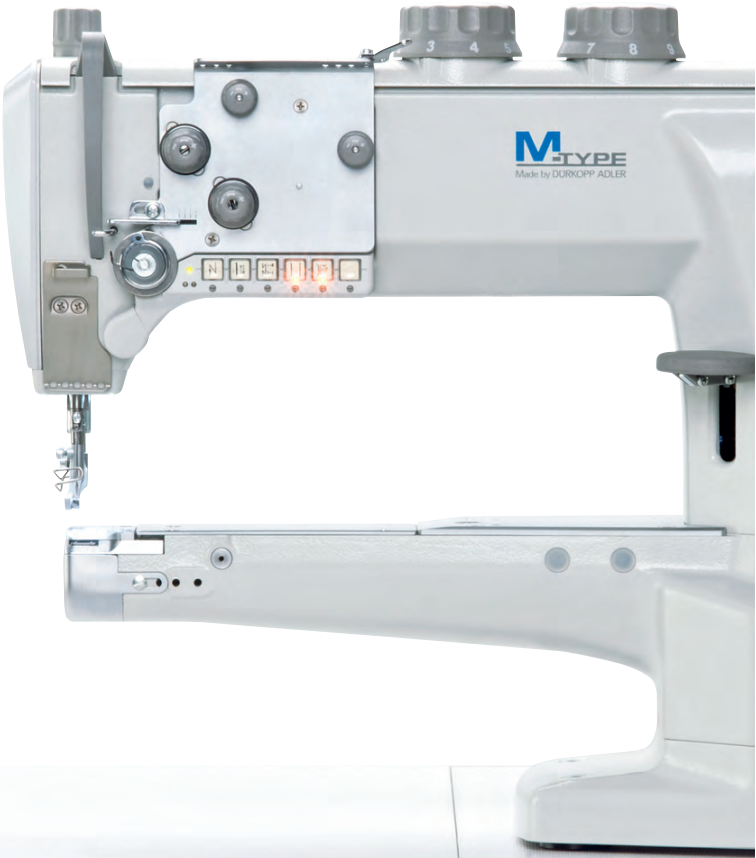
DÜRKOPP ADLER

669 ECO / CLASSIC Operating Instructions



IMPORTANT

READ CAREFULLY BEFORE USE

KEEP FOR FUTURE REFERENCE

1 About these instructions

These instructions have been prepared with utmost care.
They contain information and notes intended to ensure long-term and reliable operation.

Should you notice any discrepancies or if you have improvement requests, then we would be glad to receive your feedback through **Customer Service** (📖 *p. 109*).

Consider the instructions part of the product and store them in a place where they are readily available.

1.1 For whom are these instructions intended?

These instructions are intended for:

- Operators:
  This group is familiar with the machine and has access to the instructions. Specifically, chapter **Operation** (📖 *p. 19*) is important for the operators.
- Specialists:
  This group has the appropriate technical training for performing maintenance or repairing malfunctions. Specifically, the chapter **Setup** (📖 *p. 63*) is important for specialists.

Service Instructions are supplied separately.

With regard to minimum qualification and other requirements to be met by personnel, please also follow the chapter **Safety** (📖 *p. 9*).

1.2 Representation conventions – symbols and characters

Various information in these instructions is represented or highlighted by the following characters in order to facilitate easy and quick understanding:

Proper setting

Specifies proper setting.

Disturbances

Specifies the disturbances that can occur from an incorrect setting.

Cover

Specifies which covers must be disassembled in order to access the components to be set.

Steps to be performed when operating the machine (sewing and equipping)

Steps to be performed for service, maintenance, and installation

Steps to be performed via the software control panel

The individual steps are numbered:

1. First step
2. Second step

... The steps must always be followed in the specified order.

- Lists are marked by bullet points.

Result of performing an operation

Change to the machine or on the display/control panel.

Important

Special attention must be paid to this point when performing a step.

Information
Additional information, e.g. on alternative operating options.

Order

Specifies the work to be performed before or after a setting.

References

Reference to another section in these instructions.

Safety Important warnings for the user of the machine are specifically marked. Since safety is of particular importance, hazard symbols, levels of danger and their signal words are described separately in the chapter **Safety** (*p. 9*).

Location information If no other clear location information is used in a figure, indications of **right** or **left** are always from the user's point of view.

1.3 Other documents

The machine includes components from other manufacturers. Each manufacturer has performed a hazard assessment for these purchased parts and confirmed their design compliance with applicable European and national regulations. The proper use of the built-in components is described in the corresponding manufacturer's instructions.

1.4 Liability

All information and notes in these instructions have been compiled in accordance with the latest technology and the applicable standards and regulations.

Dürkopp Adler cannot be held liable for any damage resulting from:

- Breakage and damage during transport
- Failure to observe these instructions
- Improper use
- Unauthorized modifications to the machine
- Use of untrained personnel
- Use of unapproved parts

Transport

Dürkopp Adler cannot be held liable for breakage and transport damages. Inspect the delivery immediately upon receiving it. Report any damage to the last transport manager. This also applies if the packaging is not damaged.

Leave machines, equipment and packaging material in the condition in which they were found when the damage was discovered. This will ensure any claims against the transport company.

Report all other complaints to Dürkopp Adler immediately after receiving the product.

2 Safety

This chapter contains basic information for your safety. Read the instructions carefully before setting up or operating the machine. Make sure to follow the information included in the safety instructions. Failure to do so can result in serious injury and property damage.

2.1 Basic safety instructions

The machine may only be used as described in these instructions.

The instructions should be available at the machine's location at all times.

Work on live components and equipment is prohibited. Exceptions are defined in the DIN VDE 0105.

For the following work, switch off the machine at the main switch or disconnect the power plug:

- Replacing the needle or other sewing tools
- Leaving the workstation
- Performing maintenance work and repairs
- Threading

Missing or faulty parts could impair safety and damage the machine. Only use original parts from the manufacturer.

Transport Use a lifting carriage or forklift to transport the machine. Raise the machine max. 20 mm and secure it to prevent it from slipping off.

Setup The connecting cable must have a power plug approved in the relevant country. The power plug may only be assembled to the power cable by qualified specialists.

Obligations of the operator Follow the country-specific safety and accident prevention regulations and the legal regulations concerning industrial safety and the protection of the environment.

All the warnings and safety signs on the machine must always be in legible condition. Do not remove!
Missing or damaged warnings and safety signs must be replaced immediately.

Requirements to be met by the personnel

Only qualified specialists may:

- set up the machine / put the machine in operation
- perform maintenance work and repairs
- perform work on electrical equipment

Only authorized persons may work on the machine and must first have understood these instructions.

Operation

Check the machine during operating for any externally visible damage. Stop working if you notice any changes to the machine. Report any changes to your supervisor. Do not use a damaged machine any further.

Safety equipment

Safety equipment should not be removed or deactivated. If it is essential to remove or deactivate safety equipment for a repair operation, it must be assembled and put back into operation immediately afterward.

2.2 Signal words and symbols used in warnings

Warnings in the text are distinguished by color bars. The color scheme is based on the severity of the danger. Signal words indicate the severity of the danger.

Signal words

Signal words and the hazard they describe:

Signal word	Meaning
DANGER	(with hazard symbol) If ignored, fatal or serious injury will result
WARNING	(with hazard symbol) If ignored, fatal or serious injury can result

CAUTION	(with hazard symbol) If ignored, moderate or minor injury can result
CAUTION	(with hazard symbol) If ignored, environmental damage can result
NOTICE	(without hazard symbol) If ignored, property damage can result

Symbols The following symbols indicate the type of danger to personnel:

Symbol	Type of danger
	General
	Electric shock
	Puncture
	Crushing
	Environmental damage

Examples Examples of the layout of warnings in the text:

DANGER

Type and source of danger!
Consequences of non-compliance.
Measures for avoiding the danger.

↳ This is what a warning looks like for a hazard that will result in serious injury or even death if ignored.

WARNING

Type and source of danger!
Consequences of non-compliance.
Measures for avoiding the danger.

↳ This is what a warning looks like for a hazard that could result in serious or even fatal injury if ignored.

CAUTION

Type and source of danger!
Consequences of non-compliance.
Measures for avoiding the danger.

↳ This is what a warning looks like for a hazard that could result in moderate or minor injury if the warning is ignored.

NOTICE

Type and source of danger!

Consequences of non-compliance.

Measures for avoiding the danger.

↳ This is what a warning looks like for a hazard that could result in property damage if ignored.

CAUTION

Type and source of danger!

Consequences of non-compliance.

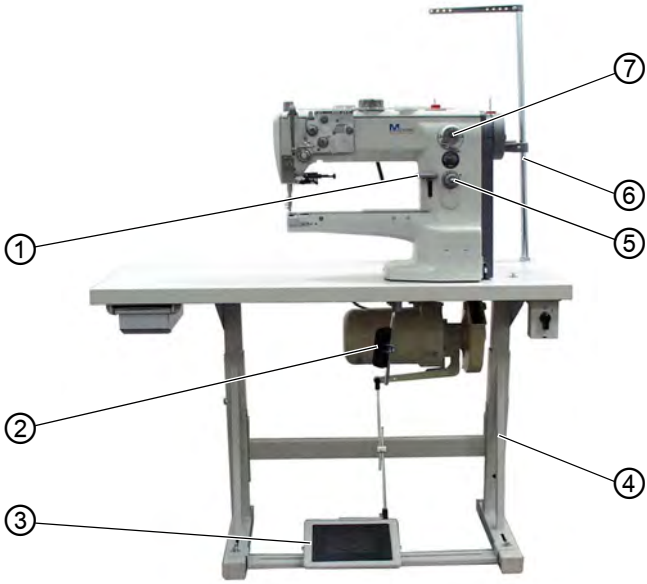
Measures for avoiding the danger.

↳ This is what a warning looks like for a hazard that could result in environmental damage if ignored.

3 Machine description

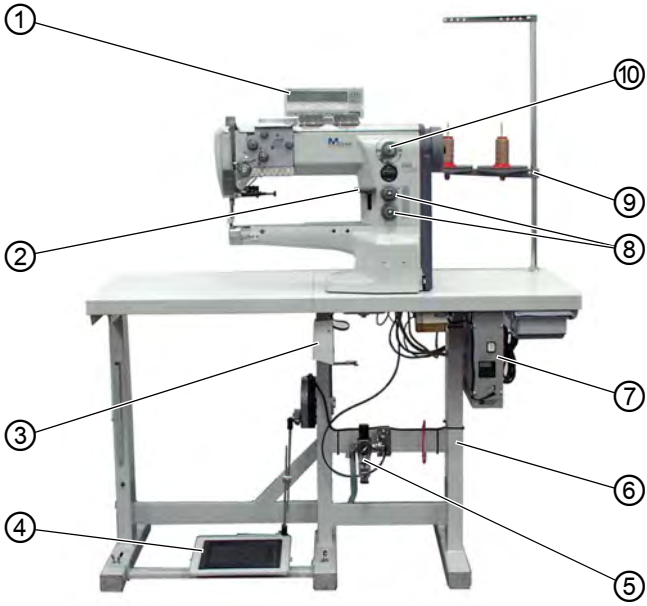
3.1 Components of the machine

Fig. 1: Components of the machine (1), with stand MG 55-3



(1) - Stitch regulator
(2) - Knee switch
(3) - Pedal
(4) - Stand MG 55-3
(5) - Stitch length adjusting wheel
(6) - Reel stand
(7) - Winder

Fig. 2: Components of the machine (2), with stand MG 56-3



(1) - Operating panel
(2) - Stitch regulator
(3) - Knee switch
(4) - Pedal
(5) - Compressed air maintenance unit
(6) - Stand MG 56-3
(7) - Control
(8) - Stitch length adjusting wheels
(9) - Reel stand
(10) - Winder

3.2 Proper use

WARNING

Risk of injury from live, moving and cutting parts as well as from sharp parts!

Improper use can result in electric shock, crushing, cutting and punctures.

Follow all instructions provided.

NOTICE

Non-observance will lead to property damage!

Improper use can result in material damage at the machine.

Follow all instructions provided.

The machine may only be used with sewing material that satisfies the requirements of the specific application at hand.

The machine is intended only for use with dry sewing material. The sewing material must not contain any hard objects.

The needle thicknesses permissible for the machine are listed in the **Technical data** (📖 *p. 43*) chapter.

The seam must be completed with a thread that satisfies the requirements of the specific application at hand.

The machine is intended for industrial use.

The machine may only be set up and operated in dry conditions on well-maintained premises. If the machine is operated on premises that are not dry and well-maintained, then further measures may be required which must be compatible with DIN EN 60204-31.

Only authorized persons may work on the machine.

Dürkopp Adler cannot be held liable for damages resulting from improper use.

3.3 Declaration of Conformity

The machine complies with European regulations ensuring health, safety, and environmental protection as specified in the declaration of conformity or in the declaration of incorporation.

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4 Operation

The operating sequence consists of several different steps. Fault-free operation is necessary in order to achieve a good sewing result.

4.1 Preparing the machine for operation

WARNING

Risk of injury from moving, cutting and sharp parts!

Crushing, cutting and punctures are possible.

If possible, make preparations only when the machine is switched off.

Complete the following steps in preparation of sewing before starting to work:

- Inserting/changing the needle
- Threading the needle thread
- Inserting and winding on the hook thread
- Setting the thread tension

4.2 Inserting or changing the needle

WARNING

Risk of injury from sharp and moving parts!

Puncture possible.

Switch off the machine bevore changing the needle.

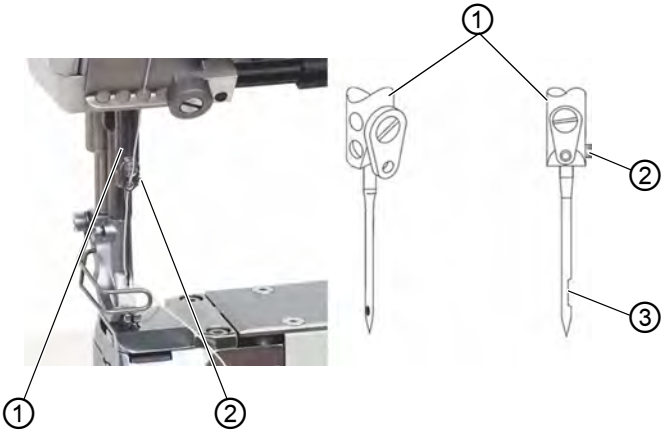
NOTICE

Property damage may occur!

The insertion of a thinner needle can lead to skipped stitches or damage to the thread!
The insertion of a thicker needle can result in damage to the hook tip or the needle!

When switching to a different needle, adjust the clearance between the hook and the needle.

Fig. 3: Inserting or changing the needle



(1) - Needle bar
(2) - Screw
(3) - Groove

To insert or change the needle:

1. Turn the handwheel until the needle bar (1) has reached its highest position.
2. Loosen screw (2).
3. Pull the needle out from under the needle bar (1).
4. Push in the new needle until it reaches the limit stop in the hole for the needle bar (1).

Important

The groove (3) must be pointing towards the hoo.

5. Tighten screw (2).

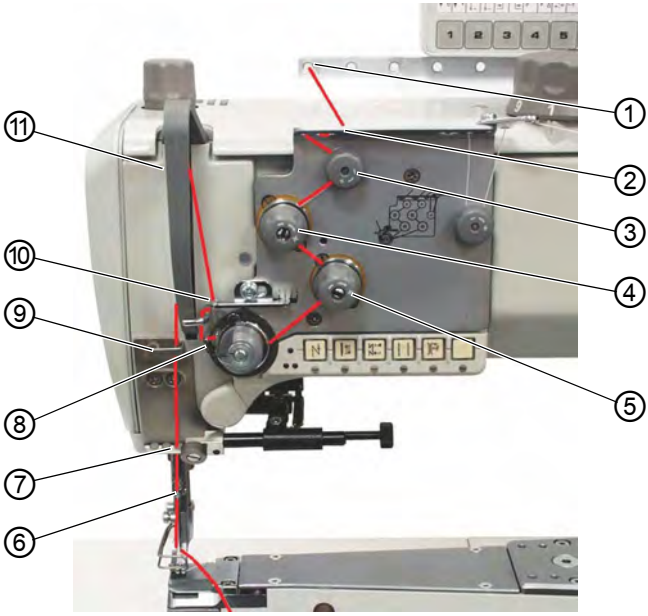
4.3 Threading the needle thread

WARNING

Risk of injury from sharp and moving parts!
Puncture or crushing possible.

Switch off the machine before threading the needle thread.

Fig. 4: Thrading the needle thread



(1) - Guide
(2) - Guide
(3) - Pre-tensioner
(4) - Supplementary tensioner
(5) - Main tensioner
(6) - Guide
(7) - Guide
(8) - Thread take-up lever
(9) - Guide
(10) - Needle thread regulator
(11) - Thread lever

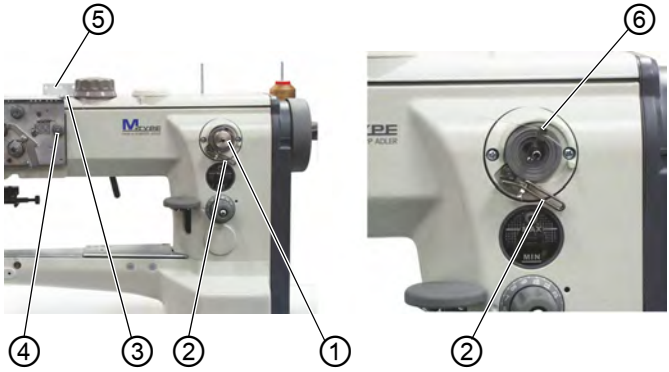
To thread the needle thread:

1. Put the reel on the reel stand and guide the needle thread through the thread guide.
   The thread guide must be perpendicular to the reel.

2. Insert the thread through guide (1) and guide (2).
3. Pass the thread clockwise around the pre-tensioner (3).
4. Pass the thread counter-clockwise around the supplementary tensioner (4).
5. Pass the thread clockwise around main tensioner (5).
6. Pull the thread under the thread take-up lever (8) and threafd through the needle thread regulator (10) to the thread lever (11).
7. Pass the thread through the needle thread lever (11) and through guides (9) and (6) on the needle bar.
8. Pass the thread through the eye of the needle.

4.4 Winding the bobbin thread

Fig. 5: Winding the bobbin thread



(1) - Winder
(2) - bobbin winder lever
(3) - Guide
(4) - Tensioner
(5) - Guide
(6) - Blade

To wind the bobbin thread:

1. Put the reel on the reel stand. Guide the bobbin thread through the thread guide.
2. Pull the thread through guide (5), tensioner (4), and guide (3).
3. Clamp the thread behind blade (6) and tear off.

4. Put the bobbin on the winder (1).
   The thread does not need to be hand wound around the bobbin.
5. Press the bobbin winder lever (2) in the bobbin.
6. Sew.
   The bobbin winder lever (2) ends the operation as soon as the bobbin is full.
   The bobbin winder (1) remains in position so that the blade (6) is properly positioned
7. Take off the full bobbin. Clamp the thread behind the blade (6) and tear off.
8. Put an empty bobbin on the bobbin winder for the next winding process and press the bobbin winder lever (2) into the bobbin

4.5 Changing the bobbin

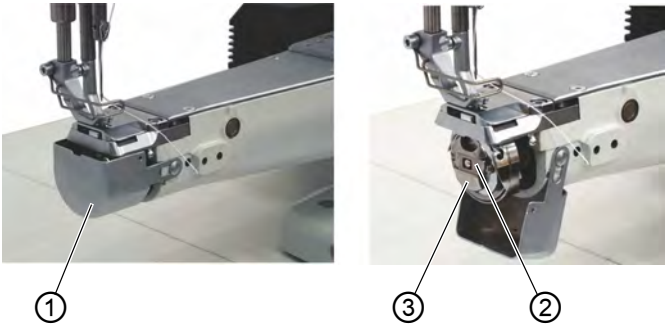
WARNING

Risk of injury from sharp and moving parts!

Puncture or crushing possible.

Switch off the machine before changing the bobbin.

Fig. 6: Changing the bobbin (1)

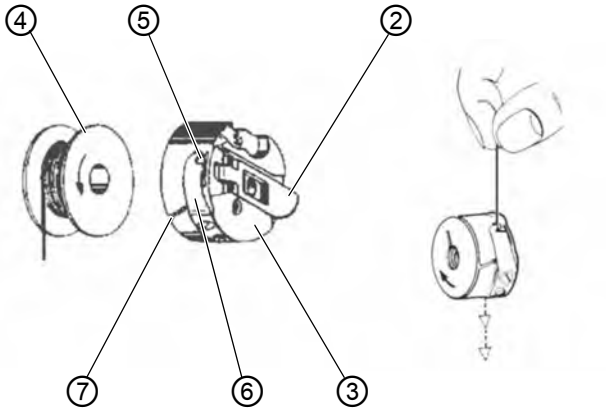


(1) - Hook cover
(2) - Bobbin case retainer
(3) - Bobbin enclosure

To change the bobbin:

1. Raise the needle bar into its high position.
2. Pull out the hook cover (1) and fold dow.
3. Lift up the bobbin case retainer (2).
4. Take out the upper part of the bobbin enclosure (3) with the bobbin.
5. Remove the empty bobbin from the upper part of the bobbin enclosure (3).

Fig. 7: Changing the bobbin (2)



(2) - Bobbin case retainer
(3) - Bobbin enclosure
(4) - Bobbin
(5) - Hole
(6) - Tension spring
(7) - Slot

6. Put a full bobbin in the upper part of the bobbin enclosure (3). Please note the rotational direction of the bobbin. The rotation is correct when the bobbin turns in the opposite direction of the pulling direction of the thread.
7. Pull the hook thread through the slot (7) under the tension spring (6) and then through the hole (5).
8. Pull out the tension spring (6) from the bobbin enclosure (3) about 5 cm. When the thread is being pulled out, the bobbin must rotate in the direction shown by the arrow.
9. Replace bobbin enclosure (3).
10. Close bobbin case retainer (2).
11. Close the hook cover (1).

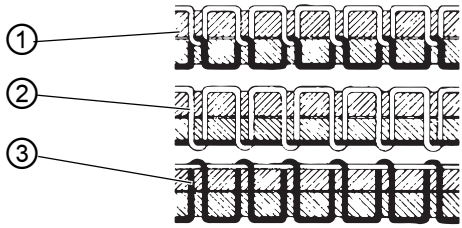
4.6 Thread tension

Together with the hook thread tension, the needle thread tension influences the final seam pattern. With thin sewing material, excessive thread tension can lead to undesired gathering and thread breakage.

Proper setting

If the tension of needle thread and hook thread is identical, the thread interlacing lies in the middle of the sewing material.
Set the needle thread tension so that the desired seam pattern is achieved with the lowest possible tension.

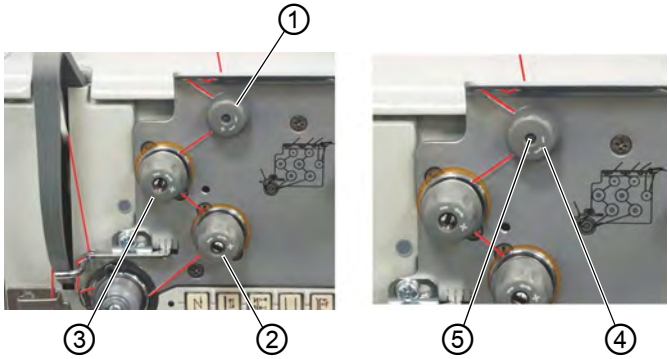
Abb. 8: Thread tension



(1) - Identical needle thread and hook thread tension
(2) - Hook thread tension higher than needle thread tension
(3) - Needle thread tension higher than hook thread tension

4.6.1 Setting the needle thread tension

Fig. 9: Setting the needle thread tension



(1) - Pre-Tensioner
(2) - Main tensioner
(3) - Supplementary tensioner
(4) - Adjusting wheel
(5) - Bolt

Pre-tensioner

When the main thread tensioner (2) and the supplementary tensioner (3) 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

To set the **basic adjustment**:

1. Turn adjusting wheel (4) until its front side is flush with the bolt (5).

To set a **shorter starter thread**:

1. Turn the adjusting wheel (4) clockwise.

To set a **longer starter thread**:

1. Turn the adjusting wheel (4) counter-clockwise.

Main tensioner

The main tensioner (2) should be adjusted as little as possible. The threads' cross-over point should be in the centre of the material. If the thread tension is too strong, crimping and thread tearing canoccur when working with a thin material.

To set the main tensioner:

1. Adjust the main tensioner 2 so that you attain a consistent stitch pattern.
   - **Increasing the tension:** turn the adjusting wheel clockwise
   - **Decrease the tension:** turn the adjusting wheel counterclockwise

Supplementary tensioner

The switchable supplementary tensioner (3) is used for quick changes to the thread tension (for example, when working with thicker seams).

To set the supplementary tensioner:

1. The supplementary tension (3) should be set lower than the main tension (2).

4.6.2 Function of the main thread tension and the additional thread tension depending on the sewing foot lift (optional)

This option applies to the subclass 669-180312.

Button  on the machine's row of buttons can be used to activate or deactivate the supplementary thread tension at any time. The parameter *F-299* must be set to **1** for this to work. .

Sewing-foot lift in the seam			**Sewing-foot lift lift after the thread has been cut**	
Parameter setting	Main thread tension	Supplemen-tary thread tension	Main thread tension	Supplemen-tary thread 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 mechanicall 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.

4.6.3 Function of the additional thread tension depending on the stroke adjustment and the Speedomat (optional)

This option applies to the subclass 669-180312.

Button  on the machine's row of buttons can be used to activate or deactivate the supplementary thread tension at any time. The parameter *F-255* must be set to **7** for this to work.

Parameter setting	**Max. strike adjustment**	**Stroke adjustment via knee button via adjusting wheel when the HP speed from parameter F-117 is reached (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 activated via the knee switch and the HP speed from parameter F-117 has been reached by the Speedomat, then the supplementary thread tensioner is automatically activated.		
0 = Supplementary thread tension closed mechanicall 1 = Supplementary thread tension opened mechanically		

If the supplementary thread tensioner is closed, the state of the stroke adjustment does not change.

If the machine is turned off, the supplementary thread tension remains at its previously set state.

Initial control-box settings for the automatic stepped reduction of the stitch count (Speedomat), using the adjusting wheel for the height of the alternating feed stroke:

Parameter 188	
Stufe 01-21	Entire Speedomat range
Stufe 01-10	Maximum allowed stitch count, parameter *F-111* = 3000 min[1]
Stufe 11-18	Linear step-wise reduction of the maximum stitch count (Speedomat)
Stufe 19-21	Maximum allowed stitch count, parameter *F-117* = 1.800 min[1]

4.6.4 Opening the needle thread tension

Suibclass 669-180010

When raising the sewing feet by means of the knee lever, the main and supplementary tensioners are automatically opened.

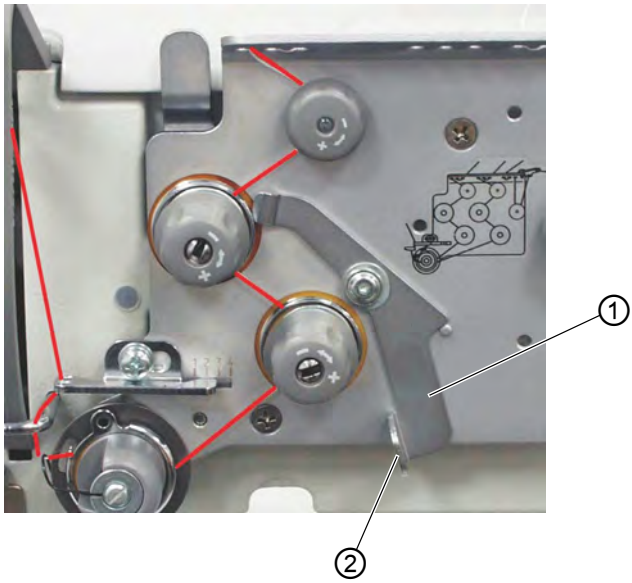
Subclasses 669-180112, 669-180312

The needle-thread tensioner is automatically opened when the thread is cut.

4.6.5 Switching on and off the supplementary thread tension (optional)

This option applies to the subclasses 669-180010 and 669-180112.

Fig. 10: Switching on and off the supplementary thread tension



(1) - Lever *(2) - Knob*

To switch on and off the supplementary thread tension:

Switch on

1. Push the knob (2) on the lever (1) to the left.

Switch off

1. Push the knob (2) on the lever (1) to the right.

4.6.6 Setting the hook thread tension

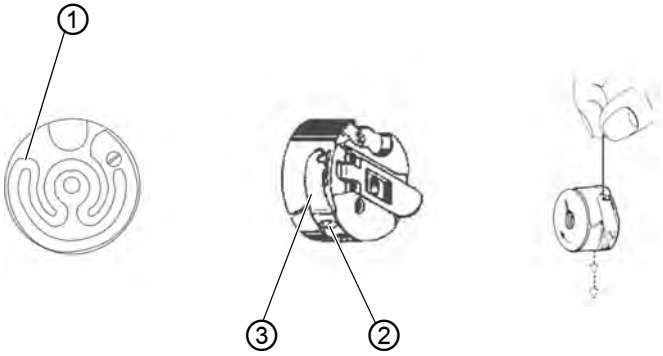
WARNING

Risk of injury from sharp and moving parts!

Puncture or crushing possible.

Switch off the machine before setting the hook thread tension.

Fig. 11: Setting the hook thread tension



(1) - Brake spring
(2) - Screw
(3) - Tension spring

Brake spring

The brake spring (1) is responsible for preventing a bobbin overrun during a machine stop and when the hook thread is being cut. It cannot be adjusted!

To set the **tension spring**:

1. Adjust the tension spring (3) with the screw (2). Turn until the required tension force is present.

To **increase** the hook thread tension:

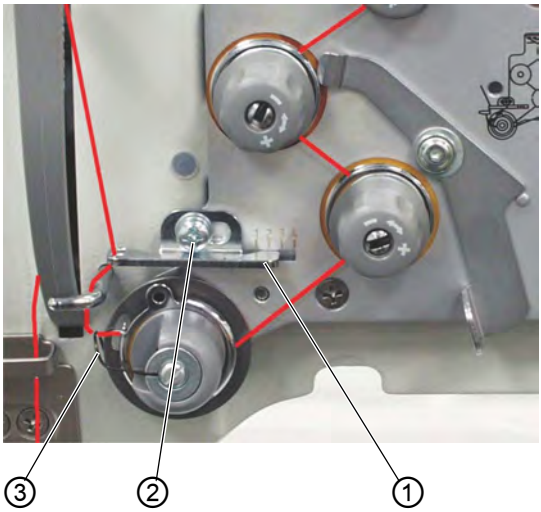
1. Turn the screw (2) clockwise.

To **decrease** the hook thread tension:

1. Turn the screw (2) counter-clockwise.

4.7 Setting the needle thread regulator

Fig. 12: Setting the needle thread regulator



(1) - Needle thread regulator
(2) - Screw
(3) - Thread take-up lever

The neelde thread regulator (1) is used to control the quantity of the needle thread required by the stitch formation.

The best sewing results can only be ensured when using a precisely adjusted needle thread regulator (1).

At the properly adjusted setting, the needle thread loop must be able to slide over the thickest section of the hook.

To set the needle thread regulator:

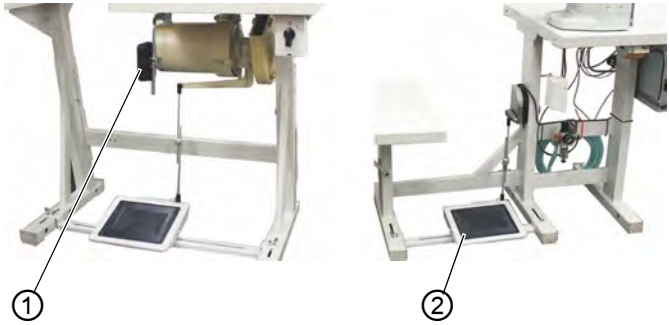
1. Loosen screw (2).
2. Change the position of the needle thread regulator (1).
   - Thread regulator to the left: **more thread**
   - Thread regulator to the right: **less thread**
3. Tighten screw (2).

Information
At the point where the most thread is required, the thread take-up lever (3) must be pulled up about 0.5 mm from its lower end position.
This occurs when the needle thread loop passes the section of the hook with the widest diameter.

4.8 Sewing feet

4.8.1 Lifting the sewing feet

Fig. 13: Lifting the sewing feet



(1) - Knee switch

(2) - Pedal

Subclass 669-180010

The sewing feet can be lifted mechanically by pressing the knee switch (1).

Subclasses 669-180112, 669-180312

The sewing feet can be lifted electro-pneumatically by pressing the pedal (2) or the knee switch (1).

Lifting the sewing feet mechanically (knee switch)

To lift the sewing feet machanically:

1. Push the knee switch (1) to the right in order to move the sewing material (for example, when making corrections).

↳ The sewing feet remain in the lifted position as long as the knee switch (1) is pressed.

Lifting the sewing feet electro-pneumatically (pedal)

To lift the sewing feet electro-pneumatically:

1. Press the pedal (2) half way back.

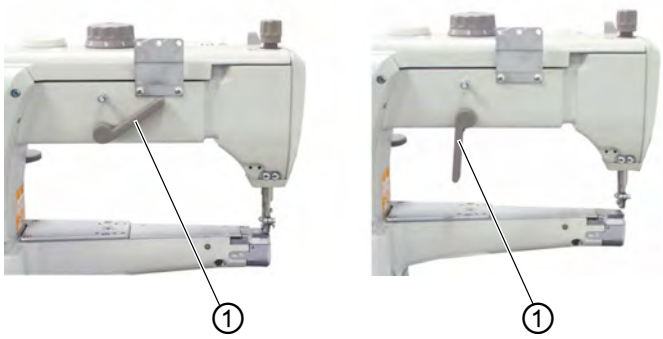
↳ The sewing feet are lifted when the machine is stopped.

2. Press the pedal (2) all the way back.

↳ The thread trimmer will then be activated and the sewing feet will be lifted.

4.8.2 Locking the sewing feet at top dead center

Fig. 14: Locking the sewing feet at the top dead center



(1) - Lever

To lock the sewing feet at the top dead center:

1. Swivel lever (1) downwards.

↳ The sewing feet are locked at top dead center.

1. Swivel the lever (1) up.

↳ The lock of the sewing feet has been removed.

OR

1. Lift the sewing feet pneumatically using the pedal.

↳ The lever (1) swivels back to its initial position.

4.8.3 Setting the sewing foot pressure

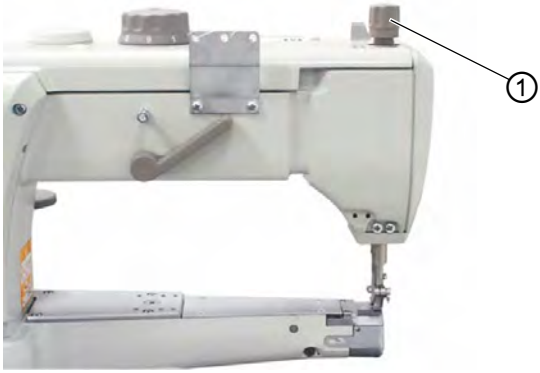
NOTICE

Property damage may occur!

If the sewing foot pressure is too high, the material could tear.
If the sewing foot pressure is too weak, the material could slip.

Set the sewing foot pressure in such a way that the sewing material slides smoothly over the base without slipping.

Fig. 15: Setting the sewing foot pressure



(1) - Adjusting wheel

To set the sewing foot pressure:

1. Set the sewing foot pressure using the adjusting wheel (1).
   - **Increase sewing foot pressure:** turn clockwise
   - **Decrease sewing foot pressure:** turn counterclockwise

4.8.4 Setting the sewing foot stroke

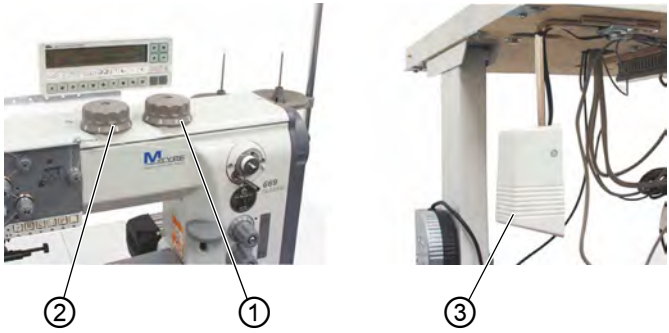
NOTICE

Property damage may occur!

It is not possible to set a lower sewing foot stroke on the right adjusting wheel than on the left adjusting wheel.

Do not attempt to use force to set a smaller sewing foot stroke on the right adjusting wheel.

Fig. 16: Setting the sewing foot stroke (1)



(1) - Adjusting wheel
(2) - Adjusting wheel
(3) - Knee switch

Use the adjusting wheel (2) on the left to select the standard sewing foot stroke from1 to 9.

Use the adjusting wheel (1) on the right to set a higher sewing foot stroke from 1 to 9.

To set the sewing foot stroke:

1. Turn adjusting wheel (1) and (2) (from 1 to 9).
   - 1: minimal sewing foot stroke
   - 9: maximum sewing foot stroke

Automatic stitch rate limit

Machines without a thread trimmer

The speed is not verified on these machines.

Machines with a thread trimmer

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

Machines with electro-pneumatic rapid stroke adjustment

When processing thick sections of material or when sewing over transversal seams, the higher sewing-foot stroke (adjusting wheel (1)) can be activated while sewing by means of the knee switch (3) (under the table plate).

A potentiometer is used here just as in the machines with thread trimmers.

Operating mode for the rapid stroke adjustment

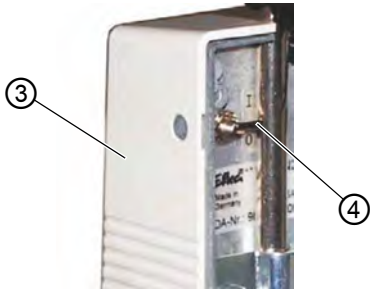
The activation time for the maximum sewing-foot stroke depends on which operating mode is set. You can select between three different operating modes.

The particular modes are specified on the operating panel by setting the parameters *F-138* and *F-184* (refer to the instructions from the motor manufacturer).

Operating mode	Operation/Explanation
momentary contact F-138 = 0 F-184 = 0	The maximum sewing-foot stroke remains activated as long as the knee switch is being pressed.
maintained contact F-138 = 1	The maximum sewing-foot stroke is activated when the knee switch is pressed. Pressing the knee switch again will then deactivate the maximum sewing-foot stroke.
momentary contact with minimum stitch count F-138 = 0 F-184 0 < 100	The maximum sewing-foot stroke remains activated as long as the knee switch is being pressed. After releasing the knee switch, the machine continues to sew with the maximum sewing-foot stroke until the specified minimum stitch count (parameter *F-184*) is reached. Afterwards, sewing continues with the standard sewing-foot stroke.

Information

Fig. 17: Setting the sewing foot stroke (2)



(3) - Knee switch *(4) - Switch*

The switch (4) on the rear of the knee switch (3) can also be used to switch between the *maintained contact* and *momentary contact* modes.

Maximum stitch count

Stitch length range adjusting wheel position	Sewing foot stroke [mm]	max. stitch count [min^{-1}]
0 - 6	1 - 3 4 5 6 - 9	3000 2500 2100 1800
6 - 9	1 - 4 5 6 - 9	2500 2100 1800

Important

Do not exceed the max. stitch count limits specified in the table. Observing these limits will ensure safe operations and a long lifespan for the machine.

4.9 Setting the stitch length

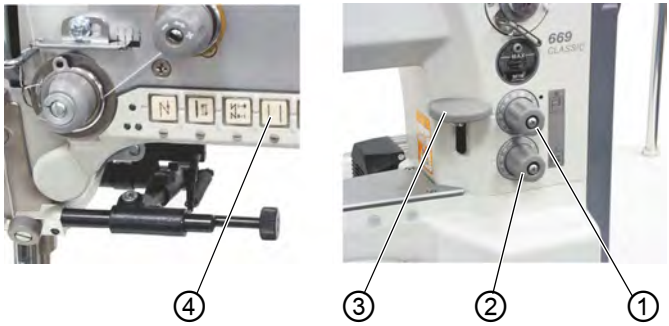
NOTICE

Property damage may occur!

It is not possible to set a lower stitch length on the upper adjusting wheel than on the lower adjusting wheel.

Do not attempt to force the top adjusting wheel to set a lower stitch length.

Fig. 18: Setting the stitch length



(1) - Adjusting wheel
(2) - Adjusting wheel
(3) - Stitch regulator
(4) - Button

The machine is equipped with two adjusting wheels, depending on the subclass. This allows two different stitches to be used when sewing. They can be selected using button 4 (📖 *p. 43*).

The stitch lengths are set using the adjusting wheels (1) and (2) on the machine arm.

To set the stitch length:

1. Set the longer stitch length with the upper adjusting wheel (1).
   - Position 1: min. stitch length
   - Position 9: max. stitch length
2. Set the shorter stitch length with the lower adjusting wheel (2).
   - Position 1: min. stitch length
   - Position 9: max. stitch length

Stitch lengths are equal for both forward and reverse sewing.

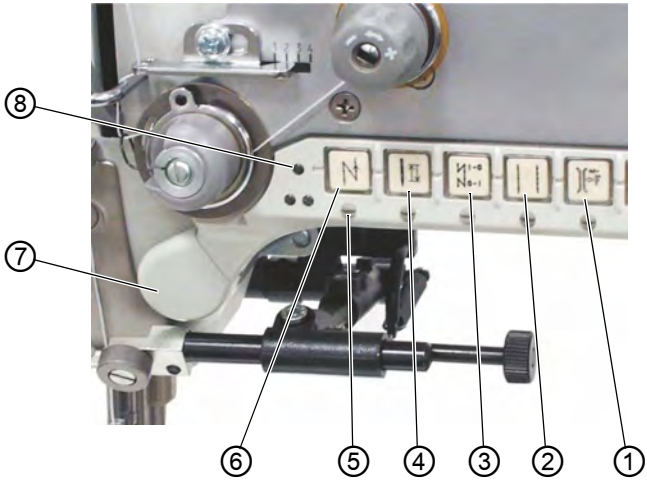
3. Push the stitch regulator (3) down in order to manually sew bartacks.

↳ The machine will sew backwards as long as the stitch regulator (3) is pressed down

Information
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.

4.10 Buttons on the machine arm

Fig. 19: Buttons on the machinearm



(1) - Button supplementary thread tension
(2) - Button 2. stitch length
(3) - Button start/final bartack
(4) - Button needle position
(5) - Button sew backwards
(6) - Screw
(7) - Key
(8) - LED

Taste	Funktion
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	**2. stitch length** Button is back-lit: long stitch length (upper adjusting wheel) is activated Button is not back-lit: small stitch length (lower adjusting wheel) is activated
③	Invoke or suppress the **start/final bartacks**. If the start and final bartacks are activated, then the next bartack is deactivated when the button is pressed. If the start 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=singlestitch 4 = full stitch 5 = needle to position 2 The factory default setting is 1 (needle up/down
⑤	**Sew backwards manually** The machine sews backwards for as long as the button is held down.
⑧	LED display *Power On*

The key (7) can be assigned a function using the screw (6)(found under the switch.

1. Select a function.
   For example: 6 = sew backwards manually.
2. Press in the screw under key (5) and turn 90° to the right (the slot is vertical).

↳ This function can now be activated using either key (5) or (7).

4.11 Tilting the machine head

WARNING

Risk of injury from moving parts!

Crushing possible.

DO NOT reach between base and machine arm when tilting the machine head.

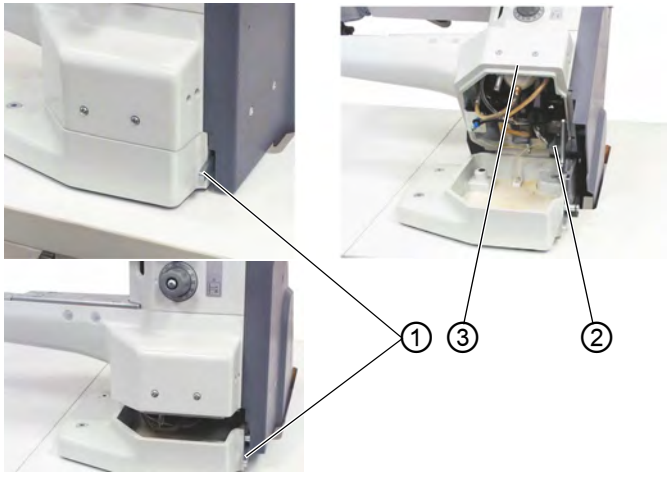
NOTICE

Property damage may occur!

Oil leakage possible.

Tilt the machine head only briefly.

Fig. 20: Tilting the machine head



(1) - Lever
(2) - Strap
(3) - Machine head

To tilt the machine head:

1. Press lever (1) upwards.

↳ The locking mechanism is then released.

2. Tilt the machine head (3) to the rear

↳ The machine head (3) will be supported by the strap (2).

To erect the machine head:

1. Tilt the machine head (3) forwards.
2. Pull lever (1) back up.C
3. Carefully tilt the machine head (3) downwards

4.12 Folding down the tabletop (optional)

This option applies to the stand MG 56-2.

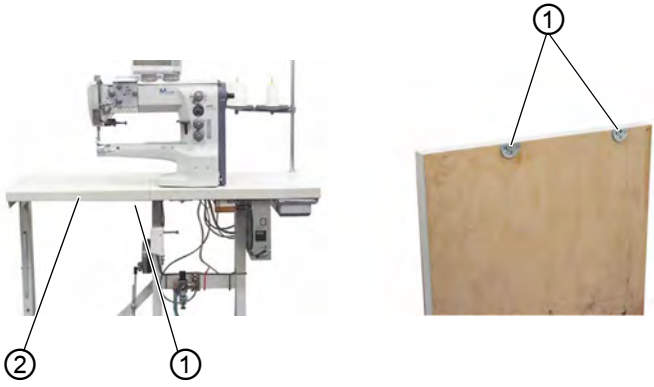
WARNING

Risk of injury from moving parts!

Crushing possible.

Hold the table top with both hands when pulling it off.

Fig. 21: Folding down the tabletop (1)



(1) - Tabletop latch *(2) - Tabletop*

To fold down the tabletop:

1. Loosen the tabletop latch (1) located under the tabletop (2).

2. Pull out the tabletop (2) to the left and fold out.

Fig. 22: Folding down the tabletop (2)

(3) - Bolt

(4) - Diagonal brace

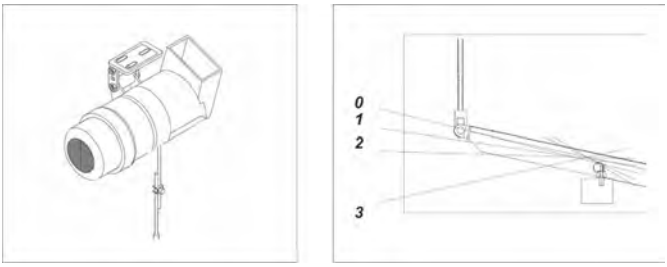
3. Hook in the diagonal brace (4) to the bolt (3).
4. Fold down the tabletop (2).

Follow these steps in the opposite order to raise the table plate.

4.13 Sewing

4.13.1 Sewing with machines using the FIR clutch positioning drive

Fig. 23: Sewing with machines using the FIR clutch positioning drive



(0) - At rest
(1) - Sewing forwards with minimum speed
(2) - Sewing forwards with higher speed
(3) - Sewing forwards with maximum speed

You can find a comprehensive description of the control unit in the current operating instructions from the motor manufacturer.

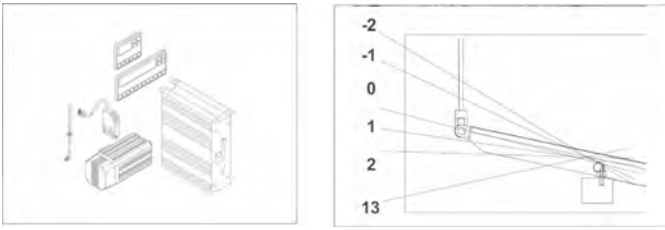
4.13.2 Sewing with machines using the Efka DC1550/ DA321G positioning drive

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 (also refer to **www.efka.net**).

Fig. 24: Sewing with machines using the Efka DC1550/DA321G positioning drive (1)

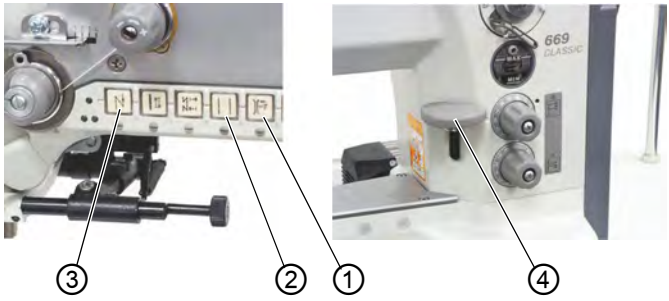


Pedal position	Pedal movement	Function
-2	Completely backwards	Command for cutting the thread (end of seam)
-1	Half backwards	Command for raising the sewing foot
0	Neutral rest position	
1	Slightly forwards	Command for lowering the sewing foot
2	More forwards	Sew with miminal speed (first level)
3	More forwards	Sew with more speed (second level)
13	Entirely forwards	Sew with maximal speed (twelfth level)

Information
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

Fig. 25: Sewing with machines using the Efka DC1550/DA321G positioning drive (2)



(1) - Button supplementary thread tension
(2) - Button 2. stitch length
(3) - Button sew backwards
(4) - Stitch regulator

Sewing

Sewing process	Operation
Before sewing start	
Starting position	• Pedal in resting position ↳The machine is at rest The needle is up The sewing feet are down
Position material at seam start	• Move pedal back halfway ↳The sewing feet lift • Push the material to the needle
Sewing	• Press the pedal forward and hold ↳The machine then continues to sew with the speed determined by the pedal

Sewing process	Operation
In the middle of the seam	
Interrupt sewing operation	• Release pedal (return to rest position) ↳The machine stops in the first position (needle down) The sewing feet are down
Continue sewing operation (after releasing the pedal)	• Press the pedal forward ↳The machine then continues to sew with the speed determined by the pedal
Sewing an intermediate lockstitch	• Press the stitch regulator (4) downwards. ↳The machine sews in reverse as long as the stitch regulator (4) is pressed. The speed is determined by the pedal. **OR** • Press button (3)
Sewing over transverse seams (maximum 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 • Briefly press the knee switch for activating the maximum sewong foot stroke • Briefly press the knee switch again for deactivating the maximum sewing foot switch
2^{nd} set stitch length during sewing (max. stitch length)	• Press the button (2)
Raise the thread tension during sewing	• Press the button (1)
At seam end	
Remove sewing materia	• Press the pedal completely backwards and hold ↳The final bartack is sewn (when activated). The thread is cut. The machine stops in the second position. The needles are up (reverse rotation). T he sewing feet are down. • Take out the material

5 Maintenance

WARNING

Risk of injury from sharp parts!

Punctures and cutting possible.

Prior to any maintenance work, switch off the machine or set the machine to threading mode.

WARNING

Risk of injury from moving parts!

Crushing possible.

Prior to any maintenance work, switch off the machine or set the machine to threading mode.

This chapter describes maintenance work that needs to be carried out on a regular basis to extend the service life of the machine and achieve the desired seam quality.

Advanced maintenance work may only be carried out by qualified specialists (🕮 *Service Instructions)*.

Maintenance intervals

Work to be carried out	Operating hours			
	8	40	160	500
Removing lint and thread remnants	●			
Cleaning the motor fan sieve	●			
Servicing the pneumatic system	●			
Checking the V-belt tension			●	

5.1 Cleaning

WARNING

Risk of injury from flying particles!

Flying particles can enter the eyes, causing injury.

Wear safety goggles.
Hold the compressed air gun so that the particles do not fly close to people.
Make sure no particles fly into the oil pan.

NOTICE

Property damage from soiling!

Lint and thread remnants can impair the operation of the machine.

Clean the machine as described.

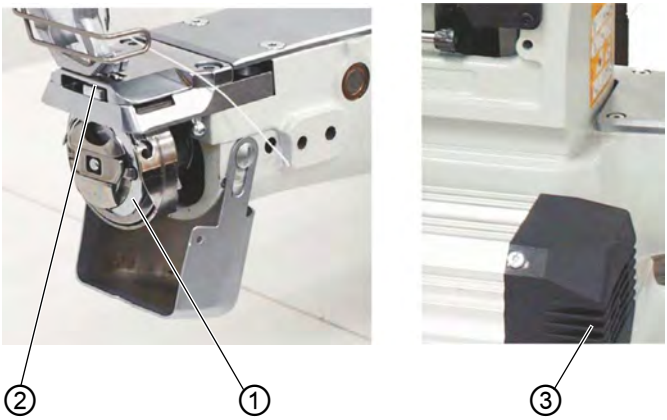
NOTICE

Property damage from solvent-based cleaners!

Solvent-based cleaners will damage paintwork.

Use only solvent-free substances for cleaning.

Fig. 26: Cleaning



(1) - Hook
(2) - Area under the throat plate
(3) - Motor fan sieve

Points that need to be cleaned particularly thoroughly:

- Area under the throat plate (2)
- Area around the hook (1)
- Bobbin case
- Thread cutter
- Area around the needle
- Motor fan sieve (3)

To clean the machine:

1. Blow out dust and thread residues with the compressed air gun.

5.2 Lubricating

CAUTION

Risk of injury from contact with oil!

Oil can cause a rash if it comes into contact with skin.

Avoid skin contact with oil.
If oil has come into contact with your skin, wash the affected areas thoroughly.

NOTICE

Property damage from incorrect oil!

Incorrect oil types can result in damage to the machine.

Only use oil that complies with the data in the instructions.

CAUTION

Risk of environmental damage from oil!

Oil is a pollutant and must not enter the sewage system or the soil.

Carefully collect up used oil.
Dispose of used oil and oily machine parts in accordance with national regulations.

The machine is equipped with a central oil-wick lubrication system. The bearings are supplied from the oil reservoir.

For topping off the oil reservoir, use only lubricating oil **DA 10** or oil of equivalent quality with the following specifications:

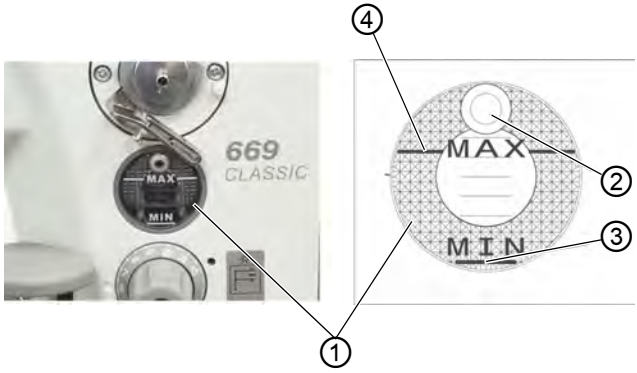
- Viscosity at 40 °C:10 mm^2/s
- Flash point: 150 °C

You can order the lubricating oil from our sales offices using the following part numbers.

Container	Part no.
250 ml	9047 000011
1 l	9047 000012
2 l	9047 000013
5 l	9047 000014

5.2.1 Checking the oil level in the machine head

Fig. 27: Checking the oil level in the machine head



(1) - Oil reservoir
(2) - Hole
(3) - MIN marking
(4) - MAX marking

Proper setting

The oil level must not raise above the MAX marking (4) or drop below the MIN marking (3).

To top off the oil:

1. Fill oil through the hole (2) up to the MAX marking (4).

5.3 Servicing the pneumatic system

5.3.1 Setting the operating pressure

NOTICE

Property damage from incorrect setting!

Incorrect operating pressure can result in damage to the machine.

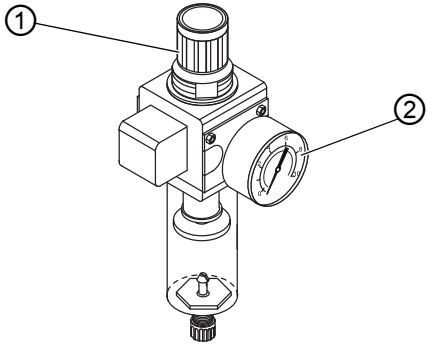
Ensure that the machine is only used when the operating pressure is set correctly.

Proper setting

Refer to the **Technical data** (📖 *p. 43*) chapter for the permissible operating pressure. The operating pressure cannot deviate by more than ± 0.5 bar.

Check the operating pressure on a daily basis.

Fig. 28: Setting the operating pressure



(1) - Pressure controller *(2) - Pressure gage*

To set the operating pressure:

1. Pull the pressure controller (1) up.

2. Turn the pressure controller until the pressure gage (2) indicates the proper setting:
   - Increase pressure = turn clockwise
   - Reduce pressure = turn counterclockwise
3. Push the pressure controller (1) down.

5.3.2 Draining the water condensation

NOTICE

Property damage from excess water!

Excess water can cause damage to the machine.

Drain water as required.

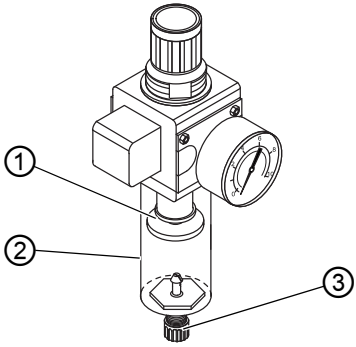
Water condensation accumulates in the water separator (2) of the pressure controller.

Proper setting

Water condensation must not rise up to the level of the filter element (1).

Check the water level in the water separator (2) on a daily basis.

Fig. 29: Draining the water condensation



(1) - Filter element
(2) - Water separator
(3) - Drain screw

To drain water condensation:

1. Disconnect the machine from the compressed air supply.
2. Place the collection tray under the drain screw (3).
3. Loosen the drain screw (3) completely.
4. Allow water to drain into the collection tray.
5. Tighten the drain screw (3).
6. Connect the machine to the compressed air supply.

5.3.3 Cleaning the filter element

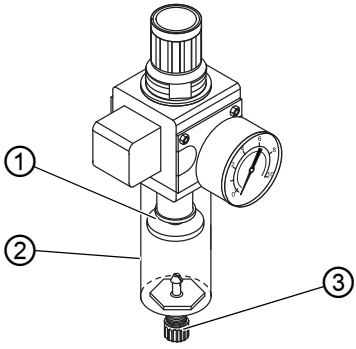
NOTICE

Damage to the paintwork from solvent-based cleaners!

Solvent-based cleaners damage the filter.

Use only solvent-free substances for washing out the filter tray.

Fig. 30: Cleaning the filter element



(1) - Filter element
(2) - Water separator
(3) - Drain screw

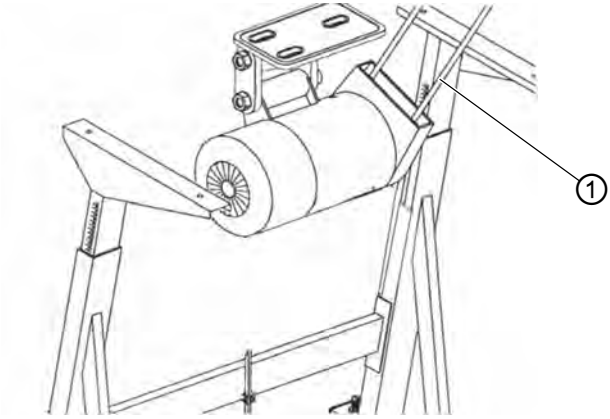
To clean the filter element:

1. Disconnect the machine from the compressed air supply.
2. Drain the water condensation ((*p. 59*)).
3. Loosen the water separator (2).

4. Loosen the filter element (1).
5. Blow out the filter element (1) using the compressed air gun.
6. Wash out the filter tray using benzine.
7. Tighten the filter element (1).
8. Tighten the water separator (2).
9. Tighten the drain screw (3).
10. Connect the machine to the compressed air supply.

5.4 Checking the V-belt tension

Fig. 31: Checking the V-belt tension



(1) - V-belt

Proper setting

You should be able to press down with your finger on the V-belt (1) so that the belt moves about 10 mm down.

5.5 Parts list

A parts list can be ordered from Dürkopp Adler. Or visit our website for further information at:

www.duerkopp-adler.com

6 Setup

WARNING

Risk of injury from cutting parts!

Cutting injuries may be sustained while unpacking and setting up the machine.

Only qualified specialists may set up the machine.
Wear safety gloves

WARNING

Risk of injury from moving parts!

Crushing injuries may be sustained while unpacking and setting up the machine.

Only qualified specialists may set up the machine.
Wear safety shoes.

6.1 Checking the scope of delivery

The scope of delivery depends on your specific order.
Check that the scope of delivery is correct after taking delivery.

6.2 Removing the transport locks

Remove all transport locks before setting up the machine:

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

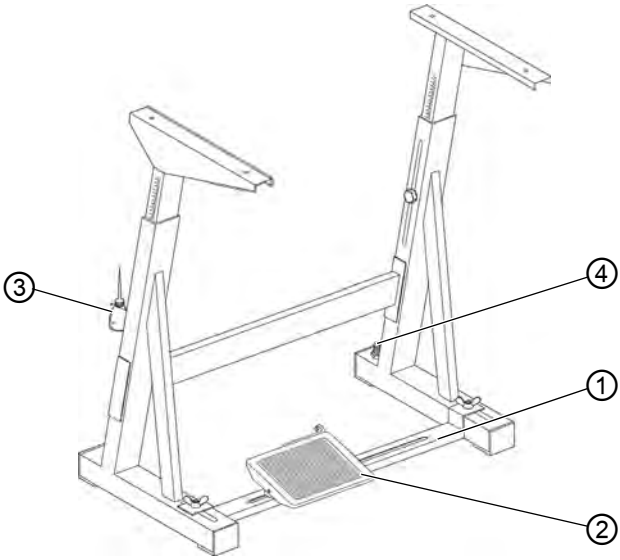
6.3 Assembling the stand

There are two stand sets with different table plates available:

- MG 55-3: not separated, with or without cut-out
- MG 56-3: separated, hinged

6.3.1 Assembling the stand MG 55-3

Fig. 32: Assembling the stand MG 55-3



(1) - Stand brace
(2) - Pedal
(3) - Oil can
(4) - Adjusting screw

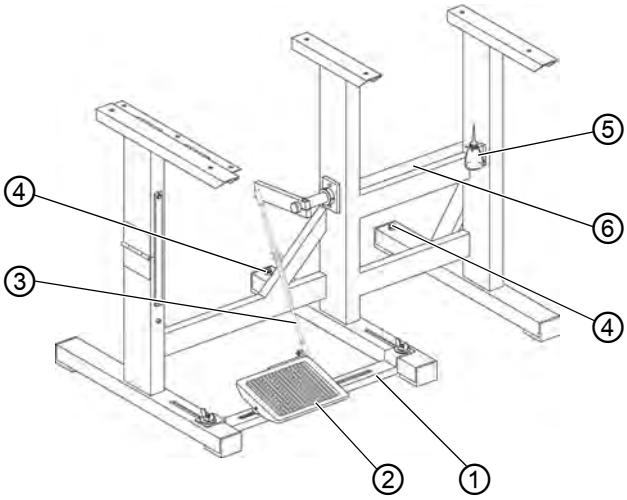
To assemble the stand:

1. Assemble the stand according to the illustration.
2. Fasten the pedal (2) to the stand brace (1).
3. Mount the stand brace (1) to the stand.
4. Align the pedal.
5. Screw on the holder for the oil can (3).
6. Turn the adjusting screw (4) to ensure a secure mount on the stand.

The stand must be resting with all 4 feet on the floor.

6.3.2 Assembling the stand MG 56-3

Fig. 33: Assembling the stand MG 56-3



(1) - Stand brace
(2) - Pedal
(3) - Pedal rods
(4) - Adjusting screws
(5) - Oil can
(6) - Rod

To assemble the stand:

1. Assemble the stand according to the illustration.
2. Fasten the pedal (2) to the stand brace (1).
3. Mount the stand brace (1) to the stand.
4. Turn the adjusting screws (4) to ensure a secure mount on the stand

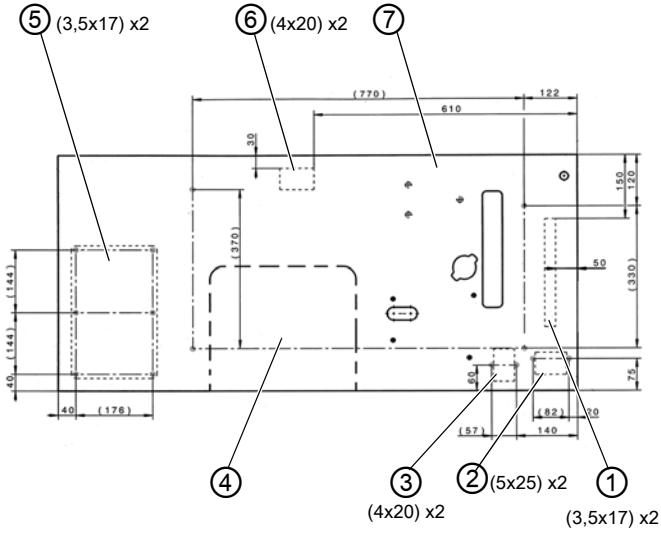
   The stand must be resting with all 6 feet on the floor.
5. Align the pedal (2).
6. Screw on the holder for the oil can (5).
7. Assemble the rod (6) and pedal rod (3) (only for FIR clutch motor).

6.4 Table top

Ensure that the tabletop has sufficient load-bearing capacity and strength.

6.4.1 Completing the tabletop for stand MG 55-3 with FIR clutch motor

Fig. 34: Completing the tabletop (1)

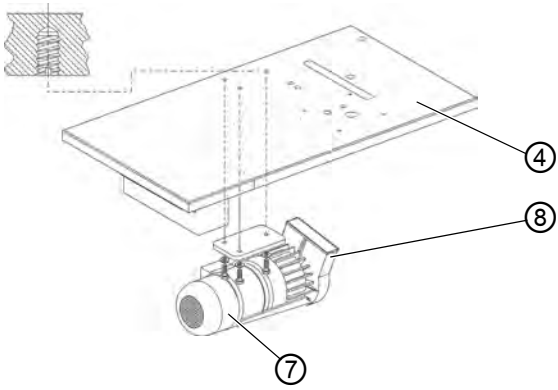


(1) - Cable duct
(2) - Main switch
(3) - Power supply
(4) - Tabletop
(5) - Drawer
(6) - Sewing light transformer
(7) - Clutch motor

To complete the tabletop:

1. Turn over the tabletop (4).
2. Screw on the cable duct (1).
3. Screw on the main switch (2).
4. Screw on the power supply (3).
5. Screw on the drawer (5).
6. Screw on the sewing light transformer (6).

Fig. 35: Completing the tabletop (2)



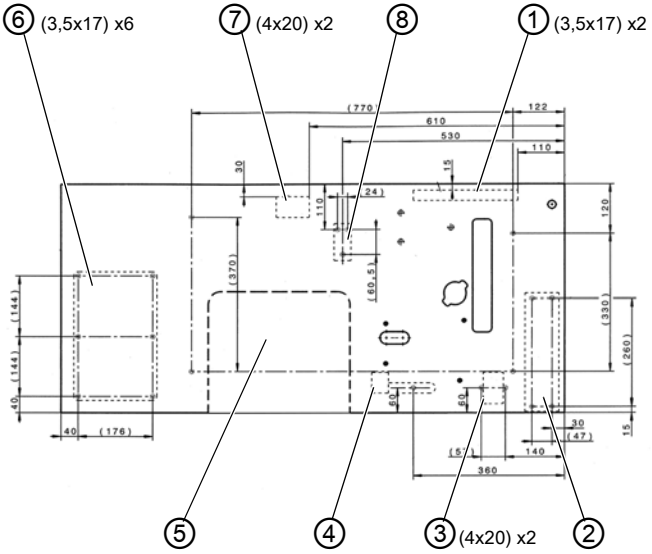
(4) - Tabletop
(8) - Belt pulley
(7) - Clutch motor

7. Mount the clutch motor (7).
   For this, screw the 3 hexagon bolts with washers into the anchor nuts on the table plate.

   The belt pulley (8) must point to the right when the tabletop is mounted.

6.4.2 Completing the tabletop for stand MG 55-3 with direct drive

Fig. 36: Completing the tabletop



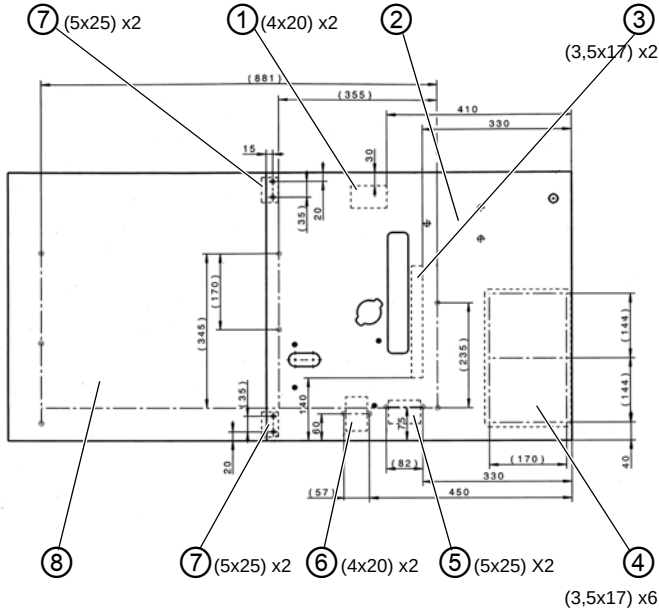
(1) - Cable duct
(2) - Motor control
(3) - Power supply
(4) - Knee switch
(5) - Tabletop
(6) - Drawer
(7) - Sewing light transformator
(8) - Setpoint device

To complete the tabletop:

1. Turn over the tabletop (5)
2. Screw on the cable duct (1).
3. Screw on the motor control (2).
4. Screw on the power supply (3).
5. Screw on the knee switch (4).
6. Screw on the setpoint device (8).
7. Screw on the drawer (6).
8. Screw on the sewing light transformer (7).

6.4.3 Completing the tabletop for stand MG 56-3 with FIR clutch motor

Fig. 37: Completing the tabletop (1)

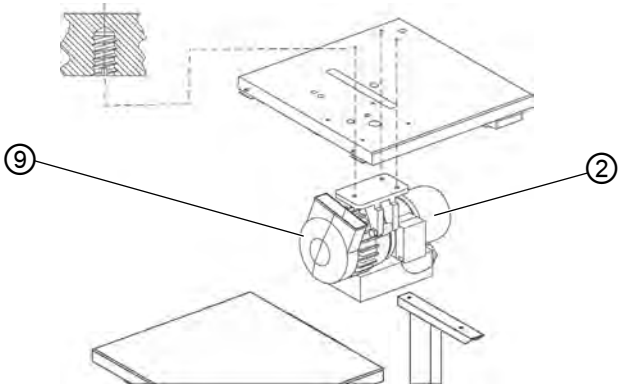


(1) - Sewing light transformator
(2) - Clutch motor
(3) - Cable duct
(4) - Drawer
(5) - Main switch
(6) - Power supply
(7) - Flap trays
(8) - Tabletop

To complete the tabletop:

1. Turn over the tabletop (8).
2. Screw on the sewing light transformer (1).
3. Screw on the cable duct (3).
4. Screw on the drawer (4).
5. Screw on the main switch (5).
6. Screw on the power supply (6).
7. Screw on flap trays (7) using two wood screws per tray.

Fig. 38: Completing the tabletop (2)



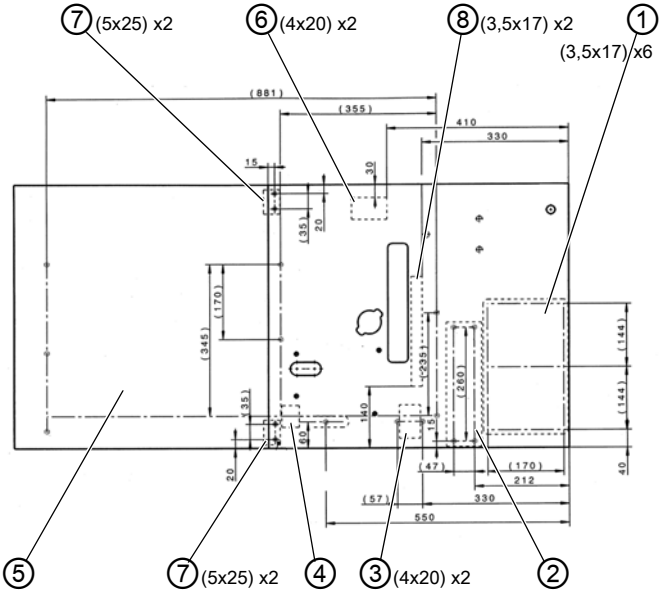
(2) - Clutch motor *(9) - Belt pulley*

8. Mount the clutch motor (2).
   For this, screw the three hexagon bolts 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.

6.4.4 Completing the tabletop for stand MG 56-3 with direct drive

Fig. 39: Completing the tabletop



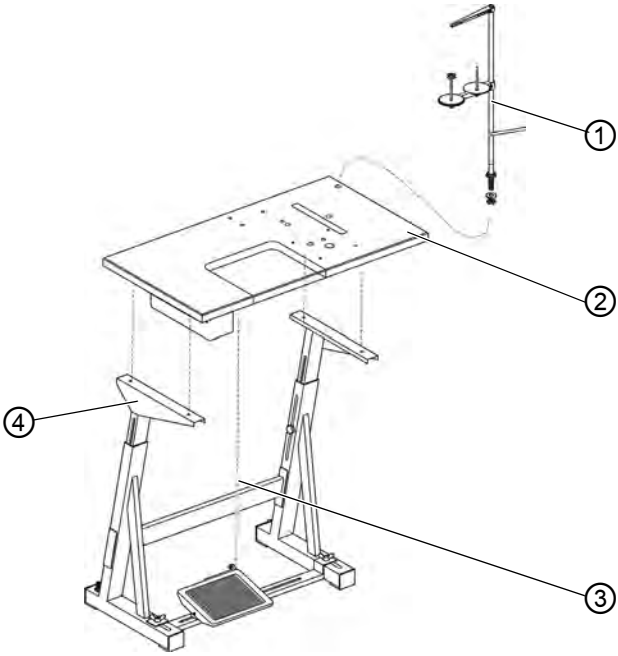
(1) - Drawer
(2) - Motor control
(3) - Power supply
(4) - Knee switch
(5) - Tabletop
(6) - Sewing light transformator
(7) - Flap trays
(8) - Cable duct

To complete the tabletop:

1. Turn over the table plate (5)
2. Screw on the drawer (1).
3. Screw on the motor control (2).
4. Screw on the power supply (3).
5. Screw on flap trays (7) using two wood screws per tray.
6. Screw on the knee switch (4).
7. Screw on the sewing light transformer (6).
8. Screw on the cable duct (8).

6.4.5 Assembling the tabletop to the stand MG 55-3

Fig. 40: Assembling the tabletop to the stand



(1) - Reel stand
(2) - Tabeltop
(3) - Rod
(4) - Stand

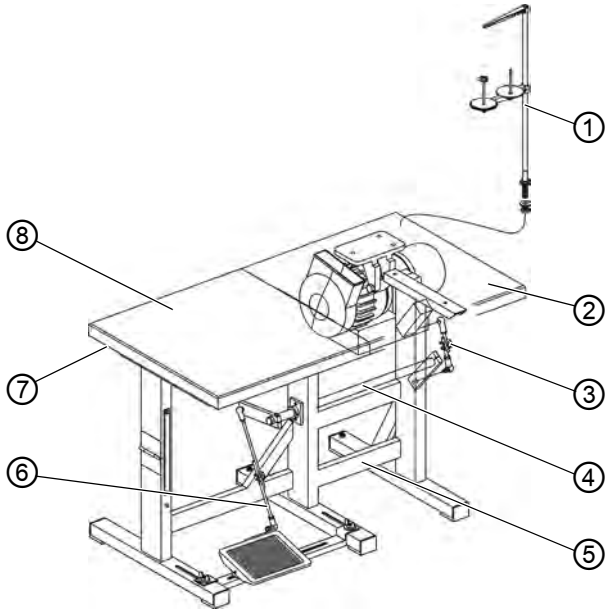
To assemble the tabletop to the stand:

1. Place the table top (2) on the floor upside down.
2. Fasten the stand 4 to the tabletop (2) using wood screw
   Be sure to note the marking for the stand (📖 *p. 66*), (📖 *p. 68*).
3. Set up stand (4) with tabletop (2).
4. Attach the rod (3) onto the pedal and motor.
5. Put the reel stand (1) into the drilled hole in the tabletop (2). Fasten with nut and washer.
6. Mount and align the reel holders and thread guide.

↳ The thread guide must be positioned above the reel holders.

6.4.6 Assembling the tabletop to the stand MG 56-3

Fig. 41: Assembling the tabletop to the stand



(1) - Reel stand
(2) - Tabletop
(3) - Rod
(4) - Actuating lever
(5) - Stand
(6) - Rod
(7) - Latch
(8) - Tabletop

To assemble the tabletop to the stand:

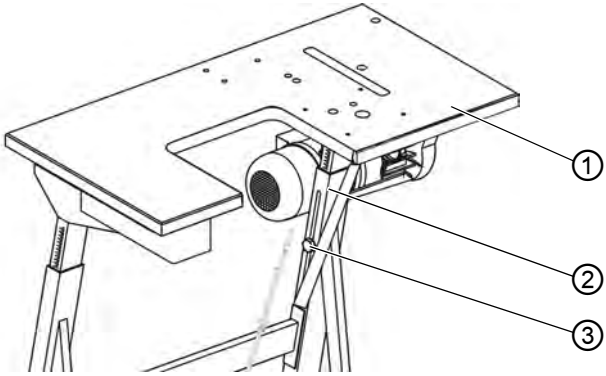
1. Fasten the tabletop (2) to the stand (5) using woodscrews. Pre-drill the holes for the wood screws.
2. Fasten the tableplate (8) to the latch (7) using woodscrews.
3. Attach the rod (6) onto the pedal and the actuating lever (4) (only for FIR clutch motor).
4. Attach the rod (3) onto the actuating lever (4) and motor.
5. Put the reel stand (1) into the drilled hole in the tabletop (2). Fasten with nut and washer.
6. Mount and align the reel holders and thread guide.

↳ The thread guide must be positioned above the reel holders.

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

In order to increase the stability of the right side of the tabletop (1), the plate is support by a junction bar (2).

Fig. 42: Assemble support on table plate with cut-out



(1) - Right side of tabletop
(2) - Junction bar
(3) - Screw

To assemble the support:

1. Fasten junction bar (2) to the stand using screw (3).
2. Fasten junction bar (2) to the bottom of the tabletop (1) using wood screws.

6.5 Setting the working height

WARNING

Risk of injury from moving parts!

The tabletop can sink under its own weight when the screws on the stand bars are loosened. Crushing possible.

Ensure that your hands are not jammed when loosening the screws.

CAUTION

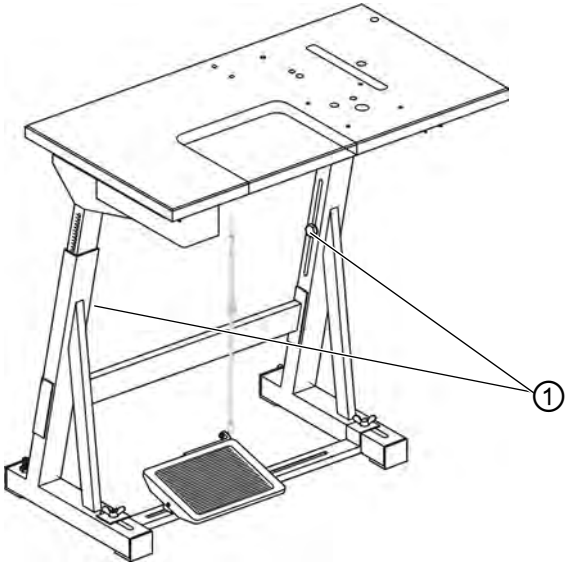
Risk of musculoskeletal damage from incorrect setting!

The operator can sustain musculoskeletal damage if failing to comply with the ergonomic requirements.

Adjust the working height to the body height of the person who will operate the machine.

The working height of the stand MG 55-3 is adjustable between 750 mm and 900 m.

Fig. 43: Setting the working height



(1) - Screws

To set the working height:

1. Loosen screws (1).
2. Adjust the table plate vertically to your required height.

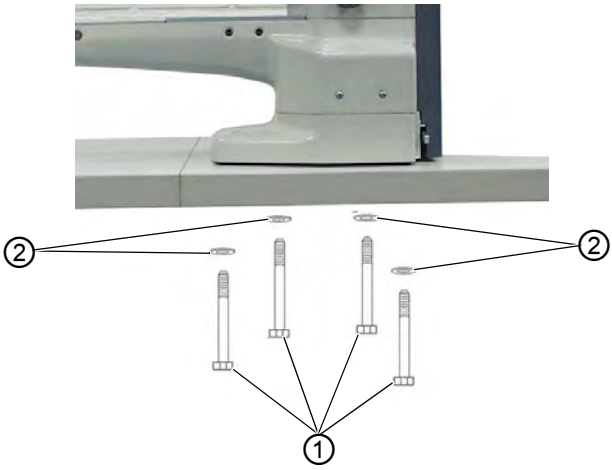
Important

Make sure that the table top is the same height on both sides. To prevent tilting, pull out or push in the table top evenly on both sides.

3. Fasten screws (1).

6.6 Putting on the machine head

Fig. 44: Putting on the machine head



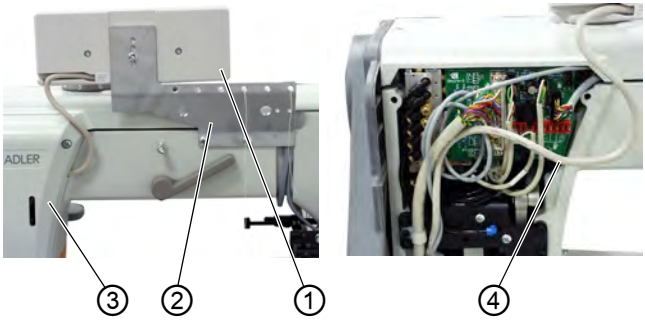
(1) - Screws *(2) - Washers*

To put on the machine head:

1. Put the machine head on the table plate.
2. Tighten the machine head from the underside of the tabletop with screws (1) and washers (2).

6.7 Assembling the operating panel

Fig. 45: Assembling the operating panel



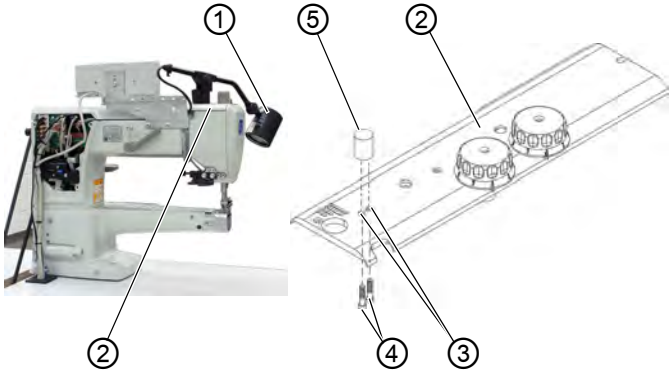
(1) - Operating panel
(2) - Thread guide
(3) - Valve cover
(4) - Cable

To assemble the operating panel:

1. Screw on operating panel (1) along with the thread guide (2).
2. Take off the valve cover (3).
3. Route the cable (4) in the machine arm and then downwards through the opening in the tabletop.
4. Plug in the cable plug into the **B776** socket on the control.
5. Put the valve cover (3) back on.

6.8 Assembling the sewing light

Fig. 46: Assembling the sewing light (1)

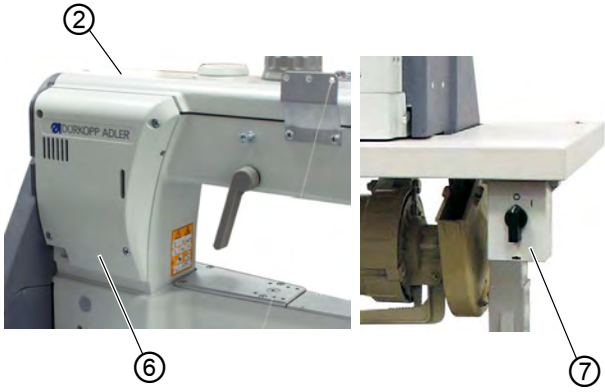


(1) - Sewing light
(2) - Arm cover
(3) - Holes
(4) - Screws
(5) - Retainer piece

To assemble the sewing light:

1. Screw off the arm cover (2).
2. Use a 4.5-mm Ø bit to drill the fastening holes (3).
3. Screw the retainer piece (5) using screw (4).

Fig. 47: Assembling the sewing light (2)



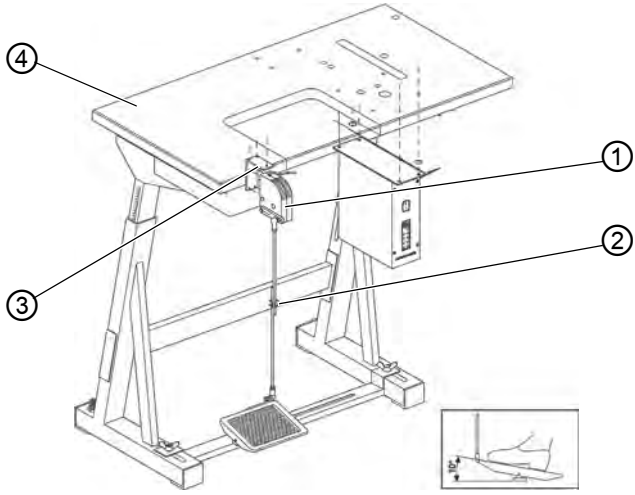
(2) - Arm cover
(6) - Valve cover
(7) - Main switch

4. Put the sticker with the safety notice on the front of the main switch (7)
5. Put the sewing light (1) onto the retainer piece (5).
6. Unscrew the valve cover (6).
7. Route the sewing light's (1) supply cable into the cut-out on the machine arm.
8. Guide the the connection cable downwards through the opening in the tableplate.
9. Fasten the sewing light transformer under the tabletop.
10. Connect the cable of the sewing light (1) to the sewing light transformer.
11. Put the valve cover (6) back on.
12. Put the arm cover (2) back on.

6.9 Setpoint device for the Direct drive

6.9.1 Assembling the setpoint device to the stand MG 55-3 and aligning the pedal

Fig. 48: Assembling the setpoint device to the stand and aligning the pedal



(1) - Setpoint device
(2) - Rod
(3) - Angle bracket
(4) - Tabletop

To assemble the **setpoint device** to the stand:

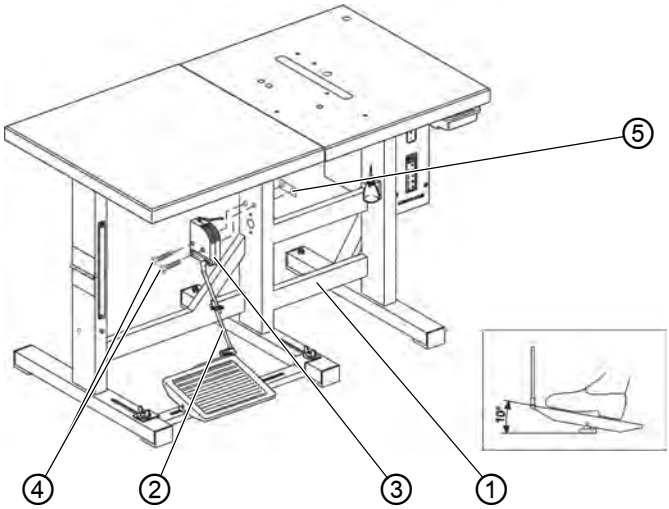
1. Screw the angle bracket (3) under the tabletop (4).
2. Screw the setpoint device (1) onto the angle bracket (3).
3. Hang the rod (2) on the setpoint device (1) and pedal.

To align the **pedal**:

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

6.9.2 Assembling the setpoint device to the stand MG 56-3 and aligning the pedal

Fig. 49: Assembling the setpoint device to the stand and aligning the pedal



(1) - Stand
(2) - Rod
(3) - Setpoint device
(4) - Screws
(5) - Plate

To assemble the **setpoint device** to the stand:

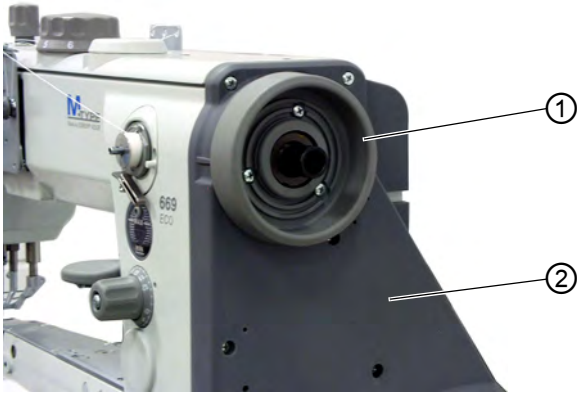
1. Screw the setpoint device (3) onto the plate (5) on stand (1).
2. Hang the rod (2) on the setpoint device (3) and pedal.

To align the **pedal**:

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

6.10 Putting on and tightening the V-belt (clutch motor FIR)

Fig. 50: Putting on and tightening the V-belt (1)

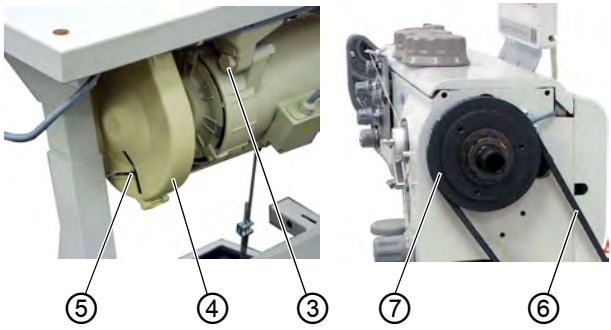


(1) - Handwheel
(2) - Protective belt cover

To put on and tighten the V-belt:

1. Remove handwheel (1).
2. Remove the protective belt cover (2).

Fig. 51: Putting on and tightening the V-belt (2)



(3) - Screw
(4) - Protective belt cover
(5) - Belt run-off safeguard
(6) - V-belt
(7) - Belt pulley

3. Fasten the belt pulley (7) to the shaft of the sewing drive.
4. Put the V-belt (6) on the belt pulley (7).

5. Guide the V-belt (6) downwards through the cut-out in the tabletop.
6. Loosen the screw (3) on the base of the sewing drive.
7. Put the V-belt (6) on the sewing drive's belt pulley.
8. Mount the protective belt cover (2) on the machine head.
9. Mount the handwheel (1).
10. Loosen the screw (3) on the base of the sewing drive.
11. Tighten the V-belt (6) 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 V-belt (6) so that the V-belt (6) moves about 10 mm down.

12. Fasten screw (3).
13. Adjust the belt run-off safeguard (5).

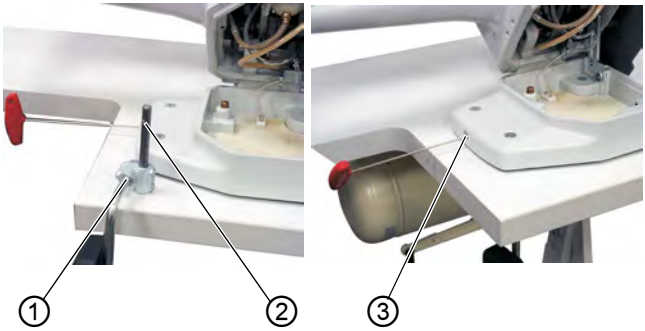
- When the machine head is tilted back, the V-belt (6) must remain on the belt pulley.

14. Tighten the protective belt cover (4).

6.11 Assembling the knee switch

The sewing feet can be lifted mechanically by the knee switch.

Fig. 52: Assembling the knee switch (1)

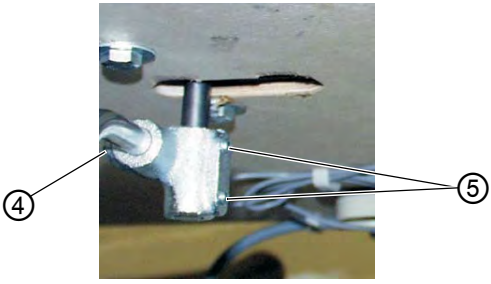


(1) - Knee switch
(2) - Nose
(3) - Screw

To assemble the knee switch:

1. Position the knee switch (1) from below so that the nose (2) points to the front.
2. Tighten screw (3) into the machine base.

Fig. 53: Assembling the knee switch (2)

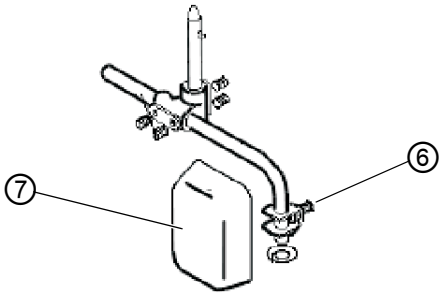


(4) - Screw
(5) - Screws

To align the knee switch:

1. Loosen screws (4) and (5).
2. Align the knee switch.
3. Fasten screws (4) and (5).

Fig. 54: Assembling the knee switch (3)



(6) - Screw *(7) - Knee cushion*

To align the knee cushion:

1. Loosen screw (6).
2. Align the knee cushion (7).
3. Fasten screw (6).

6.12 Assembling the Direct Drive

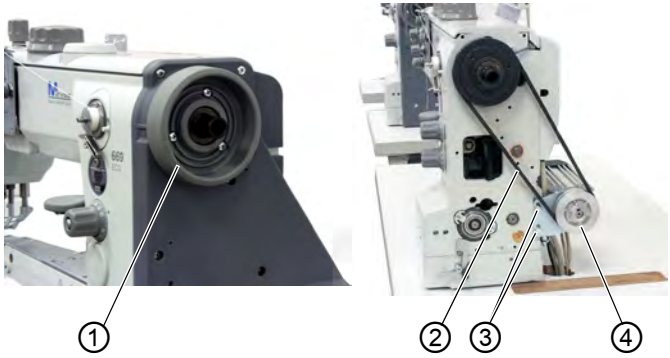
WARNING

Risk of injury from moving parts!
Crushing possible.

Switch off the machine before assembling the Direct Drive.

6.12.1 Assembling the motor and putting on the V-belt

Fig. 55: Assembling tho motor and putting on the V-belt



(1) - Handwheel
(2) - V-belt
(3) - Screws
(4) - Motor

To assemble the motor and put on the V-belt:

1. Unscrew the handwheel (1).
2. Screw motor (4) onto the head using two screws (3) so that it can be easily shifted.
3. Put on the V-belt (2).
4. Tighten the V-belt (2).
   Press the motor (4) downwards and tighten both screws (3).

When the V-belt has the correct tension, you should be able to press down with your finger in the middle of the V-belt (2) so that the V-belt (2) moves about 10 mm down.

6.12.2 Connecting the Hall sensor

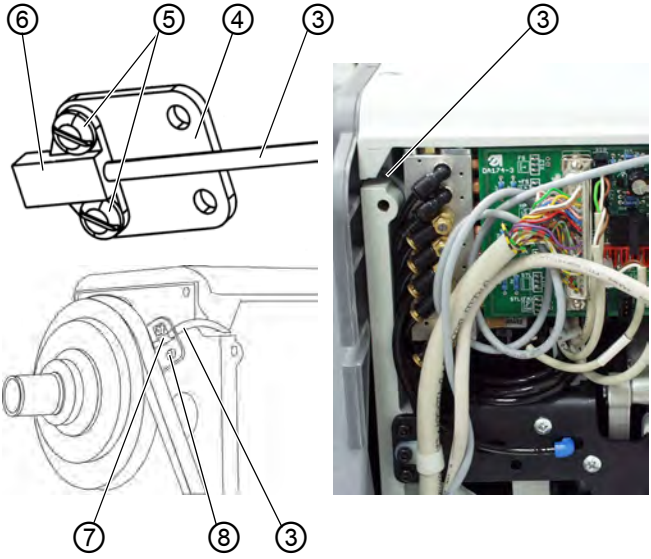
Fig. 56: Connecting the Hall sensor (1)

(1) - Arm cover *(2) - Valve cover*

To connect the Hall sensor:

1. Screw off the arm cover (1).
2. Screw off the valve cover (2).

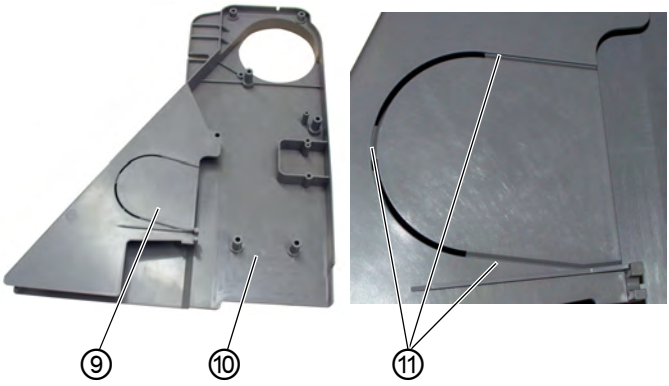
Fig. 57: Connecting the Hall sensor (2)



(3) - Cable
(4) - Holder
(5) - Screws
(6) - Hall sensor
(7) - Clip
(8) - Screws

3. Fasten the Hall sensor (6) to the holder (5) using screws (4).
4. Fasten the holder (5) with the Hall sensor (6) to the arm using screws (8).
   Guide the cable (3) through the clip (7).
5. Route cable (3) in the arm and then to the control cabinet under the tabletop.
6. Screw on the arm cover (1).
7. Connect the 9-pole Sub-D plug from the Hall sensor (6) into **B18** socket on the EFKA DA321G control.

Fig. 58: Connecting the Hall sensor (3)



(9) - Plate
(10) - Protective belt cover
(11) - Holder

8. Remove plate (9) from belt guard (10).
   Cut through the holders (11) with a sharp knife.
9. Mount the protective belt cover (10) on the machine head.
10. Mount the handwheel.

6.13 Electrical connection

DANGER

Risk of death from live components!

Unprotected contact with electricity can result in serious injuries or death.

Only qualified specialists may perform work on electrical equipment.

Important

The voltage on the type plate of the sewing motor must correspond to the mains voltage.

6.13.1 Creating the equipotential bonding

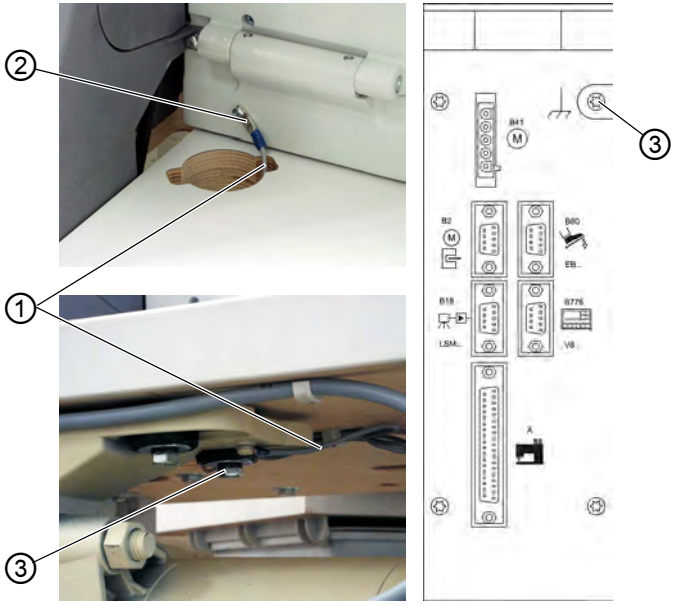
The earth (grounding) cable is included in the machine's accessory pack.

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

Creating the equipotential bonding on the machine head

Information
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.

Fig. 59: Creating the equipotential bonding on the machine head



(1) - Earth cable
(2) - Tab connector
(3) - Screws

To creat the equipotential bonding on the machine head:

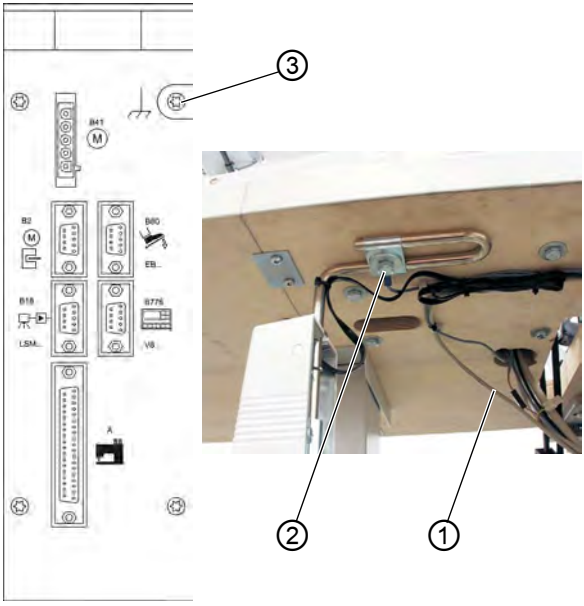
1. Connect the earth cable (1) to the tab connector (2)and route the cable through the cable duct to the motor foot.
2. Screw the earth cable (1) to the motor foot or control box using screw (3).
3. The earth cable (1) should also be fastened under the table plate with nail clips.

Important

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

Creating the equipotential bonding on the knee switch

Fig. 60: Creating the equipotential bonding on the knee switch



(1) - Earth cable
(2) - Screw
(3) - Screw

To create the equipotential boding on the knee switch:

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

6.13.2 Connecting the clutch motor FIR to the mains voltage

Important

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

Information

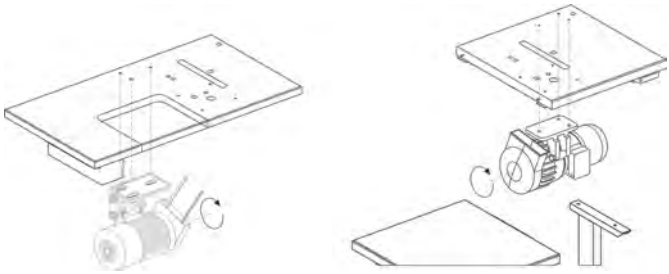
The clutch motor should be connected to three-phase current: 3 x 380 - 415V 50/60Hz or 3 x 220 - 240V 50/60Hz.

To connect the clutch motor FIR:

1. Route the connection cable from the main switch through the cable duct and connect the cable to the sewing drive. (see 🕮 **connection diagram** 9800 11002 A/9800 110002 D (in the connections kit) or the **circuit diagram** on the clutch motor.
2. Route the voltage supply cable from the main switch through the cable duct to the rear and fasten it with the strain relief mechanism

6.13.3 Rotational direction of the clutch motor FIR

Fig. 61: Rotational direction of the clutch motor FIR



Checking the rotational direction of the clutch motor

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. Check the rotation before use.

To check the rotational direction of the clutch motor:

1. Connect the clutch motor.
2. Establish equipotential bonding (*p. 90*).
3. Connect the sewing drive to the mains supply
4. Switch on the machine.
5. 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.

Changing the rotational direction of the clutch motor

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

To change the rotational direction of the clutch motor:

1. Switch off the machine.
2. Unplug the main plug.
3. Swap the positions of two of the three phase wires at the sewing drive's mains connection
4. Plug in the mains plug.
5. Switch on the machine.
6. Re-check the rotational direction (*p. 93*).

6.13.4 Connecting the sewing light transformator

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

Fig. 62: Connecting the sewing light transformator

(1) - Mains cable *(2) - Sewing light transformator*

To connect the sewing light transformator:

1. Switch off the machine.
2. Unplug the main plug.
3. Route the mains cable (1) of the sewing-light transformer (2) to the main switch.
4. Make the connection on the mains side of the main switc (see 🕮 **connection diagram** 9800 169002 B).
5. Put the sticker with the safety notice on the front of the main switch.

6.13.5 Connecting the DC positioning drive to the mains voltage

Important

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

Information

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 3x200V, 3x220V, 3x230V or 3x240V, 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.

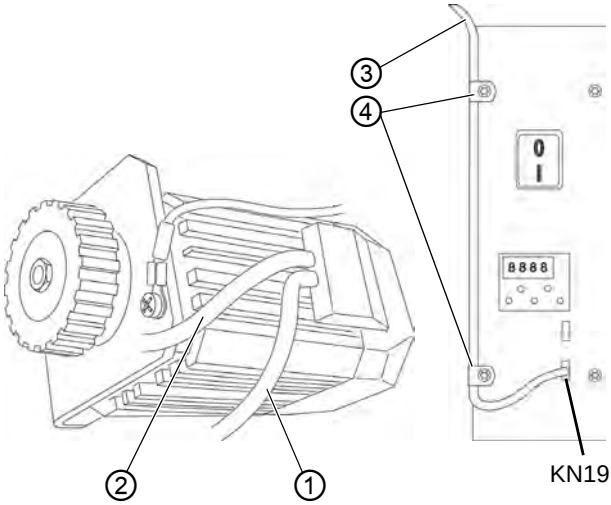
Connecting the machine head

To connect the machine head:

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

Connecting the DA321G control

Fig. 63: Connecting the DA321G control



(1) - Motor sensor cable
(2) - Motor cable
(3) - Knee switch cable
(4) - Clips

To connect the DA321G control:

1. Plug the cable from the setpoint director device (pedal) into the **B80** socket on the control unit.
2. Plug the motor sensor cable (1) into the **B2** socket on the control.
3. Plug the motor cable (2) into the **B41** socket on the control.
4. Plug the cable leading to the sewing machine into the **A** socket on the control.
5. Route all cables through the cable duct.
6. Plug the cable from the operating panel into the **B776** socket.
7. Plug the cable (3) from the knee switch into the **KN19** socket on the front side.
8. Use the clips (4) to fasten down the cable (3).

6.13.6 Rotational direction of the DC positioning drive

Checking the rotational direction of the DC positioning drive

NOTICE

Property damage may occur!

Damage to the machine due to incorrect direction of rotation of the sewing drive possible.

Before commissioning the machine, check the direction of rotation of the sewing drive.

Information

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

To check the rotational direction of the DC positioning drive:

1. Set the sewing foot in the high positio (📖 *p. 36*).
2. The plugs from the set-value initiator, motor, motor sensor and operating panel must be connected.
   The 37-pole plug from the sewing machine head should NOT be plugged in.
3. Switch on the machine.

↳ 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.

4. Press down gently forwards on the pedal.

↳ The drive starts to turn.

5. 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**. (see 🕮 instructions from the drive manufacturer).

6. Switch off the machine.

7. Reconnect the 37-pole plug from the sewing machine head.

Checking the positioning of the needles

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.

To check the positioning of the needles:

1. The sewing foot should be set in the high position (🕮 *p. 36*).

↳ The machine should be set to stopover position **1** (with the needle doen)..

Checking Position 1:

2. Switch on the machine.

3. Press forward on the pedal briefly and then return to starting position.

↳ The needle is in position **1** (needle down).

4. Check the position of the needle.

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

5. Press the pedal first forward and then completely back.

↳ The needle is in position **2** (thread lever is at top dead centre).

6. Check the position of the thread lever.

6.13.7 Machine-specific parameters

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

Auto-select

The control 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.

Important

If the control 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.

To set the machine specific parameters:

1. The correct machine class can be set using parameter *F-290*, in accordance with the parameter data sheet 9800 331104 PB
2. 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

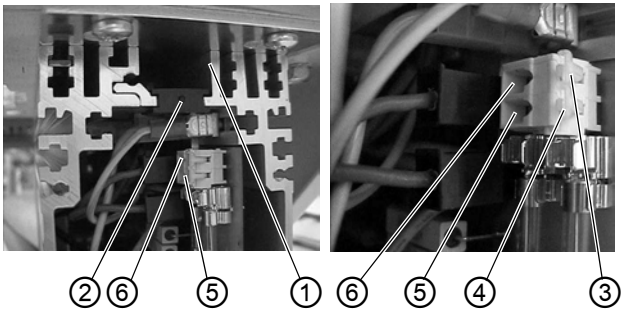
- Parameter *F-111*: set to 3000 rpm or less
- Parameter *F-270*: set to 6 (selection of positioning sensor
- Parameter *F-272*: calculate with the following formula: (Ø motor belt pulley/Ø machine belt pulley) x1000

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.

6.13.8 Connecting the sewing light

Fig. 64: Connecting the sewing light



(1) - Cable duct
(2) - Rubber guide track
(3) - Terminal opening
(4) - Terminal opening
(5) - Terminal
(6) - Terminal

To connect the sewing light:

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

6.14 Pneumatic connection

NOTICE

Property damage from oily compressed air!

Oil particles in the compressed air can cause malfunctions of the machine and soil the sewing material.

Ensure that no oil particles enter the compressed air supply.

NOTICE

Property damage from incorrect setting!

Incorrect system pressure can result in damage to the machine.

Ensure that the machine is only used when the system pressure is set correctly.

The pneumatic system of the machine and of the additional equipment must be supplied with dry and oil-free compressed air. The supply pressure must lie between 8 and 10 bar.

6.14.1 Assembling the compressed air maintenance unit

Fig. 65: Assembling the compressed air maintenance unit

To assemble the compressed air maintenance unit:

1. Connect the connection hose to the compressed air supply using a hose coupling R 1/4”.

6.14.2 Setting the operating pressure

NOTICE

Property damage from incorrect setting!

Incorrect operating pressure can result in damage to the machine.

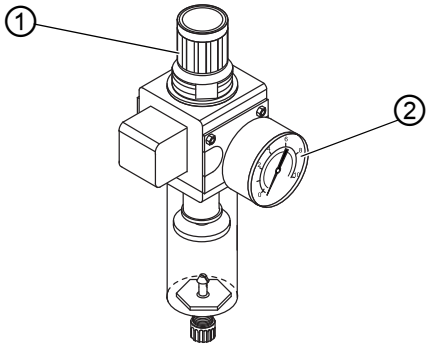
Ensure that the machine is only used when the operating pressure is set correctly.

Proper setting

Refer to the **Technical data** (📖 *p. 43*) chapter for the permissible operating pressure. The operating pressure cannot deviate by more than ± 0.5 bar.

Check the operating pressure on a daily basis.

Fig. 66: Setting the operating pressure



(1) - Pressure controller *(2) - Pressure gage*

To set the operating pressure:

1. Pull the pressure controller (1) up.
2. Turn the pressure controller until the pressure gage (2) indicates the proper setting:
   - Increase pressure = turn clockwise
   - Reduce pressure = turn counterclockwise
3. Push the pressure controller (1) down.

6.15 Performing a test run

When setup is complete, perform a test run to check the functionality of the machine.

7 Decommissioning

WARNING

Risk of injury from a lack of care!

Serious injuries may occur.

ONLY clean the machine when it is switched off. Allow ONLY trained personnel to disconnect the machine.

CAUTION

Risk of injury from contact with oil!

Oil can cause a rash if it comes into contact with skin.

Avoid skin contact with oil.
If oil has come into contact with your skin, wash the affected areas thoroughly.

To decommission the machine:

1. Switch off the machine.
2. Unplug the power plug.
3. If applicable, disconnect the machine from the compressed air supply.
4. Remove residual oil from the oil pan using a cloth.
5. Cover the control panel to protect it from soiling.
6. Cover the control to protect it from soiling.
7. Cover the entire machine if possible to protect it from contamination and damage.

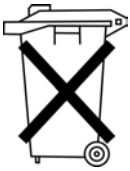
8 Disposal

CAUTION

Risk of environmental damage from improper disposal!

Improper disposal of the machine can result in serious environmental damage.

ALWAYS comply with the national regulations regarding disposal.



The machine must not be disposed of in the normal household waste.

The machine must be disposed of in a suitable manner in accordance with all applicable national regulations.

When disposing of the machine, be aware that it consists of a range of different materials (steel, plastic, electronic components, etc.). Follow the national regulations when disposing these materials.

9 Troubleshooting

9.1 Customer Service

Contact for repairs and issues with the machine:

Dürkopp Adler GmbH

Potsdamer Str. 190
33719 Bielefeld, Germany

Tel. +49 (0) 180 5 383 756
Fax +49 (0) 521 925 2594
Email: service@duerkopp-adler.com
Internet: www.duerkopp-adler.com

9.2 Errors in sewing process

Error	Possible causes	Remedial action
Unthreading at seam beginning	Needle thread tension is too firm	Check needle thread tension
Thread breaking	Needle thread and hook thread have not been threaded correctly	Check threading path
	Needle is bent or sharp-edged	Replace the needle
	Needle is not inserted correctly into the needle bar	Insert the needle correctly into the needle bar
	The thread used is unsuitable	Use recommended thread
	Thread tensions are too tight for the thread used	Check thread tensions
	Thread-guiding parts, such as thread tube, thread guide or thread take-up disk, are sharp-edged	Check threading path
	Throat plate, hook or spread have been damaged by the needle	Have parts reworked by qualified specialists

Error	Possible causes	Remedial action
Missing stitches	Needle thread and hook thread have not been threaded correctly	Check threading path
	Needle is blunt or bent	Replace the needle
	Needle is not inserted correctly into the needle bar	Insert the needle correctly into the needle bar
	The needle thickness used is unsuitable	Use recommended needle thickness
	The reel stand is installed incorrectly	Check the assembly of the reel stand
	Thread tensions are too tight	Check thread tensions
	Throat plate, hook or spread have been damaged by the needle	Have parts reworked by qualified specialists
Loose stitches	Thread tensions are not adjusted to the sewing material, the sewing material thickness or the thread used	Check thread tensions
	Needle thread and hook thread have not been threaded correctly	Check threading path
Needle breakage	Needle thickness is unsuitable for the sewing material or the thread	Use recommended needle thickness

10 Technical data

10.1 Data and characteristic values

Technical data	Unit	669-180010	669-180112	669-180312
Type of stitches		double lockstitch 301		
Hook type		horizontal, large		
Number of needles		1		
Needle system		134-35		
Needle strength	[Nm]	150		
Thread strength	[Nm]	needel thread: 83/3 - 15/3 hook thread: 80/3 - 20/3		
Stitch length	[mm]	9/9		
Speed maximum	[min^{-1}]	3000		
Speed on delivery	[min^{-1}]	2800	3000	
Operating pressure	[bar]	6		
Length	[mm]	600		
Width	[mm]	230		
HöhWeighte	[mm]	470		
Weight	[kg]	50		

10.2 Requirements for trouble-free operation

Compressed air quality must be ensured in accordance with ISO 8573-1: 2010 [7:4:4].

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