

Foreword and general safety instructions

Part 1: Operation manual classe 171 • 173

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The following patents and registered designs apply:

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DE 86 20 593

JP Sho-62-108358

TW 40 985



1. Product specifications

1.1 Short description and use for the intended purpose

The 171 and 173 are double chainstitch (stitch type 401) sewing machines in single or twin needle version.

The loopers are across the line of sewing (Crossline).

Class 171 with drop oscillation feed.

Class 173 with drop oscillation feed and intermittent top puller feed.

The feeding lengths of feed dog and puller are independently adjustable at separate dials. When changing over to stitch condensing, the feeding length of the puller is automatically reduced accordingly.

In accordance with the intended purpose, the machines must only be used for sewing materials made of textile fibres and leather.

1.2 Technical data

Feeding length of the top puller feed: max. 7 mm

Standard puller width: 9 mm

Subclasses	Stitch length	Speed at work/ max.	Needle stroke	Stitch condensation	Foot lifting	Thread cutter	N e e d l e s s y s t e m :
171-131110	1-4 mm	6600 / 7000	27 mm				
173-141110	1-4 mm	5800 / 6000	30 mm				
173-141521	1-4 mm	5800 / 6000	30 mm	•	•	•	

934 SIN or 933 depending on the sewing equipment (E-Nr.)

Maximum clearance under the sewing foot:

When lifting:

5 mm with the needle 934 SIN

10 mm with the needle 933

When sewing:

4 mm

Operating pressure:

6+/-0.5 bar

Air consumption: On the -161120

0.05 NL per work cycle

On the -141521

0.1 NL per work cycle

1.3 Optional equipment

Order numbers

1713502 Set of parts for converting a single needle- into a twin needle double chainstitch sewing machine. Max. needle distance 14 mm depending on the E-Nr. Not for subclass 173-141521.

933 5736 Steel puller 1 mm toothed, 9-mm-wide

933 5737 Steel puller 1 mm toothed, 15-mm-wide

933 5738a Steel puller 2 mm saw-toothed, 15-mm-wide


The steel pullers must not touch, the distance to the throat plate must be 0.5 mm.

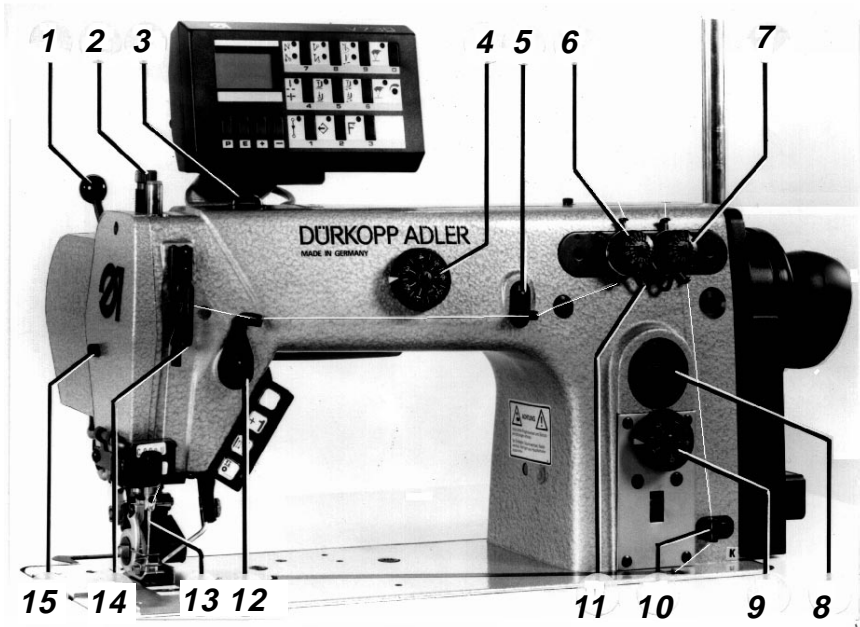
For the adjustment see the service manual. 16-mm-wide asymmetric Vulcollan puller and a hook knife are contained in the accessories. The position of the puller with respect to the seam or fabric fold may be varied depending on how it is mounted.



2. Machine elements and their functions

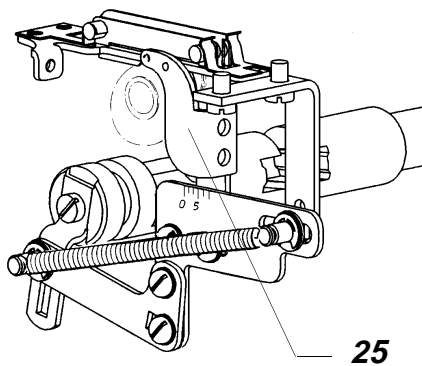
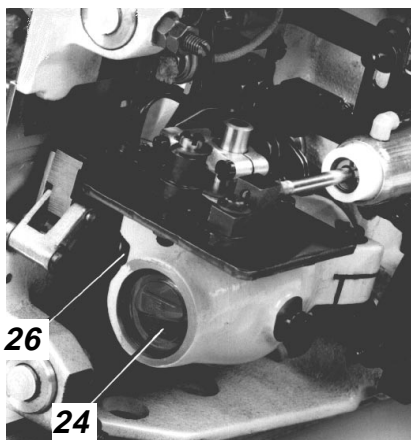
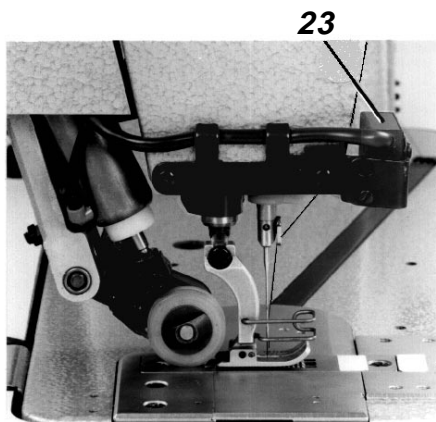
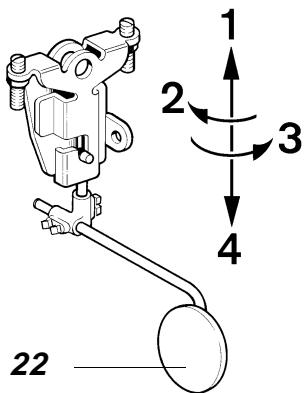
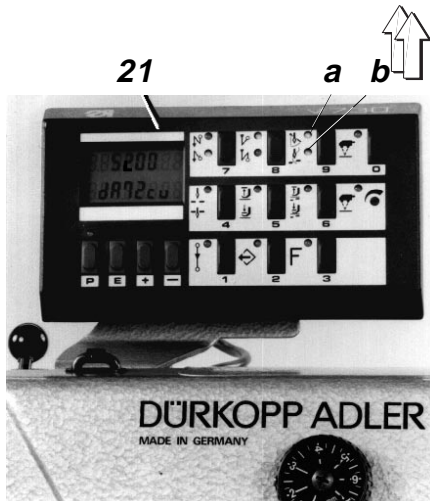
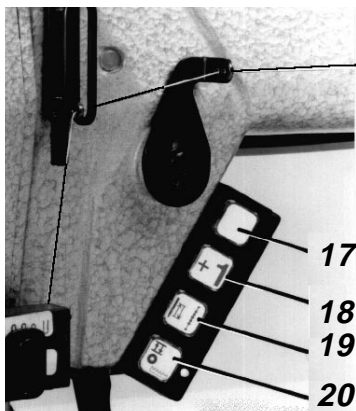
2.1 Elements at the machine head

Element	Function
Hand lever 1	– Swinging up the puller. It is swung out of the working area.- Sewing with bottom feed only.
Screw 2	– Regulating the sewing foot pressure depending on the material.
Oil check tube 3	– Monitoring the oil circulation for the lubrication of the front arm shaft bearing. The oil flow must not be interrupted while the machine is running. If necessary, check the oil level in the reservoir 8 or top up with oil. Only ESSO SP-NK 10 or an oil of the same quality must be used.
Dial 4	– Feeding length for the top feed puller.
Needle thread puller 5 (Only subclass -141521)	– Initial thread for the stitch formation at the seam beginning after the threads are trimmed.
Needle thread tension 6	– One revolution of the turning button with numerals covers the entire tension range. Thus, the tension values can be easily reproduced.
Looper thread tension 7	– Same as 6, but with a weaker tension spring.
Oil reservoir 8 with inlet opening	– The oil level must not drop below "MIN". If necessary, top up with ESSO SP-NK 10 oil to "Max".
Dial 9	– Setting the stitch length for the bottom feed.
Looper thread puller 10 (Only subclass -141521)	– Initial thread for the stitch formation at the seam beginning after the threads are trimmed.
Release lever 11 for the thread tensions	– Pulling out the threads by hand, eg when threading
Thread guide 12	– Basic adjustment centre of the elongated hole.
Needle 13	– System 934 SIN or 933.- Needle sizes Nm 80-130 depending on the sewing equipment (E-Nr.).
	<div style="border: 1px solid black; padding: 5px;"> To exchange the needle, always turn off the main switch! - Danger of injury!</div>
Thread regulator 14	– For secure stitch formation in the case of elastic threads, such as eg synthetic spun threads and monofilament threads. For the adjustment see section 3.4.
Locking button 15	– Locking the foot in its lifted position.






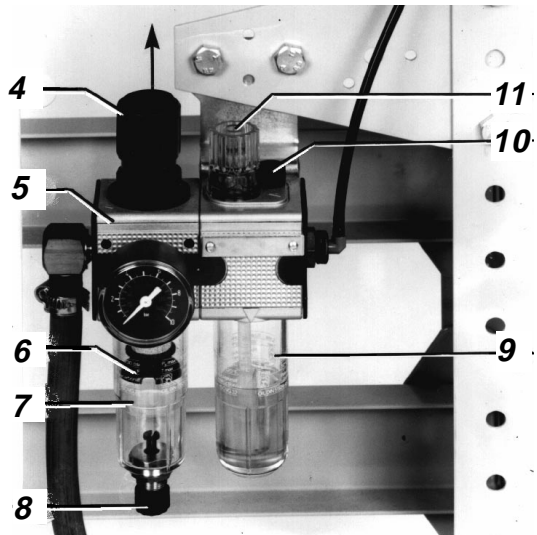
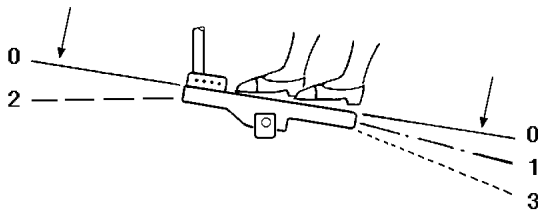
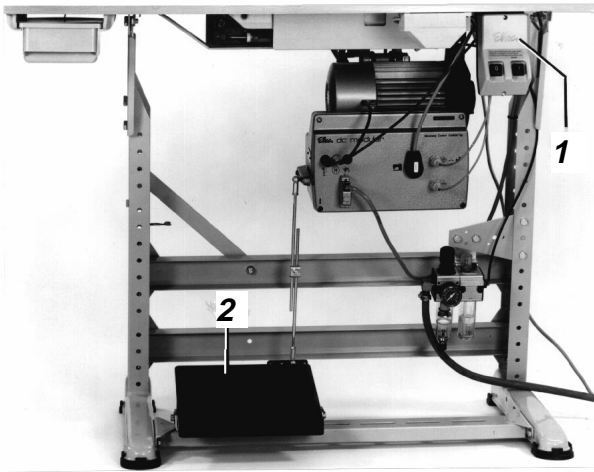
Element	Function
Key 17	– Undefined
Key 18	– Single stitches
Key 19	– Needle up or down at machine standstill. During sewing condensed stitches may be sewn anywhere within the seam.
Key 20	– Raising or lowering the puller.
Control panel 21 (Only subclasses -141521 and -161120)	– See instructions of the motor manufacturer. Note: To enable thread trimming on the subclass -141521, not only the key "thread trimming", but also the key "thread wiping" at the control panel must be always switched on. Diodes a and b must be luminous.
Knee lever 22	– Prior to tilting the machine head backwards, TURN OFF the main switch and remove the knee lever. To unhook, make the motions 1 and 2 and to hook up, make the motions 3 and 4.
Infrared reflecting light barrier 23	– To sense the fabric edge and thus, the correct position of the condensed stitches at the seam end.
Looper drive housing 24	– With the machine head tilted backwards the oil level must not drop below the lower long mark. If necessary, turn out the screw 26 and top up with oil ESSO SP-NK 10. The oil must just be filled up to the upper mark.
Looper thread take-up 25	– It automatically adjusts the amount of looper thread to the set stitch length. For adjustments for tight, regular or highly elastic seams see section 3.5.





2.2 Elements at the stand

Element	Function
Main switch 1	<ul style="list-style-type: none">– Turning on and off the machine. <div data-bbox="374 307 973 459" style="border: 1px solid black; padding: 10px;"><p>Always turn off the main switch prior to threading, changing the sewing tools (such as eg needle, sewing foot, throat plate, slide plate etc.), cleaning, when leaving the workplace as well as for maintenance work.</p></div> <p>See also General Safety Instructions.</p>
Pedal 2	<ul style="list-style-type: none">– 0 Idle position - No function.1 Sewing foot lift at machine standstill2 Sewing up to the maximum speed by pressing down the pedal accordingly.3 Stitch condensing - thread trimming* - sewing foot lift. <p>* Not on subclass -161120</p>
Maintenance unit Air filter with water separator 7	<ul style="list-style-type: none">– Before the water level reaches the air filter 6, screw in the screw 8 and blow off the water under pressure.
Pressure regulator 4	<ul style="list-style-type: none">– To set the air pressure of 6 bar, pull up the knob 4 and turn it. <p>Turning to the right = Pressure increase Turning to the left = Pressure decrease</p>
Mist lubricator 9	<ul style="list-style-type: none">– Adjust approx. 1 drop of oil for 10 work cycles using the regulating screw 11. <p>To top up with oil, vent the pneumatic system. To do this, turn the knob 4 to the left. Turn out the screw 10 and fill with ESSO SP-NK 10 oil up to the groove on the oil reservoir 9.</p>





3. Operating

3.1 Threading the needle thread



Turn off main switch.
-Danger of injury! -

For threading the needle thread proceed as shown in the figures opposite.

3.2 Threading the looper thread



Turn off main switch.
-Danger of injury! -

For threading the looper thread also proceed as shown in the figures opposite. To do this, lift the thread downholder 3 out of its locked position.

3.3 Setting the thread tensions

The needle thread tension must be tighter than that of the looper thread. The looper thread tension 2 is, therefore, equipped with a spring made of thinner wire.

Too tight thread tensions cause compression of the material. A too loose thread tension may lead to skipped stitches.

For a larger amount of looper thread pulled into the seam see section 3.5.

3.4 Needle thread amount for secure stitch formation

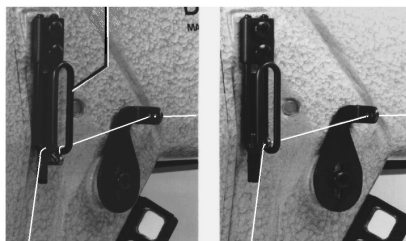
In the case of elastic sewing threads, eg synthetic spun threads or monofilament threads, a certain amount of needle thread must be pulled to assure a secure stitch formation.

This takes place when the take-up lever is in its bottom position in conjunction with the height adjustment of the thread regulator 1.

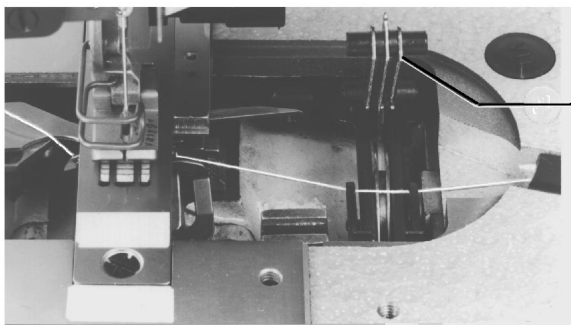
With the take-up lever in bottom position adjust the thread regulator as follows: In the case of elastic needle threads the thread eyelet in the take-up lever should be visible below the thread regulator. Pass the needle thread on the left of the bracket. See fig. a.

With unelastic threads, such as eg cotton, the thread eyelet should be visible above the thread regulator. Pass the thread on the right of the bracket. See fig. b.

1

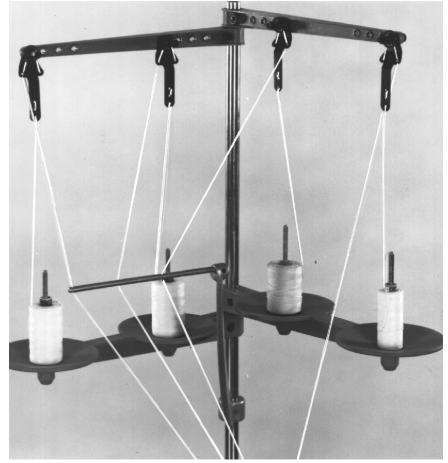
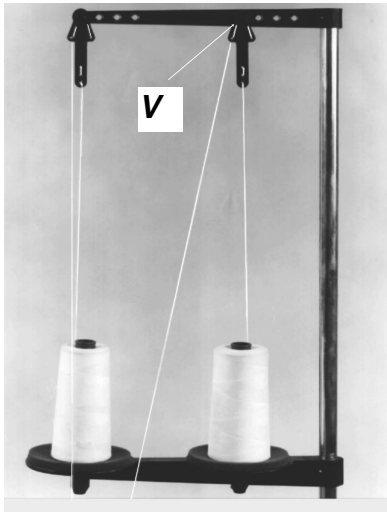


a Abb. / Fig. b



3





Single needle machines

Twin needle machines

Threading through the pre-tensions V only on machines with thread trimmer.





3.5 Adjusting the looper thread take-up

The looper thread take-up 1 automatically adjusts the looper thread amount to the set stitch length.

This means: Always optimum stitch formation and stitch tightening with every stitch length, and also with condensed stitches. No seam grinning and seam puckering.

The pulled amount of looper thread can be changed by adjusting the looper

thread take-up cam.

Without change of the thread tensions

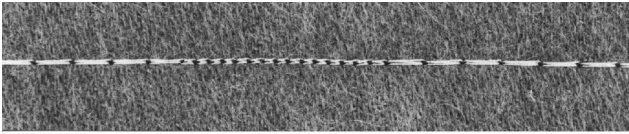
a) tight, b) regular, c) highly elastic seams (balloon stitch) are yielded.

After loosening the screws 2 and adjusting the looper thread take-up 1, regulate as follows:

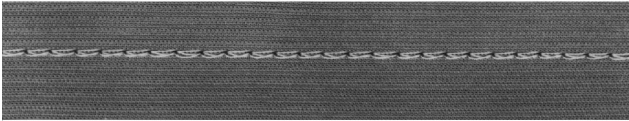
In direction 0 = tighter seam

In direction 5 = more elastic seam

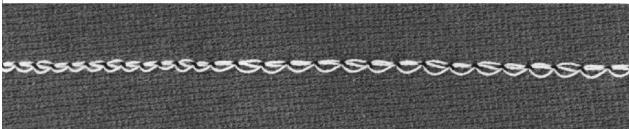
a)



b)

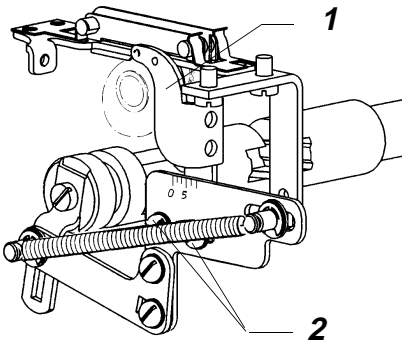


c)



Important information!

- 1) In the case of an extreme setting, eg a stitch length that is as short as possible and a maximum amount of thread (elastic seam), be sure that the needle does not enter the thread triangle safely. Excessive looper thread may result in skipped stitches.
- 2) If the stitch length is substantially increased with the adjustment values described under 1), eg to 4 mm, the thread guide must be set back toward 0. Otherwise, the looper thread might drop off the looper thread take-up cam. During the backward motion of the looper, the looper thread would not be pulled back by the looper thread take-up cam, as is required.
- 3) If the stitch length is changed on the 171-131110 which has no coulisse shaft, the take-up lever must be readjusted manually.





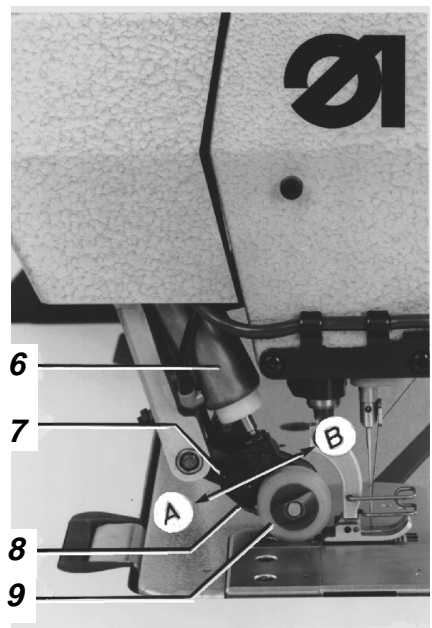
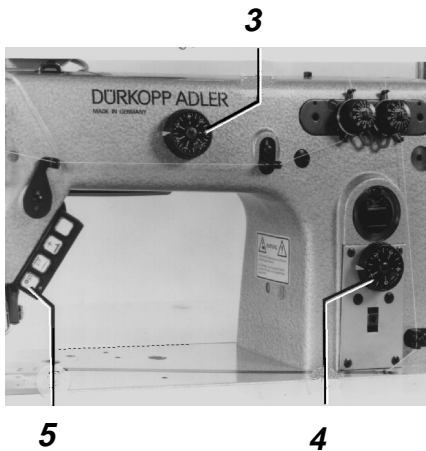
3.6 Setting the feeding length

- a) Bottom feed
The feed dog feeding length is adjusted at dial 4.
- b) Top puller feed
The feeding length of the puller 9 is adjustable independent of the bottom feed at dial 3 and can thus be adapted to the feeding characteristics of the material.
When sewing with stitch condensing at the seam beginning and seam end, the puller feeding length automatically adjusts to the feeding length of the bottom feed.

Please note:

- The puller can be swung out of the sewing area using the hand lever, eg for sewing with the bottom feed only.
- To raise the puller when sewing radii or corners, operate the lower key 5 at the sewing head.
- The fabric keep-off plate 8 serves simultaneously as trimming knife for the thread chain. (Only on machines without thread trimmer.)
- The puller pressure is adjustable to the material. Loosen the screw 7 and adjust the cylinder 6:

In direction A = higher pressure
In direction B = lower pressure.





4. Maintenance

4.1 Cleaning



Turn off main switch.
-Danger of injury! -

A machine kept clean is a safeguard against malfunctions!
Therefore, specifically clean the area under the throat plate, removing the sewing dust once daily.
It is advisable to do this with an air pistol.
(If exists, remove the knee lever.)
After a certain period of time, the accumulated sewing dust must be removed from the feed dog rows. To do this, remove the throat plate.
When the machine is equipped with a compressed air maintenance unit, the oil level is to be checked daily.
Before the water level reaches the filter insert 3, the water must be blown off the water separator 2. To do this, the maintenance unit must be under pressure and the screw 1 must be turned in (left hand thread).
For checking the oil level see 4.2.

4.2 Lubricating

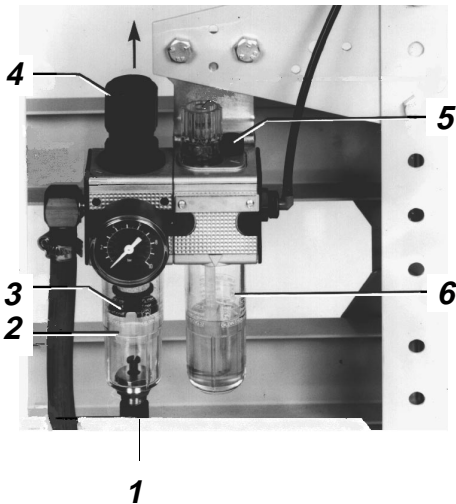


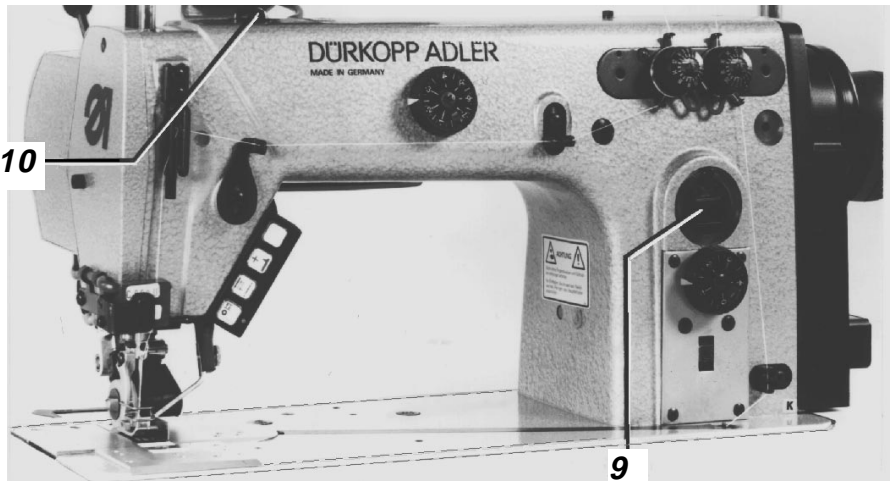
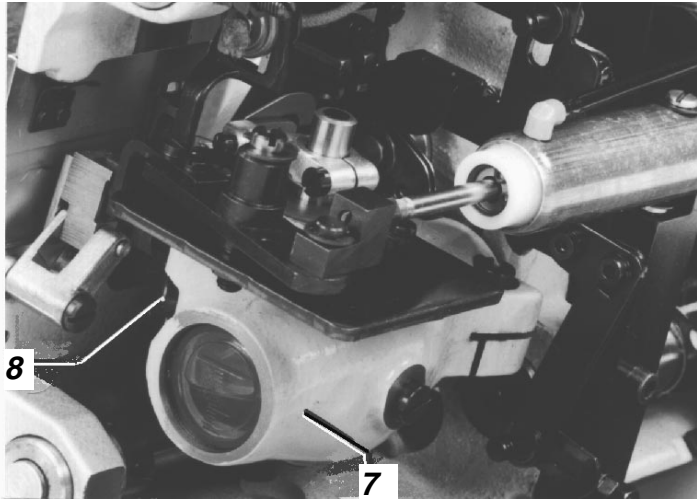
Turn off main switch.
-Danger of injury! -

For the lubrication of this machine only use ESSO SP-NK 10 oil or an oil of the same quality.

The following lubricating points need to be supplied with oil:

- Check the oil level in the looper drive housing 7 and, if necessary refill with oil.
To do this, turn out the screw 8. With the machine tilted backwards, the oil level must not drop below the lower long mark of the sight glass. Oil must only be refilled up to the upper mark.
- With upright machine, refill oil into the oil reservoir 9 up to the mark "Max.". The oil level must not drop below the mark "Min.". Except for the looper drive, all bearing points of the machine are supplied by a central oil wick lubrication out of reservoir 9.
- The oil check tube 10 for monitoring the oil flow to the arm shaft front bearing is located on the machine arm. The oil flow must not be interrupted while the machine is running. Should the oil flow be interrupted in spite of a filled reservoir, immediately call a service technician.
- If necessary, refill oil into the oil reservoir 6 of the maintenance unit up to the groove. To do this, completely turn off the compressed air by turning the knob 4 to the left, and then turn out the screw 5.







5. Information on sewing with monofilament threads

When using monofilament threads, needle threads and looper threads may have the same size.

The best results can be obtained with soft and elastic threads.

We recommend the following thread sizes: Label-No. 180.

With a needle size of Nm 80 the stitches per minute must be reduced to 4000.

In the case of needle sizes from Nm 90 the max. stitches per minute may be 7000.

The following is required to assure reliable sewing:

- The thread containers or thread cones must incorporate a silicone impregnated applicator (felt piece) at the thread draw off point.
- The needle cooler, order no. 933 671, is required.
- The edges 1 of the down-holder for the looper thread must be rounded off as shown in the figure.
- Please observe the information on reliable stitch formation in section 3.4.

