

838**Spezialnähmaschine**

Betriebsanleitung

[Instruction manual](#)**D****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 instructions

Part 1: Operating instructions - Class 838

(Edition 10/2008)

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1. Product description

The Dürkopp Adler **838** is a special all-purpose sewing machine.

- It is a post-bed double-lockstitch machine.
- It has a bottom drop (feed) mechanism and a drive-powered top roller.
- There are two setting wheels (knobs) which allow the selection of two stitch lengths. There is also a pneumatically-controlled device with a button for toggling between the two stitch lengths during sewing.
- Depending on if the subclass is a single-needle or double-needle sewing machine, the following automatic functions are featured: an electro-magnetic thread trimmer, pneumatically-controlled bartacking, a sewing foot lift, and a switchable upper thread tensioner.
- The machine is equipped with a large double-sectioned vertical hook.
- The maximum lift for the sewing foot is 12 mm.
- There is a safety clutch to avoid displacing or damaging the hook if the thread gets jammed in the shuttle track.
- Depending on the width of the needle, swappable throat plate inserts with corresponding stitching holes can be swapped out at the throat plate.
- The machine features automatic wick lubrication and a viewing window in the arm for watching the machine and hook lubrication. Some of the oil is lost during the hook lubrication. The remaining oil is redirected by the pump back to the central reservoir.
- Integrated bobbin winder.

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2. Designated use

The **838** machines are suitable for use in producing shoes, decorative ornamental work, and upholstery. The typical sewing material is leather (either natural or synthetic). The sewing machine can also be used for sewing shoe textiles.

The setup of the machine depends on the material to be sewed and whether it is heavy or extra heavy.

Generally only dry material may be sewn with this sewing unit. The material may be no thicker than 7 mm when compressed by the lowered top roller.

The sewing material must not contain any hard objects since the sewing machine is not equipped with any form of eye protection.

This sewing machine may be set up and operated only in dry, well-maintained premises. If the sewing machine is used in other premises which are not dry and well-maintained it may be necessary to take further precautions which should be agreed in advance (see EN 60204-31: 1999).

As manufacturers of industrial sewing machines, we proceed on the assumption that personnel who work on our products will have received training at least sufficient to acquaint them with all normal operations and with any hazards which these may involve.

3. Subclasses and sewing equipment

3.1 Subclasses

Class and Subclass	Number of needles		Stitch length	Machine-control	Hook	Trimming and seam tacking
	one needle, hook to right of needle	two needles				
0838 170522	X		X	X	X	X
0838 270522		X	X	X	X	X

3.2 Sewing equipment

Sewing equipment	Class and sub-class	Number of needles	Sewing type	Needle width: Nm		Label number of polyester thread		max. stitch length	Sewing speed		Top roller diameter	Gearing gap for the feed dog	Seam clearance gap	Noise intensity level of machine **
				Range	Standard	Range	Standard		Max.	Standard *				
				0,01 mm	0,01 mm	-	-		1/min	1/min				
838-E1	0838 170522	1	heavy	120-160	120	25-10	20	8	2000	1600	35	1,5	-	
838-E2		1	extra heavy	180-230	180	10-8	10	8	1600	1600	35	1,5	-	
838-E3/1,6	0838 270522	2	heavy	120-180	180	25-10	10	8	2000	1600	35	1,5	1,6	
838-E4/2,0		2	heavy	120-180	180	25-10	10	8	2000	1600	35	1,5	2,0	
838-E5/2,4		2	heavy	120-180	180	25-10	10	8	2000	1600	35	1,5	2,4	
838-E6/3,2		2	heavy	120-180	180	25-10	10	8	2000	1600	35	1,5	3,2	

* You must reduce the sewing speed significantly when sewing through very thick materials.

** Noise level of the special sewing machine at the work place, as measured for the maximum stitch length and the maximum sewing speed in compliance with DIN 45635-48-A-1-KL2.

4. Optional equipment

Order No.	Optional equipment
0888 220334	Top roller Ø 25 mm, knurled
0888 220344	Top roller Ø 25 mm, smooth
0888 220354	Top roller Ø 25 mm, rubber coating
0888 220364	Top roller Ø 35 mm, knurled (thoroughly)
0888 220374	Top roller Ø 35 mm, smooth
0888 220384	Top roller Ø 35 mm, rubber coating
0888 220394	Top roller Ø 45 mm, width: 3.8 mm
0888 220404	Top roller Ø 45 mm, width: 2.0 mm
9880 888100	Sewing lamp LED
MG55-3 400324	Stand set for machines powered by drive belts (contains frame, pedal, drawer and table top 1060 x 50 mm)
0700 088804	Table top for drive belt
N800 080030	Edge-guide, swivelling
N800 080004	Edge-guide with roller, swivelling
9780 000108	Compressed air unit
0797 003031	Complete compressed air hose
9805 791113	USB memory key for transferring data with the Efka DA321G control unit
0867 490010	Holder bracket for the Efka V810 or V820 control panel
0688 130384	Knee level for mechanical foot lift
9880 002001	Knee switch

5. Technical data

5.1 Class-specific technical data

Type of stitch	Lockstitch 301
Needle system	134LR, 134 KCLR, 134, 134 D
Foot lift with hand lever	6 mm
Foot lift with knee lever or automatic	12 mm
Remaining thread length after thread trimming	max. 15 mm
Clearance height of machine head	300 mm
Clearance width of machine head	280 mm
Dimensions of footprint of the machine bed plate	178 x 518 mm
Dimensions of footprint of table plate	1060 x 500 mm
Min. height of the table plate	740 mm
Max. height of the table plate	900 mm
Height of machine	max. 1630 mm
Max. (short-term) power consumption	0.8 kW
Compressed air feed	6 bar

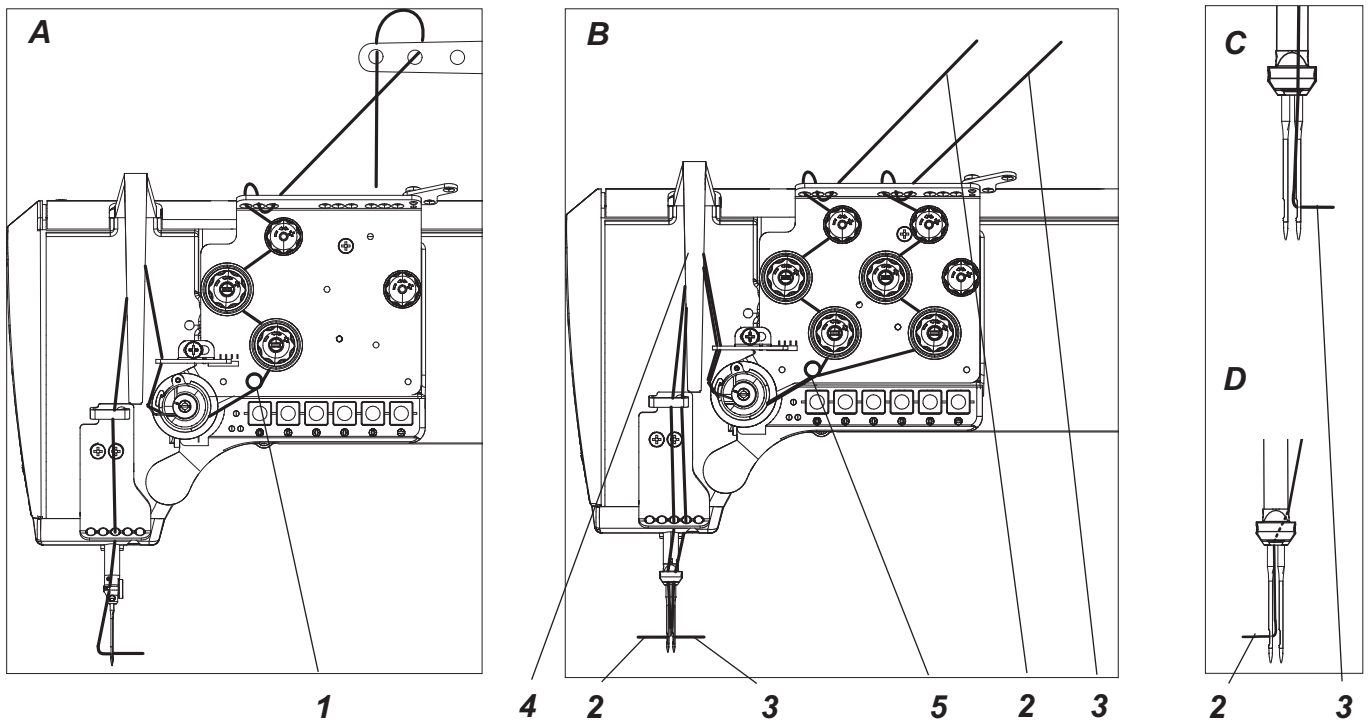
5.2 Subclass-specific technical data

Class and subclass	Number of needles	Column length	Column height in sewing direction	Column width perpendicular to sewing direction	Weight of machine head	Weight of frame	Weight of Efka DC1550 motor
		mm	mm	mm	kg	kg	kg
0838 170522	1	170	52	59	55	30	10
0838 270522	2	170	52	59	56	30	10

More detail about the technical data are given in the chapter 3.2.

6. Operations

6.1 Threading the needle thread



Caution: danger of injury!

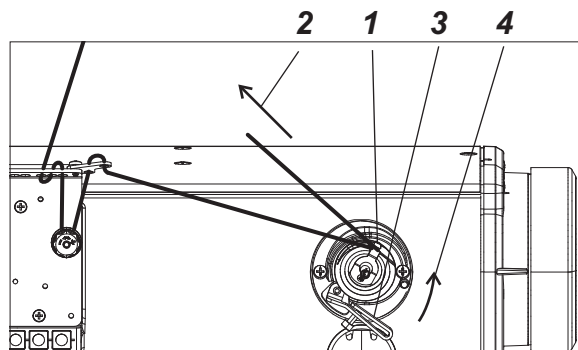
Turn off the main switch.

The needle must be threaded only when the machine is turned off.

- Follow illustration A when threading single-needle sewing machines. If the sewing machine is outfitted for the sewing of heavy-duty materials, then wind the thread around the pin (1).
- Follow the illustration B (right side) when threading double-needle sewing machines. Insert the thread (2) for the left needle into the left thread tension device and then in the upper eyelet of the thread lever (4).
- When needles are situated side-by-side, thread the needle eye according to illustration B.
- When the needles are situated diagonally to each other, thread the needle according to the illustration C (right needle) and illustration D (left needle).
- If the sewing machine is intended for the sewing of heavy-duty materials, then wind the thread around the pin (5).

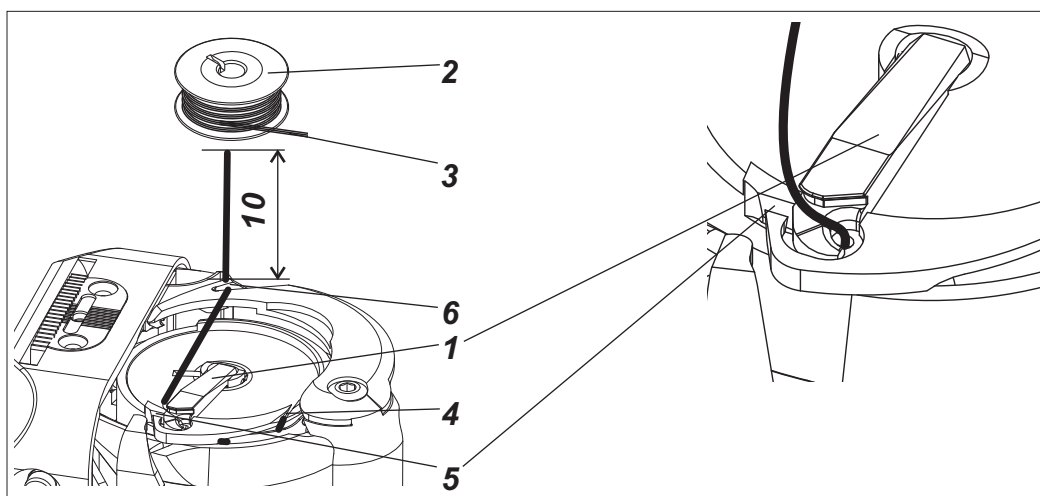
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6.2 Winding on the hook thread



- Insert the thread as shown in the illustration.
- Stick the thread behind the knife blade (1). Then cut by pulling in the direction of arrow (2).
- Put the bobbin on the bobbin shaft and move the bobbin lever (3) in direction (4).
- Start up the machine.
- After the thread is wound around the bobbin, stick the thread once again behind the knife blade (1) and cut off.
- Put an empty bobbin on the bobbin shaft for the next winding process and move the bobbin lever.

6.3 Changing the hook thread bobbin



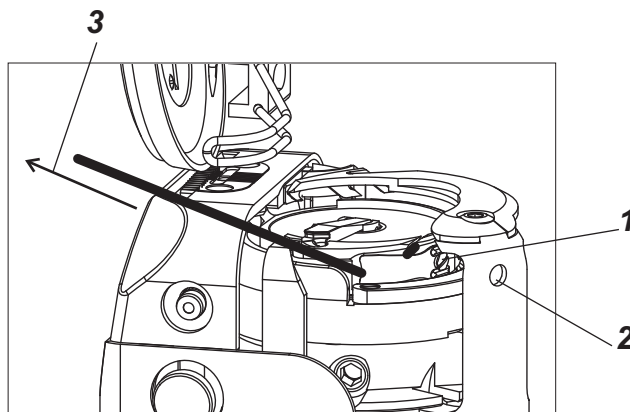
Caution: danger of injury!

Be sure to turn off the main switch and wait until the motor has completely stopped.

- Raise up the flap cover (1).
- Insert the bobbin (2) with the thread end (3) positioned as shown in the illustration.
- Pull the thread through slit (4) and slit (5). Then close the flap and secure the thread under the spring (6).
- Trim off the thread end as show in the illustration.
- The threading and bobbin insertion for the hook to the left of the needle should be carried out similarly.

6.4 Adjusting the thread tension

6.4.1 Adjusting the hook thread tension



Caution: danger of injury!

Turn off the main switch.

Adjust the shuttle thread tension only when the sewing machine is turned off.

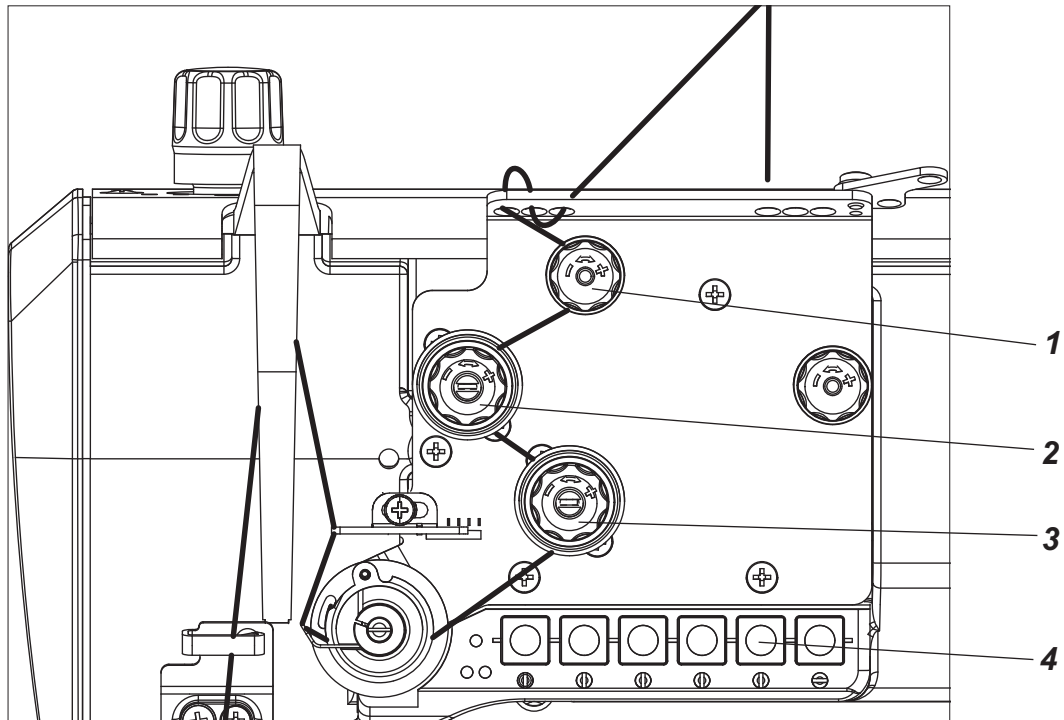
- Adjust the shuttle thread tension by turning the screw (1) with a screwdriver. The screwdriver should be inserted through the opening (2). The tension is increased by tightening the screw.
- The thread tension should then be checked with a thread tension gauge (dynamometer). Insert the thread as shown in the illustration and pull in the direction of arrow (3).
The thread tension set at the factory depends on the selected machine configuration (see table below). This tension setting is suitable for typical sewing processes. You should lower the tension when working with materials which are soft and thin. If the seam must be tightly sewn, then you should increase the tension while simultaneously lowering the sewing speed.

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Average values for hook thread tension

Type of sewing	Width of needle used Nm	Thread tension in grams
heavy	120-160	90
extra heavy	180-230	90

6.4.2 Adjusting the needle thread tension

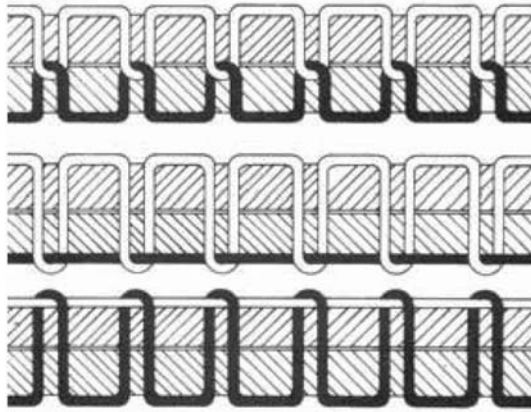


Adjusting the pre-tensioner (1)

- When the main thread tensioner (3) and the supplementary tensioner (2) are open, there must still be a slight tension remaining on the needle thread. This residual tension is created by the pre-tensioner (1). The pre-tensioner (1) influences both the length of the cut needle thread and the starter thread for the next seam. (The pre-tensioner (1) is not deactivated with the sewing foot lift.)

Adjusting the thread tension (2) and (3)

- You can switch off the supplementary tensioner (2) by pressing the button (4). You can switch the supplementary tensioner (2) back on by pressing the button (4) again. The switchable supplementary tensioner (2) is helpful for quickly altering the needle thread tension. For example, it can be used to attain a good stitch draw and consistent stitch pattern when working with different textile materials within a single seam.
- Press the button (4).
- Make a seam on a few layers of materials and regulate the thread tension by means of the main tensioner (3) until the proper cross-over point is attained (see illustration).
- Extend the material layers and press button (4) to activate the supplementary tensioner (2). Control until the proper cross-over point (thread binding) has been attained.

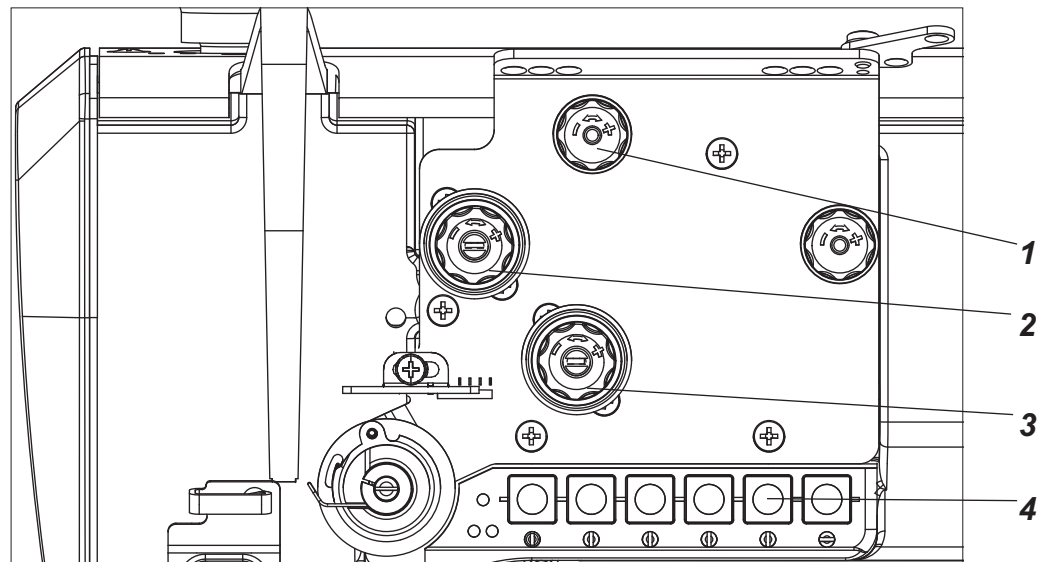


Correct thread interlacing in the center of the sewing material

Needle thread tension too weak
or
Hook thread tension too strong.

Needle thread tension too strong
or
Hook thread tension too weak.

6.5 Activating and deactivating the thread tension



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- The pre-tensioner (1) should never be deactivated.
- The main tensioner (3) and supplementary tensioner (2) are switched off using an electro-pneumatic cylinder. Deactivation can result from:
 - Pressing the button (4) (see chapter 6.4.2).
 - Trimming cycle: during the cutting process, the main tensioner (3) and the supplementary tensioner (2) are temporarily turned off.
 - The sewing foot lift (see chapter 6.5.1).

6.5.1 The influence of the sewing foot lift on the main thread tensioner and supplementary thread tensioner

Button 4 (see chapter 6.5) on the machine's key pad can be used to activate or deactivate the supplementary thread tension at any time. The parameter F-147 must be set to "1" for this to work.

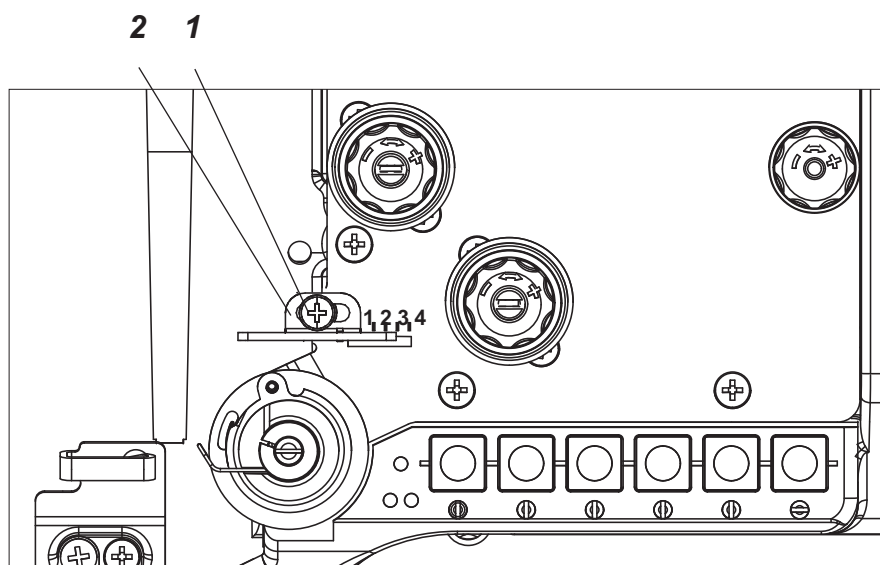
Sewing foot	Sewing foot lift in the seam		After the lift thread has been cut	
	Thread main tension	Thread supplementary setting	Thread main tension	Thread supplementary setting
F-196=0	0	0	0	0
F-196=1	1	1	0	0
F-196=2	0	0	1	1
F-196=3	1	1	1	1

1 = Thread tension opened mechanically

0 = Thread tension closed mechanically

- If the supplementary thread tensioner is open, the state of the sewing foot lift does not change.
- If the machine is turned off, the supplementary thread tension remains at its previously set state.

6.6 Adjusting the thread regulator

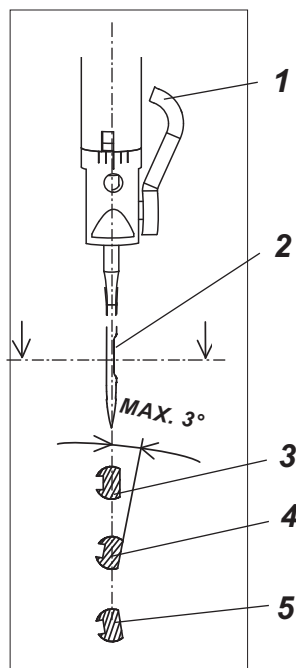


The thread regulator (2) is used to control the quantity of needle thread required by the stitch formation.

The best sewing results can only be ensured when using a precisely adjusted thread regulator.

- Loosen the screw (1). Move the thread regulator (2). Then tighten the screw (1).
- For most sewing jobs, the thread regulator is best positioned when the right edge of the regulator is aligned with the number 3.
- The setting at position 4 is appropriate when using a thin sewing material with a very short stitch.

6.7 Changing the needle for a single-needle machine



Caution: danger of injury!

Turn the main switch off.

Change the needle only when the sewing machine is switched off.

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- Move the lever (1) forward in order to loosen the screw which is used to fasten the needle.
- Pull the needle under and out from the needle bar. Insert a new needle with the needle scarf (2) positioned on the right, according to section cuts (3) or (4). Push in until the needle has reached the end stop located in the needle bar hole. The needle should not be positioned as shown in section cut (5).
- Then tighten the needle attachment screw and turn the lever back (1) to the rear.

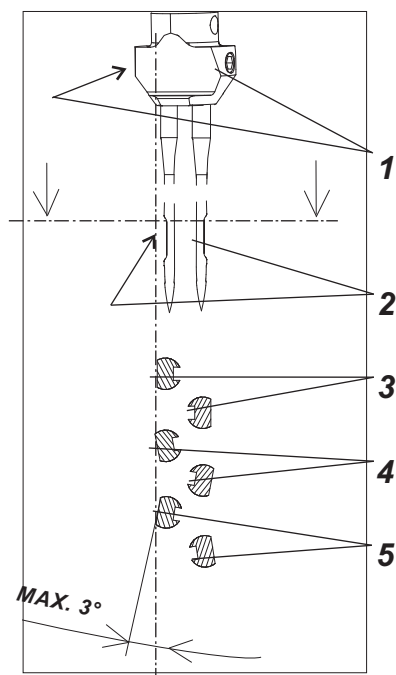


CAUTION Danger of breakage!

A bad positioned needle can cause damage to the hook tip.

When changing to a needle with a different thickness, the clearance between the hook and the needle, as well as the position of the stitch plate in relation to the post bed, must both be adjusted accordingly (check the service instructions).

6.8 Changing the needle for double-needle machines



Caution: danger of injury!

Only change the needle when the main tensioner is turned off and the motor has come to a stop.

- Loosen screws (1).
- Pull the needles under and out from the needle bar. Insert the new needles with the needle scarf (2) according to section cuts (3) or (4). Push in until the needles have reached the end stop located in the needle bar holes. The needles should not be positioned as shown in section cut (5).
- Tighten the needle attachment screws.

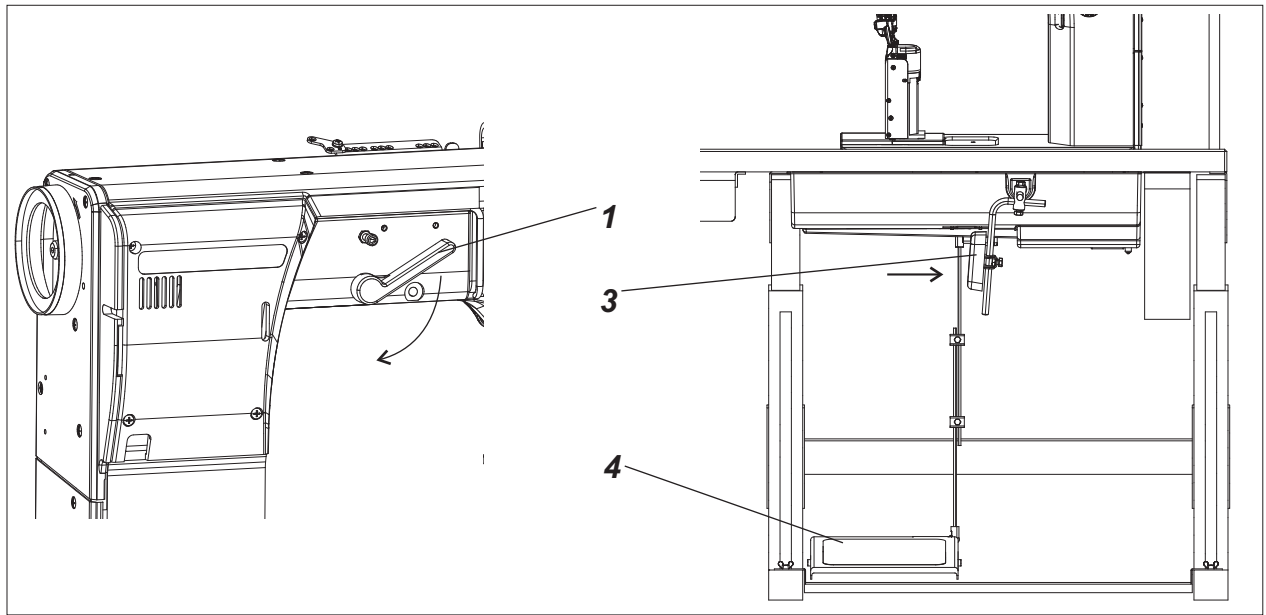


CAUTION Danger of breakage!

Poorly positioned needles can cause damage to the hook tips.

When changing to needles with a different thickness, the clearance between the hook and the needle, as well as the position of the stitch plate in relation to the post bed, must both be adjusted accordingly (check the service instructions).

6.9 Swiveling and lifting the top roller



Using the hand lever to lift the top roller

- Lift the top roller by turning the lever (1) in the direction of the arrow until the end stop. The top roller is secured in the upper position by the lever.
- In order to lower the top roller, turn the lever (1) back to the starting position.

Or:

- Lift the top roller pneumatically or with the knee lever (3). The lever then moves back to its starting position.
- The machine can be kept on after the hand lever is used to raise the top roller (for example, when winding the lower looper thread).

Using the knee lever to lift the sewing foot

Press the knee lever (3) to raise the sewing foot. Release the knee lever to lower the sewing foot.



Caution!

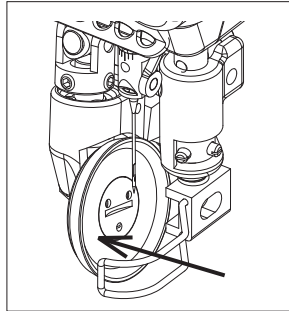
The machine should not be running when the sewing foot is raised more than 6 mm over the stitch plate. On a running machine, the needle bar with the needle holder could collide with the sewing foot or in the press pad with the double-needle machines.

Automatic and pedal lifting of the sewing foot

- For sewing machines equipped with position drives, the sewing foot lifting process can be triggered by pressing the pedal (4) down backwards to position -1. The sewing foot is raised to its top dead centre point using either the integrated electro-magnet or the pneumatic cylinder. The sewing foot is lowered after the pedal is released.
- The machine can be set so that the sewing foot is automatically raised after each machine stop and no backwards pedal press is required. In this case, after pressing the pedal the sewing foot is lowered to position +1. After the seam is completed, the sewing foot remains permanently raised (see chapter 8). This setting is described in chapters 6, 7, 8, and 9.

Swiveling the top roller

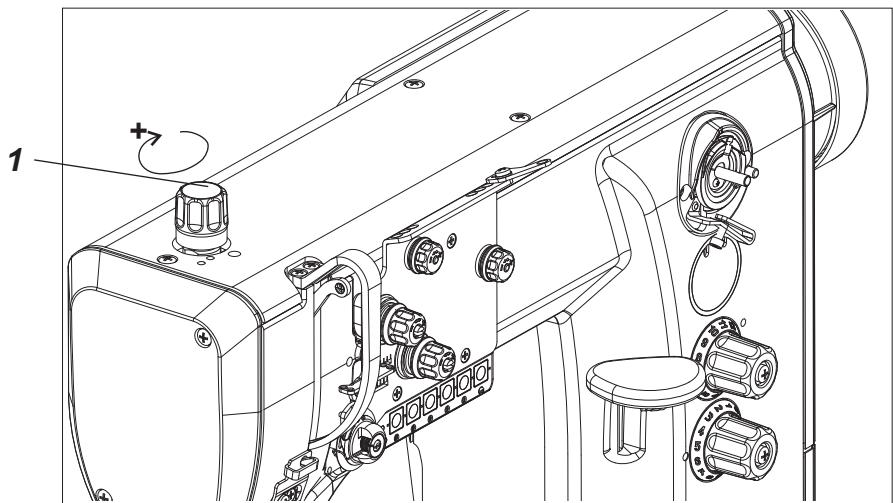
- Turn the hand lever (1) downwards. The top roller is then secured in the upper position.
- Swivel the top roller to the side by pressing in the direction of arrow.



Caution: danger of injury!

Only swivel the top roller after first turning off the main switch and waiting for the motor to stop.

6.10 Sewing foot pressure

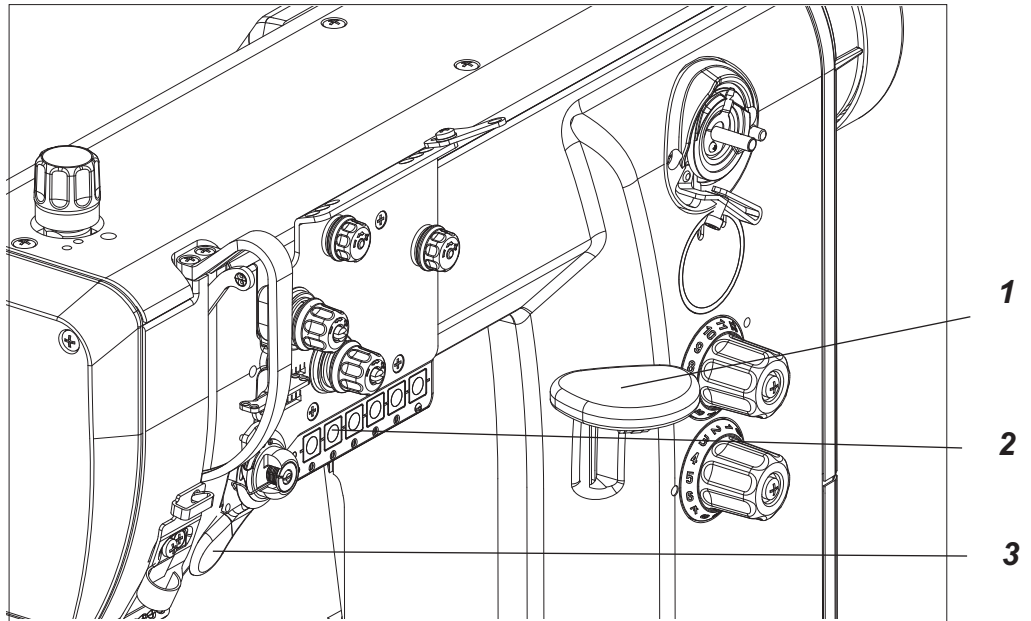


- The top roller pressure is adjusted with the setting wheel (1).
- Increasing the top roller pressure = Turn the setting wheel (1) clockwise.

Decrease the top roller pressure = Turn the setting wheel (1) counterclockwise.

- The pressing force of the top roller should be set just high enough so that the sewing material is not lifted when the needle pulls out. You should also verify that the pressure does not prevent the material from moving properly.
- For machines equipped with electric magnets, the maximum pressing force for the top roller is 100 N. For pneumatic-cylinder machines, the maximum force is 160 N.

6.11 Sewing in reverse (bartacking)



Using the hand lever to sew backwards

- Press the stitch regulator lever (1) downwards.
The machine will sew backwards as long as the stitch regulator lever (1) is pressed down.

Using the button to sew backwards

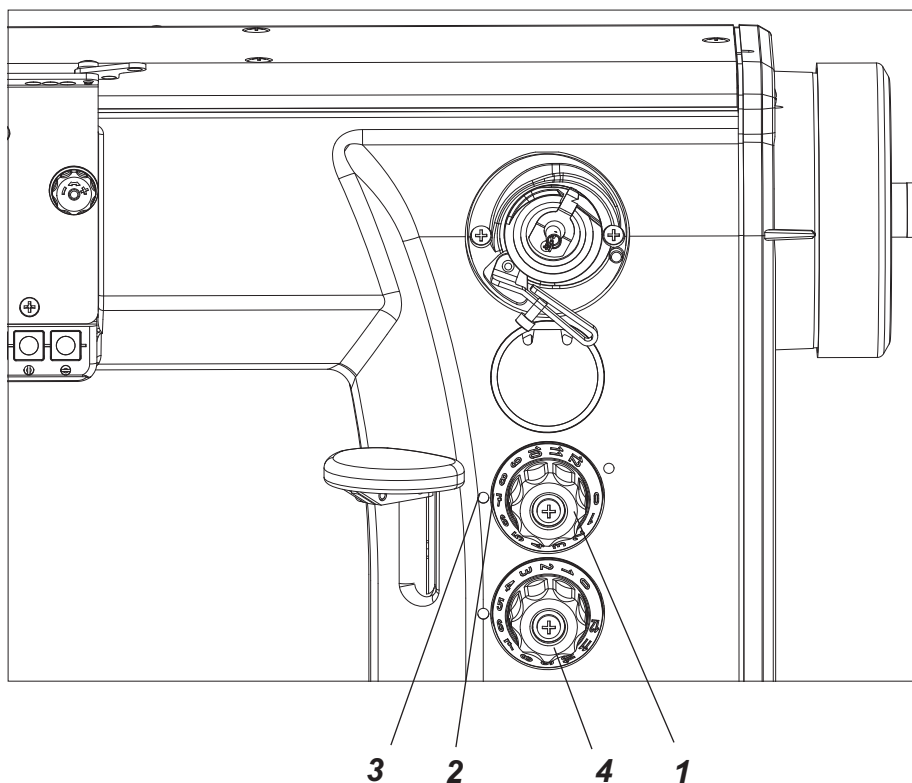
- Press button (2) or move lever (3).
The machine will sew backwards as long as the button (2) or the lever (3) remains depressed.

Automatic seam bartacking

- For machines equipped with positioning drives, the number of tack stitches at the seam start and seam end can be programmed.
At seam start (after a previous thread cut), the machine automatically sews the selected start bartack. At seam end and pedal position -2, the selected final bartack is sewn and then thread cutting is begun.
Tack programming is described in chapters 7, 8, and 9.

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6.12 Adjusting the stitch length



The special sewing machine 838 is equipped with two setting wheels. This allows you to sew with two different stitch lengths which can be activated during the sewing process by pressing a button.

The stitch lengths are set using the two setting wheels (1) and (4) found on the machine arm.

- Set the larger stitch length with the upper setting wheel (1). Turn the setting wheel until the desired number (the stitch length in mm) is marked (3).
- Set the smaller stitch length with the lower setting wheel (4). Turn the setting wheel until the desired number (the stitch length in mm) is marked (3).
- Stitch lengths are equal for both forward and reverse sewing.

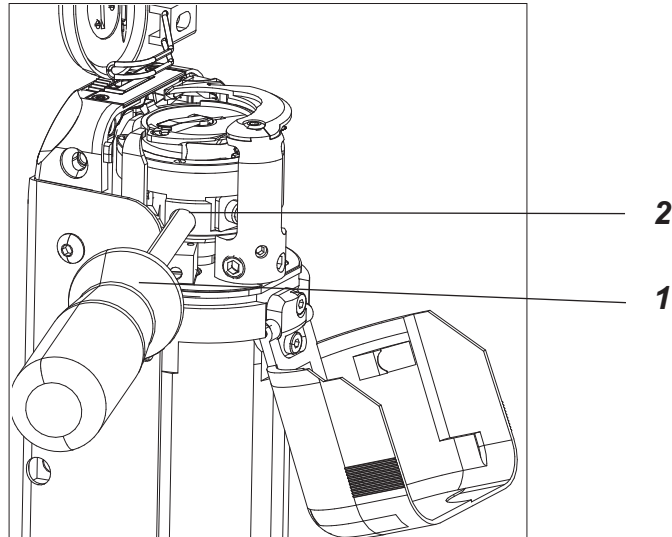


CAUTION Danger of breakage!

Make sure that the stitch length set with the lower setting wheel (4) is not larger as the stitch length set by the upper setting wheel (1).

Note: In order to facilitate the process of adjusting the stitch lengths, the button (4) should be used to fix the stitch lengths so that they do not shift.

6.13 Engaging the safety clutch for hook blockages



When the thread gets jammed in the hook track, the safety clutch disengages.



Caution: danger of injury!

Turn off the main switch.

The safety clutch should only be engaged when the machine is turned off.

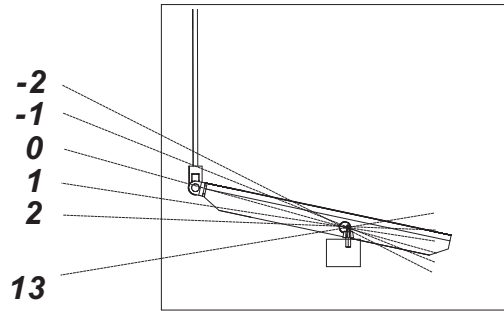
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- Turn the handwheel until the safety clutch engages.
- Turn the handwheel in the opposite direction until the hook is free.
- If the safety clutch is still disengaged, insert a screwdriver (1) in the opening (2). Then turn the handwheel until the safety clutch engages.
- Free up the blocked hook by removing the cause of disturbance.

For your notes:

6.14 Operating the machine with the positioning drive

6.14.1 With the pedal



The pedal position is detected by a button with 16 different levels. Their meanings are listed in the table below:

Pedal position	Pedal movement	Meaning
-2	Fully backwards	Command for cutting the thread (end of seam)
-1	Half backwards	Command for raising the sewing foot
0	Neutral rest position	Refer to comment below
1	Slightly forwards	Command for lowering the sewing foot
2	More forwards	Sew with minimal speed (first level)
3	More forwards	Sew with more speed (second level)
:	:	:
13	Entirely forwards	Sew with maximal speed (twelfth level)

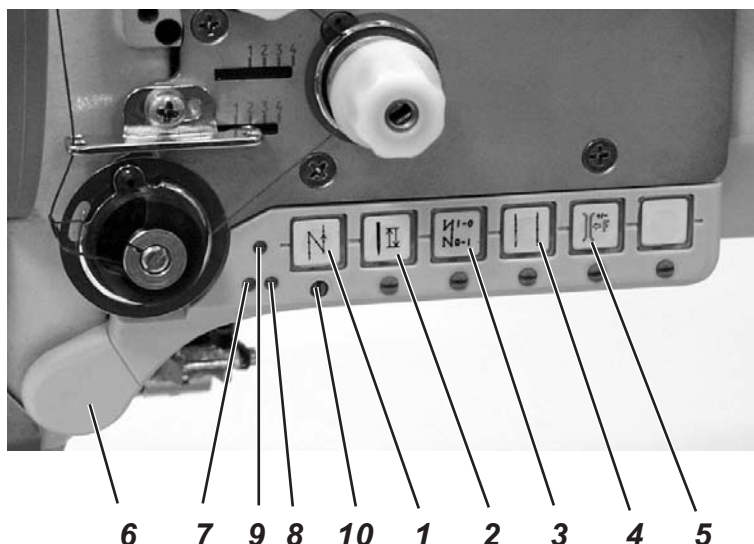
GB

Comment:

The following functions can be programmed to correspond with the rest position:

- needle position (down/up) and sewing foot position (down/up) when stop in seam.
- sewing foot position (up/down) after end of seam. (Pedal fully backwards, then in rest position)

6.14.2 With the buttons



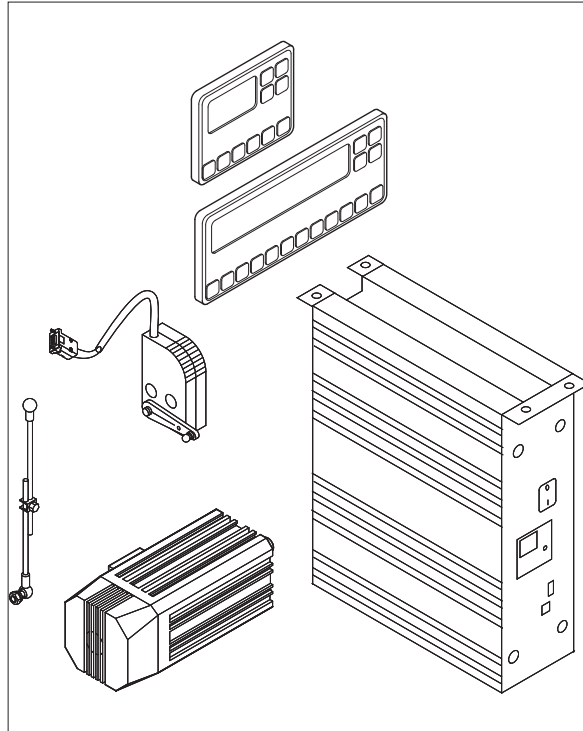
Button	Function
1	Sew backwards manually The machine sews backwards for as long as the button is held down.
2	Position the needle in the upper or lower position. The function of the button can be set with the parameter F-242 (DA321): 1 = needle high/low 2 = needle high 3 = one stitch (The factory default for delivered machine is 1.)
3	Invoke or suppress the start/final bartacks In general, if the start and final bartacks are activated, then the next bartack is deactivated by pressing the button. If the start and final bartacks are deactivated, then the next bartack is activated by pressing the button.
4	Switching the stitch length The function of the button can be defined with parameter F-250 (DA321): 1 = pressing the button switches the stitch length between two pre-set values. 4 = pressing the button changes the stitch length to a lower value. A stitch is then sewn and the machine reverts back to the original (larger) stitch length.
5	Activating and deactivating the supplementary thread tension (see chapter 6.5) The button background is illuminated when the supplementary tension is activated. (The tension discs are closed.) By pressing the button the supplementary tension is deactivated and the button is not background lit (the tension discs are opened).
LED	Function
7 and 8	Display empty bobbin for residual thread monitor (left/right bobbin)
9	LED display "Power On"
Example for adjusting a button (for example, 10):	By adjusting the screw 10 (located under button 1), you can assign the function of button 1 to the lever (6). - Select the function (for example, 1 = sew backwards manually) - Turn screw 10 (located under button 1) clockwise 90° (the slot is then positioned vertically). The function can now be invoked by both button 1 and the lever (6).



Caution!

Be sure to deactivate the existing function before changing the function of lever 6.

7. The Efka DC1550/DA321G positioning drive



GB

The DA321G control unit contains all required operational interfaces for switching functions and setting parameters. It is possible to operate without an operating panel, but the seam programming can no longer be carried out.

The V810 and V820 operating panels can also be connected to the control unit. They are deliverable as accessories. Seam programming can be performed with the V820 operating panel.

The “Efka DC1550 - DA321G” Operating Manual contains a more detailed description of the control unit (see also www.efka.net).

8. Sewing on a machine with positioning drive

8.1 Automatic machine functions

The machine functions listed in the table below are dependent on the following factors which occur during the sewing process:

- Pre-selected setting
- Pedal position (according to the selection of the machine operation)
- The particular procedure in the seam preparation

Automatic function	Pre-selected setting
Needle positioning	• Needle is down when machine stops in the seam • Needle is up when machine stops in the seam Note: After the seam end*, the machine always stops with the needle up.
Tacking	• Normal • Decorative**
Start bartack	• Simple • Double • Stitch count of normal forward tacking • Stitch count of decorative forward tacking • Stitch count of normal backwards tacking • Stitch count of decorative backwards tacking
Final bartack	• Simple • Double • Stitch count of normal backwards tacking • Stitch count of decorative backwards tacking • Stitch count of normal forward tacking • Stitch count of decorative forward tacking
Thread trimming	• Turned on • Turned off
Automatic sewing foot lift	• Lower sewing foot when stopped in seam • Raise sewing foot when stopped in seam

* For pedal position -2, the seam is ended. If the thread trimmer is activated, then after end of function: thread trimmer on.

** The decorative bartack is a special case. This is because, from the beginning to the end of the tacking, the needle is in the same stitch insertion point as the previous stitch seam. When the sewing direction changes, the machine stands still for a moment.

The pre-selected automatic functions are described in the instructions included from the drive manufacturer.

For a detailed description of the control unit, please consult the enclosed current issue of the operating manual of the motor manufacturer (see also www.efka.net)

Additional automatic functions can be pre-selected by changing the drive parameters. Each of the functions has its own parameter number. A parameter value can then be selected for the parameter number.

The parameters concerned are listed in the parameter sheet (in the accessory pack).

8.2 Example - operating the machine while sewing

Pre-selected setting:

- Needle is down when machine stops in the seam
- Normal tacking
- Start bartack is doubled
- Final bartack is doubled
- Thread trimming is turned on
- Lowered sewing foot when stopped in seam
- Raised sewing foot at seam end

GB

Operation	Sewing step
	The machine is at standstill. The needle is up. The sewing foot is raised.
Load the workpiece.	
Press pedal to position +1.	The sewing foot goes down
Let up on pedal to position 0.	The sewing foot goes up
Correct the position of the workpiece.	
Press pedal to position +1.	The sewing foot goes down
Press pedal to position +3.	Sewing the normal double tacking (tack rotary speed is defined by manufacturer) and subsequent sewing at speed level +3.
Let up on pedal to position 0.	Machine stops with needle down.
Press pedal to position -1.	The sewing foot goes up
Turn workpiece in the needle.	
Press pedal to position +5.	Sewing foot lowers and you can sew at the speed level as determined by the pedal.
Press pedal to position -2.	Lower rotary speed. Sewing the normal double tacking. Trim thread and machine is at rest with the needle up. The sewing foot raises.
Let up on pedal.	The sewing foot remains raised.
Take out the workpiece.	

9. Maintenance

9.1 Cleaning and testing



Caution: danger of injury!

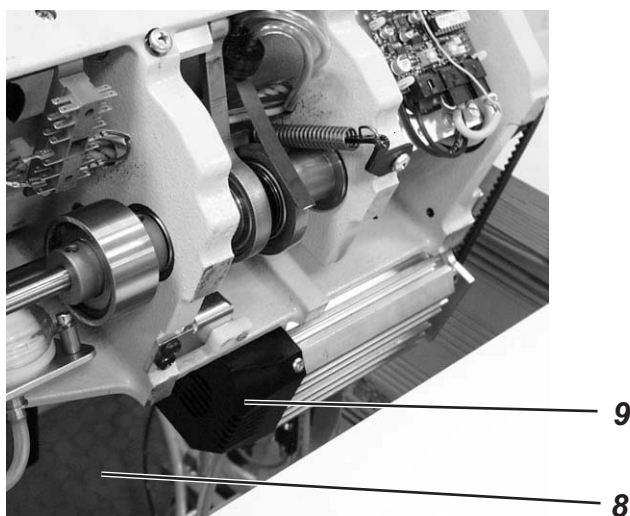
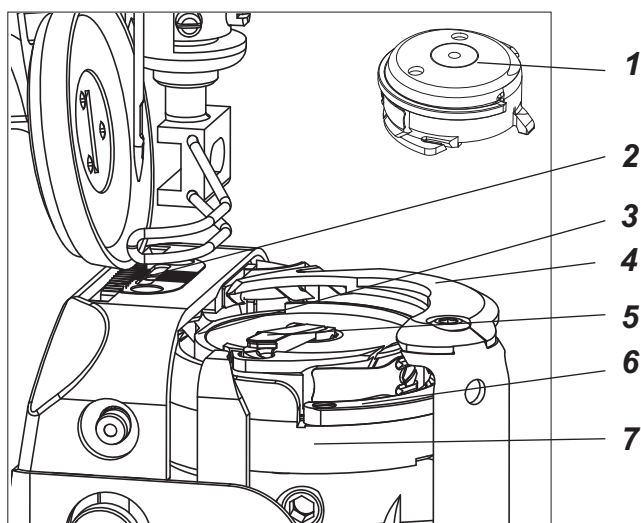
Turn the main switch off.

Maintenance work on the sewing machine must only be carried out when the machine is switched off.

All maintenance work must be carried out before or at the maintenance intervals defined in the table (check the “operational hours” column).

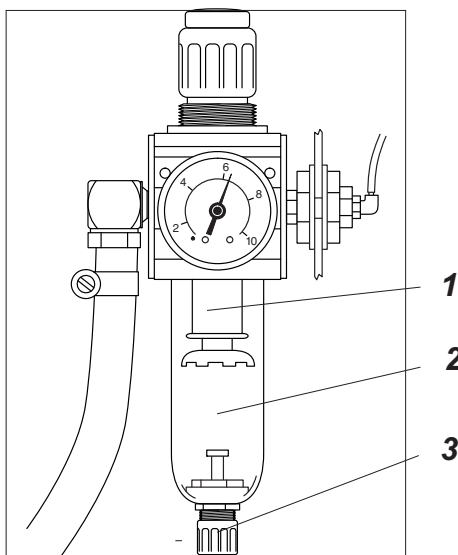
When working with materials that are thick and fibrous, shorter maintenance intervals may be required.

A clean machine is a trouble-free machine.



Maintenance work to perform	Explanation	Operating interval (hours)
Machine head - Remove sewing dust and residual thread. (for example, with compressed air)	Points to be particularly well cleaned: - Area below and around the stitch plate, feed dog (2), and top roller. - Area around the hook (7) - Bobbin housing (1) - Thread trimmer - Area around the needle CAUTION! Be sure to hold the compressed air cleaner so that no sewing dust is blown into the oil collector.	8
- Remove sewing dust and residual thread. (for, example with compressed air)	Take off stitch plate, thread trim blade (4) and hook plunger ring (6). Remove the bobbin housing (5) from the hook. Clean the inner area of the hook. Clean the bobbin housing. In particular, look for residual adhesive on the surface (1).	20
- Check the hook.	Check the play on the track between bobbin housing (5) and the hook (7).	500

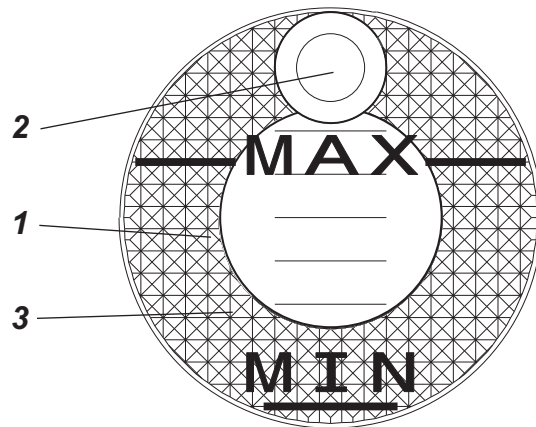
Maintenance work to perform	Explanation	Operating interval (hours)
- Cleaning the oil collector	Clean the oil collector (8) of dirt and contaminated oil. (It can be cleaned with a special vacuum cleaner.)	20
- Cleaning the fan screen	Clean the fan screen (9). (It can be cleaned with the compressed air gun.)	20



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Maintenance work to perform	Explanation	Operating interval (hours)
Pneumatic system		
Check the water level in the pressure regulator.	The water level must not rise as far as filter insert (1). - Use pressure to blow out the water from water separator (2) after loosening the drain screw (3).	40
Clean the filter insert.	The filter insert (1) is used to filter out dirt and condensation. - Separate the machine from the compressed air supply. - Unscrew drain screw (3). There must be no pressure on the machine's pneumatic system. - Unscrew the water separator (2). - Unscrew the filter insert (1). Wash out the dirty filter bowl and filter insert with benzine (do not use a cleaning solvent). Then blow dry. - Reassemble the service unit.	500
Check the system for leaks.		500

9.2 Lubrication



Caution: danger of injury!

Oil can cause skin eruptions.
Avoid protracted contact with the skin.
In the event of contact, thoroughly wash the affected area.



Caution!

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

Oil the sewing machine exclusively with the lubricating oil **DA-10**, or equivalent oil with the following specifications:

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

DA-10 is available from **DÜRKOPP ADLER** point of sale under the following part numbers:

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

All areas in the machine head that must be lubricated with oil are supplied from the central reservoir (1).

- If the oil level falls below the “MIN” mark (3), you should re-fill through the hole (2) until the level reaches the “MAX” mark.
- Be sure to check the oil level daily!



Caution!

Oil should only be re-filled in the central reservoir or shuttle track. Other places and points should not be individually lubricated. Otherwise, the oil could get into areas that are not supposed to be lubricated.

838**Spezialnähmaschine**

Betriebsanleitung

[Instruction manual](#)**D****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.



Part 2: Installation instructions – Class 838

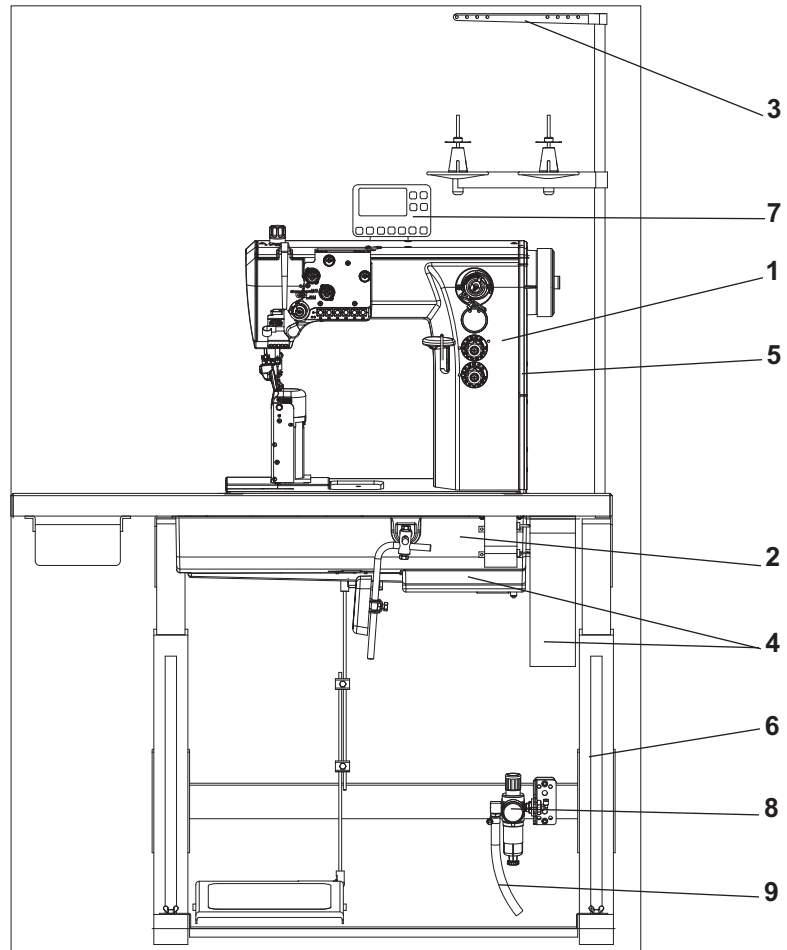
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For your notes:

1. Items delivered

It is possible to order either a complete sewing unit or only individual components. Before setup, please check that all the required components are present.

This description is valid for the special sewing machine whose individual components are delivered directly and completely from **Dürkopp Adler AG**. These directions describe the assembly and installation of the special sewing machine.



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Required components:

- Upper section (machine head) (1)
- Accessory pack (contains oil collector (2), reel stand (3), tools and additional items)
- Parts set (contains direct drive (4), protective belt cover (5), and additional parts)

Optional components:

- Stand (6)
- Operating panel (7)
- Compressed air maintenance unit (8)
- Pneumatic connection kit (9)

2. General and transport packaging



Caution!

The special sewing machine may only be set up by trained personnel.

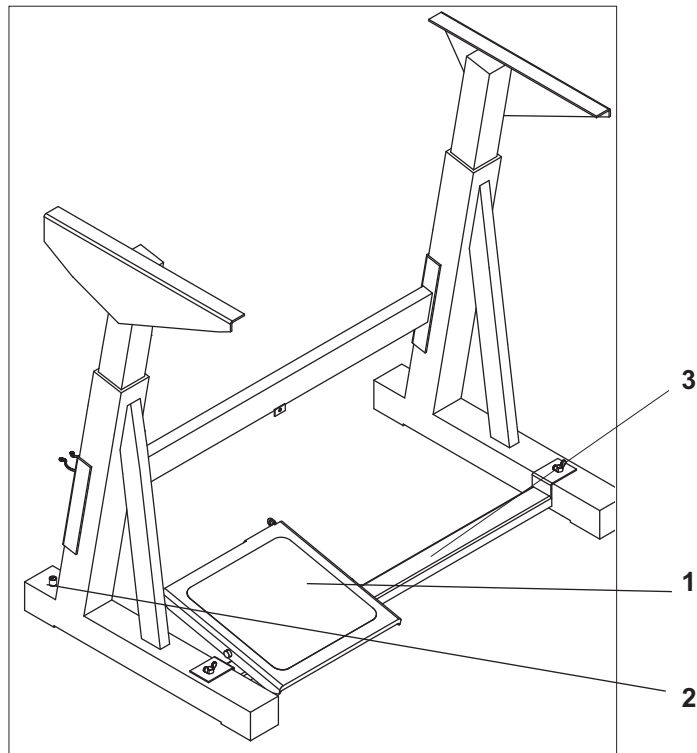
Transport packaging

If you have purchased a mounted sewing machine, you must remove the following packaging:

- Safety straps and battens from the upper machine head, table and stand,
- Safety blocks and straps from the sewing drive.

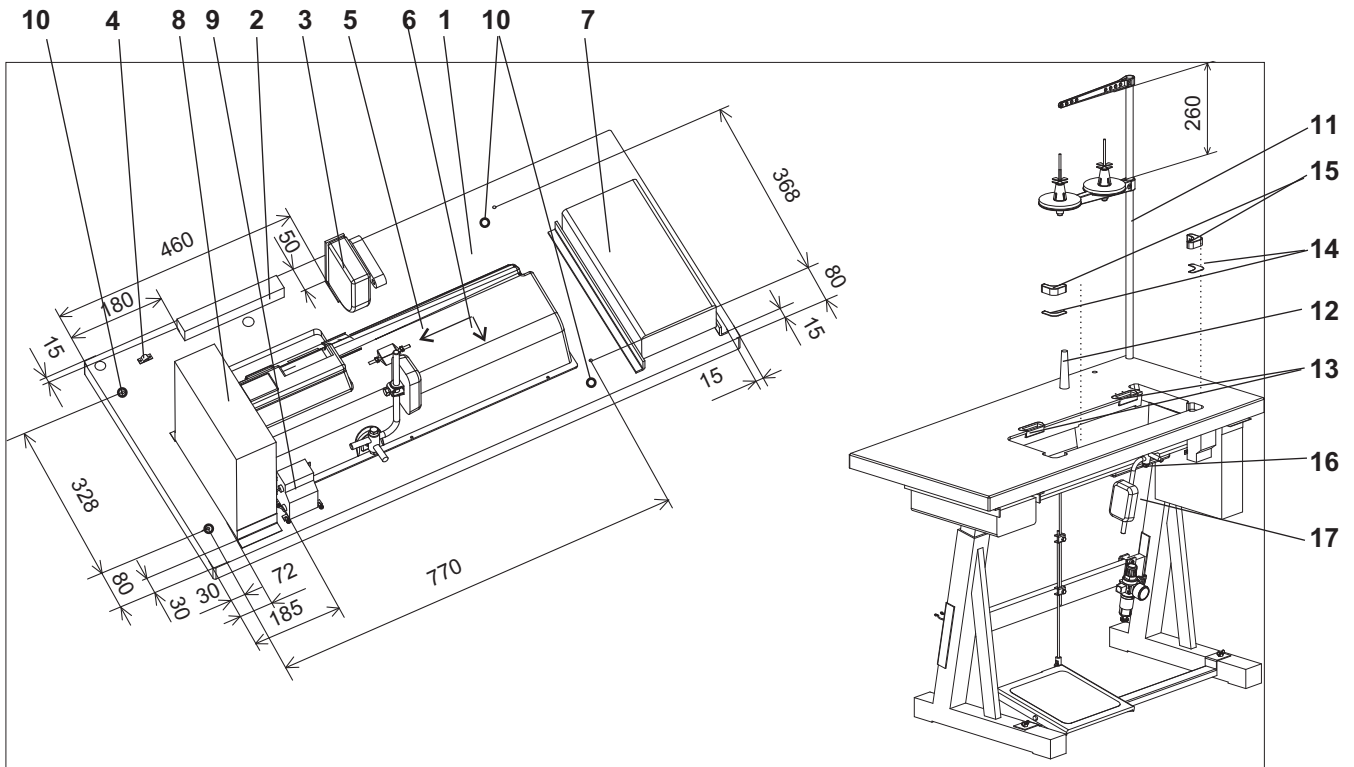
3. Assembling the stand

3.1 Assembling the stand components



- Assemble the stand components according to the illustration. Fasten the pedal (1) to the stand brace (3). Align the pedal after you have assembled the complete machine.
- Turn the adjusting screw (2) to ensure a secure mount on the stand. The stand must be resting with all four feet on the floor.

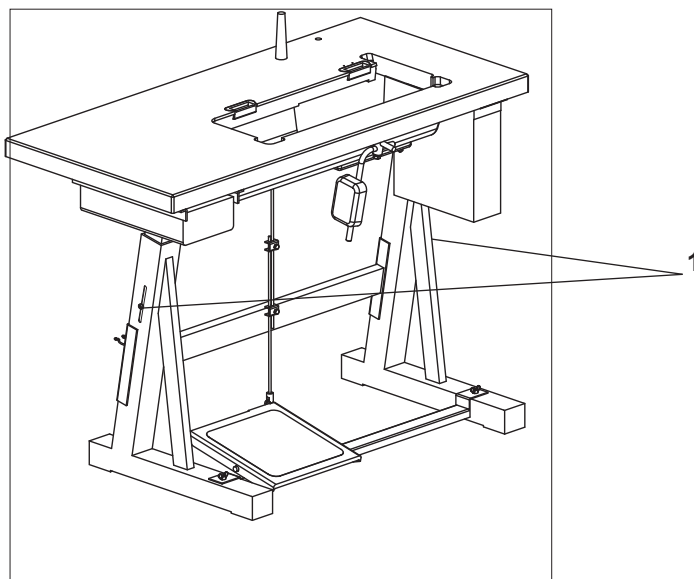
3.2 Completing the table plate and mounting to the stand



- Turn over the **table plate** (1).
- Screw on the **cable channel** (2).
- Screw on the **setpoint director device** (3).
- Screw on the **cable clamp** (4).
- Position the **oil collector** (5) in direction of arrow (6) so that the edge of the oil collector is aligned with the table plate edge. Screw on the oil collector.
- Screw on the **drawer** (7) together with its fixtures.
- Screw on the **control unit** (8) (the drill holes for the wood screws are pre-drilled).
- Screw on the **sewing light transformer** (9) (optional equipment).
- Mount the **electrical cable** according to the instructions in Chapter 5.
- Mount the **table plate** (1) to the stand using the wood screws (B8x35). Drill the holes (10) for the wood screws. Turn the stand so that it is positioned in its normal position.
- Put the **reel stand** (11) into the drilled hole in the table plate. Fasten with nut and washer. Mount and align the reel holder and unwinder holder. These two holders must be positioned on top of each other.
- Put the **support** (12) in the drilled hole.
- Insert the **lower hinge section** (13) for the machine head into the space on the table plate (1). Then screw it in.
- Insert the **wedges** (14) into the clearance space in the table plate (for the rubber corners).
- Insert the **rubber corners** (15).
- Remove the **plug** (16) on the oil collector for the knee lever (17).
- Remove the **knee lever** (17) and guide through the opening, as shown in the illustration.

GB

3.3 Adjusting the working height



- The stand height can be adjusted between 750 and 900 mm.
- Loosen the screws (1).
- Set the horizontal height of the table plate as needed. Check the scale on the stand spar. The height of the stand should be appropriate to the height and operating position of the operator.
- Tighten the screws (1).

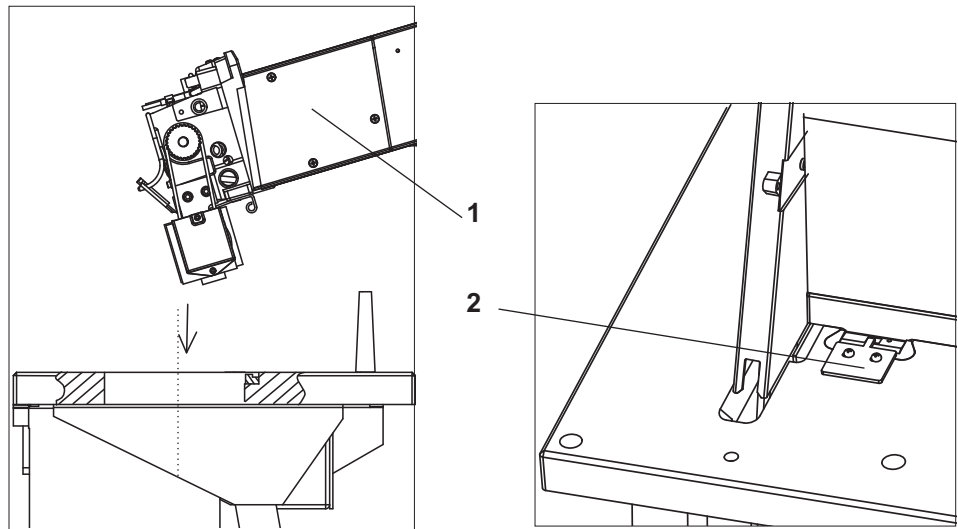


Caution Danger of Injury!

Ergonomic-related, operator injuries can result if the stand height is not adjusted to fit the operator.

4. Assembling the sewing machine head

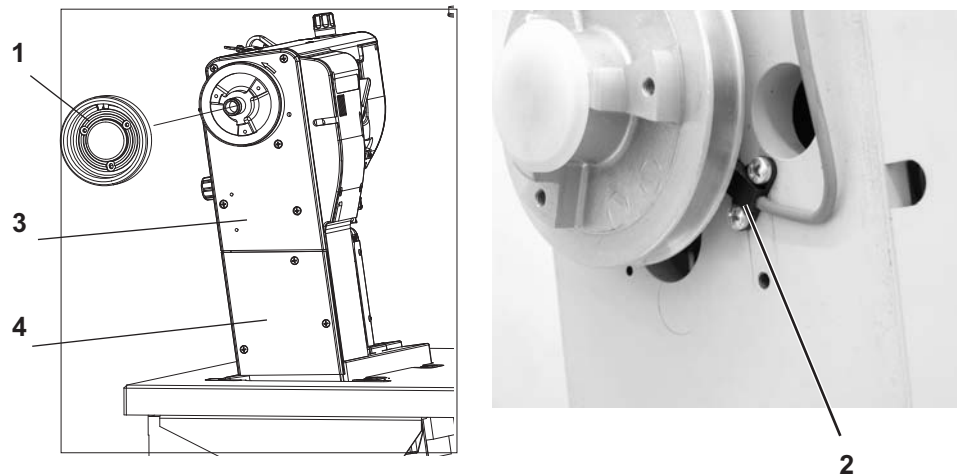
4.1 Integrating the sewing machine head into the stand



- If the special sewing machine is equipped with a drive (direct drive) on the machine head, then you should insert the head section (1) diagonally into the space on the table plate.
- Be sure to screw in the installation plate (2) immediately after inserting the head section. This will prevent the head section from falling out if tilted or turned over. The installation plate is included in the machine head's accessory pack.

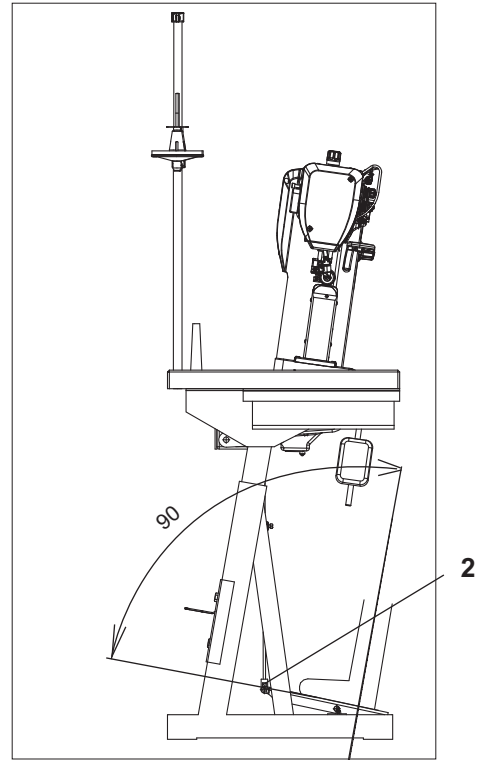
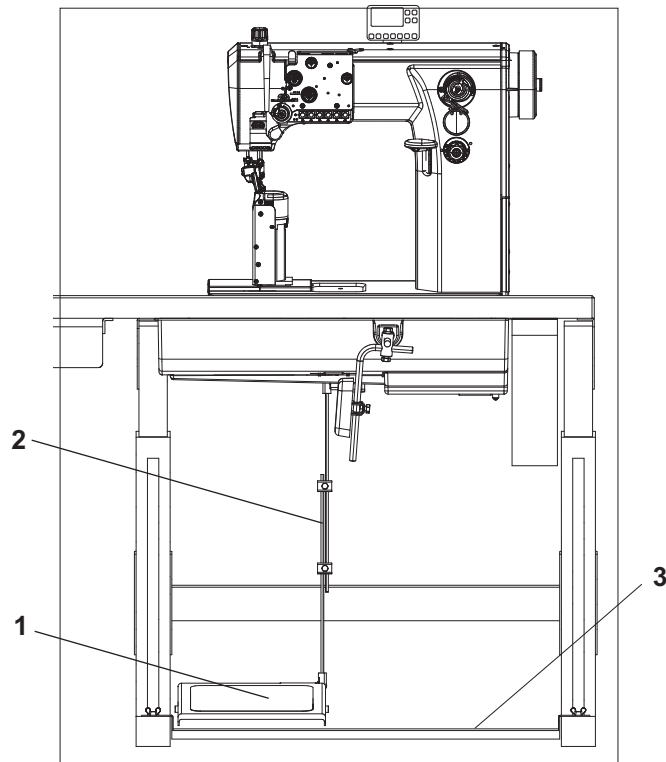
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4.2 Assembling the protective belt cover on the sewing machine head



- Take off the handwheel (1).
- Mount the Hall sensor (2) to the machine head. This part is included in the “motor part set”.
- Mount the protective belt covers (3) and (4). (These are included in the “motor part set”.)
- Mount the handwheel (1). Be sure to maintain the proper angled position: when the needle position is “high”, the handwheel pointer “0” should be aligned with the mark on the machine head.

4.3 Pedal adjustment



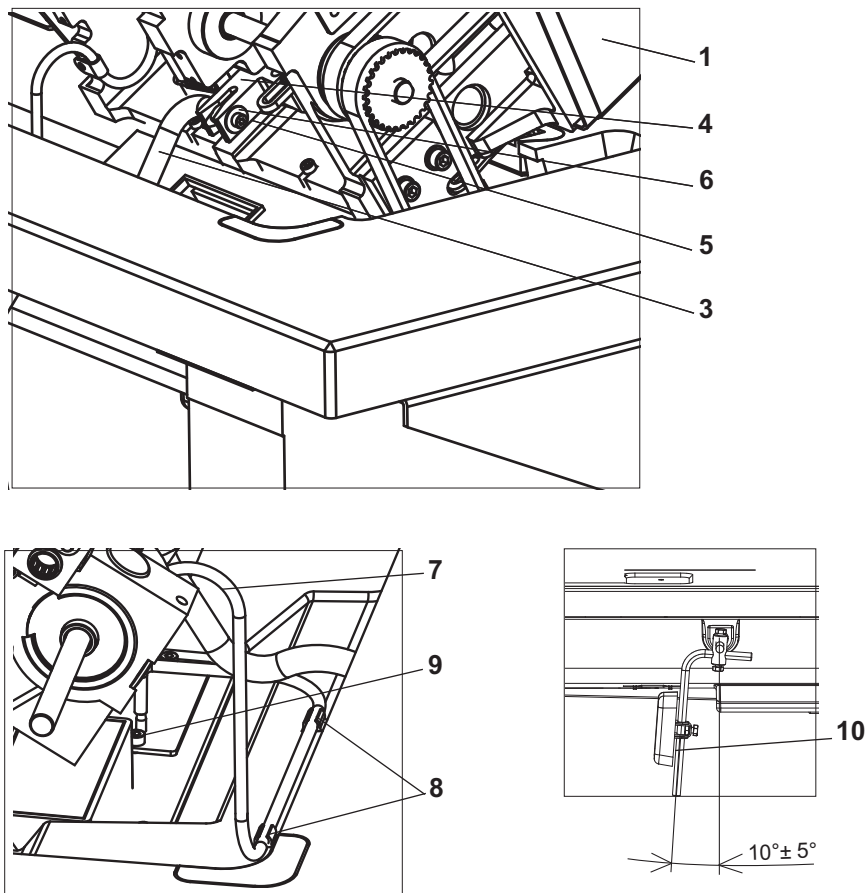
- For proper ergonomic function, set the pedal (1) as follows:
The middle of the pedal should be position approximately under the needle.
The stand brace (3) is fitted with slotted holes to help in aligning the pedal properly.
- Adjust the tie rod (2) so that the foot axis is perpendicular to the pedal surface.



Caution Danger of Injury!

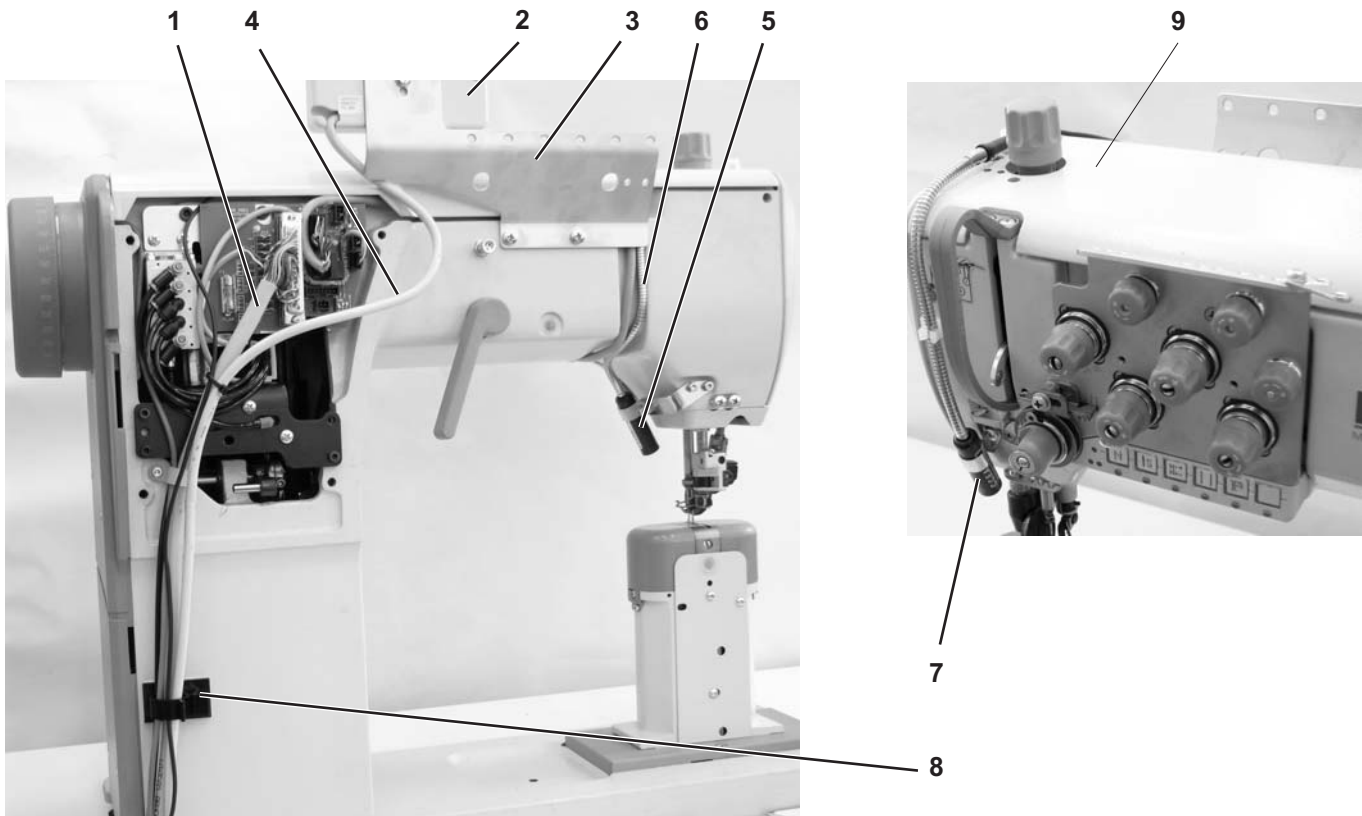
Ergonomic-related, operator injuries can result if the proper pedal position is not maintained.

4.4 Assembling the knee lever and oil pump hose



- Use the hand lever to lift the sewing foot.
- Tilt the machine head (1) to the rear.
- Insert the shaft (3) into the lever (4).
- Screw the screw (5) with the washer (6) into the shaft (3).
- Press the hose (7) into the clamps (8) and pull on to the strainer (9).
- Reposition the machine head vertically and adjust the knee lever (10) as shown in the illustration.
- Align the knee cushion.

4.5 Assembling the connection cable, control panel, and diode illumination on the machine head



- A connection cable (1) is included in the delivery of all machines that come with a positioning drive.
- The operating panel (2) must be ordered separately (optional equipment). When the operating panel is ordered, the thread guide (3) is also included in the delivery. The diode illumination (5) must also be ordered separately (optional equipment). With it are delivered two types of holder brackets. This allows you to choose between two different mounting positions for the light. Position (5) is the home (starting) position. Position (7) is used when a material guide is mounted onto the sewing machine.
- Take off the arm cover (9) and the valve cover from the machine head.
- Install the connection cable with the connector (1) as shown in the illustration.
- Mount the operating panel (2) with the thread guide (3). Install cable (4) as shown in illustration.
- Install lighting (5) and cable (6) as shown in illustration.
- Lead the connection cables through the opening in the table plate and fasten with the self-adhesive clamp (8).

5. The special sewing machine's electrical connection

The sewing machine drive is supplied from the low voltage power supply.



Caution!

Work on the electrical equipment of the sewing machine may only be carried out by qualified electricians or other appropriately trained persons.
It is strictly required to carefully read the drive instructions provided by the manufacturer!
The power cord must always be disconnected while working on the electrical equipment!

5.1 Connecting the special sewing machine to the low voltage supply



Caution!

The voltage of the mains must comply with the voltage specified on the ratings plate!

The following items are part of the low voltage system:

- Connection cable
- Sewing drive
- Sewing light transformer (optional equipment)
- Cable

GB

When the sewing machine is delivered, some of these items are included in the “drive set” while other items are included in the “motor part set”.

The connection to the low voltage supply should be carried out according to the circuit diagram included in the “motor part set”.



Caution Danger of Injury!

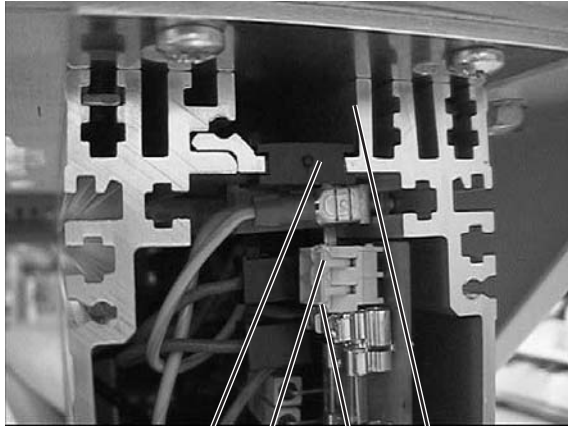
The drive may only be operated with a protective earth conductor. It must be connected to protect personnel from fire or electric shock, in compliance with accident prevention regulations.
It is unsafe to operate the sewing machine while the protective earth is disconnected. This protection may not be cancelled out in any way (for example, by the use of an extension cable without grounding/earth).

5.1.1 Connecting the sewing light transformer to the supply voltage

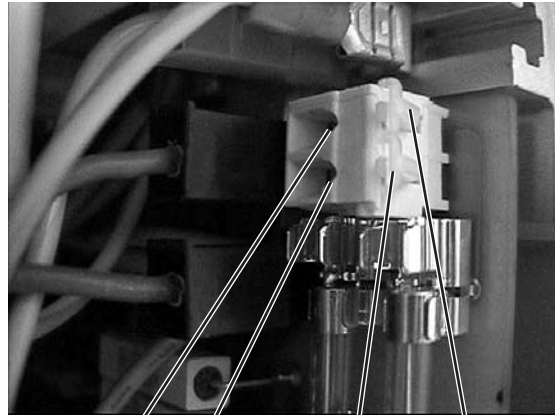


Caution Danger of Injury!

The sewing light cannot be turned off with the main switch (EN 60 204-31)! The mains power supply must be disconnected before mounting the illumination, repairing the transformer or changing fuses.



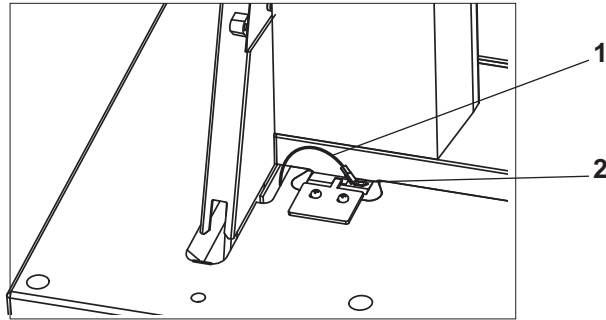
2 6 5 1



6 5 4 3

- Pull the plug out of the socket.
- Loosen the four screws on the front plate of the control cabinet.
- Take off the front plate.
- Guide the sewing light transformer cable through the cable duct (1) into the control cabinet.
- Take off the black rubber guide track (2).
- Make a hole in the guide track (2) with a screw driver.
- Guide the cable for the sewing light transformer through this new opening.
- Re-mount the rubber guide track (2).
- Use a thin screwdriver to press on the terminal openings (3) and (4). This opens up the terminals (5) and (6).
- Connect the blue cable to terminal (6) and the brown cable to terminal (5).
- Screw the front plate back on.
- Install a strain relief mechanism (e.g., a cable tie) for the transformer cable.

5.2 Establishing equipotential bonding



The earth (grounding) cable (1) is included in the machine's accessory pack.

The earth cable (1) conducts static charges from the machine head via the motor foot to the earth.

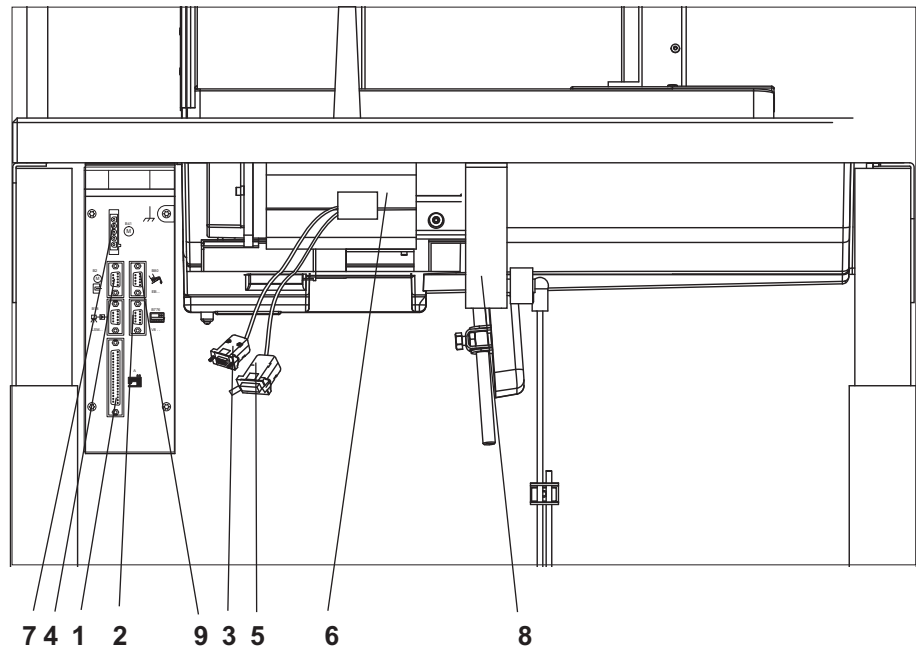
- Attach the earth cable (1) to the tab connector (2) (which is already screwed on to the machine head). Guide the other end of the cable under the table plate.
- Screw the end of the earth cable to the earth (grounding) point on the drive ().
- The earth cable (1) should also be fastened under the table plate with nail clips.

Caution: For sewing machines with a sewing drive (direct drive) integrated into the machine head, there is no need to establish equipotential bonding since this is implemented with the attached sewing drive.

GB

5.3 Connecting the sewing machine head to the sewing drive

The electrical connection to the machine head is described in section 4.5.



- Plug the connection cable from the machine head into the plug connector (1).
- Plug the cable from the operating panel into the plug connector (2).
- Plug the connector (3) from the motor sensor (6) into the plug connector (4).
- Plug the connector (5) from the motor (6) into the plug connector (7).
- Plug the cable from the setpoint (pedal) device (8) into the plug connector (9).
- Plug the cable from the handwheel proximity switch into the B18 socket.

6. Adjusting the Efka positioning drive

The programming and setting of parameters is used to specify the function of the sewing drive controller.

All parameter values for the corresponding sub-classes are already assigned when the complete sewing machine is delivered. Some pre-set values for the controller (e.g., maximum rotational speed) may also be changed. When replacing the controller, these machine-specific parameters must be re-specified on the new controller.

6.1 Adjusting the positioning drive parameters

Drive parameters are set in two steps. In the first step, the function “Auto-select” is used to set the machine class parameters. In the second step, some pre-set parameters are changed in order to set the machine-specific parameters in the sub-class.

6.1.1 Adjusting the parameters with the “Auto-select” function

The sewing drive controller detects which sewing machine class is connected by measuring the auto-select resistance from the machine. Auto-select is used to select control function and the pre-set values of the parameters.

Caution! If the controller detects an invalid or absent auto-select resistance, then the sewing drive will only operated with emergency-run functions. This serves to protect the machine from damage.

GB

6.1.2 Class-838 specific adjustments to the parameters of the Efka drive



Caution!

Be very careful when adjusting the parameter values. The machine can be damaged when settings are made improperly.



Note:

All parameter values can be reset to their default (pre-set) values by using the Master Reset function (refer to section 6.3).

A description of parameter settings can be found at www.efka.net or in the Efka operating instruction booklet provided by the drive manufacturer.

6.1.3 Specific parameter values for the Class 838

Changing machine parameters for machines with 18/28 tooth drive ratios

Parameter	Original value	New value	Description of parameter
290*	0	4	Sewing machine class
111	1700	-	Max. sewing speed
170	-	-	Reference position
171-2E	315	325	Position 2
180	20	30	Angle of turn back after cutting
250	16	4	1 stitch with the second stitch length

* This parameter must be selected first.

Note: In order to changing tooling-level parameters, the code 3312 must be entered with program access rights.

6.2 Adjusting the machine positioning

6.2.1 Defining the position

Position 1

At stop position, the needle is down in the seam. The number 225 on the handwheel scale is aligned with the mark on the arm.

Position 2

After the thread cut, the needle is in the up position. The number 35 on the handwheel scale is aligned with the mark on the arm.

6.2.2 Adjusting the machine positioning for the DC1550/DA321G drive

6.2.2.1 General

An incremental proximity switch is attached to the handwheel for helping to position the needle. It delivers 512 pulses (value is shown on the display) and an additional pulse per rotation. In general, the specific position is specified by the angle between this position and the reference position. The angle is specified by the value of the corresponding parameter. (But it is not identical with the parameter value.) The parameter values and positions are already set (refer to section 6.1.3). The reference position is not set and must be specified.

The reference position is the starting position used for all other positions. This position is defined when the handwheel number 105 is aligned with the mark on the arm.

After disassembly, assembly, or replacement of the motor, the reference position must be specified again.

The description of changing the reference position is found in the booklet entitled "Instructions for Efka Operation".

6.2.3 Checking the set positions

1. Position

Turn the main switch on.

Step forwards slightly on the pedal and then release. The machine will stop in the first position (refer to 6.2.1).

The number $225^{\circ} (\pm 5^{\circ})$ on the handwheel scale is aligned with the mark on the arm.

2. Position

First step slightly forwards on the pedal. Then press backwards with your heel until the machine stops.

The machine will stop in the second position (refer to 6.2.1).

The number $35^{\circ} (\pm 5^{\circ})$ on the handwheel scale is aligned with the mark on the arm.

6.3 Master reset

All changed values will be reset to their pre-set default values after a master reset is executed.

After a master reset, all machine-specific parameters must once again be properly set.

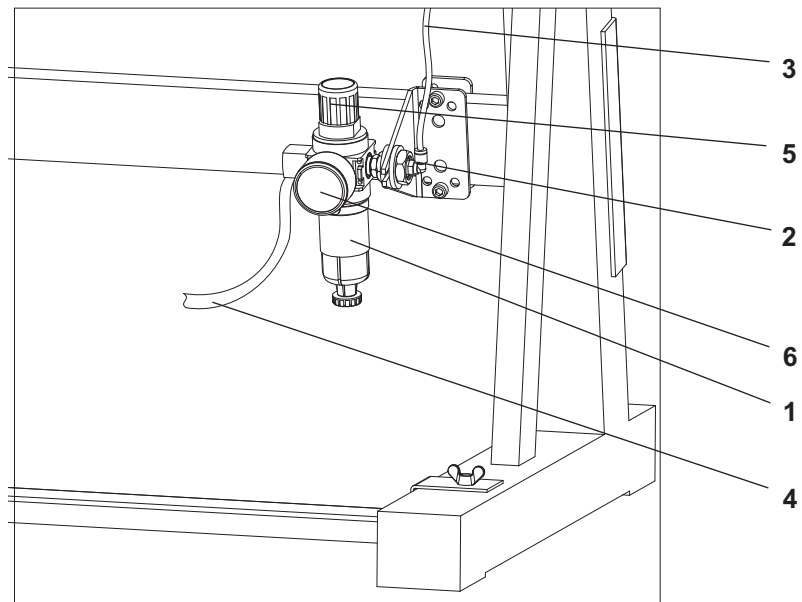
This is described in the booklet entitled "Instructions for Efka Operation".

7. Pneumatic connection



Caution!

A working air pressure for the sewing machine should be 6 bar.



- Screw the compressed-air maintenance unit (1) to the stand brace as shown in the illustration.
- Screw on the elbow fitting (2) (contained in the accessory pack). Connect the hose (3) from the machine head to the elbow fitting (2).
- Screw on the connection hose (4) according to the illustration. Connect the other end fitted with the quick-coupling to the compressed air system.
- Raise up the settings dial (5) and turn the dial until the manometer (6) indicates 6 bar. Lower the dial (5).

7. Lubrication

All wicks and felts should be saturated with oil before the machine is started up. Check the oil level on the reservoir and fill if necessary. Refer to Chapter 9 in the operation instructions.

8. Sewing test

You should perform a sewing test after you have completed all work on the installation and settings.

- Thread in the winder thread (refer to operating instructions).
- Turn the main switch on.
- Lock the sewing foot in the lifted position (refer to operating instructions).
- Fill up the bobbin at a low speed.
- Turn the main switch off.
- Thread in needle thread and bobbin thread (refer to operating instructions).
- Select the material to be processed.
- Start the test with a low sewing speed and then work with a continually increasing speed.
- Check that the seams satisfy your requirements.
Change the thread tensions if your requirements are not satisfied (refer to operating instructions).

For your notes: