



869-M PREMIUM

Service Instructions

IMPORTANT
READ CAREFULLY BEFORE USE
KEEP FOR FUTURE REFERENCE

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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. 155).

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:

- Specialists:
This group has the appropriate technical training for performing maintenance or repairing malfunctions.

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.

These instructions must 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.

Operator's obligations 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:

- Setting up the machine
- Performing maintenance work and repairs
- Performing 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

Symbol	Type of danger
	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.

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.

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.

3 Working basis


3.1 Order of the settings



Order

The setting positions for the machine are interdependent.

Always comply with the order of individual setting steps as specified.

It is absolutely essential that you follow all notices regarding prerequisites and subsequent settings that are marked with  in the margin.

NOTICE

Property damage may occur!

Risk of machine damage from incorrect order.

It is essential to follow the working order specified in these instructions.

3.2 Laying the cable guide

Ensure that all cables are laid in the machine such that the function of moving parts is not hampered.



To lay the cable guide:

1. Lay any excess cabling neatly in proper cable snakes.
2. Bind together the cable loops with cable ties.



Important

Tie loops wherever possible to fixed parts.
The cables must be secured firmly.

3. Cut off any overlapping cable ties.

NOTICE

Property damage may occur!

Excess cables can impair the functioning of moving machine parts.
This impairs the sewing function and can result in damage.

Lay excess cable as described above.

3.3 Calling up the service routine

The machine must remain switched on for the following settings, as switching off will delete the required programmed values:

- Disassembling and assembling the feed dog
- Setting the feed dog
- Setting the feed dog feed movement
- Aligning the needle bar linkage
- Setting the loop stroke position
- Setting the needle bar height
- Setting an even sewing foot stroke
- Setting the stroke movement for the feeding foot

Call up the corresponding service routine to be able to make settings on the active machine without any risk. In the service routine, the machine moves to the correct position and the power is switched off as soon as the **Service Stop** button is pressed. The settings are preprogrammed and changes are not possible.



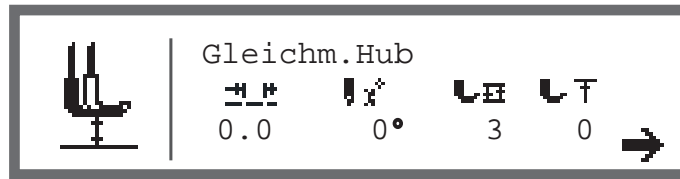
To call up the service routine:

1. Switch on the machine.
2. Press the **P** and **S** buttons at the same time.
3. Input the password (25483).
- ↳ The service menu is active.
4. Select the required service routine in the *Service > Settings* menu item.

<i>Settings</i>	
<i>Feed dog</i>	<i>Assemble</i> (assembling and removing feed dog)
	<i>PosToNeedle</i> (setting the feed dog)
	<i>Movement</i> (setting the feed dog feed movement)
<i>Needle-Hook</i>	<i>Timing</i> (setting the loop stroke position)
	<i>Needlebar</i> (setting the needle bar)
<i>Stroke</i>	<i>Equal Stroke</i> (setting an even sewing foot stroke)
	<i>Feed Move</i> (setting the stroke movement for the feeding foot)

5. Confirm with **OK**.
- ↳ The display shows all the values set in the selected service routine.

Fig. 1: Calling up the service routine (1)



6. Press button 7.


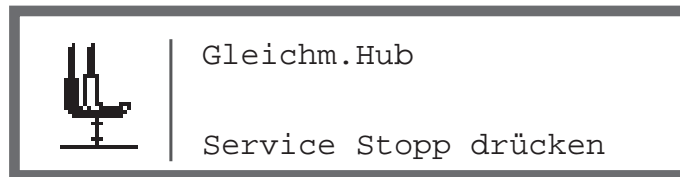
↪ A request appears to press the **Service Stop**  button.

Fig. 2: Calling up the service routine (2)



7. Press the **Service Stop**  button.

↪ The machine moves to the programmed position and is switched off.
The button lights up.
The display shows the information that the Service Stop is active.

Fig. 3: Calling up the service routine (3)

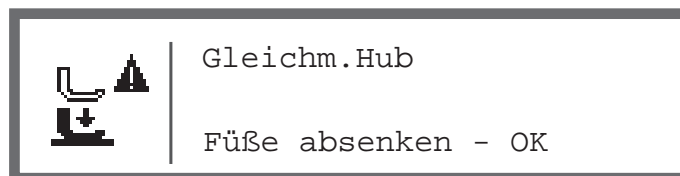


8. Make the required settings.

9. Press the **Service Stop**  button.

↪ The power is switched on again.
The button turns off.
The display shows a warning.

Fig. 4: Calling up the service routine (4)



10. Press the **OK** button.

↪ You are now in the service menu again.

11. To exit the menu, press the **ESC** button.

3.4 Removing the covers

WARNING



Risk of injury from moving parts!

Crushing possible.

Move the machine to the service position or switch the machine off before removing the covers.

WARNING



Risk of injury from sharp parts!

Puncture possible.

Move the machine to the service position or switch the machine off before removing the covers.

For many types of setting work, you will have to remove the machine covers first in order to access the components.

This chapter describes how to remove and then assemble the individual covers again. The text for each type of setting work then specifies only the cover that needs to be removed at that particular time.

3.4.1 Access to the underside of the machine

To access the components on the underside of the machine, swivel up the machine head.

Fig. 5: Tilting the machine head



(1) - Machine head
(2) - Bartack

(3) - Lever

Tilting the machine head



To tilt the machine head:

1. Lift the lever (3).
2. Tilt the machine head (1) as far as it will go.

Erecting the machine head

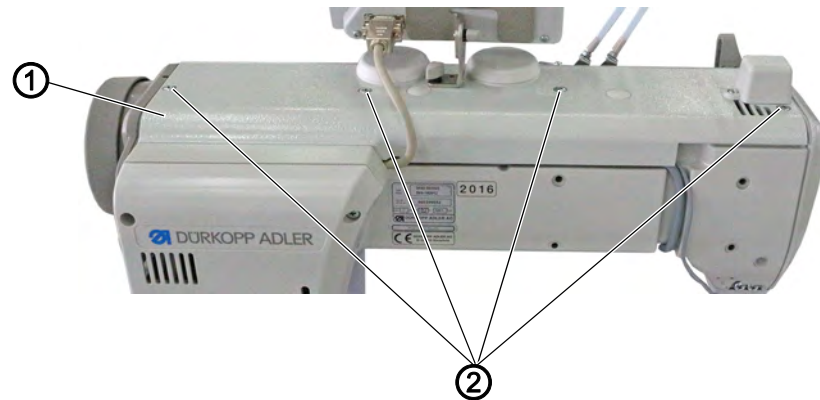


To erect the machine head:

1. Erect the machine head (1).
For safety reasons, the machine head (1) is stopped by the bolt (2).
2. Lift the lever (3) and erect the machine head (1) completely.

3.4.2 Removing and placing the arm cover

Fig. 6: Removing and placing the arm cover



(1) - Arm cover

(2) - Screws

Removing the arm cover



To remove the arm cover:

1. Loosen the screws (2).
2. Remove the arm cover (1).

Placing the arm cover

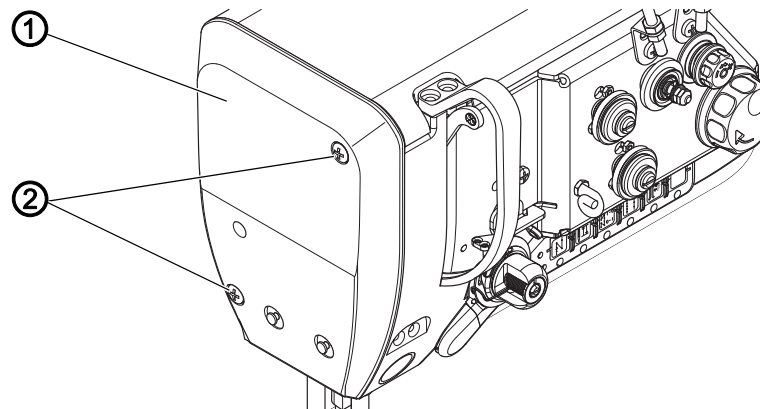


To place the arm cover:

1. Place the arm cover (1).
2. Tighten the screws (2).

3.4.3 Removing and placing the head cover

Fig. 7: Removing and placing the head cover



(1) - Head cover

(2) - Screws

Removing the head cover



To remove the head cover:

1. Loosen the screws (2).
2. Remove the head cover (1).

Placing the head cover

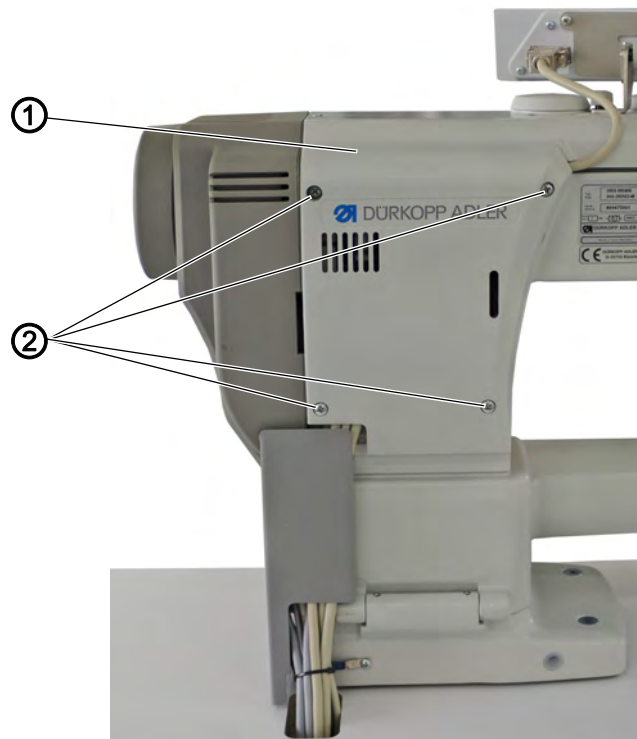


To place the head cover:

1. Place the head cover (1).
2. Tighten the screws (2).

3.4.4 Removing and placing the valve cover

Fig. 8: Removing and placing the valve cover



(1) - Valve cover

(2) - Screws



Important

When removing and positioning the valve cover, be sure not to pull off any cables.

Removing the valve cover



To remove the valve cover:

1. Loosen the screws (2).
2. Remove the valve cover (1).

Placing the valve cover

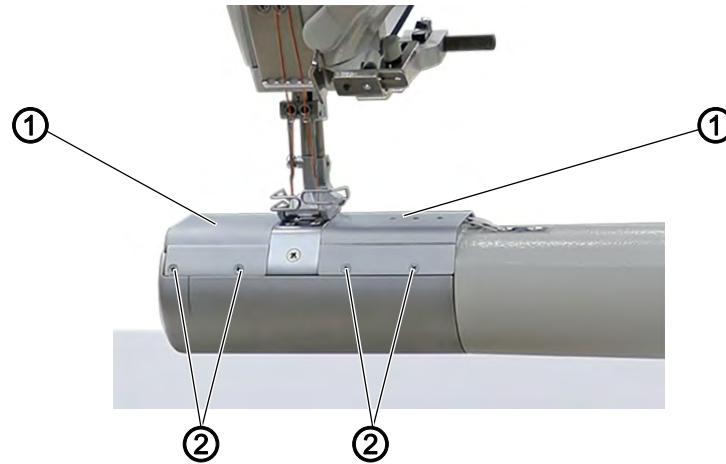


To place the valve cover:

1. Place the valve cover (1).
2. Tighten the screws (2).

3.4.5 Disassembling and assembling the throat plate slide

Fig. 9: Disassembling and assembling the throat plate slide



(1) - Throat plate slide

(2) - Screws

Disassembling the throat plate slide



To disassemble the throat plate slide:

1. Loosen the screws (2).
2. Remove the throat plate slide (1).

Assembling the throat plate slide

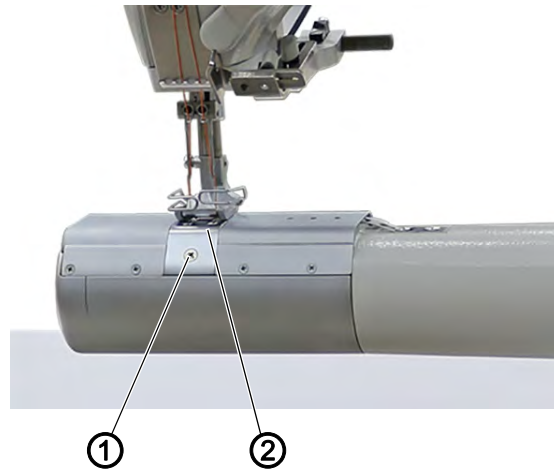


To assemble the throat plate slide:

1. Place the throat plate slide (1).
2. Tighten the screws (2).

3.4.6 Disassembling and assembling the throat plate

Fig. 10: Disassembling and assembling the throat plate



(1) - Screw

(2) - Throat plate

Disassembling the throat plate



To disassemble the throat plate:

1. Execute the service routine *Feed dog > PosToNeedle* (📖 p. 14).

↳ The software is used to define the necessary presets on the machine.



2. Loosen the screw (1).
3. Remove the throat plate (2).



4. Finish the service routine.

Assembling the throat plate



To assemble the throat plate:

1. Execute the service routine *Feed dog > PosToNeedle* (📖 p. 14).

↳ The software is used to define the necessary presets on the machine.



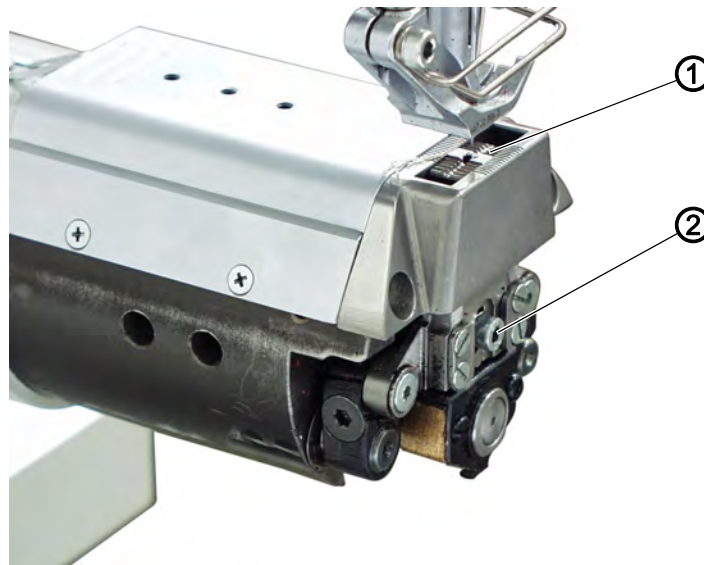
2. Insert the throat plate (2).
3. Tighten the screw (1).



4. Finish the service routine.

3.4.7 Disassembling and assembling the feed dog

Fig. 11: Disassembling and assembling the feed dog



(1) - Feed dog

(2) - Screw




Proper setting

The feed dog does not touch the throat plate with the maximum permissible stitch length.

Disassembling the feed dog




To disassemble the feed dog:

1. Execute the service routine *Feed dog > Assemble* ( p. 14).
- ↳ The software is used to define the necessary presets on the machine.



Important


The maximum permissible stitch length can be set in the service routine. Enter the maximum permissible stitch length before pressing the button 7.

1. Disassemble the throat plate ( p. 22).
2. Loosen the screw (2).
3. Remove the feed dog (1).

Assembling the feed dog



To assemble the feed dog:

1. Place the feed dog (1).
2. Tighten the screw (2).
3. Insert the throat plate ( p. 22).
4. Finish the service routine.





Important

The machine needs to be restarted after a change of the maximum stitch length.

If necessary, set the maximum permissible stitch length via the software.

Check the feed dog position in its movement at maximum stitch length (depending on the equipment: 6, 7 or 9) by turning the handwheel.

The feed dog must not hit against the throat plate.



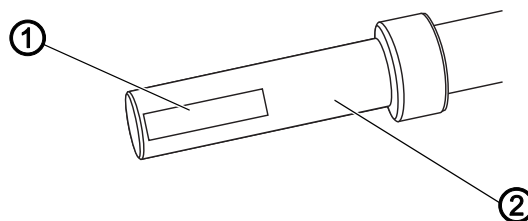
Order

Then check the following setting:

- Feed dog (📖 p. 36)

3.5 Flats on shafts

Fig. 12: Flats on shafts



(1) - Flat

(2) - Shaft

Some shafts have flat surfaces at the points where the components are screwed on. This stabilizes the connection and makes setting easier.

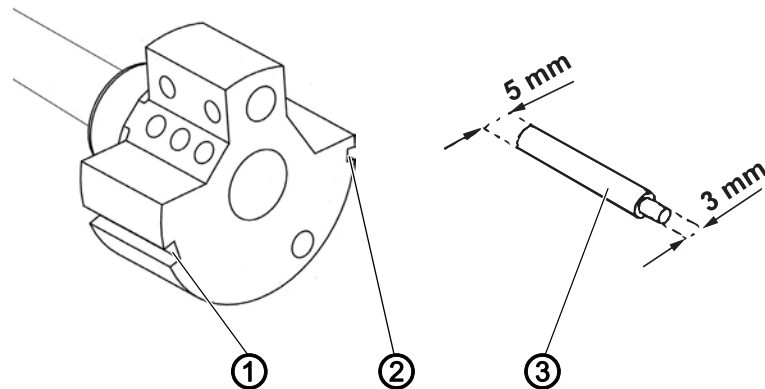


Important

Always ensure that the screws are completely flush with the surface.

3.6 Locking the machine in place

Fig. 13: Locking the machine in place (1)



(1) - Large arresting groove
(2) - Small arresting groove

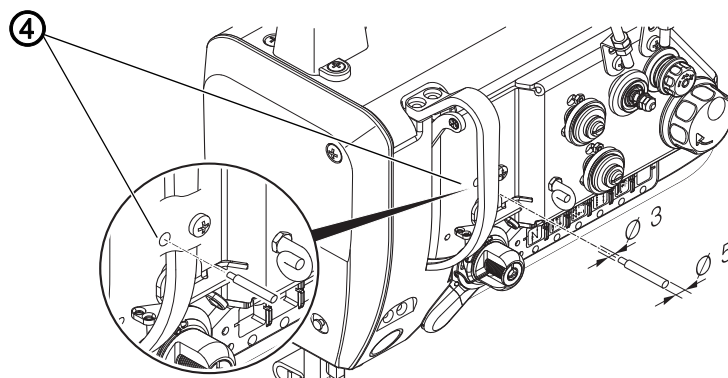
(3) - Locking peg

For some settings, the machine must be locked in place. To do this, the locking peg from the accessory pack is inserted into a slot on the arm shaft crank, blocking the arm shaft.

There are 2 securing positions:

- **Position 1:** Loop stroke position
 - 5 mm end in the large arresting groove (1)
 - Setting the loop stroke and needle bar height
- **Position 2:** Handwheel zero position
 - 3 mm end in the small arresting groove (2)
 - Setting the handwheel position and checking the top dead center for the needle bar

Fig. 14: Locking the machine in place (2)



(4) - Locking opening

Locking the machine in place



To lock the machine in place:

1. Remove the plug from the locking opening (4).

2. Turn the handwheel until the appropriate arresting groove (1) or (2) is in front of the locking opening (4):
 - Small arresting groove at handwheel position *needle bar at top dead center*
 - Large arresting groove at handwheel position *needle bar to bottom dead center*
3. Insert the locking peg (3) with the appropriate end into arresting groove (1) or (2).

Removing the lock




To remove the lock:

1. Pull the locking peg (3) out of arresting groove (1) or (2).
2. Insert the plug into the locking opening (4).

4 Setting the handwheel scale

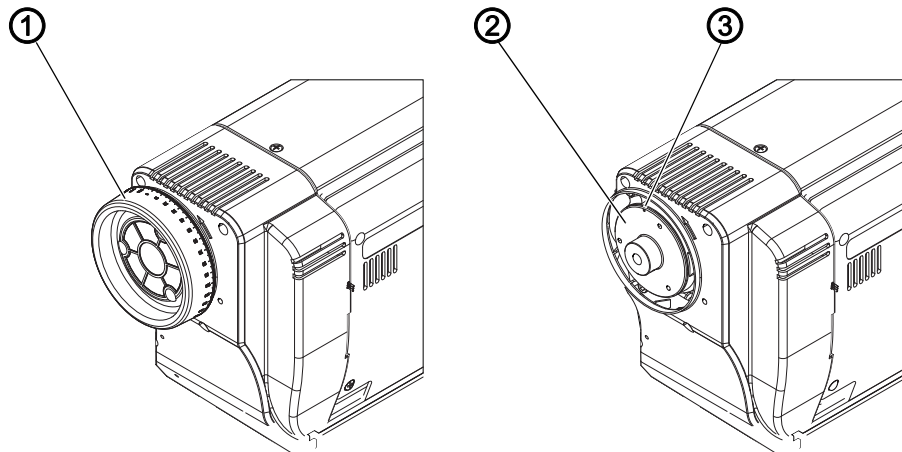


Proper setting

1. Lock the machine in place at position 2 ( p. 25).
- ↩ The handwheel is at position 0°.

If a different degree number is next to the marking, then you will have to reset the graduated scale.

Fig. 15: Setting the handwheel scale




(1) - Handwheel
(2) - Washer

(3) - Marking



To set the handwheel scale:

1. Lock the machine in place ( p. 25).
2. Remove the handwheel (1).
3. Loosen and turn the washer (2).



Important

The marking (3) on the washer (2) marks the position 0°.

4. Tighten the washer (2)
5. Place the handwheel (1).

5 Positioning the arm shaft

WARNING

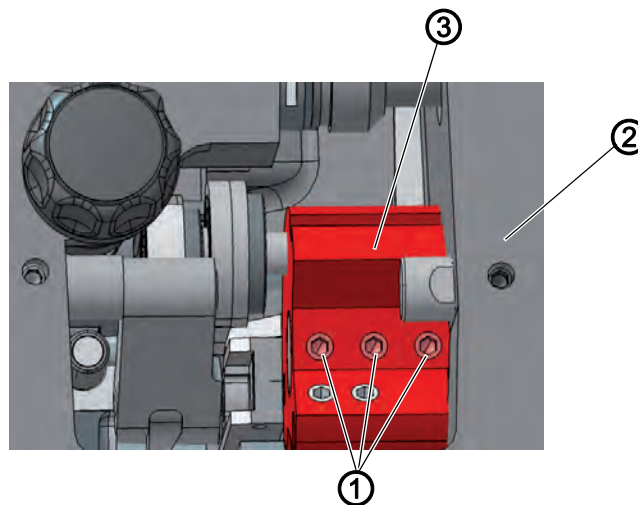


Risk of injury from moving parts!

Crushing possible.

Switch off the machine before you check and set the position of the arm shaft crank.

Fig. 16: Positioning the arm shaft



(1) - Threaded pins
(2) - Machine casting

(3) - Arm shaft crank




Proper setting

The 3 threaded pins (1) on the arm shaft crank (3) are seated completely on the flat. The arm shaft crank (3) is flush with the machine casting (2).



To position the arm shaft:

1. Remove the arm cover ( p. 18).
2. Loosen the threaded pins (1) on the arm shaft crank (3).
3. Turn the arm shaft crank (3) such that the threaded pins (1) are seated completely on the flat of the arm shaft.
4. Push the arm shaft (3) to the right as far as it will go and flush with the machine casting.
5. Tighten the threaded pins (1) on the arm shaft crank (3).

6 Positioning the toothed belt wheels

WARNING



Risk of injury from moving parts!

Crushing possible.

Switch off the machine before positioning the toothed belt wheels.



Proper setting

The two toothed belt wheels must be positioned above each other so that the toothed belt can run correctly. The winder wheel is directly next to the upper toothed belt wheel and determines its alignment.



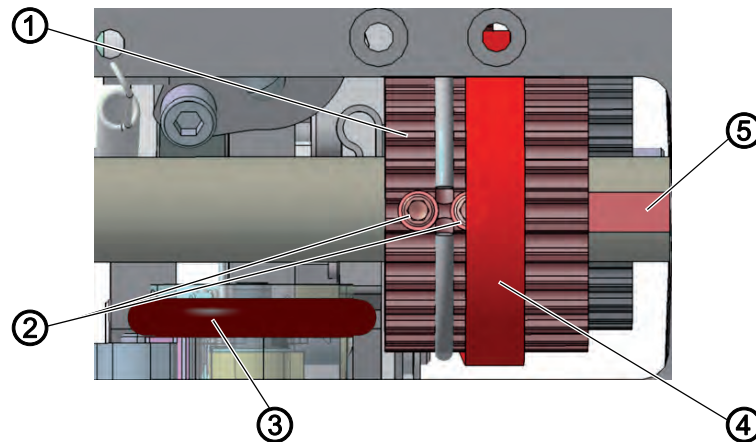
Important

The position of the upper toothed belt wheel is defined by the distance to the winder wheel.

Therefore, you must first align the upper toothed belt wheel on the winder wheel and then align the lower toothed belt wheel so that the toothed belt runs correctly over both wheels.

6.1 Positioning the upper toothed belt wheel

Fig. 17: Positioning the upper toothed belt wheel



- | | |
|--------------------------------|-------------------------|
| (1) - Upper toothed belt wheel | (4) - Toothed belt |
| (2) - Threaded pins | (5) - Flat of arm shaft |
| (3) - Winder wheel | |



Proper setting

The 2 threaded pins (2) for the upper toothed belt wheel (1) are seated flush on the arm shaft (5).

The distance between the winder wheel (3) and the upper toothed belt wheel (1) must be 0.8 mm.

The toothed belt (4) runs correctly without running against the retaining ring or slipping off.

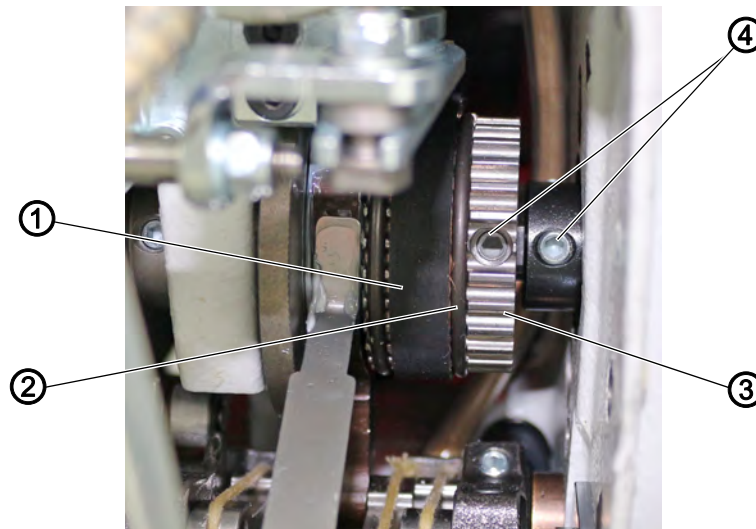


To position the upper toothed belt wheel:

1. Remove the arm cover (📖 p. 18).
2. Push the toothed belt (4) sufficiently far to the side so that the 2 threaded pins (2) can be reached.
3. Loosen the threaded pins (2).
4. Turn the upper toothed belt wheel (1) so that the threaded pins (2) are seated flush on the flat of the arm shaft (5).
5. Move the upper toothed belt wheel (1) to the side so that the distance to the winder wheel (3) is 0.8 mm.
6. Tighten the threaded pins (2).
7. Push the toothed belt (4) back.

6.2 Positioning the lower toothed belt wheel

Fig. 18: Positioning the lower toothed belt wheel



(1) - Toothed belt
(2) - Retaining ring

(3) - Lower toothed belt wheel
(4) - Threaded pins




Proper setting

The 2 threaded pins for the lower toothed belt wheel are seated flush on the flat of the lower shaft.

The toothed belt (1) runs correctly without running against the retaining ring (2) or slipping off.



To position the lower toothed belt wheel:

1. Tilt the machine head ( p. 17).
2. Loosen the threaded pins (4).
3. Turn the lower toothed belt wheel (3) such that the threaded pins (4) are seated on the flat of the arm shaft.
4. Move the lower toothed belt wheel (3) sufficiently far to the side so that the toothed belt (1) makes contact with the retaining ring (2) without being pushed away.
5. Tighten the threaded pins (4).

7 Setting the mechanical stitch adjustment

WARNING



Risk of injury from moving parts!

Crushing possible.

Switch off the machine before you set the mechanical stitch adjustment.

7.1 Setting the stitch regulator gear



Proper setting

The stitch regulator gear is set to 0.

↪ No play on the stitch regulator gear. The plates for the gear are parallel; the frame cannot be moved.



Cover

- Tilt the machine head (📖 p. 18)
- Remove the valve cover (📖 p. 20)



To set the stitch regulator gear:

1. Switch off the machine.
2. Remove the lower cover on the side.

Fig. 19: Setting the mechanical stitch adjustment (1)

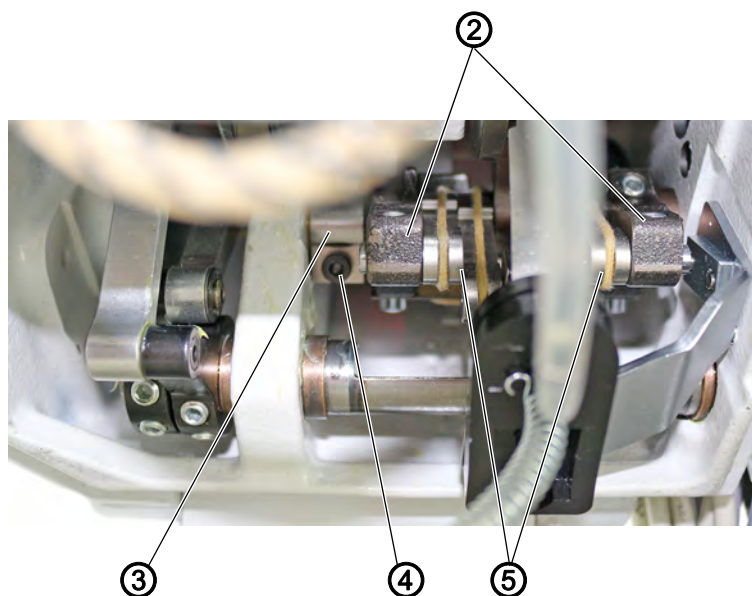


(1) - Tension spring



3. Remove the tension spring (1).

Fig. 20: Setting the mechanical stitch adjustment (2)

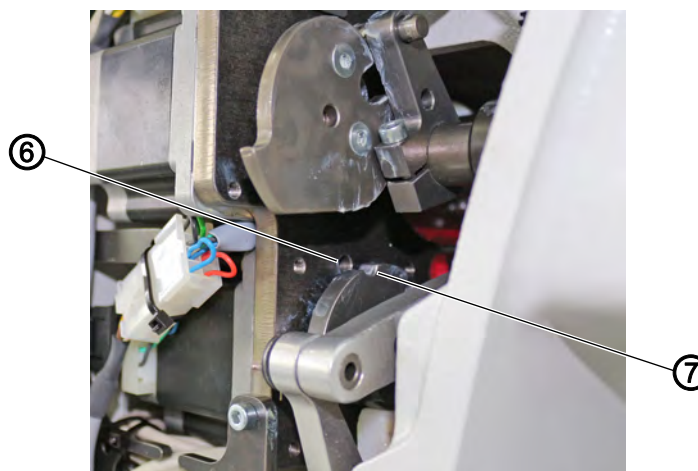


- | | |
|--|---|
| (2) - Frame of the stitch regulator gear | (4) - Screw |
| (3) - Lever | (5) - Plates of the stitch regulator gear |



4. Loosen the screw (4).

Fig. 21: Setting the mechanical stitch adjustment (3)

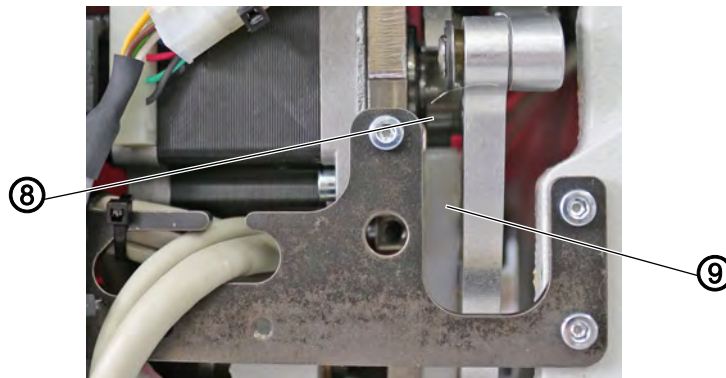


- | | |
|------------|--------------|
| (6) - Hole | (7) - Recess |
|------------|--------------|



5. Line up the hole (6) with the recess (7).
6. Insert a locking pin (Ø 5 mm) into hole (6) and recess (7).
7. Manually position the plates (5) so that they are parallel.

Fig. 22: Setting the mechanical stitch adjustment (4)



(8) - Curve

(9) - Plastic track



8. Set the lever (3) so that the white plastic track (9) abuts on the control cam (8) without play.
9. Verify that the plates (5) are still parallel to one another.
10. Tighten the screw (4).
11. Attach the tension spring (1).
- ↙ Next, pull the lever with the plastic track (9) through the spring of the stitch regulator gear and into the stop of the control cam (8).
12. Check whether the plates (5) are still parallel; if not, repeat the setting.

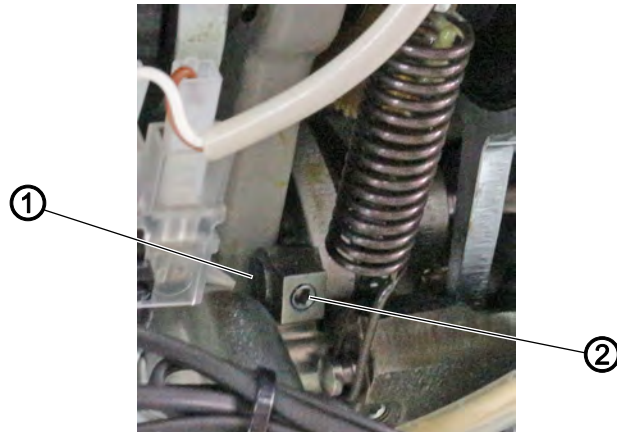
7.2 Setting the eccentric for the forward and backward stitches



Proper setting

The forward and backward stitches are the same length. As a test, sew a seam forward on a sheet of paper, stop, and sew a seam backward. The insertions of the forward and backward stitches have to lie within one another.

Fig. 23: Setting the eccentric for the forward and backward stitches



(1) - Eccentric


(2) - Threaded pin



Proper setting

The slot of the eccentric (3) is flush with the threaded pin (1).



The values for the forward and backward stitches are calibrated at the OP3000 control panel ( p. 129).

8 Setting the feed dog

WARNING



Risk of injury from moving parts!

Crushing possible.

Move the machine into the service routine before setting the feed dog.

The position and the movement of the feed dog and needle bar have to be coordinated such that the needle pierces exactly in the center of the needle hole of the feed dog.



Order

First, check the following setting:

- Needle bar linkage (p. 42)
- A straight and undamaged needle has been inserted (*Operating Instructions*)

8.1 Setting the feed dog position



Proper setting

When the stitch length is set to **0**, the needle pierces exactly in the center of the needle hole and the feed dog is exactly in the center of the throat plate cutout, both sideways and in the sewing direction.

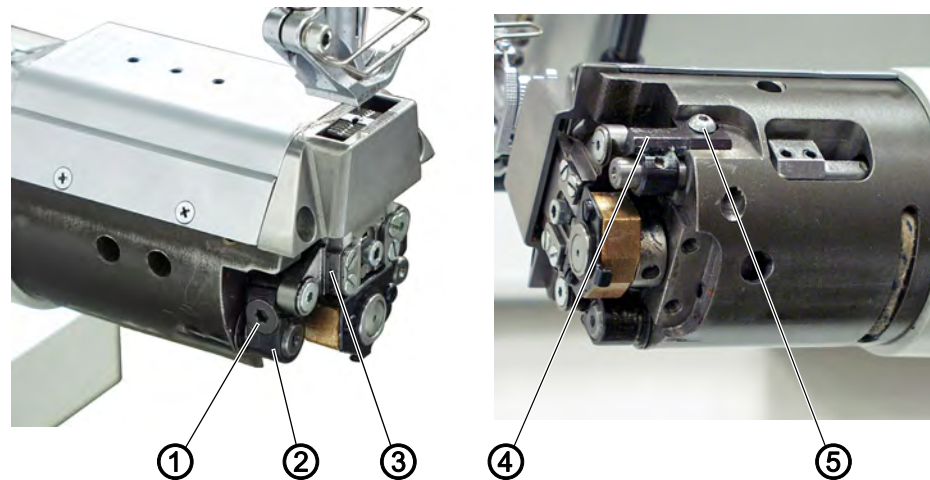


Information

For minimal deviations, it suffices to move the feed dog on the carrier (p. 37).

Moving the feed dog

Fig. 24: Moving the feed dog




(1) - Screw
(2) - Lever
(3) - Feed dog carrier

(4) - Stroke eccentric
(5) - Screw




To move the feed dog:

1. Execute the service routine *Feed dog > PosToNeedle* ( p. 14).

↳ The software is used to define the necessary presets on the machine.



2. Disassemble the throat plate ( p. 22).

3. Loosen screws (1) and (5).

4. Loosen the threaded pins on the stroke eccentric (4).

5. Move the feed dog carrier (3).

Place the removed throat plate next to it as an aid for orientation so that the feed dog can be screwed on straight.

6. Tighten screws (1) and (5).

7. Finish the service routine.



8.2 Setting the feed dog movement

The feed dog moves in an elliptical cycle. To align this correctly, the feed movement, the stroke height, and the stroke movement of the feed dog all have to be set.



Order

First, check the following setting:

- Feed dog position (📖 p. 36)

8.2.1 Setting the feed dog feed movement



Proper setting

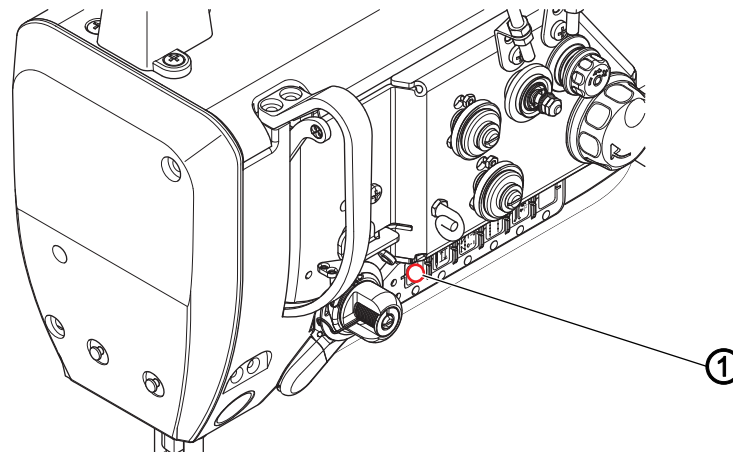
At a handwheel position of 180°, the feed dog should stop when the **Manual bartack** button (1) is pressed down at maximum stitch length.



To set the feed dog feed movement:

1. Execute the service routine *Feed dog > Movement* (📖 p. 14).
↳ The software is used to define the necessary presets on the machine.

Fig. 25: Setting the feed dog feed movement (1)

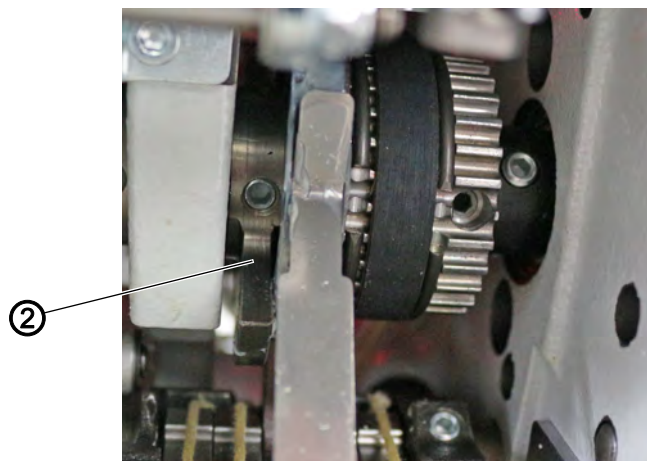


(1) - Manual bartack button



2. Check if the sewing drive is at 180°.
3. If needed, use the handwheel to correct the position manually.
4. Use the **Manual bartack** button (1) to check if the feed dog is at a standstill.
5. Adjust if necessary.
6. Tilt the machine head (📖 p. 17).

Fig. 26: Setting the feed dog feed movement (2)



(2) - Pusher eccentric



7. Loosen the threaded pins on the pusher eccentric (2).
8. Press the **Manual bartack** button (1) and observe the feed dog and needle in the process.
9. Turn the pusher eccentric (2) so that feed dog and needle no longer move when the **Manual bartack** button (1) is pressed.
10. Tighten the threaded pins on the pusher eccentric (2).



11. Finish the service routine.

8.2.2 Setting the feed dog height at top dead center

The feed dog reaches the maximum stroke height at top dead center.



Proper setting

Place the feed dog in the uppermost position by turning the handwheel.

↳ The upper edge of the feed dog protrudes 0.6 - 1 mm above the throat plate.



To set the feed dog height at top dead center:

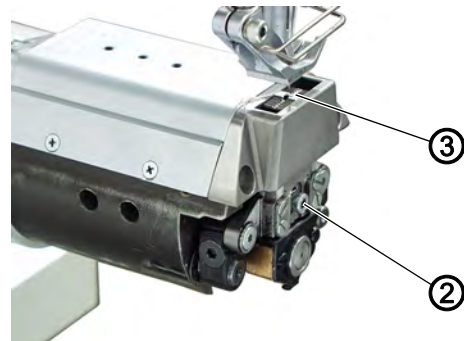
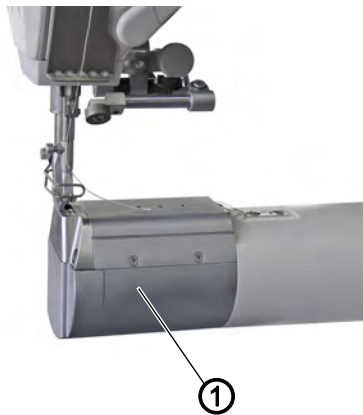
1. Execute the service routine *Feed dog > Movement* (📖 p. 14).

↳ The software is used to define the necessary presets on the machine.



2. Turn the handwheel until the feed dog is at its highest position.

Fig. 27: Setting the feed dog height at top dead center



(1) - Free arm cover
(2) - Screw

(3) - Feed dog



3. Remove the free arm cover (1).

4. Loosen the screw (2).

5. Move the feed dog (3) until it protrudes 0.6 - 1 mm from the throat plate.

6. Tighten the screw (2).



7. Finish the service routine.

8.2.3 Setting the feed dog stroke movement




Order

First, check the following setting:

- Feed dog height ( p. 40)



To set the feed dog stroke movement:

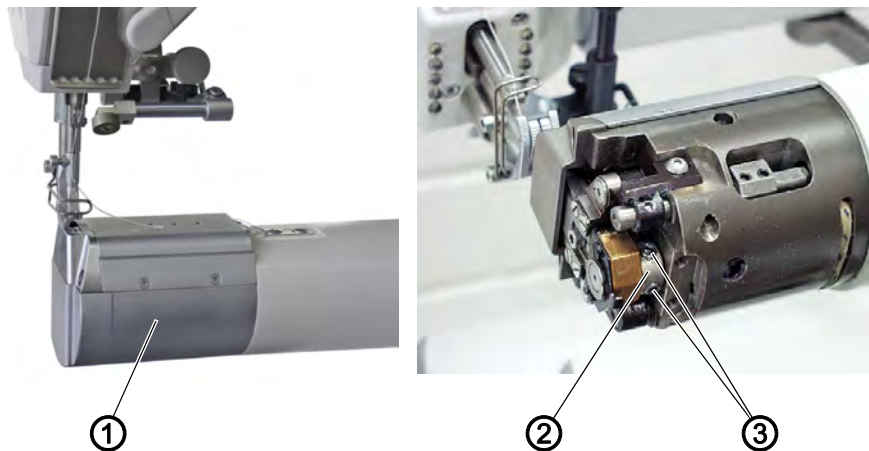
1. Execute the service routine *Feed dog > Movement* ( p. 14).

↳ The software is used to define the necessary presets on the machine.



2. Tilt the machine head ( p. 17).

Fig. 28: Setting the feed dog stroke movement



- (1) - Free arm cover
(2) - Stroke eccentric

- (3) - Threaded pins



3. Remove the free arm cover (1).
4. Loosen the threaded pins (3).
5. Move the handwheel into the 90° position.
6. Turn the stroke eccentric (2) such that the upper edge of the feed dog is at the same height as the upper edge of the throat plate during the upward movement.
7. Tighten the threaded pins (3).
8. Finish the service routine.



9 Aligning the needle bar linkage

WARNING



Risk of injury from moving parts!


Crushing possible.

Move the machine into the service routine before aligning the needle bar linkage.



Order

First, check the following setting:

- A straight and undamaged needle has been inserted ( *Operating Instructions*)

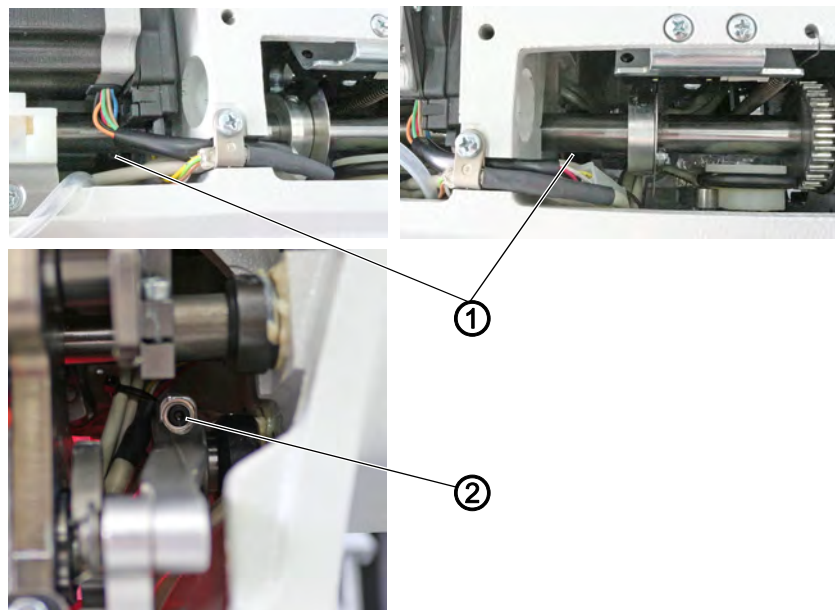


Proper setting

If the stitch length is **0**, the needle pierces exactly in the center of the needle hole.

9.1 Aligning the needle bar linkage sideways

Fig. 29: Aligning the needle bar linkage sideways (1)





(1) - Threaded pins

(2) - Screw



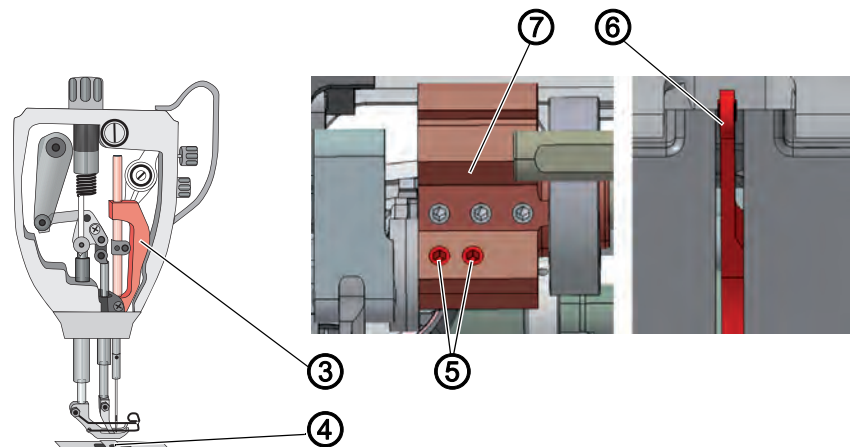
To align the needle bar linkage sideways:

1. Execute the service routine *Needle-Hook > Needlebar* ( p. 14).
 The software is used to define the necessary presets on the machine.



2. Remove the arm cover (📖 p. 18).
3. Remove the head cover (📖 p. 19).
4. Remove the valve cover (📖 p. 20).
5. Loosen the threaded pins (1) on the two adjusting rings of the shaft for the needle bar linkage.
6. Loosen the screw (2).

Fig. 30: Aligning the needle bar linkage sideways (2)



- (3) - Needle bar linkage
 (4) - Throat plate
 (5) - Threaded pins

- (6) - Thread lever
 (7) - Arm shaft crank



7. Loosen both threaded pins (5) on the arm shaft crank (7). Make sure that the threaded pins stay on the surface.
8. Move the needle bar linkage (3) sideways such that the needle pierces exactly in the center of the needle hole (4) for the feed dog.
9. Push the two adjusting rings inwards as far as they will go and tighten them, so that there is no axial play.
10. Tighten the threaded pins (1) on the two adjusting rings.
11. Tighten the screw (2).
12. Align the thread lever (6) exactly in the middle of the slot.
13. Tighten both threaded pins (5) on the arm shaft crank (7).
14. Finish the service routine.



Order

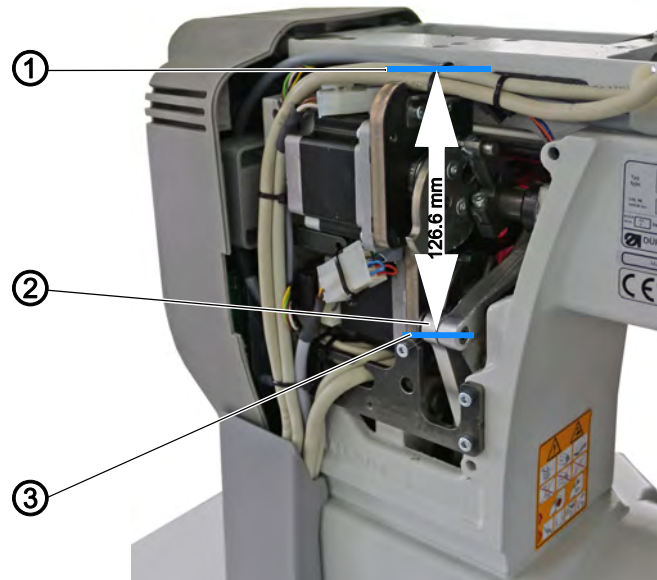


Then, check the following settings:

- Distance between hook and needle (📖 p. 46)
- Loop stroke position (📖 p. 48)

9.2 Aligning the needle bar linkage in the sewing direction

Fig. 31: Aligning the needle bar linkage in the sewing direction (1)



(1) - Arm surface
(2) - Lever

(3) - Center of bolt



Proper setting

The lever (2) is positioned so that the distance from the arm surface (1) to the middle of the bolt (3) is 126.6 mm.

When the stitch length is set to 0, the feed dog is positioned in the center, and the needle pierces exactly in the center of the needle hole.



To align the needle bar linkage in the sewing direction:

1. Execute the service routine *Needle-Hook* > *Needlebar* (📖 p. 14).

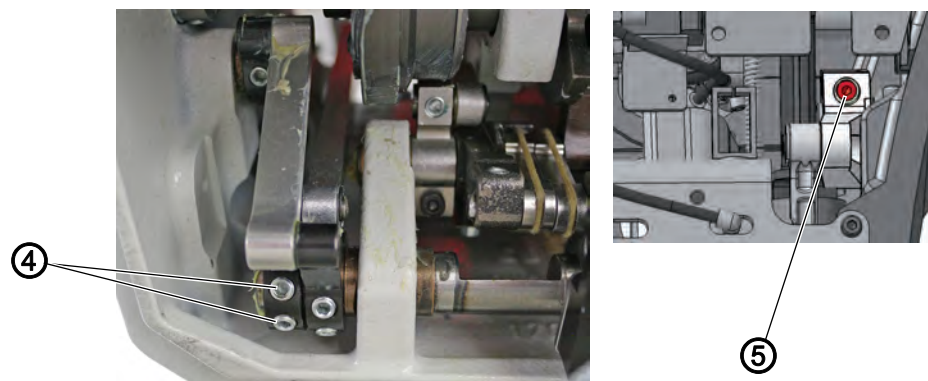
🔧 The software is used to define the necessary presets on the machine.



2. Remove the valve cover (📖 p. 20).

3. Tilt the machine head (📖 p. 17).

Fig. 32: Aligning the needle bar linkage in the sewing direction (2)



(4) - Threaded pins

(5) - Screw



4. Loosen the threaded pins (4).
5. Loosen the screw (5).
6. Position the lever (2).
7. Align the needle such that it pierces exactly in the center of the needle hole.
8. Tighten the threaded pins (4).
9. Tighten the screw (5).
10. Finish the service routine.



Order

Then, check the following settings:

- Loop stroke position ( p. 48)

10 Position of the hook and needle

WARNING



Risk of injury from sharp and moving parts!

Puncture or crushing possible.

Move the machine into the service routine before setting the position of the hook and the needle.

NOTICE

Property damage may occur!

There is a risk of machine damage, needle breakage or damage to the thread if the distance between needle groove and hook tip is incorrect.




Check and, if necessary, readjust the distance to the hook tip after inserting a new needle with a different size.

10.1 Setting the hook side clearance




Order

First, check the following settings:

- A straight and undamaged needle has been inserted ( *Operating Instructions*)
- Needle bar linkage is aligned correctly ( p. 42)
- Loop stroke position ( p. 48)



Proper setting


Machine is locked in place at position **1** ( p. 25).

The distance between the hook tip and the groove of the needle is maximum 0.1 mm.



To set the hook side clearance:

1. Execute the service routine *Needle-Hook > Timing* ( p. 14).

 The software is used to define the necessary presets on the machine.



2. Tilt the machine head ( p. 17).

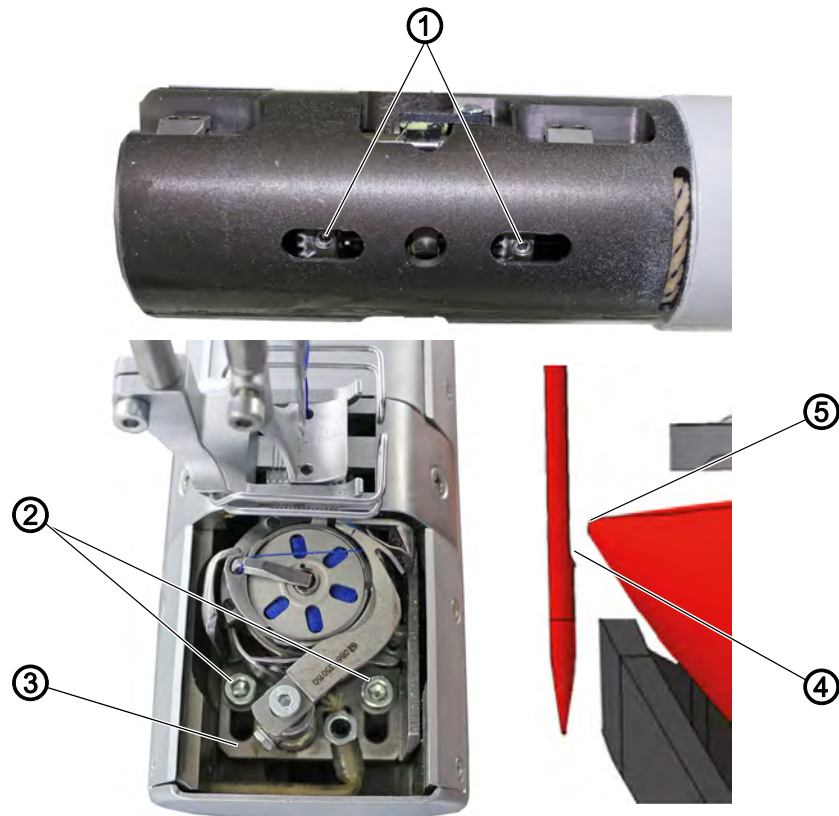
3. Remove the free arm cover.

4. Open the throat plate slide.

5. Disassemble the throat plate.

6. Disassemble the feed dog.

Fig. 33: Setting the hook side clearance



(1) - Threaded pins
 (2) - Screws
 (3) - Hook support

(4) - Needle groove
 (5) - Hook tip




7. Lock the machine in place at position 1 ( p. 25).

8. Loosen the threaded pins (1)

9. Loosen the screws (2).

10. Shift the hook support (3) laterally.

 The distance between the hook tip (5) and the groove of the needle (4) is maximum 0.1 mm.

The hook tip (5) does not touch the needle.

11. Tighten the screws (2).

12. Align the gear wheels relative to the hook shaft.

13. Check the loop stroke position ( p. 48).

14. Tighten the threaded pins (1).

15. Remove the lock.



16. Finish the service routine.



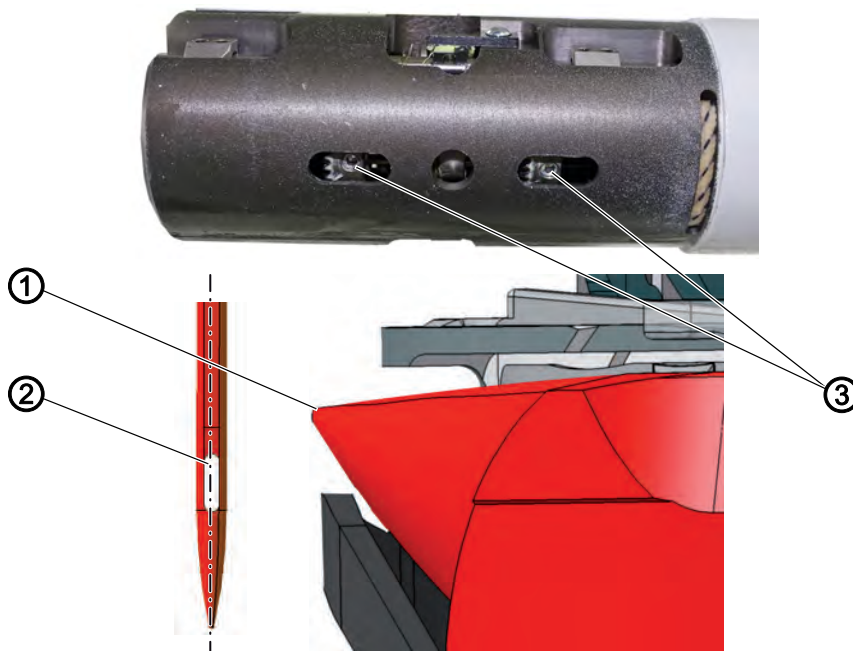
Order

Then, check the following settings:

17. Position of the needle guard ( p. 49)

10.2 Setting the loop stroke position

Fig. 34: Setting the loop stroke position



- (1) - Hook tip
 (2) - Vertical center line of the needle
 (3) - Threaded pins

The loop stroke is the path length from the lower dead center of the needle bar up to the position where the hook tip is exactly on the vertical center line of the groove for the needle.

The loop stroke is precisely 2 mm.



Order

First, check the following settings:

- Needle bar linkage is aligned correctly (📖 p. 42)
- A straight and undamaged needle has been inserted (📖 *Operating Instructions*)



Proper setting

Machine is locked in place at position 1 (📖 p. 25).

The hook tip (1) points exactly to the vertical center line of the needle (2).







To set the loop stroke position:

1. Execute the service routine *Needle-Hook > Timing* (📖 p. 14).

↳ The software is used to define the necessary presets on the machine.



2. Disassemble throat plate, throat plate slide and free arm cover (📖 p. 22).
3. Disassemble the feed dog (📖 p. 23).
4. Lock the machine in place at position 1 (📖 p. 25).

5. Tilt the machine head ( p. 17).
6. Loosen the threaded pins (3).
7. Turn the hook such that the hook tip (1) points exactly to the vertical center line of the needle (2).
The hook tip (1) is in the lower third of the needle groove.
8. Tighten the gear wheel.
-  The threaded pins (3) clamp the gear wheel.
9. Tighten the threaded pins (3).
10. Remove the lock.
11. Assemble the feed dog ( p. 23).
12. Assemble throat plate, throat plate slide and free arm cover ( p. 22).
13. Finish the service routine.







10.3 Setting the needle guard

The needle guard prevents contact between needle and hook tip.



Order

First, check the following settings:

- Loop stroke position ( p. 48)
- Hook side clearance ( p. 46)
- Needle bar height ( p. 50)
- A straight and undamaged needle has been inserted ( *Operating Instructions*)



Proper setting

Machine is locked in place at position **1** ( p. 25).

The needle guard pushes the needle away just enough so that it cannot be touched by the hook tip.



To set the needle guard:






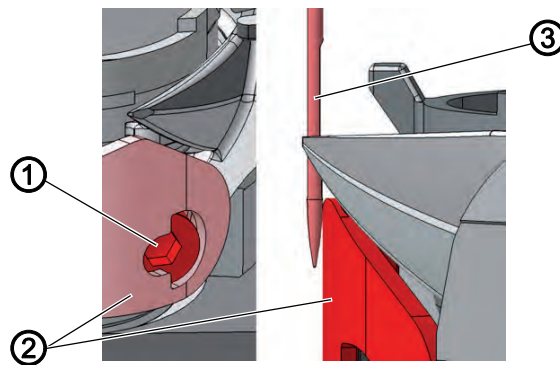
1. Execute the service routine *Needle-Hook > Timing* ( p. 14).
 The software is used to define the necessary presettings on the machine.
2. Disassemble the throat plate ( p. 22).
3. Disassemble the feed dog ( p. 23).
4. Disassemble the throat plate slide ( p. 21).



Fig. 35: Setting the needle guard



(1) - Screw

(2) - Needle guard

(3) - Needle



5. Turn the handwheel and check how far the needle guard (2) pushes the needle away.
6. Turn the screw (1) such that the needle guard (2) just pushes the needle (3) far away enough so that it cannot be touched by the hook tip:
 - Pushing away more strongly: turn counterclockwise
 - Pushing away less strongly: turn clockwise



7. Finish the service routine.

10.4 Setting the needle bar height



Order

First, check the following settings:

- Loop stroke position (p. 48)
- A straight and undamaged needle has been inserted (*Operating Instructions*)



Proper setting

Machine is locked in place at position **1** (p. 25).

The hook tip is level with the lower third of the groove on the needle.

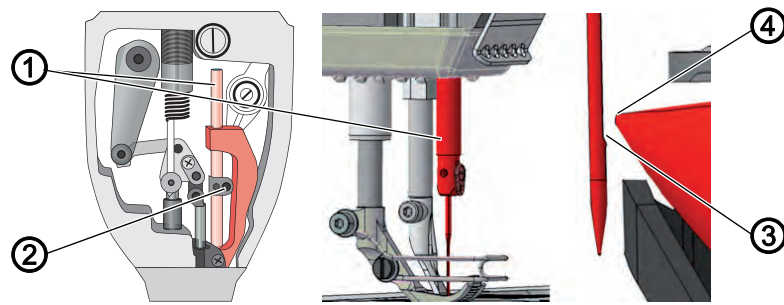


Disturbance

Disturbances caused by an incorrect needle bar height

- Damage to the hook tip
- Jamming of the needle thread
- Missing stitches
- Thread breaking
- Needle breakage

Fig. 36: Setting the needle bar height



(1) - Needle bar
(2) - Screw

(3) - Needle groove
(4) - Hook tip



To set the needle bar height:

1. Execute the service routine *Needle-Hook* > Needlebar (📖 p. 14).

↳ The software is used to define the necessary presets on the machine.



2. Lock the machine in place at position **1** (📖 p. 25).

3. Remove the head cover (📖 p. 19).

4. Loosen the screw (2) of the needle bar (1).

5. Move the height of the needle bar (1) such that the hook tip (4) is in the middle of the lower third of the groove for the needle. When doing so, take care not to twist the needle to the side. The groove (3) must face toward the hook.

6. Tighten the screw (2) for the needle bar (1).



7. Finish the service routine.

11 Setting the bobbin case lifter

WARNING

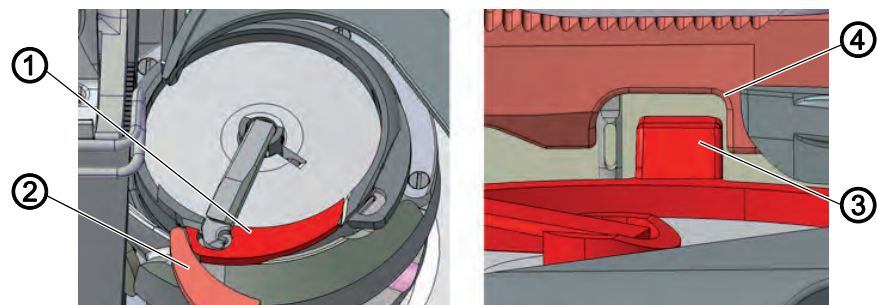


Risk of injury from moving parts!

Crushing possible.

Switch off the machine before setting the bobbin case lifter.

Fig. 37: Setting the bobbin case lifter



(1) - Bobbin case
(2) - Bobbin case lifter

(3) - Nose of the bobbin case
(4) - Slot in the throat plate

The hook pulls the needle thread through between the nose of the bobbin case (3) and the slot in the throat plate (4).

The bobbin case lifter (2) now pushes the bobbin case (1) away so that a gap appears for the thread.

If the hook tip is located below the bobbin case lifter (2), the bobbin case lifter (2) must open so that the thread can also slide past in that position.

So that the thread can slip through without a problem, the width of the lifting gap and the timing of opening have to be set.



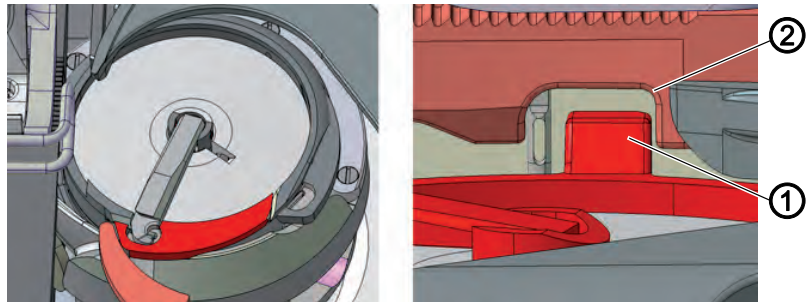
Disturbance

Disturbances caused by an incorrect setting of the bobbin case lifter:

- Thread breaking
- Formation of loops on the bottom side of the seam
- Loud machine noise

Setting the lifting gap

Fig. 38: Setting the lifting gap (1)



(1) - Nose of the bobbin case

(2) - Slot in the throat plate

Always check the width of the lifting gap after making changes to the needle thread size. The correct width of the lifting gap depends on the thickness of the needle thread.



Proper setting

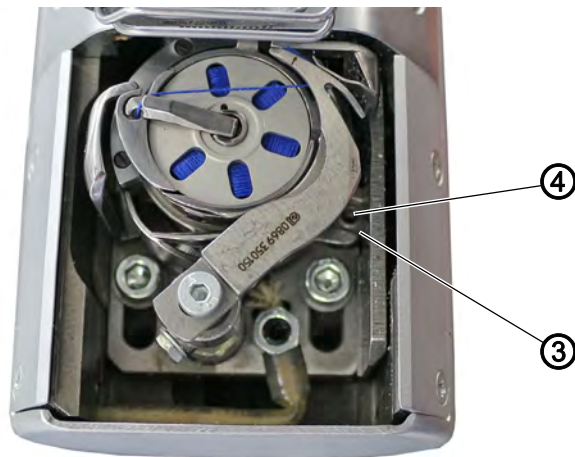
The needle thread slides through unobstructed between the nose of the bobbin case (1) and the slot in the throat plate (2).



To set the lifting gap:

1. Open the throat plate slide.

Fig. 39: Setting the lifting gap (2)



(3) - Eccentric

(4) - Screw



2. Loosen the screw (4).
3. Turn the eccentric (3) so that the gap between the nose of the bobbin case (1) and the slot in the throat plate (2) is just large enough to allow the needle thread to slip through without a problem.



Important

Ensure that the gap is not too big. The middle part of the hook must not swing back and forth, hitting the slot in the throat plate (2).

4. Tighten the screw (4).

12 Sewing Feet

WARNING



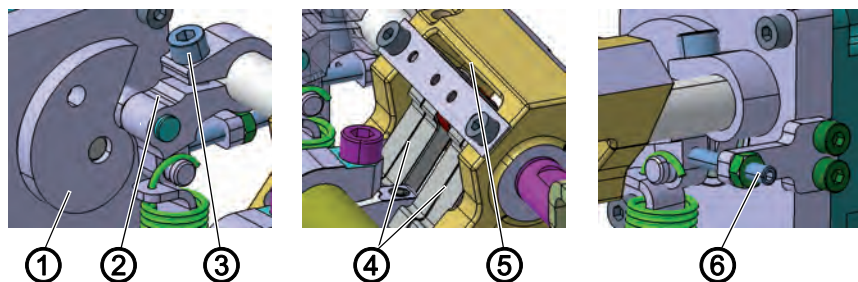
Risk of injury from sharp and moving parts!

Puncture or crushing possible.

Move the machine into the service routine before setting the sewing feet.

12.1 Setting the sewing foot lifting gear

Fig. 40: Setting the sewing foot lifting gear




(1) - Curve
(2) - Lever
(3) - Screw

(4) - Plates
(5) - Gear
(6) - Threaded pin

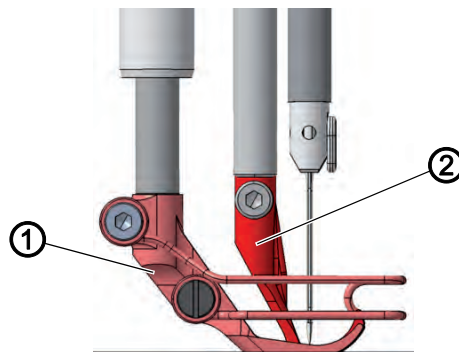


To set the lifting gear of the sewing foot:

1. Switch off the machine.
2. Remove the arm cover ( p. 18).
3. Loosen screw (3) and threaded pin (6).
4. Press the lever (2) with the roller into the stop of the control cam (1).
5. Place the plates in the gear (5) in zero position and tighten the roller lever with screw (3).
6. Set the threaded pin (6) against the roller lever in the gear's zero position.

12.2 Setting an even sewing foot stroke

Fig. 41: Setting an even sewing foot stroke (1)



(1) - Presser foot

(2) - Feeding foot




Proper setting

For sewing foot stroke **3**, the presser foot (1) and feeding foot (2) are raised by the same height.



To set an even sewing foot stroke:

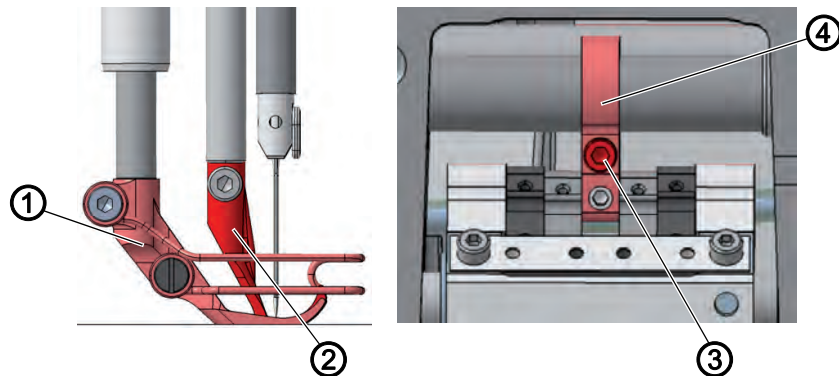
1. Execute the service routine *Stroke > Equal Stroke* ( p. 14).

↳ The software is used to define the necessary presets on the machine.



2. Remove the arm cover ( p. 18).

Fig. 42: Setting the sewing foot stroke (2)



(1) - Presser foot

(2) - Feeding foot

(3) - Screw

(4) - Lever



3. Loosen the screw (3).

4. Lower the feeding foot (2) to a height of 3 mm above the throat plate.

5. Tighten the screw (3).

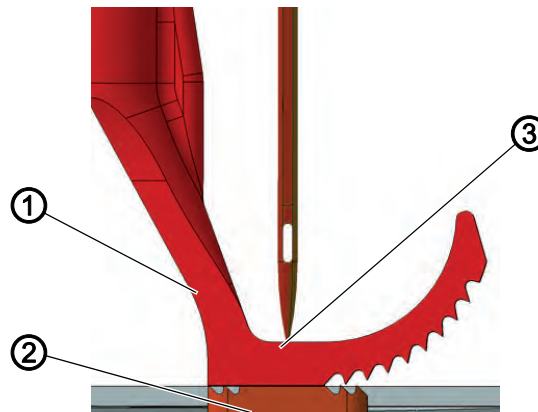
6. Check whether the presser foot (1) and the feeding foot (2) are raised to the same height.
If not, correct the setting.



7. Finish the service routine.

12.3 Setting the stroke movement for the feeding foot

Fig. 43: Setting the stroke movement for the feeding foot (1)



(1) - Feeding foot
(2) - Feed dog

(3) - Needle tip



Order

First, check the following settings:

- Feed dog movement (📖 p. 38)
- Sewing foot stroke (📖 p. 55)



Proper setting

The feeding foot (1) touches down exactly on the feed dog (2) when the downward movement of the needle tip (3) reaches the upper edge of the feeding foot. This will occur when the handwheel is in the 95° position.

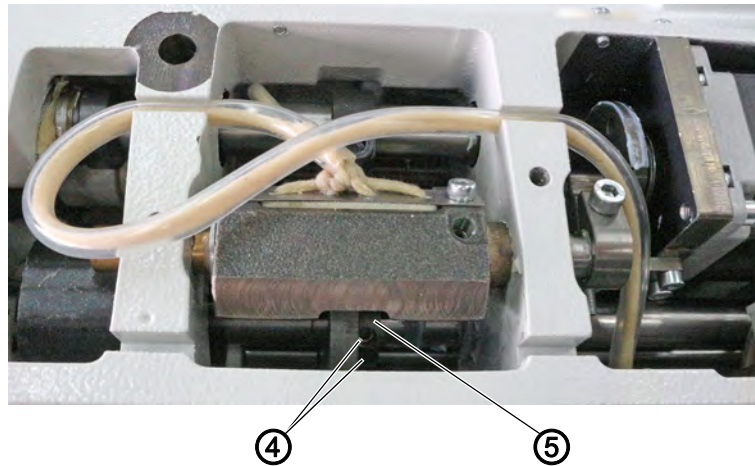


To set the stroke movement for the feeding foot:

1. Execute the service routine *Stroke > Feed Move* (📖 p. 14).
 ↳ The software is used to define the necessary presets on the machine.
2. Remove the arm cover (📖 p. 18).



Fig. 44: Setting the stroke movement for the feeding foot (2)



(4) - Threaded pins

(5) - Stroke eccentric



3. Loosen the threaded pins (4).

4. Turn the stroke eccentric (5) such that the feeding foot touches down on the feed dog when the handwheel is in the 95° position.



Important

Ensure not to move the stroke eccentric (5) laterally on the axle.

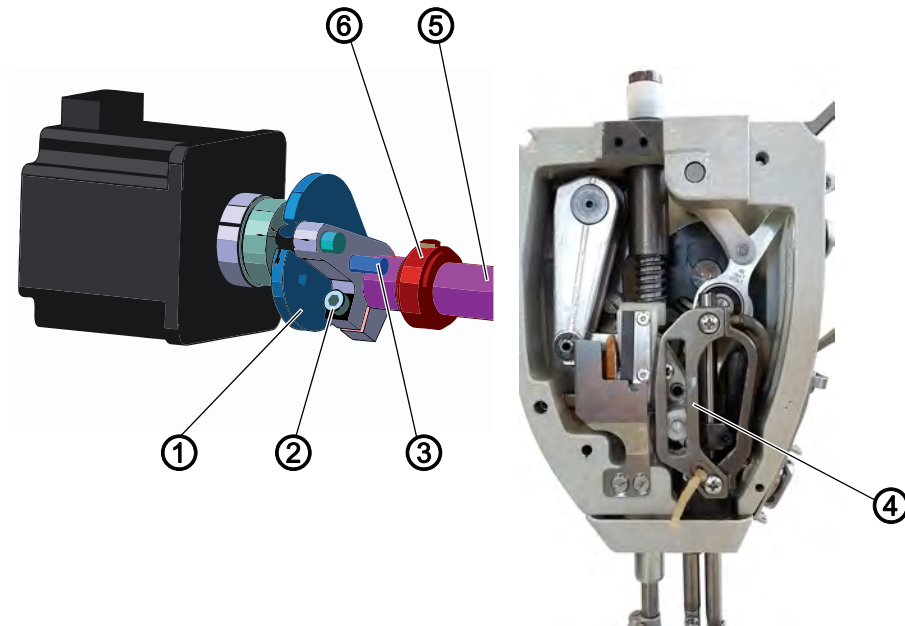
5. Tighten the threaded pins (4).



6. Finish the service routine.

12.4 Setting the sewing foot pressure and sewing foot lift

Fig. 45: Setting the sewing foot pressure and sewing foot lift



- | | |
|---|----------------------|
| (1) - Curve | (4) - Guide |
| (2) - Screw | (5) - Setting shaft |
| (3) - Cylinder pin 5m 6x24
(part number 9301 102221) | (6) - Adjusting ring |



To set the sewing foot pressure and the sewing foot lift:

1. Switch off the machine.
2. Check the machine for stiff movement in the following places:
 - Guide (4)
 - Setting shaft (5)
 - Adjusting ring (6)
3. Eliminate stiff movement where necessary.
4. Place a 5 mm distance piece (e.g. locking pin 0367 105950) between the presser foot and throat plate.
5. Loosen the screw (2).
6. Turn the control cam (1) to the position indicated above.
7. Peg it in place with the cylinder pin (3).
8. Tighten the screw (2).

Sewing foot pressure

The sewing foot pressure is set via the program parameters.
The correct sewing foot pressure depends on the sewing material:

- Lower pressure for soft materials, e.g. fabric
- Higher pressure for durable materials, e.g. leather or laminate

**Proper setting**

The sewing material does not slip and is correctly transported.

Sewing foot lift

The sewing foot lift is set via the program parameters.
When the pedal is pressed back halfway, the sewing feet can be raised during sewing, e. g. to move the sewing material.
When the pedal is pressed completely back, the sewing feet will be raised after the thread is cut so that the sewing material can be removed.

**Proper setting**

The distance between the raised sewing feet and the throat plate is preset to 20 mm on delivery.

13 Adjusting the thread tensioning plate

Preparing the adjustment using the Schmidt MST-2000

Use screw clamps to attach a plain sheet of metal (e.g. 6 mm aluminum) to the tabletop on the left-hand side of the machine.

Set up the thread scale with its suction cup base on the metal plate in such a way that the sewing thread - coming from the thread lever - lines up with thread guides both horizontally and vertically.



Important

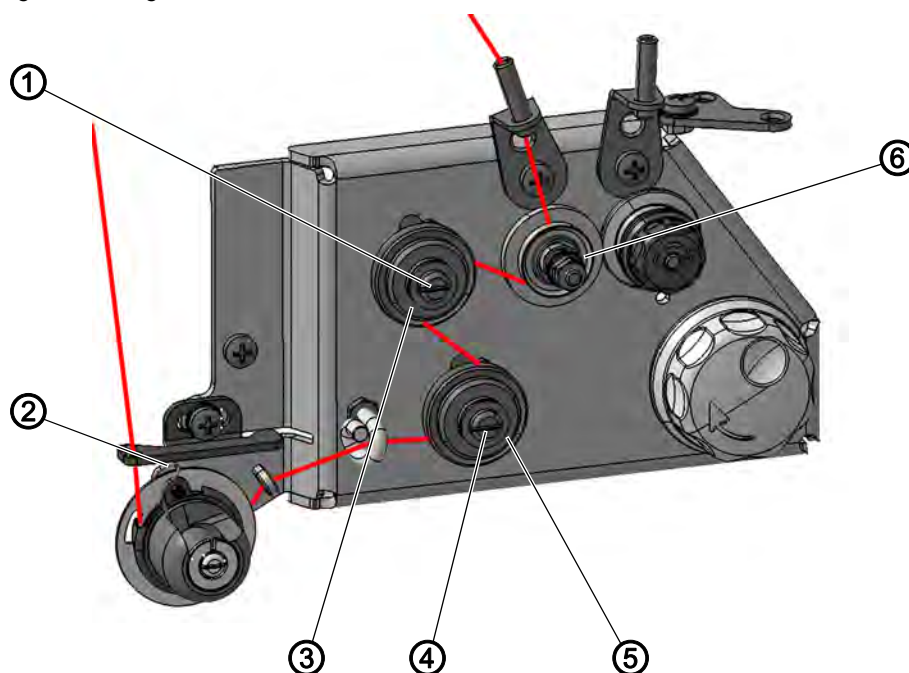
Use a **Serafil 30 black** thread to set the thread tensioning plate.

cw = turn clockwise

ccw = turn counterclockwise

13.1 Setting the machine

Fig. 46: Setting the machine



(1) - Lock screw

(2) - Thread tension spring

(3) - Stop screw

(4) - Lock screw

(5) - Stop screw


(6) - Pre-tensioner



To set the machine:

1. Switch on the machine.



2. Call up the service routine *Service > Settings > Thr.Tens.Top* ( *Service Instructions*).

↪ The software is used to define the necessary presets on the machine.

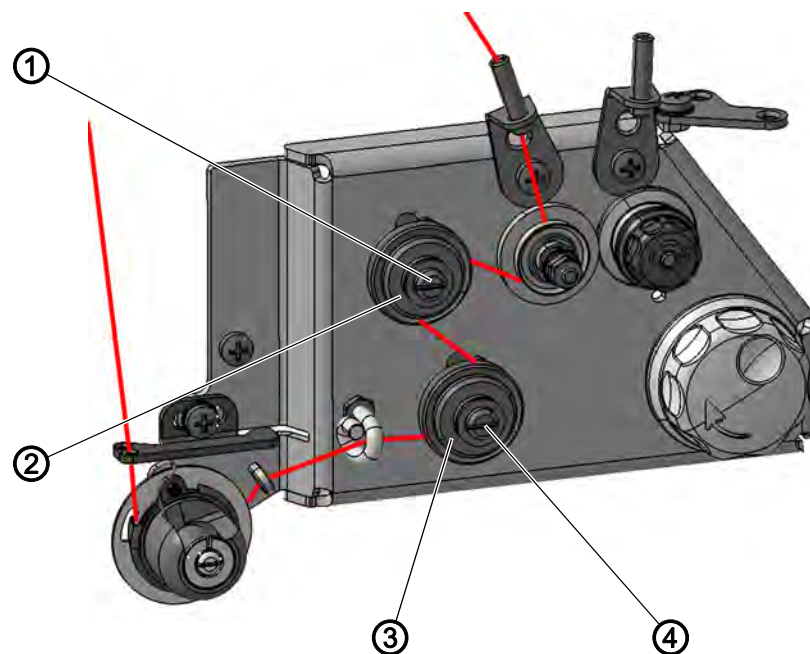


3. Set thread tension level 2 (50%).
 4. Lock the machine in place at position 1 (handwheel position 0°).
 5. Remove the thread tension spring from the operating range (cw).
 6. Loosen lock screws (1) and (4).
 7. Loosen stop screws (3) and (5) (ccw).
 8. Set the pre-tensioner (6) to a tension force of 20 cN.
- ↪ Pretensioning must not significantly impair the thread tension.

13.2 Adjusting the tensioning plate

13.2.1 Adjusting the tensioning plate using the Schmidt MST-2000

Fig. 47: Adjusting the tensioning plate (1)



(1) - Lock screw
(2) - Stop screw

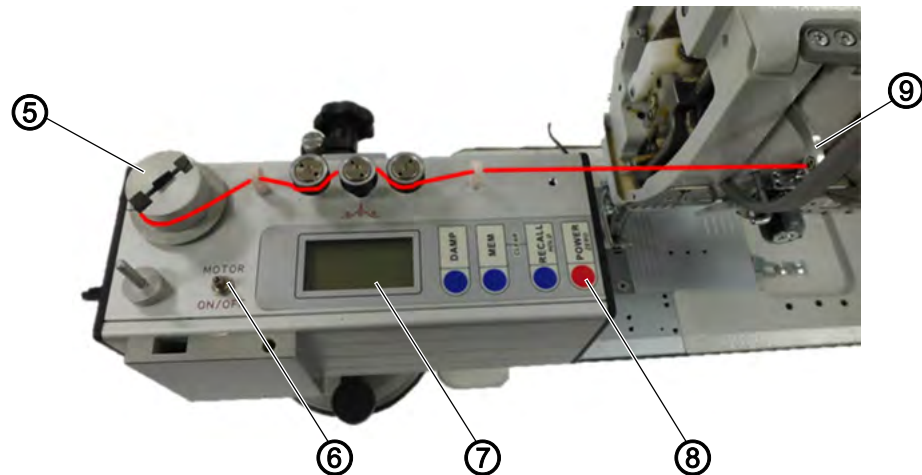
(3) - Stop screw
(4) - Lock screw



To adjust the tensioning plate:

1. Insert the needle thread as shown above.

Fig. 48: Adjusting the tensioning plate (2)



- | | |
|--------------------|--------------------|
| (5) - Winder | (8) - POWER |
| (6) - Motor ON/OFF | (9) - Thread lever |
| (7) - Display | |



2. Feed the needle thread through the thread lever (9) and the thread guides of the thread scale and clamp it at the winder (5).
3. Press POWER (8) to activate the thread scale.
4. Press Motor ON/OFF (6) to start the winder (5).
5. Screw in the stop screw (2) (cw) until the tension increases, peaks and decreases again.
- ↳ The tension value is indicated on the display (7).
6. When the tension drops while you are screwing in (cw) the stopscrew (2), set the tension to 450 ± 10 cN (average value).
7. Secure the stop screw (2) using the lock screw (1).



Important

To prevent it from turning while it is being secured, use a 10 mm wrench to hold the stop screw (2) in place.

8. Check the thread tension and readjust it if necessary.
9. Screw in the stop screw (3) (cw) until the tension increases, peaks and decreases again.
- ↳ The tension value is indicated on the display (7).
10. When the tension drops while you are screwing in (cw) the stopscrew (3), set the tension to 720 ± 50 cN (average value).
11. Secure the stop screw (3) using the lock screw (4).



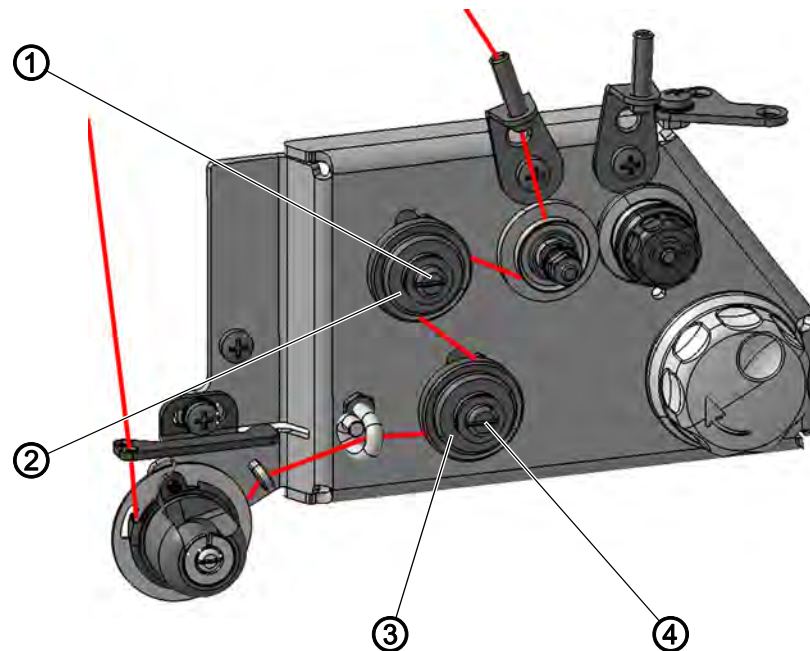
Important

To prevent it from turning while it is being secured, use a 10 mm wrench to hold the stop screw (3) in place.

12. Check the thread tension and readjust it if necessary.

13.2.2 Adjusting the tensioning plate using a mechanical thread scale

Fig. 49: Adjusting the tensioning plate (1)



(1) - Lock screw
(2) - Stop screw

(3) - Stop screw
(4) - Lock screw



To adjust the tensioning plate:

1. Insert the needle thread as shown above.
2. Feed the needle thread through the thread lever and the thread scale.
3. Pull the thread to the left at a **consistent rate of speed**.



Important

The thread must be pulled off **horizontally**.

4. Screw in the stop screw (2) (cw) until the tension increases, peaks and decreases again.
5. When the tension drops while you are screwing in (cw) the stop screw (2), set the tension to 450 ± 10 cN.
6. Secure the stop screw (2) using the lock screw (1).



Important

To prevent it from turning while it is being secured, use a 10 mm wrench to hold the stop screw (2) in place.

7. Check the thread tension and readjust it if necessary.
8. Screw in the stop screw (3) (cw) until the tension increases, peaks and decreases again.
9. When the tension drops while you are screwing in (cw) the stop screw (3), set the tension to 720 ± 50 cN.
10. Secure the stop screw (3) using the lock screw (4).

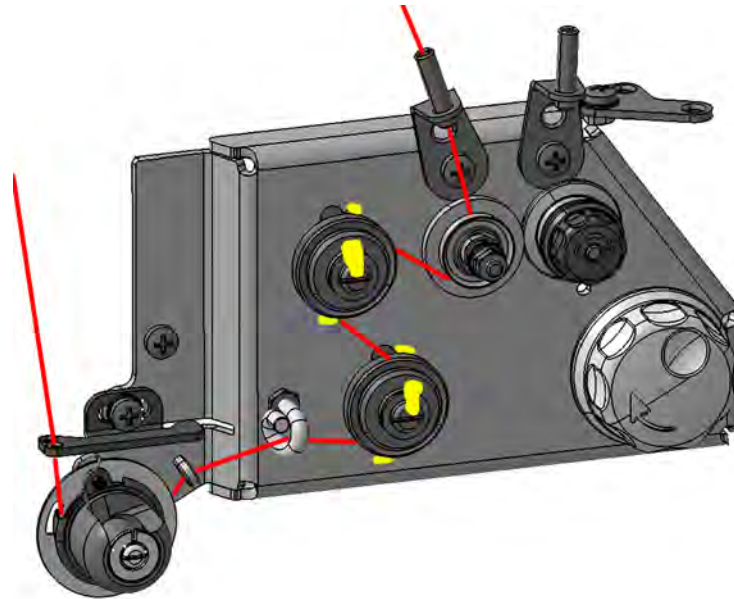
**Important**

To prevent it from turning while it is being secured, use a 10 mm wrench to hold the stop screw (3) in place.

11. Check the thread tension and readjust it if necessary.

13.3 Checking the adjusted thread tension**13.3.1 Checking the adjusted thread tension using the Schmidt MST-2000**

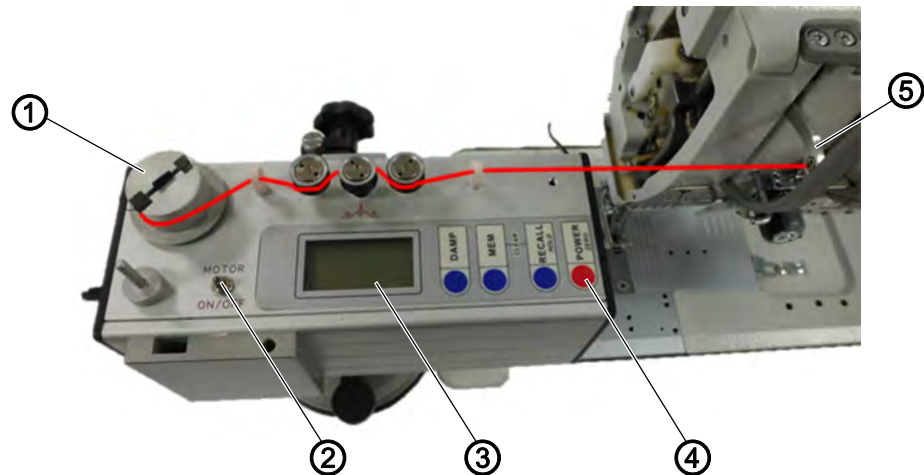
Fig. 50: Checking the adjusted thread tension (1)



To check the adjusted thread tension:

1. Insert the needle thread as shown above.

Fig. 51: Checking the adjusted thread tension (2)



- | | |
|--------------------|--------------------|
| (1) - Winder | (4) - POWER |
| (2) - Motor ON/OFF | (5) - Thread lever |
| (3) - Display | |



2. Feed the needle thread through the thread lever (5) and the thread guides of the thread scale and clamp it at the winder (1).
3. Press POWER (4) to activate the thread scale and the display (3).
4. Press Motor ON/OFF (2) to activate the motor of the thread scale.



5. Set the thread tension to level 1 (**1%**) at the control panel.
 - ↙ The thread scale should show a tension of 190 ± 12 cN (average value).
6. Set the thread tension to level 2 (**50%**) at the control panel.
 - ↙ The thread scale should show a tension of 720 ± 50 cN (average value).
7. Set the thread tension to level 3 (**99%**) at the control panel.
 - ↙ The thread scale should show a tension of 1600 ± 100 cN (average value).



Important

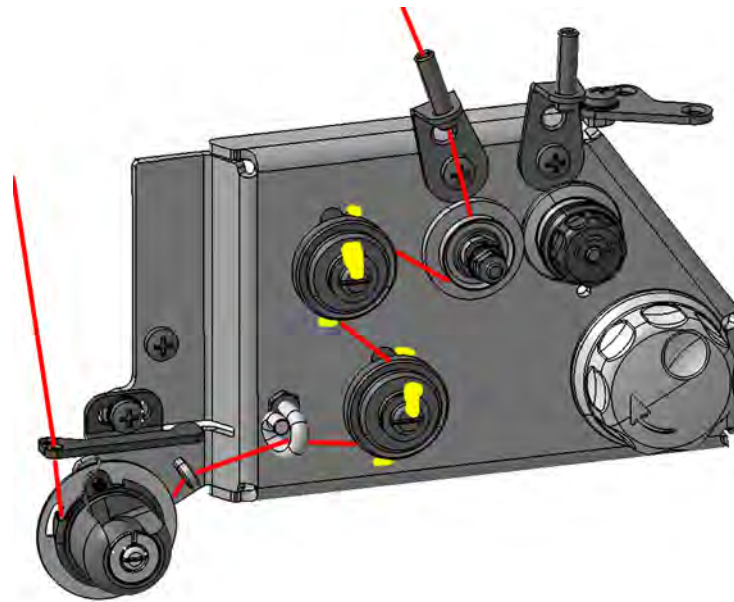
After completing the settings, you need to seal the magnets and the 4 nuts that keep the magnets in place at the thread tensioning plate with sealing wax (see figure 5).



8. Remove the locking peg from the machine.
9. Remove the needle thread from the thread scale.
10. Remove the thread scale.
11. Set the thread tension spring back to sewing operation (ccw, *Service Instructions*, chapter **Setting the thread tension spring**).
12. Insert the needle thread.
13. Finish the service routine.
 - ↙ The machine is ready for sewing.

13.3.2 Checking the adjusted thread tension using a mechanical thread scale

Fig. 52: Checking the adjusted thread tension (1)



To check the adjusted thread tension:

1. Insert the needle thread as shown above.
2. Feed the needle thread through the thread lever and the thread scale.
3. Pull the thread to the left at a **consistent rate of speed**.



Important

The thread must be pulled off **horizontally**.



4. Set the thread tension to level 1 (**1%**) at the control panel.
 - ↳ The thread scale should show a tension of 190 ± 12 cN.
5. Set the thread tension to level 2 (**50%**) at the control panel.
 - ↳ The thread scale should show a tension of 720 ± 50 cN.
6. Set the thread tension to level 3 (**99%**) at the control panel.
 - ↳ The thread scale should show a tension of 1600 ± 100 cN.




Important

After completing the settings, you need to seal the magnets and the 4 nuts that keep the magnets in place at the thread tensioning plate with sealing wax (see figure 7).



7. Remove the locking peg from the machine.
8. Remove the needle thread from the thread scale.
9. Remove the thread scale.

10. Set the thread tension spring back to sewing operation (ccw,  *Service Instructions*, chapter **Setting the thread tension spring**).
 11. Insert the needle thread.
 12. Finish the service routine.
- ↪ The machine is ready for sewing.

14 Setting the needle thread tension

CAUTION



Risk of injury from sharp and moving parts!

Puncture or crushing possible.

Switch off the machine before setting the needle thread tension.

14.1 Setting the needle thread regulator

The needle thread regulator determines the tension applied to guide the needle thread around the hook. The required tension depends on the thickness of the sewing material, thread strength, and stitch length.

- Lower needle thread tension: thin sewing material, low thread strengths
- Higher needle thread tension: thick sewing material, high thread strengths



Proper setting

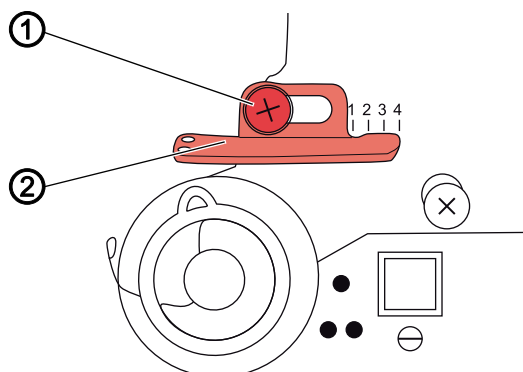
The loop of the needle thread slides at low tension over the thickest point of the hook, without forming loops or snagging.



To set the needle thread tension:

1. Open the hook cover.

Fig. 53: Setting the needle thread regulator



(1) - Screw

(2) - Needle thread regulator

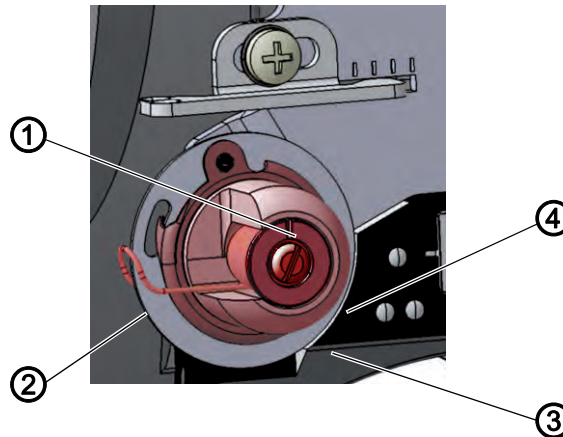


2. Turn the handwheel and observe the cycle of the needle thread around the hook.
3. Loosen the screw (1).

4. Move the needle thread regulator (2)
 - Reduce needle thread tension: slide to the left
 - Increase needle thread tension: slide to the right
5. Tighten the screw (1).

14.2 Setting the thread tension spring

Fig. 54: Setting the thread tension spring



(1) - Stop collar
(2) - Spring

(3) - Tension disk
(4) - Screw

The thread tension spring holds the needle thread under tension from the top dead center of the thread lever up to the point when the needle eye plunges into the sewing material.



Proper setting

The thread tension spring does not contact the stop until the needle eye has plunged into the sewing material.

The setting for the thread tension spring must be varied according to the sewing material and the required sewing result.



To set the thread tension spring:

1. Loosen the screw (4).
2. Turn the stop collar (1) to set the spring travel.
 - Longer spring travel: turn counterclockwise
 - Shorter spring travel: turn clockwise
3. Turn the tension disk (3) to set the spring tension.
 - Greater spring tension: turn counterclockwise
 - Lower spring tension: turn clockwise




Important

Do not twist the stop collar in doing so.

4. Tighten the screw (4).

14.3 Electronic needle thread tension

The electronic needle thread tension is calibrated in the factory and cannot be changed.

If you have any inquiries about the electronic needle thread tension, please consult **Customer Service** ( p. 155).

15 Winder

WARNING



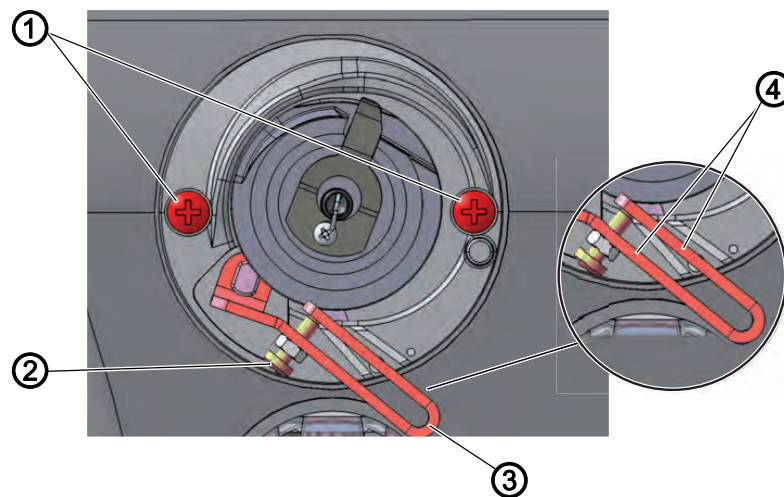
Risk of injury from moving parts!

Crushing possible.

Switch off the machine before setting the winder.

15.1 Setting the winder

Fig. 55: Setting the winder (1)



(1) - Screws
(2) - Screw

(3) - Winder lever
(4) - Shank



Proper setting

The winder wheel runs smoothly and without axial play.

The winding process will stop automatically when the required filling quantity of the bobbin is reached.



To set the winder:

1. Remove the arm cover ( p. 18).

Removing the winder

2. Loosen the screws (1).
3. Remove the winder.

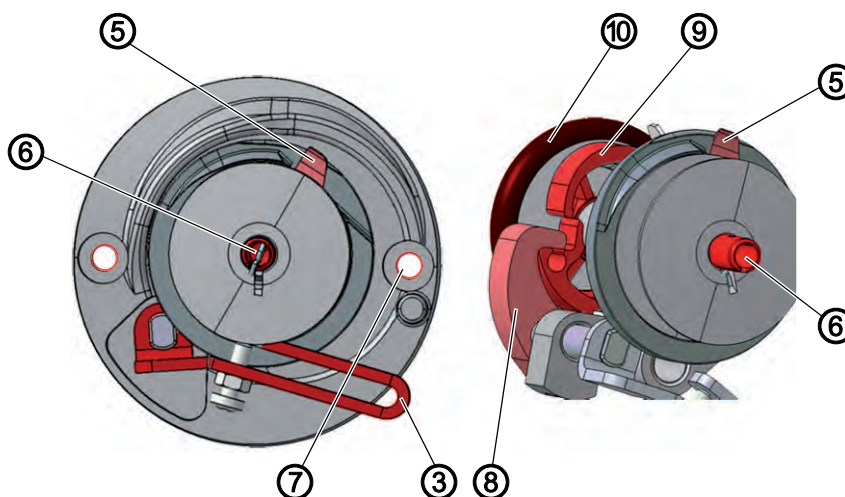
Setting the winder filling quantity

The position of the arms (4) on the winder lever (3) determines the filling quantity:

- **Parallel:** Automatic winding stop at 0.5 mm below the edge of the winder
 - **Closer together:** Automatic stop with larger filling quantity
 - **Further apart from each other:** Automatic stop with smaller filling quantity
4. Turn the screw (2):
 - Arms (4) closer together: turn counterclockwise
 - Arms (4) further apart from each other: turn clockwise
 5. Put the completely filled bobbin onto the winder.
 6. Fold the winder lever (3) upwards as far as it will go to the thread.

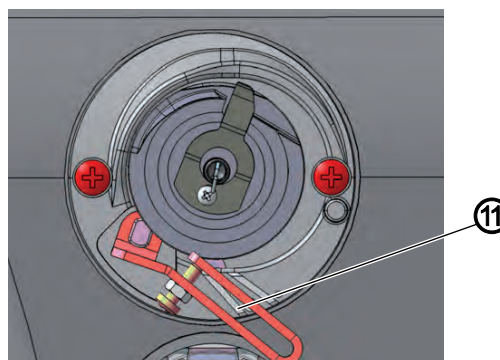
Setting the winder spacing

Fig. 56: Setting the winder (2)



- | | |
|-----------------------------|---------------------|
| (3) - Winder lever | (8) - Block |
| (5) - Thread-pulling knife | (9) - Locking disk |
| (6) - Winder spindle | (10) - Winder wheel |
| (7) - Right-hand screw hole | |

Fig. 57: Setting the winder (3)



- (11) - Marking for XXL hook

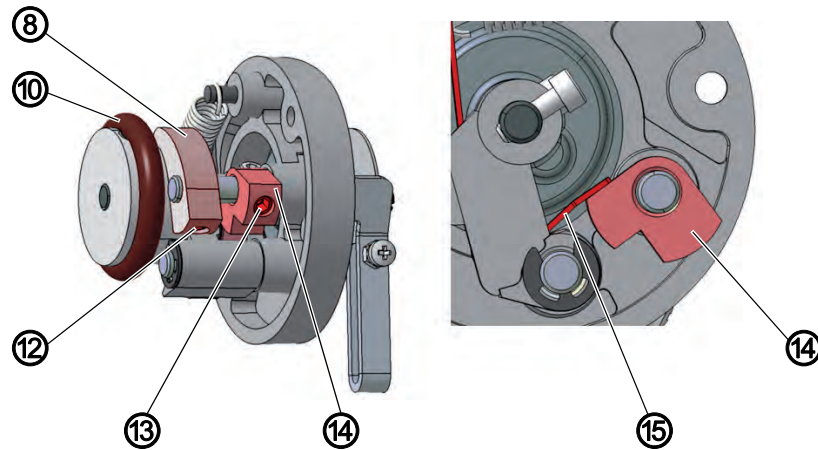


To set the winder spacing:

7. Turn the winder spindle (6) such that the thread-pulling knife (5) is at the top right and is facing the right-hand screw hole (7).
8. Loosen the threaded pin in the block (8).
9. Set the winder lever (3) such that the upper arm is above the marking for the XXL hook (11).
- ↵ The distance between the winder lever and the outer thread on the bobbin is 2 – 3 mm.
10. Set the block (8) such that it is resting against the locking disk (9).
11. Set the block (8) such that its distance to the winder wheel (10) is 0.5 mm.
12. Tighten the threaded pin in the block (8).

Setting the winder run

Fig. 58: Setting the winder (4)



(8) - Block
 (10) - Winder wheel
 (12) - Threaded pin

(13) - Threaded pin
 (14) - Switch cam
 (15) - Leaf spring

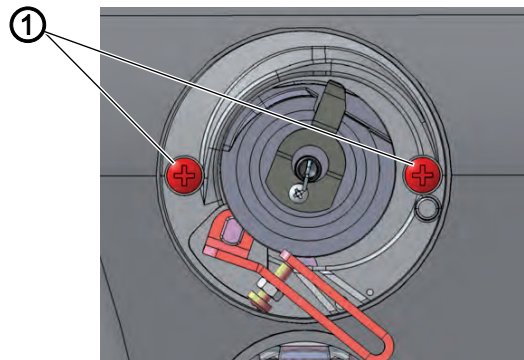


To set the winder run:

13. Loosen the threaded pin (13).
14. Set the switch cam (14) such that it is just contacting the leaf spring (15) when the block (8) has engaged in the locking disk.
15. Set the switch cam (14) such that the winder lever (3) has no axial play.
16. Tighten the threaded pin (13).

Assembling the winder

Fig. 59: Setting the winder (5)



(1) - Screws

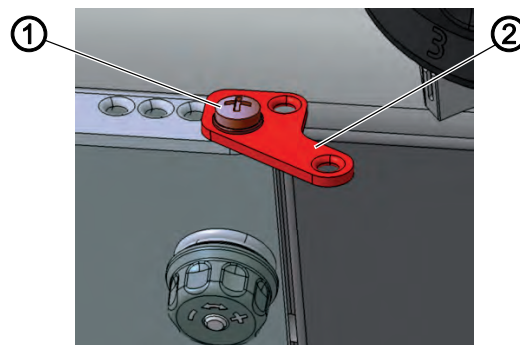


To assemble the winder:

17. Place the winder on the machine arm.
18. Tighten the screws (1).

15.2 Setting the hook thread guide

Fig. 60: Setting the hook thread guide



(1) - Screw

(2) - Hook thread guide

The position of the hook thread guide determines how the hook thread is wound onto the bobbin.



Proper setting

The hook thread is wound on evenly over the entire width of the bobbin.



To set the bobbin thread guide:

1. Loosen the screw (1).
2. Turn the hook thread guide (2):
 - To the front: The hook thread will be wound on further to the front
 - To the rear: The hook thread will be wound on further to the rear

16 Thread cutter

WARNING



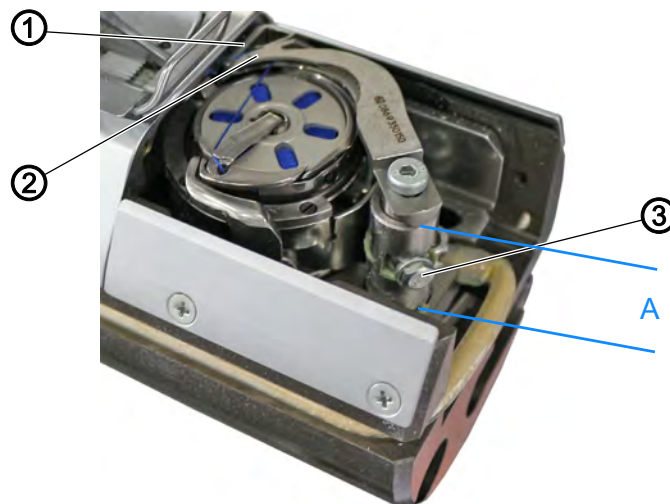
Risk of injury from sharp and moving parts!

Cutting and crushing possible.

Switch off the machine before setting the thread cutter.

16.1 Setting the height of the thread-pulling knife

Fig. 61: Setting the height of the thread-pulling knife



(1) - Counter blade
(2) - Thread-pulling knife

(3) - Screw
A - Distance

The height of the thread-pulling knife is factory-set so that the distance between the thread-pulling knife and the middle part of the hook is 0.3 mm.



Proper setting

The thread-pulling knife (2) pivots as closely as possible above the hook and is at the same height as the counter blade (1).



To set the height of the thread-pulling knife:

1. Open the throat plate slide.
2. Loosen the screw (3).
3. Move the thread-pulling knife (2) in such a way that the distance between the thread-pulling knife (2) and the middle part of the hook is 0.3 mm.
4. Tighten the screw (3).

16.2 Setting the cutoff curve

Fig. 62: Setting the cutoff curve (1)



(1) - Screw

(2) - Control cam

(3) - Roller



Proper setting

The control cam (2) makes contact with the safety clutch.

The distance between the widest extent of the control cam (2) and the roller (3) is no greater than 0.1 mm.

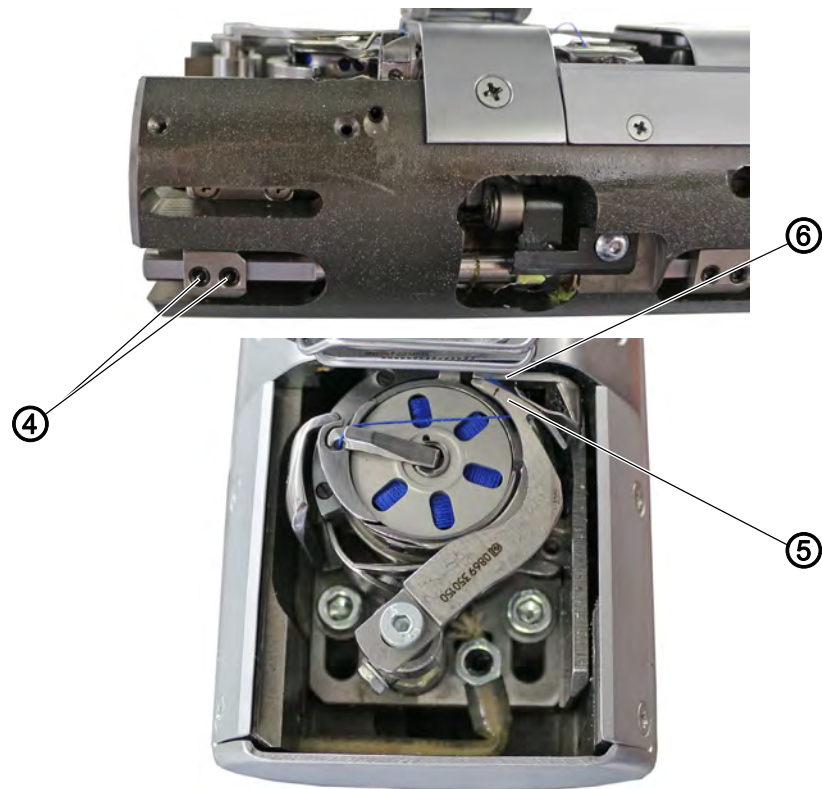
In the rest position, the thread-pulling knife should be flush with the tip of the counter blade.



To set the cutoff curve:

1. Tilt the machine head (📖 p. 17).
2. Open the throat plate slide.
3. Loosen the threaded pins on the control cam (2).
4. Set the control cam (2) all the way to the right against the safety clutch.
5. Tighten the threaded pins on the control cam (2).
6. Loosen the screw (1).
7. Move the roller (3) such that the distance between the roller (3) and the widest extent of the control cam (2) is no greater than 0.1 mm.
8. Tighten the screw (1).

Fig. 63: Setting the cutoff curve (2)



(4) - Threaded pins
(5) - Thread-pulling knife

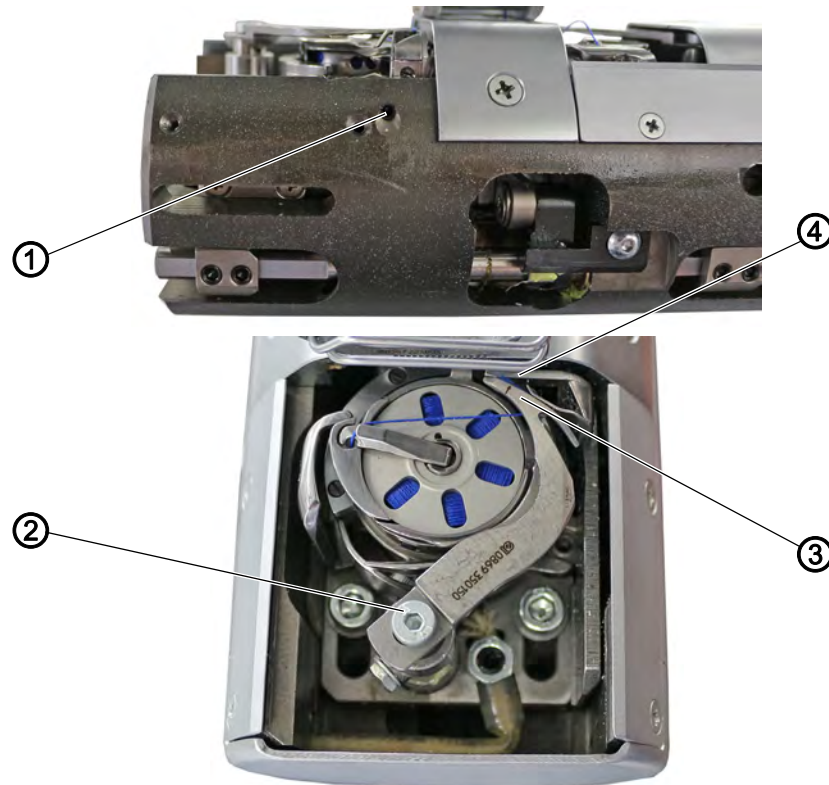
(6) - Counter blade



9. Use the threaded pins (4) to set the thread-pulling knife (5) and the counter blade (6) such that the tip of the thread-pulling knife (5) is flush with the tip of the counter blade (6).
10. Loosen the threaded pins (4) and adjust the knives.

16.3 Setting the cutting pressure

Fig. 64: Setting the cutting pressure



(1) - Screw
(2) - Screw

(3) - Thread-pulling knife
(4) - Counter blade

The shape of the thread-pulling knife automatically creates the required cutting pressure as soon as the thread-pulling knife and counter blade make contact.



Proper setting

Proper cutting cannot be achieved unless the screw (1) in the free arm - exerting a slight pressure - abuts on the counter blade, keeping the counter blade from being pushed away.



Disturbance

Disturbances caused by an incorrect setting:

- Increased knife wear when the pressure is too great
- Problems when sewing on if the clamping pressure is too high
- Problems in cutting the thread



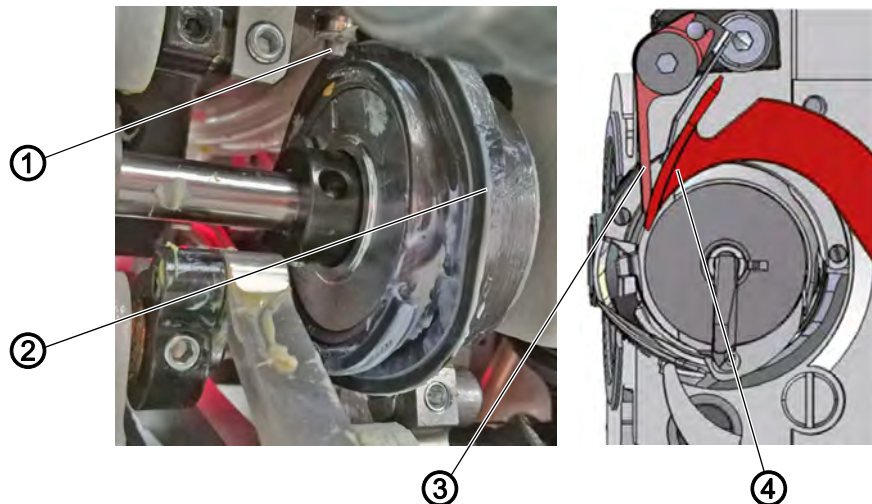
To set the cutting pressure:

1. Loosen the screw (1) before tightening it again to move it slightly against the counter blade (4).
2. Swing out the thread-pulling knife (3) until the arrow marking points to the cutting edge of the counter blade (4).
3. Loosen the screw (2).

4. Set the thread-pulling knife (3) against the counter blade (4).
5. Tighten the screw (2).

16.4 Setting point in time for cutting

Fig. 65: Setting point in time for cutting



(1) - Roller
(2) - Control cam

(3) - Counter blade
(4) - Thread-pulling knife




Proper setting

The threads are cut when the thread lever is at the top dead center (handwheel position 60°).



To set the point in time for cutting:

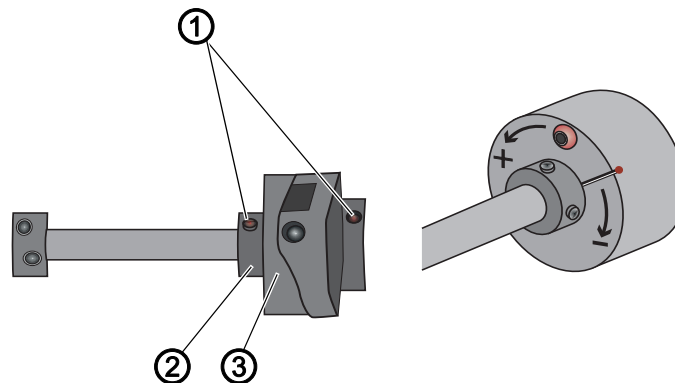
1. Tilt the machine head ( p. 17).
2. Open the throat plate slide.
3. Loosen the threaded pins on the control cam (2).
4. Move the thread-pulling knife (4) to its initial position.
5. Set the handwheel position to 60°.
6. Turn the control cam (2) such that the roller (1) runs up at the contour of control cam (2) and the widest extent of the control cam (2) is at handwheel position 60° at the highest point.
7. Tighten the threaded pins on the control cam (2).
8. Check setting:
 - Insert the thread into thread-pulling knife (4) and slowly turn the handwheel.
 - Check the handwheel position at which the thread is cut.
9. If necessary, repeat setting steps 1 – 7 until the cut takes place at 60°.

17 Setting the safety snap-on coupling

The safety snap-on coupling disengages in the event of the thread jamming and thus prevents the hook from being misadjusted or damaged.

17.1 Attaching the safety snap-on coupling

Fig. 66: Attaching the safety snap-on coupling



(1) - Threaded pins

(2) - Left-hand adjusting ring

(3) - Safety snap-on coupling




Proper setting

The 4 threaded pins (1) on the two adjusting rings next to the safety snap-on coupling (3) must be parallel to one another. After the safety snap-on coupling has disengaged, they are no longer parallel.



To latch the safety snap-on coupling:

1. Tilt the machine head ( p. 17).
2. Turn the left adjusting ring (2) such that the threaded pins (1) are parallel to one another.

↪ The safety snap-on coupling latches into place.

17.2 Setting the torque

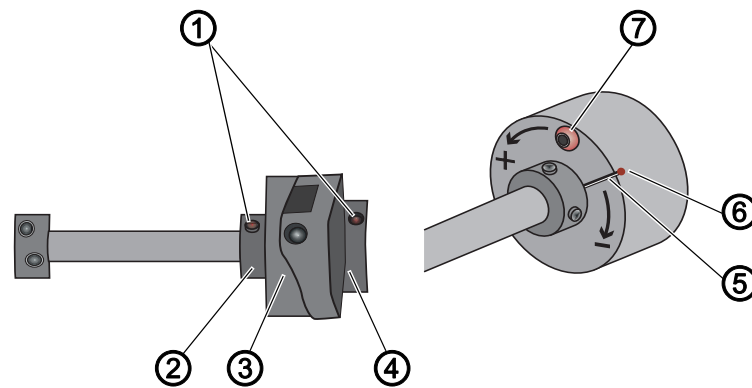
NOTICE

Property damage may occur!

If you change the torque, it could be that the coupling will not disengage although this would be required. This could cause machine damage, e.g. in the event of the thread jamming.

Do NOT change the factory setting.
Make sure that the torque remains at 8 Nm.

Fig. 67: Setting the torque



- | | |
|---------------------------------|---------------------|
| (1) - Threaded pins | (5) - Setting slot |
| (2) - Left-hand adjusting ring | (6) - Marking point |
| (3) - Safety snap-on coupling | (7) - Screw |
| (4) - Right-hand adjusting ring | |




Proper setting

The machine is set at the factory so that the torque is 8 Nm when the marking point (6) is exactly above the setting slot (5) of the disk.



To set the torque:

1. Tilt the machine head ( p. 17).
2. Loosen the screw (7).
3. Using the screwdriver, turn the disk on the setting slot (5) so that 8 Nm is reached for the torque:
 - Increase force: turn in the direction +
 - Decrease force: turn in the direction -
4. Tighten the screw (7).

18 Integrated motor

DANGER



Risk of injury from electricity!

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

Work on the electrical system must **ONLY** be carried out by qualified electricians or appropriately trained and authorized personnel.

ALWAYS pull the power plug before working on the electrical equipment.

WARNING



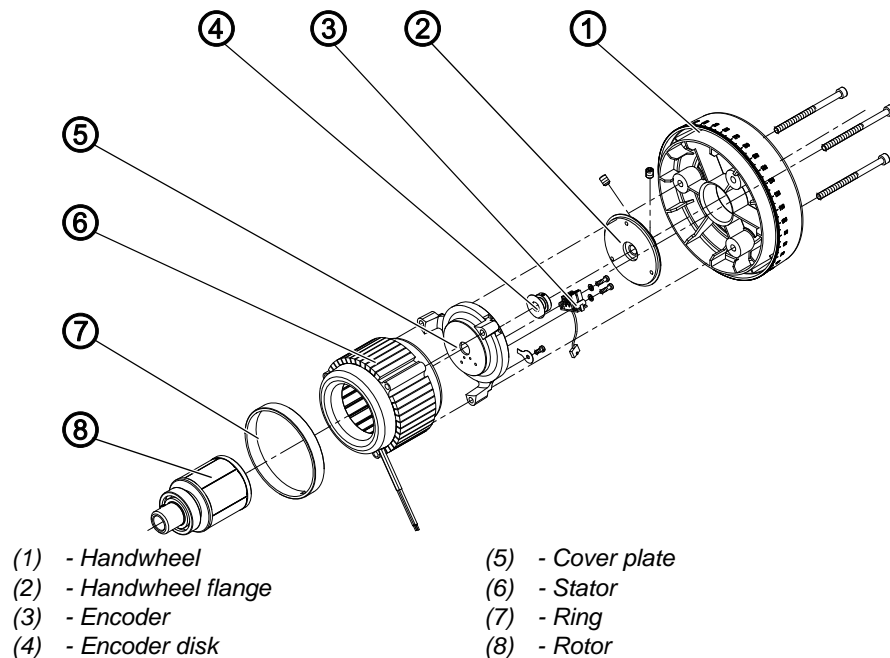
Risk of injury from moving parts!

Crushing possible.

The machine may only be disassembled and assembled by trained specialists.

18.1 Overview of the components

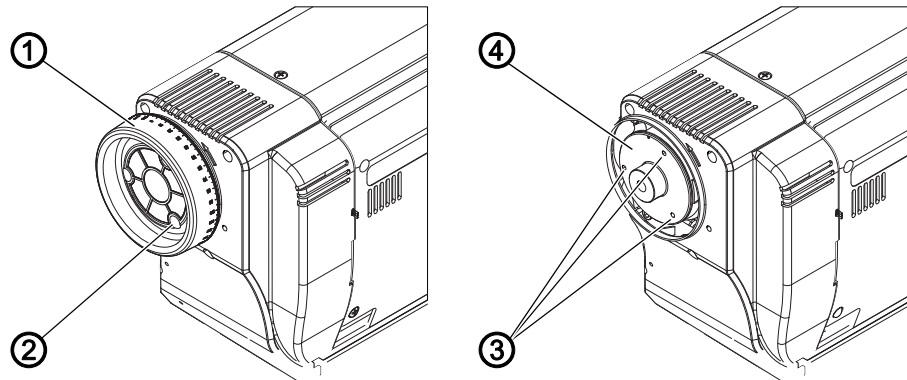
Fig. 68: Overview of the components



18.2 Disassembling the drive

18.2.1 Disassembling the handwheel and handwheel flange

Fig. 69: Disassembling the handwheel and handwheel flange



(1) - Handwheel
(2) - Screws

(3) - Threaded pins
(4) - Handwheel flange

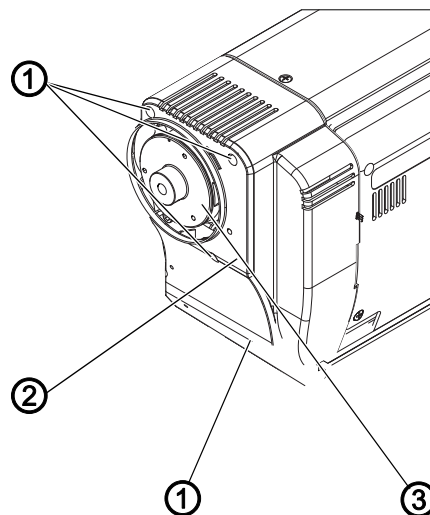


To disassemble the handwheel and handwheel flange:

1. Loosen all 3 screws (2) on the handwheel (1).
2. Loosen all threaded pins (3) and remove the handwheel flange (4).

18.2.2 Removing the cover

Fig. 70: Removing the cover



(1) - Screws
(2) - Cover

(3) - Handwheel flange

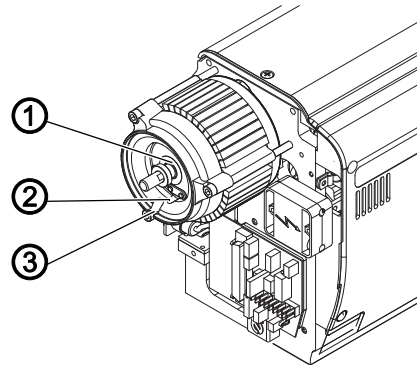


To remove the cover:

1. Loosen all 5 screws (1).
2. Remove the cover (2) from the side.

18.2.3 Disassembling the encoder

Fig. 71: Disassembling the encoder



(1) - Encoder disk
(2) - Encoder

(3) - Retaining plate

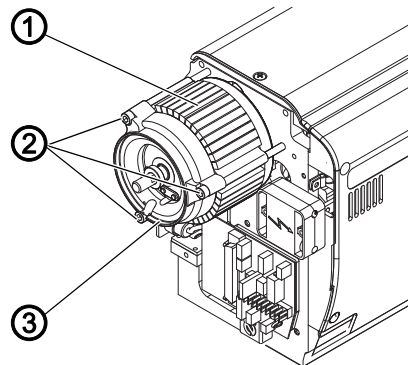


To disassemble the encoder:

1. Unscrew the retaining plate (3).
2. Loosen both screws on the encoder (2).
3. Undo the screw on the encoder disk (1).
4. Carefully and uniformly pull the encoder (2) and encoder disk (1) away from the shaft.

18.2.4 Disassembling the stator

Fig. 72: Disassembling the stator



(1) - Stator with ring
(2) - Screws

(3) - Cover plate

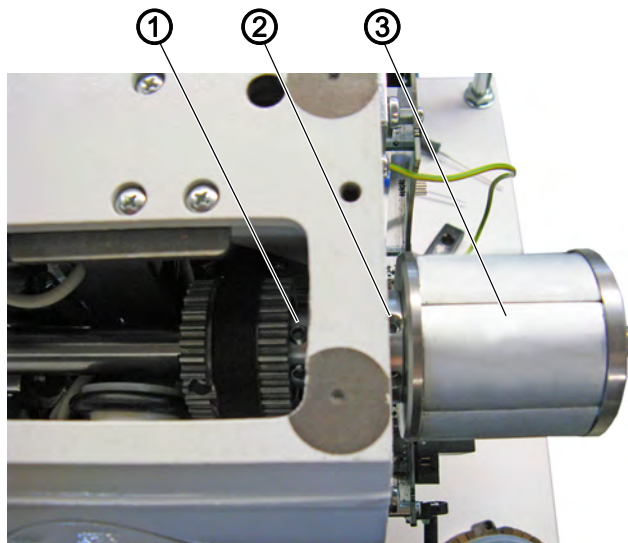


To disassemble the stator:

1. Loosen the screws (2).
2. Remove the cover plate (3).
3. Remove the stator with ring (1).

18.2.5 Disassembling the rotor

Fig. 73: Disassembling the rotor




(1) - Threaded pins
(2) - Threaded pins

(3) - Rotor with deep groove ball bearing



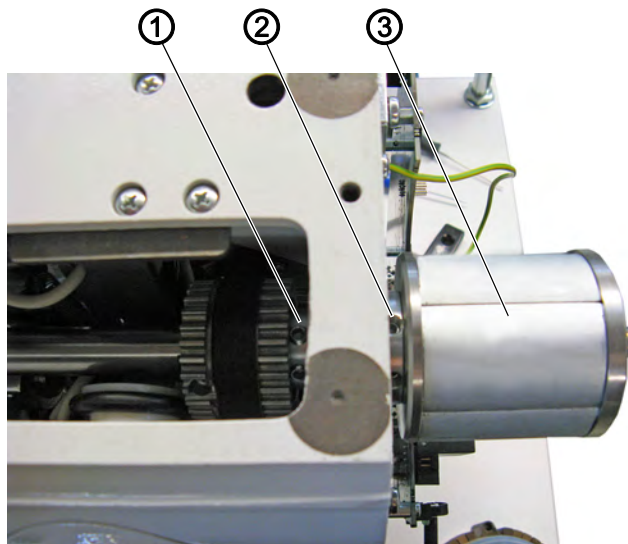
To disassemble the rotor:

1. Remove the arm cover ( p. 18).
2. Loosen the threaded pins (1), (2).
3. Remove the rotor with deep groove ball bearing (3).

18.3 Assembling the drive

18.3.1 Assembling the rotor

Fig. 74: Assembling the rotor



(1) - Threaded pins
(2) - Threaded pins

(3) - Rotor with deep groove ball bearing



To assemble the rotor:

1. Push the rotor with deep groove ball bearing (3) onto the shaft until the deep groove ball bearing is resting against the stop.
2. Screw all threaded pins (1), (2) firmly in place, observing the surface of the shaft in doing so: Screw the first screw in the direction of rotation firmly in place on the surface.

18.3.2 Assembling the stator

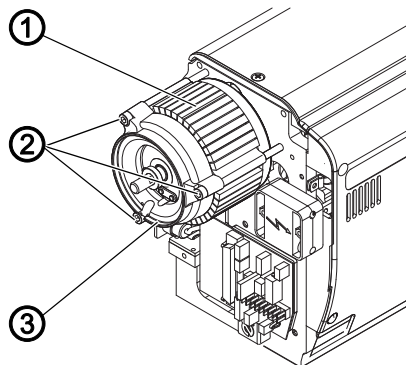
NOTICE

Property damage may occur!

The stator can be attracted by applying magnetic force.

Work carefully and in a controlled manner.

Fig. 75: Assembling the stator



(1) - Stator with ring

(2) - Screws

(3) - Cover plate

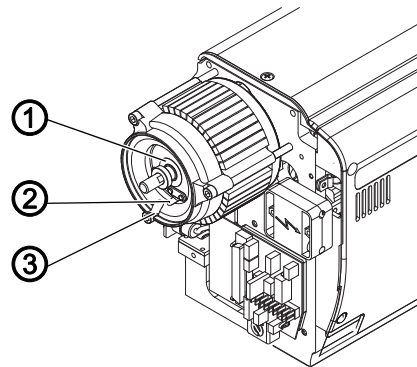


To assemble the stator:

1. Push the stator with ring (1) onto the shaft, paying attention to the ring gap for the cable.
2. Assemble the cover plate (3).
3. Evenly screw the screws (2) firmly in place so that a uniform gap exists between the cover plate (3) and shaft.

18.3.3 Assembling the encoder

Fig. 76: Assembling the encoder



(1) - Encoder disk
(2) - Encoder

(3) - Retaining plate

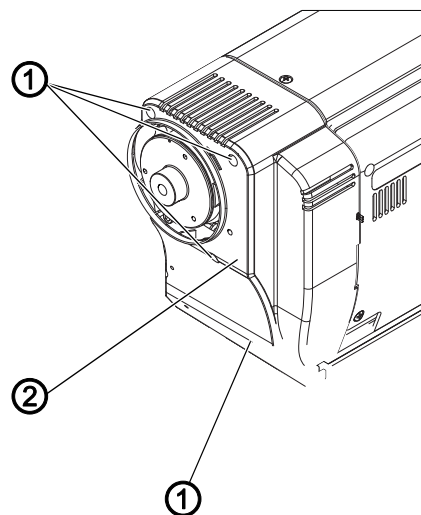


To fit the encoder:

1. Push the encoder (2) and encoder disk (1) onto the shaft.
2. Align the encoder disk (1) so that it runs in the middle of the encoder (2).
3. Screw the encoder disk (1) and encoder (2) firmly in place.
4. Tighten the retaining plate (3).

18.3.4 Assembling the cover

Fig. 77: Assembling the cover



(1) - Screws

(2) - Cover

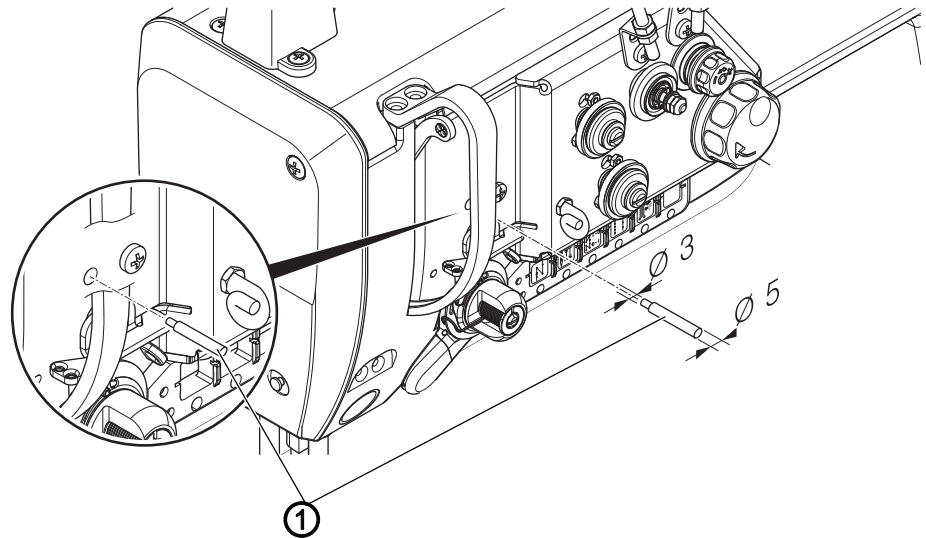


To place the cover:

1. Position the cover (2) at the side.
2. Tighten the screws (1).

18.3.5 Locking the machine in place


Fig. 78: Locking the machine in place



(1) - Locking peg

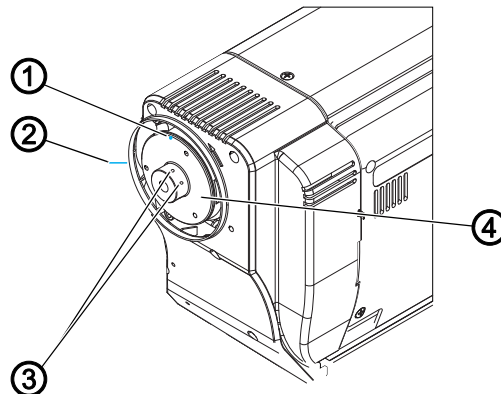


To lock the machine in place:

1. Lock the machine in place using the locking peg (1) (Ø 3 mm).
 The needle is in the top dead center position.

18.3.6 Assembling the handwheel flange

Fig. 79: Assembling the handwheel flange



(1) - Handwheel flange marking
 (2) - Cover marking

(3) - Threaded pins
 (4) - Handwheel flange

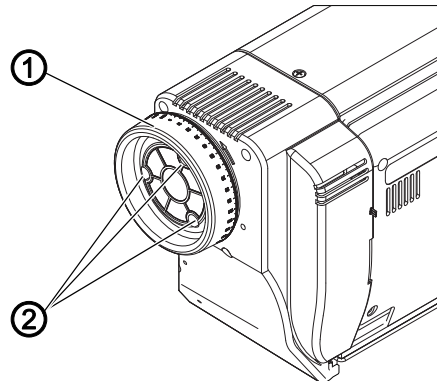


To assemble the handwheel flange:

1. Attach the handwheel flange (4) so that the two markings (1), (2) are in line.
2. Screw both threaded pins (3) firmly in place.
 In doing so, make sure that there is a distance of approx. 0.5 - 1 mm between the handwheel flange (4) and the cover plate.

18.3.7 Assembling the handwheel

Fig. 80: Assembling the handwheel




(1) - Handwheel

(2) - Screws



To assemble the handwheel:

1. Attach the handwheel (1) and tighten all 3 screws (2).
2. Set the reference position via the control; see  *Instructions for use DAC comfort*.

19 Programming

This chapter deals exclusively with content on the Technician level. For a description of how to create programs or how to make changes to the sewing parameters, the programming on the Operator level is explained in the *Operating Instructions 869-M PREMIUM*.

19.1 Calling up the Technician level

A password is requested to make it possible to make changes on the Technician level.



To access the Technician level:

1. Switch on the machine.
 2. Press the **P** and **S** buttons at the same time.
- ↳ The display shows the input screen for the password:

Fig. 81: Password input screen



3. Use the numeric buttons to enter the password (25483).
- ↳ You are on the Technician level:

19.2 Structure of the software

After the Technician level opens, the display shows the menu items for the protected area. The following table lists the menu items and gives a brief explanation.

Submenu	Description	Reference
<i>Lock Techn.</i>	Lock the Technician level	p. 92
<i>ParameterCall</i>	Parameter selection (visible only when activated)	p. 92
<i>Default Program</i>	Program presettings	p. 94
<i>Machine config.</i>	Machine configuration	p. 97
<i>User config.</i>	User configuration	p. 111
<i>Service</i>	Service	p. 124
<i>Counter</i>	Counter	p. 131
<i>Reset</i>	Reset data	p. 131
<i>Data transfer</i>	Data transfer	p. 132

A further branching into the submenus cannot be shown here for reasons of space. A corresponding overview of the menu items appears at the beginning of each chapter.

19.3 Lock technician level (*Lock Techn.*) submenu

There are two options to exit the Technician level: the first one will allow you to access the Technician level again without re-entering your password while the other will result in a prompt to enter your password for re-gaining access to the Technician level.

Secure option to exit the Technician level

1. Select the *Lock Techn.* parameter.
 2. Press the **OK** button to confirm the parameter.
- ↳ You are on the Technician level. After pressing the buttons **P** and **S**, you will not be able to access the Technician level unless you re-enter your password.

Non-secure option to exit the Technician level

1. Exit the Technician level with a press of the ◀ button or the **ESC** button.
- ↳ You are on the Technician level. You can access the Technician level by pressing the buttons **P** and **S** without the need to enter your password again.



Information

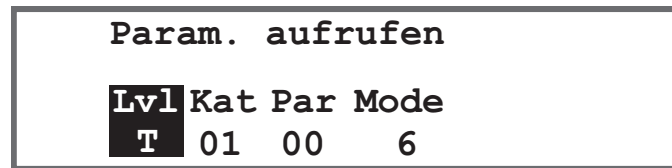
If accessing the Technician level by means of a USB key, you will exit the Technician level automatically when removing the USB key.

19.4 *ParameterCall* submenu

The submenu is visible only if the *ParameterView* parameter (📖 p. 112) is active. The settings for a parameter can be changed directly here.



To change the parameters:

1. Select the menu item *Service > ParameterCall*.
 2. Press the **OK** button to confirm the selection.
- ↳ A window appears where the parameter can be selected:

Fig. 82: *ParameterCall* submenu

3. Select the level of the desired parameter with the ▲/▼ buttons.

Abbreviation	Meaning
O	Operator/user
T	Technician









4. Use the ► button to move to the *Cat* category and select the desired value with the ▲/▼ buttons or the numeric buttons. The categories are explained in the  *Parameter list 869-M PREMIUM*.
5. Use the ► button to move to the *Par* parameter and select the desired value with the ▲/▼ buttons or the number keys. The parameters are explained in the  *Parameter list 869-M PREMIUM*.
6. Use the ► button to move to the fourth value on the far right. This value may vary, depending on the parameter. It may be a mode or a window with an action selection.
7. Enter parameter value and confirm by pressing **OK**.

19.5 Default Program submenu

P
001-999

Customer-specific settings can be made here, which are automatically used as preset values for the first seam section during the creation of a new program. Select the values so that they can be retained for as many programs as possible.

The menu is divided into the following submenus:

Parameter	Explanation	Reference
<i>Stitch length</i>	Stitch length	 p. 94
<i>Foot Press.</i>	Foot Press.	 p. 95
<i>Thr. Tens.</i>	Needle thread tension	 p. 95
<i>Foot Stroke</i>	Sewing foot stroke	 p. 95
<i>Start bartack</i>	Start bartack	 p. 96
<i>End bartack</i>	End bartack	 p. 96
<i>Thread Trim</i>	Thread cutter	 p. 96
<i>DailyPieces</i>	Daily pieces counter	 p. 96

19.5.1 Setting the Stitch length (*Stitchlen.*) parameter



NOTICE

Property damage may occur!

The machine and the sewing equipment may be damaged.

ALWAYS adjust the stitch length to the selected sewing equipment.

Stitch length that should be set as standard when creating a new program.

To set the stitch length parameter:

1. Select the *Stitchlen.* parameter.
2. Press the **OK** button to confirm the selection.
3. Enter the desired value.
4. Press the **OK** button to confirm the value.

19.5.2 Setting the Foot pressure (*Foot Press.*) parameter



Foot pressure that should be set as standard when creating a new program.

To set the Foot pressure parameter:

1. Select the *Foot Press.* parameter.
2. Press the **OK** button to confirm the selection.
3. Enter the desired value (01 – 20).
4. Press the **OK** button to confirm the value.

19.5.3 Setting the Needle thread tension (*Thr. Tens.*) parameter



Needle thread tension that should be set as standard when creating a new program.

To set the Needle thread tension parameter:

1. Select the *Thr. Tens.* parameter.
2. Press the **OK** button to confirm the selection.
3. Enter the desired value (01 – 99 %).
4. Press the **OK** button to confirm the value.



Information

The menu is expanded for 2-needle machines. It is then possible to set the needle thread tension for the right and left sides.

19.5.4 Setting the Sewing foot stroke (*Foot Stroke*) parameter



Sewing foot stroke that should be set as standard when creating a new program.

To set the Sewing foot stroke parameter:

1. Select the *Foot Stroke* parameter.
2. Press the **OK** button to confirm the selection.
3. Enter the desired value (0.5 – 9.0).
4. Press the **OK** button to confirm the value.

19.5.5 Setting the Start bartack (*Start Tack*) parameter



Setting whether the start bartack is automatically activated in a new program.

Menu item	Setting option
On	The start bartack is activated automatically. The values for the start bartack are taken from the Manual mode.
Off	The start bartack is not activated.

19.5.6 Setting the End bartack (*End Tack*) parameter



Setting whether the end bartack is automatically activated in a new program.

Menu item	Setting option
On	The end bartack is activated automatically. The values for the end bartack are taken from the Manual mode.
Off	The end bartack is not activated.

19.5.7 Setting the Thread cutter (*Thread Trim*) parameter



Setting whether the thread cutter is automatically activated in a new program or not.

Menu item	Setting option
On	The thread cutter is activated automatically at the end of a seam section and at the end of the sewing program.
Off	The thread cutter is not activated.

19.5.8 Setting the Daily pieces counter (*DailyPieces*) parameter



The daily pieces counter can count upward or downward. It is also possible to enter the value to be selected when the counter is reset.






















Menu item	Setting option
<i>CntMode</i>	Off – the counter is off Up – the daily pieces counter counts upward Down – the daily pieces counter counts downward
<i>Reset</i>	Enter the value to which the daily pieces counter should return when it is reset (value range -999 - 999).

19.6 Machine config. submenu



Settings on the machine that apply to all programs can be made here. The parameters are explained in more detail in the subchapters.

The menu is divided into the following submenus:

Parameter	Explanation	Reference
<i>Thread Trim</i>	Thread cutter	 p. 98
<i>Thread clamp</i>	Thread clamp	 p. 99
<i>Speed</i>	Speed	 p. 101
<i>Stop Positions</i>	Stop positions	 p. 101
<i>Foot</i>	Sewing foot	 p. 102
<i>Thr. Tens.</i>	Needle thread tension	 p. 102
<i>Stroke</i>	Sewing foot stroke	 p. 103
<i>Stitch length</i>	Stitch length	 p. 104
<i>Bobbin</i>	Bobbin	 p. 104
<i>Holding Force</i>	Motor holding force	 p. 104
<i>Pedal</i>	Pedal	 p. 106
<i>Needle cooling</i>	Needle cooling	 p. 106
<i>Center Guide</i>	Seam middle guide	 p. 107
<i>Puller</i>	Puller	 p. 107
<i>EdgeGuide</i>	Edge guide	 p. 109
<i>Mat. Thickness</i>	Material thickness detection	 p. 109
<i>Speed Corr</i>	Correcting effects of high speed	 p. 110
<i>Light barrier</i>	Light barrier	 p. 110
<i>Mode Seg. Size</i>	Segment length	 p. 111
<i>Threading</i>	Threading mode	 p. 111
<i>Operation lock</i>	Operation lock	 p. 111

19.6.1 Setting the Thread cutter (*Thread Trim*) parameter



Various settings can be made for the thread cutter. The possibilities are explained in more detail in the table.


Menu item	Setting option
<i>On/Off</i>	The thread cutter can generally be activated or deactivated; if it is deactivated here, it can no longer be selected on the operator level.
<i>Speed</i>	Speed of the machine during thread cutting. (Value range 050 – 250 [rpm])
<i>Start Trim</i>	Position when the magnet of the thread cutter is activated. (Value range 000 – 359)
<i>Stop Trim</i>	Position when the magnet of the thread cutter is deactivated. (Value range 000 – 359)
<i>StopBottom°</i>	Needle position at bottom dead center during the seam, specified in degrees. (Value range 000 – 359)
<i>After Trim</i>	Needle position after thread cutting before reversal. (Value range 000 – 359)
<i>Turn Back</i>	Reversal after cutting the thread is active or inactive. (Value range: On/Off)
<i>StopIdle°</i>	Position of the needle after thread cutting (reversal position); the needle is set upward to reach the full lifting height, and the thread lever is then no longer at top dead center. (Value range 000 – 359)
<i>Tens.Open</i>	Needle position at which the needle thread tension switches to the value for thread cutting (<i>Thr.Tens</i>). (Value range 000 – 359)
<i>Tens.Close</i>	Position at which the standard needle thread tension is used again after thread cutting. (Value range 000 – 359)
<i>Thr.Tens.</i>	Needle thread tension during thread cutting. (Value range 00 – 50 [%])
<i>t TensClose</i>	Delay, showing how long it takes until the standard needle thread tension is used again. (Value range 000 – 200 [ms])
<i>Short Stitch</i>	<i>Start St.</i> Number of short stitches at the seam start; advisable for neat starts to sewing. (Value range 00 – 99)
	<i>End St.</i> Number of short stitches at the seam end, to ensure that the length difference between the needle thread and the hook thread is (visually) as small as possible. (Value range 00 – 99)
	<i>St.Length</i> Stitch length of the short stitches, generally between 01.0 – 01.5 [mm].

Menu item	Setting option
<i>StitchLengthChg</i>	On/Off Optimization of the remaining thread length for the cutting systems (KFA = 1, extra short; LFA = 10, extra long)
	<i>St.Length</i> (Value range 01 – 10)
	<i>On</i> [°] (Value range 000 – 359 [°])
	<i>Off</i> [°] (Value range 000 – 359 [°])
<i>Trim Backward</i>	Thread cutting during backward stitch. (Value range: On/Off)
<i>PWM Config</i>	Pulse width modulation Power supply to the magnet for the thread cutter.
	<i>t1 [ms]</i> Activation duration of the thread cutter in time period t1. (Value range 000 – 1000 [ms])
	<i>DtyC. t1 [%]</i> Duty cycle in time period t1 (Value range 000 – 1000 [%])
	<i>t2 [s]</i> Activation duration of the thread cutter in time period t2. (Value range 000 – 1000 [ms])
	<i>DtyC. t2 [%]</i> Duty cycle in time period t2 (Value range 000 – 1000 [%])

19.6.2 Setting the Thread clamp (*Thread Clamp*) parameter



Various settings can be made for the thread clamp. The possibilities are explained in more detail in the table.

Menu item	Setting options
<i>Mode</i>	Various modes (1 to 10) are available; explanations can be found in the  <i>Parameter list 869-M PREMIUM</i> .
<i>Mat.Thickness</i>	Compensation of the material thickness (Value range: On/Off)
<i>Clamp Angle</i>	On/Off Position for activating and deactivating the thread clamp. (Value range 000 – 359)
<i>Foot Angle</i>	On/Off Position for lifting/lowering the sewing feet, to release a thread jammed underneath. (Value range 000 – 359)
	<i>Height</i> Lifting height of the sewing feet. (Value range 01.0 – 12.0)

Menu item	Setting options
<i>Option</i>	Mode of thread clamp 0 – at seam start only 1 – at seam start and during reversal 2 – at seam start and during sewing foot lift 3 – at seam start and during reversal and sewing foot lift
<i>PWM Config</i>	Pulse width modulation Power supply to the magnet for the thread clamp
	<i>t1 [ms]</i> Activation duration of thread clamp in time period t1. (Value range 000 – 1000 [ms])
	<i>DtyC. t1 [%]</i> Duty cycle in time period t1 (Value range 000 – 1000 [%])
	<i>t2 [s]</i> Activation duration of thread clamp in time period t2. (Value range 000 – 1000 [ms])
	<i>DtyC. t2 [%]</i> Duty cycle in time period t2 (Value range 000 – 1000 [%])
<i>NSB</i>	Neat Seam Beginning (Value range: On/Off)
	<i>Trim Delay</i> Delay after thread cutting, when NSB is activated. (Value range 0000 – 1000 [ms])
	<i>Knife</i> Value for the first position of the knife after seam start. (Value range 000 – 359)
	<i>Knife Clamp</i> Value for switching off the knife clamp. (Value range 000 – 359)
	<i>Exhaust</i> Exhaust removal of the cut-off remaining thread. <i>On°</i> – Position for the start of exhaust removal (value range 000 – 359) <i>Off</i> – Duration of the exhaust removal (value range 00000 – 99999 [ms])

19.6.3 Setting the Speed (*Speed*) parameter



Various settings can be made for the speed. The possibilities are explained in more detail in the table.

Menu item	Setting options
<i>Max Speed</i>	Maximum permissible speed; it can no longer be exceeded on the operator level. (Value range 0500 - 3800 [rpm], depending on the subclass)
<i>Min. Speed</i>	Minimum speed at which an individual stitch is made; a lower speed is no longer possible at operator level. (Value range 050 – 400 [rpm])
<i>Pos. Speed</i>	Position speed; the last stitch is made slower during stopping of the sewing procedure. (Value range 010 – 700 [rpm])
<i>Soft Speed</i>	Speed for the soft start. (Value range 0010 – 1000 [rpm])
<i>N Stitches</i>	Number of stitches to be made during a soft start. (Value range 00 – 10)
<i>Acceleration</i>	Slope of the acceleration ramp (Value range 10 - 40 [rpm/ms])
<i>Deceleration</i>	Slope of the deceleration ramp (Value range 10 - 40 [rpm/ms])

19.6.4 Setting the Stop positions (*Stop Positions*) parameter



Various settings can be made for the stop positions. The possibilities are explained in more detail in the table.

Menu item	Setting options
<i>StopBottom</i> ^o	Holding position of the needle in the material. Value range (000 – 359)
<i>Threading</i> ^o	Position for the proper function of the threader, e.g. with thread lever at top dead center. Value range (000 – 359)
<i>StopTop</i> ^o	Holding position of the needle outside of the material. Value range (000 – 359)
<i>StopIdle</i> ^o	Stop position after thread cutting (reversal position). Value range (000 – 359)

19.6.5 Setting the Sewing foot (*Foot*) parameter



Various settings can be made for the sewing foot. The possibilities are explained in more detail in the table.

Menu item	Setting options
<i>Max Height</i>	Maximum lift height that the system may lift the sewing feet. (Value range with standard thread cutter 01.0 – 20.0 [mm]) (Value range for short thread cutter 01.0 – 18.0 [mm] due to raised throat plate)
<i>Motor Speed</i>	Speed at which the sewing feet will be lifted. (Value range 01 – 60)

19.6.6 Setting the Needle thread tension (*Thr. Tens.*) parameter



Various settings can be made for the needle thread tension. The possibilities are explained in more detail in the table.

Menu item	Setting options
<i>FL Tens.Mode</i>	Mode for lifting the needle thread tension during active sewing foot lift.
	0 Needle thread tension is not lifted.
	1 The needle thread tension is lifted as the sewing feet are lifted during sewing
	2 The needle thread tension is lifted after thread cutting
	3 The needle thread tension is lifted as the sewing feet are lifted during sewing and after thread cutting
<i>PreTension</i>	Setting of the pretension during thread cutting. A value of 0 is recommended as the pretension is generated by a mechanical tension. (Value range 00 – 99 [%])
<i>t After Sew</i>	The needle thread tension remains closed for a defined period of time after thread cutting and prevents the needle thread from being pulled further when the sewing material is removed. Without a thread cutter, this menu item should be set to a very low value. (Value range 0.1 – 7.5 [s])

19.6.7 Setting the Sewing foot stroke (*Stroke*) parameter



NOTICE

Property damage may occur!

In the case of an excessive sewing foot stroke, the machine may be damaged and, thus, produce unsatisfactory sewing results.

If the machine is at the second sewing foot stroke height, do not allow it to sew at an excessive speed.

Various settings can be made for the sewing foot stroke. The possibilities are explained in more detail in the table.

Menu item	Setting options
<i>2nd Tension</i>	If the second sewing foot stroke is switched on, the second needle thread tension is automatically activated (except in the case of material thickness detection). (Value range: On/Off)
<i>StitchOff</i>	Number of stitches after which the second sewing foot stroke is automatically deactivated. (Value range 000 – 255)
<i>Automatic</i>	<i>Speed</i> Speed at which the second sewing foot stroke height is automatically activated. (Value range 0000 - 4000 [rpm], depending on the subclass)
	<i>HP In Tack</i> 2. sewing foot stroke height is automatically activated, even in bartack. (Value range: On/Off)
<i>Speed Limitatio</i>	<i>Speed</i> As from the set value of the <i>Min Stroke</i> for the sewing foot stroke, the speed is reduced down to the desired value for the <i>Max Stroke</i> for the sewing foot stroke. (Value range 0050 - 3800 [rpm], depending on the subclass)
	<i>Min Stroke</i> Sewing foot stroke at which the speed reduction is initiated. (Value range 00.0 – 09.0)
	<i>Max Stroke</i> Sewing foot stroke at which the reduced speed is reached. (Value range 00.0 – 09.0)

19.6.8 Setting the Stitch length (*Stitchlen.*) parameter



NOTICE

Property damage may occur!

The machine and the sewing equipment may be damaged.

ALWAYS enter the maximum possible stitch length after changing the sewing equipment.

Various settings can be made for the stitch length. The possibilities are explained in more detail in the table.

Menu item	Setting options
<i>Max St.Len</i>	Maximum stitch length possible during sewing; this will vary depending on the sewing equipment and MUST be adjusted when changing the sewing equipment. When the value is changed, the machine requests a reset, i.e. switching off and on again. Cf. p. 23. (Value range 02.0 - 12.0 [mm], depending on the subclass)
<i>Man.St.Len.</i>	Stitch adjustment lever for manual adjustment of the stitch length active or inactive; optional equipment. (Value range: On/Off)
<i>Speed Limitatio</i>	<i>St.Len.</i> The speed is limited during sewing as from the set stitch length value. (Value range 1.0 - 12.0 [mm], depending on the subclass)
	<i>Speed</i> Value for limiting the speed as from a defined, adjustable stitch length. (Value range 0050 - 3800 [rpm], depending on the subclass)

19.6.9 Setting the Bobbin (*Bobbin*) parameter



Various settings can be made for the bobbin. The possibilities are explained in more detail in the table.

Menu item	Setting options
<i>Bobbin Monit</i>	Activation of the bobbin rotation monitor 0 = PCB 9850 867003 1 = CAN version (right bobbin)
<i>SSD</i>	Enlacement check (Value range: On/Off)

Menu item	Setting options
<i>BRM</i>	Bobbin rotation monitor (Value range: On/Off)
	<i>Stitches</i> Delayed stitches before the bobbin rotation monitor starts. The machine calculates the number of stitches automatically depending on the value entered. (Value range 000 – 255)
<i>MsgAfterTrim</i>	If detecting an error during the enlacement check or while monitoring the bobbin rotation, the machine will indicate an error message during the seam, which must be confirmed with OK . The error disappears. If the parameter <i>MsgAfterTrim</i> is active, the error will be displayed again after the seam has been completed. (Value range: On/Off)
<i>StopConfirm</i>	If detecting an error during the enlacement check or while monitoring the bobbin rotation, the machine will indicate an error message and stop. You must confirm this error before you can resume sewing. (Value range: On/Off)

19.6.10 Setting the Motor holding force (*Holding Force*) parameter



Various settings can be made for the holding force of the motor. The possibilities are explained in more detail in the table.

Menu item	Setting options
<i>Mode</i>	<i>Off</i> Holding force inactive
	<i>On</i> Holding force active
	<i>Hold Pos.</i> Position control; position is checked and resets itself
<i>Max. Current</i>	Holding current of the motor (Value range 00 – 50)
<i>Response</i>	Response time for the continuous current (Value range 000 – 100)

19.6.11 Setting the Pedal (*Pedal*) parameter



Various settings can be made for the pedal. The possibilities are explained in more detail in the table.

Menu item	Setting options
<i>Type</i>	<i>DA Analog/Digital</i> Choice between an analog and digital pedal.
<i>Inverted</i>	Inversion of the signals given by the pedal (possibly necessary for digital setpoint devices). (Value range: On/Off)
<i>N StepsPedal</i>	Number of speed steps processed by the pedal. (Value range 00 – 64)
<i>Curve</i>	Speed curve of the pedal.
<i>t Posit. -1</i>	Debouncing of position -1 (Value range 000 – 255 [ms])
<i>t Posit. -2</i>	Debouncing of position -2 (Value range 000 – 255 [ms])
<i>t Posit. 0</i>	Debouncing of position 0 (Value range 000 – 255 [ms])

19.6.12 Setting the Needle cooling (*NeedleCooling*) parameter



Various settings can be made for the needle cooling. The possibilities are explained in more detail in the table.

Menu item	Setting options
<i>Off</i>	Needle cooling is deactivated.
<i>On</i>	Needle cooling is activated. <i>t After Sew</i> Lag time, after which the needle cooling is deactivated. (Value range 00.0 – 10.0 [ms])
<i>AtSpeed</i>	<i>t After Sew</i> Lag time, after which the needle cooling is deactivated. (Value range 00.0 – 10.0 [ms])
	<i>CoolSpeed</i> Speed at which the needle cooling is activated. (Value range 0000 – 6000 [rpm])
<i>Edge cutter</i>	Needle cooling is activated when the edge cutter is also activated. <i>t After Sew</i> Lag time, after which the needle cooling is deactivated. (Value range 00.0 – 10.0 [ms])

19.6.13 Setting the Seam center guide (*Center Guide*) parameter



The seam center guide is optional additional equipment on 2-needle machines. When the seam center guide is activated, the following settings can be made.

Menu item	Setting options
<i>Auto</i>	Mode for automatic raising of the seam center guide.
	<i>Off</i> Raising of the seam center guide is deactivated; it is not raised automatically.
	<i>OnTack</i> Raising of the seam center guide when sewing the bartack.
	<i>OnLift</i> Raising of the seam center guide when lifting the sewing foot.
	<i>Tack+Lift</i> Raising of the seam center guide when sewing the bartack and lifting the sewing foot.
<i>RaiseOnHP</i>	When the 2nd stroke height is activated, the seam center guide is automatically raised. (Value range: On/Off)

19.6.14 Setting the Puller (*Puller*) parameter



The puller is an optional piece of additional equipment that supports the transport of the sewing material. When the puller is active, you can define the following settings.

Menu item	Setting options
<i>On/Off</i>	Puller active or inactive
<i>Lift</i>	Mode for raising the puller automatically.
	<i>Off</i> Raising of the puller is deactivated; it is not raised automatically.
	<i>OnLift</i> Raising of the puller when lifting the sewing foot.
	<i>OnTack</i> Raising of the puller when sewing the bartack.
	<i>Tack+Lift</i> Raising of the puller when sewing the bartack and lifting the sewing foot.
<i>RaiseOnHP</i>	When the second stroke height is activated, the puller is automatically raised. (Value range: On/Off)
<i>Delay</i>	Lowering of the roller after seam beginning; depends on stitch length and application. (Value range 000.0 – 999.9 [mm])

Menu item	Setting options	
<i>Mode</i>	Setting defining which puller roller is supposed to run.	
	<i>Mechanic</i> Both rollers freewheel passively; mechanical coupling only	
	<i>Top+Bot</i> Both wheels run actively under power	
	<i>Upper</i> The upper roller runs actively under power	
<i>Transport</i>	Transport mode of the rollers	
	<i>constant</i> Even transport	
	<i>intermittent</i> Transport adapted to the rhythm of the machine's feed dog Setting of the start and stop angle under <i>Start/Stop</i> has been adapted to the machine. The values should not be changed.	
<i>Pressure</i>	Set the puller pressure	
	<i>Yes</i> Pressure is supplied constantly and regulated via the gage at the puller.	
	<i>HPNo</i> Pressure is generated actively except for the 2nd stroke height.	
	<i>No</i> No active pressure from puller.	
<i>SwitchOff</i>	Puller is not active when the sewing motor is stopped. Holding force of the roller is off; sewing material can be pulled out from between the rollers.	
<i>AlwaysOn</i>	Puller is always on even when raised.	
<i>Top</i>	Settings of the upper puller roller.	
	<i>Transm.</i>	Transmission, puller (Value range 00.0 – 65.0)
	<i>Drive</i>	Motor current, puller (Value range 0.0 - 5.0 [A])
	<i>Hold</i>	No-damage current, puller (Value range 0.0 - 5.0 [A])
	<i>Diameter</i>	Diameter, roller (Value range 0000 – 9999 [mm])
	<i>Direction</i>	Rotational direction, roller 0 = right 1 = left
	<i>ClosedLoop</i>	0 = non-regulated (controlled operation) 1 = regulated
<i>Down</i>	Settings of the lower puller roller - identical to the settings of the upper puller roller.	

19.6.15 Setting the Edge guide (*EdgeGuide*) parameter



NOTICE

Property damage may occur!

Sewing feet, needle, edge guide and sewing equipment can be damaged.

ALWAYS check the distance to the edge guide and input the correct value after changing the sewing equipment.

Various settings can be made for the edge guide (motor-driven). The possibilities are explained in more detail in the table.

Menu item	Setting options
<i>On/Off</i>	Edge guide active/inactive.
<i>Speed</i>	Travel speed of the edge guide. (Value range 0500 – 60000 [Hz])
<i>Min. gap</i>	Smallest possible gap between the sewing foot and the edge guide. This will vary depending on the sewing equipment and MUST be adjusted when changing the sewing equipment. CAUTION The entered value is the gap measured between the NEEDLE and the edge guide. (Value range 01.0 – 36.0 [mm])

19.6.16 Setting the Material thickness detection (*FabricThickness*) parameter



Various settings can be made for the material thickness detection. The possibilities are explained in more detail in the table.

Menu item	Setting options
<i>On/Off</i>	Material thickness detection active/inactive.
<i>Hysteresis</i>	Tolerance at which the material thickness detection based on the second stitch length, the second needle thread tension and/or the second sewing foot stroke switches back. This tolerance is designed to ensure that there is no constant alternating between activation and deactivation in the boundary range. (Value range 0.0 – 2.0 [mm])
<i>PressureComp</i>	With extremely thick material, the foot pressure increases above the standard set value due to the material thickness. To a certain extent, the machine can compensate itself for the influence of thick material. (Value range: On/Off)

19.6.17 Setting the Correction of effects of high speed (*Speed Corr.*) parameter



Various settings can be made for the correction of the effects of high speed. The possibilities are explained in more detail in the table.

Menu item	Setting options
<i>Hysteresis</i>	Tolerance at which the correction of the effects of high speed based on the second stitch length, the second needle thread tension and/or the second sewing foot stroke switches back. This tolerance is designed to ensure that there is no constant alternating between activation and deactivation in the boundary range. (Value range 0.0 – 2.0 [mm])

19.6.18 Setting the Light barrier (*LightBarrier*) parameter



Various settings can be made for the light barrier. The possibilities are explained in more detail in the table.

Menu item	Setting options
<i>On/Off</i>	Light barrier active/inactive.
<i>Speed</i>	The last stitches after the detection of the end of the material (approx. 50 mm) can be sewn at a defined speed. (Value range 0010 – 2000 [rpm])
<i>Fr.pedal.start</i>	<i>Free</i> Pedal start
	<i>On</i> Pedal can be pressed and the machine sews as soon as the material breaks the light barrier
	<i>Off</i> Pedal is pressed but the machine does not start sewing; must be started from neutral position
<i>Sense</i>	<i>Dark</i> The signal is given when the light barrier is broken.
	<i>Bright</i> The signal is given when the light barrier is complete.
<i>Automatic</i>	This setting is relevant only the material end detection is activated on the Operator level.
	<i>On</i> The pedal starts a program, which runs automatically.
	<i>Off</i> The pedal starts a program; the user determines the speed through the end of the program.

19.6.19 Setting the Segment length (*Mode Seg.Size*) parameter



Various settings can be made for the segment length. The possibilities are explained in more detail in the table.

Menu item	Setting options
<i>Length</i>	Seam sections are measured via the length specification (in mm).
<i>By Count</i>	Seam sections are measured via the stitch count.

19.6.20 Setting the Threading mode (*Threading*) parameter

Various settings can be made for the threading mode. The possibilities are explained in more detail in the table.

Menu item	Setting options
<i>Down</i>	The sewing foot is lowered in threading mode.
<i>Top</i>	The sewing foot is lifted in threading mode.
<i>Pedal</i>	The sewing foot can be lifted or lowered with the pedal in threading mode.

19.6.21 Setting the Operation lock (*MachineBlockage*) parameter

Various settings can be made for the operation lock. The possibilities are explained in more detail in the table.




Menu item	Setting options
<i>Mode</i>	0 Sewing feet remain at their last position and cannot be moved by the operator
	1 Sewing feet can be lifted using the pedal

19.7 User config. submenu



Settings can be made here that are designed to make working on the machine in various external conditions easier for the user. The parameters are explained in more detail in the subchapters.

The menu is divided into the following submenus:

Parameter	Explanation	Reference
<i>Language</i>	Language selection	 p. 112
<i>ParameterView</i>	Parameter view	 p. 112
<i>Input Config</i>	Configuration of the inputs	 p. 113

Parameter	Explanation	Reference
<i>Output Config</i>	Configuration of the outputs	p. 115
<i>Add I/O</i>	Additional inputs/outputs	p. 116
<i>Scanner</i>	Hand scanner	p. 119
<i>Interface</i>	Interface	p. 119
<i>StitchFunctions</i>	Stitch functions	p. 119
<i>Programs</i>	Programs	p. 120
<i>Jog-Dial</i>	Electronic handwheel	p. 120
<i>Lock</i>	Access rights	p. 121
<i>QONDAC</i>	Networking of machines	p. 122
<i>FastMenuKeys</i>	Activation of the fast menu keys	p. 122
<i>Contrast</i>	Contrast	p. 123
<i>Brightness</i>	Brightness	p. 123

19.7.1 Setting the Language selection (*Language*) parameter



Selecting from various languages for the display on the control panel.

To set the Language selection parameter:

1. Select the *Language* parameter.
 2. Select the desired language with the ▲/▼ buttons.
 3. Press the **OK** button to confirm the selection.
- ↳ The language is set immediately.

19.7.2 Setting the Parameter View (*ParameterView*) parameter

The display of the parameter numbers can be activated or deactivated. When activated, the parameter numbers appear on the display on the left next to the menu items.

Fig. 83: Example *ParameterView* inactive



Fig. 84: Example *ParameterView* active



When *ParameterView* is active, the item *ParameterCall* is added to the menus in both Manual mode and Automatic mode. This function is described separately (📖 p. 92).

19.7.3 Setting the Input configuration (*Input Config*) parameter

Configure and allocate the inputs here. The table shows the inputs and their allocation.

Machine input signal		Input
Buttons on the button bar	S1	X120T.3
	S2	X120T.16
	S3	X120T.4
	S4	X120T.17
	S5	X120T.5
	S6	X120T.18
Knee button S1		X120T.15
Knee button S2		X120T.2
Electronic handwheel S1		X100B.15
Operation lock input (input on the circuit board)		X120B.2
DB3000 IN (X23) (input on the circuit board)		X120B.15
Light barrier (X21) (optional)		X100B.4
Additional button S1 (optional)		X120B.16
Additional button S2 (optional)		X120B.4

A mode can be allocated to every input (parameter T 53 00). The following table lists the modes:

Menu item	Setting options	
<i>Mode</i>	0, 7, 9, 10, 13, 14, 16, 17, 19, 22, 24	No function assigned
	1	Threading position
	2	Bartack active/inactive.
	3	Manual bartack
	4	Half stitch
	5	Full stitch
	6	Point position
	8	Needle height
	11	2. Needle thread tension
	12	Change of stitch length
	15	Seam center guide/puller
	18	Light barrier
	20	Operation lock when contact is opened normally (NO)
	21	Quick stroke height adjustment
	23	Change to next seam section
	25	2. Position of edge guide
	26	Sewing feet lift position (shoe machines)
	27	Additional fullness
28	Tension tape	
29	Puller	
31	Operation lock when contact is closed (N.C.)	
32	Operation lock in the seam (stop after bartack or thread cutter (N.C.))	
<i>Stored</i>	<i>On</i> - stored <i>Off</i> - not stored	

19.7.4 Setting the Output configuration (*Output Config*) parameter

Configure and allocate the outputs here. The table shows the outputs and their allocation. The pins on the circuit board are labeled and must be allocated according to the table, depending on what was connected to the pin.

Machine output signal	Output
ML (X22)	X120B.9
NK (X22)	X120B.10
RA (X16)	X120B.12
STL (X17)	X120B.22
STL(FA) (X18)	X120B.23
FL (X15) (X22)	X90.12
FF3 OUT (X22)	X90.15

A mode can be allocated to every output (parameter T 56 00). The following table lists the modes:

Mode	Function
0	No function assigned
1	Needle cooling
2	Cleaning signal for the remaining thread monitor
3	Pos 1 (needle down)
4	Pos 2 (top dead center)
5	Motor running signal
6	Puller/seam center guide
7	Sewing foot lift signal
8	Puller
9	Puller pressure
10	Bartack
11	Bartack process
12	Thread cutter
13	In the seam
14	Segment Output 1
15	Segment Output 2
16	Segment Output 3
17	Segment Output 4

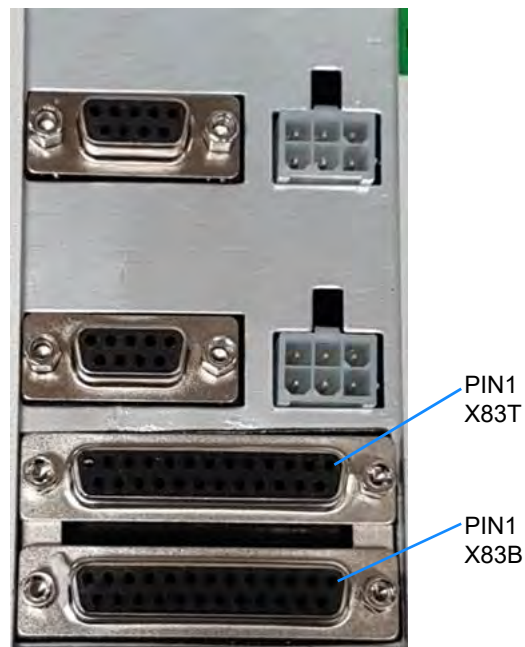
Mode	Function
18	Segment Output 5
19	Segment Output 6
20	Segment Output 7
21	Segment Output 8

19.7.5 Setting the Additional inputs/outputs (*Add I/O*) parameter

The additional outputs make it possible to implement customer-specific applications. Signals to the inputs / outputs can be assigned using the parameters T 53 00 (📖 p. 113) and T 56 00 (📖 p. 115).

See below for wiring examples of the additional inputs/outputs.

Fig. 85: Connection of the additional inputs/outputs



Important

Maximum output current 100 mA - for X83T.9, X83T.10, X83T.11, and X83T.12, maximum output current 2 A.

Fig. 86: Wiring - plug X83B

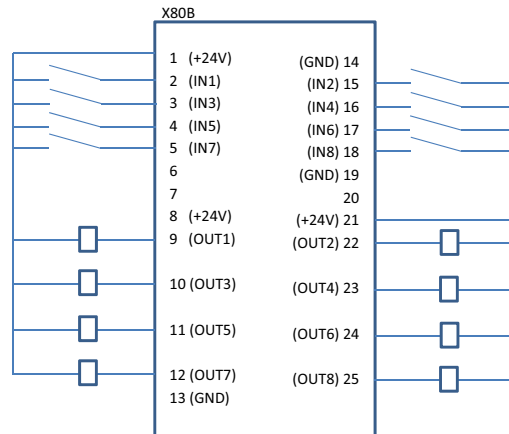


Fig. 87: Wiring - plug X83T

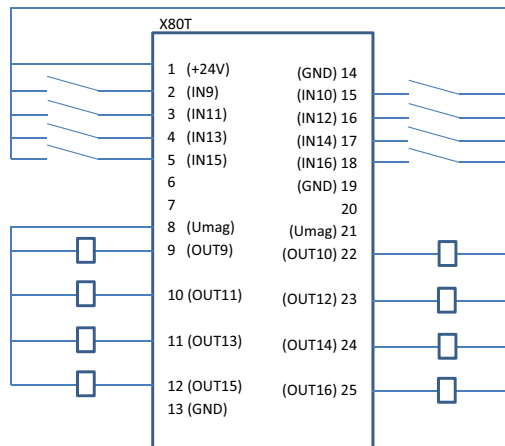


Fig. 88: Example of adapter for PLC and DACcomfort

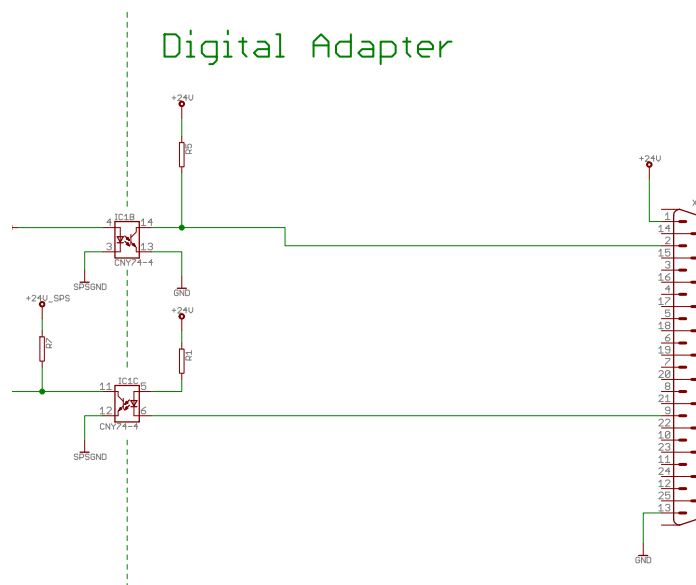
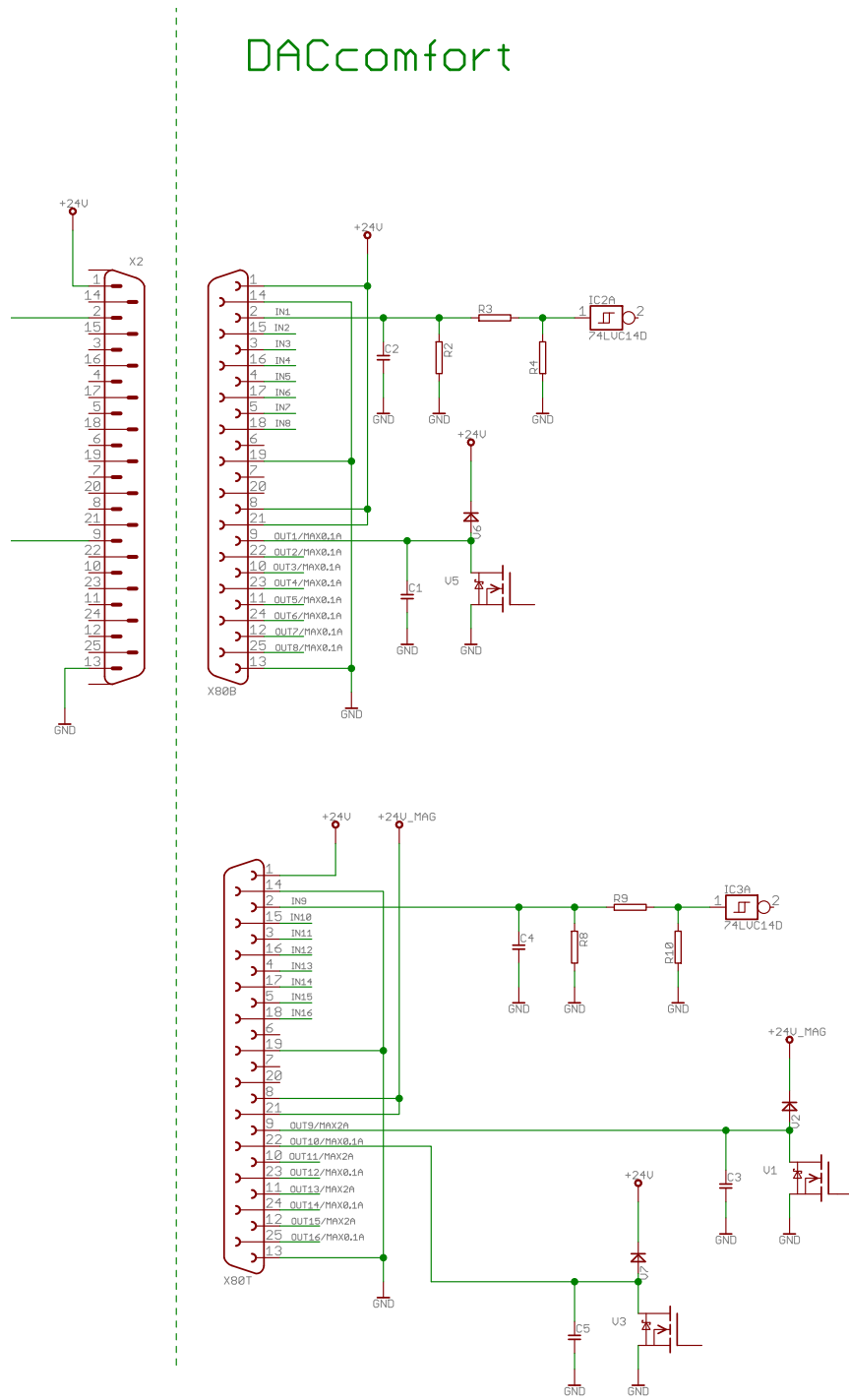


Fig. 89: Connecting adapter to DACcomfort



19.7.6 Setting the barcode scanner (*Scanner*) parameter

The barcode scanner can be active or inactive. A barcode scanner offers a way to directly select a seam program.

The following types of barcodes can be read using the barcode scanner:


- Code 128
- UCC EAN 128
- Code 39

These barcode types can be created with freeware software.



Important

The barcode must be composed of 3 to 32 bars. The 3-digit number of the program (001 to 999) must be contained in the barcode.

Refer to the  *Appendix* for a few barcode examples that you can use.

19.7.7 Setting the Interface (*Interface*) parameter

The interfaces can be used for the barcode scanner. The parameter is active if a barcode scanner is connected.

It is possible to define additional settings for the operation lock. The possibilities are explained in more detail in the table.

Menu item	Setting options
<i>BDE</i> (Interface at the front of the control)	<i>Mode</i> 0 = off 1 = scanner
	<i>Baudrate</i> Transfer rate of the scanner (Value range 19,400-115,200)
<i>X170T</i> (Interface at the rear of the control)	<i>Mode</i> 0 = off 1 = scanner
	<i>Baudrate</i> Transfer rate of the scanner (Value range 19,400-115,200)

19.7.8 Setting the Stitch functions (*StitchFunctions*) parameter

The machine counts the stitches when a program is processed with the pedal. If the user sews half stitches or full stitches manually, they can also be counted, if required. To do so, this function must be active.

The electronic handwheel is not affected by this setting.

19.7.9 Setting the Programs (*Programs*) parameter

P
001-999

Various settings can be made for the programs. The possibilities are explained in more detail in the table.

Menu item	Setting option	
<i>Forward Sound</i>	Sound when changing between two seam sections. (Value range: On/Off)	
<i>Seg. Switch</i>	A switch between two seam sections is usually carried out with the ► button. This function can also be assigned to Position -2 on the pedal. (Value range: On/Off) Notice: Position -2 actually causes a cancelation when actuated during a seam section. If the section change function is assigned to Position -2, the softkey menu can be used for a cancelation (it is still possible to continue sewing from that point; for a full cancelation of the program, press the pedal in Position -2 again).	
<i>Abort</i>	<i>Mode</i>	<i>Position</i> After the cancelation, the needle is merely brought to its end position and the thread is cut (if activated).
		<i>Seg. End</i> Ending of the program with all configurations that are set for this seam section.
	<i>Thread Trim</i> The thread cutter becomes active or remains inactive when a seam section is canceled. (Value range: On/Off)	
	<i>Pedal Abort</i> Abort a program by pressing the pedal in Position -2 twice. (Value range: On/Off)	

19.7.10 Setting the Electronic handwheel (*Jog-Dial*) parameter

The electronic handwheel can be activated or deactivated.

19.7.11 Setting the Access rights (*Lock*) parameter



The access to certain functions and areas can be restricted for the user. If an access lock is set, it is shown in both the Manual and Automatic modes. A key symbol appears on the display, on the right next to the program number.

Various settings can be made for the access rights. The possibilities are explained in more detail in the table.

Menu item	Setting option	
<i>Password</i>	Set your own access password for the Technician level. 00000 corresponds to the password preset by Dürkopp Adler. Do not lose the new password! (Value range 00000 – 99999)	
<i>Key</i>	Mode for accessing the Technician level	
	<i>Code</i>	Access via defined password only
	<i>USB</i>	Access via USB key with access file only
	<i>USB + Code</i>	Access via defined password or USB key with access file.
<i>Security Key</i>	The defined password is saved as a file to a USB key. The USB key provides access with this password on all machines. The file stored on the USB key cannot be copied.	
<i>Prog. Switch</i>	The last active program is fixed on the Operator level. It is not possible to change to a different program. (Value range: On/Off)	
<i>Manual</i>	Selective restriction of areas in Manual mode R/W – Read/Write Off – Area is hidden R/O – Read Only	
	<i>Parameter</i>	Restriction of access to the parameters (Value range R/W, Off)
	<i>Stitch length</i>	Restriction of access to the stitch length (Value range R/W, OFF, R/O)
	<i>Thr. Tens.</i>	Restriction of access to the needle thread tension (Value range R/W, OFF, R/O)
	<i>Foot Press.</i>	Restriction of access to the foot pressure (Value range R/W, OFF, R/O)
	<i>Foot Stroke</i>	Restriction of access to the sewing foot stroke (Value range R/W, OFF, R/O)

Menu item	Setting option
<i>Program</i>	Selective restriction of access to the existing program and its parameters R/W – Read/Write Off – Area is hidden R/O – Read Only
<i>Programming</i>	It is not possible to create new programs; it is not possible to edit existing programs (Value range: On/Off)
<i>St. Len. Corr</i>	Restriction of access to the correction factor for the stitch length (Value range R/W, OFF, R/O)
<i>Tens. Corr</i>	Restriction of access to the correction factor for the needle thread tension (Value range R/W, OFF, R/O)

19.7.12 Setting the QONDAC (*QONDAC*) parameter



Machines can be interlinked to allow for networked operation. Various settings can be made for the networking of the machines. The possibilities are explained in more detail in the table.




Menu item	Setting options
<i>On/Off</i>	QONDAC active/inactive
<i>Customer ID</i>	Editor that lets you set the customer ID
<i>Ethernet Config</i>	Adjustment of the Ethernet configuration

For detailed information on how to network machines, refer to the documentation of the QONDAC.

19.7.13 Setting the Fast menu keys (*FastMenuKeys*) parameters

The fast menu keys can only be used in manual mode. They are shown in the bottom section of the display on the control panel. None of the parameters that may have been selected for the info screen are displayed.

Symbol	Meaning
	Start bartack (off/single/double)
	End bartack (off/single/double)

Symbol	Meaning
	Thread cutter (active/inactive)
	Needle position (bottom/top)
	Sewing foot position (bottom/top)

19.7.14 Setting the Contrast (*Contrast*) parameter



Set the contrast of the OP3000 to the user's needs here.

To set the parameter:

1. Select the *Contrast* parameter.
2. Press the **OK** button to confirm the selection.
3. Enter the desired value (010 – 255).
4. Press the **OK** button to confirm the value.

19.7.15 Setting the Brightness (*Brightness*) parameter



Set the brightness of the OP3000 to the user's needs here.

To set the parameter:

1. Select the *Brightness* parameter.
2. Press the **OK** button to confirm the selection.
3. Enter the desired value (000 – 255).
4. Press the **OK** button to confirm the value.

19.8 Service submenu



Make technical settings here, so that the machine runs without any problems. The parameters are explained in more detail in the subchapters.

The menu is divided into the following submenus:

Parameter	Explanation	Reference
<i>Multitest</i>	Multitest	p. 124
<i>Settings</i>	Service routine	p. 128
<i>Calibration</i>	Calibration	p. 128
<i>Error Log</i>	Error list	p. 131

19.8.1 Setting the Multitest (*Multitest*) parameter



This parameter makes it possible to test whether, for example, magnets, drives, and inputs or outputs are functioning correctly. *Parameter Sheet 869-M PREMIUM* lists the necessary allocations.

Subitem	Explanation	Reference
<i>Test Output</i>	Test of the outputs	p. 124
<i>Test PWM</i>	Test of the pulse width modulation	p. 125
<i>Test Input</i>	Test of the inputs	p. 125
<i>Test Ana. Input</i>	Test of the analog inputs	p. 126
<i>Test Auto Input</i>	Test of the inputs	p. 126
<i>Test Sew. Motor</i>	Test of the sewing motor	p. 126
<i>Test Step. Motor</i>	Test of the stepper motors	p. 127
<i>Test Pedal</i>	Test of the analog pedal	p. 128
<i>Test Fabric Sen</i>	Test of the material thickness detection (sensing)	p. 128



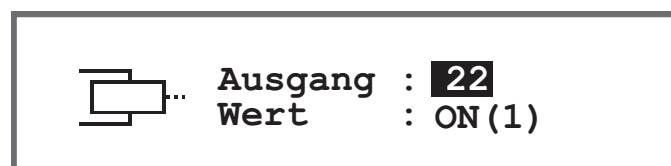
Test Output subitem

Test of the outputs according to the wiring diagram.

To test the outputs:

1. Select the desired output with the ▲/▼ buttons.

Fig. 90: Test Output subitem



2. Press the **OK** button to activate/deactivate the selected output.



Test PWM subitem

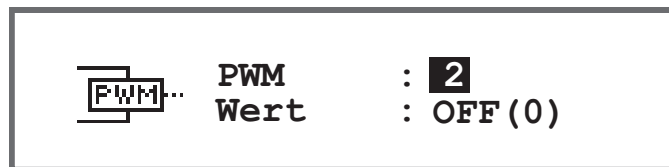
Test of the pulse width modulation. Set the electrical voltage in proportion to the force exerted by the electrical actuator (100 % corresponds to 24 V). The modulation is applied in 2 periods (t1 and t2) and must be adjusted in percent. The BOOST function effects a voltage overshoot in period (t1).



To check the power outputs of the pulse width modulation:

1. Use the ▲/▼ buttons in the *PWM* field to choose the element that you wish to test.

Fig. 91: Test PWM subitem



2. Press the **OK** button to confirm the selection.
- ↳ The *Value* display toggles between *On* and *Off* every time the **OK** button is pressed.
3. Observe the selected element and check if a press on **OK** actually triggers it.



Important

The values indicated in the % field merely provide a reference point as to the range within which the tension may increase or decrease.



Test Input subitem

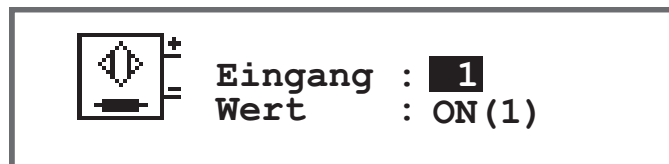
Test of the inputs according to the wiring diagram.



To perform the test steps:

1. Select the desired element with the ▲/▼ buttons in the *Input* field.

Fig. 92: Test Input subitem



2. Confirm the selected element (e.g. button, knee button, etc.).
3. Observe the display on the control panel.
- ↳ If the element is functional, the display switches between *On* and *Off* under *Value*.



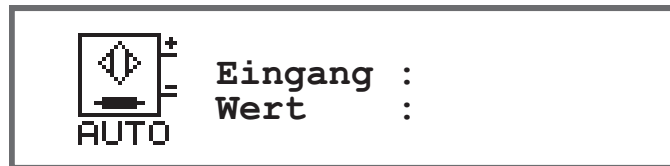
Test Ana. Input subitem

1. Select the desired element with the ▲/▼ buttons in the *Input* field.
 2. Confirm the selected element.
 3. Observe the display on the control panel.
- ↳ If the element is functional, the corresponding value is displayed.



Test Auto Input subitem

Fig. 93: Test Auto Input subitem



In this subitem, you can carry out the same tests as under *Test Input* without having to select the element beforehand via the display.



To perform the test steps:

1. Confirm the element.
- ↳ In *Input*, the display shows the number of the element last changed. If the element is functional, the display switches between *On* and *Off* under *Value*.



Test Sew. Motor subitem

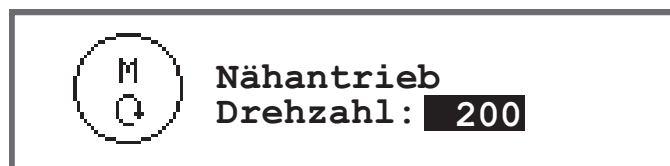
Use this subitem to test the functionality of the sewing motor.



To check the sewing motor:

1. Press the **OK** button.
- ↳ The machine performs a reference run.
2. In the *Speed* field, use the ▲/▼ buttons to enter a speed in steps of 100.

Fig. 94: Test Sew. Motor subitem



3. Press the **OK** button to confirm the input.
- ↳ The sewing motor runs at the entered speed.
4. To end, press the **OK** or **ESC** button.



Test Step Motor subitem

You use this subitem to test stepper motors for stitch length adjustment, sewing foot lifting/sewing foot pressure and stroke adjustment. The machine can move to defined positions (steps), where 2000 steps = 360.

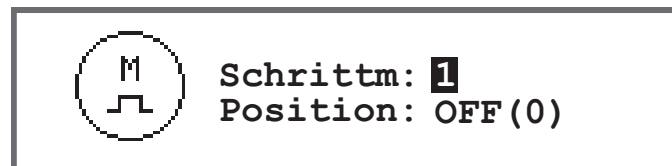


To test the stepper motors:

1. Select the desired motor with the ▲/▼ buttons in the *Stepper* field.

Input	Stepper motor
1	Stitch length adjustment
2	Sewing foot lift
3	Stroke adjustment

Fig. 95: Test Step Motor subitem



2. Press the **OK** button to confirm the selection.
 3. Use the ▲/▼ buttons to test the selected motor.
- ↳ If the motor is functioning correctly, the behavior described in the table will be shown.

Input	Stepper motor	Test method
1	Stitch length adjustment (x30)	The feed gear completes a movement.
2	Sewing foot lift (x40)	The sewing feet perform a vertical movement.
3	Stroke adjustment (x50)	The lifting gear completes a movement.



Information

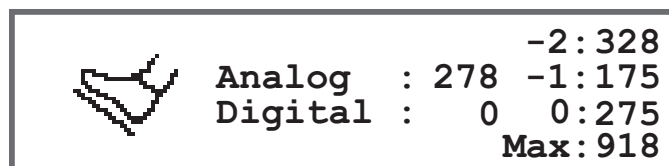
There is no specific procedure for testing the stepper motor encoders. The encoders are tested along with the stepper motors. If the result for the stepper motors is OK, the encoders will be functional as well.



Test Pedal subitem

This subitem is used to check the various pedal positions of the analog pedal (X6b). The positions are indicated by measured and automatically calculated calibration values.

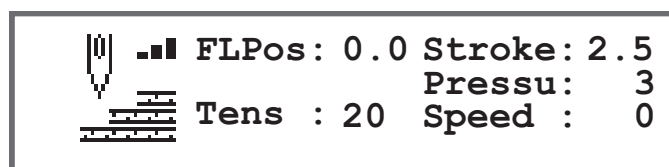
Fig. 96: Test Pedal subitem



Test Fabric Sen subitem

Use this subitem to test the functionality of the material thickness detection.

Fig. 97: Test Fabric Sen subitem



19.8.2 Setting the Service routine (*Adjustments*) parameter



The *Adjustments* parameter is not explained in greater detail here, because it is closely to the area of the mechanics. Details on that area can be found in the Service routine chapter (📖 p. 14).

19.8.3 Setting the Calibration (*Calibration*) parameter



Various parameters need to be calibrated – they are explained in more detail in the table. A detailed description of the calibration is given after the table.

Menu item	Explanation	Reference
<i>Feed Cal.Main</i>	Calibration of the stitch length and/or the feed	📖 p. 129
<i>Mat.Thickness</i>	Calibration of the material thickness detection	📖 p. 130
<i>Man.St.Len.</i>	Calibration of the stitch adjustment lever (optional equipment)	📖 p. 130
<i>EdgeGuide</i>	Calibration of the edge guide (optional equipment)	📖 p. 130
<i>Pedal</i>	Calibration of the pedal	📖 p. 131



Calibration of the Stitch length (*Feed Cal.Main*)

The stitch length must be the same in forward and backward stitches. As a test, sew a seam forward on paper, stop, and sew a seam backward. The insertions of the forward and backward stitches have to lie within one another. If this is not the case, then calibration is necessary.

WARNING




Risk of injury from the heavy machine head!

Crushing possible.

Tilt the machine carefully and in a controlled manner. Never reach with the hands under the machine.

To calibrate the stitch length:

1. Setting the stitch length mechanically ( p. 32).
2. Call up the *Service > Calibration > Feed Cal.Main* menu item.
3. Select the stitch length (-6/0/6) and confirm with the **OK** button.
4. Start the sewing test on paper with the pedal and then check the stitch length:

Stitch length	Length of test run
-6	Test run must be 60 mm
0	Test run must be almost 0 mm, and the penetration hole is round, not oval.
6	Test run must be 60 mm

5. If the test run is not the correct length, the values must be adjusted accordingly:

Stitch length	Adjust values
-6	Reduce value – stitch length becomes smaller Increase value – stitch length becomes larger
0	Reduce value – stitch length becomes larger Increase value – stitch length becomes smaller
6	Reduce value – stitch length becomes larger Increase value – stitch length becomes smaller

6. Perform sewing test again and check the stitch length.
7. If the test run is the correct length, confirm with the **OK** button.

After calibrating the stitch length, it is advisable to perform another test in standard sewing mode. Select a program that has a bartack. Perform the test on paper again. The stitches should run neatly into each other; if this is not the case, calibrate again.



Calibration of the material thickness detection (*Mat.Thickness*)

Only one value needs to be checked when calibrating the material thickness detection.

To calibrate the material thickness detection:

1. Call up the *Service > Calibration > Mat.Thickness* menu item.
2. Follow the instructions on the display.



Calibration of the stitch adjustment lever (*Man.St.Len*)

The stitch adjustment lever is optional equipment. The stitch adjustment lever can be used to reduce the stitch length or to sew backward stitches. When the stitch adjustment lever is pressed down fully, the value of the backward stitch must match the forward stitch length.

To calibrate the stitch adjustment lever:

1. Call up the *Service > Calibration > Man.St.Len.* menu item.
2. Value for the potentiometer should match the proposed value of 2500.
3. After adjusting the value, follow the instructions on the display.



Important

If the lower position of the stitch adjustment lever is being tested, it must be pressed right down to the stop.



Calibration of the Edge guide (*EdgeGuide*)

The edge guide is optional equipment.

To calibrate the edge guide:

1. Call up the *Service > Calibration > EdgeGuide* menu item.
2. Press the **OK** button to confirm the selection.
 - ↪ The edge guide moves to the reference position.
3. Fold the edge guide down.
4. Measure the distance between the needle and the edge guide.
5. Enter the value with the ▲/▼ buttons.
6. Press the **OK** button to confirm the input.
 - ↪ The calibration of the edge guide is complete.




Calibration of the Pedal (*Pedal*)

Only one value needs to be checked when calibrating the pedal.

To calibrate the pedal:

1. Call up the *Service > Calibration > Pedal* menu item.
2. Follow the instructions on the display.

19.8.4 Displaying the Error list (*Error Log*) parameter

The error list shows the errors that have occurred in the form of a list. The list can be exported to a USB key,  p. 137.

19.9 Counter submenu



Use this menu item to view the readings of the various counters. They are intended for information only – no settings can be made.

Abbreviation	Meaning
<i>P. C.</i>	Piece Counter Piece counter showing the number of sewing items that the machine has sewn so far.
<i>P. C. D.</i>	Piece Counter Daily Daily pieces counter, showing the number of sewing items that the machine has sewn since the last reset.
<i>S. C.</i>	Stitch Counter Number of stitches that the machine has sewn so far.
<i>B. C.</i>	Bobbin Counter Number of stitches that have been sewn with the bobbin since the last reset.

19.10 Reset data (*Reset*) submenu



Use this submenu to reset the data of the machine. Various settings can be made for resetting the data. The possibilities are explained in more detail in the table.

NOTICE

Property damage may occur!

Data and settings of the machines may be irretrievably lost.

Consider BEFORE the reset exactly which data need to be deleted.

Access is possible only by entering the password 25483 again.

The reset is carried out immediately after selecting a subitem with the arrow buttons and then pressing OK. There is no further query, and neither is there a message stating that the reset was performed.

To reset the data:

1. Select the *Reset* parameter.
 2. Press the **OK** button to confirm the selection.
 3. Select the desired option – see the table – with the ▲/▼ buttons.
 4. Press the **OK** button to confirm the selection.
- ↳ The reset is carried out without any further query and without a confirmation message.

Options for resetting the data





Menu item	Setting options
<i>Reset data</i>	All parameters are reset to the factory settings; this does not apply to the programs and the calibration values.
<i>Reset programs</i>	All created programs are erased.
<i>Reset Calibr.</i>	All calibration values are reset to the factory settings.
<i>Reset all</i>	All parameters, programs, and calibration values are reset to the factory settings.

19.11 Data Transfer submenu



Use this submenu to transfer data between the machine – or more precisely the control – and a USB key. Various options are available for the data transfer, which are explained in the subchapters.

The menu is divided into the following submenus:

Parameter	Explanation	Reference
<i>All data</i>	All data	 p. 133
<i>Only Data</i>	Only data	 p. 134
<i>Programs</i>	Programs	 p. 135
<i>Error Log</i>	Error list	 p. 137



Important

It is permitted only to use USB keys bought from Dürkopp Adler.

19.11.1 Setting the All data (*All Data*) parameter



All data – i.e. parameter settings, programs, and calibration values – are transferred to the USB key or the control.

To transfer all data:

1. Plug the USB key into the socket (1) on the control (2).

Fig. 98: Data Transfer submenu



(1) - Connection

(2) - Control

2. Call up the *Service > Data Transfer > All Data* menu item.
3. Press the **OK** button to confirm the selection.
4. Use the **▲/▼** buttons to choose between the options *Load from USB* or *Store to USB*.
5. Press the **OK** button to confirm.

↳ The following warning message appears:

Fig. 99: Data loss warning message



6. To cancel, press the **ESC** button; to continue, press the **OK** button.
- ↳ The data transfer begins and a message appears, stating that the USB key must not be removed:

Fig. 100: USB key warning



↪ The message disappears after the data transfer.

19.11.2 Setting the Only data (*Only Data*) parameter



Only the data for parameter settings and calibration values are transferred to the USB key or the control.

To transfer the parameter settings and calibration values:

1. Plug the USB key into the socket (1) on the control (2).

Fig. 101: Data Transfer submenu



(1) - Connection

(2) - Control

2. Call up the *Service > Data Transfer > Only Data* menu item.
 3. Press the **OK** button to confirm the selection.
 4. Use the **▲/▼** buttons to choose between the options *Load from USB* or *Store to USB*.
 5. Press the **OK** button to confirm.
- ↪ The following warning message appears:

Fig. 102: Data loss warning message



6. To cancel, press the **ESC** button; to continue, press the **OK** button.
- ↪ The data transfer begins and a message appears, stating that the USB key must not be removed:

Fig. 103: USB key warning



- ↪ The message disappears after the data transfer.

19.11.3 Setting the Programs (*Programs*) parameter



It is possible to transfer all or just specific programs to the USB key or the control.

To transfer the programs:

1. Plug the USB key into the socket (1) on the control (2).

Fig. 104: Data Transfer submenu



(1) - Connection

(2) - Control

2. Call up the *Service > Data Transfer > Programs* menu item.
 3. Press the **OK** button to confirm the selection.
 4. Use the **▲/▼** buttons to choose between the options *Load from USB* or *Store to USB*.
 5. Press the **OK** button to confirm.
- ↳ The following warning message appears:

Fig. 105: Data loss warning message



6. Select a program with the **▲/▼** buttons.
 7. Press the **OK** button to confirm the selection.
- ↳ A check mark in front of the program name shows that it has been selected.
8. Repeat the selection for all the desired programs or select all programs at the same time (see next step).
 9. Press the **▶** button; the selection *Destination, Select All, Deselect All* appears.
 10. Select the *Select All* option with the **▲/▼** buttons.

11. Press the **OK** button to confirm the selection.
 12. Press the ► button; the selection *Destination, Select All, Deselect All* appears.
 13. Select the *Destination* option with the ▲/▼ buttons.
 14. Press the **OK** button to confirm the selection.
 15. Select the desired folder with the ▲/▼ buttons or press the ► button and create a new folder with the *Create Folder* option.
 16. Press the **OK** button to confirm the selection.
 17. Give the folder a name using the numeric buttons.
 18. Press the **OK** button to confirm the name.
 19. Press the ► button and select the *Copy* option.
 20. Press the **OK** button to confirm the selection.
- ↳ The data transfer begins and a message appears, stating that the USB key must not be removed:

Fig. 106: USB key warning



- ↳ The message disappears after the data transfer.

19.11.4 Saving the Error list (*Error Log*) parameter

The error list can be saved to a USB key.



To save the error list to a USB key:

1. Plug the USB key into the control.
 2. Select the *Error Log* parameter and press the **OK** button to confirm.
- ↳ A warning appears - the USB key will be erased completely before the error list is compiled!
3. Press the **OK** button to acknowledge the error message.
- ↳ The error list is written to the USB key.

19.12 Performing a software update

When a new software version is available, this can be downloaded from www.duerkopp-adler.com and loaded into the control via a USB key. All settings on the machine are retained.



To load software via a USB key:

1. Switch off the machine at the main switch.
2. Plug the USB key into the socket (1) on the control (2).

Fig. 107: Performing a software update



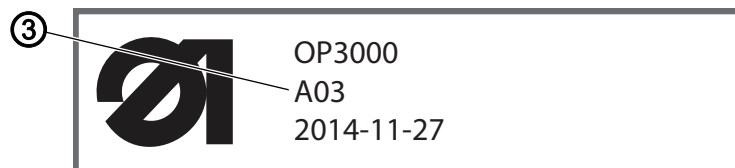
(1) - Connection

(2) - Control

3. Switch on the machine at the main switch.

✎ The machine automatically starts the software transfer. During the transfer, the display only shows the firmware version (3) of the control panel on the left.

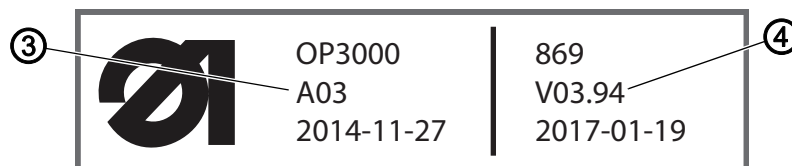
Fig. 108: Performing a software update



(3) - Firmware version

✎ As soon as the software update is finished, the display will also show the software version (4) of the machine on the right.

Fig. 109: Performing a software update



(3) - Firmware version

(4) - Software version

4. Wait until the machine has started and is showing the Manual mode or Automatic mode.

5. Remove the USB key from the control.
 - ↳ The software update is complete and the machine is ready to sew.

20 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.

Maintenance intervals

Work to be carried out	Operating hours			
	8	40	160	500
Machine head				
Removing lint and thread remnants	●			
Cleaning the motor fan mesh			●	
Checking the oil level	●			
Check the hook lubrication		●		
Pneumatic system				
Check the water level in the pressure controller	●			
Cleaning the filter element				●
Servicing specific components				
Checking the toothed belt			●	

20.1 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

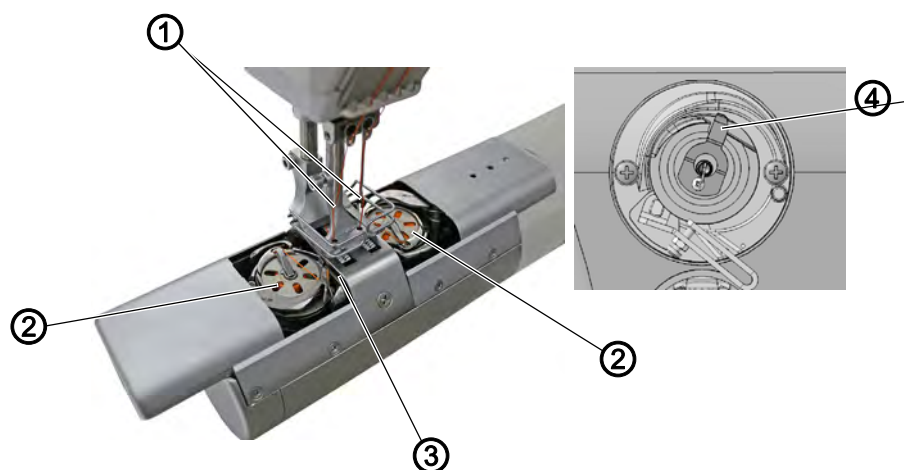
Property damage from solvent-based cleaners!

Solvent-based cleaners will damage paintwork.

Use only solvent-free substances for cleaning.

Lint and thread remnants should be removed after every 8 operating hours using a compressed air gun or a brush. If very fluffy sewing material is being sewn the machine must be cleaned more frequently.

Fig. 110: Cleaning



(1) - Area around the needles

(2) - Hook

(3) - Area under the throat plate

(4) - Cutter on the winder

Areas particularly susceptible to soiling:

- Cutter on the winder for the hook thread (4)
- Area under the throat plate (3)
- Hook (2)
- Area around the needle (1)



To clean the machine:

1. Remove any lint and thread remnants using a compressed air gun or a brush.

20.2 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:

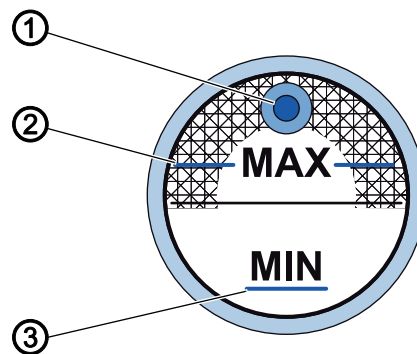
- Viscosity at 40 °C: 10 mm²/s
- Flash point: 150 °C

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

20.2.1 Lubricating the machine head

Fig. 111: Lubricating the machine head



(1) - Oil filler opening
(2) - MAX marking

(3) - MIN marking



Proper setting

The oil level must not raise above the MAX marking (2) or drop below the MIN marking (3).

If the oil level falls below the minimum level marking (3), the oil level indicator lights up in red.

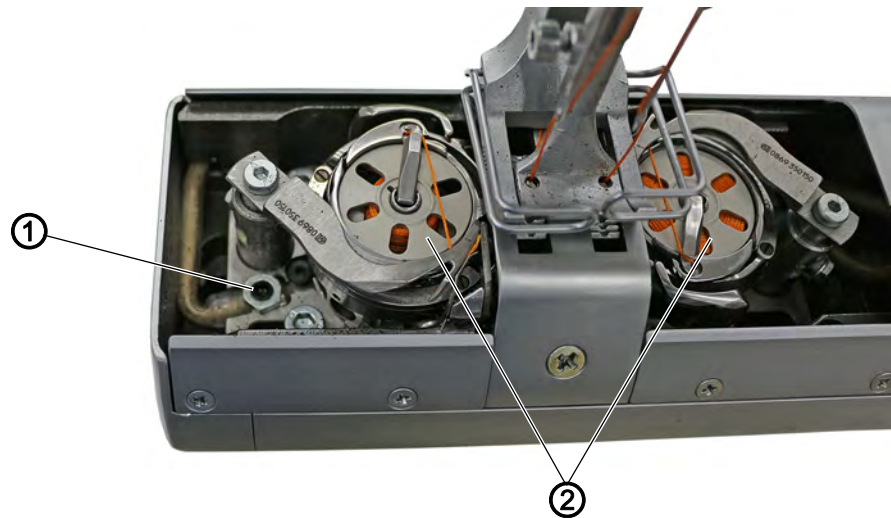


To top off the oil:

1. Fill oil through the oil filler opening (1) up to the MAX marking (2).
 2. Turn the machine off, then on again after refilling oil.
- ↪ The red light will turn off.

20.2.2 Checking the hook lubrication

Fig. 112: Checking the hook lubrication



(1) - Screw

(2) - Hook

The approved oil quantity for hook lubrication is a factory specification. Hold a piece of blotting paper next to the hook (2) while sewing.



Proper setting

After sewing a stretch of approx. 1 m, the blotting paper will have been sprayed with a thin and even film of oil.



To set the hook lubrication:

1. Turn the screw (1).
 - Release more oil: turn counterclockwise
 - Release less oil: turn clockwise
2. Apply the same setting procedure to the right hook.



Important

The released amount of oil does not change until the operating time has run a few minutes. Sew for several minutes before you check the setting again.

20.3 Servicing the pneumatic system

20.3.1 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.

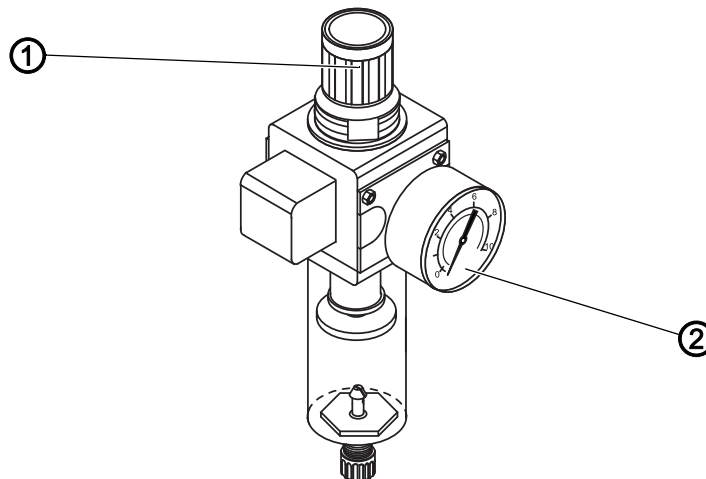


Proper setting

Refer to the **Technical data** (📖 p. 167) 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. 113: 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.

20.3.2 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.

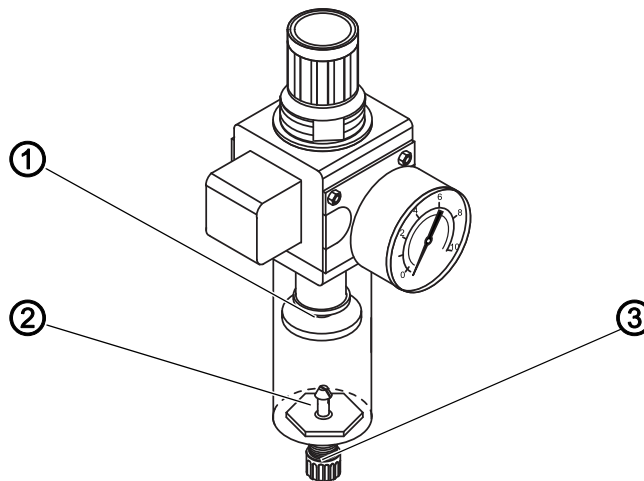


Proper setting

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. 114: 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.

20.3.3 Cleaning the filter element

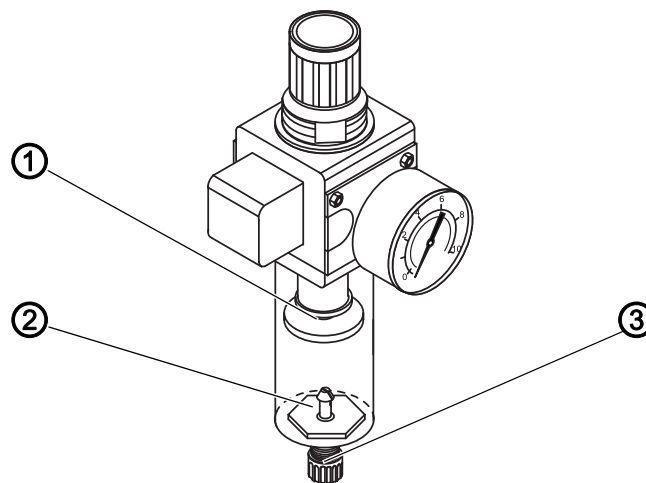
NOTICE

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. 115: 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. 147).
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.

20.4 Parts list

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

www.duerkopp-adler.com



21 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.

22 Disposal

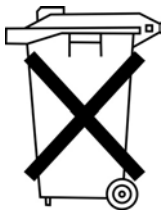
CAUTION



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.

23 Troubleshooting

23.1 Customer Service

Contact for repairs and issues with the machine:

Dürkopp Adler AG

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



23.2 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 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
Missing stitches	Needle thread and hook thread have not been threaded correctly	Check threading path
	Needle is blunt or bent	Replace 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 assembled 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


Error	Possible causes	Remedial action
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

23.3 Messages of the software

Code	Type	Meaning	Remedial action
1000	Error	Sewing motor encoder plug (Sub-D, 9pol) not connected	<ul style="list-style-type: none"> • Connect encoder cable to the control, use the correct interface
1001	Error	Sewing motor error Sewing motor plug (AMP) not connected	<ul style="list-style-type: none"> • Check connection and plug in • Test sewing motor phases (R = 2.8 Ω, high impedance to PE) • Replace encoder • Replace sewing motor • Replace control
1002	Error	Sewing motor insulation error	<ul style="list-style-type: none"> • Check motor phase and PE for low-impedance connection • Replace encoder • Replace sewing motor
1004	Error	Incorrect sewing motor direction of rotation	<ul style="list-style-type: none"> • Replace encoder • Check motor plug assignment and change it if necessary • Check wiring in machine distributor and change it, if necessary • Test motor phases and check for correct value
1005	Error	Motor blocked	<ul style="list-style-type: none"> • Eliminate stiff movement in the sewing machine • Replace encoder • Replace sewing motor
1006	Error	Maximum speed exceeded	<ul style="list-style-type: none"> • Replace encoder • Perform reset • Check machine class (t 51 04)
1007	Error	Error in the reference run	<ul style="list-style-type: none"> • Replace encoder • Eliminate stiff movement in the sewing machine
1008	Error	Sewing motor encoder error	<ul style="list-style-type: none"> • Replace encoder
1010	Error	External synchronizer plug (Sub-D, 9-pin) not connected	<ul style="list-style-type: none"> • Connect cable of external synchronizer to control, make sure that interface (Sync) is correct
1011	Error	Encoder Z pulse missing	<ul style="list-style-type: none"> • Switch off the control, use handwheel to turn, and switch on the control again • If error is not corrected, check encoder
1012	Error	Synchronizer fault	<ul style="list-style-type: none"> • Replace synchronizer
1054	Error	Internal short circuit	<ul style="list-style-type: none"> • Replace control

Code	Type	Meaning	Remedial action
1055	Error	Sewing motor overload	<ul style="list-style-type: none"> • Eliminate stiff movement in the sewing machine • Replace encoder • Replace sewing motor
1060	Error	Sewing motor overload/excess current/excess voltage	<ul style="list-style-type: none"> • Check selection of machine class • Replace control • Replace motor • Replace encoder
1061	Error	Sewing motor overload/excess current/excess voltage	<ul style="list-style-type: none"> • Check selection of machine class • Replace control • Replace motor • Replace encoder
1120	Error	Sewing motor Init error	<ul style="list-style-type: none"> • Performing a software update • Check selection of machine class
1121	Error	Sewing motor watchdog	<ul style="list-style-type: none"> • Performing a software update • Check selection of machine class
1203	Error	Position not reached <ul style="list-style-type: none"> • Thread cutting • Turn Back 	<ul style="list-style-type: none"> • Check the controller settings and change them if necessary (thread cutter setting, belt tension, etc.) • Check position thread lever at top dead center
1302	Error	Sewing motor current error	<ul style="list-style-type: none"> • Check Service Stop • Eliminate stiff movement in the sewing machine • Replace encoder • Replace motor
1330	Error	No answer from sewing motor	<ul style="list-style-type: none"> • Performing a software update • Replace control
2101	Error	DA stepper card X reference run timeout	<ul style="list-style-type: none"> • Check reference sensor
2105	Error	DA stepper card X blockage	<ul style="list-style-type: none"> • Eliminate stiff movement in the sewing machine
2121	Error	DA stepper card X encoder plug (Sub-D, 9-pin) not connected	<ul style="list-style-type: none"> • Connect encoder cable to the control, use the correct interface
2122	Error	DA stepper card X flywheel position not found	<ul style="list-style-type: none"> • Check connection cables • Check stepper motor 1 for stiff movement
2130	Error	DA stepper card X not responding	<ul style="list-style-type: none"> • Performing a software update • Replace control

Code	Type	Meaning	Remedial action
2131	Error	DA stepper card X Init error	<ul style="list-style-type: none"> Performing a software update Check selection of machine class
2152	Error	DA stepper card X excess current	<ul style="list-style-type: none"> Eliminate stiff movement in the sewing machine
2201	Error	DA stepper card Y reference run timeout	<ul style="list-style-type: none"> Check reference sensor
2205	Error	DA stepper card Y step losses	<ul style="list-style-type: none"> Eliminate stiff movement in the sewing machine
2221	Error	DA stepper card Y encoder plug (Sub-D, 9-pin) not connected	<ul style="list-style-type: none"> Connect encoder cable to the control, use the correct interface
2222	Error	DA stepper card Y flywheel position not found	<ul style="list-style-type: none"> Check connection cables Check stepper motor 2 for stiff movement
2230	Error	DA stepper card Y not responding	<ul style="list-style-type: none"> Performing a software update Replace control
2231	Error	DA stepper card Y Init error	<ul style="list-style-type: none"> Performing a software update Check selection of machine class
2252	Error	DA stepper card Y excess current	<ul style="list-style-type: none"> Eliminate stiff movement in the sewing machine
2271	Error	DA stepper card Y watchdog (sewing foot lift)	<ul style="list-style-type: none"> Performing a software update Check selection of machine class
2301	Error	DA stepper card Z reference run timeout (foot stroke)	<ul style="list-style-type: none"> Check reference sensor
2305	Error	DA stepper card Z step losses	<ul style="list-style-type: none"> Eliminate stiff movement in the sewing machine
2321	Error	DA stepper card Z encoder plug (Sub-D, 9-pin) not connected	<ul style="list-style-type: none"> Connect encoder cable to the control, use the correct interface
2322	Error	DA stepper card Z flywheel position not found	<ul style="list-style-type: none"> Check stepper motor 1 for stiff movement
2330	Error	DA stepper card Z not responding	<ul style="list-style-type: none"> Performing a software update Replace control
2331	Error	DA stepper card Z Init error	<ul style="list-style-type: none"> Performing a software update Check selection of machine class
2352	Error	DA stepper card Z excess current	<ul style="list-style-type: none"> Eliminate stiff movement in the sewing machine

Code	Type	Meaning	Remedial action
2371	Error	DA stepper card Z watchdog (sewing foot lift)	<ul style="list-style-type: none"> Performing a software update Check selection of machine class
2401	Error	DA stepper card U reference run timeout (edge stop)	<ul style="list-style-type: none"> Check reference sensor
2430	Error	DA stepper card U not responding	<ul style="list-style-type: none"> Performing a software update Replace control
2431	Error	DA stepper card U Init error	<ul style="list-style-type: none"> Performing a software update Check selection of machine class
3010	Error	U100 V start-up error	<ul style="list-style-type: none"> Disconnect motor plug; replace control if error is not corrected
3011	Error	U100 V short circuit	<ul style="list-style-type: none"> Disconnect motor plug; replace control if error is not corrected: Replace control
3012	Error	U100 V (I^2T) overload	<ul style="list-style-type: none"> One or several stepper motors defective
3020	Error	U24 V start-up error	<ul style="list-style-type: none"> Disconnect magnet plug; replace control if error is not corrected: Replace control
3021	Error	U24 V short circuit	<ul style="list-style-type: none"> Disconnect 37-pin plug; if error is not corrected: Replace control
3022	Error	U24 V (I^2T) overload	<ul style="list-style-type: none"> One or several magnets defective
3030	Error	Motor phase failure	<ul style="list-style-type: none"> Replace control
3104	Warning	Pedal position is not in position 0	<ul style="list-style-type: none"> When switching the control on, take your foot off the pedal
3109	Warning	Operation lock	<ul style="list-style-type: none"> Check tilt sensor on machine
3110	Information	Magnet for thread tension on the right is not connected	<ul style="list-style-type: none"> Check connection of magnet for thread tension on the right
3111	Information	Magnet for thread tension on the left is not connected	<ul style="list-style-type: none"> Check connection of magnet for thread tension on the left
3150	Information	Maintenance necessary	<p> p. 141</p>
3354	Information	Error during thread cutting	<ul style="list-style-type: none"> Performing a software update
3383	Information	Error during reference run of the motor	<ul style="list-style-type: none"> Check motor Performing a software update

Code	Type	Meaning	Remedial action
4201	Warning	SD card error	<ul style="list-style-type: none"> • Insert SD card • Replace control
4430	Warning	OP3000 connection lost	<ul style="list-style-type: none"> • Check connection to OP3000 • Replace OP3000 • Replace control
4440	Error	OP3000: DAC receive buffer exceeded	<ul style="list-style-type: none"> • Check connection to OP3000 • Replace OP3000 • Replace control
4441	Warning	OP3000: DAC receiver timeout	<ul style="list-style-type: none"> • Check connection to OP3000 • Replace OP3000 • Replace control
4442	Warning	OP3000: DAC unknown message	<ul style="list-style-type: none"> • Check connection to OP3000 • Replace OP3000 • Replace control
4443	Warning	OP3000: DAC invalid checksum	<ul style="list-style-type: none"> • Check connection to OP3000 • Replace OP3000 • Replace control
4445	Error	OP3000: DAC send buffer exceeded	<ul style="list-style-type: none"> • Check connection to OP3000 • Replace OP3000 • Replace control
4446	Warning	OP3000: DAC no response	<ul style="list-style-type: none"> • Check connection to OP3000 • Replace OP3000 • Replace control
4447	Warning	OP3000: DAC invalid response	<ul style="list-style-type: none"> • Check connection to OP3000 • Replace OP3000 • Replace control
4450	Error	OP3000: DAC OP receive buffer exceeded	<ul style="list-style-type: none"> • Check connection to OP3000 • Replace OP3000 • Replace control
4451	Warning	OP3000: DAC OP receiver timeout	<ul style="list-style-type: none"> • Check connection to OP3000 • Replace OP3000 • Replace control
4452	Warning	OP3000: DAC OP unknown message	<ul style="list-style-type: none"> • Check connection to OP3000 • Replace OP3000 • Replace control
4456	Warning	OP3000: DAC no response	<ul style="list-style-type: none"> • Check connection to OP3000 • Replace OP3000 • Replace control

Code	Type	Meaning	Remedial action
4460	Warning	OP7000 connection lost	<ul style="list-style-type: none"> • Check connection to OP7000 • Replace OP7000 • Replace control
5001	Information	Incorrect class	<ul style="list-style-type: none"> • Change class • Perform reset
5002	Information	Incorrect class or machine ID connection error	<ul style="list-style-type: none"> • Change class • Perform reset
5003	Information	Data version is too old	<ul style="list-style-type: none"> • Perform reset
5004	Information	Checksum is incorrect	<ul style="list-style-type: none"> • Perform reset
6360	Information	No valid data on external EEPROM	<ul style="list-style-type: none"> • Update software, internal data structures are not compatible with the external data storage device
6361	Information	No external EEPROM connected	<ul style="list-style-type: none"> • Connect machine ID
6362	Information	No valid data on internal EEPROM	<ul style="list-style-type: none"> • Check machine ID connection • Switch off the control, wait until the LEDs have gone out, and then switch on the control again • Update software, the internal data structures are not compatible with the external data storage device
6363	Information	No valid data on the internal and external EEPROM (only emergency operating features).	<ul style="list-style-type: none"> • Check machine ID connection • Switch off the control, wait until the LEDs have gone out, and then switch on the control again • Update software, the software version is not compatible with the internal data storage device
6364	Information	No valid data on internal EEPROM and external EEPROM not connected	<ul style="list-style-type: none"> • Check machine ID connection • Switch off the control, wait until the LEDs have gone out, and then switch on the control again • Update software, internal data structures are not compatible with the external data storage device
6365	Information	Internal EEPROM defective	<ul style="list-style-type: none"> • Replace control
6366	Information	Internal EEPROM defective and external data not valid (only emergency operating features)	<ul style="list-style-type: none"> • Replace control
6367	Information	Internal EEPROM defective and external EEPROM not connected	<ul style="list-style-type: none"> • Replace control

Code	Type	Meaning	Remedial action
7270	Information	External CAN	<ul style="list-style-type: none"> • Check connection cables • Performing a software update • Replace CAN slaves
9330	Information	Material thickness sensor not connected	<ul style="list-style-type: none"> • Check connection cables • Performing a software update • Replace material thickness sensor
9340	Error	Bobbin Monit not connected	<ul style="list-style-type: none"> • Check connection cables • Performing a software update • Replace Bobbin Monit
9922	Error	Service Stop	<ul style="list-style-type: none"> • Check connection cables • Performing a software update • Replace control



23.4 Error in the software

In rare cases, it may happen that no more menus can be called up after an error message. Even restarting the machine does not eliminate this problem.

In this case, it is possible to access the Technician level immediately during machine startup. It is then possible to carry out an error diagnosis using *Multitest* or to reset the machine to the factory settings in the *Reset* menu.



To access the Technician level during startup:

1. Switch off the machine at the main switch.
2. Hold button **F** pressed and at the same time switch on the machine at the main switch.
- ↳ The machine starts and the display shows the input screen for the password.
3. Use the numeric buttons to enter the password (25483).
- ↳ You are on the Technician level:
Only the two menus *Multitest* ( p. 124) and *Reset* ( p. 131) are available with this access.

23.5 Testing the function of the buttons

If it is suspected that the buttons on the control panel are not functioning correctly, this function can be tested.

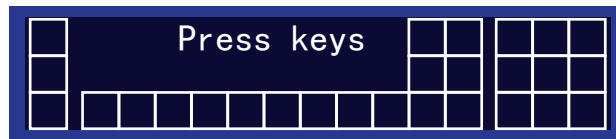


To test the functionality of the buttons on the control panel:

1. Switch off the machine at the main switch.

2. Hold button **F** pressed and at the same time switch on the machine at the main switch.

↪ The display shows the this mask:

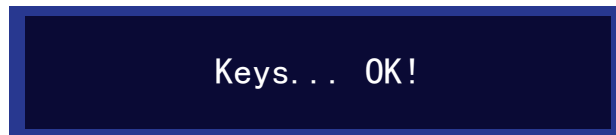


3. Press all the buttons on the control panel in any order except for **ESC**.

↪ If a button is functional, then the corresponding box on the display will be filled in (highlighted brightly).
If the button is not functional, then the box stays empty.

4. Press the **ESC** button to end.

↪ If all the buttons are functional, the display shows the following status message:



5. Press the **OK** button.

If one or several buttons are not functional:

↪ The display shows the status message *Keys ... NOT OK!*
The control panel has to be replaced.

24 Technical data

Data and characteristic values

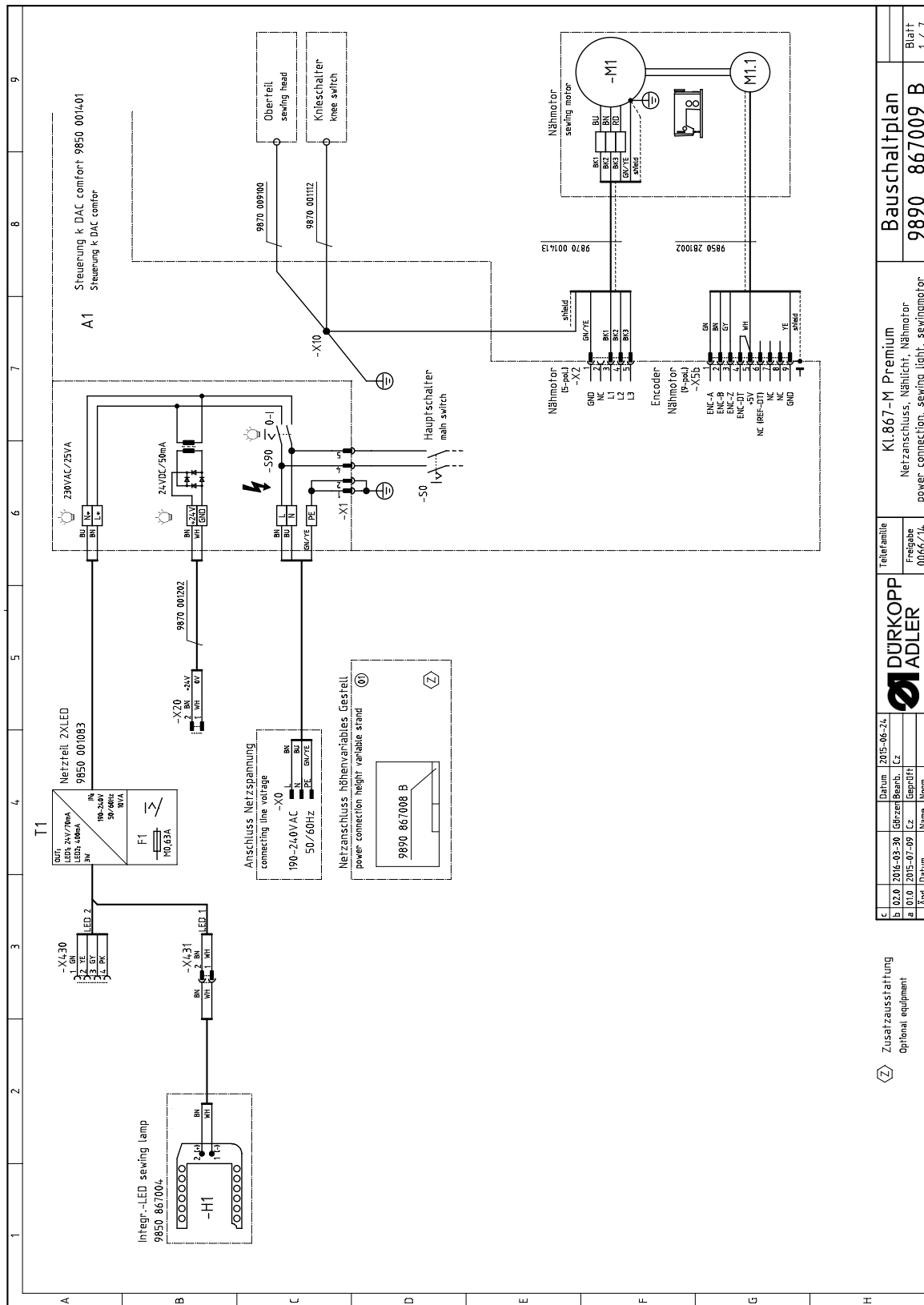
Technical data	Unit	869-180922-M	869-280922-M
Machine type		Double lockstitch 301	
Hook type		Vertical, large	
Number of needles		1	2
Needle system		134-35	
Needle strength	[Nm]	Nm 90 - 180	
Thread strength	[Nm]	Nm 80/3 - 10/3	
Stitch length	[mm]	9/9	
Speed maximum	[min ⁻¹]	2800	
Speed on delivery	[min ⁻¹]	2800	
Mains voltage	[V]	230 V	
Mains frequency	[Hz]	50/60	
Operating pressure	[bar]	6 (Compressed air only required in combination with optional additional equipment)	
Length	[mm]	600	650
Width	[mm]	230	230
Height	[mm]	470	470
Weight	[kg]	56	57

Characteristics

- sewing motor (DA direct drive) integrated into the machine head with max. speed of 2,800 rpm
- DAC comfort control with OP3000 control panel (including control panel holder)
- Actuators without compressed air
- Equipped with large (L) vertical hook
- Diameter of the free arm in the area of the hook is 78.5mm
- Electromagnetic thread cutter
- The remaining thread length following the thread cutting process is approx. 15mm.
- Programmable setting of the stitch length via stepper motor (max. 9 mm)
- Programmable adjustment of the alternating sewing feet via stepper motor (max. 9mm)
- Material thickness detection with programmable functions for sewing speed, sewing foot pressure, sewing foot stroke, thread tension and stitch length
- Programmable sewing foot pressure via stepper motor (in combination with compression spring); depending on material thickness detection
- Sewing foot lift controlled by stepper motor (max. 20 mm, same actuator as the one used for the sewing foot pressure)
- Electronically regulated thread tension EET (electromagnetically) with speed compensation; also depending on material thickness detection
- Electronic handwheel (ENP 10-1)
- Integrated, motorized winder
- Safety snap-on coupling prevents any misadjustment or damage to the hook in the event of a thread jamming
- Automatic wick lubrication with an inspection glass housed in the arm for lubricating the machine and the hook (including low oil level warning light)
- All subclasses with 6 push buttons, additional button element can be assigned push button functions

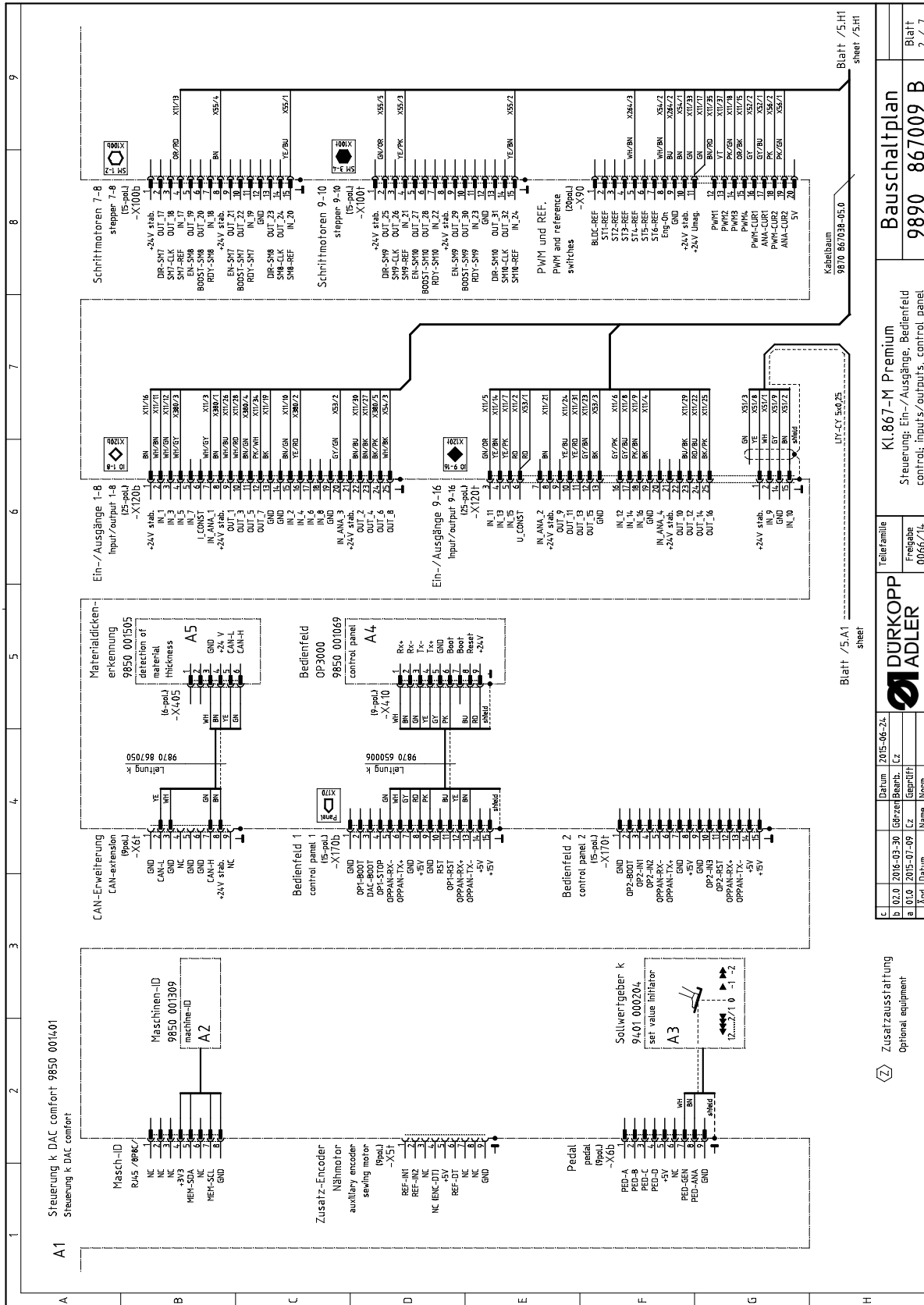
25 Appendix

Fig. 116: Wiring diagram



Zusatzausstattung Optional equipment		Teilfamilie Freigabe 0066/14		Kl.867-M Premium Netzanschluss, Nählicht, Nähmotor power connection, sewing light, sewingmotor		Bauschaltplan 9890 867009 B		Blatt 1 / 7		
c	Datum	2015-06-24	DÜRKOPP ADLER		9890 867008 B		9890 867009 B		9890 867009 B	
b	Erstverf.	2016-03-30	DÜRKOPP ADLER		9890 867008 B		9890 867009 B		9890 867009 B	
a	Änder.	2015-07-09	DÜRKOPP ADLER		9890 867008 B		9890 867009 B		9890 867009 B	
	Name		DÜRKOPP ADLER		9890 867008 B		9890 867009 B		9890 867009 B	
	Norm		DÜRKOPP ADLER		9890 867008 B		9890 867009 B		9890 867009 B	

Fig. 117: Wiring diagram



Blatt /5.H1
sheet /5.H1

Kabelbaum
9870 867038-05.0

Blatt /5.A1
sheet

Blatt /5.A1
sheet

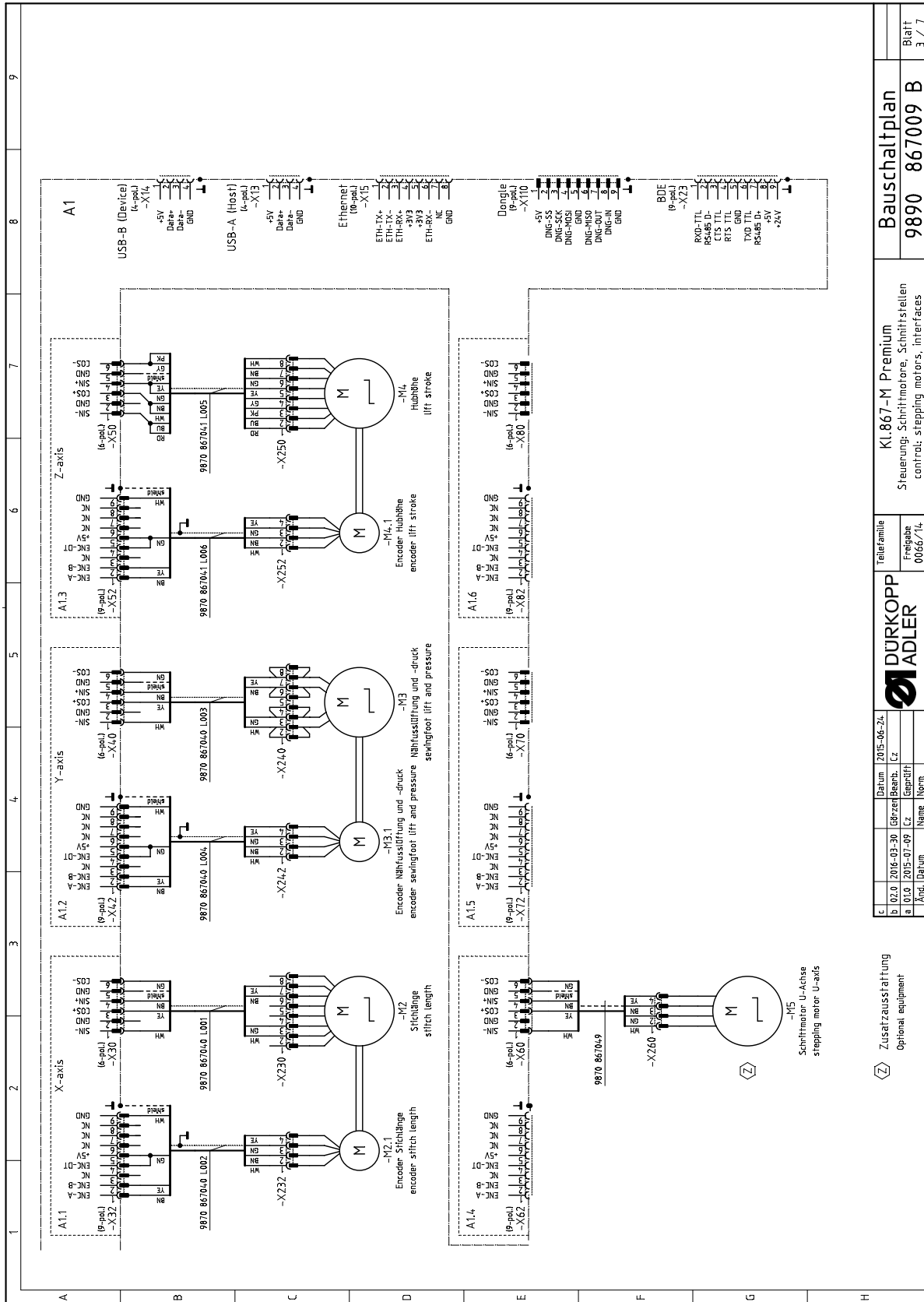
Teilfamilie		KI.867-M Premium	
Freigabe		Steuerung, Ein-/Ausgänge, Bedienfeld control, inputs/outputs, control panel	
Teilnummer		9890 867009 B	
Blatt		Blatt	
2 / 7		2 / 7	



1	02.0	2016-03-30	Übrzeit	Buech.	CZ
2	10.0	2015-07-07	Geprüf		
3	And.	Übrzeit	Name	Norm	

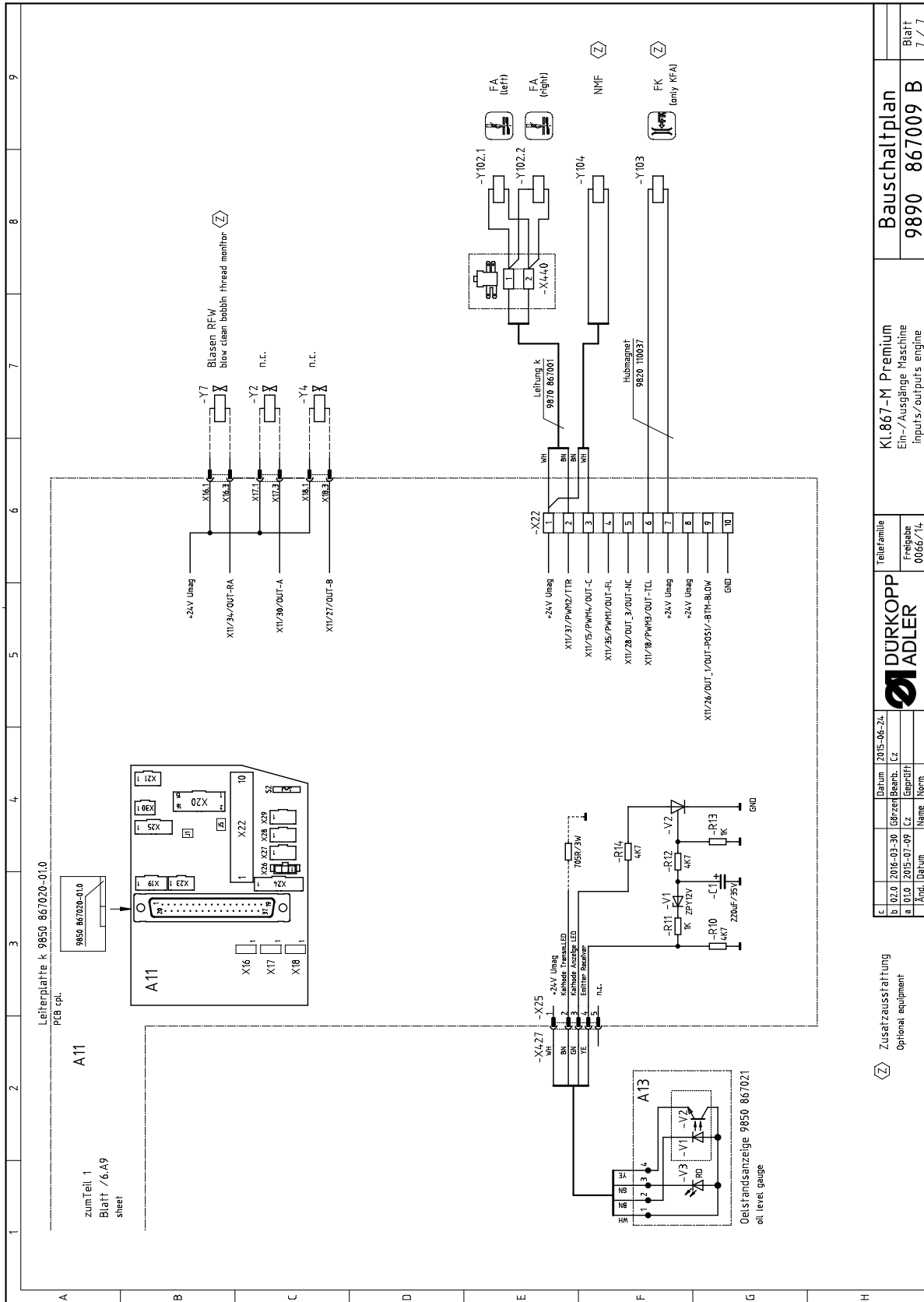
Zusatzausstattung
Optional equipment

Fig. 118: Wiring diagram



Bauschaltplan		Blatt	
9890 867009 B		3 / 7	
Teilerfamilie		Kl. 867-M Premium	
Freigabe		Steuerung: Schrittmotore, Schnittstellen	
0066/714		control: stepping motors, interfaces	
Datum		2015-06-24	
Bereit. Cz			
02.0		2016-03-30	
8		10.0	
10.0		2015-07-09	
Name		Norm	
Zusatzausstattung		Optional equipment	
Z			

Fig. 122: Wiring diagram



Zusatzausstattung Optional equipment		Teilfamilie Freigabe 0066/74		Bauschaltplan 9890 867009 B		Blatt 7 / 7	
C	102.0	2016-03-30	Übrzeit	CZ			
B	101.0	2015-07-09	CZ	GeprüfT			
A	And. Datum	Name	Norm				
Datum		2015-06-24					



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