DÜRKOPP ADLER AG

739-23

Sewing Machine for Small Parts

Operating Instructions

Installation Instructions

Maintenance instructions

Programming Instructions

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1. Product description

1.1 Proper use

The Dürkopp-Adler **739-23** sewing machine has been specifically designed for the processing of lightweight and medium weight materials. Such materials generally consist of textile fibres and is used in the clothing industry. The sewing machine can within certain limitations also be used for technical seams. In this case, the operator must ensure, that such applications are not carried out on a regular basis and with a limited number of patterns and materials (please also contact the **Dürkopp Adler AG** service department, who will be delighted to assist you). Depending on the result, it might be necessary to take suitable safety measures.

Generally, only dry material should be processed with this machine. The thickness of the material may not exceed 3 mm when compressed by the lowered sewing foot. The material may not contain any hard objects. Otherwise, the operator must wear goggles. Suitable eye protection is currently not available.

The seam is generally produced by textile threads (65/2 Nm for synthetic fibres and 50/2 Nm for core spun. For other threads, the operator must previously assess the risk involved and take suitable precautionary measures.

The sewing machines may only be installed and operated in dry and well-maintained rooms. If the sewing machine must be used in other rooms,
additional measures might be necessary, that have to be agreed upon by the manufacturer (see EN 60204-31: 1999).

As a manufacturer of industrial sewing machines, we assume that our products are operated by personnel who are suitably trained, and we thus assume that the general operation of machines and the potential risks are known to the operating staff.

1.2 Summary description

1.2.1 Introduction

The **739-23** is a sewing machine specifically designed for the production of predefined seams, as found for example in flaps, cuffs, waistband extensions, etc.

The cut material is manually inserted into the material clamp, which is then placed in the guide of the sewing machine. Press the start key “S” at the key bar to start the sewing process.

The seam beginning and the seam end can be locked, and the threads are automatically cut off.

The data regarding the course of the seam and the contour are saved in a transponder located on the material clamp.

1.2.2 Sewing machine head

- Single-needle double lockstitch machine
- The seam beginning and end are locked by means of tacks (single tacks, double tacks) or stitch condensation.
- Thread cutter
- An electronic thread monitor ensures that the machine is not restarted in the event of a thread break or if the bobbin is empty.
- Edge cutter

1.2.3 Material transport

The material transport is driven by step motors. This drive system allows for short running times and ensures the exact positioning of the sewing and transport tracks, due to its high repeat accuracy. contributing thus to a high standard quality at high productivity.

The machine head is driven by D/C motor.

1.2.4 Dürkopp-Adler Control (DAC)

The **DAC** includes the extensive **MULTITEST** testing and monitoring system.
A microcomputer controls and monitors the entire sewing process and informs the operator on errors and disruptions by means of messages on the display of the operating panel.

1.3. Technical data

Machine head:	class 271
Needle system:	2134-85
Needle strength:	Nm 100
Stitch type:	single-needle double lockstitch
Number of stitches:	200 - 4000 r.p.m.
Stitch length:	2.0 to 4.0 mm
Stitch condensation:	0.5 to 2.25 mm
Edge cutter:	rotating, positioned around the needle centre
Cutting distance:	Depending on sewing system E1/4 for 4 mm E1/5 for 5 mm
Blade lift:	5.5 mm

Operating pressure:	6 bar
Air consumption:	0.05 NL per cycle
Nominal voltage:	190 - 240 V, 50/60 Hz
Dimensions:	
Table height:	820 - 1080 mm
Weight:	230 kg
Noise level :	Lc = 80 dB (A) Emissions per workplace according to DIN 45635-48-B-1 Stitch length: 2 [mm] Number of stitches: 2000[min-1] Sewing material: G1 DIN23328 2 -play

1.4 Auxiliary equipment

0739 597514	Sewing lamp
0797 003031	Pneumatic connection set
9859 073901	Programming software CD 739
9850 739007	Transponder loader
9800 810001 1	Centrifugal blower (3x 380 - 415V/ 50Hz)
9800 810001 2	Centrifugal blower (3x 220 -240V/ 50Hz)
9800 810001 2	Centrifugal blower (3x 220 -240V/ 60Hz)

2. Operation of the sewing machine head

2.1 Recommended threads

The following core spun threads cater for high quality seams and interruption-free processing:

Double polyester endless polyester spun (e.g. Epic Poly-Poly, Rasant x, Saba C, etc.)

double polyester endless cotton spun (e.g. Frikka, Koban, Rasant, etc.)

If these products are not available, use the cotton and polyester threads listed in the table.

Double core spun threads are in many cases offered by yarn manufacturers under the same trade name as triple polyester fibre threads (3-cylinder spun). This may lead to a certain confusion regarding twisting and thread thickness.

If in doubt, open the thread and check whether it is double or triple spun.
Number 120 on the label of a yarn reel of a core spun thread corresponds for example to thickness Nm 80/2 (see values shown in brackets in the table).

For monofile threads, needle thread and bobbin thread may be of the same thickness. The best results are achieved, if the threads are soft and elastic (software) and with a thickness of 139 Denier.

Recommended thread thickness

Needle strength Nm	Needle thread	Needle thread tension [g]	Position of thread regulator	Bobbin thread	Bobbin thread tensions [g]
100	cotton NeB 50/2 Poly-Poly Nm 65/2 (Prod. 100)	60 - 100 70 - 100	3,5	cotton NeB 50/2 Poly-Poly Nm 65/2 (Prod. 100)	30 - 40

2.2 Replacement of needle

Caution: risk of injury!

Switch off main switch.
Never replace needle while the main switch is on.

– Loosen screw 1 and remove needle from the needle bar 2.
– Insert new needle to the stop in the hole in the needle bar 2.

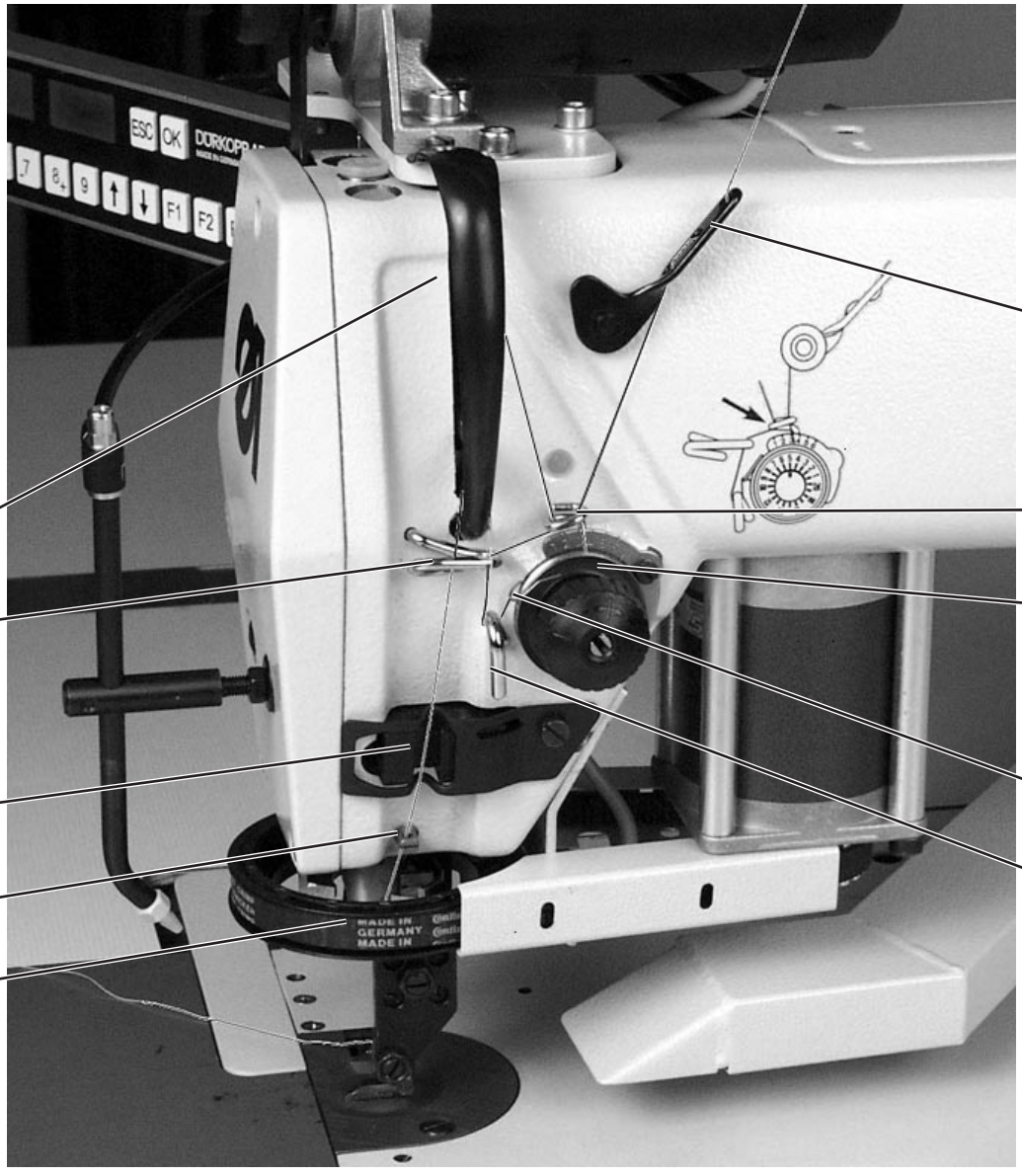
Caution!

The needle scarf must face away from the operator and towards the hook.

– Tighten screw 1.

1

12



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2.3 Inserting of needle thread

Caution: risk of injury!

Switch off main switch.
Never insert the needle thread while the main switch is on.

To insert the needle thread, please proceed as shown in the above figures and in sequence of the numbers.

- Place yarn reel onto the yarn stand.
- Insert thread from the reel through hole 1 of the reeling bracket.
- Insert thread through guide 2.
- Insert thread through thread regulator 3.
- Insert thread in clockwise direction into the thread tensioner 4, over the thread tensining spring 5 and below guide 6.
- Pull thread through guide 7 and thread regulator 3 upwards to the thread lever.
- Insert thread trough the hole in thread lever 8 and again through guide 7.
- Insert thread through the thread monitor 9 and guide 10.
- Insert thread through the belt wheel 11 to the needle.
- Insert thread in needle 12.

2.4 Needle thread monitor

The needle thread is monitored by means of switch 9.
If the thread is broken or the end of the thread is reached, the switch is not activated.

Caution: risk of injury!

Switch off main switch.
Do never insert the needle thread while the main switch is on.

- Insert needle thread.
- Switch on main switch.
- Start new sewing process

1

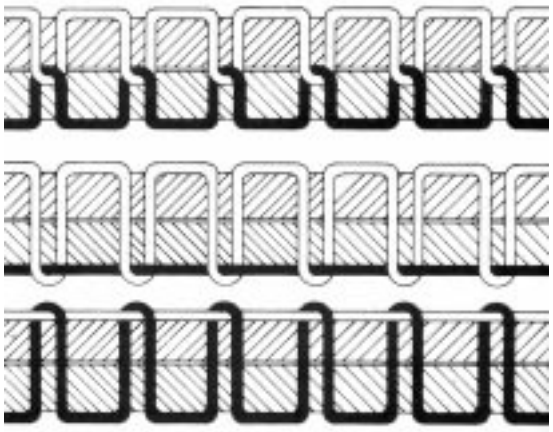


Fig. A: Correct thread run at the centre of the sewing material

Fig. B: Insufficient needle thread tension
or
excessive bobbin thread tension

Fig. C: Excessive needle thread tension
or
insufficient bobbin thread tension

2.5 Adjustment of needle thread tension

Main tension

The main tension 1 must be set to the lowest possible value.
The looping of the threads must be positioned at the centre of the sewing material.
In thin materials, excessive thread tensions can result in gathering or breaking threads.

The main tension 1 must be adjusted in such a way that a regular stitch pattern is achieved.

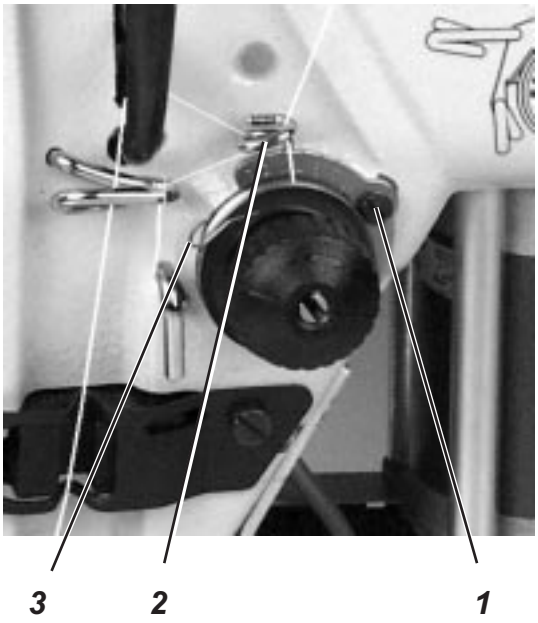
– To increase tension
  Turn knurled nut clockwise
– To reduce tension
  Turn knurled nut anticlockwise

2.6 Opening of needle thread tensioner

Automatic

Upon cutting of the thread, the needle thread is automatically lifted.

2.7 Adjustment of needle thread regulator



Caution: risk of injury!

Switch off main switch.
Never adjust thread regulator while the main switch is on.

The thread regulator 2 controls the length of thread that is necessary for a stitch.
Good seams can only be achieved, if the thread regulator is adjusted to the correct value.

The adjustment of the thread regulator is affected by the following factors:

- Stitch length
- Thickness of sewing material
- Properties of thread

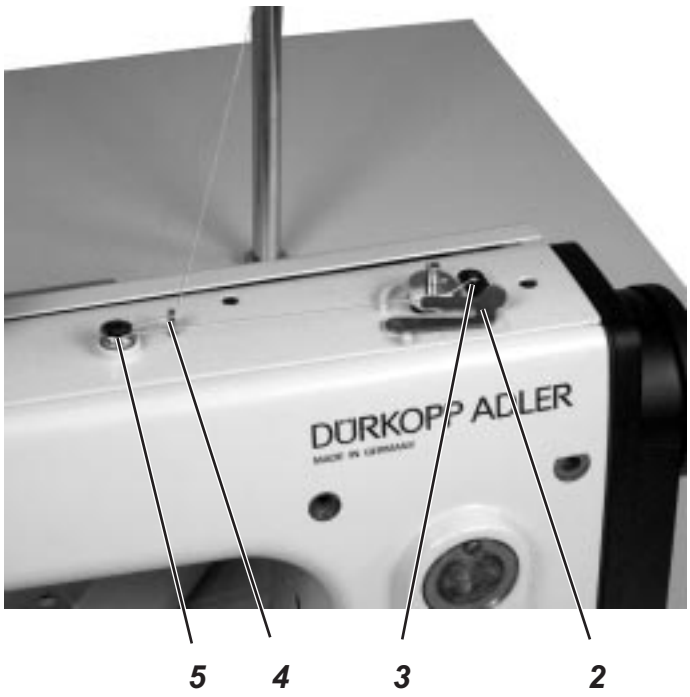
If adjusted correctly, the needle thread loops easily across the thickest section of the hook at minimum tension.

- Loosen screw 1.
- Adjust position of thread regulator 2.
- Tighten screw 1.

Hint:

If the regulator is correctly set, the thread tensionging spring 3 is moved by approx. 1 mm from its top end position. This is the case, if the needle thread loop passes the section of the hook with the largest diameter.

2.8 Winding of bobbin thread

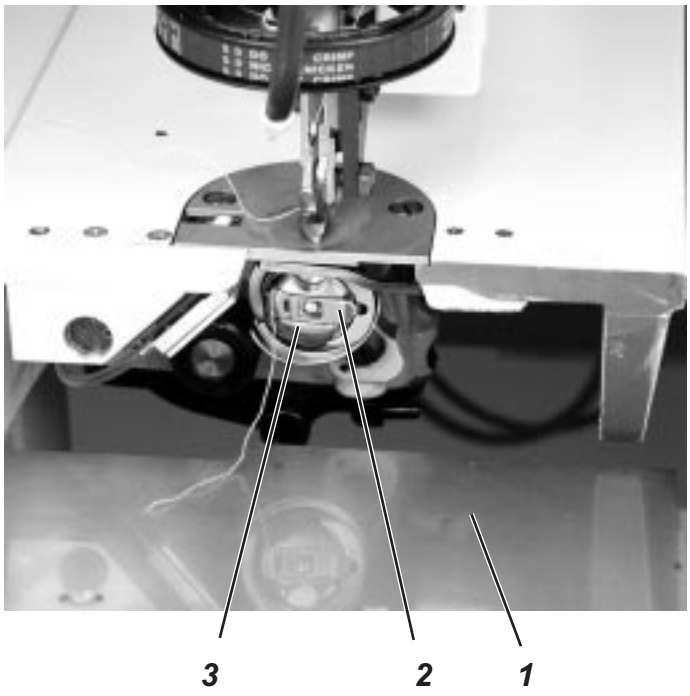


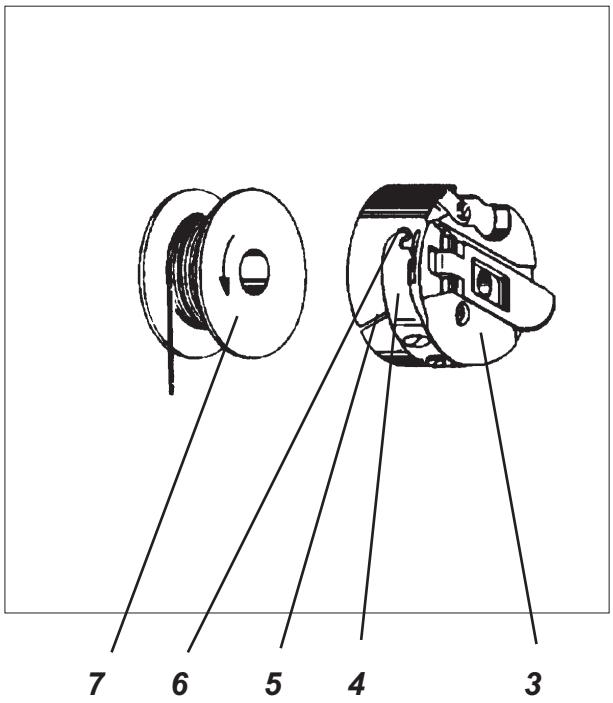
The bobbin thread is automatically wound up during the sewing operation, provided that winder flap 2 is closed.

- Remove all threads from the bobbin hub.
- Place yarn reel onto the yarn stand.
- Insert thread through hole 1.
- Insert thread through guide 4 and the bobbin thread tensioner 5.
- Wind thread in clockwise direction around the bobbin hub and cut off at hook 3.
- Close bobbin flap 2.
  The winder is automatically switched on and ready for operation.
- Start sewing operation.

As soon as the bobbin is full, the winder is automatically switched off. To adjust the number of windings on the bobbin, please refer to the service instructions.

2.9 Replacement of bobbin





Caution: risk of injury!

Switch off main switch.
Always switch off main switch before you replace the bobbin.

Removing bobbin

- Switch off main switch
- Press down cover plate 1.
- Lift bobbin case flap 2.
- Remove bobbin housing 3 together with bobbin.
- Take bobbin 7 from the bobbin housing body 3.

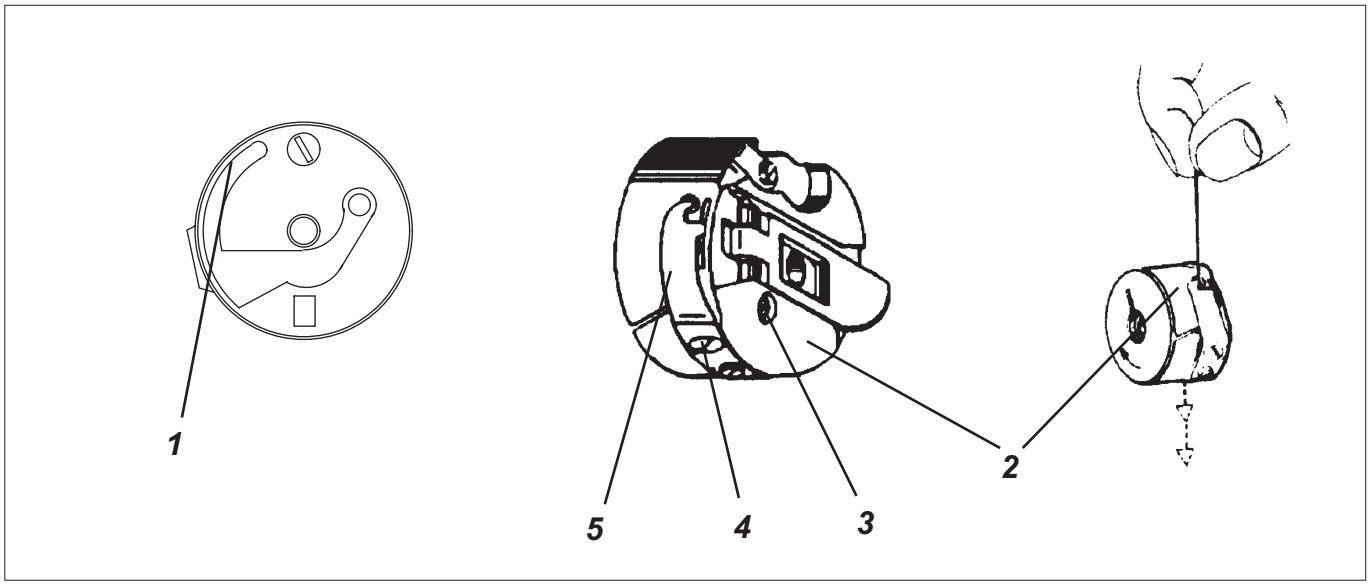
Inserting new bobbin

- Place new bobbin in the bobbin case body.
  Observe direction of rotation of the bobbin.
- Insert bobbin thread through slot 5 below the tension spring 4 to hole 6.
- Pull approx. 5 cm of bobbin thread from the bobbin housing 3.
  When pulling the thread, the bobbin must rotate in the direction of the arrow.
- Insert bobbin housing 3.
- Close bobbin case flap 2.

Caution: risk of breakage!

Insert bobbin housing by firmly pressing it into the recess and ensure that it is properly locked in.

2.10 Adjustment of bobbin thread tension



Caution: risk of injury!

Switch off main switch.
Never adjust bobbin thread tension while the main switch is on.

The required bobbin thread tension must be generated by means of tension spring 5.

The brake spring 1 must be fully reset.

Adjustment of tension spring

– With full bobbin, the bobbin case body 2 should slowly fall down due to its own weight (see figure to the right).
– Adjust tension spring 5 with regulating screw 4, until the required tension is established.

2.11 Inserting of needle and bobbin thread in thread scissors

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1

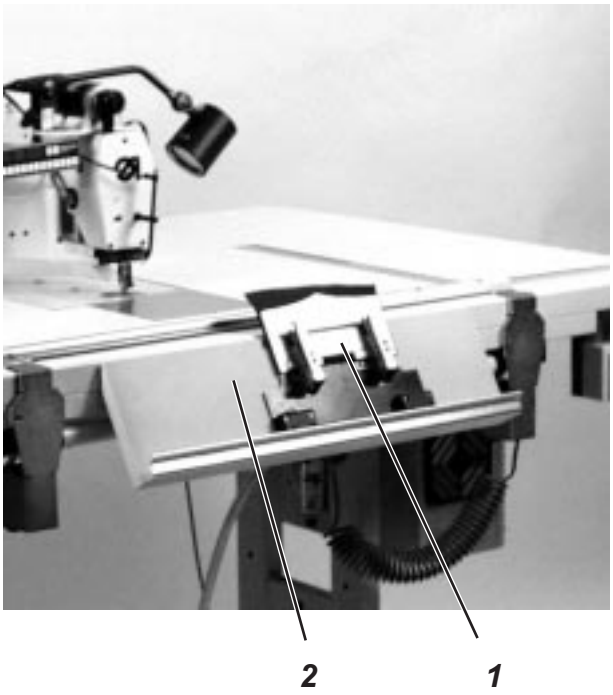
To ensure that the sewing machine is able to continue sewing after the replacement of a reel or bobbin, the needle and bobbin thread must be inserted into thread scissors 2.

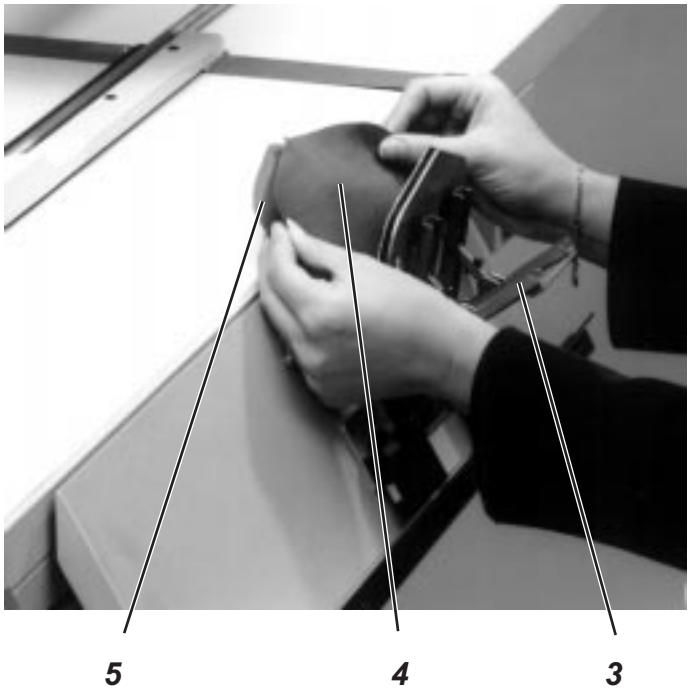
– Pull needle and bobbin threads to the left.

– Press key “1" at the operating panel.
The thread scissors 2 are lifted for a short moment.

– Pull needle and bobbin threads beneath the thread scissors.
Both threads are cut and held by the blades.

3. Inserting of material in material clamps





Example: Inserting of a pocket flap

- Place material clamp 1 onto holder 2.
- Open material clamp
- Place lining material 5 with the right side upwards into the material clamp.
- Place outside fabric 4 with the right side downwards into the material clamp.

Both pieces of material must touch the stop. At the edges, they must be aligned in such a manner that there is the same amount of excess material to the right as to the left.

- Press down lever 3.
  The material clamp is closed.

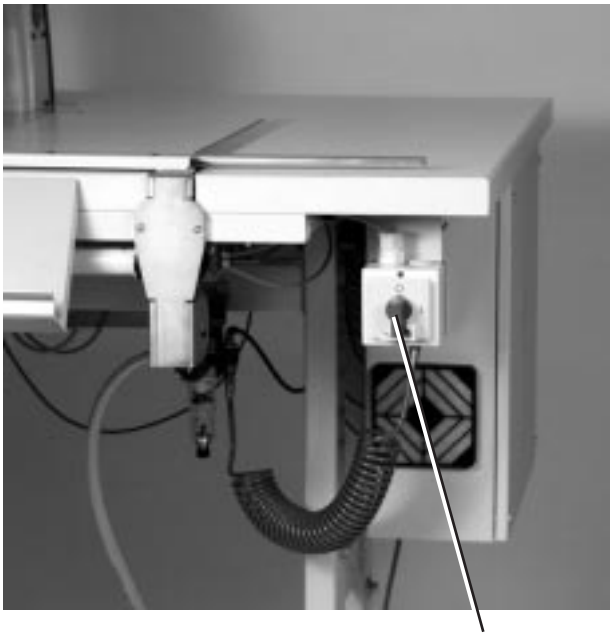
Clamping force of material clamps

Depending on the thickness of the material, it might occur that the material clamps cannot or can only barely be closed.

In this case, the clamping force must be adjusted (see maintenance instructions).

4. Switching on of sewing machine and infeed of material clamps

4.1 Switching on of sewing machine



1

– Switch on main switch 1.
  The control system is initialised.
  The start message is displayed.

7	3	9	2	3	A	0	0

Prior to working with the sewing machine, the sewing axes must be positined in the reference position.

CAUTION!

The reference run must be carried out by the operating staff.

CAUTION! Risk of breakage!

The material clamp may not be inserted during the reference run.

The following message indicates that a reference run is required.

r	E	F					

To remove a material clamp that is still inserted in the machine use the arrow keys “ ◀ “ and ” ▶ “ to manually move and remove it.

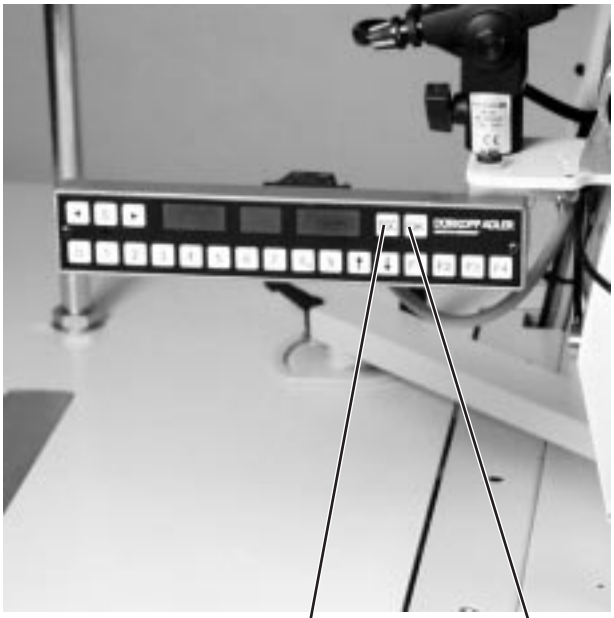
– Press “**OK**” key.
  The reference run is carried out.

After the reference run has been completed successfully, the display changes to:

r	E	F			0	0	0

After 0.5 seconds, the machine program changes to operating mode.

4.2 Infeed of material clamps



Caution: risk of breakage!
Do not insert material clamps that are not properly closed.

– Place mateial clamp on guide rod 1 and press until it is engaged in the toothed profile 2.

4.3 Starting of sewing operation

– Press key “**S**”.
The sewing operation is started. The material clamp is pulled in.
Insert additional material clamps for continuous processing.

4.4 Termination of sewing operation

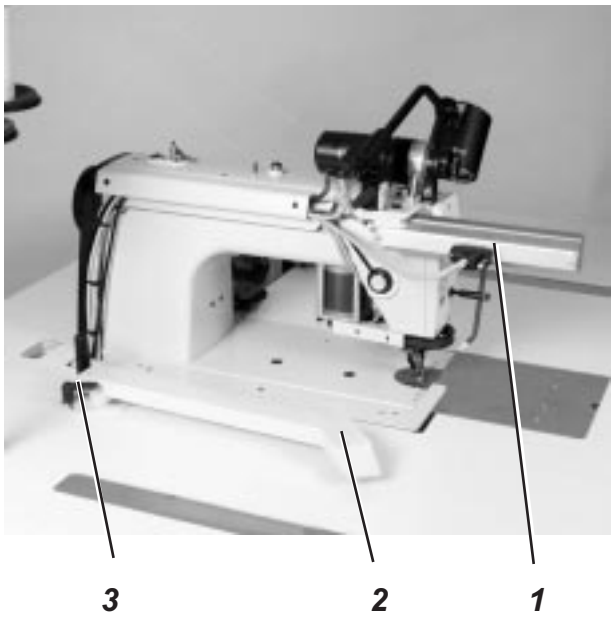
– Press key “**ESC**”.
The sewing operation is terminated.
– Press “**OK**” .
The display reads as follows, indicating that a reference run is required:

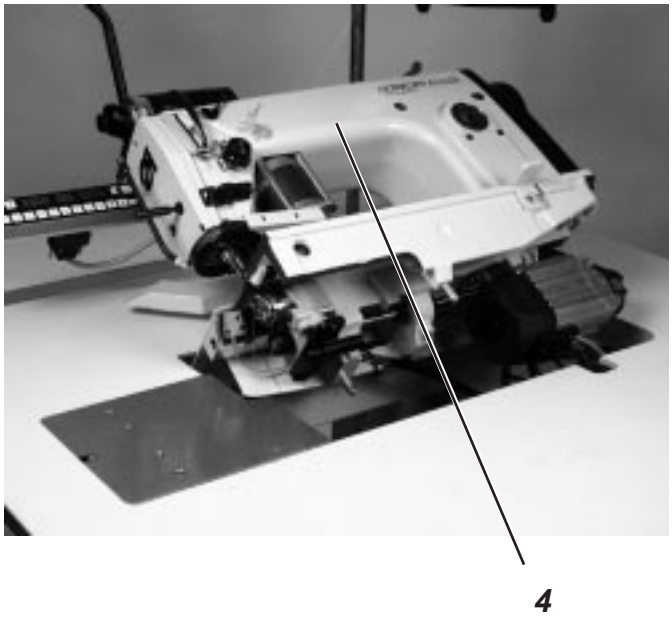
r	E	F			0	0	0

To remove material clamp that is still inserted in the machine use the arrow keys “ ◀ “ and ” ▶ “ to manually move and remove it.

5. Maintenance

5.1 Tilting of machine head





For maintenance work to be carried out below the base plate, the sewing machine head can be swiveled backwards and placed on the machine support.

Caution! Risk of injury!

Switch off main switch.

- Loosen clamping lever 3.
- Remove suction pipe 2.
- Swivel operating panel 1 forward.
- Tilt machine head 4 backwards.

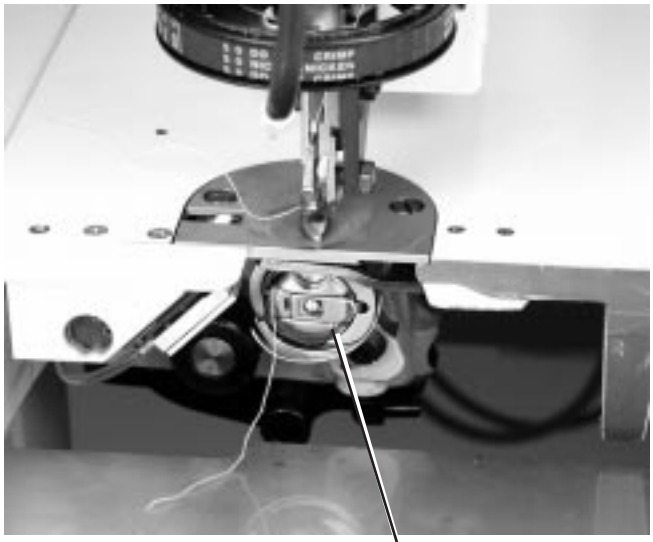
5.2 Cleaning and inspection

Caution! Risk of injury!

Switch off main switch. Never carry out maintenance work while the main switch is on.

The maintenance tasks must be carried out on a regular basis and at the intervals given in the schedules (see column “Operating hours”). If fluffy material is processed, it might be necessary to service the unit at shorter intervals.

Clean machines are less prone to disruptions!



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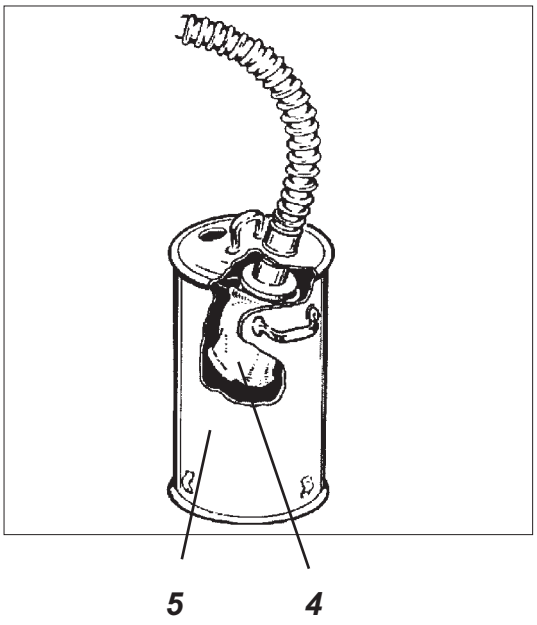
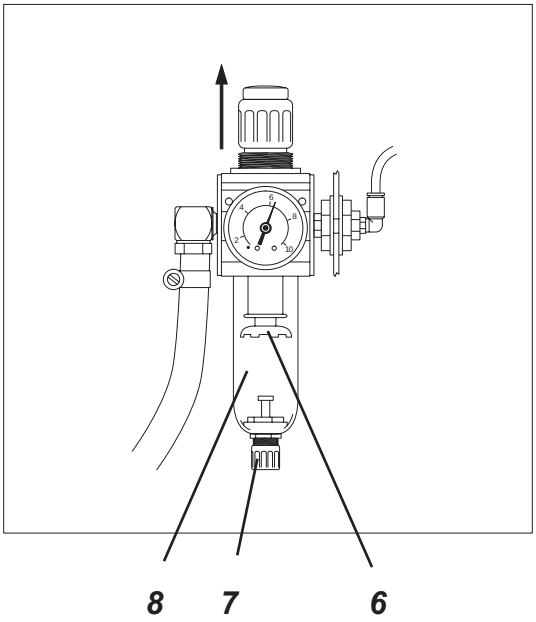
Maintenance tasks to be carried out	**Description**	**Operating hours**
Sewing machine head - Remove dust, pieces of thread and cut-offs (e.g. with pressure air gun)	Areas requiring special attention: - Area around the bobbin 1 - around the thread lever 2 - around the edge cutter 3	8
Control cabinet - Remove sewing dust (e.g. with pressure air gun)	Two blower filters 4 of the control cabinet	8





aintenance tasks to be carried out	Description	Operating hours
Waste container Extractor system	Empty waste container 5. Empty dust bag 4.	8
Pneumatic system		
- Inspect water level at pressure regulator.	The water level may not reach the filter cartridge 6. - Drain water (under pressure) from water separator 8 by turning the drain screw 7.	40
- Clean filter cartridge 6.	The filter cartridge 6 ensures that dirt and condensation water are removed. - Disconnect sewing machine from air pressure supply. - Secure drain screw 7. The pneumatic system of the sewing machine must be relieved from pressure. - Remove water separator 8. - Remove filter cartridge 6. Clean filter shell and cartridge with cleaning spirit (do not use solvents!) and blow dry.	500
- Inspect system for leakage	- Assemble water separator 6 and connect maintenance unit.	500

5.3 Lubrication

Caution! risk of injury!

Lubricants may cause irritation to skin.Therefore avoid all contact with skin. If skin is contaminated, clean thoroughly with plenty of water.

CAUTION!

The handling and disposal of mineral oils is regulated by law. Oil must be disposed of through authorised dealers. Protect the environment and never spill any oil .

To refill the oil tank, use only ESSO SP-NK 10 lubricant or a similar product of the following specification:

Viscosity at 40° C: 10 mm2/s

Ignition point 150° C

ESSO SP-NK 10 is available from all DÜRKOPP-ADLER AG agencies and has the following parts numbers:

2 litre container: 9047 000013

5 litre container: 9047 000014

Maintenance tasks to be carried out	Description	Operating-hours
Sewing machine head	The sewing machine head is equipped with a central oil wick. All bearings are lubricated from oil tank 1. - The oil level in the oil tank 1 may never fall below the "**MIN**" mark. - Refill tank through the opening in the window until the oil level reaches the "**MAX**" mark.	8
Edge cutter	Lubricate the bearings of the edge cutter 2 with one drope of il	8