DÜRKOPP ADLER

878-M PREMIUM Service Instructions

IMPORTANT

READ THESE INSTRUCTIONS CAREFULLY BEFORE USE

AND KEEP THEM FOR FUTURE REFERENCE

1 About these instructions

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

Should you notice any discrepancies or if you have improvement requests, then we would be glad to receive your feedback through **Customer Service** (📖 *p. 117*).

Consider the instructions as 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 the minimum qualifications and other requirements that must be met by these personnel, please view the chapter on **Safety** (📖 *p. 9*).

1.2 Representation conventions – symbols and characters

Various information in these instructions are 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
3. … 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 on **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 damage. 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 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 with the main switch or disconnect the power plug:

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

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 a max. of 20 mm and secure it to prevent it from slipping off.

Setup

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

Obligations of the operator

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

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

Requirements to be met by the personnel

Only qualified specialists may:

- Set up the machine
- Perform maintenance work and repairs
- Perform work on electrical equipment

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

Operation

Check the machine during operation for any externally visible damage. Stop working if you notice any changes to the machine. Report any changes to your supervisor. Do not use the 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.
ATTENTION	(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 hazard.

↳ 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 hazard.

↳ 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 hazard.

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

ATTENTION

Type and source of danger!

Consequences of non-compliance.

Measures for avoiding the hazard.

↳ 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 hazard.

↳ 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 due to 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 the moving parts is not hampered.

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

Important

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

3. Cut off any overlapping cable ties.

NOTICE

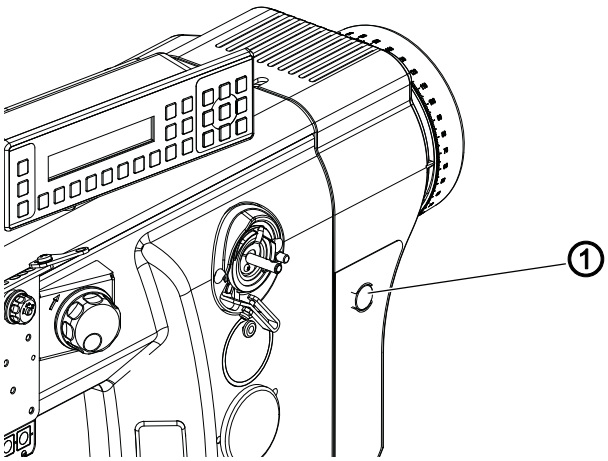
Property damage may occur!

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 Machine operation lock

Fig. 1: Service stop button



(1) - Service stop button

Important

With the exception of common operations of the sewing process, it is necessary to lock the machine before every handling (such as changing or threading the bobbin).

1. Press the button (1) .

↳ The button lights up.
The main drive is disconnected from the power supply.

2. Perform the necessary operation.
3. Press the button (1).

↳ The button goes out.
The power supply is on again.

WARNING

Risk of injury!

Before performing service, switch off the machine by using the main switch.

3.4 Removing the covers

WARNING

Risk of injury from moving parts!

Crushing possible.

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

WARNING

Risk of injury from sharp parts!

Punctures possible.

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

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

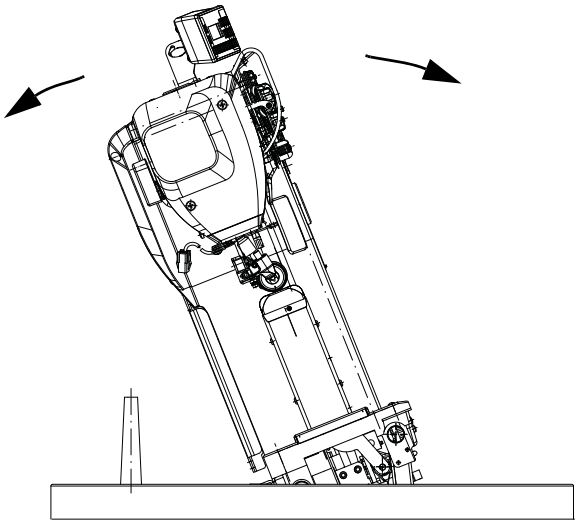
This chapter describes how to remove and then refit the individual covers. The text for each type of work setting then specifies only the cover that needs to be removed at that particular time.

3.4.1 Access to the underside of the machine

Cover

In order to access the components on the underside of the machine, you must first swivel up the machine head.

Fig. 2: Access to the underside of the machine



Tilting the machine head

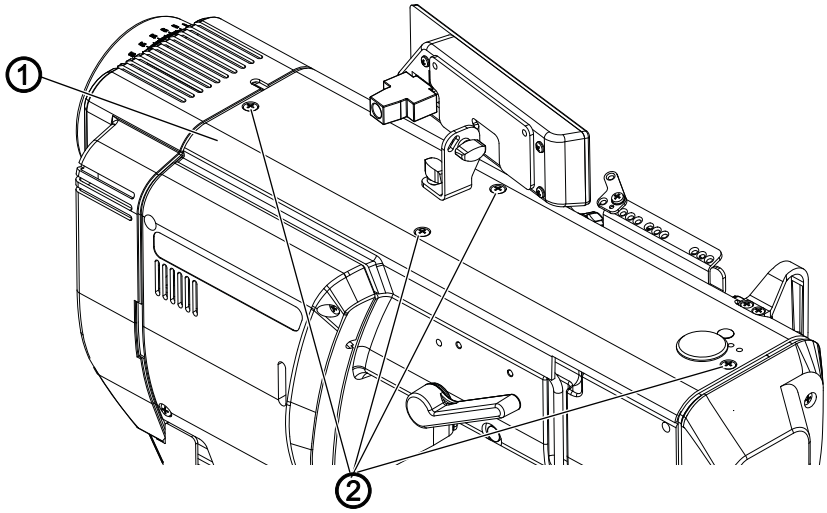
1. Tilt the machine head as far as it will go.

Erecting the machine head

1. Erect the machine head.

3.4.2 Removing and placing the arm covers

Fig. 3: Removing and placing the arm covers



(1) - Arm cover

(2) - Screws

Removing the arm cover

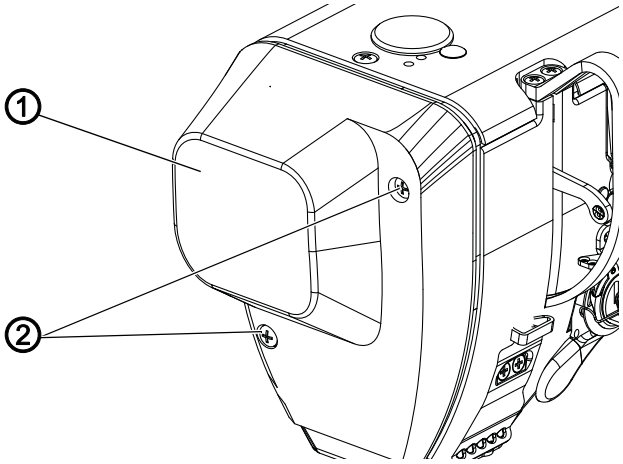
1. Loosen the screws (2).
2. Remove the arm cover (1).

Placing the arm cover

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

3.4.3 Removing and placing the head cover

Fig. 4: Removing and placing the head cover



(1) - Head cover *(2) - Screws*

Removing the head cover

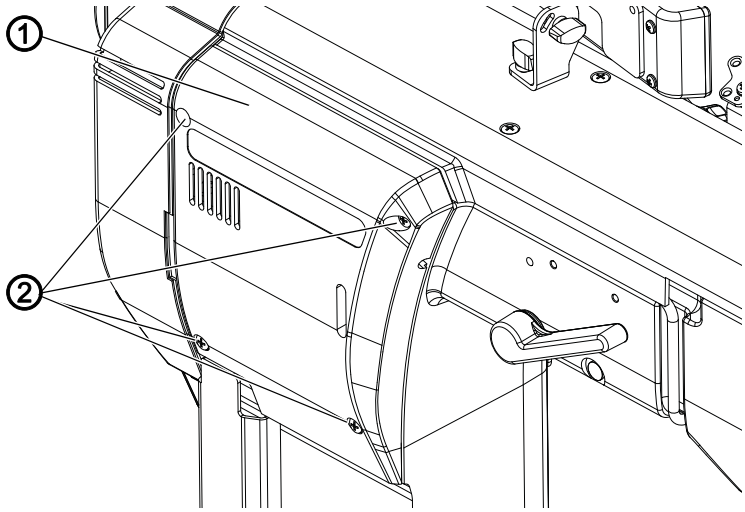
1. Loosen the screws (2).
2. Remove the head cover (1).

Placing the head cover

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

3.4.4 Removing and placing the valve cover

Fig. 5: 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

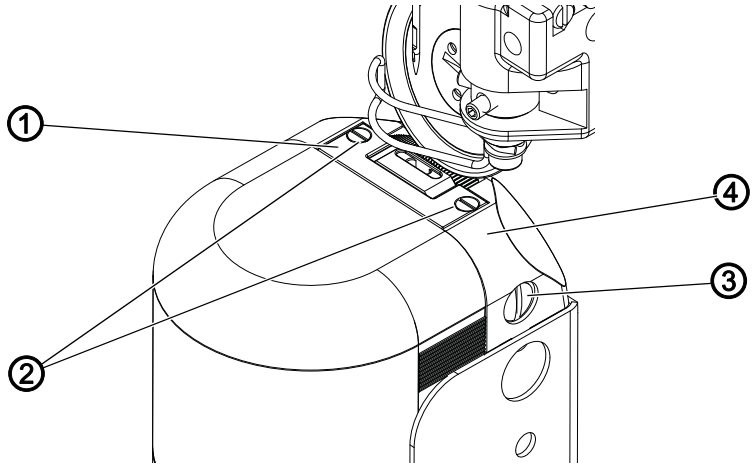
1. Loosen the screws (2).
2. Remove the valve cover (1).

Placing the valve cover

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

3.4.5 Disassembling and assembling the throat plate

Fig. 6: Disassembling and assembling the throat plate



(1) - Throat plate slide
(2) - Screws
(3) - Screws
(4) - Throat plate

Proper setting

At the standard setting the throat plate slide should be positioned at the center of the throat plate.

Disassembling the throat plate and setting the position of the throat plate slide

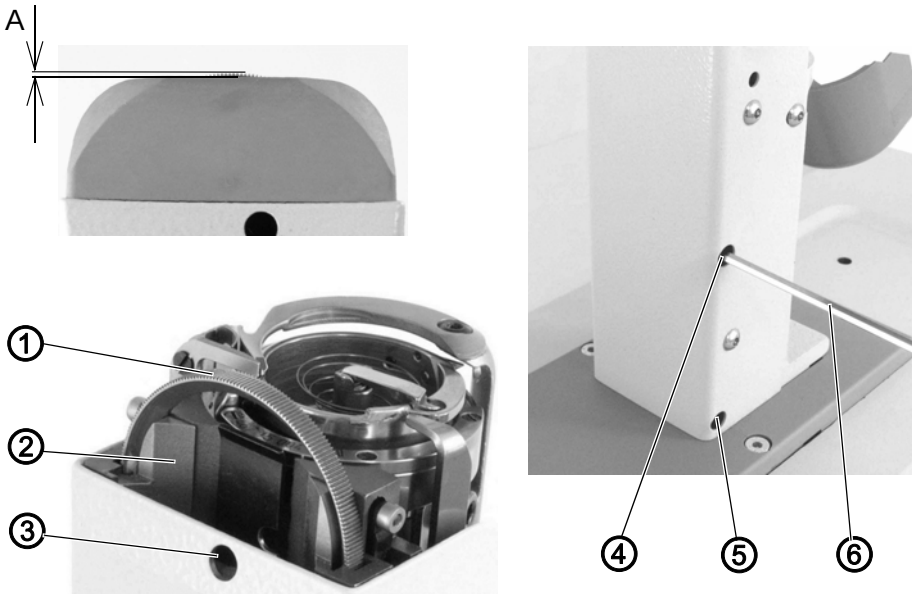
1. Loosen the 2 screws (3).
2. Remove the throat plate (4).
3. Loosen the screws (2).
4. Adjust the throat plate slide (1) at the center of the throat plate (4).
5. Tighten the screws (2).

Assembling the throat plate

1. Insert the throat plate (4).
2. Tighten the 2 screws (3).

3.4.6 Disassembling and assembling the circular feed dog

Fig. 7: Disassembling and assembling the feed dog



(1) - Feed dog
(2) - Feed dog carrier
(3) - Opening with a plug
(4) - Screw
(5) - Screw
(6) - Hexagonal key

Proper setting

1. The standard teeth increment above the throat plate slide:

Needle number/Nm	(A) – feed dog teeth increment /mm
70 – 80	0.4 – 0.5
90 – 110	0.4 – 0.5
120 – 200	0.6 – 0.8

2. The center-to-center distance of the feed dog teeth:
   - Thin material – fine teeth to eliminate leather bruises.
   - Fine-textured, thick material – larger teeth for sufficient material pulling.

Important

The feed dog teeth increment above the throat plate and the teeth pitch must be adjusted according to the thickness and toughness of the material.

Disassembling the feed dog

1. Disassemble the throat plate (📖 *p. 18*).
2. Remove the plug from the opening (3).
3. Move the feed-dog carrier (2) and the circular feed dog (1) up.
4. Replace the feed dog (1).

Assembling the feed dog

1. Place the feed dog (1) onto the feed dog carrier (2).
2. Insert the feed-dog carrier (2) back to its place.
3. Push the plug into the opening (3).
4. Insert the throat plate (📖 *p. 18*).

Setting the feed dog

Important

Adjust the feed-dog carrier teeth increment as per the standard setting.

Larger increments:

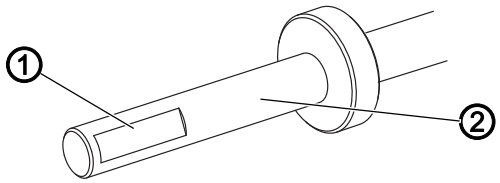
1. Loosen the screw (5) and tighten the screw (4).
2. When the required increment is achieved, tighten the screw (5) as far as it will go.
3. Tighten the screw (4).

Smaller increments:

A smaller increment is achieved by the reverse procedure.

3.5 Flats on shafts

Fig. 8: Flats on shafts



(1) - Flat *(2) - Shaft*

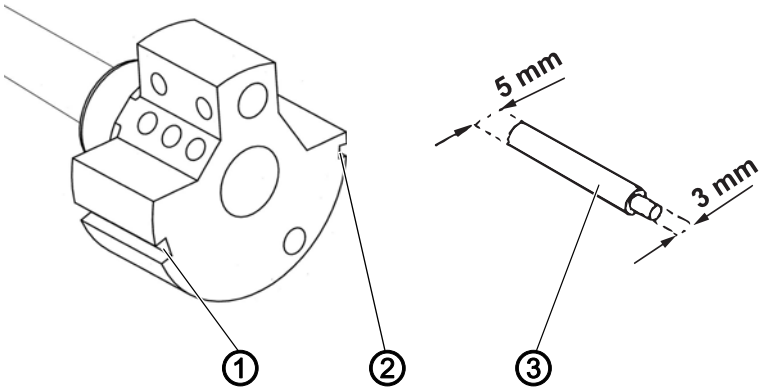
Some shafts have flat surfaces at the points where the components are screwed on. This stabilizes the connection and makes setting easier. The first screw in the direction of rotation is always screwed on to a flat surface.

Important

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

3.6 Locking the machine in place

Fig. 9: Locking the machine in place (1)



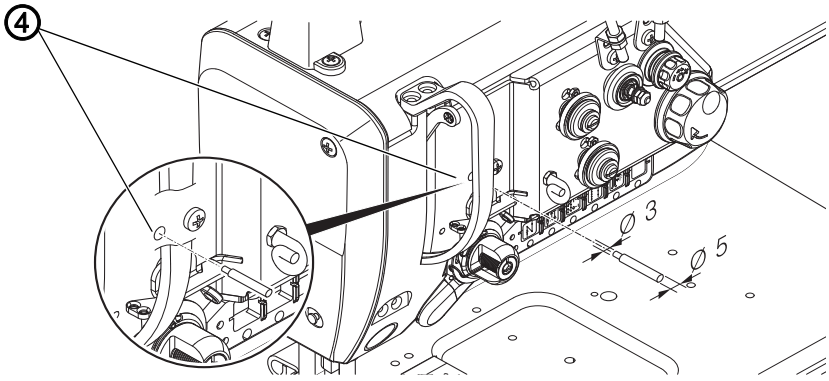
(1) - Large arresting groove
(2) - Small arresting groove
(3) - Locking peg

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 two 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. 10: Locking the machine in place (2)



(4) - Locking opening

Locking the machine in place

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

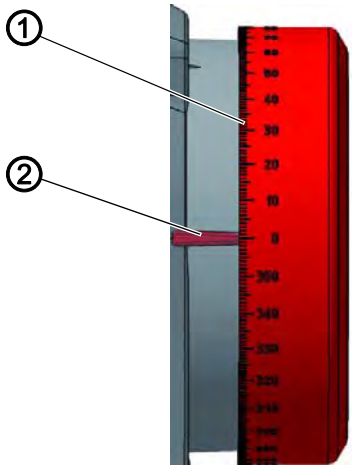
2. Turn the handwheel until the appropriate arresting groove (1) or (2) is in front of the locking opening (4):
   - Small arresting groove at handwheel position 0°
   - Large arresting groove at handwheel position 200° – 205°
3. Insert the locking peg (3) with the appropriate end into arresting groove (1) or (2).

Removing the lock

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

3.7 Setting the handwheel into position

Fig. 11: Setting the handwheel into position



(1) - Graduated scale *(2) - Marking point*

For some settings, the graduated scale on the handwheel has to be moved to a certain position.

1. Turn the handwheel until the specified number on the graduated scale (1) is next to the marking point (2).

4 Setting the handwheel scale

WARNING

Risk of injury from moving parts!

Crushing.

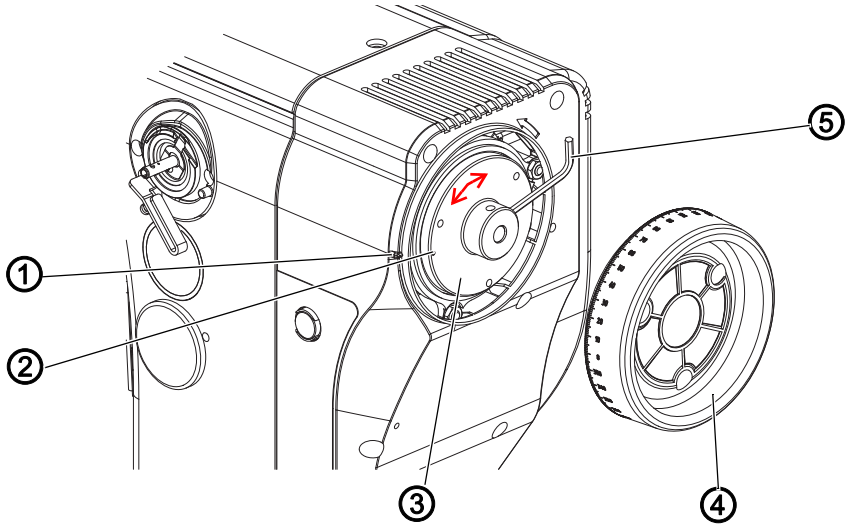
Switch off the sewing machine before you check and set the position of the handwheel.

Proper setting

1. Lock the machine in place at position 2 (📖 *p. 21*).

↳ The handwheel is at position 0°.
If there is a different degree number is next to the marking, then you will have to reset the graduated scale.

Fig. 12: Setting the handwheel scale



(1) - Marking point
(2) - Marking
(3) - Washer
(4) - Handwheel
(5) - 3 mm Allen wrench

1. Lock the machine in place (📖 *p. 21*).
2. Unscrew 3 screws and remove the handwheel (4).
3. Loosen the 2 threaded pins of the handwheel washer (3) using the 3 mm Allen wrench (5) and turn the washer (3).

Important

The marking (2) on the handwheel washer (3) marks the position (1).

4. Tighten the 2 threaded pins of the handwheel washer (3).
5. Fit the handwheel (4) and tighten the 3 screws.

5 Positioning the arm shaft

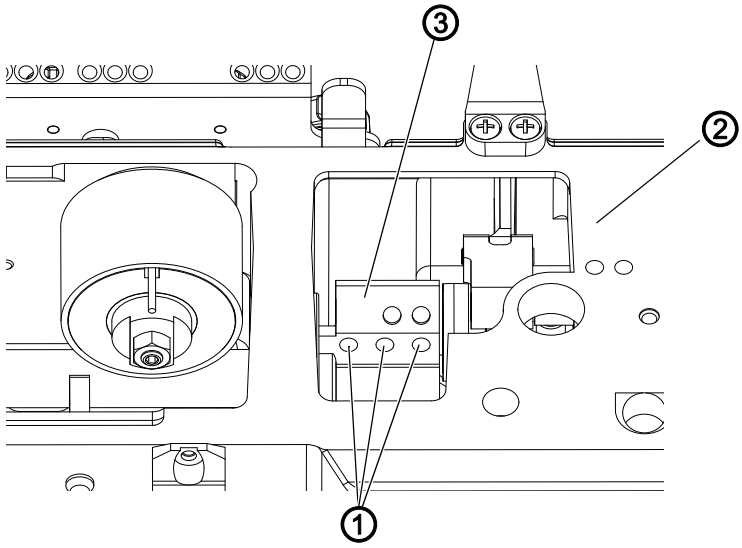
WARNING

Risk of injury from moving parts!

Crushing possible.

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

Fig. 13: Positioning the arm shaft



(1) - Threaded pins
(2) - Machine casting
(3) - Arm shaft crank

Proper setting

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

1. Remove the arm cover *(p. 16)*.
2. Loosen the threaded pins (1) on the arm shaft crank (3).
3. Turn the arm shaft crank (3) so that the threaded pins (1) are completely set on the surface of the arm shaft.
4. Push the arm shaft to be flush with the arm shaft crank (3) as far as it will go to the right of 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

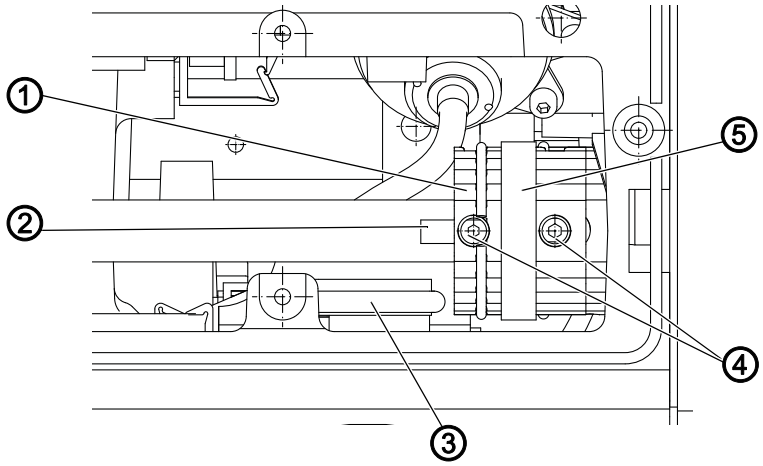
The two toothed belt wheels must be positioned above each other so that the toothed belt can run correctly. The winder wheel is located directly next to the upper toothed belt wheel and determines its alignment.

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. 14: Positioning the upper toothed belt wheel



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

Proper setting

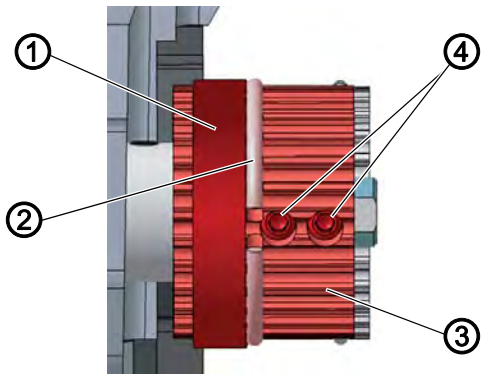
The two threaded pins (4) for the upper toothed belt wheel (1) are set flush on the surface of the arm shaft (2).

The distance between the winder wheel (3) in the switched off state and the upper toothed belt wheel (1) must be 0.8 mm.
The toothed belt (5) runs correctly without running against the retaining ring or slipping off.

1. Remove the arm cover (📖 *p. 16*).
2. Loosen the threaded pins (4).
3. Turn the upper toothed belt wheel (1) so that the two threaded pins (4) are set flush on the surface of the arm shaft (2).
4. Move the upper toothed belt wheel (1) to the side so that the distance to the winder wheel (3) is 0.8 mm.
5. Tighten the threaded pins (4).

6.2 Positioning the lower toothed belt wheel

Fig. 15: Positioning the lower toothed belt wheel



(1) - Toothed belt
(2) - Retaining ring
(3) - Lower toothed belt wheel
(4) - Threaded pins

Proper setting

The two threaded pins for the lower toothed belt wheel are set flush on the surface of the lower shaft.
The toothed belt (1) runs correctly without running against the retaining ring (2) or slipping off.

1. Tilt the machine head (📖 *p. 15*).
2. Loosen the threaded pins (4).
3. Turn the lower toothed belt wheel (3) such that the threaded pins (4) are set on the surface 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 needle bar

WARNING

Risk of injury from moving parts!

Crushing possible.

Before setting the needle bar, switch the sewing machine off.

Order

First, check the following setting:

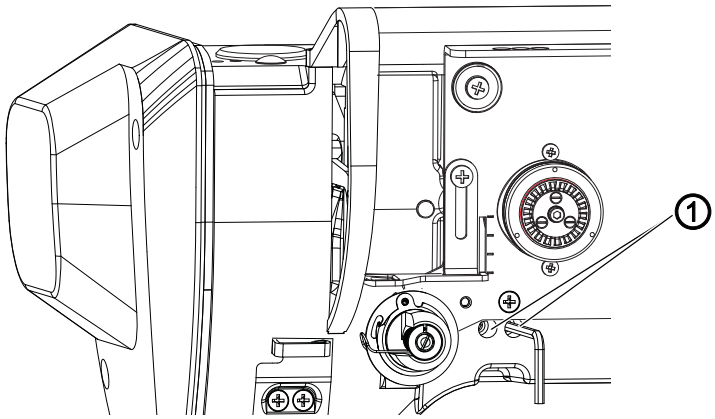
- A straight and undamaged needle has been inserted (📖 *Operating Instructions*)

Proper setting

The needle pierces the exact center of the needle hole.

7.1 Aligning the needle bar linkage sideways

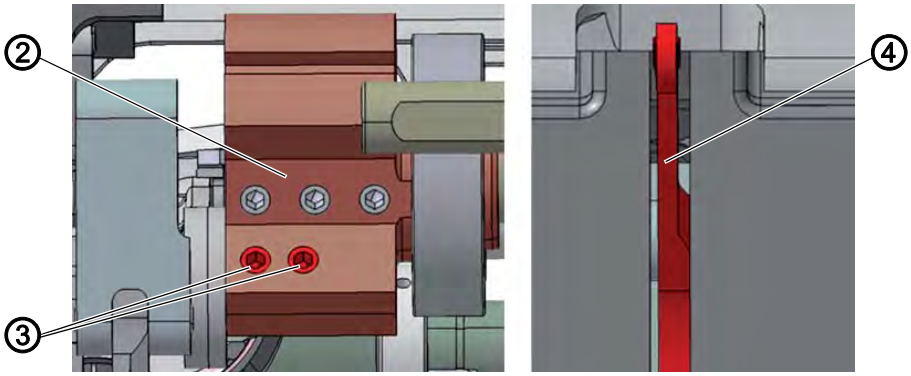
Fig. 16: Aligning the needle bar linkage sideways (1)



(1) - Threaded pins

1. Remove the arm cover (📖 *p. 16*).
2. Remove the push buttons.
3. Loosen the two threaded pins (1).

Fig. 17: Aligning the needle bar linkage sideways (2)



(2) - Arm shaft crank
(3) - Threaded pins
(4) - Thread lever

4. Loosen both threaded pins (3) on the arm shaft crank (2). Make sure that the threaded pins stay on the surface.
5. Move the needle bar linkage sideways such that the needle pierces the exact center of the needle hole.
6. Drive the threaded pins (1).
7. Align the thread lever (4) exactly in the middle of the arm slot.
8. Drive both threaded pins (3) on the arm shaft crank (2).

Order

Then, check the following settings:

- Distance between the hook and the needle (📖 *p. 38*)
- Loop stroke position (📖 *p. 39*)

7.2 Angular position of the single-needle sewing machine needle holder

Proper setting

The angular position of the needle holder should be set depending on the needle number as per the table:

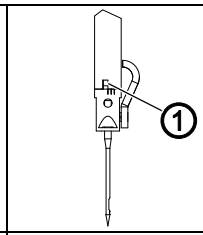
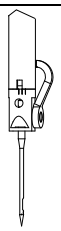
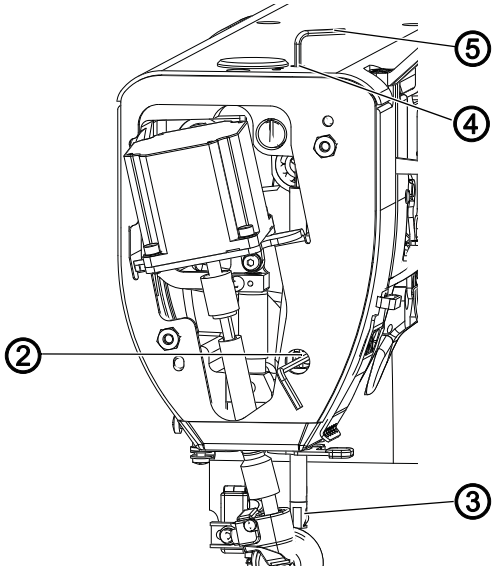
Needle holder displacement			
Needle number	70 – 110	120 – 160	180 – 200

Fig. 18: Angular position of the single-needle sewing machine needle holder



(1) - Groove
(2) - Screw
(3) - Needle holder
(4) - Opening
(5) - 2.5 mm Alley wrench

1. Remove the head cover (📖 *p. 17*).
2. Loosen the screw (2) and turn the needle bar so that the right end of the groove (1) faces the needle bar axis.
3. Tighten the screw (2).
4. Lock the machine in place at position **2** (📖 *p. 21*).
5. Insert the 2.5 mm Allen wrench into the opening (4) and loosen the fixing screw of the needle holder inside the needle bar.
6. Turn the needle holder (3) to have the correct setting.
7. Tighten the fixing screw.

8 Setting the sewing foot

WARNING

Risk of injury from moving parts!

Crushing.

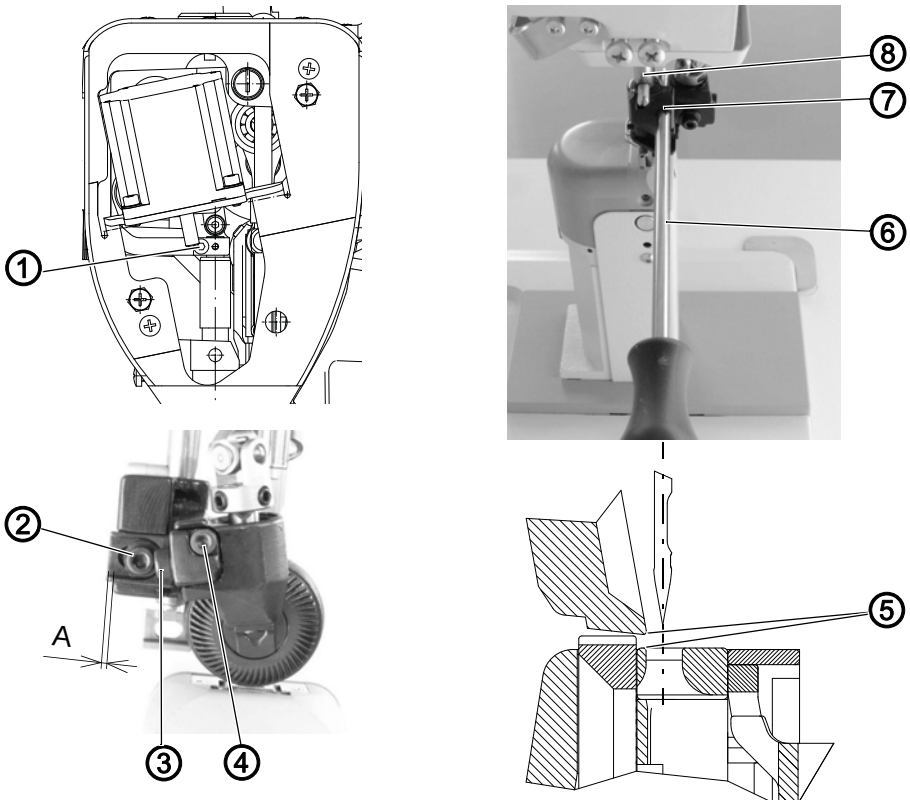
Switch off the sewing machine before setting the sewing foot.

Proper setting

1. The pressure bar and roller foot holder should be turned so that the clamping surface of the sewing foot is perpendicular to the longitudinal axis of the sewing machine.

   The gap between the sewing foot and the feed dog is set automatically depending on the value of the respective parameter.
2. The position in the sewing direction should be adjusted as follows:
   - for 1-needle machines (A) = 1.3 to 2.3 mm
   - for 2-needle machines (A) = 0 to 2.3 mm
3. The side position of the sewing foot (5) should be such that the bottom edge of the sewing foot fits the edge of the needle hole.

Fig. 19: Setting sewing foot 1



(1) - Screw
(2) - Screw
(3) - Screw
(4) - Screw
(5) - Side position of the sewing foot
(6) - Cross-point screwdriver
(7) - Roller foot holder
(8) - Needle bar

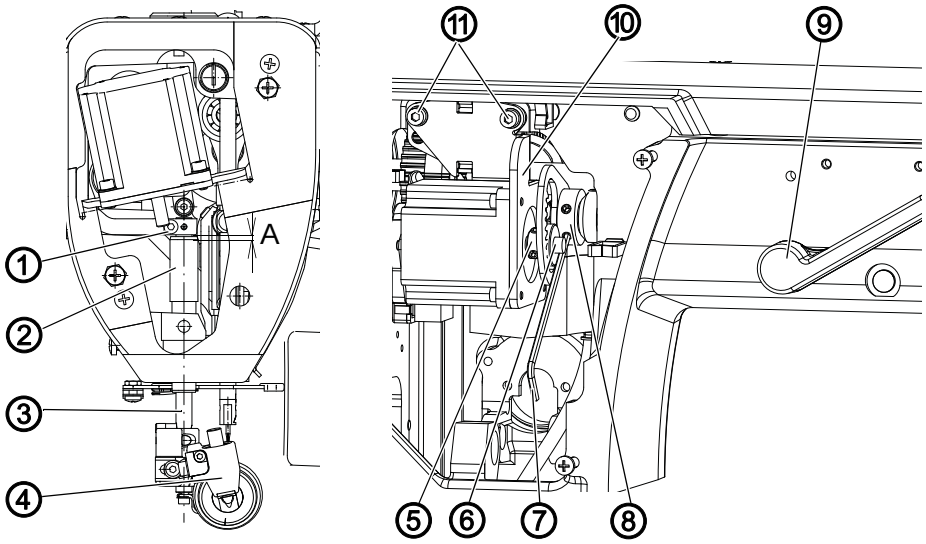
1. Loosen the screw (1).
2. Move the pressure bar vertically until the sewing foot touches down the feed dog. Insert the cross-point screwdriver (6) which is supplied along with the sewing machine into the roller foot holder (7) opening, and turn the pressure bar (8) together with roller foot holder (7) so that the screwdriver is approximately perpendicular to the longitudinal axis of the sewing machine.
3. Tighten the screw (1).
4. Loosen the screw (2).
5. Move the sewing foot as prescribed in instruction 2.
6. Tighten the screw (2).
7. Loosen the screw (3).
8. Move the sewing foot as prescribed in instruction 3 by turning the screw (4).
9. Tighten the screw (4).

Sewing foot stroke

Proper setting

1. The sewing foot stroke by the hand lever (9) is about 5 mm.
2. The sewing foot stroke by the stepper motor is a maximum of 13 mm and it is adjustable by the respective parameter.

Fig. 20: Setting sewing foot 2



(1) - Screw
(2) - Screw
(3) - Screw
(4) - Screw
(5) - Side position of the sewing foot
(6) - Cross-point screwdriver
(7) - Roller foot holder
(8) - Needle bar

1. Remove the side and rear covers (📖 *p. 15*).
2. Move the sewing foot (4) manually up onto the feed dog.
3. Using the screw (1) set the gap (A) = ~1 mm between the gripping connection of the foot bar (3) and the sleeve (2).

4. With the sewing foot (4) down insert the Allen wrench (7) into the bottom screw of the toothed segment (8) and rest it at the bottom against the shaft of the stepper motor (6) and tighten.
5. Tighten the second screw of the segment (8).
6. If necessary, adjust the correct tooth clearance between the toothing of the segment (8) and the pinion (5) after the screws (11) have been loosened by the vertical move of the stepper motor holder (10).
7. Tighten the screws (11).

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.

Important

Each time the sewing machine is switched on, the gap between the sewing foot and the feed dog is adjusted automatically. The gap value is set by the respective parameter.

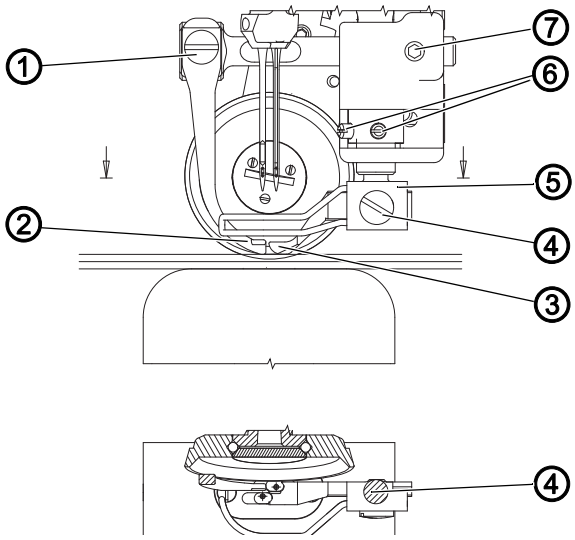
No sewing material is allowed under the sewing foot when the machine is switched on!

9 Needle guides in 2-needle machines

Proper setting

1. The guides should touch the sewing material but should not apply pressure on it.
2. In the sewing direction and on the sides, the guides should fit the needle hole edges.

Fig. 21: Needle guides in 2-needle machines



(1) - Screw
(2) - Front guide
(3) - Rear guide
(4) - Screw
(5) - Holder
(6) - Screws
(7) - Screw

1. Place two layers of material approximately 1.5 mm thick under the foot and set a medium pressure for the foot onto the material.
2. Loosen the screws (1) and move the holder (2) with the guide (3) vertically until it rests on the leather. Tighten the screws (1) slightly. Loosen the screw (4) and do the same operation with the guide (5). Remove the leather.
3. Adjust the guides as prescribed in the instruction 2: Adjust the rear guide (3) in the sewing direction using the screw (6), using the holder (2) for side adjustment. Adjust the front guide in the sewing direction and on the sides using the screw (7).
4. Firmly tighten all fixing screws.

10 Setting the hook and the needle bar

WARNING

Risk of injury from sharp or moving parts!

Punctures and crushing possible.

Before setting the hook and the needle bar, switch the sewing machine off.

NOTICE

Property damage may occur!

An erroneous distance between the needle and the hook tip can result in damage caused to the sewing machine, needle breakage and thread damage.

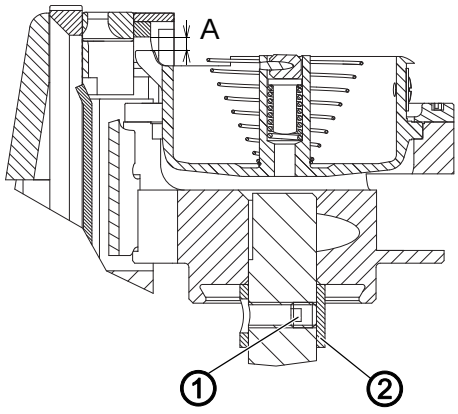
After fitting a needle of a different strength, check the distance to the hook tip and adjust it if necessary.

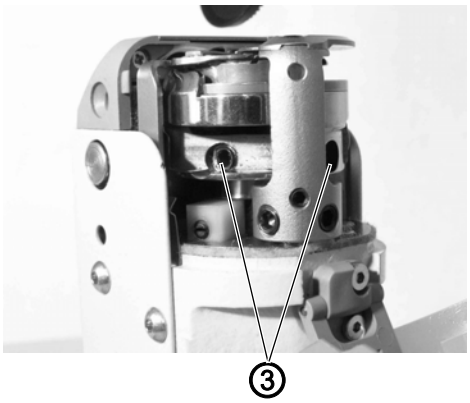
10.1 Hook height

Proper setting

The distance (A) should be 1.7 to 1.8 mm.

Fig. 22: Setting the side distance of the hook





(1) - Screw
(2) - Ring

(3) - Screws

1. Loosen the screw (1).
2. Loosen the screws (3).
3. Move the hook vertically to the distance (A).
4. Tighten the screws (3).

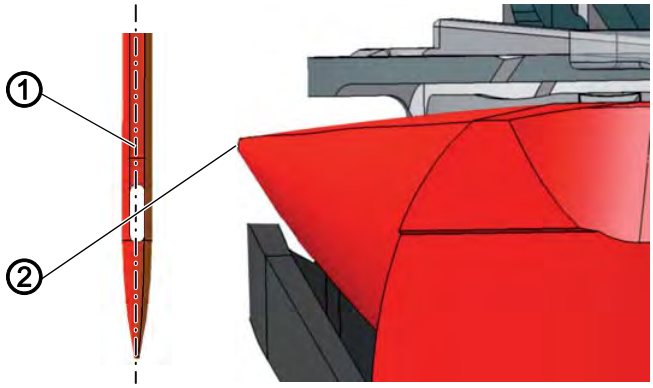
5. Place the ring (2) from below to the hook as far as it will go.
6. Tighten the screw (1).

Information

When the hook is replaced, its height does not need to be adjusted again.

10.2 Setting the looping stroke

Fig. 23: Setting the looping stroke (1)



(1) - Needle axis *(2) - Hook tip*

The looping stroke is the length of the path from the bottom dead center of the needle bar up to the place where the hook tip is positioned accurately at the needle grove axis.

The looping stroke is 2.3 mm.

Order

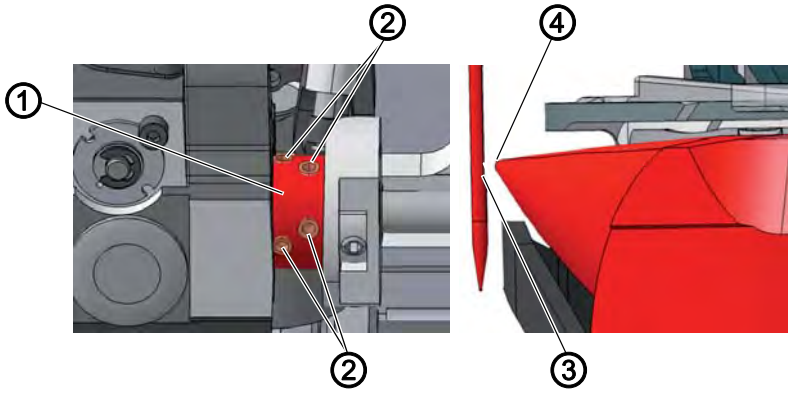
First, check the following setting:

- The needle bar linkage is aligned correctly (📖 *p. 27*)
- A straight and undamaged needle has been inserted (📖 *Operating Instructions*)

Proper setting

The machine is locked in position **1** (📖 *p. 21*).
The hook tip (2) points exactly to the needle axis (1).

Fig. 24: Setting the looping stroke (2)



(1) - Clamping ring
(2) - Threaded pins
(3) - Needle groove
(4) - Hook tip

1. Lock the machine in place at position **1** (📖 *p. 21*).
2. Loosen the threaded pins (2) of the clamping ring (1).
3. Turn the hook so that the hook tip (4) points exactly to the needle groove axis (3).
4. Tighten the threaded pins (2) of the clamping ring (1).
5. Remove the lock.

Order

Then, check the following settings:

- Position of the needle guard (📖 *p. 39*)
- Setting the cutoff curve (📖 *p. 55*)

10.3 Setting the needle bar height

Order

First, check the following setting:

- Loop stroke position (📖 *p. 39*)
- A straight and undamaged needle has been inserted (📖 *Operating Instructions*)

Proper setting

The machine is locked in position **1** (📖 *p. 21*).

The hook tip is at the height of the lower third of the needle groove.

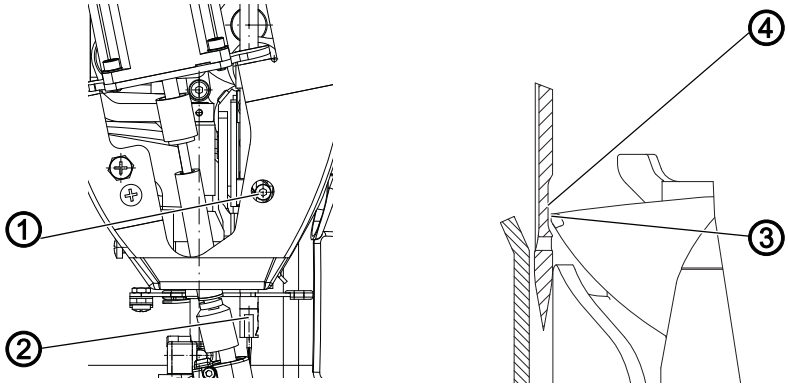
Error

Errors at the erroneous height of the needle bar

- Damage to the hook tip
- Needle thread seizing
- Missing stitches
- Thread breaking
- Needle breakage

1. Remove the head cover (📖 *p. 17*).

Fig. 25: Setting the needle bar height



(1) - Screw
(2) - Needle bar
(3) - Hook tip
(4) - Needle groove

2. Loosen the screw (1) of the needle bar (2).
3. Move the needle bar (2) to such height that the hook tip (3) is positioned in the center of the bottom third of the needle groove (4).
   Do not turn the needle to the side. The needle groove (4) must face the hook.
4. Tighten the screw (1) of the needle bar (2).

Order

Then, check the following settings:

- Position of the needle guard (📖 *p. 39*)

10.4 Setting the side distance of the hook

Order

First, check the following setting:

- A straight and undamaged needle has been inserted (📖 *Operating Instructions*)
- The needle bar linkage is aligned correctly (📖 *p. 27*)
- Loop stroke position (📖 *p. 39*)

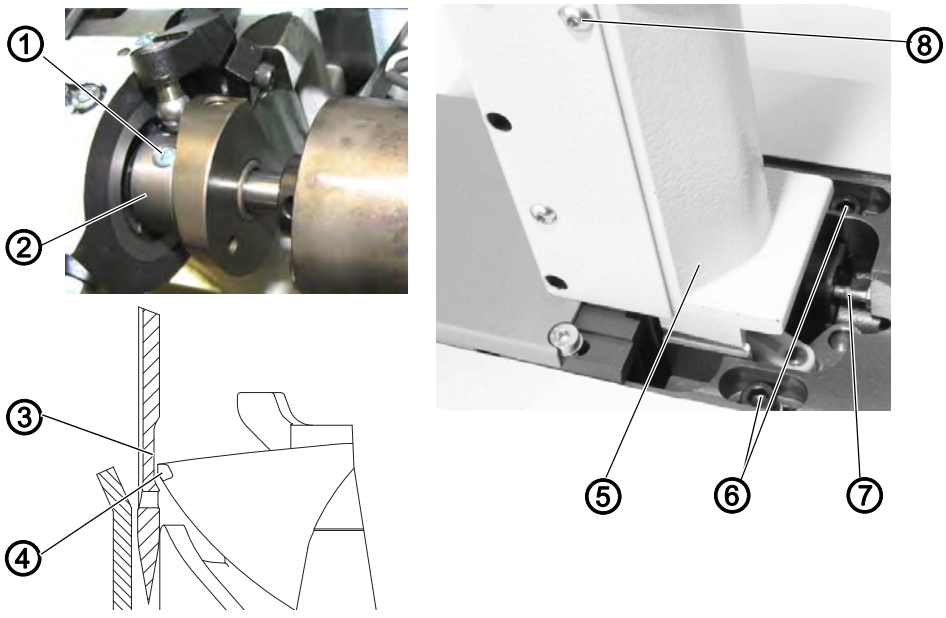
Proper setting

The machine is locked in position **1** (📖 *p. 15*).

The distance between the hook tip and the needle groove is 0.02 to 0.1 mm.

1. Tilt the machine head (📖 *p. 15*).
2. Open the hook cover.

Fig. 26: Setting the side distance of the hook



(1) - Threaded pins
(2) - Clamping ring
(3) - Needle groove
(4) - Hook tip
(5) - Hook column
(6) - Screws
(7) - Feed screw
(8) - Screw

3. Lock the machine in place at position **1** (📖 *p. 21*).
4. Loosen the four threaded pins (1) of the clamping ring (2).
5. Loosen the two screws (6) and the screw (8).
6. Move the hook column (5) away from the needle.
7. Tighten the screws (6) slightly, and using the feed screw (7) move the hook column.

↳ The distance between the hook tip (4) and the needle groove (3) is 0.02 to 0.1 mm.
The hook tip (4) shall not touch the needle.

8. Tighten the screws (6) and the screw (8).
9. Check the position of the looping stroke (📖 *p. 39*).
10. Tighten the threaded pins (1) of the clamping ring (2).
11. Remove the lock.

Order

Then, check the following settings:

- Position of the needle guard (📖 *p. 39*)

10.5 Setting the needle guard

The needle guard prevents any contact between the needle and the hook tip.

Order

First, check the following setting:

- Loop stroke position (📖 *p. 39*)
- Side distance of the hook (📖 *p. 38*)
- Height of the needle bar (📖 *p. 40*)
- A straight and undamaged needle has been inserted (📖 *Operating Instructions*)

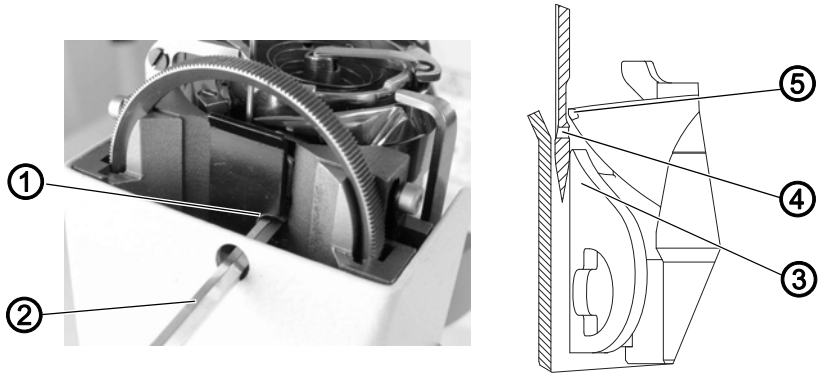
Proper setting

The machine is locked in position **1** (📖 *p. 15*).

The needle guard pushes the needle away to avoid contact with the hook tip.

1. Set the maximum stitch length based on the sewing equipment used.
2. Disassemble the throat plate (📖 *p. 18*).

Fig. 27: Setting the needle guard



(1) - Screw
(2) - 3 mm Allen wrench
(3) - Needle guard
(4) - Needle
(5) - Hook tip

3. Turn the handwheel to check how far the needle guard (3) has pushed the needle.

4. Insert the 3 mm key (2) into the adjusting screw (1) and turn it to make the needle guard (3) push the needle (4) away far enough so that any contact with the hook tip (5) is eliminated:
   - Stronger pressure when pushing away: turn counterclockwise
   - Weaker pressure when pushing away: turn clockwise

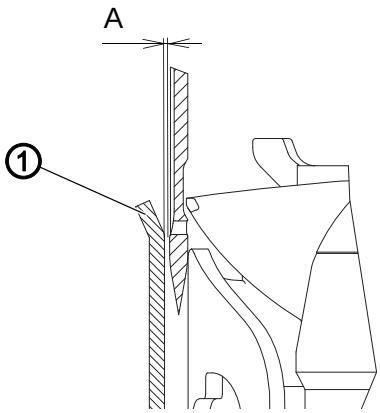
10.6 Setting the loop former

Proper setting

The loop former (1) in 1-needle machines should be adjusted so that the gap (A) = 0.1 to 0.2 mm.

1. Set the maximum stitch length based on the sewing equipment used.
2. Disassemble the throat plate (📖 *p. 18*).

Fig. 28: Setting the loop former



(1) - Loop former

3. Bend the loop former as specified in the correct setting.

11 Setting the opening of the middle part of the hook

WARNING

Risk of injury from moving parts!

Crushing possible.

Before you start setting the opening of the middle part of the hook, turn the machine off.

Fig. 29: Setting the opening of the middle part of the hook

(1) - Opening hook
(2) - Middle part of the hook
(3) - Nose of the bobbin housing
(4) - Throat plate groove

The hook pulls the needle thread between the nose of the bobbin housing (3) and the grove in the throat plate (4).

At this moment, the opening hook (1) pushes the middle part of the hook (2) to create a gap for thread.

When the hook tip is positioned under the opening hook (1), the opening hook (1) must open to let the thread draw around this place as well.

For the smooth passage of the thread, the lifting gap and timing for lifting must be set.

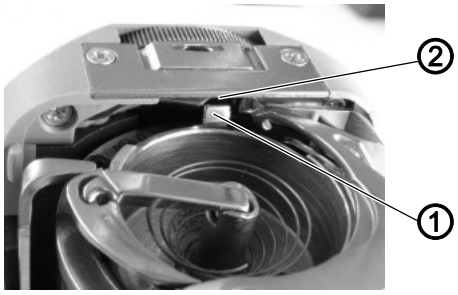
Error

Errors at the incorrect setting of the opening of the middle part of the hook:

- Thread breaking
- Forming loops at the bottom side of the stitch
- Noisy machine

11.1 Setting the lifting gap

Fig. 30: Setting the lifting gap (1)



(1) - Nose of the bobbin housing *(2) - Throat plate groove*

Following changes in the needle thread strength, always check the lifting gap. The correct lifting gap depends on the needle thread strength.

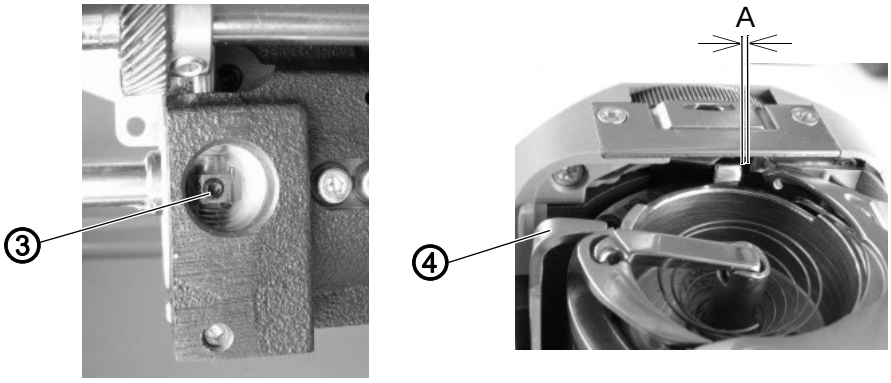
Proper setting

The needle thread slides unlimitedly between the nose of the bobbin housing (1) and the grove in the throat plate (2).

↳ The gap (A) should be 0.8 mm at the maximum lifting.

1. Tilt the machine head (📖 *p. 15*).
2. Open the hook cover.
3. Set the handwheel to 310°.

Fig. 31: Setting the lifting gap (2)



(3) - Threaded pin *(4) - Opening hook*

4. Remove the plug in the bottom part of the column.
5. Loosen the threaded pin (3).
6. Set the opening hook (4) as specified in the correct setting.

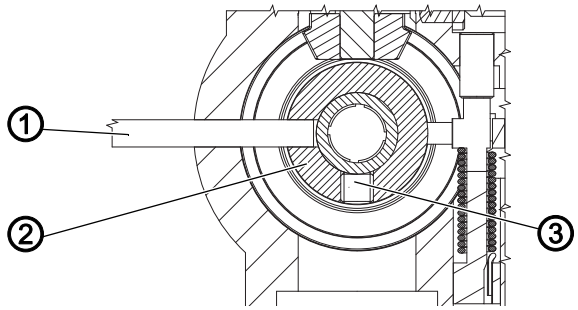
Important

Make sure that the gap is not too large. The middle part of the hook must not collide with the edges of the throat plate groove (2).

7. Tighten the threaded pin (3).
8. Plug the opening again.

11.2 Setting the timing for lifting

Fig. 32: Setting the timing for lifting



(1) - Adjusting pin
(2) - Opening cam
(3) - Threaded pin

Proper setting

If the adjusting pin (1) is inserted into the opening cam (2), the following angle should be set at the handwheel:

- for the right hook column, 310° to 315°
- for the left hook column, 45° to 50°

1. Tilt the machine head (📖 *p. 15*).
2. Insert the adjusting pin (1) through the hole in the hook column into the opening cam (2). The right hook column from behind, the left hook column from the front.
3. Remove the bottom plug.
4. Loosen the threaded pin (3).
5. Set the angle of the handwheel as specified in the correct setting.
6. Tighten the threaded pin (3).
7. Plug the opening again.
8. Perform a test sewing.

12 Setting the needle thread tension

CAUTION

Risk of injury from sharp or moving parts!

Punctures and crushing possible.

Switch off the machine before setting the needle thread tension.

12.1 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

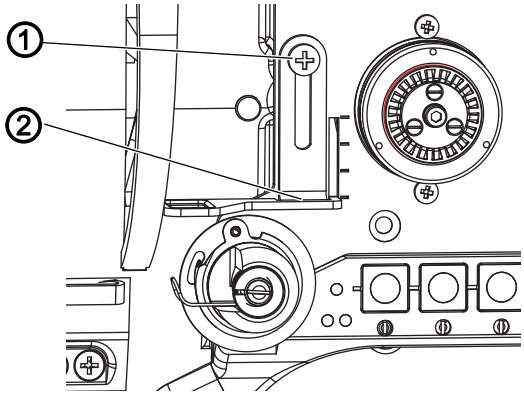
Proper setting

For a majority of sewing operations, the optimal setting of the needle thread regulator is with its bottom edge facing the number 2.

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

1. Open the hook cover.

Fig. 33: Setting the needle thread regulator



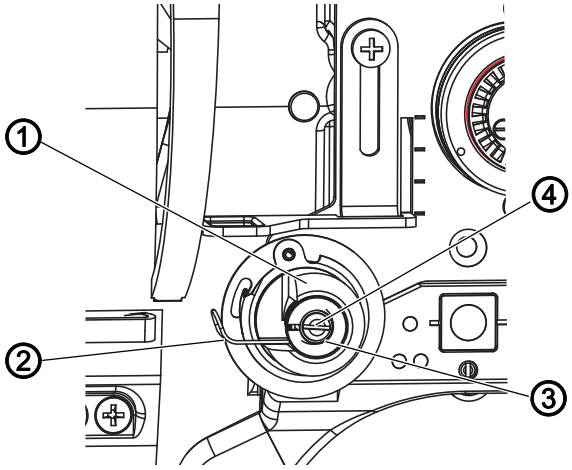
(1) - Screw *(2) - Needle thread regulator*

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 down
   - Increase needle thread tension: slide up
5. Tighten the screw (1).

12.2 Setting the thread tensioning spring

Fig. 34: Setting the thread tensioning spring



(1) - Stop collar
(2) - Spring
(3) - Tension disk
(4) - Screw

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

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

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

Be careful not to twist the stop collar.

4. Tighten the screw (4).

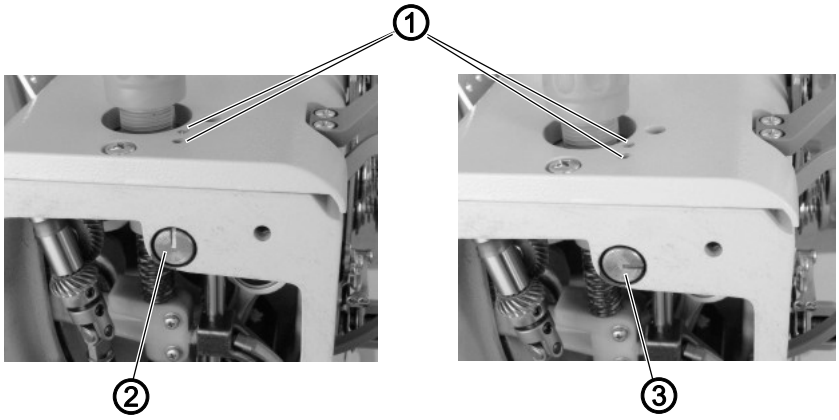
12.3 Setting the thread lever mechanism

Proper setting

The thread lever mechanism shall be set based on the sewing category, i.e. according to the needle used:

Needle number/Nm	Position of the thread lever mechanism
70 – 80	A
90 – 200	B

Fig. 35: Setting the thread lever mechanism



(1) - Openings for threaded pins
(2) - Thread lever mechanism position A
(3) - Thread lever mechanism position B

1. Insert the 3 mm Allen wrench into the holes (1).
2. Loosen the threaded pins.
3. Set the thread lever mechanism to the position (A) or (B).
4. Tighten the threaded pins.

12.4 Electronic needle thread tension

The electronic needle thread tension is calibrated in the factory and cannot be changed. The needle thread tension is controlled by the set value of the respective parameter.

If you have any inquiries about the electronic needle thread tension, please consult **Customer Service** (📖 *p. 117*).

13 Winder

WARNING

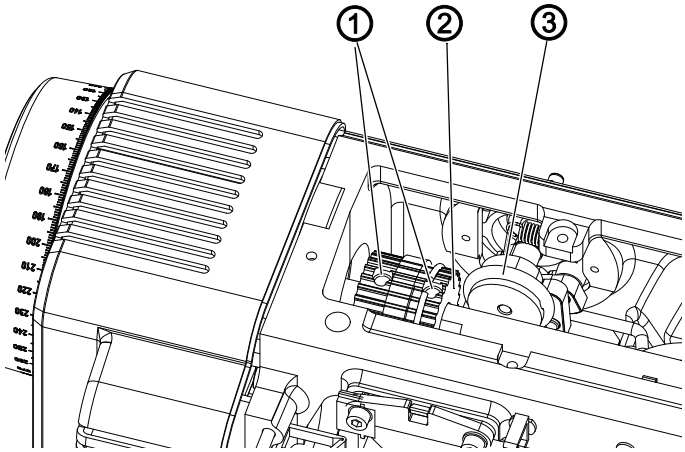
Risk of injury from moving parts!

Crushing possible.

Switch off the machine before setting the winder.

13.1 Setting the winder wheel to the toothed belt wheel

Fig. 36: Setting the winder wheel to the toothed belt wheel



(1) - Threaded pins
(2) - Toothed belt wheel
(3) - Winder wheel

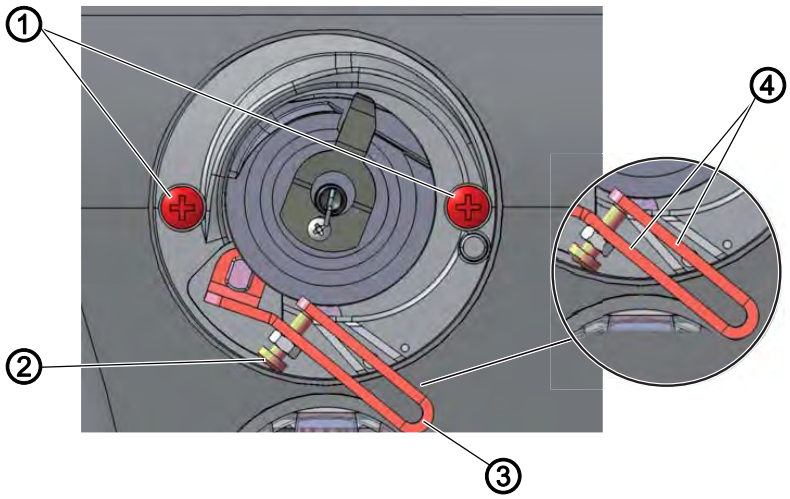
Proper setting

The distance between the winder wheel and the toothed belt wheel side is 0.8 mm.

1. Remove the arm cover (📖 *p. 16*).
1. Loosen the threaded pins (1).
2. Move the toothed belt wheel (2) to the right or left so that the distance from the winder wheel (3) is exactly 0.8 mm.
3. Tighten the threaded pins (1).

13.2 Setting the winder

Fig. 37: Setting the winder (1)



(1) - Screws
(2) - Screw
(3) - Winder lever
(4) - Arm

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.

1. Remove the arm cover (📖 *p. 16*).

Removing the winder

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

Setting the winder filling quantity

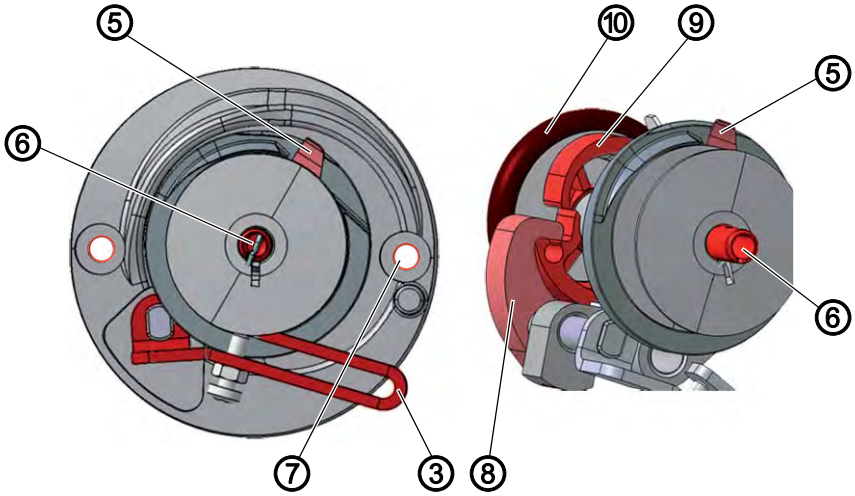
The position of the arms (4) on the winder lever (3) determines the filling quantity:

- **Parallel:** Automatic winding stops 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.

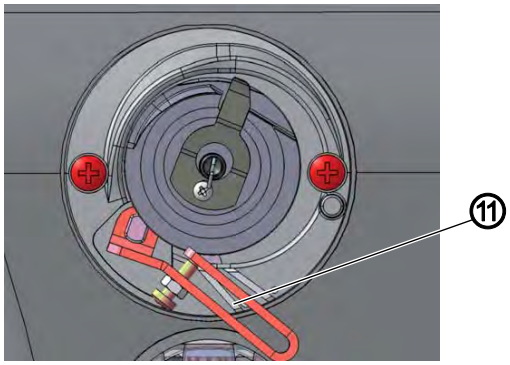
Setting the winder spacing

Fig. 38: Setting the winder (2)



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

Fig. 39: Setting the winder (3)



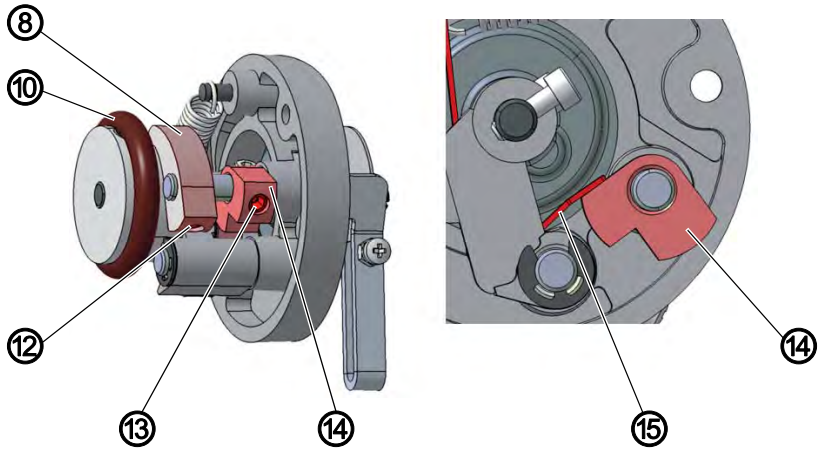
(11) - Marking for XXL hook

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, e.g. 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. 40: Setting the winder (4)

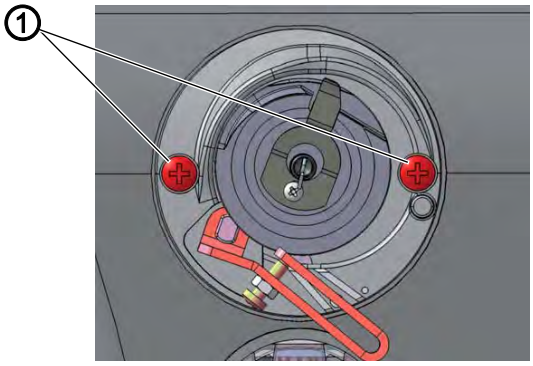


(8) - Block
(10) - Winder wheel
(12) - Threaded pin
(13) - Threaded pin
(14) - Switch cam
(15) - Leaf spring

13. Loosen the threaded pin (13).
14. Set the switch cam (14) such that it rests against 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).

Installing the winder

Fig. 41: Setting the winder (5)

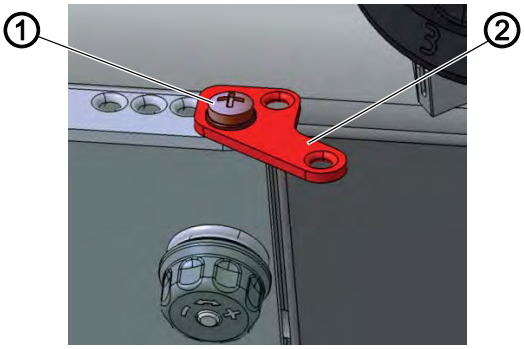


(1) - Screws

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

13.3 Setting the hook thread guide

Fig. 42: 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 up evenly over the entire width of the bobbin.

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

14 Thread trim

WARNING

Risk of injury from sharp or moving parts!

Cutting and crushing possible.

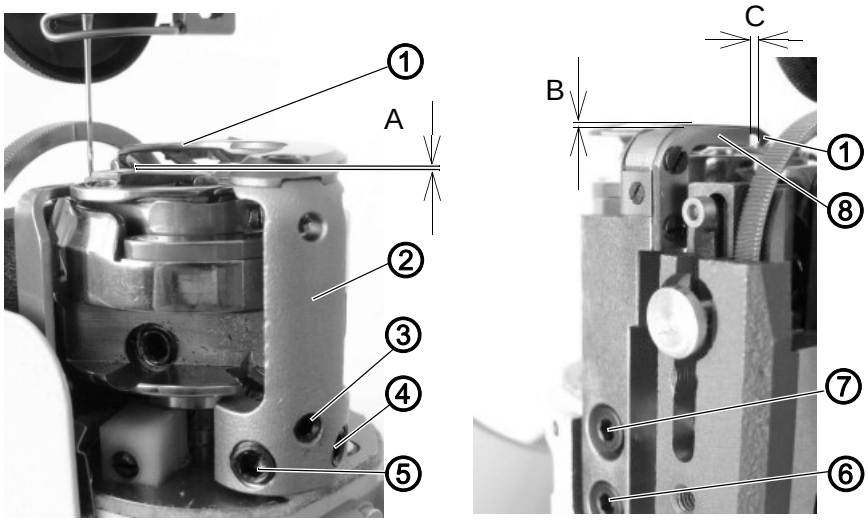
Switch off the machine before setting the thread trim.

14.1 Setting the height of the knives, position of the fixed knife

Proper setting

1. The height between the moving knife (1) and the hook is (A) = 0.2 mm.
2. The fixed knife (8) should be under the level of the moving knife (1) by the value (B) = 0.3 to 0.5 mm.
3. The knives should touch one another at the distance (C) = 1 to 2 mm.

Fig. 43: Setting the cutting knives



(1) - Moving knife
(2) - Moving knife carrier
(3) - Screw
(4) - Screw
(5) - Screw
(6) - Screw
(7) - Screw
(8) - Fixed knife

1. Loosen the screws (3), (4), (5) and move the holder (2) down.
2. Tighten slightly the screw (4) which fits the surface of the thread trim shaft.
3. Tighten the feed screw (3) until the instruction 1 is complied with.
4. Tighten the screw (4) and then the screw (5) as well.

5. Remove the cover of the side plate of the column.
6. Loosen the two screws (7) and (6). Set the distance (B) as specified in the instruction 2.
7. Tighten the screw (6) very slightly.
8. Set the angle to 270° for the handwheel.
9. Turn the moving knife (1) to have the distance (C) and move the fixed knife towards it (8) until the knives are touching (without pressure).
10. Tighten the screws (7) and (6) and check whether the knives are touching at the distance (C).

Important

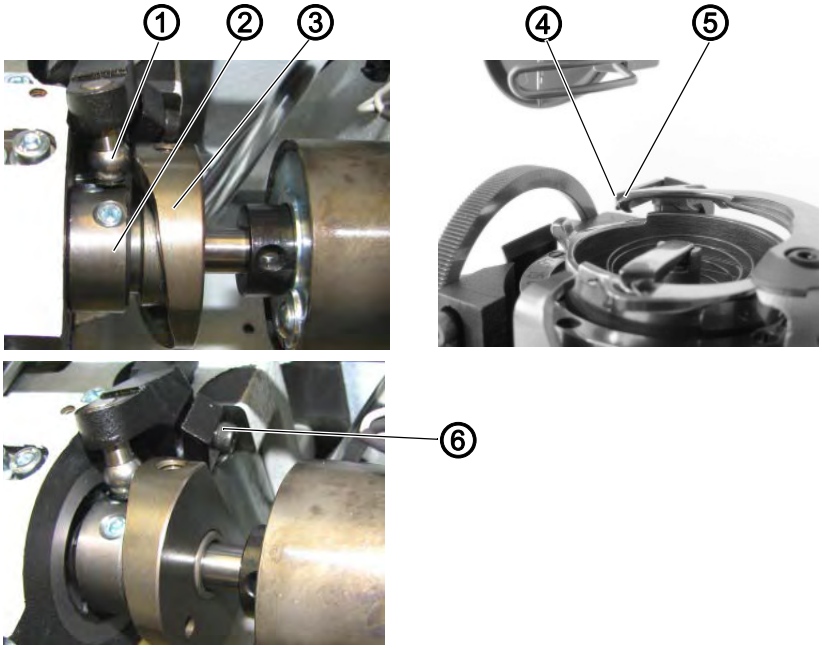
If the cutting pressure of the fixed knife is set too high, this will result in its excessive wear.

14.2 Starting position of the moving knife

Proper setting

If the sensing roller (1) touches the highest point of the cutoff curve (3), the edge of the moving knife (5) should cross the blade of the fixed knife (4) by 0.5 to 1 mm.

Fig. 44: Starting position of the moving knife

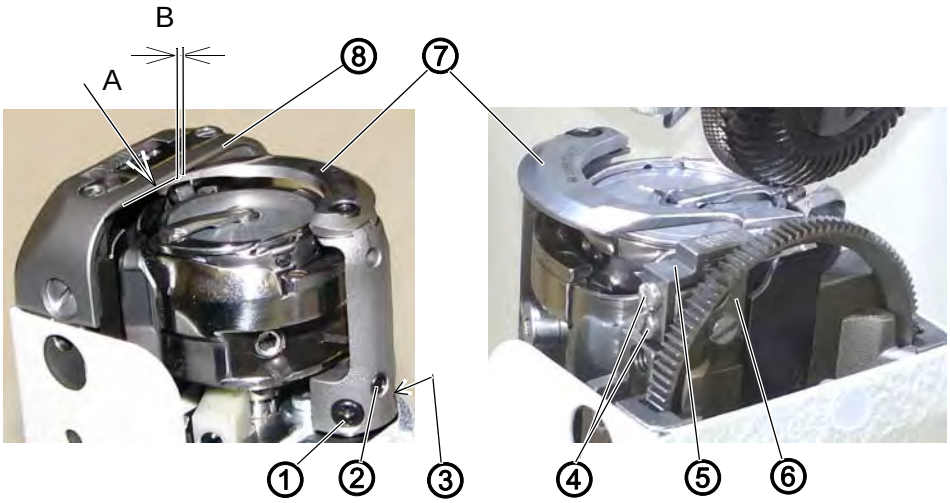


(1) - Roller
(2) - Ring
(3) - Cutoff curve
(4) - Fixed knife
(5) - Moving knife
(6) - Screw

1. Tilt the machine head (📖 *p. 15*).
2. Check whether the cutoff curve (3) is pushed as far to the right (2).
3. Turn the cutoff curve (3) as prescribed.
4. Loosen the screw (6).
5. Turn the fixed knife (4) as prescribed.
6. Tighten the screw (6).

14.3 Setting the short thread trimming

Obr. 45: Setting the short thread trimming



(1) - Screw
(2) - Screw
(3) - Screw
(4) - Screws
(5) - Fixed knife
(6) - Fixed knife support
(7) - Moving knife
(8) - Throat plate

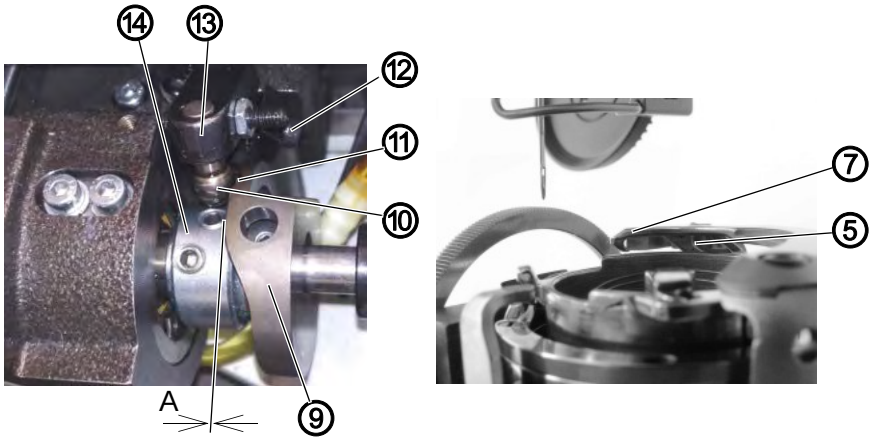
Proper setting

1. Minimum distance (point A) should be kept between the moving knife (7) upper edge and the throat plate (8). At the same time the knife motion must be free.
2. The fixed knife (5) and the moving knife (7) should be mutually set to cut threads with minimum cutting pressure.
3. If the roller (10) is in contact with the cutoff curve (9) highest point (📖 *p. 56*), the distance (B) between the moving knife (7) and the throat plate (8) should be zero.

1. Open the hook cover.
2. With the fitted on throat plate loosen screws (1), (2), (3) and shift the knife holder downwards.
3. Slightly tighten screw (2), which fits the thread trim shaft surface.
4. Tighten the slide screw (3) until instruction 1 is accomplished.
5. Tighten the screw (2) and subsequently also the screw (1).
6. Dismantle the throat plate (8).
7. Screw on a fixed knife support (6) so that there is no clearance between the knife (7) and the support (6) and support does not lift up knife.
8. Screw on the fixed knife (5) with two screws (4) and adjust as instruction 2.
9. Fit the throat plate (8).
10. Loosen the clamp joint screw (12) on the roller (10) lever.
11. Push the moving knife (7) and the lever (13) to the end position on the throat plate as instruction 3.
12. Tighten the clamp joint screw (12) on the roller (10) lever.

14.4 Setting the cutoff curve

Obr. 46: Setting the cutoff curve



(9) - Cutoff curve
(10) - Rolle
(11) - Curve path recess
(12) - Clamp joint screw
(13) - Lever
(14) - Ring
(5) - Fixed knife
(7) - Moving knife

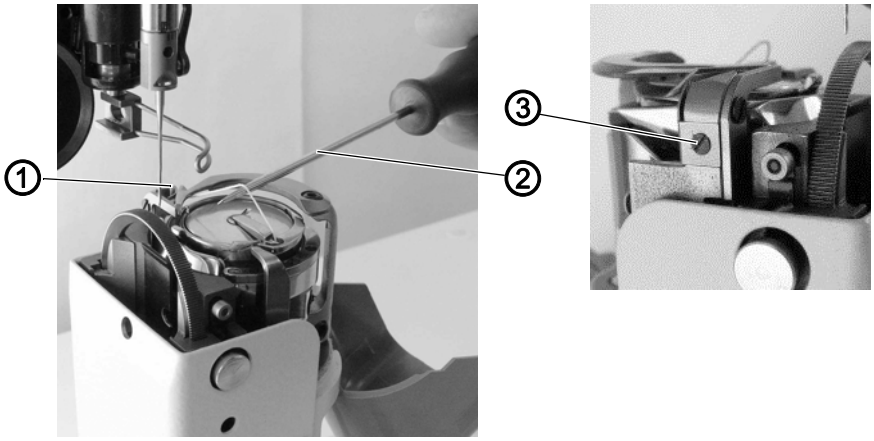
Proper setting

1. If the lever (13) is in its basic rest position, there is a distance A = 0.05 to 0.1 mm between the cutoff curve (9) top point and the roller (10). In this position, the moving knife is at the longest rear distance from the sewing machine operator.
2. The angular position (timing) of the cutoff curve (9) should be such that thread trimming appears when the angle on the handwheel is 40° to 45° (60° for short thread trimming). This is guaranteed when the roller (10) fits in the curve path recess (11) at the handwheel position 90° (100° for short thread trimming).

1. Tilt the machine head (📖 *p. 15*).
2. Open the hook cover.
3. Loosen the screws on the ring (14).
4. Loosen the screws on the cutoff curve (9).
5. Turn the top of the cutoff curve (9) to face the roller (10). Move the cutoff curve to the side so that the distance between the cutoff curve and the roller is (A) = 0.05 to 0.1 mm.
6. Move the ring (14) to the right as far as it will go to the cutoff curve (9). Take care that the looping stroke is not interfered with (📖 *p. 35*).
7. Tighten the screws on the ring (14).
8. Tighten the screws of the cutoff curve (9) so that the blade of the moving knife (7) and the blade of the fixed knife (5) are aligned at 40° to 45° on the handwheel.
9. Check the setting of the distance as prescribed in instruction 1, the angle of the cutoff curve according to instruction 2 and that of the looping stroke (📖 *p. 35*).

14.5 Hook thread clamp

Fig. 47: Setting the hook thread clamp



(1) - Hook thread clamp
(2) - Screwdriver
(3) - Screw

Proper setting

The hold-down force of the clamp (1) should not be set at a value higher than necessary. It should be able to pull the hook thread from the hook.

1. Perform sewing and the thread trim.
2. Using the screwdriver (2), pull the thread as shown in the picture and determine whether the thread is pulled out from the hook under the clamp (1).
3. Set and adjust the pressure of the hook thread clamp (1) using the screw (3) until the instruction is complied with.

Error

If the hook thread clamp is set incorrectly, difficulties may appear during sewing.

15 Setting the safety snap-on coupling

WARNING

Risk of injury from moving parts!

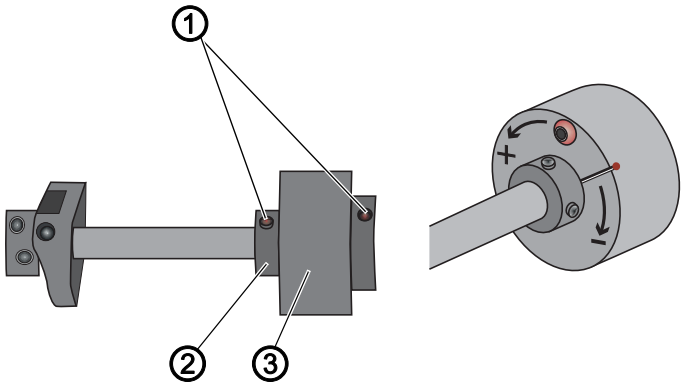
Crushing possible.

Switch off the machine before you set 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.

15.1 Attaching the safety snap-on coupling

Fig. 48: 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.

1. Tilt the machine head (📖 *p. 15*).
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.

15.2 Setting the torque

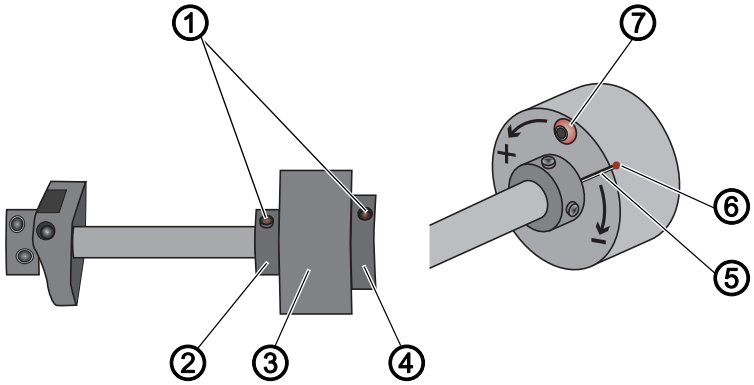
NOTICE

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 thread jamming.

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

Fig. 49: Setting the disengaging torque



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

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.

1. Tilt the machine head (📖 *p. 15*).
2. Loosen the screw (7).
3. Using the screwdriver, turn the disk on the setting slot (5) against the marking point (6) 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).

16 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!

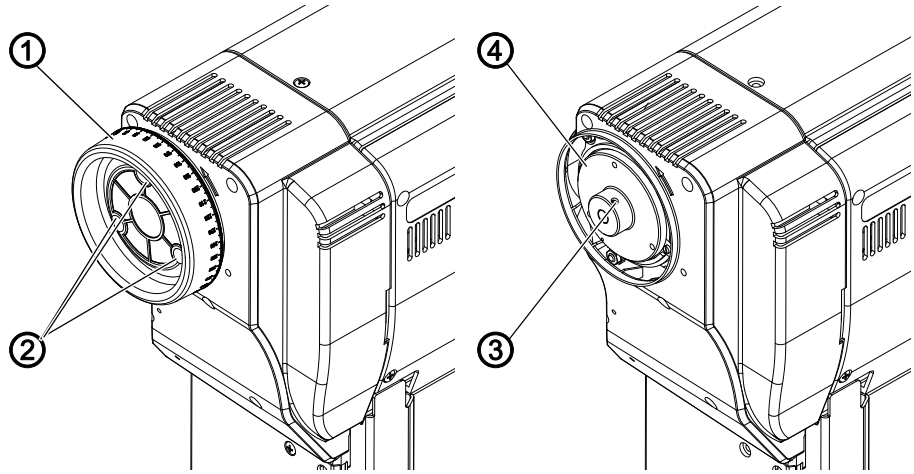
Crushing possible.

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

16.1 Disassembling the motor

16.1.1 Disassembling the handwheel and handwheel flange

Fig. 50: Disassembling the handwheel and handwheel flange

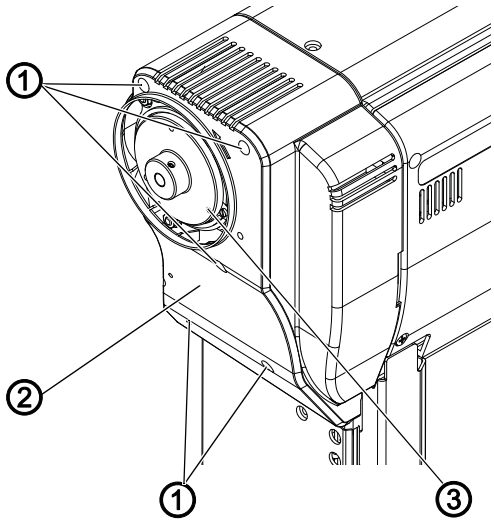


(1) - Handwheel
(2) - Screws
(3) - Threaded pins
(4) - Washer

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

16.1.2 Removing the cover

Fig. 51: Removing the cover

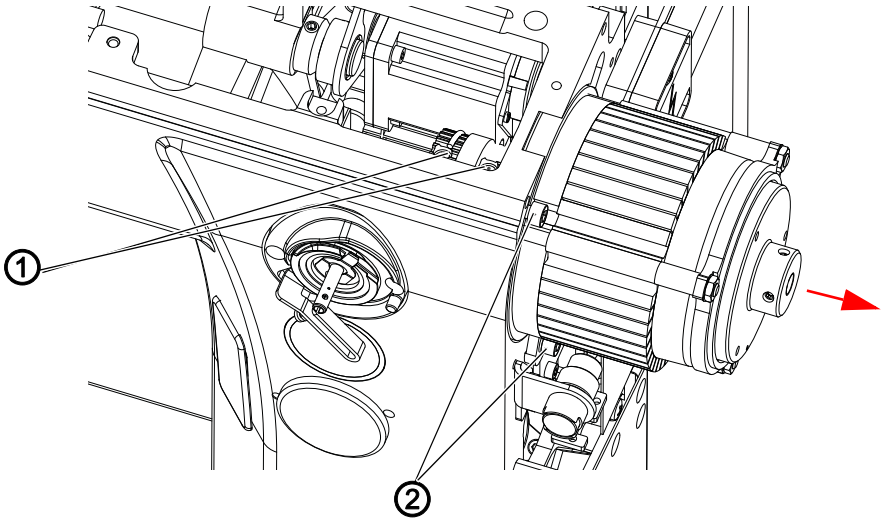


(1) - Screws
(2) - Cover
(3) - Washer

1. Loosen all 5 screws (1).
2. Remove the cover (2) in the direction of the handwheel axis.

16.1.3 Removing the motor

Fig. 52: Removing the motor



(1) - Screws
(2) - Screws

3. Loosen the screws (1) and disconnect the cables from the motor.
4. Loosen the 3 screws (2) on the motor flange.
5. Remove the motor from the machine as indicated by the arrow.

Assembling the motor

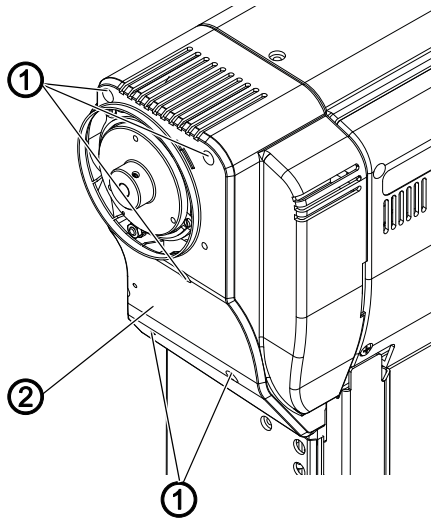
1. Insert the motor into the toothed belt wheel of the upper shaft.
2. Tighten the 3 screws (2) on the motor flange.
3. Tighten the screws (1).

Important

The first row of the screws (1) on the toothed belt wheel in the direction of rotation should be tightened up to the surfaces of the shaft.

16.1.4 Assembling the cover

Fig. 53: Assembling the cover

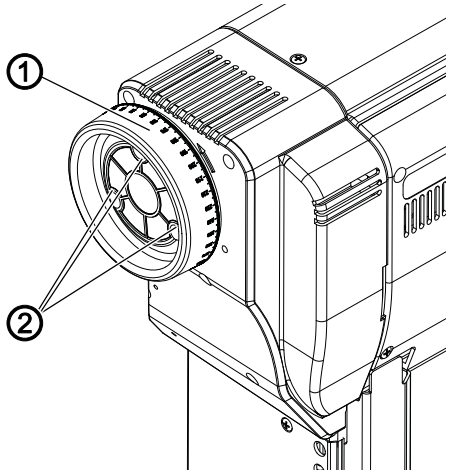


(1) - Screws *(2) - Cover*

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

16.1.5 Assembling the handwheel

Fig. 54: Assembling the handwheel



(1) - Handwheel *(2) - Screws*

1. Fit the handwheel (1) and tighten all three screws (2).

17 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 878-M PREMIUM*.

17.1 Calling up the Technician level

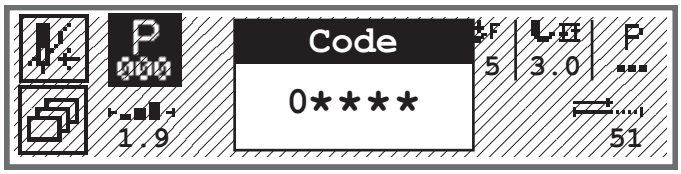
A password is requested to make it possible to make changes on the Technician level.

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. 55: Password entering window



3. Use the numeric buttons to enter the password (25483).

↳ You are at the Technician level.

17.2 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
`ParameterCall`	Parameter selection (visible only when activated)	🕮 *p. 66*
`Default Program`	Program presettings	🕮 *p. 67*
`Machine config.`	Machine configuration	🕮 *p. 70*
`User config.`	User configuration	🕮 *p. 82*
`Service`	Service	🕮 *p. 90*
`Counter`	Counter	🕮 *p. 96*
`Reset`	Data reset	🕮 *p. 96*
`Data transfer`	Data transfer	🕮 *p. 97*

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.

17.3 Parameter selection (*ParameterCall*) submenu

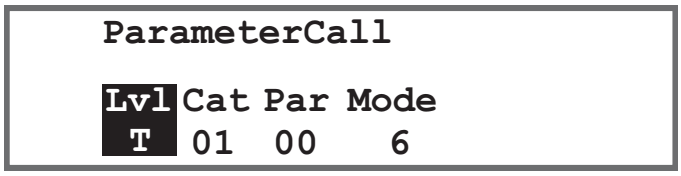
The submenu is visible only if the ParameterView parameter is active (*ParameterView*) (📖 *p. 83*). The settings for a parameter can be changed directly here.

To change the parameters:

1. Select the menu *Service > ParameterCall* (Service > Parameter selection).
2. Press the **OK** button to confirm the selection.

↳ A window appears where the parameter can be selected:

Fig. 56: ParameterCall (Parameter selection) submenu



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

Abbreviation	Meaning
O	Operator
T	Technician

4. Use the ► button to move to the *Cat* category and select the desired value with the ▲/▼ buttons or the number keys. The categories are explained in the 📖 *Parameter list 878-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 878-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 the parameter value and confirm by pressing **OK**.

17.4 Program presetting (*DefaultProgram*) 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
Stitch Length	Stitch length	🕮 *p. 67*
Foot Press.	Foot pressure	🕮 *p. 68*
Thr.Tens.	Needle thread tension	🕮 *p. 68*
FullnessType	Fullness type	🕮 *p. 68*
Fullness	Fullness degrees	🕮 *p. 69*
Start Tack	Start bartack	🕮 *p. 69*
End Tack	End bartack	🕮 *p. 69*
Thread Trim	Thread Trim	🕮 *p. 69*
DailyPieces	Daily piece counter	🕮 *p. 70*

17.4.1 Setting the Stitch length (*StitchLength*) parameter

mm

NOTICE

Property damage may occur!

The machine and the sewing equipment may be damaged.

ALWAYS adjust the stitch length to the selected sewing equipment.

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

To set the stitch length parameter:

1. Select the *StitchLength* parameter
2. Press the **OK** button to confirm the selection.
3. Enter the desired value (00.0 – 7.0 mm) based on the maximum stitch length T3010
4. Press the **OK** button to confirm the value.

17.4.2 Setting the Foot pressure (*FootPress.*) parameter

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

To set the foot pressure parameter:

1. Select the *FootPress.* parameter.
2. Press the **OK** button to confirm the selection.
3. Enter the desired value (01 – 10).
4. Press the **OK** button to confirm the value.

17.4.3 Setting the Needle thread tension (*ThreadTension*) parameter – optional accessories

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

To set the needle thread tension parameter:

1. Select the *ThreadTension* 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.

17.4.4 Setting the Fullness type (*FullnessType*) parameter

The fullness of feed (upper/lower) that should be set as standard when creating a new program.

To set the FullnessType parameter:

1. Select the *FullnessType* parameter.
2. Press the **OK** button to confirm the selection.
3. Select the upper ↑ or lower ↓ fullness degrees.
4. Press the **OK** button to confirm the value.

17.4.5 Setting the Fullness degrees (*Fullness)* parameter

Fullness degrees range: 0 – 16.

To set the Fullness degrees parameter:

1. Select the *Fullness* parameter.
2. Press the **OK** button to confirm the selection.
3. Enter the desired value (0 – 16).
4. Press the **OK** button to confirm the value.

17.4.6 Setting the Start bartack (*StartTack*) 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 Manual mode.
Off	The start bartack is not activated.

17.4.7 Setting the End bartack (*EndTack*) 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 Manual mode.
Off	The end bartack is not activated.

17.4.8 Setting the Thread Trim (*ThreadTrim*) parameter

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

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

17.4.9 Setting the Daily piece 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
CntMode	Off– the counter is off Up – the daily pieces counter counts upward Down – the daily pieces counter counts downward
Reset	Enter the value to which the daily pieces counter should return when it is reset (value range -999 – 999).

17.5 Machine configuration (*MachineConfig*) submenu

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

The menu is divided into the following submenus:

Parameter	Explanation	Reference
Thread Trim	Thread Trim	🕮 *p. 71*
Thread Clamp	Thread clamp	🕮 *p. 72*
Speed	Speed	🕮 *p. 74*
Stop Positions	Stop positions	🕮 *p. 74*
Foot	Sewing foot	🕮 *p. 75*
Thr.Tens.	Needle thread tension	🕮 *p. 75*
Stitch Length	Stitch length	🕮 *p. 76*
Bobbin	Bobbin	🕮 *p. 77*
Holding Force	Motor holding force	🕮 *p. 77*
Pedal	Pedal	🕮 *p. 78*
NeedleCooling	Needle cooling	🕮 *p. 78*
Center Guide	Seam center guide	🕮 *p. 79*
EdgeGuide	Edge Guide	🕮 *p. 79*
FabricThickness	Material thickness detection	🕮 *p. 80*
Speed Corr	Correcting effects of high speed	🕮 *p. 80*
LightBarrier	Light barrier	🕮 *p. 81*
Mode Seg.Size	Segment length	🕮 *p. 81*
Threading	Threading mode	🕮 *p. 82*

17.5.1 Setting the Thread trim (*ThreadTrim*) parameter

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

Menu item	Setting option
On/Off	The thread trim can generally be activated or deactivated; if it is deactivated here, it can no longer be selected at the operator level.
Speed	Speed of the machine during thread trimming. (Value range 050 – 250 [rpm])
Start Trim°	Position when the magnet of the thread trim is activated. (Value range 000 – 359)
Stop Trim°	Position when the magnet of the thread trim is deactivated. (Value range 000 – 359)
StopBottom°	Needle position at the lower dead center during the seam, specified in degrees. (Value range 000 – 359)
After Trim°	Needle position after thread trimming before reversal. (Value range 000 – 359)
Turn Back	Reversal after trimming the thread is active or inactive. (Value range On/Off)
StopIdle°	Position of the needle after thread trimming (reversal position); the needle is set upward to reach the full lifting height, and the needle lever is subsequently no longer at the top dead center. (Value range 000 – 359)
TensOpen°	Needle position at which the needle thread tension switches to the value for thread trimming (*Thread Tens*). (Value range 000 – 359)
Tens.Close°	Position at which the standard needle thread tension is used again after thread trimming. (Value range 000 – 359)
Thr.Tens.	Needle thread tension during thread trimming. (Value range 00 – 50 [%])
t TensClose	Delay showing how long it takes until the standard needle thread tension is used again. (Value range 000 – 200 [ms])
Short Stitch	*Start Stitch* Number of short stitches at the seam start; advisable for neat starts to the sewing process. (Value range 00 – 99)
	End Stitch 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)
	St.Length Stitch length of the short stitches, generally between 01.0 – 01.5 [mm]. (Value range -7.0 – 7.0)

Menu item	Setting option
StitchLengthChg	On/Off stitch length change.
	Stitch length during the thread trim process.
	On° The position where the stitch length change is activated.
	Off° The position where the stitch length change is deactivated.
Trim Backwards	Thread trimming during backward stitch. (Value range On/Off)
PWM Config	Pulse width modulation Power supply to the magnet for the thread trim.
	t1 [ms] Activation duration of the thread trim in time period t1. (Value range 000 – 1000 [ms])
	DtyC. t1 [%] Duty cycle in time period t1 (Value range 000 – 100 [%])
	t2 [s] Activation duration of the thread trim in time period t2. (Value range 000 – 600 [s])
	DtyC. t2 [%] Duty cycle in time period t2 (Value range 000 – 100 [%])

17.5.2 Setting the Thread clamp (*ThreadClamp*) parameter

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

Menu item	Setting options
On/Off	The thread clamp can be activated or deactivated.
Mode	Various modes (1 to 10) are available; explanations can be found in the 🕮 *Parameter data sheet 878-M PREMIUM*.
Thickness	On/Off Lifting height of the sewing foot depending on the thickness of the material.
Clamp Angle	On/Off Position for activating and deactivating the thread clamp. (Value range 000 – 359)
Foot Angle	On/Off Position for lifting/lowering the sewing foot in order to release a thread that is jammed underneath. (Value range 000 – 359)
	Height Lifting height of the sewing foot. (Value range 01.0 – 12.0)

Menu item	Setting options
Option	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
PWM Config	Pulse width modulation Power supply to the magnet for the thread clamp.
	t1 [ms] Activation duration of the thread trim in time period t1. (Value range 000 – 1000 [ms])
	DtyC. t1 [%] Duty cycle in time period t1 (Value range 000 – 100 [%])
	t2 [s] Activation duration of the thread trim in time period t2. (Value range 000 – 600 [s])
	DtyC. t2 [%] Duty cycle in time period t2 (Value range 000 – 100 [%])
Neat Seam Beginning	Neat seam beginning (Value range On/Off)
	Trim Delay Delay after thread trimming when NSB is activated. (Value range 0000 – 1000 [ms])
	Knife Value for the first position of the knife after seam start. (Value range 000 – 359)
	Knife Clamp Value for switching off the knife clamp. (Value range 000 – 359)
	Exhaust Exhaust removal of the trimmed residual thread. *On°* – Position for the start of exhaust removal (Value range 000 – 359) *Off [ms]* – Duration of the exhaust removal (Value range 00000 – 99999 [ms])

17.5.3 Setting the Speed (*Speed*) parameter

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

Menu item	Setting options
Max. Speed	Maximum permissible speed; it can no longer be exceeded at the operator level. (Value range 0500 – 2,500 [rpm])
Min. Speed	Minimum speed at which an individual stitch is made; a lower speed is no longer possible at the operator level. (Value range 050 – 400 [rpm])
Pos. Speed	Position speed; the last stitch is made at a slower speed during the stopping of the sewing procedure. (Value range 010 – 700 [rpm])
Soft Speed	Speed for a soft start. (Value range 0010 – 1000 [rpm])
N Stitches	Number of stitches to be made during a soft start. (Value range 00 – 10)
Acceleration	Acceleration ramp (sewing motor)
Deceleration	Deceleration ramp (sewing motor)

17.5.4 Setting the Stop positions (*StopPositions*) parameter

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

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

17.5.5 Setting the Sewing foot (*Foot*) parameter

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

Menu item	Setting options
Max Height	Maximum lift height that the system may lift the sewing foot. (Value range with standard thread trim 01.0 – 13.0 [mm])
Motor Speed	Speed at which the sewing foot will be lifted. (Value range 01 – 60)
FL LightPos	Sewing foot lifting off (Value range 0.0 – 3.0 [mm]) (Activated, see 📖 *p. 84*)

17.5.6 Setting the Needle thread tension (*ThreadTension*) parameter

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

Menu item	Setting options	
FL Tens.Mode	Mode for lifting the needle thread tension during the active lifting of the sewing foot.	
	0	Needle thread tension is not lifted.
	1	The needle thread tension is lifted as the sewing foot is lifted during sewing.
	2	The needle thread tension is lifted after thread trimming.
	3	The needle thread tension is lifted as the sewing foot is lifted during sewing and after thread trimming.
PWM Config	Pulse width modulation Power supply to the magnet for the thread clamp.	
	t1 [ms] Activation duration of the thread trim in time period t1. (Value range 000 – 1000 [ms])	
	DtyC. t1 [%] Duty cycle in time period t1 (Value range 000 – 100 [%])	
	t2 [s] Activation duration of the thread trim in time period t2. (Value range 000 – 600 [s])	
	DtyC. t2 [%] Duty cycle in time period t2 (Value range 000 – 100 [%])	

Information

In case of optional accessories for the electronic tensioning plate:

Menu item	Setting options
PreTension	Setting the pretension during thread trimming. A value of 0 is recommended as the pretension is generated by mechanical tension. (Value range 00 – 99 [%])
t TensClose	The needle thread tension remains closed for a defined period of time after thread trimming and prevents the needle thread from being pulled further when the sewing material is removed. Without a thread trim, this menu item should be set to a very low value. (Value range 0.1 – 7.5 [s])

17.5.7 Setting the Stitch length (*StitchLength*) 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 options are explained in more detail in the table.

Menu item	Setting options
Max St.Len	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. 18*. (Value range 3.0 – 7.0 [mm])
Man.St.Len.	The stitch adjustment lever for the manual adjustment of the stitch length may be active or inactive; optional equipment. (Value range On/Off)
Speed Limitatio	*Stitch Length* The speed is limited during sewing by the set stitch length value. (Value range 1.0 – 7.0 [mm])
	Speed Value for limiting the speed from a defined, adjustable stitch length. (Value range 0050 – 2500 [rpm])

17.5.8 Setting the Bobbin (*Bobbin*) parameter

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

Menu item	Setting options
Bobbin Monit	Activation of the bobbin rotation monitor 0 = PCB 9850 867003 1 = CAN version (right bobbin) 2 = CAN version (right and left bobbin)
SSD	Enhancement check (only when *BobbinMonit* is not set to 2) (Value range On/Off)
BRM	Bobbin rotation monitor (only when *BobbinMonit* is not set to 2) (Value range On/Off)
	Stitches Delayed stitches before the bobbin rotation monitor starts. (Value range 000 – 255)

17.5.9 Setting the Motor holding force (*HoldingForce*) parameter

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

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

17.5.10 Setting the Pedal (*Pedal*) parameter

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

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

17.5.11 Setting the Needle cooling (*NeedleCooling*) parameter

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

Menu item	Setting options
Off	Needle cooling is deactivated.
On	Needle cooling is activated. *t Delay* Lag time, after which the needle cooling is deactivated. (Value range 00.0 – 10.0 [ms])
Speed	*t Delay* Lag time, after which the needle cooling is deactivated. (Value range 00.0 – 10.0 [ms])
	Speed Speed at which the needle cooling is activated. (Value range 0000 – 6000 [rpm])
EdgeTrimmer	Needle cooling is activated when the edge cutter is also activated. *t Delay* Lag time, after which the needle cooling is deactivated. (Value range 00.0 – 10.0 [ms])

17.5.12 Setting the Seam center guide (*CenterGuide*) parameter

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

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

17.5.13 Setting the Edge guide (*EdgeGuide*) parameter

NOTICE

Property damage may occur!

The 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 options are explained in more detail in the table.

Menu item	Setting options
On/Off	Edge guide active/inactive.
Speed	Travel speed of the edge guide. (Value range 0500 – 60,000 [Hz])
Min. gap	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. ATTENTION The entered value is the gap measured between the NEEDLE and the edge guide. (Value range 01.0 – 20.0 [mm])

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

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

Menu item	Setting options
On/Off	Material thickness detection active/inactive.
Hysterese	Tolerance at which the material thickness detection based on whether 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])
PressureComp	With extremely thick material, the foot pressure increases above the standard set value due to the thickness of the material. To a certain extent, the machine can compensate itself for the influence of thick material. (Value range On/Off)

17.5.15 Setting the Correction of the effects of high speeds (*SpeedCorr*) parameter

Various settings can be made for correcting the effects of high speeds.
The options are explained in more detail in the table.

Menu item	Setting options
Hysterese	Tolerance at which the correction of the effects of high speeds based on whether 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 – 2000 [rpm])

17.5.16 Setting the Light barrier (*LightBarrier*) parameter

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

Menu item	Setting options
On/Off	Light barrier active/inactive.
Speed	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 – 2,000 [rpm])
Fr.pedalstart	*On* Pedal can be pressed and the machine sews as soon as the material breaks the light barrier.
	Off Pedal is pressed but the machine does not start sewing; must be started from neutral position.
Sense	*Dark* The signal is given when the light barrier is broken.
	Bright The signal is given when the light barrier is complete.
Automatic	This setting is relevant only if the material end detection is activated at the operator level.
	On The pedal starts a program which runs automatically.
	Off The pedal starts a program; the operator determines the speed through the completion of the program.

17.5.17 Setting the Segment length (*ModeSeg.Size*) parameter

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

Menu item	Setting options
By Size	Seam sections are measured via the length specification (in mm).
By Count	Seam sections are measured via the stitch count.

17.5.18 Setting the Threading mode (*Threading*) parameter

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

Menu item	Setting options
Down	The sewing foot is lowered in threading mode.
Up	The sewing foot is lifted in threading mode.
Pedal	The sewing foot can be lifted or lowered with the pedal in threading mode.

17.6 User configuration (*UserConfig*) submenu

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

The menu is divided into the following submenus:

Parameter	Explanation	Reference
Language	Language selection	🕮 *p. 83*
ParameterView	Parameter view	🕮 *p. 83*
Input Config	Configuration of the inputs	🕮 *p. 84*
Output Config	Configuration of the outputs	🕮 *p. 85*
StitchFunctions	Stitch functions	🕮 *p. 86*
Scanner	Bar code reader (optional accessories)	
Interface	Interface for the bar code reader	
Programs	Programs	🕮 *p. 87*
Jog-Dial	Electronic handwheel	🕮 *p. 87*
Lock	Access rights	🕮 *p. 88*
QONDAC	Activity recording	
FastMenuKeys	Can be switched between standard and simplified display menu.	🕮 *p. 89*
Contrast	Contrast	🕮 *p. 89*
Brightness	Brightness	🕮 *p. 89*

17.6.1 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.

17.6.2 Setting the Parameter view (*ParameterView*) parameter

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

Fig. 57: Example `ParameterView` *inactive*

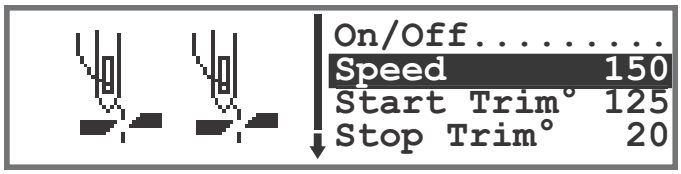
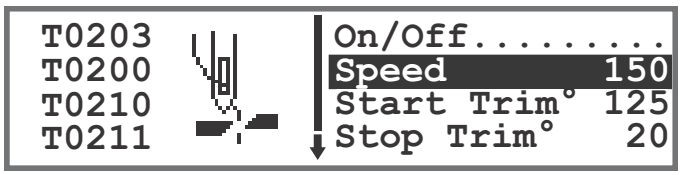


Fig. 58: Example `ParameterView` *active*



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. 66*).

17.6.3 Setting the Input configuration (*InputConfig*) parameter

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

Machine input signal		Input
Buttons on the push buttons	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 for every input (parameter T 53 00).
The following table lists the modes:

Menu item	Setting options	
Mode	0	No function
	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/feed dog
	18	Light barrier
	20	Operation lock when contact is opened normally (NO)
	21	Quick stroke height adjustment
	23	Change to next seam section
	25	2nd position of edge guide
	26	Sewing foot lightening
	27	2nd fullness degree value
	29	Puller
	31	Motor blockage inverse
	32	Motor blockage in seam
	44	Short stitch length
Stored	*On* – stored *OffOff* – not stored	

17.6.4 Setting the Output configuration (*OutputConfig*) 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

Machine output signal	Output
STL (X17)	X120B.22
STL(FA) (X18)	X120B.23
FL (X15) (X22)	X90.12
FF3 OUT (X22)	X90.15

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

Mode	Function
0	No function
1	Needle cooling
2	Cleaning signal for the residual thread monitor
3	Pos 1 (needle down)
4	Pos 2 (thread lever up)
5	Motor running signal
6	Feed dog/seam center guide
7	Sewing foot lift signal
8	Puller
9	Pressure for Puller
10	Backtack
11	Backtack Process
12	Thread Trimmer
13	In Seam

17.6.5 Setting the Stitch functions (*StitchFunctions*) parameter

The machine counts the stitches when a program is processed with the pedal. If the operator 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.

17.6.6 Setting the Programs (*Programs*) parameter

P
001-999

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

Menu item	Setting option	
Forward Sound	Sound when changing between two seam sections. (Value range On/Off)	
Seg.Switch	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 cancellation when activated during seam section. If the section change function is assigned to Position -2, the softkey menu can be used for a cancellation (it is still possible to continue sewing from that point; for a full cancellation of the program, press the pedal in Position -2 again).	
Abort	*Mode*	*Position* After the cancellation, the needle is merely brought to its end position and the thread is trimmed (if activated).
		Seg.Eng Ending the program with all configurations that are set for this seam section.
	Thread Trim The thread trim becomes active or remains inactive when a seam section is canceled. (Value range On/Off)	
	Pedal Abort Abort a program by pressing the pedal in Position -2 twice. (Value range On/Off)	

17.6.7 Setting the Electronic handwheel (*JogDial*) parameter

The electronic handwheel can be activated or deactivated.

17.6.8 Setting the Access rights (*Lock*) parameter

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

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

Prog.Switch	The last active program is fixed at the operator level. It is not possible to change to a different program. It is not possible to change to a different program. (Value range On/Off)	
Manual	Selective restriction of areas in the manual mode R/W – Read/Write Off – Area is hidden R/O – Read/Only	
	Parameters	Restriction of access to the parameters (Value range R/W, Off)
	Stitch Length	Restriction of access to the stitch length (Value range R/W, Off, R/O)
	Thr.Tens.	Restriction of access to the needle thread tension (Value range R/W, Off, R/O)
	Foot Press.	Restriction of access to the foot pressure (Value range R/W, Off, R/O)
	Foot Stroke	Restriction of access to the sewing foot stroke (Value range R/W, Off, R/O)
Program	Selective restriction of access to the existing programs and their parameters R/W – Read/Write Off – Area is hidden R/O – Read/Only	
	Program	It is not possible to create new programs; it is not possible to edit existing programs. (Value range On/Off)
	St.Len.Corr	Restriction of access to the correction factor for the stitch length (Value range R/W, Off, R/O)
	Tens.Corr	Restriction of access to the correction factor for the needle thread tension (Value range R/W, Off, R/O)

17.6.9 Setting the Fast menu keys (*FastMenuKeys*) parameter

To set the parameter:

1. Select the *FastMenuKeys* parameter.
2. Press the **OK** button to confirm the selection.
3. Switch off the sewing machine.
4. Simplified display menu appears after swith on the sewing machine.
5. Standard advanced display menu return by parameter deselecting and restarting of the sewing machine.

17.6.10 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.

17.6.11 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.

17.7 Service (*Service*) submenu

Determine the 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
Multi-test	Multi-test	🕮 *p. 90*
Adjustments	Service routine	🕮 *p. 94*
Calibration	Calibration	🕮 *p. 94*
FootZeroHeight	Setting the gap between the foot and the feed dog	🕮 *p. 96*

17.7.1 Setting the Multitest (*Multitest*) parameter

This parameter makes it possible to test whether, for example, the magnets, drives, and inputs or outputs are functioning correctly. 🕮 *Parameter list 878-M PREMIUM* lists the necessary allocations.

Subitem	Explanation	Reference
Test Output	Test of the outputs	🕮 *p. 90*
Test PWM	Test of the pulse width modulation	🕮 *p. 91*
Test Input	Test of the inputs	🕮 *p. 91*
Test Ana.Input	Test of the analog inputs	🕮 *p. 92*
Test Auto Input	Test of the inputs	🕮 *p. 92*
Test Sew. Motor	Test of the sewing motor	🕮 *p. 92*
Test Step. Motor	Test of the stepper motors	🕮 *p. 93*
Test Pedal	Test of the analog pedal	🕮 *p. 94*
Test Fabric Sen	Test of the material thickness detection (sensing)	🕮 *p. 94*

Test Output subitem

Test of the outputs according to the interconnection diagram.

To test the outputs:

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

Fig. 59: Test Output subitem

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

Test PWM (Test of the pulse width modulation) 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 percentages. The BOOST function effects a voltage overshoot in period (t1).

To check the power outputs of the pulse width modulation:

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

Fig. 60: The Test PWM (Test of the pulse width modulation) 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 pressing 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.

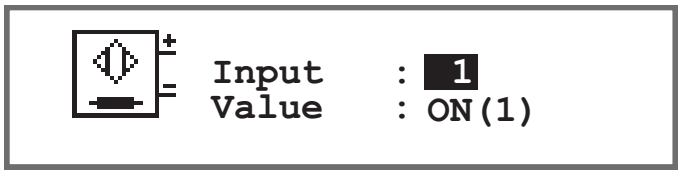
Test Input subitem

Testing the inputs according to the interconnection diagram.

To perform the test steps:

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

Fig. 61: Test Input subitem



2. Confirm the selected element (e.g. button, knee lever, etc.).
3. Observe the display on the control panel.

↳ If the element is functional, the display switches between *On* and *Off* under *Value*.

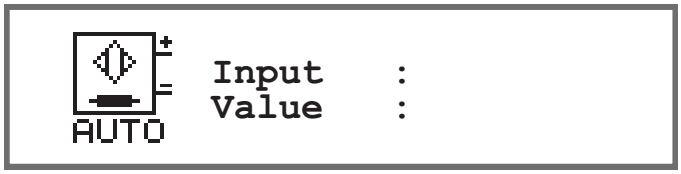
Test Ana.Input subitem

1. Select the desired element with the ▲/▼ in the *Input* field.
2. Activate 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. 62: Test Auto Input (Test of the automatic input) subitem



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

To perform the test steps:

1. Activate 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 (Test of the sewing motor) subitem

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

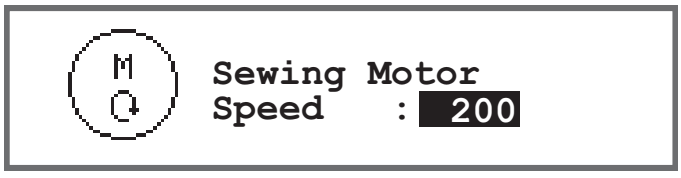
To check the sewing motor:

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. 63: Test Sew. Motor (Test of the sewing motor)



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` (Test of the stepper motor) subitem

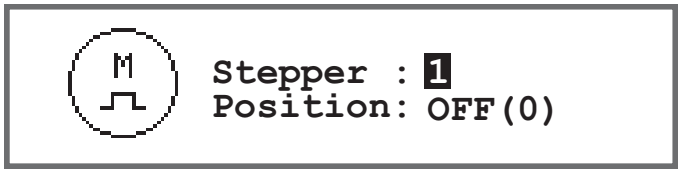
You may use this subitem to test the stepper motors for stitch length adjustment, sewing foot lifting/sewing foot pressure and stroke adjustment. The machine can move to defined positions (steps), where 2,000 steps = 360.

To test the stepper motors:

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

Input	Stepper motor
1	Stitch length adjustment – upper motor
2	Stitch length adjustment – lower motor
3	Sewing foot lift

Fig. 64: `Test Step.Motor` (Test of the stepper 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 – upper motor	The feed gear completes a movement.
2	Stitch length adjustment – lower motor	The feed gear completes a movement.
3	Sewing foot lift	The sewing feet perform a vertical 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

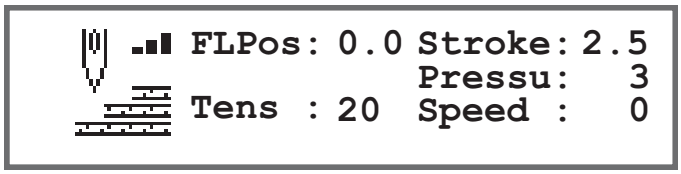
This subitem is used to check the various pedal positions of the analog pedal (X6b). The positions are indicated by measured and automatically calculated calibration values.

Fig. 65: Test Pedal subitem

TestFabricSen. (Test of the material thickness detection) subitem

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

Fig. 66: TestFabricSen. (Test of the material thickness detection) subitem



17.7.2 Setting the Service routine (*Adjustments*) parameter

The *Adjustments* parameter is not explained in greater detail here, because it is closely related the area of mechanics. Details on this area can be found in the Service routine chapter.

17.7.3 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
Man.St.Len.	Calibration of the stitch adjustment lever (optional equipment)	📖 *p. 95*
EdgeGuide	Calibration of the edge guide (optional equipment)	📖 *p. 95*
Pedal	Calibration of the pedal	📖 *p. 95*

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

The stitch adjustment lever is an optional piece of 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* (Service > Calibration > Stitch adjustment lever) menu item.
2. The value for the potentiometer should match the proposed value of 2,500.
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 all the way down.

Calibration of the Edge guide (*EdgeGuide*)

The edge guide is an optional piece of equipment.

To calibrate the edge guide:

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

17.8 Setting the parameter Setting the gap between the foot and the feed dog (*FootZeroHeight*)

Here the gap between the foot and the feed dog can be adjusted.

1. Call up the *Service > FootZeroHeight* menu item.
2. Set the value within the range 0 – 100.
3. Press the **OK** button to confirm the change.
4. Check the gap between the foot and the feed dog.
5. If the gap between the foot and the feed dog is not correct, adjust the value accordingly.

17.9 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
P.C.	Piece Counter The number of sewing items that the machine has sewn so far.
P.C.D.	Piece Counter Daily The number of sewing items that the machine has sewn since the last reset.
S.C.	The number of stitches that the machine has sewn so far.
B.C.	The number of stitches that have been sewn with the bobbin since the last reset.

17.10 Reset data submenu

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

NOTICE

Property damage may occur!

Data and machine settings 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 there is also no 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
Reset data	All parameters are reset to the factory settings; this does not apply to the programs and the calibration values.
Reset programs	All created programs are erased.
Reset Calibr.	All calibration values are reset to the factory settings.
Reset all	All parameters, programs and calibration values are reset to the factory settings.

17.11 Data transfer (*DataTransfer*) 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
All Data	All data	📖 *p. 97*
Only Data	Only data	📖 *p. 99*
Programs	Programs	📖 *p. 100*

Important

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

17.11.1 Setting the All data (*AllData*) parameter

All data – i.e. parameter settings, programs and calibration values – are transfered 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. 67: 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.

↳ The following warning message appears:

Fig. 68: 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. 69: USB key warning

↳ The message disappears after the data transfer.

17.11.2 Setting the Only data (*OnlyData*) parameter

Only the data for parameter settings and calibration values are transfered 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. 70: 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.

↳ The following warning message appears:

Fig. 71: 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. 72: USB key warning

↳ The message disappears after the data transfer.

17.11.3 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. 73: 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.

↳ The following warning message appears:

Fig. 74: Data loss warning message

6. Select the 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* (New folder) option.
16. Press the **OK** button to confirm the selection.
17. Use the numeric buttons to enter the folder name.
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. 75: USB key warning

↳ The message disappears after the data transfer.

17.12 Selection of tension plate type

To change the tension plate type must be selected the machine class (*MachineClass*). Can be choose from these types:

- Electronic
- Rotary
- Mechanic

Change of tension plate type can be done at any time in this way:

1. Hold the **S** button pressed down, and at the same time switch on the machine with the main switch.
2. Use the numeric buttons to enter the code **85627**.
3. Select the menu *MachineClass*.
4. Select the class **878** and the appropriate subclass.
5. Select the tension plate type.

17.13 Perform 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 with the main switch.
2. Plug the USB key into the socket (1) on the control (2).

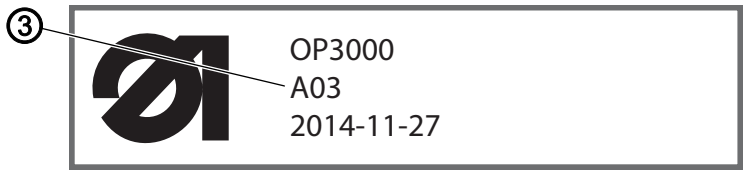
Fig. 76: Perform software update

(1) - Connection *(2) - Control*

3. Switch on the machine with 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.

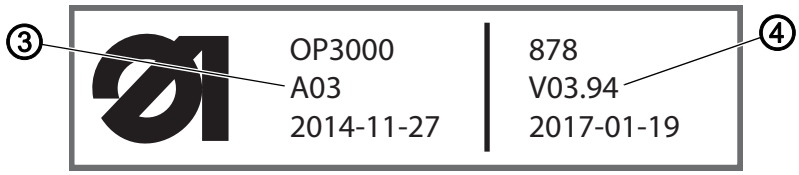
Fig. 77: Perform software update



(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. 78: Perform software update



(3) – Firmware version *(4) - Software version*

4. Wait until the machine has started and is showing 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.

18 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	Number of operating hours			
	8	40	160	500
Machine head				
Removing lint and thread remnants	●			
Checking the oil level	●			
Checking the hook lubrication		●		

18.1 Cleaning

WARNING

Risk of injury from airborne particles!

Airborne 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

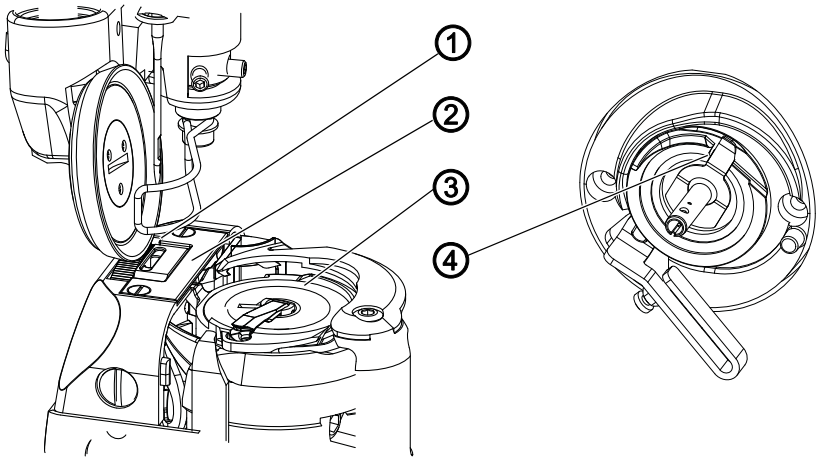
Property damage from solvent-based cleaners!

Solvent-based cleaners will damage paintwork.

Only use 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. 79: Cleaning



(1) - Area around the needle
(2) - Area under the throat plate
(3) - Hook
(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)

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

18.2 Lubricating

CAUTION

Risk of injury from contact with oil!

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

ATTENTION

Risk of environmental damage from oil!

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

Carefully collect any used oil.
Dispose of the 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, only use lubricating oil **DA 10** or oil of an equivalent quality with the following specifications:

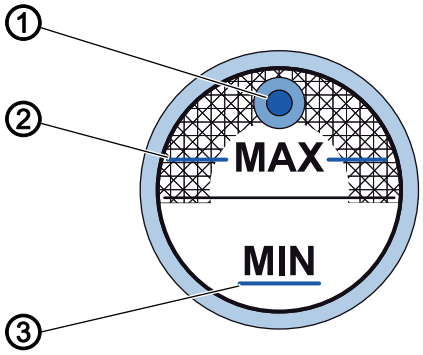
- Viscosity at 40 °C: 10 mm²/s
- Flash point: 150 °C

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

18.2.1 Lubricating the machine head

Fig. 80: Lubricating the machine head



(1) - Oil filler opening
(2) - MAX marking point
(3) - MIN marking point

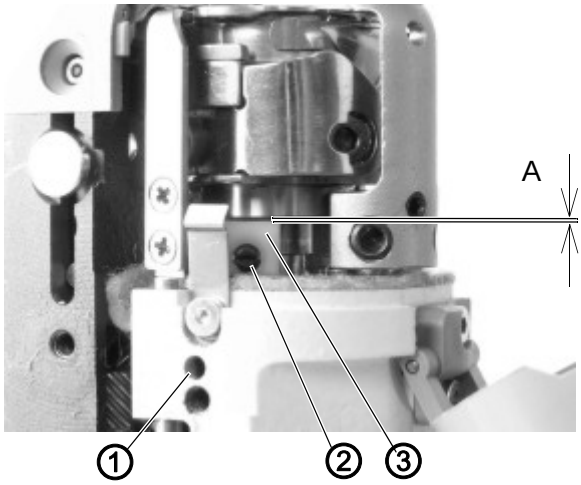
Proper setting

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

1. Fill the oil through the oil filler opening (1) up to the MAX marking point (2).

18.2.2 Setting the hook lubrication

Fig. 81: Setting the hook lubrication



(1) - Threaded pin
(2) - Adjusting screw
(3) - Lubricating nipple

The optimal oil quantity for hook lubrication is specified by the factory. Hold a piece of blotting paper next to the hook and step on the pedal.

Proper setting

1. The lubricating nipple (3) is separated from the hook by gap (A) = 0.3 mm.
2. The adjusting screw (2) should protrude from the lubricating nipple by 0.5 mm.
3. After sewing a path of approx. 1 m long, the blotting paper is evenly sprayed with a thin layer of oil.

1. Open the hook cover.
2. Loosen the threaded pin (1) and set the height of the nipple (3) to create a gap 0.3 mm wide.
3. Tighten the threaded pin (1).
4. Turn the screw (2):
   - Releasing more oil: turn counterclockwise
   - Releasing less oil: turn clockwise

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.

18.3 Parts List

A parts list can be ordered from Dürkopp Adler.
For more information, visit our website:

www.duerkopp-adler.com

19 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 the 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 the residual oil from the oil pan using a cloth.
5. Cover the control panel to protect it from soiling.
6. Cover the control cabinet to protect it from soiling.
7. Cover the entire machine if possible to protect it from contamination and damage.

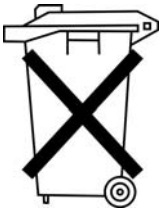
20 Disposal

ATTENTION

Risk of environmental damage from improper disposal!

The 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 as 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.

21 Troubleshooting

21.1 Customer service

Contact address for repairs and issues with the machine:

Dürkopp Adler AG

Potsdamer Str. 190
33719 Bielefeld

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

21.2 Errors in the 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 the threading path
	Needle is bent or sharp-edged	Replace the needle
	Needle is not inserted correctly into the needle bar	Insert the needle correctly into the needle bar
	The thread used is unsuitable	Use the recommended thread
	Thread tensions are too tight for the thread used	Check the thread tensions
	Thread-guiding parts such as the thread tube, thread guide or thread take-up disk are sharp-edged	Check the 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 the threading path
	Needle is blunt or bent	Replace the needle
	Needle is not inserted correctly into the needle bar	Insert the needle correctly into the needle bar
	The needle strength used is unsuitable	Use the recommended needle strength
	The reel stand is installed incorrectly	Check the assembly of the reel stand
	Thread tensions are too tight	Check the 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 the thread tensions
	Needle thread and hook thread have not been threaded correctly	Check the threading path
Needle breakage	Needle strength is unsuitable for the sewing material or the thread	Use the recommended needle strength

21.3 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 may 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 by 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 with the main switch.
2. Hold the **F** button pressed down, and at the same time switch on the machine with the main switch.

↳ The machine starts up and the display shows the input screen for the password.

3. Use the numeric buttons to enter the password (25483).

↳ You are at the Technician level.

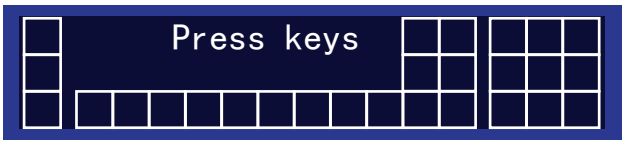
21.4 Testing the function of the buttons

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 with the main switch.
2. Hold the **ESC** button pressed down, and at the same time switch on the machine with the main switch.

↳ The display shows the this window:



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 key 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.

Related instructions:

Electronic handwheel 0791 867951

Hook thread monitoring

Instructions for safety elements

Parameter data sheet DAC Comfort 0791 867980 EN

Basic information about the M-Type Premium 0791 867304 DE

22 Technical data

Noise emission

Workplace-specific emission value as per DIN EN ISO 10821:

LpA = 70 dB (A); KpA = 2.5 dB (A) with the following parameters:

- Stitch length: 5.0 mm
- Speed: 1,500 rpm
- Sewing material: 2-layer imitation leather; 1.6 mm 900 g/mm^2; DIN 53352

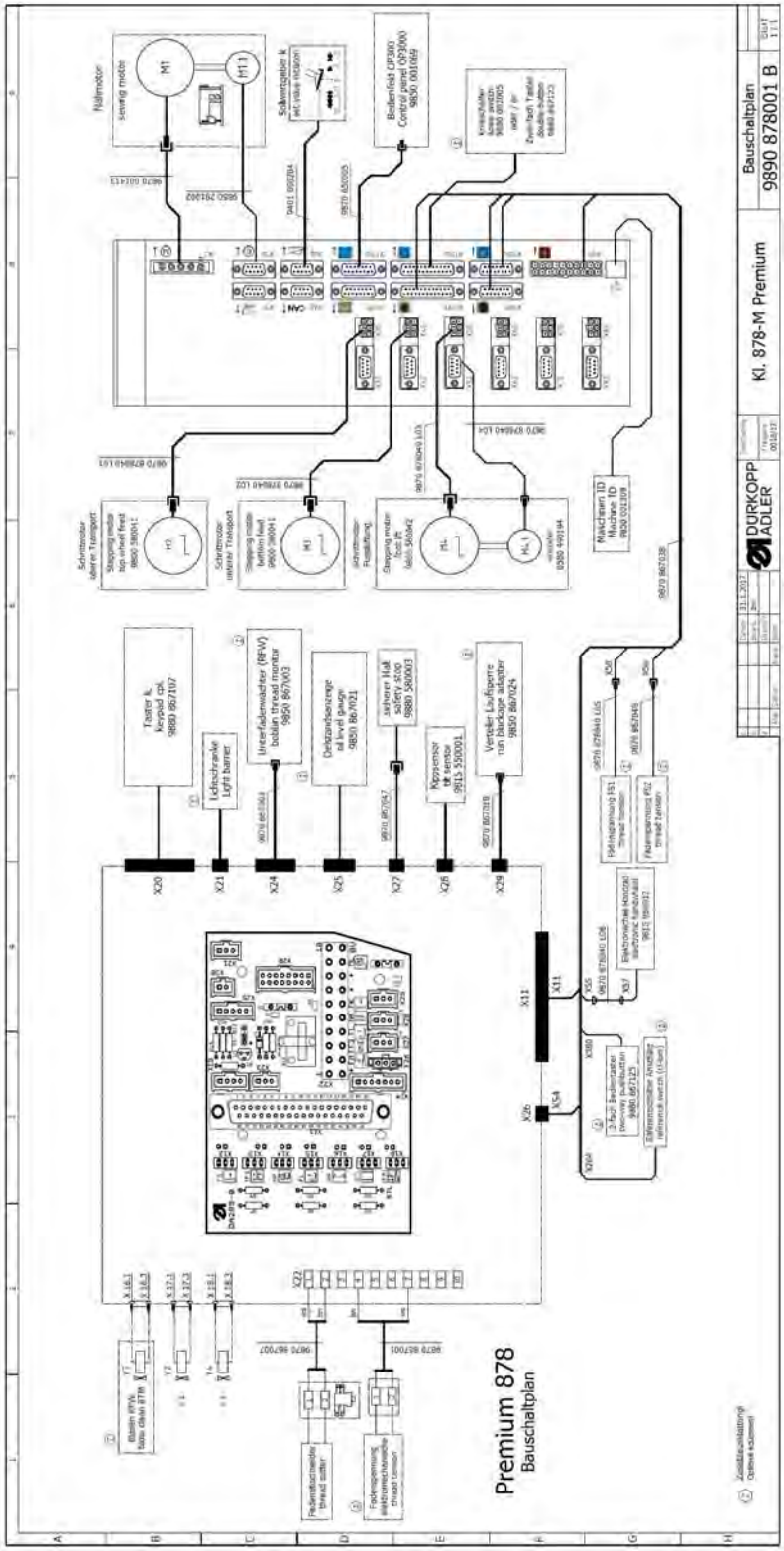
Data and technical values

Technical data	Unit	878-160722-M	878-160725-M	878-260722-M
Machine type		Double lockstitch 301		
Hook type vertical, (L) large (26 mm)		●	●	●
Number of needles		1	1	2
Needle system		134		
Needle strength	[Nm]	70 – 160	70 - 120	70 - 160
Thread strength	[Nm]	80/3 – 10/3	80/3 - 20/3	80/3 - 10/3
Stitch length	[mm]	7/7	5/5	7/7
Maximum s.p.m. according to stitch length	[min^{-1}] [mm]	2500/0-3.5; 2300/3.6-4; 2100/4.1-4.5; 2000/4.6-5; 1800/5.1-6; 1600/6.1-6.5; 1500/6.6-7		
Sewing foot stroke	[mm]	8		
Lifting height	[mm]	13		
Mains voltage	[V]	230		
Mains frequency	[Hz]	50/60		
Length	[mm]	640		
Width	[mm]	220		
Height	[mm]	550		
Weight	[kg]	55		

The Dürkopp Adler 878-M PREMIUM is a double-lockstitch post bed sewing machine.

23 Appendix

Wiring diagram



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