DÜRKOPP ADLER

550-12-33/-34

Service Instructions

IMPORTANT
READ CAREFULLY BEFORE USE
KEEP FOR FUTURE REFERENCE

1 About these instructions

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

Should you notice any discrepancies or if you have improvement requests, then we would be glad to receive your feedback through **Customer Service** (📖 *p. 189*).

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

1.2 Representation conventions – symbols and characters

Various information in these instructions 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

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

- Lists are marked by bullet points.

Result of performing an operation

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

Important

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

Information

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

Order

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

References

🕮 Reference to another section in these instructions.

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

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

1.3 Other documents

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

1.4 Liability

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

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

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

Transport

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

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

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

2 Safety

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

2.1 Basic safety instructions

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

These instructions must be available at the machine's location at all times.

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

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

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

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

Transport

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

Setup

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

Obligations of the operator

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

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

Requirements to be met by the personnel

Only qualified specialists may be used for:

- Setting up the machine/putting the machine into operation
- Performing maintenance work and repairs
- Performing work on electrical equipment

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

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

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

2.2 Signal words and symbols used in warnings

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

Signal words Signal words and the hazard they describe:

Signal word	Meaning
DANGER	(with hazard symbol) If ignored, fatal or serious injury will result
WARNING	(with hazard symbol) If ignored, fatal or serious injury can result
CAUTION	(with hazard symbol) If ignored, moderate or minor injury can result
CAUTION	(with hazard symbol) If ignored, environmental damage can result
NOTICE	(without hazard symbol) If ignored, property damage can result

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

Icon	Type of danger
	General
	Electric shock

Icon	Type of danger
	Puncture
	Crushing
	Environmental damage

Examples Examples of the layout of warnings in the text:

DANGER

Type and source of danger!

Consequences of non-compliance.

Measures for avoiding the danger.

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

WARNING

Type and source of danger!

Consequences of non-compliance.

Measures for avoiding the danger.

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

CAUTION

Type and source of danger!

Consequences of non-compliance.

Measures for avoiding the danger.

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

CAUTION

Type and source of danger!

Consequences of non-compliance.

Measures for avoiding the danger.

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

NOTICE

Type and source of danger!

Consequences of non-compliance.

Measures for avoiding the danger.

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

3 Working basis

3.1 Order of the adjustments

NOTICE

Property damage may occur!

Risk of machine damage from incorrect order.

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

Order

The setting positions for the machine are interdependent.

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

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

3.2 Laying the cables

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

To lay the cables:

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

Important

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

3. Cut off any overlapping cable ties.

NOTICE

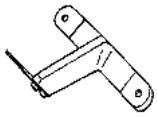
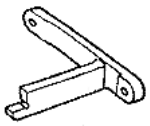
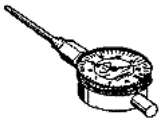
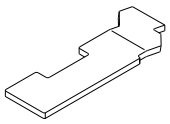
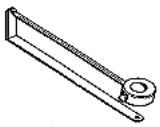
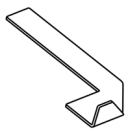
Property damage may occur!

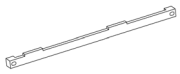
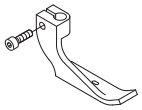
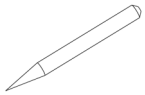
Excess cables can impair the functioning of moving machine parts. This impairs the sewing function and can result in damage.

Lay excess cables as described above.

3.3 Using adjustment aids

The following adjustment aids are used to accurately set up the machine and check the settings made.

Adjustment aid	Figure	Order number	Setting
1 **Gage**		0195 002962	• Position of the lower shaft bearing (possible alternative: 933 735 + 2 mm)
2 **Gage**		0195 002966	• Position of the hook drive housing (possible alternative: 933 739K + 2.5 mm)
3 **Locking peg (accessory pack)**		9301 022608	• Lock the handwheel in place at one of the positions **A** to **F**
4 **Dial gage**		0171 000981	• Measure the needle evasive movement of the hook drive If you have your own dial gage, only the clamping sleeve 0171 000984 and measuring pin 0933 000748 are required.
5 **Gage**		0171 290010	• Set the slant of the hook to 89° 30’
6 **Gage**		0933 080192	2-piece gage set: Pointer and gage • Even hook movement for symmetry
7 **Gage**		0933 000740	• Set the height of the thread take-up disk
8 **Gage (accessory pack)**		0195 290020	• Set the pusher eccentric for the feed dog
9 **Gage**		0491 079996	• Set the quick stroke function of the sewing feet
10 **Dipstick (accessory pack)**		0965 000871	• Check oil level in hook drive housing 📖 *S. 177*

Adjustment aid	Figure	Order number	Setting
11 Gage		0178 800010	• Gage bottom feed
12 Adjusting foot		0196 100014	• Adjusting foot
13 Size 6 pin		0238 010353	• Cylinder pin
14 Adjusting needle		0196 290010	• Adjusting needle

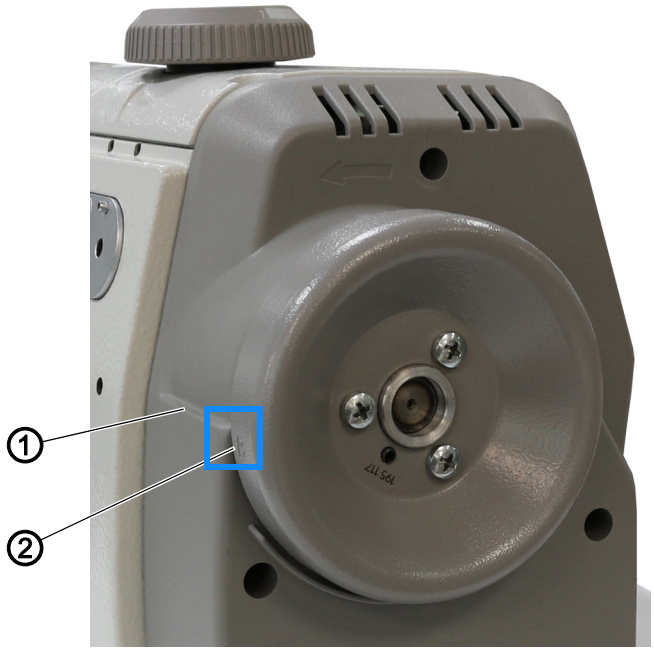
Information

The locking peg (3), the gage (8), and the dipstick (10) are included with the machine as standard tools in the accessory pack.

The locking peg (3) can be used to lock the handwheel in place at positions **A** to **F** (📖 *p. 17*).

3.4 Adjusting the handwheel into position

Fig. 1: Adjusting the handwheel into position



(1) - Marking *(2) - Letter*

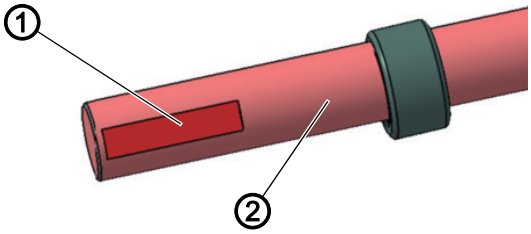
Some settings require that the handwheel be moved to a certain position.

To set the handwheel to the desired position:

1. Turn the handwheel until the desired letter (2) is parallel to the marking (1).

3.5 Flats on shafts

Fig. 2: 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 adjusting easier.

Important

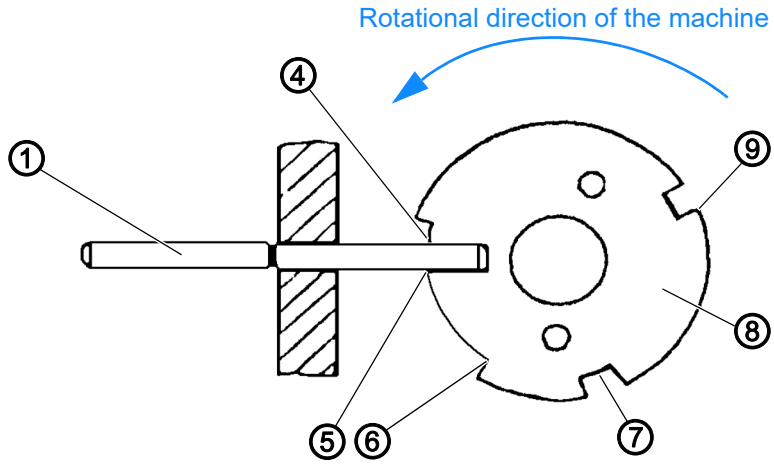
Always ensure that the screws are completely flush with the surface. The rule is to always place the **1st screw in rotational direction** onto the flat.

3.6 Locking the machine in place

Fig. 3: Locking the machine in place (1)

(1) - Locking peg
(2) - Locking opening
(3) - Handwheel

Fig. 4: Locking the machine in place (2)



(1) - Locking peg
*(4) - Position **F***
*(5) - Position **A***
*(6) - Position **E***
*(7) - Position **D***
(8) - Adjusting disk
*(9) - Position **B***

The machine head is equipped with adjustment aids that allow for a quick and accurate setting of all elements.

These adjustment aids include the handwheel (3), which is labeled with the letters **A, B, D, E** and **F**, and a built-in adjusting disk (8) that has five different holes.

You use a locking peg (1) to set the individual setting positions.
The locking peg (1) is included with the machine as a standard tool in the accessories.

Locking the machine in place

To lock the machine in place:

1. Turn the handwheel (3) to the position described for the setting.
2. locking peg (1) into the locking opening (2).
3. Turn the handwheel (3) slightly forward or backward until the peg engages in the corresponding hole.

   Position **A** of the adjusting disk (8) has the deepest slot.

   Positions **B**, **D**, **E** and **F** have the same depths.

The positions serve the following functions:

Position	Position	Setting
A	Needle bar 2 mm behind the bottom dead center	• Position of the adjusting disk (8) on the arm shaft • Timing of the feeding foot feed movement • Reference time of the synchronizer
B	Needle bar at the top dead center	• Thread pick-up disk • Stroke and pusher eccentric • Distance of the feeding foot bar to the sewing foot bar • Standstill of feed dog and feeding foot when the hand lever is pressed
D	Seam penetration	• Eccentric for lifting gear • Timing of the feeding foot stroke movement
F		• Position of the lower toothed belt wheel, loop stroke and needle bar height
E and **F**		• Symmetry of the hook movement

Removing the lock

To remove the lock:

1. Pull the locking peg (1) out of the locking opening (2).

↳ The machine is no longer locked in place.

3.7 Tilting and erecting the machine head

NOTICE

Property damage may occur!

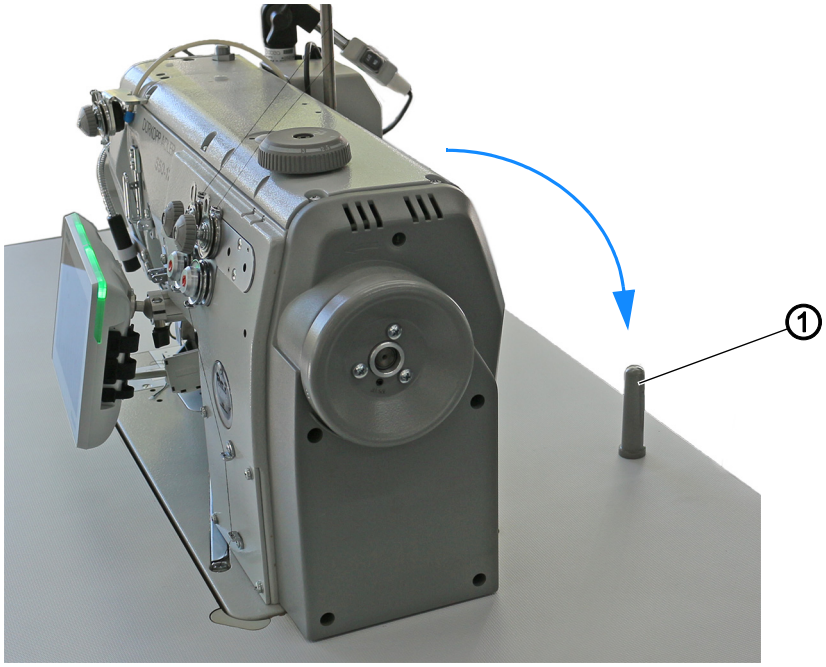
Damage to the machine is possible due to incorrect touching.

Do not touch the control panel when tilting or erecting the machine head. ALWAYS touch the machine on the machine arm.

Order

To access the components on the underside of the machine, you need to tilt the machine head first.

Fig. 5: Tilting and erecting the machine head



(1) - Tilt protection device

Tilting the machine head

To tilt the machine head:

1. Carefully tilt the machine head up to the tilt protection device (1).

Erecting the machine head

To erect the machine head:

1. Erect the machine head.

3.8 Removing the covers

WARNING

Risk of injury from sharp parts!

Puncture possible.

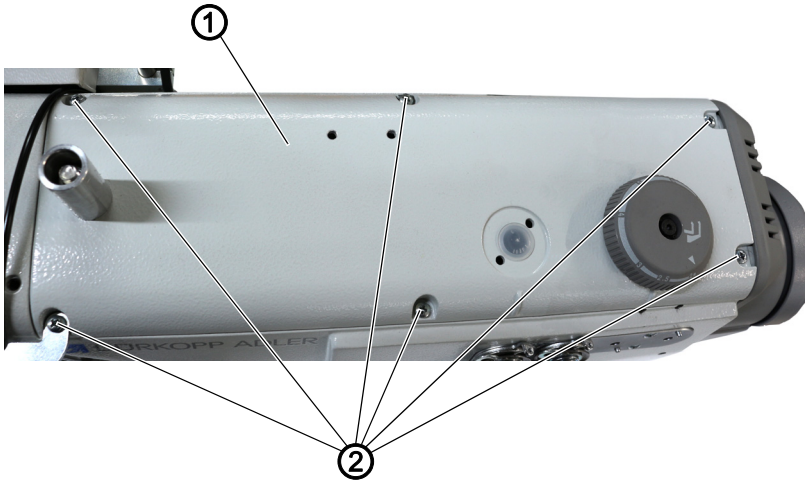
Switch off the machine before removing covers.

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

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

3.8.1 Disassembling and assembling the arm cover

Fig. 6: Disassembling and assembling the arm cover



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

Disassembling the arm cover

To disassemble the arm cover:

1. Loosen the 6 screws (2).
2. Disassemble the arm cover (1).

Assembling the arm cover

To assemble the arm cover:

1. Assemble the arm cover (1).
2. Tighten the 6 screws (2).

3.8.2 Disassembling and assembling the head cover

Available as an optional accessory, an external lamp can be assembled to the head cover of the machine. If present, this external lamp must first be removed before the head cover can be disassembled.

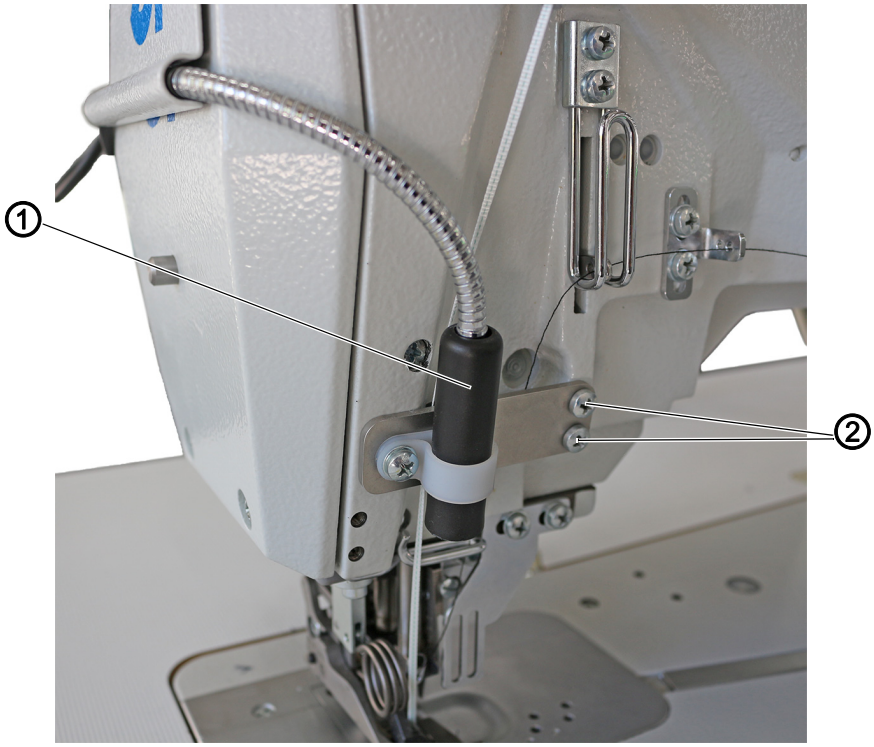
Order

1. Disassemble the external lamp (optional).
2. Disassemble the head cover.

To disassemble the head cover:

Disassembling the external lamp (optional)

Fig. 7: Removing and placing the head cover (1)

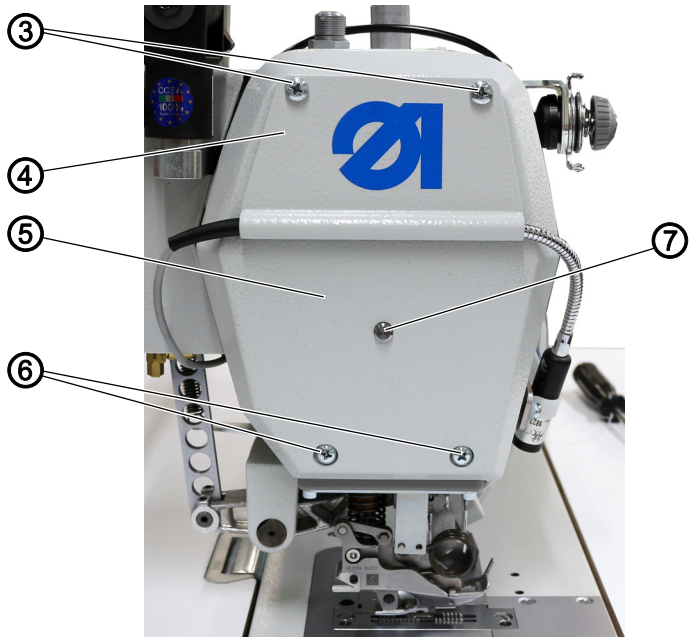


(1) - External lamp *(2) - Screws*

1. Loosen the screws (2).

The external lamp (1) is now hanging down loosely.

Fig. 8: Removing and placing the head cover (3)



(3) - Screws
(4) - Holder
(5) - Head cover
(6) - Screws
(7) - Locking button

2. Loosen the screws (3).
3. Carefully remove the bracket (4) and set the external lamp down on the tabletop.
   While doing so, make sure not to damage the spacer sleeves.

Important

The external lamp is now disassembled, but still connected. Do not pull on it.

Disassembling the head cover

4. Loosen the screws (6).
5. Disassemble the head cover (5).

Placing the head cover and assembling the external lamp

To assemble the head cover:

1. Place the head cover (5) such that the locking button (8) is inserted properly.
2. Tighten the screws (6).
3. Tighten the bracket (5) using the screws (3).
4. Tighten the external lamp (1) using the screws (2).
   While doing so, pay attention to the spacer sleeves!

3.8.3 Disassembling and assembling the rear cover

Fig. 9: Disassembling and assembling the rear cover

(1) - Rear cover *(2) - Screw*

Important

When removing and placing the rear cover, make sure not to crush, pull off or pinch any cables.

Disassembling the rear cover

To disassemble the rear cover:

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

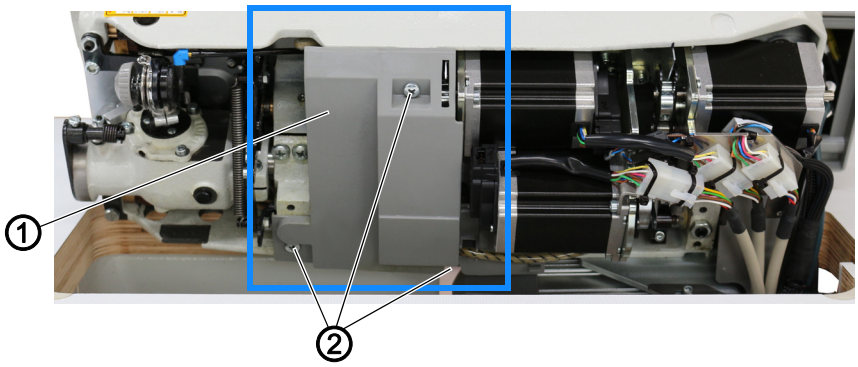
Assembling the rear cover

To assemble the rear cover:

1. Assemble the small rear cover (1) and tighten it with the 3 screws (2).

3.8.4 Removing and placing the lower cover

Fig. 10: Removing and placing the lower cover



(1) - Lower cover

(2) - Screw

Removing the lower cover

To remove the lower cover:

1. Tilt the machine head (📖 *p. 19*).
2. Loosen the screws (2).
3. Remove the lower cover (1).

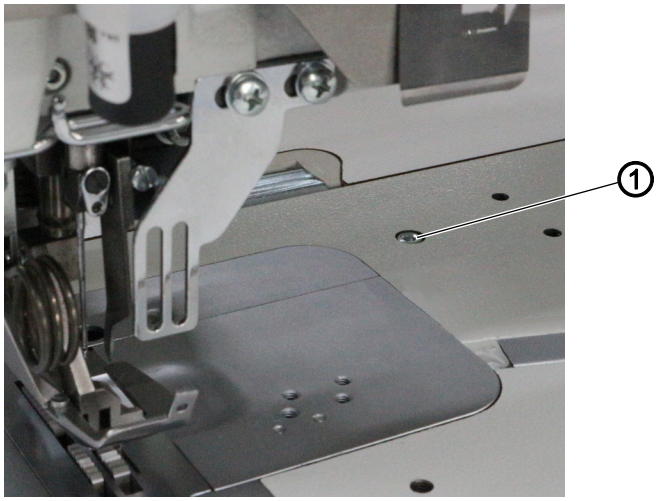
Placing the lower cover

To place the lower cover:

1. Tilt the machine head (📖 *p. 19*).
2. Place the lower cover (1).
3. Re-tighten the screw (2).
   Ensure that the hose is seated firmly in the oil pan.

3.8.5 Removing and placing the grease cap

Fig. 11: Removing and placing the grease cap (1)

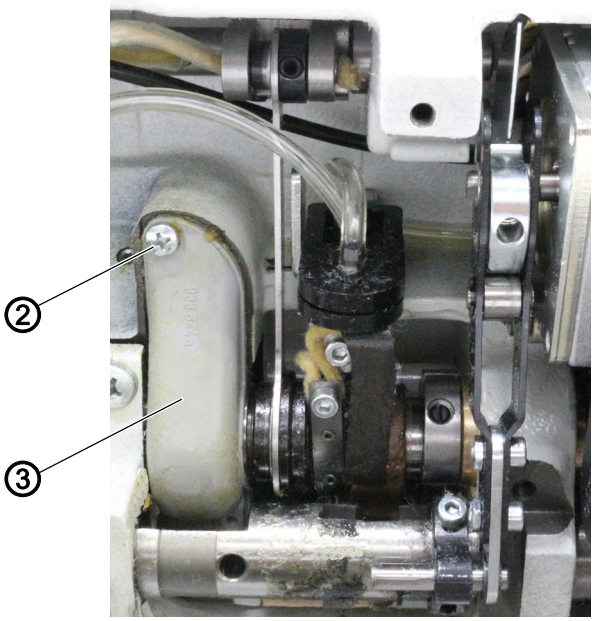


(1) - Screw

To remove the grease cap:

1. Loosen the screw (1).
2. Tilt the machine head (📖 *p. 19*).

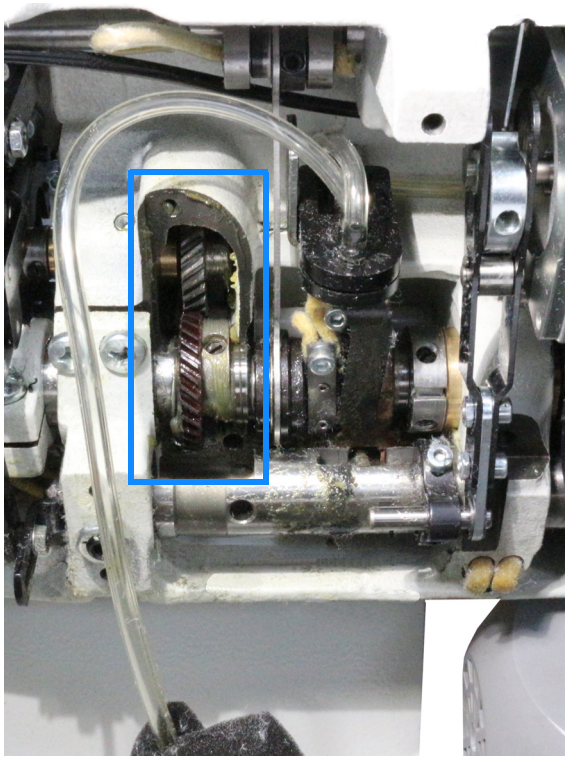
Fig. 12: Removing and placing the grease cap (2)



(2) - Screw *(3) - Grease cap*

3. Remove the lower cover (📖 *p. 24*).
4. Loosen the screw (2).
5. Remove the grease cap (3).

Fig. 13: Removing and placing the grease cap (3)



To place the grease cap:

1. Place the grease cap (3).
2. Tighten the screw (2).
3. Place the lower cover (📖 *p. 24*).
4. Erect the machine head (📖 *p. 19*).
5. Tighten the screw (1).

3.8.6 Disassembling and assembling the toothed belt cover

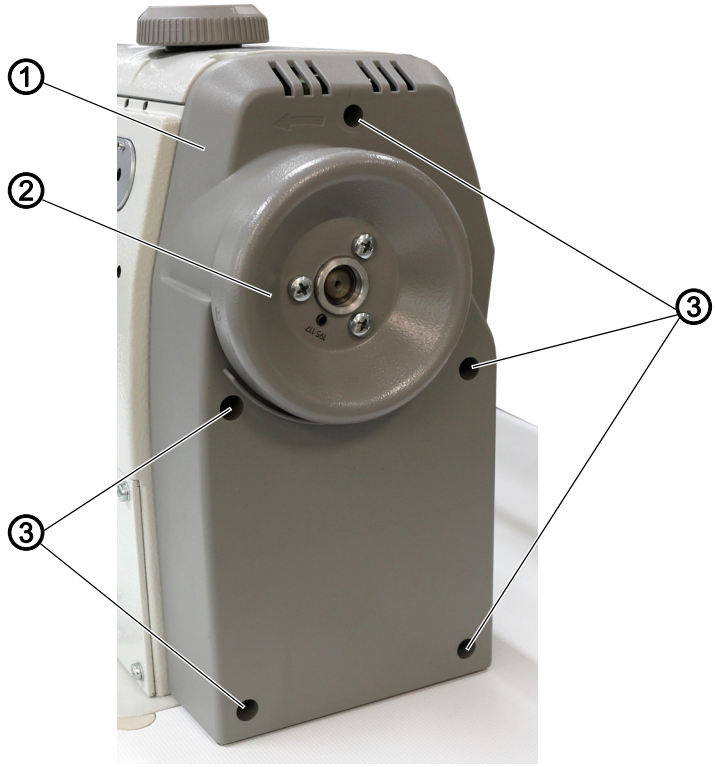
NOTICE

Property damage may occur!

Damage to cables by crushing, kinking or pinching.

Place the toothed belt cover without crushing, kinking or pinching any cables.

Fig. 14: Disassembling and assembling the toothed belt cover



(1) - Toothed belt cover
(2) - Handwheel
(3) - Screw

To disassemble the toothed belt cover:

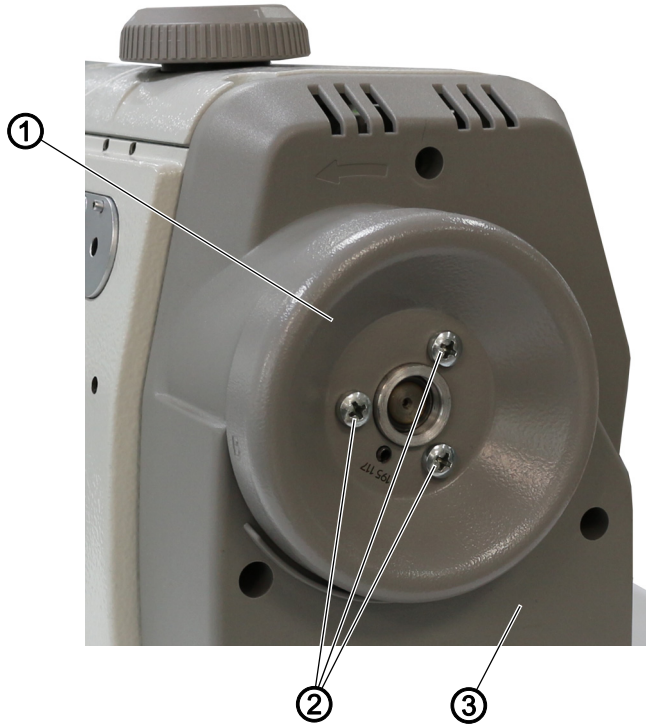
1. Remove the handwheel (2) (📖 *p. 28*).
2. Loosen the screws (3).
3. Disassemble toothed belt cover (1).

To assemble the toothed belt cover:

1. Carefully place the toothed belt cover (1) without crushing, kinking or pinching any cables.
2. Tighten the screws (3).
3. Place the handwheel (2) (📖 *p. 28*).

3.9 Removing and placing the handwheel

Fig. 15: Removing and placing the handwheel



(1) - Handwheel
(2) - Screw
(3) - Toothed belt cover

To remove the handwheel:

1. Loosen the screws (2).
2. Remove the handwheel (1).

To place the handwheel:

1. Position the handwheel (1) such that it lines up with the toothed belt cover (3).
2. Tighten the handwheel (1) using the screws (2).

3.10 Opening and closing the hook covers

Opening the hook covers

Fig. 16: Opening and closing the hook covers (1)

(1) - Left hook cover *(2) - Right hook cover*

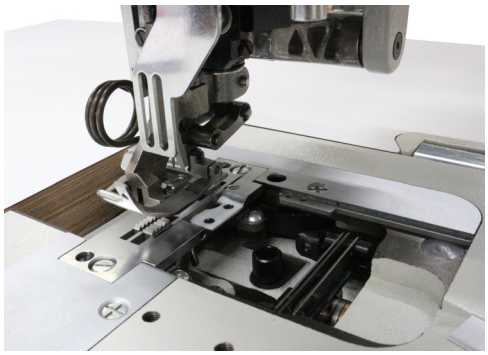
To open the hook covers:

1. Carefully pry open hook covers (1) and (2) using, for instance, a pair of tweezers.

Fig. 17: Opening and closing the hook covers (2)

2. Remove both hook covers (1) and (2).

Fig. 18: Opening and closing the hook covers (3)



Closing the hook covers

To close the hook covers:

1. Insert the left hook cover (1) into the cutout on the left next to the throat plate.
2. Push the left hook cover (1) against the cutout and downward at the rear and the front, respectively.

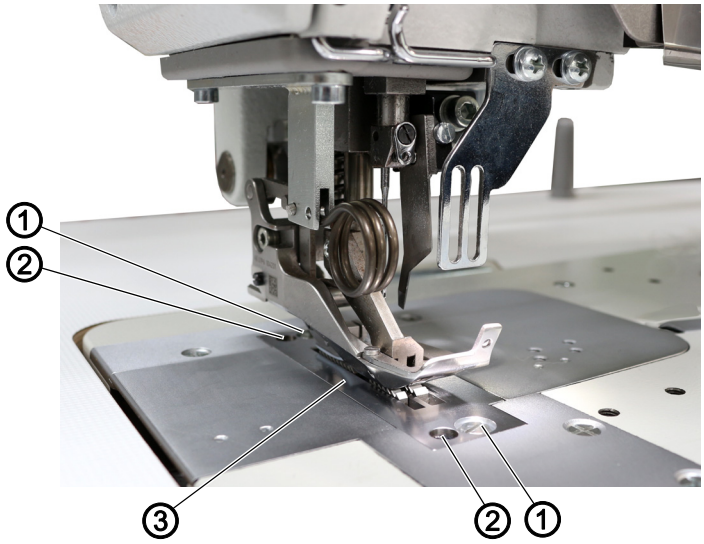
↳ The left hook cover (1) audibly clicks into place.

3. Insert the right hook cover (2) into the cutout on the right next to the throat plate.
4. Push the right hook cover (2) against the cutout and downward at the rear and the front, respectively.

↳ The right hook cover (2) audibly clicks into place.

3.11 Disassembling and assembling the throat plate

Fig. 19: Disassembling and assembling the throat plate



(1) - Screw
(2) - Screw with locking washer
(3) - Throat plate

Disassembling the throat plate

To disassemble the throat plate:

1. Open the hook covers (📖 *p. 29*).
2. Check if the needle is at the top dead center and, if not, move it to the top dead center.
3. Loosen the screws (1).
4. Disassemble the throat plate (3).

Important

Do **not** loosen the screw with locking washer (2).

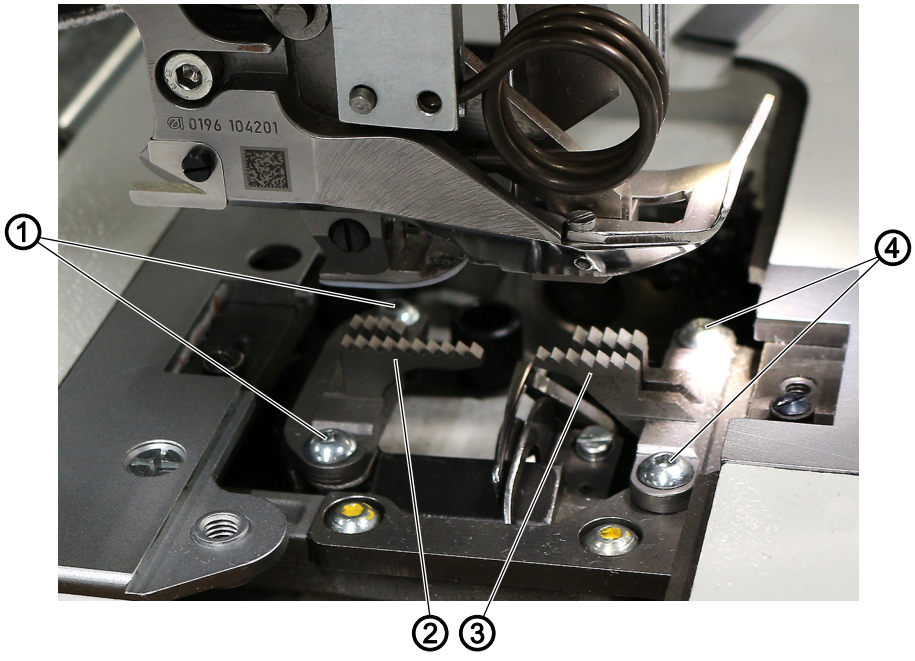
Assembling the throat plate

To assemble the throat plate:

1. Check if the needle is at the top dead center and, if not, move it to the top dead center.
2. Insert the throat plate (3).
3. Tighten the screws (1).
4. If necessary, correct the position of the throat plate (3) in the throat plate cutout using the screws with locking washers (2).
5. Close the hook cover(s) (📖 *p. 29*).

3.12 Disassembling and assembling the feed dogs

Fig. 20: Disassembling and assembling the feed dogs



(1) - Screw
(2) - Rear feed dog
(3) - Front feed dog
(4) - Screw

Proper setting

The feed dogs do not touch the throat plate with the permissible stitch length at its maximum.

Disassembling the feed dogs

To disassemble the feed dogs:

1. Open the hook covers (📖 *p. 29*).
2. Disassemble the throat plate (📖 *p. 30*).
3. Loosen the screw (1).
4. Remove the rear feed dog (2).
5. Loosen the screw (4).
6. Remove the front feed dog (3).

Assembling the feed dogs

To assemble the feed dogs:

1. Place the front feed dog (3) onto the front feed dog carrier.
2. Tighten the screw (4).
3. Place the rear feed dog (2) onto the rear feed dog carrier.
4. Tighten the screw (1).
5. Assemble the throat plate (📖 *p. 30*).
6. Align the feed dogs in sewing direction.
7. Close the hook covers (📖 *p. 29*).

Important

The machine needs to be restarted after a change of the maximum stitch length.
If necessary, set the maximum permissible stitch length via the software.

Check the feed dog positions in motion and with the stitch length at its maximum by turning the handwheel. The feed dogs must not hit against the throat plate.

Order

Then check the following adjustment:

- Feed dog (📖 *p. 101*)

4 Setting the adjusting disk relative to the arm shaft crank

WARNING

Risk of injury from moving parts!

Crushing possible.

Switch off the machine before you adjust the adjusting disk.

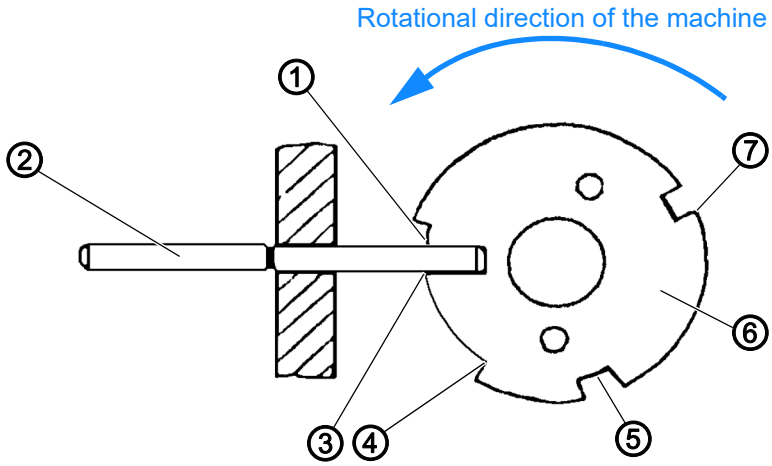
NOTICE

Property damage may occur!

Damage to the machine.

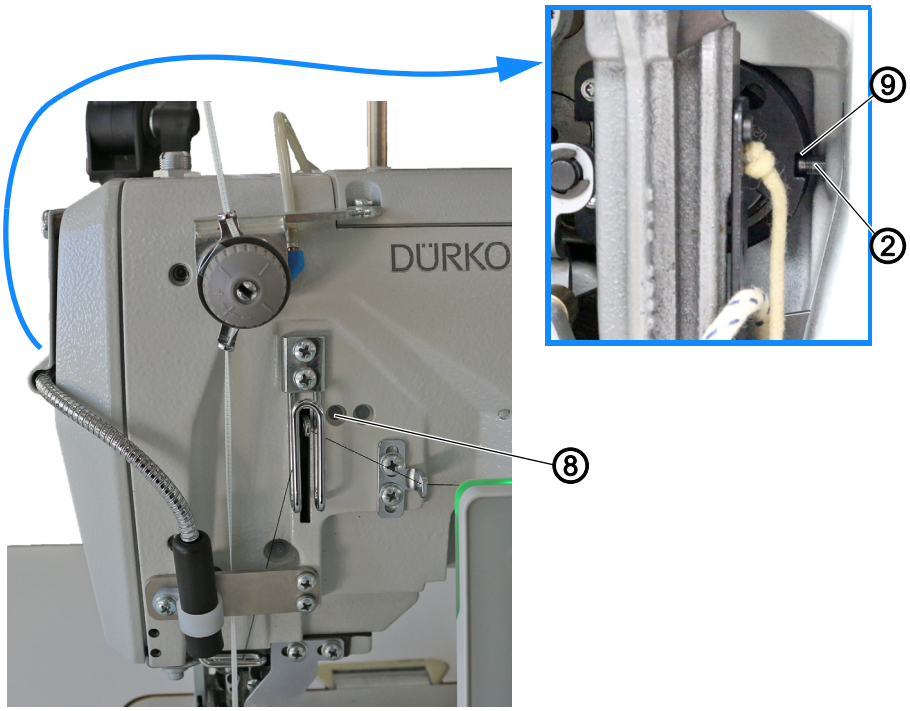
After completing the setting process, make sure to fully position the toothed belt on the toothed belt wheel.

Fig. 21: Setting the adjusting disk relative to the arm shaft crank (1)



*(1) - Position **F***
*(2) - Locking peg (locking peg **3,** p. 14)*
*(3) - Position **A***
*(4) - Position **E***
*(5) - Position **D***
(6) - Adjusting disk
*(7) - Position **B***

Fig. 22: Setting the adjusting disk relative to the arm shaft crank (2)



(8) - Locking opening *(9) - Slot in the arm shaft crank*

Position **A** (3) of the adjusting disk must be in a line with the slot in the arm shaft crank (9). Only in this position are all other settings correct that are made with the help of the adjusting disk.

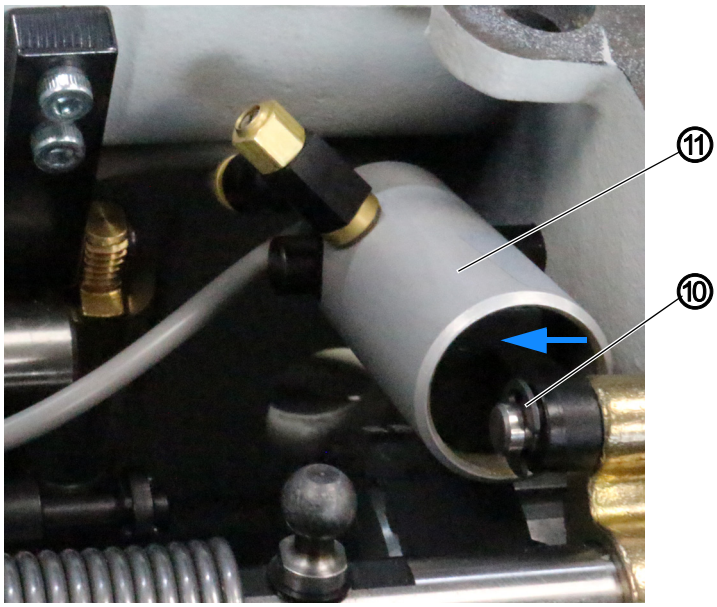
Cover

- Remove the arm cover (📖 *p. 20*).
- Disassemble the head cover (📖 *p. 21*).

To set the adjusting disk:

1. Insert the 1st locking peg (2) through the locking opening (8) and into the slot of the arm shaft crank (9).

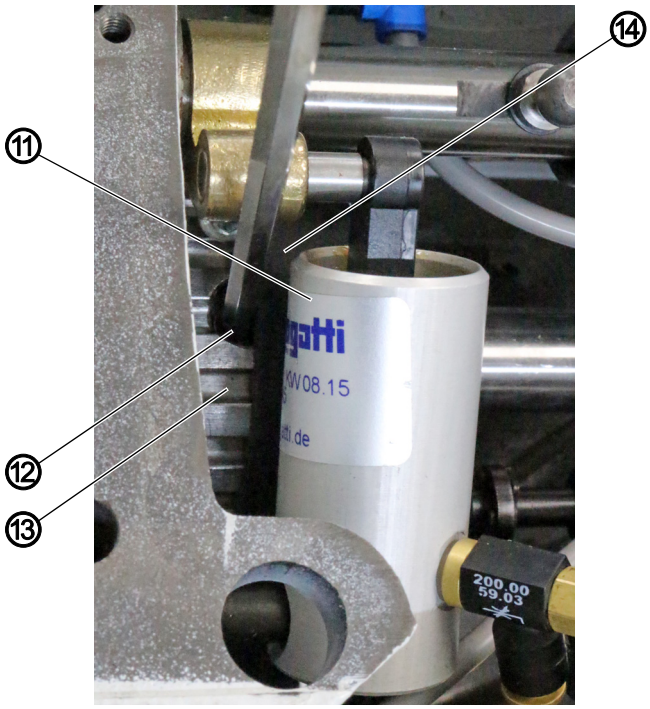
Fig. 23: Setting the adjusting disk relative to the arm shaft crank (3)



(10) - Locking washer
(11) - Cylinder

2. To allow for the cylinder (11) to be moved, loosen the locking washer (10) using a screwdriver.
3. To gain access to the screw in the belt pulley, move the cylinder (11) to the side by a few millimeters (the figure below shows the machine from the rear).

Fig. 24: Setting the adjusting disk relative to the arm shaft crank (4)

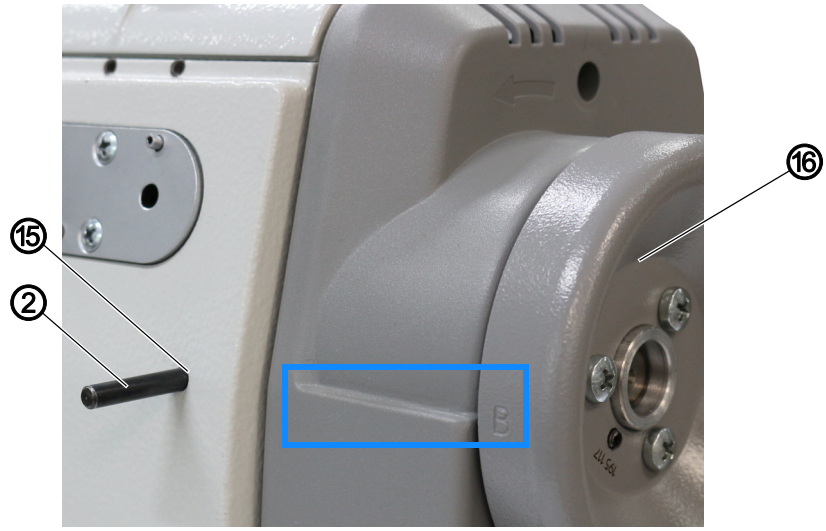


(11) - Cylinder
(12) - Threaded pin
(13) - Toothed belt wheel
(14) - Toothed belt

4. Turn the handwheel until the threaded pin (12) in the toothed belt (13) can be accessed from the top.

5. If necessary, move the toothed belt (14) slightly to the left to gain access to the threaded pin (12).
6. Loosen the threaded pin (12).

Fig. 25: Setting the adjusting disk relative to the arm shaft crank (5)



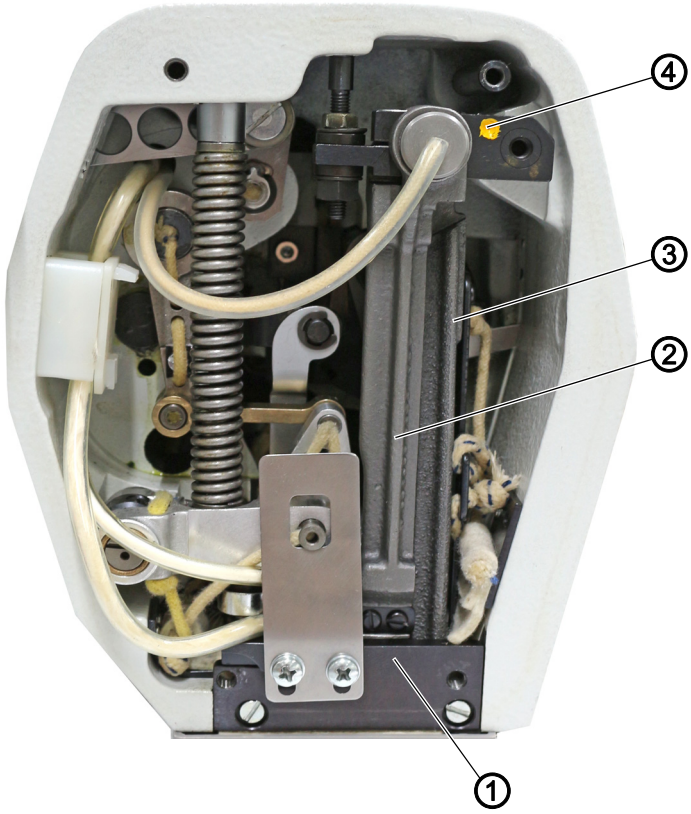
*(2) - Locking peg (locking peg **3** 🕮 p. 14) (16) - Handwheel*
(15) - Locking opening

7. Turn the handwheel (16) to position **A** (3).
8. Use the locking opening (15) to insert a 2nd locking peg (2) and lock the machine in place at position **A** (3) of the adjusting disk (6).
9. If the machine cannot be locked in place at position **A** (3), slightly adjust the position of the toothed belt wheel (13).
10. Tighten the threaded pin (12).
11. If necessary, slide the toothed belt (14) slightly back to the right.

    The toothed belt (14) must be positioned completely on top of the toothed belt wheel (13).
12. Slide the cylinder (11) all the way back to the right.
13. Secure the cylinder (11) with the locking washer (10).
14. To remove the lock, pull out both locking pegs (2) (🕮 *p. 17*).

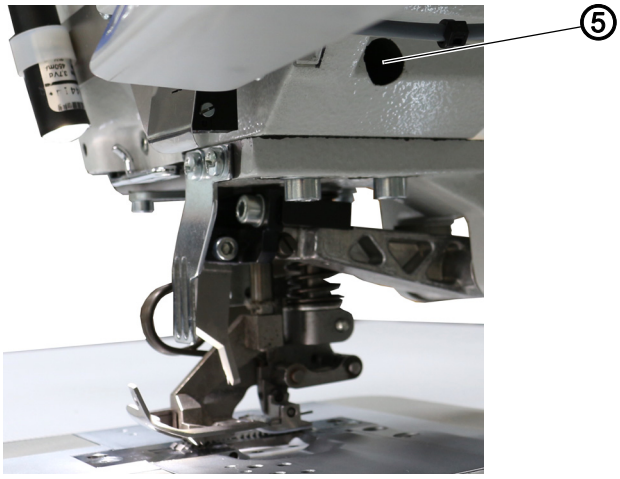
5 Needle bar linkage

Fig. 26: Needle bar linkage (1)



(1) - Guide pin (not visible)
(2) - Part with walking foot bar
(3) - Part with needle bar
(4) - Screw (sealed)

Fig. 27: Needle bar linkage (2)



(5) - Guide pin

The needle bar linkage is split into two sections. The stationary part with the needle bar (3) is screwed directly to the body casting. The other part with the walking foot bar (2) is fitted so that it can move freely.

The screw (4) is secured against twisting with yellow paint and housed inside the machine arm.

Proper setting

Guide pins (1) and (5) have been set at the factory in such a way that the needle bar linkage can move smoothly and without play.

Important

Do not change the positions of guide pins (1) and (5).

5.1 Setting the linkage holder

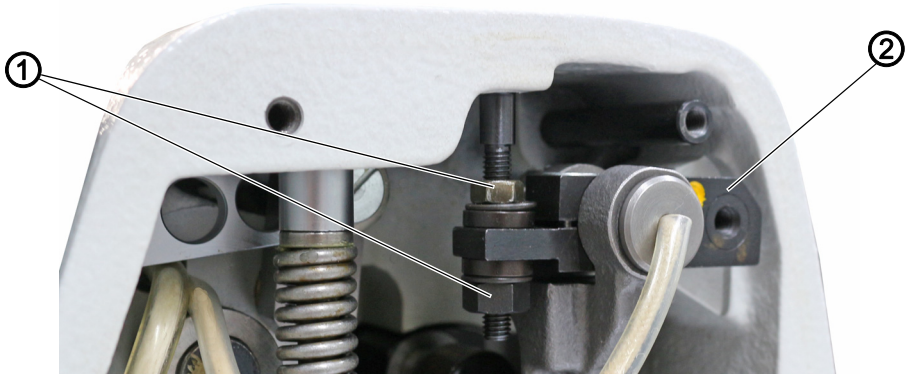
WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Set the linkage holder only when the machine is switched off.

Fig. 28: Linkage holder



(1) - Nuts *(2) - Linkage holder*

The linkage holder (2) must be in the horizontal position.

Cover

- Disassemble the head cover (*p. 21*).

To set the linkage holder:

1. Tighten the nuts (1) so that the linkage holder (2) is in the horizontal position.

5.2 Setting the distance between walking foot bar and presser bar

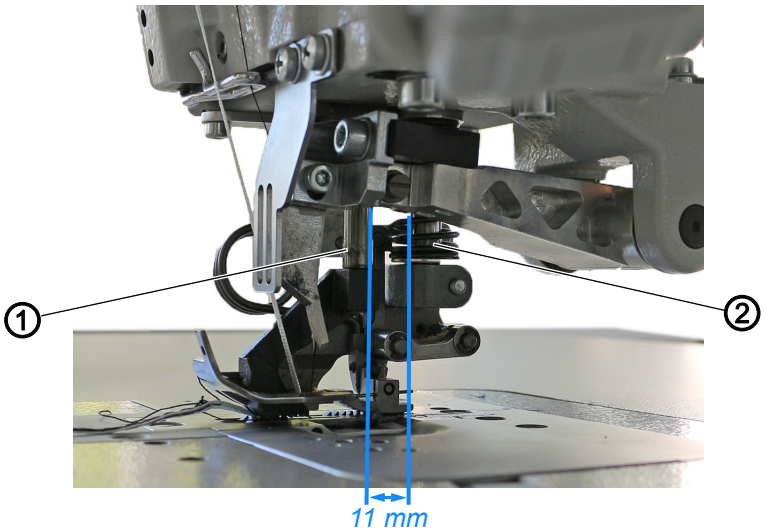
WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

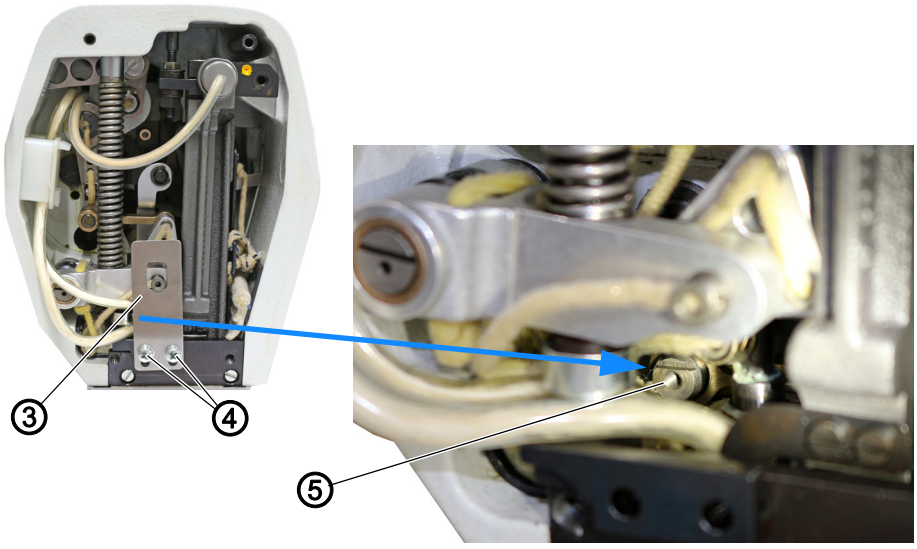
Only set the distance between walking foot bar and presser bar when the machine is switched off.

Fig. 29: Setting the distance between walking foot bar and presser bar (1)



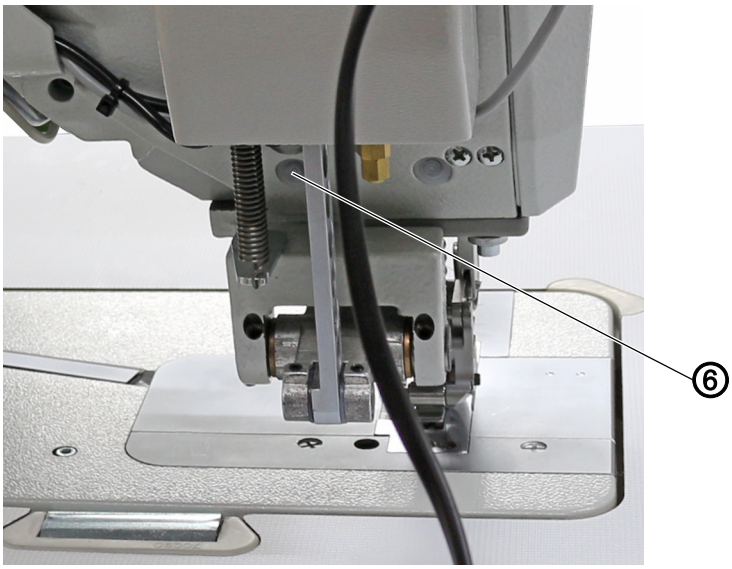
(1) - Walking foot bar
(2) - Presser bar

Fig. 30: Setting the distance between walking foot bar and presser bar (2)



(3) - Support plate
(4) - Screw
(5) - Eccentric

Fig. 31: Setting the distance between walking foot bar and presser bar (3)



(6) - Plug

Proper setting

When the machine is locked in place at position **B**, the distance between the walking foot bar (1) and the presser bar (2) should be 11 mm.

Cover

- Disassemble the head cover (📖 *p. 21*).

To set the distance between the walking foot bar and the presser bar:

1. Lock the machine in place at position **B** (📖 *p. 17*).
2. Remove the plug (6).
3. Loosen the threaded pin behind the plug (6).
4. Loosen the screws (4).
5. Remove the support plate (3).
6. Set the eccentric (5) to a distance of 11 mm between the walking foot bar (1) and the presser bar (2).
7. Tighten the threaded pin behind the plug (6).

6 Adjusting wheel and stop for the stroke height

6.1 Setting the adjusting wheel for the stroke height

WARNING

Risk of injury!

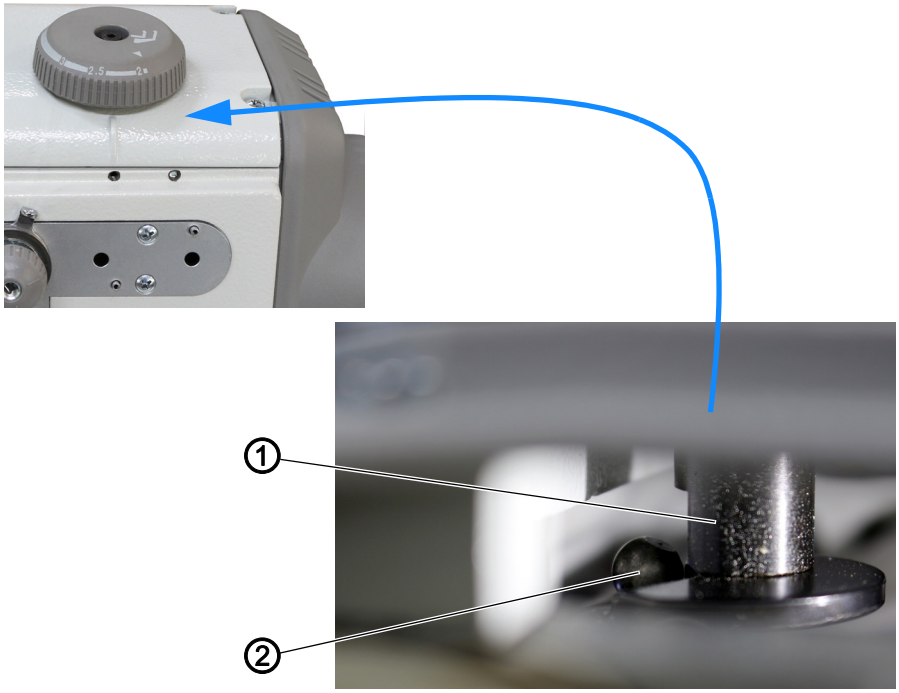
Crushing, cutting and punctures are possible.

Only set the adjusting wheel for the sewing foot stroke when the machine is switched off.

Fig. 32: Setting the adjusting wheel for the stroke height (1)

(1) - Curve

Fig. 33: Setting the adjusting wheel for the sewing foot stroke (2)



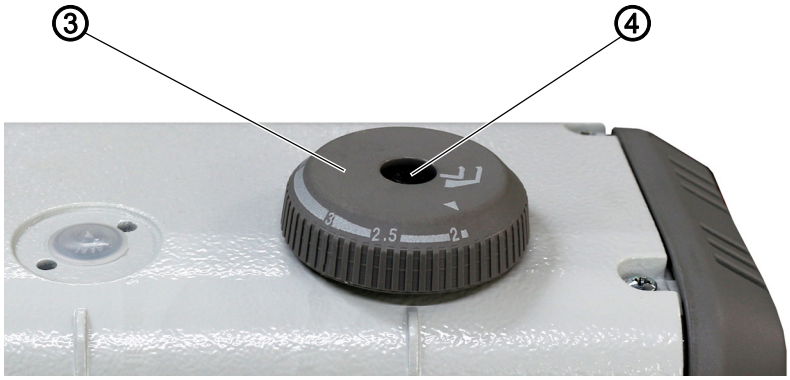
(1) - Curve *(2) - Ball head*

The adjusting wheel (3) with stop can only be turned clockwise and counterclockwise until the curve (1) abuts on the ball head (2).

When the adjusting wheel (3) has been turned clockwise as far as it will go, the

- smallest value should be set.
- adjusting wheel (3) should have the least amount of play.

Fig. 34: Setting the adjusting wheel for the sewing foot stroke (3)



(3) - Adjusting wheel (for sewing foot stroke)
(4) - Screw

Cover

- Remove the toothed belt cover (📖 *p. 27*).

To set the adjusting wheel for the sewing foot stroke:

1. Turn the adjusting wheel (3) until the curve (1) abuts on the ball head (2).
   ↳ There must not be any play between the curve (1) and the ball head (2).
2. Check at which position the adjusting wheel (3) is set.
3. If the adjusting wheel is not set to 2 mm (smallest setting), loosen the screw (4).
4. Turn the adjusting wheel (3) until set to 2 mm.
   ↳ The curve (1) must not shift while you do so.
5. Tighten the screw (4).
6. Verify that there is still no play between curve (1) and ball head (2) when the adjusting wheel (3) is set to 2 mm.
7. Correct the setting again if necessary.

6.2 Setting the potentiometer

WARNING

Risk of injury!

The machine remains switched on when the potentiometer is set.

Work with caution when the machine is switched on; do not press the pedal inadvertently.

NOTICE

Property damage may occur!

Possible machine damage or increased wear due to excessive speed when the stroke is set too high.

While you can reduce the preset speeds as necessary to accommodate the sewing material thickness, NEVER increase the speeds.

The potentiometer determines the set stroke height. The speed is adjusted to the stroke height automatically via software: The greater the stroke height, the lower the speed.

Order

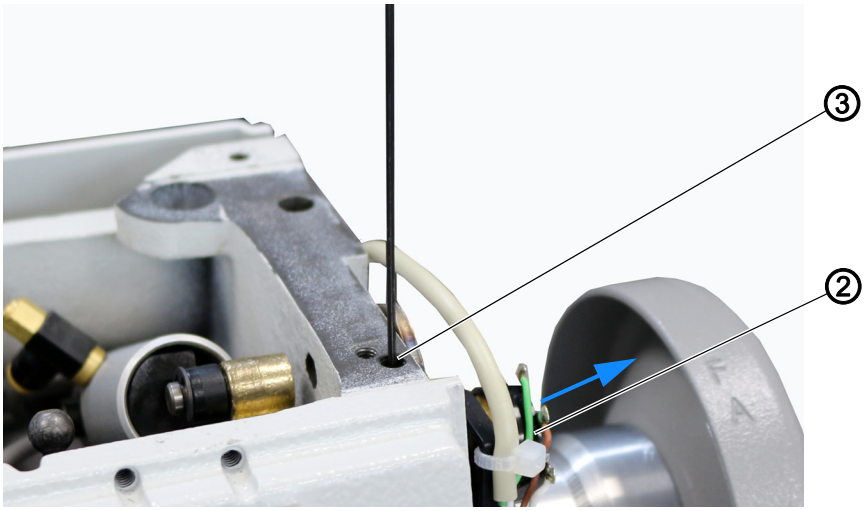
1. **Set the potentiometer mechanically** (📖 *p. 44*)**.**
2. ***Calibrate the*** **stroke speed limiter** (📖 *p. 44*).

Cover

- Remove the arm cover (📖 *p. 20*).
- Remove the toothed belt cover (📖 *p. 27*).

6.2.1 Setting the potentiometer mechanically

Fig. 35: Setting the potentiometer mechanically (1)



(5) - Potentiometer *(6) - Hole*

To set the potentiometer mechanically:

1. Loosen the threaded pin through the hole (3).
2. Pull out the potentiometer (2).
3. To determine the radius of rotation, turn the shaft of the potentiometer (2) once to the front stop and once to the rear stop.
4. Position the shaft of the potentiometer (2) in the center between the front and the rear stop.

Important

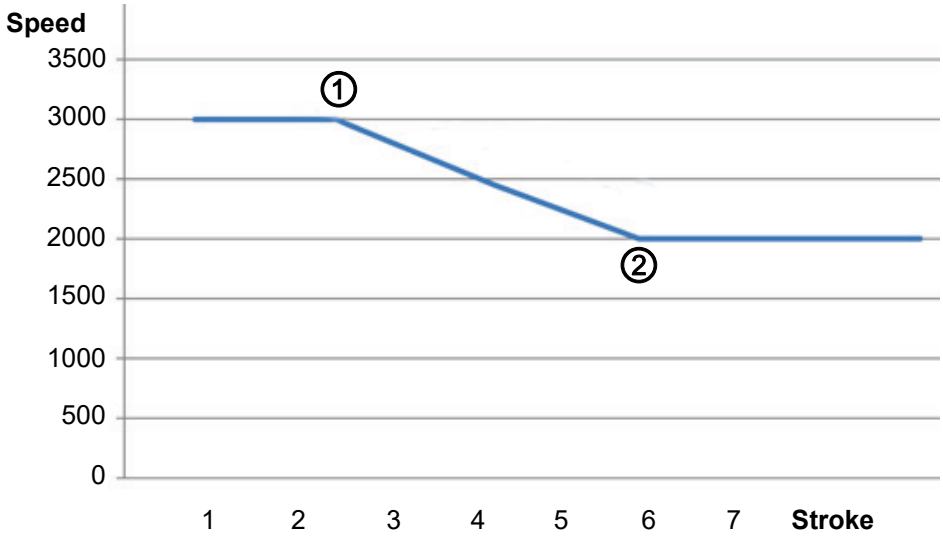
The shaft of the potentiometer (2) must NOT abut on the front or the rear stop, but MUST be aligned with the center.

5. Insert the potentiometer (2) again.
6. To fix the potentiometer (2) in place, tighten the threaded pin through the hole (3).

6.2.2 Calibrating the *Stroke speed* in the software

The potentiometer determines the set stroke height. The speed is adjusted to the stroke height automatically via software: The greater the stroke height, the lower the speed.

Fig. 36: Calibrating the `stroke speed limiter` (1)



(1) - Point *(2) - Point*

The diagram above illustrates the factory settings: The machine can sew at speed 3000 up to point (1). Starting with point (1), the machine reduces the speed linearly until reaching point (2). Starting with point (2), the machine will continue to sew at speed 2000 only.

Important

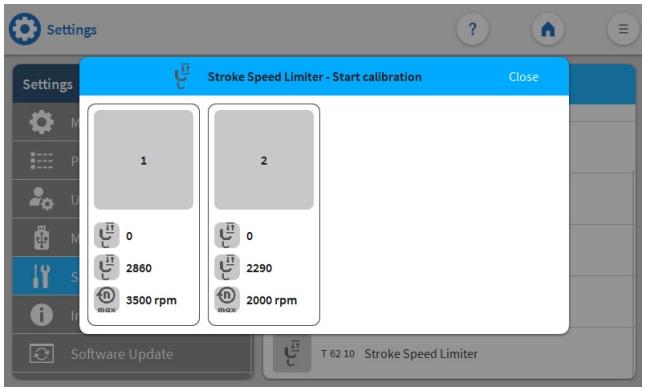
To prevent damage to the machine, DO NOT exceed these recommended factory settings.

Order

1. Set the potentiometer mechanically (📖 *p. 44*).
2. Calibrate the `stroke speed limiter`.

To calibrate the `stroke speed limiter`:

Fig. 37: Calibrating the `stroke speed limiter` (2)



1. Select position **1**.

↳ The system shows the current settings of point (1):

Fig. 38: Calibrating the `stroke speed limiter` (3)

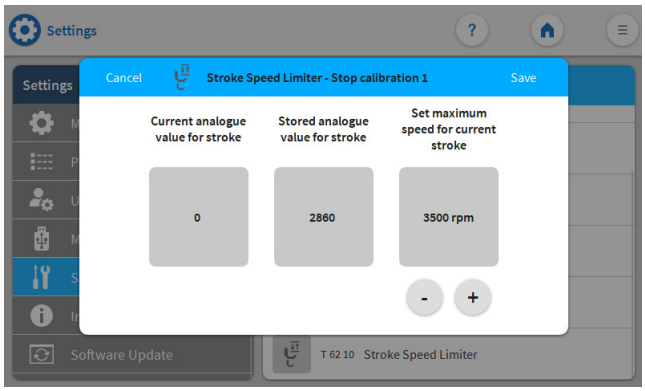
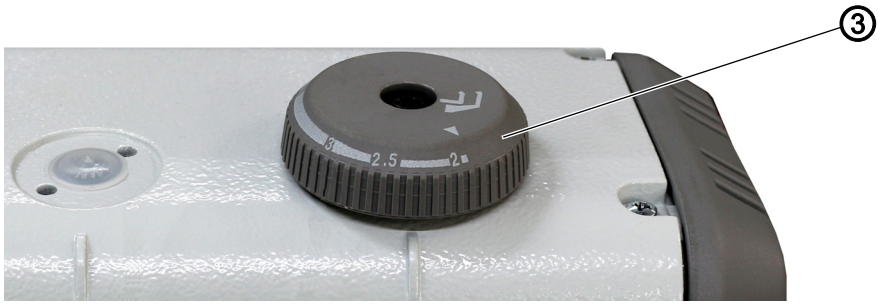


Fig. 39: Calibrating the `stroke speed limiter` (4)



(3) - Adjusting wheel

2. Set the adjusting wheel (3) to the stroke height starting with which the sewing speed is supposed to be reduced (point (1)).

   The factory setting defines that the speed will be reduced starting with a stroke height of 2.5 mm.
   DO NOT increase this stroke height of 2.5 mm, but only reduce it if necessary.

↳ The display shows a corresponding analog value as you turn the adjusting wheel (3).

3. Adjust the speed if necessary.

   The speed is adjusted in increments of 100 - DO NOT increase the speed, but only reduce it if necessary.

4. Save the setting.

↳ Point (1) is set.

1. Select position **2**.
2. The system shows the current settings of point (2).
3. Set the adjusting wheel (3) to the stroke height starting with which the sewing speed is not supposed to be reduced any further (point (2)).

   The factory setting defines that the speed will be reduced up to a stroke height of 6 mm.
   DO NOT increase this stroke height of 2.5 mm, but only reduce it if necessary.

↳ The display shows a corresponding analog value as you turn the adjusting wheel (3).

4. Adjust the speed if necessary.

   The speed is adjusted in increments of 100 - DO NOT increase the speed, but only reduce it if necessary.

5. Save the setting.

↳ Point (2) is set.

6. Close the menu.

6.3 Setting the maximum stroke stop

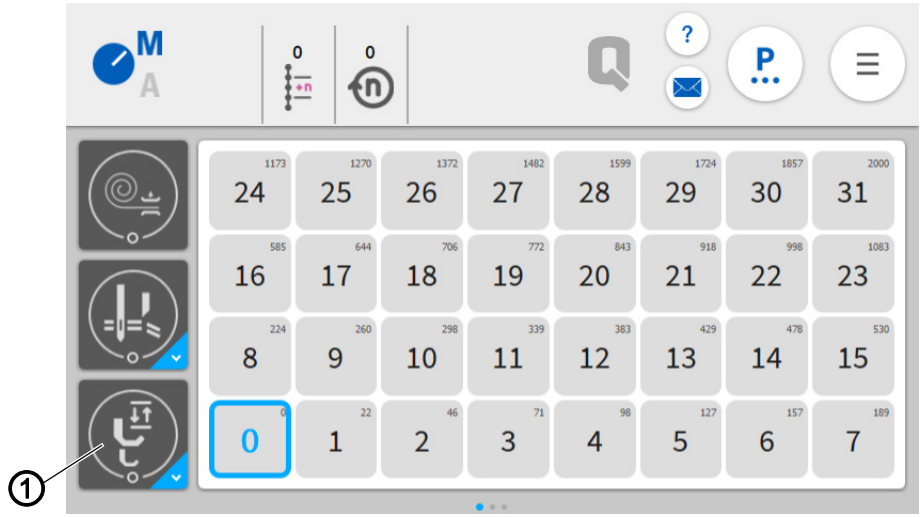
WARNING

Risk of injury!

Crushing, cutting and punctures are possible. The maximum stoke height is not in effect unless the machine is switched on.

Work with caution when the machine is switched on; do not press the pedal inadvertently.

Fig. 40: Setting the maximum stroke stop (1)



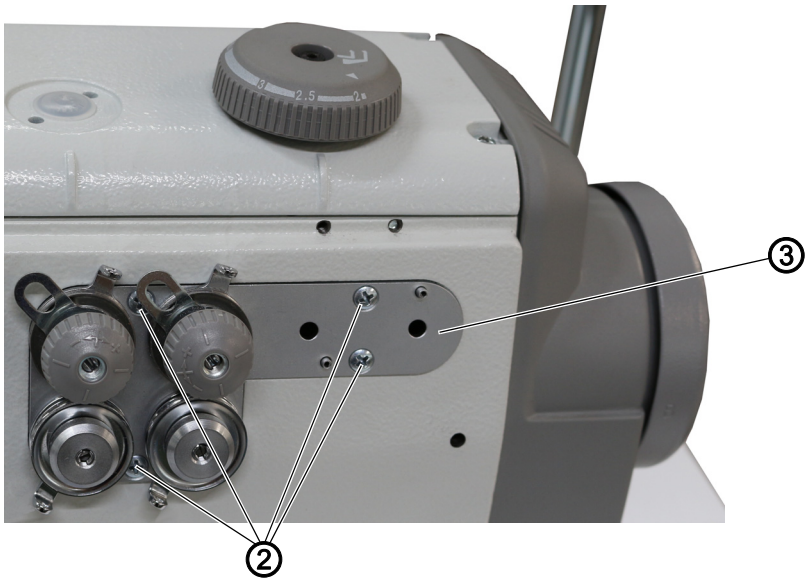
(1) - Tile

When the maximum stroke is switched on, the maximum stroke height of the sewing feet should be 7 mm.

Information

You can only use the tile (1) or the knee button to switch the maximum stroke on and off when the machine is switched on (📖 *Operating Instructions*).

Fig. 41: Setting the maximum stroke stop (2)

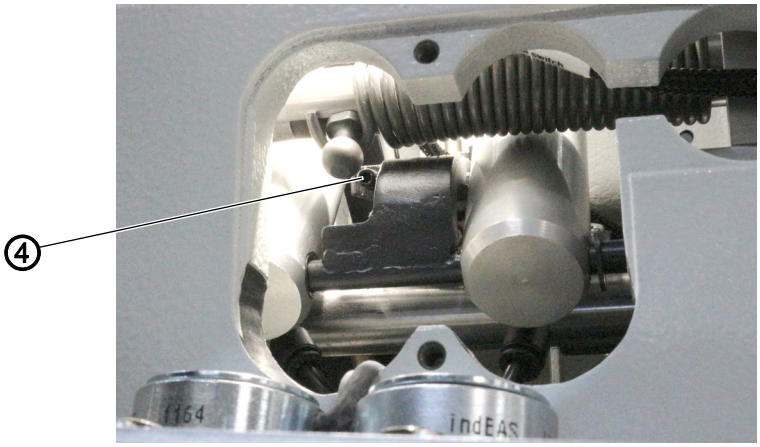


(2) - Screw *(3) - Tensioning plate*

To set the stop for the maximum stroke:

1. If necessary, remove needle and hook thread from the tensioner elements.
2. Loosen the screws (2).
3. Remove the tensioning plate (3).

Fig. 42: Setting the maximum stroke stop (3)



(4) - Threaded pin

4. Ensure that the needle is at the top dead center and switch on the machine (📖 *Operating Instructions*).
5. To switch the maximum stroke on, press button (1).

↳ The maximum stroke height must not exceed 7 mm.

6. Set the stroke height if necessary:
   - Increase the stroke height: Screw in the threaded pin (4) further
   - Reduce the stroke height: Unscrew the threaded pin (4) further

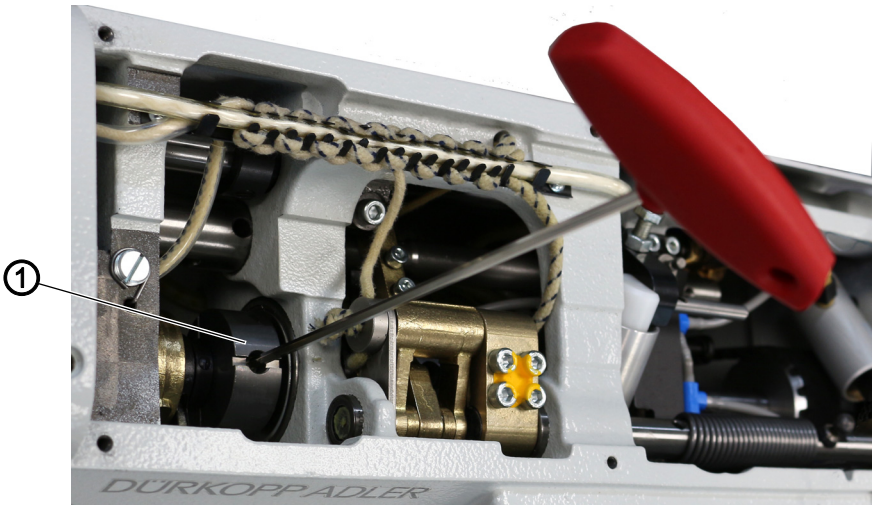
7 Setting the balance weight

Class **550-12-33** (mat. no. 0550 990072) is equipped with a balance weight.

Cover

- Remove the arm cover (📖 *p. 20*).

Fig. 43: Setting the balance weight



(1) - Balance weight

To set the balance weight:

1. Lock the machine in place at position **A** (📖 *p. 17*).
↳ The hole of the pusher eccentric points up vertically.
2. Loosen the threaded pin in the hole of the balance weight (1).
3. Set the balance weight (1) vertical.
4. Tighten the threaded pin in the hole of the balance weight (1).
↳ The balance weight (1) is set properly.

8 Sewing feet

8.1 Small presser foot

8.1.1 Changing the small presser foot

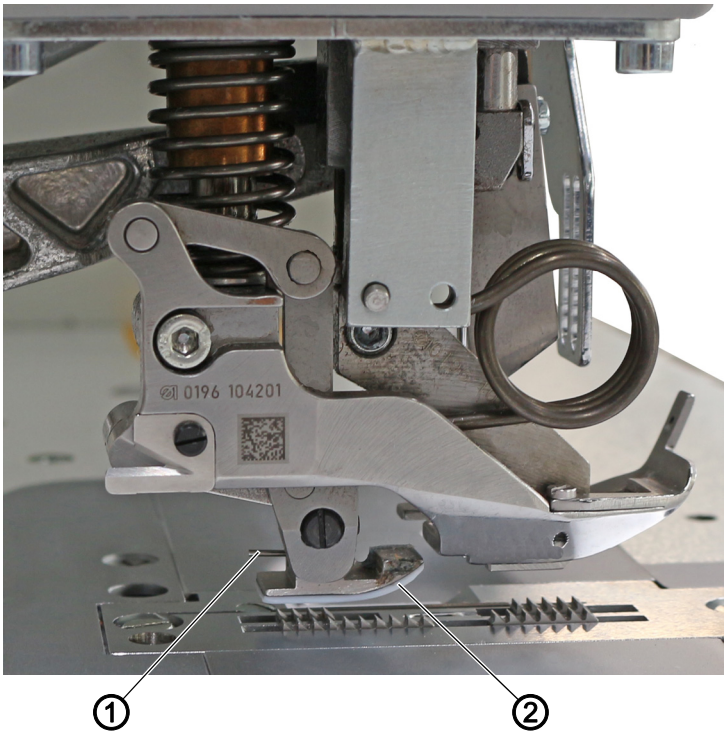
WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Lock the sewing feet at the top dead center and switch the machine off for all subsequent steps.

Fig. 44: Changing the small presser foot



(1) - Spring *(2) - Small presser foot*

To change the small presser foot:

1. Lock the sewing feet at the top dead center (📖 *Operating Instructions*).
2. Switch off the machine.
3. Push down the spring (1) at the rear on the small presser foot.
4. Pull the small presser foot (2) off to the side.
5. Fit the new small presser foot (2).

↳ The small presser foot (2) is fitted correctly when the spring (1) locks audibly into place.

6. Set the new small presser foot (2) (📖 *p. 52*).

8.1.2 Setting the small presser foot

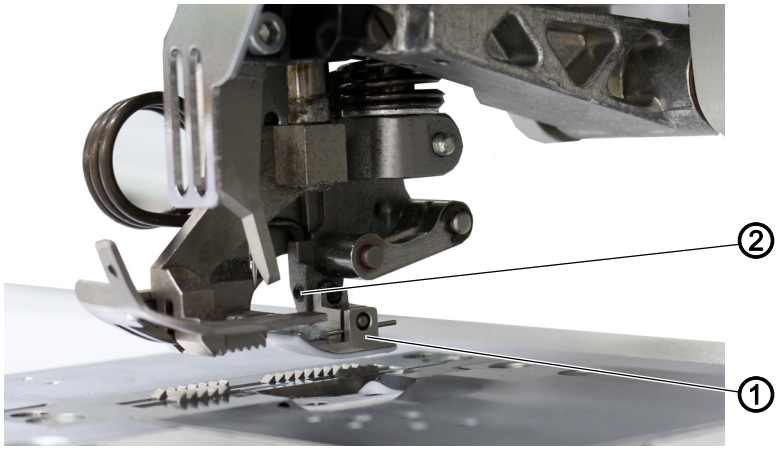
WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Lower the sewing feet down to the throat plate and switch the machine off for all subsequent steps.

Fig. 45: Setting the small presser foot (1)

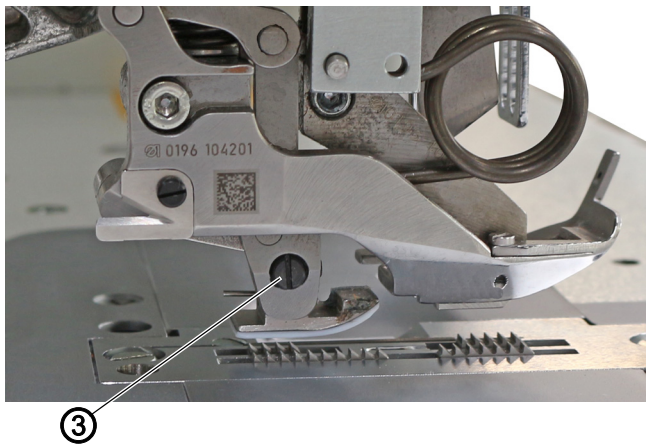


(1) - Small presser foot *(2) - Screw*

To set the sole at the small presser foot:

1. Turn the handwheel until the sole of the small presser foot (1) rests on the throat plate.
2. Switch off the machine.
3. Loosen the screw (2).

Fig. 46: Setting the small presser foot (2)



(3) - Eccentric

4. Turn the eccentric (3) such that the small presser foot (1) is positioned at an incline of approx. 2°.
5. Tighten the screw (2).

8.1.3 Changing the lint trap in the throat plate (550-12-34)

The Teflon plate housed in the throat plate is used as a lint trap.
This Teflon plate must be replaced on a regular basis.

Fig. 47: Changing the lint trap in the throat plate

(1) - Throat plate *(2) - Teflon plate*

To change the Teflon plate in the throat plate:

1. Disassemble the throat plate (1) (📖 *p. 30*).
2. Change the Teflon plate (2).
3. Assemble the throat plate (1) and lower the top blade.

↳ The top blade independently cuts its way through the Teflon plate (2).

8.2 Walking foot

8.2.1 Setting the timing of the walking foot feed movement

WARNING

Risk of injury!

Crushing, cutting and punctures are possible. The maximum stitch length is not in effect unless the machine is switched on.

Work with caution when the machine is switched on; do not press the pedal inadvertently.

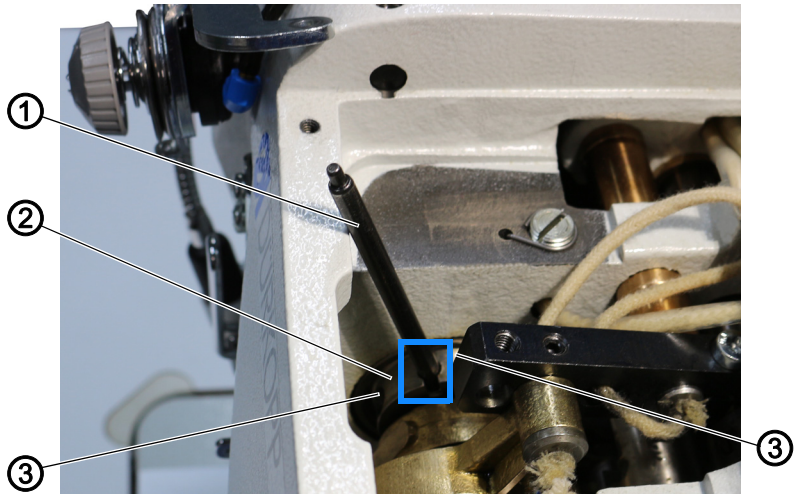
Proper setting

The walking foot feed movement should be in sync with the feed movement of the differential feed dog at the greatest possible stitch length.

Cover

- Remove the arm cover (📖 *p. 20*).

Fig. 48: Setting the timing of the walking foot feed movement



*(1) - Locking peg (locking peg **3**, 📖 p. 14)*
(2) - Pusher eccentric
(3) - Threaded pin (only partially visible)

To time the feed movement of the walking foot:

1. Loosen both threaded pins (3) on the pusher eccentric (2).
2. Lock the machine in place at position **A** (📖 *p. 17*).

3. Insert the locking peg (1) into the mark-off hole of the pusher eccentric (2) and turn it against the front cast edge.
4. Tighten both threaded pins (3) on the pusher eccentric (2).

Fine adjustment

5. Lower the sewing feet.
6. Turn the handwheel in the feed direction.

↳ The feed movements of differential feed dog and walking foot should be in sync.

7. If the feed movements are not in sync, slightly adjust the pusher eccentric (2).

8.2.2 Setting the stroke adjusting range and the timing of the walking foot stroke movement

WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Only set the stroke adjusting range and the timing of the walking foot stroke movement when the machine is switched off.

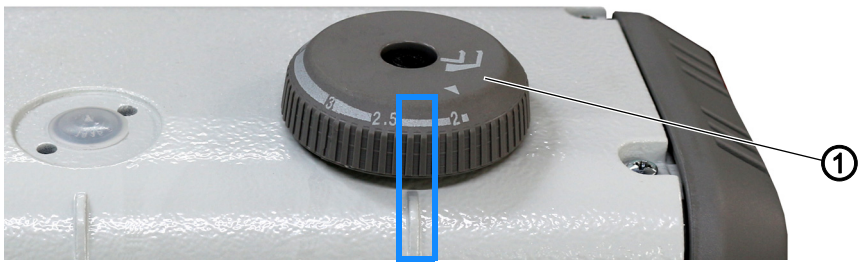
NOTICE

Property damage may occur!

Damage to the machine.

Ensure that the eccentric is at its initial position: The slot in the upper semicircle must be turned towards the rear by 45°.

Fig. 49: Setting the stroke adjusting range and the timing of the walking foot stroke movement (1)



(1) - Adjusting wheel (for the stroke height)

Proper setting

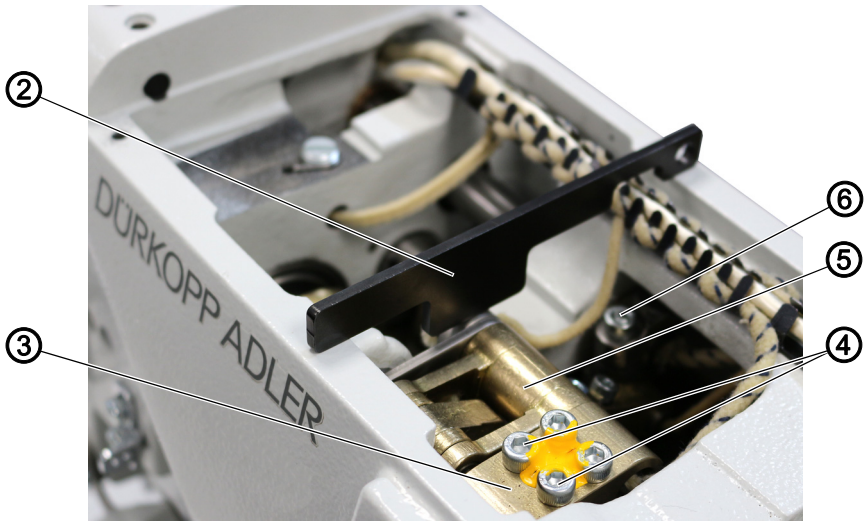
When the stroke height at the adjusting wheel (1) is set to 2 mm, the sewing feet should be at the following height:

- Walking foot: 2.5 mm
- Small presser foot: 2 mm

Cover

- Remove the arm cover (📖 *p. 20*).
- Disassemble the head cover (📖 *p. 21*).

Fig. 50: Setting the stroke adjusting range and the timing of the walking foot stroke movement (2)



*(2) - Gage (gage **9**, 📖 p. 14)*
(3) - Block
(4) - Screw
(5) - Stroke rocker
(6) - Screw

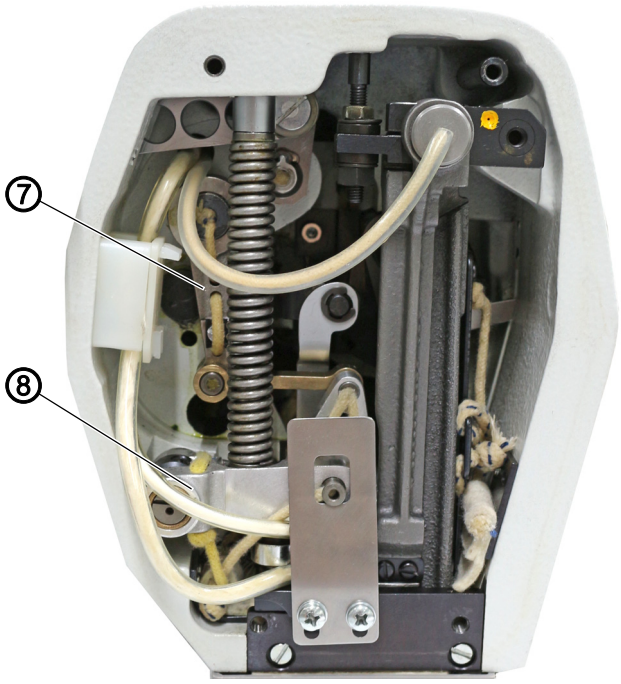
To set the stroke adjusting range:

1. Loosen the screws (4).
2. Place the gage (2) on the cast walls of the machine arm (see figure above).
3. Swivel the block (3) until the pin of the stroke rocker (5) abuts on the gage (2).
4. Slide the block (3) against the bush for the axial fixing of the shaft.
5. Tighten the screws (4).
6. Remove the gage (2).

To set the **same stroke for both sewing feet**:

1. Lock the machine in place at position **D** (📖 *p. 17*).
2. Loosen the screws on the stroke eccentric.

Fig. 51: Setting the stroke adjusting range and the timing of the walking foot stroke movement (3)

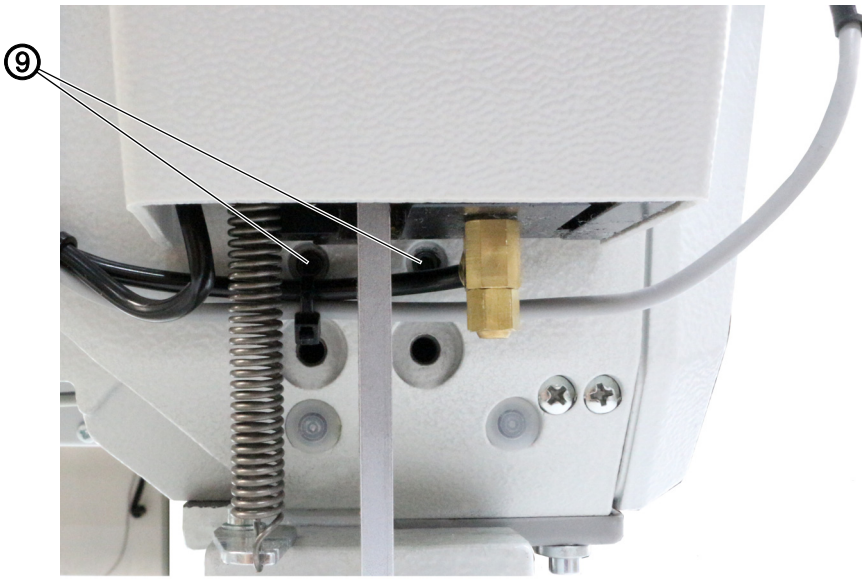


(7) - Stroke lever *(8) - Eccentric*

3. Turn the stroke eccentric on the arm shaft so that when the stroke rocker (5) moves, the stroke lever (7) remains at rest.
4. Tighten the screws on the stroke eccentric.
5. Loosen the screw (6).
6. Turn the stroke lever (7) such that both sewing feet rest on the throat plate.
7. Tighten the screw (6).

↳ Now, both sewing feet have the same stroke.

Fig. 52: Setting the stroke adjusting range and the timing of the walking foot stroke movement (4)



(9) - Screw

To set a **different stroke** for the sewing feet:

1. Loosen the screws (9).
2. Turn the eccentric (8) 45° against the feed direction until the slot is horizontal in the upper semicircle.
3. Tighten the screws (9).

↳ Now, the stroke of the walking foot and of the small presser foot is 2.5 mm and 2 mm, respectively.

8.3 Setting the precise sewing foot timing

WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Only set the precise sewing foot timing when the machine is switched off.

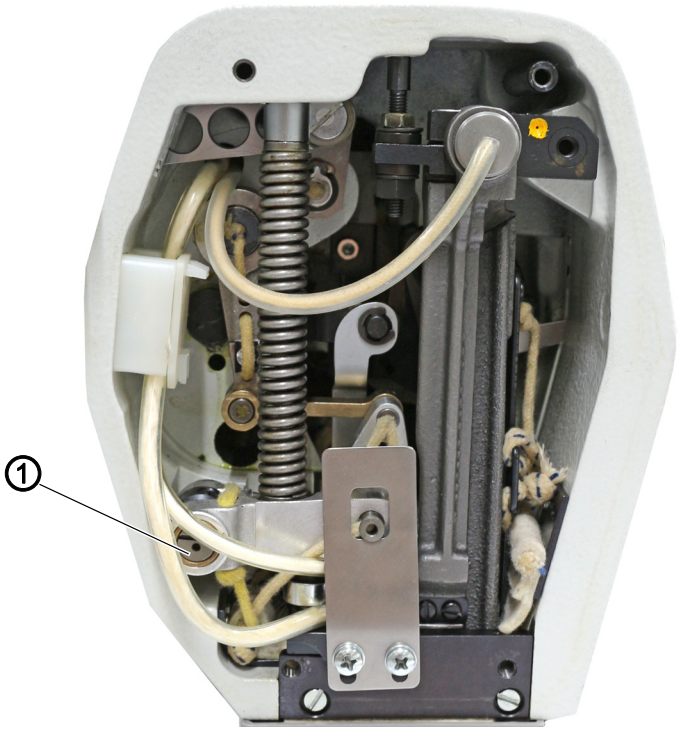
Proper setting

When the machine is locked in place at position **D**, both sewing feet must rests on the throat plate.

Cover

- Disassemble the head cover (📖 *p. 21*).

Fig. 53: Setting the precise sewing foot timing



(1) - Eccentric

To set the precise sewing foot timing:

1. Lock the machine in place at position **D** (📖 *p. 17*).
2. Slightly shift the eccentric (1) at its initial position (slot is horizontal in the upper semicircle).

8.4 Setting the play in the lifting mechanism

WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Only set the play in the lifting mechanism with the machine switched off.

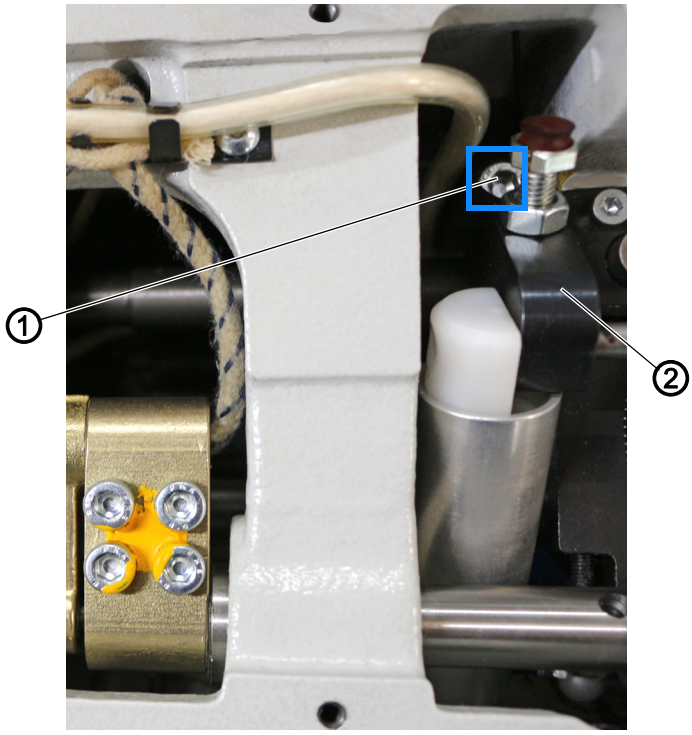
Proper setting

The play in the lifting mechanism should be 1 mm if at least one of the two sewing feet rests on the throat plate / the feed dog.

Cover

- Remove the arm cover (📖 *p. 20*).

Fig. 54: Setting the play in the lifting mechanism



(1) - Screw *(2) - Clamping block*

To set the play in the lifting mechanism:

1. Loosen the screw (1).
2. Move the clamping block (2) accordingly on the shaft.
3. Tighten the screw (1).

8.5 Setting the height of the raised sewing feet (lift limitation)

WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Do not set the height of the raised sewing feet unless the machine is switched off (lift limitation).

The sewing feet remain lifted for as long as the pedal is pressed in position **-2**.

Proper setting

The distance between the raised sewing feet and the throat plate should be limited to a maximum of 15 mm.

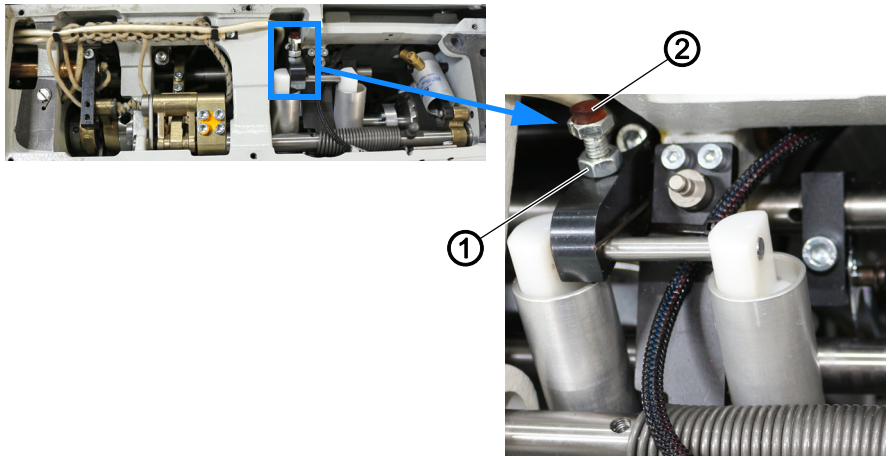
This setting can be adjusted by setting a distance of 17 mm when the needle is at the top dead center. In this case, the needle protrudes from under the sewing feet.

When working with particularly thick sewing feet, e.g. piping feet, you must reduce the distance as much as necessary to prevent a collision with the needle bar.

Cover

- Remove the arm cover (📖 *p. 20*).

Fig. 55: Setting the height of the raised sewing feet (lift limitation)



(1) - Nut

(2) - Stop screw

To set the height of the raised sewing feet:

1. Loosen the nut (1).

2. Adjust the stop screw (2) accordingly.

↳ The further the stop screw (2) protrudes, the lower the height to which the sewing feet can be raised with the pedal at position **-2**.

3. Tighten the nut (1).

8.6 Setting the intercept buffer

WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Only set the intercept buffer with the machine switched off.

The intercept buffer prevents the sewing feet from resting directly on the throat plate.

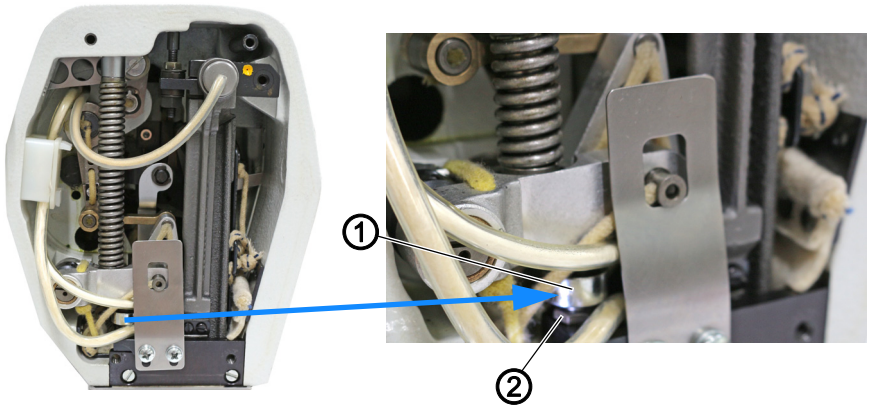
Proper setting

The distance between throat plate and sewing feet should be 0.2 mm.

Cover

- Disassemble the head cover (🕮 *p. 21*).

Fig. 56: Setting the intercept buffer



(1) - Intercept buffer *(2) - Nut*

To set the intercept buffer:

1. Turn the handwheel until the sewing feet are at the same height.
2. Check to see if there is a forceful transport of the material.
3. Loosen the nut (2) if necessary.
4. Set the intercept buffer (1) accordingly.

8.7 Setting the height of the locked sewing feet

WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

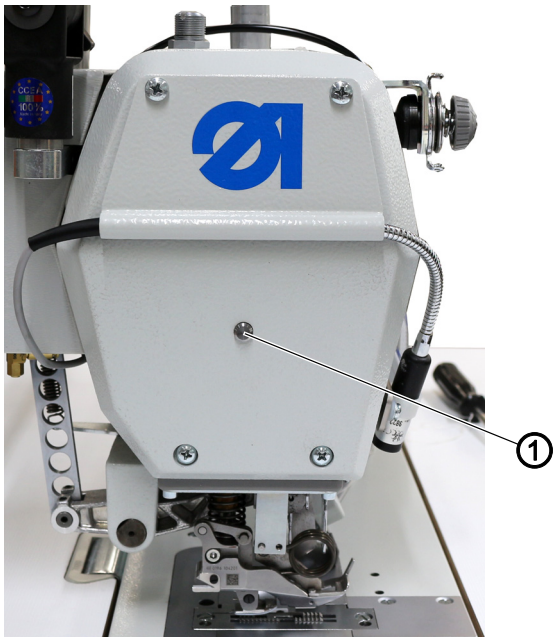
Do not check and adjust the height of the locked sewing feet unless the machine is switched off.

The sewing feet can be locked in place in raised position with a press of the button on the head cover (🕮 *Operating Instructions*).

Proper setting

The distance of the raised and locked sewing feet to the throat plate should be 10 mm.

Fig. 57: Setting the height of the locked sewing feet (1)



(1) - Locking button

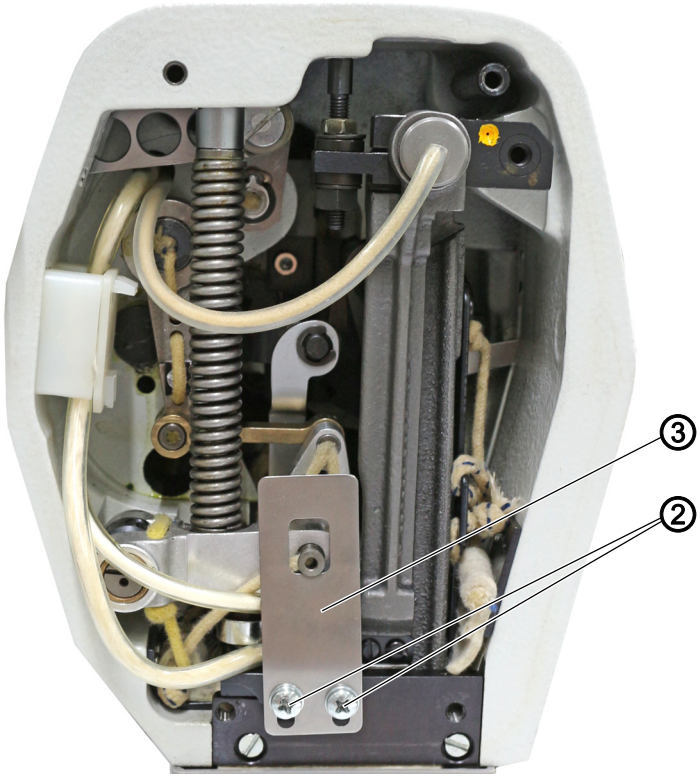
To check the height of the locked sewing feet:

1. To lift the sewing feet, press and hold the pedal in position **-1** or **-2**.
2. Press the locking button (1) on the head cover.
3. Release the pedal (position **0**).

↳ The sewing feet are now locked in place.

4. Disassemble the head cover (🕮 *p. 21*).
5. Measure the height of the locked sewing feet.
6. Adjust the height of the locked sewing feet if necessary.

Fig. 58: Setting the height of the locked sewing feet (2)



(2) - Screw *(3) - Support plate*

To set the height of the locked sewing feet:

1. Loosen the screws (2).
2. Change the position of the support plate (3).

9 Differential top and bottom feed

9.1 Setting the initial position for the bottom feed

WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Work with caution when the machine is switched on; do not press the pedal or other buttons inadvertently.

Order

1. **Set the initial position for the bottom feed.**
2. Set the initial position for the top feed (📖 *p. 68*).
3. Calibrate differential top and bottom feed (📖 *p. 70*).

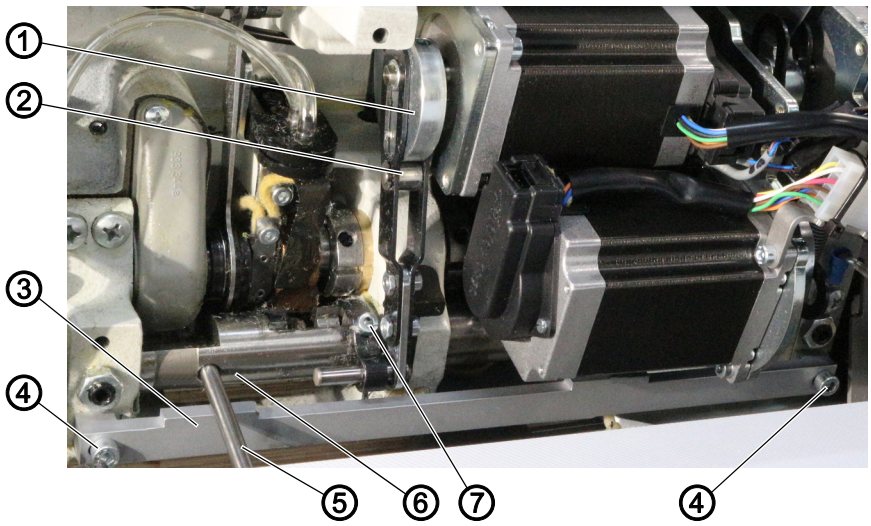
Disturbances

- Damage to the throat plate
- Damage to the feed dogs
- Noise

Cover

- Remove the lower cover (📖 *p. 24*).

Fig. 59: Setting the initial position for the bottom feed (1)

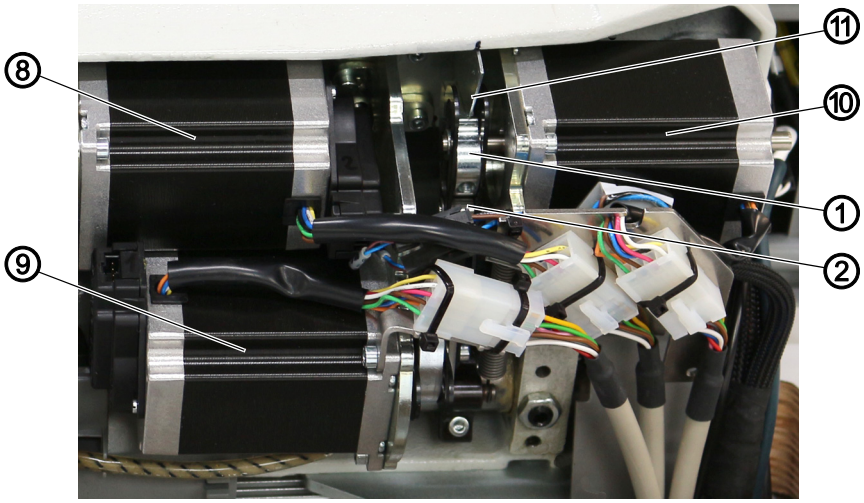


(1) - Curve
(2) - Roller
*(3) - Gage (gage **9**, 📖 p. 14)*
(4) - Screw
*(5) - Size 6 pin (gage **13**, 📖 p. 14)*
(6) - Linkage
(7) - Screw

To set the initial position of the linkages for bottom feed:

1. Tilt the machine head (p. 19).
2. Assemble the gage (3) using 2 x M5x16 screws.

Fig. 60: Setting the initial position for the bottom feed (2)



(1) - Curve
(2) - Roller
(8) - Stepper motor (main feed)
(9) - Stepper motor (differential top feed)
(10) - Stepper motor (differential bottom feed)
(11) - Reference disk

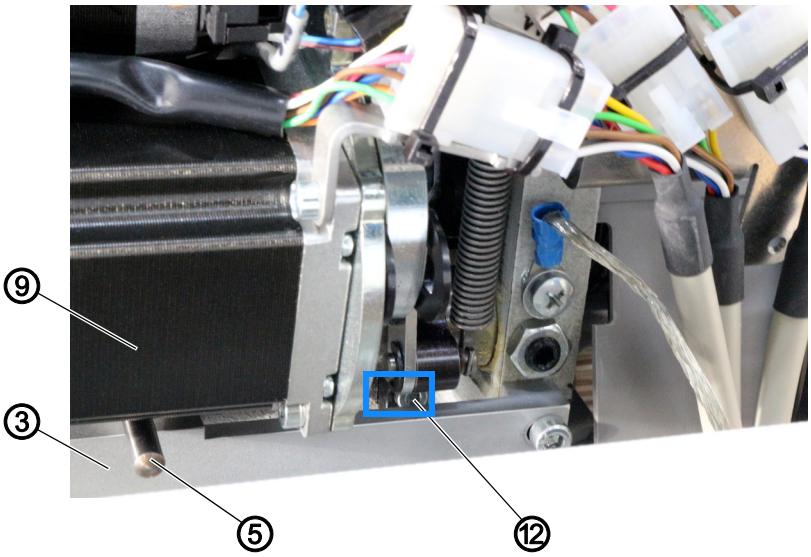
3. Turn the curves of the stepper motor (8) for the main feed and the stepper motor (10) for the differential feed so that the rollers (2) are positioned at the largest diameters of the curves (1).

↳ The edge of the reference disk (11) abuts on the roller (2).

Adjusting the main feed

4. Loosen the screw (7).
5. Insert the size 6 pin (5) into the hole of the linkage (6).
6. Turn the linkage (6) until the size 6 pin (5) abuts on the gage (3).
7. Tighten the screw (7).
8. Check the feed dog height (p. 104).

Fig. 61: Setting the initial position for the bottom feed (3)



*(3) - Gage (gage **11**, 🕮 p. 14)*
*(5) - Size 6 pin (gage **13**, 🕮 p. 14)*
(9) - Stepper motor (differential top feed)
(12) - Screw

Adjusting the main feed

9. Loosen the screw (12).
10. Insert the size 6 pin (5) into the hole of the linkage below the stepper motor (9).
11. Turn the linkage until the size 6 pin (5) abuts on the gage (3).
12. Tighten the screw (12).
13. Disassemble the gage (3).

9.2 Setting the initial position for the top feed

WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Work with caution when the machine is switched on; do not press the pedal or other buttons inadvertently.

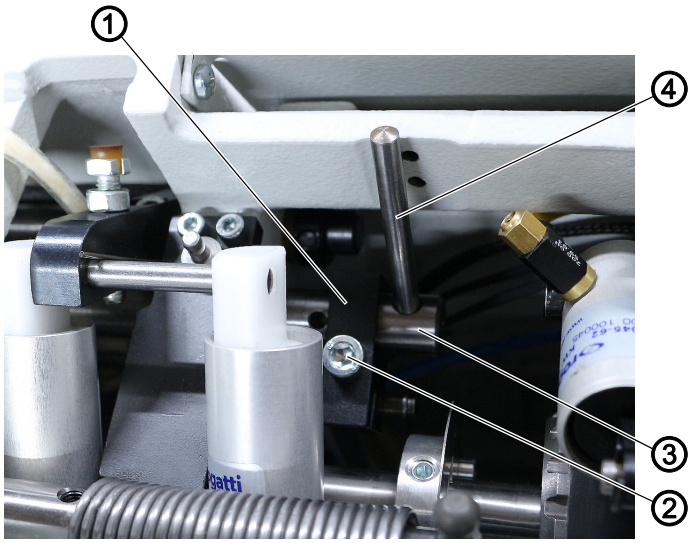
Order

1. Set the initial position for the bottom feed (📖 *p. 65*).
2. **Set the initial position for the top feed.**
3. Calibrate differential top and bottom feed (📖 *p. 70*).

Cover

- Remove the arm cover (📖 *p. 20*).

Fig. 62: Setting the initial position for the top feed (1)

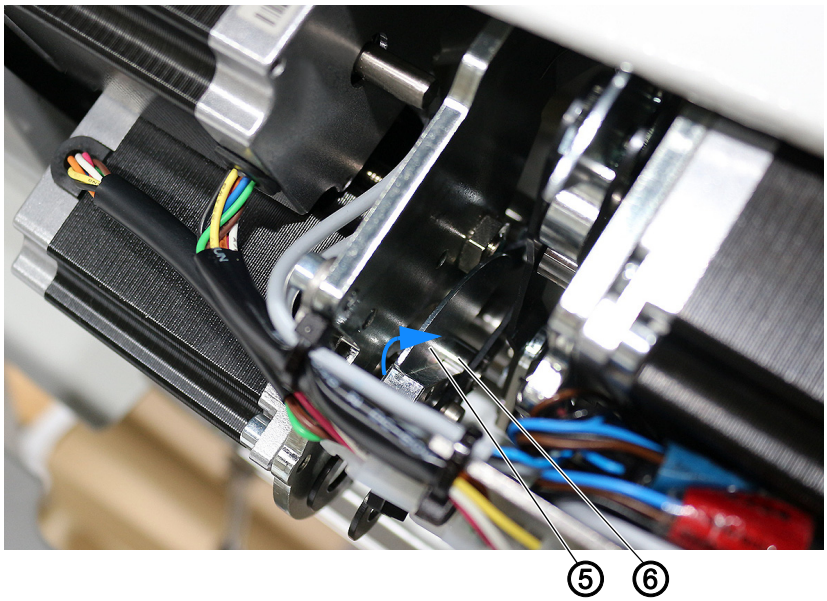


(1) - Clamping block
(2) - Screw
(3) - Shaft
*(4) - Size 6 pin (gage **13**, 📖 p. 14)*

To set the initial position for the top feed:

1. Loosen the screw (2) on the clamping block (1).
2. Tilt the machine head (📖 *p. 19*).

Fig. 63: Setting the initial position for the top feed (2)



(5) - Reference disk *(6) - Roller*

3. Press the reference disk (5) against the roller (6).
4. Insert the size 6 pin (4) into the hole of the shaft (3).
5. Turn the size 6 pin (4) against the rear cast edge.
6. Tighten the screw (2) on the clamping block (1).
7. Erect the machine head (📖 *p. 19*).

9.3 Calibrating differential top and bottom feed

WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Work with caution when the machine is switched on; do not press the pedal or other buttons inadvertently.

Exercise special caution when working in the area of the edge cutter blades.

Work with particular caution while the sewing feet are raised or locked at top dead center.

Order

1. Set the initial position for the bottom feed (📖 *p. 65*).
2. Set the initial position for the top feed (📖 *p. 68*).
3. **Calibrate the differential top and bottom feed.**

To calibrate the differential top and bottom feed, you need to calibrate both feed dogs and the walking foot one at a time in the following order:

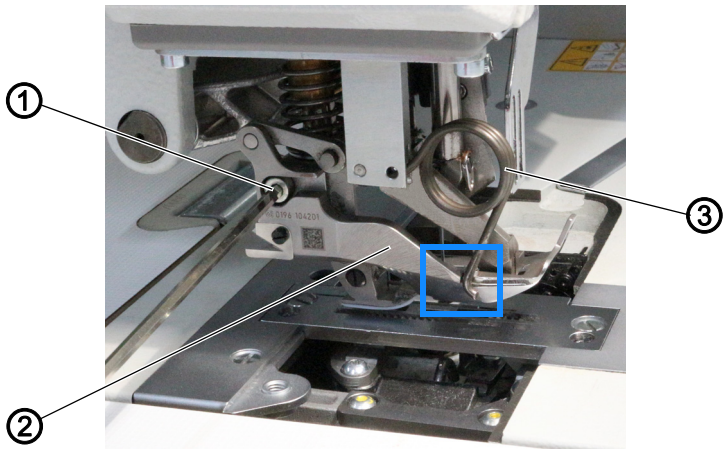
1. rear feed dog
2. front feed dog
3. Walking foot

Calibrating the rear feed dog

To calibrate the differential top and bottom feed:

1. Remove the hook covers (📖 *p. 29*).

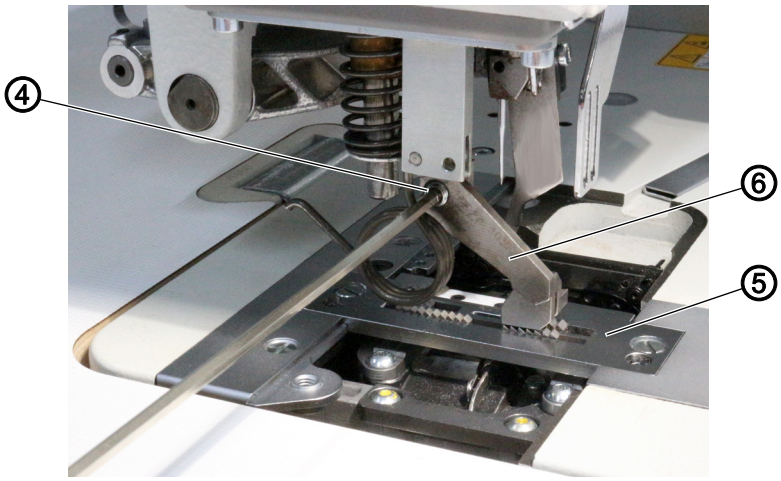
Fig. 64: Calibrating the differential top and bottom feed (1)



(1) - Screw
(2) - Presser foot
(3) - Spring

2. Remove the spring (3).
3. Loosen the screw (1).
4. Remove the presser foot (2).

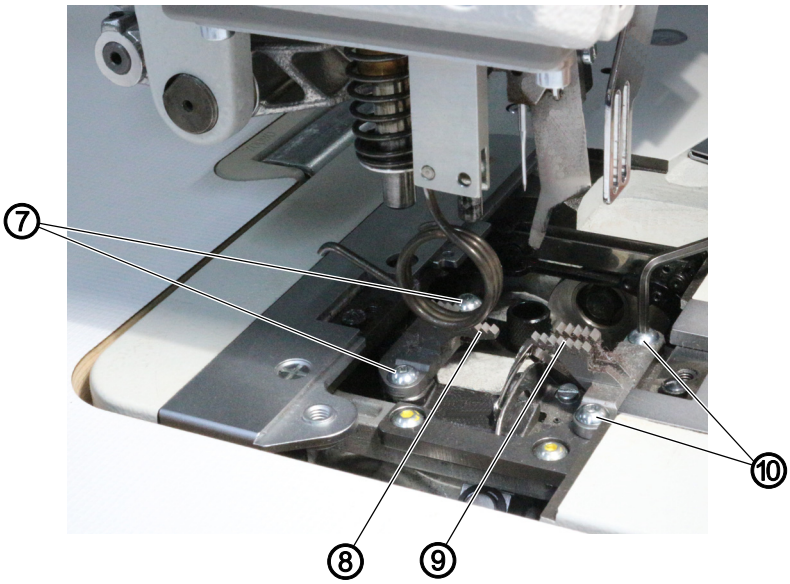
Fig. 65: Calibrating the differential top and bottom feed (2)



(4) - Threaded pin
(5) - Throat plate
(6) - Walking foot

5. Loosen the threaded pin (4).
6. Remove the walking foot (6).
7. Disassemble the throat plate (5) (📖 *p. 30*).

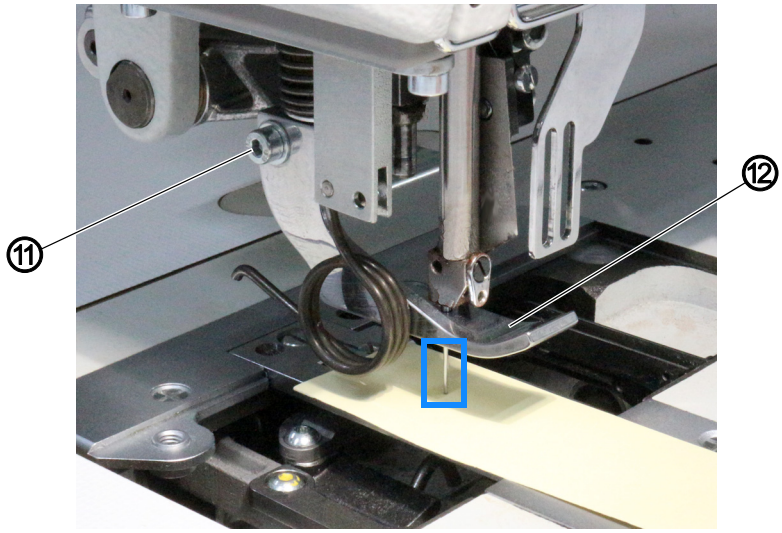
Fig. 66: Calibrating the differential top and bottom feed (3)



(7) - Screw
(8) - Rear feed dog
(9) - Front feed dog
(10) - Screw

8. Loosen the screws (10).
9. Remove the front feed dog (9).
10. Assemble the throat plate (5) again (📖 *p. 30*).

Fig. 67: Calibrating the differential top and bottom feed (4)



(11) - Screw
*(12) - Adjusting foot (adjusting foot **12**, 📖 p. 14)*

11. Place the adjusting foot (12) and tighten it using the screw (11).
12. Insert a thick strip of paper.
13. Insert the adjusting needle (adjusting needle **14**, 📖 *p. 14*) and align its height such that only a thin hole is punched into the paper (📖 *Operating Instructions*).
14. Continue with the **settings in the software** for `Feed calibration` (📖 *p. 73*).

Settings in the software

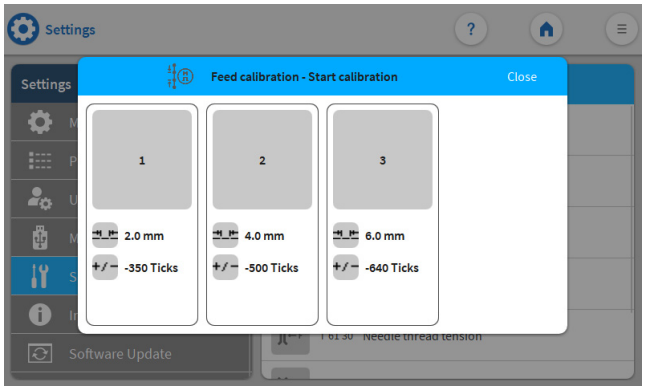
To access the settings of the software:

1. Switch on the machine (📖 *Operating Instructions*).
2. Call up the `Service > Calibration > Feed calibration` menu item.
3. Select the desired parameter:
   - Calibrate the rear feed dog: `Feed calibration`
   - Calibrate the front feed dog: `Feed bottom calibration`
   - Calibrate the walking foot: `Feed top calibration`

↳ The menu `Feed calibration/Feed bottom calibration/ Feed top calibration` opens:

Shown next to the symbol ⊣↔⊢ is the specified stitch length (level 1-4). Below next to the symbol +/– is an indicator of the corresponding ticks.

Fig. 68: Calibrating the differential top and bottom feed (5)



The following values have been preset for the corresponding levels:

Level	Feed Main	Feed Diff. Bottom	Feed Diff. Top
1	2 mm	2 mm	2 mm
2	4 mm	3 mm	3 mm
3	6 mm	4 mm	4 mm
4		7 mm	7 mm

4. Select level 4-1. Start with the greatest stitch length.

↳ The calibration window opens including `-/+` icons for changing the `ticks`.

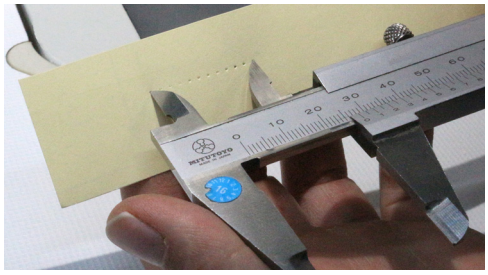
5. To start the sewing test on paper, press the pedal to position **1**.

↳ The machine sews exactly 11 stitches.

6. Use a calibrated measuring slide to verify the measurement of the stitch length on the strip of paper.

↳ For instance, for **level 1**, the setting for *Feed calibration* must be set such that the distance from the 1st to the 11th puncture is exactly 20 mm (see table).

Fig. 69: Calibrating the differential top and bottom feed (6)



7. If the test run is not the correct length, the values must be adjusted / accordingly using - / + :
   - Decrease the value: Stitch length decreases
   - Increase the value: Stitch length increases
8. Perform sewing test again and check the stitch length.
9. Repeat steps 5-7 if necessary until the measurement shows the correct stitch length.
10. Press *Save*.
11. Select the next level.

↳ The calibration window opens including - / + for changing the *ticks*.

12. Repeat steps 5-11 until the measurements of the stitch length are correct for all levels (see table).
13. Once all levels have been calibrated correctly, press the pedal to position **-2**.
14. The menu *Feed calibration/Feed bottom calibration/ Feed top calibration* is closed again.

Order

When finished performing the *Feed calibration*, follow the additional mechanical instructions for 📖 Calibrating the front feed dog, p. 75 first.

When finished performing the *Feed bottom calibration*, follow the additional mechanical instructions for 📖 Calibrating the walking foot, p. 75 first.

Proper setting

After calibrating the stitch length, it is advisable to perform another test in standard sewing mode.

Calibrating the front feed dog

To calibrate the front feed dog:

1. Loosen the screw (11).
2. Lift the adjusting foot (12) and lock it at top dead center (📖 *Operating Instructions*).
3. Disassemble the throat plate (5) (📖 *p. 30*).
4. Insert the front feed dog (9).
5. Tighten the screws (10).
6. Loosen the screws (8).
7. Remove the rear feed dog (7).
8. Assemble the throat plate (5) again (📖 *p. 30*).
9. Insert a strip of paper.
10. Insert the adjusting needle (adjusting needle **14**, 📖 *p. 14*) and align its height such that only a thin hole is punched into the paper (📖 *Operating Instructions*).
11. Continue with the **settings in the software** for `Feed bottom calibration` (📖 *p. 73*).

Calibrating the walking foot

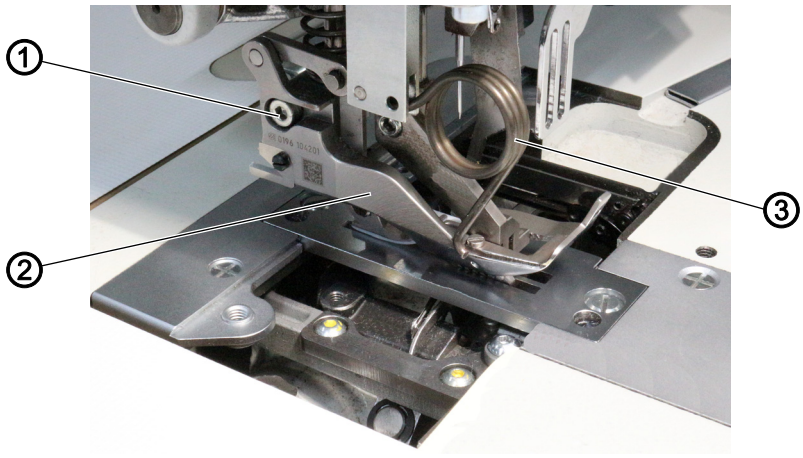
To calibrate the walking foot:

1. Loosen the screw (11).
2. Remove the adjusting foot (12).
3. Press the pedal to position **-2** and KEEP it there.

↳ The sewing feet are raised.

4. Place the walking foot (6) and align it such that it is positioned directly above the front feed dog (9).
5. Tighten the threaded pin (4).
6. Turn the spring (3) to the side.

Fig. 70: Calibrating the differential top and bottom feed (7)



(1) - Screw
(2) - Presser foot
(3) - Spring

7. Place the presser foot (2) and align it at the walking foot (6).

Important

DO NOT attach the spring (3).

8. Release the pedal (position **0**).
9. Tighten the screw (1).
10. For instance, insert 2 strips of denim fabric coated with Teflon - one stacked directly on top of the other.

    These 2 strips must be stacked precisely on top of each other. This is the only way to establish during the subsequent steps if the differential top and the differential bottom feed are calibrated correctly.

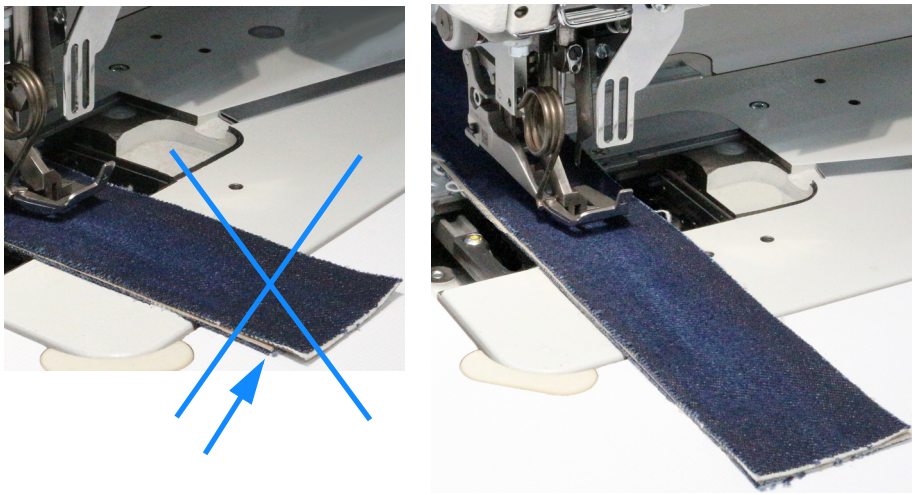
    Top and bottom feed are not in sync if one of the two strips is advanced further than the other. In that case, the calibration is NOT accurate. It is generally advisable to have the bottom layer transported with greater speed than the top - not the other way around.

11. Continue with the **settings in the software:** ***Feed top calibration*** (📖 *p. 73*).

Completing the calibration of the walking foot:

12. Press the pedal to position **1**.
13. Open the menu `Feed top calibration`.

Fig. 71: Calibrating the differential top and bottom feed (8)



No synchronization *Synchronization*

14. Check if top and bottom feed are in sync.
15. If there is no synchronization, adjust the `ticks` for level 4-1 using

    - / + .

16. Press `Save`.
17. Repeat steps 14-16 if necessary until top and bottom feed operate in sync.

If exact synchronization cannot be achieved, it is better to have the bottom layer transported with slightly greater speed than the top layer.

18. Select next level.
19. To start the sewing test on paper, press the pedal to position **1**.

↳ The machine sews exactly 11 stitches.

20. Use a calibrated measuring slide to verify the measurement of the stitch length on the strip of paper.
21. If the test run is not the correct length, the values must be adjusted / accordingly using - / + :
    - Decrease the value: Stitch length decreases
    - Increase the value: Stitch length increases
22. Perform sewing test again and check the stitch length.
23. Repeat steps 19-21 if necessary until the measurement shows the correct stitch length.
24. Press *Save*.
25. Once all levels have been calibrated correctly, press the pedal to position **-2**.

↳ The menu *Feed top calibration* is closed again.

Not until the rear and front feed dog AND the calibration foot have been calibrated will the calibration of the differential top and bottom feed been completed successfully.

Information

When assembling the machine afterwards, do not forget to attach the spring (3).

10 Calibrating the electronic thread tensioner

The electronic thread tensioner has been calibrated at the factory.
The threaded pin has been sealed with paint. Do not loosen the threaded pin unless the electronic thread tensioner MUST be recalibrated.

Order

1. Calibrate the electronic needle thread tensioner (📖 *p. 78*).
2. Calibrate the electronic hook thread tensioner (📖 *p. 80*).

10.1 Calibrating the electronic needle thread tensioner

Prerequisite: An external thread tension measurement device is available, and the calibration is performed with a needle thread with a thickness of 40.
The mechanical thread pretension/tape tension must be open.

Order

1. **Calibrate the electronic needle thread tensioner.**

   Set the following 3 calibration positions one after the other for the needle thread tension:

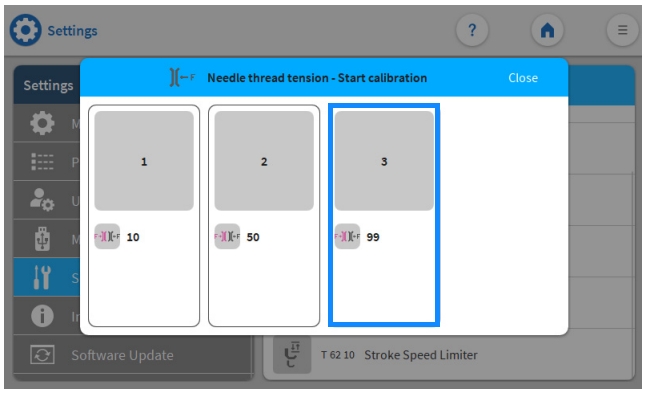
   - **Position 3** – maximum tension (300 g)
   - **Position 2** – medium tension (150 g)
   - **Position 1** – minimum tension (30 g)

Calibration steps

To set **calibration position 3**:

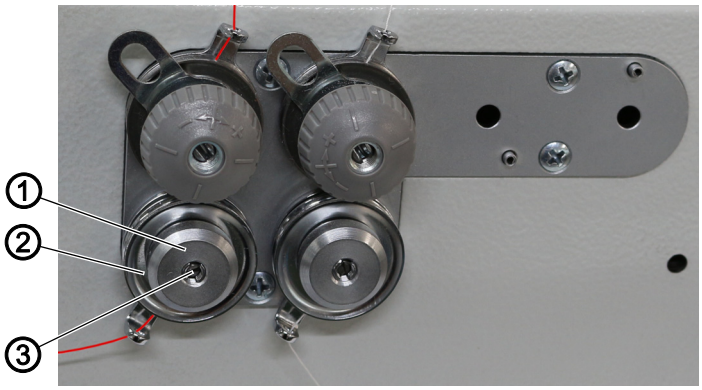
1. Insert the needle thread and guide it up to the thread lever (📖 *Operating Instructions*).
2. After the thread lever, feed the needle thread into the thread tension measurement device.
3. Log in as a technician (📖 *p. 123*).
4. Call up the `Service > Calibration > Needle thread tension` (📖 *p. 165*) menu item.

Fig. 72: Calibrating the electronic needle thread tension (1)



5. Select calibration position **3**.
6. Measure the tension value.
   The measured value must be 300 g.

Fig. 73: Calibrating the electronic needle thread tensioner



(1) - Adjusting nut
(2) - Tension disks
(3) - Threaded pin

If **the measurement did not read 300g**, correct the needle thread tension mechanically as follows:

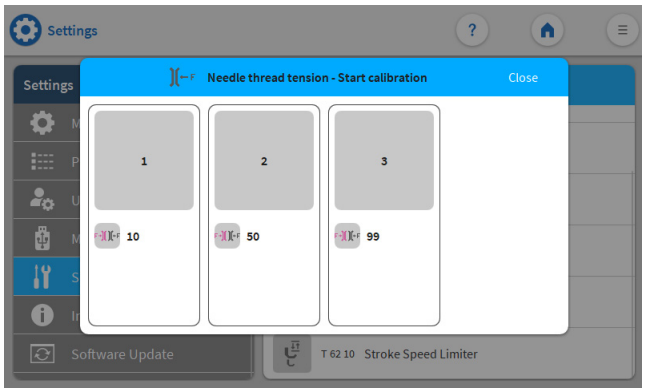
7. Loosen the threaded pin (3).
8. Turn the adjusting nut (1) clockwise as far as it will go.
9. Carefully turn the adjusting nut (1) counterclockwise until the thread tension measurement device indicates the value 300 g.

   With the magnets turned off, the play of the tension disks (2) is approx. 0.5 mm. When pressing lightly against the tension disks (2) while the magnet is being switched on and off, you must be able to clearly discern the opening and closing of the disks.
10. To make the fine adjustment, turn the adjusting nut (1) as follows:
    - Reduce the value = turn clockwise
    - Increase the value = turn counterclockwise
11. When the thread tension measurement device indicates the value 300 g, tighten the threaded pin (3) without changing the position of the adjusting nut (1).

To calibrate **Positions 2** and **1** of the needle thread tension:

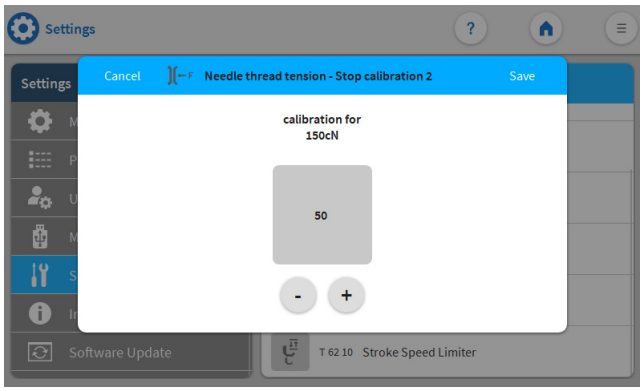
1. Insert the needle thread and guide it up to the thread lever.
2. Take the thread tensioning spring out of operation.
3. Call up the *Service* > *Calibration* > *Needle thread tension* menu.

Fig. 74: Calibration of the needle thread tension (1)



4. Adjust the needle tension to 150 cN / 30 cN.
5. The thread tension is activated, and a tick indicator is shown (e.g. 50):

Fig. 75: Calibration of the needle thread tension (2)



6. Pull off the thread with the thread scale.
7. Change the percentage value (using - / +) until 150 cN / 30 cN is indicated on the scale.
8. Save the value and exit the menu.

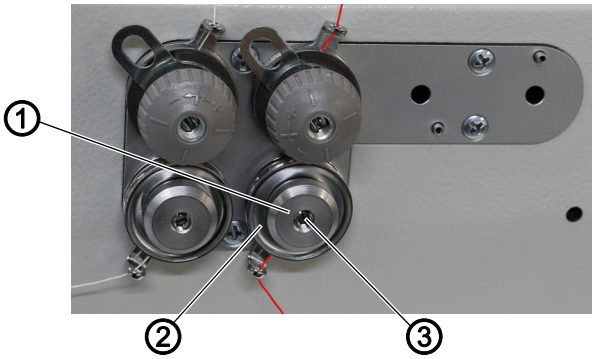
10.2 Calibrating the electronic hook thread tensioner

Prerequisite: An external thread tension measurement device is available, and the calibration is performed with a hook thread with a thickness of 60. The mechanical thread pretension/tape tension must be open.

Order

1. Calibrate the electronic needle thread tensioner (📖 *p. 78*).
2. **Calibrate the electronic hook thread tensioner.**
3. Set the following 3 calibration positions one after the other for the hook thread:
   - **Position 3** – maximum tension (300 g)
   - **Position 2** – medium tension (150 g)
   - **Position 1** – minimum tension (30 g)

Fig. 76: Calibrating the electronic hook thread tensioner (1)



(1) - Adjusting nut
(2) - Tension disks
(3) - Threaded pin

Fig. 77: Calibrating the electronic hook thread tensioner (2)

(4) - Thread guide

To calibrate the electronic hook thread tensioner:

1. Feed the hook thread up to the last thread guide (4) in front of the thread channel (📖 *Operating Instructions*).
2. Insert the hook thread into the thread tension measurement device.
3. Log in as a technician (📖 *p. 123*).
4. Call up the `Service > Calibration > Hook thread tension` (📖 *p. 164*) menu item.
5. From here onwards, complete the calibration of the electronic hook thread tensioner in the same way as the calibration of the electronic needle thread tensioner.

11 Setting the left lower shaft bearing

WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Only set the left lower shaft bearing when the machine is switched off.

Proper setting

The distance from the middle of the needle to the beginning of the left lower shaft bearing should be 41.8 mm.

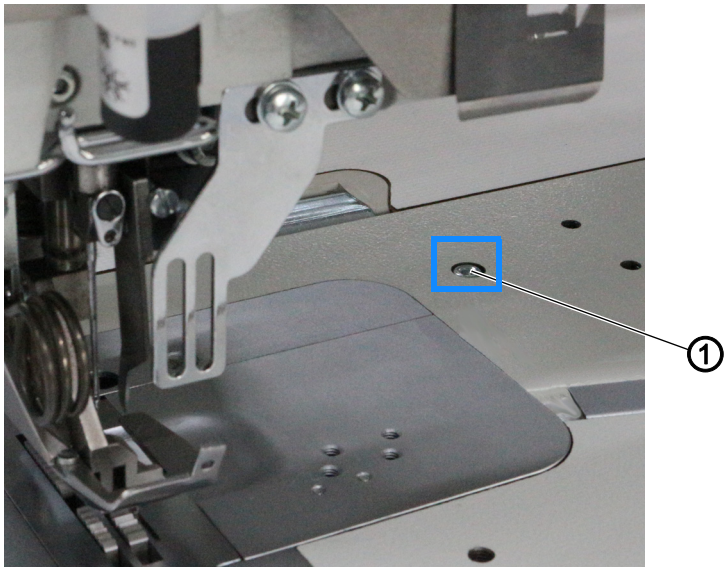
Cover

- Remove the lower cover (4) (📖 *p. 24*).
- Remove the grease cap (2) (📖 *p. 25*).

To set the left lower shaft bearing:

1. Disassemble the throat plate (📖 *p. 30*).
2. Disassemble the hook carrier with needle guard and hook.

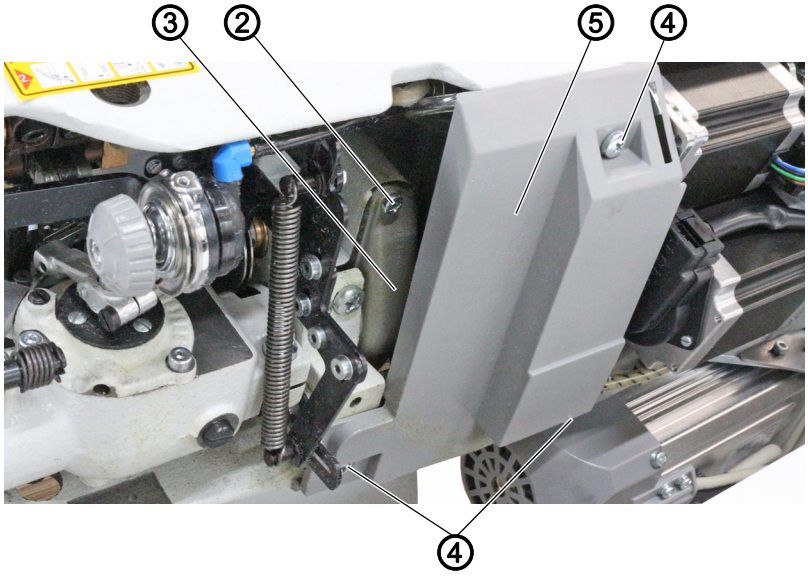
Fig. 78: Setting the left lower shaft bearing (1)



(1) - Screw

3. Loosen the screw (1).
4. Tilt the machine head (📖 *p. 19*).

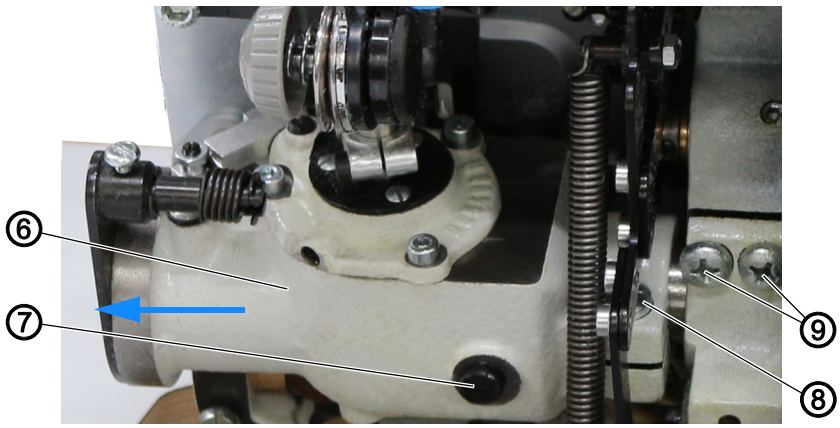
Fig. 79: Setting the left lower shaft bearing (2)



(2) - Screw
(3) - Grease cap
(4) - Screw
(5) - Cover

5. Loosen the screws (4).
6. Remove cover (5).
7. Loosen the screw (2).
8. Remove the grease cap (3).

Fig. 80: Setting the left lower shaft bearing (3)



(6) - Hook drive housing
(7) - Screw
(8) - Screw
(9) - Screw

9. To drain the oil from the hook drive housing (6), loosen the screw (7).
10. Erect the machine head (📖 *p. 19*).

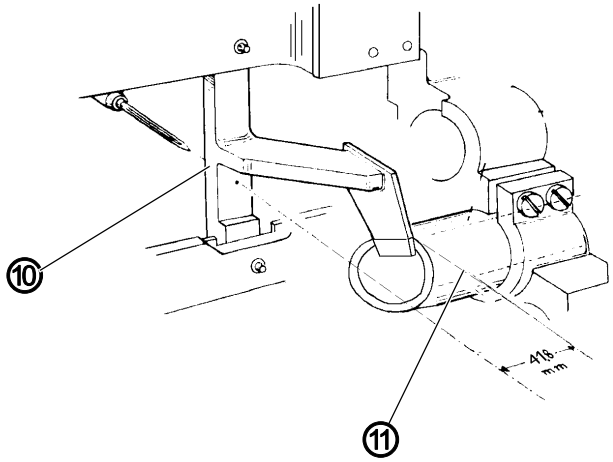
↳ The oil drains from the hook drive housing (6) into the oil pan.

The oil must be drained from the hook drive housing (6) as it would otherwise exit on the side when the hook drive housing (6) is pulled off.

11. Tilt the machine head (📖 *p. 19*).

12. Loosen the screw (8) along with all elements screwed to the lower shaft.
13. Loosen the screws (9).
14. Carefully pull the hook drive housing (6) off to the left along with the lower shaft.

Fig. 81: Setting the left lower shaft bearing (4)



*(10) - Gage (gage **1**, p. 14)* *(11) - Lower shaft bearing*

15. Tighten the gage (10) on the throat plate support.
16. Press the lower shaft bearing (11) up to the gage (10).
17. Assemble and set the hook drive housing (6) and the lower shaft (*p. 86*).
18. Tighten the screws (9).
19. Fill the hook drive housing (6) with **DA 10** lubricating oil (*p. 177*).
20. Check the oil level of the hook drive housing (6) (*p. 179*).

12 Setting the hook drive housing

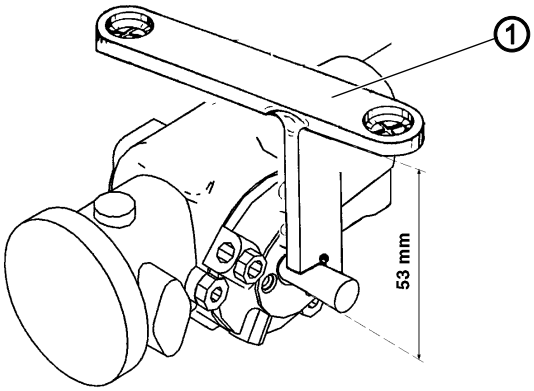
WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Only set the hook drive housing when the machine is switched off.

Fig. 82: Setting the hook drive housing



*(1) - Gage (gage **2**, p. 14)*

Proper setting

The needle tip should point to the center of the hook shaft. The lower edge of the hook shaft runs parallel to the underside of the throat plate.

The distance between the upper edge of the throat plate support and the lower edge of the hook shaft is 53 mm.

To set the hook drive housing:

1. Disassemble the throat plate (*p. 30*).
2. Disassemble needle guard, hook and hook carrier.
3. Tighten the gage (1) on the throat plate support.
4. Press the hook shaft up to the gage (1).
5. Tighten the hook drive housing.
6. Assemble and set all previously disassembled parts.

13 Setting the needle evasive movement of the hook (ellipsis width)

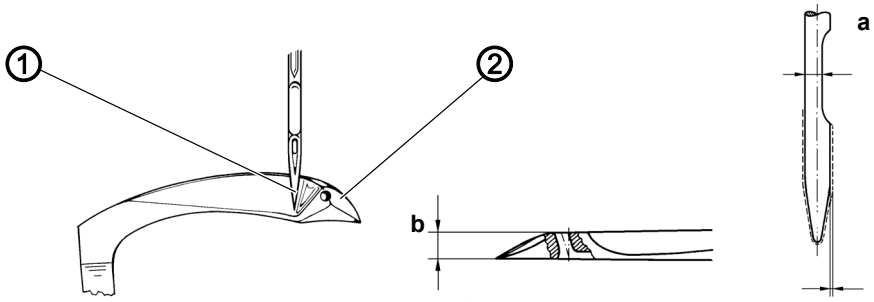
WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Do not check and set the needle evasive movement of the hook unless the machine is switched off.

Fig. 83: Setting the needle evasive movement of the hook (1)



(1) - Tip of the needle
(2) - Hook
a *- Needle thickness*
b *- Hook thickness*

Proper setting

The needle evasive movement is set properly when the distance to the needle is 0.1 mm while the hook is moving from right to left. While the hook is moving from left to right, the tip (1) of the descending needle abuts on the back of the hook (2); see position shown above.

The precise dimension of the needle evasive movement depends on the needle system and the needle thickness.

It must be calculated using the following formula:

$$E = a + b + 0.1 + X$$

Example using a 934 SIN/Nm 110 needle

Needle thickness at a = 0.7 mm

Hook thickness at b = 1.4 mm

Distance of hook tip to needle = 0.1 mm

For larger needle thickness 110 Nm X *= 0.1 mm

Ellipsis width E = 2.3 mm

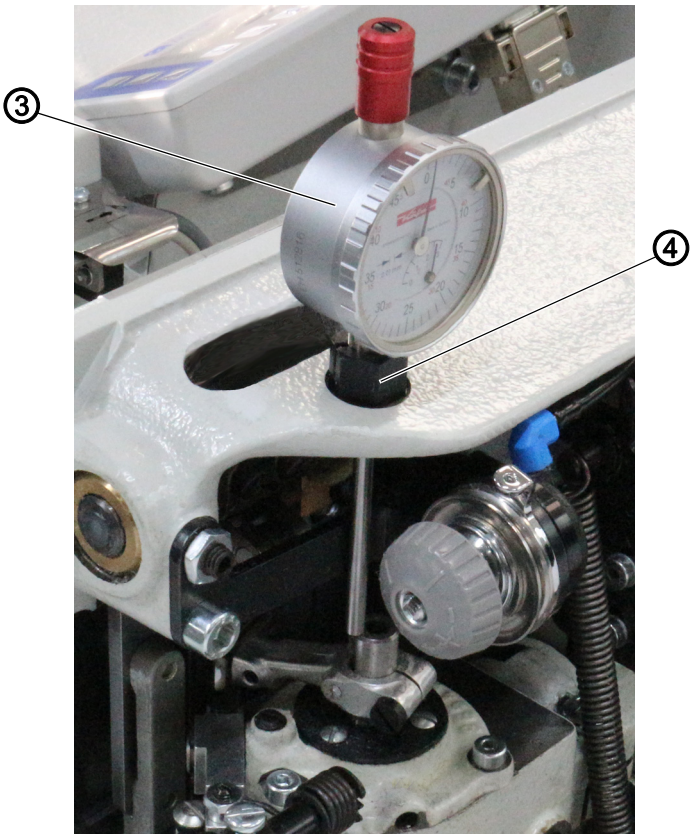
*X = larger dimension a for larger needle thicknesses

X for Nm 100	= 0 mm
X for Nm 110 and 120	= 0.1 mm
X from Nm 130	= 0.2 mm

To perform the setting, move the lower shaft axially:

To the right	= ellipsis width is smaller
To the left	= ellipsis width is larger

Fig. 84: Setting the needle evasive movement of the hook (2)



*(3) - Dial gage (dial gage **4**, 🕮 p. 14)* *(4) - Clamping sleeve*

To test the ellipsis width:

1. Tilt the machine head (🕮 *p. 19*).
2. Screw in the clamping sleeve (4).
3. Insert the dial gage (3).

4. To move the hook shaft to the lowest position, turn the handwheel.
5. Set **0** on the dial gage (3).
6. To move the hook shaft to the highest position, turn the handwheel.

↳ The difference must match the previously calculated ellipsis width.

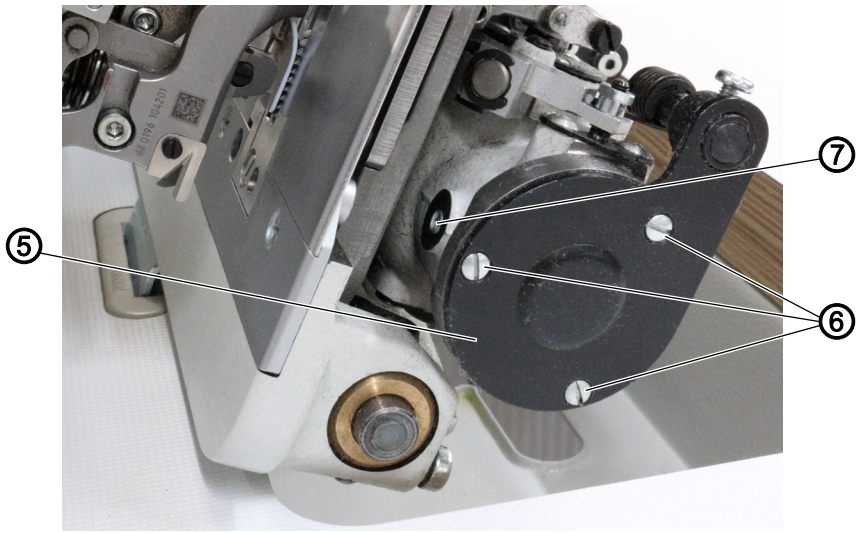
To set the ellipsis width, you must move the rocker bolt in the hook housing in axial direction.

The ellipsis width changes by only half of the amount by which the position of the rocker bolt is altered. For instance, sliding the rocker bolt 0.2 mm changes the ellipsis width by 0.1 mm.

To set the ellipsis width:

1. Tilt the machine head (📖 *p. 19*).

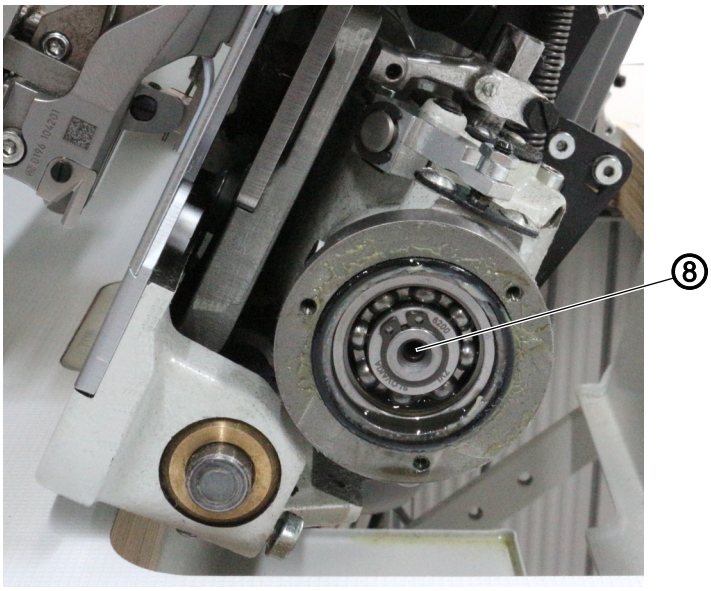
Fig. 85: Setting the needle evasive movement of the hook (3)



(5) - Cover
(6) - Screw
(7) - Threaded pin

2. Loosen the screws (6) to take off the cover (5).

Fig. 86: Setting the needle evasive movement of the hook (4)



(8) - Rocker bolt

3. Screw a screw into the face of the rocker bolt (8).
4. Loosen the threaded pin (7).
5. To slide the rocker bolt (8), push or pull the screw:
   - Ellipsis width increases: Slide the rocker bolt (8) to the left
   - Ellipsis width decreases: Slide the rocker bolt (8) to the right

14 Setting the symmetry of the hook

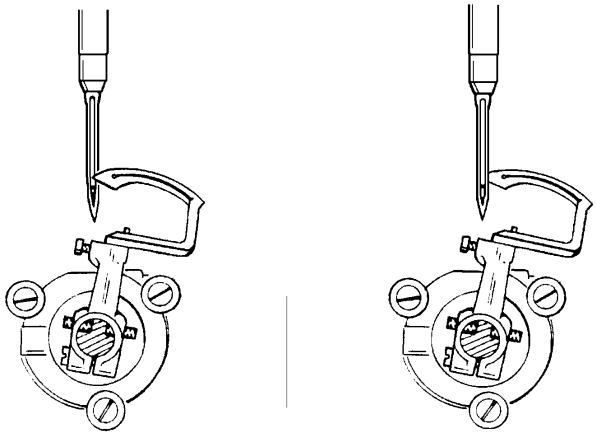
WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Make sure the machine is switched off before checking and setting the symmetry of the hook.

Fig. 87: Setting the symmetry of the hook (1)



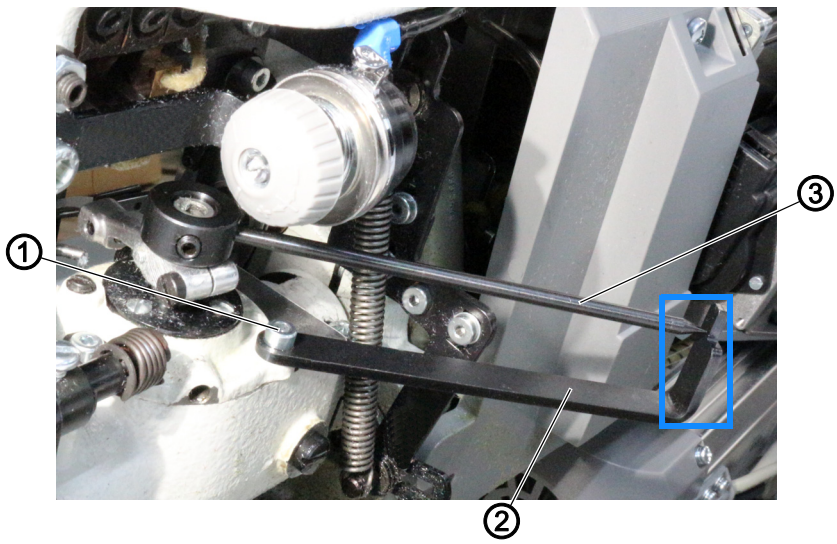
*Position slot **E*** *Position slot **F***

Proper setting

The symmetry setting means that the hook tip is lined up with the middle of the needle when the machine is locked in place at position **E** and position **F**.

The hook tip should be in front of and behind the needle in position **E** and position **F**, respectively.

Fig. 88: Setting the symmetry of the hook (2)



(1) - Screw
*(2) - Gage (gage **6**, p. 14)*
(3) - Pointer

To check the symmetry of the hook:

1. Tilt the machine head (📖 *p. 19*).
2. Tighten the gage (2) using the screw (1).
3. Assemble the pointer (3) as shown.
4. Lock the machine in place at position **E** (📖 *p. 17*).
5. Align the pointer (3) with the marking on the gage (2).
6. Turn the handwheel to position **F**.

↳ The pointer (3) should make a pendulum movement to the left and back to the marking on the gage (2).

To set the symmetry of the hook:

1. Loosen the fastening screws on the toothed belt wheel.
2. Turn the lower shaft such that the pointer (3) is above the marking on the gage (2) both at position **E** and **F**.
3. Tighten the fastening screws of the toothed belt wheel again.
4. Check pusher eccentric (📖 *p. 105*) and stroke eccentric (📖 *p. 108*).

15 Setting the hook in the hook carrier

WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Make sure the machine is switched off before checking and setting the hook in the hook carrier.

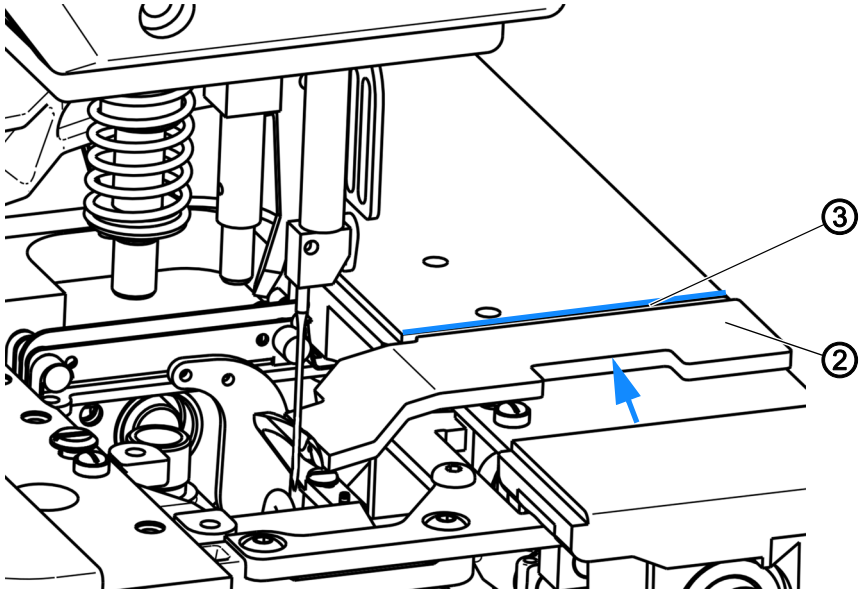
NOTICE

Property damage may occur!

Damage to the hook.

If necessary, align the hook with special caution.

Fig. 89: Setting the hook in the hook carrier (1)

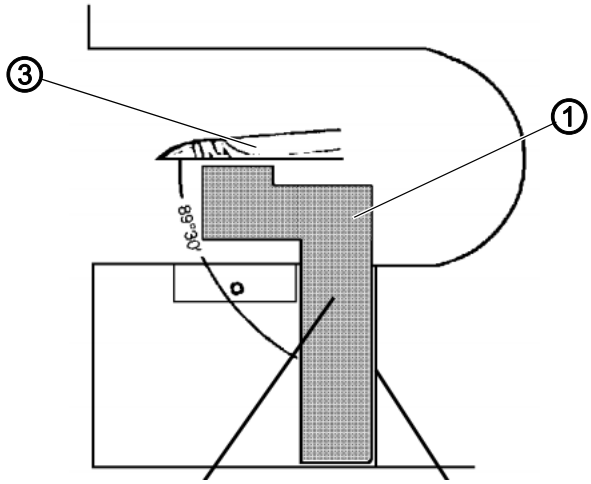


*(1) - Gage (gage **5**, p. 14)* *(2) - Edge*

Proper setting

You can use the gage (1) to test if the hook is set properly: The front of the hook should be at an angle of 89° 30‘ relative to the edge (2) of the apparatus cutout.

Fig. 90: Setting the hook in the hook carrier (2)



*(1) - Gage (gage **5**, 🕮 p. 14)*

(2) - Hook

16 Setting looping stroke and needle bar height

WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Make sure the machine is switched off before checking and setting the hook in the hook carrier.

Proper setting

The loop stroke is 3.5 mm.

When the needle has risen 3.5 mm from the bottom dead center in rotational direction, the hook tip must be at the middle of the needle.

Set the needle bar height such that the lower edge of the needle eye and the upper edge of the hook eye are at the same height.

Fig. 91: Setting loop stroke and needle bar height (1)

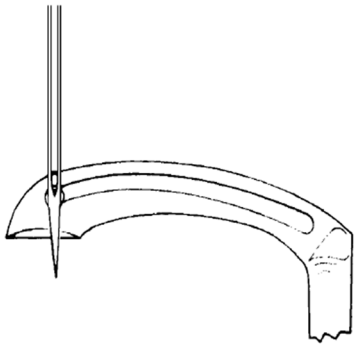
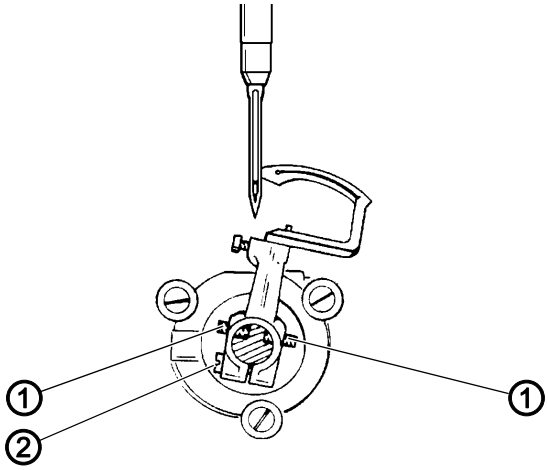


Fig. 92: Setting loop stroke and needle bar height (2)



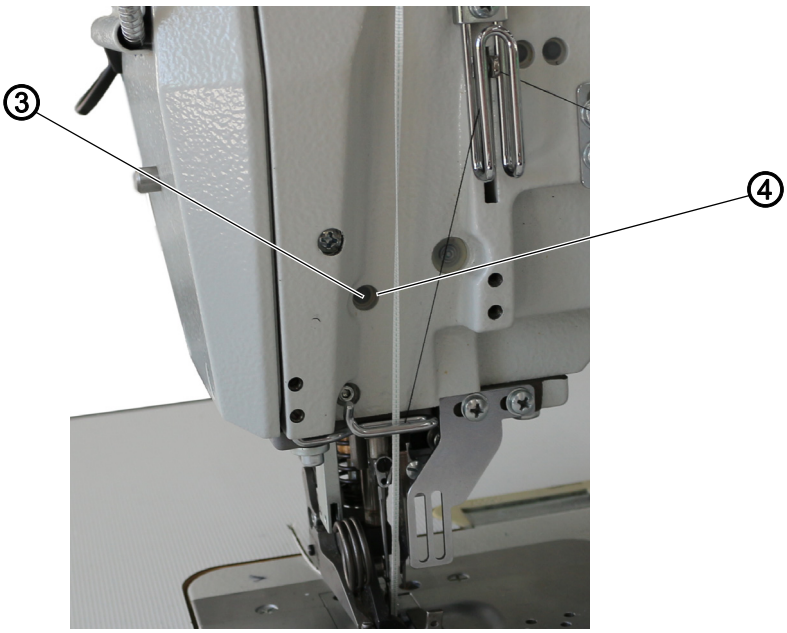
(1) - Screw *(2) - Screw*

To set the looping stroke and the needle bar height:

1. Insert a new needle (📖 *Operating Instructions*).
2. Lock the machine in place at position **E** (📖 *p. 17*).

3. To position the hook tip behind the needle to the middle of the needle, loosen screw (2) and turn the 2 screws (1) accordingly.
4. Remove the lock (📖 *p. 17*).

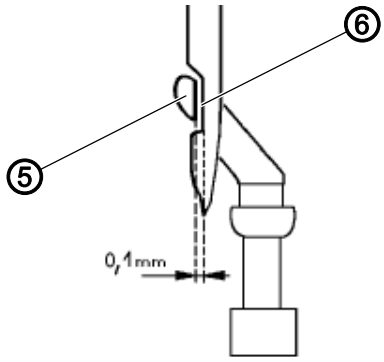
Fig. 93: Setting loop stroke and needle bar height (3)



(3) - Plug *(4) - Hole*

5. Remove the plug (3) from the hole (4).
6. Loosen the screw used to assemble the needle bar through the hole (4).
7. Set the needle bar height such that the lower edge of the needle eye and the upper edge of the hook eye are at the same height.
8. Tighten the screw used to assemble the needle bar through the hole (4).

Fig. 94: Setting loop stroke and needle bar height (4)



(5) - Hook tip *(6) - Groove*

9. Shift the hook carrier in axial direction to set a distance of 0.1 mm between hook tip (5) and groove (6).
10. Tighten the screw (1).
11. Check the symmetry of the hook (positions **E** and **F**) (📖 *p. 91*).

12. Insert the plug (3) back into the hole.

17 Needle guard and needle guard plate

17.1 Setting the needle guard

WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Only set the needle guard with the machine switched off.

The movable needle guard is supposed to prevent the needle from being deflected into the path of the hook.

Proper setting

When the hook tip moves to the left and reaches the needle, the needle guard automatically swings towards the needle. In this position, the needle must touch the needle guard.

The timing of the needle guard movement cannot be altered.

Fig. 95: Setting the needle guard (1)

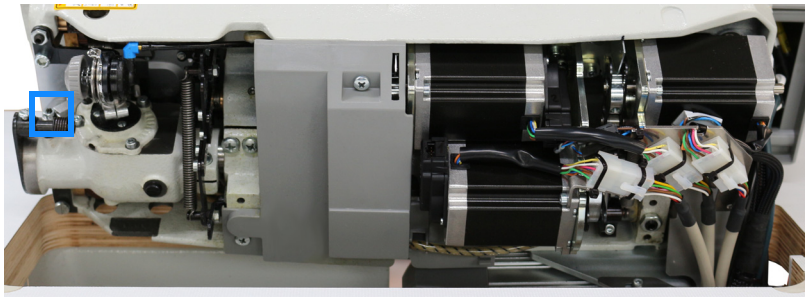


Fig. 96: Setting the needle guard (2)

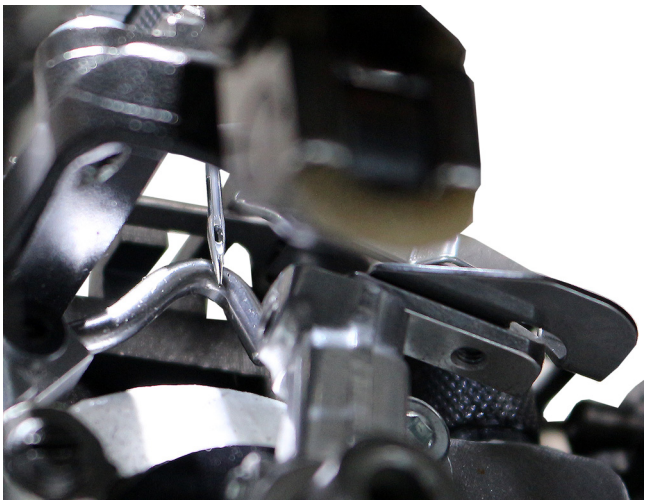
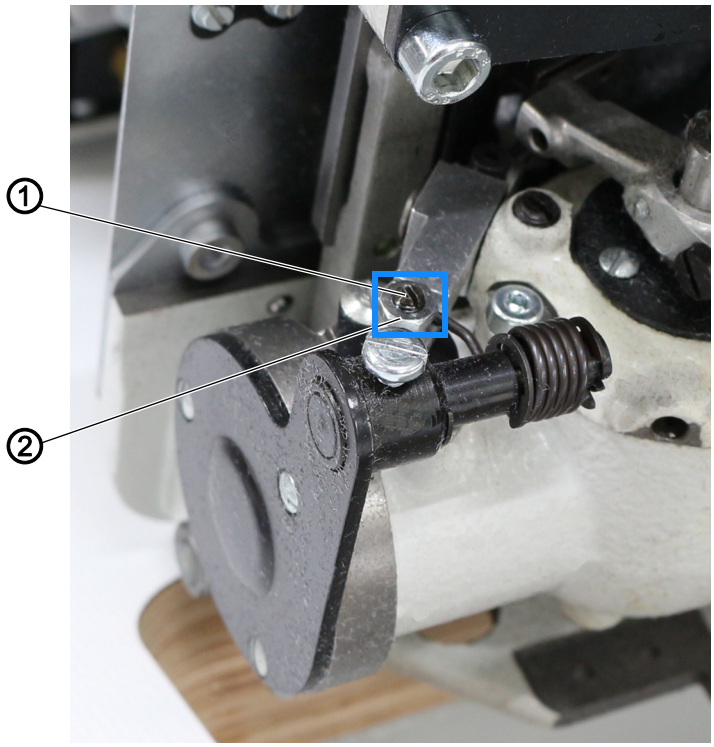


Fig. 97: Setting the needle guard (3)



(1) - Screw *(2) - Nut*

To set the needle guard:

1. Open the hook covers (📖 *p. 29*).
2. Turn the handwheel until the hook moves to the left and reaches the needle.
3. Tilt the machine head (📖 *p. 19*).
4. Loosen the nut (2).
5. Use the screw (1) to move the needle guard towards the needle until it is close enough for you to push it into the area of the hook.

   The needle must not be pushed aside any more than is required.
6. Tighten the nut (2).

17.2 Setting the needle guard plate

WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

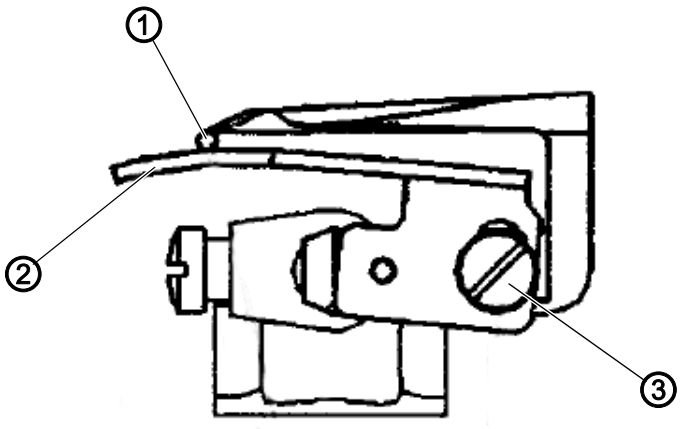
Only set the needle guard plate when the machine is switched off.

The needle guard plate is supposed to prevent the needle from being deflected when the loop is taken up.

Proper setting

When the hook tip moves to the left and reaches the needle, it must not be possible to press the needle against the direction of sewing.

Fig. 98: Setting the needle guard plate



(1) - Needle
(2) - Needle guard plate
(3) - Screw

To set the needle guard plate:

1. Loosen the screw (3).
2. Set the needle guard plate (2) such that the needle (1) passes freely between hook and needle guard plate (2).
3. Tighten the screw (3).

18 Feed dogs

18.1 Setting the feed dog positions in the throat plate cutout

WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Only set the feed dog positions in the throat plate cutout when the machine is switched off.

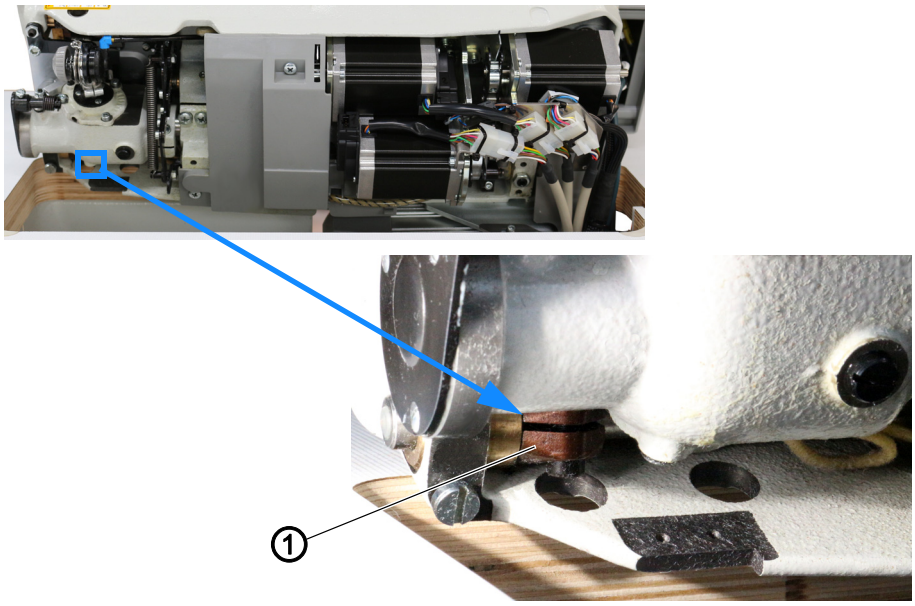
Proper setting

The feed dogs should be aligned so that it strikes no side of the throat plate at the greatest possible stitch length.

Cover

- Remove the lower cover (📖 *p. 24*).

Fig. 99: Setting the feed dog positions in the throat plate cutout (1)

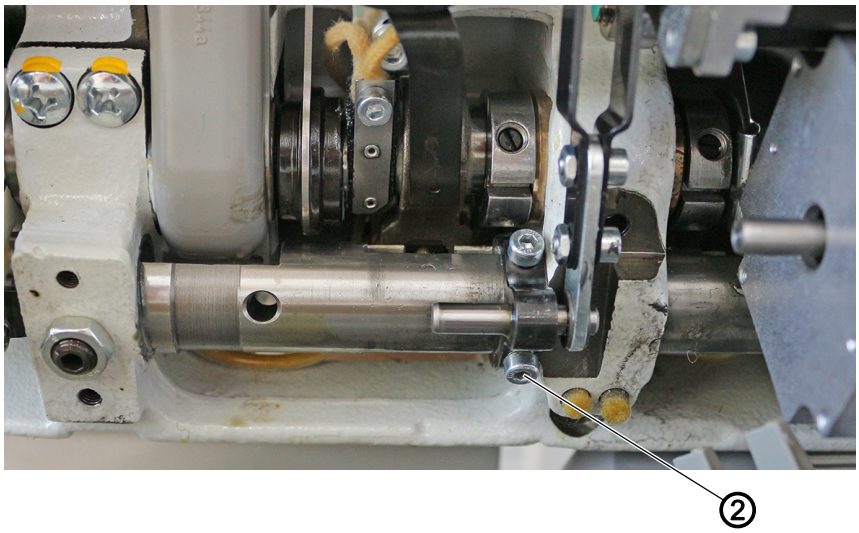


(1) - Screw

To set the feed dog positions **in the feed direction**:

1. Tilt the machine head (📖 *p. 19*).
2. To set the front feed dog, loosen the screw (1) on the advance lever.

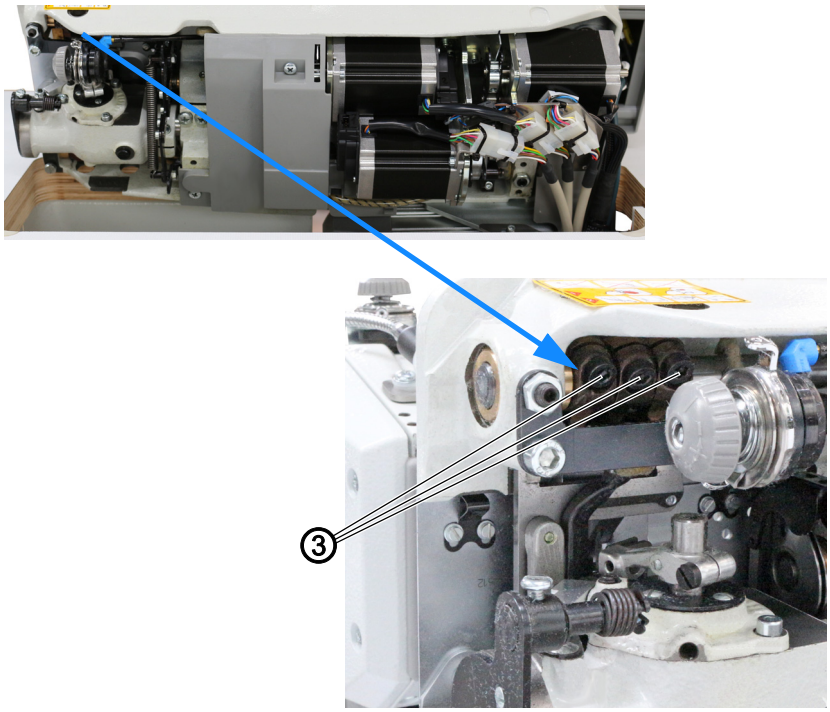
Fig. 100: Setting the feed dog positions in the throat plate cutout (2)



(2) - Screw

3. To set the rear feed dog, loosen the screw (2) on the advance lever.
4. Place the feed dogs at the appropriate position.
5. Tighten screws (1) and (2) on the advance lever.

Fig. 101: Setting the feed dog positions in the throat plate cutout (3)



(3) - Screw

To set the feed dog positions **in lateral direction**:

1. Adjust the position of the feed dogs on their feed dog carriers to correct minor deviations.
2. Major deviations require that you loosen the screws (3) on the stroke lever.
3. Loosen screws (1) and (2) on the advance lever.
4. Adjust the positions of the feed dog carriers.
5. Tighten the screws (3).
6. Tighten screws (1) and (2).

18.2 Setting the height of the feed dogs

WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Only set the height of the feed dog when the machine is switched off.

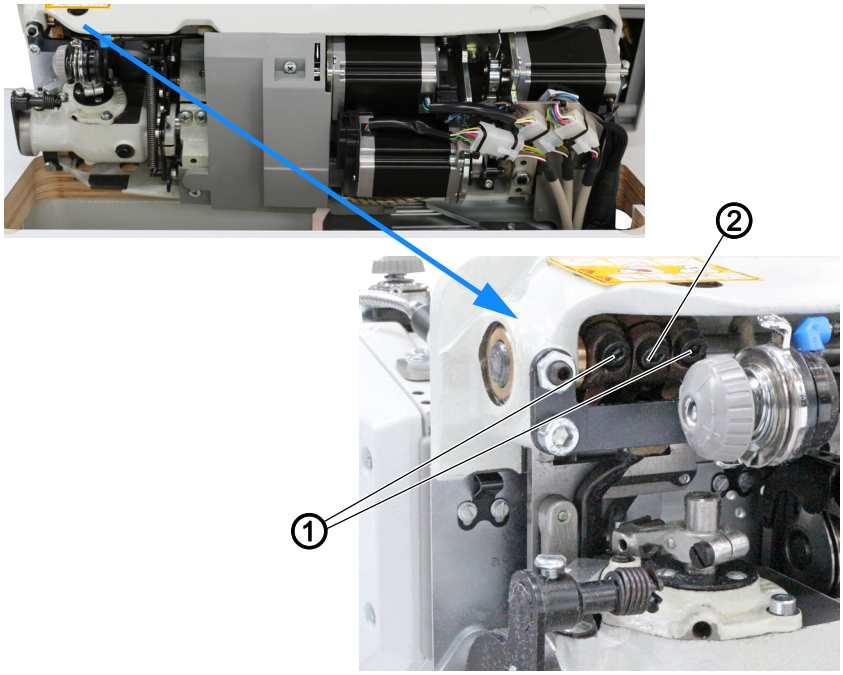
Proper setting

When at their highest position, the feed dogs should protrude from the throat plate by 1.2 mm (with the machine locked in place at position **B**).

To check the height of the feed dogs:

1. Lock the sewing feet at the top dead center (📖 *Operating Instructions*).
2. Lock the machine in place at position **B** (📖 *p. 17*).
3. Use a feeler gage to measure the height of the feed dogs.

Fig. 102: Setting the height of the feed dogs



(1) - Screws *(2) - Screw*

To set the height of the feed dogs:

1. Tilt the machine head (📖 *p. 19*).
2. To adjust the height of the front feed dog when necessary, loosen the screw (1) on the stroke lever.

3. To adjust the height of the rear feed dog when necessary, loosen the screw (2) on the stroke lever.
4. Adjust the height of the feed dogs.
5. Tighten screws (1) and (2).

   Make sure the feed dog carrier is tightened on the side.

18.3 Setting the thrust movements of the feed dogs

WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Only set the thrust movements of the feed dogs when the machine is switched off.

NOTICE

Property damage may occur!

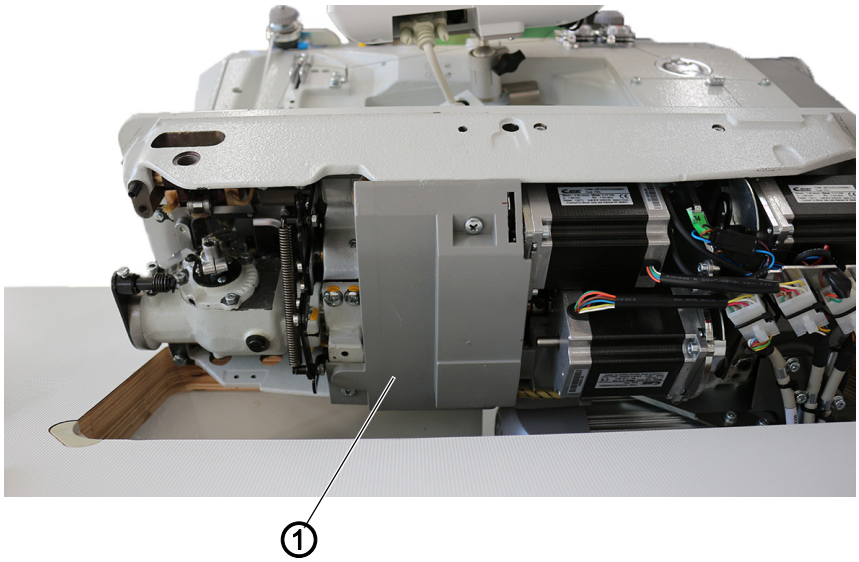
Damage to the machine.

Set the thrust movements of the feed dogs such that the feed dogs do not come into contact with the throat plate at the maximum stitch length.

Proper setting

To ensure proper stitch drawing, the feed dogs should complete a slight subsequent advance after the needle bar has reached the top dead center.

Fig. 103: Setting the thrust movements of the feed dogs (1)



(1) - Lower cover

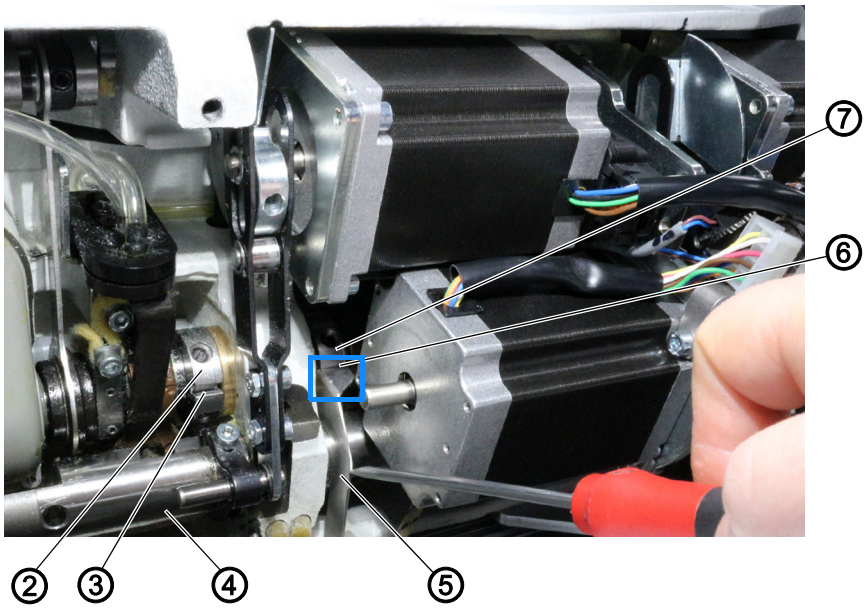
Cover

- Remove the lower cover (1) (📖 *p. 24*).

To set the thrust movements of the feed dogs:

1. Lock the machine in place at position **B** (📖 *p. 17*).
2. Tilt the machine head (📖 *p. 19*).

Fig. 104: Setting the thrust movements of the feed dogs (2)



(2) - Pusher eccentric
(3) - Slot
(4) - Stitch adjustment linkage
*(5) - Gage (gage **8**, 📖 *p. 14*)*
(6) - Slot
(7) - Pusher eccentric

3. Loosen the threaded pin on pusher eccentric (7).

4. Insert the gage (5) into the slot (6).
5. Turn the pusher eccentric (7) such that the edges of the gage (5) rest on the stitch adjustment linkage (4).
6. Tighten the threaded pin on pusher eccentric (7).
7. Loosen the threaded pin on pusher eccentric (2).
8. Set the slot (3) on pusher eccentric (2) parallel to the slot (6) on pusher eccentric (7).
9. Tighten the threaded pin on pusher eccentric (2).
10. Check if the lower shaft has axial play.

18.4 Setting the stroke movements of the feed dogs

WARNING

Risk of injury!

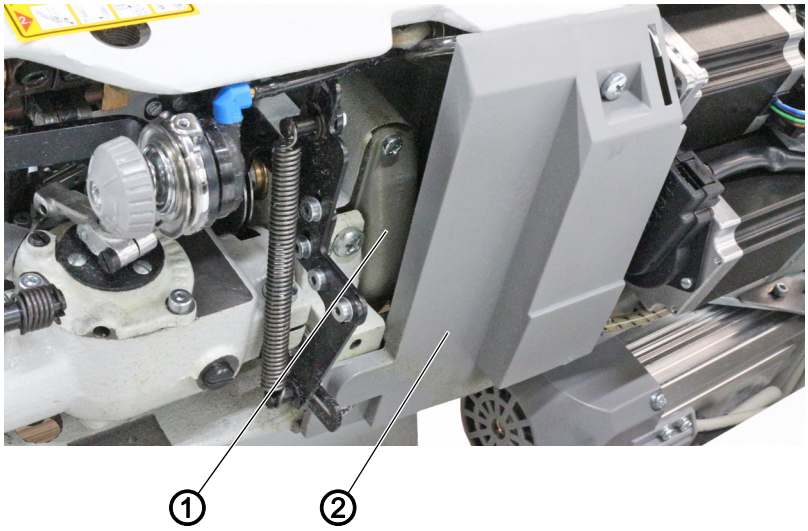
Crushing, cutting and punctures are possible.

Only set the stroke movements of the feed dogs when the machine is switched off.

Proper setting

When the needle tip reaches the needle hole, the ascending and descending tooth points of the feed dogs should be level with the throat plate.

Fig. 105: Setting the stroke movements of the feed dogs (1)



(1) - Grease cap *(2) - Lower cover*

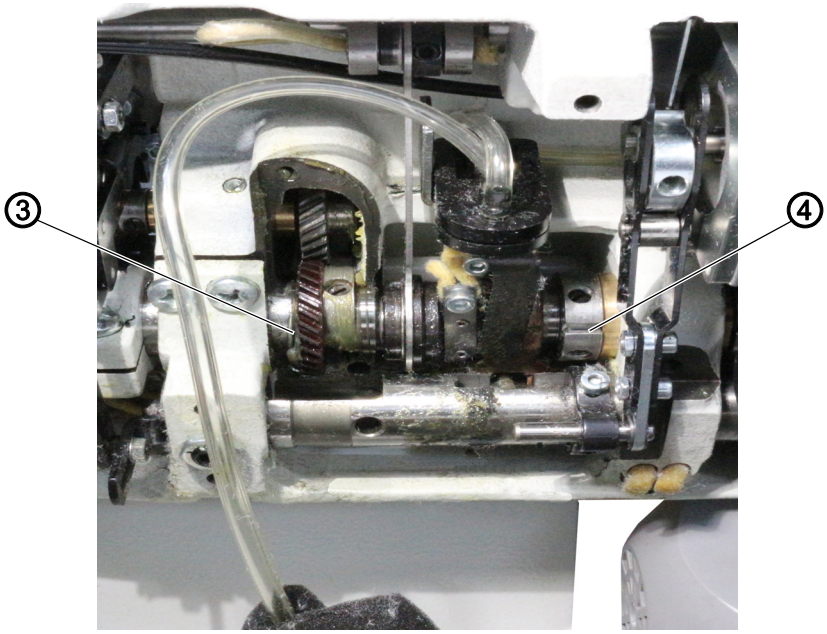
Cover

- Remove the lower cover (2) (📖 *p. 24*).
- Remove the grease cap (1) (📖 *p. 25*).

To set the stroke movements of the feed dogs:

1. Lock the machine in place at position **B**.
2. Tilt the machine head (📖 *p. 19*).

Fig. 106: Setting the stroke movements of the feed dogs (3)



(3) - Stroke eccentric *(4) - Pusher eccentric*

3. Turn the stroke eccentric (3) so that the 1st screw of the stroke eccentric (3) in rotational direction is at the same height as the 2nd screw of the pusher eccentric (4).
4. Slightly turn the stroke eccentric (3) if the setting is not yet correct.
5. Check the thread take-up disk (📖 *p. 112*).

19 Setting the retention spring on the hook (for FA only)

WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Only set the retention spring on the hook when the machine is switched off.

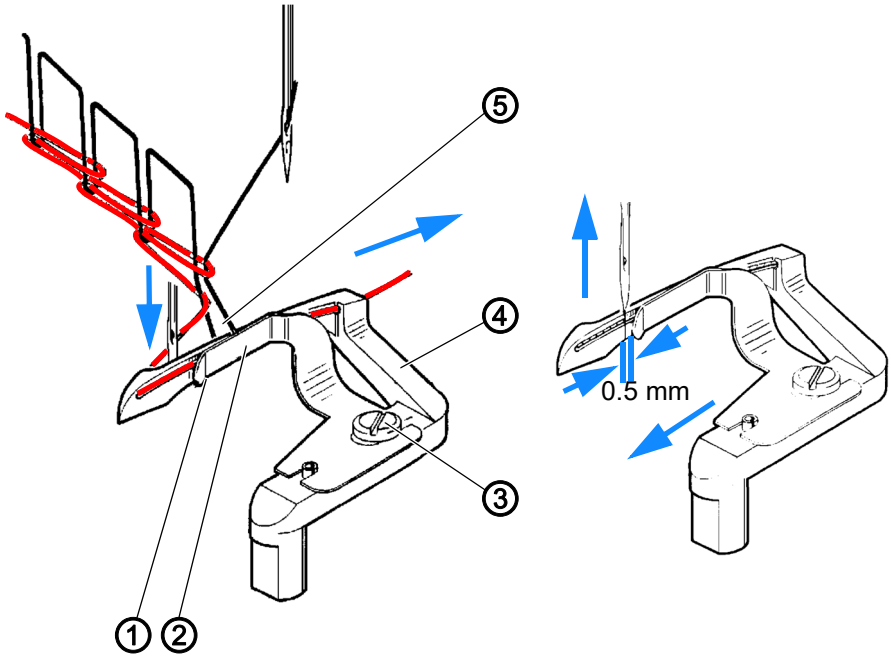
Proper setting

While the hook is moving from right to left, the needle thread loop must slide beyond the holding point between retention spring and hook.

While the hook is moving from left to right, the needle thread loop should be held at the holding point until the descending needle has plunged into the so-called thread triangle to the left of the needle thread loop.

When needle and hook move to the top dead center and to its left position, respectively, the needle tip should move past the retention spring at a distance of approx. 0.5 mm.

Fig. 107: Setting the retention spring on the hook



(1) - Holding point
(2) - Retention spring
(3) - Screw
(4) - Hook
(5) - Needle thread loop

To set the retention spring on the hook:

1. Open the hook covers (📖 *p. 29*).
2. Align the retention spring (2) such that it abuts flush on the hook (4).

   While doing so, make sure that the greatest pressure is exerted at the holding point (1).
3. Loosen the screw (3).
4. Shift the retention spring (3) until the distance amounts to 0.5 mm.
5. Check the contact pressure on the hook (4) with the machine fully assembled and hook and needle thread inserted.
6. Tilt the machine head (📖 *p. 19*).
7. Check the stitch formation described above when the hook moves from right to left and from left to right.
8. Adjust the contact pressure if necessary:
   - **To reduce the contact pressure:** Align the retention spring (2) if the needle thread loop (5) is not pushed beyond the holding point (1).
   - **To increase the contact pressure:** Align the retention spring (2) if the needle thread loop (5) is not held at the holding point (1) until the needle plunges into the thread triangle on the left in front of the needle thread loop (5).

20 Setting the thread take-up disk

WARNING

Risk of injury!

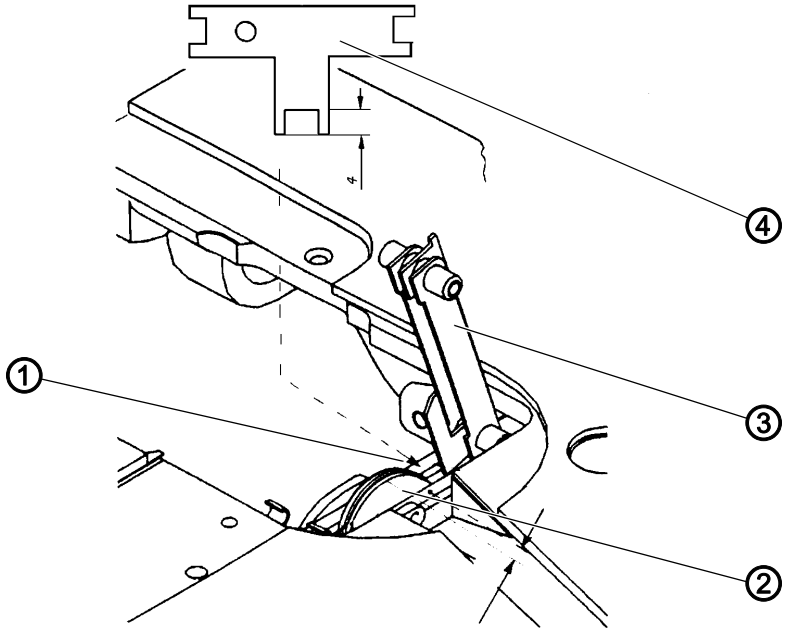
Crushing, cutting and punctures are possible.

Only set the thread take-up disk when the machine is switched off.

Proper setting

When the machine is locked in place at position **B** (top dead center), the thread take-up disk (2) should be 4 mm above the carrier plate (1).

Fig. 108: Setting the thread take-up disk (1)



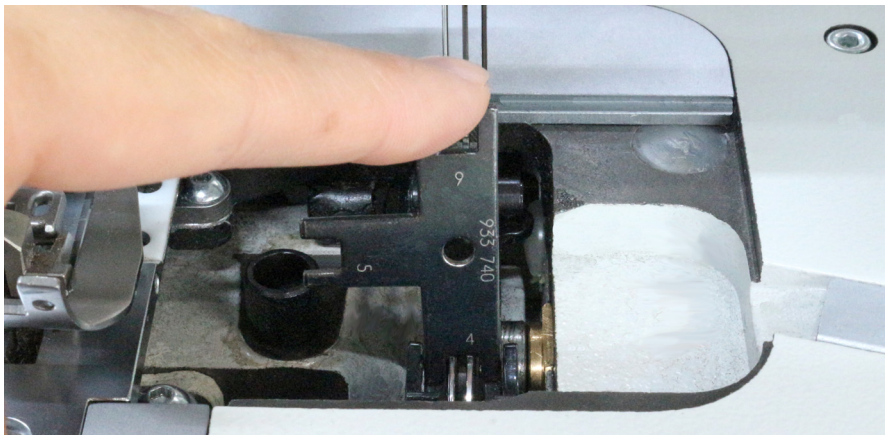
(1) - Carrier plate
(2) - Thread take-up disk
(3) - Hook thread bobbin case retainer
*(4) - Gage (gage **7**, p. 14)*

To set the thread take-up disk:

1. Open the hook covers (*p. 29*).
2. Lift the hook thread bobbin case retainer (3) from its latching.
3. Loosen the screws of the thread take-up disk (2).
4. Lock the machine in place at position **B** (*p. 17*).
5. Turn the thread take-up disk (2) accordingly.

   Use the gage (4) to set the correct measurement.

Fig. 109: Setting the thread take-up disk (2)



6. Tighten the take-up disk (2) and the screws.

21 Edge trimmer

Class **550-12-34** (mat. no. 0550 990073) is equipped with an edge cutter.

21.1 Setting the knife stroke

WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Only set the knife stroke with the machine switched off.

There are 2 possible settings for the knife stroke:

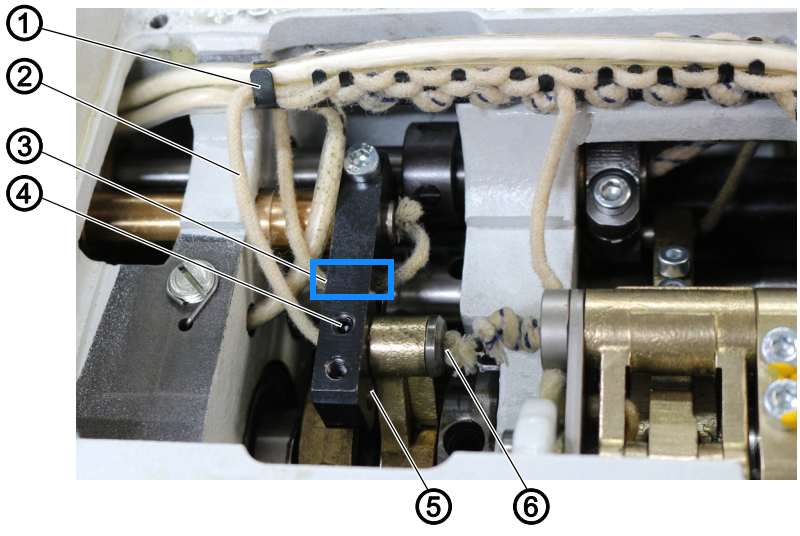
- 8 mm
- 6 mm

The knife stroke has been set to 8 mm at the factory. Lowering the knife stroke to 6 mm allows the machine to operate more quietly.

Cover

- Remove the arm cover (📖 *p. 20*).

Fig. 110: Setting the knife stroke



(1) - Holder
(2) - Wick
(3) - Hole
(4) - Threaded pin
(5) - Hole
(6) - Bolt

To change the knife stroke:

1. Take the wick (2) out of the bracket (1).
2. Loosen the threaded pin (4).
3. Pull the bolt (6) with the wick (2) out and insert it into the hole (5).
4. Tighten the setscrew (4).
5. Pull the wick (2) back through the hole (3) and insert it into the bracket (1).

21.2 Setting the top blade in seam direction

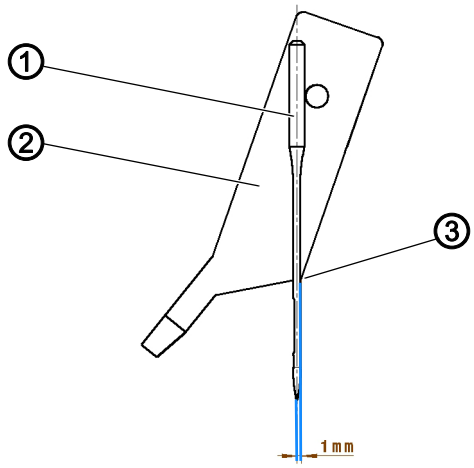
WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Set the top blade only when the machine is switched off.

Fig. 111: Setting the top blade in seam direction

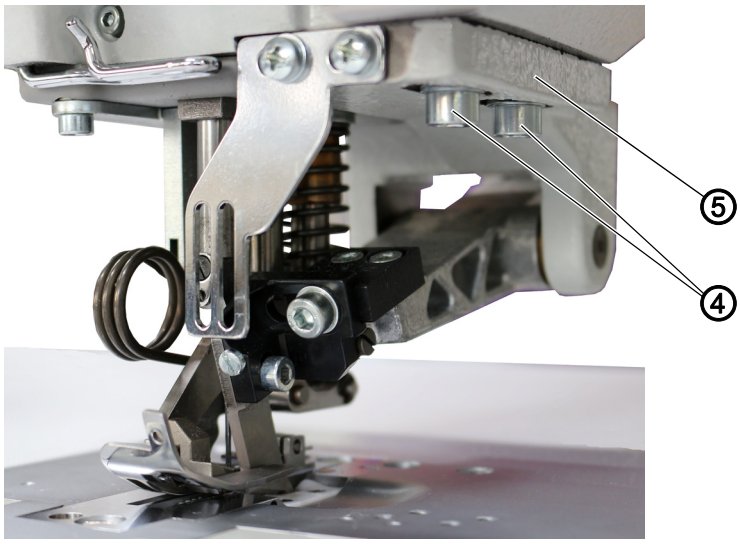


(1) - Needle
(2) - Top blade
(3) - Front tip

Proper setting

When the top blade (2) is at the bottom dead center with the edge cutter switched on, the front tip (3) of the knife blade should be approx. 1 mm in front of the needle (1).

Fig. 112: Setting the top blade in seam direction (2)



(4) - Screws *(5) - Fastening plate*

To set the top blade in seam direction:

1. Turn the handwheel until the top blade (2) is at the bottom dead center.
2. Loosen the screws (4) until the fastening plate (5) abuts on the cast body, but can still be slid.
3. Move the fastening plate (5) until the front tip (3) of the knife blade is approx. 1 mm in front of the needle (1).
4. Tighten the screws (4).

21.3 Setting the cutter bar standstill during shut-off

WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Only set the standstill of the cutter bar with the machine switched off.

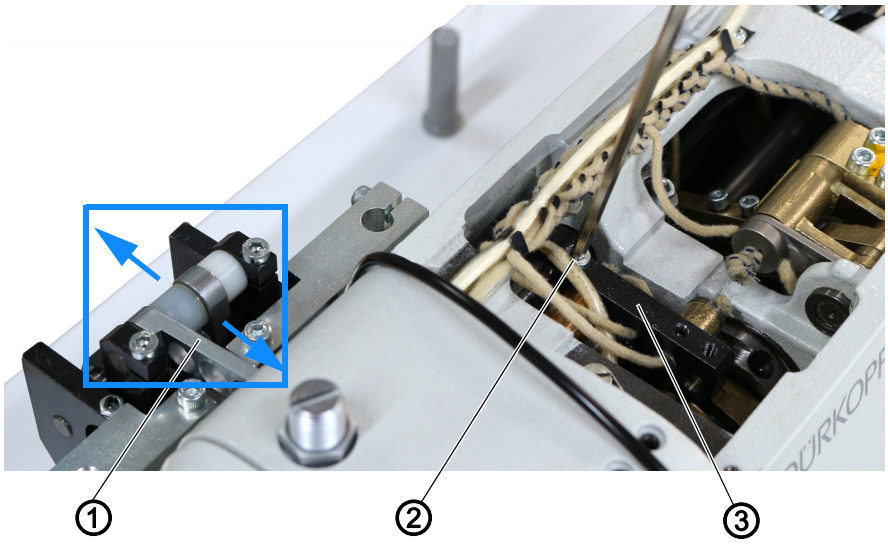
Proper setting

When the edge cutter is switched off, the cutter bar should only make the slightest movement (a complete standstill is not possible).

Cover

- Remove the arm cover (📖 *p. 20*).

Fig. 113: Setting the cutter bar standstill during shut-off (1)



(1) - Pull rod
(2) - Screw
(3) - Clamping piece

To set the cutter bar standstill during shut-off:

1. Loosen the screw (2) on the clamping piece (3).
2. Turn the pull rod (1) such that the cutter bar makes only the slightest movement when the handwheel is turned.
3. Re-tighten the screw (2).

21.4 Setting the height and lateral position of the top blade

WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

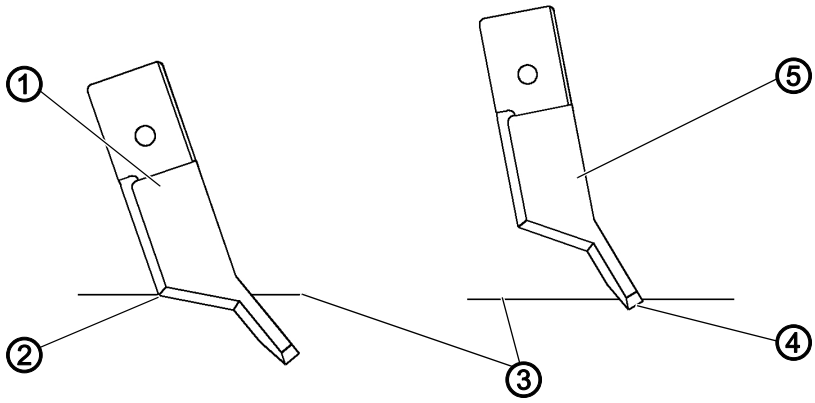
Only set the height and lateral position of the top blade with the machine switched off.

Proper setting

When the edge cutter is switched on and at the bottom dead center, the front tip (2) of the top blade (1) should reach the cutting edge of the counter blade (3).

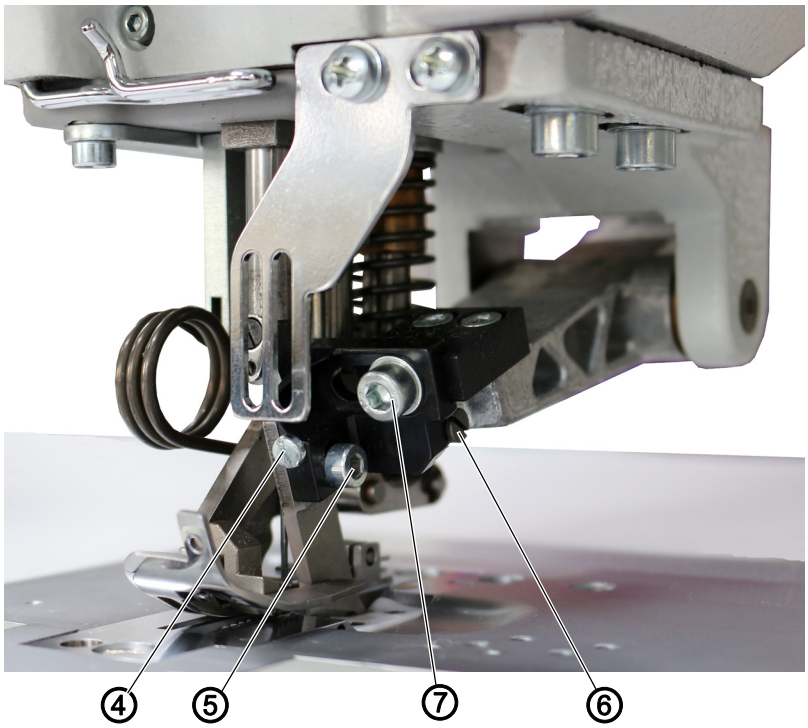
The lateral position of the top blade (5) should be aligned such that the long point (4) abuts on the counter blade (3) at the top dead center.

Fig. 114: Setting the height and lateral position of the top blade (1)



(1) - Top blade at bottom dead center
(2) - Front tip
(3) - Counter blade
(4) - Long point
(5) - Top blade at top dead center

Fig. 115: Setting the height and lateral position of the top blade (2)



(6) - Screw
(7) - Threaded pin
(8) - Screw
(9) - Screw

To set the height and lateral position of the top blade:

1. Switch on the edge cutter.
2. Turn the handwheel until the top blade (1) is at the bottom dead center.
3. Loosen the screw (4).
4. Loosen the threaded pin (5).
5. Adjust the top blade (1) such that the front tip (3) reaches the cutting edge of the bottom blade.

6. Tighten the screw (4).
7. Tighten the threaded pin (5).
8. Turn the handwheel until the top blade is at the top dead center.
9. Loosen screws (6) and (7).
10. Align the point of the blade with the counter blade.
11. Tighten screws (6) and (7).
12. Carry out a cutting test.
13. Adjust the settings again if necessary.

21.5 Setting the eccentric on the upper shaft

WARNING

Risk of injury!

Crushing, cutting and punctures are possible.

Only set the eccentric on the upper shaft with the machine switched off.

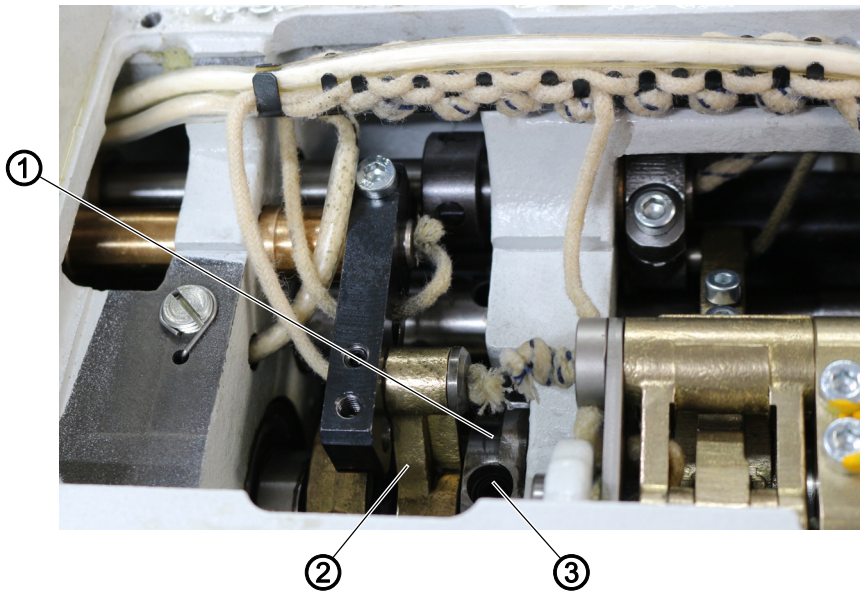
Proper setting

In the 1st needle position (lower edge of the needle eye level with the upper edge of the throat plate), the 1st screw in the rotational direction of the blade drive eccentric should line up with the pull rod.

Cover

- Remove the arm cover (📖 *p. 20*).

Fig. 116: Setting the eccentric on the upper shaft



(1) - Blade drive eccentric
(2) - Pull rod
(3) - Screw

To set the eccentric on the upper shaft:

1. Loosen the screws on the blade drive eccentric (1).
2. Turn the handwheel until the machine is in the 1st needle position.
3. Adjust the blade drive eccentric (1) such that the 1st screw lines up with the pull rod (2).
4. Tighten the screws on the blade drive eccentric (1) again.

22 Adapting the thread guides to thicker needle/hook threads

WARNING

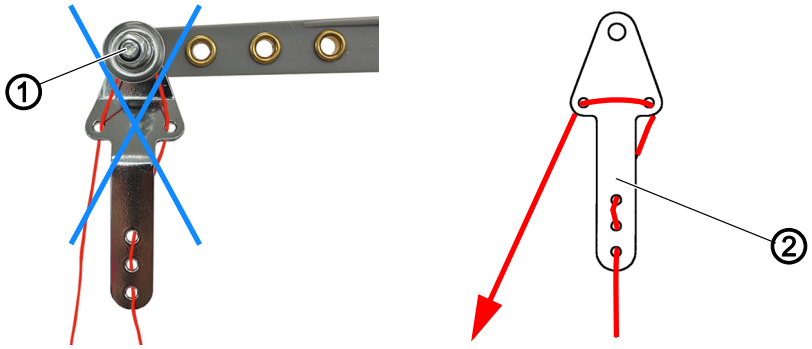
Risk of injury!

Crushing, cutting and punctures are possible.

Only adapt the thread guides to thicker needle/hook threads when the machine is switched off.

When using needle/hook threads thicker than 25/3 Nm, you need to adjust the thread guide.

Fig. 117: Adapting the thread guide to thicker needle/hook threads (1)

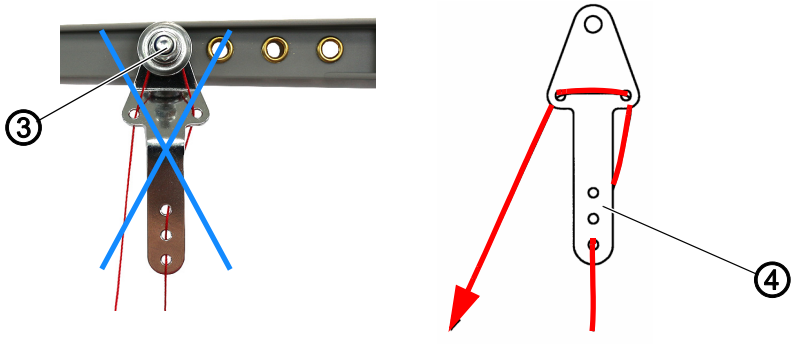


(1) - Tensioner element (needle thread) *(2) - Thread guide (needle thread)*

To adjust the **needle thread guide**:

1. As shown above, insert the needle thread at the thread guide (2) on the unwinding bracket and do not guide it around the tensioner element (1).

Fig. 118: Adapting the thread guide to thicker needle/hook threads (2)



(3) - Tensioner element (hook thread) *(4) - Thread guide (hook thread)*

To adjust the **hook thread guide**:

1. As shown, insert the hook thread at the thread guide (4) on the unwinding bracket and do not guide it around the tensioner element (3).

23 Programming the Commander control panel

23.1 Logging in as a technician

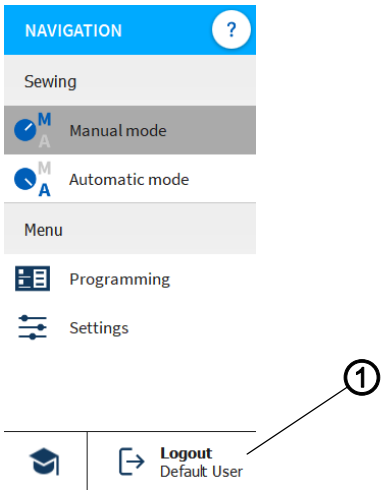
The factory setting of the software is such that the `Default User` will be logged in automatically when the machine is switched on. This does not require any type of authorization. The auto login can be switched off at the Technician level, and the `Default User` and the `Default Technician` can be deactivated if a new user was created previously (📖 *p. 154*).
The following explains how you can switch users.

To log in as a technician:

1. Press the symbol ≡ to bring up the navigation pane.

↳ This opens the navigation interface.

Fig. 119: Logging in as a technician (1)



(1) - Logout

2. Press `Logout` (1).

↳ This opens the login interface.

Fig. 120: Logging in as a technician (2)

3. Enter the name `technician` in the `Username` field.
4. Enter the number combination `25483` in the **Password** field.
5. Press .

↳ You are logged in as a technician.

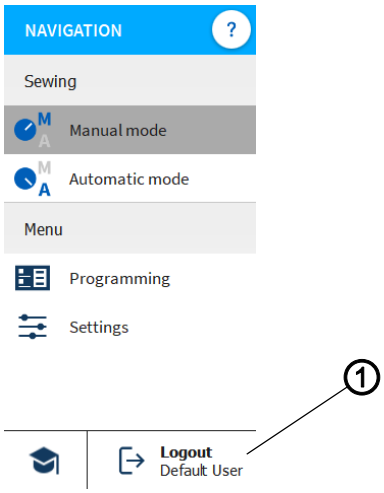
23.2 Logging in user

To access User Management:

1. Press the symbol to bring up the navigation pane.

↳ This opens the navigation interface.

Fig. 121: Logging in user (1)



(1) - Logout

2. Press `Logout` (1).

↳ This opens the login interface.

Fig. 122: Log in user (2)

There are four ways to log in. These four options – including the necessary settings in the software – are described below.

23.2.1 Logging in with username and password

Assigning a username and password

To assign a username and password:

1. Create a new user in *User Management* and assign this user a username and password.

↳ The user can log in immediately with this login information.

Login with username and password

To log in with username and password:

1. Enter *username* and *password*.
2. Press  .

↳ The user is logged in.

23.2.2 Logging with NFC tag (optional)

The NFC tags shipping from the factory are not personalized. Non-personalized NFC tags are detected by the software individually by their serial number. The NFC tags can be personalized with the help of such external software applications as TagXplorer made by NXP.

Assigning an NFC tag to a user

To assign an NFC tag to a user:

1. Select a user in *User Management* or create a new user.
2. Press the item *Login with NFC tag*.

↳ A new window opens.

3. To assign the NFC tag, hold the chip up to the control panel on the left-hand side.

↳ The window disappears, and the function *Login with NFC tag* is active.

Login with NFC tag

To log in with an NFC tag:

1. Hold the assigned NFC tag up to the control panel on the left-hand side.

↳ If the NFC tag has been assigned correctly, the user will be logged in.

Information

To log out, you can hold up the NFC tag again or log out manually on the control panel.

23.2.3 Login with USB key

Assigning a USB key to a user

To assign a USB key to a user:

1. Select a user in *User Management* or create a new user.
2. Press the item *Login with USB key*.

↳ A new window opens.

3. Plug the USB key into one of the ports on the control panel.
4. Select the USB key you wish to assign to the user for login purposes.
5. To assign the USB key, press *Pair*.

↳ The window disappears, and the function *Login with USB key* is active.

Login with USB key

To log in with a USB key:

1. Plug the assigned USB key into the control panel.

↳ If the USB key has been assigned correctly, the user will be logged in.

23.2.4 Login with file on USB key

You cannot assign this function under User Management until it has been activated in the machine configuration.

To allow login with a file stored on a USB key:

1. Log in by entering *technician* and **25483** for username and password.
2. Open the burger menu and go to *Settings* - *Machine configuration* to select the button *Authentication methods* (📖 *p. 147*).
3. The *Authentication methods* interface opens.
4. Activate the slider control *Allow login with file on USB key*.
5. A warning opens.
6. Confirm with *OK*.

↳ You can assign this function under User Management.

Assigning file on USB key to a user

To assign a file stored on a USB key to a user:

1. Create a new user under *User Management* (📖 *p. 154*).
2. Activate the item *Login with username and password*.

3. Press *Edit* and assign a username and password.
4. Press the item *Login with file on USB key*.

↳ A new window opens.

5. Plug the USB key holding the file into one of the ports on the control panel.
6. Select the USB key you wish to assign to the user for login purposes.
7. To assign the USB key, press *Pair*.

↳ The window disappears, and the function *Login with file on USB key* is active.

Information

Once the user with the assigned file stored on a USB key has been created on every machine, login will be possible with a copy of the file stored on any USB key.

Login with file on USB key

To log in with a file stored on a USB key:

1. Plug the USB key holding the file into the control panel.
2. Enter username and password.

↳ If the file on the UBS key has been assigned correctly, the user will be logged in.

23.3 Defining general settings (technician access)

The settings allow you to define various settings in different categories. The following description merely discusses the options available to the technician set up as the default.

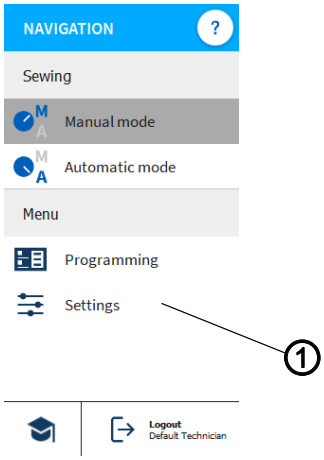
To access the settings:

Prerequisite: You have to be logged in as the Default Technician.

1. Press the symbol ≡ to bring up the navigation pane.

↳ This opens the navigation interface.

Fig. 123: Defining general settings (1)

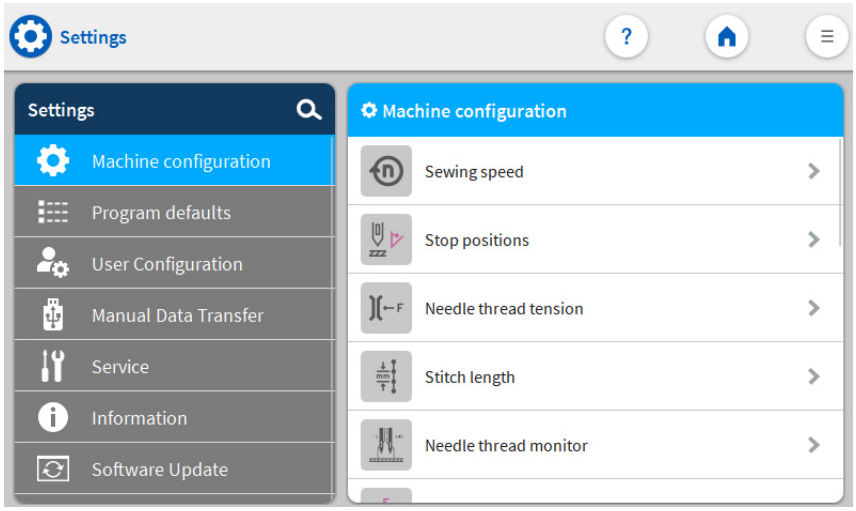


(1) - Settings

2. Press `Settings` (1).

↳ This opens the Settings interface.

Fig. 124: Settings



The table below lists the submenus of the settings. A detailed explanation is available in the specified chapter.

Icon	Submenu	Reference
	*Machine Configuration*	📖 p. 130
	*Program defaults*	📖 p. 147
	*User Configuration*	📖 p. 149
	*Manual Data Transfer*	📖 p. 157
	*Service*	📖 p. 163
	*Information*	📖 p. 172
	*Software update*	📖 p. 174

23.4 Setting the *Machine Configuration*

Settings on the machine that apply to all programs can be made here. These parameters are described in more detail below.

Menu items in the *Machine Configuration*

Icon	Menu items	Explanations
	*Sewing speed*	🕮 *p. 131*
	*Stop positions*	🕮 *p. 132*
	*Needle thread tension*	🕮 *p. 133*
	*Stitch length*	🕮 *p. 136*
	*Needle thread monitor*	🕮 *p. 137*
	*Holding force*	🕮 *p. 138*
	*Pedal*	🕮 *p. 138*
	*Needle cooling*	🕮 *p. 139*
	*Correction speed effect*	🕮 *p. 140*
	*Light barrier*	🕮 *p. 140*
	*Seam segment mode*	🕮 *p. 140*
	*Threading mode*	🕮 *p. 141*
	*Operation lock*	🕮 *p. 141*

Icon	Menu items	Explanations
	*Fullness*	p. 142
	*Edge trimmer*	p. 142
	*Interface*	p. 143
	*Input/Output Configuration*	p. 144
	*Authentication methods*	p. 147

23.4.1 Setting the *Sewing speed* parameters

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

Icon	Menu item	Value range
	*Max. Speed* Maximum permissible speed; it can no longer be exceeded on the operator level.	• Value range 0500 - 4000 [rpm], depending on subclass
	*Min. Speed* Minimum speed at which an individual stitch is made; a lower speed is no longer possible at operator level.	• Value range 050 - 400 [rpm])
	*Position speed* The last stitch is executed more slowly during stopping of the sewing procedure.	• Value range 010 – 700 [rpm]
	*Soft start speed* Reduced sewing speed for the first stitches when sewing begins to sew on the material securely	• Value range 0010 - 1000 [rpm])
	*Number of soft start stitches*	• Value range 00 - 10
	*Acceleration* Slope of the acceleration ramp	• Value range 10 - 40 [rpm/ms]

Icon	Menu item	Value range
	Deceleration Slope of the deceleration ramp	• Value range 10 - 40 [rpm/ms]
3000	*Speed limitation DB3000* Reduction of the speed to 3000 (rpm) in combination with an activated input signal	• Value range 150-9999 [rpm]
2000	*Speed limitation DB2000* Reduction of the speed to 2000 (rpm) in combination with an activated input signal	• Value range 150-9999 [rpm]

23.4.2 Setting the *Stop Positions* parameters

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

Icon	Menu items	Value range
	Lower needle position Holding position of the needle in the material.	• Value range 000 - 359
	Threading position Position for the proper function of the threader, e.g. with thread lever at top dead center.	• Value range 000 - 359
	Length Pos. 1 - Signal	• Value range 000 - 359
	Length Pos. 2 - Signal	• Value range 000 - 359
	On Pos-Signal	• Value range 000 - 359
	Length Pos. - Signal	• Value range 000 - 359
	Change speed on position	• Value range 000 - 359
	Position of speed change	• Value range 000 - 359

23.4.3 Setting the *Needle thread tension* parameters

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

Icon	Menu items	Value range
	*Mode needle thread tension at sewing foot lift* **Mode 0** Needle thread tension is not lifted **Mode 1** The needle thread tension is lifted as the sewing feet are lifted during sewing **Mode 2** The needle thread tension is lifted after thread cutting **Mode 3** The needle thread tension is lifted as the sewing feet are lifted during sewing and after thread cutting	• Value range 0, 1, 2, 3

Icon	Menu items	Value range
	*Pretension* Setting of the pretension during thread cutting.	
		• Value range On/Off
		Pretension **only visible if PreTension is activated** A value of 0 is recommended as the pretension is generated by a mechanical tension. • Value range 00 - 99 [%]
		Delay time **only visible if PreTension is activated** The needle thread tension remains closed for a defined period of time after thread cutting and prevents the needle thread from being pulled further when the sewing material is removed. Without a thread trimmer, this menu item should be set to a very low value. • Value range 0.1-7.5 [s]
		Tension close by needle movement **only visible if PreTension is activated** With this function, the needle thread tension is activated when sewing start is done with jog dial or via single stitch button. • Value range On/Off

Icon	Menu items	Value range
	*2nd needle thread tension*	
		State After thread trimming • Value range unchanged, off, on
		State After power on • Value range unchanged, off, on

23.4.4 Setting the *Stitch length* parameters

NOTICE

Property damage may occur!

The machine and the sewing equipment may be damaged.

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

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

Icon	Menu items	Value range
	*Max. stitch length* Maximum stitch length possible during sewing; this will vary depending on the sewing equipment and MUST be adjusted when changing the sewing equipment.	• Value range 03.0 - 12.0 [mm], depending on subclass
	*Speed limitation stitch length*	
		Sewing speed Value for limiting the speed as from a defined, adjustable stitch length. • Value range 0050 - 4000 [rpm], depending on subclass
		Stitch length The speed is limited during sewing as from the set stitch length value. • Value range 1.0 - 12.0 [mm], depending on subclass

Icon	Menu items	Value range
	*Transport*	*Change stitch length at position* • Value range On/Off
		Start • Value range 045 - 135
		Stop • Value range 085 - 115
	*Manual stitch length adjustment* Stitch regulator for manual adjustment of the stitch length active or inactive; optional equipment.	• Value range On/Off

23.4.5 Setting the *Needle thread monitor* parameters

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

Icon	Menu items	Value range
	*Bobbin*	*Active* • Value range On/Off
		Delay • Value range 0.00 - 2.55 [s]
		Debouncing • Value range 0.00 - 2.55 [s]

23.4.6 Setting the *Holding Force* parameters

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

Icon	Menu items	Value range
	*Mode*	Holding Position • Value range On/Off/Holding Position **Holding Position:** the sewing motor is always regulated to this position. It is not possible to change the position by using the handwheel or setting additional parameters.
	*Max. Current* Holding current of the motor	**only visible if the parameter is activated** • Value range 00 - 50
	*Response* Response time for the continuous current	**only visible if the parameter is activated** • Value range 000 - 100

23.4.7 Setting the *Pedal* parameters

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

Icon	Menu items	Value range
	*Type* Choice between an analog and digital pedal.	• Value range Analog/Digital
	*Inverted* Inversion of the signals given by the pedal (possibly necessary for digital setpoint devices).	• Value range On/Off
	*Mode Pedal Pos. -1*	•
	*Pedal steps* Number of speed steps processed by the pedal.	• Value range 00 - 64
	*Curve* Speed curve of the pedal	• Value range 0 - 7

Icon	Menu items	Value range
	*t Position -1* Debouncing of position -1	• Value range 000 – 255 [ms]
	*t Position -2* Debouncing of position -2	• Value range 000 – 255 [ms]
	*t Position 0* Debouncing of position 0	• Value range 000 – 255 [ms]

23.4.8 Setting the *Needle Cooling* parameters

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

Icon	Menu items	Value range
	*Mode*	• Value range Off, On, Related to sewing speed, Edge trimmer
	*t Delay* Lag time, after which the needle cooling is deactivated.	**only visible if the mode On, Related to sewing speed or Edge trimmer is activated** • Value range 00.0 - 10.0 [ms]
	*Cool Speed* Speed at which the needle cooling is activated.	**only visible if the mode Related to sewing speed is activated** • Value range 0000 - 3800 [rpm]

23.4.9 Setting the *Correction speed effect* parameters

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

Icon	Menu items	Value range
	*Hysteresis* Tolerance at which the correction speed effect based on the 2nd stitch length, the 2nd needle thread tension and/or the 2nd 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]

23.4.10 Setting the *Light barrier* parameters

Icon	Menu items	Value range
	*Debouncing*	• Value range 0.00 - 2.55 [s]

23.4.11 Setting the *Seam segment mode* parameters

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

Icon	Menu items	Value range
	*Length* Length = Seam sections are measured via the length specification (in mm) Stitch count = Seam sections are measured via the stitch count	• Value range Length/stitch count

23.4.12 Setting the *Threading mode* parameters

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

Icon	Menu items	Value range
	*Sewing foot lift* Down = The sewing foot is lowered in threading mode. Up = The sewing foot is lifted in threading mode. Pedal related = The sewing foot can be lifted or lowered with the pedal in threading mode.	• Value range Down/ Up/ Pedal related

23.4.13 Setting the *Operation lock* parameters

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

Icon	Menu items	Value range
	*Mode* Sewing feet remain at their last position and cannot be moved by the user (Off) or can be lifted using the pedal (On).	• Value range On/Off
	*Stitch length* Manual stitch length adjustment with active operation lock	• Value range On/Off
	*All Inputs* All inputs active during machine blockage.	• Value range On/Off

23.4.14 Setting the *Fullness* parameters

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

Icon	Menu items	Value range
	Fullness Minor Difference	• Value range -50 - 50 [%]
	Flat sewing top synced	• Value range -50 - 50 [%]
	Flat sewing bottom synced	• Value range -50 - 50 [%]

23.4.15 Setting the *Edge trimmer* parameters

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

Icon	Menu items	Value range
	*Stitches to lower*	• Value range 000 - 255
	*Min. duty cycle*	• Value range 000 - 100
	*Max. duty cycle*	• Value range 000 - 100
	*Sewing speed reaching max. PVM duty cycle*	• Value range 0000 - 4000
	*Activation time t1 [ms]*	• Value range 0000 - 1000
	*Duty cycle t1 [%]*	• Value range 000 - 100

Icon	Menu items	Value range
	*Time t2*	• Value range 000.0 - 600.0
	*Duty cycle t2*	• Value range 000 - 100
	*Boost*	• Value range On/Off

23.4.16 Setting the *Interface* parameters

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

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

Icon	Menu items	Value range
BDE		
	*Mode*	• Value range Off/Scanner
	*Baudrate* Transmission rate of the scanner	• Value range 9600 - 250000
X170t		
	*Mode*	• Value range Off/Scanner
	*Baudrate* Transmission rate of the scanner	• Value range 9600 - 250000

23.4.17 Setting the *Input/Output Configuration* parameters

Configuration of the inputs

Here you can configure and allocate the inputs, allowing you, for example, to activate functions of the machine via a manual push button from the outside.
Each input can be assigned one of the following modes:

Mode	Explanation/reference
Bobbin Wind mode	
Bartack suppression/activation	
Manual bartack	
Half stitch	
Whole stitch	
Pointing Position	🕮Operating Instructions
Needle high	
Needle cooling	🕮Operating Instructions/🕮 *p. 139*
Additional thread tension	🕮Operating Instructions
Stitch length switching	
Seam Center Guide	
Edge trimmer	🕮Operating Instructions
Light barrier	🕮Operating Instructions/🕮 *p. 140*
Operation lock active with contact open	🕮 *p. 141*
Quick stroke adjustment	🕮Operating Instructions/🕮 *p. 48*
Switch to next segment	🕮Operating Instructions
2nd edge guide position (gap)	
Foot lighten position	
Additional fullness	
Tape tension	
Puller	
Operation lock active with contact closed	🕮 *p. 141*
Operation lock in seam	🕮 *p. 141*
Trigger program selection	🕮Operating Instructions
Program selection Bit B0 - B9	Program selection by an external device
Short stitch	🕮 *p. 147*
2nd edge guide position (height)	

Mode	Explanation/reference
2nd edge guide position (gap and height)	
DB3000	🕮 *p. 131*
DB2000	🕮 *p. 131*
Function module 1 - 8	
Sewing light	🕮Operating Instructions
Machine head light	
Sewing foot lift	🕮Operating Instructions
2nd position sewing foot lift	
Fullness deactivation	🕮Operating Instructions/🕮 *p. 142*
Needle thread monitor (right/left)	
Needle thread identification (right/left)	
Bobbin thread identification	
Housing for cones	
Status of the camera	Enabling of sewing by the camera if image quality is sufficient
Segment abort	
Bobbin thread monitor	Input for the bobbin thread monitor
Edge Guide Check Up/Down	

Each input can be switched to `stored` or `not stored`.

Configuration of the outputs

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

One LED is lit at the LED modes. The output is set for as long as the function is active.

Each output can be assigned one of the following modes.

Mode	Explanation/reference
Sewing foot lift	🕮Operating Instructions
Needle thread tension	🕮Operating Instructions/🕮 *p. 133*
Thread trimmer	🕮Operating Instructions

Mode	Explanation/reference
Needle cooling	🕮Operating Instructions/🕮 *p. 139*
Edge trimmer	🕮Operating Instructions
Edge trimmer motor	
NSB knife	
NSB block	
Pos. 1	Bottom position of the sewing motor
Pos. 2	Top position of the sewing motor
Clean remaining thread monitor	Output active during cleaning
Suppression bartack LED	
2nd stitch length LED	
2nd needle thread tension LED	
2nd sewing foot stroke LED	
Center guide LED	
Raise/lower center guide	
Motor running	Output active while motor is running
2nd edge guide position LED	
NSB exhaust	
Puller LED	
Pressure Puller	
Raise/lower puller	
Bartacking in process	Output active while bartacking is active
In seam	Output active while the machine is in the seam
Segment Output 01 - 16	
Manual bartack	Push button signal
Stitch done	
Operation lock	🕮 *p. 141*
Short stitch	🕮 *p. 147*
Edge guide	🕮Operating Instructions
Machine arm lighting	
Function module output 1 - 8	
2nd edge guide height	
Clean SSD	Output active during cleaning
Desk up	

Mode	Explanation/reference
Desk down	
Freely adjustable position	
Pedal A - D	
Light barrier active out	

Each output can be switched to *stored* or *not stored*.

23.4.18 Setting the *Authentication methods* parameters

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

Icon	Menu items	Value range
	*Allow login with file on USB flash drive*	• Value range On/Off

23.5 Setting the *Program defaults*

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.

Menu items in the *Program defaults*

Icon	Menu item	Value range
	*Stitch length Default value*	• Value range 00.0 - 12.0 (depending on sewing equipment and subclass)
	*Needle thread tension Default value*	• Value range 01 - 99 [%]
	*Hook thread tension default*	• Value range 01 - 99 [%]
	*Fullness default*	• Value range 00 - 31

Icon	Menu item	Value range
	*Flat Sew*	• Value range 00 - 50
	*Stitch condensing at seam begin*	• Value range On/Off
	*Stitch condensing at seam end*	• Value range On/Off
Σ:0000	*Daily piece counter*	
		Counter Mode • Value range Off/Up/Down
		Reset Enter the value to which the daily piece counter is set when a reset is performed. • Value range -999 - 999
Stitch functions		
	*Count stitches*	• Value range On/Off
Submenu for Default Program Parameters		
	*Forward Sound*	• Value range On/Off
	*Segment switch by pedal*	• Value range On/Off
Program Abort		
	*Mode*	**Position** = after the cancellation, the needle is merely brought to its end position and the thread is cut **Segment End** = ending of the program with all configurations that are set for this seam section

Icon	Menu item	Value range
	*Short stitch*	• Value range On/Off
Program Abort		
	*Pedal Abort*	• Value range On/Off

23.6 Setting the *User Configuration*

Settings can be made here that are designed to make working on the machine in various external conditions easier for the user.

Menu items in the *User Configuration*

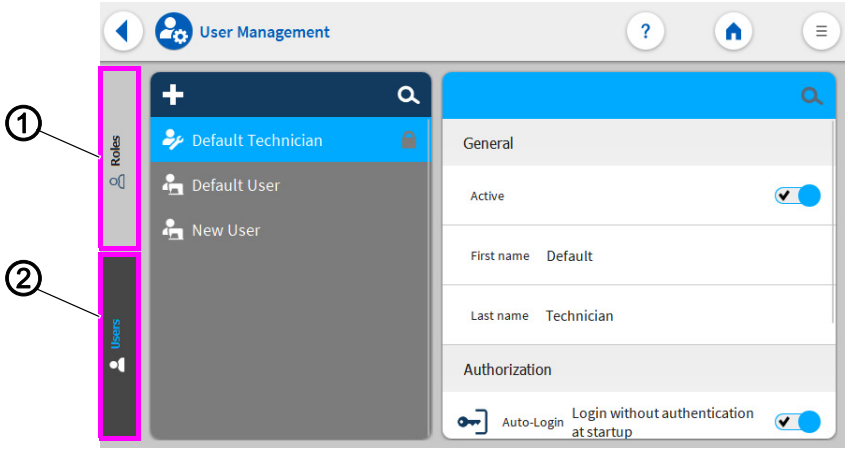
Icon	Menu item	Explanation
	*Language*	Set the language
	*Brightness*	Adjust the control panel brightness
	*Panel Audio Volume*	Adjust the audio volume of the control panel
	Invert screen	Adjust the screen view
	*User Management*	🕮 *p. 150*
Screen configuration		
	*Manual mode* *Main screen configuration*	🕮 *Operating Instructions*
	Manual mode *Status bar configuration*	🕮 *Operating Instructions*
	*Role Main Screen Configuration*	🕮 *p. 155*
	Role Status Bar Configuration	🕮 *p. 156*

23.6.1 User Management

You can use User Management to create new users and assign roles to these users.

The users *Default Technician* and *Default User* have been preset.
While they cannot be deleted, these users can be deactivated if necessary.

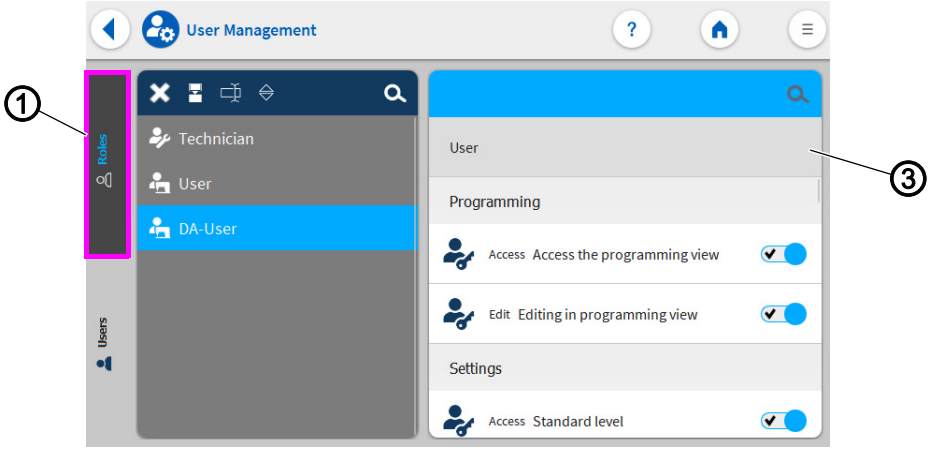
Fig. 125: User Management (1)



(1) - Roles *(2) - User*

Defining roles

Fig. 126: User Management (2)



(1) - Roles *(3) - Drop-down menu*

Information

New roles are derived from roles that already exist.

If, for instance, a role is derived from a Technician (default role), the new role will initially have all of the same authorizations as the original role. You will afterwards be able to adjust the authorizations for the new role using the drop-down menu.

To define the roles for the respective users:

1. Use the button in the Roles (1) section to derive a new role.
2. Use the drop-down menu (3) to assign the desired authorizations.

Value	Description
Programming	
Access	Activate/deactivate Access the programming ui
Edit	Activate/deactivate Editing in programming view
Settings	
Access	Activate/deactivate access to Standard-Level-Items
Access	Activate/deactivate access to technician level
Access	Activate/deactivate Access sewing monitoring
Manual mode	
Edit	Edit the bartack enabled
Edit	Activate/deactivate Edit the status bar
Edit	Activate/deactivate Edit the main screen
Access	Activate/deactivate access to the *Role Main Screen* function
Access	Activate/deactivate access to the *Role Status Bar* function
Access	Activate/deactivate access to the *Switch to automatic mode* function
Access	Activate/deactivate access to the *Parameter View* function

Value	Description
Edit	Activate/deactivate Edit the *Manual bartack* function
Edit	Activate/deactivate Edit the *Sewing foot lifted* function
Edit	Activate/deactivate Edit the needle stop position
Edit	Activate/deactivate Edit Bobbin Wind mode
Edit	Activate/deactivate Edit the *Segment abort* function
Edit	Activate/deactivate Edit the edge trimmer
Edit	Activate/deactivate Edit the additional edge guide value
Edit	Activate/deactivate Edit the 2nd Edge Guide Height
Edit	Activate/deactivate Edit the Edge Guide reference position
Edit	Activate/deactivate Edit the stitch length
Edit	Activate/deactivate Edit the *Switch Stitch Length* function
Edit	Activate/deactivate Edit the needle tension
Edit	Activate/deactivate Edit the *Switch Thread Tension* function
Edit	Activate/deactivate Edit the *Sewing foot pressure* function
Edit	Activate/deactivate Edit the *Switch foot stroke alternation* function
Edit	Activate/deactivate Edit the Bartack Toggle

Value	Description
 Edit	Activate/deactivate Edit the maximum sewing speed
 Edit	Activate/deactivate Edit the Needle Half Stitch
 Edit	Activate/deactivate Edit the thread trimmer
 Edit	Activate/deactivate Edit the needle thread clamp
 Edit	Activate/deactivate Edit the Threading Mode
 Edit	Activate/deactivate Edit the light barrier
 Edit	Activate/deactivate Edit the Reset Bobbin Counter function
 Edit	Activate/deactivate Edit the seam center guide
Automatic mode	
 Access	Activate/deactivate Access the program selection
 Edit	Activate/deactivate Edit the stitch length correction factor
 Edit	Activate/deactivate Edit the needle thread tension correction factor
Sewing	
 Edit	Activate/deactivate Edit the *Enable multi functional tiles* function
User Management	
 Edit	Activate/deactivate Edit the *Current user* role

Value	Description
Edit	Activate/deactivate Edit the *Roles up to technician*
Edit	Activate/deactivate Edit the *Users up to technician* role
Edit	Activate/deactivate Edit the *Auto Login Editable* function

Creating new users

To create new users:

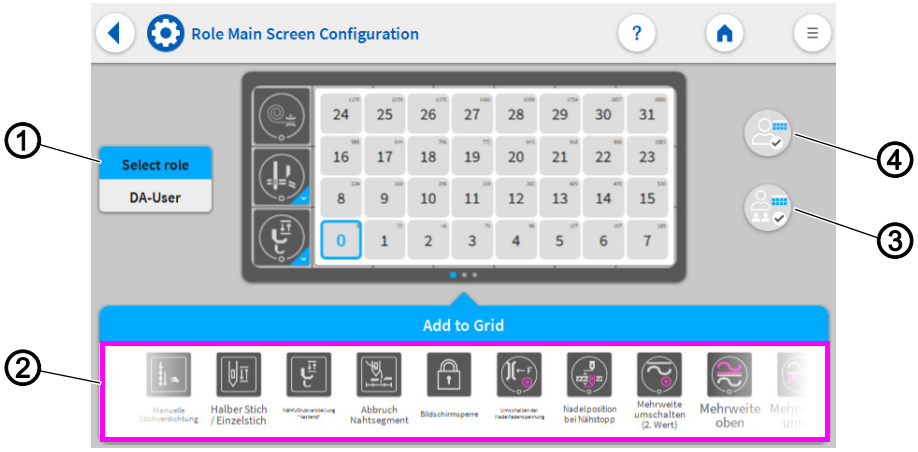
1. Go to the `Users` (2) section and press .
↳ A new user with the name *New User* is created.
2. Enter a username by which the user can be clearly identified.
3. Enter values of your choice to personalize the new user:

Value	Description
General	
Active	Check the box to activate the user Turn the check box off to deactivate the user
First name	Enter the first name using the touch screen keypad
Last name	Enter the last name using the touch screen keypad
Authorization	
Einloggen	Login with username and password Use Edit to enter the username and the password (optional).
NFC	login with NFC tag
USB	login with USB key
Auto-Login	Login without authentication at startup
Roles	
Technician	Technician role (default)

Value	Description
User	User role (default)
...	additional roles that can be created as needed
↳You need to assign the new user one or several matching roles. If assigning multiple roles to the same user, you must define one role as the *primary role*. The *primary role* is highlighted with a blue font.	

23.6.2 Role Main Screen Configuration

Fig. 127: Role Main Screen Configuration (1)



(1) - Button Select role
(2) - Bar
(3) - Button Role
(4) - Button Users + Role

To configure the main screen for a role:

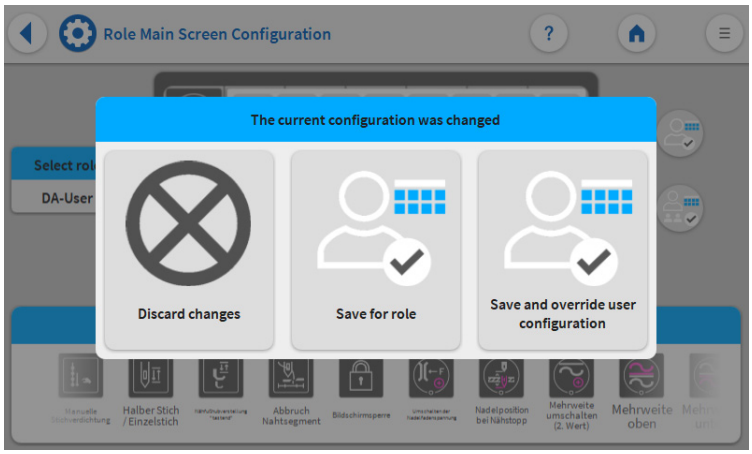
1. Press the **Select role** button to select the desired role.
2. Press the **Role** / **Users + Role** button.

↳ Button **Role**: Changes only apply to the role.
Button **Users + Role:** the changes apply to the role and all users that have been assigned this role.

3. Pick the desired tile from the bar (2) and add it to the grid.
4. To save the settings, press the button.

↳ The display switches to:

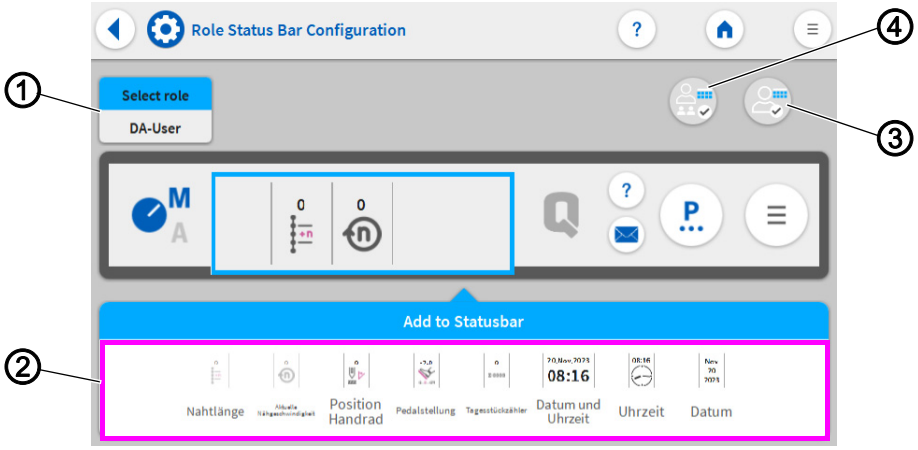
Fig. 128: Role Main Screen Configuration (2)



5. Select if you wish to discard or save the changes.

23.6.3 Role Status Bar Configuration

Fig. 129: Role Main Screen Configuration (1)



(1) - Button Select role
(2) - Bar
(3) - Button Role
(4) - Button Users + Role

To configure the main screen for a role:

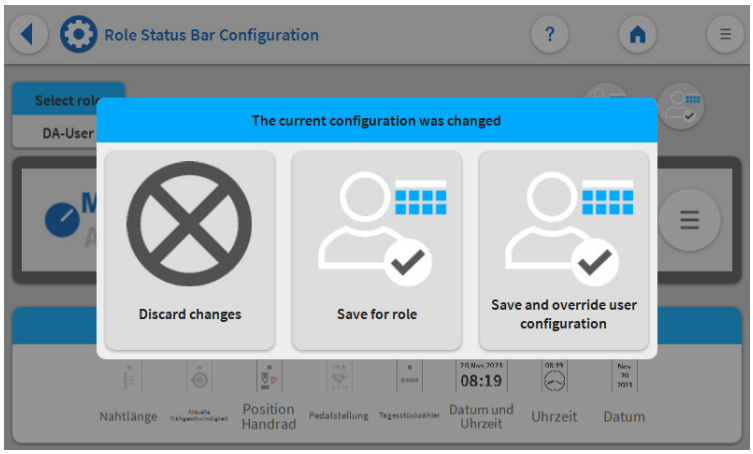
1. Press the **Select role** button to select the desired role.
2. Press the **Role** / **Users + Role** button.

↳ Button **Role**: Changes only apply to the role.
Button **Users + Role:** the changes apply to the role and all users that have been assigned this role.

3. Pick the desired tile from the bar (2) and add it to the grid.
4. To save the settings, press the button.

↳ The display switches to:

Fig. 130: Role Status Bar Configuration (2)



5. Select if you wish to discard or save the changes.

Information

For a detailed explanation of the screen configuration, refer to the 🕮 *Operating Instructions*.

23.7 Using *Manual Data Transfer*

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

23.7.1 Exporting data

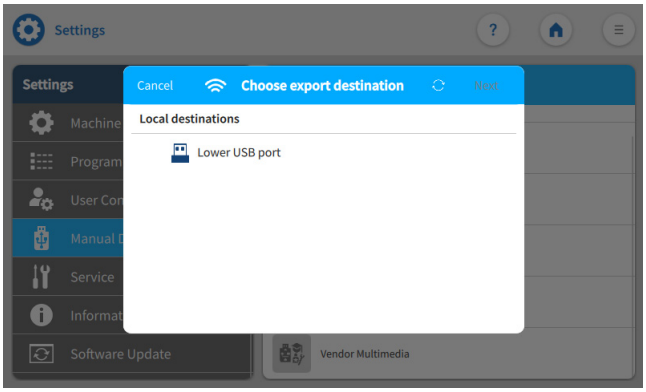
To export data:

1. Connect the USB key at the control panel.
2. Press the ⭱ **Export** button.

3. Press the desired export option.

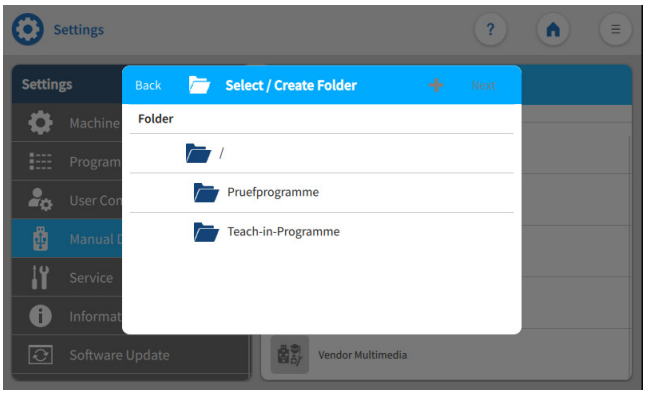
Icon	Menu item	Explanation
	*System Image*	Figure of all machine settings
	*Export Users*	
	*Only Data*	Machine configuration: • Default Programs • Machine Data • Motor Data • Operation Library • Sewing Global • Sewing Manual • Global Control User Data • User Settings
	*Log files*	Messages of the machine: • Most Recent Logs • All Available Logs
	*Programs*	Seam programs: all created seam programs, e.g.: • 1 SETUP 1 • 2 SETUP 2 • 10 SEAM MANUAL • 20 SEAM 20 AUTOMATIC • 21 SQUARE • 100 ORNAMENTAL SEAM • 101 ORNAMENTAL SEAM • 110 ORNAMENTAL SEAM
	*Customer Multimedia*	Own PDFs and videos
	Vendor Multimedia	

Fig. 131: Exporting data (1)



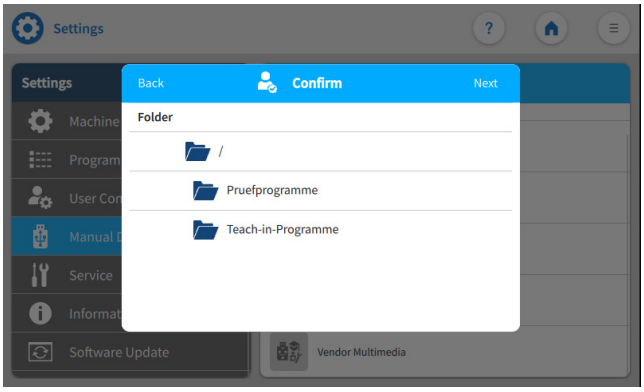
4. Select the export destination.
   E.g.: Right USB port.

Fig. 132: Exporting data (2)



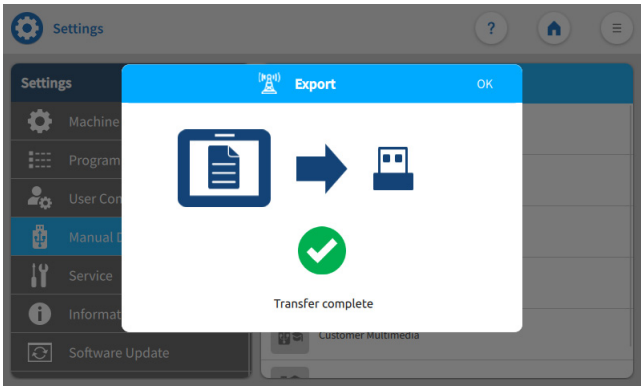
5. Select a folder that already exists or create a new folder.

Fig. 133: Exporting data (3)



6. Confirm selection.

Fig. 134: Exporting data (4)



↳ The data is exported.

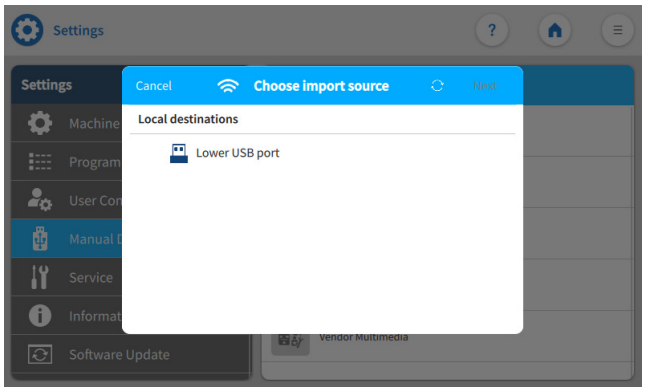
23.7.2 Importing data

To import data:

1. Connect the USB key at the control panel.
2. Press the **Import** button.
3. Press the desired import option.

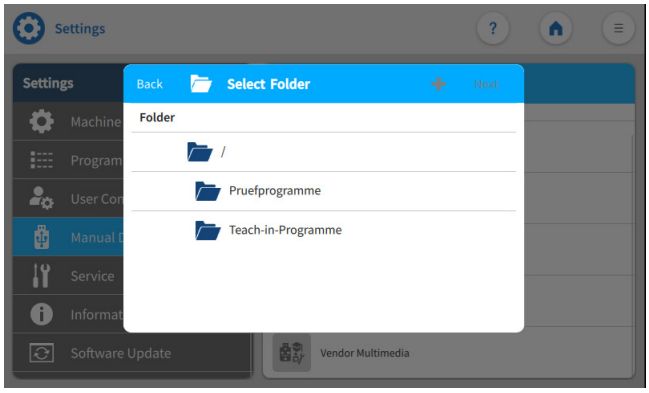
Icon	Menu item	Explanation
	System Image	Figure of all machine settings **CAUTION:** importing will overwrite ALL data stored on the machine
	Import Users	
	Only Data	Machine configuration: • Default Programs • Machine Data • Motor Data • Operation Library • Sewing Global • Sewing Manual • Global Control User Data • User Settings **CAUTION:** importing will overwrite ALL data stored on the machine
	Programs	Seam programs: all created seam programs, e.g.: • 1 SETUP 1 • 2 SETUP 2 • 10 SEAM MANUAL • 20 SEAM 20 AUTOMATIC • 21 SQUARE • 100 ORNAMENTAL SEAM • 101 ORNAMENTAL SEAM • 110 ORNAMENTAL SEAM
	Customer Multimedia	Own PDFs and videos • **CAUTION:** The format of the videos must be *webm plus VP8 coding*. For instructions on how to convert videos, refer to the **Appendix** (📖 *p. 207*)

Fig. 135: Importing data (1)



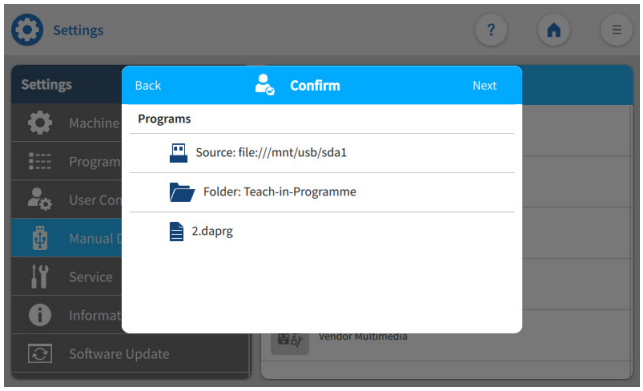
4. Select the import source.
   E.g.: Right USB port.

Fig. 136: Importing data (2)



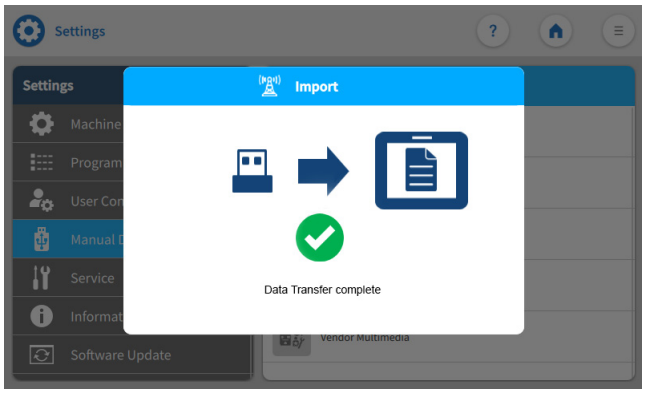
5. Select the desired folder.

Fig. 137: Importing data (3)



6. Confirm selection.

Fig. 138: Importing data (4)



↳ The data is imported.
The machine will be restarted if necessary.

23.8 *Service*

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

Menu items under *Service*

Icon	Menu item	Explanation
	Calibration	p. 164
	Multi test	p. 165
	QONDAC	p. 167
	Reset	p. 168
	Network	p. 169
	Logging	p. 169
	Logger modules	p. 170

23.8.1 *Calibration*

Various parameters need to be calibrated – they are listed in the table. A detailed description of the calibration is given under the corresponding references.

Icon	Menu item	Explanation
	*Feed calibration*	🕮 *p. 70*
	*Feed bottom calibration*	🕮 *p. 70*
	*Feed top calibration*	🕮 *p. 70*
	*Pedal*	🕮 *p. 165*
	*Needle thread tension*	🕮 *p. 78*
	*Hook thread tension*	🕮 *p. 80*
	*Stroke speed limiter*	🕮 *p. 43*

Calibration of the *pedal*

To calibrate the position of the pedal:

1. Follow the instructions on the control panel and press the pedal fully back to the specified **-2** position.
2. Press *Next*.
3. Press the pedal halfway back to the **-1** position.
4. Press *Next*.
5. Release the pedal (position **0**).
6. Press *Next*.
7. Press the pedal forward to the **+1** position.
8. Press *Next*.

↳ Calibration complete.

9. Press *Close*.

23.8.2 *Multi test*

This parameter makes it possible to test whether, for example, magnets, drives, and inputs or outputs are functioning correctly. A list of the necessary allocations can be found in the 🕮 *Parameter list* of the machine.

Icon	Menu items	Value range
	Test Output	🕮 *p. 165*
	Test Input	🕮 *p. 166*
	Test Sewing Motor	🕮 *p. 166*
	Test Stepper Motor	🕮 *p. 166*
	Test Pedal	🕮 *p. 166*

Test Output sub-item

Check of outputs according to wiring diagram.

To test the outputs:

1. Turn on the check box (✓) at the desired output.

↳ The output is activated.

Test Input sub-item

Test of the inputs according to the wiring diagram.

To check the inputs:

1. Press the input.

↳ The display switches automatically to the corresponding input in the pick list on the control panel.
The status (on/off) is highlighted with a color.

Test Sewing Motor sub-item

Use this sub-item to test the functionality of the sewing motor.

To check the sewing motor:

1. Turn on the check box (✓) in the *Test Active* section.
2. Enter the desired speed in the *Test Speed* section.

↳ The sewing motor runs at the entered speed.

Test Stepper Motor sub-item

You use this sub-item to the test stepper motors for stitch length adjustment, sewing foot lifting/sewing foot pressure and stroke adjustment.

To test the stepper motors:

1. Turn on the check box (✓) in the *Test Active* section of the desired stepper motor.
2. Enter the desired position in the *Test Position* section.

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 sub-item

This sub-item is used to check the various pedal positions.

To test the pedal:

1. Press the pedal.

↳ The corresponding positions or steps are displayed in the menu. Depending on the version (analog or digital), the values are displayed directly or as a status indicator (0/1).

23.8.3 *QONDAC*

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

Icon	Menu item	
	*Communication*	Value range Commander/Disabled
	*Customer ID*	Enter the customer ID using the touch screen keypad
	*Server address*	Enter the server address using the touch screen keypad

Information

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

23.8.4 *Reset*

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

NOTICE

Property damage may occur!

Data and settings of the machines may be irretrievably lost.

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

Options for initializing the data

Icon	Menu item
	Reset Parameter 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 calibration All calibration values are reset to the factory settings.
	Reset all data (except calibration) All parameters, programs, and calibration values are reset to the factory settings.
	*Remove User Tutorials*
	*Remove log data*
	*Remove backup data*
	*Delete log files from panel and control*

23.8.5 *Network*

The Dynamic Host Configuration Protocol (DHCP) makes it possible to assign the network configuration to the server.

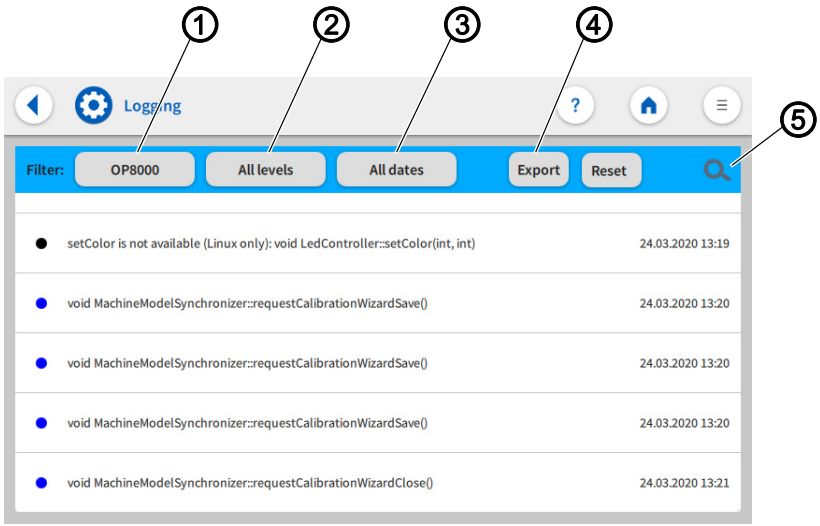
You need to set up the network if you wish to connect the machine to the QONDAC.

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

23.8.6 *Logging*

Logging is used to store all messages relating to the activities of the machine.

Fig. 139: Logging



(1) - Control panel
(2) - Levels
(3) - Data
(4) - Export
(5) - Magnifier

Button	Filter options/meaning
Control panel (1)	installed control panel
Levels (2)	• All levels • Debug • Warning notice • Assert
Data (3)	• All Data • Today • Yesterday • Last two days • Last week
Export (4)	Export logging
Magnifier (5)	search for specific logs

23.8.7 *Logger modules*

The modules help you identify the problem after it occurred. Start by contacting Customer Service (📖 *p. 189*) before activating the modules specified by Customer Service and evoke the error again.

Icon	Menu item
	*Store To USB*
	*Get last log files from control* Get last log files from control
	*Get all log files from control* Get all log files from control
	*Hardware drivers*
	*Operation panel*
	*Data configuration*
	*Startup measures*
	*Thread trimmer*
	*Sewing motor*
	*Pedal*
	*Machine process*
	*Bartack*
	*Edge trimmer*

Icon	Menu item
	*PWM*
	*Stitch length*
	*Thread tension*
	*Foot lift*
	*Foot pressure*
	*Foot stroke*
	*Fabric sensor*
	*Speed manager*
	*Light barrier*
	*SSD*
	*Function I/Os*
	*File operations*
	*Remote*
	*Smart bobbin winder*
	*Fabric thickness predictive sensor*

Icon	Menu item
	*Thread tension sensor*
	*Desk height*
	*Edge guide*
	*Winder*
	*Stitch Information*

23.9 *Information*

The *Information* section allows you to set the date and time and call up information about machine components.

Menu items under *Information*

Icon	Menu item	Explanation
	*Date and time*	Setting date and time
	*Copyright*	
	*Software version*	
		Application Software version of the application
		Machine Software version of the connected machine
	*Software licenses*	List of all active software licenses

Icon	Menu item	Explanation
	*Counter*	
		Total piece counter Number of workpieces that the machine has sewn so far.
		Daily piece counter Number of workpieces that the machine has sewn since the last reset.
		Stitch counter total Number of stitches that the machine has sewn so far.
		Current stitch counter bobbin thread Number of stitches that have been sewn with the bobbin since the last reset.
	Control	
		Control Type of the connected control
		Serial number Serial number of the connected control
	*Control panel*	Type of the connected control panel
	*Machine*	
		Class selected class
		Machine subclass selected subclass
		Serial number Serial number of the machine
		Production date Production date of the machine

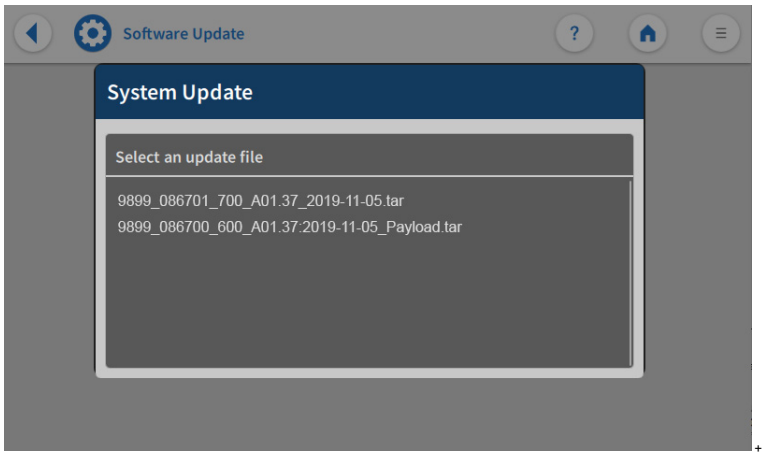
23.10 Performing a *software update*

When a new software version is available, it can be downloaded from Dürkopp Adler's software shop (https://software.duerkopp-adler.com/maschinenprogramme.html) and be uploaded from a USB key. All settings on the machine are retained.

To perform a software update:

1. Download the latest software version from Dürkopp Adler's website.
2. Save the software to a USB key.
3. Connect the USB key at the control panel.
4. Press the **Software update** button.

Fig. 140: Performing a software update



5. Select the desired update file.

↳ The software update is performed.

6. Remove the USB key when the software update is complete.

↳ The machine restarts and is ready for sewing.

24 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.

24.1 Maintenance intervals

Work to be carried out	Operating hours			
	8	40	160	500
Machine head				
Remove sewing dust and thread residues	●			
Clean the area under the throat plate	●			
Check oil level at machine head	●			
Check oil level at hook drive housing		●		
Pneumatic system				
Check the operating pressure	●			
Check the water level in the pressure regulator	●			
Clean the filter element in the compressed air maintenance unit				●
Check the tightness of the system				●

24.2 Cleaning

WARNING

Risk of injury from flying particles!

Flying particles can enter the eyes, causing injury.

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

NOTICE

Property damage from soiling!

Sewing dust and thread residues can impair the operation of the machine.

Clean the machine as described.

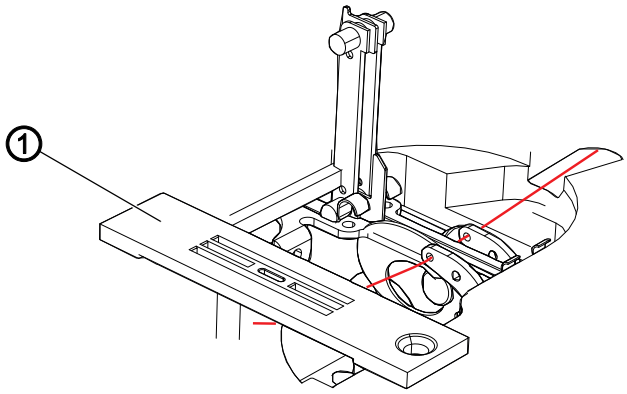
NOTICE

Property damage from solvent-based cleaners!

Solvent-based cleaners will damage paintwork.

Use only solvent-free substances for cleaning.

Fig. 141: Cleaning



(1) - Throat plate

To clean the machine:

1. Remove any lint and thread remnants using a compressed air gun or a brush, particularly from the area of the throat plate (1) and the thread channel.
2. Remove sewing dust and cutting waste from the oil pan.
3. Clean the area of sliding shaft and feed dog carrier.

24.3 Lubricating

CAUTION

Risk of injury from contact with oil!

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

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

NOTICE

Property damage from incorrect oil!

Incorrect oil types can result in damage to the machine.

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

CAUTION

Risk of environmental damage from oil!

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

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

The machine must be lubricated at regular intervals (📖 *p. 177*).
Complete the following steps when lubricating the machine:

- Checking the oil level
- Lubricating the machine head
- Lubricating the hook

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

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

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

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

24.3.1 Checking the lubrication of the machine head

NOTICE

Property damage from incorrect oil level!

Too little or too much oil can cause damage the machine.

Top off oil as described.

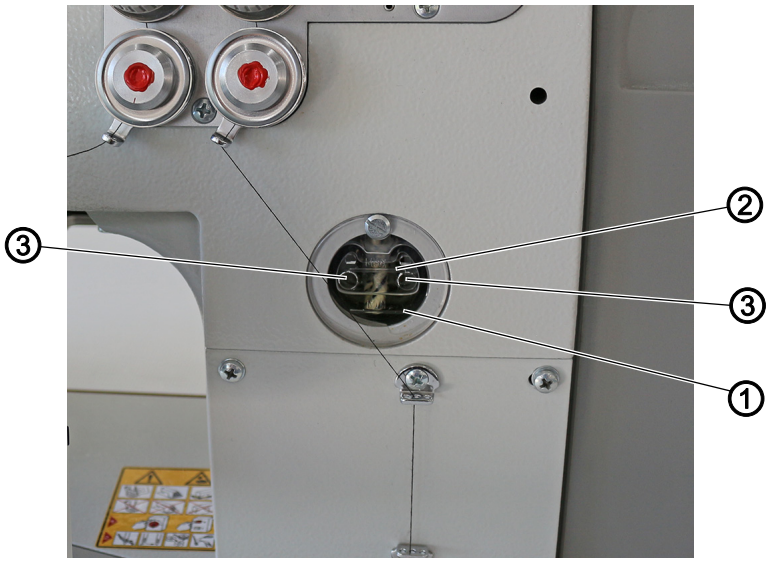
NOTICE

Property damage from incorrect oil!

Incorrect oil types can result in damage to the machine.

Use only oil that corresponds to the following specifications.

Fig. 142: Checking the lubrication of the machine head



(1) - Minimum level marking
(2) - Maximum level marking
(3) - Filler opening

Checking the oil level

Proper setting

The oil level must always be between the minimum level marking (1) and the maximum level marking (2) at the inspection glass.

Topping off the oil reservoir

To top off the oil reservoir:

1. Fill oil through the filler hole (3) to a maximum of 2 mm below the maximum level marking (2).

24.3.2 Checking the hook lubrication

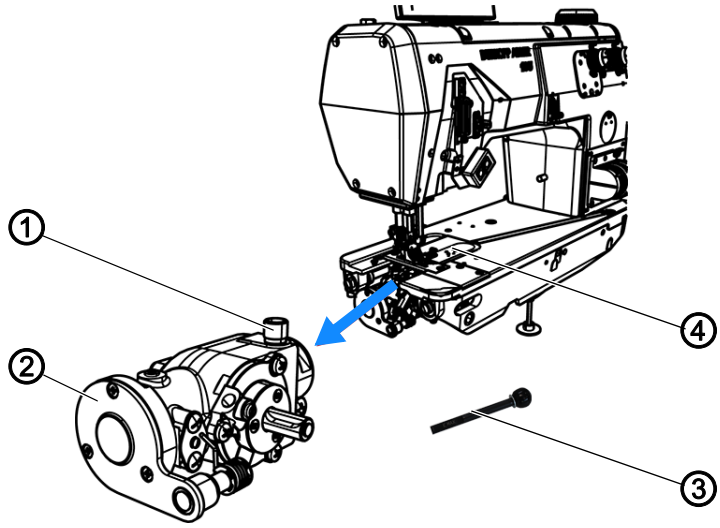
NOTICE

Property damage from incorrect oil level!

Too little or too much oil can cause damage the machine.

Top off oil as described.

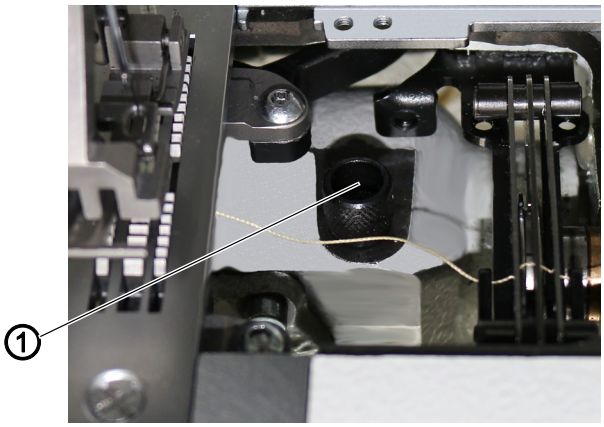
Fig. 143: Checking the hook lubrication (1)



(1) - Screw plug
(2) - Hook drive housing
(3) - Dipstick
(4) - Right hook cover

Hook drive housing (2) and screw plug (1) can be accessed under the right hook cover (4).

Fig. 144: Checking the hook lubrication (2)



(1) - Screw plug

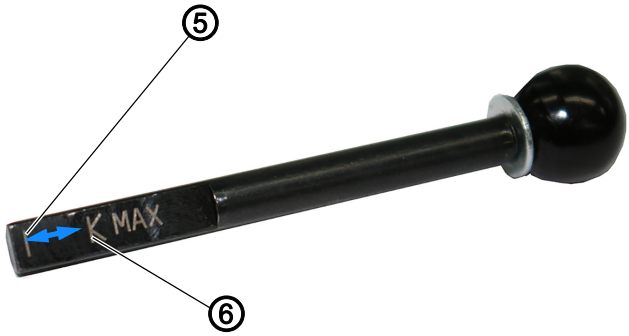
Checking the oil level

To measure the oil level, you will need the dipstick (3) included in the accessory pack.

To check the oil level:

1. Keep the dipstick (3) ready.
2. Open the right hook cover.
3. Loosen the screw plug (1) on the filler opening.
4. Insert the dipstick (3) into the hook drive housing (2).
5. After a few seconds, pull the dipstick (3) out of the hook drive housing (2).

Fig. 145: Checking the hook lubrication (3)



(5) - Minimum level marking *(6) - Maximum level marking*

6. Check if the oil level is between the minimum level marking (4) and the maximum level marking (5).
7. Tighten the screw plug (1) if the oil level is sufficient.
8. Top off the oil if the oil level is low.

Topping off the oil

To top off the oil in the hook drive housing:

1. Loosen the screw plug (1) on the filler opening.

Important

Only top off the oil a little at a time. When finished, check the oil level. If necessary, repeat these 2 steps several times until the oil level is just below the maximum level marking (5) of the dipstick (3).
There must not be too much oil in the hook drive housing.

2. Carefully refill oil through the filler opening no higher than the maximum level marking (5) of the dipstick (3).
3. Check the oil level again.
4. If necessary, repeat step 2 and 3 until the oil level is just below the maximum level marking (5) of the dipstick (3).
5. Tighten the screw plug (1).

24.4 Servicing the pneumatic system

24.4.1 Adjusting the operating pressure

NOTICE

Property damage from incorrect adjustment!

Incorrect operating pressure can result in damage to the machine.

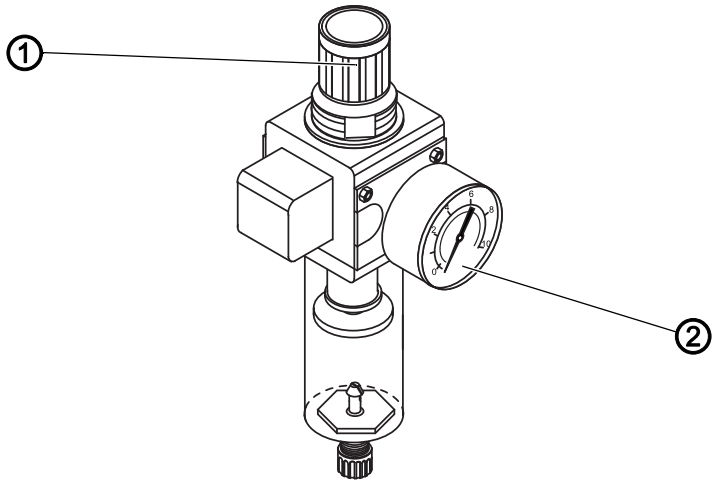
Ensure that the machine is only used when the operating pressure is set correctly.

Proper setting

Refer to the **Technical Data** (📖 *p. 205*) chapter for the permissible operating pressure. The operating pressure cannot deviate by more than ± 0.5 bar.

Check the operating pressure on a daily basis.

Fig. 146: Adjusting the operating pressure



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

To adjust the operating pressure:

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

24.4.2 Draining the water condensation

NOTICE

Property damage from excess water!

Excess water can cause damage to the machine.

Drain water as required.

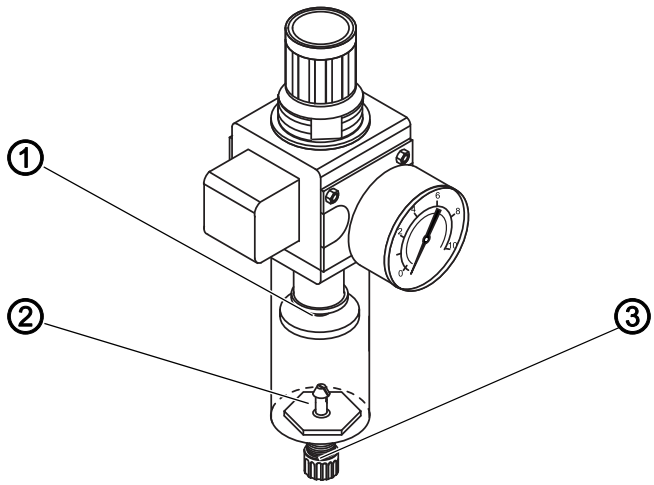
Water condensation accumulates in the water separator (2) of the pressure regulator.

Proper setting

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

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

Fig. 147: Draining the water condensation



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

To drain water condensation:

1. Disconnect the machine from the compressed air supply.
2. Place the collection tray under the drain screw (3).

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

24.4.3 Cleaning the filter element

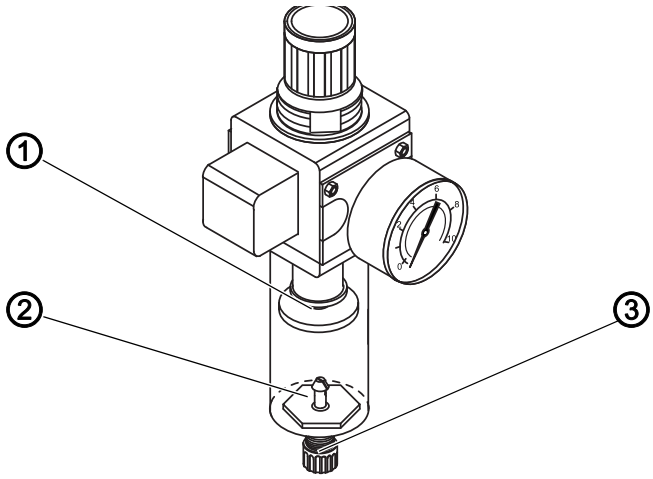
NOTICE

Damage to the paintwork from solvent-based cleaners!

Solvent-based cleaners damage the filter.

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

Fig. 148: Cleaning the filter element



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

To clean the filter element:

1. Disconnect the machine from the compressed air supply.
2. Drain the water condensation (📖 *p. 182*).
3. Loosen the water separator (2).
4. Unscrew the filter element (1).
5. Blow out the filter element (1) using the compressed air gun.
6. Wash out the filter tray using benzine.
7. Tighten the filter element (1).
8. Tighten the water separator (2).
9. Tighten the drain screw (3).
10. Connect the machine to the compressed air supply.

24.5 Parts list

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

www.duerkopp-adler.com

25 Decommissioning

WARNING

Risk of injury from a lack of care!

Serious injuries may occur.

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

CAUTION

Risk of injury from contact with oil!

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

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

To decommission the machine:

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

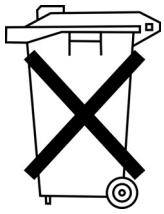
26 Disposal

CAUTION

Risk of environmental damage from improper disposal!

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

ALWAYS comply with the national regulations regarding disposal.



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

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

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

27 Troubleshooting

27.1 Customer Service

Contact for repairs and issues with the machine:

Dürkopp Adler GmbH

Potsdamer Str. 190
33719 Bielefeld, Germany

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

27.2 Messages of the software

Please contact customer service if an error occurs that is not described here. Do not attempt to correct the error yourself.

Code	Type	Possible cause	Corrective
1000	Error	Sewing motor encoder plug X5B (Sub-D, 9-pin) not connected	• Connect encoder cable to the control, • use correct connection
1001	Error	Sewing motor error Sewing motor plug X2 (AMP) not connected	• Check connection and plug in • Test sewing motor phases (R = 2.8Ω, high impedance to PE) • Replace encoder • Replace sewing motor • Replace the control
1002	Error	Sewing motor insulation error	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace sewing motor
1004	Error	Incorrect sewing motor direction of rotation	• Replace encoder • Check motor plug assignment and change it if necessary • Check wiring in machine distributor and change it, if necessary • Measure motor phases and check for value
1005	Error	Motor blocked	• Check for stiff movement • Replace encoder • Replace sewing motor

Code	Type	Possible cause	Corrective
1006	Error	Maximum speed exceeded	• Replace encoder • Carry out a reset • Check class (t 51 04)
1007	Error	Error in the reference run	• Replace encoder • Check for stiff movement
1008	Error	Encoder error	• Replace encoder
1010	Error	External synchronizer plug X5T (Sub-D, 9-pin) not connected	• Connect cable of external synchronizer to control, make sure that interface (Sync) is correct • Only recommended for machines with transmission!
1011	Error	Encoder Z pulse missing	• Switch off the control, use handwheel to turn, and switch on the control again • If error is not corrected, check encoder
1012	Error	Synchronizer fault	• Replace synchronizer
1051	Error	Sewing motor timeout: • Cable to sewing motor Reference switch defective • Reference switch defective	• Replace cable • Replace reference switch
1052	Error	Sewing motor overcurrent: • Sewing motor cable defective • Sewing motor defective • Control defective	• Replace sewing motor cable • Replace sewing motor • Replace control
1053	Error	Sewing motor overvoltage	• Check mains voltage
1054	Error	Internal short circuit	• Replace the control
1055	Error	Sewing motor overload	• Check for stiff movement • Replace encoder • Replace sewing motor
1056	Error	Sewing motor overtemperature: • Sewing motor not moving freely • Sewing motor defective • Control defective	• Eliminate sluggishness • Replace sewing motor • Replace control
1058	Error	Sewing motor speed greater than setpoint: • Reference switch defective • Sewing motor defective	• Replace reference switch • Replace sewing motor
1060	Error	Sewing motor overload / overvoltage / overcurrent	• Check selection of class • Replace the control • Replace motor • Replace encoder
1061	Error	Sewing motor overload / overvoltage / overcurrent	• Check selection of class • Replace the control • Replace motor • Replace encoder
1062	Error	Sewing motor disturbance (IDMA auto increment)	• Switch off and on the machine
1120	Error	Sewing motor initialization failure	• Perform software update • Check selection of class

Code	Type	Possible cause	Corrective
1121	Error	Sewing motor watchdog	• Perform software update • Check selection of class
1203	Error	Position not reached (during thread cutting, reversal, etc.)	• Check the controller settings and change them if necessary (e.g. thread trimmer setting, belt tension, etc.) • Check position **thread lever at top dead center**
1302	Error	Failure with sewing motor current	• Check Service Stop • Check for stiff movement • Replace encoder • Replace motor
1330	Error	No response from sewing motor	• Perform software update • Replace the control
2101	Error	Stepper card X30 reference drive timeout	• Check reference sensor
2102	Error	X-axis stepper motor: • Stepper motor not moving freely or blocked • Encoder cable not connected or defective • Stepper motor cable is not connected or faulty • Encoder defective • Stepper motor faulty	• Remove the cause of the stiff movement or blockage • Check the encoder cable and replace, if necessary • Replace encoder • If the stepper motor is not supplied with current: • Check the stepper motor cable and replace, if necessary • Replace stepper motor
2103	Error	X-axis stepper motor step losses: • Stiff mechanical movement or blockage	• Remove the cause of the stiff mechanical movement or blockage
2105	Error	Stepper card X30 blockage	• Check for stiff movement
2121	Error	Stepper card X30 encoder plug (Sub-D, 9-pin) not connected	• Connect encoder cable to the control, use correct connection
2122	Error	Stepper card X30 flywheel position not found	• Check stepper motor 1 for stiff movement
2130	Error	Stepper card X30 not responding	• Perform software update • Replace the control
2131	Error	Stepper card X30 initialization failure	• Perform software update • Check selection of class
2152	Error	Stepper card X30 overcurrent	• Check for stiff movement
2153	Error	Overvoltage	• Check mains voltage
2155	Error	X-axis stepper motor overload (I^2T): • Stepper motor not moving freely or blocked • Stepper motor faulty • Control defective	• Remove the blockage or the cause of the stiff movement • Replace stepper motor • Replace control
2156	Error	X-axis stepper motor: • Stepper motor sluggish • Stepper motor faulty • Control defective	• Eliminate sluggishness • Replace stepper motor • Replace control

Code	Type	Possible cause	Corrective
2162	Error	X-axis stepper motor disturbance (IDMA auto increment)	• Switch off and on the machine
2171	Error	Stepper card X30 watchdog (Stitch length)	• Perform software update • Check selection of class
2172	Error	Stepper card X30 motor overload / overvoltage /overcurrent (Stitch length)	• Check selection of class • Replace the control • Replace encoder • Replace stepper motor
2173	Error	Stepper card X30 sewing motor encoder not connected (Stitch length)	• Replace the control
2174	Error	Stepper card X30 sewing motor encoder not initialized (Stitch length)	• Perform software update • Check selection of class
2175	Error	Stepper card X30 init position not found (Stitch length)	• Check for stiff movement • Replace encoder • Replace motor
2176	Error	Stepper card X30 not enabled (Stitch length)	• Replace the control
2177	Error	Stepper card X30 overload (Stitch length)	• Check for stiff movement • Replace encoder • Replace motor
2178	Error	Stepper card X30 encoder failure (Stitch length)	• Replace encoder
2179	Error	Stepper card X30 current sensor failure (Stitch length)	• Replace the control
2180	Error	Stepper card X30 incorrect stepping motor direction of rotation (Stitch length)	• Replace encoder • Check if plugs have been mixed up • Check the wiring in the machine distributor and change it if necessary
2181	Error	Stepper card X30 reference drive failure (Stitch length)	• Check for stiff movement • Replace encoder • Replace motor
2182	Error	Stepper motor current error	• Remove blockage • Check the encoder cable and replace, if necessary • Replace stepper motor
2183	Error	Stepper card X30 overcurrent (Stitch length)	• Replace the control
2184	Error	Stepper card X30 parameter initialization (Stitch length)	• Perform software update • Check selection of class
2185	Error	Stepper card X30 insulation error (Stitch length)	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace sewing motor
2186	Error	Software error	• Carry out a reset • Perform software update • Contact customer service

Code	Type	Possible cause	Corrective
2187	Error	Stepper card X30 transport interval failure (Stitch length)	• Perform software update • Check selection of class
2188	Error	Stepper card X30 reference drive failure (Stitch length)	• Check for stiff movement • Replace encoder • Replace motor
2201	Error	Stepper card X40 reference drive timeout	• Check reference sensor
2202	Error	Y-axis stepper motor: • Stepper motor not moving freely or blocked • Encoder cable not connected or defective • Stepper motor cable is not connected or faulty • Encoder defective • Stepper motor faulty	• Remove the cause of the stiff movement or blockage • Check the encoder cable and replace, if necessary • Replace encoder • If the stepper motor is not supplied with current: • Check the stepper motor cable and replace, if necessary • Replace stepper motor
2203	Error	Y-axis stepper motor step losses: • Stiff mechanical movement or blockage	• Remove the cause of the stiff mechanical movement or blockage
2205	Error	Stepper card X40 stepper motor blockage	• Check for stiff movement
2221	Error	Stepper card X40 encoder plug (Sub-D, 9-pin) not connected	• Connect encoder cable to the control, use correct connection
2222	Error	Stepper card X40 flywheel position not found	• Check stepper motor 1 for stiff movement
2230	Error	Stepper card X40 not responding	• Perform software update • Replace the control
2231	Error	Stepper card X40 initialization failure	• Perform software update • Check selection of class
2252	Error	Stepper card X40 overcurrent	• Check for stiff movement
2253	Error	Overvoltage	• Check mains voltage
2255	Error	Y-axis stepper motor overload (I^2T): • Stepper motor not moving freely or blocked • Stepper motor faulty • Control defective	• Remove the blockage or the cause of the stiff movement • Replace stepper motor • Replace control
2256	Error	Y-axis stepper motor: • Stepper motor sluggish • Stepper motor faulty • Control defective	• Eliminate sluggishness • Replace stepper motor • Replace control
2262	Error	Y-axis stepper motor disturbance (IDMA auto increment)	• Switch off and on the machine
2271	Error	Stepper card X40 watchdog (Foot lifting)	• Perform software update • Check selection of class

Code	Type	Possible cause	Corrective
2272	Error	Stepper card X40 motor overload/ overvoltage/overcurrent (Foot lifting)	• Check selection of class • Replace the control • Replace encoder • Replace stepper motor
2273	Error	Stepper card X40 sewing motor encoder not connected (Foot lifting)	• Replace the control
2274	Error	Stepper card X40 sewing motor encoder not initialized (Foot lifting)	• Perform software update • Check selection of class
2275	Error	Stepper card X40 init position not found (Foot lifting)	• Check for stiff movement • Replace encoder • Replace motor
2276	Error	Stepper card X40 not enabled (Foot lifting)	• Replace the control
2277	Error	Stepper card X40 I²t (Foot lifting)	• Check for stiff movement • Replace encoder • Replace motor
2278	Error	Stepper card X40 encoder failure (Foot lifting)	• Replace encoder
2279	Error	Stepper card X40 Current sensor failure (Foot lifting)	• Replace the control
2280	Error	Stepper card X40 Incorrect stepping motor direction of rotation (Foot lifting)	• Replace encoder • Check if plugs have been mixed up • Check the wiring in the machine distributor and change it if necessary
2281	Error	Stepper card X40 reference drive failure (Foot lifting)	• Check for stiff movement • Replace encoder • Replace motor
2282	Error	Stepper motor current error	• Remove blockage • Check the encoder cable and replace, if necessary • Replace stepper motor
2283	Error	Stepper card X40 overcurrent (Foot lifting)	• Replace the control
2284	Error	Stepper card X40 parameter initialization (Foot lifting)	• Perform software update • Check selection of class
2285	Error	Stepper card X40 insulation error (Foot lifting)	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace sewing motor
2286	Error	Software error	• Carry out a reset • Perform software update • Contact customer service
2287	Error	Stepper card X40 transport interval failure (Foot lifting)	• Perform software update • Check selection of class

Code	Type	Possible cause	Corrective
2288	Error	Stepper card X40 reference drive failure (Foot lifting)	• Check for stiff movement • Replace encoder • Replace motor
2301	Error	Stepper card X50 reference drive timeout (Foot stroke)	• Check reference sensor
2302	Error	Z-axis stepper motor: • Stepper motor not moving freely or blocked • Encoder cable not connected or defective • Stepper motor cable is not connected or faulty • Encoder defective • Stepper motor faulty	• Remove the cause of the stiff movement or blockage • Check the encoder cable and replace, if necessary • Replace encoder • If the stepper motor is not supplied with current: • Check the stepper motor cable and replace, if necessary • Replace stepper motor
2303	Error	Z-axis stepper motor step losses: • Stiff mechanical movement or blockage	• Remove the cause of the stiff mechanical movement or blockage
2305	Error	Stepper card X50 stepper motor blockage	• Check for stiff movement
2321	Error	Stepper card X50 encoder plug (Sub-D, 9-pin) not connected	• Connect encoder cable to the control, use correct connection
2322	Error	Stepper card X50 flywheel position not found	• Check stepper motor 1 for stiff movement
2330	Error	Stepper card X50 not responding	• Perform software update • Replace the control
2331	Error	Stepper card X50 initialization failure	• Perform software update • Check selection of class
2352	Error	Stepper card X50 overcurrent	• Check for stiff movement
2353	Error	Overvoltage	• Check mains voltage
2355	Error	Z-axis stepper motor overload (I^2T): • Stepper motor not moving freely or blocked • Stepper motor faulty • Control defective	• Remove the blockage or the cause of the stiff movement • Replace stepper motor • Replace control
2356	Error	Z-axis stepper motor: • Stepper motor sluggish • Stepper motor faulty • Control defective	• Eliminate sluggishness • Replace stepper motor • Replace control
2362	Error	Z-axis stepper motor disturbance (IDMA auto increment)	• Switch off and on the machine
2371	Error	Stepper card X50 watchdog (Foot lifting)	• Perform software update • Check selection of class
2372	Error	Stepper card X50 motor overload/ overvoltage/overcurrent (Foot stroke)	• Check selection of class • Replace the control • Replace encoder • Replace stepper motor

Code	Type	Possible cause	Corrective
2373	Error	Stepper card X50 sewing motor encoder not connected (Foot stroke)	• Replace the control
2374	Error	Stepper card X50 sewing motor encoder not initialized (Foot stroke)	• Perform software update • Check selection of class
2375	Error	Stepper card X50 init position not found (Foot stroke)	• Check for stiff movement • Replace encoder • Replace motor
2376	Error	Stepper card X50 not enabled (Foot stroke)	• Replace the control
2377	Error	Stepper card X50 overload (Foot stroke)	• Check for stiff movement • Replace encoder • Replace motor
2378	Error	Stepper card X50 encoder failure (Foot stroke)	• Replace encoder
2379	Error	Stepper card X50 Current sensor failure (Foot stroke)	• Replace the control
2380	Error	Stepper card X50 Incorrect stepping motor direction of rotation (Foot stroke)	• Replace encoder • Check if plugs have been mixed up • Check the wiring in the machine distributor and change it if necessary
2381	Error	Stepper card X50 reference drive failure (Foot stroke)	• Check for stiff movement • Replace encoder • Replace motor
2382	Error	Stepper motor current error	• Remove blockage • Check the encoder cable and replace, if necessary • Replace stepper motor
2383	Error	Stepper card X50 overcurrent (Foot stroke)	• Replace the control
2384	Error	Stepper card X50 parameter initialization (Foot stroke)	• Perform software update • Check selection of class
2385	Error	Stepper card X50 insulation error (Foot stroke)	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace sewing motor
2386	Error	Software error	• Carry out a reset • Perform software update • Contact customer service
2387	Error	Stepper card X50 transport interval failure (Foot stroke)	• Perform software update • Check selection of class
2388	Error	Stepper card X50 reference drive failure (Foot stroke)	• Check for stiff movement • Replace encoder • Replace motor
2901	Error	General Reference Timeout of the stepper motors	• Check reference switch

Code	Type	Possible cause	Corrective
3010	Error	U100 V start-up error	• Disconnect the stepper motor plugs; if error persists, replace control
3011	Error	U100 V short circuit	• Disconnect motor plug; replace control if error is not corrected: Replace the control
3012	Error	U100 V (I^2T) overload	• one or several stepper motors defective
3020	Error	U24 V start-up error	• Disconnect magnet plug; replace control if error is not corrected: Replace the control
3021	Error	U24 V short circuit	• Disconnect magnet plug; replace control if error is not corrected: Replace the control
3022	Error	U24 V (I^2T) overload	• One or several magnets defective
3030	Error	Motor phase failure	• Replace the control
3104	Warning	Pedal is not in position 0	• When switching the control on, take your foot off the pedal
3109	Warning	Operation lock	• Check tilt sensor on machine
3110	Information	Right thread tension magnet is not connected	• Check the connection of right thread tension magnet
3111	Information	Left thread tension magnet is not connected	• Check the connection of left thread tension magnet
3150	Information	Maintenance required	• For information on maintenance of the machine, see the service instructions for the machine
3217	Information	RFW right	• Bobbin is empty • Insert a new bobbin
3223	Information	Skip stitch detection	• -
3224	Information	Bobbin Rotation Monitor	• The bobbin is not rotating • Check the bobbin, advance the initial thread
3225	Information	SSD sensor is soiled	• Use compressed air or a soft cotton cloth to clean the sensor
3354	Information	Failure in thread trimmer process	• Perform software update
3383	Information	Failure in the motor referencing process	• Check motor • Perform software update
4201	Warning	Failure SD-Card	• Insert SD card • Replace the control
4430	Warning	OP3000: Connection lost	• Check connection to OP3000 • Replace OP3000 • Replace the control
4440	Error	OP3000: DAC receive buffer exceeded	• Check connection to OP3000 • Replace OP3000 • Replace the control
4441	Warning	OP3000: DAC receiver timeout	• Check connection to OP3000 • Replace OP3000 • Replace the control

Code	Type	Possible cause	Corrective
4442	Warning	OP3000: DAC unknown message	• Check connection to OP3000 • Replace OP3000 • Replace the control
4443	Warning	OP3000: DAC invalid checksum	• Check connection to OP3000 • Replace OP3000 • Replace the control
4445	Error	OP3000: DAC send buffer exceeded	• Check connection to OP3000 • Replace OP3000 • Replace the control
4446	Warning	OP3000: DAC no response	• Check connection to OP3000 • Replace OP3000 • Replace the control
4447	Warning	OP3000: DAC invalid response	• Check connection to OP3000 • Replace OP3000 • Replace the control
4450	Error	OP3000: DAC OP Receive buffer exceeded	• Check connection to OP3000 • Replace OP3000 • Replace the control
4451	Warning	OP3000: DAC OP receiver timeout	• Check connection to OP3000 • Replace OP3000 • Replace the control
4452	Warning	OP3000: DAC OP unknown message	• Check connection to OP3000 • Replace OP3000 • Replace the control
4456	Warning	OP3000: DAC no response	• Check connection to OP3000 • Replace OP3000 • Replace the control
4460	Warning	OP7000 connection lost	• Check connection to OP7000 • Replace OP7000 • Replace the control
4906	Information	Not in translation table	• Check machine ID port • Reset or machine class change necessary
4907	Information	Not in translation table	• Reset or machine class change necessary
4908	Information	Not in translation table	• Reset necessary
4911	Information	Not in translation table	• Reset necessary
4918	Warning	Invalid update file	• Contact DA Service
4919	Warning	Reset failed	• Contact DA Service
4920	Warning	Update protocol failure	• Contact DA Service
4921	Warning	Update was interrupted	• Contact DA Service
4922	Error	No User Database found	• Contact DA Service
4923	Error	Sync failed	• Contact DA Service
4930	Information	Control replaced	• Data from operation panel will be stored to control

Code	Type	Possible cause	Corrective
4931	Information	Checksum failure of control	• Data from operation panel will be stored to control
6353	Error	EEprom Timeout	• Switch off the control, wait until the LEDs are off, check connection for machine ID, and switch on control again
5001	Information	Incorrect class	• Change class • Carry out a reset
5002	Information	Incorrect class or machine ID connection error	• Change class • Carry out a reset
5003	Information	Data version is too old	• Carry out a reset
5004	Information	Checksum is incorrect	• Carry out a reset
6000 to 6299	Error	Internal error	• Switch off and on the machine • Perform software update • Contact customer service
6351 to 6354	Error	Control defective (I²C)	• Replace control
6360	Information	No valid data on external EEprom (internal data structures are not compatible with the external data storage device)	• Software update
6361	Information	No external EEprom connected	• Connect machine ID
6362	Information	No valid data on internal EEprom (internal data structures are not compatible with the external data storage device)	• Check machine ID connection • Switch off the control, wait until the LEDs have gone out, and then switch on the control again • Software update
6363	Information	No valid data on internal and external EEprom (software version is not compatible with the internal data storage device, emergency operating features only)	• Check machine ID connection • Switch off the control, wait until the LEDs have gone out, and then switch on the control again • Software update
6364	Information	No valid data on internal EEprom and no external EEprom connected (the internal data structures are not compatible with the external data storage device)	• Check machine ID connection • Switch off the control, wait until the LEDs have gone out, and then switch on the control again • Software update
6365	Information	Internal EEprom defective	• Replace the control
6366	Information	Internal EEprom defective and external data not valid (emergency operating features only)	• Replace the control
6367	Information	Internal EEprom defective and external data not valid (emergency operating features only)	• Replace the control
6400 to 6999	Error	Internal error	• Switch off and on the machine • Perform software update • Contact customer service

Code	Type	Possible cause	Corrective
7270	Information	External CAN	• Check connection cables • Perform software update • Replace CAN slaves
7551 to 7659	Error	Internal error Cable disturbance Cables to the control panel Interface defective	• Switch off and on the machine • Eliminate source of disturbance • Perform software update • Replace cable • Contact customer service
9310	Error	Tape feeder not connected	• Check connection cables • Perform software update • Replace the control of the tape feeder
9320	Error	Tape feeder in lowered position	• No remedial action entered in translation table
9330	Information	Material thickness sensor not connected	• Check connection cables • Perform software update • Replace material thickness sensor
9340	Error	Remaining thread monitor not connected	• Check connection cables • Perform software update • Replace remaining thread monitor
9910	Warning	Sewing stop	• Check tilt sensor on machine • Check 24V • Replace the control
9911	Warning	Power down	• The control is switched off
9912	Warning	Restart necessary	• Switch off the control
9913	Warning	Empty bobbin	• Please insert a full bobbin
9914	Warning	Reset	• Remove USB key!
9915	Warning	Please Wait!	• Please wait and do not remove USB key
9916	Warning	Erase internal Memory	• Delete the SD card. Continue with OK; cancel with ESC
9917	Warning	Erase USB key	• Delete the USB key. Continue with OK; cancel with ESC
9918	Warning	No USB key present	• Please insert USB key
9919	Warning	Sewing stop	• Machine in stop mode for threading the thread
9920	Warning	Referencing	• Please wait for motor referencing
9921	Warning	Show Message from QONDAC	• Show Message
9922	Warning	Service Stop	• Check the Service Stop button • Check 24V • Replace the control
9923	Warning	Update required	• Press OK for Restart or ESC for cancel
9924	Warning	Security key generated	• Creation of a security key on a USB key
9925	Warning	Security Key changed!	• Overwrite Security Key?
9926	Warning	Please Confirm Reset	• Really reset?

Code	Type	Possible cause	Corrective
9927	Warning	Reset	• Reset successfully
9928	Warning	Referencing?	• Press pedal backwards (pedal position-2)
9929	Warning	Not enough thread available	• Please insert a full bobbin
9930	Warning	Empty bobbin	• Please insert a full bobbin
9931	Information	Bobbin Wind mode	• Press pedal backwards exit bobbin wind mode
9932	Information	No program available	• Automatic mode is not available without a program. Please use programming mode to define a program.

27.3 Errors in sewing process

!

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

Error	Possible causes	Corrective
Loose stitches	Thread tensions are not adjusted to the sewing material, the sewing material thickness or the thread used	Check thread tensions
	Needle thread and hook thread have not been threaded correctly	Check threading path
Needle breakage	Needle thickness is unsuitable for the sewing material or the thread	Use recommended needle thickness

28 Technical data

28.1 Data and characteristic values

Technical data	Unit	550-12-33	550-12-34
Stitch type		Double chainstitch	
Hook type		Crossline	
Number of needles		1	
Maximum thread strength Cotton Core spun thr. (poly cotton)	 [NeB] [Nm]	 15/3 25/2	
Stitch length	[mm]	3, 4, 5 and 6 A change of the ruffling value extends the feed length of the top feed and of the differential feed to 8 mm while reducing the feed length of the normal feed to 2.5 mm.	
Width of the reinforcement tape	[mm]	2.25	
Number of stitches (ST) and sewing foot stroke (NFH) are interdependent When used as a trimmer without ruffling value	[min^{-1}]	**NFH** / **ST** 2.5 / 3000 up to 4 / 2500 4 or more / 2000 2.5 / 3500	
Knife stroke (convertible to 6 mm)	[mm]	-	8
Cutting margin	[mm]	-	4.5
Clearance under the switched-off top blade	[mm]	-	17
Clearance under the sewing feet: Maximum during lifting Maximum during sewing	 [mm]	 15 10	
Mains voltage	[V]	190-240	
Mains frequency	[Hz]	50/60	
Operating pressure	[bar]	6	
Air consumption		0.8	
Power input	[kVA]	1	

28.2 Requirements for fault-free operation

Compressed air quality must conform to ISO 8573-1: 2010 [7:4:4].

29 Appendix

29.1 Wiring diagram (Commander Pro)

Fig. 149: Wiring diagram (1)

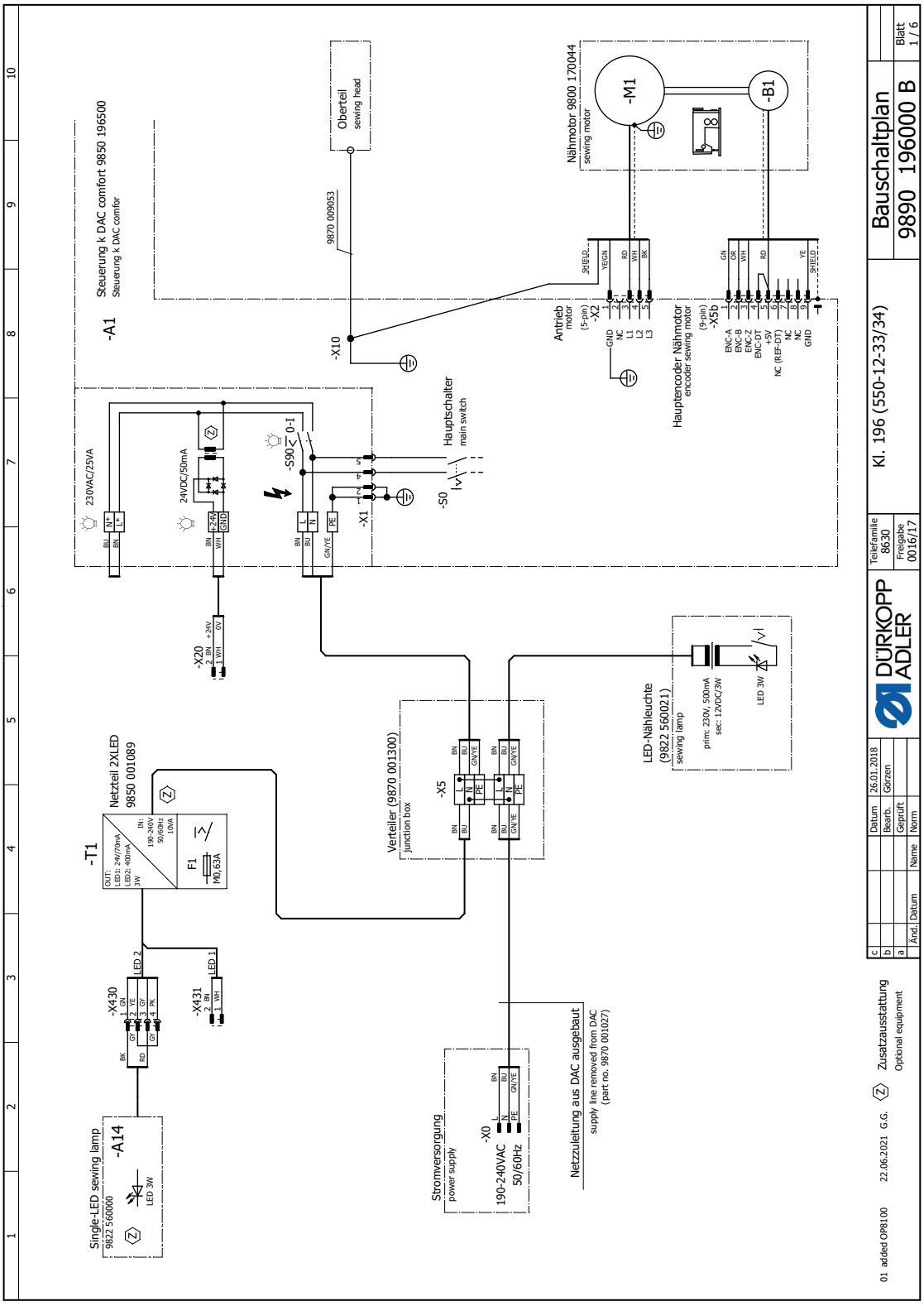


Fig. 150: Wiring diagram (2)

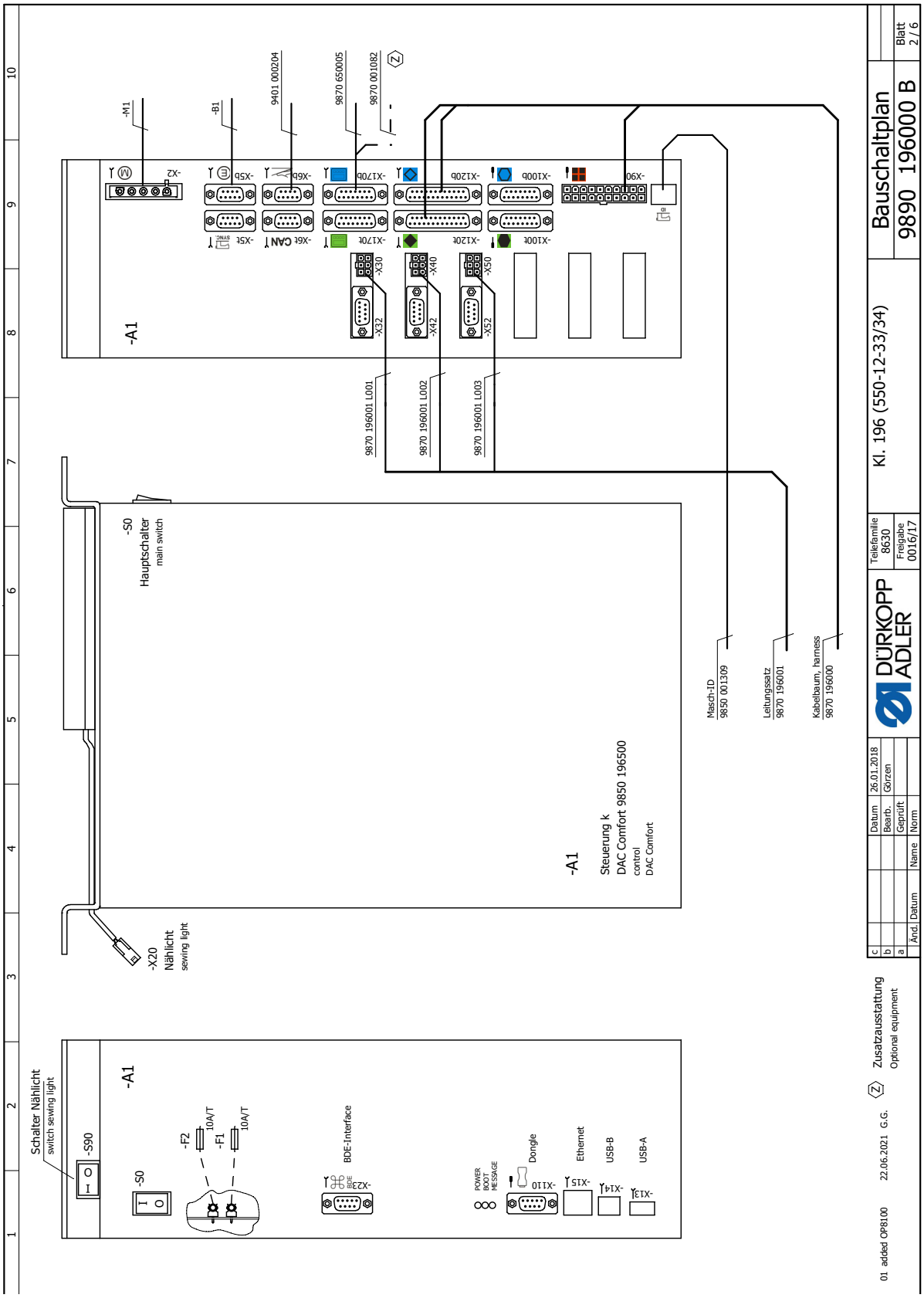


Fig. 151: Wiring diagram (3)

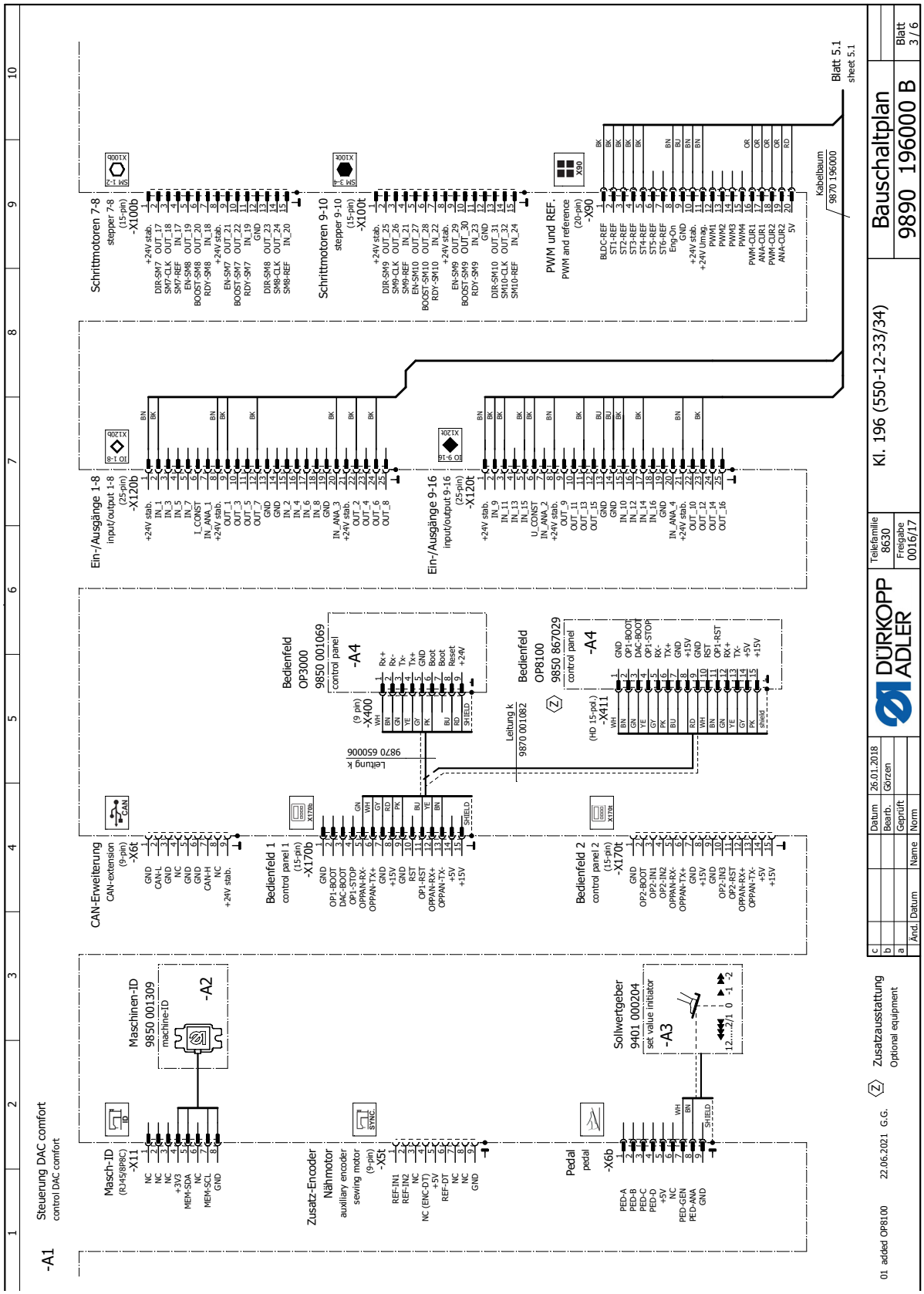


Fig. 152: Wiring diagram (4)

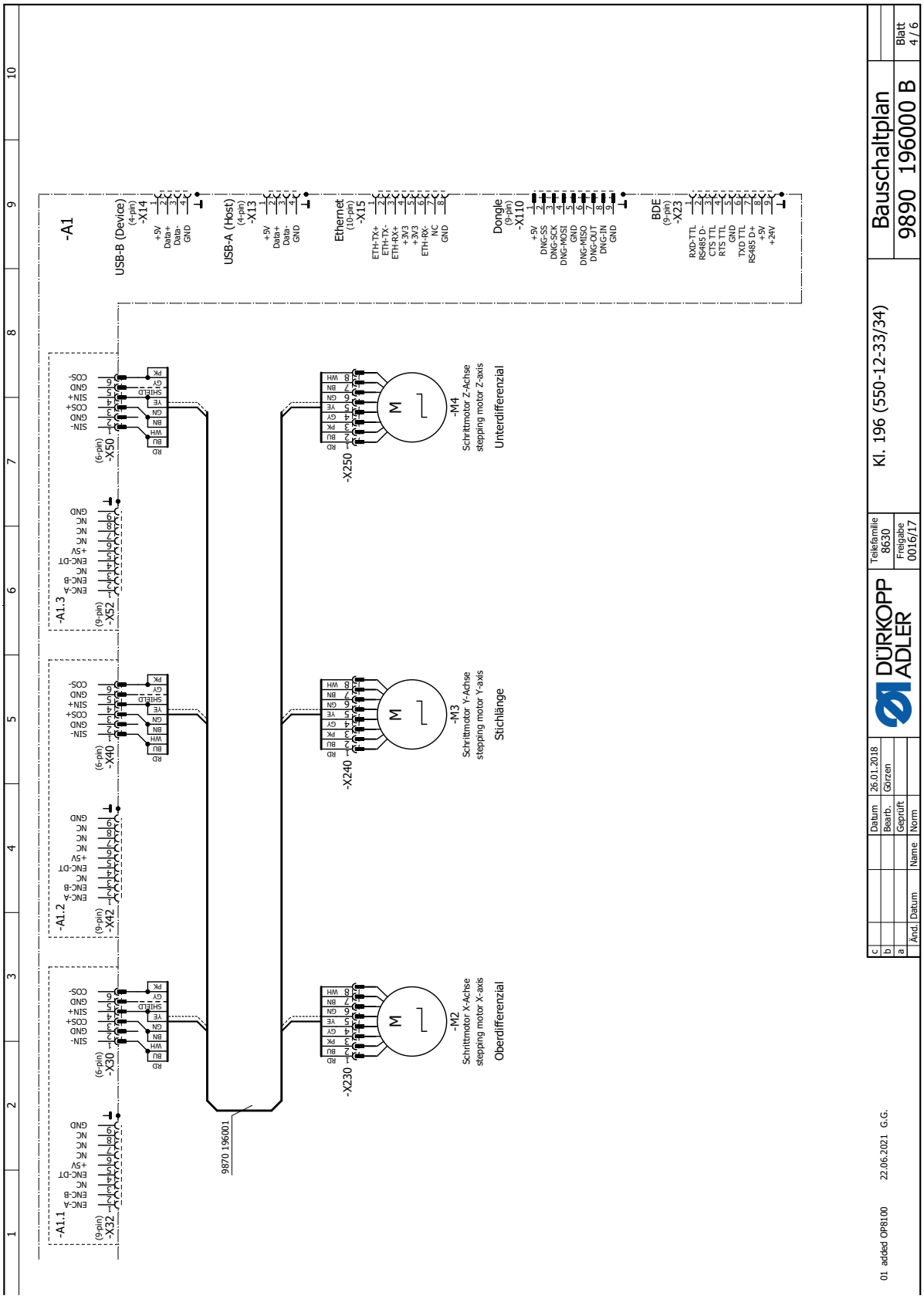


Fig. 153: Wiring diagram (5)

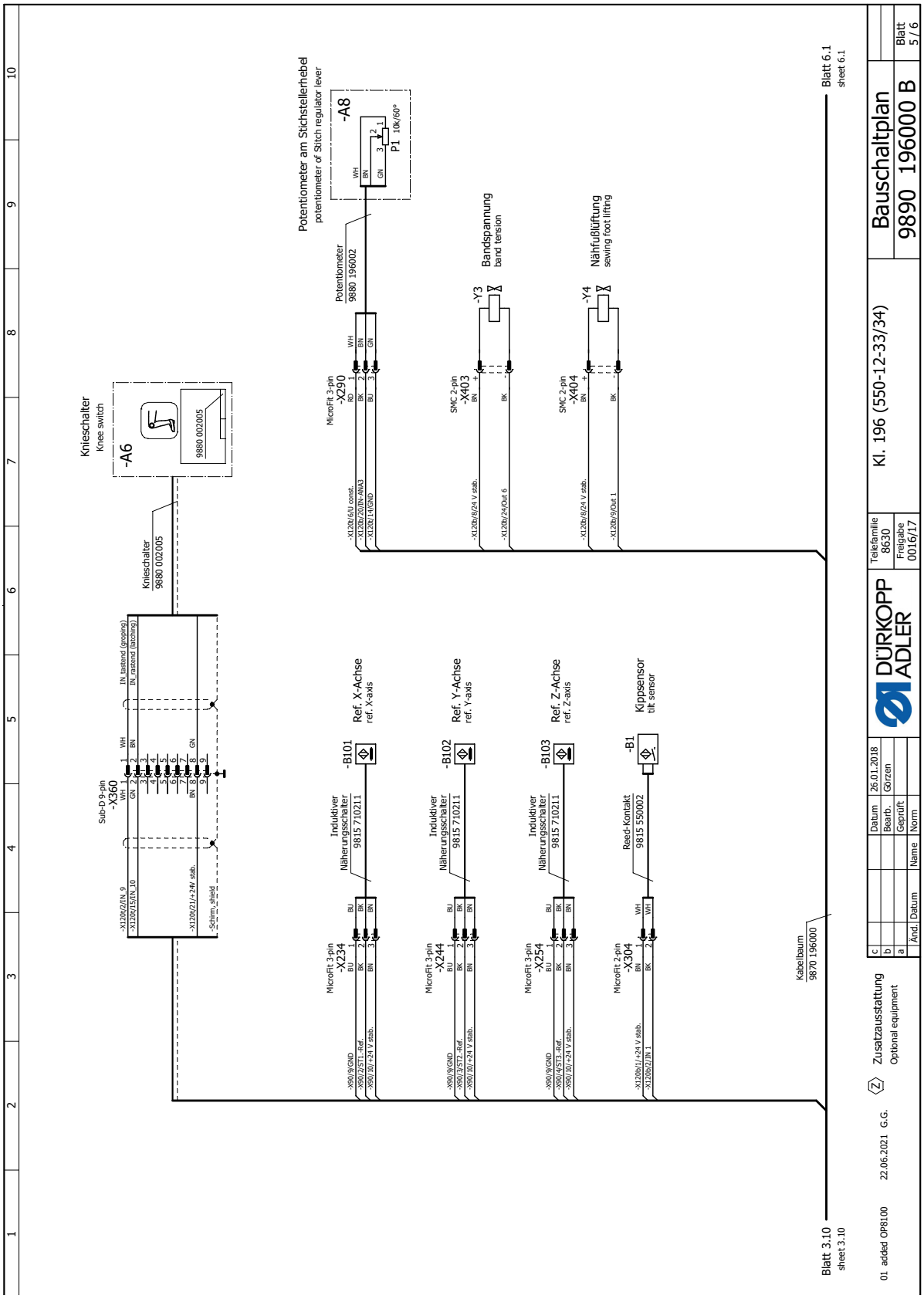
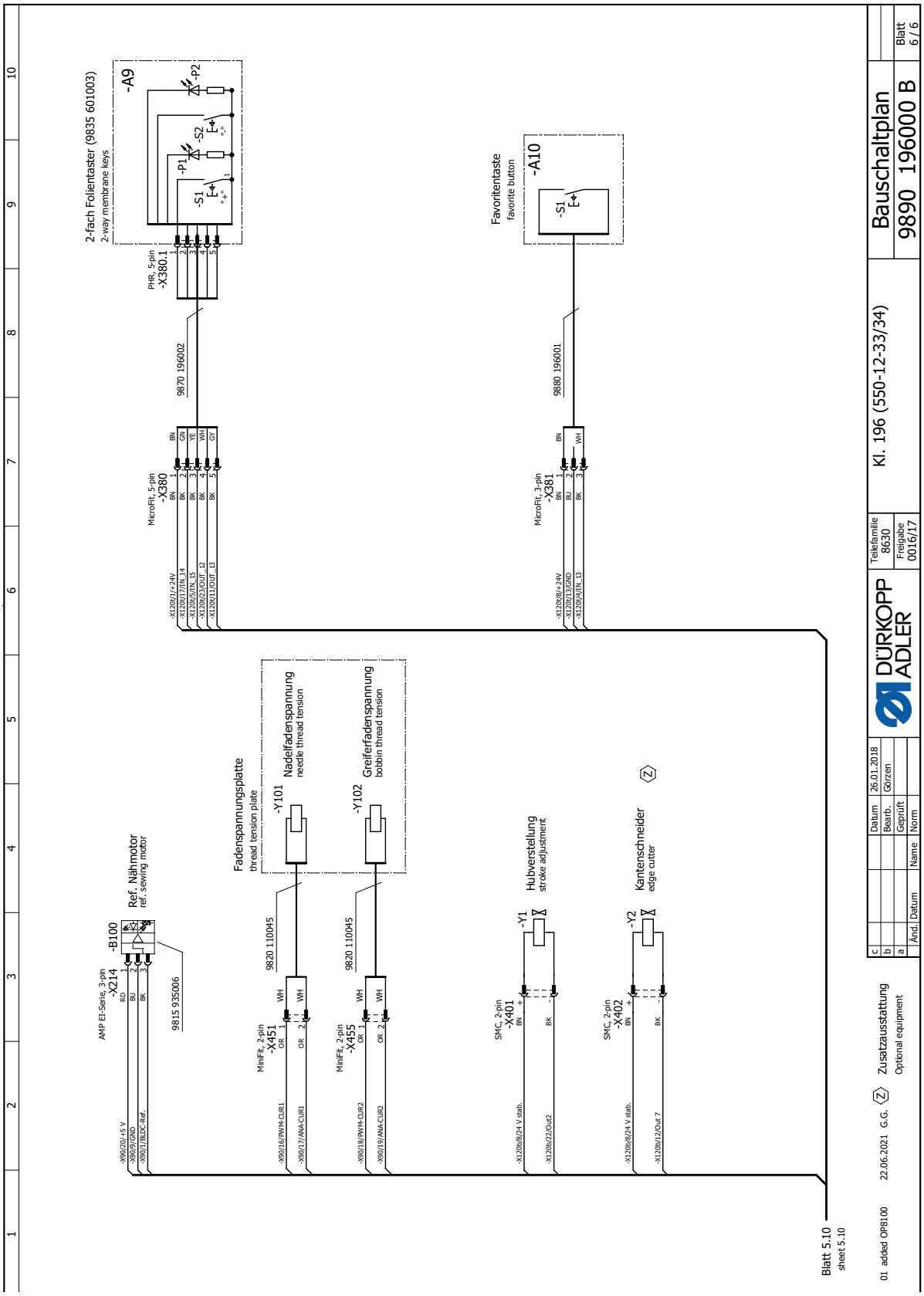
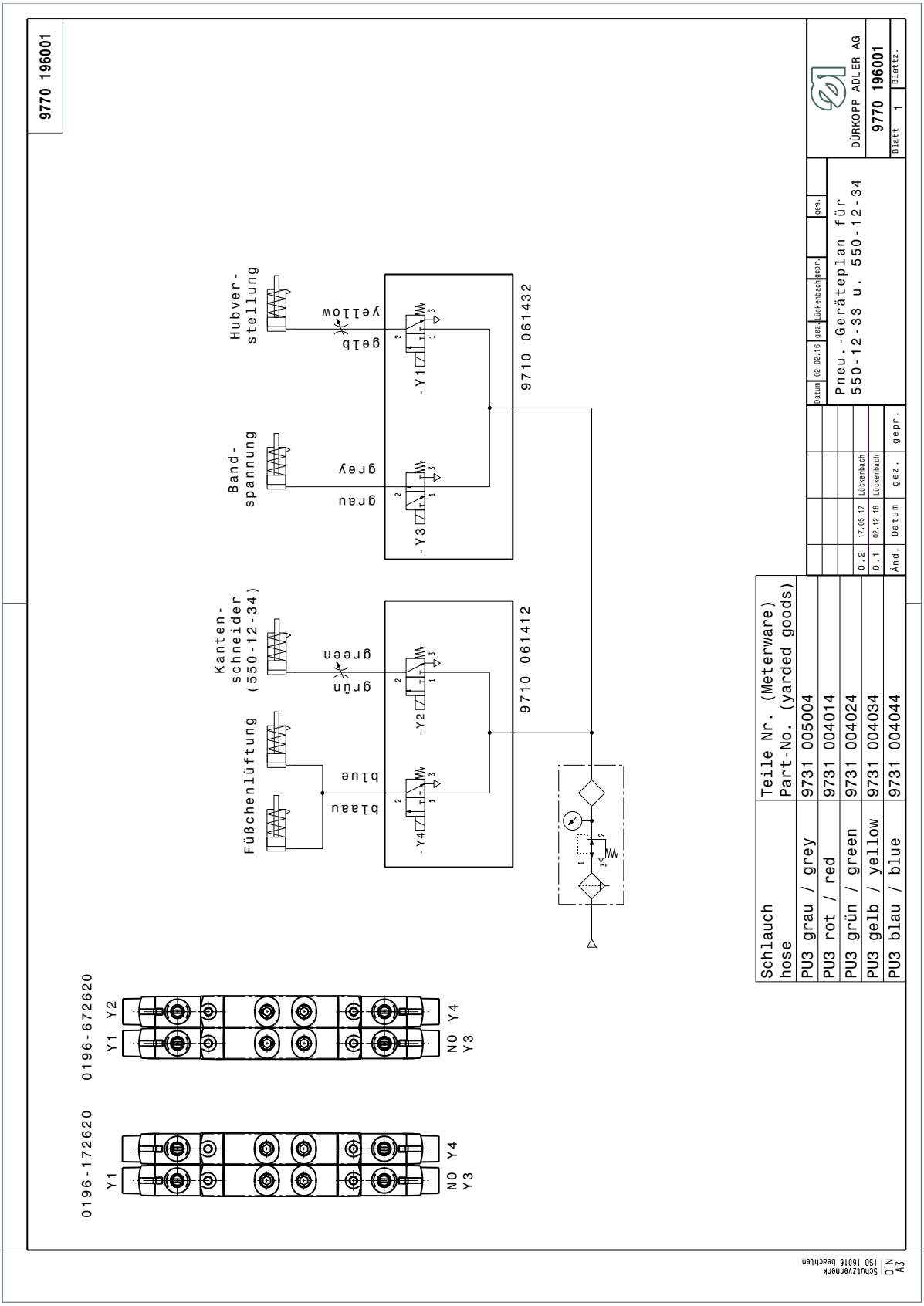


Fig. 154: Wiring diagram (6)



29.2 Pneumatic diagram

Fig. 155: Pneumatic diagram



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