DÜRKOPP ADLER

550-869

Operating Instructions

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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 immediatly 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 permanend 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.



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1. Product Description

The **DÜRKOPP ADLER 869** is a single-needle double lockstitch free-arm sewing machine with a lower feed, a needle feed and an alternating foot-upper feed.
Depending on the subclass it comes as single or double needle machine, with or without electropneumatic driven thread trimmer.

- The machines are equipped with a large horizontal hook.
- With a maximum of 20 mm fabric clearance when sewing feet are lifted.
- The residual thread length after thread trimming is about 15 mm.
- A safety clutch prevents a changing of the hook setting or a hook damage in the case of a thread deflection into the shuttle track.
- Automatic wick lubricating with an inspection glass on the arm for machine and hook lubrication.
- All Subclasses, excluding those classes without thread trimmer device, are equipped with a keypad (6 keys). An additional key, within reach of the seamstress, can optionally also be assigned one of the six different functions.
- Integrated bobbin winder

2. Designated use

The class **869** is a sewing machine head designed for sewing light to medium-heavy material. Such material is generally made of textile fibres, but it may also be leather. It is used in the clothing industry and for domestic and motor-vehicle upholstery.

This special sewing machine can also be used to produce so-called technical seams. In this case, however, the operator must assess the possible dangers which may arise (with which **DÜRKOPP ADLER GmbH** would be happy to assist), since such applications are on the one hand relatively unusual and, on the other, so varied that no single set of criteria can cover them all. The outcome of this assessment may require appropriate safety measures to be taken.

Generally only dry material may be sewn with this sewing machine head. The material may be no thicker than 10 mm when compressed by the lowered sewing feet. The material may not contain any hard objects, since if it does the machine may not be operated without an eye-protection device. No such eye-protection device is currently available.

The seam is generally produced with textile-fibre sewing thread of gauge up to 10/3 NeB (cotton), 10/3 Nm (synthetic) or 10/4 Nm (covering yarn).
Before using any other thread the possible dangers arising must be assessed and appropriate safety measures taken if necessary.

This special sewing machine may be set up and operated only in dry, well-maintained premises. If the sewing machine is used in 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

869-180020	Single-needle double lockstitch free-arm sewing machine with lower feed, needle feed and alternating foot upper feed.
869-180122	Single-needle double lockstitch free-arm sewing machine with lower feed, needle feed and alternating foot upper feed, electro-pneumatic thread trimmer, electro-pneumatic seam bartacking and sewing foot lifting. With large hook.
869-180322	Single-needle double lockstitch free-arm sewing machine with lower feed, needle feed and alternating foot upper feed, electro-pneumatic rapid stroke adjustment, electro-pneumatic thread trimmer, connectable thread tension, electro-pneumatic seam bartacking, electro-pneumatic second stitch length and sewing foot lifting. With large hook and integrated sewing light.
869-280020	Double-needle double lockstitch free-arm sewing machine with lower feed, needle feed and alternating foot upper feed.
869-280122	Double-needle double lockstitch free-arm sewing machine with lower feed, needle feed and alternating foot upper feed, electro-pneumatic thread trimmer, electro-pneumatic seam bartacking and sewing foot lifting. With large hook.
869-280322	Double-needle double lockstitch free-arm sewing machine with lower feed, needle feed and alternating foot upper feed, electro-pneumatic rapid stroke adjustment, electro-pneumatic thread trimmer, connectable thread tension, electro-pneumatic seam bartacking, electro-pneumatic second stitch length and sewing foot lifting. With large hook and integrated sewing light.

4. Optional Equipment

The following optional equipment is available for the **869**.

Order No.	Optional equipment	Subclasses					
		869-180020	869-180122	869-180322	869-280020	869-280122	869-180322
9780 000108	WE-8 maintenance unit for pneumatic optional equipment	x	x	x	x	x	x
0797 003031	Pneumatic connection package For connection of stand with maintenance unit.	x	x	x	x	x	x
0867 490010	Operating panel angle bracket	x	o	o	x	o	o
9822 510001	Halogen sewing light for sewing machine head	x	x	x	x	x	x
9880 867100	Sewing light add-on kit	x	x	x	x	x	x
0798 500088	Sewing light transformer	x	x	x	x	x	x
9880 867103	Sewing light LED	x	x	x	x	x	x
9880 867102	Integrated sewing light	x	x	o	x	x	o
9850 001089	Power supply complete for integrated sewing light and sewing light LED	x	x	o	x	x	o
9850 867001	PCB for oil monitoring		x	o		x	o
0867 590014	Electro-pneumatic needle cooler from the top		x	x			
0867 590344	Mech. sewing foot lifting, with pedal	x			x		
0867 590354	Pneumatic sewing foot lifting; for clutch pos. drive	x			x		
0867 590364	Pneumatic sewing foot lifting; for DC 1550	x			x		
0867 590464	Manual seam tacking	o	x	o	o	x	o
N800 080004	Edge guide, swivelling (like Del Veccia)	x	x	x	x	x	x
9805 791113	USB memory key for data transfer with the Efka control unit DA321G.	x	x	x	x	x	x
Stands							
MG55 400384	Stand set table top 1200 x 550 without cut-out	x	x	x	x	x	x
MG55 400394	Stand set table top 1200 x 550 with cut-out	x	x	x	x	x	x
MG56 400064	Stand set table top 1250 x 600 divided, foldable, for clutch motors	x			x		
MG56 400074	Stand set table top 1250x600 divided, foldable, for DC 1550	x	x	x	x	x	x

o = Standard equipment

x = Optional equipment

Further available documents concerning the class 869:
0791 869801 Parts List
0791 869641 Service Instructions

5. Technical data

Noise: Workplace-related emission value in accordance with DIN 45635-48-A-1-KL2

869-180020 **LC = _dB (A)**
Stitch length: _ mm Sewing-foot stroke: __ mm Speed: ____ min^{-1}
Material:

869-180122 **LC = _dB (A)**
Stitch length: _ mm Sewing-foot stroke: __ mm Speed: ____ min^{-1}
Material:

869-180322 **LC = _dB (A)**
Stitch length: _ mm Sewing-foot stroke: __ mm Speed: ____ min^{-1}
Material:

869-280020 **LC = _dB (A)**
Stitch length: _ mm Sewing-foot stroke: __ mm Speed: ____ min^{-1}
Material:

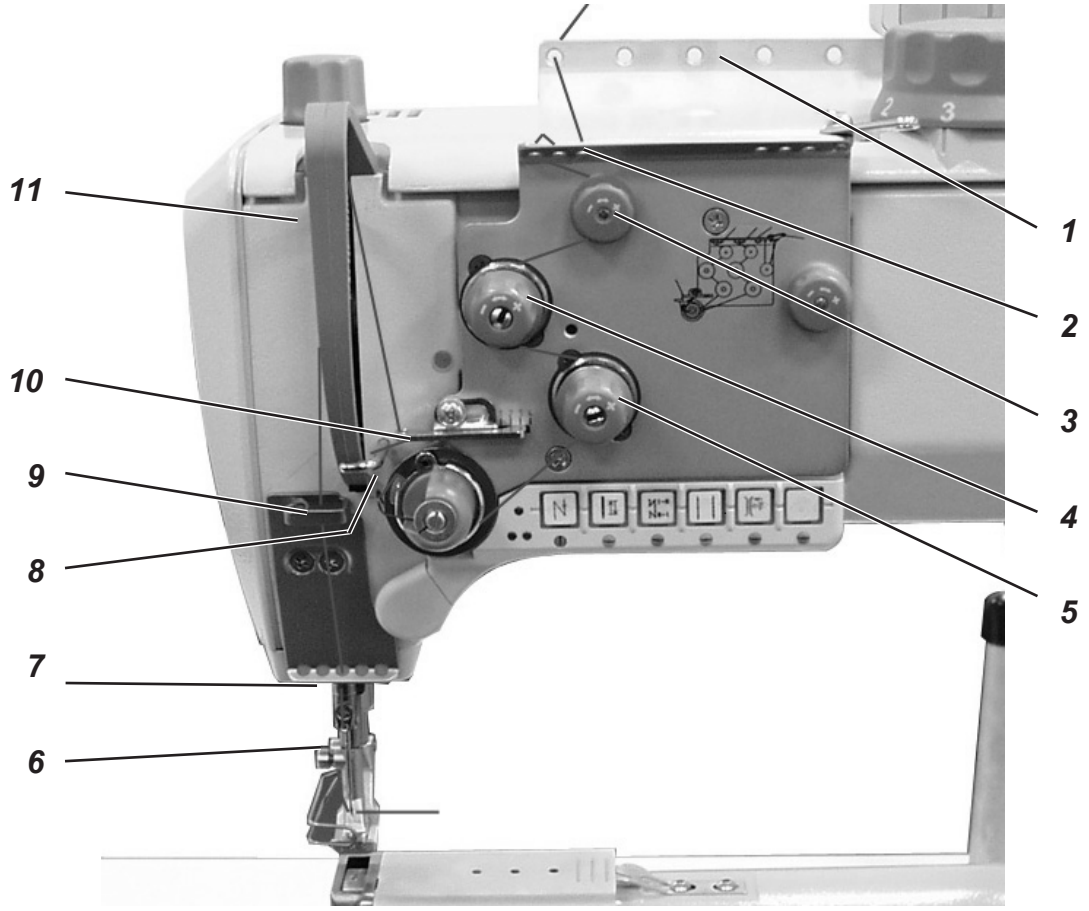
869-280122 **LC = _dB (A)**
Stitch length: _ mm Sewing-foot stroke: __ mm Speed: ____ min^{-1}
Material:

869-280322 **LC = _dB (A)**
Stitch length: _ mm Sewing-foot stroke: __ mm Speed: ____ min^{-1}
Material:

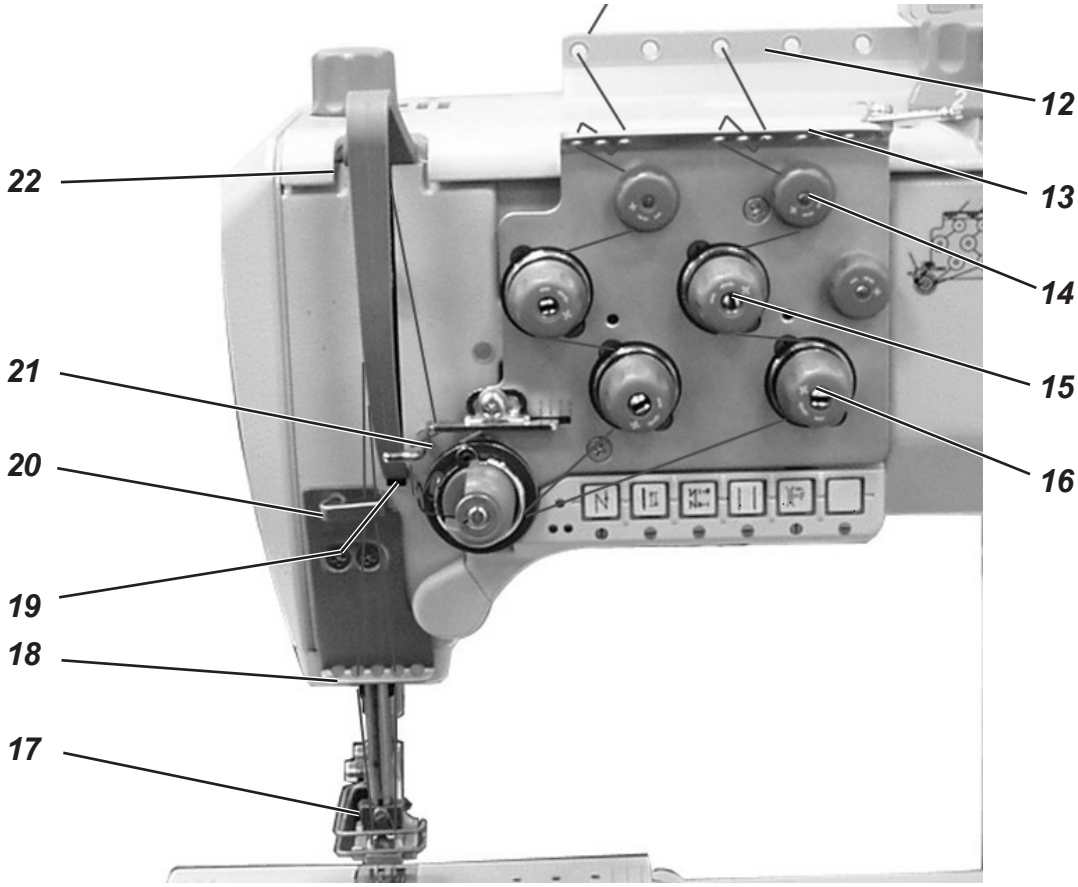
5.1 Technical data subclasses

		Subclass					
		869-180020	**869-180122**	**869-180322**	**869-280020**	**869-280122**	**869-180322**
Type of stitch		Lockstitch 301					
Hook type		vertical, large					
Number of needles		1			2		
Needle system		134-35					
Needle size max. (depending on E-No.)	[Nm]	180					
Max. thread thickness Needle thread Hook thread	 [Nm] [Nm]	 80/3 - 10/3 100/3 - 10/3					
Stitch length Forwards Reverse	[mm]	 9 9					
Max. speed	[min^{-1}]	2800					
Speed factory setting	[min^{-1}]	2800					
Max. sewing-foot stroke	[mm]	9					
Height of the lifted sewing feet max. Operating pressure	[mm] [bar]	20 6					
Air consumption per working cycle	[NL]	0,7					
Dimensions (L x B x H) (with the Efka DC 1550 mounted)	[mm]	600/ 230/ 470 (600/ 300/ 470)			650/ 230/ 470 (650/ 300/ 470)		
Weight (with the Efka DC 1550 mounted)	[kg]	52 (56)			53 (57)		
Rated voltage	[V/Hz]	Depending on the drive package					
Rated voltage (factory setting)	[V/Hz]	Depending on the drive package					
Rated power	[kVA]	Depending on the drive package					

Threading scheme single-needle machine



Threading scheme double-needle machine



6. Operation

6.1 Threading the needle thread



Caution: Risk of injury!

Turn off the main switch!

The needle thread may only be threaded with the sewing machine switched off.

Threading in the needle thread with single-needle machines

- Put the thread reel on the thread stand and lead the needle thread through the unwinder arm. The unwinder arm must be in vertical position above the thread reels.
- Thread in the thread through threading guide 1 and 2.
- Pass the thread clockwise around the pre-tensioner wheel 3.
- Pass the thread counter-clockwise around the supplementary tensioner wheel 4.
- Pass the thread clockwise around the around the main tensioner wheel 5.
- Pull the thread underneath the thread take-up spring 8 and pass it through the thread regulator 10 to the thread lever 11.
- Pass the thread through the thread lever 11 and the threading guides 9, 7 and 6 on the needle bar.
- Thread the thread into the needle eye.

Threading in the needle thread with double-needle machines

- Put the thread reels on the thread stand and lead the needle thread and hook thread through the unwinder arm. The unwinder arm must be in vertical position above the thread reels.

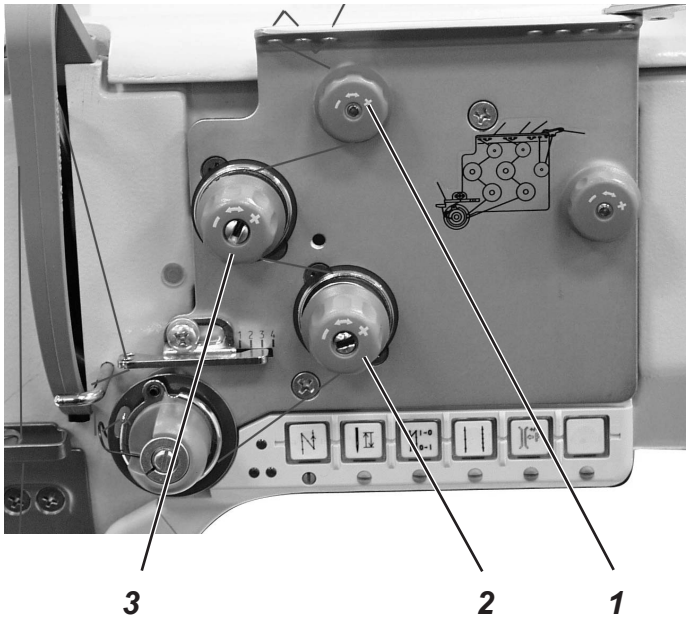
Thread for the left needle (as with single-needle machines)

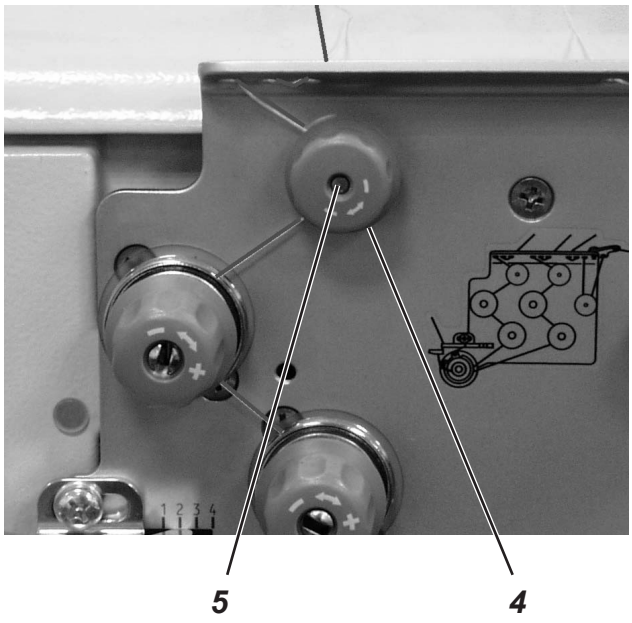
- Thread in the thread through threading guide 1 and 2.
- Pass the thread clockwise around the pre-tensioner wheel 3.
- Pass the thread counter-clockwise around the supplementary tensioner wheel 4.
- Pass the thread clockwise around the around the main tensioner wheel 5.
- Pull the thread underneath the thread take-up spring 8 and pass it through the thread regulator 10 to the thread lever 11.
- Pass the thread through the thread lever 11 and the threading guides 9, 7 and 6 on the needle bar.
- Thread the thread into the needle eye.

Thread for the right needle

- Thread in the thread through threading guide 12 and 13.
- Pass the thread clockwise around the pre-tensioner wheel 14.
- Pass the thread counter-clockwise around the supplementary tensioner wheel 15.
- Pass the thread clockwise around the around the main tensioner wheel 16.
- Pull the thread underneath the thread take-up spring 19 and pass it through the thread regulator 21 to the thread lever 22.
- Pass the thread through the thread lever 22 and the threading guides 20, 18 and 17 on the needle bar.
- Thread the thread into the needle eye of the right needle.

6.2 Adjusting the needle-thread tension





Pre-tension

When the main tensioner 2 and supplementary tensioner 3 are open, the needle thread must be under slight residual tension. This residual tension is produced by the pre-tensioner 1.

The pre-tensioner 1 simultaneously affects the length of the end of the severed needle thread (the starting thread for the next seam).

– Basic setting:
  Turn knurled nut 4 until its front is flush with the bolt 5.
– To shorten the starting thread:
  Turn knurled nut 4 clockwise.
– To lengthen the starting thread:
  Turn knurled nut 4 counter-clockwise.

Main tension

The main tensioner 2 should be set to the minimum possible tension.

The interlacing of the threads must be in the center of the material.

With thin material excessive thread tension can cause unwanted gathering and thread breakage.

– Adjust the main tensioner 2 so that the stitches are uniform.

To increase tension - Turn the knurled nut clockwise
To decrease tension - Turn the knurled nut counter-clockwise

Supplementary tension

The supplementary tensioner 3 is used for rapid change in needle-thread tension during operation (e.g. with thickened seams).

– Set the supplementary tensioner 3 lower than the main tensioner 2.

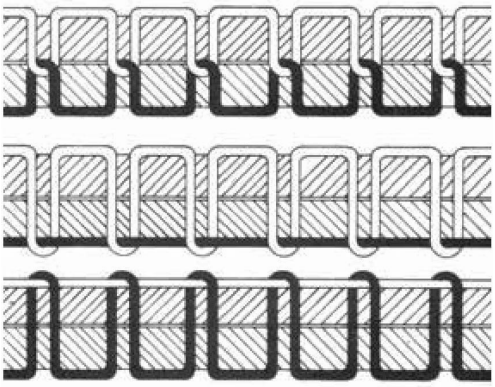


Fig. A Correct thread interlacing in the center of the material

Fig. B Needle-thread tension too weak
or
Hook-thread tension too strong

Fig. C Needle-thread tension too strong
or
Hook-thread tension too weak

6.2.1 Function of the main thread tension and the supplementary thread tension in relation to the sewing foot lifting for subclass 869- ...

The thread supplementary tension can, at any time, be switched on or off by actuating key 1 (see chapter 6.15) of the key pad. The parameter F-299 must be set on “1" for this to work.

	Sewing foot lifting during seam		**Sewing foot lifting after thread trimming**	
Parameter Setting	Thread-main-tension	Thread-supplement.-tension	Thread-main tension	Thread-supplement. tension
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, this condition will be maintained when lifting the sewing foot.
- When switching the machine off, the last setting of the supplementary thread tensioner will be maintained through the mains connection.

6.2.2 Function of supplementary thread tension in relation to the sewing foot lifting and the Speedomat for subclass 869- ...

The thread supplementary tension can, at any time, be switched on or off by actuating key 1 (see chapter 6.14) of the key pad. The parameter F-255 must be set on “7" for this to work.

Parameter Setting	Stroke adjustment max. via knee switch	Stroke adjustments setting wheel Reaching of the HP-speed of parameter F-117 (Speedomat)
F-197 = 0	1	1
F-197 = 1	0	1
F-197 = 2	1 (*)	0
F-197 = 3	0	0

(*) If the stroke adjustment (max.) is switched on via the knee switch and the HP-speed (from parameter F-117) is reached through the “Speedomat”, then the supplementary thread tensioner will be switched on automatically.

0 = Supplementary thread tension closed mechanically

1 = Supplementary thread tension opened mechanically

- If the supplementary thread tensioner is closed, this condition will be maintained when adjusting the stroke.
- When switching the machine off, the last setting of the supplementary thread tensioner will be maintained through the mains connection.

Basic setting of the control unit for the automatic stepped reduction of the speed (Speedomat) through the setting wheel for the height of the alternating feed stroke

Parameter 188

Step 01-21	Entire Speedomat range
Step 01-10	max. allowed speed, Parameter F-111 = 3000 min^{-1}
Step 11-18	Linear stepwise reduction of the max. speed (Speedomat)
Step 19-21	max. allowed speed, Parameter F-117 = 1.800 min^{-1}

6.3 Opening the thread tension

Subclasses

869-180020, 869-280020

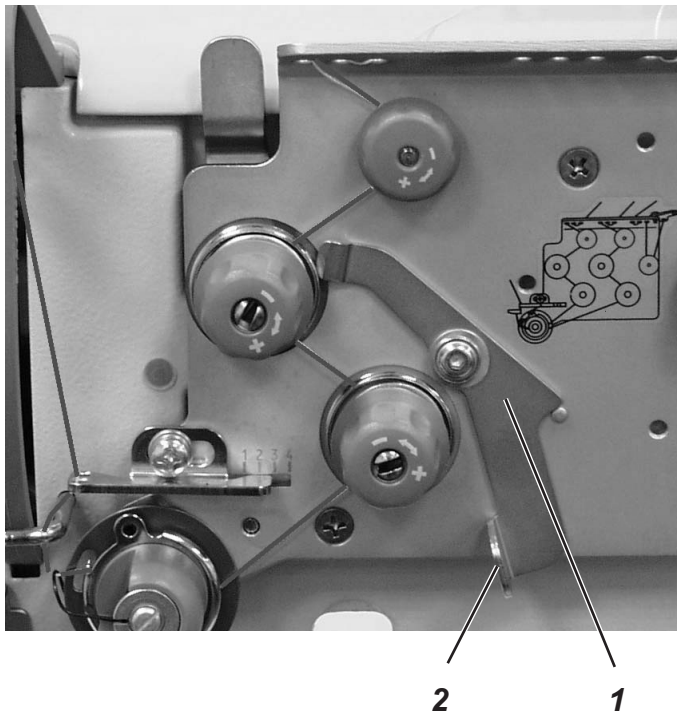
When lifting the sewing feet with the knee lever, the main and supplementary tensioners are automatically opened.

Subclasses

869-180122, 869-180322, 869-280122, 869-280322

The needle thread tension is automatically opened when trimming the thread.

6.4 Turning the supplementary thread tension on and off for subclasses 869-180020, 869-280020, 869-180122 and 869-280122



The supplementary tension is being switched on and off with lever 1.

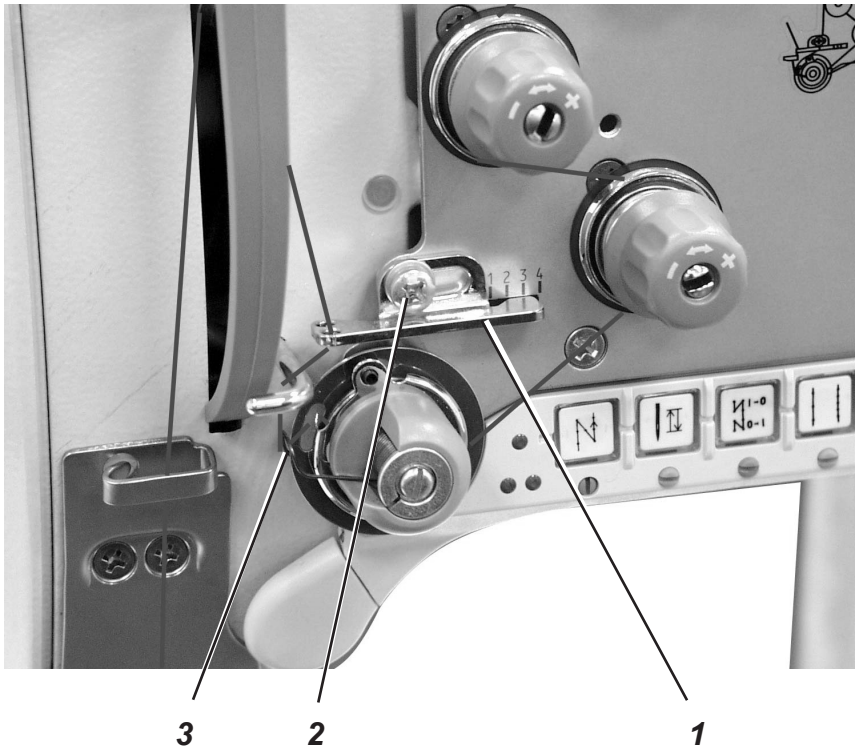
Switching on

– Push the handle 2 of lever 1 to the left.

Switching off

– Push the handle 2 of lever 1 to the right.

6.5 Adjusting the thread regulator





Caution: Risk of injury!

Turn off the main switch.

The thread regulator may only be adjusted with the sewing machine switched off.

The thread regulator 1 controls the quantity of needle thread required for stitch formation.
The thread regulator must be precisely adjusted for an optimum result.

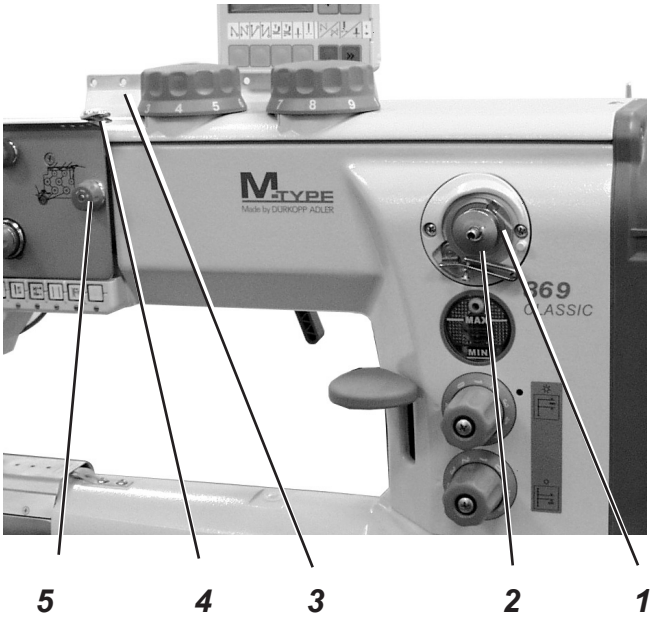
At the correct setting the needle thread loop must be able slide with low tension over the thickest point of the hook.

- Loosen the screw 2.
- Change the position of the thread regulator 1.
  Thread regulator to the left = more thread
  Thread regulator to the right = less thread
- Fasten the screw 2.

Adjustment information:

If the maximum quantity of thread is required, the thread take-up spring 3 must be pulled upwards about 0.5 mm from its lower end position. This is the case when the needle-thread loop passes the maximum hook diameter.

6.6 Winding on the hook thread



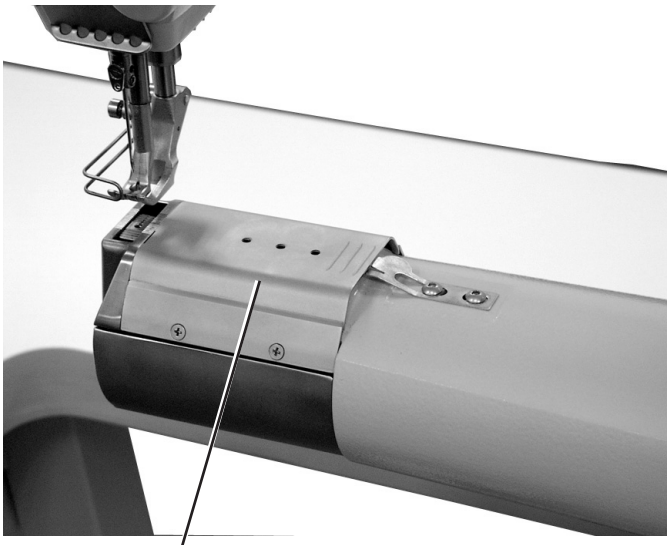


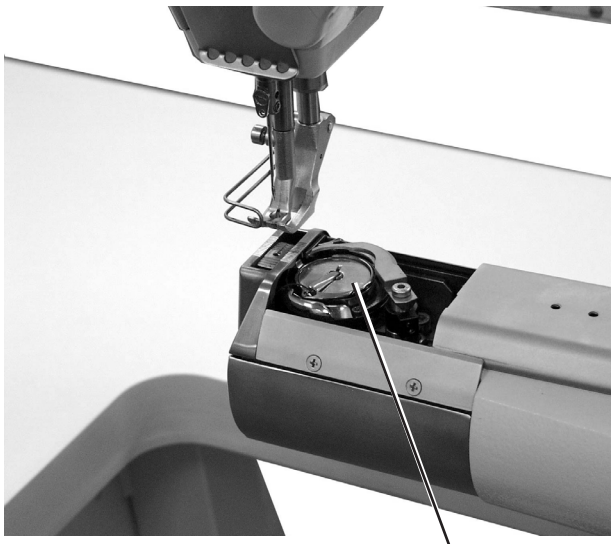
- Put the thread reel on the thread stand and lead the needle thread through the unwinder arm.
- Pull the thread through the thread guide 3, the tensioner 5 and the thread guide 3.
- Clamp the thread behind the blade 6 and tear it off.
- Fit the bobbin 1 on the bobbin winder.
  There is no need to wind the thread around the bobbin by hand.
- Press the bobbin-winder lever 2 into the bobbin.
- Sewing.
  The bobbin-winder lever terminates the process as soon as the bobbin is full.
  The bobbin winder always stops in such a position that the blade 6 is in the insertion position
  (see right-hand illustration)
- Remove the full bobbin 1, clamp the thread behind the blade 6 and tear it off.
- Fit empty bobbin on the bobbin winder for the next winding process and press the bobbin-winder lever 2 into the bobbin.

Attention: Danger of breakage!

If the thread is not to be wound on during sewing, it is essential for the sewing foot to be locked in the raised position and the sewing-foot stroke set to the smallest value.

6.7 Changing the hook-thread bobbin







Caution: Risk of injury!

Turn off the main switch.

The hook-thread bobbin may only be changed with the machine switched off.

Remove the empty bobbin

– Slide the cover 1 sideways, raise up the flap 7 and remove the empty bobbin 2.



Insert a full bobbin

– Insert the bobbin 2 so that it moves in the opposite direction of the hook when unwinding.
– Pass the hook thread through the slit 3 and underneath the spring 4.
– Pull the hook thread through the slit 6 and continue pulling until it stands out about 3 cm.
– Close the flap 7 and pull the hook thread through the thread guide 5 of the flap.

6.8 Setting the hook thread tension





Caution: Risk of injury!

Turn the main switch off!

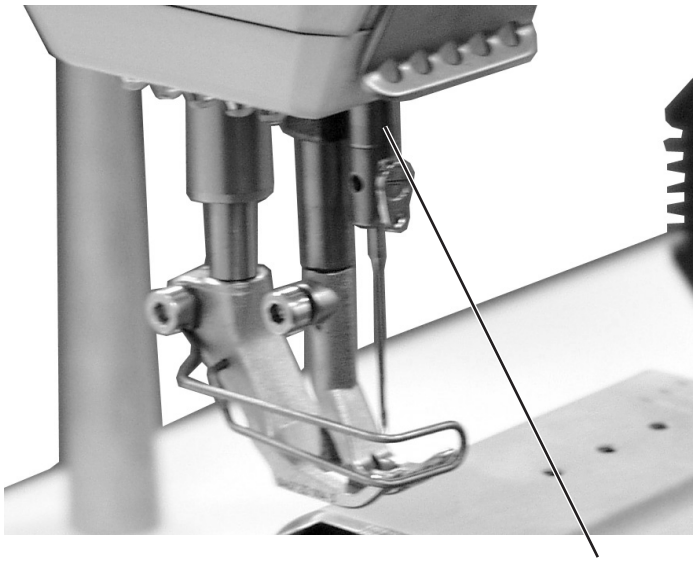
The hook thread tension may only be adjusted with the sewing machine switched off.

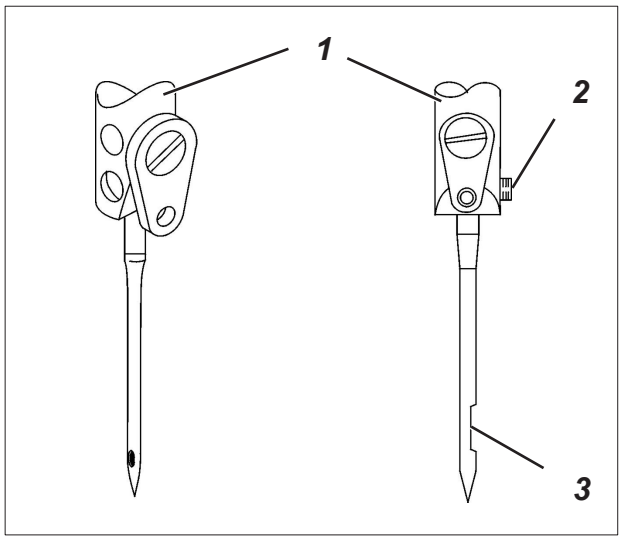
Setting the tension spring 2

– Set the tension spring 2 by turning the adjustment screw 1.
  Increase the hook thread tension =
  Turn screw 1 clockwise

  Decrease the hook thread tension =
  Turn screw 1 counter-clockwise.

6.9 Inserting and changing the needle with single-needle machines





Caution: Risk of injury!

Turn off the main switch.

The needle may only be changed with the sewing machine switched off.

- Turn the hand wheel, until the needle bar 1 has reached its highest position.
- Loosen the screw 2.
- Pull the needle downwards out of the needle bar 1.
- Push in the new needle into the hole of the needle bar 1 until it stops.
  ATTENTION!
  The needle scarf 3 must point towards the hook.
- Fasten the screw 2.

ATTENTION!

When changing to another needle size, the distance between hook and needle must be readjusted (see service instructions).

Ignoring the above mentioned hint can cause the following mistakes:

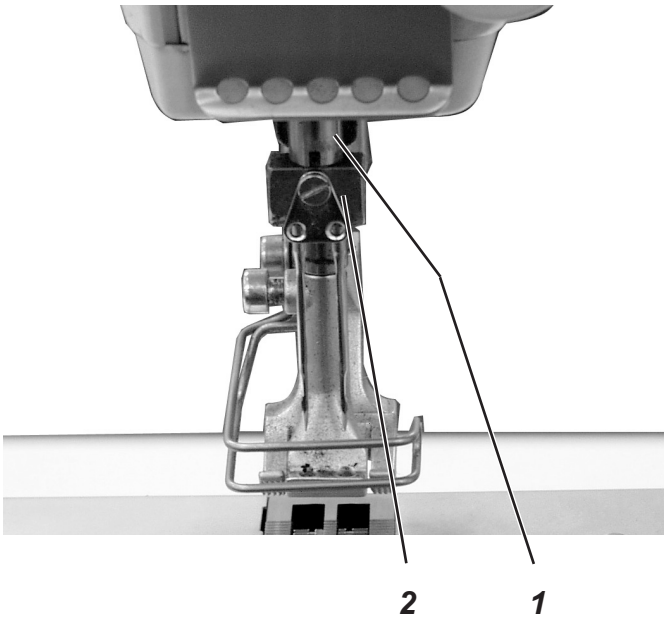
When inserting a thinner needle:

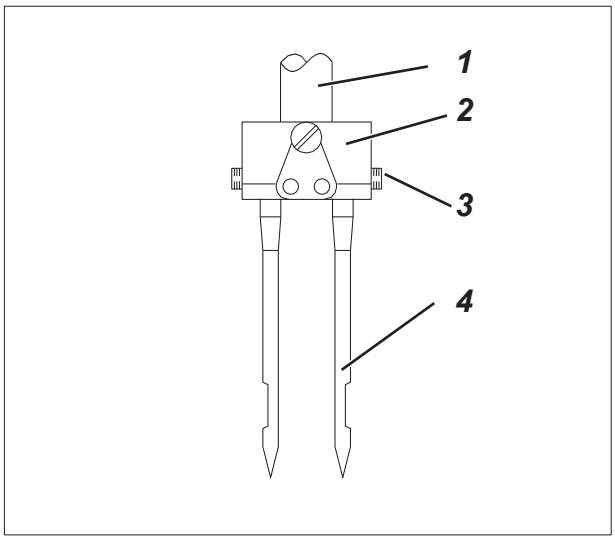
- Missed stitches
  Damage of the thread

When inserting a thicker needle:

- Damage of the hook tip
  Damage of the needle

6.10 Inserting and changing the needle with double-needle machines





Caution: Risk of injury!

Turn the main switch off!

The needle may only be changed with the sewing machine switched off.

- Turn the hand wheel, until the needle bar 1 has reached its highest position.
- Loosen the screw 3.
- Pull the needle downwards out of the needle holder 2.
- Push in the new needle into the hole of the needle holder 2 until it stops.
  ATTENTION!
  Seen from the operator's side, the needle scarf 4 of the right needle must point to the right side and the needle scarf of the left needle point to the left side (see drawing).
- Fasten the screw 3.

ATTENTION!

When changing to another needle size, the distance between hook and needle must be readjusted (see service instructions).

Ignoring the above mentioned hint can cause the following mistakes:

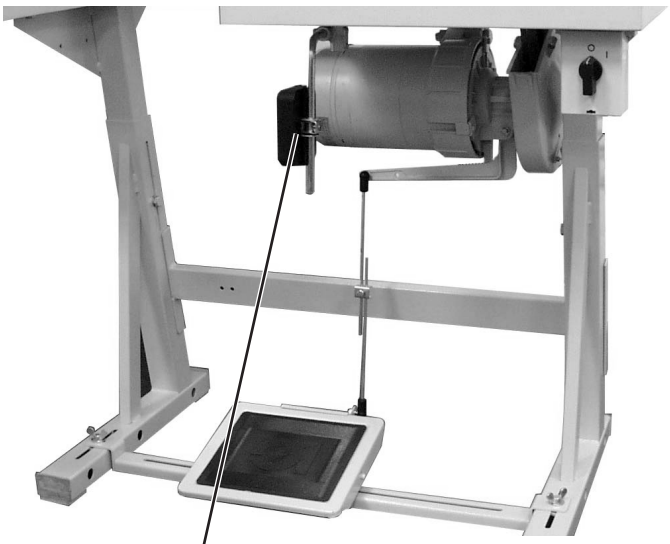
When inserting a thinner needle:

- Missed stitches
  Damage of the thread

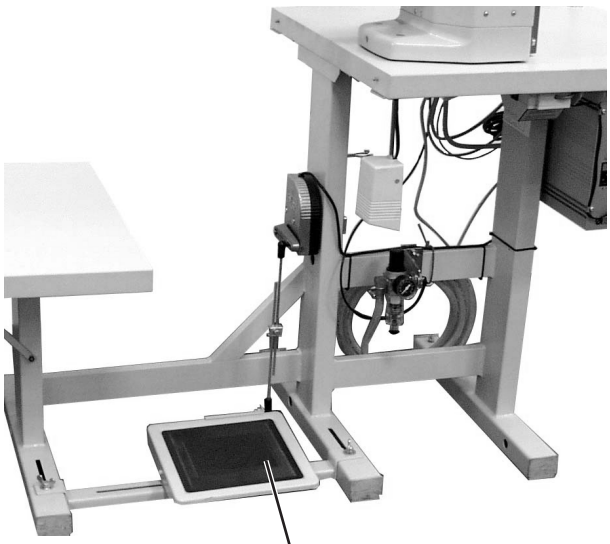
When inserting a thicker needle:

- Damage of the hook tip
  Damage of the needles

6.11 Lifting the sewing foot



1



2

Subclass

869-180020, 869-280020

The sewing feet can be lifted mechanically by actuating the knee lever 1.

Subclasses

869-180112, 869-180322, 869-280122, 869-280322

The sewing feet can be lifted electro-pneumatically by actuating the pedal 2 or the knee lever 1.

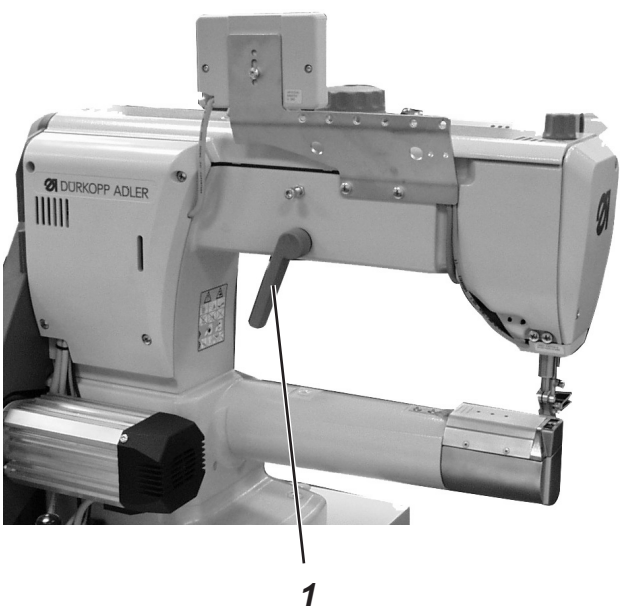
Mechanical sewing foot lifting (Knee lever)

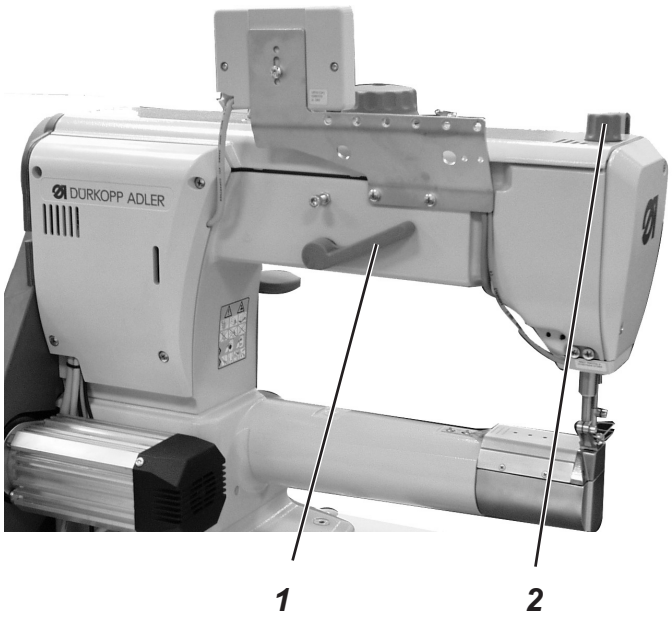
– To adjust the position of the material (e.g. for corrective purposes), push the knee lever 1 (optional) to the right.
  The sewing foot remains in the raised position as long as pressure is maintained on the knee lever 1.

Raising the sewing foot electro-pneumatically (pedal)

– Press the pedal 2 half-way back.
  The sewing feet are raised with the machine at a halt.
– Press the pedal 2 all the way back.
  The thread trimmer is activated and the sewing foot raised.

6.12 Locking the sewing feet in lifted position





– Push the lever 1 downwards.
  The sewing feet are locked in lifted position.
– Push the lever 1 upwards.
  The sewing feet are released.

or

– Lift the sewing feet pneumatically or by pushing the knee lever.
  The lever 1 then moves back into its initial position.

6.13 Sewing foot pressure

The required sewing-foot pressure is set with the setting wheel 2.

ATTENTION!

The material must not “swim”.

Do not set a higher pressure than is necessary.

– To increase the sewing-foot pressure = Turn the setting wheel 2 clockwise.
– To decrease the sewing-foot pressure = Turn the setting wheel 2 counter-clockwise.

6.14 Sewing-foot stroke



2 *1* *3*

The special sewing machine 869 has, depending on the subclass, as standard equipment two setting wheels for the sewing foot stroke. With the left setting wheel 2 the standard sewing foot stroke from 1 to 9 mm is selected.

With the right setting wheel 1 an increased sewing foot stroke from 1 to 9 mm is selected.

– Turning the setting wheel 1 and 2 (1 to 9)
  1 = minimal sewing foot stroke
  9 = maximal sewing foot stroke

Automatic limiting of the speed

Machines without thread trimmer

With these machines the speed is not controlled
Please take into consideration the hint and the chart on the next side.

Machines with thread trimmer

The sewing-foot stroke and the speed are interdependent. A potentiometer is linked mechanically with the adjusting wheel. By means of this potentiometer the control unit detects what foot-stroke has been set and restricts the speed of rotation accordingly.

Machines with electro-pneumatic rapid stroke adjustment

With fabric parts that are thicker or in order to sew over cross seams, the increased sewing foot stroke (setting wheel 1) can be switched on during the sewing process by actuating the knee switch 3 beneath the table top.
As with the machines that are equipped with a thread trimmer, the potentiometer is also available.

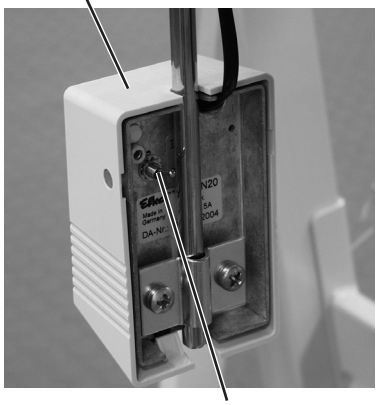
ATTENTION! Danger of breakage!

The standard sewing foot stroke that is set with the setting wheel 2 may never exceed the stroke set with the setting wheel 1.

Operation mode of the quick stroke adjustment

The activation period of the maximum sewing foot stroke depends on the set operation mode. It is possible to choose between three operation modes.
The individual operation modes are determined by the setting of the parameters F-138 and F-184 at the control panel (see enclosed instructions of the motor manufacturer).

Operation mode	Operation / Explanation
Keystroke F-138 = 0 F-184 = 0	The maximum sewing foot stroke remains activated as long as the knee switch 3 is actuated.
Push-lock F-138 = 1	The maximum sewing foot stroke is activated by actuating the knee switch 3. By actuating the knee switch once again the maximum sewing foot stroke is deactivated.
Keystroke with lowest speed F-138 = 0 F-184 0 < 100	The maximum sewing foot stroke remains activated as long as knee switch 3 is actuated. After releasing the knee switch the machine sews with the maximum sewing foot stroke until the set minimum number of stitches is reached (parameter F-184). Afterwards, the seam is continued with normal sewing foot stroke.



Please note!

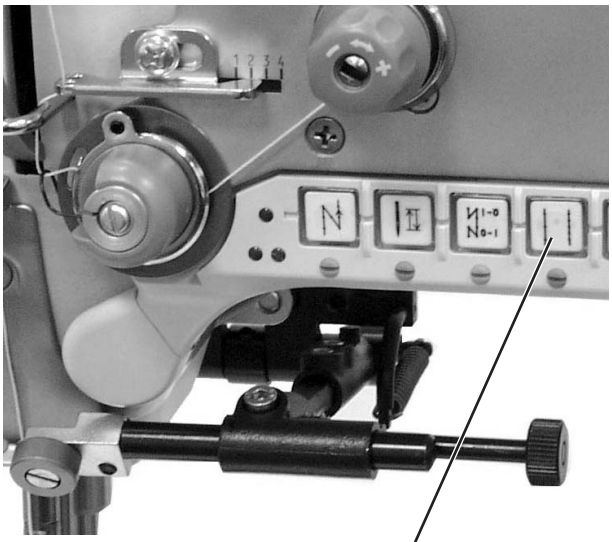
The switch 4 on the rear of the knee switch 3 can also be used to switch between the “keystroke” and “push-lock” operation modes.

Hint!

In order to ensure an operation as safe as possible and a high durability, the max. speed as shown in the chart should not been exceeded.

Subclass	Stitch length range Setting wheel position	Sewing-foot stroke [mm]	max. Speed [min]
869-180020	0-6	1-3	2800
869-180112		4	2500
869-180322		5	2100
869-280020		6-9	1800
869-280122	6-9	1-4	2900
869-280322		5	2100
		6-9	1800

6.15 Setting the stitch length





The special sewing machine 869 has, depending on the subclass, as standard equipment two setting wheels. Thus, two different stitch lengths can be sewn, that are activated by actuating the key 4 (see chapter 6.15).

The two stitch lengths are set with the setting wheels 1 and 2 on the machine arm.

– Set the higher stitch length with the upper setting wheel 1.
  Setting 1 = min. stitch length
  Setting 9 = max. stitch length
– Set the smaller stitch length with the lower setting wheel 2.
  Setting 1 = min. stitch length
  Setting 9 = max. stitch length

The stitch length are the same for both, forward and backward sewing.

– For the manual sewing of tacks, push the stitch regulator lever 3 downwards.
  The machine sews backward as long as the stitch regulator lever 3 is pressed down.

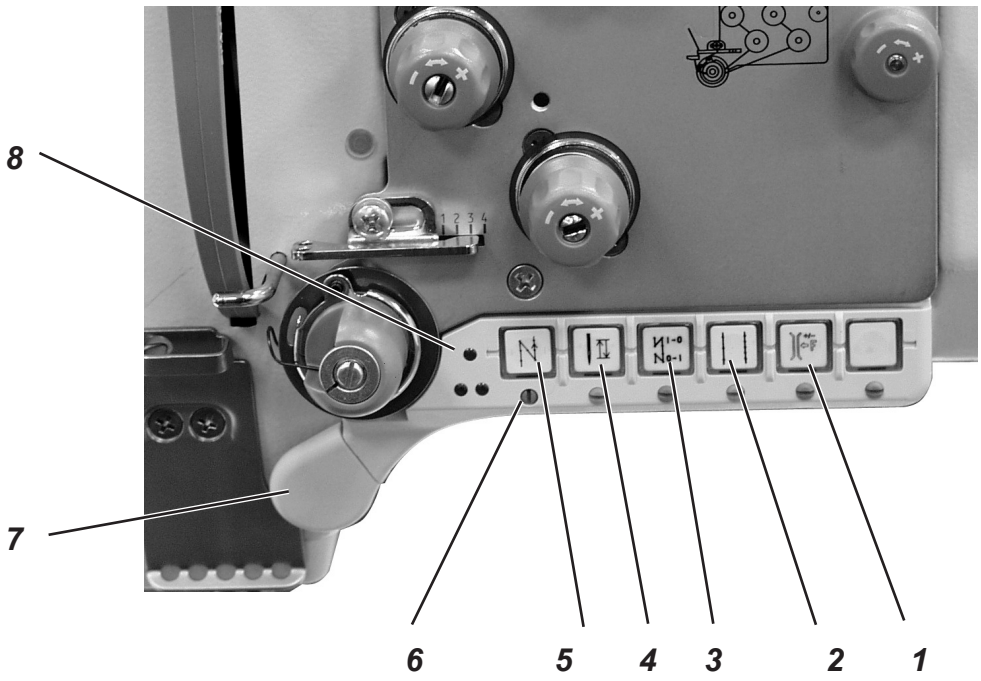
Please note:

In order to facilitate the setting of stitch lengths, the stitch length that remains unchanged should be activated with key 2 (see chapter 6.15).

ATTENTION! Danger of breakage!

The stitch length set with the lower setting wheel 2 must not exceed the stitch length set with the upper setting wheel 1.

6.16 Key pad on the machine arm



Key	Function
1	Supplementary tread tension Button is back-lit: the supplementary thread tension is activated. Button is not back-lit: the supplementary thread tension is not activated.
2	2nd stitch length Button is back-lit: long stitch length (upper setting wheel) is activated Button is not back-lit: small stitch length (lower setting wheel) is activated
3	Recalling or suppressing the initial or final bartack. If the initial and final bartacks are activated, then the next bartack is deactivated when the button is pressed. If the initial and final bartacks are not activated, then the next bartack is activated when the button is pressed.
4	Move the needle to the upper or lower position. The function of the button can be set with the parameter F-242. 1 = needle up/down 2 = needle up 3 = single stitch 4 = full stitch 5 = needle to position 2 The factory setting is 1 (needle up/down).
5	Manually sewing backward. The machine sews backwards for as long as the button is held down.

Key	Function
8	LED display “Power On”

The function of key 7 can be selected with the screw 6 under the keys.

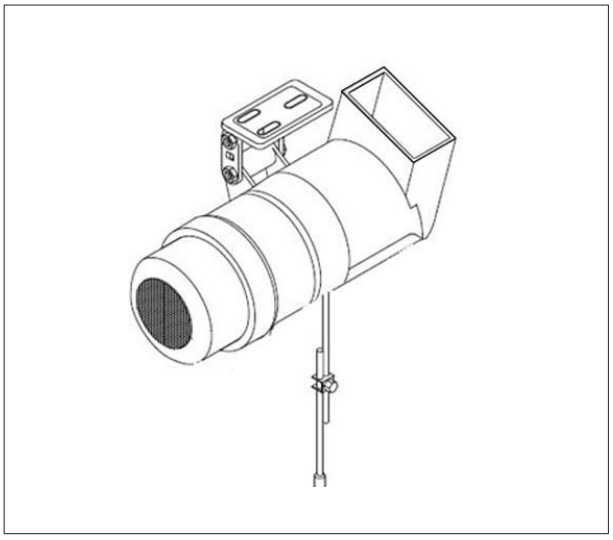
– Selecting a function.
  Example: 6 = Manually sewing backward.
– Turn in the screw 6 under the key 5 and turn it 90° to the right (the slot stands vertically).
  The function can now be called via both keys 5 and 7.

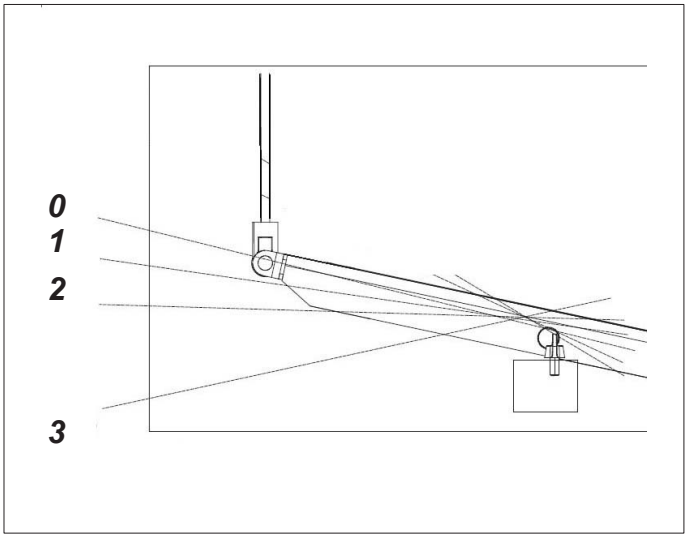
ATTENTION!
Before key 7 can be programmed with a new function, the former setting must be deactivated.

7. Sewing

7.1 Sewing with machines using the FIR clutch positioning drive

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).





With pedal

0 At rest

1 Sewing forwards with minimum speed

2 Sewing forwards with higher speed

: : :

3 Sewing forwards with maximum speed

7.2 Sewing with machines using the Efka DC1550/DA321G positioning drive

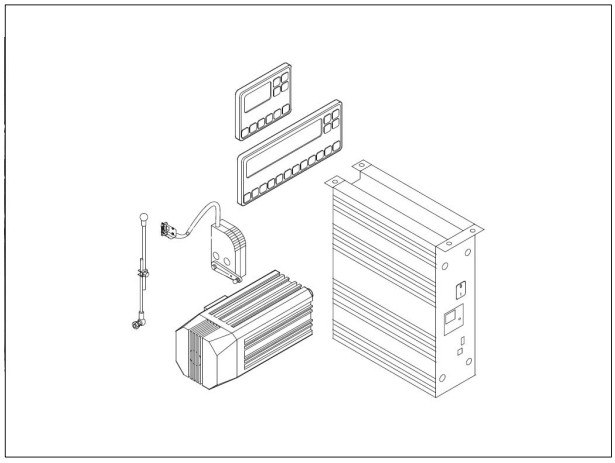
The control unit DA321G contains all required operational interfaces for switching functions and setting parameters.

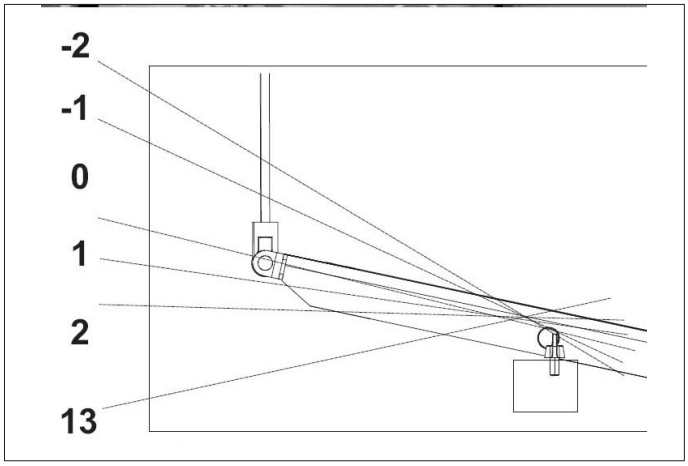
It is possible to operate without an operating panel, but the seam programming cannot be carried out.

The V810 and V820 operating panels can also be connected to the control unit.

They are deliverable as optional equipment.Seam programming can be performed with the V820 operating panel.

For a detailed description of the control unit, please consult the enclosed current issue of the operating manual “Efka DC1550 - DA321G” of the motor manufacturer (see also **www.efka.net**).





With pedal

The pedal position is detected using a sampling detector with 16 different levels.

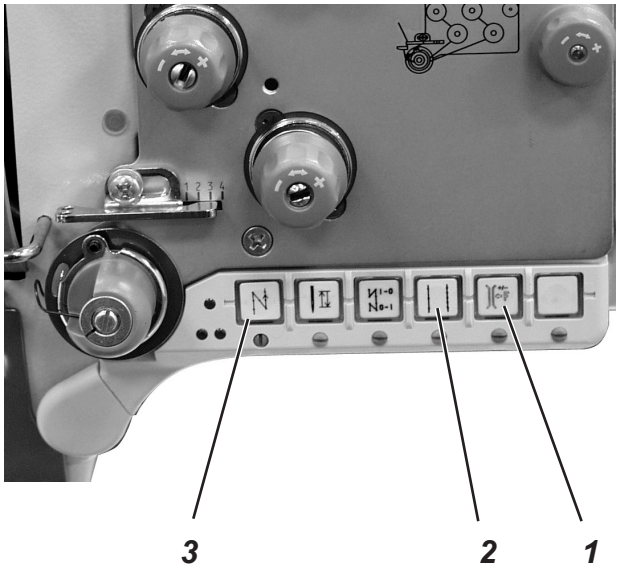
Their meanings are listed in the table below:

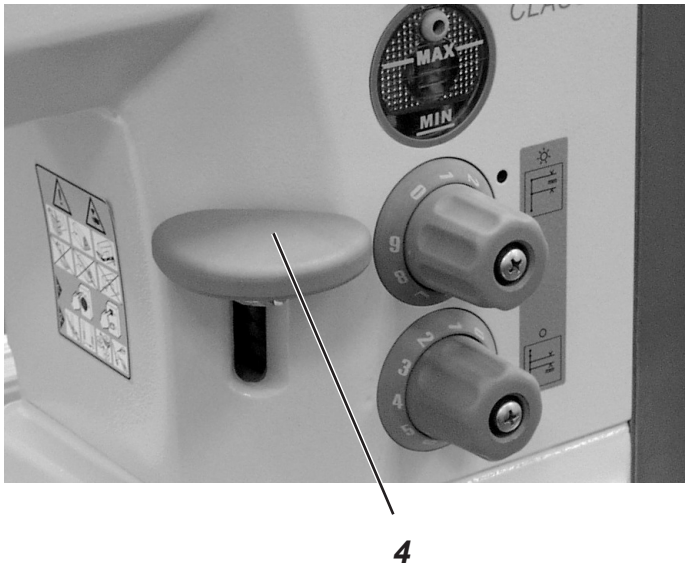
Pedal position	Pedal movement	Meaning
-2	Completely backwards	Command for cutting the thread (end of seam)
-1	Half backwards	Command for raising the sewing foot
0	Rest position	see remark below
1	Slightly forwards	Command for lowering the sewing foot
2	More forwards	Sew with miminal speed (first step)
3	More forwards	Sew with more speed (second step)
: : :		
13	Entirely forwards	Sew with maximal speed (12th step)

Remark

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)



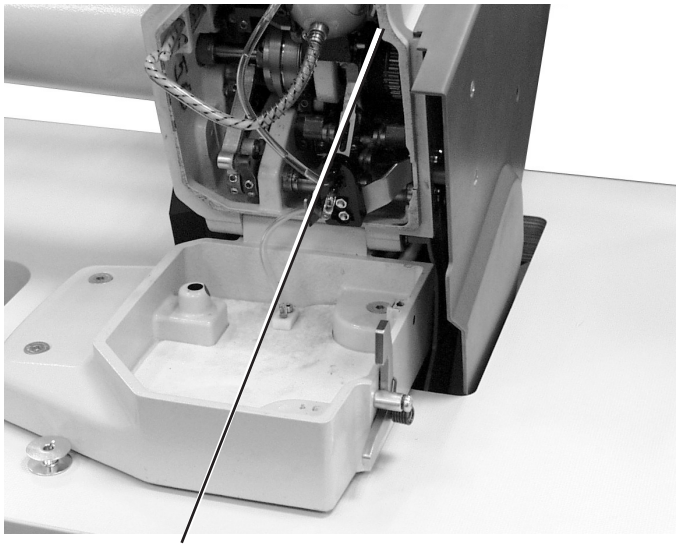


Sewing process	Operation / Explanation
Prior to sewing	
Starting position	- Pedal is in the resting position. The sewing machine is at rest. The needle is up. The sewing feet are down.
Position material at seam start	- Move pedal back halfway. Raise the sewing feet. - Push the material to the needle.
Sewing	- Step the pedal forward and hold. The machine then continues to sew with the speed determined by the pedal.
In mid-seam	
Interrupt the sewing process	- Release pedal (rest position). The machine stops in the first position (needle down). The sewing feet are down.
Resume the sewing process (after releasing the pedal)	- Step forward on the pedal. The machine then continues to sew with the speed determined by the pedal.
Sewing an intermediate bartack	- Press the stitch regulator lever 4 downwards. The machine sews in reverse as long as the stitch regulator lever is pressed. The speed is determined by the pedal. or - Press the button 3.

Sewing over a cross seam. (max. sewing foot stroke)	The maximum sewing-foot stroke is activated. The speed is limited to 1600 min-1. Operating modes for maximum sewing-foot stroke: - Press the knee switch briefly for activating the maximum sewing-foot stroke. - Press the knee switch briefly again for deactivating the maximum sewing-foot stroke.
Sewing the 2. stitch length during sewing (max. stitch length)	- Actuate key 2.
Increase the thread tension during the sewing process	- Actuate key 1.
At the seam end **Remove the material**	- Push the pedal all the way back and keep it pushed. The final bartack is sewn (when activated). The thread is cut. The machine stops in the second position. The needles are up (reverse rotation). The sewing feet are up. - Remove the material.

8. Tilting Back the Machine Head







Caution Crushing Hazard!

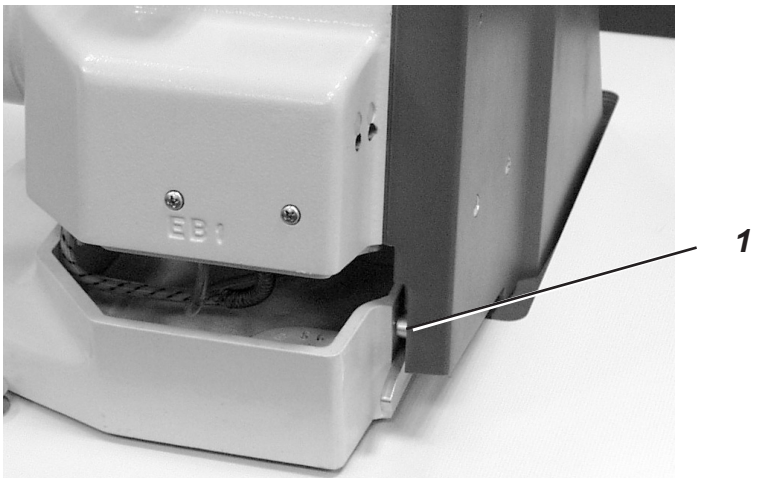
Do not reach between the base and the machine arm while tilting back the machine head.

Tilting back the machine head

– Pull lever 1 upwards.
  The locking mechanism is then released.
– Tilt the machine head 2 cautiously to the rear.

Re-closing the machine head

– Tilt the machine head 2 forwards.
  The head tilts back to the position shown in the illustration below.
– Pull lever 1 upwards and cautiously tilt the head downwards.

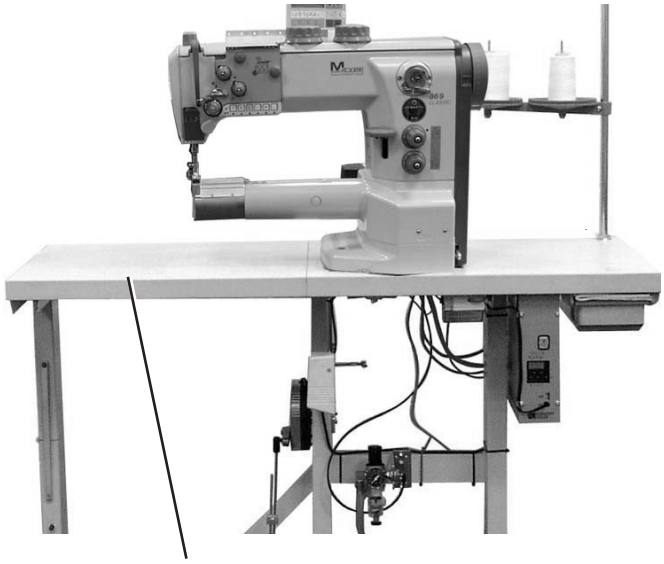




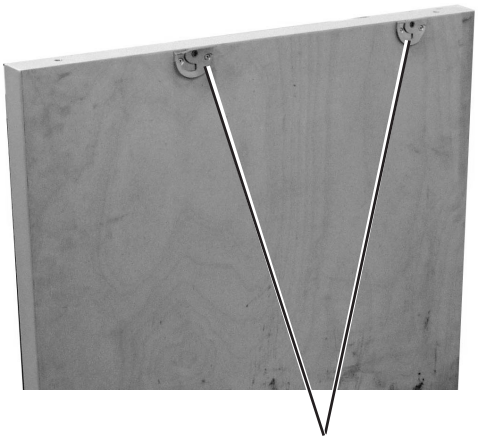
Attention !

Only tilt the machine head up for a short period (for example for maintenance work).
If the machine head is tilted back for a longer period (for a night or weekend), oil can leak out in the hook area.

9. Folding Down the Table Top with the MG 56-2 Stand



2



1

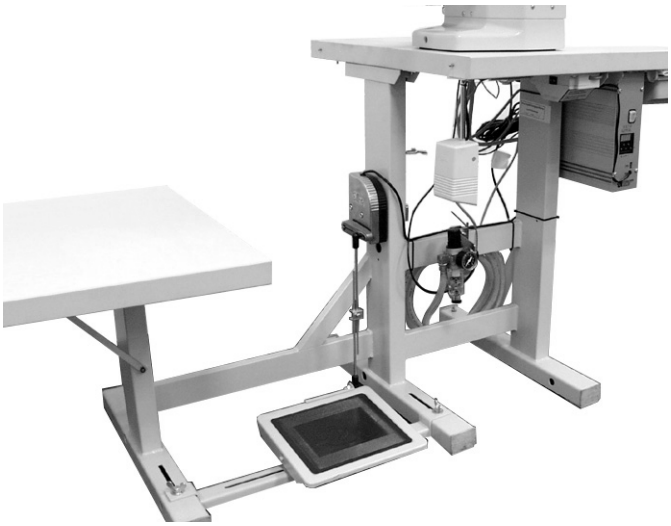
Caution: Risk of injury!
Always hold the table top with both hands when pulling it out.

- Loosen the table top latch 1 located under the table top.
- Pull out the table top 2 to the left and fold out.
- Hook in the diagonal brace 4 to the bolts 3.
- Fold down the table top

- Follow these steps in the opposite order to raise the table top.



4 *3*



10. Maintenance

10.1 Cleaning and Checking



Caution: Risk of injury!

Turn the main switch off!
Maintenance may only be carried out with the machine switched off!

Maintenance work must be carried out no less frequently than at the intervals given in the tables (see “operating hours” column).

Maintenance intervals may need to be shorter when processing heavy-shedding materials.

A clean machine is a trouble-free machine.

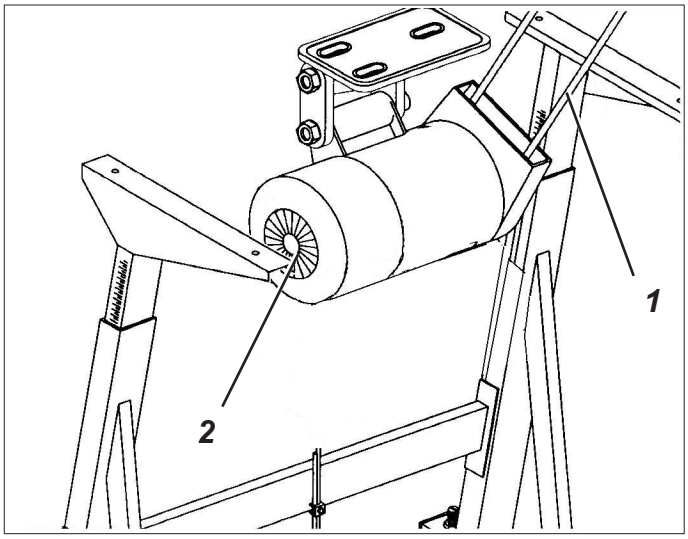


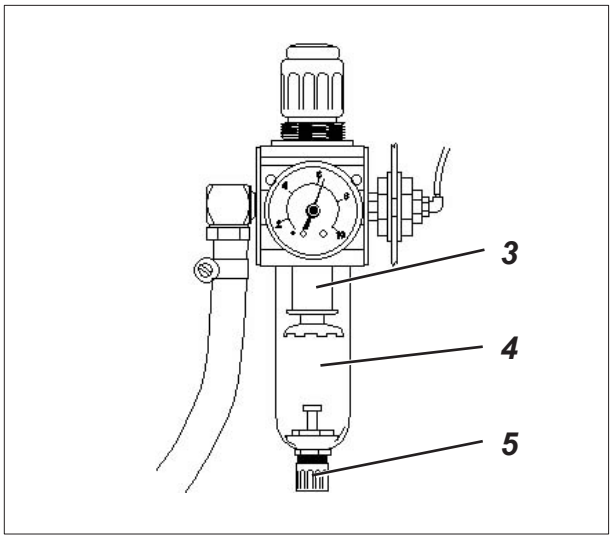
2 *1*



3

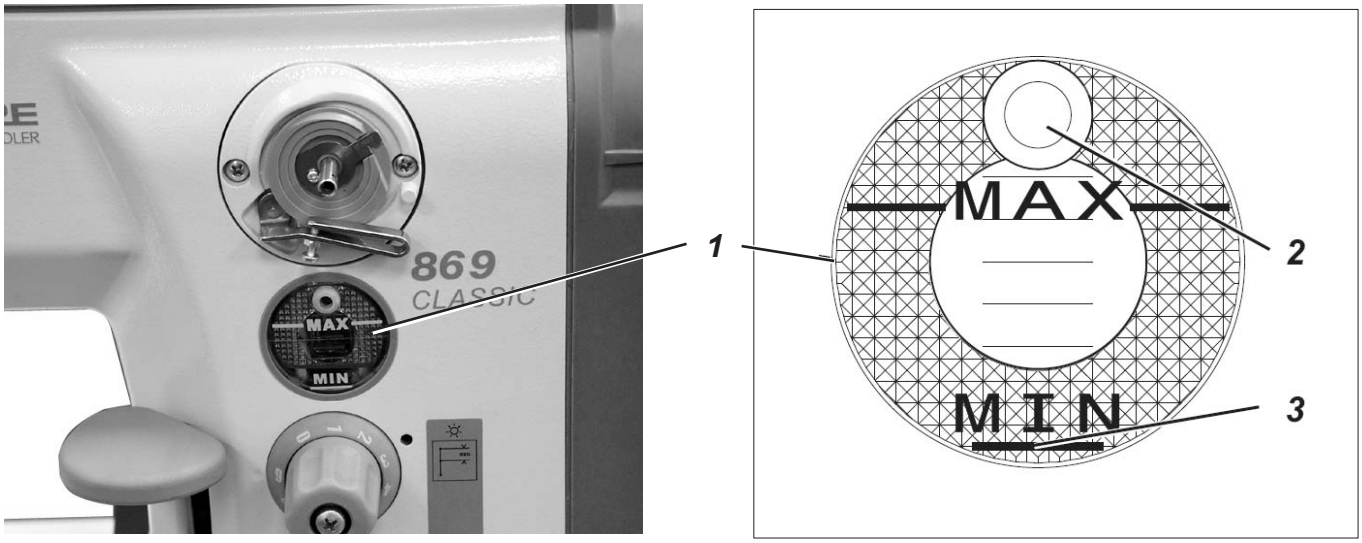
Maintenance work to be carried out	Explanation	Operating hours
Machine head		
- Remove lint, pieces of thread (e.g. with an air blow gun)	Places in special need of cleaning: - area under the throat plate 2 - area around the hook 1 - bobbin housing - thread trimmer - needle area	8
Direct drive		
Clean fan grille 3. (e.g. with an air blow gun)	Remove lint and pieces of thread from air-intake openings.	8





Maintenance work to be carried out	Explanation	Operating hours
Sewing motor		
Clean fan grille 2. (e.g. with an air blow gun)	Remove lint and pieces of thread from air-intake openings.	8
Check condition and tension of V-belt 1	It must be possible to depress the V-belt by about 10 mm by pressing it with a finger at its mid-point.	160
Pneumatic system		
Check water level in pressure regulator.	The water level must not rise to the level of the filter cartridge 3. - After unscrewing the drain screw 5, the water under pressure will flow out of the water separator 4.	40
Clean filter cartridge.	Dirt and condensation are separated out by the filter cartridge 3. - Disconnect the machine from the compressed-air supply. - Unscrew the drain screw 5. There must be no pressure in the machine's pneumatic system. - Unscrew water separator 4. - Unscrew filter cartridge 3. Wash the filter shell and cartridge with cleaning fluid (not solvent) and blast clean. - Re-assemble the maintenance unit.	500
- Check the system for leaks.		500

10.2 Oil Lubrication



Caution: Risk of injury!

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

ATTENTION!

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

To lubricate the special sewing machine use only **DA 10** lubricating oil or an equivalent oil of the following specification:

- Viscosity at 40° C: 10 mm^2/s
- Flashpoint: 150° C

DA 10 is available from **DÜRKOPP ADLER GmbH** retail outlets 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

Maintenance work to be carried out	Explanation	Operating hours
Lubrication of the machine head	The head is equipped with centralized oil wick lubrication. The bearings are supplied by the oil reservoir 1. - The oil level must not drop below the mark 3 on the oil reservoir. The oil reservoir illuminates when the oil level falls below the mark 3. (Only for subclass 869-180322, 869-280322) - Refill oil through the hole 2 until it reaches the “MAX” mark.	8

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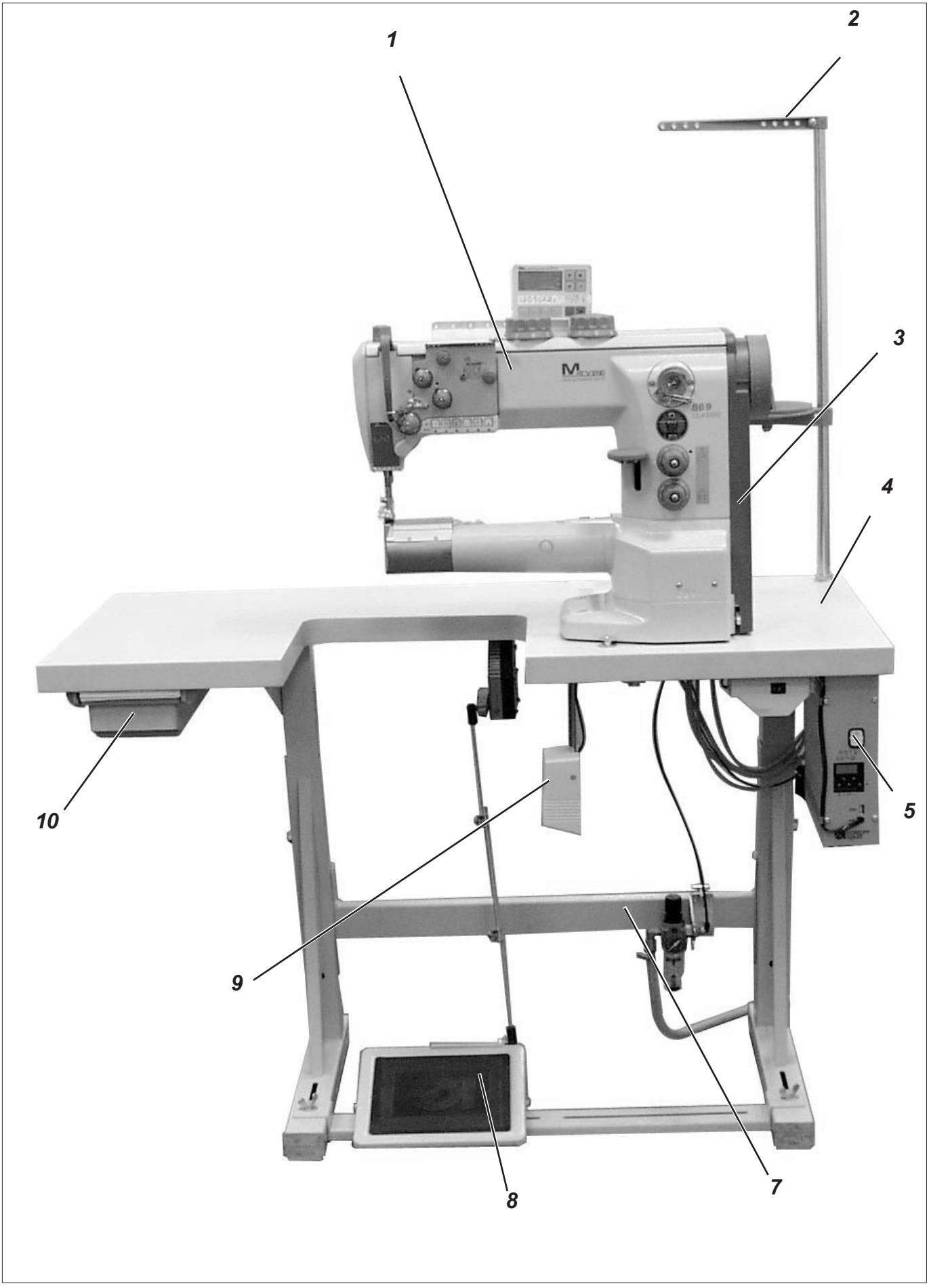
12. Pneumatic Connections 39

13. Lubrication 41

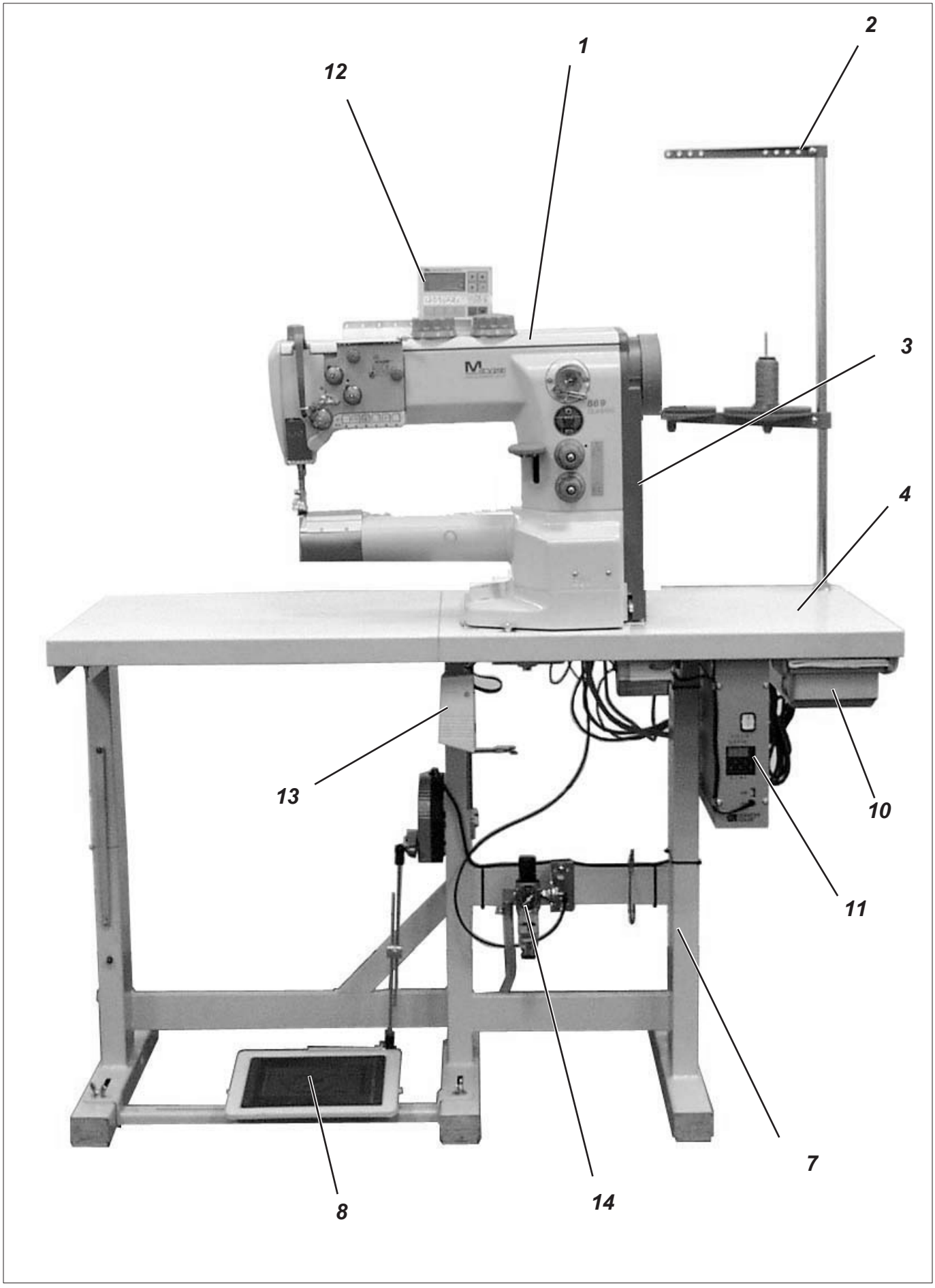
14. Sewing Test 42

1. Scope of Delivery

Sewing machine with MG 55-3 stand



Sewing machine with MG 56-3 stand



The items **that are supplied depend on your order.**
Before setup, please check that all the required components are present.
The description is valid for the special sewing machine whose individual components are delivered directly and completely from **Dürkopp Adler GmbH**.

– **1** Machine head

Dürkopp Adler accessory with:

– **2** Reel stand

Protective cover (not shown)

Electric parts set, depending on your order, for:

Machines with direct drive

– **3** Protective belt cover
– **11** DA control unit
– **12** Operating panel
– **13** Knee switch

Machines with clutch motor (FIR)

– **3** Protective belt cover
– **5** Main switch
– **6** Sewing drive
– **9** Knee lever

Optional equipment

– **4** Table plate (optional)
– **7** Stand (optional)
– **8** Pedal and rods (optional)
– **10** Drawer (optional)
– **14** Maintenance unit (optional)

2. General and Transport Packaging



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

Transport packing

After purchasing a mounted sewing machine, you must remove the following packaging:

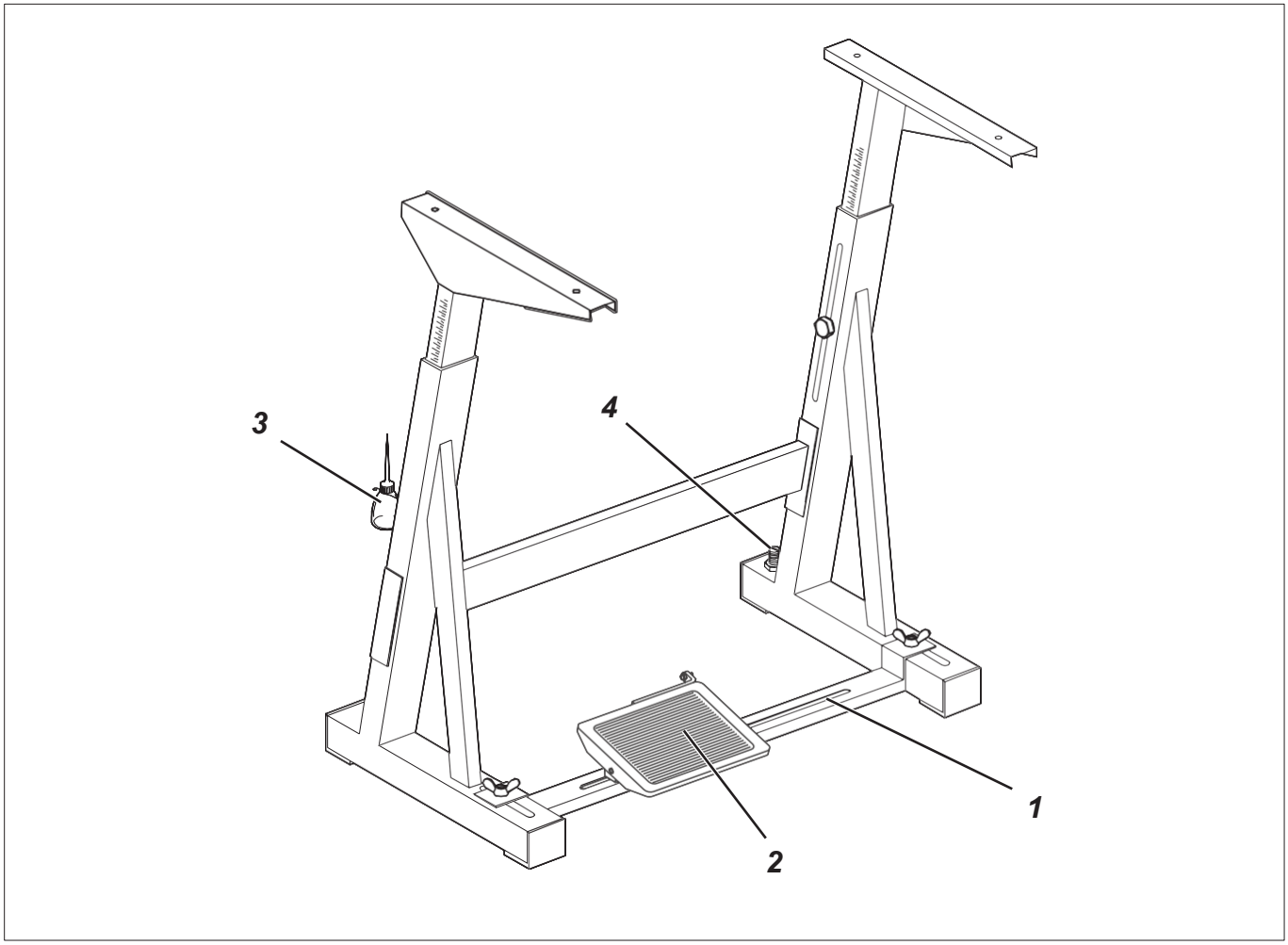
– Safety straps and battens from the upper machine head, table and stand.
– Safety blocks and straps from the sewing drive.

3. Assembling the Stand

There are two stand sets with different table plates available for the 869 class:

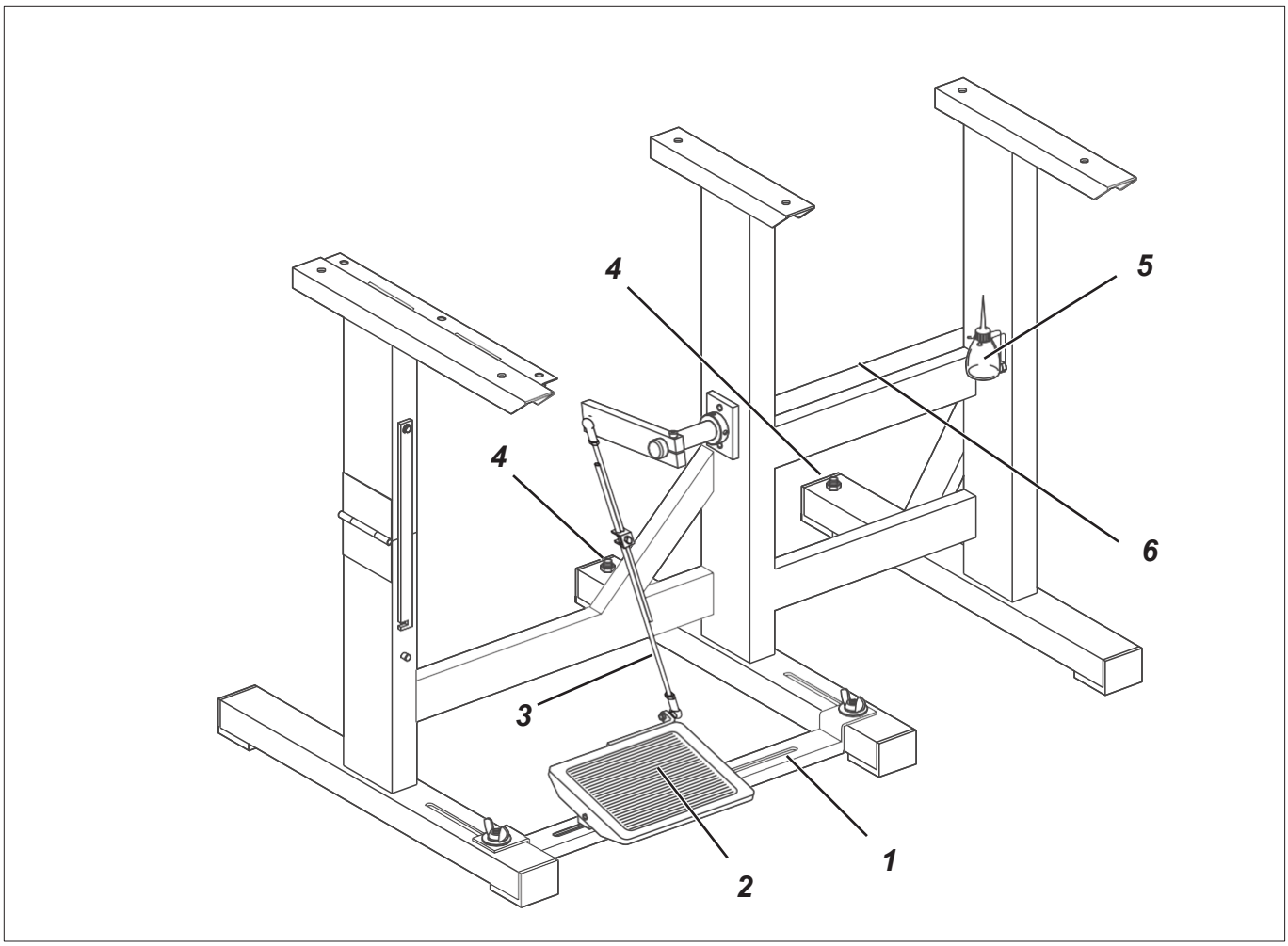
Stand set	Version
MG 55-3	not separated, with or without cut-out
MG 56-3	separated, hinged

3.1 MG 55-3 stand assembly



- Assemble the stand according to the illustration.
- Fasten the pedal 2 to the stand brace 1.
- Mount the stand brace 1 to the stand.
- Align the pedal after you have assembled the complete machine.
- Screw on the holder for the oil can 3.
- Turn the adjusting screw 4 to ensure a secure mount on the stand.
- The stand must be resting with all four feet on the floor.

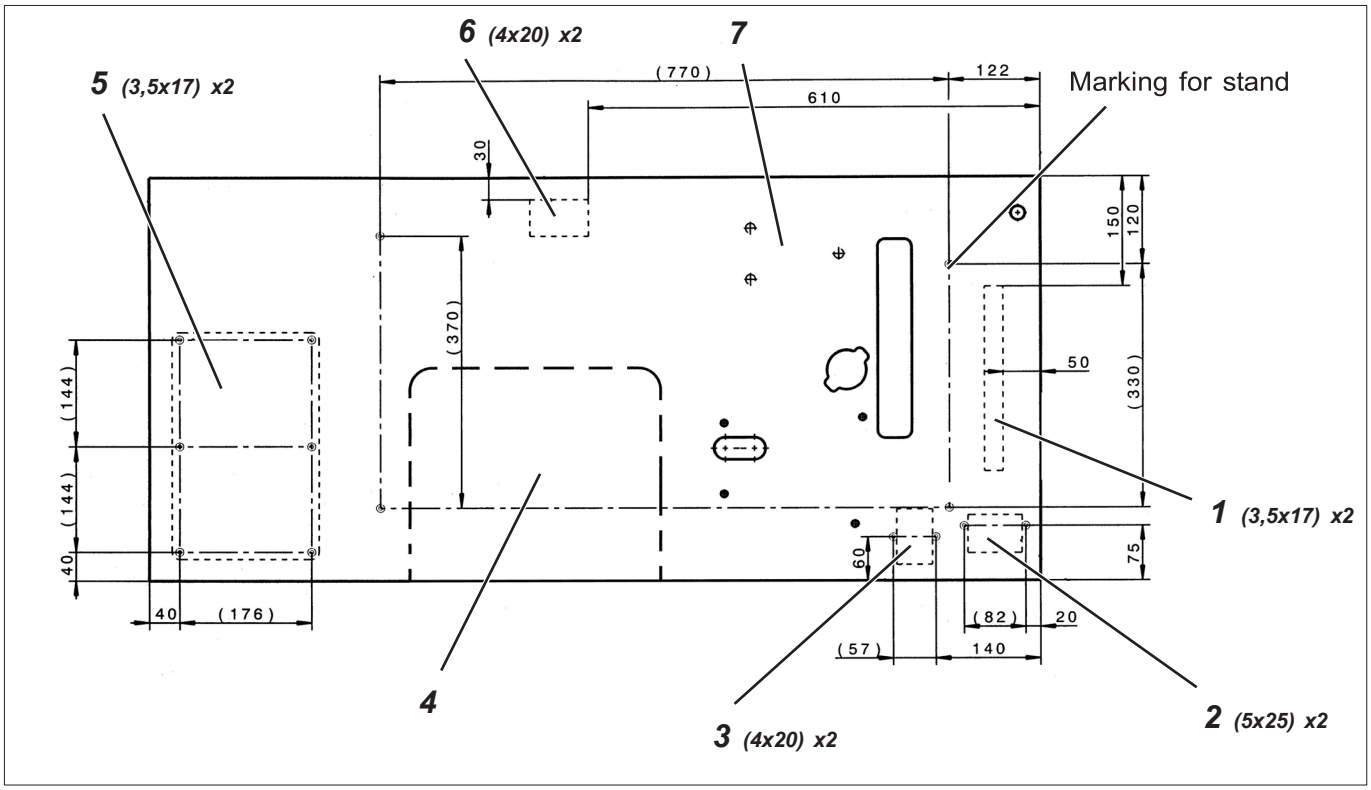
3.2 MG 56-3 stand assembly



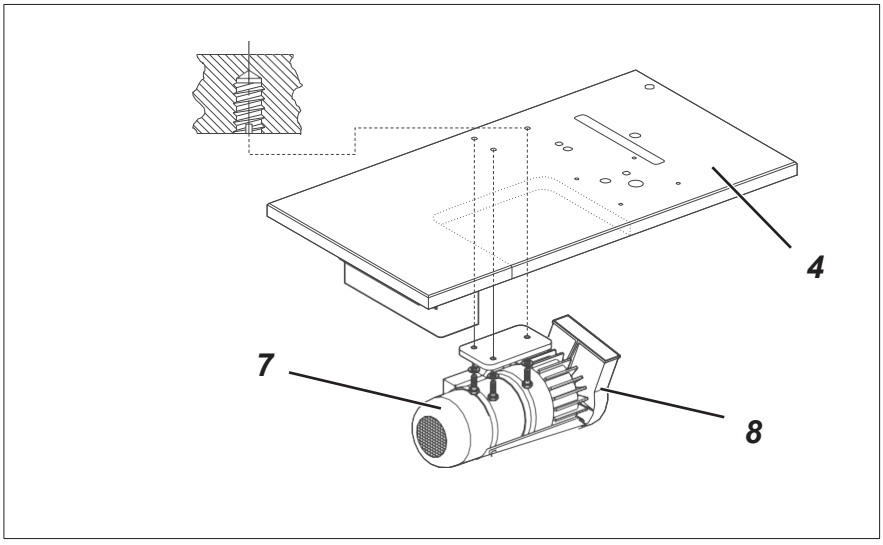
- Assemble the stand according to the illustration.
- Fasten the pedal 2 to the stand brace 1.
- Mount the stand brace 1 to the stand.
- Turn the adjusting screws 4 to ensure a secure mount on the stand.
  The stand must be resting with all six feet on the floor.
- Align the pedal after you have assembled the complete machine.
- Screw on the holder for the oil can 5.
- Assemble the rod 6 (only for FIR clutch motor).

3.3 Completing the table plate for the MG 55-3 stand with FIR clutch motor

Top view of table plate

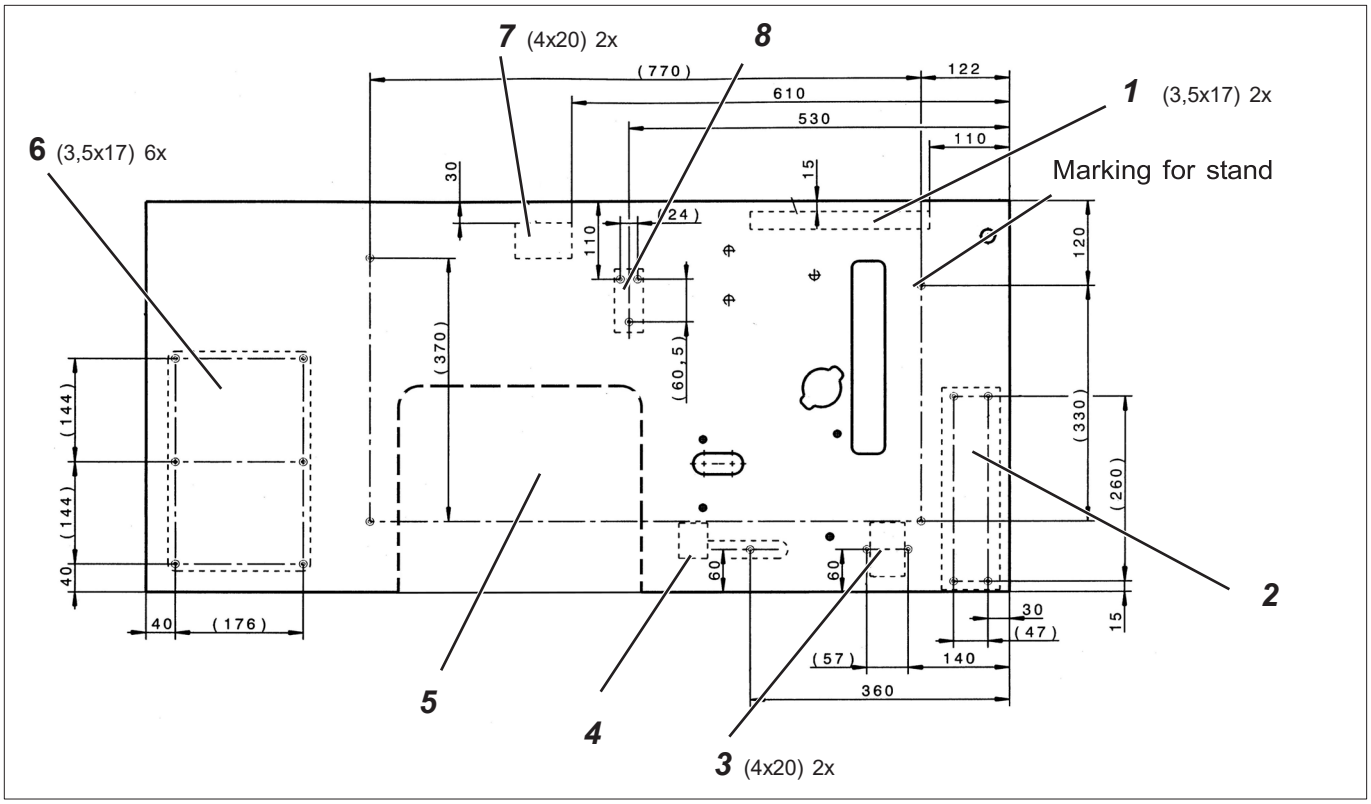


- Turn over the table plate 4.
- Screw on the cable duct 1.
- Screw on main switch 2.
- Screw on the power supply (optional equipment).
- Screw on the drawer 5 together with its fixtures.
- Screw on the sewing light transformer (optional equipment).
- Mount the clutch motor 7.
  For this, screw the three hexagon bolts (M8 x 40) with washers into the anchor nuts on the table plate.
  The belt pulley 8 must point to the right when the table plate is mounted.
- Mount the electrical cable according to the instructions in chapter 12.



3.4 Completing the table plate for the MG 55-3 stand with direct drive

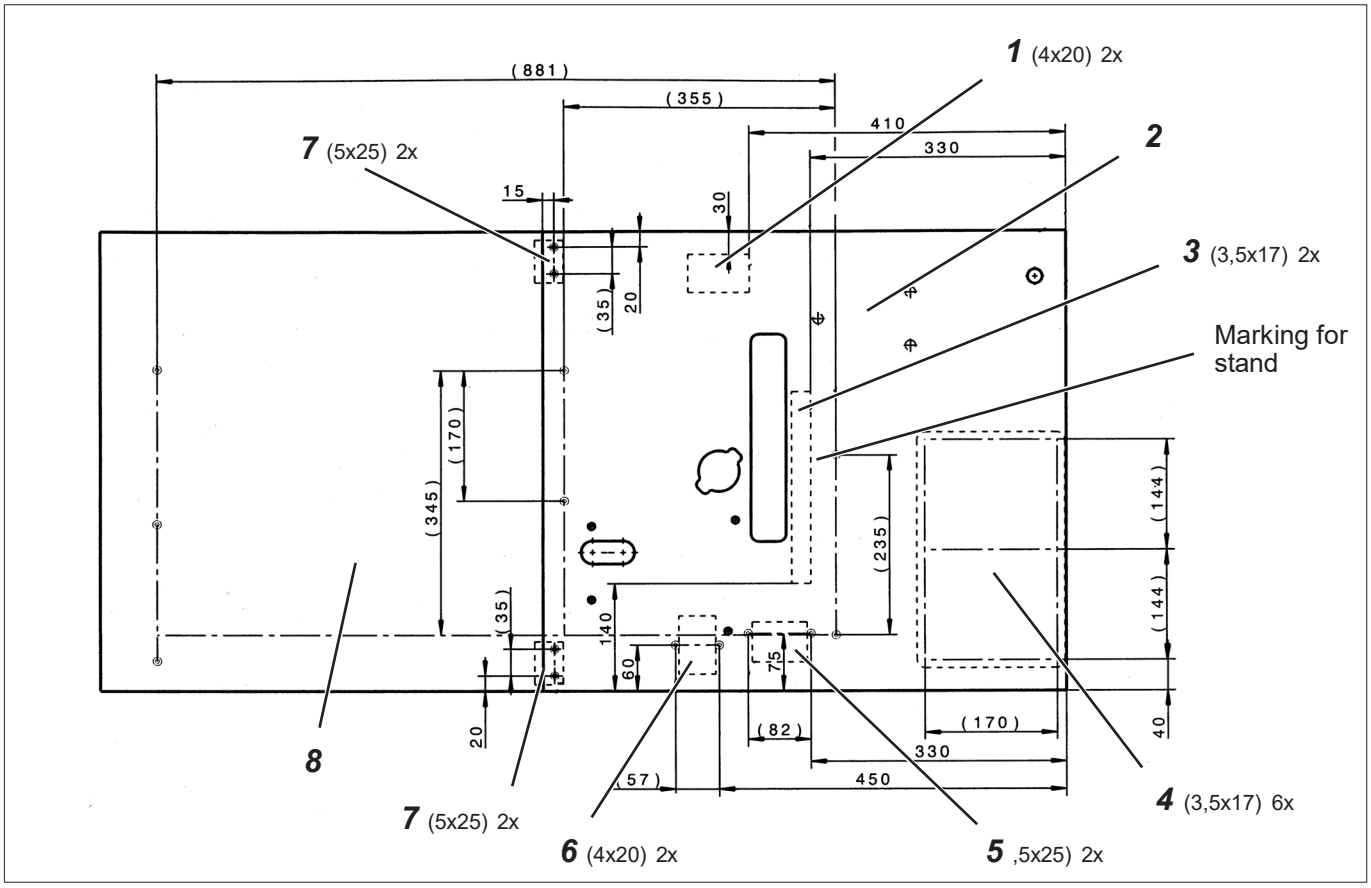
Top view of table plate



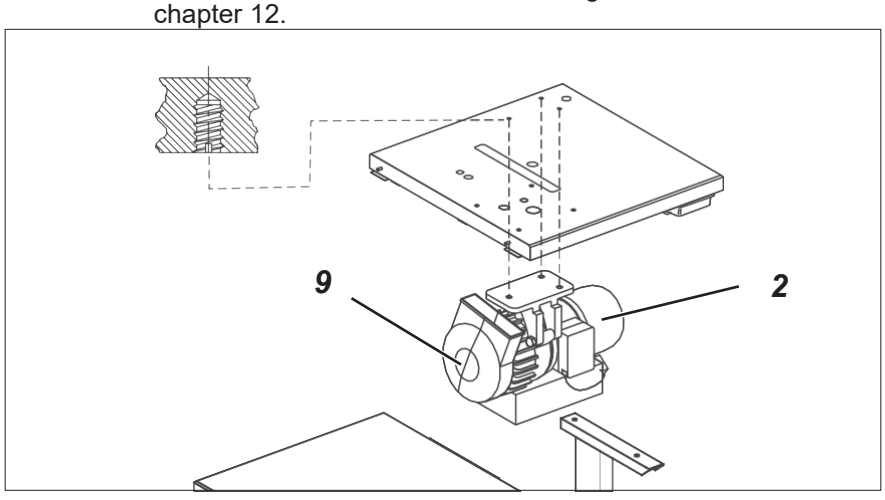
- Turn over the table plate 5.
- Screw on the cable duct 1.
- Screw on the motor control 2.
- Screw on the power supply 3.
- Screw on the knee switch for the sewing-foot stroke. (Only for subclasses 869-180322, 869-280322)
- Screw on the set value initiator 8 (refer to chapter 6.1).
- Screw on the drawer 6 together with its fixtures.
- Screw on the sewing light transformer 7 (optional equipment).
- Mount the electrical cable according to the instructions in chapter 12.

3.5 Completing the table plate for the MG 56-3 stand with FIR clutch motor

Top view of table plate

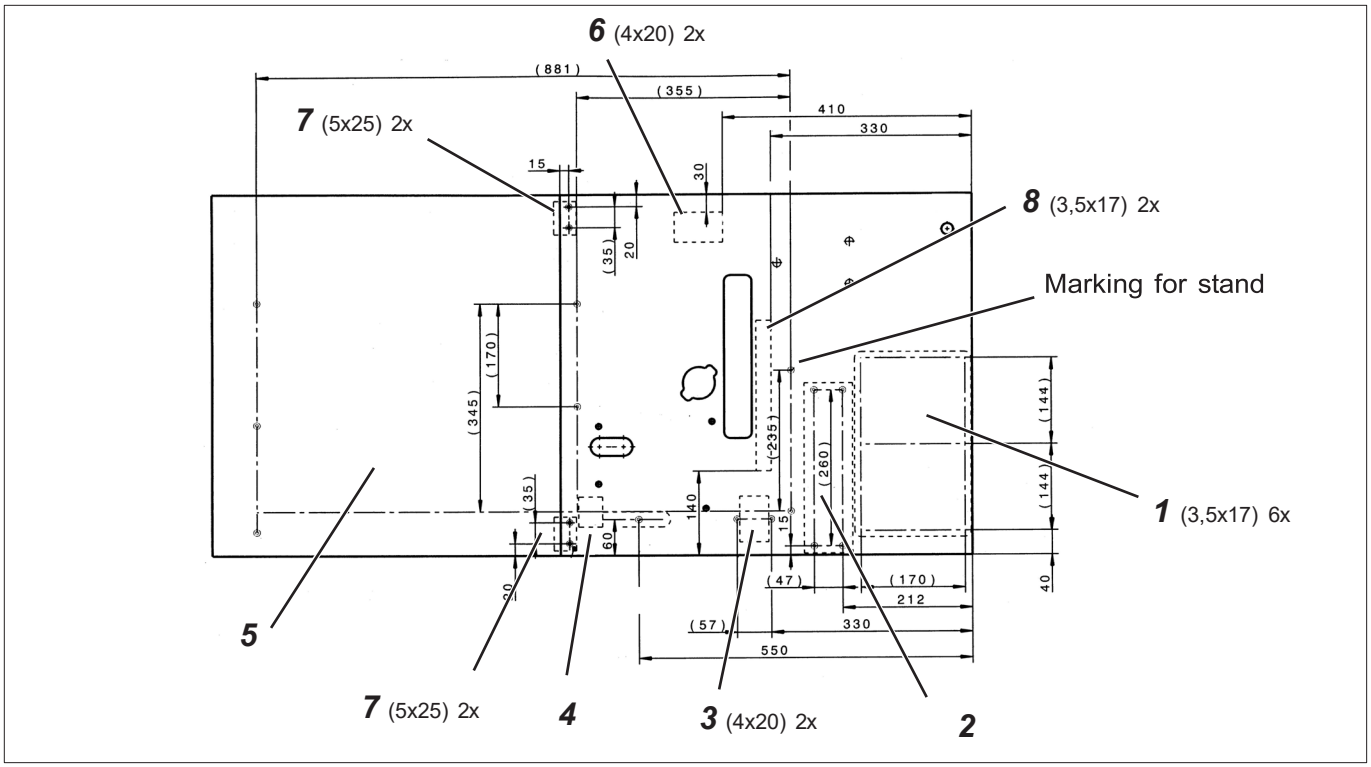


- Turn over the table plate 8.
- Screw on the sewing light transformer 1 (optional equipment).
- Screw on the cable duct 3.
- Screw on the drawer 4 together with its fixtures.
- Screw on the main switch 5.
- Screw on the power supply 6 (optional equipment).
- Screw on flap trays 7 using two wood screws per tray.
- Mount the clutch motor 2.
  For this, screw the three hexagon bolts (M8 x 40) with washers into the anchor nuts on the table plate.
  The belt pulley 9 must point to the left when the table plate is mounted.
- Mount the electrical cable according to the instructions in chapter 12.



3.6 Completing the table plate for the MG 56-3 stand with direct drive

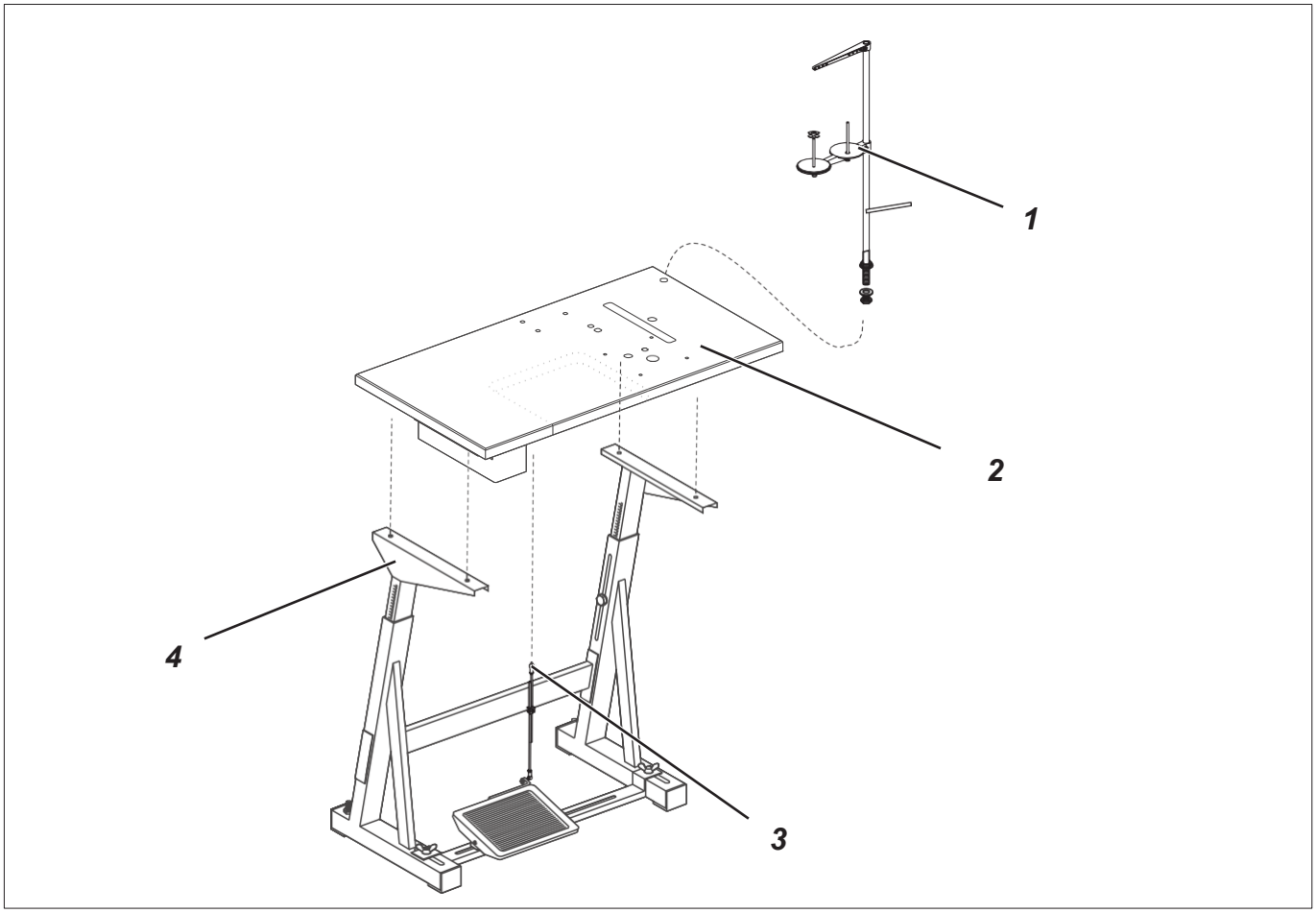
Top view of table plate



- Turn over the table plate 5.
- Screw on the drawer 1 together with its fixtures.
- Screw on the motor control 2.
- Screw on the power supply 3.
- Screw on flap trays 7 using two wood screws per tray.
- Screw on the knee switch 4 for the sewing-foot stroke.
- Screw on the sewing light transformer 6 (optional equipment).
- Screw on the cable duct 8.
- Mount the electrical cable according to the instructions in chapter 12.

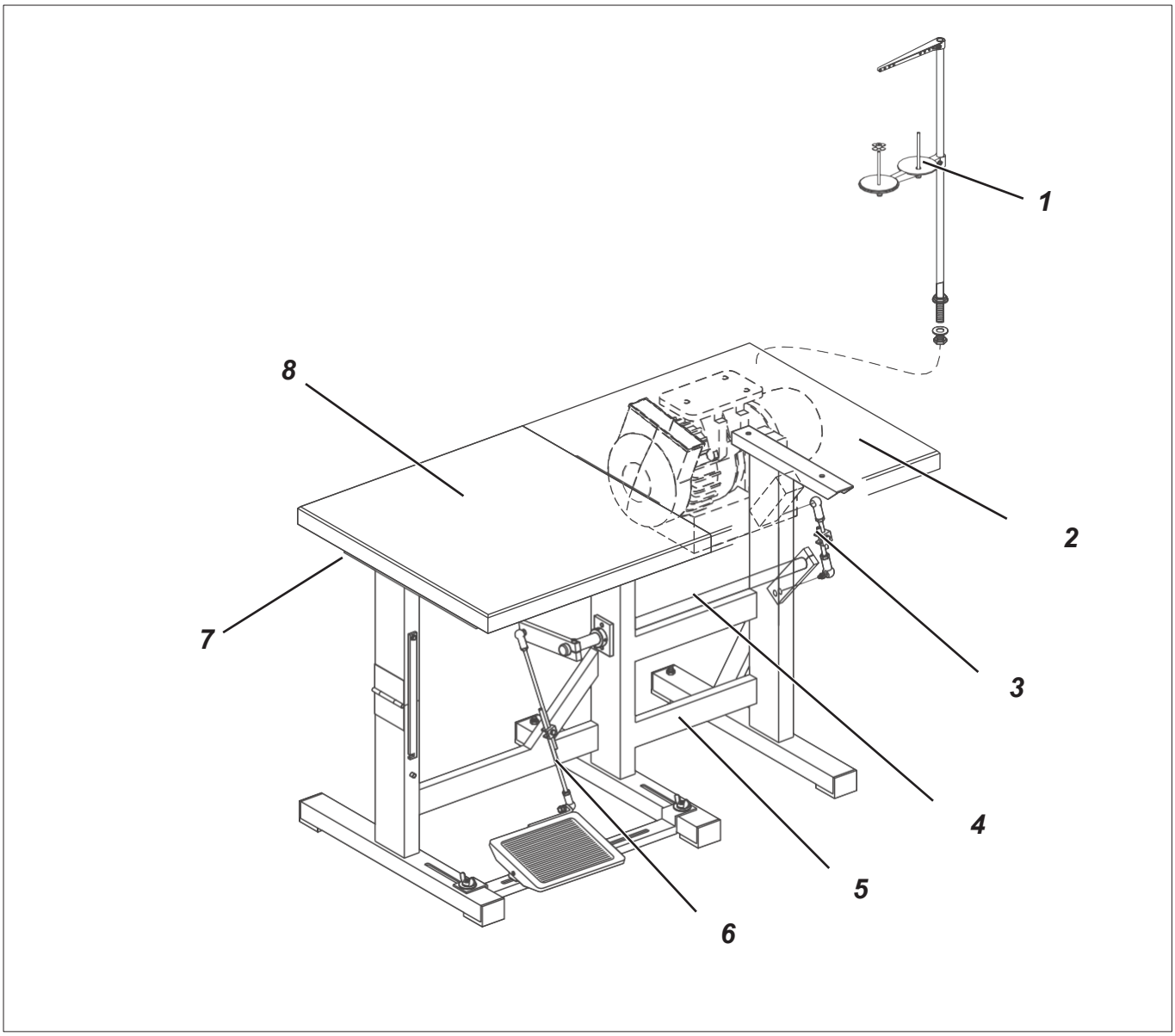
3.7 Fastening the table plate to the stand

3.7.1 MG 55-3 stand



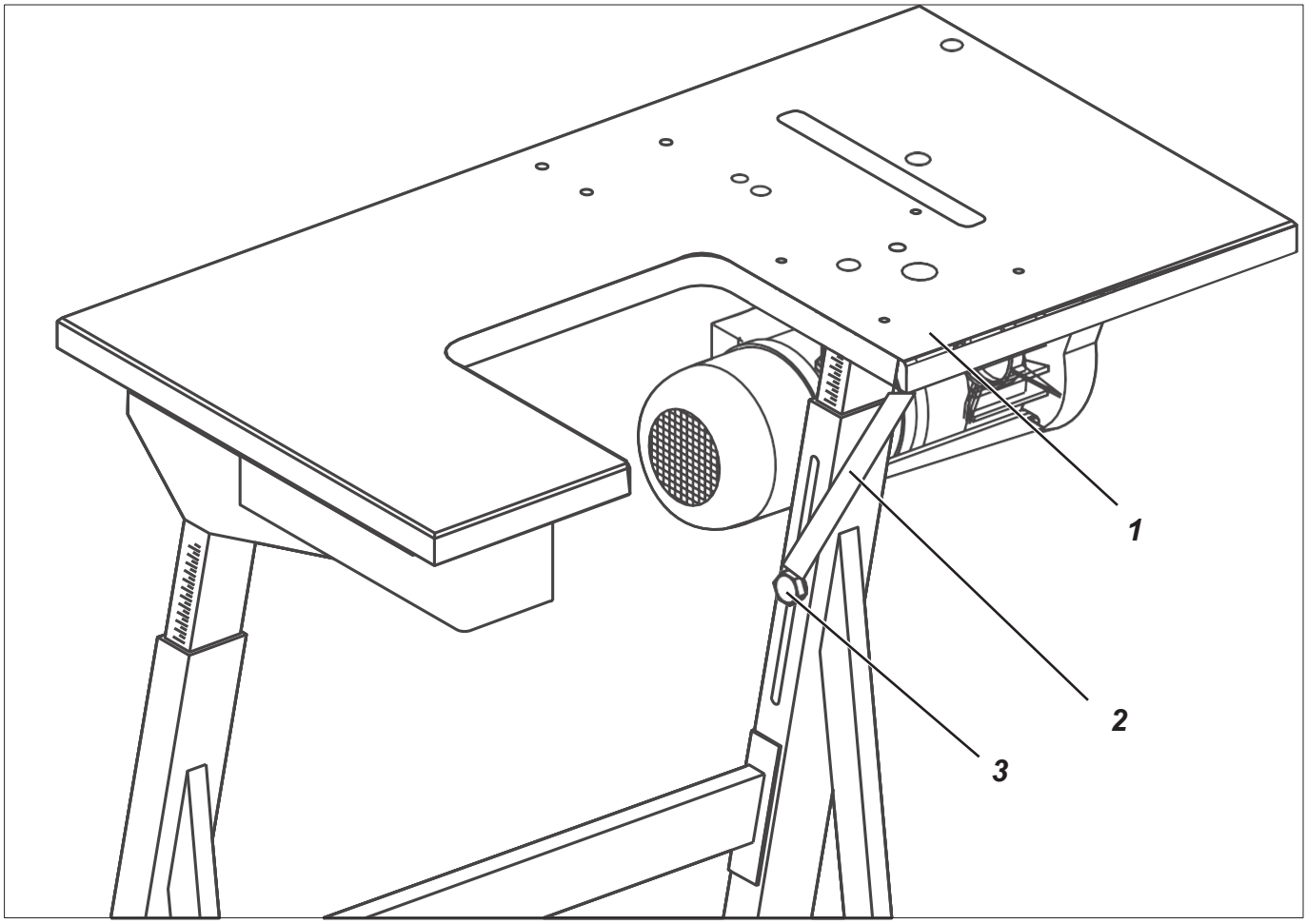
- Fasten the stand 4 to the table plate 1 using wood screws (6x30). Pre-drill the holes for the wood screws.
  Be sure to note the marking for the stand
  (refer to chapters 3.3, 3.4).
- Turn the stand 4 so that it is in its normal position.
- Attach the rod 3 onto the pedal and motor.
- Put the reel stand 1 into the drilled hole in the table plate. Fasten with nut and washer.
- Mount and align the reel holder and unwind holder.
  These two holders must be positioned on top of each other.

3.7.2 MG 56-3 stand



- Fasten the table plate 2 to the stand 5 using wood screws (6 x 30). Pre-drill the holes for the wood screws.
  Be sure to note the marking for the stand (refer to chapters 3.5, 3.6).
- Fasten the table plate 8 to the latch 7 using three wood screws (5 x 30).
- Attach the rod 6 onto the pedal and the actuating lever 4 (only for FIR clutch motor).
- Attach the rod 3 onto the actuating lever 4 and motor.
- Put the reel stand 1 into the drilled hole in the table plate. Fasten with nut and washer.
- Mount and align the reel holder and unwind holder.
  These two holders must be positioned on top of each other.

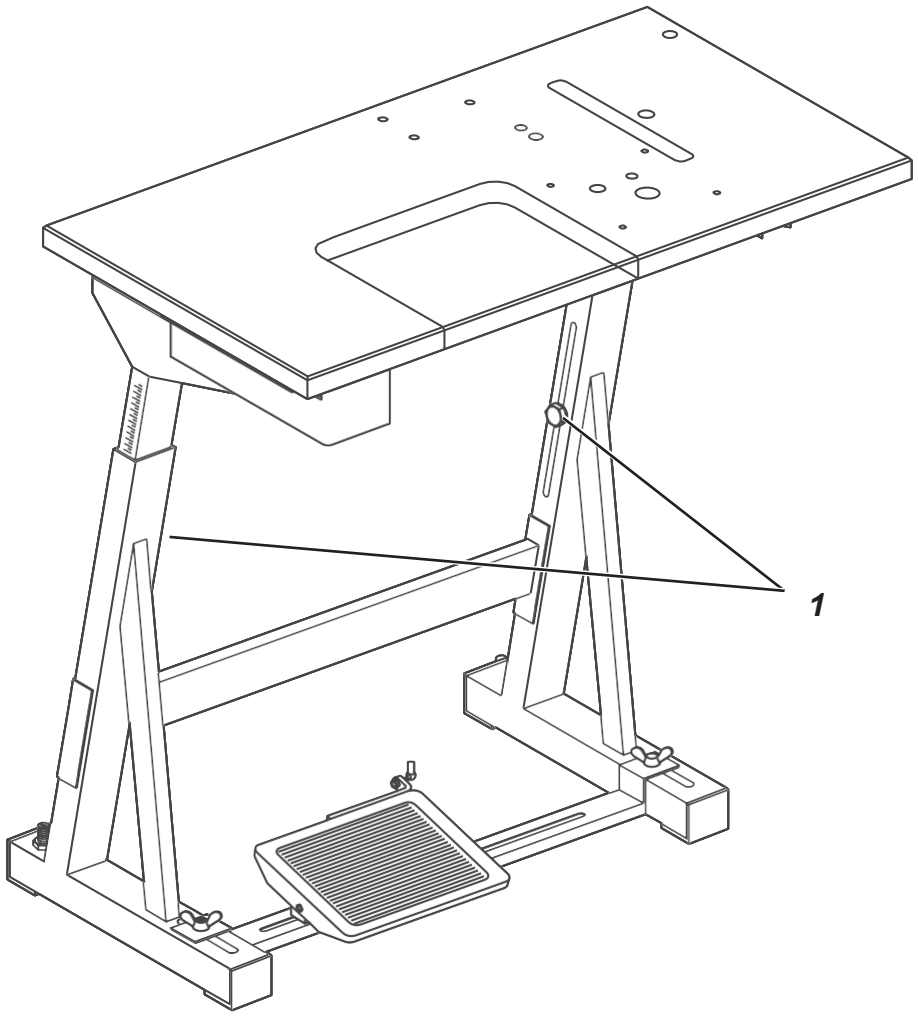
3.8 Assemble support on table plate with cut-out (MG 55-3)



In order to increase the stability of the right side of the table plate 1, the plate is support by a junction bar.

– Fasten junction bar 2 to the stand using screw 3. Fasten bar to the bottom of the table plate using two wood screws (5 x 30).

4. Setting the working height of the MG 55-3 stand





Caution: Risk of injury !

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

- The working height is adjustable between 750 mm and 900 mm (measured to the upper edge of the table plate).
- Loosen the screws 1 in the stand spars.
- Adjust the table plate vertically to your required height. Be sure to adjust (pull out and push in) both sides of the table plate equally so that it does not tilt.
- Tighten screws 1.

5. Sewing Drive

5.1 Driver type and application

The following types of sewing drives are available:

Subclass	Clutch motor	DC-positioning drive
869-180010 869-280020	FIR 1147*.752.3 * FIR 1148*.752.3	Efka DC 1550/DA321G
869-180122 869-280122		Efka DC 1550/DA321G
869-180322 869-280322		Efka DC 1550/DA321G

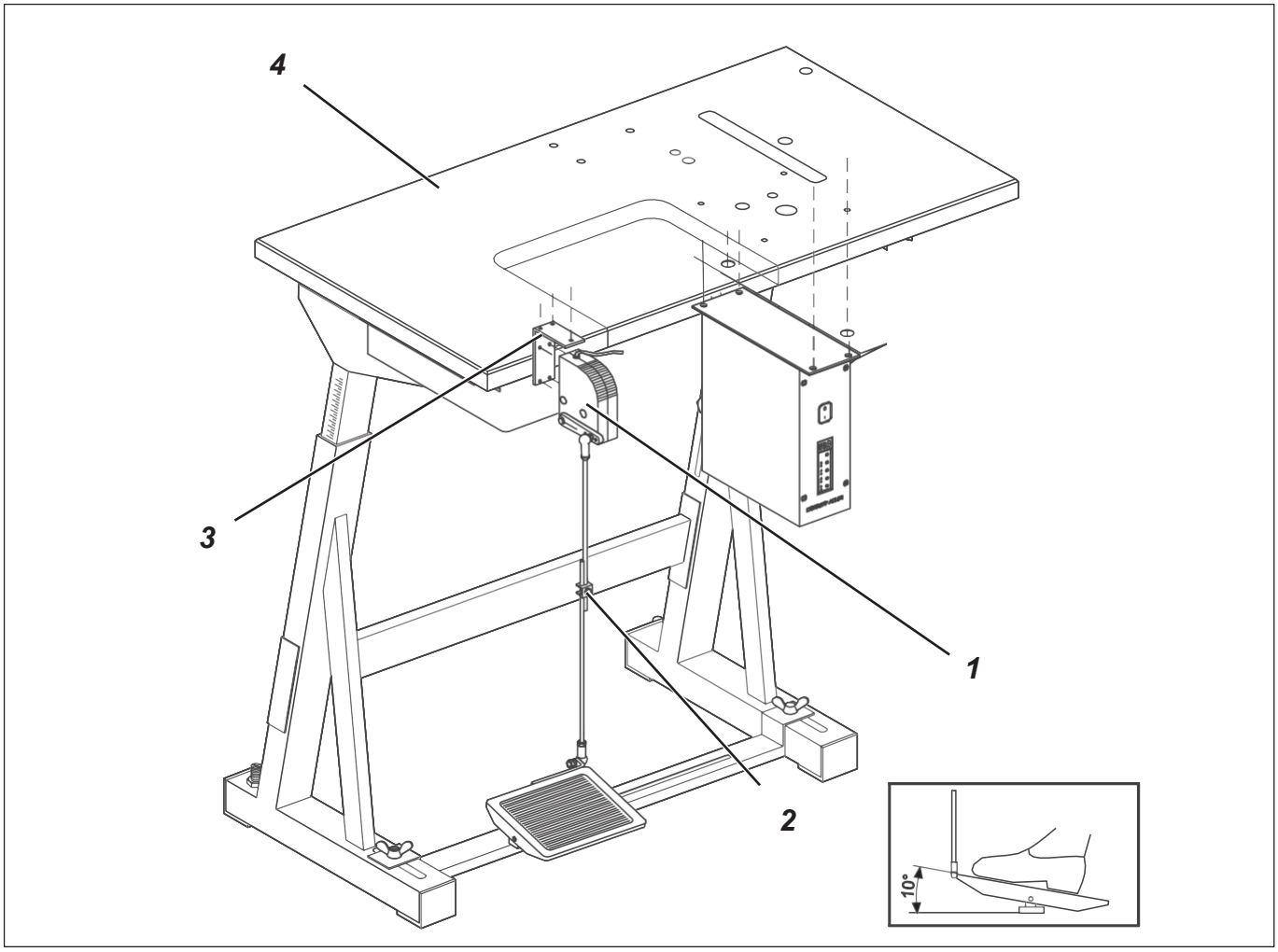
* This clutch motor has an electro-magnetic brake which quickly stops the rotor after the motor has been turned off. This prevents the sewing machine from running if the pedal is pressed shortly after the machine has been turned off.

5.2 Components in the drive packages

Your requested drive is delivered in the form of a “drive package”. This package includes not only the sewing drive but also belt pulley, V-belt, connection cables, pedal rod, fastening materials and diagrams.

6. Mounting the Set-value Initiator for the Direct Drive

6.1 MG 55-3 stand

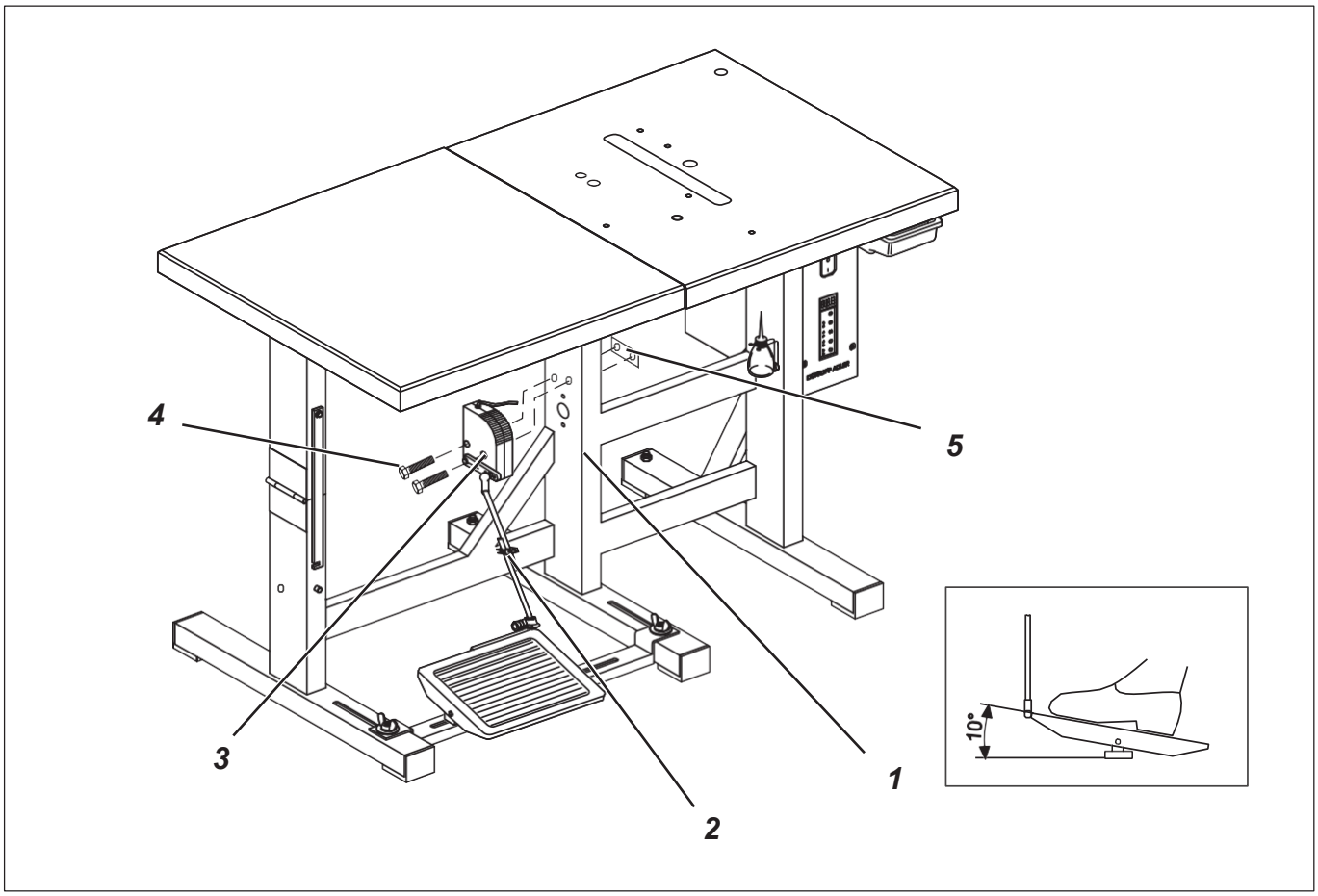


- Screw the angle bracket 3 under the table plate 4 (refer to chapter 3.4).
- Screw the set-value initiator onto the angle 3.
- Hang the rod 2 on the set-value initiator and pedal.

6.1.1 Aligning the pedal

- Loosen screw on the rod 2.
- Adjust the height of the pedal rod so that the released (unused) pedal has a decline of about 10°.
- Tighten the screw on the rod 2.

6.2 MG 56-3 stand



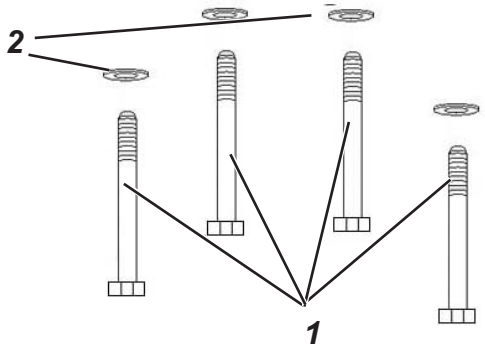
- Screw the set-value initiator 3 onto the plate 5 on stand 1 using two screws 4 (M6 x 80).
- Hang the rod 2 on the set-value initiator 3 and pedal.

6.2.1 Aligning the pedal

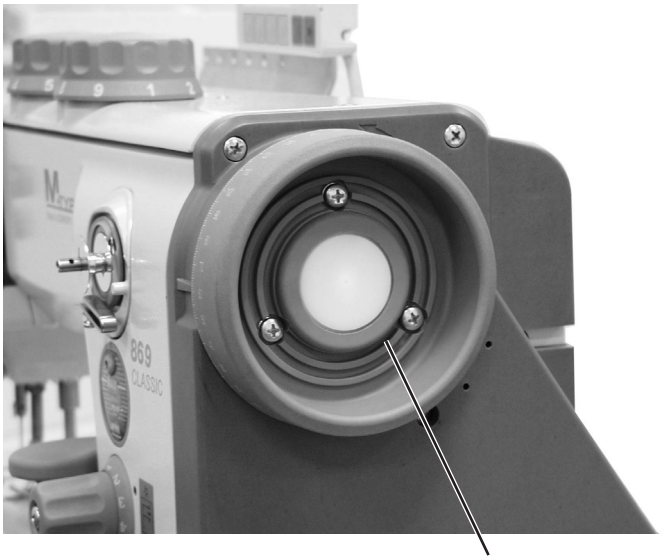
- Loosen screw on the rod 2.
- Adjust the height of the pedal rod so that the released (at rest) pedal has a decline of about 10°.
- Tighten the screw on the rod 2.

7. Putting on the machine head

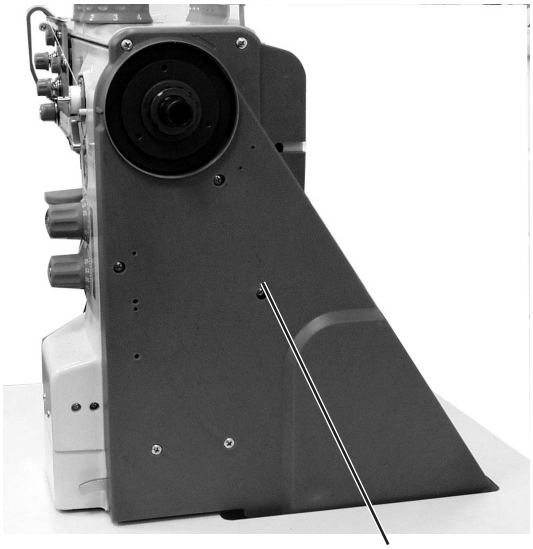




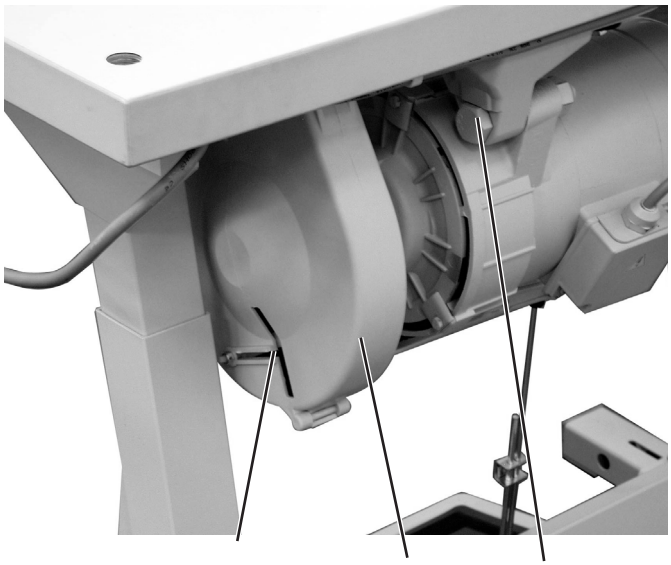
– Put the machine head on the table top. Screw tight from the bottom of the table top using four screws 1 (M8 x 50) and washers 2.



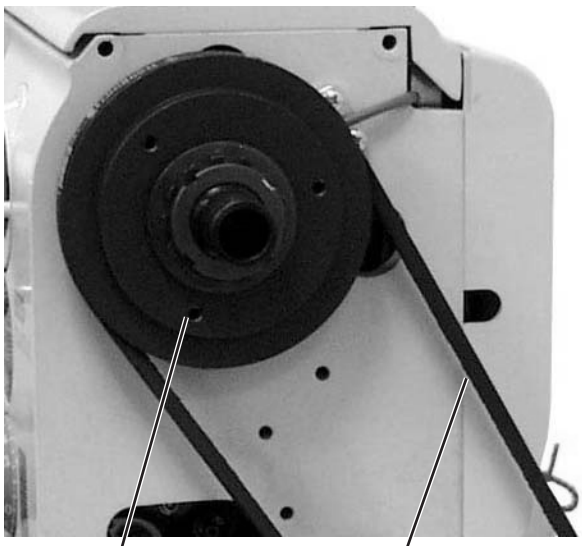
1



2



5 *4* *3*



7 *6*

8. Put the V-belt on and tighten for the FIR clutch motor

Take off the protective cover.

- Remove handwheel 1.
- Remove the protective belt cover 4 on the sewing drive.

Put on the V-belt and mount the protective cover.

- Fasten the belt pulley (in the drive package) to the shaft of the sewing drive.
- Put the V-belt 6 on the belt pulley 7 located on the machine head.
- Guide the V-belt 6 downwards through the cut-out in the table plate.
- Loosen the screw 3 on the base of the sewing drive.
- Put the V-belt 6 on the sewing drive's belt pulley.
- Mount the protective belt cover 2 on the machine head.
- Mount the handwheel 1.

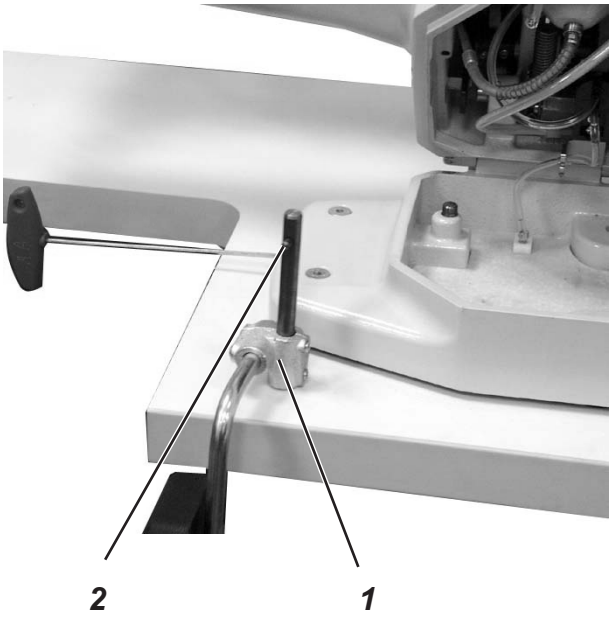
Tightening the V-belt

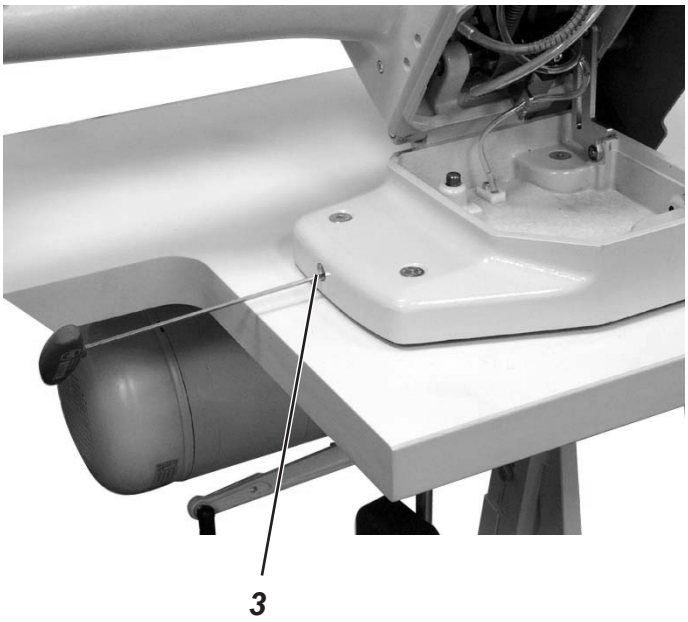
- Loosen the screw 3 on the base of the sewing drive.
- Tighten the V-belt by swivelling out the sewing drive.
  When the belt has the correct tension, you should be able to press down with your finger in the middle of the belt 6 (without excessive force) so that the belt moves about 10 mm down.
- Tighten screw 3.

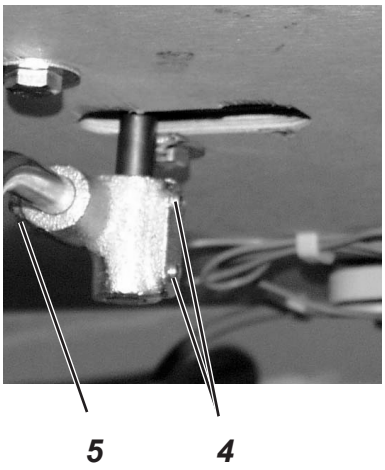
Assembling the protective belt cover on the sewing drive

- Adjust the belt run-off safeguard 5 (an adjustable angle or cam, depending on the drive type) on the belt cover 4 as follows:
  When the machine head is tilted back, the V-belt 6 must remain on the belt pulley.
  Also refer to the operating instructions from the motor manufacturer.
- Screw on the lid of the belt cover 4.

9. Mounting the Knee Lever







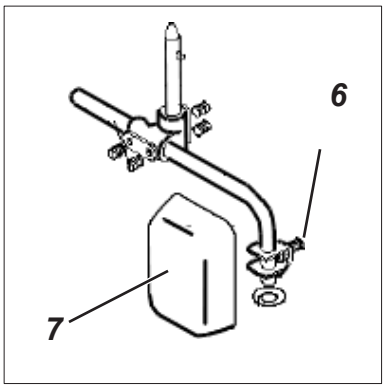
The sewing feet can be lifted mechanically by the knee lever 1.

Attach the knee lever 1.

- Position the knee lever from below so that the nose 2 points to the front.
- Tighten screw 3 into the machine base.

Aligning the knee lever

- Loosen screws 4 and 5.
- Align the knee lever.
- Re-tighten screws 4 and 5.



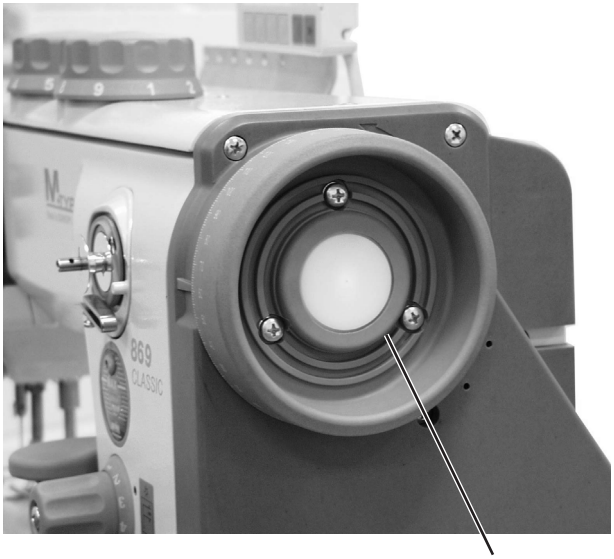
Aligning the knee cushion

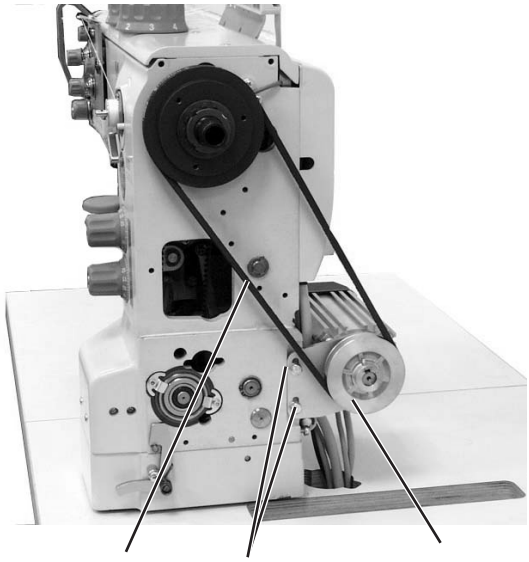
- Loosen screw 6.
- Align the knee cushion 7.
- Re-tighten screw 6.

Notes:

10. Mounting the Direct Drive

10.1 Mounting the motor and putting on the V-belt





1

- Unscrew the handwheel 1.
- Screw motor 3 onto the head using two screws 4 (M6 x 16) so that it can be easily shifted.
- Put on the V-belt 5.
- Tighten the V-belt.
  Press the motor 3 downwards and tighten both screws 4.
  When the belt has the correct tension, you should be able to press down with your finger in the middle of the belt 6 (without excessive force) so that the belt moves about 10 mm down.

10.2 Connecting the Hall sensor



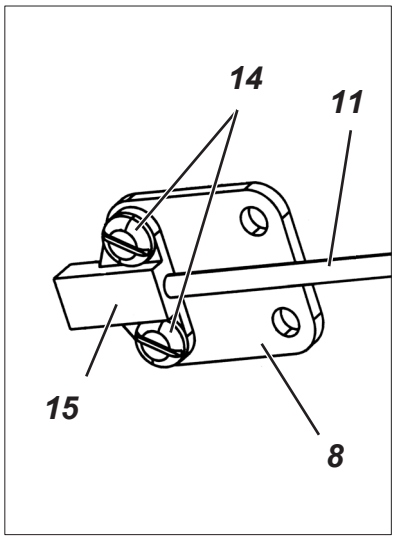
Caution: Risk of injury !

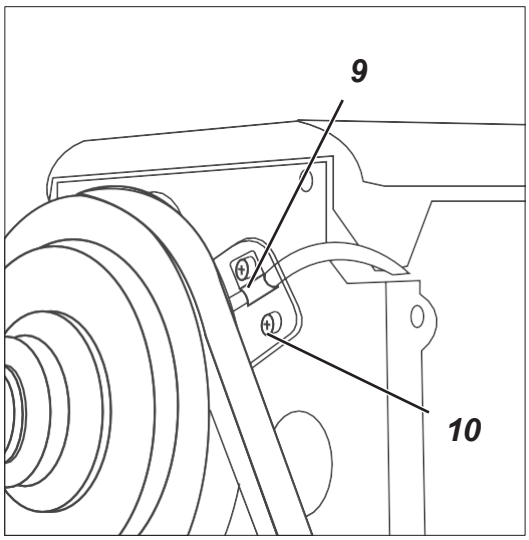
Turn the main switch off.

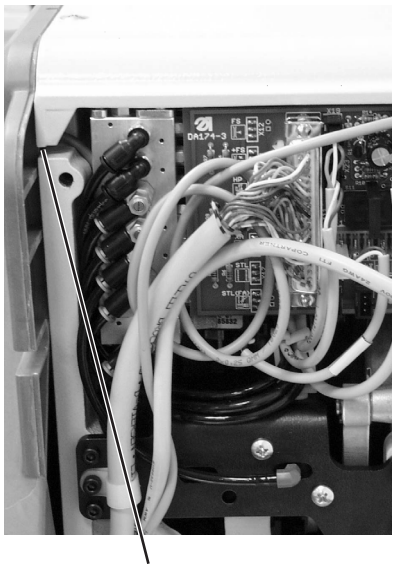
Connect the Hall sensor only with the sewing machine turned off.



- Screw off the arm cover 7 and valve cap 6.

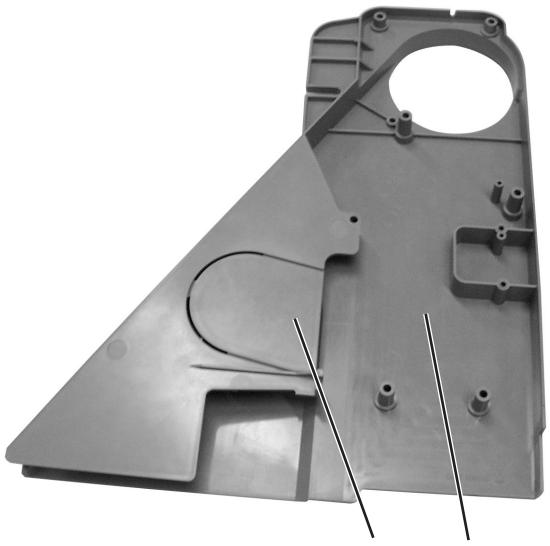


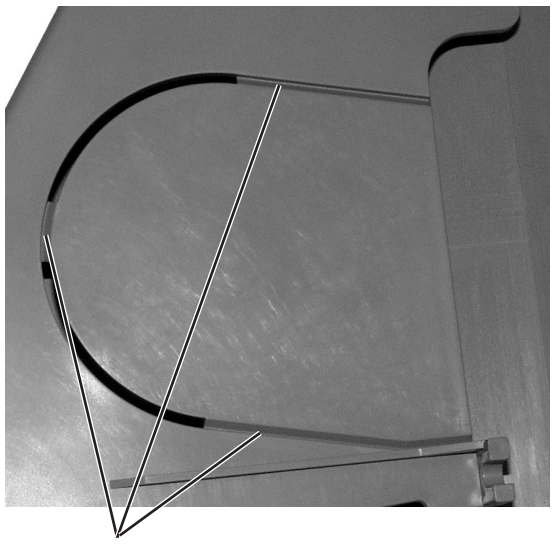




- Fasten the Hall sensor 15 to the holder 8 using two screws 14 (M4 x 5).
- Fasten the holder 8 with the Hall sensor 15 to the arm 8 using two screws 10 (M4 x 8).
  Guide the cable 11 through the clips 9.
- Route cable 11 in the arm and then to the control cabinet under the table plate.
- Screw on the arm cover 7.
- Connect the 9-pole Sub-D plug from the Hall sensor into “B18" socket on the Efka DA321G controller (IPG / HSM / LSM).

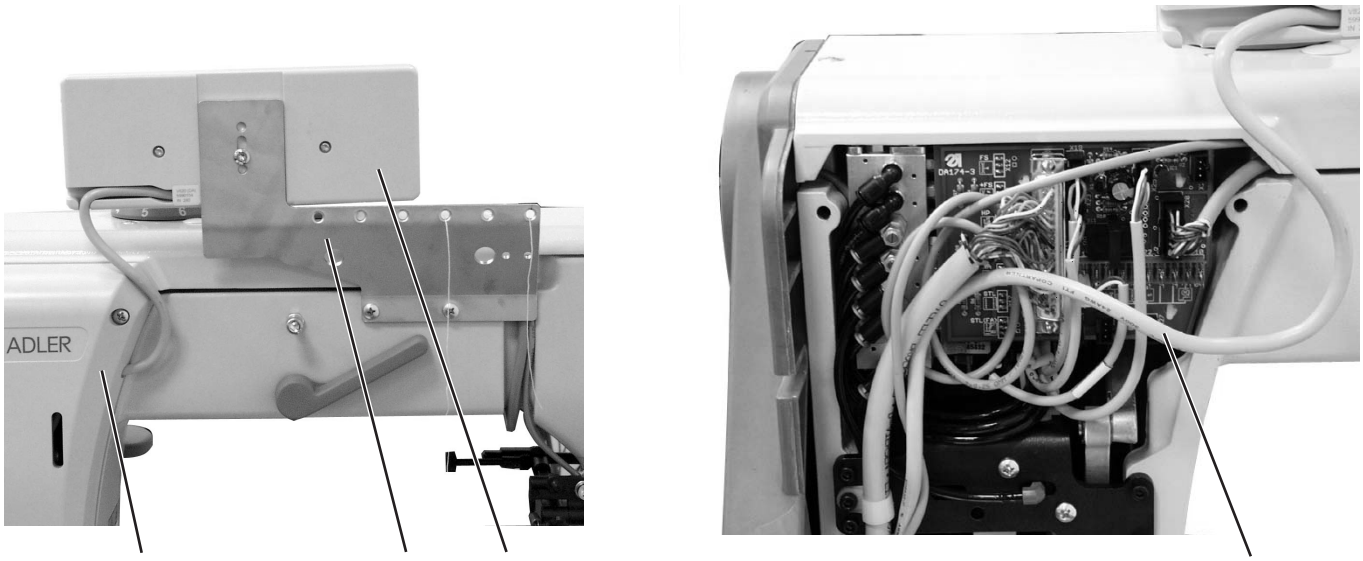
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- Take out the section 12 from the protective belt cover 2.
  Use a sharp knife to cut through the sections shown by 13.
- Mount the protective belt cover on the machine head.
- Mount the handwheel 1.

10.3 Mounting the operating panel



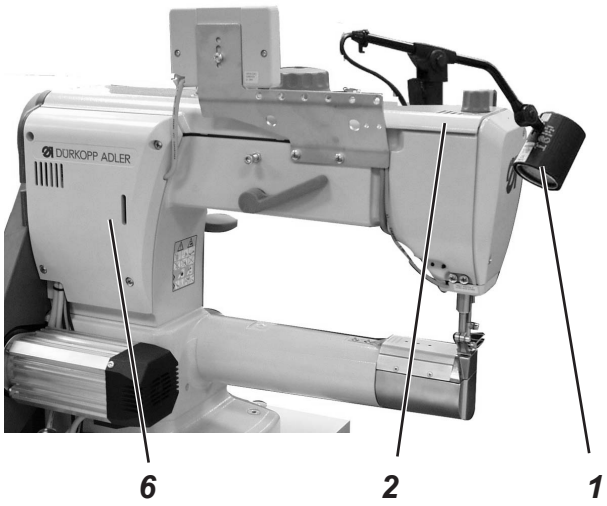
5

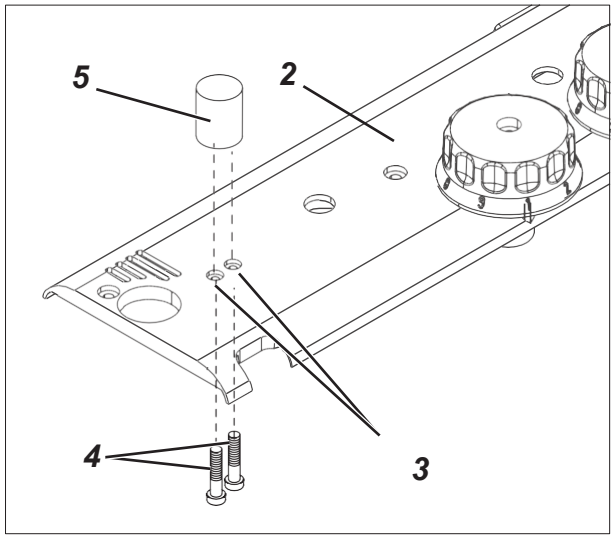
– Screw on operating panel 1 along with the thread guide 2.
– Take off the valve cap 3.
– Lay the panel's connection cable 5:
  Pull the cable in the arm and then downwards through the opening in the table plate.
– Plug in the cable plug into the B776 socket on the drive controller.
– Put the valve cap 3 back on.

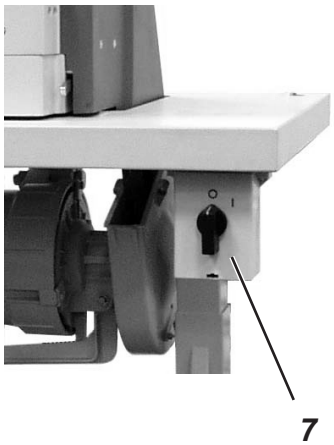
10.4 Mounting the sewing light (optional equipment)

CAUTION !

The power supply to the sewing light is not disconnected when the main switch is turned off. Remember to pull out the mains plug before making this connection.







The sewing light 1 will be mounted on the arm cover 2.

- Screw off the arm cover 2.
- Use a 4.5-mm Ø bit to drill the fastening holes 3.
- Screw the retainer piece 5 using screw 4.
- Put the sticker with the safety notice on the front of the main switch 7.
- Put the sewing light onto the retainer piece 5.
- Unscrew the valve cap 6.
- Route the sewing light's supply cable into the cut-out on the machine arm.
- Guide the the connection cable downwards through the opening in the table plate.
- Fasten the sewing light transformer under the table plate using particle-board screws.
- Plug in the connector for the transformer's power supply.
- Put on the cover 2 and valve cap 6.

11. Electrical Connections

11.1 General

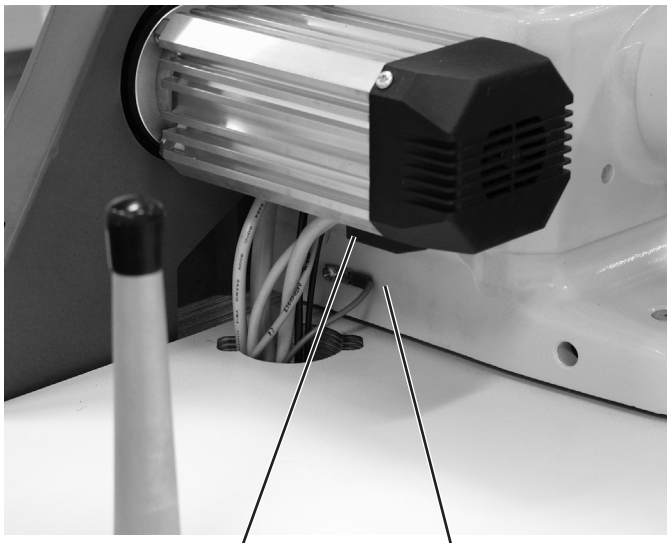
Caution!

All work on the electrical equipment of the sewing machine may only be carried out by qualified electricians or other appropriately trained persons.

The power cord must always be disconnected while working on the electrical equipment!

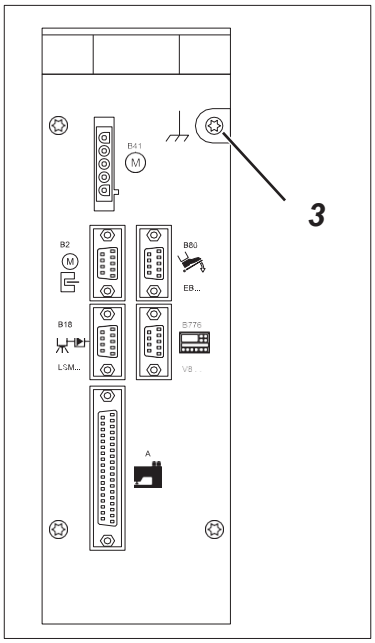
11.2 Earthing

11.2.1 Machine head





2 *1* *3* *1*



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.

– Connect the earth cable 1 to the tab connector 2 (connector is already screwed on to the machine head). Then route the cable through the cable duct to the motor foot.
– Screw the earth cable 1 to the motor foot or control unit box using screw 3.
– The earth cable 1 should also be fastened under the table plate with nail clips.

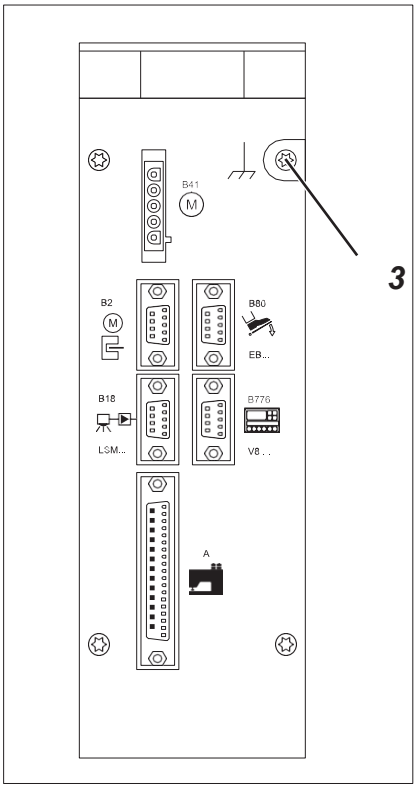
Caution!

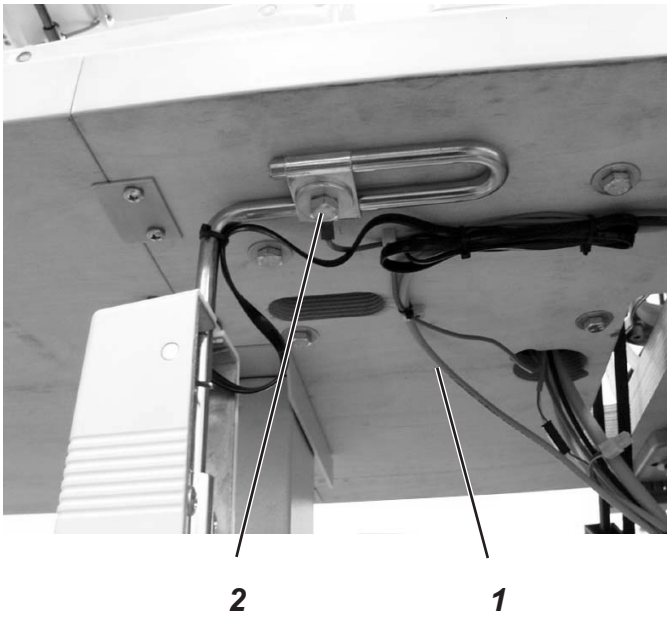
Make sure that the earth cable 1 does not come into contact with the V-belt.

Note:

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

11.2.2 Knee switch





– Fasten the large eyelet on the earth cable 1 to the knee switch using screw 2.
– Screw the earth cable 1 to the control unit box using screw 3.

11.3 Checking the mains supply voltage



Caution!

The nominal voltage given on the sewing drive's identification plate must correspond to the mains voltage where it is to be operated.

11.4 Connecting the clutch motor (FIR) to the mains voltage



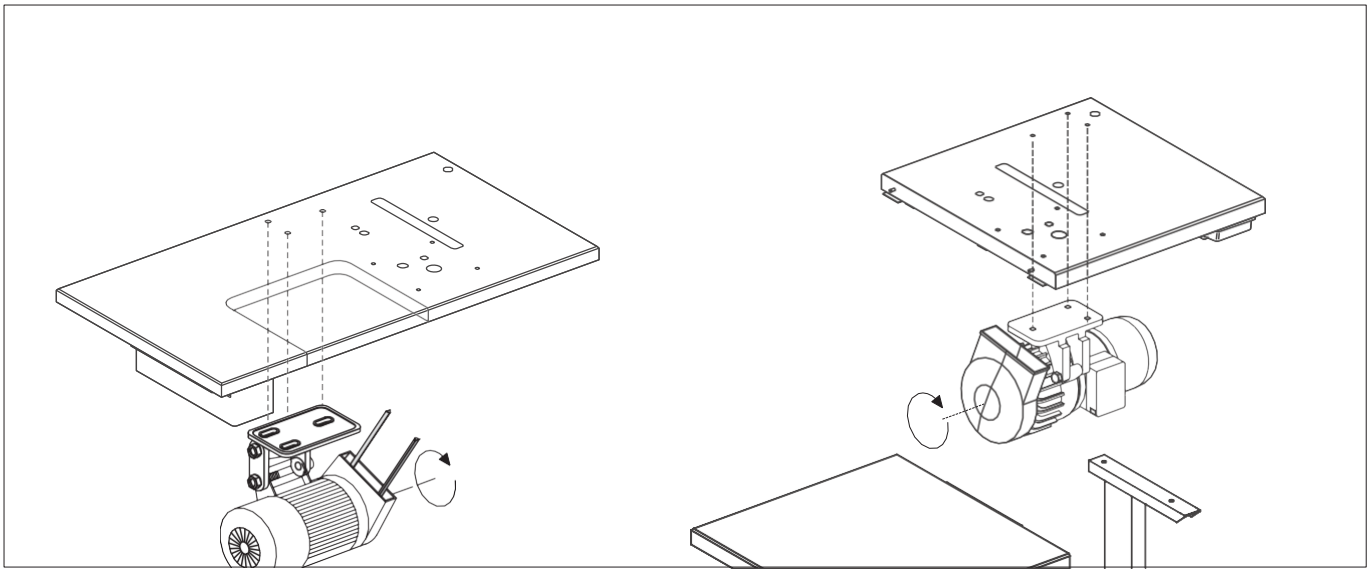
Caution!

A pluggable connection must be used to connect the sewing machine to the mains supply voltage!

The **clutch motor** should be connected to three-phase current:
3 x 380 - 415V 50/60Hz or 3 x 220 - 240V 50/60Hz.
(Refer to the table in chapter 5.2.)
The connection should be established according to the connection diagrams 9800 110002 A or 9800 120009 D.

- Route the connection cable from the main switch through the cable duct to the sewing drive. Then connect the cable to the sewing drive.
  Refer to the connection diagram 9800 110002 A/ 9800 110002 D (in the accessories) or to the circuit diagram on the clutch motor.
- Route the voltage supply cable from the main switch through the cable duct to the rear. Then fasten with the strain relief mechanism.

11.4.1 Rotational direction of the clutch motor



Caution!

Make sure to check the rotational direction of the sewing drive before initial commissioning of the sewing machine!
Operating the sewing machine with the incorrect rotational direction can damage the machine.

11.4.2 Checking the rotational direction

The rotational direction of the clutch motor (a three-phase motor) is dependent on the three-phase mains connection and the method of assembly used. In order to check the rotation before use, do the following:

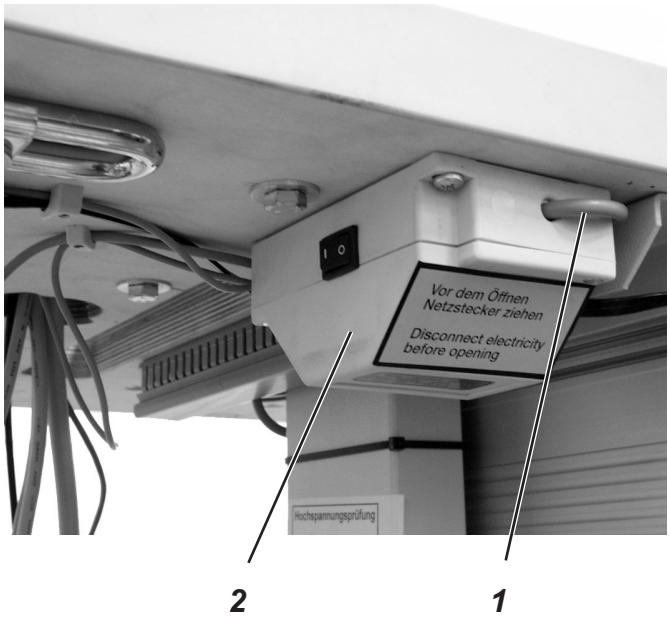
- Connect the clutch motor. Establish equipotential bonding. Connect the sewing drive to the mains supply. (Refer to chapters 11.2 and 11.4.)
- Turn the main switch on.
- Press the pedal (or the motor's clutch lever) until the belt pulley starts to turn.
- The handwheel must rotate in the direction of the arrow.

11.4.3 Changing the rotational direction

If the sewing drive is turning in the false direction, then you must swap two phases at the mains terminals for the sewing drive. Take the following steps:

- Turn off the main switch and unplug the mains plug!
- Swap the positions of two of the three phase wires at the sewing drive's mains connection.
- Plug in the mains plug and switch on the main switch.
- Re-check the rotational direction (refer to chapter 11.4.2).

11.4.4 Connecting the sewing light transformer (optional equipment)



CAUTION !

The transformer for the sewing light is connected directly to the mains power supply and is live even when the main switch has been turned off.

Always pull out the mains plug before starting any work on the transformer (for example, when changing the fuse).

- Pull out the mains plug of the sewing machine!
- Route the mains cable 1 for the transformer 2 through the cable duct 3 to the main switch.

Make the connection on the mains side of the main switch (or motor protective switch).
Refer to connection diagram 9800 169002 B.

- Put the sticker with the safety notice on the front of the main switch.

A neutral conductor must be used if you are connecting the transformer to a three-phase 3 x 380V - 415 V power supply.

11.5 Connecting the DC positioning drive to the mains voltage



Caution!

A pluggable connection must be used to connect the sewing machine to the mains supply voltage!

The **DC positioning drive** is run with single-phase AC current of 190 - 240V 50/60Hz. The connection should be made according to the connection diagram 9800 120009 A or 9800 130014 R.

When connecting to a three-phase supply of 3x380V, 3x400V or 3x415V, the sewing drive should be connected to one phase and to a neutral conductor.

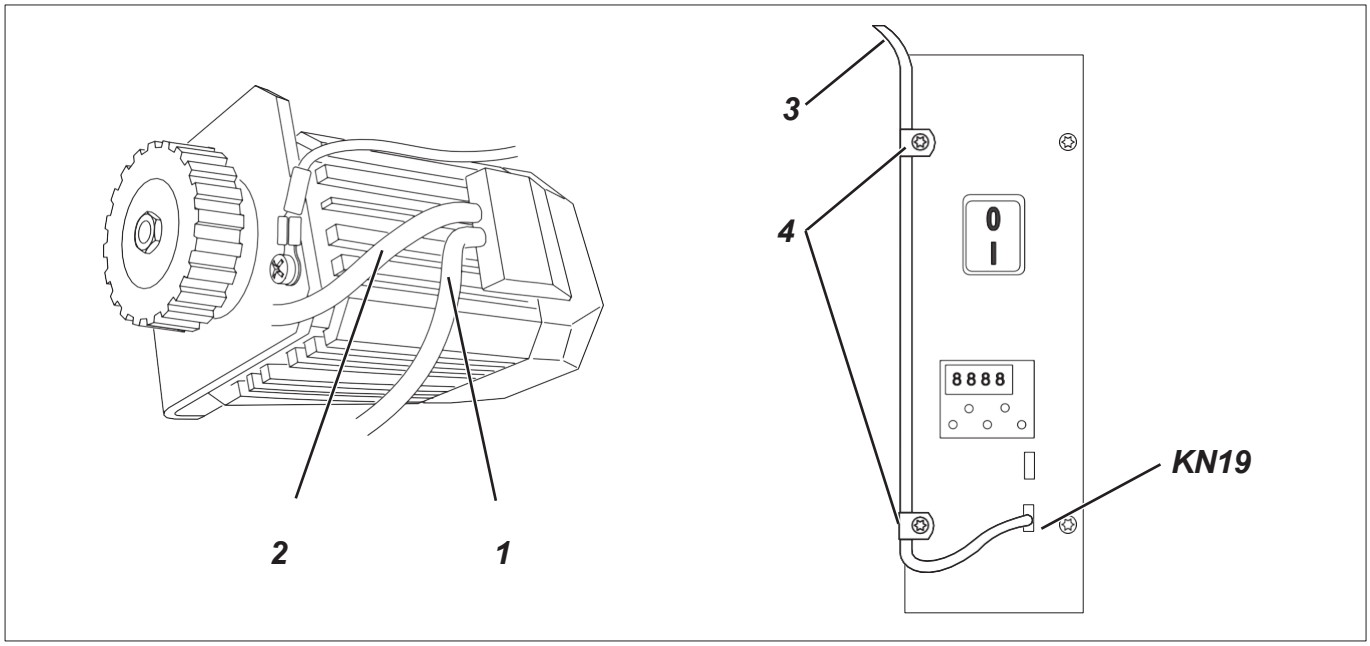
When connecting to a three-phase supply of 3 x 200V, 3 x 220V, 3 x 230V or 3 x 240V, the sewing drive should be connected to two of the phases.

If multiple DC positioning drives need to be connected to the same three-phase supply, you should distribute the connections amongst all of the phases equally so that no single phase is overloaded.

11.5.1 Connecting the sewing machine head

- The cable numbered 9870 867000 is plugged into the head distributor 9850 867000. This cable is then routed downwards inside the head.
- The 37-pole plug on the cable should be connected and screwed in to socket A on the sewing drive.

11.5.2 Connecting the DA321G control unit



- Plug the cable from the setpoint director device (pedal) into the B80 socket on the control unit.
- Plug the motor sensor cable 1 into the B2 socket on the controller.
- Plug the motor cable 2 into the B41 socket on the controller.
- Plug the cable leading to the sewing machine into the A socket on the controller.
- Route all cables through the cable duct.
- Plug the cable from the operating panel (if available) into the B776 socket.
- Plug the cable 3 from the knee switch into the KN19 socket on the front side.
- Use the clips 4 to fasten down the cable 3 (only with 869-180322 and 869-280322).

11.5.3 Checking the rotational direction of the DC positioning drive



CAUTION !

Make sure to check the rotational direction of the sewing drive before commissioning the sewing machine. Operating the sewing machine with the incorrect rotational direction can damage the machine.

The arrow on the belt cover indicates the machine's proper direction of rotation.

A reset value in the control unit parameter defines the rotational direction of the handwheel as counter-clockwise. This specifies the rotational direction of the DC positioning motor. However, the rotational direction must be verified before the initial commissioning of the machine. Take the following steps:

- Set the sewing foot in the high position.
- The plugs from the set-value initiator, motor, motor sensor and operating panel (if present) must be connected.
- The 37-pole plug from the sewing machine head should not be plugged in.
- Turn the main switch on.
  The operating panel displays “Inf A5" or ”A5". This means that a valid “Auto-select resistant” has not been detected. The maximum rotational speed will therefore be limited.
- Press down gently forwards on the pedal.
  The drive starts to turn.
- Check the rotational direction.
  If the rotational direction of the drive is incorrect, then you must set the technical-level parameter “161" to a value of 1.
  (Refer to the instructions from the drive manufacturer.)
- Turn the main switch off.
- Reconnect the 37-pole plug from the sewing machine head

11.5.4 Checking the positioning

The needle position should already be properly set upon arrival of the sewing machine. However, the needle position should be checked before starting up the machine.

Prerequisite

- The sewing foot should be set in the high position. (Refer to the operating instructions).
- The machine should be set to stop over position 1 (with the needle down).

Position 1

– Turn the main switch on.
– Press forward on the pedal briefly and then return to starting position.
  The needle is in position 1.
– Check the position of the needle.

Position 2
(only with switched-off reverse rotation (parameter 182 set to 0)

– Press the pedal first forward and then completely back.
  The needle is in position 2 (thread lever is at top dead centre).
– Check the position of the thread lever.

If one or both needle positions are incorrect, then you must correct the positioning. (Refer to the operating instructions.)

11.5.5 Machine-specific parameters

General

The programming and setting of parameters are used to specify the functions of the sewing drive controller.

Auto-select

The controller detects which sewing machine class is connected by measuring the auto-select resistance from the machine. Auto-select is used to select the control functions 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.

– The correct machine class can be set using parameter F-290, in accordance with the parameter data sheet 9800 331104 PB50.

In order to ensure that the machine is properly positioned and that all functions are correct, the following parameters must be verified or set correctly:

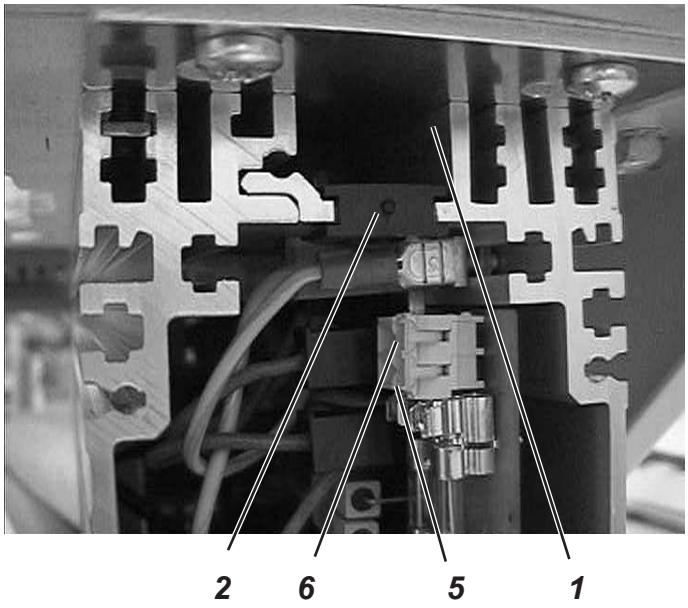
- Parameter F-111: set to 3000 rpm or less.
- Parameter F-270: set to 6 (selection of positioning sensor)
- Parameter F-272: calculate with the following formula:

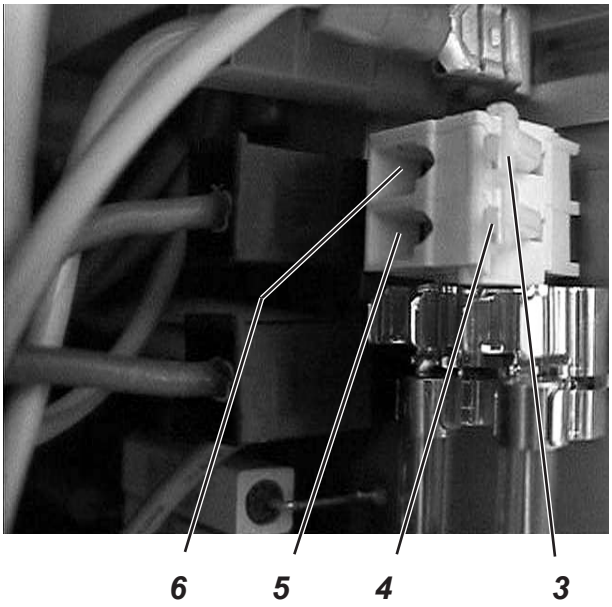
$$\frac{\text{Diameter of the motor belt pulley}}{\text{Diameter of the machine belt pulley}} \times 1000$$

11.5.6 Master reset

A master reset will reset all parameter values to their default settings. After a master reset, the machine-specific parameters must be correctly specified again.

11.5.7 Connecting the sewing light on the DA321G control unit





- Loosen the four screws on the front plate of the control unit.
- Take off the front plate.
- Push the cable from the rear through the cable duct 1 in the controller.
- Take off the black rubber guide track 2.
- Use a screwdriver to punch though the circular opening in the guide track.
- Guide the cable for the sewing light transformer through this new opening.
- Replace the guide track.
- Use a thin screwdriver to press on the terminal openings 4 and 3. This opens up the terminals 5 and 6.
- Connect the blue cable to terminal 6 and the brown cable to terminal 5.
- Reattach the front plate using the four screws.

12. Pneumatic Connections

CAUTION !

The pneumatic equipment will only function smoothly when the system's supply pressure in between 8 and 10 bar.

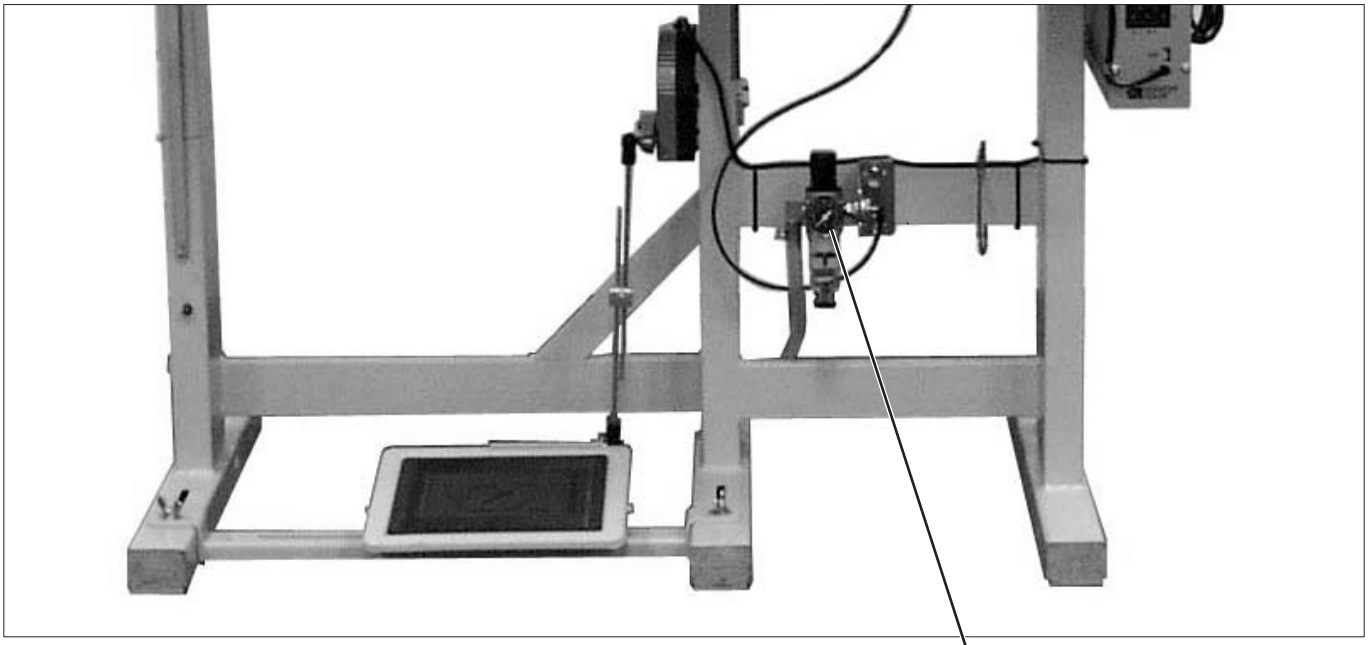
The operating pressure of the sewing machine is 6 bar.

Pneumatic connection package

You can order a pneumatic connection package (order number 0797 003031) for stands with compressed-air maintenance units.

The package contains the following components:

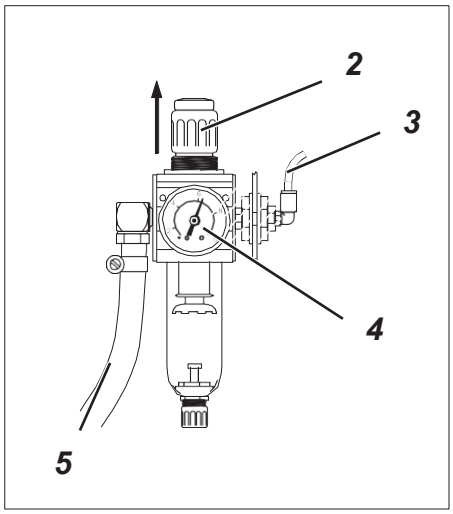
- Connection hose, 5 m long, (Ø =9 mm)
- Hose connector gland and hose fitting
- Coupling socket and coupling plug



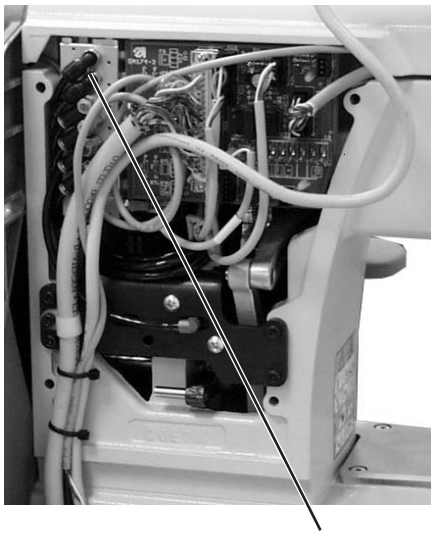
1

Connecting the compressed-air maintenance unit

- Fasten the compressed-air maintenance unit 1 to the stand brace using the angle bracket, screws and strap.
- Connect the maintenance unit to the compressed air supply using a connection hose 5 (Ø =9 mm) and a R1/4" hose coupling.







Connecting the maintenance unit to the sewing machine head

– Unscrew the cap 6.
– Connect hose 3 (in accessory pack) with the distributor plate 7 located on the machine head.
– Screw the cap 6 back on.

Setting the operating pressure

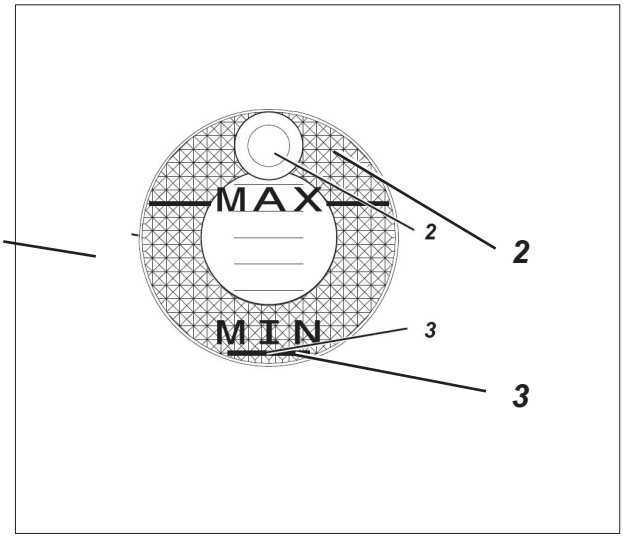
The operating pressure is 6 bar.

It can be read using the pressure gauge 4.

– In order to set the pressure, pull up on the turning handle 2 and turn.
  In order to raise the pressure, turn the handle 2 clockwise. In order to decrease the pressure, turn the handle 2 counter-clockwise.

13. Lubrication





Caution: Risk of injury !

Oil can cause skin rashes.
Avoid prolonged skin contact.
If oil or grease contacts your skin, wash yourself thoroughly.

CAUTION !

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

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

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

DA 10 can be purchased at sales branches of **DÜRKOPP ADLER GmbH**, 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

Lubricating the machine head (for the initial filling)

Note

All wicks and felt in the head are saturated with oil before being delivered. This oil is carried back to the storage reservoir 1.
Do not overfill the reservoir.

– Fill oil into the reservoir 1 using the hole 2. Fill until you reach the "**min.**" mark 3.

14. Sewing test

After setup is complete, a sewing test must be carried out.

– Plug in the power supply plug.



Caution: Risk of injury !

Turn the main switch off.

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

– Thread in the winder thread (refer to the operating instructions, chapter 6.11).
– Turn the main switch on.
– Set the sewing feet in their raised positions (refer to operating instructions, chapter 6.11).
– Fill up the bobbin winder at low speed.
– Turn the main switch off.
– Thread in the needle and bobbin thread (refer to operating instructions, chapters 6.1 and 6.6).
– Select the material to be processed.
– Carry out the sewing test – initially with a slow speed and then continually accelerating.
– Check that the seams satisfy requirements.
  If your requirements are not met, change the thread tension (refer to the operating instructions, chapters 6.2, 6.4 and 6.7).
  If necessary, the settings detailed in the service instructions should also be checked and corrected.

Additional instructions for machine 550-869-100-M GOLD Line and SILVER Line with stainless feed cylinder/DAC

1. General information

Extended sewing machine 550-869-100-M is based on the 869 basic line, including the relevant document Operating Instructions of this sewing machine.
The sewing machine is supplemented with a stainless feed cylinder, which is used for an auxiliary feed of the sewn material, and is being driven with a step motor. Fig. 1 shows a general view of the sewing machine.

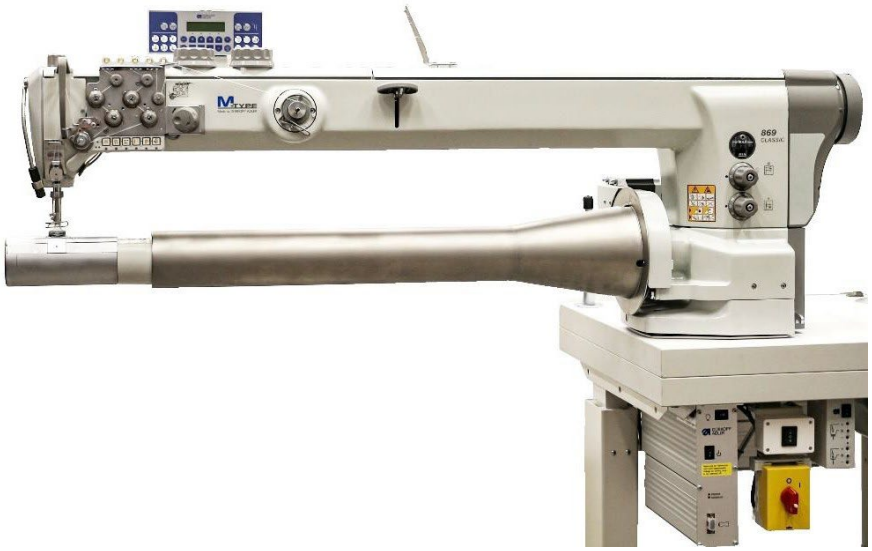


Fig. 1

2. Motor control

The Control of DAC motor is identical with the 869 standard sewing machine control, with only few changes mentioned in Tab. 1. Also, there are different equipments for the stitch length up to 6 mm and stitch length up to 9 mm.
Documentation for the DAC motor is available at website www.duerkopp-adler.com.

2.1. Parameters of 550-869-100-M sewing machine

Subclass:
869-280122-100-M SILVER Line
869-280322-100-M GOLD Line

Parameter changes:

Tab. 1

Stitch Length				**6 mm**		**9 mm**	
Parameter	**Description**	**Unit**	**Preset**	**SILVER**	**GOLD**	**SILVER**	**GOLD**
t 00 30	Decorative stitch bartack	-	0	**1**	**1**	**1**	**1**
t 05 01	Number of stitches of the softstart	-	1	**-**	**-**	**2**	**2**
t 08 00	Maximum speed	min^{-1}	2500	**2000**	**2000**	**2000**	**2000**
t 08 10	Adjustment of reference position	-	-	**-**	**-**	**-**	**-**
t 17 00	Activation of electronic handwheel	-	0	**1**	**1**	**1**	**1**
t 31 00	Stitch shortening at seam start	-	0	**-**	**-**	**2**	**2**
t 31 01	Stitch shortening during thread cutting	-	0	**1**	**1**	**1**	**1**
t 51 25	Set input function for FF3 input	-	0	**-**	**19**	**-**	**19**
t 51 31	Set input function IN_EXT4=Indicator position – Button electronic handwheel	-	0	**6**	**6**	**6**	**6**
d 02 00	Angle which thread cutting speed must reach before magnets are switched on	-	180	**60**	**60**	**60**	**60**

3. Step motor control

3.1. Parameters

Parameters of the step motor are set according to Tab. 2.

Tab. 2

Step motor parameters:

Parameter	**Description**	**Unit**	**Preset**	**Set**
t 14 10	Number of active pullers	-	0	**1**
t 14 16	Activating puller	-	0	**1**
t 14 20	Transmission ratio, top puller	-	1	**8,77**
t 14 24	Diameter of top carrier roller	-	50	**90**
t 14 25	Direction of rotation of carrier roller	-	0	**1**
d 14 00	Maximum frequency	kHz	65	**18**

Step motor to roller gear ration is 1:8,5.

3.2. Feed cylinder speed

On the control panel it is possible to select the speed of the stainless roller independently of the sewing machine. For changing the speed of the cylinder at the first stitch length, use the letter „l“ (Fig. 2).



Fig. 2

For changing the speed of the cylinder for the second stitch, use the letter „L“ (Fig. 3).



Fig. 3

Both values are set using the „D+“ to increase the speed and „D-“ for its deceleration.

With key „A“ (Fig. 4) you can switch between two optional carrier roller speeds. This applies only to this one specific class:
869-280122-100-M SILVER Line

For machines of class GOLD Line, the change of speed of carrier roller is achieved simultaneously with changing of stitch length, using key„B“ (Fig. 5).

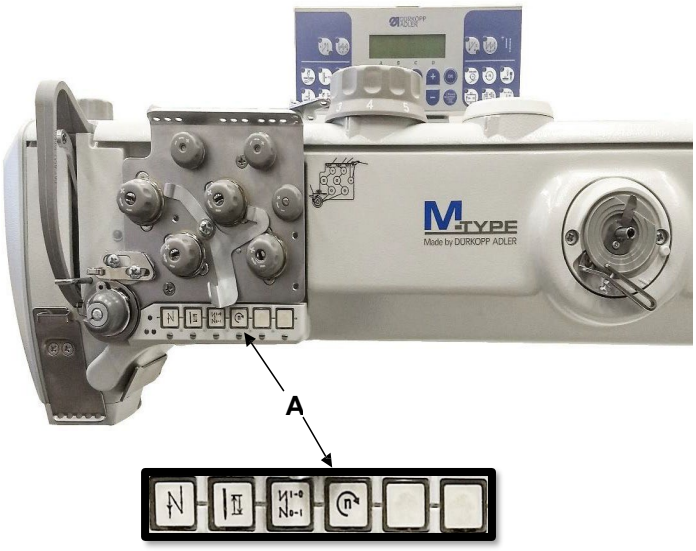


Fig. 4

4. Foot step switchover

With key „C“ the sewing feet step can be switched over according to the values preset with „D“ and „E“ wheels (Fig. 5).

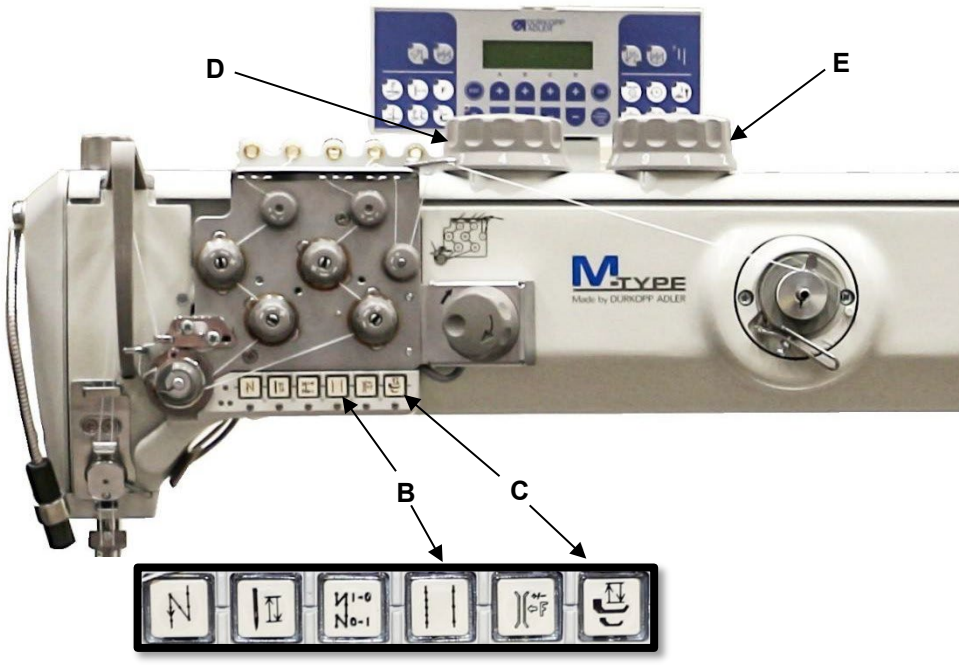


Fig. 5

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Subject to design changes - Part of the machines shown with additional equipment - Printed in Germany
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