

171 • 173

Spezialnähmaschine

Betriebsanleitung

D

Instruction manual

GB

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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, disconnect the machine from the compressed air supply system (max. 7-10 bar). Before disconnecting, reduce the pressure of the maintenance unit. 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.
13. The line cord should be equipped with a country-specific mains plug. This work must be carried out by appropriately trained technicians (see paragraph 8).



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

Danger of bodily injuries !

Please note also the general safety instructions.



Preface and general safety hints

Part 1: Operating instructions class 171 • 173

(Edition 05/2008)

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1. Product description

The **DÜRKOPP ADLER classes 171** and **173** are single needle or twin needle flat bed double-chainstitch crossline sewing machines with bottom feed for line seams according to stitch type 401.

- Class 171 with skipping bottom feed.
- Class 173 with skipping bottom feed and intermittent top puller feed.
- The hooks are arranged cross-line to the sewing direction.
- Max. sewing speed 7000 stitches/min according to the subclass.
- The feed lengths of feed-dog and puller are differentially adjustable by separate setting wheels. When switching over to condensed stitches the feed length of the puller is automatically shortened correspondingly.
- The looper thread quantity is automatically adapted to the stitch length, i.e. always optimum stitch formation.

2. Designated use

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Class **171 • 173** is a sewing machine head determined for processing light to medium-weight material, i.e. fabrics made of textile fibers or leather. Such sewing materials are used in the clothing industry and for the production of home upholstery.

Furthermore, this sewing machine head can also sew so-called technical seams. However, in this case the user has to estimate the possible risks (preferably in cooperation with **DÜRKOPP ADLER AG**) because on the one hand such fields of application are comparatively rare and on the other hand there is an immense variety of application possibilities. According to the result of this estimation suitable safety measures may have to be taken.

Generally only dry fabrics must be processed on this sewing machine head. The material must not be thicker than 4 mm when compressed by the lowered sewing feet. It must not include any hard objects because otherwise the sewing machine head would be allowed to be operated with an additional eye protection only. Such an eye protection cannot be delivered at present.

In general the seam is produced with sewing threads made of textile fibers up to 70/3 Nm (core thread). If other threads are to be used, it is indispensable also in this case to consider the possible risks and to take corresponding safety measures, if necessary.

The sewing machine must only be installed and operated in dry and well-kept rooms. In case it is operated in other rooms which are not dry and well-kept further measures can become necessary which have to be agreed upon (see EN 60204-31: 1999).

We as manufacturers of industrial sewing machines take it for granted that at least semi-skilled operators are working with our products so that we can assume that all usual operations and their risks are known to them.

3. Subclasses

171-131110	Single needle double-chainstitch machine with bottom feed. Forward sewing only.
171-141621	Single needle double-chainstitch machine with bottom feed, with condensed stitches (electropneumatic), sewing foot lift and thread trimmer for needle thread and looper thread underneath the throat plate. Standard equipment: drive motor fitted to the sewing machine as well as the corresponding motor control.
173-141110	Single needle double-chainstitch machine with bottom feed and intermittent top puller feed. Forward sewing only.
173-141621	Single needle double-chainstitch machine with bottom feed and intermittent top puller feed. With condensed stitches (electropneumatic), sewing foot lift and thread trimmer for needle and looper thread underneath the throat plate. Standard equipment: drive motor fitted to the sewing machine as well as the corresponding motor control.

4. Optional equipment

For the classes **171 • 173** the following optional equipment is available:

Order number	Optional equipment	Subclasses			
		171-131110	171-141621	173-141110	173-141621
0171 003502	Twin needle mounting kit for converting a single needle- into a twin needle double-chainstitch sewing machine		x		x
N900 012015	Edge guide, right, can be swivelled aside, fastened on base plate (0 - 14 mm)	x	x	x	x
N900 011035	Edge guide, right, can be swivelled aside, fastened on base plate (0 - 20 mm)	x	x	x	x
N900 020031	Edge guide, right, can be swivelled upwards, fastened to the presser bar bushing (0 - 50 mm)	x	x	x	x
N900 023421	Edge guide, right, can be swivelled upwards, fastened to the presser bar bushing (0 - 40 mm) - cannot be used for E 1	x	x	x	x
N900 023550	Edge guide, right, can be swivelled upwards, fastened to the presser bar bushing (0 - 40 mm)			x	x
N900 002631	Special guide for topstitching of trousers side seams Adjustable for guiding the right and left seam tuck-in. Only in conjunction with 0173 E00008 and N900 060035		x	x	
N900 060034	Edge guide, right and left, can be swivelled upwards, fastened to the presser bar bushing (0 - 40 mm)	x	x	x	x
N900 060035	Edge guide for precise guiding of trousers side seams, can be swivelled to the right and left of the needle and fastened to the presser bar bushing. For alternate guiding of right and left seams, only in conjunction with 0173 E00008 and N900 002631 (right and left 0 - 40 mm)		x	x	
0271 590024	Infrared reflected light barrier with adjustable suspension on the left in front of the needle. For automatic control of sewing length, condensed stitches and thread trimmer at the fabric end	x		x	
Z115 001081	Pneumatic sewing foot lift with pneumatic valve in the motor rods	x		x	

x = Optional equipment

o = Standard equipment

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Order number	Optional equipment	Subclasses			
		171-131110	171-141621	173-141110	173-141621
0797 003031	Pneumatic connection package	x	x	x	x
9780 000108	Maintenance unit	x	x	x	x
9800 330009	Control panel V810 Efka		x		x
9800 330010	Control panel V820 Efka		x		x
9830 515064	Angle for fastening the control panel to the sewing machine for Efka V810 and V820	x		x	
9822 510001	Sewing lamp (halogen)	x	x	x	x
0271 590044	LED sewing lamp	x	x	x	x
0798 500088	Sewing light transformer	x	x	x	x
0APP 001041	Sewing lamp mounting kit	x	x	x	x
0933 005736	Steel puller 1 mm pyramid-tooth cut, 9 mm wide		x	x	
0933 005737	Steel puller 1 mm pyramid-tooth cut, 15 mm wide		x	x	
0933 005738 A	Steel puller 2 mm pyramid-tooth cut, 15 mm wide		x	x	

x = Optional equipment
o = Standard equipment

Order number	Optional equipment	Subclasses			
		171-131110	171-141621	173-141110	173-141621
Stand sets					
MG53 400054	Stand set MG 53-3 Table top 1060 x 500 mm, with one pedal	x		x	
MG53 400055	Stand set MG 53-3 Table top 1060 x 500 mm, with one pedal and rollers	x		x	
MG53 400074	Stand set MG 53-3 Table top 1250 x 900/700 mm, with one pedal	x		x	
MG53 400075	Stand set MG 53-3 Table top 1250 x 900/700 mm, with one pedal and rollers	x		x	
MG53 400624	Stand set MG 53-3 Table top 1060 x 500 mm, with one pedal		x		x
MG53 400644	Stand set MG 53-3 Table top 1250 x 900/700 mm, with one pedal		x		x
MG53 400664	Stand set MG 53-3 Table top 1060 x 500 mm, with one pedal and rollers		x		x
MG53 400684	Stand set MG 53-3 Table top 1250 x 900/700 mm, with one pedal and rollers		x		x

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x = Optional equipment
o = Standard equipment

Please contact our Application Center (APC) for further optional equipment.
E-Mail: marketing@duerkopp-adler.com

Further documentation of class 171 available:

0791 171801	Spare parts list
0791 171641	Service instructions
0791 100700	Fitting Instructions for Sewing Lamp LED

5. Technical data

Noise: Emission value per work place according to DIN 45635-48-A-1-KL-2

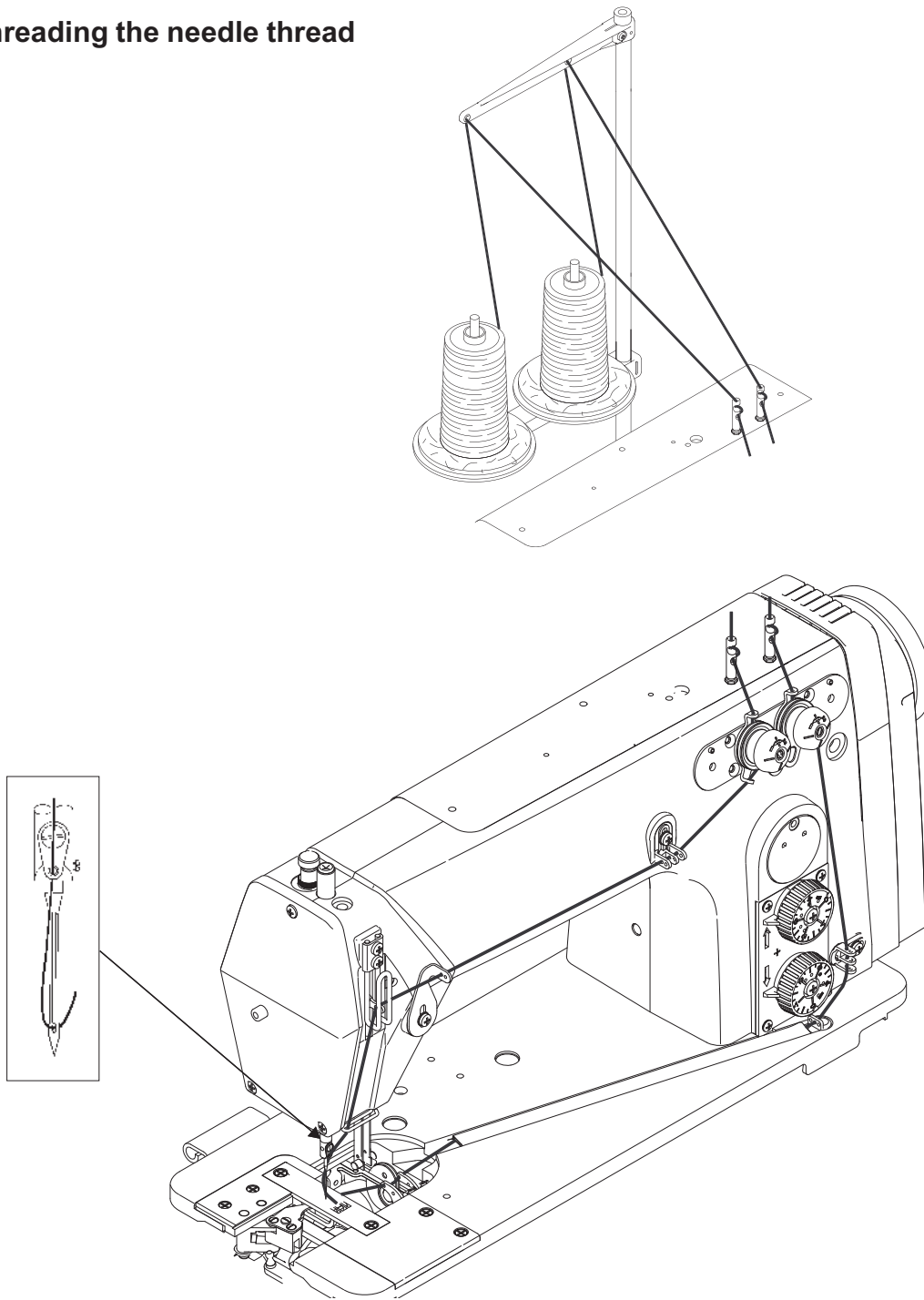
171-131110	LC = _dB (A) Stitch length: _ mm Sewing foot lift: ___ mm Number of stitches: ____ min Workpiece:
171-141621	LC = _dB (A) Stitch length: _ mm Sewing foot lift: ___ mm Number of stitches: ____ min Workpiece:
173-131110	LC = _dB (A) Stitch length: _ mm Sewing foot lift: ___ mm Number of stitches: ____ min Workpiece:
173-141621	LC = _dB (A) Stitch length: _ mm Sewing foot lift: ___ mm Number of stitches: ____ min Workpiece:

5.1 Technical data of the subclasses

Subclasses					
		171-131110	171-141621	173-131110	173-141621
Stitch type	chainstitch 401				
Hook type	crossline				
Needle system	934 SIN or 933 according to E-No.				
Needle size [Nm]	80-130				
Max. sewing thread sizes core thread [Nm]	70 / 3				
Stitch length forwards only [mm]	1-4	1-4	1-4	1-4	
Needle distance (in conjunction with conversion set 0171 003502) [mm]	0.4-15		0.4-15		
Max. number of stitches [min]	7000	6000	6000	6000	
Number of stitches upon delivery [min]	6600	5800	5800	5800	
Number of stitches as twin needle machine according to E-No. max. [min]	5500	-	5500	-	
Max. sewing foot lift when sewing when lifting with needle 934 SIN when lifting with needle 933 [mm]	4 5 10	4 5 10	4 5	4 5	
Needle bar stroke [mm]	27	30	30	30	
Operating pressure [bar]	-	6	-	6	
Air consumption per work cycle [NL]	-	0.1	-	0.1	
Weight (machine head) [kg]	37	38	39	40	
Dimensions (L x W x H) [mm]	500 x 175 x 380				
Rated voltage [V/Hz]	190-240V, 50/60Hz				
Rated voltage upon delivery [V]	230V				
Rated load [kVA]	1				

6. Operating

6.1 Threading the needle thread



Caution: Risk of injury !

Switch the main switch off !

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

Thread the needle thread as shown in the illustrations.

6.2 Threading the looper thread



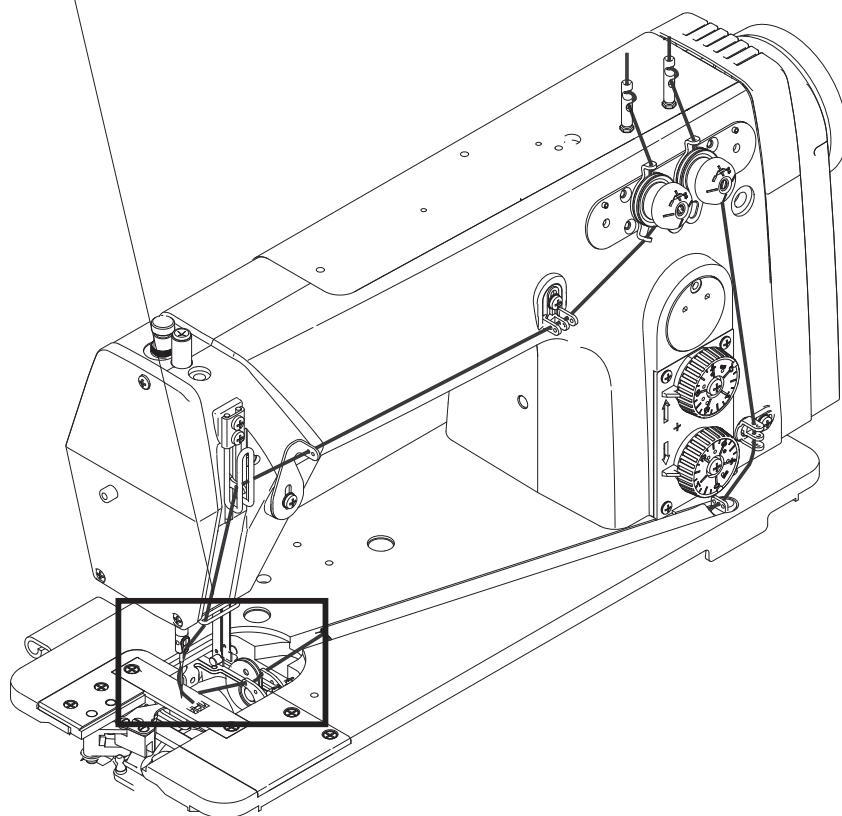
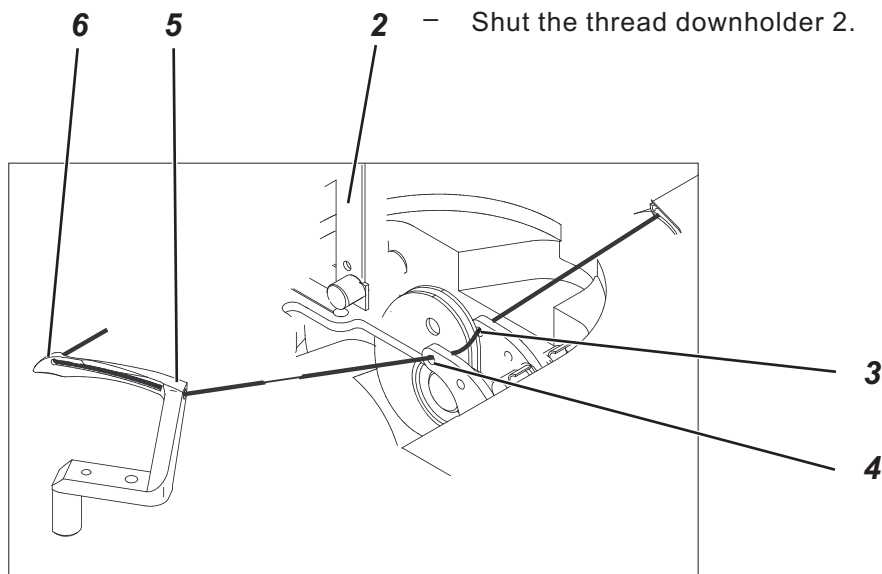
Caution: Risk of injury !

Switch the main switch off !

Thread the looper thread only with the sewing machine switched off.

Thread the looper thread as shown in the illustrations

- Lift the thread downholder 2 out of its catch mechanism.
- Pull the thread through the boreholes 3 and 4.
- Pull the thread through the looper boreholes 5 and 6.
- Shut the thread downholder 2.



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6.3 Adjusting the needle thread tension

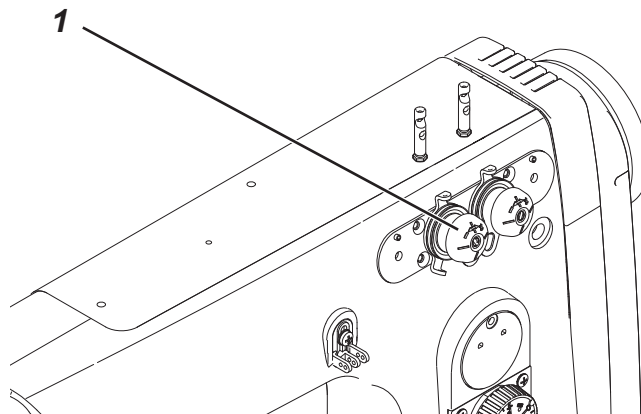
The needle thread tension has to be tighter than that of the looper thread.

Increase the needle thread tension: Turn setting wheel 1 in clockwise direction.

Reduce the needle thread tension: Turn setting wheel 1 counter-clockwise.

Too tight thread tensions cause puckering of the material.

A too loose looper thread tension may lead to skipped stitches.



6.4 Needle thread quantity for safe stitch formation

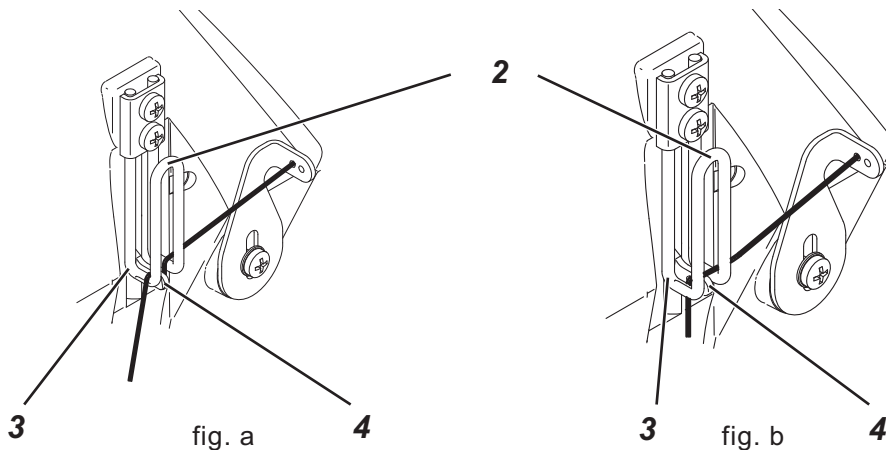
In case of elastic sewing threads, e.g. synthetic fibre threads or monofilament threads, a certain needle thread quantity must be pulled to guarantee a safe stitch formation.

This is done in thread lever position "down" in conjunction with the thread regulator 2.

Adjust the thread regulator in position "down" of the thread lever 4 as follows:

In case of elastic sewing threads the lower thread bore is visible. Thread the needle thread past the bow 3 on the left (see fig. a).

In case of less elastic sewing threads, as e.g. cotton, the upper thread bore is visible. Thread the needle thread past the bow 3 on the right (see fig. b).



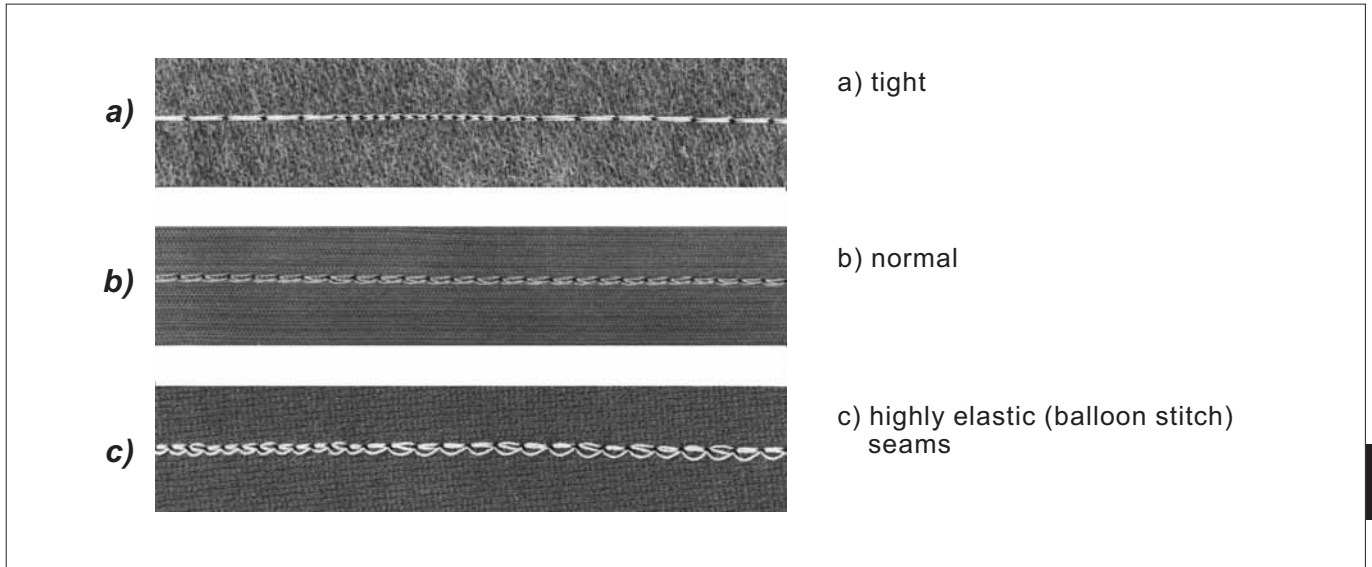
6.5 Adjusting the looper thread feeder

The looper thread feeder 1 guarantees the automatic adaptation of the looper thread quantity to the set stitch length.

This means an optimum stitch formation for every stitch length, even in case of condensed stitches. No gaping and ruffling of the seam.

The looper thread quantity to be pulled can be quickly adjusted.

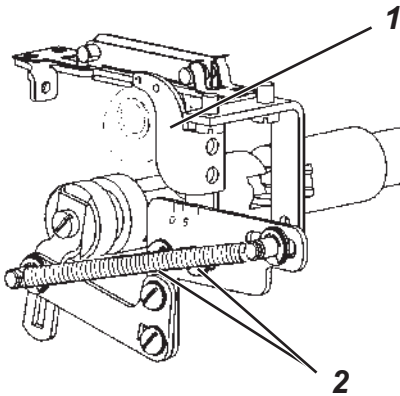
Without changing the thread tensions you can realize:



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After loosening the screws 2 and adjusting the feeder 1 please make the following settings:

- Loosen screws 2.
- Adjust the thread feeder:
towards 0 = tighter seam
towards 5 = more elastic seam



Important hints!

1) In case of an extreme adjustment, e.g. a very short stitch length and a very large thread quantity (elastic seam) it has to be observed that a safe needle penetration into the thread triangle is still possible. A too large looper thread quantity may lead to skipped stitches.

2) If the stitch length is increased considerably with the settings described under 1), e.g. to 4 mm, the thread guide has to be reset towards 0. Otherwise the looper thread might jump off the thread pick-up disc. The looper thread would not be pulled back by the thread pick-up disc as it is necessary during the retrograde motion of the looper.

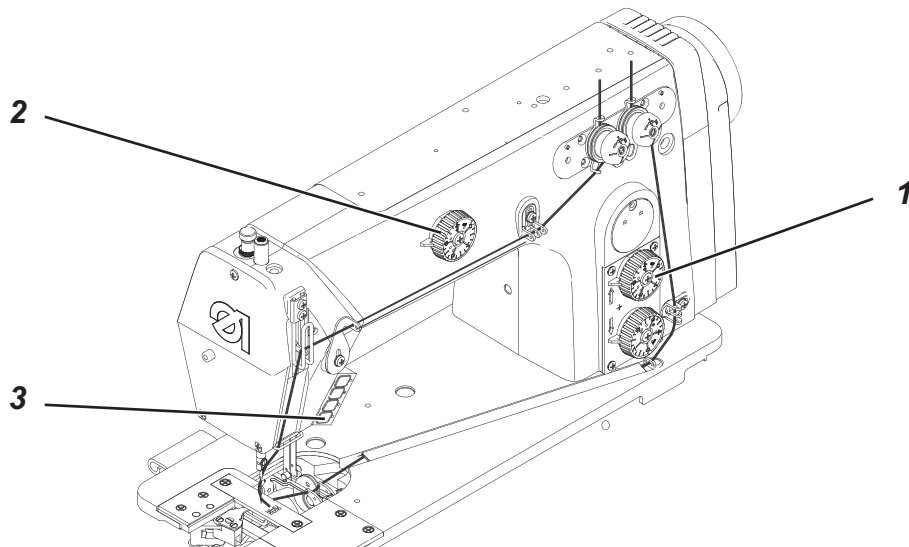
3) The thread feeder of class 171-131110 without linkage shaft has to be readjusted manually when changing the stitch length.

6.6 Adjusting the feed length

6.6.1 Adjusting the bottom feed / top puller feed

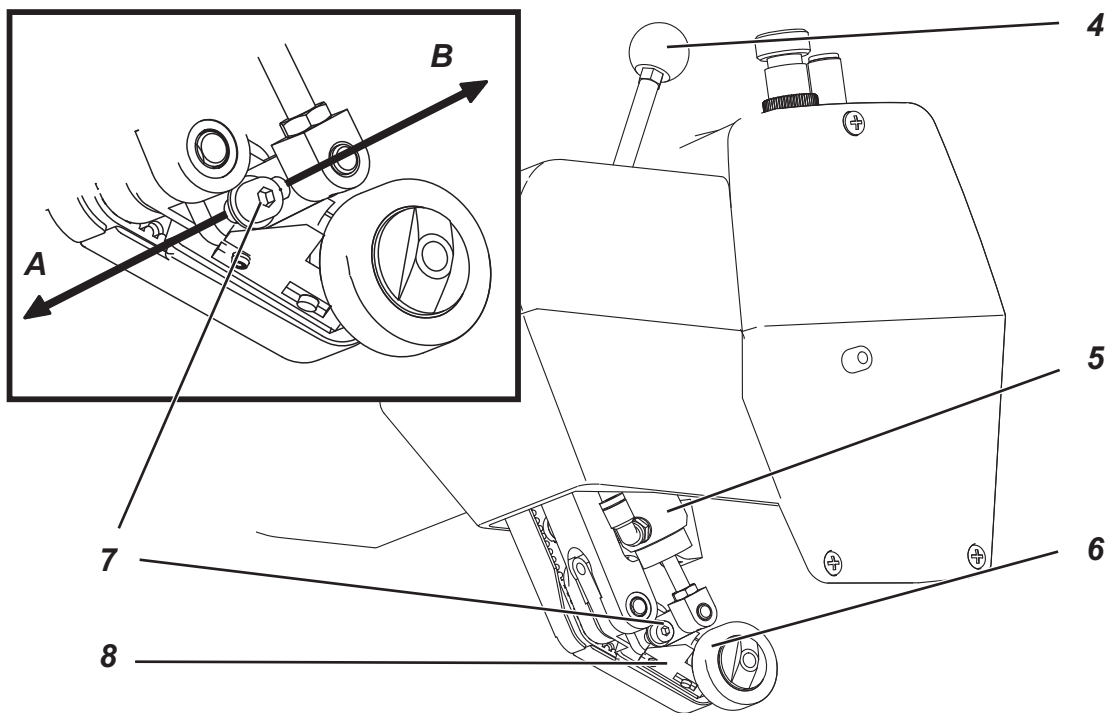
Bottom feed

The feed length of the feed-dog is adjusted at the setting wheel 1.



Top puller feed

The feed length of the puller 6 can be adjusted at the setting wheel 2 independent of the bottom feed. Thus, it can be adapted to the feeding properties of the material.



When sewing the condensed stitches at the seam beginning and the seam end the puller is automatically adapted to the bottom feed length.

Hints:

With the hand lever 4 the puller can be swivelled out of the entire sewing area, e.g. if you want to sew with the bottom feed only.

Actuate the lower push-button 3 at the arm head to lift the puller for sewing of radii or corners.

The fabric deflector 8 serves also as cutting knife for the thread chain (only in case of machines without thread trimmer).

The contact pressure of the puller can be adapted to the fabric. Loosen screw 7 and adjust cylinder 5:

towards A = less pressure

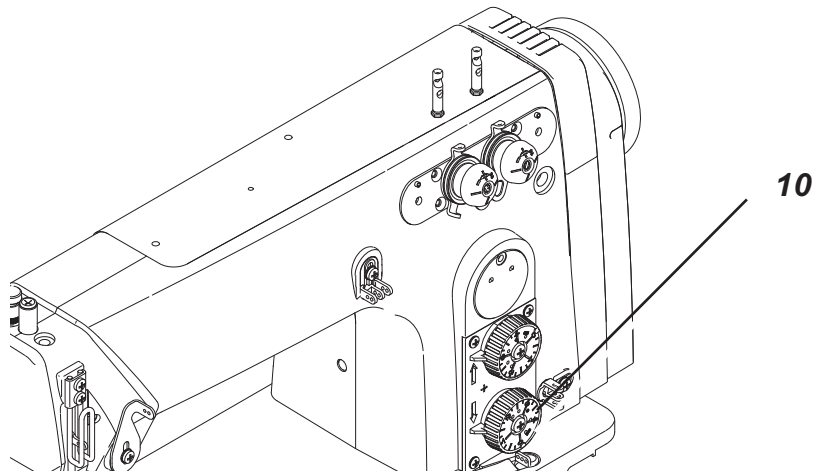
towards B = more pressure

6.6.2 Adjusting the condensed stitches

With the setting wheel 10 it is possible to select the desired condensed stitches.

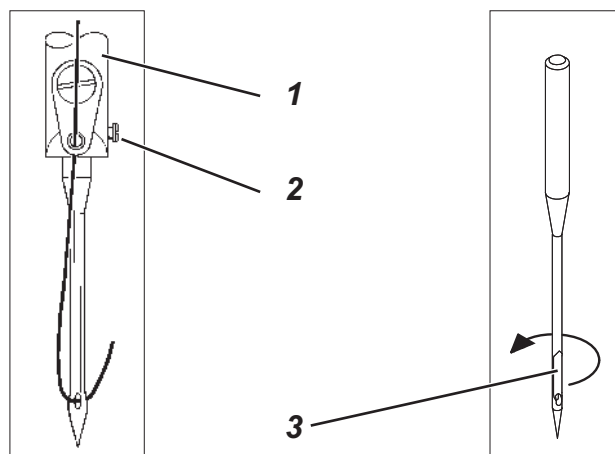
More condensed stitches: turn the setting wheel 10 in clockwise direction.

Less condensed stitches: turn the setting wheel 10 counter-clockwise.



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6.7 Changing the needles



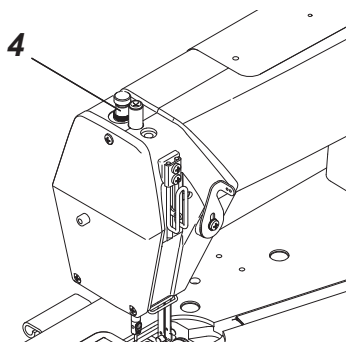
Caution: Risk of injury !

Switch the main switch off.

Change the needle only with the sewing machine switched off.

- Turn the handwheel until the needle bar 1 has reached its top position.
- Loosen screw 2.
- Pull the needle out of the needle bar 1 in downward direction.
- Push new needle in the bore of needle bar 1 as far as it will go. Align the needle in such a way that the hollow groove 3 shows in backward direction!
- Fasten screw 2.

6.8 Adjusting the sewing foot pressure



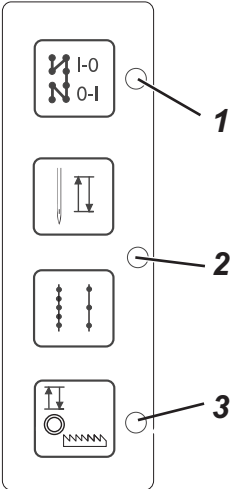
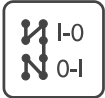
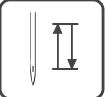
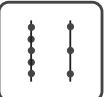
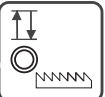
The desired sewing foot pressure is adjusted by means of the rotary knob 4.

- Increasing the sewing foot pressure
= Turn the rotary knob 4 in clockwise direction.
- Reducing the sewing foot pressure
= Turn the rotary knob 4 counter-clockwise.

6.9 Sewing foot lift

The sewing feet can be lifted mechanically or electropneumatically. According to the machine type and the equipment of the machine the lifting is done by actuating the knee lever or the pedal respectively.

6.10 Key pad on the machine arm (class 173-141621 only)

	Key	Function
		One-time suppression of condensed stitches
		Needle position high/low during downtime.
		Condensed stitches
		Lifting or lowering the puller
LED	Function	
1	One-time suppression of condensed stitches LED: ON suppression activated LED: OFF suppression deactivated	
2	Indicator light of the main switch LED: ON sewing machine ON LED: OFF sewing machine OFF	
3	Puller LED: ON Puller position HIGH LED: OFF Puller position LOW	

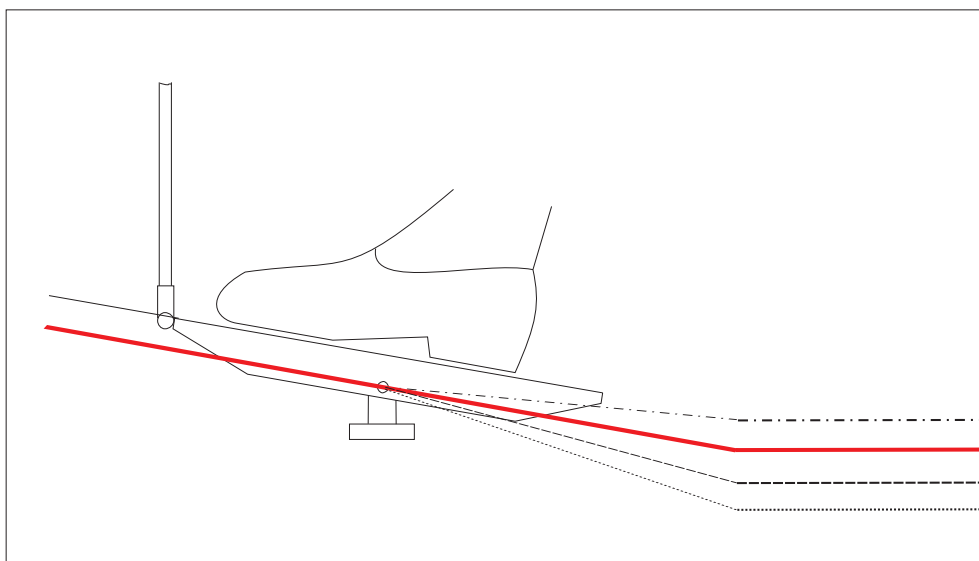
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7. Sewing

Operating and function sequence when sewing:

Sewing operation	Operating / Explanation
Before the sewing start	
Initial position	<ul style="list-style-type: none"> - Pedal in idle position. - Sewing machine is idle. - Needle position high. - Sewing foot down.
Position the fabric at the seam beginning	<ul style="list-style-type: none"> - Lifting the sewing foot. - Push the fabric close to the needle. - Lower the sewing foot.
Sewing	
	<ul style="list-style-type: none"> - Step forward on the pedal and hold it stepped. - The machine moves forwards with the speed determined by the pedal.
In the seam Center	
Interrupt the sewing operation	<ul style="list-style-type: none"> - Release the pedal (position 0) . - The machine stops. - The sewing foot is down.
Continue the sewing operation (after releasing the pedal)	<ul style="list-style-type: none"> - Step forward on the pedal - The machine continues sewing with the speed determined by the pedal.
At the seam end	
Remove the fabric	<ul style="list-style-type: none"> - Step the pedal back completely and hold it stepped. - The final bar is sewn*. - The threads are cut*. - The needle is in position "high"*. - The sewing foot lifts. - Remove the fabric.

*according to the subclass



to the front
position 0
halfway back
fully back

8. Maintenance

8.1 Cleaning and testing



Caution: Risk of injury !

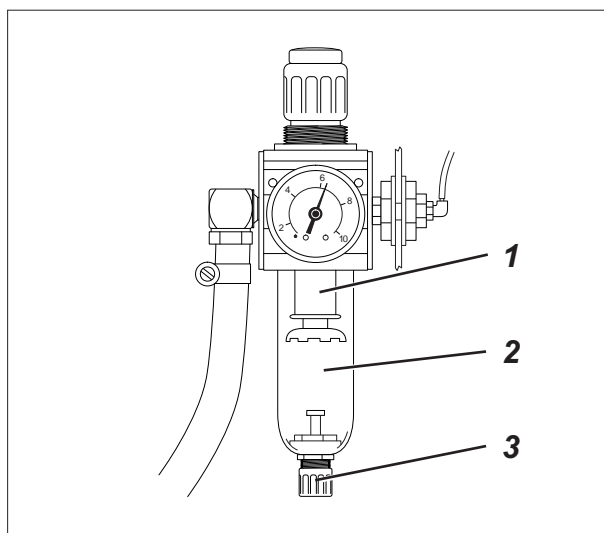
Switch the main switch off.
The maintenance of the sewing machine must only be carried out when the machine is switched off.

Maintenance work has to be done after the intervals indicated in the tables at the latest (see column "Operating hours").

The processing of fluffy material may require shorter maintenance intervals.

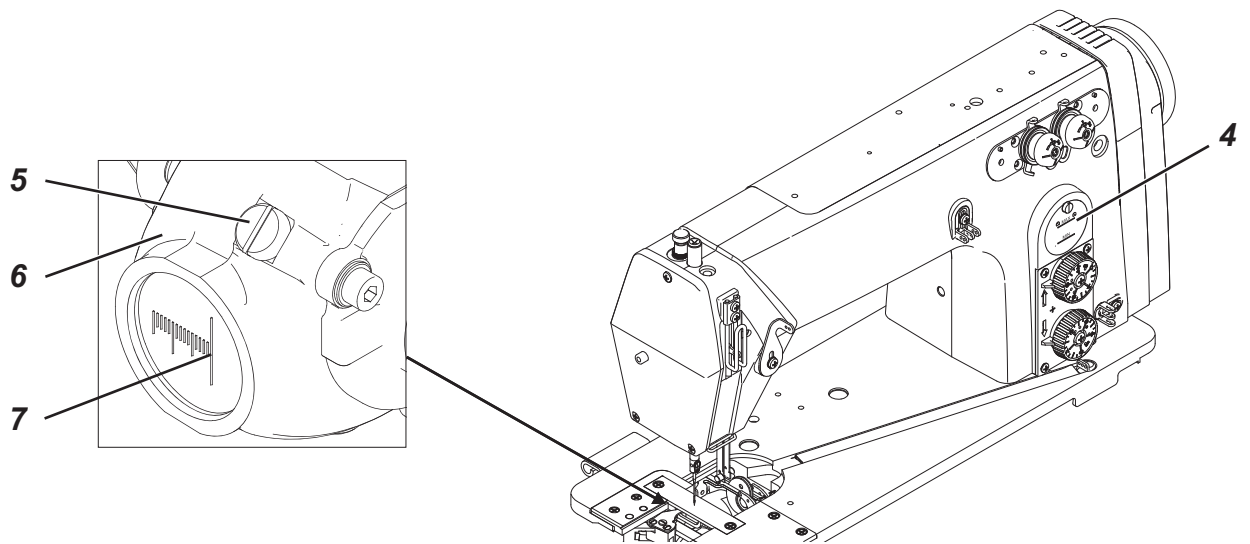
A clean sewing machine is a trouble-free machine.

Maintenance work to be carried out	Explanation	Operating hours
Machine head		
- Remove sewing dust and thread remainders. (e.g. with an air blow gun)	Places to be cleaned especially carefully: - underside of the throat plate - area around the hook - area around the thread pick-up disc - thread trimmer - area around the needle	8
	ATTENTION ! Hold the air blow gun in such a way that the sewing dust is not blown into the oil pan.	



Maintenance work to be carried out	Explanation	Operating hour
Sewing drive		
Clean the motor ventilation grille (e.g. with an air blow gun)	Clean the air inlets from sewing dust and thread remainders	8
Check status and tension of the V-belt	It must still be possible to bend the V-belt in the middle by approx. 10 mm at the touch of a finger.	160
Pneumatic system		
Check the water level in the pressure regulator.	<p>The water level must not rise up to the filter insert 1.</p> <ul style="list-style-type: none"> - Drain water out of the water separator 2 under pressure after screwing out the drain screw 3. 	40
Clean the filter insert.	<p>Dirt and condensed water are discharged through the filter insert 1.</p> <ul style="list-style-type: none"> - Separate the machine from the compressed air supply. - Screw out drain screw 3. The pneumatic system of the machine must be pressureless. - Screw off the water separator 2. - Screw off the filter insert 1. Wash out dirty filter pan and filter insert with benzine (no solvent) and blow them clean. - Reassemble the maintenance unit. 	500
Make leak test of the system.		500

8.2 Lubrication



Caution: Risk of injury !

Oil may cause skin eruption.
Avoid a longer contact with the skin.
Wash yourself thoroughly after a contact.



ATTENTION !

The handling and disposal of mineral oils is subject to legal regulations.
Deliver used oil to an authorized collecting station.
Protect your environment.
Be careful not to spill any oil.

GB

Oil the special sewing machine exclusively with lubricating oil **DA-10** or an equivalent oil with the following specification:

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

DA-10 can be bought at the sales points of **DÜRKOPP ADLER AG** under the following parts numbers:

250 ml container:	9047 000011
1-litre container:	9047 000012
2-litre container:	9047 000013
5-litre container:	9047 000014

Maintenance work to be carried out	Explanation	Operating hour
Lubrication of the machine head	<p>The check of the oil supply is limited to the following items:</p> <ul style="list-style-type: none"> - Fill the oil reservoir 4 up to the marking "Max" with the machine standing upright. - Check the oil reservoir in the hook drive casing 6 and fill up oil, if necessary. For this purpose screw out screw 5. When the machine is tilted to the back, the oil level must not drop below the lower long marking 7 of the inspection glass. The oil level must not exceed the upper marking. 	8

For your own notes: