

Preface and General Safety Notes

Part 1: Operating Instructions for the 743-121

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1. Product Description

The **DÜRKOPP 743-121** is a sewing unit for the automated sewing of **single-point darts** with straight or curved seam configurations. Maximum seam length 150 mm.

- The unit is equipped with a machine head in double chain stitch execution.
- A configuration set appropriate to the seam configuration holds and guides the material.
- The seam length control occurs either via light barrier or programming, as desired.
- Seam securing at the beginning and end of the seam through stitch condensing in the material and thread chain
- Thread trimming system: Controlled chain trimmer
- Transport carriage drive via step motor.
- The complete control of the sewing unit occurs through a micro-computer. It assumes the control tasks, monitors the sewing process and signals operating errors and malfunctions.
- An electronic thread monitor prevents a renewed starting of the sewing procedure by thread breakage or when the thread is used up.

1.1 Technical Specification

Machine head:	Class 935 - 171 -100
Needle system:	934 SIN
Needle thickness:	Nm 90
Threads:	As needle and bobbin thread spun monofilament sewing threads
Stitch type:	401 Double chain stitch
Stitch number:	4.800 / min
Stitch length:	2,2 mm
Stitch condensing:	1,0 mm
Sewing length:	150 mm
Folding table:	0 - 10° adjustable
Operating pressure:	6 bar
Air consumption:	approx. 5 NL per work cycle
Nominal voltage:	0743 000524 3 ~ 380 - 400 V + N, 50 Hz 0743 000574 3 ~ 220 - 230 V, 50 Hz 0743 000644 3 ~ 220 - 230 V, 60 Hz

The sewing unit is delivered with **one** of the listed voltage sets appropriate to the nominal voltage.

1.2 Patents

Following patents and registered utility models apply:

Status September 1993

42 28 943



1.3 Optional Equipment

0794 013222	Bundle clamp with swing arm and holder pipehr.
0794 000091	Supporting table (small). (only in conjunction with the bundle clamp)
0794 000332	Remover device for smoothing the blown-out sewing pieces. (only in conjunction with the bundle clamp)
0794 013333	Blower pipe from the top or the right.
0794 013444	Supporting table (when using in-house bundle clamp wagons)
0797 003031	Compressed air connection hose, connector plug, connector socket and hose clamp.

2. Operating the Sewing Unit

2.1 Needles and Threads

Needle system:	934 SIN
Needle thickness:	Nm 90
Threads:	As needle and bobbin thread spun sewing threads

2.2 Threading



Caution Risk of Injury !

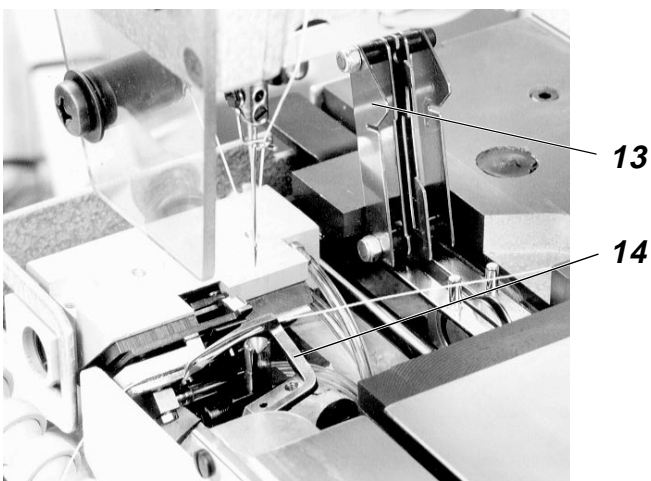
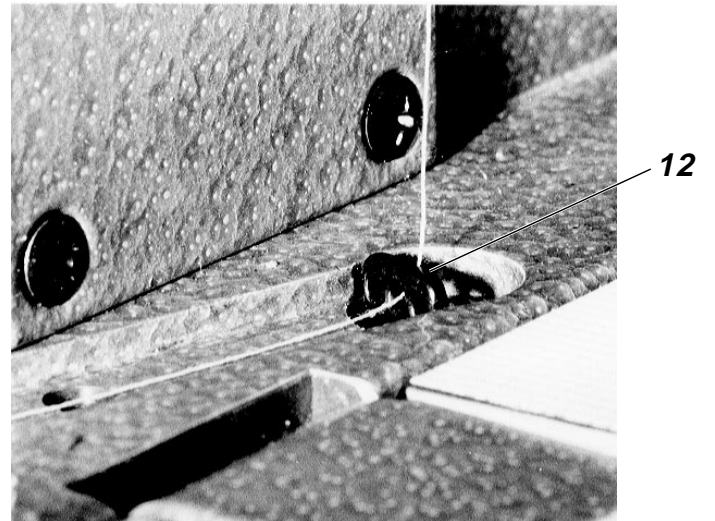
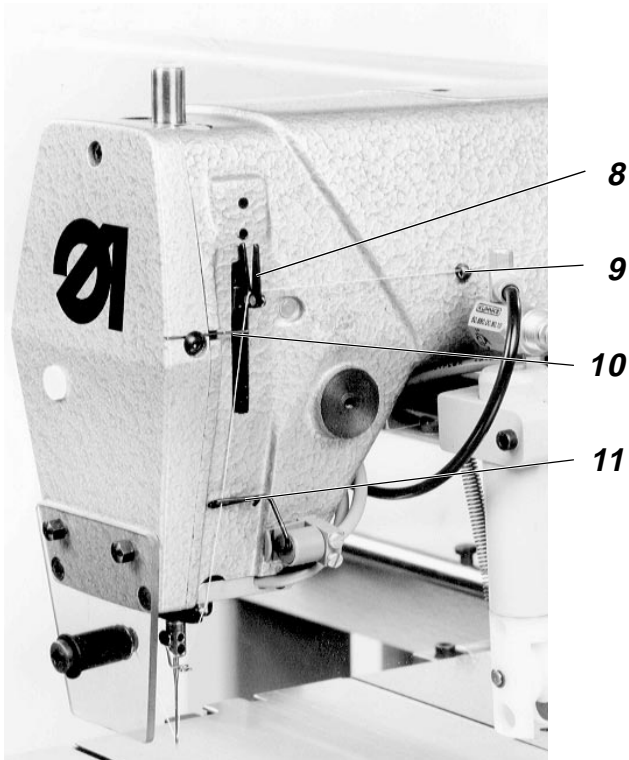
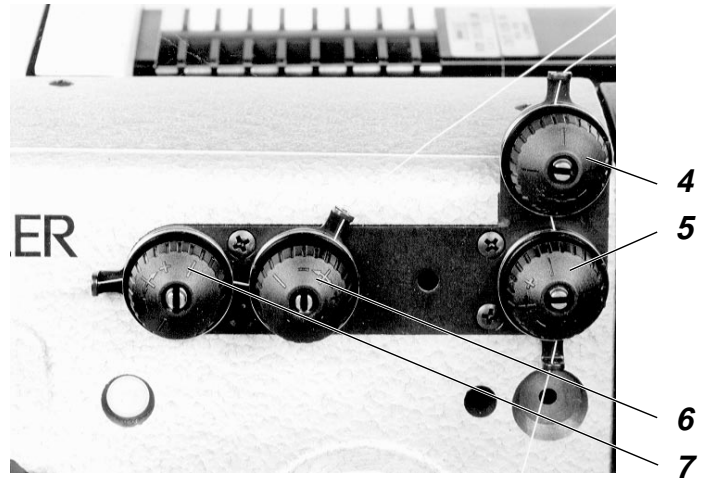
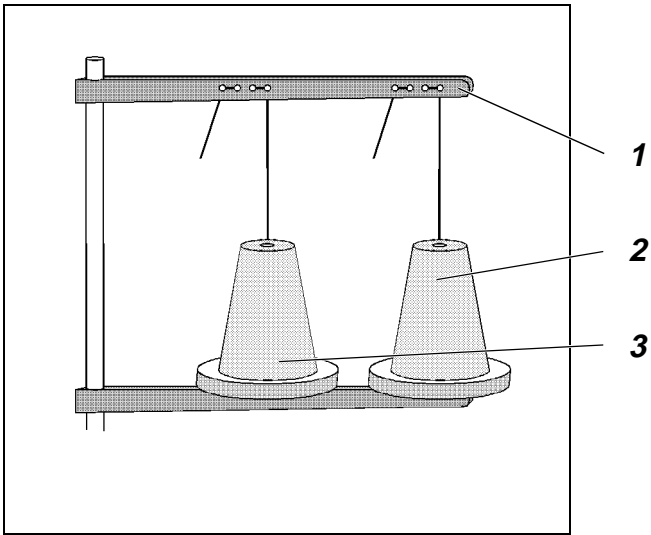
Turn main switch off.
Upper and lower threads may only be threaded with the machine switched off.
The configuration set must be in the left end position.

Threading lower thread (Bobbin thread)

- Place thread spool 2 on the thread stand.
- Alternatingly feed the thread through all 4 guide eyes of the take off arm 1.
- Unlock the slider bed and pull to the side.
- Guide the thread through the thread tensioner 4 + 5 and the thread guide 12.
- Swing up the flap 13 over the thread take up disk. Guide the thread to the right past the pins.
- Lead the thread through the hook 14 and pull tight.
- Close the flap 13 over the thread take up disk.
The thread must be in the flap slot.
- Return the slider bed to its initial position.
Hereby the leaf spring must lock in place.

Threading the upper thread (Needle thread)

- Place thread spool 3 on the thread stand.
- Alternatingly guide the thread through all 4 guide eyes of the takeoff arm 1.
- Guide the thread through the thread tensioner 6 + 7, thread guide 9, check spring 10 and thread monitor 11.
- Lead the thread through the needle and the thread clamp.
Cut of the excess at the thread trimmer.





2.3 Setting the Thread Tension

There are 2 tensions to be set for each needle and bobbin thread at the tensioning units.

The tension **normal** is always available.

The tension **enhanced** is only switched on in the area of stitch condensing. This occurs pneumatically through the machine.

Needle thread tension:

1 normal:	70 g
2 enhanced:	120 g

Bobbin thread tension:

3 normal:	15 g
4 enhanced:	40 g

The value for the thread tension **enhanced** is the total tension of the two individual tensions.

2.4 Changing the Configuration Set

A configuration set corresponding to the desired seam configuration must be inserted.

Configuration set 0793 078001 = straight seam

Configuration set 0793 078002 = curved seam

Configuration set 0793 078xxx = customer version



Caution Risk of Injury !

Turn main switch off.

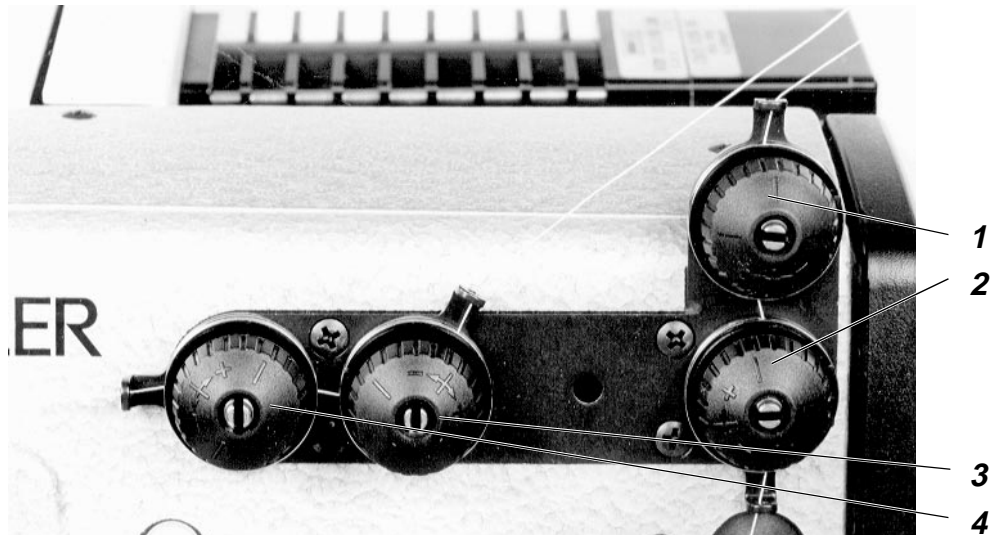
The configuration set may only be changed with the machine switched off.

Removing the configuration set

- Turn the handwheel until the needle is in the 2nd position **(OT)**.
- Push the configuration set to the left end position.
- Turn the grip 5 counterclockwise about 90°.
- Lift the configuration set 6 at the left side and carefully detach from the transport carriage.
- Remove the configuration set.

Inserting the configuration set

- Turn the handwheel until the needle is in the 2nd position **(OT)**.
- Push the transport carriage into the left end position.
- Carefully place the right side of the configuration set on the transport carriage.
- Turn grip 5 counterclockwise about 90° and lay the configuration set completely onto the transport carriage.
- Turn grip 5 back.
The configuration set is locked in and seated fast onto the transport carriage.
- Position the press-on cylinder 7 with the guide roller in the control curve 8.
- Push the configuration set to the right hand stop.





2.5 Dart Depth

The dart depth is dependent on:

- the configuration set used
- the dart length
- the setting of the folding table

The folding table is continuously adjustable between 0 - 10°.

Example:

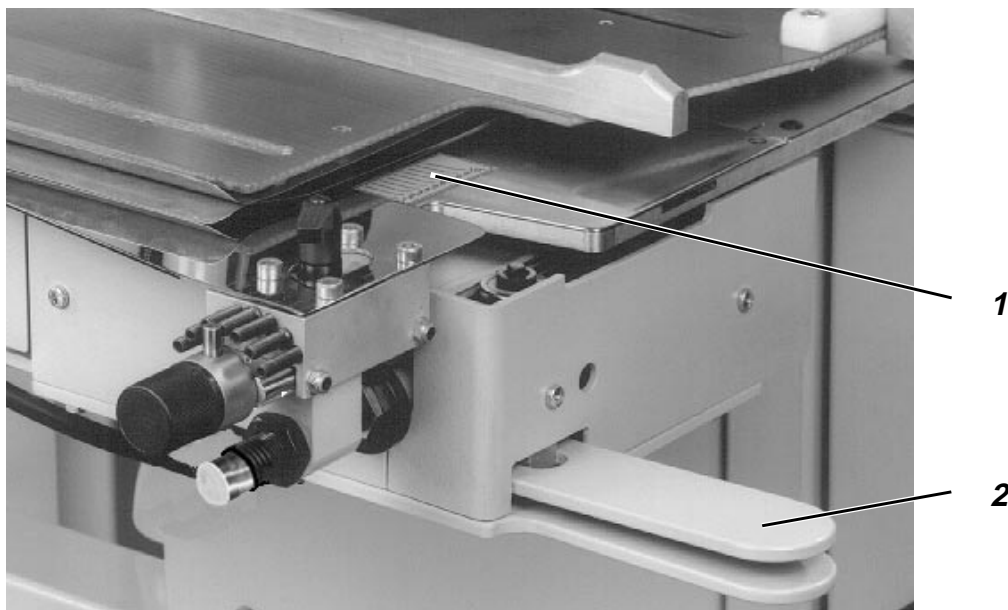
With configuration set **0793 078001** the dart depth is:

- maximum 0.4 cm at 0° and 9.5 cm dart length
- maximum 2.1 cm at 10° and 9.5 cm dart depth

The diagram shows the dart depths for other angles and lengths. The curve for configuration set **0793 078002** is also shown.

Setting the angle

- Press the handle 2 together and adjust the folding table according to the scale 1.
- Release the handle.
The angle is set.



2.6 Dart Length

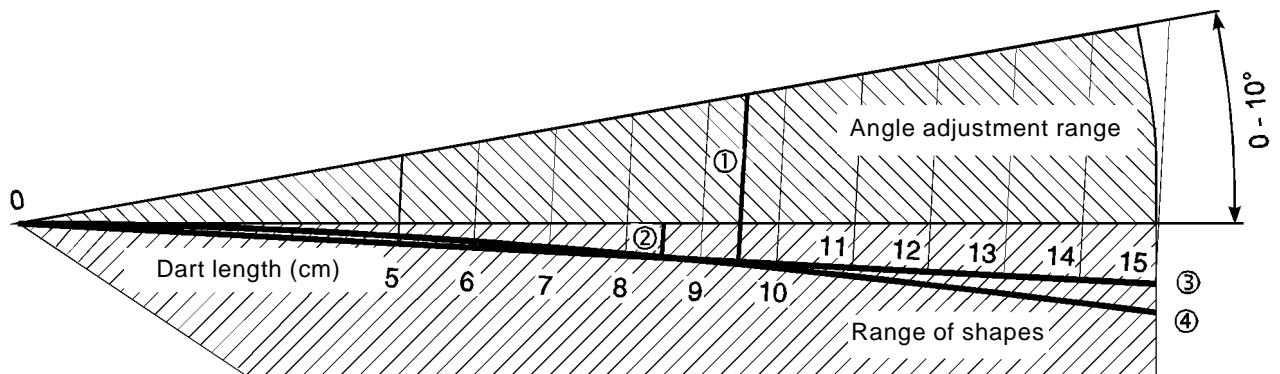
Maximum dart length 150 mm.

The dart length control occurs via programming (Buttons L1, L2, L3) or the light barrier.

A programmed seam length control is recommended for diaphanous material.



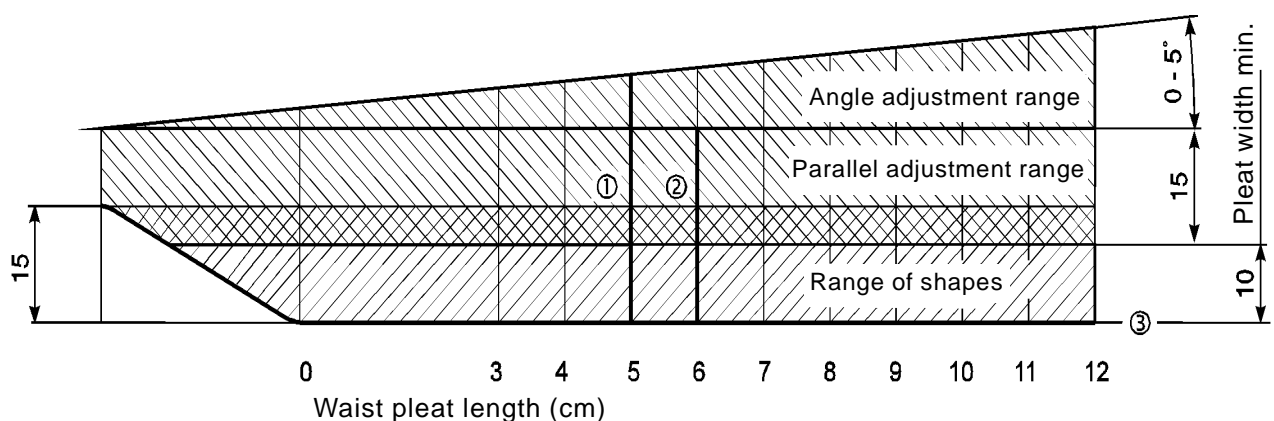
Work range dart



Example with configuration set **0793 078001** and **0793 078002**

- (1) Dart depth max. 2,1 cm at 10°, Length 9,5 cm
- (2) Dart depth max. 0,4 cm at 0°, Length 9,5 cm
- (3) Configuration set 0793 078001
- (4) Configuration set 0793 078002

Work range waist pleat



Example with configuration set **0793 078034**

- (1) Waist pleat depth max. 3,2 cm at 5°, Length 5 cm
- (2) Waist pleat depth max. 2,5 cm at 0°, Length 6 cm
- (3) Configuration set 0793 078034

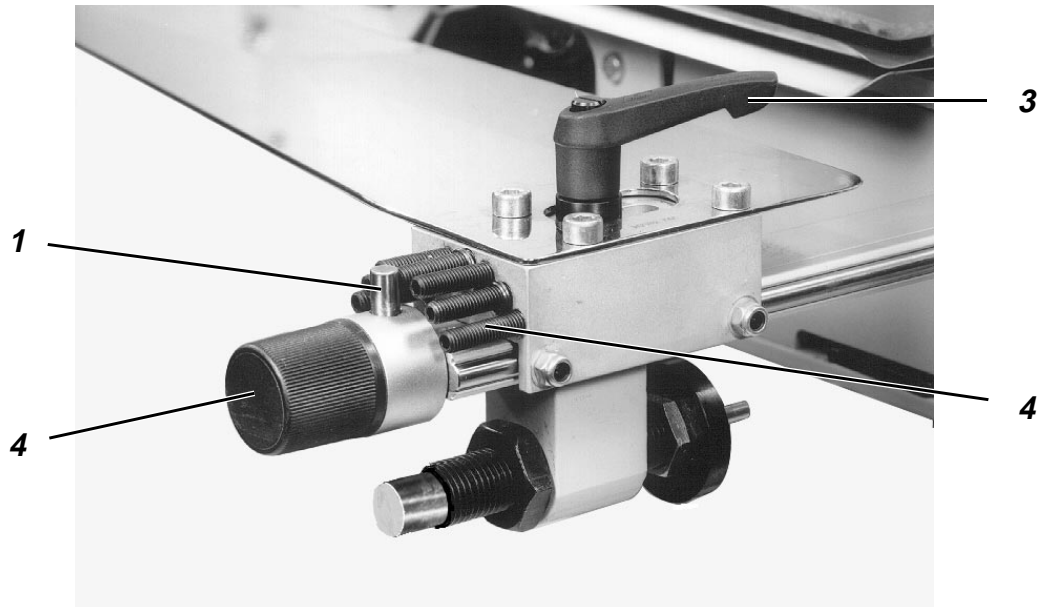


2.7 Setting the Insertion Depth of the Folding Table

The first stitch of the needle into the material should occur as close as possible to the front edge.

In order to achieve a uniformly slim dart point with differing material thicknesses, the machine is equipped with a fine adjustment.

7 different insertion depths can be set with the stops 4.



Caution Risk of Injury !

Turn the main switch off.
The insertion depth may only be set or changed with the sewing unit turned off.

Setting the insertion depth

- Release lever 3.
- Push the folding table a bit forward on the guide.
- Set one adjusting screw 4 (7-off) to the desired insertion depth.
- Turn setting knob 2 to the desired insertion depth (stop).
- Push the folding table to the back on the guide again.
The adjusting screw 4 must firmly touch the stop 1.
- Tighten lever 3 again.

Changing the insertion depth

- Release lever 3.
- Push the folding table a bit forward on the guide.
- Turn setting knob 2 to the desired insertion depth (stop).
- Push the folding table to the back on the guide again.
The adjusting screw 4 must firmly touch the stop 1.
- Tighten lever 3 again.



2.8 Setting the Controls

The setting of the controls is explained in detail in Part 4: Microcontrol Summary !

At this point only those settings necessary for the sewing procedure are listed.



Turn main switch on !

The programming of the controls occurs with the main switch turned on !

The machine is not to be started unintentionally.

– Set the " **Program** " switch to " **01** " or " **02** ".
The sewing program is selected.

– Push the " **STOP** " button.
The sewing program is activated.

– Setting the seam length.
Press button " **L1** " or " **L2** " or " **L3** ".
Set the desired value with the " + " or " - ".



Establishing the seam length with the light barrier.
Press the button.



– Setting the soft start.
Press the button.
The diode is lit when the function is selected.



– Setting stitch condensing at the seam beginning.
Press the button.
The diode is lit when the function is selected.



– Setting stitch condensing at the seam end.
Press the button.
The diode is lit when the function is selected.



– Setting the remover.
Press the button.
The diode is lit when the function is selected.



– Setting the blower from the top or to the right.
Press the button.
Pressing the button repeatedly switches between the functions "top/right/off".
The left diode is lit when the function " Blower from the top " is selected.
The right diode is lit when the function " Blower from the right " is selected.



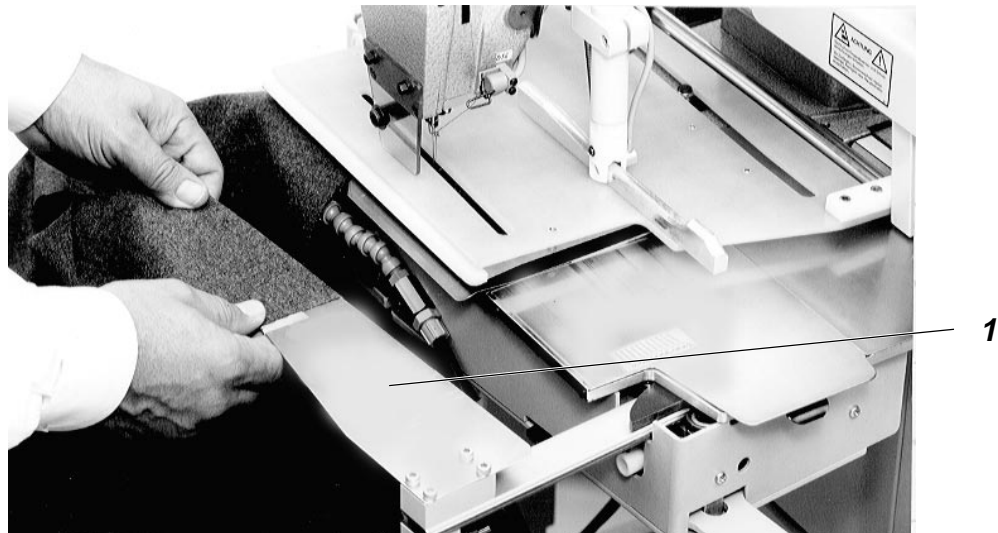
– Setting the normal stitches and the stitch condensing.
Press the button.
The left line of display indicated the number (0 to 20) of regular stitches up to the stitch condensing.
Set the desired value with the " + " or " - ".
Press the button.
The right line of display indicated the number (0 to 8) of condensed stitches.
Set the desired value with the " + " or " - ".
Press the button. (The engagement is finish.)



The controls are now completely set.



2.9 Positioning the Sewing Pieces



- Mark the dart depth on the fold plate 1 with thinnest possible smooth adhesive tape.
- Place the sewing piece over the edge of the fold plate with both hands.
- Bring the cut edges together with the right hand so that the edges match.
- Align the small hole for the dart length precisely at the back edge of the fold plate.
- Hold the material in place at the front edge with the right hand and push in the fold plate.
The material is held in place by the configuration set.
The fold plate runs to the back.
The sewing procedure is carried out.

2.10 Sewing

After the main switch is turned on or the " **STOP** " button is pushed, the microcomputer checks the initial settings of the machine.

The needle is brought to its initial position.

If no fault is found the " <--- REF ---> " or " **REF** ---> " display will appear.

This means that the configuration set must be run to the reference point.

Press the " Σ " button.

The configuration set travels to the reference point.

Starting sewing

- Insert material.
- Push in the folding table with the material.
The sewing cycle starts.



CAUTION !

Do not push in the folding table without material !
The friction surface of the configuration set could be damaged.



3. Maintenance of the Sewing Unit



Caution Risk of Injury !

Turn main switch off.

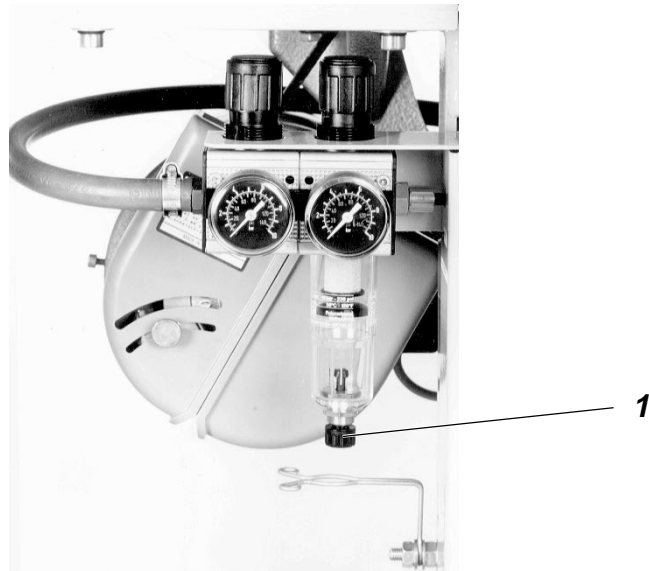
The maintenance of the sewing unit may only take place with the machine turned off.

3.1 Cleaning

A clean machine protects against malfunctions !

Daily cleaning:

- Remove all accumulations of lint.
- Clean the light barrier with a soft cloth.
- Check the water level in the pressure regulator.
The water level should not be allowed to climb up to the filter.
After screwing in the drain plug 1, blow out the water under pressure.



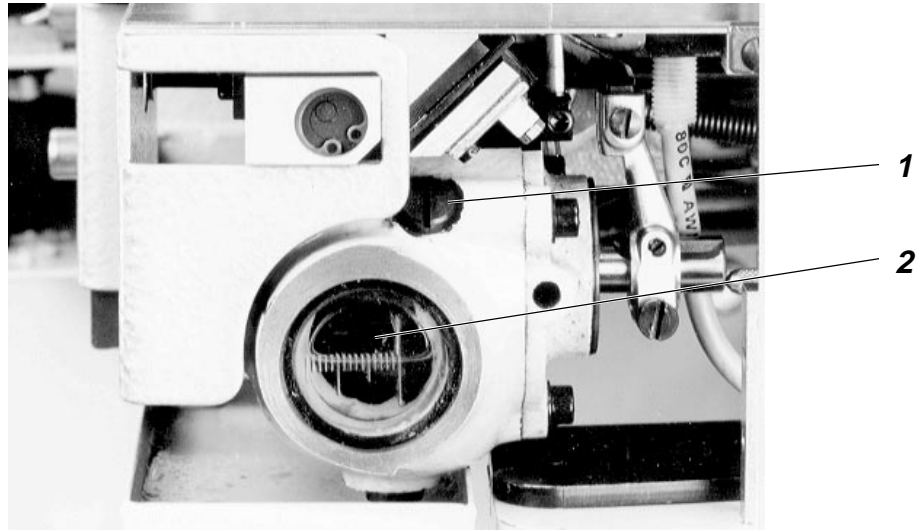
Depending on the amount of dust present:

- Clean the motor ventilation sieve.
- Clean the filter 2 on the step motor drive.





3.2 Lubrication



The oil level of the sewing unit is to be checked **weekly** !
The inspection glass 2 must be half full.
Fill up only with **ESSO SP-NK 10** oil (1 = oil filler screw).
SP-NK 10 can be obtained from the DÜRKOOP ADLER AG sales offices.