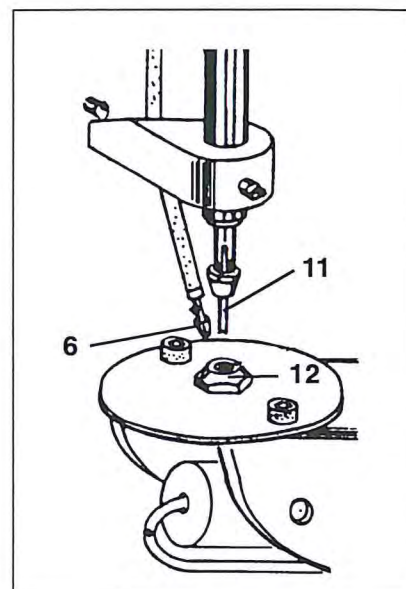
- | | | |
|-----|---------------|---|
| 1 - | Oil cup | - Lubricate all moving parts in the head |
| 2 - | Motor | - Drive for the trimmer and the magnetic roller |
| 3 - | Weight | - Presses the glide piece 5 of the shearing head sideways against the material support, so that the knives always lie parallel to the course of the seam. |
| 4 - | Oil reservoir | - Supplies the upper knife support and the rotating body with oil. The reservoir must always be filled with oil. As necessary fill with "Esso SP-NK 10"-type oil. |



7 6



10 9 8



Elements

Function

- | | | |
|-----|-------------|--|
| 6 - | Blower pipe | - Blowing the material in the cutting position |
| 7 - | Blower pipe | - Blowing the warp in the cutting position |

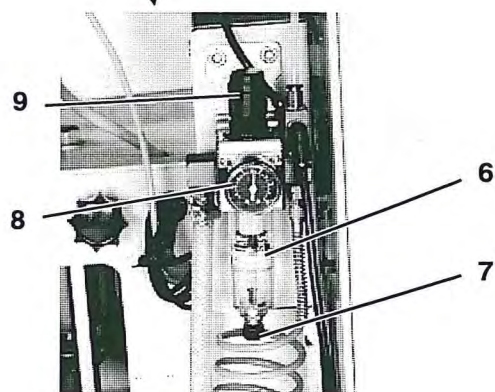
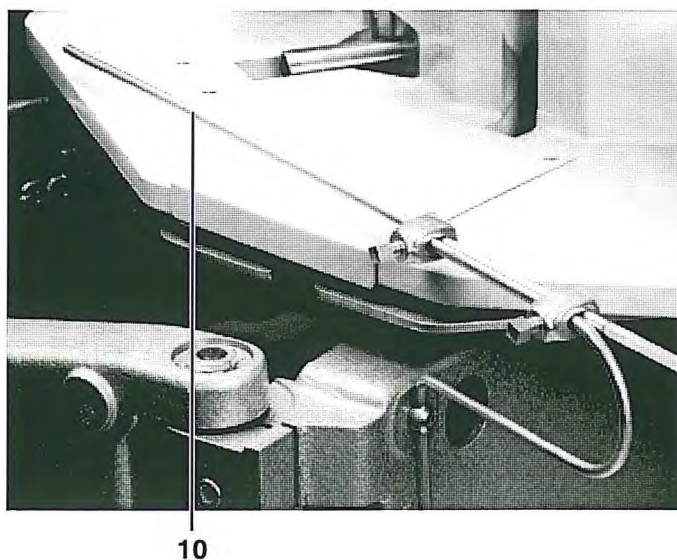
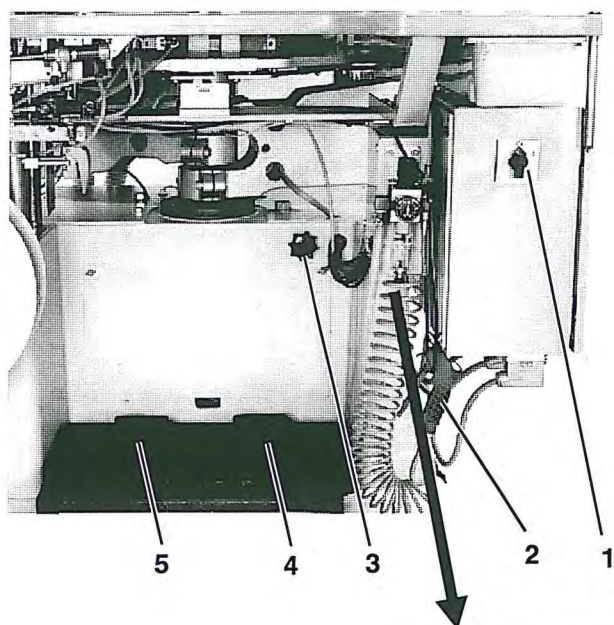
2.2.1 Elements at the Trimmer with Upper and Lower Knife

- | | | |
|-------|-----------------------|--|
| 8/9 - | Upper and lower knife | - Trimming the material at the desired distance to the course of the seam |
| 10 - | Glide piece | - Presses the shearing head sideways against the material support so that the knives always lie parallel to the course of the seam |

2.2.2 Elements at the Trimmer with Stamp and Template (Gloves)

- | | | |
|---------|--------------------|---|
| 11/12 - | Stamp and Template | - Trimming the material at the desired distance to the course of the seam |
|---------|--------------------|---|

2.3 Elements on the Frame



Elements

Function

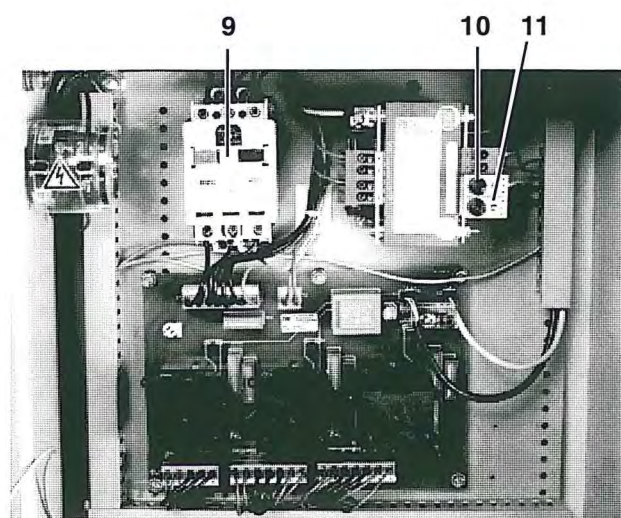
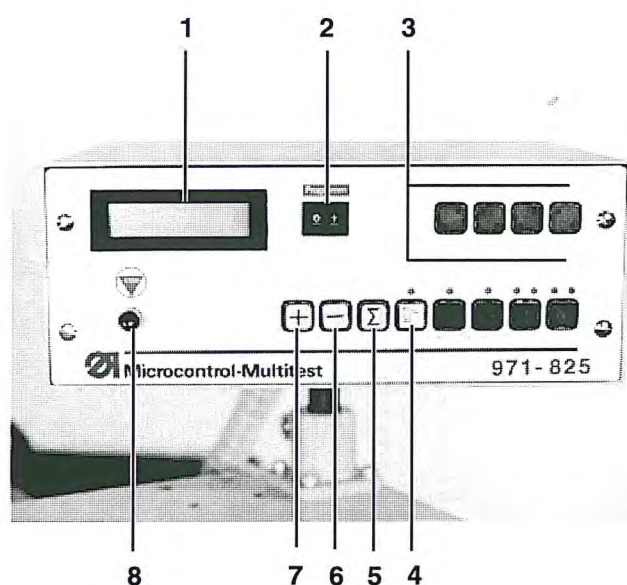
1 -	Main switch	- Turning the sewing unit on and off
2 -	Air gun	- Removing accumulations of lint from the sewing head, trimming head and turntable
3 -	Knob	- Setting the speed of the turntable
4 -	Foot switch	- Switching automatic operation on and off
5 -	Foot switch	- Opening the material clamp for intermediate airing, in order to align the material more precisely

Maintenance Unit

6 -	Air filter and water separator	- Before the water level reaches the filter, turn the screw 7 in far enough to drain water. The compressed air supply should not be interrupted.
8 -	Pressure regulator with pressure gauge	- To set at 5 bar pull the sleeve 9 up and turn appropriately
10 -	Blower pipe	- Blowing cloth waste from the turntable

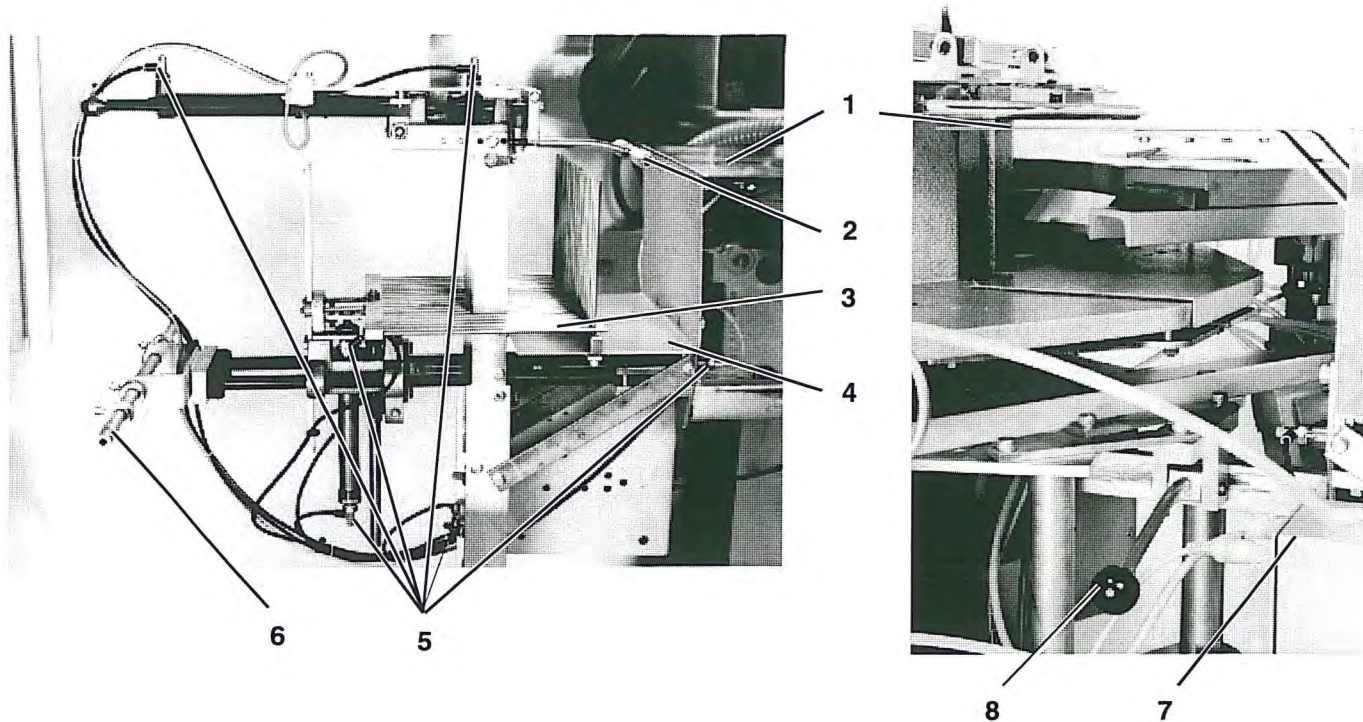
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2.4 Elements at the Controls/ Control Panel



Element	Function
Controls	
1 - Display	- Displaying the program number, piece count, error messages
2 - Switch	- Selecting the desired program
3 - Keys	- Keys without function
4 - Key	- Testing the stacker
5 - Key	- Setting the piece counter
6 - Key	- Setting the piece count "+"
7 - Key	- Setting the piece count "-"
8 - Stop key	- Interrupting the function sequence, activating the selected program with the main switch turned on
Control Panel	
9 - Motor protection switch	- By overload or short circuit, turns off the whole sewing unit
10 - Fuse F1	- By a short circuit in the controls, interrupts the transformer circuit
11 - Fuse F2	- By a short circuit in the magnet winding, interrupts the effected circuit

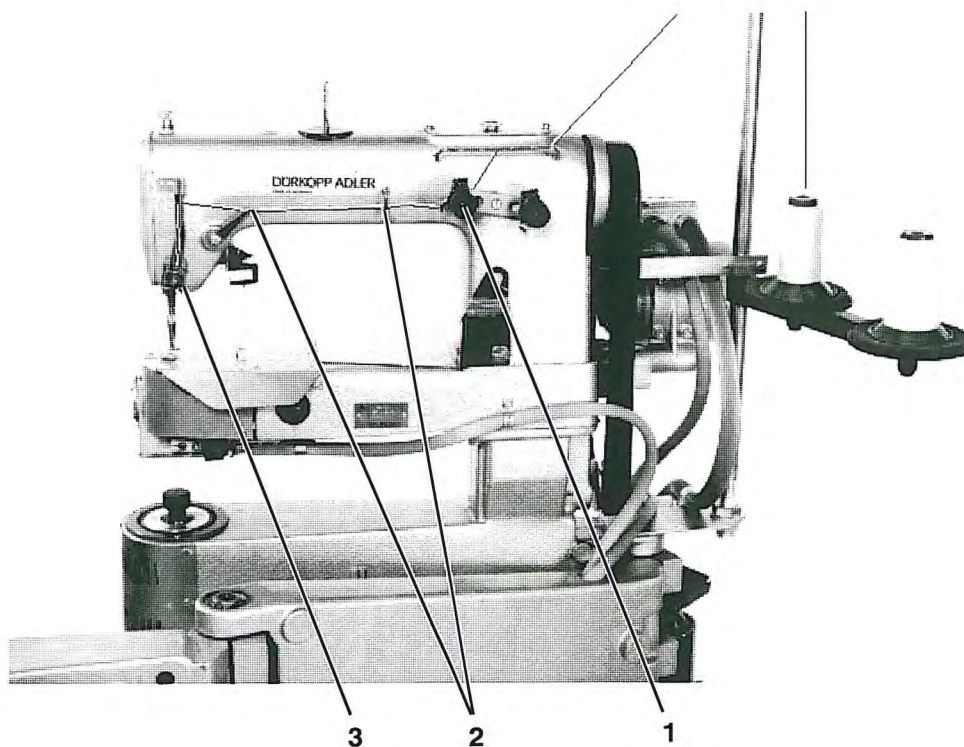
2.5 Elements on the Stacker



Element	Function
1 - Plate	- Connecting plate between the material holder and the catcher of the stacker
2 - Gripper	- Transporting material from the clamp to the stacker catcher
3 - Catcher	- Moving material into the magazine
4 - Magazine	- Receiving sewn material
5 - Throttles	- With the throttles the following speeds can be regulated: (Also see the Pneumatic Plan)
S1	- Catcher rise
S3	- Gripper rise
S4	- Gripper lowering
S17	- Catcher forward
S18	- Gripper forward
S19	- Catcher to the back
S20	- Catcher lowering
S21	- Gripper to the back
6 - Mounting rail	- Mounting of the stacker covering hood (removed for the photograph)
7 - Box	- Solenoids for the individual valves
8 - Lever	- Fastening the stacker to the frame of the sewing unit

3. Operating the Sewing Unit

3.1 Threading Needle Thread



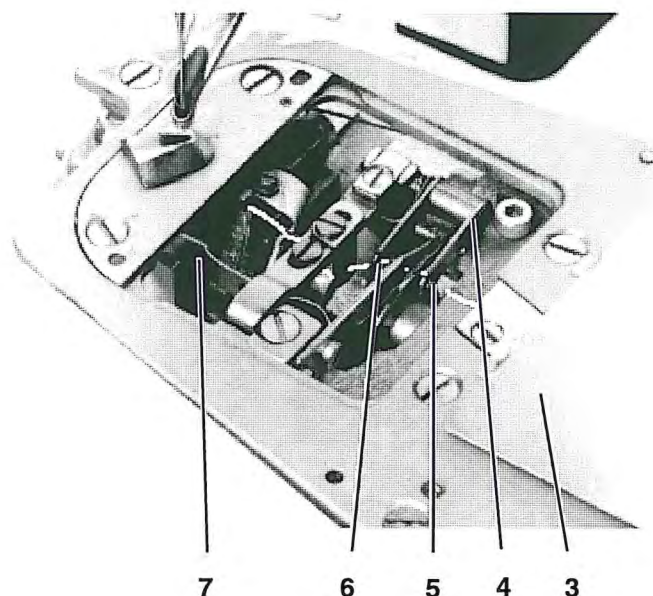
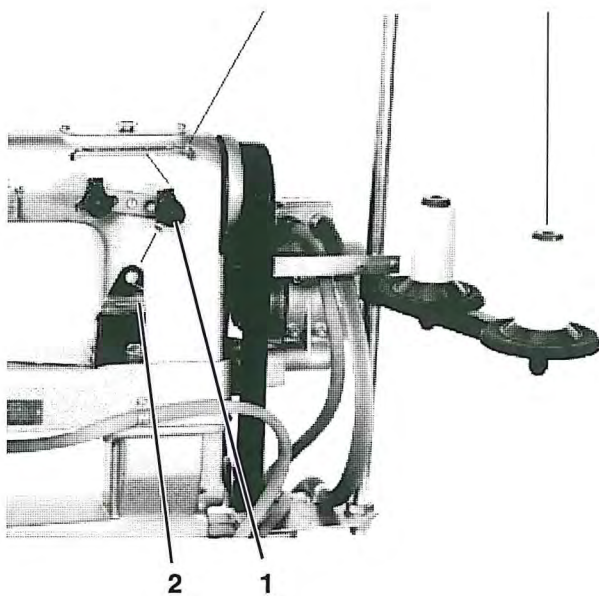
Caution Risk of Injury !

Before threading turn the main switch off.

For threading proceed as follows:

- Place the yarn spool on the yarn stand.
- Alternatingly guide the thread through the guide eyes on the take-off arm,
- feed through the thread tension 1 and thread guides 2,
- through the thread lever,
- through the pre-tension, over the finger of the needle thread monitor, through the eye on the needle rod and through the needle.

3.2 Threading Hook Thread



Caution Risk of Injury!

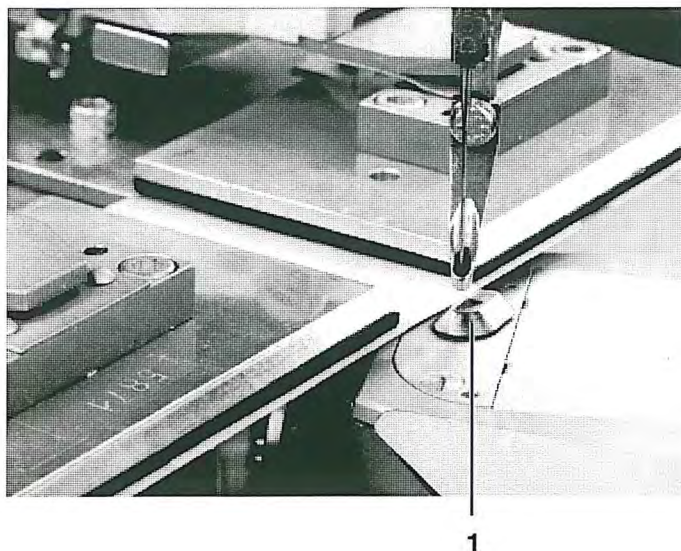
Before threading turn the main switch off.

- Place the yarn spool on the yarn stand.
- Alternatingly guide the thread through the guide eyes of the take-off arm.
- Feed the thread through thread tension 1 and thread guide 2.
- Remove cover plate 3.
- Lift the thread hold-down 4 out of its catch. The spring 7 must be pressed to the rear.
- Pull the thread through the holes 5 and 6.
- Lay the thread in front of the wire of the hook thread monitor.
- Pull the thread through the hook holes.
- Close the thread hold-down.
- Insert the cover plate.

3.3 Setting Thread Tensions

The thread tension of the needle thread should be higher than that of the hook thread. Too high thread tensions cause the material to bunch. Too low hook thread tensions can cause missing stitches.

3.4 Remediying Thread Breakage



At the sewing head there are two thread monitors, whose switching flags are freed when the needle or hook thread breaks. In this case automatic operation is stopped and the display of the control panel indicates the thread breakage.



Caution Risk of Injury!

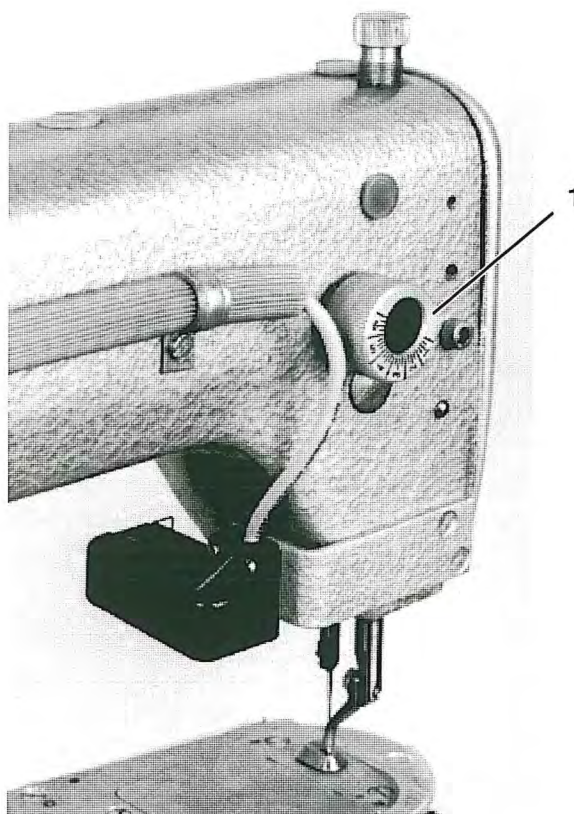
Before threading turn the main switch off.

- Bring the needle rod into the high position by turning the handwheel

By hook thread breakage

- Swing out the sewing head. For this pull the magnetic roller shaft down. (See also subject 3.7.1)
- Thread the thread (See subject 3.2)
- Swing the sewing head in again.
Here take care that the needle hole mushroom 1 is in the position shown in the illustration and that its left side is pressed against the material support.
- Sew 2 - 3 tying stitches
For this first hold the needle and hook threads fast and turn the handwheel accordingly.
- Turn on the machine

3.5 Setting Pressure Foot Height



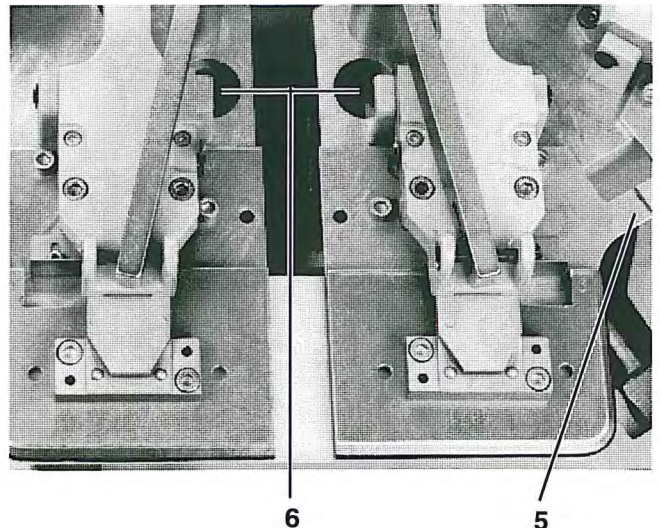
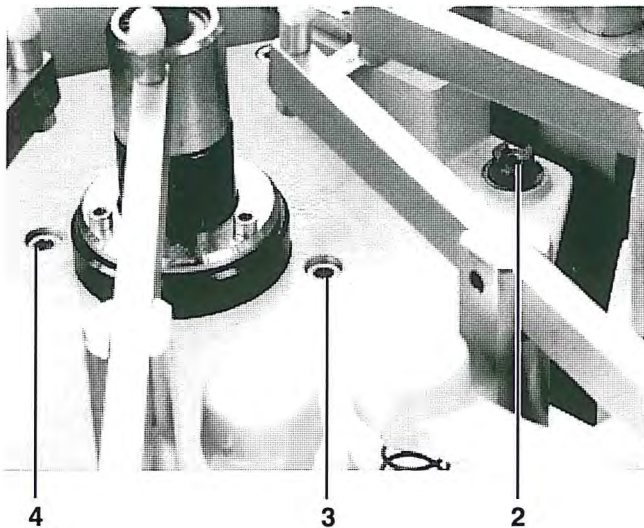
Caution Risk of Injury!

Before setting turn the main switch off.

- Bring the pressure foot into the lowest position with the handwheel
- Turn the dial 1 until the pressure foot lightly touches the material

3.6 Preparing, Starting and Interrupting Automatic Operation

3.6.1 Changing Adjustable Material Holders



Caution Risk of Injury!

Before changing the material holders turn the main switch off.



1. Set the material holder to the largest size.

- With the special wrench 1 loosen the screws 3 and 4
- Turn the adjustment screws 2 accordingly

2. Swing out the sewing and trimming heads

- Pull down the magnetic roller shafts and swing the heads out (See subject 3.7.1 and 3.7.2)

3. Remove the material holder

- Loosen the mounting screws 6 on each holder with the special wrench 1 and remove the material holder

4. Screw "new" material holders onto the turntable

- The numbering 5 (1, 2, 3, 4 etc.) on the holders shows their position on the turntable

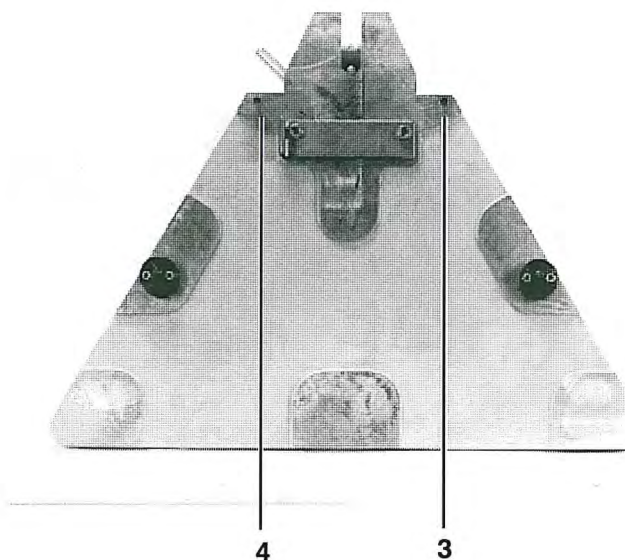
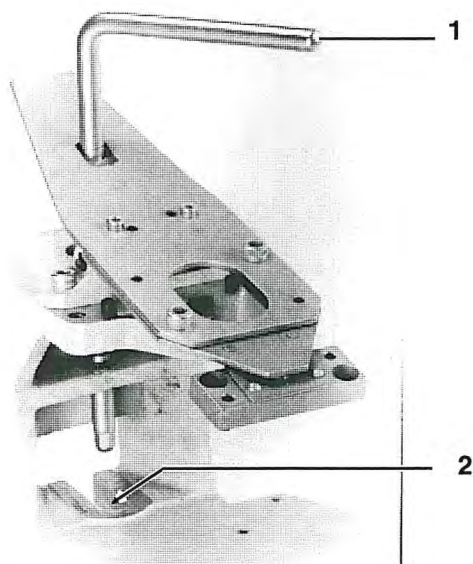
5. Set the desired size

- Turn adjustment screw 2 with the special wrench 1. See also subject 3.6.3

6. Swing the sewing and trimming head in

- See subject 3.7.1 and 3.7.2

3.6.2 Changing Non-adjustable Material Holders



Caution Risk of Injury!

Before changing the material holders turn the main switch off.

1. Swing the sewing and trimming head out

- Pull the magnetic roller shaft down and swing the heads out. (See subject 3.7.1 and 3.7.2)

2. Remove the material holder

- Loosen mounting screw 2 with wrench 1. Remove the material holder

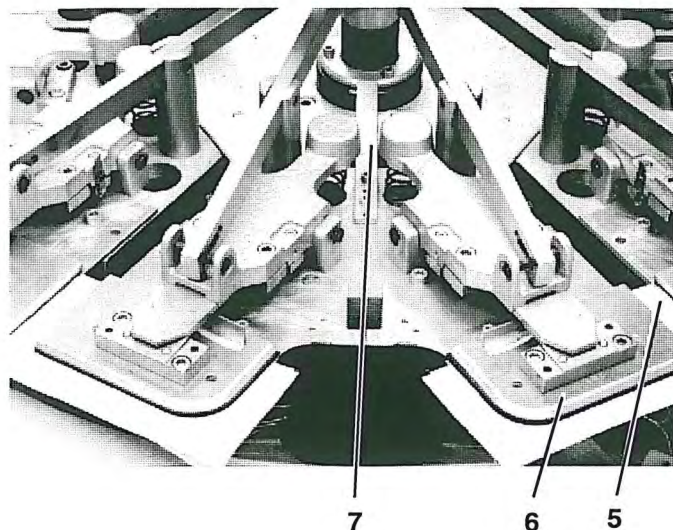
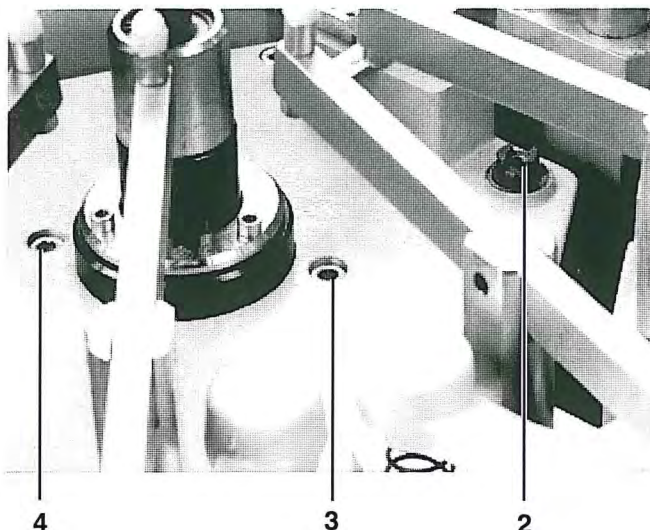
3. Screw the "new" material holders onto the turntable

- When inserting take care that the two pins 3 and 4 touch below the holder on the ring of the turntable.
- Turn the leg of the wrench 1 so far toward the inside that a collision with the sewing head is not possible

4. Swing the sewing and trimming head in

- See Chapter 3.7.1 and 3.7.2

3.6.3 Changing the Size of Adjustable Material Holders



Caution Risk of Injury!

Before setting turn the main switch off.

1. Loosen the fastening

- Loosen screws 3 and 4 with the special wrench 1

2. Set the size

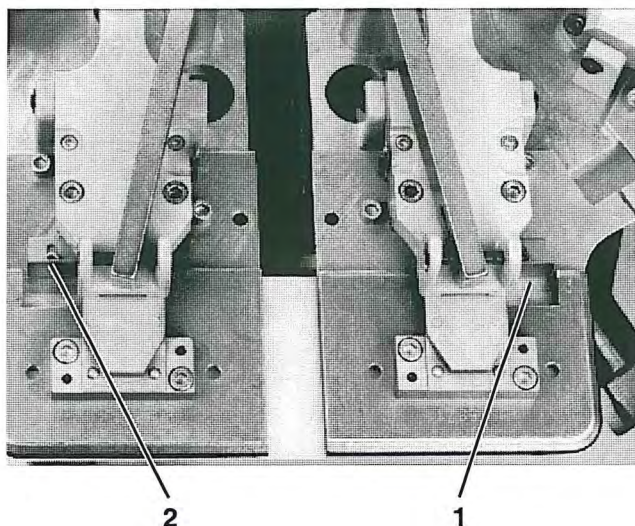
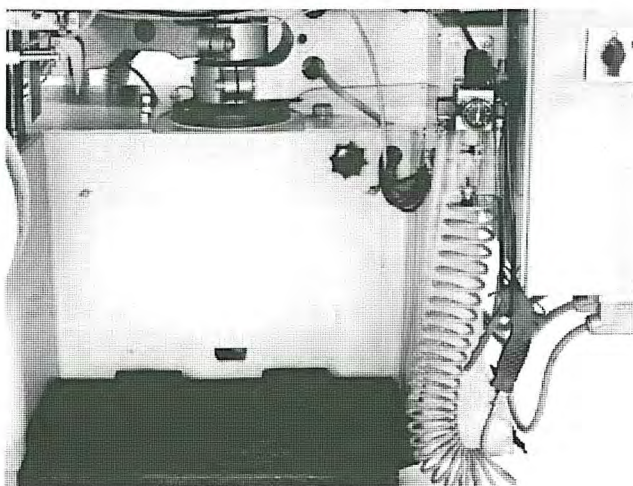
- Appropriately turn the adjustment screw 2 with the special wrench 1.
The set value is shown on the scale 7.
When setting a smaller size, open the left half of the clamp 6 in due time in order to bring the upward arched Delrin 5 back into the required position again.

3. Tighten the fastening

- Tighten screws 3 and 4 with the special wrench



3.6.4 Inserting Material and Starting Automatic Operation



1. Turn the main switch on
2. Set the controls to sewing program 01
3. Operate the stop key to activate the program
4. Insert material
 - Operate the left pedal and hold in this position
 - Lay the material onto the two rear stops 1 and 2 and align centered to the clamp
 - Release the pedal
5. If necessary, "intermediate air" the clamp for more precise alignment of the material
 - Operate the left pedal and hold down
 - Align the material
 - Release the pedal
6. Start automatic operation
 - Operate the right foot switch

3.6.5 Extending the Duration of the Opening of the Clamp

The clamp is opened after the table turns and closed again after the stacker sequence is completed. Thus, there is only a limited time available for the feed procedure.

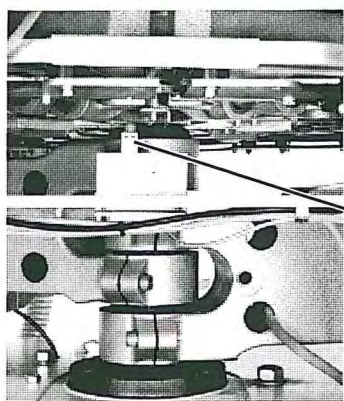
If the period is not sufficient for correct insertion, the duration of the opening of the clamp can be extended by operating the left foot pedal.

If the clamp is opened too long, automatic operation is stopped.



Caution Risk of Injury!

During automatic operation do not reach into the area of the turntable or the sewing /trimming heads.



b19

1. Operation of the right foot pedal

- The sewing head is turned on
- The trimming head is turned on
- The turntable is turned on when the trimming head and sewing head have run onto the switch. The turntable turns counterclockwise.

2. The turntable operates switch b19 (loading position)

- The turntable is turned off
- The clamp in feed position is opened after a delay. The clamp can be fed.

3. The clamp with material is opened

- The gripper 1 runs to the material holder.

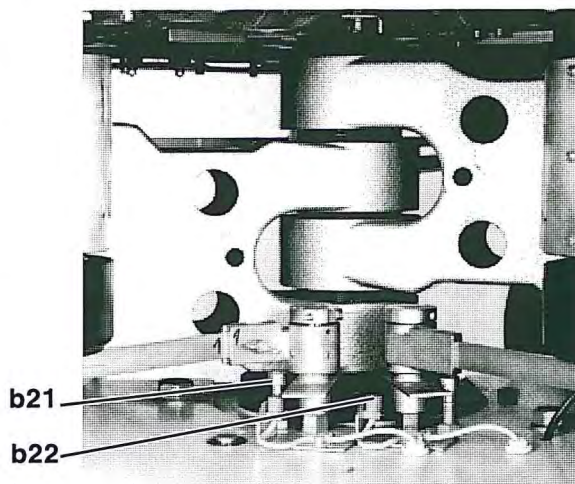
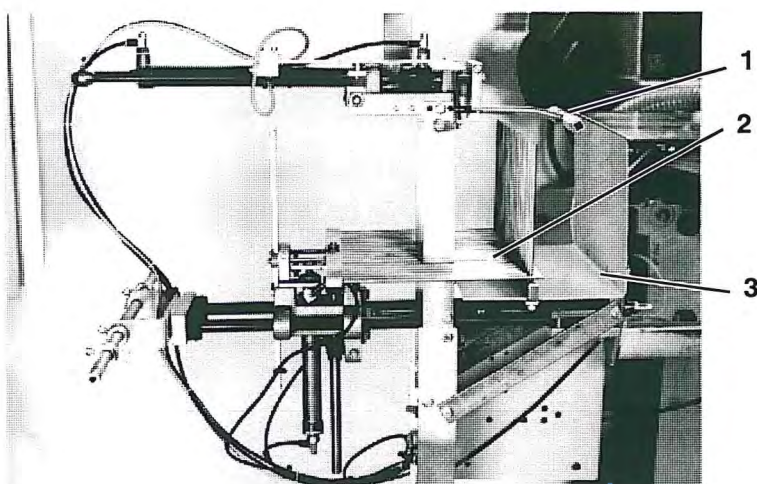
4. Stacking procedure

- The gripper 1 pulls the material onto the catcher 2
- The catcher lowers with the material
- The gripper runs up
- The catcher runs to the back. During this movement the material is "stripped off" and thus moved into the magazine 3.
- The catcher runs up and forward into its initial position.

5. Stopping and starting the sewing cycle

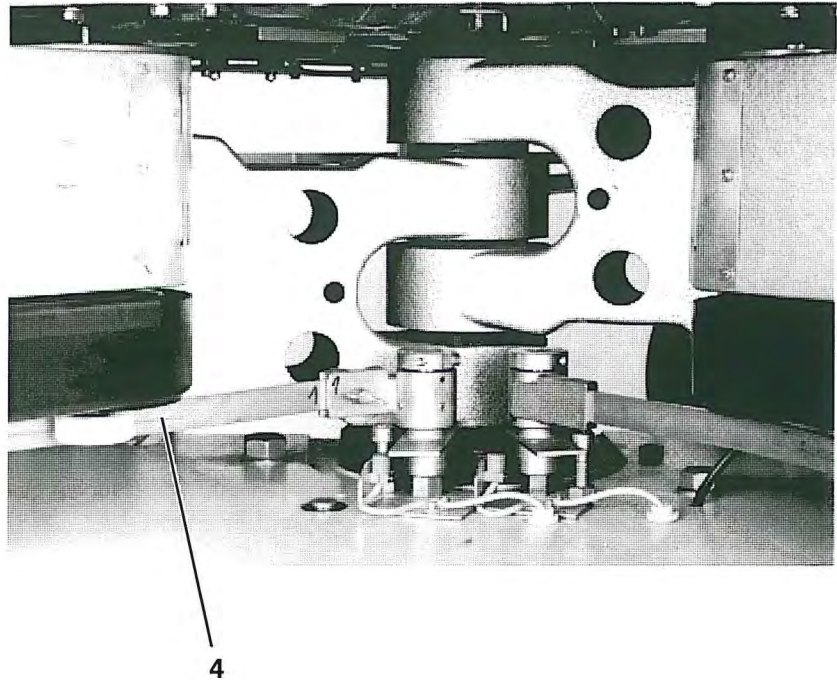
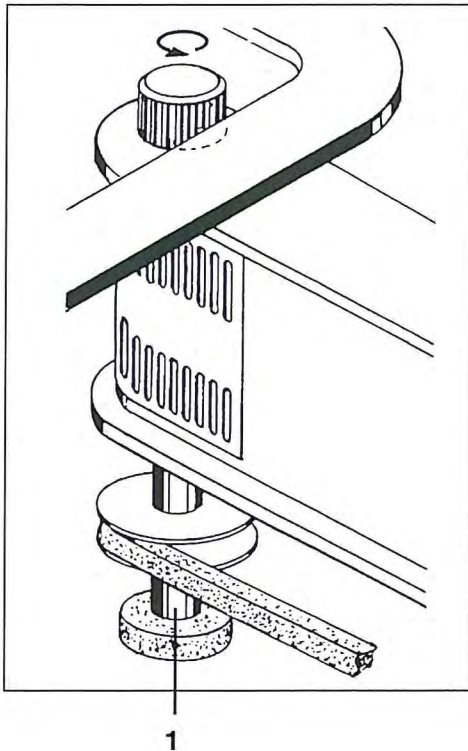
The trimming head reaches the initiator b22 and switches the trimmer off.

The sewing head reaches the initiator b21 and starts the turntable.



3.7 Diverse Procedures

3.7.1 Slewing the Sewing Head In and Out

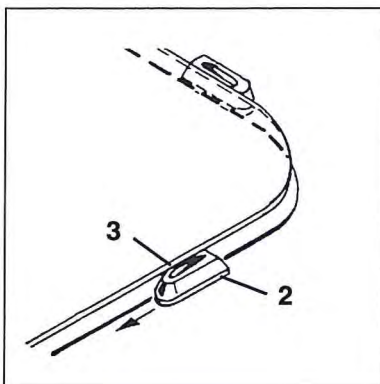


For threading the hook thread, service or maintenance work, the sewing head can be swung out.



Caution Risk of Injury!

Before swinging the sewing head out or in turn the main switch off.



1. Swinging the sewing head out

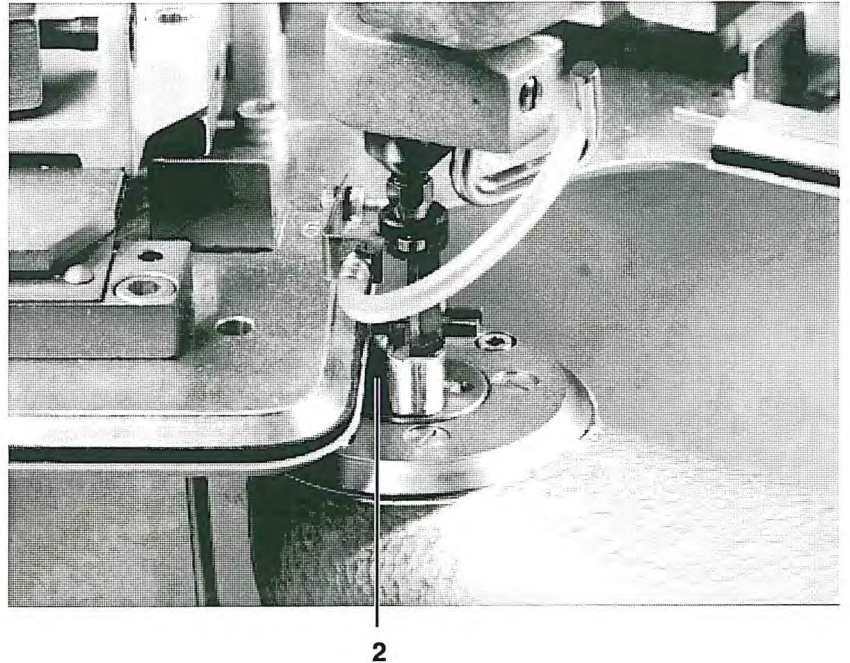
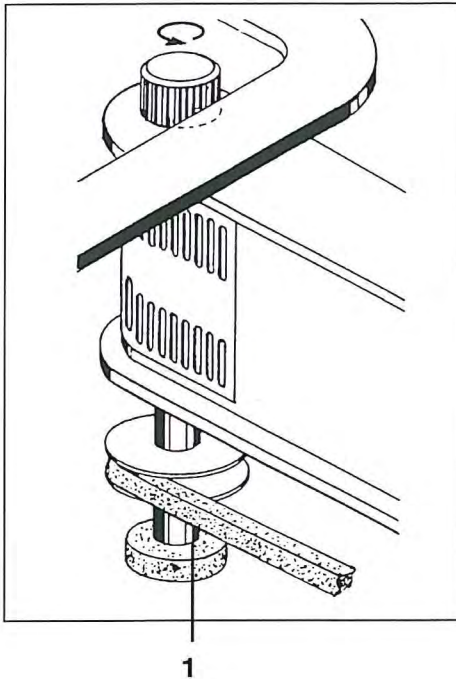
- Bring the needle into the "high position".
For this turn the handwheel counter to the run direction until the needle is out of the material.
- Pull the magnetic roller shaft 1 all the way down
- Swing the sewing head out to the side
- Release the magnetic roller shaft.

2. Swinging the sewing head in

- Pull the magnetic roller shaft 1 all the way down
- Turn the needle hole mushroom 2 clockwise against the spring pressure
- Swing the sewing head into the turntable.
Take care, that
 - the side 3 of the needle hole mushroom 2 lays onto the material support under pressure.
 - the switching flag 4 is behind the magnetic roller
- Press the magnetic roller shaft up.

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3.7.2 Slewing the Trimming Head In and Out

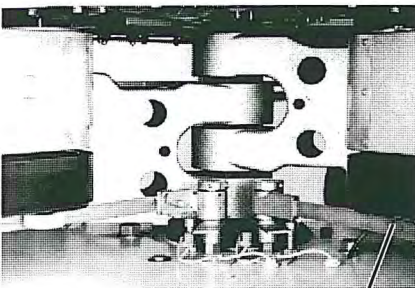


For service or maintenance work the trimming head can be swung out.



Caution Risk of Injury!

Before slewing the trimming head in or out turn the main switch off.



1. Swinging the trimmer out

- Pull the magnetic roller shaft 1 all the way down
- Swing the trimmer to the side
- Release the magnetic roller shaft

2. Swinging the trimmer in

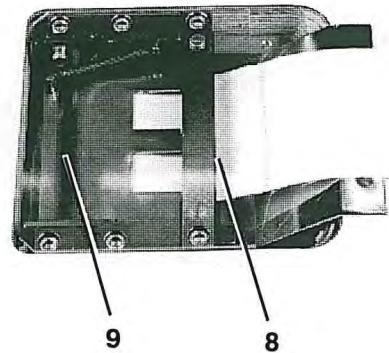
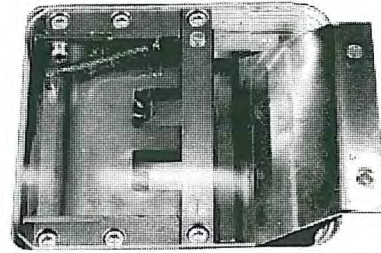
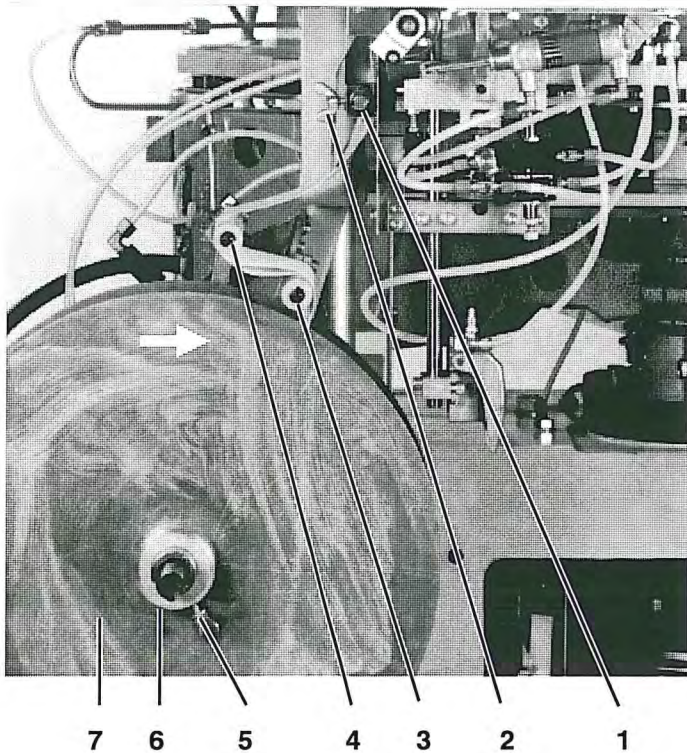
- Pull the magnetic roller shaft all the way down
- Turn the guide piece 2 clockwise against the force of the counterweight
- Swing the trimmer into the turntable.

Take care, that:

The guide piece 2 must touch the material support under pressure.
The switching flag 3 must be in front of the magnetic roller.

- Press the magnetic roller shaft 1 up.

3.7.3 Tape Roll Holder. Changing the Feed Tape and Guiding It into the Unit



The tape roll holder of the 971 makes possible the working of sports cuffs whose face cloth was previously basted to a feed tape with a cuff basting unit and then wound onto a roll.

The basted cuffs are pulled off of the roll and separated with a pneumatic scissors 8.



Caution Risk of Injury!

When changing the roll or feeding the tape do not touch key 2. Do not reach into the area of the scissors.

- Loosen screw 5 and pull off block 6.
- Pull off the front tape roll plate 7.
- Push in the catch and pull off the tape roll holder.
- Push on a new roll with take-off device clockwise.
- Push on the tape roll plate and secure with the mounting block.
- Guide the tape to the right around roller 3 and to the left around roller 4.
- Pull the tape through behind the guide 1. With screw 2 set the limiter block to the roll width.
- Push the tape into the device 9.
- Press the lever to the right and push the tape into the tape scissors 8.
- Push the tape so far that it can be pulled out unhindered from the top.

4. Maintenance



Caution Risk of Injury!

Before cleaning the sewing unit turn the main switch off.

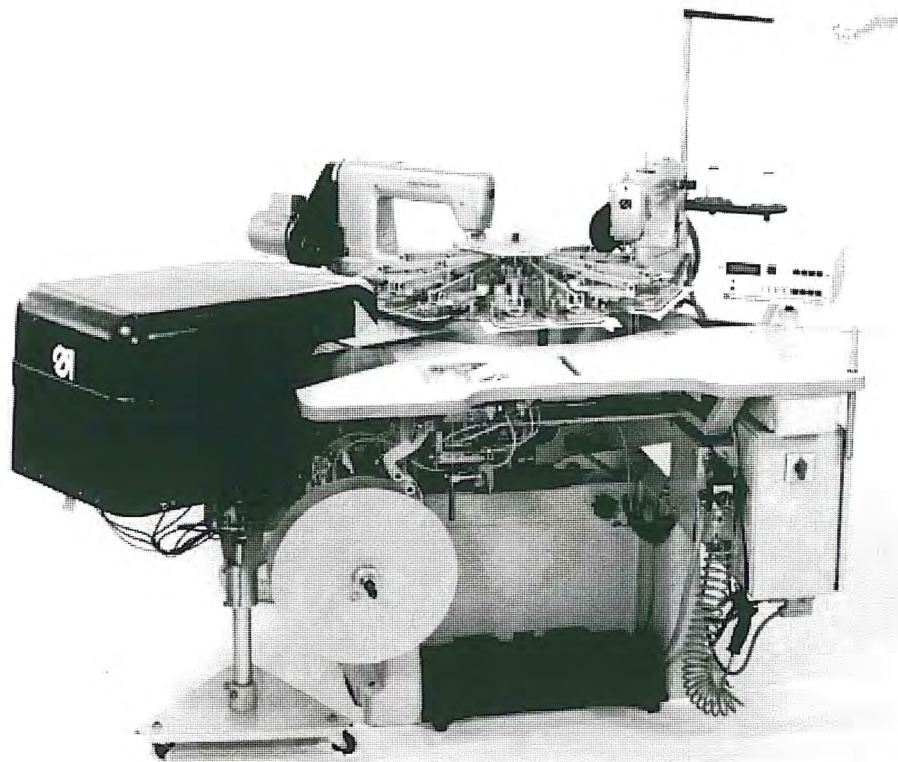
At the latest the maintenance work must be conducted after the number of operating hours listed in the column "Hours".

Procedure	Hours	Remarks
Sewing head		
Removal of lint accumulations	8	
Check the oil level in the oilpan	40	If the oil, with the machine not running, drops below the middle of the oil level gauge, top up with "Esso-SP-NK10"-type oil. (See Mechanic's Instructions)
Check the oil feed at the viewing glass	40	Check with the machine running
Check the timing belts	500	Condition and Tension to be checked by a mechanic
Check V-belt tension	500	Condition and tension to be checked by a mechanic
Trimming head		
Removal of lint accumulations	8	
Check the oil level in the reservoir	8	
Check the oil level in the plastic reservoir of the shearing head	8	There must always be oil in the reservoir. Top up with "Esso SP-NK 10"-type oil
Check the oil feed to the head	500	Have a mechanic check this
Test the V-belt tension	40	Have a mechanic check this
Turntable and clamp		
Check the condition of the Delrin	40	
Lubricate the planet wheel	40	Have a mechanic conduct this
Pneumatic System		
Clean the filter insert in the filter	500	First close the lock valve and vent the system. (See Service Instructions)
Test the pneumatic system for "air-tightness"	500	

Part 2: Installation Instructions Cl. 971-805, -825

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8.	Commissioning	10

1. Components of the Sewing Unit



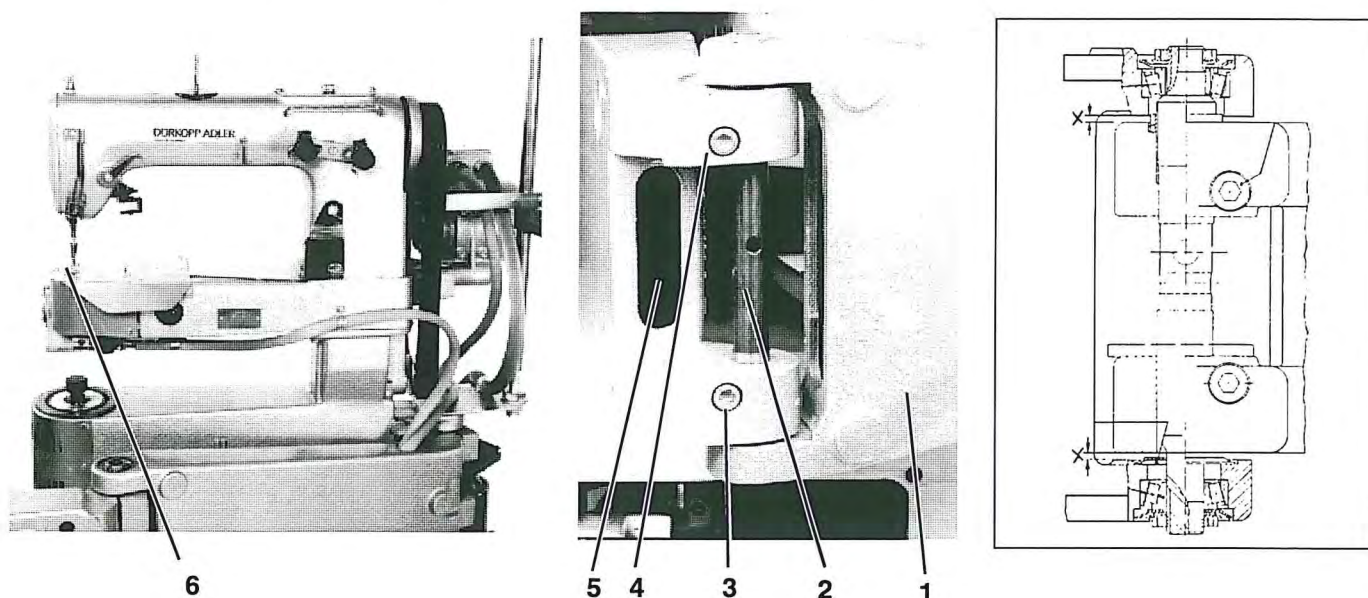
Upon delivery the sewing unit is composed of the following components:

- Basic machine
- Sewing machine
- Trimmer
- Material holder
- Yarn stand
- Control panel
- Pedal with foot switches
- Small parts with the accessories

- Stacker (optional equipment)
- Tape roll holder (optional equipment)
- Suction unit (optional equipment)

2. Assembling the Sewing Unit

2.1 Attaching the Sewing Head on the Basic Machine



Caution Risk of Injury!

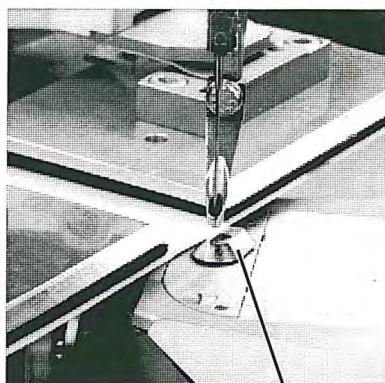
Attach the sewing head with helpers or using suitable aids

1. Attaching the Sewing Head

- Bring the two swing arm parts 1 and 5 together and connect with the shaft 2.
- Slightly tighten the attachment nuts.
- Turn shaft 2 until the interval "X" is the same at the top and bottom. In this position the clearance between needle hole mushroom 6 and Delrin of the material holder should be 0.2 mm. If necessary, turn shaft 2 a little.
- Only tighten the upper and lower slotted nuts so far that the bearing has no play.
- Secure the slotted nuts against turning by folding over a lock washer lip.
- Tighten clamping screws 3 and 4.

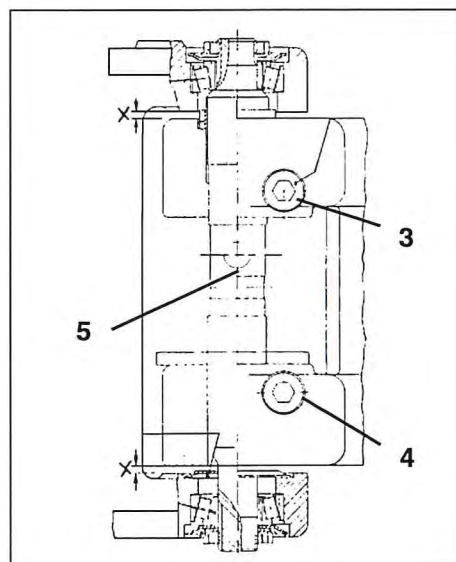
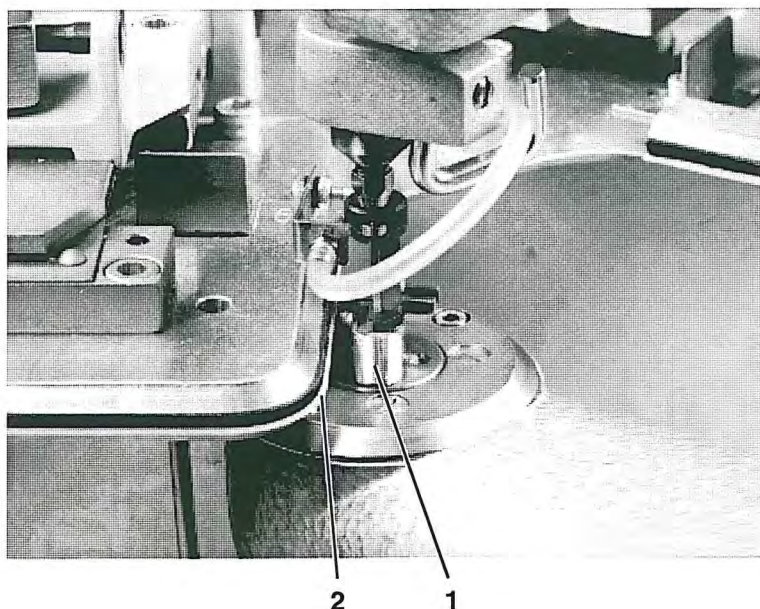
2. Connecting the Wiring

- Lay the drive motor connection wiring through the guide in the frame to the control panel.
- Lay the wiring for the thread monitor in the curve to the swing arm part 1 and push through the slot 5.



6

2.2 Attaching the Trimming Head on the Basic Machine

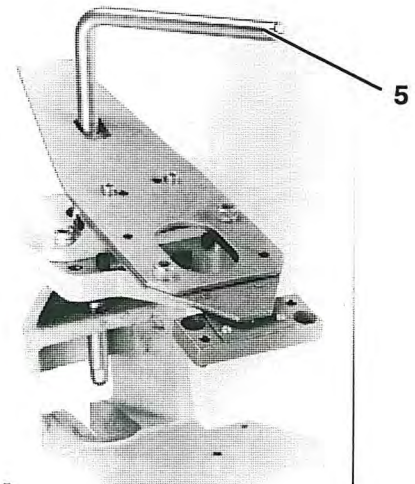
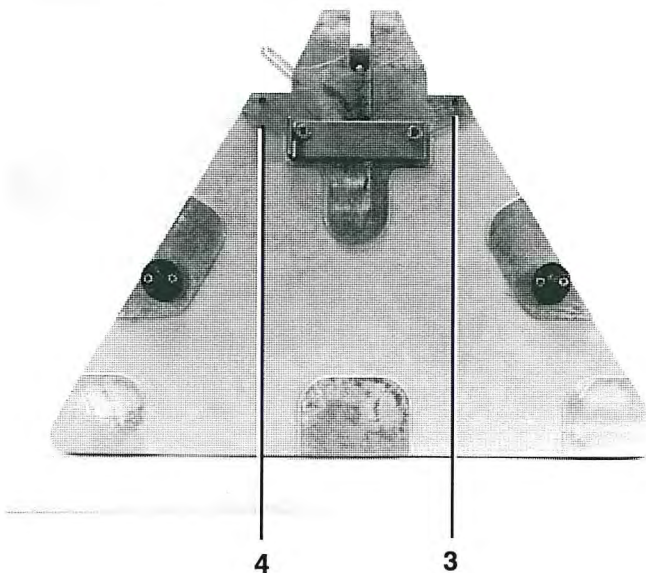
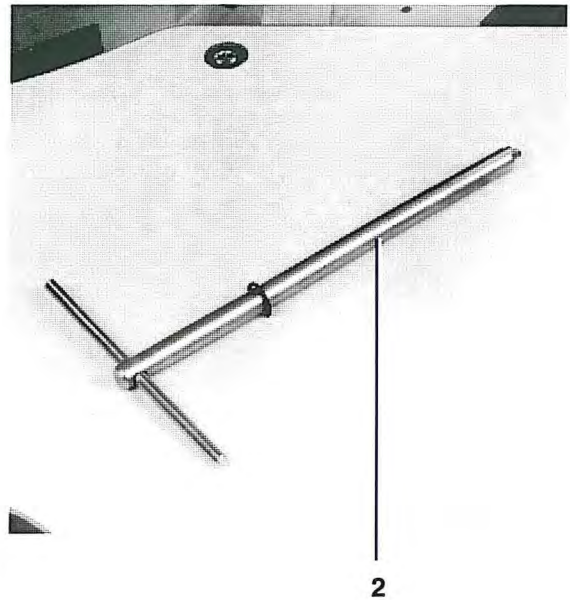
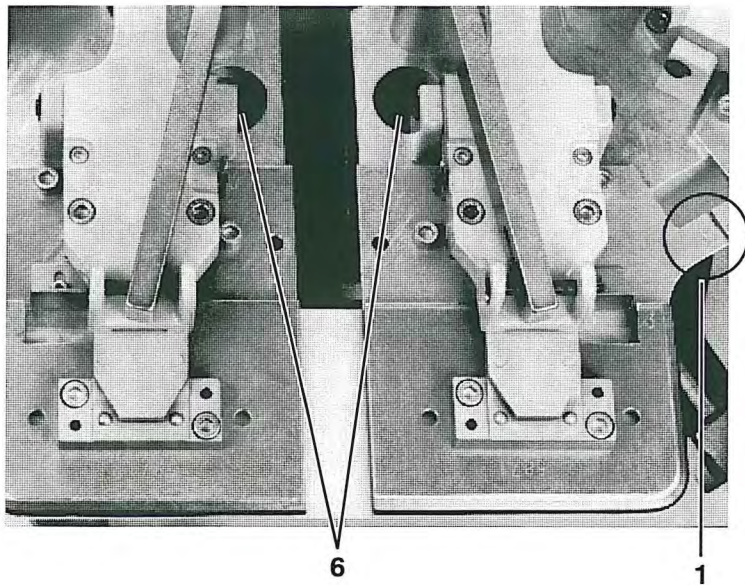


Caution Risk of Injury!

Attach the trimming head with helpers or using suitable aids

- Attach the trimming head as described in Section 2.1. Care should be taken that the clearance between the guide piece 1 and the Delrin 2 of the clamp is 0.3 - 0.5 mm.
- For correction loosen screws 3 and 4 and turn the spindle 5 accordingly.
- Guide the motor connection wiring through the frame (screw union) to the control panel.
- The connections are marked in the control panel. (See also Hook-Up Diagram 9870 971001 B Sheet 1/2)

2.3 Attaching the Material Holder



Attach the holder to the turntable and thereby give attention to the following items:

With adjustable material holders:

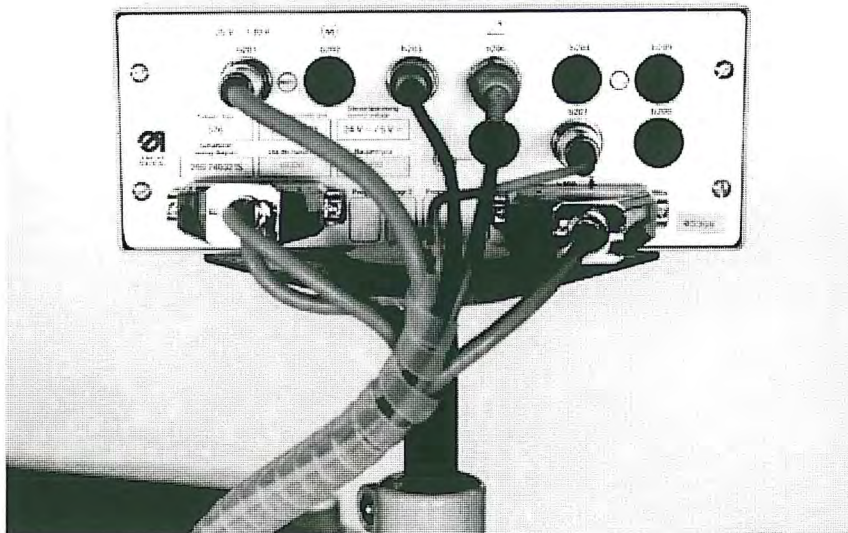
- The numbers 1 (1, 2, 3, 4, etc.) on the holders correspond to their position in the turntable.
Tighten the mounting screws 6 with the special wrench 2.

With non-adjustable material holders:

- The pins 3 and 4 underneath the holder must lay onto the perimeter of the rotary disk.
Tighten the mounting screws with the special wrench 5.

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2.4 Connecting the Microcontrol Control Unit



- Place the control unit on the mounting plate (snap connectors)

- Connecting the wiring:

Attention!

Carefully insert the plugs into the back of the control unit. In as far as these are present, take care that the designations on the wiring and on the back are the same.

Also pay attention to the provision of the plugs with contact pins or sockets, as well as their number and arrangement.

- Tighten the screw fastenings on the plugs.

2.5 Attaching the Yarn Stand

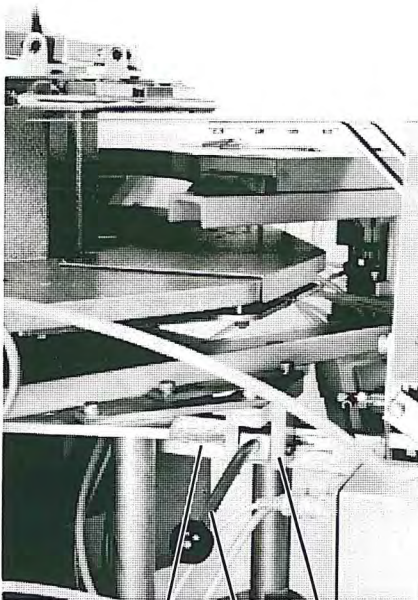
Arrangement and position of the yarn stand can be seen in the cover photo.

- Insert the stand and screw on the nut under the mounting plate.
- The yarn roll holder and unwinding arm must lie above each other.

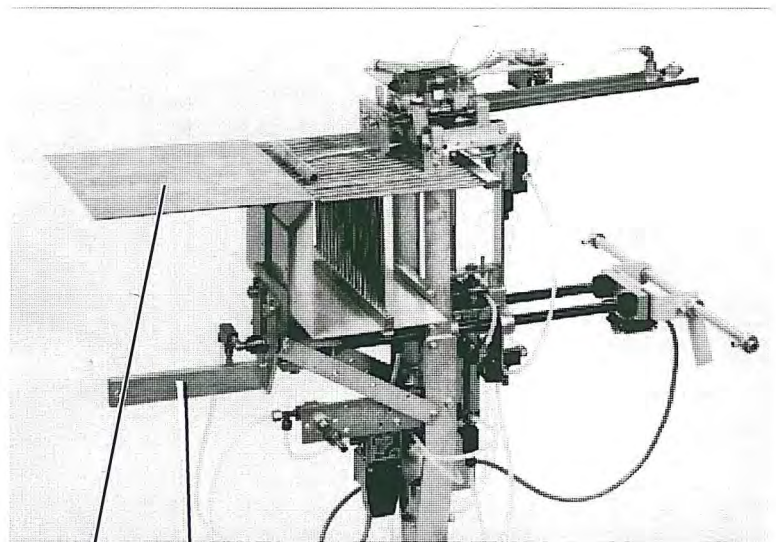
3. Aligning the Sewing Unit

- Place the disks with rubber washers under the four feet. (These are in the accessories package)
- Set the height so that the cast body has sufficient clearance to the floor.
For this turn the 4 feet appropriately.
- Place a level gauge on the stand and align the sewing unit with the 4 feet. If no level gauge is available align the sewing unit so that the slewable sewing head does not move out of position.

4. Connecting the Stacker with the Sewing Unit.



3 2 1



4 3

1. Attaching the stacker to the sewing unit.

- Loosen clamping lever 2.
- Push the stacker toward the sewing unit and guide the mounting rail 3 into the mounting.
- Tighten clamping lever 2.

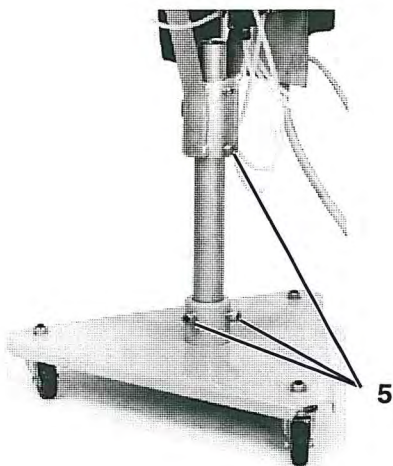
2. Setting the height of the stacker to the sewing unit.

The placement plate 4 of the stacker should have a clearance of approx. 3 mm to the underside of the material holder.

- Loosen screw 5 and set the height of the stacker.

3. Operation without the stacker.

- The standard setting of the controls is for "Operation with Stacker". If no stacker is attached this must be changed in the controls. See Instructions for the Microcontrol Control Unit Chapter "2.2 Operating Elements in the Controls"



5

6. Electrical Connections for the Sewing Unit



For Special Attention!

The mains voltage and the nominal voltage on the motor rating plate must agree.

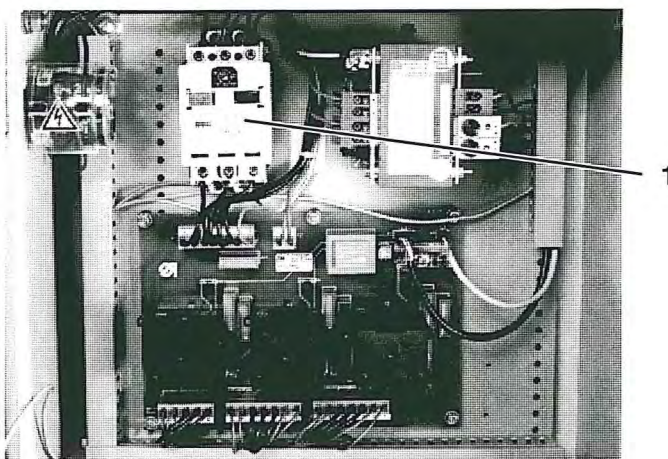
All work on the electrical components are only to be conducted by authorized personnel and with the mains plug pulled.

Please observe the general safety notes.

6.1 Setting the Motor Protection Switch

The motor protection switch 1 must be set appropriate to the mains voltage.

Setting for	3 x 220V = 4,8 A
	3 x 230V = 4,8 A
	3 x 240V = 5,0 A
	3 x 380V = 2,5 A
	3 x 400V = 2,5 A
	3 x 415V = 2,7 A



6.2 Checking the Direction of Rotation

- Turn on the main switch.
- Turn on automatic operation for a short period with the right pedal and then off again.
- The turntable must turn counterclockwise.

If the direction of rotation is **not** correct 2 phases in the mains plug must be interchanged.

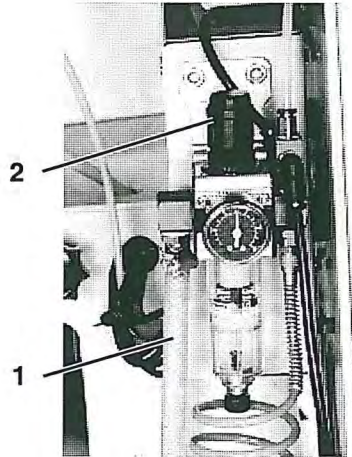
7. Pneumatic Connection



Attention!

For a flawless functioning of the pneumatic control procedures, the following notes are to be observed.

The compressed air supply must be so designed that at the moment of greatest air consumption the minimum operating pressure does **not** fall below 5 bar.



- Connect hose 1 of the sewing unit to the compressed air supply (7 - 10 bar).

Operating pressure = 5 bar

- To set the pressure lift knob 2 and turn.
 - To the left = Reduce pressure
 - To the right = Increase pressure

8. Commissioning

Trial run

- First conduct a trial run with material to check the correct function sequence.

First sewing start

- Start automatic operation and stop again, when a material holder is in front of the sewing head.
- Thread the needle and hook threads.
- Place material in the clamp at the sewing head. Press the opening lever down manually.
- Sew the first stitches manually.
- Place material in the next clamp.
- Start automatic operation.

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1. General



ATTENTION!

The tasks described in the Service Instructions may only be conducted by skilled personnel or appropriately trained staff!

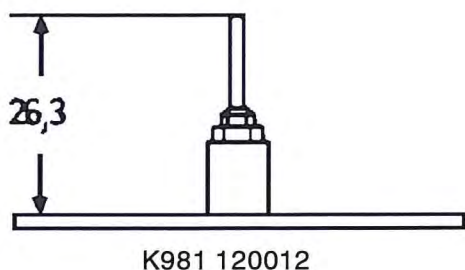


Caution Risk of Injury!

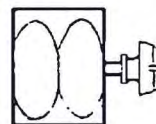
During repair, conversion and maintenance work turn the main switch off and disconnect the sewing unit from the pneumatic supply.

Adjustments and function testing with the sewing unit running are to be conducted only under observance of all safety measures with the greatest possible caution.

1.1 Gauge Set



K981 120012



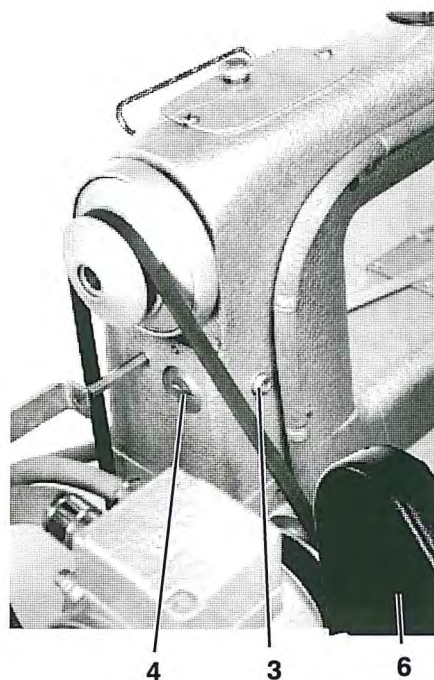
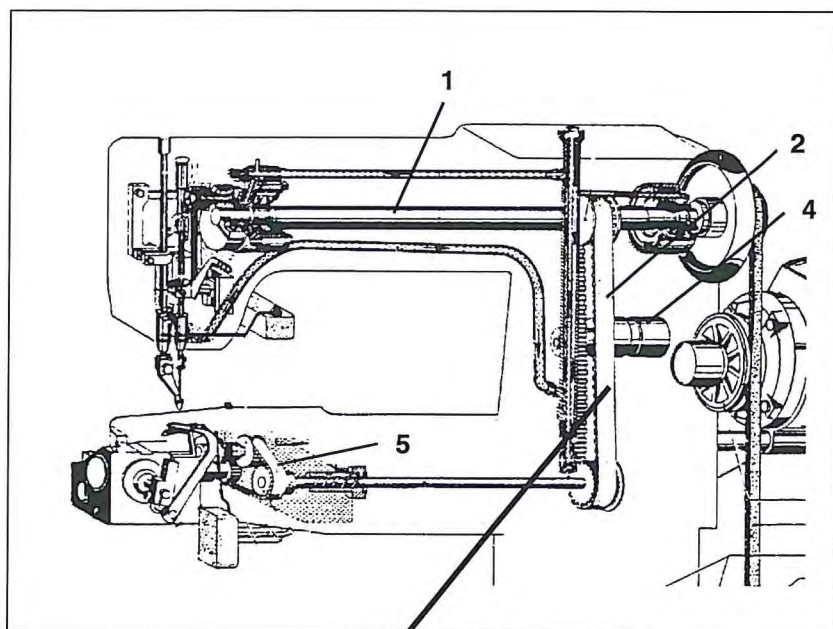
K981 150002

The adjustment gauges listed in the following make possible a precise setting and testing of the sewing unit.

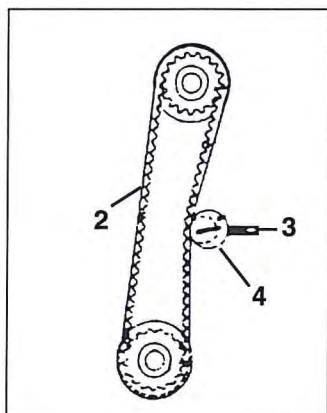
Order no.	Setting
K981 120012	Height of the needle rod of the sewing head
K981 150002	Setting block for the timing of the hook movement and the radial position of the needle rod
K981 150015	Feeler gauge

2. Adjusting the Sewing Head

2.1 Timing Belts



The arm shaft 1, via the timing belts 2 and 5, drives the bottom shaft, the shaft of the hook housing and the shaft of the thread take-up disk. The timing belts should be able to be "pressed in" a little by hand.

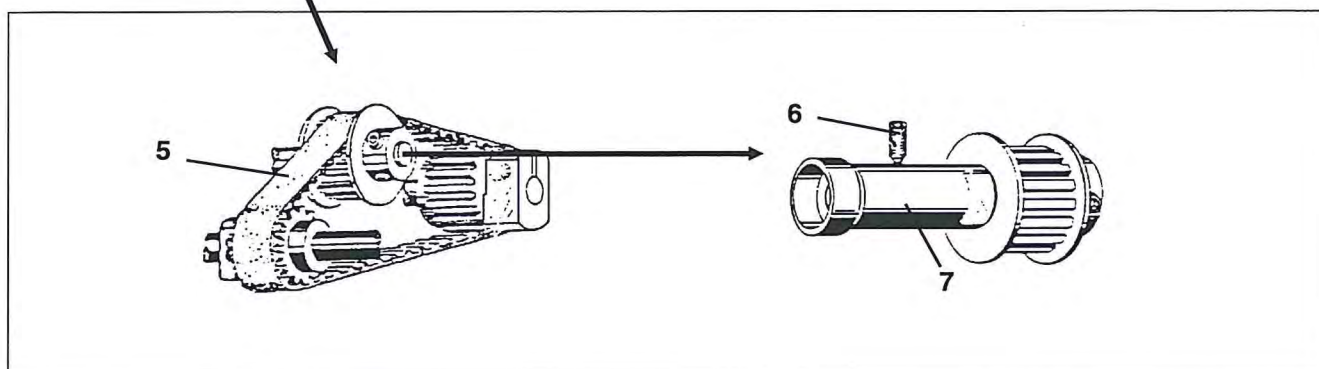
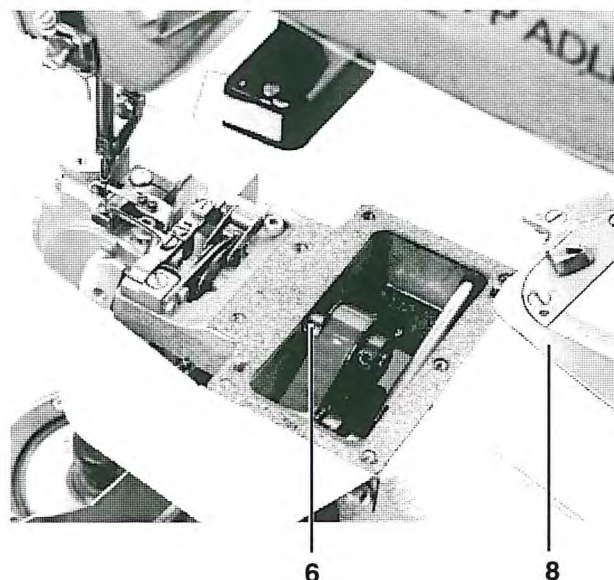
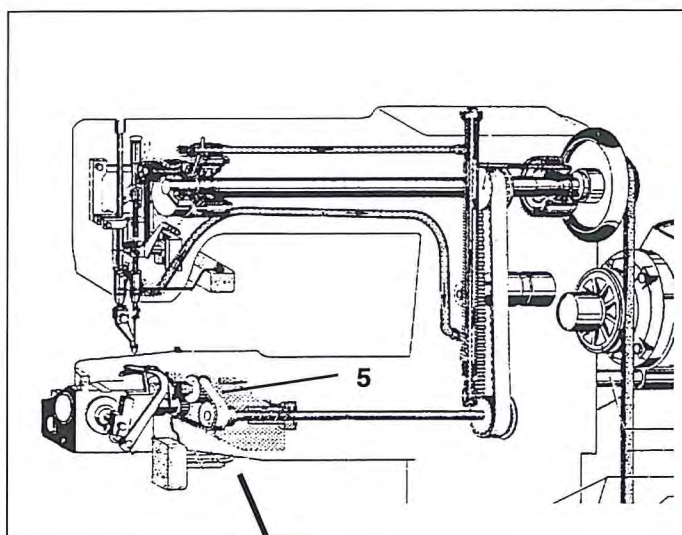


Caution Risk of Injury!

Before checking and setting the timing belts turn the main switch off.

1. Setting timing belt 2

- Screw the belt guard 6 off.
- Loosen screw 3.
- Turn the eccentrically bearinged tension roller 4 against the timing belt with light pressure.
- Tighten screw 3.
- Remount the belt guard.



2. Setting timing belt 5

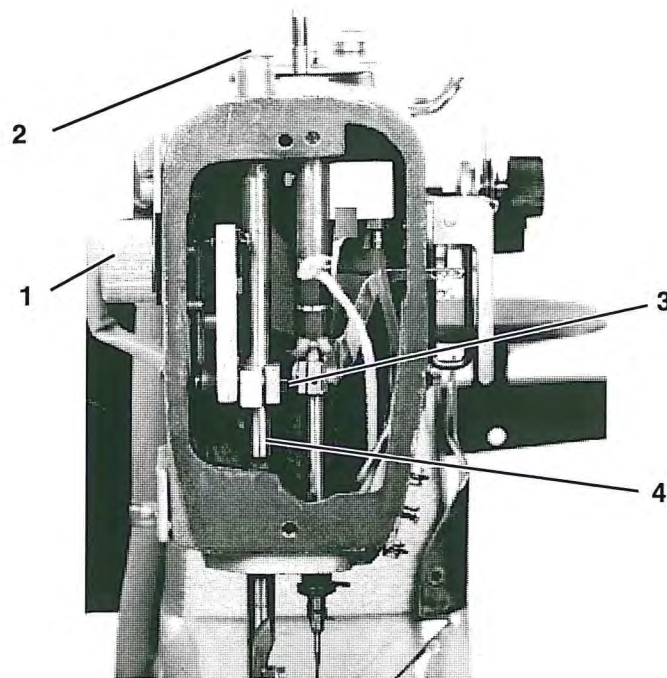
- Screw the housing cover 8 off
- Loosen screw 6 and turn the eccentric bush 7 appropriately.

ATTENTION!

Too high a belt tension leads to increased belt and bearing wear.
With too low a tension no precise movement harmonization between the needle rod, the hook and the thread take-up disk can occur.

2.2 Pressure Foot

2.2.1 Pressure Foot Pressure



The pressure foot should follow the operating mechanism with its downward movement.
Too low a pressure can lead to missing stitches.

- Turn the knurled screw 2 accordingly.

2.2.2 Stroke Position of the Pressure Foot

The pressure foot should lightly touch the material in its lower dead center.

- Turn the handwheel in the direction of revolution until the pressure foot reaches its lowest position.
- Adjust the setting wheel 1 so that the pressure foot lightly touches the material.

2.2.3 Height Adjustment Range of the Pressure Foot

The pressure foot at lower dead center should have a clearance of 0.5 mm to the needle hole mushroom when the lowest stroke position is set.

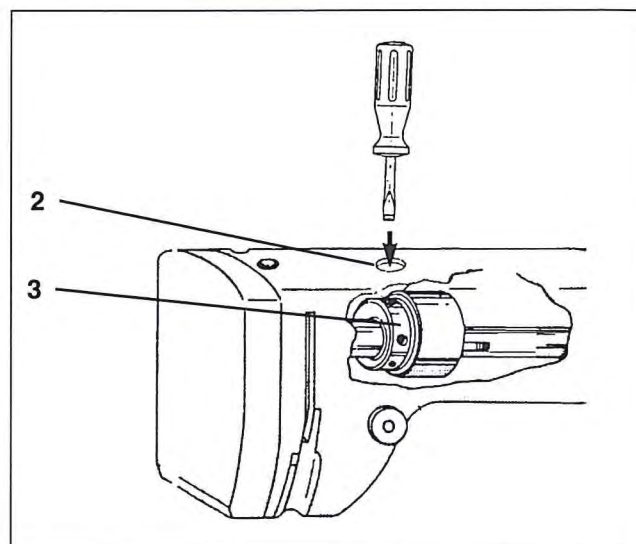
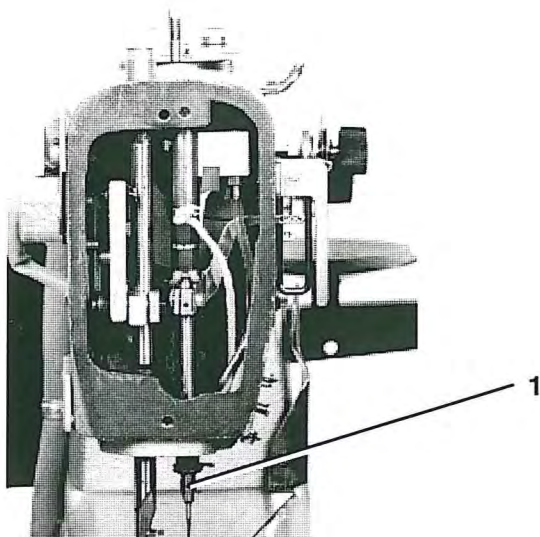


Caution Risk of Injury !

Before setting turn the main switch off.

- With setting wheel 1 set the lowest stroke position.
- Bring the pressure foot into the lowest position with the handwheel.
- Loosen screw 3 and set the height of the presser bar 4 appropriately.

2.2.4 Timing of the Pressure Foot Movement



The pressure foot should only start its upward movement after 2 mm of looping stroke.

An incorrect setting can cause missing stitches.

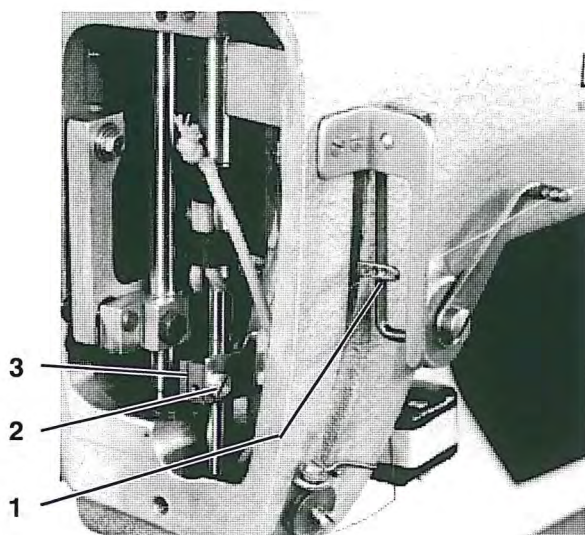
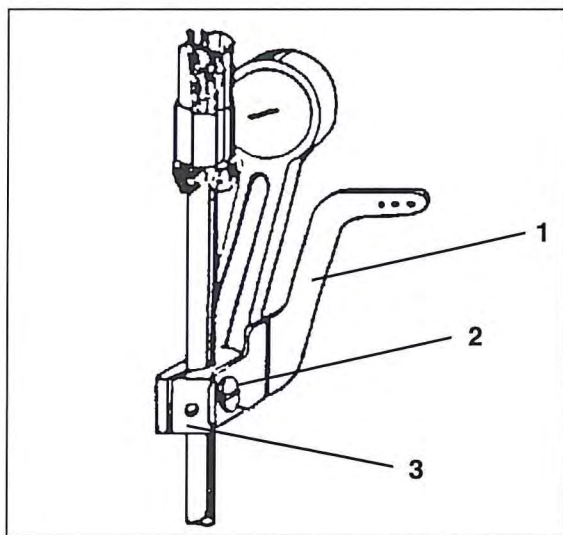


Caution Risk of Injury!

Before setting turn the main switch off.

- Remove plug 2
- Loosen the screws on the stroke eccentric 3.
- Turn the needle rod 1 into the low position.
- Change the position of the stroke eccentric on the shaft.
- Do not change the position axially.

2.3 Thread Lever



The thread lever 1 should be centered in the slot of the housing.



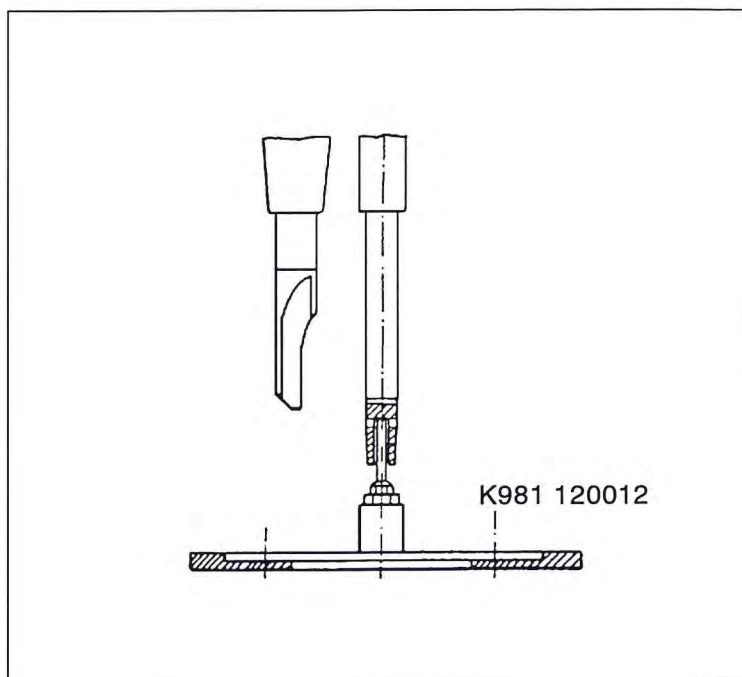
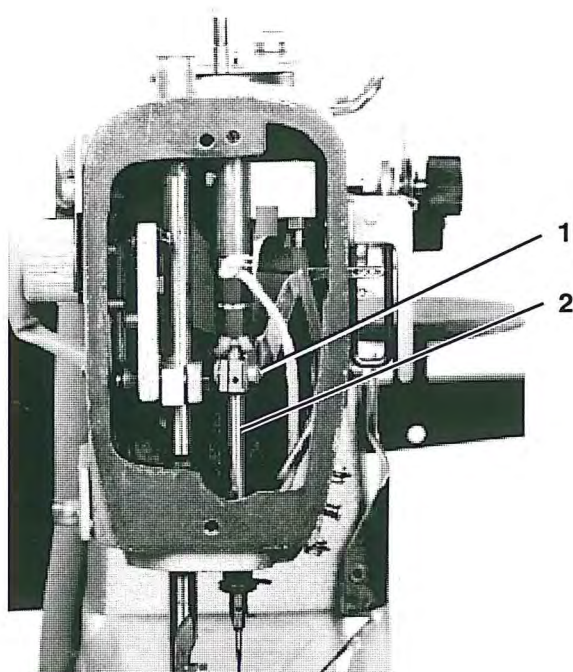
Caution Risk of Injury!

Before setting turn the main switch off.

- Remove the head cover.
- Loosen screw 2 on the clamping block 3.
- Alter the position of the thread lever in the vertical and horizontal directions appropriately.

2.4 Hook, Spreader, Needle Rod and Needle Guide

2.4.1 Height of the Needle Rod



The needle rod height is set with the gauge K981 120012. The pin of the gauge must have completely entered the hole in the needle rod when this is at lower dead center.

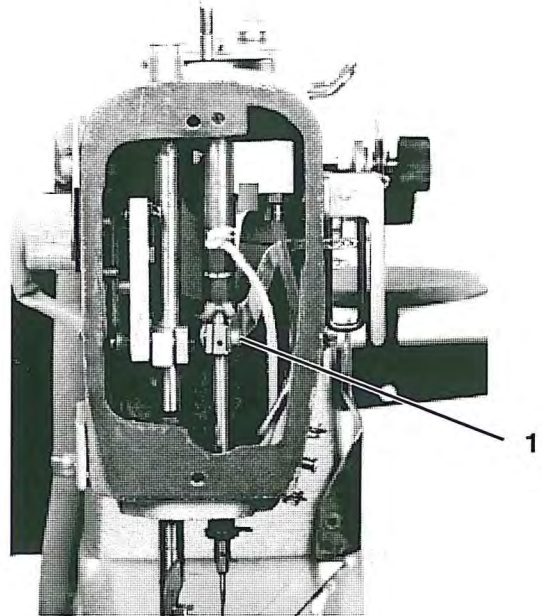
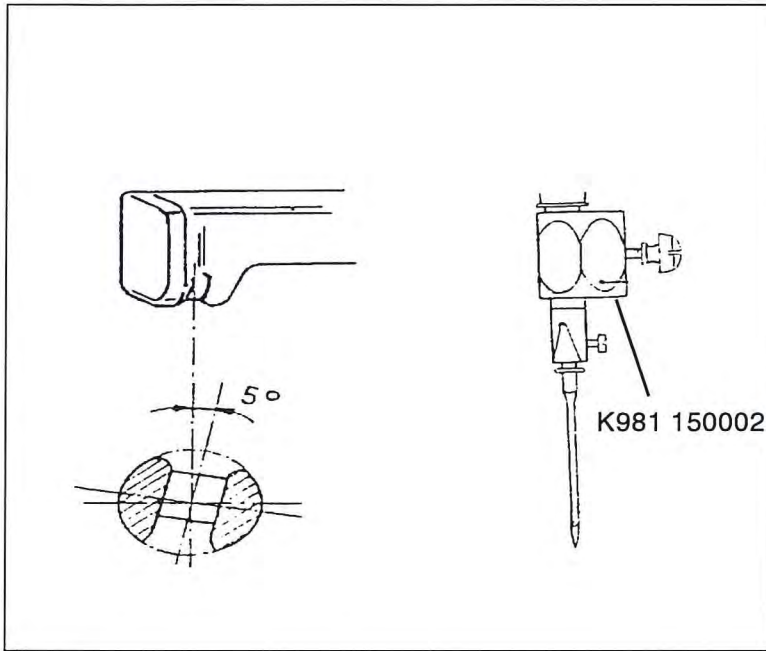


Caution Risk of Injury!

Before setting turn the main switch off.

- Screw the head cover and needle plate off.
- Take out the needle and pressure foot.
- Bring the needle rod in its high position with the handwheel.
- Place gauge K981 120012 on the base plate.
- Loosen screw 1 on the clamping block 2
- With the handwheel bring the drive mechanism of the needle rod into lower dead center.
- Pull the needle rod all the way down onto the pin of the gauge. Do not turn the needle rod.
- Tighten screw 2.

2.4.2 Radial Position of the Needle Rod



The needle fastening screw sits on the surface of the needle and thereby determines the correct position of the needle to the hook.

The furrow of the needle should be at an angle of 5 -10° to the hook.

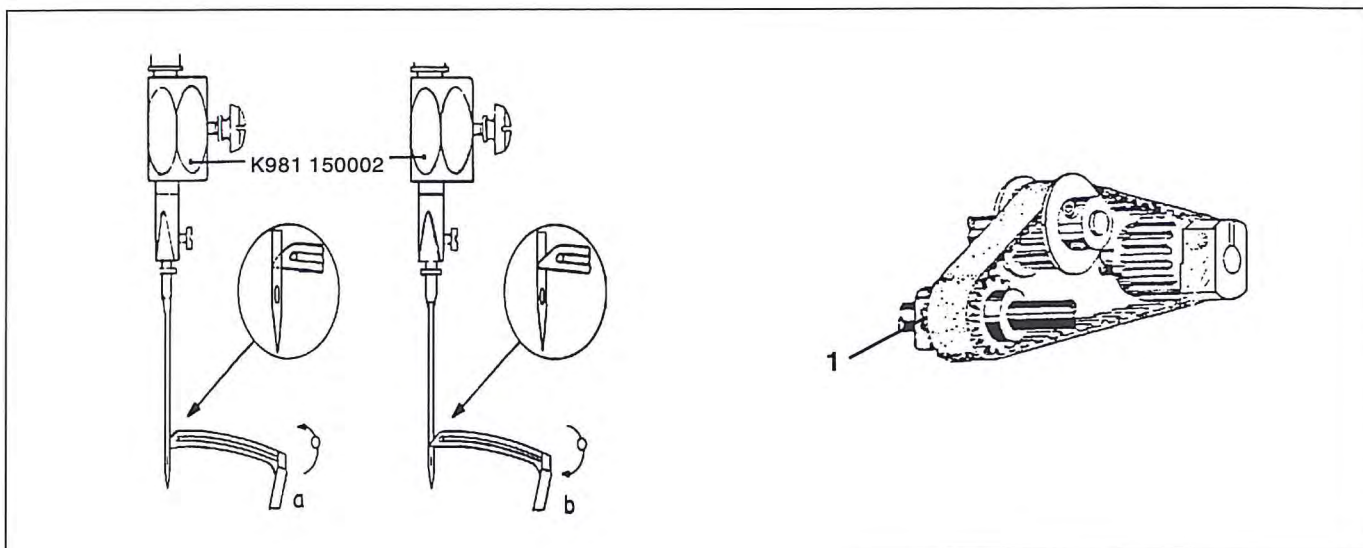


Caution Risk of Injury!

Before setting turn the main switch off.

- Screw the head cover off.
- Set the needle rod at the upper dead center.
- Attach the setting block K981 150002 to the needle rod in order to adjust the needle rod height.
- Loosen screw 1.
- Turn the needle rod and at the same time press it up against the stop.
- Tighten screw 1.

2.4.3 Timing of the Hook Movement



In the needle low position the hook should be at its right reversing point.

A correction also changes the position of the thread take-up disk.



Caution Risk of Injury!

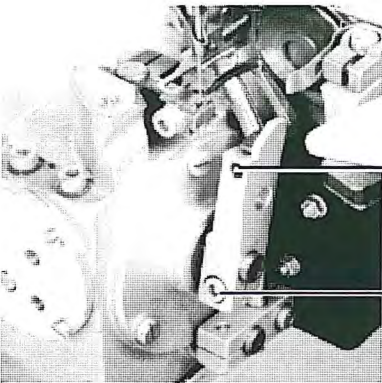
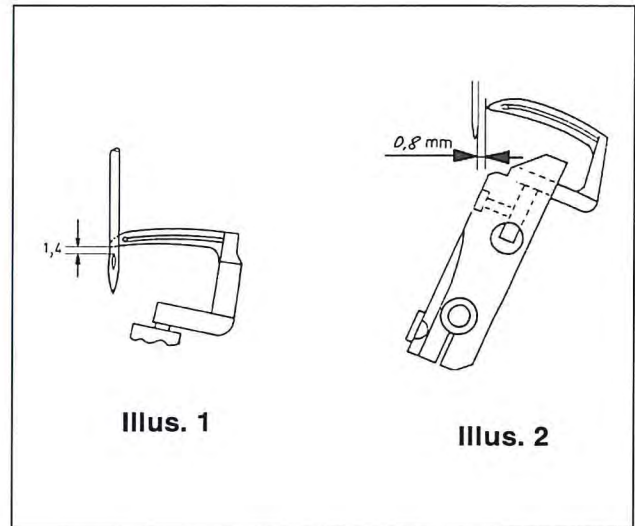
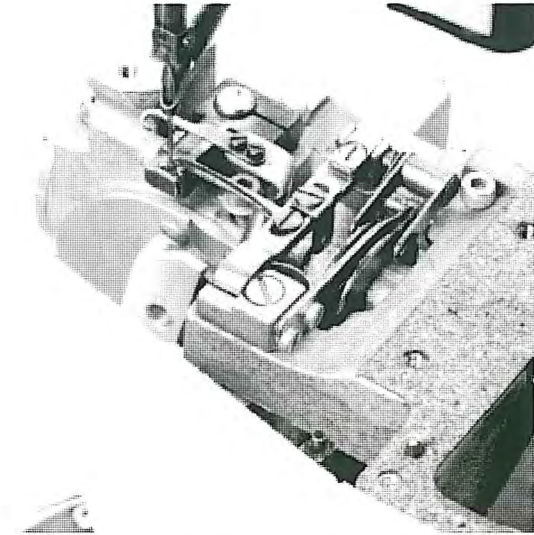
Before setting turn the main switch off.

- Turn the handwheel until the hook point is **behind** the needle and in line with the left side of the needle (Illus. a).
- Place setting block K981 150002 on the needle rod, press against the needle rod guide bush and fix with the screw.
- Turn the handwheel counter to the direction of run until the block again lies on the bush. In this position (Illus. b) the hook point must be in front of the needle and in line with the left side of the needle.

Setting the timing

- Loosen screw 1 on the forward gear.
- Hold the hook carrier and turn the handwheel appropriately.

2.4.4 Position of the Hook to the Needle



The hook height is correct when the hook point, being "in line" with the left side of the needle, has a clearance of 1.4 mm to the eye of the needle (Illus. 1).

At the right reversing point the hook should have a clearance of 0.8 mm to the needle (Illus.2)

The hook should move with a clearance of 0.1 mm past the furrow of the needle.



Caution Risk of Injury!

Before setting turn the main switch off.

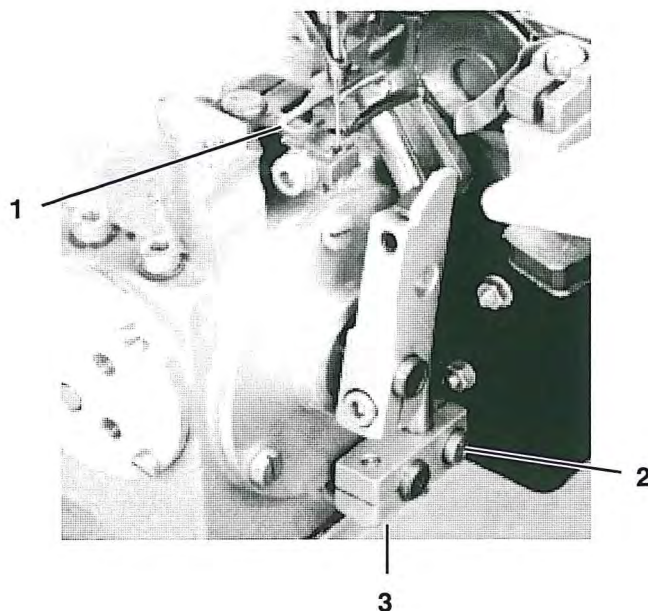
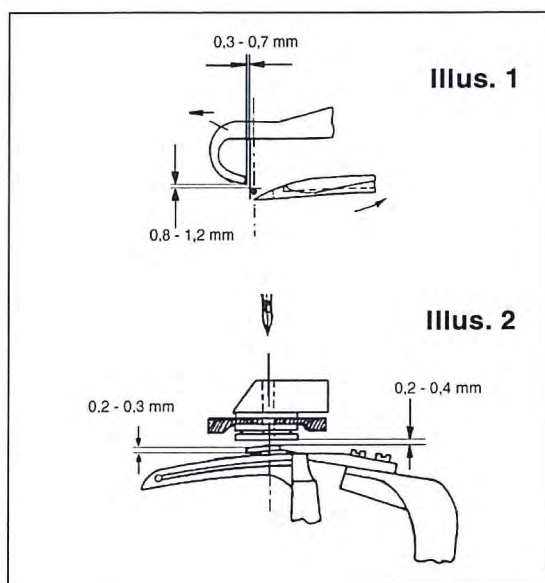
1st setting

- Set the hook at the right reversing point.
- Loosen screw 2.
- Set the clearance from the hook point to the needle at 0.8 mm.

2nd setting

- Set the hook point at the left side of the needle.
- Check if the clearance to the eye of the needle is 1.4 mm.
- Loosen screw 1 and pull the hook in or out appropriately.
- Turn the hook in the hook carrier so that there is a clearance of 0.1 mm to the furrow of the needle.
- Check the clearance of 0.8 mm at the right reversing point.

2.4.5 Position of the Spreader



In order to avoid missing stitches the formation of the thread triangle is supported by the spreader 1.

When the hook is in front of the needle and the hook point lies at the needle center it should have the position shown in illus. 1.

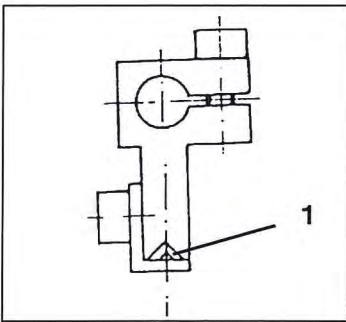
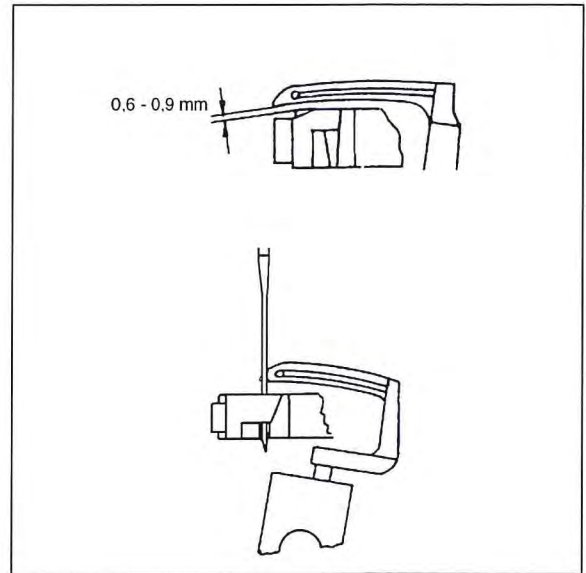
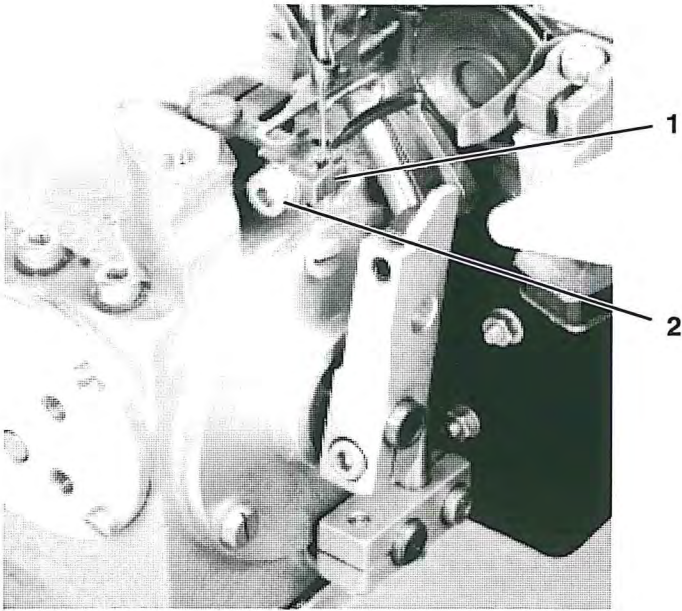


Caution Risk of Injury!

Before setting turn the main switch off.

- Turn the handwheel until the hook is in front of the needle and the hook point lies at the needle center.
- Loosen screw 3 and set the position of the spreader appropriately.
- Set the hook at the left reversing point (Illus. 2)
- Loosen screw 2 and set the spreader height appropriately.

2.4.6 Needle Guard



Through the continuous transport of the sewing head, the needle is deflected below the level of the material. The needle must therefore be appropriately guided when the hook point moves past the furrow of the needle.

The hook should move at a clearance of 0.6 - 0.9 mm above the needle guard.

The needle point should lay onto the needle guard 1 without deflection when the hook point is behind the needle and in line with the left side of the needle.

At the needle low position the forward part of the needle guard should have a clearance of 0.3 mm to the needle.



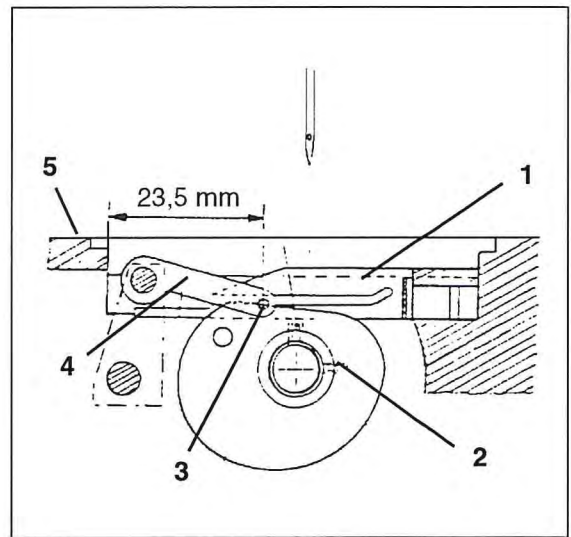
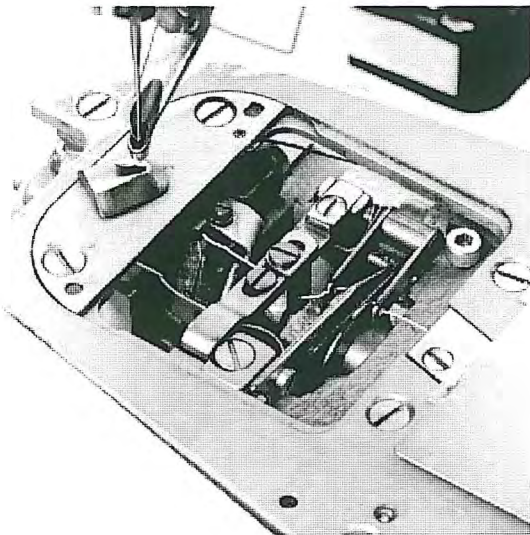
Caution Risk of Injury!

Before setting turn the main switch off.

- Loosen screw 2 and change the position of the needle guard appropriately.

2.5 Thread Take-Up Disk and Thread Guides

2.5.1 Thread Take-Up Disk



The thread take-up disk should draw or release the hook thread appropriate to the hook movement.

With the begin of the downward movement of the needle the thread take-up disk should begin with the drawing.



Caution Risk of Injury!

Before setting turn the main switch off.

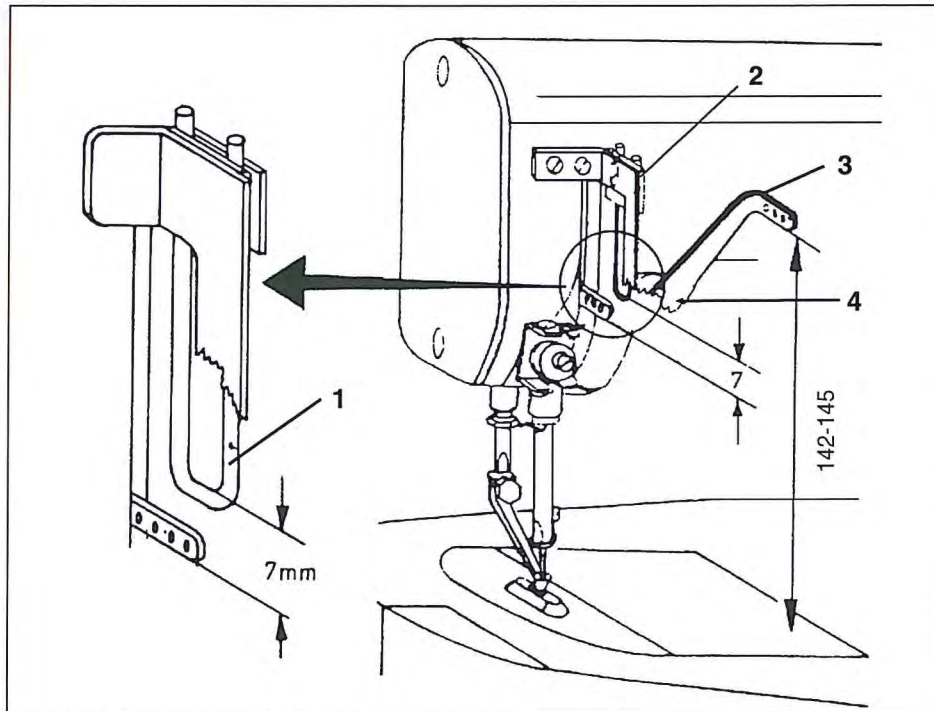
- Loosen screws 2 of the thread take-up disk.
- Move the needle rod down from upper dead center.
- Adjust the thread take-up disk so that it begins with the drawing of the hook thread. The thread take-up disk should lie centered to the thread guide 1.
- Tighten the screws again.

2.5.2 Thread Guides

The hole 3 of the thread guide 4 should have a clearance of 23 mm to the cast edge and be in line with the slit of the thread guide 1.

The thread guide should lie centered to the thread take-up disk.

2.6 Thread Regulator and Needle Thread Guide



The thread regulator 1 should have a clearance of 7 mm to the thread lever when this is in its lower dead center.

The position of the thread lever influences:

- The tension of the needle thread loop shortly before it jumps from the hook,
- the tension of the needle thread loop,
- the loop size.

The height of the thread guide 3 should, depending on material and sewing threads, be 142 - 145 mm from the base plate.

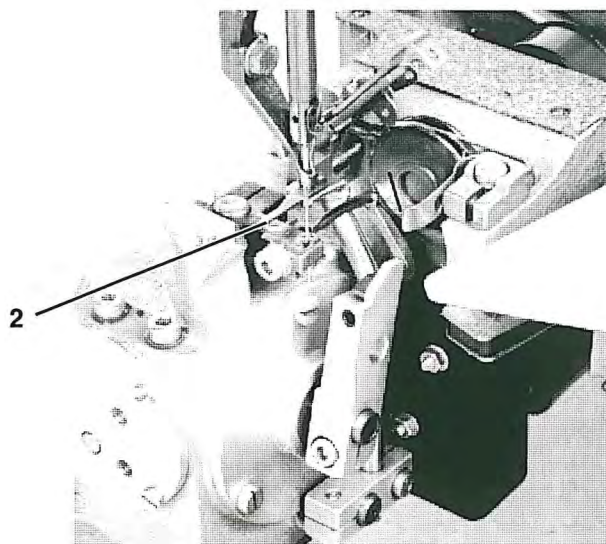
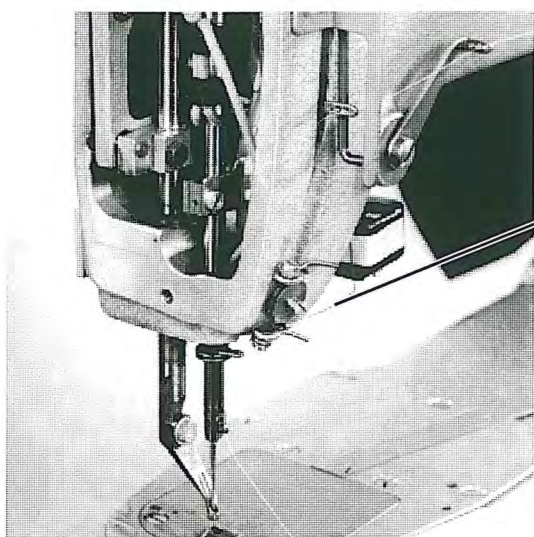


Caution Risk of Injury!

Before setting turn the main switch off.

- Loosen screws 2 and 4 and set the thread regulator / the thread guide appropriately.

2.7 Thread Monitors



With a thread break the switching flag of the appropriate thread monitor is released. The automatic operation is stopped.

The thread break should, however, only be signaled when the switching flag has moved at least 2/3 of its possible movement.

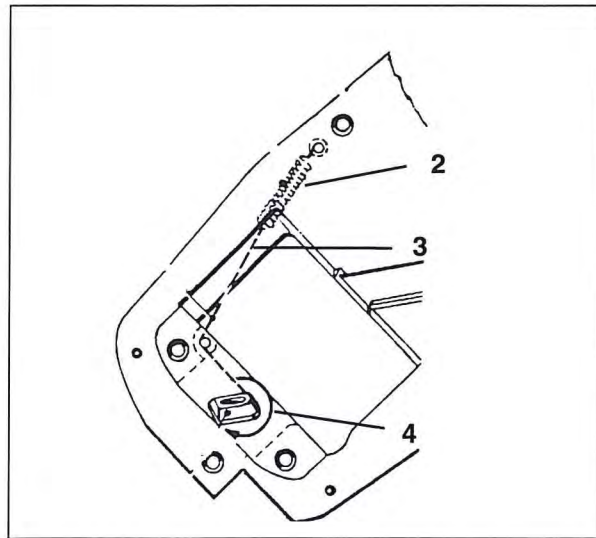
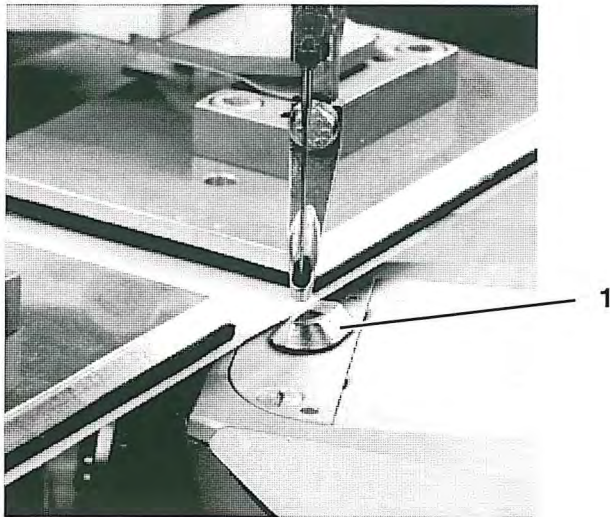


Caution Risk of Injury!

Before bending the switching flags turn the main switch off.

- Bend the switching flag 1 of the needle thread and switching flag 2 of the hook thread monitor appropriately.

2.8 Needle Hole Mushroom



In each sewing phase the needle hole mushroom 1 must lie on the material support with appropriate pressure. This is the case when the cord 3, with the sewing head swung out, is somewhat loose.

When the sewing head is swung in the spring 2 must pull the needle hole mushroom into sector 4. If this is not the case the cord must be shortened a little.



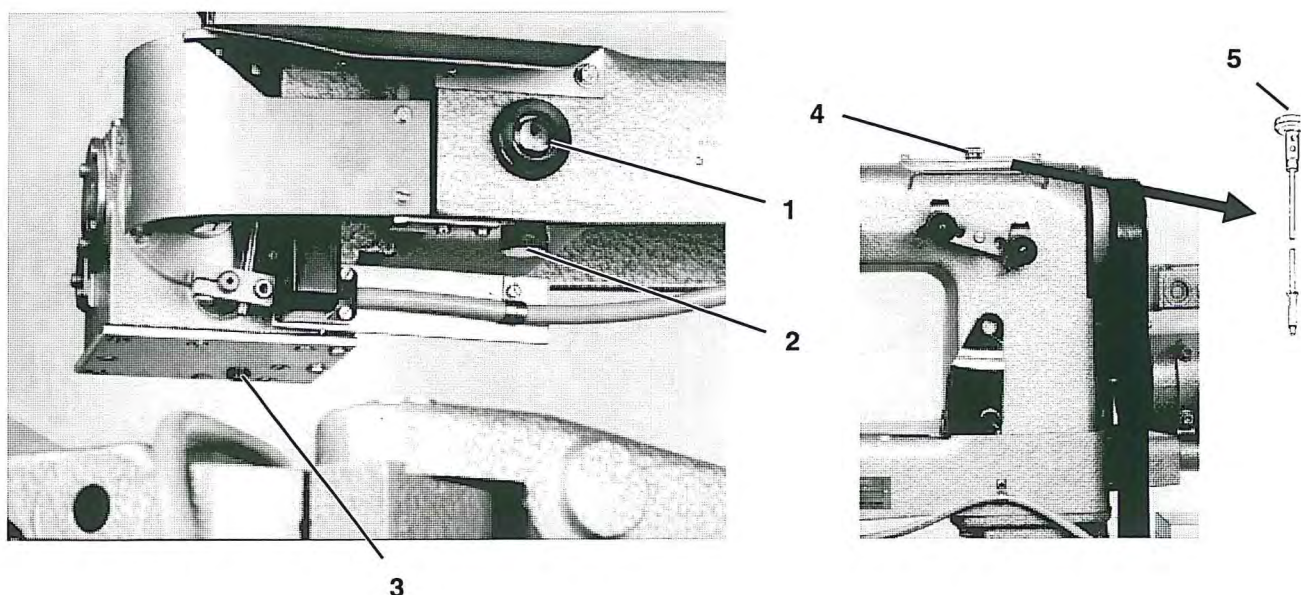
Caution Risk of Injury!

Before setting turn the main switch off.

- Check the needle hole mushroom position in the swung-in and swung-out positions.
- Loosen the housing plate screws.
- Remove the housing plate.
- Lengthen or shorten cord 3 appropriately.

2.9 Oil Lubrication

2.9.1 Checking the Oil Level and Oil Feed

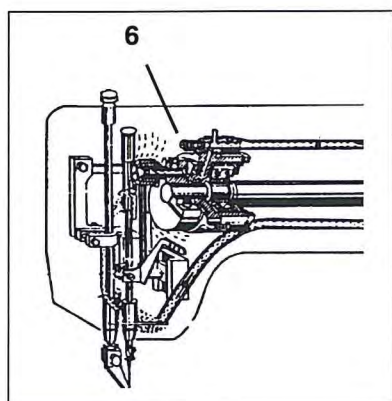


The oil level in the oilpan is to be checked, with the machine not running, at the oil level gauge 1 at weekly intervals. If the oil level is below the middle of the gauge, "Esso SP NK 10"-brand oil must be filled.

With the sewing unit running the oil feed from the oilpan to the riser tube can be checked at the viewing glass 5. The oil feed should be checked weekly.

- Screw out the oil riser tube 4.
- Pour oil through the filling nozzle into the oilpan.

2.9.2 Regulating Sewing Head Lubrication



The amount of oil fed can be considerably greater than the actually required amount of oil.

Check to see if all effected parts in the sewing head are covered with an oil film.

- Screw off the head cover.
- Screw the regulating screw 6 all the way in and turn back approx. 1/2 turn.

2.9.3 Changing the Oil

The oil is to be changed after the first 6 months, at the latest, however, after 1000 operating hours. Thereafter no further oil change is required.

Conduct the oil change in the following order:



Caution!

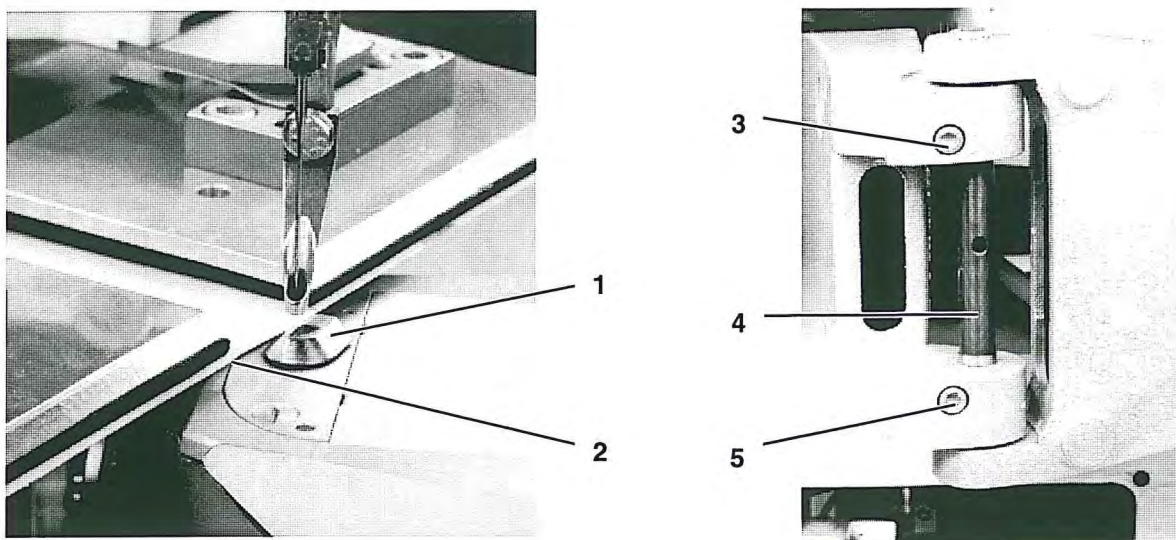
Oil can cause skin irritation. Avoid longer skin contact. Wash thoroughly after contact.

Protect the environment. The handling and disposal of mineral oils is regulated by law. Deliver waste oil to an authorized receiver.

Take care not to spill oil.

- Screw out drain screws 2 and 3 (See p. 19) to drain the oil.
- Remove the oilpan cover.
- Clean the oilpan.
- Screw in both drain screws again.
- Place a new gasket on the oilpan cover.
- Take out the oil riser tube.
- Fill "Esso SP NK 10" oil through the filling nozzle until the oil reaches the middle of the oil level gauge.
Here observe that the oil from the oilpan can only reach the hook case through a relatively small hole. Therefore check the oil level again after a few minutes.

2.10 Height of the Sewing Head



The needle hole mushroom 1 should have a clearance of 0.2 - 0.3 mm to the Delrin 2 of the material holder.

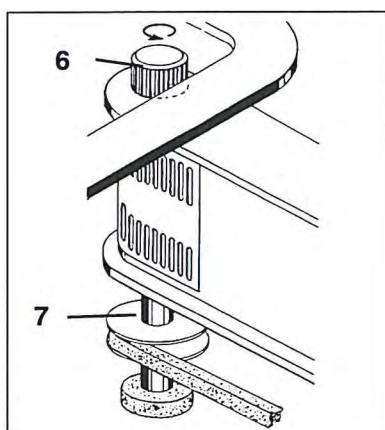


Caution Risk of Injury!

Before setting turn the main switch off.

- Guide the sewing head inside of the slewing area along the material template and check the clearance.
- Loosen the clamping screws 3 and 5 on the slewing arm and turn shaft 4 appropriately.
- Tighten clamping screws again.

2.11 Height of the Magnetic Roller

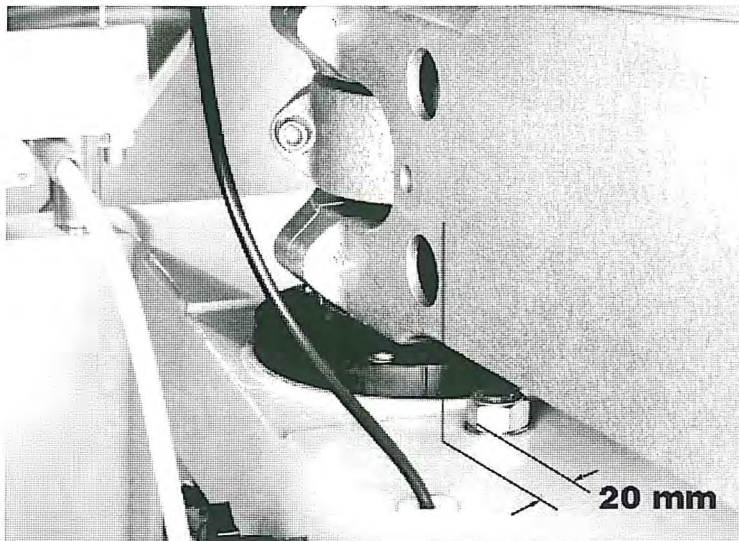


The magnetic roller 6 must move in rolling contact along the whole surface of the template. With adjustable holders also on the higher "bridge" between the holders.

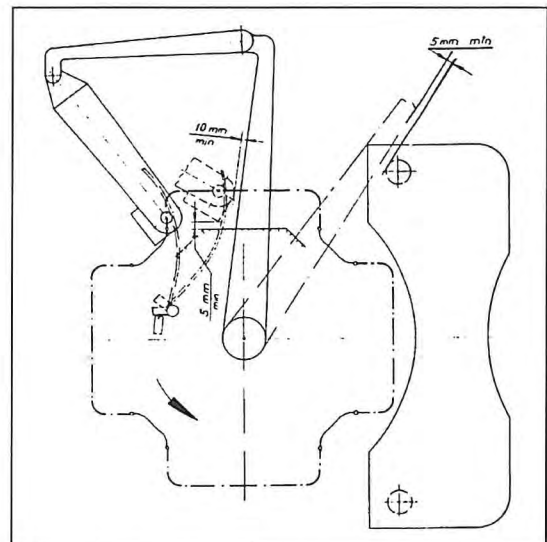
Templates at the higher level for closer trimming in certain areas may in no case be touched by the magnetic roller.

- Loosen the screw on the pulley 7 and change the height of the magnetic roller appropriately.

2.12 Position of the Slewing Arm



Illus. 1



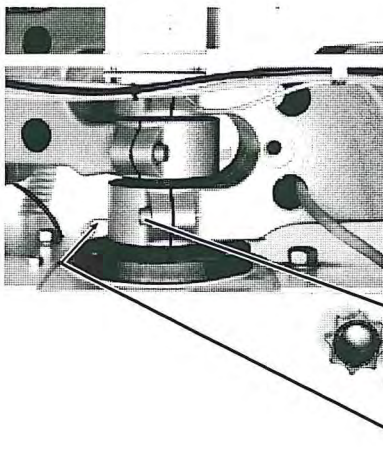
The position of the slewing arm bearing is set at the factory. It is dependent on the type of material holder. When using new material holders it may become necessary to change the position of the slewing arm bearing.

For establishing the correct position the position shown in illus. 1 can first be used as a reference point.



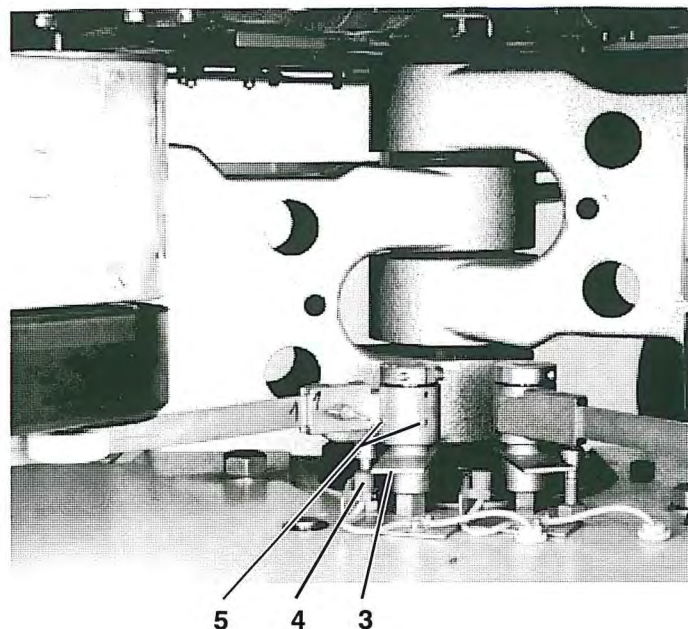
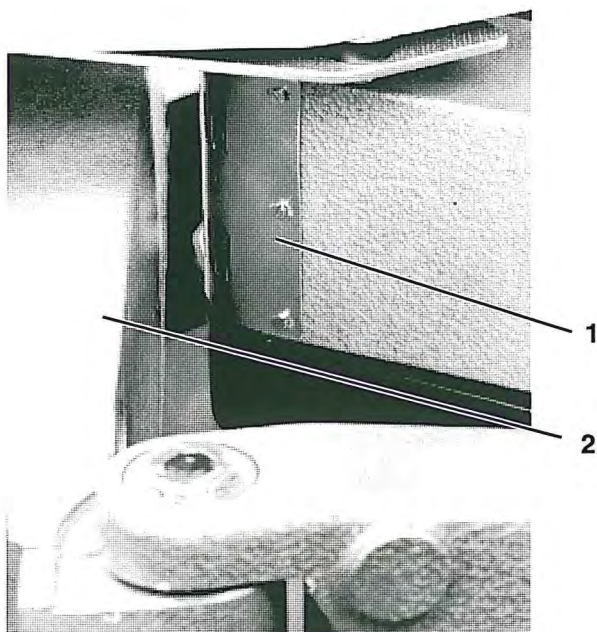
Caution Risk of Injury!

Before setting turn the main switch off.



- Loosen screws 1 and 2 and alter the position of the slewing arm bearing appropriately. Thereby do **not** change the height of the slewing arm bearing.
- Check the movement range of the sewing head (see also subject 2.13) and, if necessary, check the position of the slewing arm.

2.13 Movement Range of the Sewing Head



The sewing head has reached the end of the movement range when switch 4 (b21) is operated via the switching flag 3 and thus a new cycle is activated again.

The turntable should be activated when the sewing unit 1 has moved to within 20 mm of the slewing arm 2.



Caution Risk of Injury!

Before setting turn the main switch off.

- Loosen screws 5 and change the position of the switching plate appropriately.

ATTENTION!

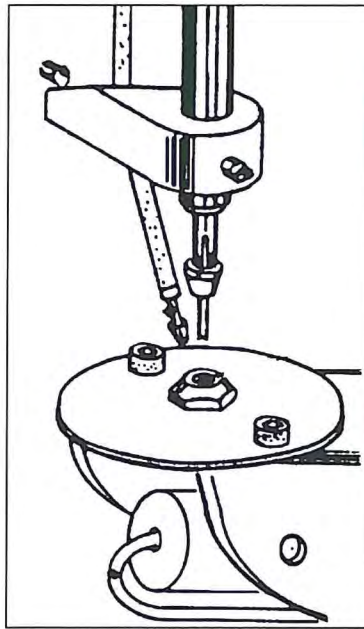
Deviations from this rule become necessary when at this point the warp is being sewn. In this case either the turntable is to be activated appropriately earlier or the position of the slewing arm bearing appropriately changed.

3. Trimming Head

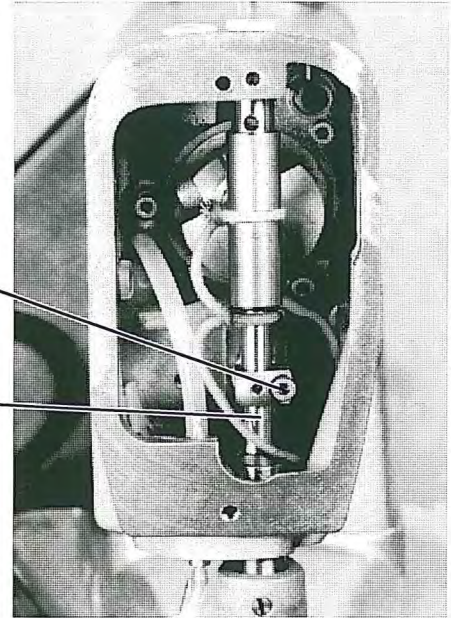
3.1 General, Version 1 and 2



Illus. 1



Illus. 2



The trimmer in illus. 1 is equipped with an upper and a lower knife. It makes possible the trimming of "outside radii" and larger "inside radii".

This trimmer is designated **Version 1** in these instructions.

The trimmer in illus. 2 is equipped with a stamp and a template. It makes possible the trimming of small "inside radii" such as are required with gloves, for example.

It is designated **Version 2** in these instructions.

3.2 Knife or Stamp Overlapping

3.2.1 Knife Overlapping with Version 1

The blades of the upper and lower knives should be just overlapped when the upper knife is at lower dead center.



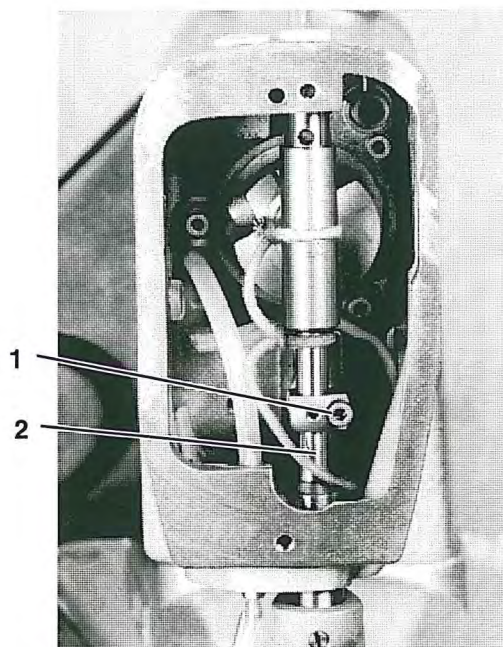
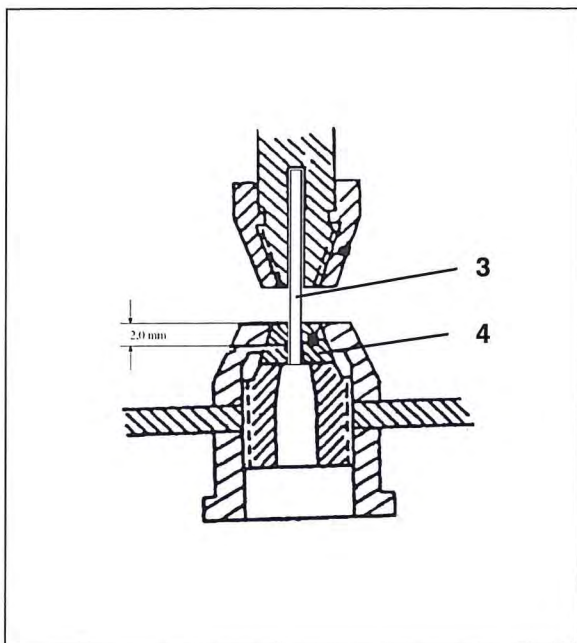
Caution Risk of Injury!

Before setting turn the main switch off.

- Screw the head cover off.
- Turn the handwheel in the direction of revolution until the upper knife is at its lower dead center.
- Loosen screw 1 and adjust the tension bar 2 so that the upper and lower knives overlap.
- Tighten screw 1 again.

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3.2.2 Stamp Overlapping with Version 2



The stamp 3 should be pushed up into the receiving hole of the stamp rod until hitting the stop. In its lowest position it should have entered 2 mm into the template.

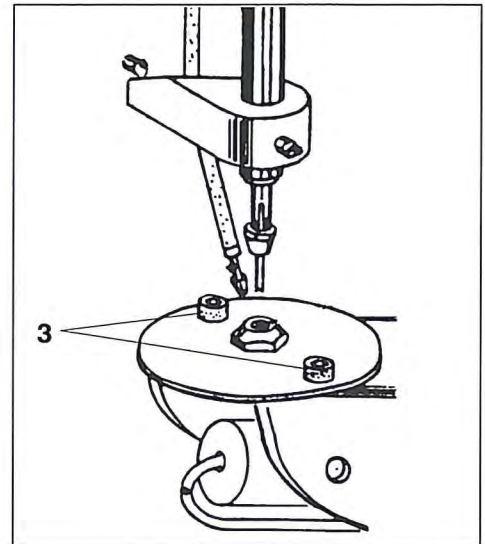
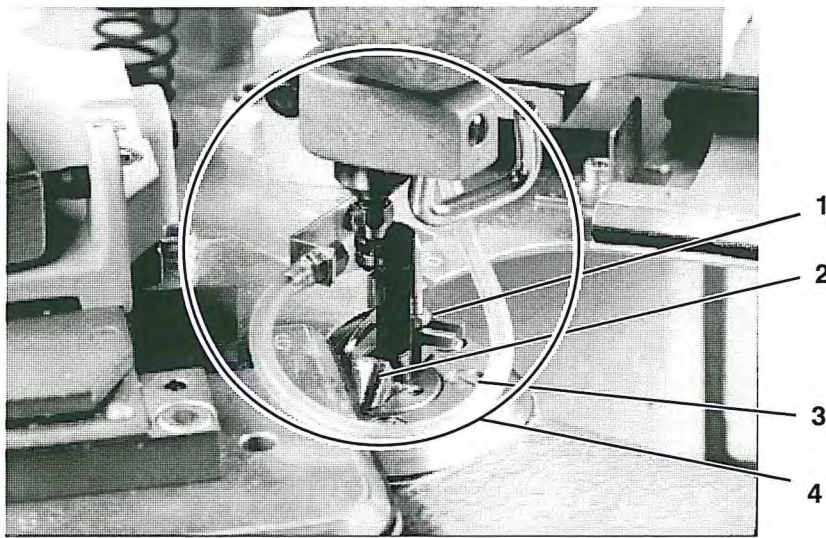


Caution Risk of Injury!

Before setting turn the main switch off.

- Screw the head cover off.
- Turn the handwheel in the direction of revolution until the stamp is at its lower dead center.
- Loosen screw 1 and adjust the stamp rod 2 so that the stamp has entered 2 mm into the template.
- Tighten screw 1 again.

3.3 Position of the Guide Pieces with Version 1



When trimming straight sections the knife blades should lie parallel to the material clamp.



Caution Risk of Injury!

Before setting turn the main switch off.

- Set the trimmer at a straight section.
- Loosen nut 1 on the guide piece 2.
- Adjust the position of the guide piece 2.

3.4 Position of the Shearing Head / the Template to the Drive Rod

Version 1

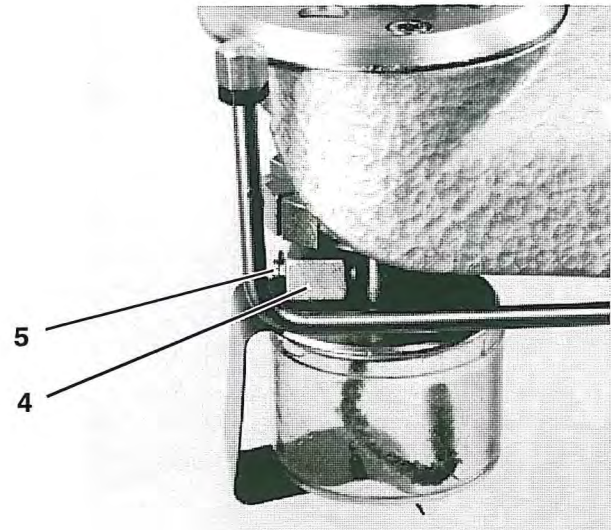
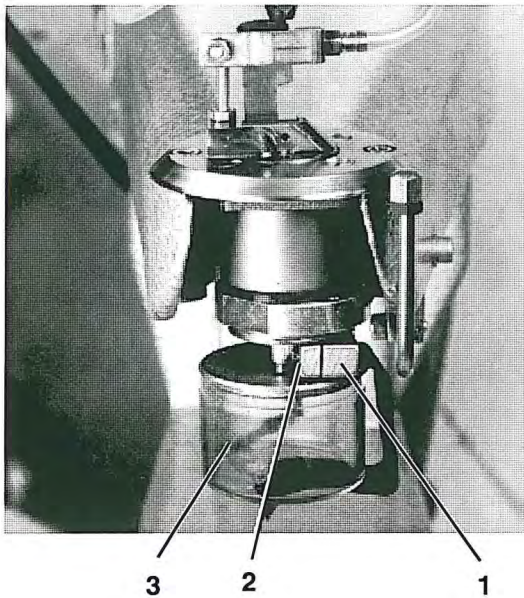
- The shearing head 4 must be able to be easily turned into any desired position.

Version 2

- The stamp 5 must be able to enter the template without deflection.

Loosen screws 3 and adjust the position of the template / the mobility of the shearing head.

3.5 Pressure of the Knife Blades with Version 1



The knives should give a sure cut with the least possible pressure. This is the case when the securing collar 5 has a clearance of 0.2 - 0.3 mm to the clamping block 4.

Too high a pressure leads to increased knife wear.



Caution Risk of Injury!

Before setting turn the main switch off.

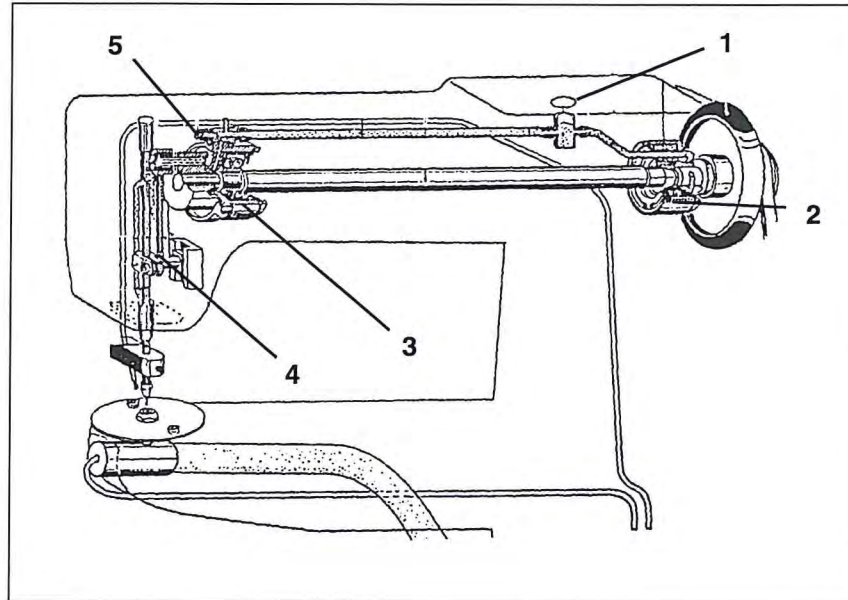
- Loosen screw 2 and change the position of the clamping block 1 appropriately. Take care that the lower knife carrier has no axial play.

3.6 Lubrication of the Rotating Body and Upper Knife with Version 1

The lubrication occurs from the reservoir 3 via the interior wick.

There must always be "Esso SP NK 10"-brand oil in the reservoir.

3.7 Lubrication of the Stamp Rod and the Arm Shaft Bearing



The oil in the reservoir 1 reaches the right arm shaft bearing 2 and left arm shaft bearing 3 via the wicks and goes from there into the head. Here the spun-off oil is collected in the "sump" and fed to the link 4 via the felt and to the stamp rod via the wick.

The stamp and link rod should be sufficiently lubricated but with the smallest amount possible.

There must always be oil in the reservoir 1. Top up daily.



Caution Risk of Injury!

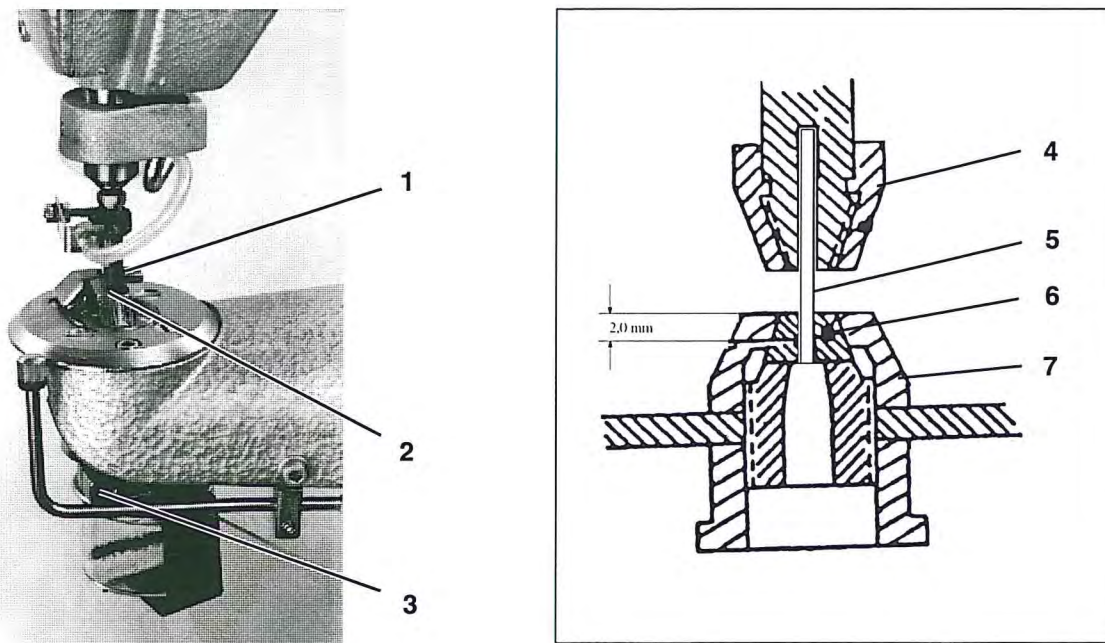
Before setting turn the main switch off.

- Screw the head cover off.
- Check if all parts have a film of oil.
- Turn the setting screw 5 appropriately.

Screw to the right = reduce the amount of oil
Screw to the left = increase the amount of oil

3.8 Changing the Upper and Lower Knives or Stamp and Template

3.8.1 Changing the Upper and Lower Knives - Version 1



Caution Risk of Injury!

Before changing turn the main switch off.

- Loosen the screw on the clamping block 3.
- Swing the lower knife 2 to the side.
- Change the upper knife.
- Change the lower knife or position the "old knife" so that the 2nd blade is effective.
- Set the knife pressure and thereby take care that the knife carrier has no axial play. (See subject 3.5).

3.8.2 Changing the Stamp and Template - Version 2

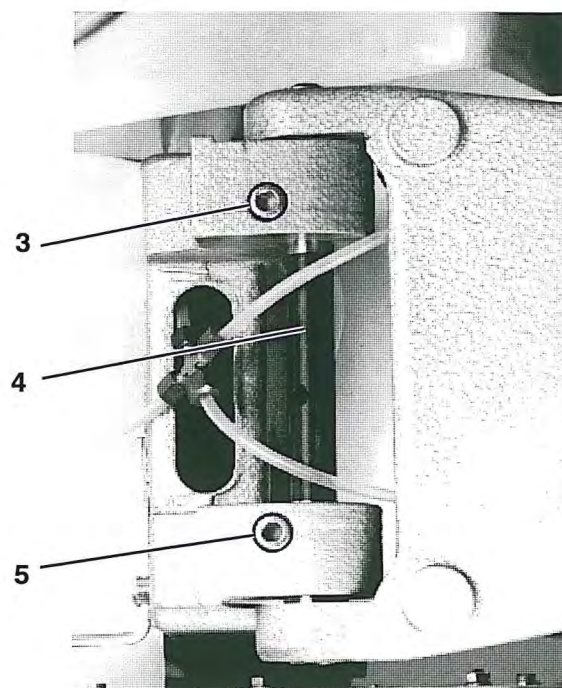
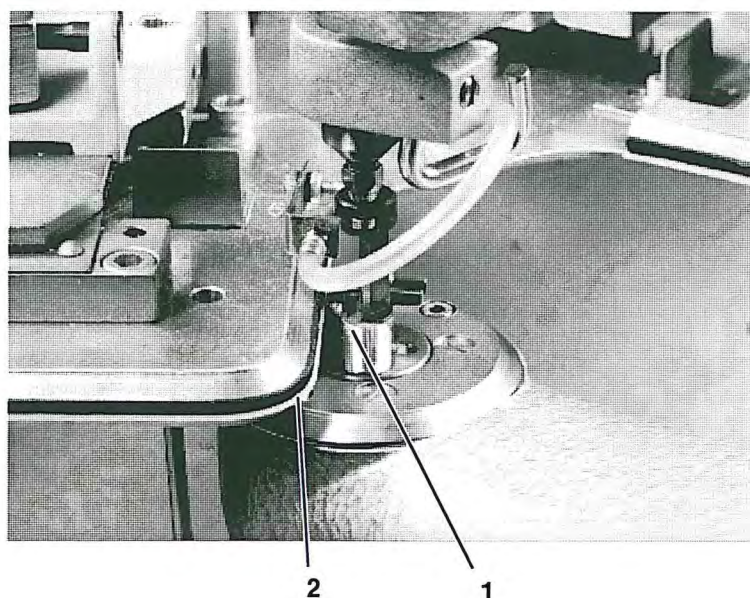


Caution Risk of Injury!

Before changing turn the main switch off.

- Screw the coupling ring 4 completely off.
- Change template 5.
- Screw the coupling ring on again.
- Loosen tension nut 7 a little.
- Take out the blunt stamp 6.
- Push in the "new" stamp until completely up in the receiving hole of the stamp rod.
- Tighten tension nut 7 again.

3.9 Height of the Trimmer



The clearance between the guide piece 1 / the template on the trimmer and the Delrin 2 of the material support should be 0.3 - 0.5 mm.

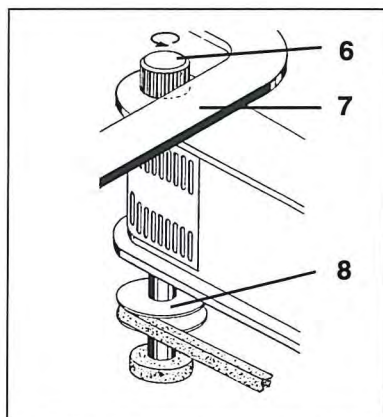


Caution Risk of Injury!

Before setting turn the main switch off.

- Guide the trimmer within its slewing range along the template and check the clearance.
- Loosen screws 3 and 5 on the slewing arm bearing.
- Adjust shaft 4 appropriately.
- Tighten screws 3 and 5 again and secure with crown caps.

3.10 Height of the Magnetic Roller

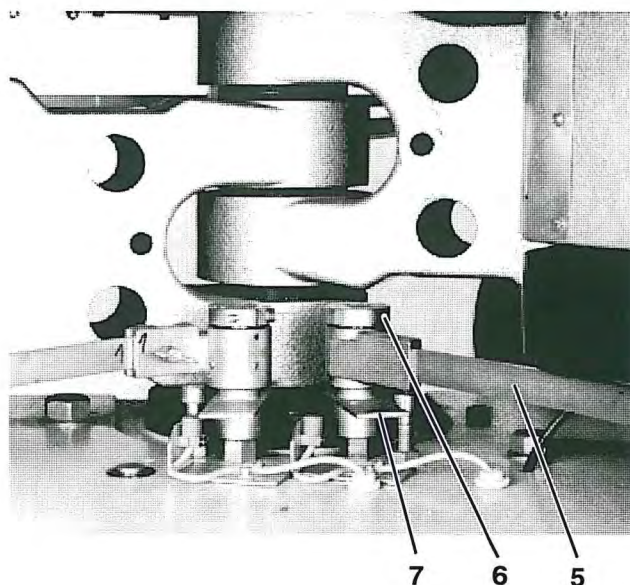
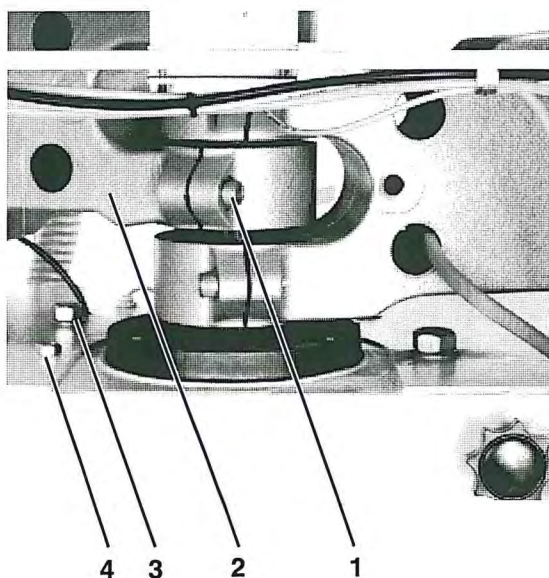


The magnetic roller 6 must move in rolling contact along the whole surface of the template 7. With adjustable material holders also along the higher "bridge" between the material holders.

If, above the template, there are further templates in the second level, in order, e.g. to be able to trim the material closer to the course of the seam in the radii, the magnetic roller must also move in rolling contact with these templates.

- Loosen screw 8 on the pulley.
- Set the height of the magnetic roller.
- Tighten screw 8 again.

3.11 Position of the Slewing Arm Bearing



The slewing arm bearing 2 should be centered between the two screws 3 and 4.



Caution Risk of Injury!

Before setting turn the main switch off.

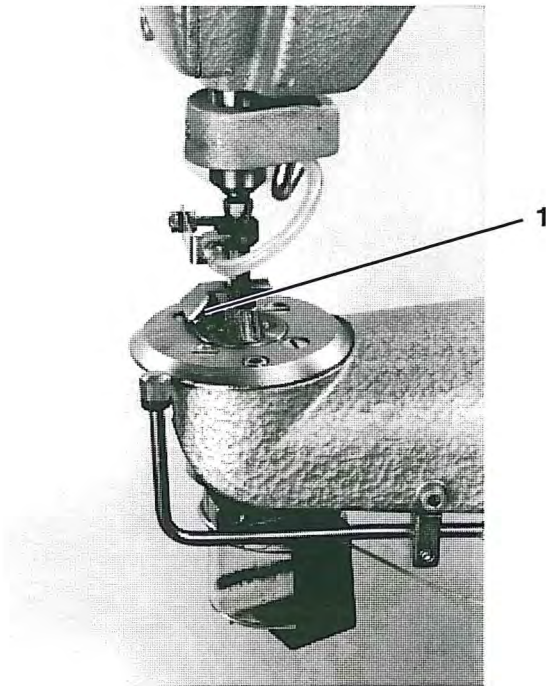
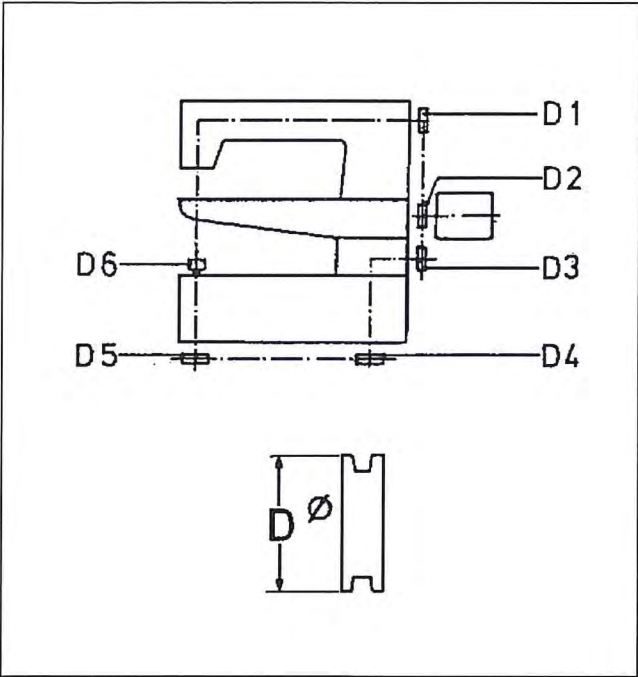
- Loosen screw 1 and set the position of the slewing arm bearing 2.

3.12 Movement Range of the Trimming Head

During automatic operation the trimming head should have a "safe" clearance to the sewing head so that a collision is not possible.

- Activate automatic operation and find the minimum clearance between the trimming head and sewing head.
- Loosen screw 7 and change the position of the switching plate 6 to the switching flag 5 appropriately.

3.13 Changing the Cutting Clearances.



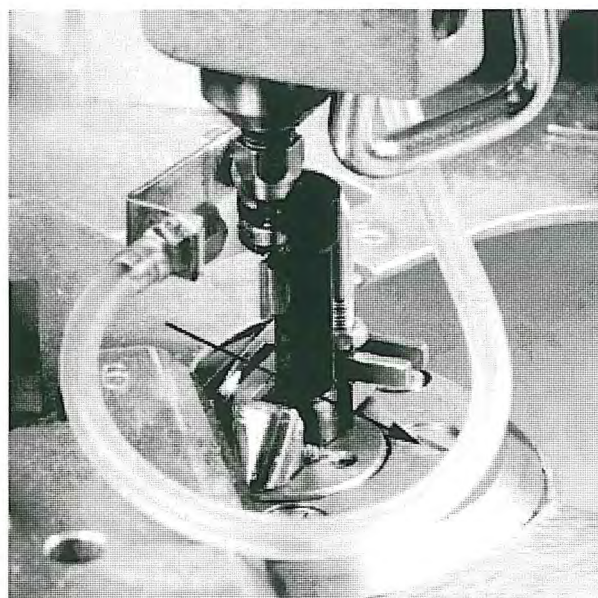
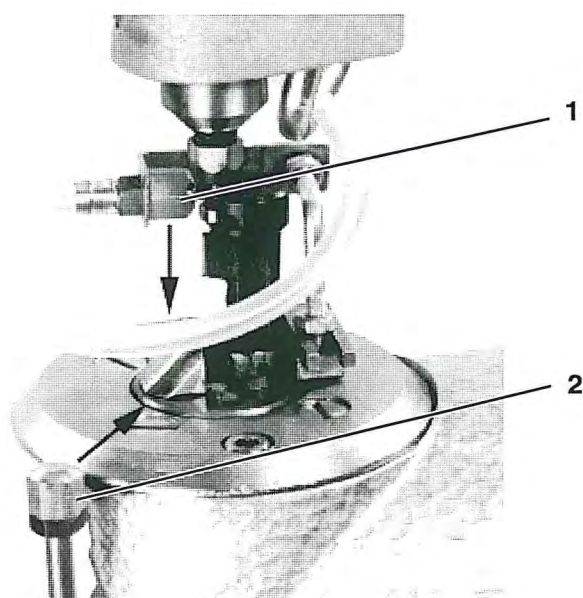
The cutting clearances are determined by the diameter of the magnetic roller D6. For a change in the cutting clearance, however, not only the change in the magnetic roller, but rather, in some cases, also a change in the pulleys D4 and D5 or D3 is necessary.

Cutting Clearance	Magnetic Roller D6		Pulley D5		Pulley D4		Pulley D3	
	Ø	Parts No.	Ø	Parts No.	Ø	Parts No.	Ø	Parts No.
3.5	18	K970 430120	72	K971 440453	54	K971 440443	54	K970 402253
4.5	16	K970 440020	72	K971 440453	54	K971 440443	48	K971 440063
5.5	14	K970 440010	66	K971 440883	62	K971 440893	54	K970 402253
6.5	12	K971 770850	66	K971 440883	62	K971 440893	48	K971 440063

After the change in the magnetic roller and the pulleys the position of the guide pieces 1 must be adapted to the changed cutting clearance. See subject 3.3.

4 Blower Devices

4.1 Blower Pipes "Hold Material Down" and "Blow Warp into Cutting Position"

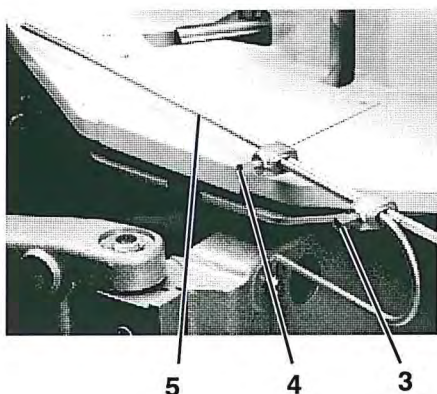


The blower pipe 1 should hold the material down during the cutting procedure.

Blower pipe 2 should blow the warp, which was already separated on the previously trimmed sewing piece, into the cutting position.

- Start automatic operation.
- Interrupt operation shortly before the separation of the hanging warp.
- Set blower pipe 1 so that the air current moves as shown in the illustration.
- Set blower pipe 2 so that it lies approx. 1 mm under the material holder and has approximately the blowing direction shown in the right illustration.
- Regulate the blowing strength with the appropriate throttles. (See Pneumatic Plan).

4.2 Blower Pipe "Blow Cloth Residue Away"

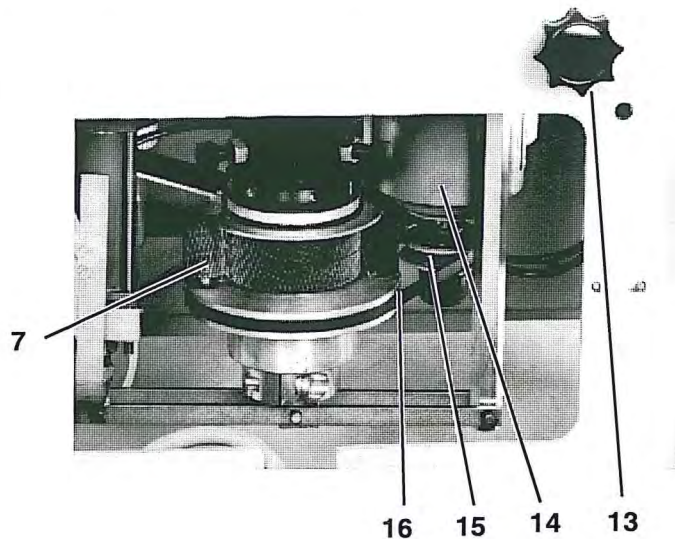
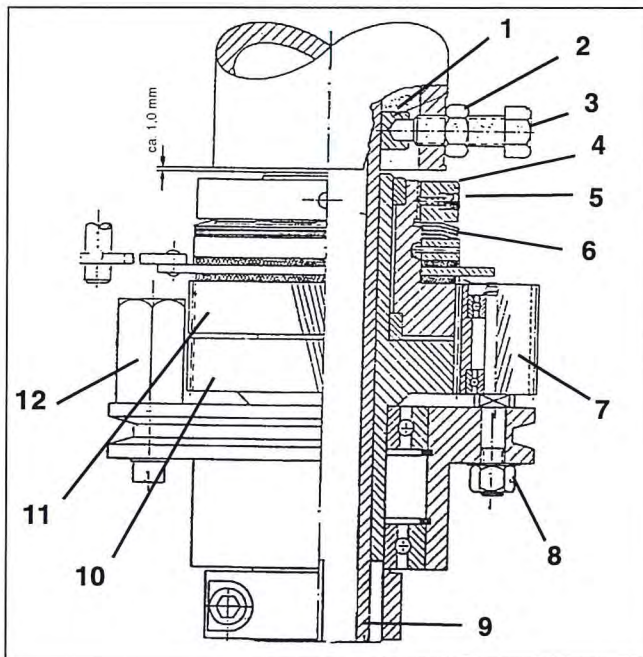


The blower pipe 5 on the turntable is active as long as the trimming head is switched on. It should blow away all cut cloth residue on the turntable.

- Loosen screws 3 and 4.
- Turn the blower pipe appropriately.

5. Turntable

5.1 General Information



The turntable is the carrier for the material holders and turns these appropriate to the number of holders (4, 6 or 8) by 60° or 90° during automatic operation.

The counterweight 12 of the gearbox should be effective opposed to the planet wheel 7 as force compensation.

The gears 7, 10 and 11 of the gearbox should be lubricated with a molycote-oil mixture. Here care must be taken that this mixture does not come in contact with the linings of the torque limiter.

5.2 Functioning of the Turntable Drive

The motor 14, via the Simpla-belt pulley 15, the belt 16 and the planet gear, drives the turntable. The Simpla-belt pulley consists of 2 halves, whose clearances to each other can be altered. In this manner the position of the belt to the shaft can be altered in order to alter the speed of the turntable.

The upper gear 11 of the planet gear consists of 99 teeth and can only be turned when the friction of the torque limiter is overcome. This is briefly the case during starting and braking during automatic operation and when the table is turned manually.

The lower gear 10 has 98 teeth and a firm connection to the drive shaft of the turntable. Through the differing number of teeth (98 and 99) on the two gears the lower gear is advanced 1 tooth counterclockwise by a full "orbit" of the planet gear. For a 360° revolution 98 orbits of the planet wheel are thus necessary.

5.3 Position of the Drive Shaft

With the aid of a dial gauge the drive shaft 9 is set at the factory so that the turntable is in the horizontal plane.

Checking

Within the movement range of the sewing head check the clearance between needle hole mushroom and the Delrin of the material holder. The position of the shaft is correct when the clearances are equal.

Setting

- Loosen the lock nuts 2 on the screws 3.
- Loosen ring 4 so far that the friction of the torque limiter is suspended.
- Adjust screws 3.
Hereby observe the following:
Do not screw out the screws too far, otherwise the plastic caps 1 will be "stripped".
Do not tighten the screws too much, otherwise the rotation of the table is hindered.
- Tighten all previously loosened elements again.
- Set the torque limiter. See subject 5.5.

5.4 Play in the Gears

The planet wheel 7 should have the smallest possible play to the two other gears.

- Loosen nut 8 and change the position of the eccentrically bearinged planet wheel appropriately.

5.5 Torque Limiter

The torque limiter should prevent the onward movement of the turntable when the operator is in the movement range of the table. This is necessary for safety reasons. Furthermore, the torque limiter makes possible a soft starting and braking of the table.

The linings should be free of oil and grease, otherwise there will be no braking effect.

The turntable must rotate manually without using much force.

- Loosen screws 5 and turn ring 4 appropriately.

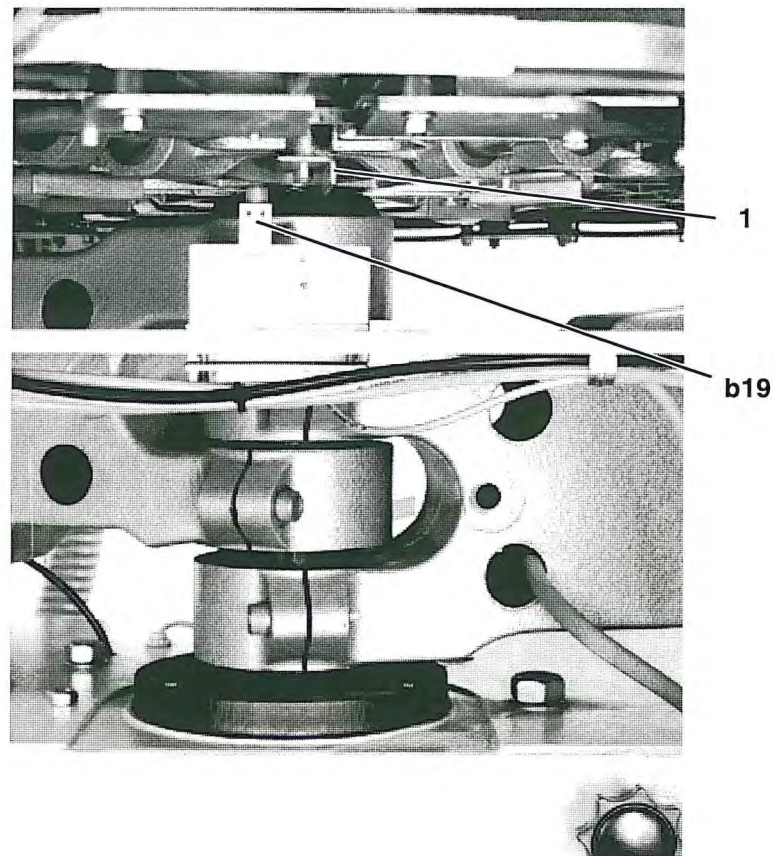
Turning clockwise = Braking increased
Turning counterclockwise = Braking reduced

5.6 Speed of the Turntable

The higher the speed the more time is available for feeding the material.

With the setting wheel 13 change the position of the Motor and thus the position of the belt on the Simpla-belt pulley appropriately.

5.7 Operation Timing of the "Table Drive Off" Switch



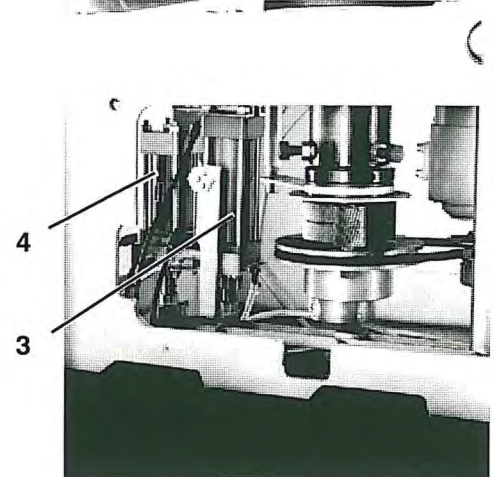
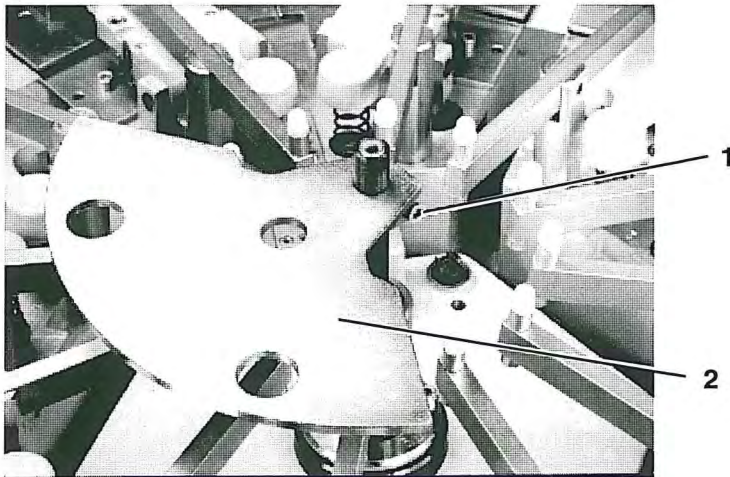
When the turntable is in the desired "feed position" the switching flag of switch b19 should have run approx. 20 mm to the right beyond the actual switching point.

Prerequisite for this is a correctly functioning torque limiter.

- Start automatic operation.
- Establish the stop point of the turntable.
- Alter the position of switch b19 appropriately.

6. Material Clamp

6.1 "Intermediate Lifting" of the Clamp



When operating the left foot pedal the piston rod of the cylinder 3 is run out in order to open the clamp for intermediate lifting.

The clamp should only open so far that the material can be aligned without hindrance.

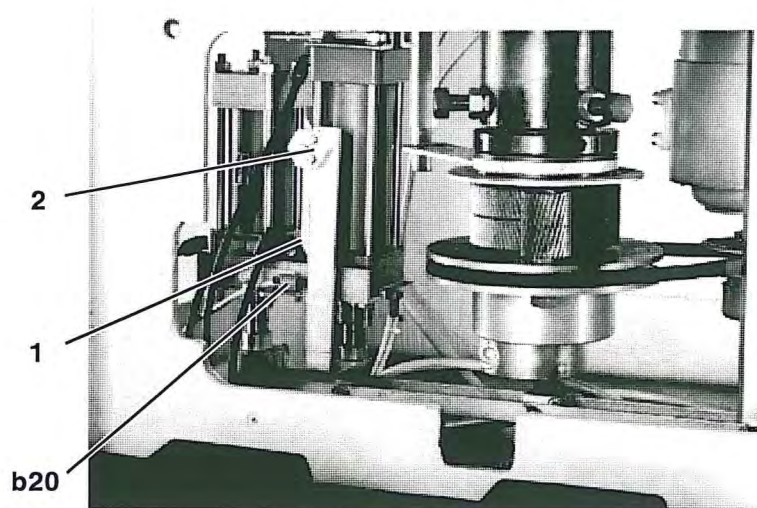
Clamps for ties should be opened so far that the lining holder plate can be placed on the material support.

- With the machine idle operate the left foot pedal.
- Loosen screw 1 and alter the position of the lifting plate. Hereby align the lifting plate 2 so that the clamps in the feed position and in stacker area are lifted at the same time.

6.2 Complete Opening

The height of the fully opened clamp results from the setting for "intermediate lifting" through the piston rod run of the cylinder 4.

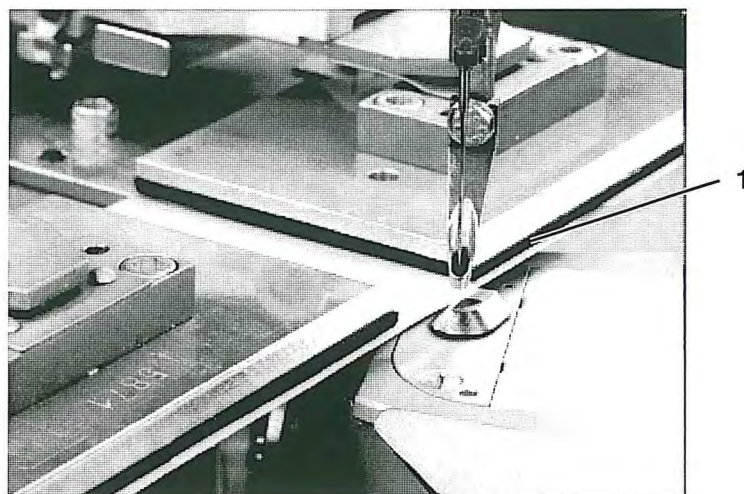
6.3 Timing of the Operation of the Switch b20 "Clamp Open"



The rail 1 operates the switch b20 during automatic operation and gives the impulse to activate the stacker procedure. The switching procedure should occur at the beginning of the clamp lifting.

- Loosen screws 2 and set the rail appropriately.

6.4 Replacing the Rubber of the Material Holder



The rubber 1 on the upper clamp halves should hold the material so that it cannot be pulled out of the clamp during the sewing procedure.

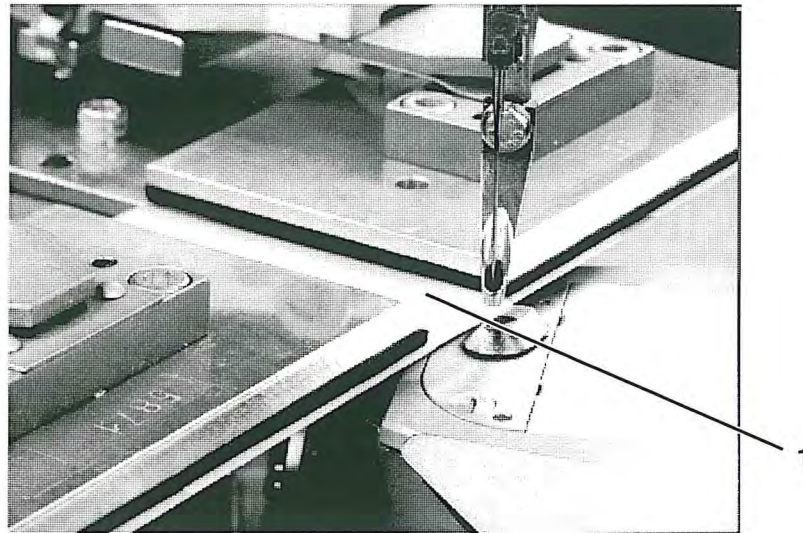


Caution Risk of Injury!

Before replacing the rubber turn the main switch off.

- Swing the sewing and trimming head out.
- Remove "old" rubber.
- Clean the gluing surfaces.
- Cut rubber to size.
The strips should be approx. 10 mm wide.
- Glue rubber on.
Here take care that the whole edge of the plates must be glued and that the rubber overlaps approx. 1 mm on the sewing sides.

6.5 Replacing the Delrin of the Material Holder.



The Delrin 1 on the material support should be as close as possible to the needle, but not touch or deflect it, however. A damaged Delrin should be replaced without fail because the material is not securely held otherwise.



Caution Risk of Injury!

Before working on the material holders turn the main switch off.

- Swing the sewing and trimming head out.
- Remove the "old" Delrin on the material holder.

Cut new Delrin to size

- Mark the cutting contour on the Delrin.

With all holder types observe the following:

- The Delrin should end with the rear edge of the upper clamp.
- It should overlap approx. 5 - 8 mm on the sewing side.

With adjustable holders also observe:

- The Delrin of the left material holder half is glued so that it is even with the inside edge.
- The Delrin of the right material holder half should overlap 80 mm on the "interior" side.

- Mark recesses for the material stops on the Delrin. Hereby take into account the width and possible positioning area of the stop.
- Cut the Delrin to size along the markings.
- Clean the gluing surfaces.
- Glue the Delrin on the material support.

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Marking the seam contour on the Delrin

Shorten the needle, grind to a point and insert in the needle rod.

- Swing the sewing and trimming head in.
- Check the height of the needle and correct, if necessary. The needle should not enter the Delrin too deeply since it will break otherwise.
- Switch on the sewing unit and start automatic operation in order to mark the precise contour of the Delrin.

Cutting and filing the Delrin

- Cut the Delrin along the perforation.
- File or emery the Delrin so that it has the smallest possible clearance to the needle without touching it.

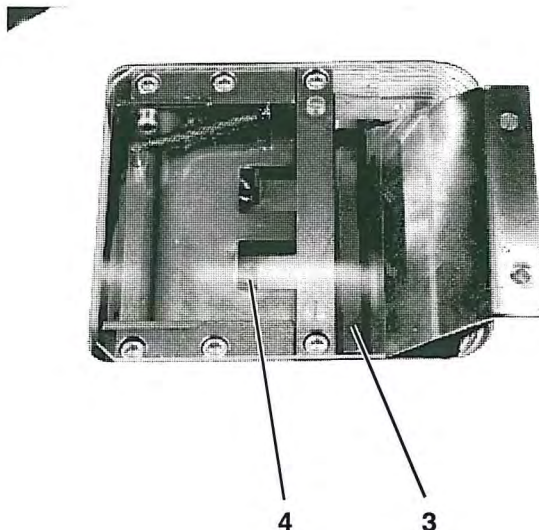
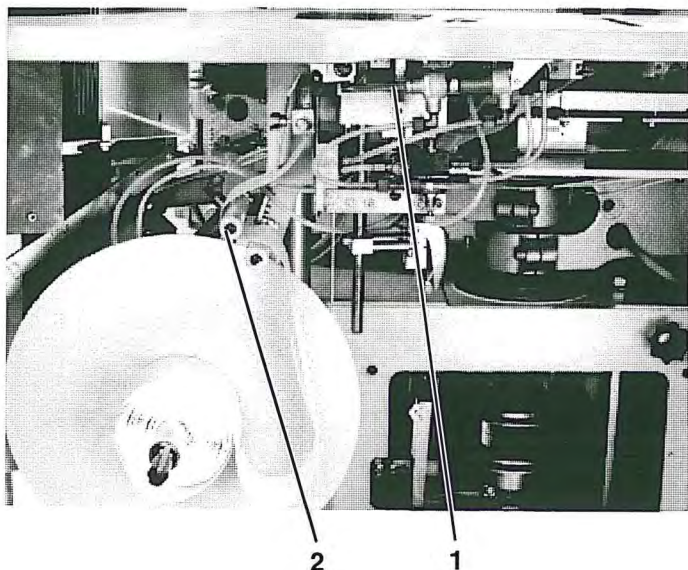
Check the clearance between the Delrin and the needle

- Insert a new needle.
- Start the sewing cycle and find the clearance. By needle deflections file or emery the Delrin again at the effected positions.

7. Tape Scissors

Only sewing units of the sub-class 971-825 are equipped with these scissors for cutting the feed tape and the associated tape pull-off device.

7.1 Speed of the Knife, the Advancing Roller and the Puller



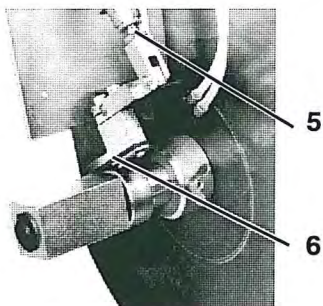
The puller 2 should not pull the feed off the roll too quickly because the run-on of the roll will otherwise become too strong and the feed can then possibly be pulled back again.

The other movements should, however, occur without delay and uniformly.

- Dependent on the function sequence set the appropriate throttles (see Pneumatic Plan) accordingly.

Throttle	Function
—	Knife 3 up.
—	Run in the piston rod of the cylinder 1 for the advancing roller 4.
—	Knife 3 down.
—	Puller 2 to the back.
—	Puller 2 forward.

7.2 Brake Device for the Tape Roll



After the cutting of the tape the tape roll is braked by the brake 6. If the tape roll "runs-on" the brake should be reset appropriately.

- Loosen lock nut 5 and adjust the piston rod of the cylinder appropriately.
- Tighten the lock nut again.

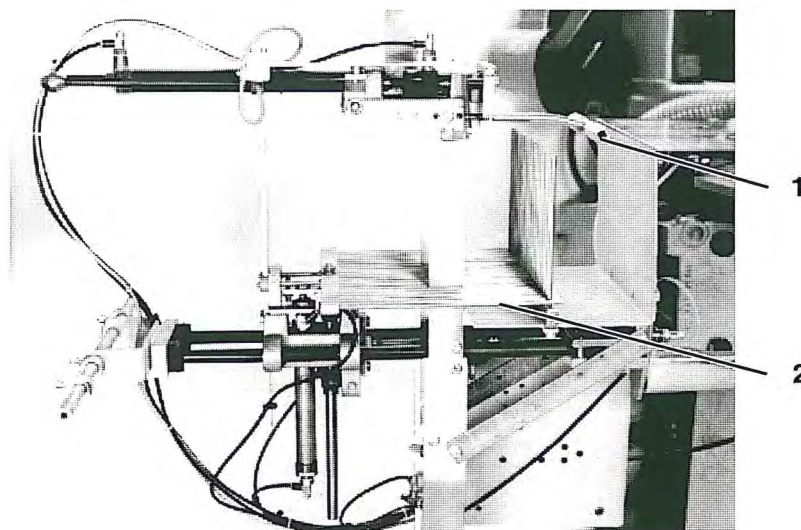
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8. Stacker

8.1 General Information

The cycle period of the stacker determines the opening period of the material clamp as long as the left foot pedal is not operated to extend the opening period.

8.2 Speed of the Gripper and Catcher



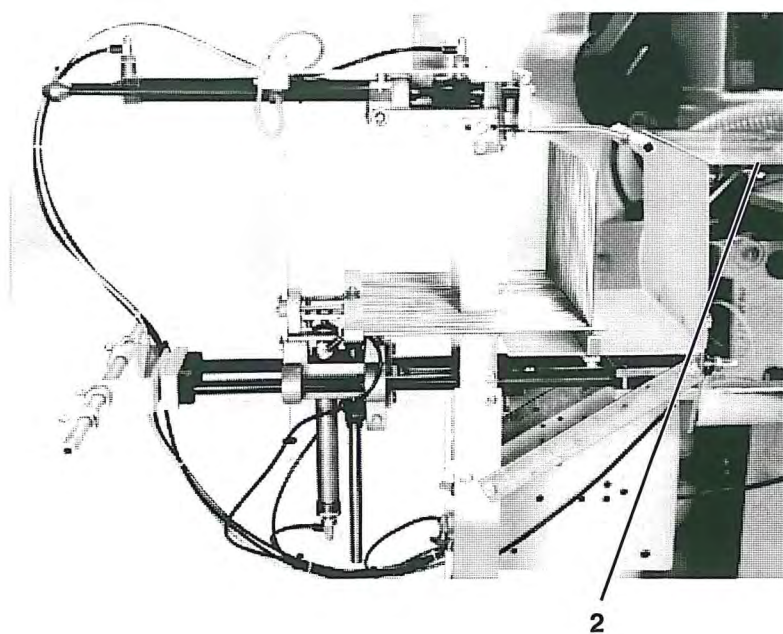
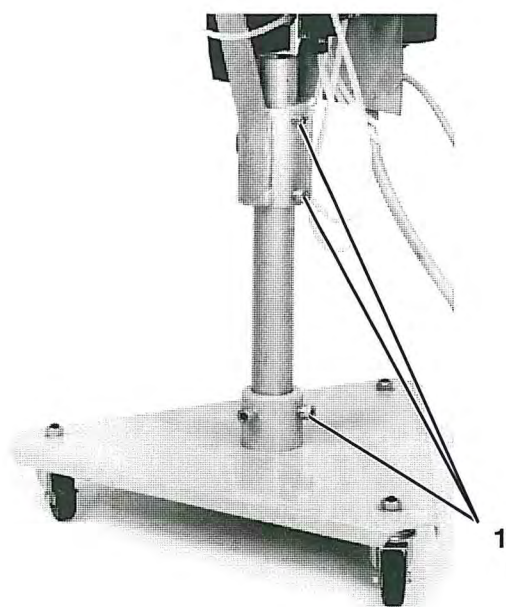
The gripper 1 and the catcher 2 should move without delay and uniformly.

The stacker must end its function within the sewing head cycle period.

Dependent on function set the air intake and venting of the cylinder with the appropriate throttles. (see Pneumatic Plan)

Throttle	Function
S1	Catcher up
S2	Brake
S3	Gripper up
S4	Gripper down
S17	Catcher forward
S18	Gripper forward
S19	Catcher to the back
S20	Catcher down
S21	Gripper to the back

8.3 Height of the Stacker



The support plate 2 of the stacker should have a clearance of approx. 3 mm to the underside of the material holder.

- Loosen screws 1 and set the height of the stacker appropriately.

9. Maintenance Schedule

The maintenance of the sewing unit should be conducted, at the latest, after the listed operating hours. Further information can be found under the subjects named in the "See" column.

Procedure	Hours	See
Sewing Head		
Removal of lint accumulations	8	
Checking the oil level in the oilpan	40	2.9
Checking the oil feed at the viewing glass	40	2.9
Checking the timing belts	500	2.8
Checking the V-belt tension	500	
Trimming Head		
Removal of lint accumulations	8	
Checking the oil level in the reservoir	8	
Checking the oil level in the plastic reservoir of the shearing head	8	3.6
Oil feed quantity to the head	500	3.7
Checking the V-belt tension	40	
Turntable and Material Clamps		
Checking the condition of the Delrin	40	
Lubricating the planet wheel	40	5.1
Pneumatic System		
Cleaning the filter insert in the filter	500	
Testing the pneumatic system for air-tightness	500	

Part 4: Short Description Microcontrol Cl. 971-820, -825

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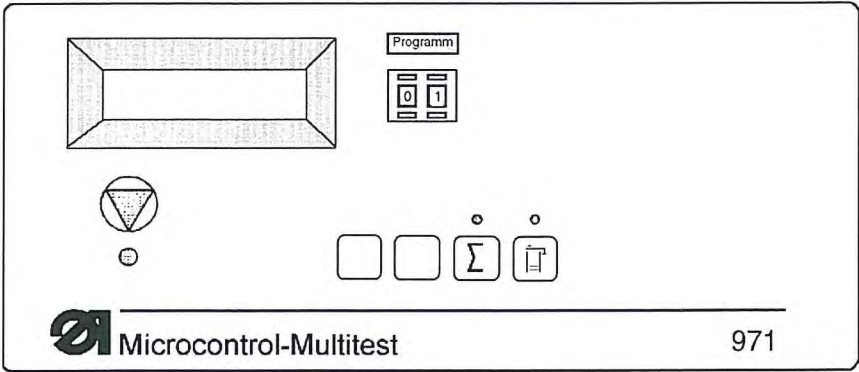
1. General

The MICROCONTROL controls contain the integrated testing and monitoring system MULTITEST. A microcomputer controls the sewing process, monitors it and signals operating errors and malfunctions. A series of special programs simplify mechanical settings and make possible the rapid inspection of input and output elements without additional measuring devices.

Errors and testing results are shown as symbols in the right half of the 8 digit display. The number of the selected program is shown at the left. By operating errors or a malfunction the function sequence is interrupted and the cause displayed. In most cases the symbol disappears after the cause of the fault is remedied. In some cases the main switch must be turned off during fault correction for safety reasons.

2. Description of the Controls

2.1 Operating Elements on the Front Panel



Key	Description
Programm 0 1	Selecting sewing and testing programs Stopping the current program Activating the selected program
Key	Description
Σ	Setting the counter Stacker test

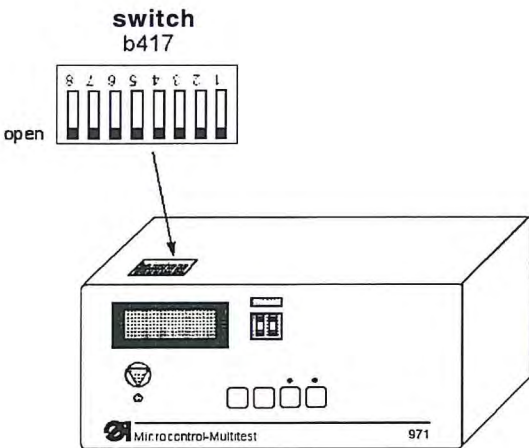
2.2 Operating Elements in the Controls

The DIP Switch b417 in the controls must be adapted to each work method.



Caution Electrical Current!

The switch may only be changed with the main switch turned off.



DIP Switch b417

b417	Function	OFF	ON (toggled)
1.			
2.	Material removed via	Blower	Stacker
3.	Underthread monitor	not present	installed
4.	Blower / Tape roll knife	Tape roll knife on	Blower on
5.			
6.			
7.			
8.			

Note to the functions of switch 4:

In conjunction with switch 1, switch 4 determines the function "blower activated" or "tape roll knife activated". As a rule output s10 is activated (switch on) when the controls are turned on in order for the release of the tape roll knife to occur. However, as soon as switch 1 is switched "OFF" and switch 4 is at "ON", output s10 is used for triggering the blower.

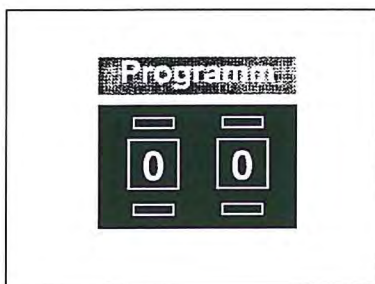
3. Setting the Sewing and Testing Programs

The sewing and testing programs are called up with the **"Program"** selector switch.

Switch Program	Function
00	Displays the program version
01	Sewing program
40	Sewing program with the possibility of a stacker test
41	
42	
59	
60	
61	
62	
63	Checking the front panel elements
64	
	Checking the input elements
	Selecting input elements
	Selecting output elements

- Set the **"Program"** switch to the desired program
 - Press the **"Turn the Main Switch On"** or **"STOP"** key.
The selected program is activated.
- If the **"P?"** message appears an inadmissible program was selected.
Correct the setting and press the **"STOP"** switch.

3.1 Display of the Program Version



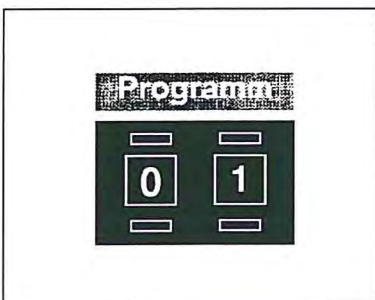
The display shows the program number and a checksum.

e.g.: 971N01 0000 971= Class designation
 N01 = Identification letter and serial number
 0000 = Checksum

By program versions with the same class designation and the same identification letter the higher version replaces all lower versions (e.g.: 971N03 replaces 971N02 replaces 971N01).
The checksum is only for the factory service department. With this value can be established if the program memory flawlessly contains the complete machine program.

- Set the **"Program"** switch to **"00"**.
- Press the **"STOP"** key.
The program is activated.

3.2 Sewing Programs



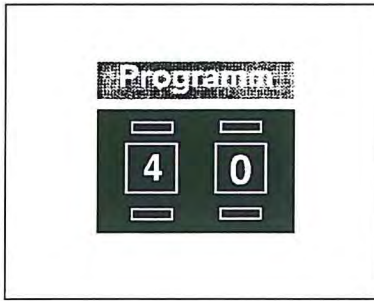
Two sewing programs are available.

Program 01

After **"turning the main switch on"** or after operation of the **"STOP"** key a check is made of all error sources. Should an error message appear at this point, see subject 4. **Function Displays and Error Messages**.

If no error is found the display shows the program number and the piece counter.

The work sequence is described in Part 1 Operating Instructions under subject 3.6.6.

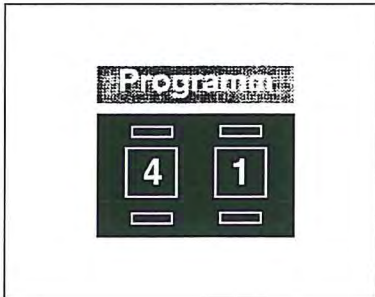


Program 40

Functions as in Program 01, however, with the possibility of testing the function of the stacker before sewing. By pressing the "Stacker Test" key, depending on the setting of the switch b417, either the blower or the stacker is activated.

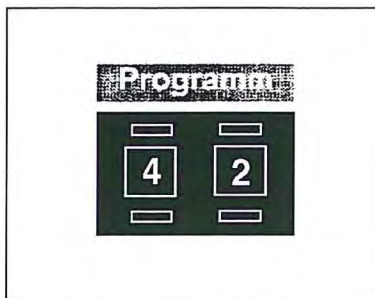
The test is only possible immediately after the turning on of the main switch or of the "STOP" key.

3.2.1 Aid Programs



Program 41 (Stacker Deactivation)

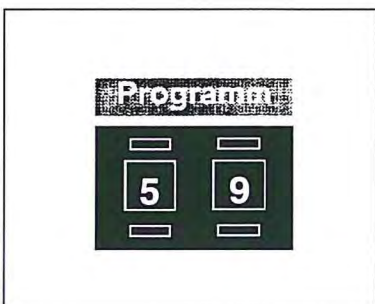
An asterisk can be seen in the display when "Stacker Activation" has been selected. This selection is made by pressing the "Σ" key. Each pressing of the key changes to the other status. This program is intended for those cases in which a defect is found in the magazine stacker. It allows the operator to deactivate the stacker and continue working. The setting "Stacker Activation" only makes sense when switch 2 (of b417) is "ON" (for stacker). On the other hand no problem can be caused through the use of this program if the switch is not in this position.



Programm 42 (Cutter function on/off)

This aid program serves for selecting if the cutter is installed or not installed. An asterisk can be seen at the right in the display if a triggering of the cutter has been selected. This selection is made by pressing the "Σ" key. Each pressing of the key changes to the other status.

3.3 Memory Test/ Timer Test

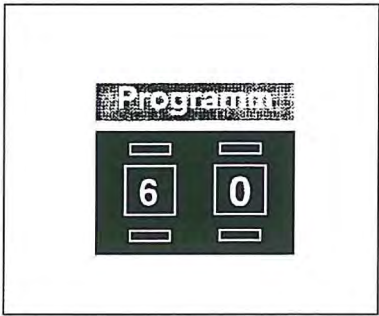


The working memory and the timer switchings are independently checked by the program.

- Set the "Program" switch to "59".
- Press the "STOP" key.
The program is activated.

Display	Explanation
OK	Working memory and timer okay
ERROR 0	AM error in P59
ERROR 6	Timer 1 defective
ERROR 7	Timer 2 defective
ERROR 8	Timer 3 defective on the expansion card
ERROR 9	Timer 4 defective on the expansion card

3.4 Continuity Test

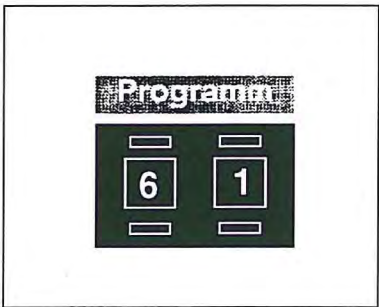


- 1. The program checks if the 24 V voltage supply supplies current with the output drivers switched off.
If this is the case then there is a short circuit in the installation.
- 2. The program checks all output elements, the output drivers and the installation for continuity.

- Set the "Program" switch to "60".
- Press the "STOP" key.
The program is activated.

Display	Explanation
V?	Short in the installation or an output driver is defective.
OK	All circuits have continuity.
S17 (Example)	Interruption in output element S17, in its installation or driver. Continue the inspection at the next element by pressing the "Σ" key.

3.5 Checking the Front Panel Elements



- The program checks the front panel elements.
- Set the "Program" switch to "61".
 - Press the "STOP" key.
The program is activated.

Checking the keys

- Press the key to be checked.
The display shows the corresponding value.
Z.B.: P61 8 (admissible values 1, 2, 4, 8)

3.6 Checking the Input Elements



The program checks the switching status of the input elements.

- Set the "**Program**" switch to "**62**".
- Press the "**STOP**" key.
The program is activated.
- Operate an input element

When any input element is operated the display shows the circuit diagram designation and the switching status.

The display changes when any other element is operated.

e.g.: +B24 The "needle thread monitor" is switched through.

The switching status "+" means:

Contact switch	= Contact open
Proximity switch	= Metal in front of the switch
Reflected light barrier	= No reflection
Continuous light beam barrier	= Beam not interrupted

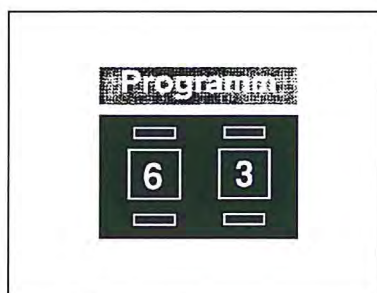
Input - Element	Designation
b17	Pilotherm
b18	Intermediate stripper position
b19	Initiator stop position turntable
b20	Initiator clamp open
b21	Initiator sewing head (limit switch)
b22	Initiator trimming head (limit switch)
b23	Hook thread monitor
b24	Needle thread monitor

3.7 Selecting Input Elements



ATTENTION!

All input elements have been carefully set at the factory.
The setting and correcting may only be conducted by trained service personnel.



The program is used for setting the input elements.

- Set the "**Program**" switch to "**63**".
- Press the "**STOP**" key.
The program is activated.
- Set the "**Program**" switch to the selected input element (see Chapter 3.6).
- Adjust the input element (switching flag, switching cam etc.) until the desired value is shown.

3.8 Selecting Output Elements



Caution Risk of Injury!

During function testing do not reach into the running machine.
Choose your position so that no injury is possible
(e.g. Function test S7: Rotary plate on)



The program tests the functioning of the output elements.

- Set the **"Program"** switch to **"64"**.
- Press the **"STOP"** key.
The program is activated.
- Set the **"Program"** switch to the output element.
- Press the **"Σ"** key.
The selected output element is switched on.
- Press the **"Σ"** key.
The selected output element is switched off.

Output - Element	Designation
s1	Valve catcher down
s2	Valve brake catcher up/ down
s4	Valve stripper lift
s6	Trimming head motor on
s7	Main motor (rotary plate) on
s8	Sewing head motor on
s9	Valve cylinder "clamp airing" = airing
s10	Valve blower on
s11	Valve cylinder "clamp open" = close
s12	Valve refuse blower/ blow down/ suction
s13	Valve cylinder "clamp open" = open
s14	Valve cylinder "clamp airing" = close
s17	Valve catcher forward
s18	Valve stripper forward
s19	Valve catcher back
s20	Valve catcher down
s21	Valve stripper back

4. Function Displays and Error Messages

4.1 Displays of Operating Aids

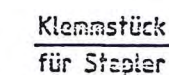
Display	Explanation	Remarks
P? 971N01 Σ =xxxx	Inadmissible program Program number Piece counter	Reset the "Program" switch - -

4.2 Error Messages of the Sewing Programs

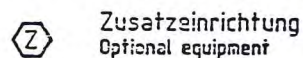
Display	Explanation	Remarks
ERROR 10	Needle thread monitor	Check the needle thread guides
ERROR 11	Hook thread monitor	Check the hook thread guides
ERROR 12	Intermediate stripper position not passed over or not quickly enough	
ERROR 13	Pilotherm	

4.3 Error Messages of the Controls

Display	Explanation	Remarks
DISP-Err	Display error when switching on	Turn the main switch off/on
ERROR 0	AM error in P59	Call factory service
ERROR 2	Error in reading the front panel elements Program switch defective	Check the front panel elements
ERROR 3	Regulator card for the sewing drive defective	Replace the program switch
ERROR 4	Short voltage losses in the mains	Replace the regulator card
ERROR 5	Timer 1 defective	Stabilize the voltage supply
ERROR 6	Timer 2 defective	Call factory service
ERROR 7	Timer 3 defective switch on the expansion card	Call factory service
ERROR 8	Timer 4 defective switch on the expansion card	Call factory service
ERROR 9		Call factory service
ERR B..	Error in the input elements:	Check the input elements
no SIO	the controls have no SIO component installed	
ERR	Interruption in the SIO send/ receive loop	



Blatt	1/3
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1	2	3	4	5	6	7	8	9	10																																																																						
							<table><tr><th>Kurz- zeichen</th><th>Benennung</th><th>Abmessung</th><th>Teilenummer</th><th>Bemerkung</th></tr><tr><td>b18-b22</td><td>Induktivgeber</td><td></td><td>9815 710002</td><td></td></tr><tr><td>b23-b24</td><td>Mikroschalter</td><td></td><td>K999 200797</td><td></td></tr><tr><td>F1</td><td>Sicherung</td><td>T1,6/250D 5x20mm</td><td>9825 810413</td><td></td></tr><tr><td>F2</td><td>Sicherung</td><td>T6,3/250D 5x20mm</td><td>9825 810417</td><td></td></tr><tr><td>M1</td><td>Motor, 50Hz</td><td>AM63KY4Q4</td><td>K990 293682</td><td></td></tr><tr><td></td><td>Motor, 60Hz</td><td>AM63KY4Q4</td><td>K990 293692</td><td></td></tr><tr><td>M2, M3</td><td>Motor, 50Hz</td><td>AM63FX2</td><td>K990 291537</td><td></td></tr><tr><td></td><td>Motor, 60Hz</td><td>AM63FX2</td><td>K990 291535</td><td></td></tr><tr><td>Q1</td><td>Hauptschalter</td><td></td><td>798 426049</td><td></td></tr><tr><td>Q2</td><td>Schalter,schutz</td><td>Einsatz 2,5-4,0A</td><td>9815 590007</td><td></td></tr><tr><td></td><td></td><td>Einsatz 4,0-6,3A</td><td>9815 590008</td><td></td></tr><tr><td>T1</td><td>Transformator</td><td>10/25V 165VA</td><td>798 500446</td><td></td></tr><tr><td>Y1, Y2</td><td>Magnet</td><td>Gleichstrom</td><td>K971 430310</td><td></td></tr></table>	Kurz- zeichen	Benennung	Abmessung	Teilenummer	Bemerkung	b18-b22	Induktivgeber		9815 710002		b23-b24	Mikroschalter		K999 200797		F1	Sicherung	T1,6/250D 5x20mm	9825 810413		F2	Sicherung	T6,3/250D 5x20mm	9825 810417		M1	Motor, 50Hz	AM63KY4Q4	K990 293682			Motor, 60Hz	AM63KY4Q4	K990 293692		M2, M3	Motor, 50Hz	AM63FX2	K990 291537			Motor, 60Hz	AM63FX2	K990 291535		Q1	Hauptschalter		798 426049		Q2	Schalter,schutz	Einsatz 2,5-4,0A	9815 590007				Einsatz 4,0-6,3A	9815 590008		T1	Transformator	10/25V 165VA	798 500446		Y1, Y2	Magnet	Gleichstrom	K971 430310			
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c		Datum	03.09.94
b		Bearb.	Wendner
a		Gepr.	
	Änderung	Datum	Norm



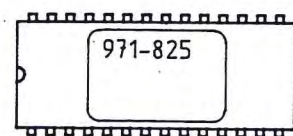
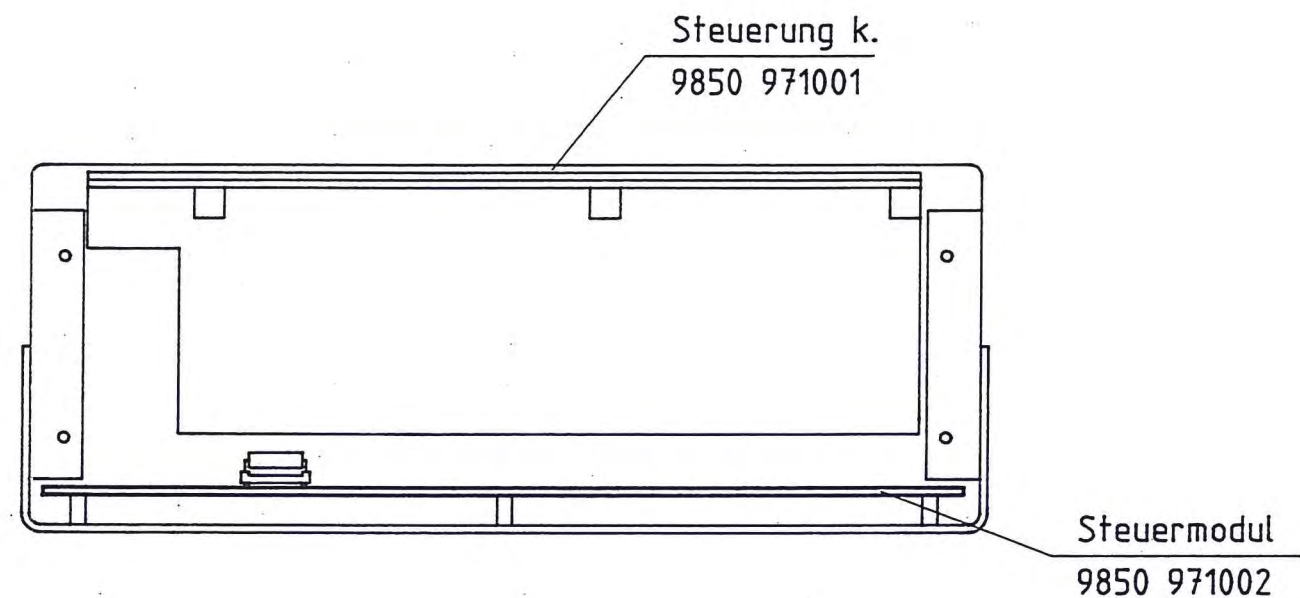
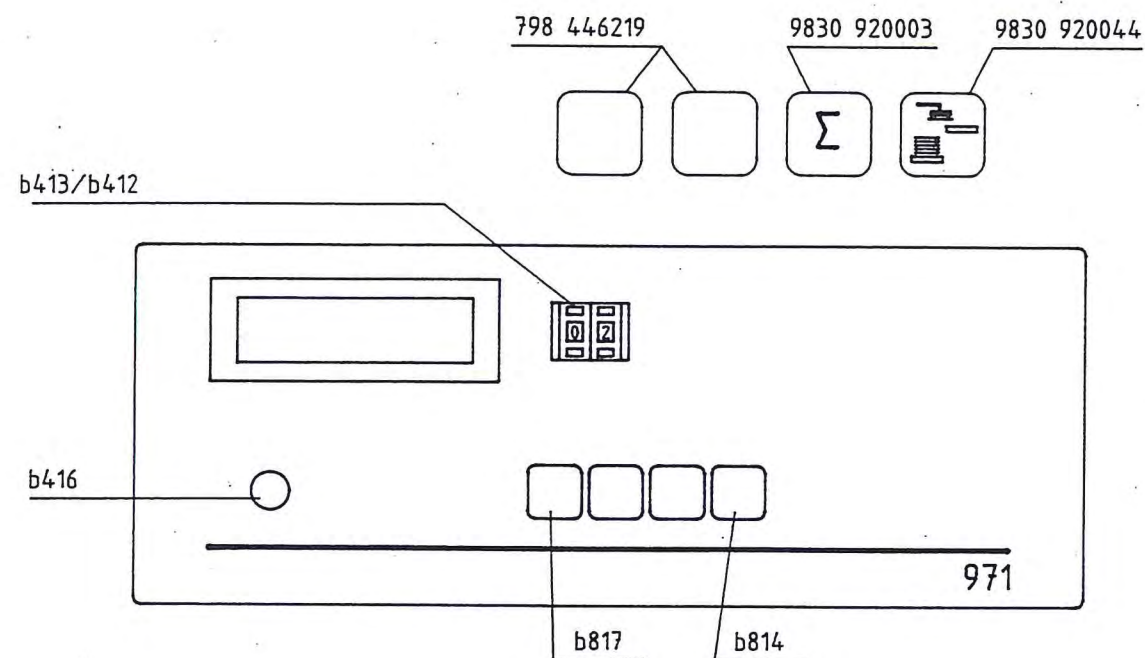
DÜRKOPP
ADLER AG
Bielefeld

Teilerzeichnis
Freigabe
0304 / 94

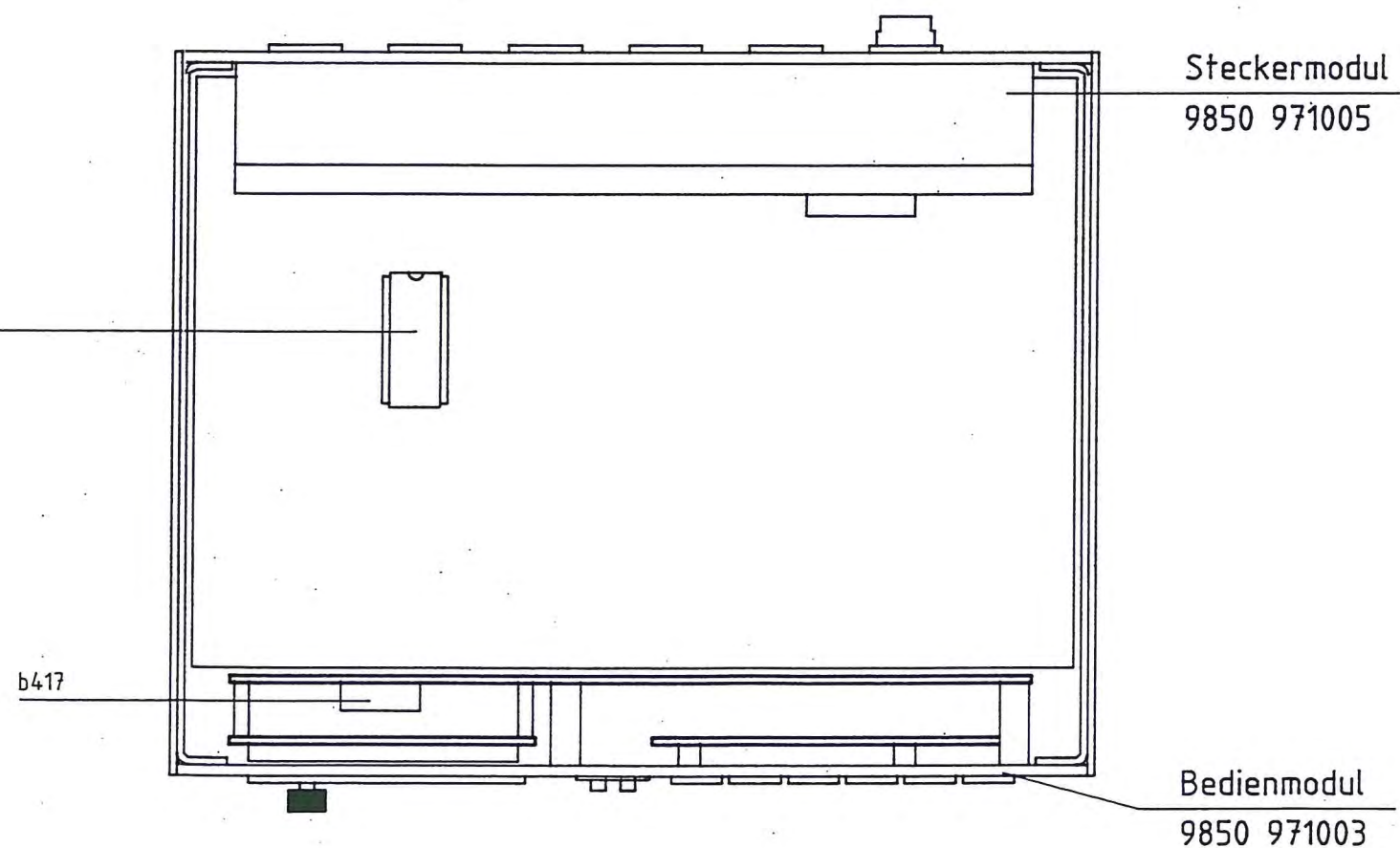
971-805/825
Teilliste

Bauschaltplan
9870 971001 B

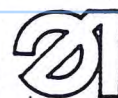
Blatt
3/3



IC-EPROM progr.
9850 971002 EP01
(Info-material nach Bedarf)



c				Datum	25.08.94
b				Bearb.	Harder
a				Gepr.	
	Änderung	Datum	Name	Norm	



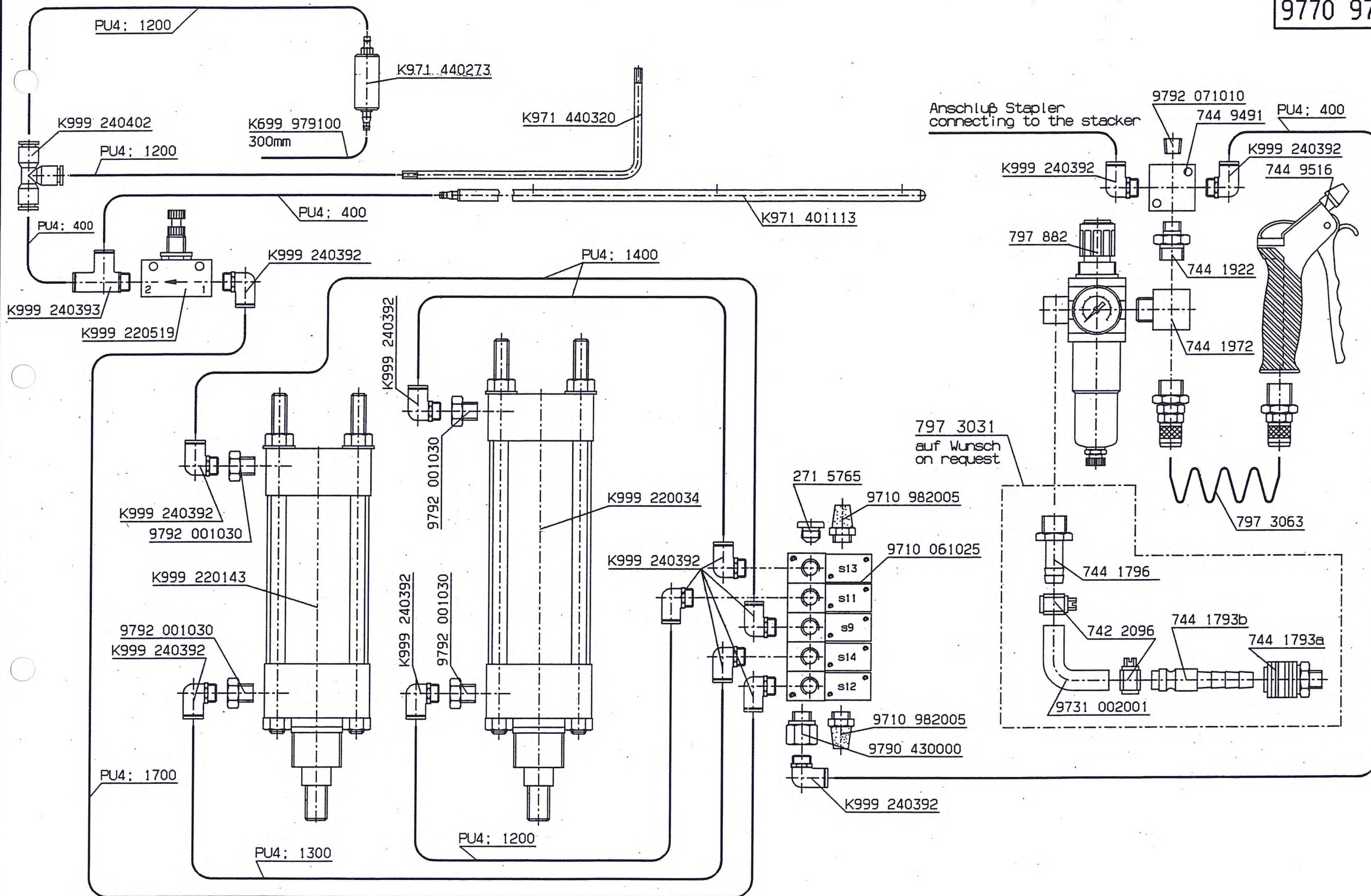
DÜRKOPP
ADLER AG
Bielefeld

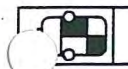
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Freigabe	804 / 94

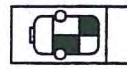
971-805/825
Steuerung k.

Stromlaufplan k.
9850 971001 SK

Blatt
1/2



 normal offen (NO)
 normally open (NO)

 normal geschlossen (NC)
 normally closed (NC)

1) Ersatzventil ohne Montageplatte 9710 061010
 Replacement valve without mounting plate 9710 061010

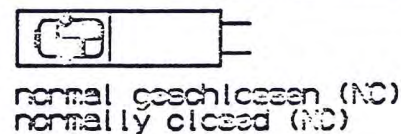
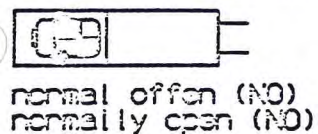
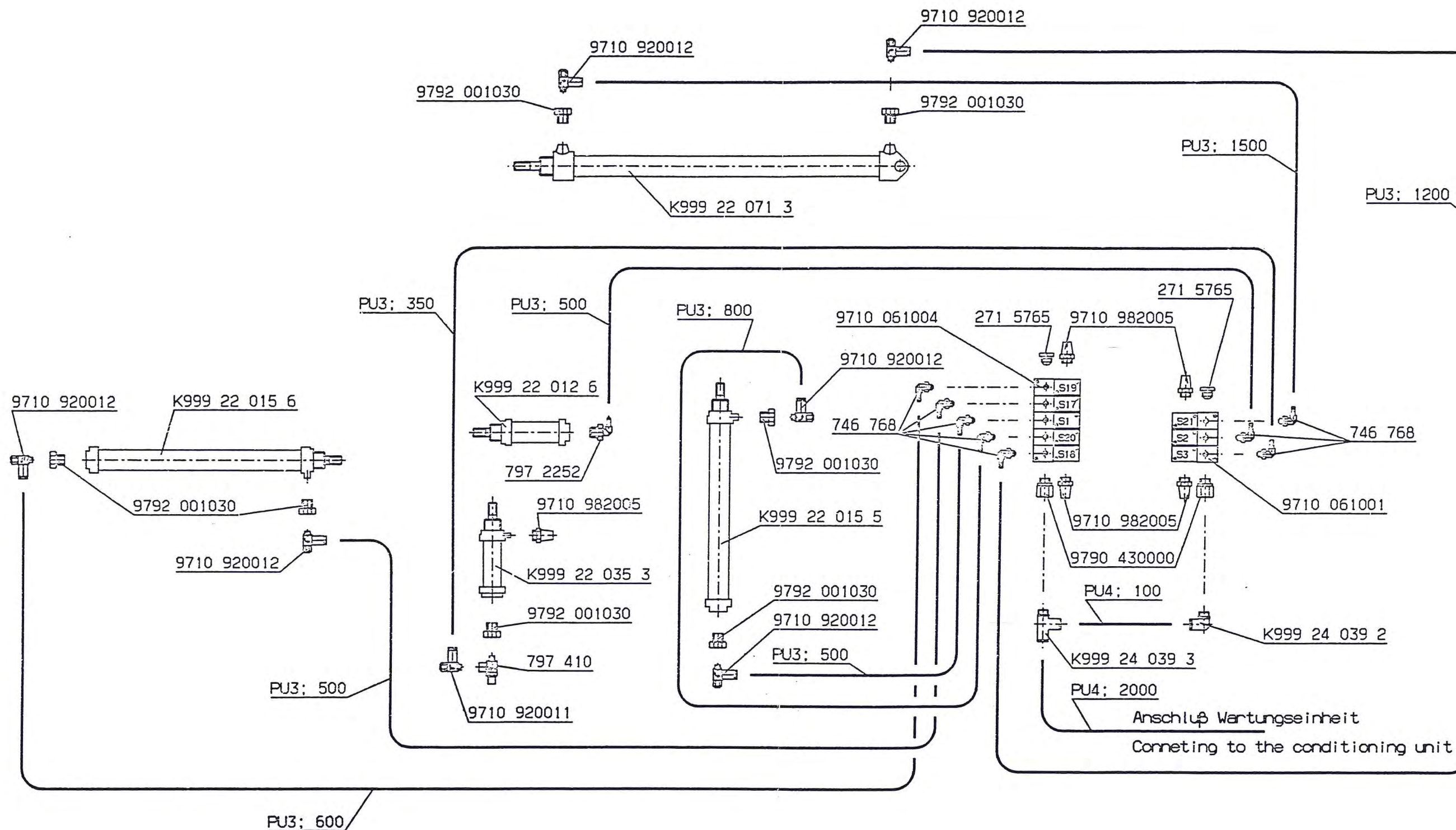
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PU4	9731 006004
PK6	002 8971 8060

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02.0	15.02.95	Schil d.			
01.0	21.12.94	Schil d.			
And.	Tag	gez.	gepr.		

Tag 29.11.94 gez. Schil d. gepr. ges.

Pneumatik-Geräteplan
 für 971-825; 971-805

Pneumatic-Elements-Plan
 for 971-825; 971-805



1) Ersatzventil ohne Montageplatte 9710 051010
Replacement valve without mounting plate 9710 051010

Schlauch Hose	Teile-Nr. (Metallware) Part-No. (Yarded goods)
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PU4	9731 005004
FK5	002 8971 0030

And.	Tag	gez.	gepr.

Tag 22.11.01	gez. Otto	gepr.	ca. 1/2
Pneumatik-Geräteplan für Stecker K971 42 760 4			
Pneumatic-Elements-Plan for stecker K971 42 760 4			

DÜRKOPP ADLER AG	
9770 971002	
Blatt 1	Blatt 1