

**Preface and General Safety Information****Part 1: Operating Instructions Class 550-16-23**

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1. Product Description

The **Dürkopp Adler 550-16-23** is a configured sewing station for the sewing-on of sleeves.

The workstations are equipped with a single needle, double lockstitch, post-bed machine with bottom and top belt feed.

30 different fullness values can be selected via the keypad. In order to achieve a firmer pulling-on of the stitch, a supplementary tension can be added when a high fullness value is turned on.

Further details:

- Step motor technology for top and bottom belt feed.
- Material-protective belt feed with two individually powered belts for the top and bottom feed.

2. Proper Use

The 550-16 is a sewing place which can properly be used for sewing light to medium weight material. Such material is, as a rule, material made up of textile fibres. This material is used in the garment industry.

Further, it may be possible to also conduct so-called technical seams with this special sewing machine. Here, however, it is essential that the operator (

Dürkopp Adler AG would be pleased to collaborate) make an evaluation of the possible dangers because such applications are, on the one hand, comparatively rare and, on the other, the variety is immense. Dependent of the result of this evaluation, appropriate safety measures are to be taken.

Generally, only dry material should be sewn on this machine. The material should not exceed the thickness of 7 mm when compressed by the lowered sewing foot. The material should not contain any hard objects, otherwise it would be necessary to protect the eyes during the sewing process. For the time being, no such guard is available.

The seams are produced generally with threads of textile fibres of a dimension up to 70/3 - 140/3 NeB. Before using any other threads it is necessary, also in this case, to estimate the consequential dangers and to take, if necessary, the respective safety measures.

This special sewing machine may only be installed and operated in a dry and clean environment. If the sewing machine is used in another environment which is not dry and clean, further measures, which are to be agreed upon, may be necessary (see EN 60204-31: 1999).

We, as a manufacturer of industrial sewing machines, assume that at least semi-skilled operating personnel will be working on our products so that all normal operations and, where applicable, their dangers are presumed to be known.



3. Technical Data

Noise

Workstation-specific emission value to DIN 45635-48-A-1-KL2

Cl. 550-16-23

Lc = 79 dB (A)
Stitch length: 4,4 [mm]
Number of stitches: 2.500 [min⁻¹]
Material: G1 DIN 23328 2-plies

Stitch type	Double lockstitch
Needle system:	134 - 35 797 Sy1955-1
Needle thickness (as per E-No.): [Nm]	70 - 100
Thickness of sewing thread max.: [Nm]	50/3
Number of stitches max.: [min ⁻¹]	4000
Stitch length max.: [mm]	1,5 - 5,5
Max. clearance under the sewing feet: - Sewing [mm] - Lifted [mm]	
Operating pressure: [bar]	6
Air consumption per work cycle: approx. [NL]	0,6
Nominal voltage:	190-240V 50/60 Hz
Dimensions(L x B xH) [mm]	140 x 750 x 1300
Working level (ex works): [mm]	790
Weight [kg]	140



4. Operation

4.1 Threading the Needle Thread

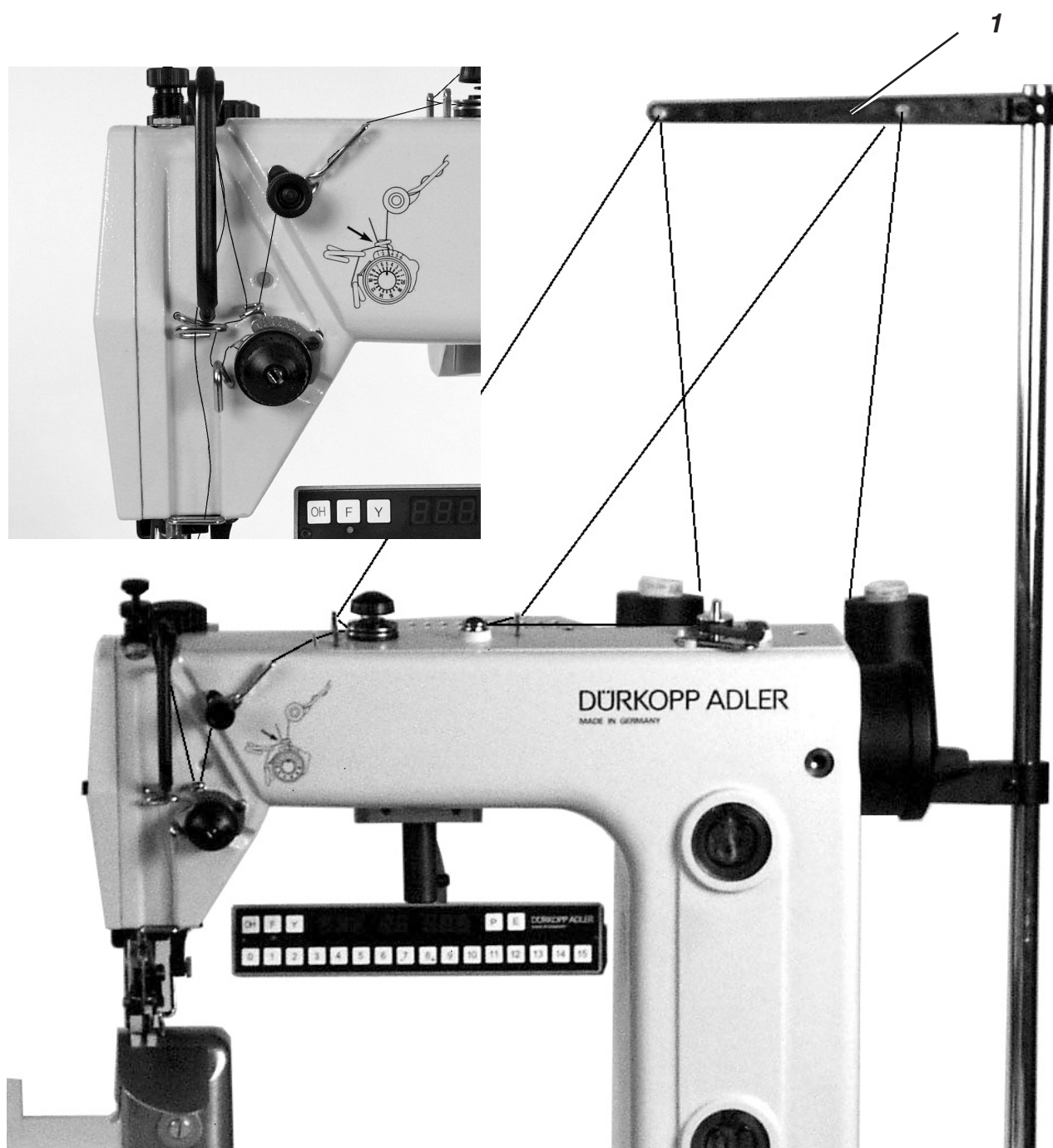


Caution Risk of Injury !

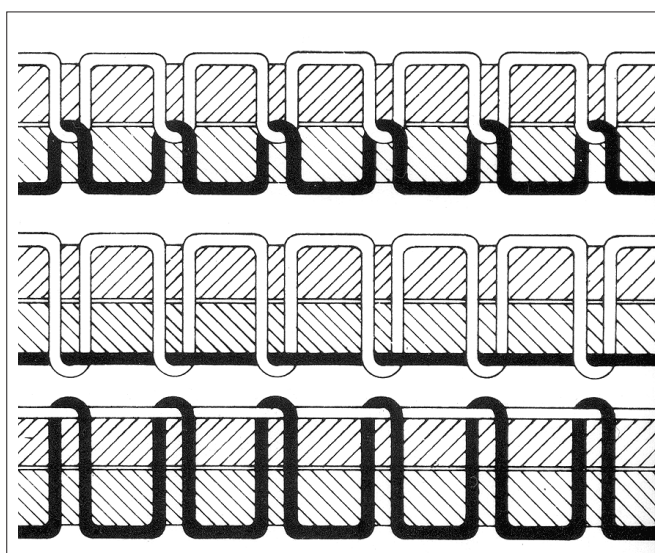
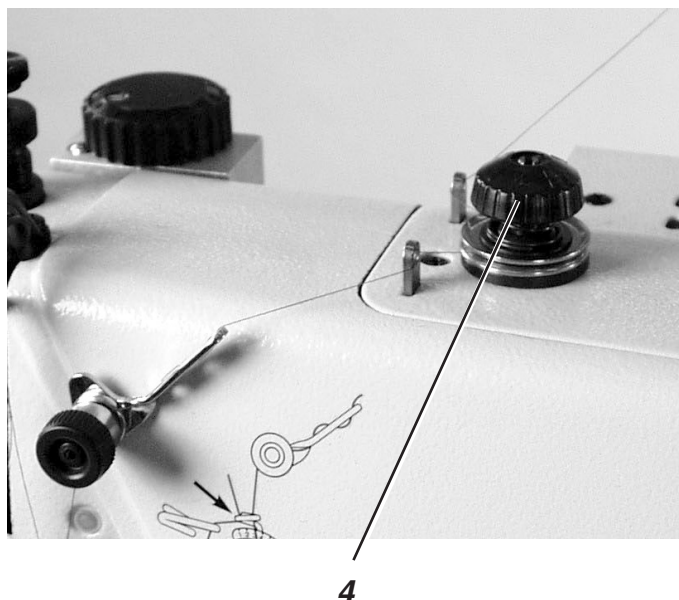
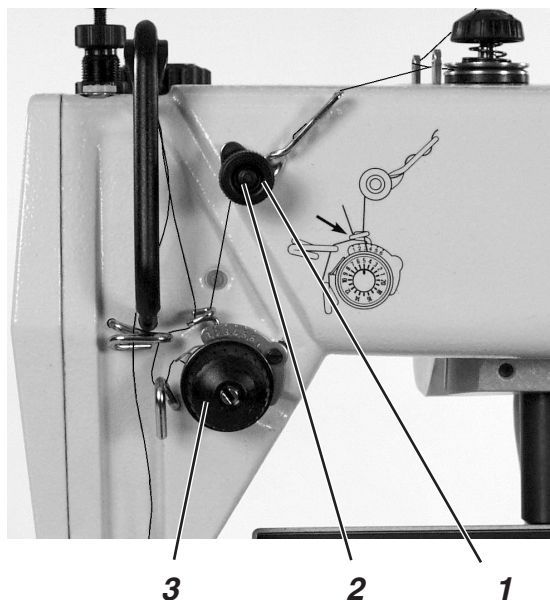
Turn the main switch off !

Thread the needle thread only with the sewing machine turned off.

- Place the thread rolls on the thread stand and guide the needle and the hook thread through the thread guides. The thread guide 1 must be in horizontal position above the thread rolls.
- Thread the needle thread as shown in the illustration.



1



Illus. A: Correct thread interlacing in the middle of the material

Illus. B: Needle thread tension too low
or
hook thread tension too high

Illus. C: Needle thread tension too high
or
hook thread tension too low



4.2 Setting the Needle Thread Tension

Pre-tension

With open main tension 3 a slight residual tension on the needle thread is necessary. The residual tension is created by pre-tension 1.

The pre-tension 1 influences the length of the cut needle thread end at the same time (starting thread for the next seam).

- Base position:
Turn the knurled nut 1, until its face is flush with bolt 2.
- Shorter starting thread:
Turn knurled nut 1 clockwise.

Main tension

The main tension 3 is to be set as low as possible.

The interlacing of the threads should lie in the middle of the material. Too high thread tensions can lead to undesired puckering and thread breakage in thin material.

- Set the main tension 3 so that a uniform stitch formation is achieved.
Increase tension = Turn the knurled nut clockwise
Decrease tension = Turn the knurled nut - counterclockwise



ATTENTION !

The main tension can be opened through the control.
(e.g. for sewing Polsters)

1

Supplementary tension

The supplementary tension 4 can be switched on for thicker gathering (programmable).

- Set the supplementary tension 4 lower than the main tension 3.

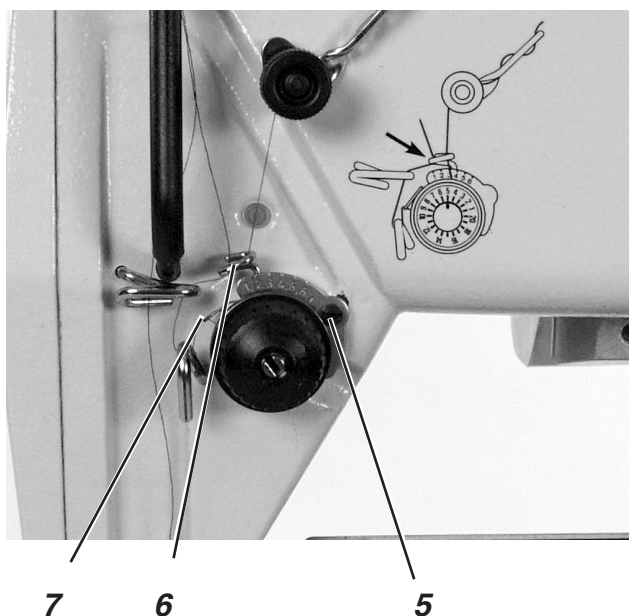
4.3 Releasing the Needle Thread Tension

Automatic

The needle thread tension is automatically opened during thread trimming and lifting of the sewing foot.



4.4 Setting the Thread Regulator



Caution Risk of Injury !

Turn the main switch off .

Set the thread regulator only with the sewing machine turned off.

The needle thread quantity required for stitch formation is regulated by the thread regulator 6.

Only a precisely set thread regulator assures an optimal sewing result.

With a correct setting the needle thread loop must glide over the thickest part of the hook with a light tension.

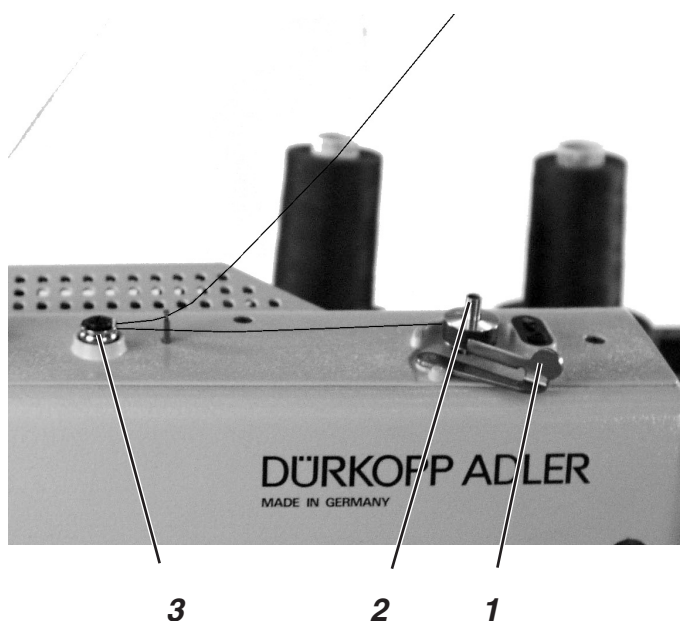
- Loosen screw 5.
- Set the position of the thread regulator.
- Tighten screw 5.

Setting note:

When the largest thread quantity is required, the check spring 7 must be pulled up approx. 0.5 mm from its upper end position. This is the case when the needle thread loop passes the maximum hook circumference.



4.5 Winding the Hook Thread



- Slip the bobbin onto the bobbin winder 2.
- Pull the thread through the guide 3 and the tension 4.
- Wind the thread clockwise about 5 times around the bobbin core and tear off at the thread clamp.
- Swing the bobbin winder lever 1 towards the bobbin .
- Sewing
The bobbin winder lever will stop the winding process as soon as the bobbin is full.

1



ATTENTION !

If the thread is not to be wound during sewing,
it is essential to arrest the sewing foot in the raised position.
(See chapter 4.10)

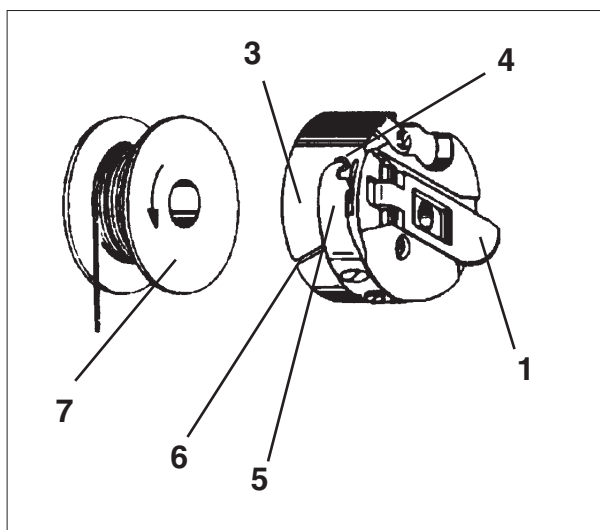


4.6 Changing the Hook Thread Bobbin



2

1



Caution Risk of Injury !

Turn the main switch off .
Change the hook thread bobbin only with the machine turned off.

Removing the empty bobbin

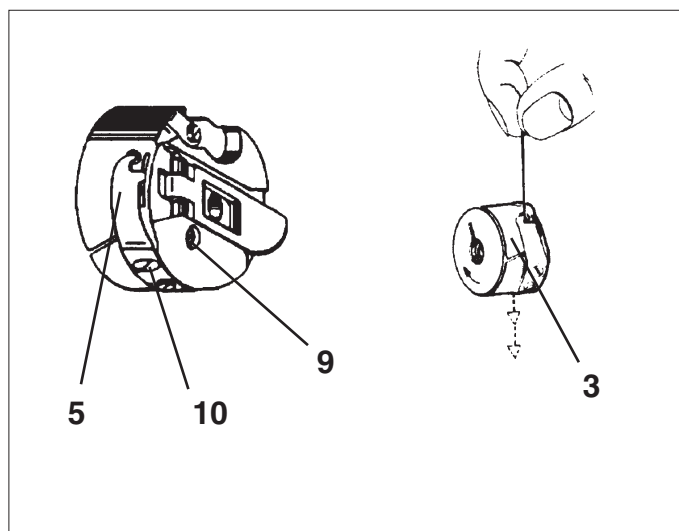
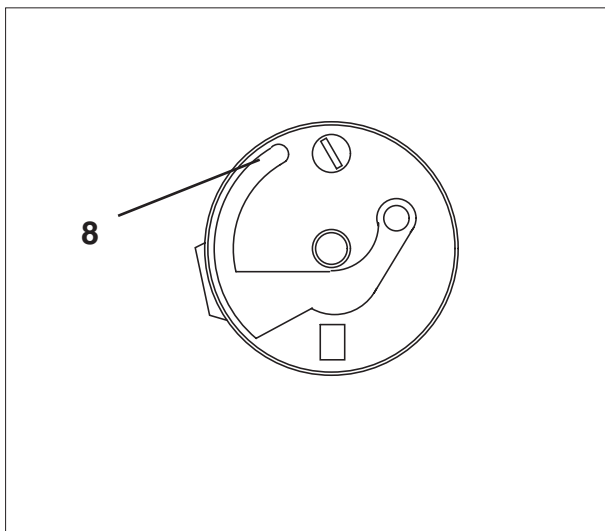
- Swing the hook cover 2 down.
- Bring the needle bar in high position.
- Lift the bobbin case flap 1.
- Take out the bobbin case top 3 with the bobbin 7.
- Remove the empty bobbin from the bobbin case top 3.

Inserting a full bobbin

- Insert the full bobbin in the bobbin case top 3.
- Pull the hook thread through slit 6 under the tension spring 5 until in the drilled hole 4.
- Pull the hook thread approx. 5 cm out of the bobbin case 3.
The bobbin must turn in the direction of the arrow when the thread is pulled off.
- Insert the bobbin case 3 again.
- Close the bobbin case flap 2.
- Push the hook cover 2 upward.



4.7 Setting the Hook Thread Tension



Caution Risk of Injury!

Turn the main switch off .
Set the hook thread tension only with the machine turned off.

1

Half of the necessary hook thread tension should be created by the brake spring 8 and half by the tension spring 5.

Setting the tension spring

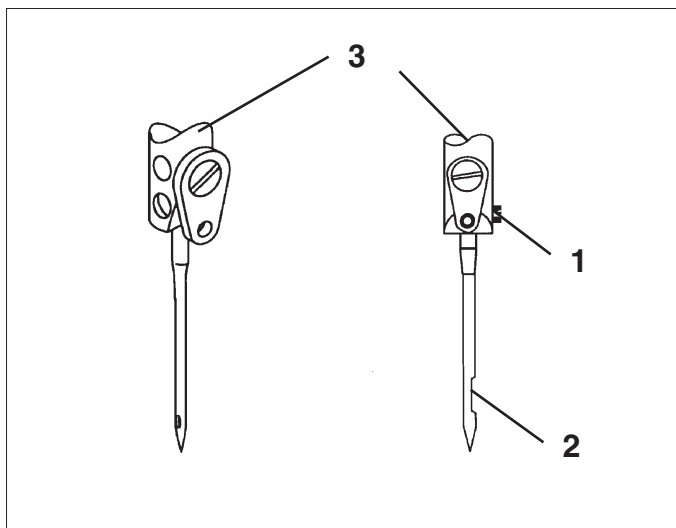
- The bobbin case top 3 should slowly lower under its own weight (see right illustration).
- Set the tension spring 5 at the adjusting screw 10 until the necessary tension value is reached.

Note:

The hook thread tension should amount to 20 +/- 5 grams.



4.8 Changing the Needle



Caution Risk of Injury!

Turn the main switch off .

Change the needle only with the sewing machine turned off.

- Loosen screw 1.
- Push the new needle into the drilled hole of the needle bar 3 up to the stop.

ATTENTION !

The furrow 2 of the needle must show to the hook point.

- Tighten screw 1.

ATTENTION !

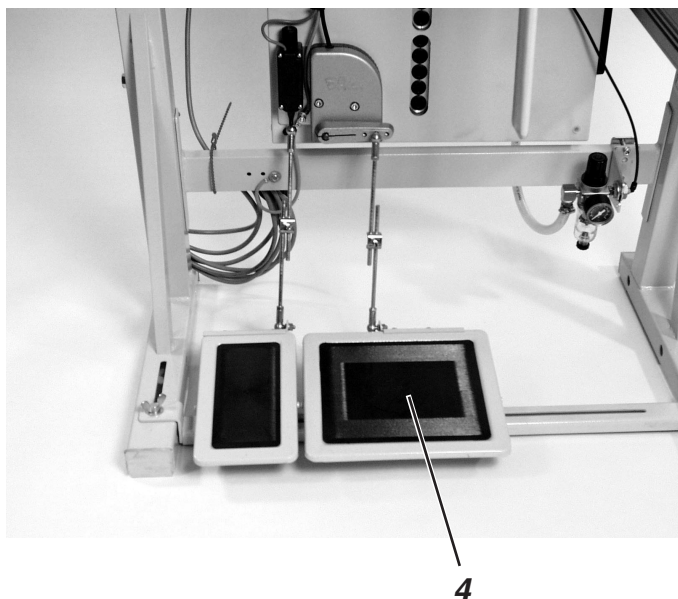
After a change to another needle thickness the clearance of the hook to the needle must be corrected (see Service Instructions).

The non-observance of the above correction can lead to following faults:

- Change to a thinner needle: - Missing stitches
- Damage to the thread
- Change to a thicker needle:
- Damage to the hook point
- Damage to the needle



4.9 Sewing Foot Lift



The sewing foot can be lifted pneumatically by operating the pedal 4.

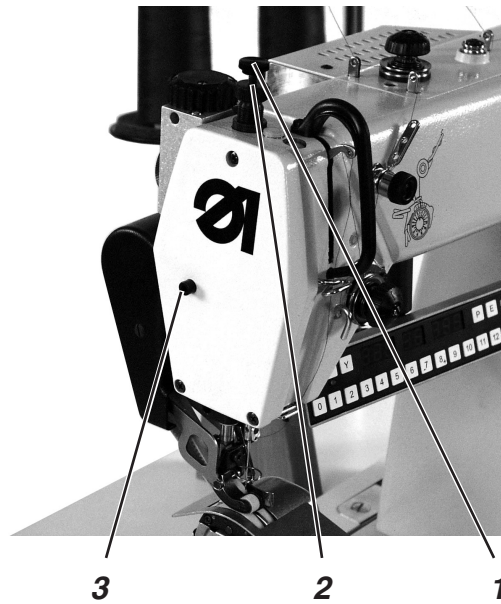
1

Pneumatic sewing foot lift (pedal)

- Step half back on the pedal.
Lift the sewing feet.
- Step completely back on the pedal.
Activate the thread trimmer and lift the sewing feet.



4.10 Arresting the Sewing Foot in the High Position



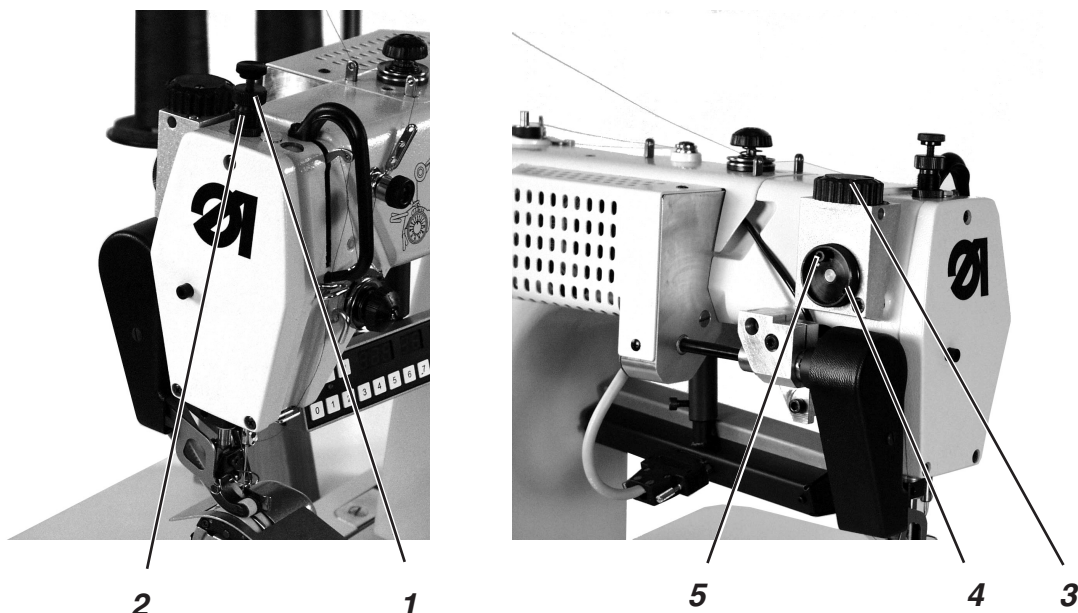
The pneumatically raised sewing foot can be arrested in the high position with button 3 (e.g. for winding the hook thread).

- With the sewing machine idle, step half back on the pedal. The sewing foot lifts.
- Press button 3 and release the pedal. The raised sewing foot is arrested in the high position.
- Step half back on the pedal again. The sewing foot is released.

4.11 Setting the Sewing Foot Pressure

The desired sewing foot pressure is set with the knurled screw 1.

- Loosen lock nut 2.
- Increase the sewing foot pressure
= Turn screw 1 clockwise.
- Decrease sewing foot pressure
= Turn screw 1 counterclockwise.
- Tighten lock nut 2 again.



4.12 Stroke Height of the Sewing Foot during Lifting

The stroke height of the sewing foot during lifting can be limited by the knurled nut 1 (max. 3 mm).

- Loosen the lock nut 2.
- Increase the stroke of the sewing foot
 - = Turn the knurled nut 1 counterclockwise.
- Decrease the stroke of the sewing foot
 - = Turn the knurled nut clockwise.

1



ATTENTION !

The stroke height of the sewing foot should not be so high that the needle bar strikes on the foot when the machine turns.

4.13 Pulsating sewing foot

In order to facilitate the rolling of the material in the arc, the sewing foot will be lifted with the needle frequency synchronously. The height could be adjusted using the setting wheel 3.

- Position 0 on the setting wheel 3 → no stroke of the sewing foot.
- Position 10 on the setting wheel 3 → maximum stroke.



ATTENTION

Thinner Material → lesser stroke.

Thicker Material → greater stroke.

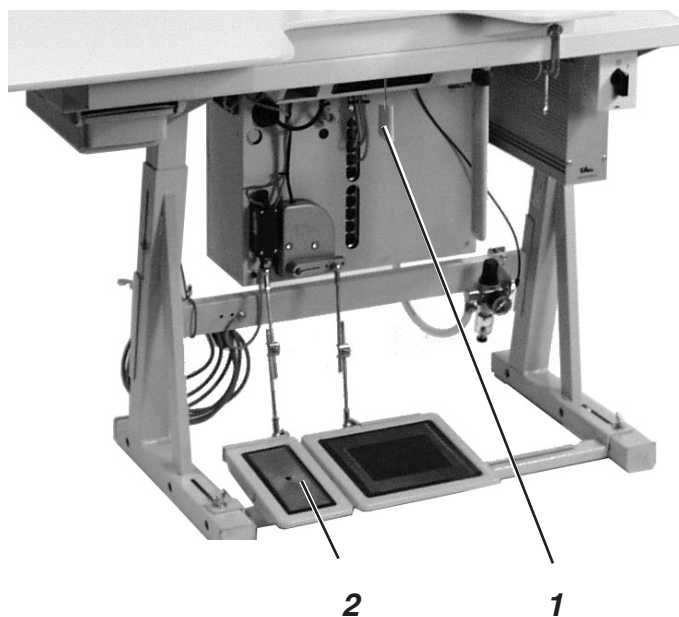
Normal Material → position between 2 and 4 on the setting wheel.

Basic settings

- Position the needle at the lower reversal point.
- Turn the setting wheel 3 in a way that the figure 2 is turned towards the operator.
- Loose the Allen screw 5 and turn the disc 4 to the right until the sewing foot slightly lifts.
- Tighten the Allen screw 5.



4.14 Knee Switch



With the knee switch 1 one moves from one program step to the next in the sewing programs.

- Press the knee switch.
The next program step is called up.

4.15 Left “Correction Value” / Fullness Value Pedal

The left pedal 2 has a dual function.

1. Automatic operation

In automatic operation the fullness value can be corrected with the pedal.

2. Manual operation

In manual operation the individual fullness levels are selected with the pedal.



5. Operating the Controls 550-16-23

The 550-16-23 is equipped with programmable controls. The functions can be programmed via the keypad.

5.1 Manual Sewing



If sewing is to take place without a program, the manual sewing mode is to be activated using one of the following methods:

- Press the “**P**” key.
- Press the “**0**” key 2x.
Program “0” = manual is selected.
- Select the fullness value with the 0 - 15 keys or the left pedal (Setting-Global Parameters [13]).
- Start the sewing cycle.

In manual operation the step and program number displays are turned off.



5.1.1 Setting the Fullness Value

1

The desired fullness value is entered with the “**1**” to “**15**” keys. An intermediate value (1/2) is set by pressing neighbouring fullness value keys simultaneously.

Setting a fullness value: (Example: Fullness value 5)

- Press the “**5**” key.



5.1.2 Turning the Supplementary Thread Tension On/Off

The supplementary thread tension can be turned on at any time.

- Press the “**F**” key.
The supplementary tension is turned on.
The green LED under the key is lit.
- Press the “**F**” key again.
The supplementary tension is turned off.
The green LED goes out.

5.1.3 Turning the Thread Tension Off/On

By simultaneously pressing the “**F**” and “**1**” keys, the thread tension can be turned off and on again.

- Hold down the “**F**” key and tap the “**1**” key.
The thread tension is turned off.
- Hold down the “**F**” key and tap the “**1**” key again.
The thread tension is turned on.



5.1.4 Bartack Inversion

The bartack set in the parameters (see Part 4: Programming Instructions) is inverted (suppressed) by simultaneously pressing the “**F**” and “**2**” keys.

Seam beginning:

- Press the “**F**” and “**2**” keys simultaneously.
The bartack is not sewn.

Seam end:

- Press the “**F**” and “**2**” keys simultaneously.
The bartack is not sewn.

5.2 Sewing with a Program (Automatic)

In automatic operation the step and program number displays show the selected program and the active step.

Additionally, the selected piece (left or right sleeve) is shown in the program number display. At the end of the program this display blinks.

	0	5	0	1	r	9	9
--	---	---	---	---	---	---	---

5.2.1 Program Selection

5.2.1.1 Direct Program Selection

Programs already generated for a specific sleeve can be called up as follows:

- Press the “**P**” key.
The display shows:

–	–	–	P			.	.
---	---	---	---	--	--	---	---

- Enter the two-digit program number.
Example: Program 17 is to be called up enter => “17”.
The display shows :

	2	0	0	1	r	1	7
--	---	---	---	---	---	---	---

- After activation of a program, step 01 is displayed.
The program is immediately ready for operation.
The “Automatic” operation mode is active.
- If the program is not present in the memory, the left display blinks.
By holding down the “**Y**” key and tapping the “**P**” key, a new program can now be entered or the program search repeated by pressing the “**P**” key.

–	–	–	P		r	1	7
---	---	---	---	--	---	---	---



5.2.1.2 Program Selection via Menu

If the program number is unknown, all programs can be run through sequentially in the following manner.

Order of operations

- Press the “**P**” key.
Change-over to the “**Program Selection**” mode.
- Press the “**Y**” key.
The first program is shown.
Each pressing of the “**Y**” key moves to and shows the next program.

If the program has valid data assigned to it, the following display appears:

–	Y	–	P			9	9
---	---	---	---	--	--	---	---

If the program has no valid data assigned to it, the following appears:

–	–	–	P			9	9
---	---	---	---	--	--	---	---

- If the displayed program is to be selected, press the “**E**” key. (Example: Program 01)
The following display appears.

	1.	0	P		r	9	9
--	----	---	---	--	---	---	---

1

5.2.1.3 Side Selection in a Program

After selection of a program one always goes first to the right piece (if a right sleeve has been programmed).

In the automatic mode one can, however, alternate between “right” and “left” sleeves at any time.

- Press the “**E**” key.
The controls switch to the left sleeve.
The display shows:

	1.	5	0	1	L	1	7
--	----	---	---	---	---	---	---

- Press the “**E**” key again.
The controls switch to the right sleeve again.
The display shows:

	1.	5	0	1	r	1	7
--	----	---	---	---	---	---	---



5.2.2 Changing Fullness Values

For the adaption to differing types of material with the program step, the fullness values can be changed via the "0" to "15" keys at any time.

Via the supplementary foot switch (see Chapter 6.16), the current fullness value can be increased or decreased by 0.5.

Increasing or decreasing a fullness value by a whole value:

Example: Set fullness value = 08

- Press the "9" key.
The next higher fullness value is selected.
- Press the "7" key.
The next lower fullness value is selected.

The changed fullness value is automatically deleted through selection of the next program step.

Increasing or decreasing a fullness value by a half value:

Example: Set fullness value = 08

- Step forward on the foot pedal.
The fullness value is increased by 0.5.
- Step back on the foot pedal.
The fullness value is decreased by 0.5.

The changed fullness value is automatically deleted through selection of the next program step.



5.3 Programmable Functions

The machine settings described in the following are saved in memory with each program.

5.3.1 Generating a New Program

The generation of a new program starts with the entry of a non-existent program number.

- Press the “P” key.

–	–	–	P			.	.
---	---	---	---	--	--	---	---

- Enter a 2-digit program number
The left display blinks.
(If the left display does not blink the selected program already exists.)

–	–	–	P		1	7
---	---	---	---	--	---	---

- Hold down the “Y” key and tap the “P” key.
“01” appears in the middle display.
The dots in the middle display blink.

	0.	0	0.	1.	r	1	7
--	----	---	----	----	---	---	---

The dots in the “Step” and the “Sleeve Side” displays blink.

Note:

One can alternate between left and right piece with the “E” key until the first fullness value/ special function has been selected (the sleeve side display no longer blinks).

- Enter a fullness value by pressing one of the keys from 0 to 15.
If desired, activate supplementary functions for the step by pressing on one of the following keys :
 - F : Supplementary thread tension on / off
 - F + 1: Needle thread tension on/ off
 - Press the knee switch.
The next step is selected.
The entered value is saved.
The next value can be entered.
 - This programming order can be continued up to step 13.
 - Press the “E” key.
The established values are mirrored for the second piece and saved to memory.
- or
- Press the “Y” + “P” keys.
The established values are saved only for the current piece and are **not** mirrored.

Note:

During teaching, one can go back one step at a time with the “Y” key.



5.3.2 Temporary Changes in a Step

Every function in a step can be changed as required. This change applies only for this program run. When the step is exited these changes are lost. Parameter changes can also be made.

- Press the key for the desired fullness value.
The new fullness value appears in the left display.
When the program is run again the original value is activated again.

5.3.3 Saving Changes in the Program

If the program is to be changed permanently, proceed as follows :

- Select the step to be altered.
- Hold down the “Y” key and tap the “P” key.
The controls change to the editing mode.
The decimal points in the step display blink.

	0.	0	0.	1.	r	1	7
--	----	---	----	----	---	---	---

Example

Enter a new fullness value.

- If desired, enter further parameters, such as e.g. supplementary thread tension.
- Hold down the “Y” key and tap the “P” key.
The complete program is saved.
The program continues with the altered step.

Or

- Press the “E” key.
The program is mirrored to the other sleeve side,

5.3.4 Deleting a Program

If an active program is to be deleted, this is possible with the following key entries :

- Hold down the “Y” key and tap the “P” and “E” keys.
- The keys must be held for 2 seconds, then the program number goes out. After the release of all keys, the controls branch to the program number entry.

–	–	–	P			.	.
---	---	---	---	--	--	---	---

The program number display blinks.
A new program number can be entered.

Note:

The deleting of a program is only possible in a program which is not running.



6. Sewing

Sewing cycle	Operation / Remarks
V Before the start of sewing	
Initial position	<ul style="list-style-type: none"> - Pedal in rest position. Sewing machine idle. Needle up. Sewing foot down.
Positioning the material at the seam beginning	<ul style="list-style-type: none"> - Step half back on the pedal. The sewing foot rises . - Position the material. - Release the pedal. The sewing foot lowers onto the material.
Beginning the seam	
Beginning bartack and continuing to sew	<ul style="list-style-type: none"> - Step forward on the pedal and hold down. The beginning bartack is sewn (if given). Then the machine continues to sew at the speed determined with the pedal.
At the middle of the seam	
Interrupting the sewing cycle	<ul style="list-style-type: none"> - Release the pedal (rest position). The machine stops. The sewing foot is down.
Continuing the sewing cycle	<ul style="list-style-type: none"> - Step forward on the pedal. The machine sews at the speed determined with the pedal.
Z Sewing an intermediate bartack	<ul style="list-style-type: none"> - Press the key [OH] and hold the pedal down. The machine sews in reverse as long as key [OH] is pressed. The speed is determined by the pedal.
Changing the fullness value	<ul style="list-style-type: none"> - Operate the fullness key or left pedal. The changed fullness value is activated.
At the seam end	
Remove the material	<ul style="list-style-type: none"> - Step completely back on the pedal and hold down. The end bartack is sewn (if given). The thread is trimmed. The machine stops in the 2nd position. The sewing foot is raised.



7. Maintenance

7.1 Cleaning and Checking



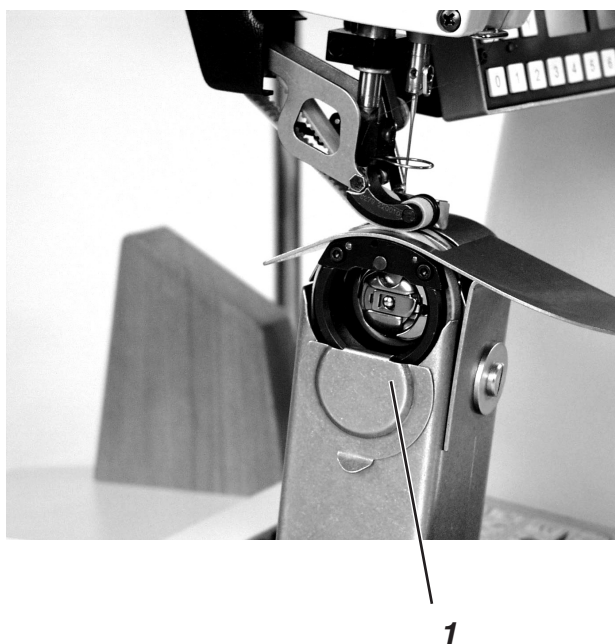
Caution Risk of Injury!

Turn the main switch off .
Conduct maintenance work only with the machine switched off.

The maintenance work must be carried out at least at the intervals specified in the tables (see the column "Service hours").

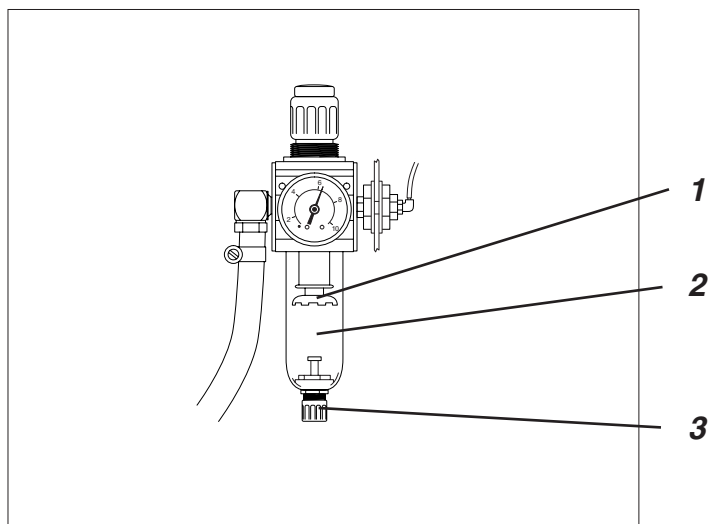
When working very linty materials, shorter maintenance intervals may result.

A clean machine protects against malfunctions.



1

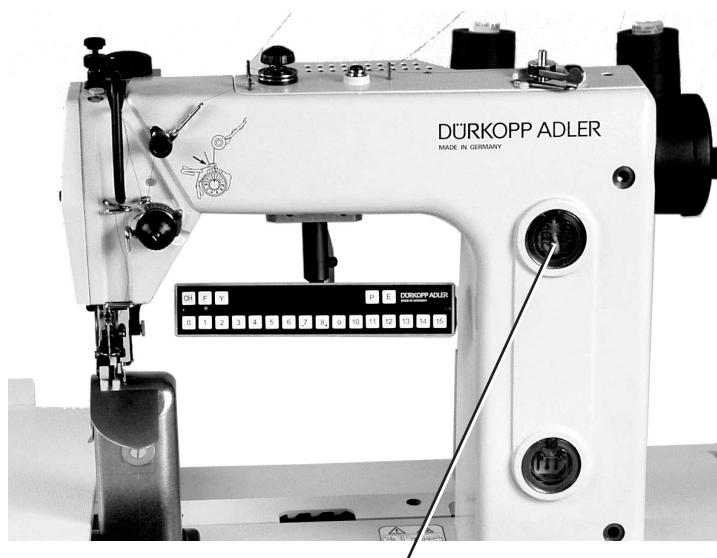
Maintenance work to be carried ou	Explanantion	Service hours
Machine head		8
- Remove sewing dust and thread ends. (e.g. with compressed-air gun)	Clean particularly: <ul style="list-style-type: none">- the bottom of the throat plate- transporter bars- the space around the hook 1- the bobbin case- thread trimmer- the space around the needle	



Maintenance work to be carried out	Explanation	Service hours
Pneumatic System		
- Check water level in the pressure regulator.	The water level should not reach the filter element 1. - After turning-in the draining screw 3 drain the water separator 2 under pressure.	40
- Clean the filter element.	The filter element 1 separates dirt and condensed water. - Disconnect the machine from the compressed air line. - Turn-in the draining screw 3. The pneumatic system of the machine must be pressure-free. - Unscrew the water separator 2. - Unscrew the filter element 1. Wash the dirty filter tray and the filter element with petroleum benzine (no solvent!) and blow clean by compressed air. - Re-assemble the conditioning unit.	500
- Check the tightness of the system.		500



7.2 Lubrication



1



Caution Risk of Injury !

Oil can cause skin rashes.
Avoid longer skin contact.
After contact wash yourself thoroughly.



ATTENTION !

The handling and disposal of mineral oils is subject to legal regulations.
Deliver used oil to an authorized reception point.
Protect your environment.
Take care not to spill any oil.

For lubrication of the special sewing machine, use exclusively the lubrication oil **ESSO-SP-NK 10** or an equivalent oil with the following specification:

- Viscosity at 40° C: 10 mm²/s
- Flash point: 150° C

ESSO SP-NK 10 can be obtained from the sales offices of **DÜRKOPP ADLER AG** under the following parts numbers:

2 liter container: 9047 000013

5 liter container: 9047 000014

Maintenance work to be carried out	Explanation	Service-hours
Lubrication of the machine head	<p>The lubrication of the machine head occurs via a central oil wick system. Except for the hook all bearings are lubricated via the oil reservoir 1.</p> <ul style="list-style-type: none">- The oil level should not drop below the mark “MIN”- Fill oil up to the “MAX” mark through the drilled hole in the viewing glass.	40