DÜRKOPP ADLER

667 PREMIUM

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. 133*).

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

1.1 For whom are these instructions intended?

These instructions are intended for:

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

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

1.2 Representation conventions – symbols and characters

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

Proper setting

Specifies proper setting.

Disturbances

Specifies the disturbances that can occur from an incorrect setting.

Cover

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

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

Steps to be performed for service, maintenance, and installation

Steps to be performed via the software control panel

The individual steps are numbered:

1. First step
2. Second step
3. …

The steps must always be followed in the specified order.

- Lists are marked by bullet points.

Result of performing an operation

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

Important

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

Information

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

Order

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

References

📖 Reference to another section in these instructions.

Safety

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

Location information

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

1.3 Other documents

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

1.4 Liability

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

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

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

Transport

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

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

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

2 Safety

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

2.1 Basic safety instructions

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

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

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

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

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

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

Transport

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

Setup

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

Obligations of the operator

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

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

Requirements to be met by the personnel

Only qualified specialists may:

- set up the machine
- perform maintenance work and repairs
- perform work on electrical equipment

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

Operation

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

Safety equipment

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

2.2 Signal words and symbols used in warnings

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

Signal words

Signal words and the hazard they describe:

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

Symbols

The following symbols indicate the type of danger to personnel:

Symbol	Type of danger
	General
	Electric shock

Symbol	Type of danger
	Puncture
	Crushing
	Environmental damage

Examples Examples of the layout of warnings in the text:

DANGER

Type and source of danger!

Consequences of non-compliance.

Measures for avoiding the danger.

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

WARNING

Type and source of danger!

Consequences of non-compliance.

Measures for avoiding the danger.

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

CAUTION

Type and source of danger!

Consequences of non-compliance.

Measures for avoiding the danger.

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

CAUTION

Type and source of danger!

Consequences of non-compliance.

Measures for avoiding the danger.

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

NOTICE

Type and source of danger!

Consequences of non-compliance.

Measures for avoiding the danger.

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

3 Working basis

3.1 Order of the settings

Order

The setting positions for the machine are interdependent.

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

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

NOTICE

Property damage may occur!

Risk of machine damage from incorrect order.

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

3.2 Laying the cable guide

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

To lay the cable guide:

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

Important

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

3. Cut off any overlapping cable ties.

NOTICE

Property damage may occur!

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

Lay excess cable as described above.

3.3 Calling up the service routine

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

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

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

To call up the service routine:

1. Switch on the machine.
2. Press the **P** and **S** buttons at the same time.
3. Input the password (25483).

↳ The service menu is active.

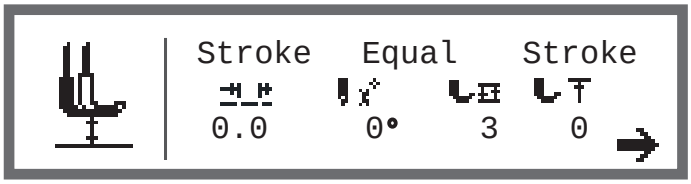
4. Select the required service routine in the *Service > Adjustments* menu item.

Adjustments	
Feed Dog	*Assemble* (assembling and removing feed dog)
	PosToNeedle (setting the feed dog)
	Feed Dog Move (setting the feed dog feed movement)
Needle Hook	*Timing* (setting the loop stroke position)
	Needlebar (setting the needle bar)
Stroke	*Equal Stroke* (setting an even sewing foot stroke)
	Feed Move (setting the feeding foot feed movement)

5. Confirm with **OK**.

↳ The display shows all the values set in the selected service routine.

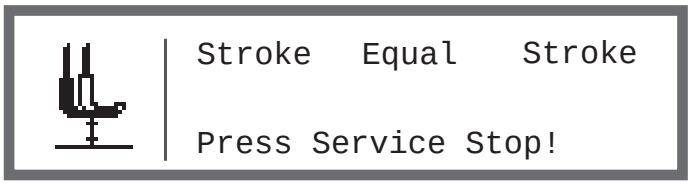
Fig. 1: Calling up the service routine (1)



6. Press button **7**.

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

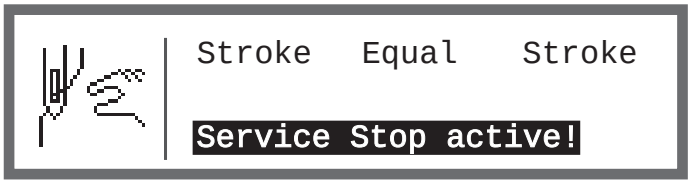
Fig. 2: Calling up the service routine (2)



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

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

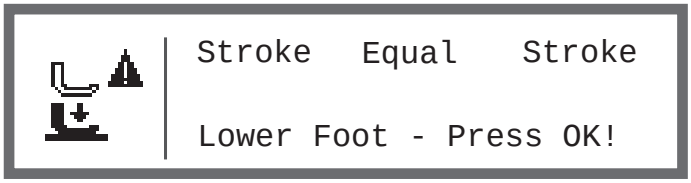
Fig. 3: Calling up the service routine (3)



8. Make the required settings.
9. Press the **Service Stop** button.

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

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



10. Press the **OK** button.

↳ You are now in the service menu again.

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

3.4 Removing the covers

WARNING

Risk of injury from moving parts!

Crushing possible.

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

WARNING

Risk of injury from sharp parts!

Punctures possible.

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

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

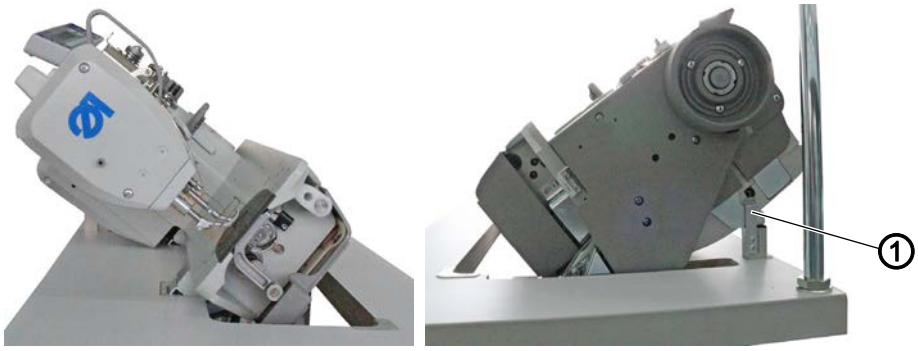
This chapter describes how to remove and then refit the individual covers. The text for each type of setting work then specifies only the cover that needs to be removed at that particular time.

3.4.1 Access to the underside of the machine

Cover

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

Fig. 5: Access to the underside of the machine



(1) - Lever

Tilting the machine head

To tilt the machine head:

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

↳ The lever (1) engages, holding the machine in position.

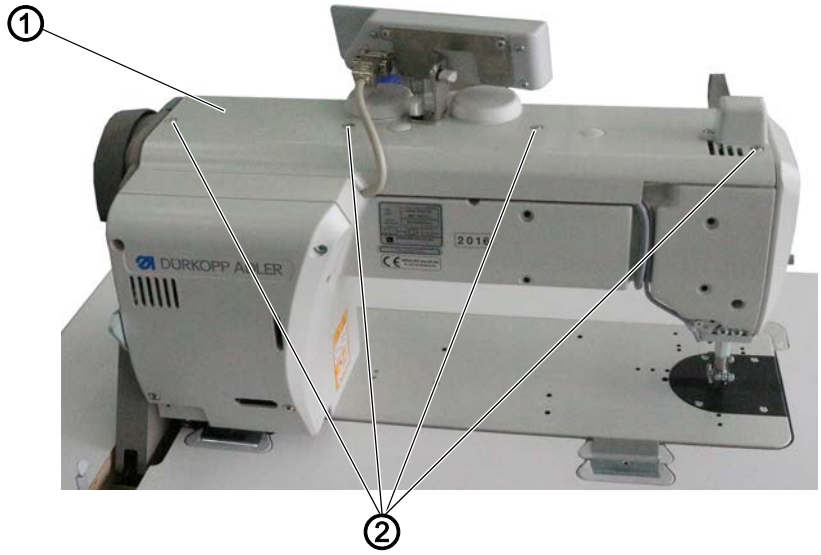
Erecting the machine head

To erect the machine head:

1. Loosen the lever (1).
2. Erect the machine head.

3.4.2 Removing and placing the arm cover

Fig. 6: Removing and placing the arm cover



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

Removing the arm cover

To remove the arm cover:

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

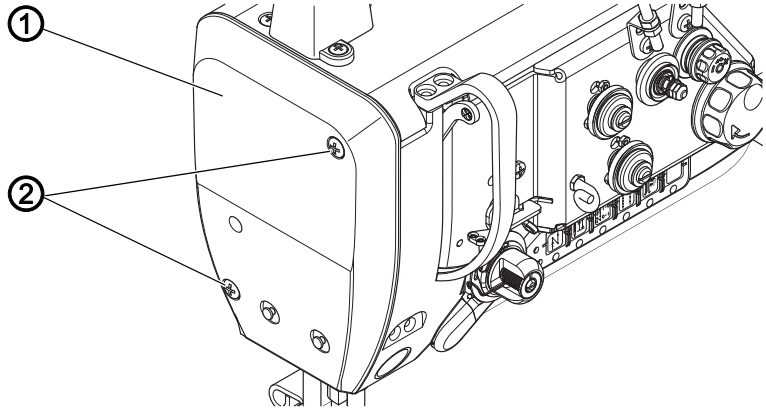
Placing the arm cover

To place the arm cover:

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

3.4.3 Removing and placing the head cover

Fig. 7: Removing and placing the head cover



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

Removing the head cover

To remove the head cover:

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

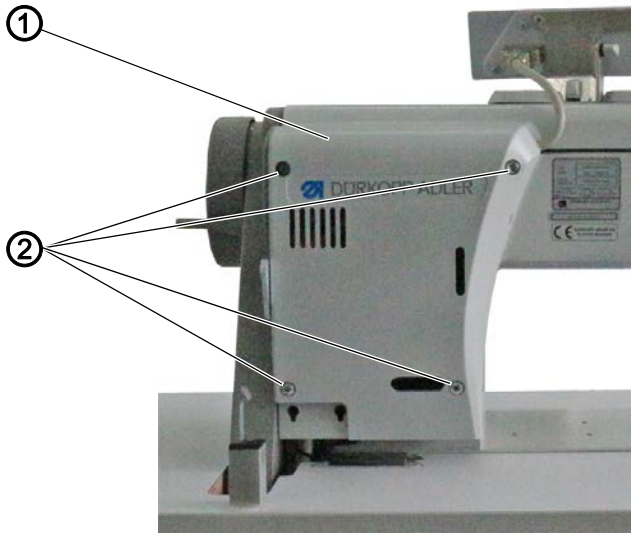
Placing the head cover

To place the head cover:

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

3.4.4 Removing and placing the valve cover

Fig. 8: Removing and placing the valve cover



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

Important

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

Removing the valve cover

To remove the valve cover:

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

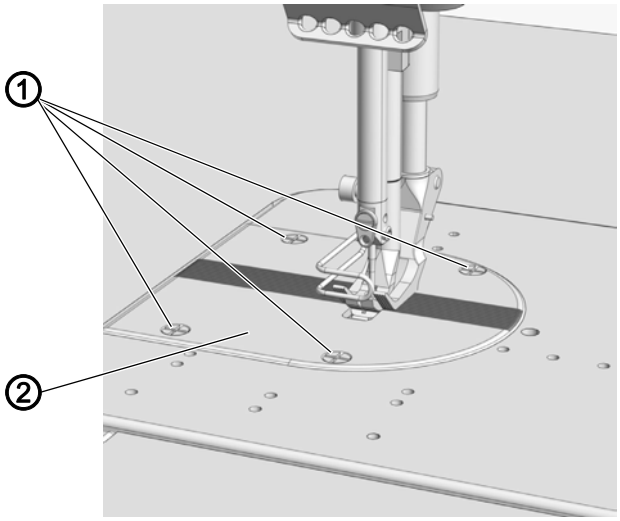
Placing the valve cover

To place the valve cover:

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

3.4.5 Disassembling and assembling the throat plate

Fig. 9: Disassembling and assembling the throat plate



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

Disassembling the throat plate

To disassemble the throat plate:

1. Execute the service routine `Feed Dog > Assemble` (📖 *p. 14*).
   ↳ The software is used to define the necessary presettings on the machine.
2. Loosen the screws (1).
3. Remove the throat plate (2).
4. Finish the service routine.

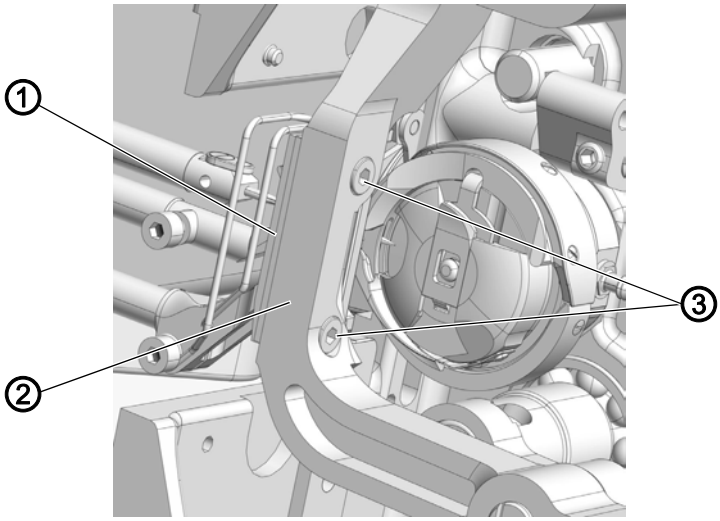
Assembling the throat plate

To assemble the throat plate:

1. Execute the service routine `Feed Dog > Assemble` (📖 *p. 14*).
   ↳ The software is used to define the necessary presettings on the machine.
2. Insert the throat plate (2).
3. Tighten the screws (1).
4. Finish the service routine.

3.4.6 Disassembling and assembling the feed dog

Fig. 10: Disassembling and assembling the feed dog



(1) - Feed dog
(2) - Feed dog carrier
(3) - Screws

Proper setting

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

Disassembling the feed dog

To disassemble the feed dog:

1. Execute the service routine `Feed Dog > Assemble` (📖 *p. 14*).

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

Important

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

1. Tilt the machine head (📖 *p. 17*).
2. Loosen the screws (3).
3. Remove the feed dog (1) from the feed dog carrier (2).

Assembling the feed dog

To assemble the feed dog:

1. Place the feed dog (1) onto the feed dog carrier (2).
2. Tighten the screws (3).
3. Erect the machine head.
4. Finish the service routine.

Important

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

Check the feed dog position in its movement at maximum stitch length (depending on the equipment: 6 or 9) by turning on the handwheel.
The feed dog must not hit against the throat plate.

Order

Then check the following setting:

- Feed dog (📖 *p. 34*)

3.4.7 Removing the oil pan

Fig. 11: Removing the oil pan

(1) - Oil pan

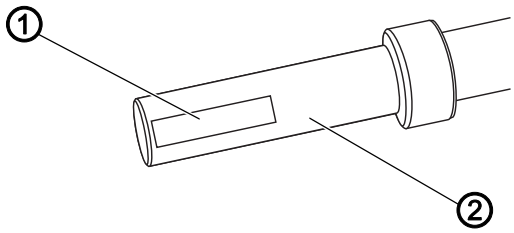
(2) - Screws

To remove the oil pan:

1. Tilt the machine head (📖 *p. 17*).
2. Loosen the screws (2).
3. Remove the oil pan (1).

3.5 Flats on shafts

Fig. 12: Flats on shafts



(1) - Flat
(2) - Shaft

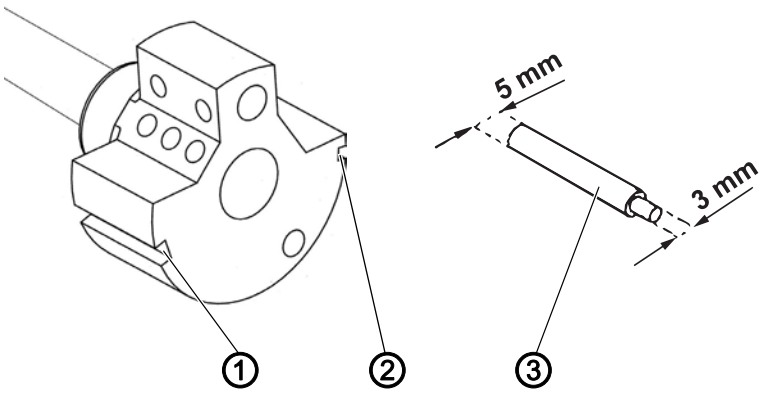
Some shafts have flat surfaces at the points where the components are screwed on. This stabilizes the connection and makes setting easier.

Important

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

3.6 Locking the machine in place

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



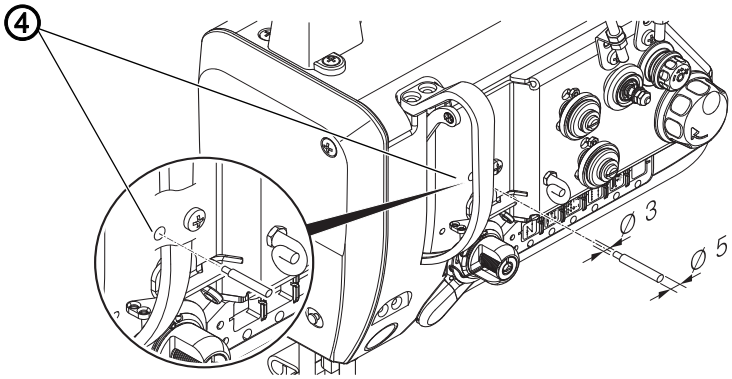
(1) - Large arresting groove
(2) - Small arresting groove
(3) - Locking peg

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

There are 2 securing positions:

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

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



(4) - Locking opening

Locking the machine in place

To lock the machine in place:

1. Remove the plug from the locking opening (4).
2. Turn the handwheel until the appropriate arresting groove (1) or (2) is in front of the locking opening (4):
   - Small arresting groove at handwheel position 0° (needle bar at top dead center)
   - Large arresting groove at handwheel position 200° – 205° (needle bar to bottom dead center)
3. Insert the locking peg (3) with the appropriate end into arresting groove (1) or (2).

Removing the lock

To remove the lock:

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

4 Positioning the arm shaft

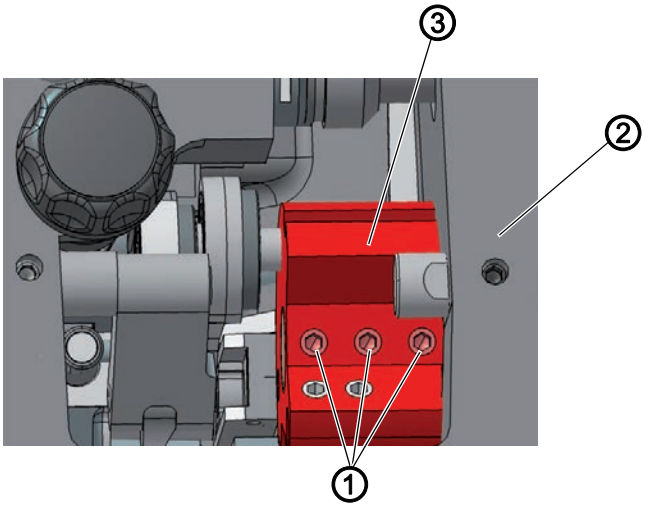
WARNING

Risk of injury from moving parts!

Crushing possible.

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

Flg. 15: Positioning the arm shaft



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

Proper setting

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

To position the arm shaft:

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

5 Positioning the toothed belt wheels

WARNING

Risk of injury from moving parts!

Crushing possible.

Switch off the machine before positioning the toothed belt wheels.

Proper setting

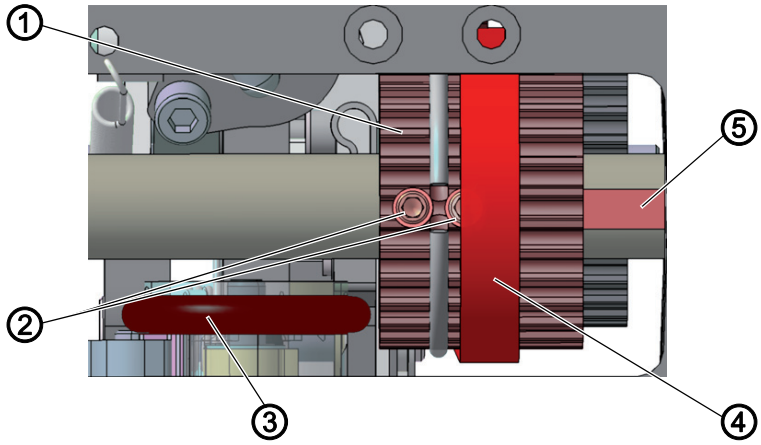
The two toothed belt wheels must be positioned above each other so that the toothed belt can run correctly. The winder wheel is directly next to the upper toothed belt wheel and determines its alignment.

Important

The position of the upper toothed belt wheel is defined by the distance to the winder wheel.
Therefore, you must first align the upper toothed belt wheel on the winder wheel and then align the lower toothed belt wheel so that the toothed belt runs correctly over both wheels.

5.1 Positioning the upper toothed belt wheel

Flg. 16: Positioning the upper toothed belt wheel



(1) - Upper toothed belt wheel
(2) - Threaded pins
(3) - Winder wheel (position in machines with normal lengths)
(4) - Toothed belt
(5) - Flat of arm shaft

Proper setting

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

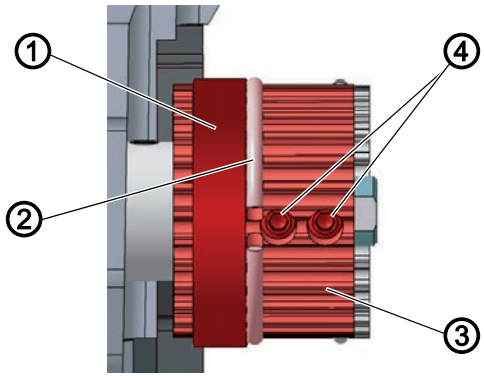
The distance between the winder wheel (3) and the upper toothed belt wheel (1) must be 0.8 mm.
The toothed belt (4) runs correctly without running against the retaining ring or slipping off.

To position the upper toothed belt wheel:

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

5.2 Positioning the lower toothed belt wheel

Flg. 17: Positioning the lower toothed belt wheel



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

Proper setting

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

To position the lower toothed belt wheel:

1. Tilt the machine head (📖 *p. 17*).
2. Remove the oil pan (📖 *p. 23*).
3. Loosen the threaded pins (4).

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

6 Setting the mechanical stitch adjustment

WARNING

Risk of injury from moving parts!

Crushing possible.

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

6.1 Setting the stitch regulator gear

Proper setting

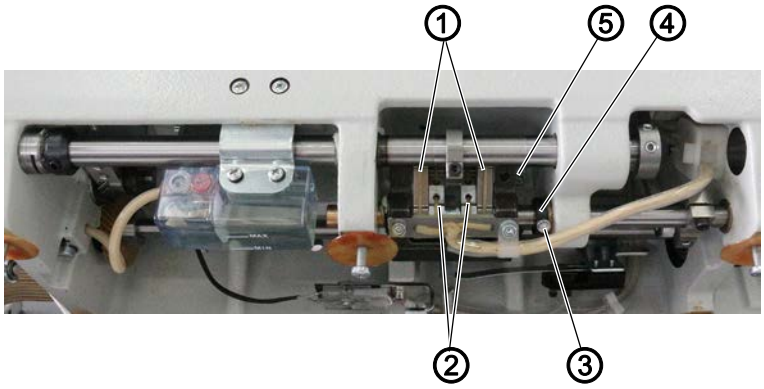
The stitch regulator gear is set to 0.

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

Cover

- Tilt the machine head (🕮 *p. 17*)
- Removing the valve cover (🕮 *p. 20*)

FIg. 18: Setting the mechanical stitch adjustment (1)

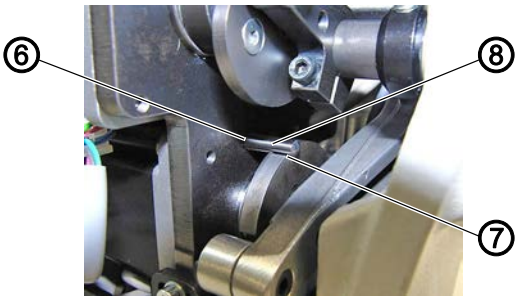


(1) - Frame of the stitch regulator gear
(2) - Plates of the stitch regulator gear
(3) - Screw
(4) - Lever
(5) - Tension spring

To set the stitch regulator gear:

1. Switch off the machine.
2. Remove the oil pan (🕮 *p. 23*).
3. Remove the tension spring (5).
4. Loosen the screw (3).

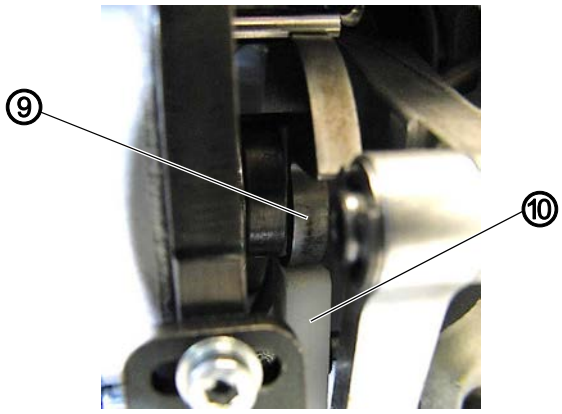
Flg. 19: Setting the mechanical stitch adjustment (2)



(6) - Hole
(7) - Recess
(8) - Locking pin ∅ 5 mm

5. Insert the locking pin (8) into the hole (6) on the bearing bracket and into the recess (7) in the control cam.
6. Manually position the plates (2) so that they are parallel.

Flg. 20: Setting the mechanical stitch adjustment (3)



(9) - Control cam
(10) - Plastic track

7. Set the lever (4) so that the white plastic track (10) abuts on the control cam (9) without play.
8. Verify that the plates (2) are still parallel to one another.
9. Tighten the screw (3).
10. Attach the tension spring (5).

↳ Next, pull the lever with the plastic track (10) through the spring of the stitch regulator gear and into the stop of the control cam (9).

11. Check whether the plates (2) are still parallel; if not, repeat the setting.

6.2 Setting the eccentric for the forward and backward stitches

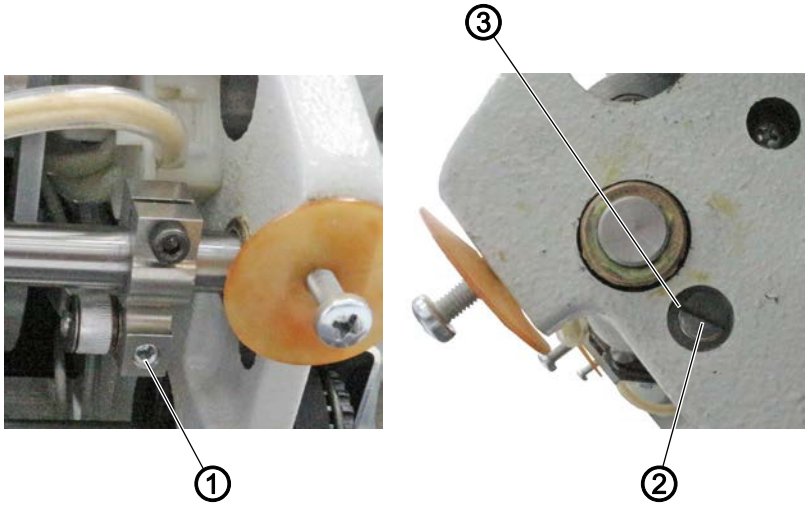
Proper setting

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

Cover

- Tilt the machine head (📖 *p. 17*)

Flg. 21: Setting the eccentric for the forward and backward stitches



(1) - Threaded pin
(2) - Eccentric
(3) - Open side

To set the eccentric (2):

1. Loosen the threaded pin (1).
2. Turn the eccentric (2) from the right through the opening in the base plate:

   Initial position:
   The slot of the eccentric (2) is flush with the threaded pin (1) and parallel to the belt. The open side (3) of the slot points toward the threaded pin (1).
3. If it is not already in its home position, move the eccentric (2) to the home position.
4. Re-tighten the threaded pin (1).
5. Use the software to perform the fine adjustment (📖 *p. 107*).

7 Setting the feed dog

WARNING

Risk of injury from moving parts!

Crushing possible.

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

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

Order

First, check the following setting:

- Needle bar linkage (📖 *p. 41*)
- A straight and undamaged needle has been inserted (📖 *Operating Instructions*)

7.1 Setting the feed dog position

Proper setting

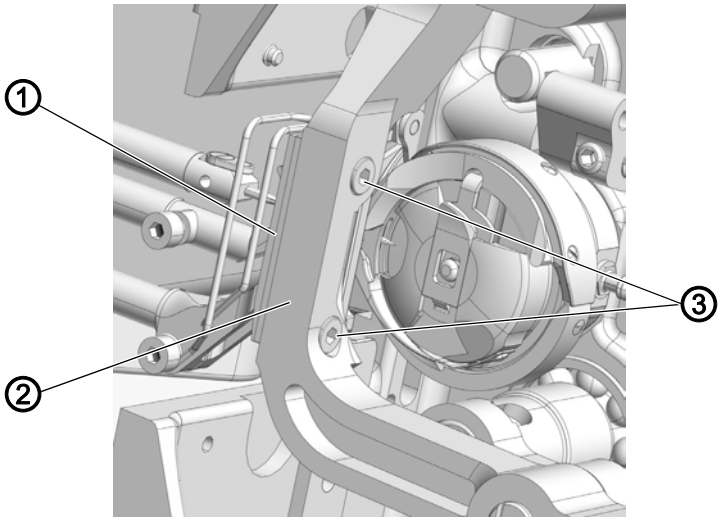
When the stitch length is set to **0**, the needle pierces exactly in the center of the needle hole and the feed dog is exactly in the center of the throat plate cutout, both sideways and in the sewing direction.

Information

For minimal deviations, it suffices to move the feed dog on the carrier (📖 *p. 35*).

Moving the feed dog

FIg. 22: Moving the feed dog



(1) - Feed dog
(2) - Feed dog carrier
(3) - Screws

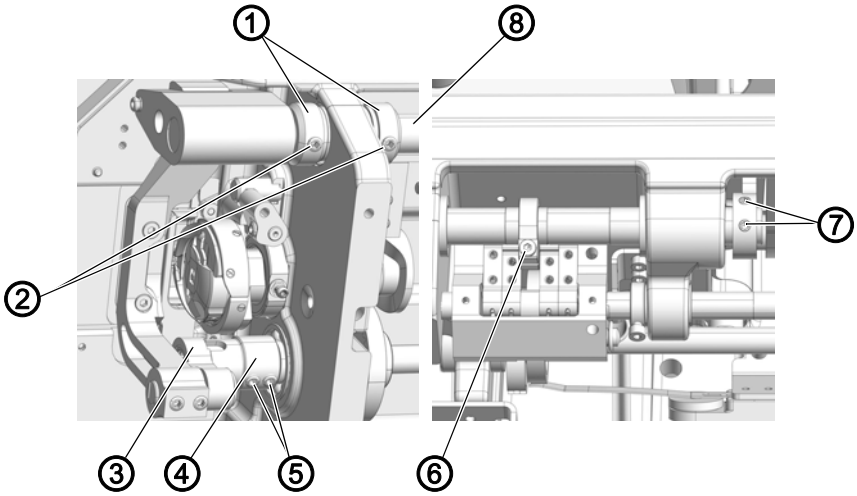
To move the feed dog:

1. Execute the service routine `Feed Dog > Pos To Needle` (📖 *p. 14*).
   ↳ The software is used to define the necessary presettings on the machine.
2. Loosen the screws (3).
3. Move the feed dog (1) on the feed dog carrier (2).
   Place the removed throat plate next to it as an aid for orientation so that the feed dog (1) can be screwed on straight.
4. Tighten the screws (3).
   ↳ If this is not sufficient, move the entire feed dog carrier on the sliding shaft (📖 *p. 36*).
5. Finish the service routine.

7.2 Moving the feed dog carrier

The feed dog carrier is connected to the stitch regulator gear via the sliding shaft, and can be moved on this shaft.

Flg. 23: Moving the feed dog carrier



(1) - Adjusting rings
(2) - Threaded pins
(3) - Lever
(4) - Stroke eccentric
(5) - Threaded pins
(6) - Screw
(7) - Threaded pins
(8) - Sliding shaft

To move the feed dog carrier:

1. Execute the service routine `Feed Dog > Pos To Needle` (📖 *p. 14*).

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

2. Tilt the machine head (📖 *p. 17*).
3. Remove the oil pan (📖 *p. 23*).
4. Loosen threaded pins (2), (5) and (7).
5. Loosen the screw (6).
6. Move the feed dog carrier perpendicular to the sewing direction so that the feed dog is exactly in the center of the throat plate cutout.
7. Push the adjusting rings (1) toward each other as far as they will go.

Important

Make sure that the sliding shaft (8) is tightened by the clamping rings and does not have any axial play.

8. Tighten threaded pins (2) and (5).
9. The stroke eccentric (4) and the slot of the lever (3) must be in a line.
10. Move the feed dog carrier in the sewing direction such that the feed dog is exactly in the center of the throat plate cutout.
11. Tighten the threaded pin (7).

12. Tighten the screw (6).

↳ In the process, make sure that the feed dog height has the correct setting (📖 *p. 38*).

13. Finish the service routine.

7.3 Setting the feed dog movement

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

Order

First, check the following setting:

- Feed dog position (📖 *p. 34*)

7.3.1 Setting the feed dog feed movement

Proper setting

Machine is locked in place at position 1.
The slot of the pusher eccentric and the slot of the connecting rod are in a line.

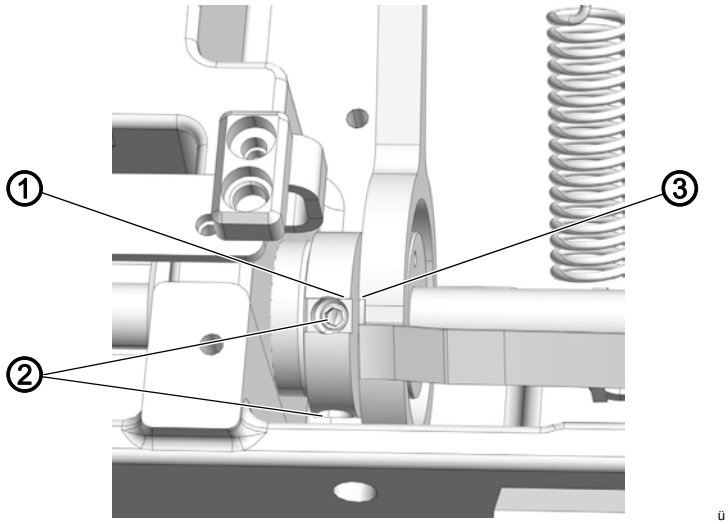
To set the feed dog feed movement:

1. Execute the service routine `Feed Dog > Feed Dog Move` (📖 *p. 14*).

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

2. Lock the machine in place at position 1 (📖 *p. 24*).
3. Tilt the machine head (📖 *p. 17*).
4. Remove the oil pan (📖 *p. 23*).

Flg. 24: Setting the feed dog feed movement (2)



(1) - Slot of the pusher eccentric
(2) - Threaded pins
(3) - Slot of the connecting rod

5. Loosen the threaded pins (2).
6. Turn the pusher eccentric such that the slot (1) is in a line with the slot (3) of the connecting rod.
7. Tighten the threaded pins (3).
8. Finish the service routine.

7.3.2 Setting the feed dog height at top dead center

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

Proper setting

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

↳ The upper edge of the feed dog protrudes 0.5 mm above the throat plate.

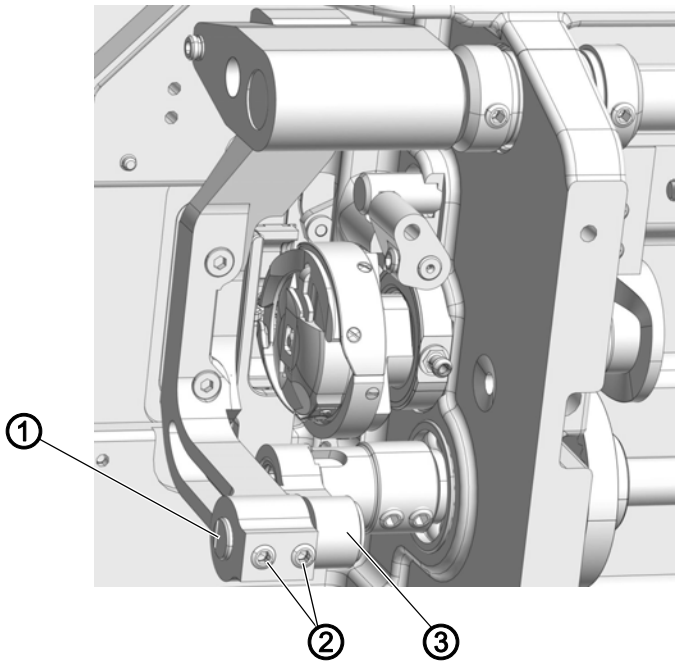
To set the feed dog height at top dead center:

1. Execute the service routine `Feed Dog > Pos To Needle` (📖 *p. 14*).

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

2. Turn the handwheel until the feed dog is at its highest position.
3. Tilt the machine head (📖 *p. 17*).
4. Remove the oil pan (📖 *p. 23*).

Flg. 25: Setting the feed dog height at top dead center



(1) - Eccentric bolt
(2) - Threaded pins
(3) - Lever

5. Loosen the threaded pins (2).
6. Turn the eccentric bolt (1) such that the upper edge of the feed dog protrudes 0.5 mm above the throat plate.
7. Move the eccentric bolt (1) to the left such that the feed dog has no play in relation to the lever (3).
8. Tighten the threaded pins (2).
9. Finish the service routine.

7.3.3 Setting the feed dog stroke movement

Order

First, check the following setting:

- Feed dog height (📖 *p. 34*)

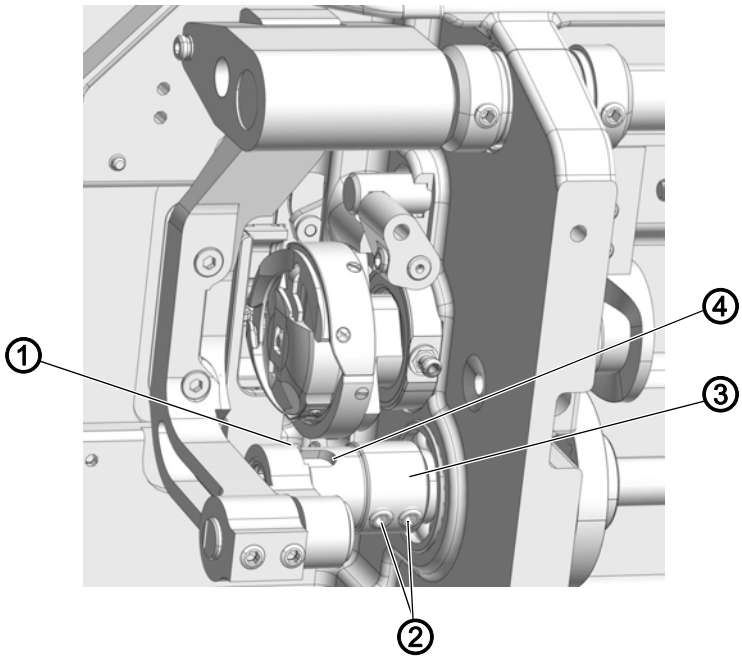
Proper setting

Machine is locked in place at position **1**.
The slot of the stroke eccentric and the slot of the lever are in a line.

To set the feed dog stroke movement:

1. Execute the service routine `Feed Dog > Feed Dog Move` (📖 *p. 14*).
   ↳ The software is used to define the necessary presettings on the machine.
2. Lock the machine in place at position **1**.
3. Tilt the machine head (📖 *p. 17*).
4. Remove the oil pan (📖 *p. 23*).

FIg. 26: Setting the feed dog stroke movement



(1) - Lever
(2) - Threaded pins
(3) - Stroke eccentric
(4) - Slot

5. Loosen the threaded pins (2).
6. Turn the stroke eccentric (3) such that the slot (4) is in a line with the slot of the lever (1).
7. Tighten the threaded pins (2).
8. Finish the service routine.

8 Aligning the needle bar linkage

WARNING

Risk of injury from moving parts!

Crushing possible.

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

Order

First, check the following setting:

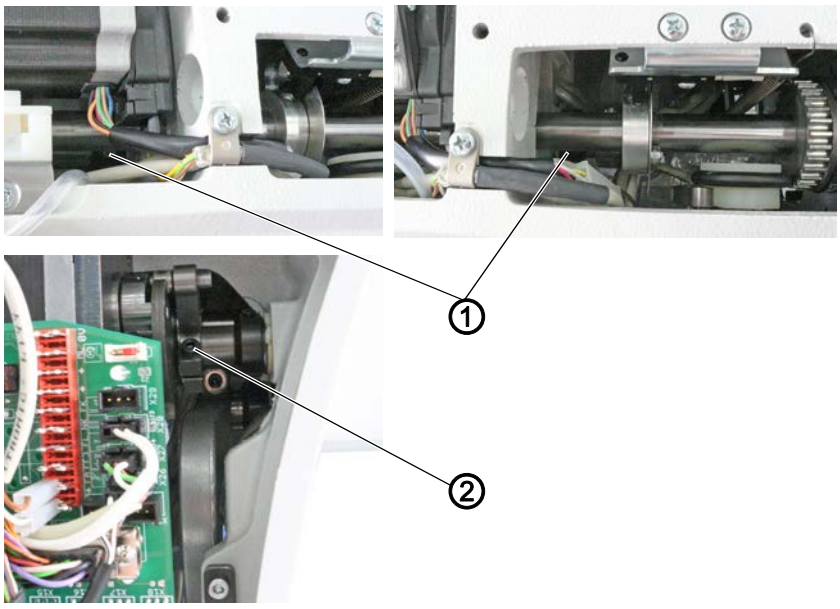
- A straight and undamaged needle has been inserted (📖 *Operating Instructions*)

Proper setting

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

8.1 Aligning the needle bar linkage sideways

Flg. 27: Aligning the needle bar linkage sideways (1)



(1) - Threaded pins *(2) - Screw*

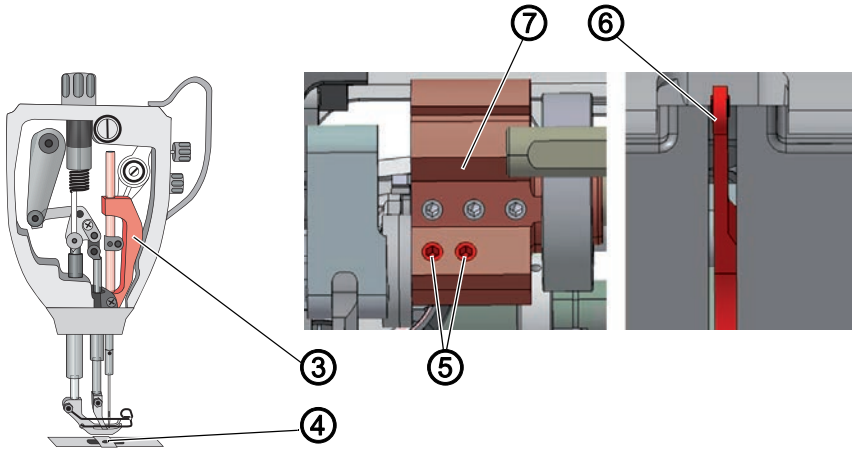
To align the needle bar linkage sideways:

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

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

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

Flg. 28: Aligning the needle bar linkage sideways (2)



(3) - Needle bar linkage
(4) - Throat plate
(5) - Threaded pins
(6) - Thread lever
(7) - Arm shaft crank

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

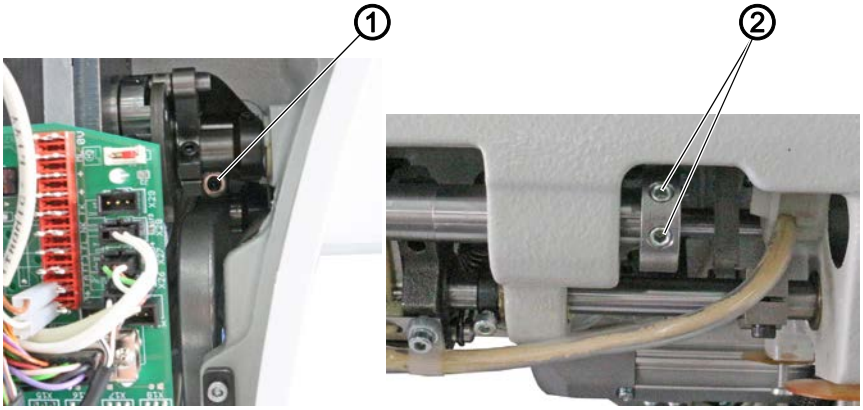
Order

Then, check the following settings:

- Distance between hook and needle (📖 *p. 44*)
- Loop stroke position (📖 *p. 46*)

8.2 Aligning the needle bar linkage in the sewing direction

FIg. 29: Aligning the needle bar linkage in the sewing direction



(1) - Screw

(2) - Threaded pins

Proper setting

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

To align the needle bar linkage in the sewing direction:

1. Execute the service routine `Needle Hook > Needlebar` (📖 *p. 14*).
   ↳ The software is used to define the necessary presettings on the machine.
2. Remove the valve cover (📖 *p. 20*).
3. Tilt the machine head (📖 *p. 17*).
4. Remove the oil pan (📖 *p. 23*).
5. Loosen the threaded pins (2).
6. Loosen the screw (1).
7. Position the needle bar linkage such that the needle pierces in the center of the needle hole.
8. Tighten the threaded pins (2).
9. Tighten the screw (1).
10. Finish the service routine.

Order

Then, check the following settings:

- Loop stroke position (📖 *p. 46*)

9 Position of the hook and needle

WARNING

Risk of injury from sharp and moving parts!

Puncture or crushing possible.

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

NOTICE

Property damage may occur!

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

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

9.1 Setting the hook side clearance

Order

First, check the following settings:

- A straight and undamaged needle has been inserted (🕮 *Operating Instructions*)
- Needle bar linkage is aligned correctly (🕮 *p. 41*)
- Loop stroke position (🕮 *p. 46*)

Proper setting

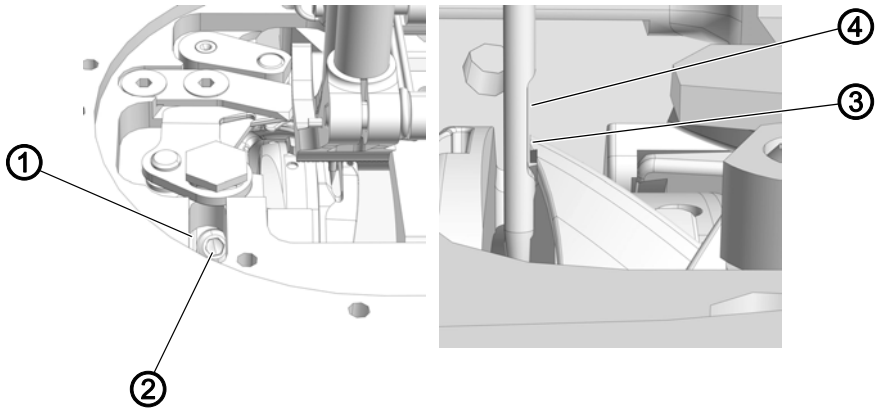
Machine is locked in place at position **1** (🕮 *p. 17*).

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

To set the hook side clearance:

1. Execute the service routine `Needle Hook > Timing` (🕮 *p. 14*).
   ↳ The software is used to define the necessary presettings on the machine.
2. Tilt the machine head (🕮 *p. 17*).
3. Disassemble the throat plate (🕮 *p. 21*).
4. Disassemble the feed dog (🕮 *p. 22*).

FIg. 30: Setting the hook side clearance

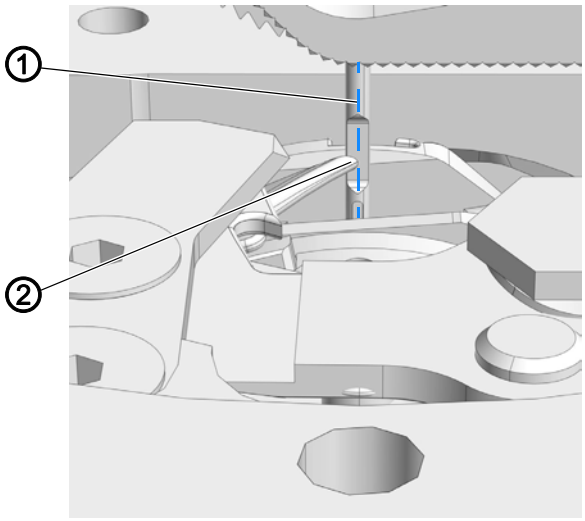


(1) - Slot for screw
(2) - Threaded pins
(3) - Hook tip
(4) - Needle groove

5. Lock the machine in place at position **1** (📖 *p. 24*).
6. Remove the middle section from the hook.
7. Loosen the threaded pins (2) through the slot (1).
   The 1st screw in the direction of rotation is located on the flat.
8. Move the hook sideways such that the distance between the hook tip (3) and the groove of the needle (4) is no greater than 0.1 mm.
   The hook tip (3) must not touch the needle.
9. Tighten the threaded pins (2).
10. Remove the lock.
11. Assemble the feed dog (📖 *p. 22*).
12. Assemble the throat plate (📖 *p. 21*).
13. Finish the service routine.

9.2 Setting the loop stroke position

FIg. 31: Setting the loop stroke position (1)



(1) - Vertical center line of the needle *(2) - Hook tip*

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

The loop stroke is precisely 2 mm.

Order

First, check the following settings:

- Needle bar linkage is aligned correctly (📖 *p. 41*)
- A straight and undamaged needle has been inserted (📖 *Operating Instructions*)

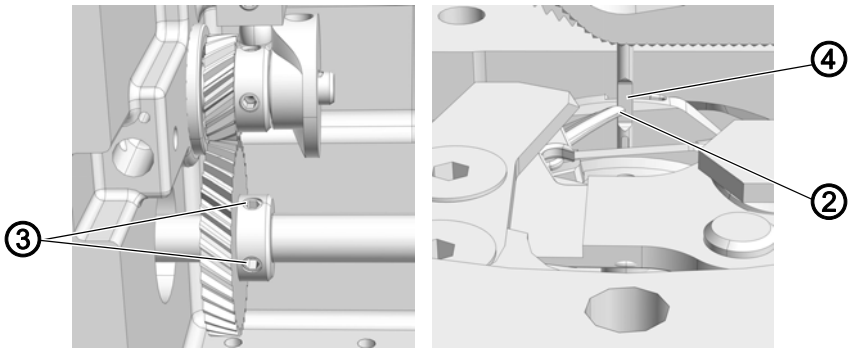
Proper setting

Machine is locked in place at position **1** (📖 *p. 24*).
The hook tip (2) points exactly to the vertical center line of the needle (1).

To set the loop stroke position:

1. Execute the service routine `Needle Hook > Timing` (📖 *p. 14*).
   ↳ The software is used to define the necessary presettings on the machine.
2. Tilt the machine head (📖 *p. 17*).
3. Remove the oil pan (📖 *p. 23*).
4. Disassemble the throat plate (📖 *p. 21*).
5. Disassemble the feed dog (📖 *p. 22*).

FIg. 32: Setting the loop stroke position (2)



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

6. Lock the machine in place at position **1** (📖 *p. 24*).
7. Loosen the threaded pins (3).
8. Turn the hook such that the hook tip (2) points exactly to the vertical center line of the needle (1).
   The hook tip (2) is in the lower third of the needle groove (4).
9. Tighten the threaded pins (2).
10. Remove the lock.
11. Finish the service routine.

Order

Then, check the following settings:

- Timing of cutting by the thread cutter (📖 *p. 63*)

9.3 Setting the needle bar height

Order

First, check the following settings:

- Loop stroke position (📖 *p. 46*)
- A straight and undamaged needle has been inserted (📖 *Operating Instructions*)

Proper setting

Machine is locked in place at position **1** (📖 *p. 24*).

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

Disturbance

Disturbances caused by an incorrect needle bar height

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

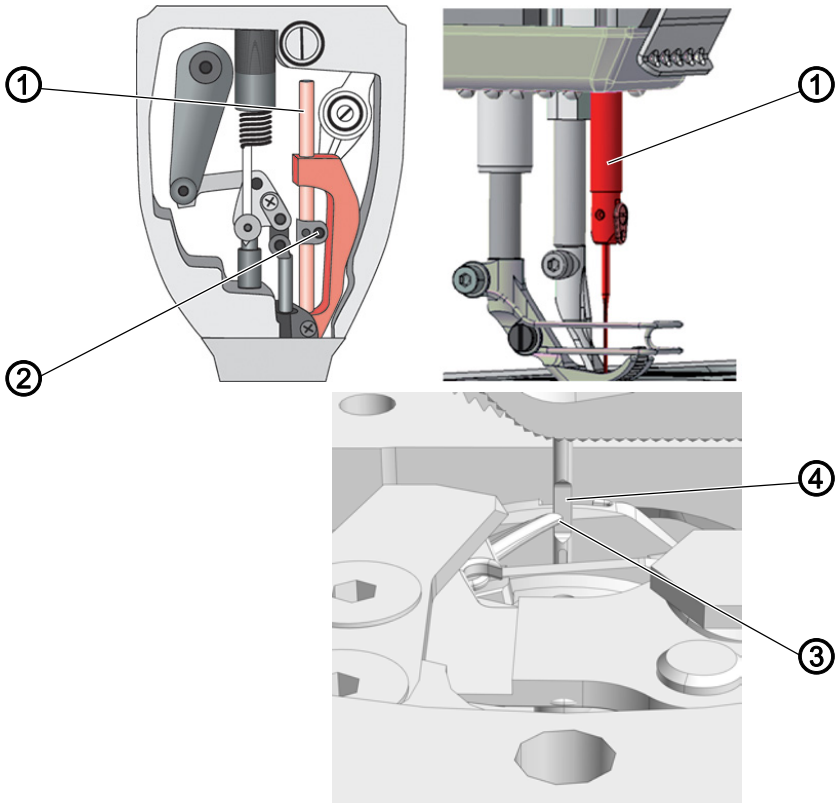
To set the needle bar height:

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

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

2. Remove the head cover (📖 *p. 19*).

Flg. 33: Setting the needle bar height



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

3. Loosen the screw (2) of the needle bar (1).
4. Move the height of the needle bar (1) so that the hook tip (3) is in the middle of the lower third of the groove on the needle (4).
   When doing so, take care not to twist the needle to the side.
   The groove (4) must face toward the hook.
5. Tighten the screw (2) for the needle bar (1).
6. Finish the service routine.

10 Sewing feet

WARNING

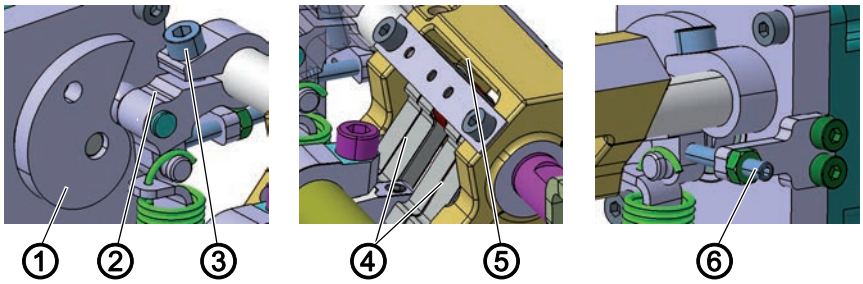
Risk of injury from sharp and moving parts!

Puncture or crushing possible.

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

10.1 Setting the sewing foot lifting gear

FIg. 34: Setting the sewing foot lifting gear



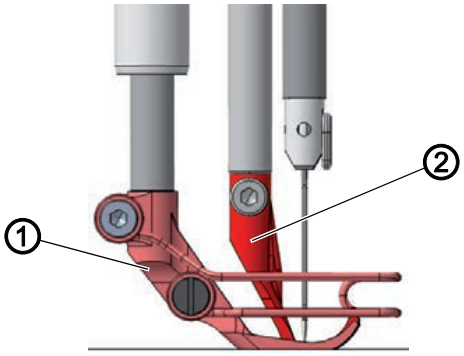
(1) - Control cam
(2) - Lever
(3) - Screw
(4) - Plates
(5) - Gear
(6) - Threaded pin

To set the lifting gear of the sewing foot:

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

10.2 Setting an even sewing foot stroke

Flg. 35: Setting an even sewing foot stroke (1)



(1) - Presser foot
(2) - Feeding foot

Proper setting

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

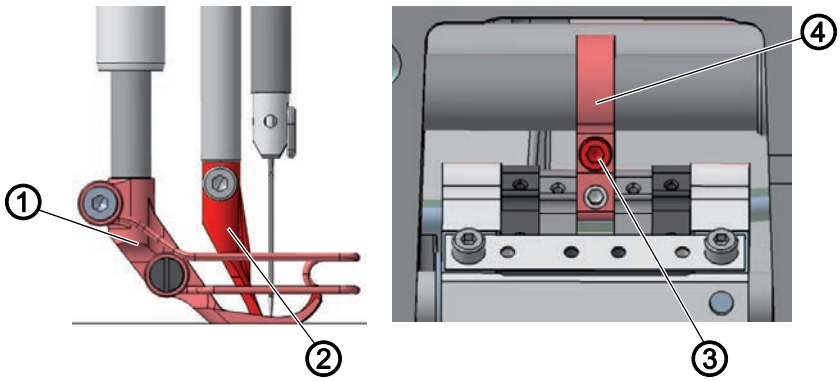
To set an even sewing foot stroke:

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

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

2. Remove the arm cover (📖 *p. 18*).

Flg. 36: Setting the sewing foot stroke (2)

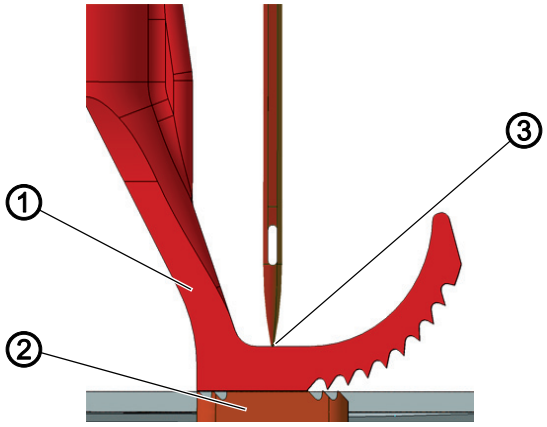


(1) - Presser foot
(2) - Feeding foot
(3) - Screw
(4) - Lever

3. Loosen the screw (3).
4. Lower the feeding foot (2) to a height of 3 mm above the throat plate.
5. Tighten the screw (3).
6. Check whether the presser foot (1) and the feeding foot (2) are raised to the same height.
   If not, correct the setting.
7. Finish the service routine.

10.3 Setting the stroke movement for the feeding foot

Flg. 37: Setting the stroke movement for the feeding foot (1)



(1) - Feeding foot
(2) - Feed dog
(3) - Needle tip

Order

First, check the following settings:

- Feed dog movement (📖 *p. 37*)
- Sewing foot stroke(📖 *p. 51*)

Proper setting

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

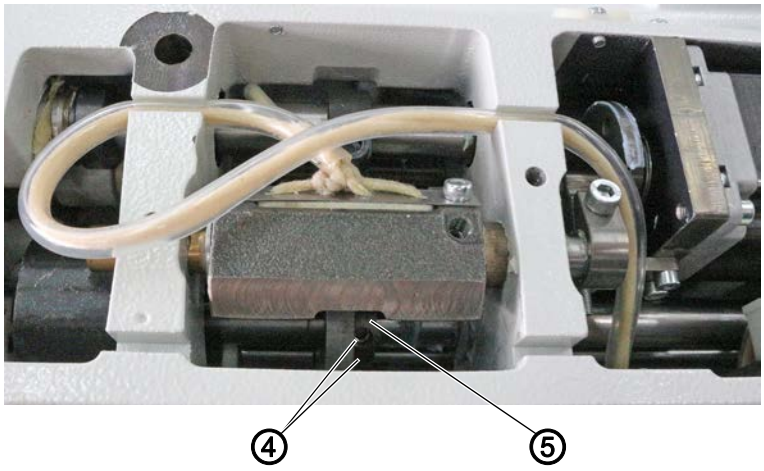
To set the stroke movement for the feeding foot:

1. Execute the service routine `Stroke > Feed Move` (📖 *p. 14*).

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

2. Remove the arm cover (📖 *p. 18*).

Flg. 38: Setting the stroke movement for the feeding foot (2)



(4) - Threaded pins

(5) - Stroke eccentric

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

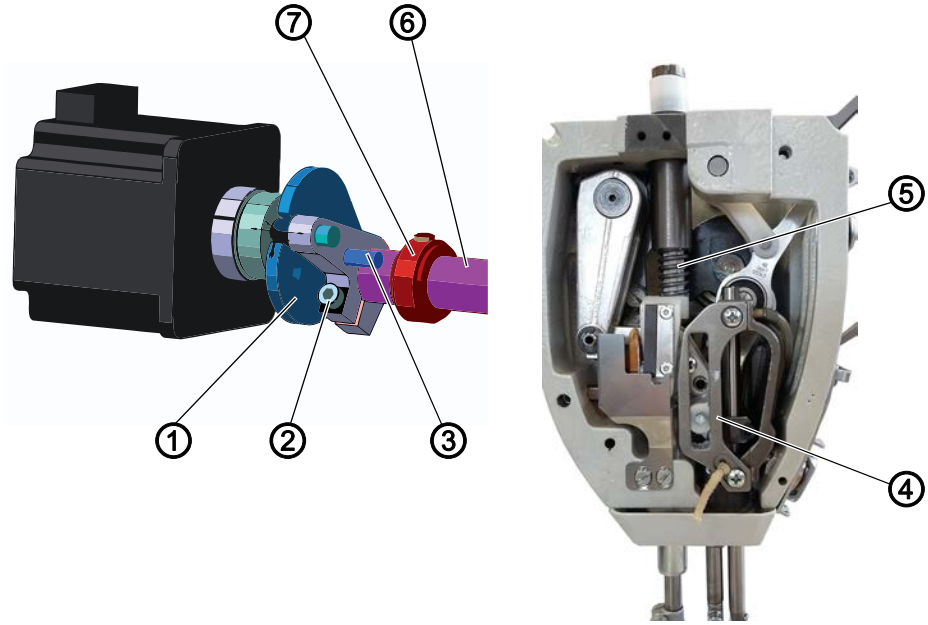
Important

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

5. Tighten the threaded pins (4).
6. Finish the service routine.

10.4 Setting the sewing foot pressure and sewing foot lift

FIg. 39: Setting the sewing foot pressure and sewing foot lift



(1) - Control cam
(2) - Screw
(3) - Cylinder pin 5m 6x24 (part number 9301 102221)
(4) - Guide
(5) - Spring
(6) - Setting shaft
(7) - Adjusting ring

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

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

Sewing foot pressure

The sewing foot pressure is set via the program parameters.

The correct sewing foot pressure depends on the sewing material:

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

Proper setting

The sewing material does not slip and is correctly transported.

Sewing foot lift

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

Proper setting

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

11 Setting the needle thread tension

CAUTION

Risk of injury from sharp and moving parts!

Puncture or crushing possible.

Switch off the machine before setting the needle thread tension.

11.1 Setting the needle thread regulator

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

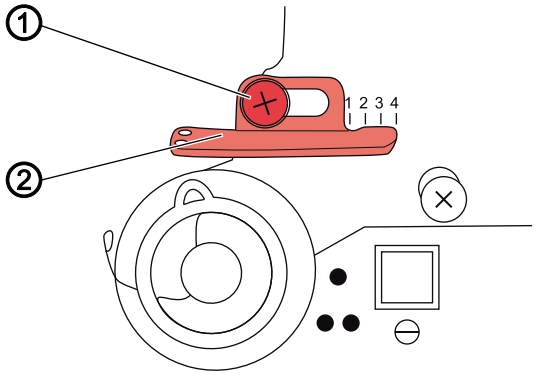
- Lower needle thread tension: thin sewing material, low thread strengths
- Higher needle thread tension: thick sewing material, high thread strengths

Proper setting

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

To set the needle thread tension:

Flg. 40: Setting the needle thread regulator



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

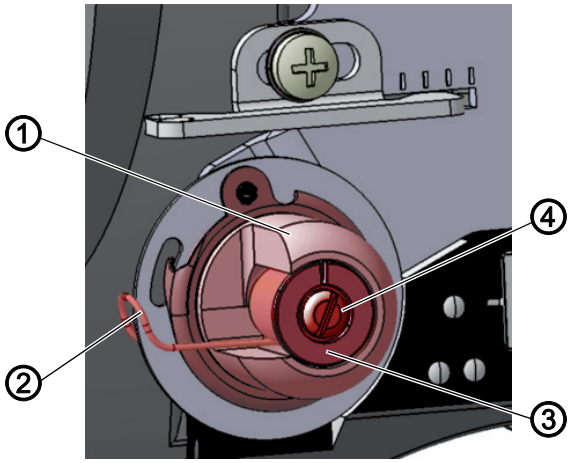
1. Turn the handwheel and observe the cycle of the needle thread around the hook.
2. Loosen the screw (1).
3. Move the needle thread regulator (2)

- Reduce needle thread tension: slide to the left
- Increase needle thread tension: slide to the right

4. Tighten the screw (1).

11.2 Setting the thread tension spring

FIg. 41: Setting the thread tension spring



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

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

Proper setting

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

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

To set the thread tension spring:

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

Important

Do not twist the stop collar in doing so.

4. Tighten the screw (4).

11.3 Electronic needle thread tension

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

If you have any inquiries about the electronic needle thread tension, please consult **Customer Service** (📖 *p. 133*).

12 Winder

WARNING

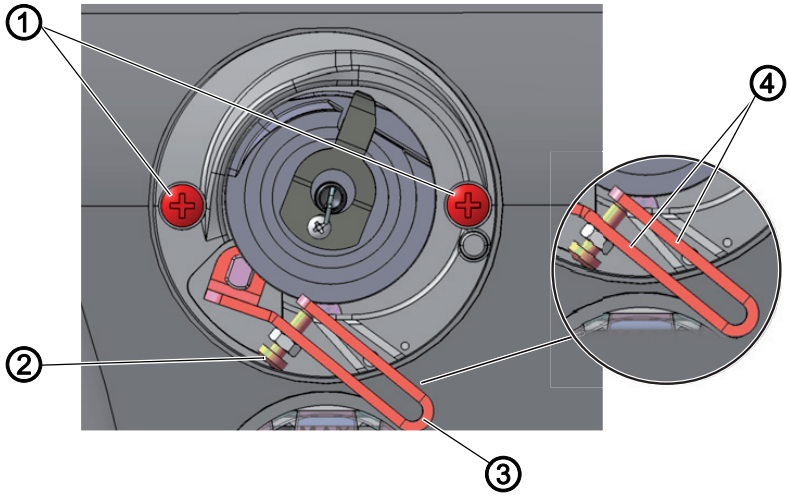
Risk of injury from moving parts!

Crushing possible.

Switch off the machine before setting the winder.

12.1 Setting the winder

FIg. 42: Setting the winder (1)



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

Proper setting

The winder wheel runs smoothly and without axial play.

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

To set the winder:

1. Remove the arm cover (📖 *p. 18*).

Removing the winder

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

Setting the winder filling quantity

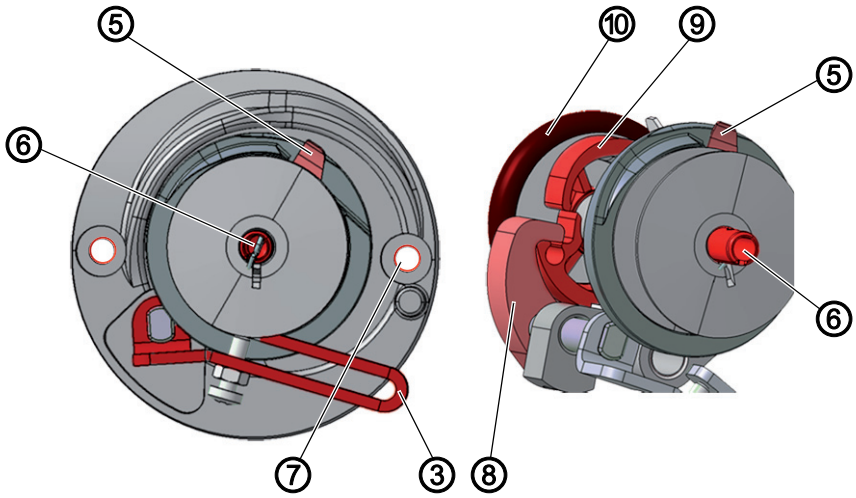
The position of the arms (4) on the winder lever (3) determines the filling quantity:

- **Parallel:** Automatic winding stop at 0.5 mm below the edge of the winder
- **Closer together:** Automatic stop with larger filling quantity
- **Further apart from each other:** Automatic stop with smaller filling quantity

4. Turn the screw (2):
   - Arms (4) closer together: turn counterclockwise
   - Arms (4) further apart from each other: turn clockwise
5. Put the completely filled bobbin onto the winder.
6. Fold the winder lever (3) upwards as far as it will go to the thread.

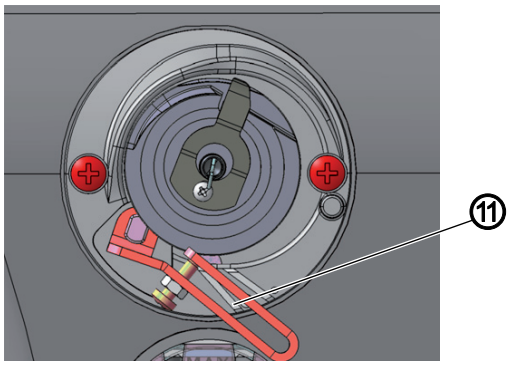
Setting the winder spacing

Flg. 43: Setting the winder (2)



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

Flg. 44: Setting the winder (3)



(11) - Marking for XXL hook

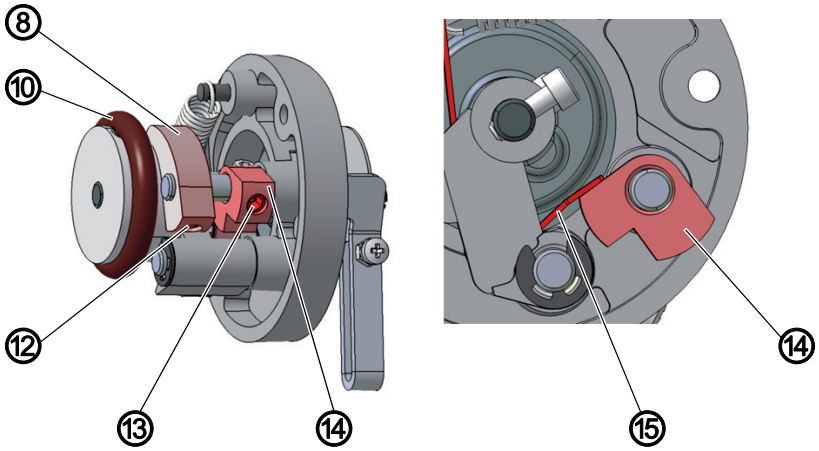
To set the winder spacing:

7. Turn the winder spindle (6) such that the thread-pulling knife (5) is at the top right and is facing the right-hand screw hole (7).
8. Loosen the threaded pin in the block (8).
9. Set the winder lever (3) such that the upper arm is above the marking for the XXL hook (11).

   ↳ The distance between the winder lever and the outer thread on the bobbin is 2 – 3 mm.
10. Set the block (8) such that it is resting against the locking disk (9).
11. Set the block (8) such that its distance to the winder wheel (10) is 0.5 mm.
12. Tighten the threaded pin in the block (8).

Setting the winder run

Flg. 45: Setting the winder (4)



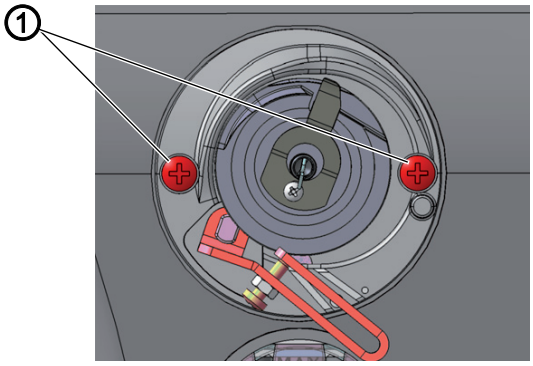
(8) - Block
(10) - Winder wheel
(12) - Threaded pin
(13) - Threaded pin
(14) - Switch cam
(15) - Leaf spring

To set the winder run:

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

Installing the winder

Flg. 46: Setting the winder (5)



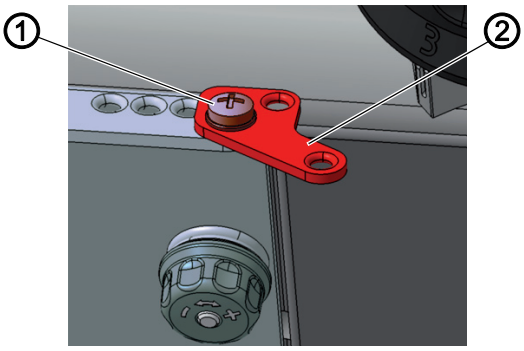
(1) - Screws

To install the winder:

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

12.2 Setting the hook thread guide

Flg. 47: Setting the hook thread guide



(1) - Screw *(2) - Hook thread guide*

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

Proper setting

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

To set the bobbin thread guide:

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

13 Thread cutter

WARNING

Risk of injury from sharp and moving parts!

Cutting and crushing possible.

Switch off the machine before setting the thread cutter.

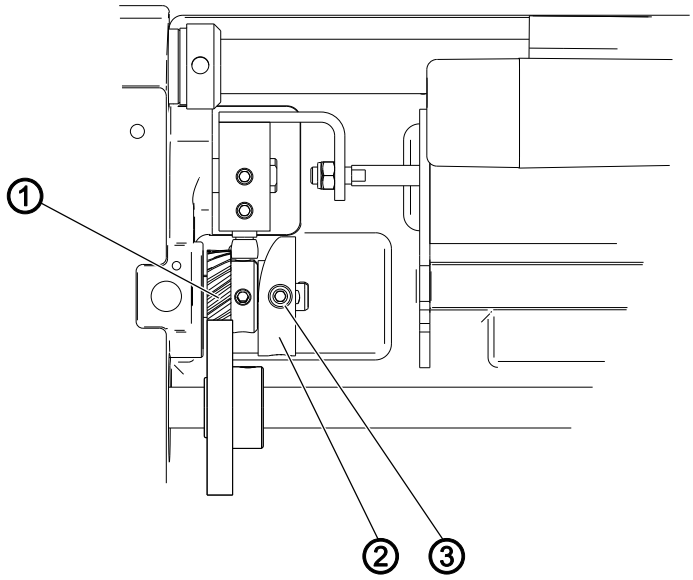
Order

Complete the following steps before setting the thread cutter:

- Tilt the machine head (📖 *p. 17*)
- Remove the oil pan (📖 *p. 23*)

13.1 Setting the control cam position

FIg. 48: Setting the control cam position



(1) - Hook pinion
(2) - Control cam
(3) - Screw

Proper setting

The control cam (2) makes contact with the hook pinion (1).
The first screw (3) in the hook's direction of rotation must be located on the flat of the shaft. This defines the timing of the knife movement.

To set the position of the control cam:

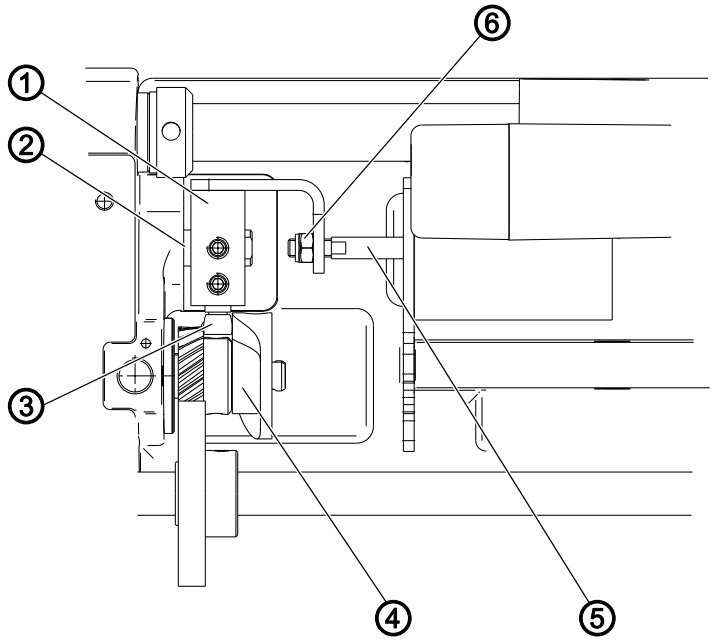
1. Loosen the screw (3) on the control cam (2).
2. Rotate the control cam (2).

↳ The first screw in the direction of rotation is located on the flat of the shaft.

3. Tighten the screw (3).

13.2 Setting the armature of the thread cutter magnet

Flg. 49: Setting the armature of the thread cutter magnet



(1) - Block
(2) - Pull rod
(3) - Roller
(4) - Control cam
(5) - Armature
(6) - Nut

Proper setting

When the magnet is at rest, the distance between the roller (3) and the highest point of the control cam (4) must range between 0.2 and 0.3 mm.

To check the armature of the thread cutter magnet:

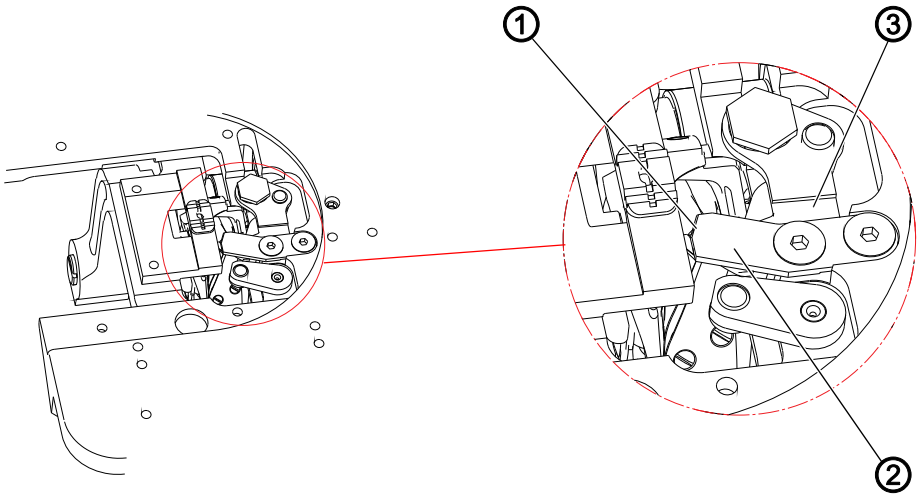
1. Slide the pull rod (2) with the block (1) all the way to the left.
2. Check the distance between the roller (3) and the control cam (4) using a feeler gage.

To set the armature of the thread cutter magnet:

3. Turn the nut (6) on the armature (5).
4. Check the setting and correct it if necessary.

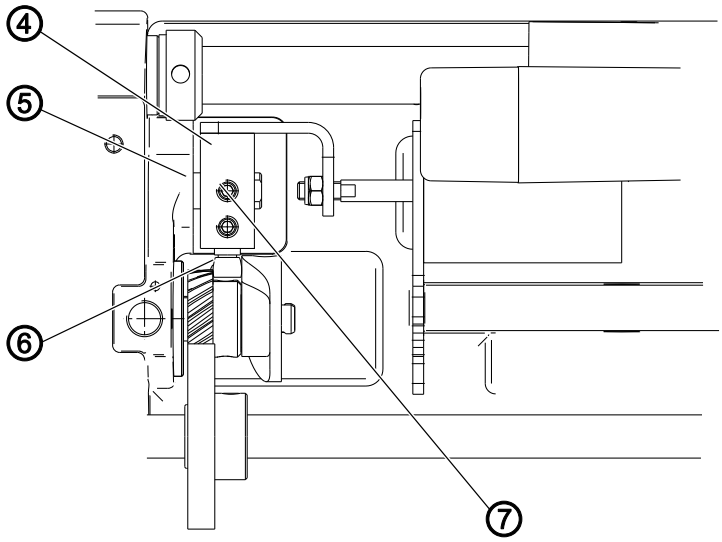
13.3 Setting the position of the thread-pulling knife

Flg. 50: Setting the position of the thread-pulling knife (1)



(1) - Point
(2) - Stationary knife
(3) - Thread-pulling knife

Flg. 51: Setting the position of the thread-pulling knife (2)



(4) - Block
(5) - Pull rod
(6) - Roller
(7) - Screw

Proper setting

When the knife is at rest, the tip (1) of the thread-pulling knife (3) must be positioned flush below the cutting edge of the stationary knife (2).

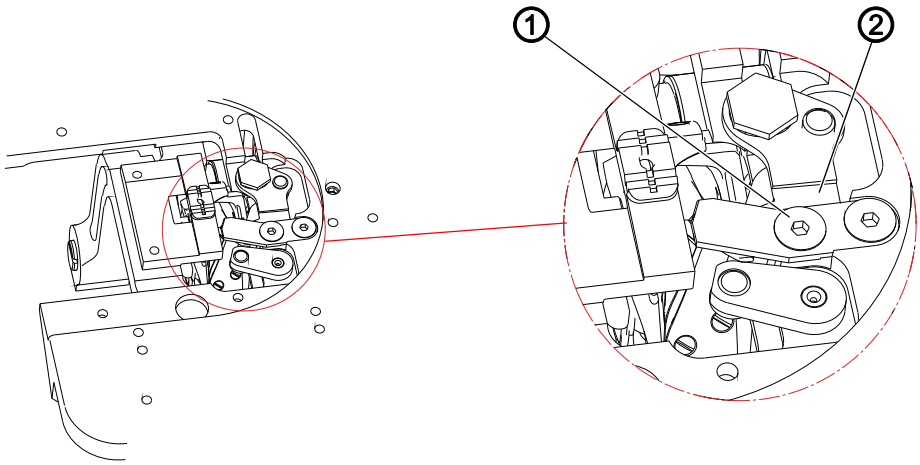
To set the position of the thread-pulling knife:

1. Turn the handwheel until the thread lever is positioned slightly beyond its highest point.
2. Loosen the screw (7).
3. Set the thread-pulling knife (3).

4. Slide the pull rod (5) to the left under slight pressure to keep the play inside the mechanics of the thread cutter at a minimum.
5. Position the block (4) with the roller (6) against the control cam.
6. Tighten the screw (7).
7. Check the setting and correct it if necessary.

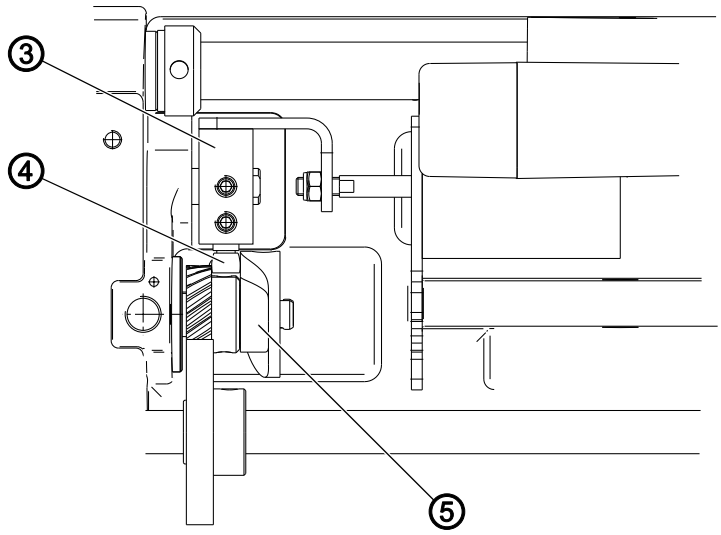
13.4 Setting the cutting pressure

Flg. 52: Setting the cutting pressure (1)



(1) - Screw
(2) - Thread-pulling knife

Flg. 53: Setting the cutting pressure (2)



(3) - Block
(4) - Roller
(5) - Control cam

Proper setting

The thread should be cut at a pressure that is as low as possible.
A low cutting pressure will keep knife wear at a minimum.
Two of the thickest threads used must be reliably cut at the same time.

Important

If the cutting pressure is too high, the thread cutter magnet will not swivel out the thread-pulling knife. The thread will not be cut.

To check the cutting pressure:

1. Turn the handwheel until the thread-pulling knife (2) can be swung out by hand.
2. To do this, press the block (3) with the roller (4) to the right against the control cam.

↳ The thread-pulling knife (2) swivels out.

3. Insert 2 threads to be cut into the thread-pulling knife (2).
4. Turn the handwheel further until the thread-pulling knife (2) is swiveled down.
5. Check whether the threads have been cleanly cut.

To set the cutting pressure:

1. Turn the screw (1).
   - greater cutting pressure: turn clockwise
   - lower cutting pressure: turn counterclockwise
2. Check the setting and correct it if necessary.

14 Programming

This chapter deals exclusively with content on the Technician level. For a description of how to create programs or how to make changes to the sewing parameters, the programming on the Operator level is explained in the 🕮 *Operating Instructions 867-M PREMIUM*.

14.1 Calling up the Technician level

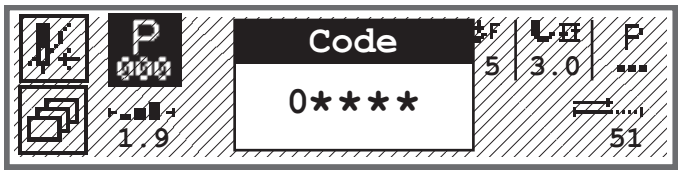
A password is requested to make it possible to make changes on the Technician level.

To access the Technician level:

1. Switch on the machine.
2. Press the **P** and **S** buttons at the same time.

↳ The display shows the input screen for the password:

Fig. 54: Password input screen



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

↳ You are on the Technician level:

14.2 Structure of the software

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

Submenu	Description	Reference
`Lock Techn.`	Lock the Technician level	🕮 *p. 70*
`ParameterCall`	Parameter selection (visible only when activated)	🕮 *p. 70*
`Default Program`	Program presettings	🕮 *p. 72*
`Machine config.`	Machine configuration	🕮 *p. 75*
`User config.`	User configuration	🕮 *p. 89*
`Service`	Service	🕮 *p. 102*
`Counter`	Counter	🕮 *p. 109*
`Reset`	Reset data	🕮 *p. 109*
`Data transfer`	Data transfer	🕮 *p. 110*

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

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

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

Secure option to exit the Technician level

1. Select the *Lock Techn.* parameter.
2. Press the **OK** button to confirm the parameter.

↳ You are on the Technician level. After pressing the buttons **P** and **S**, you will not be able to access the Technician level unless you re-enter your password.

Non-secure option to exit the Technician level

1. Exit the Technician level with a press of the ◀ button or the **ESC** button.

↳ You are on the Technician level. You can access the Technician level by pressing the buttons **P** and **S** without the need to enter your password again.

Information

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

14.4 *ParameterCall* submenu

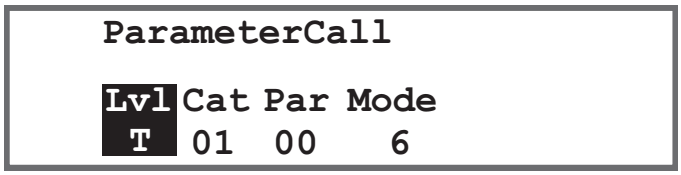
The submenu is visible only if the *ParameterView* parameter (📖 *p. 90*) is active. The settings for a parameter can be changed directly here.

To change the parameters:

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

↳ A window appears where the parameter can be selected:

Fig. 55: `ParameterCall` submenu



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

Abbreviation	Meaning
O	Operator/user
T	Technician

4. Use the ► button to move to the `Cat` category and select the desired value with the ▲/▼ buttons or the numeric buttons. The categories are explained in the 🕮 *Parameter list 867-M PREMIUM*.
5. Use the ► button to move to the `Par` parameter and select the desired value with the ▲/▼ buttons or the number keys. The parameters are explained in the 🕮 *Parameter list 867-M PREMIUM*.
6. Use the ► button to move to the fourth value on the far right. This value may vary, depending on the parameter. It may be a mode or a window with an action selection.
7. Enter parameter value and confirm by pressing **OK**.

14.5 *Default Program* submenu

P
001-999

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

The menu is divided into the following submenus:

Parameter	Explanation	Reference
Stitchlen.	Stitch length	🕮 *p. 72*
Foot Press.	Foot pressure	🕮 *p. 73*
Thr.Tens.	Needle thread tension	🕮 *p. 73*
Foot Stroke	Sewing foot stroke	🕮 *p. 73*
Start Tack	Start bartack	🕮 *p. 74*
End Tack	End bartack	🕮 *p. 74*
Thread Trim	Thread cutter	🕮 *p. 74*
DailyPieces	Daily pieces counter	🕮 *p. 74*

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

mm

NOTICE

Property damage may occur!

The machine and the sewing equipment may be damaged.

ALWAYS adjust the stitch length to the selected sewing equipment.

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

To set the stitch length parameter:

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

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

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

To set the Foot pressure parameter:

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

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

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

To set the Needle thread tension parameter:

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

Information

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

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

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

To set the Sewing foot stroke parameter:

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

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

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

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

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

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

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

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

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

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

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

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

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

14.6 *Machine config.* submenu

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

The menu is divided into the following submenus:

Parameter	Explanation	Reference
Thread Trim	Thread cutter	📖 p. 76
Thread clamp	Thread clamp	📖 p. 77
Speed	Speed	📖 p. 79
Stop Positions	Stop positions	📖 p. 79
Foot	Sewing foot	📖 p. 80
Thr.Tens.	Needle thread tension	📖 p. 80
Stroke	Sewing foot stroke	📖 p. 81
Stitchlen.	Stitch length	📖 p. 82
Bobbin	Bobbin	📖 p. 82
Holding Force	Motor holding force	📖 p. 82
Pedal	Pedal	📖 p. 84
NeedleCooling	Needle cooling	📖 p. 84
Center Guide	Seam middle guide	📖 p. 85
Puller	Puller	📖 p. 85
EdgeGuide	Edge guide	📖 p. 87
Mat.Thickness	Material thickness detection	📖 p. 87
Speed Corr	Correcting effects of high speed	📖 p. 88
LightBarrier	Light barrier	📖 p. 88
Mode Seg.Size	Segment length	📖 p. 89
Threading	Threading mode	📖 p. 89
MachineBlockage	Operation lock	📖 p. 89

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

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

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

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

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

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

Menu item	Setting options
Mode	Various modes (1 to 10) are available; explanations can be found in the 🕮 *Parameter list 867-M PREMIUM*.
Mat. Thickness	Compensation of the material thickness (Value range: On/Off)
Clamp Angle	On/Off Position for activating and deactivating the thread clamp. (Value range 000 – 359)
Foot Angle	On/Off Position for lifting/lowering the sewing feet, to release a thread jammed underneath. (Value range 000 – 359)
	Height Lifting height of the sewing feet. (Value range 01.0 – 12.0)

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

14.6.3 Setting the Speed (*Speed*) parameter

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

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

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

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

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

14.6.5 Setting the Sewing foot (*Foot*) parameter

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

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

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

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

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

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

NOTICE

Property damage may occur!

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

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

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

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

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

NOTICE

Property damage may occur!

The machine and the sewing equipment may be damaged.

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

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

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

14.6.9 Setting the Bobbin (*Bobbin*) parameter

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

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

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

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

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

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

14.6.11 Setting the Pedal (*Pedal*) parameter

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

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

14.6.12 Setting the Needle cooling (*NeedleCooling*) parameter

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

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

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

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

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

14.6.14 Setting the Puller (*Puller*) parameter

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

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

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

14.6.15 Setting the Edge guide (*EdgeGuide*) parameter

NOTICE

Property damage may occur!

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

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

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

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

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

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

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

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

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

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

14.6.18 Setting the Light barrier (*LightBarrier*) parameter

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

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

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

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

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

14.6.20 Setting the Threading mode (*Threading*) parameter

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

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

14.6.21 Setting the Operation lock (*MachineBlockage*) parameter

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

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

14.7 *User config.* submenu

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

The menu is divided into the following submenus:

Parameter	Explanation	Reference
Language	Language selection	📖 *p. 90*
ParameterView	Parameter view	📖 *p. 90*
Input Config	Configuration of the inputs	📖 *p. 91*
Output Config	Configuration of the outputs	📖 *p. 93*

Parameter	Explanation	Reference
Add I/O	Additional inputs/outputs	🕮 *p. 94*
Scanner	Hand scanner	🕮 *p. 97*
Interface	Interface	🕮 *p. 97*
StitchFunctions	Stitch functions	🕮 *p. 97*
Programs	Programs	🕮 *p. 98*
Jog-Dial	Electronic handwheel	🕮 *p. 98*
Lock	Access rights	🕮 *p. 99*
QONDAC	Networking of machines	🕮 *p. 100*
FastMenuKeys	Activation of the fast menu keys	🕮 *p. 100*
Contrast	Contrast	🕮 *p. 101*
Brightness	Brightness	🕮 *p. 101*

14.7.1 Setting the Language selection (*Language*) parameter

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

To set the Language selection parameter:

1. Select the *Language* parameter.
2. Select the desired language with the ▲/▼ buttons.
3. Press the **OK** button to confirm the selection.

↳ The language is set immediately.

14.7.2 Setting the Parameter View (*ParameterView*) parameter

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

Fig. 56: Example `ParameterView` *inactive*

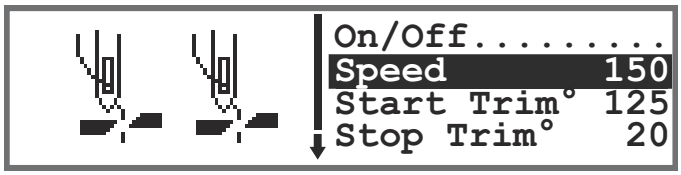
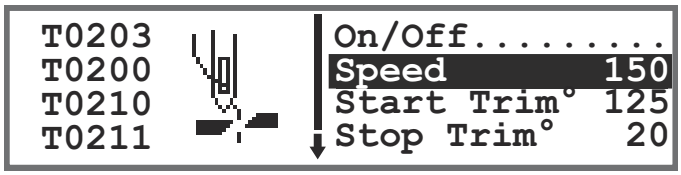


Fig. 57: Example `ParameterView` active



When *`ParameterView`* is active, the item *`ParameterCall`* is added to the menus in both Manual mode and Automatic mode. This function is described separately (📖 *p. 70*).

14.7.3 Setting the Input configuration (*`Input Config`*) parameter

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

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

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

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

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

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

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

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

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

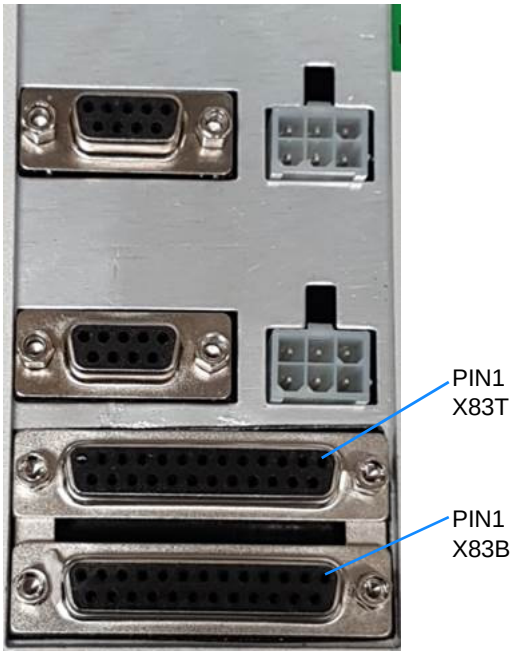
Mode	Function
19	Segment Output 6
20	Segment Output 7
21	Segment Output 8

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

The additional outputs make it possible to implement customer-specific applications. Signals to the inputs / outputs can be assigned using the parameters T 53 00 (📖 *p. 91*) and T 56 00 (📖 *p. 93*).

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

Fig. 58: Connection of the additional inputs/outputs



Important

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

Fig. 59: Wiring - plug X83B

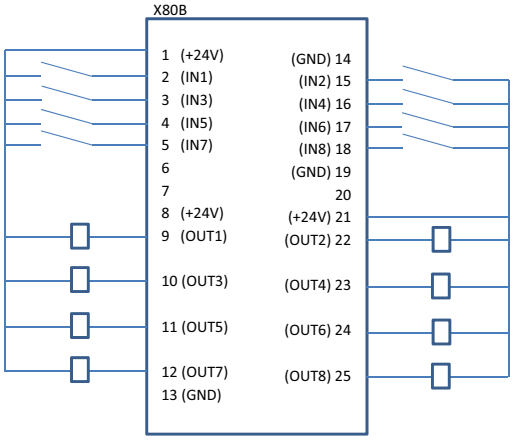


Fig. 60: Wiring - plug X83T

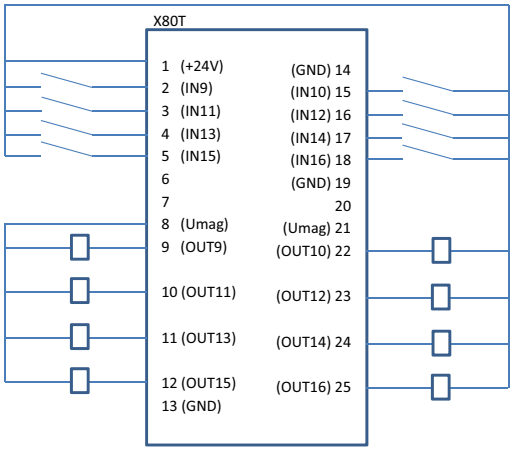


Fig. 61: Example of adapter for PLC and DACcomfort

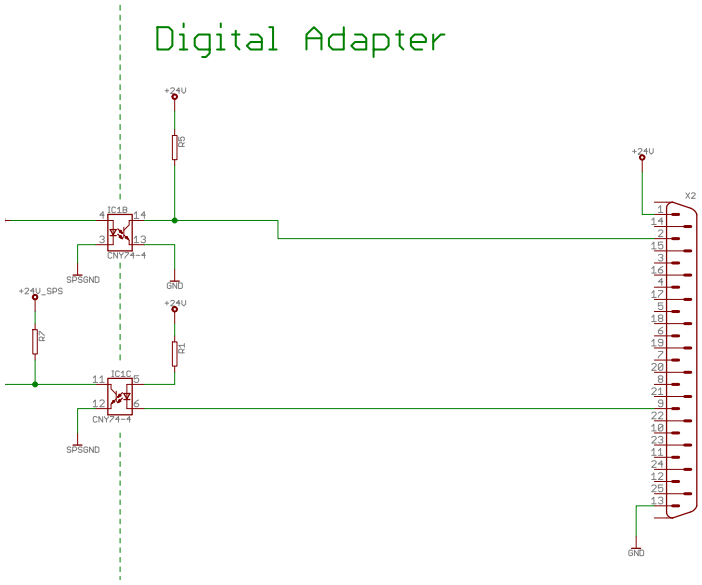
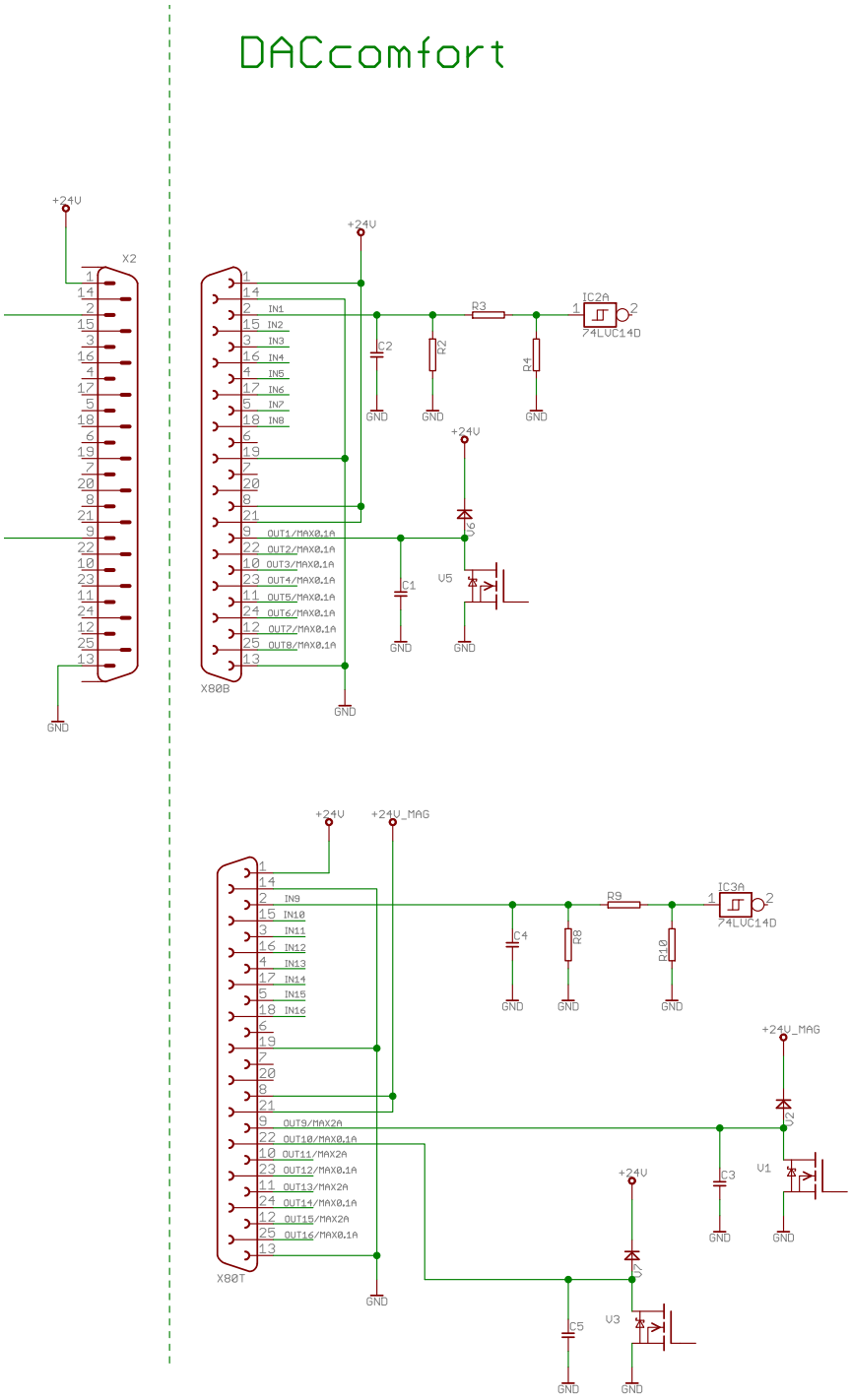


Fig. 62: Connecting adapter to DACcomfort



14.7.6 Setting the barcode scanner (*Scanner*) parameter

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

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

- Code 128
- UCC EAN 128
- Code 39

These barcode types can be created with freeware software.

Important

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

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

14.7.7 Setting the Interface (*Interface*) parameter

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

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

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

14.7.8 Setting the Stitch functions (*StitchFunctions*) parameter

The machine counts the stitches when a program is processed with the pedal. If the user sews half stitches or full stitches manually, they can also be counted, if required. To do so, this function must be active. The electronic handwheel is not affected by this setting.

14.7.9 Setting the Programs (*Programs*) parameter

P
001-999

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

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

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

The electronic handwheel can be activated or deactivated.

14.7.11 Setting the Access rights (*Lock*) parameter

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

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

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

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

14.7.12 Setting the QONDAC (*QONDAC*) parameter

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

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

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

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

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

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

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

14.7.14 Setting the Contrast (*Contrast*) parameter

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

To set the parameter:

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

14.7.15 Setting the Brightness (*Brightness*) parameter

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

To set the parameter:

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

14.8 *Service* submenu

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

The menu is divided into the following submenus:

Parameter	Explanation	Reference
Multi test	Multi test	📖 *p. 102*
Adjustments	Service routine	📖 *p. 106*
Calibration	Calibration	📖 *p. 106*
Error Log	Error list	📖 *p. 109*

14.8.1 Setting the Multitest (*Multitest*) parameter

This parameter makes it possible to test whether, for example, magnets, drives, and inputs or outputs are functioning correctly. 📖 *Parameter Sheet 867-M PREMIUM* lists the necessary allocations.

Subitem	Explanation	Reference
Test Output	Test of the outputs	📖 *p. 102*
Test PWM	Test of the pulse width modulation	📖 *p. 103*
Test Input	Test of the inputs	📖 *p. 103*
Test Ana. Input	Test of the analog inputs	📖 *p. 104*
Test Auto Input	Test of the inputs	📖 *p. 104*
Test Sew. Motor	Test of the sewing motor	📖 *p. 104*
Test Step. Motor	Test of the stepper motors	📖 *p. 105*
Test Pedal	Test of the analog pedal	📖 *p. 106*
Test Fabric Sen	Test of the material thickness detection (sensing)	📖 *p. 106*

Test Output subitem

Test of the outputs according to the wiring diagram.

To test the outputs:

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

Fig. 63: Test Output subitem

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

Test PWM subitem

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

To check the power outputs of the pulse width modulation:

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

Fig. 64: Test PWM subitem

2. Press the **OK** button to confirm the selection.

↳ The *Value* display toggles between *On* and *Off* every time the **OK** button is pressed.

3. Observe the selected element and check if a press on **OK** actually triggers it.

Important

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

Test Input subitem

Test of the inputs according to the wiring diagram.

To perform the test steps:

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

Fig. 65: Test Input subitem

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

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

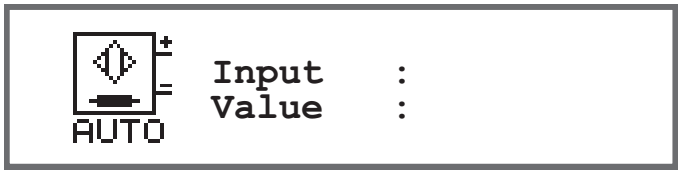
Test Ana. Input subitem

1. Select the desired element with the ▲/▼ buttons in the *Input* field.
2. Confirm the selected element.
3. Observe the display on the control panel.

↳ If the element is functional, the corresponding value is displayed.

Test Auto Input subitem

Fig. 66: Test Auto Input subitem



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

To perform the test steps:

1. Confirm the element.

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

Test Sew. Motor subitem

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

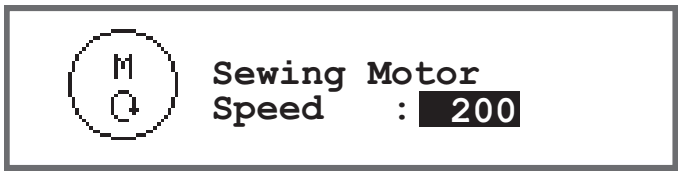
To check the sewing motor:

1. Press the **OK** button.

↳ The machine performs a reference run.

2. In the *Speed* field, use the ▲/▼ buttons to enter a speed in steps of 100.

Fig. 67: Test Sew. Motor subitem



3. Press the **OK** button to confirm the input.

↳ The sewing motor runs at the entered speed.

4. To end, press the **OK** or **ESC** button.

Test Step Motor subitem

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

To test the stepper motors:

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

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

Fig. 68: Test Step Motor subitem

2. Press the **OK** button to confirm the selection.
3. Use the ▲/▼ buttons to test the selected motor.

↳ If the motor is functioning correctly, the behavior described in the table will be shown.

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

Information

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

Test Pedal subitem

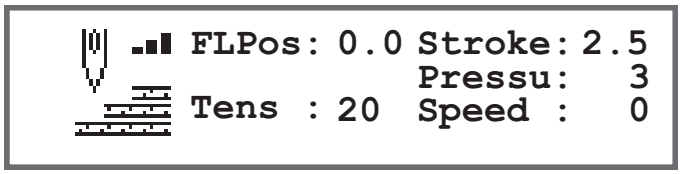
This subitem is used to check the various pedal positions of the analog pedal (X6b). The positions are indicated by measured and automatically calculated calibration values.

Fig. 69: Test Pedal subitem

Test Fabric Sen subitem

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

Fig. 70: Test Fabric Sen subitem



14.8.2 Setting the Service routine (*Adjustments*) parameter

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

14.8.3 Setting the Calibration (*Calibration*) parameter

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

Menu item	Explanation	Reference
Feed Cal.Main	Calibration of the stitch length and/or the feed	📖 *p. 107*
Mat.Thickness	Calibration of the material thickness detection	📖 *p. 108*
Man.St.Len.	Calibration of the stitch adjustment lever (optional equipment)	📖 *p. 108*
EdgeGuide	Calibration of the edge guide (optional equipment)	📖 *p. 108*
Pedal	Calibration of the pedal	📖 *p. 109*

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

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

WARNING

Risk of injury from the heavy machine head!

Crushing possible.

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

To calibrate the stitch length:

1. Setting the stitch length mechanically (📖 *p. 31*).
2. Call up the *Service* > *Calibration* > *Feed Cal.Main* menu item.
3. Select the stitch length (-6/0/6) and confirm with the **OK** button.
4. Start the sewing test on paper with the pedal and then check the stitch length:

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

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

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

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

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

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

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

To calibrate the material thickness detection:

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

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

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

To calibrate the stitch adjustment lever:

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

Important

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

Calibration of the Edge guide (*EdgeGuide*)

The edge guide is optional equipment.

To calibrate the edge guide:

1. Call up the *Service > Calibration > EdgeGuide* menu item.
2. Press the **OK** button to confirm the selection.

↳ The edge guide moves to the reference position.

3. Fold the edge guide down.
4. Measure the distance between the needle and the edge guide.
5. Enter the value with the ▲/▼ buttons.
6. Press the **OK** button to confirm the input.

↳ The calibration of the edge guide is complete.

Calibration of the Pedal (*Pedal*)

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

To calibrate the pedal:

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

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

The error list shows the errors that have occurred in the form of a list. The list can be exported to a USB key, 📖 *p. 115*.

14.9 *Counter* submenu

Σ

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

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

14.10 Reset data (*Reset*) submenu

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

NOTICE

Property damage may occur!

Data and settings of the machines may be irretrievably lost.

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

Access is possible only by entering the password 25483 again.

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

To reset the data:

1. Select the *Reset* parameter.
2. Press the **OK** button to confirm the selection.
3. Select the desired option – see the table – with the ▲/▼ buttons.
4. Press the **OK** button to confirm the selection.

↳ The reset is carried out without any further query and without a confirmation message.

Options for resetting the data

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

14.11 *Data Transfer* submenu

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

The menu is divided into the following submenus:

Parameter	Explanation	Reference
All data	All data	🕮 *p. 111*
Only Data	Only data	🕮 *p. 112*
Programs	Programs	🕮 *p. 113*
Error Log	Error list	🕮 *p. 115*

Important

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

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

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

To transfer all data:

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

Fig. 71: Data Transfer submenu

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

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

↳ The following warning message appears:

Fig. 72: Data loss warning message

6. To cancel, press the **ESC** button; to continue, press the **OK** button.

↳ The data transfer begins and a message appears, stating that the USB key must not be removed:

Fig. 73: USB key warning

↳ The message disappears after the data transfer.

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

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

To transfer the parameter settings and calibration values:

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

Fig. 74: Data Transfer submenu

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

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

↳ The following warning message appears:

Fig. 75: Data loss warning message

6. To cancel, press the **ESC** button; to continue, press the **OK** button.

↳ The data transfer begins and a message appears, stating that the USB key must not be removed:

Fig. 76: USB key warning

↳ The message disappears after the data transfer.

14.11.3 Setting the Programs (*Programs*) parameter

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

To transfer the programs:

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

Fig. 77: Data Transfer submenu

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

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

↳ The following warning message appears:

Fig. 78: Data loss warning message

6. Select a program with the ▲/▼ buttons.
7. Press the **OK** button to confirm the selection.

↳ A check mark in front of the program name shows that it has been selected.

8. Repeat the selection for all the desired programs or select all programs at the same time (see next step).
9. Press the ► button; the selection *Destination*, *Select All*, *Deselect All* appears.
10. Select the *Select All* option with the ▲/▼ buttons.

11. Press the **OK** button to confirm the selection.
12. Press the ► button; the selection *Destination*, *Select All*, *Deselect All* appears.
13. Select the *Destination* option with the ▲/▼ buttons.
14. Press the **OK** button to confirm the selection.
15. Select the desired folder with the ▲/▼ buttons or press the ► button and create a new folder with the *Create Folder* option.
16. Press the **OK** button to confirm the selection.
17. Give the folder a name using the numeric buttons.
18. Press the **OK** button to confirm the name.
19. Press the ► button and select the *Copy* option.
20. Press the **OK** button to confirm the selection.

↳ The data transfer begins and a message appears, stating that the USB key must not be removed:

Fig. 79: USB key warning

↳ The message disappears after the data transfer.

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

The error list can be saved to a USB key.

To save the error list to a USB key:

1. Plug the USB key into the control.
2. Select the *Error Log* parameter and press the **OK** button to confirm.

↳ A warning appears - the USB key will be erased completely before the error list is compiled!

3. Press the **OK** button to acknowledge the error message.

↳ The error list is written to the USB key.

14.12 Performing a software update

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

To load software via a USB key:

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

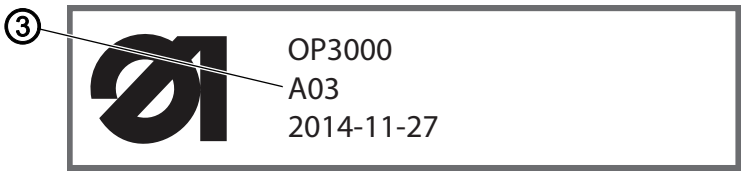
Fig. 80: Performing a software update

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

3. Switch on the machine at the main switch.

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

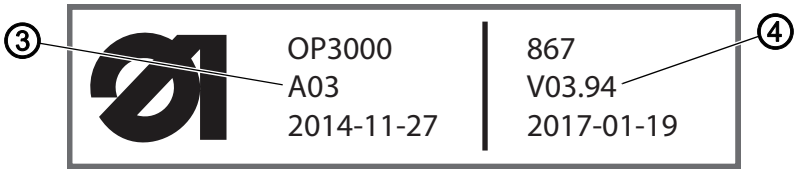
Fig. 81: Performing a software update



(3) - Firmware version

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

Fig. 82: Performing a software update



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

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

5. Remove the USB key from the control.

↳ The software update is complete and the machine is ready to sew.

15 Maintenance

WARNING

Risk of injury from sharp parts!

Punctures and cutting possible.

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

WARNING

Risk of injury from moving parts!

Crushing possible.

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

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

Maintenance intervals

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

15.1 Cleaning

WARNING

Risk of injury from flying particles!

Flying particles can enter the eyes, causing injury.

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

NOTICE

Property damage from soiling!

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

Clean the machine as described.

NOTICE

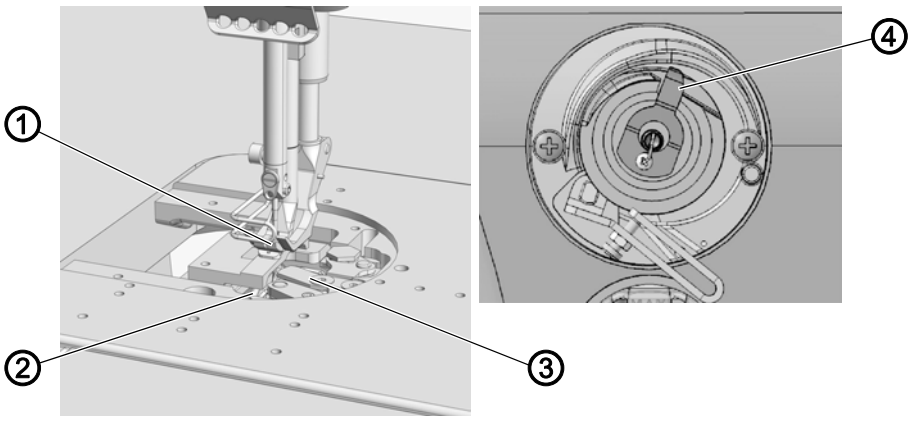
Property damage from solvent-based cleaners!

Solvent-based cleaners will damage paintwork.

Use only solvent-free substances for cleaning.

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

Fig. 83: Cleaning



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

Areas particularly susceptible to soiling:

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

To clean the machine:

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

15.2 Lubricating

CAUTION

Risk of injury from contact with oil!

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

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

NOTICE

Property damage from incorrect oil!

Incorrect oil types can result in damage to the machine.

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

CAUTION

Risk of environmental damage from oil!

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

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

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

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

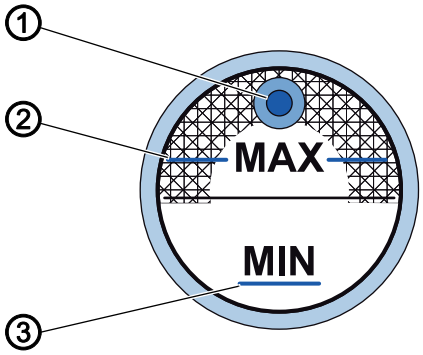
- Viscosity at 40 °C: 10 mm²/s
- Flash point: 150 °C

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

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

15.2.1 Lubricating the machine head

Fig. 84: Lubricating the machine head



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

Proper setting

The oil level must not raise above the MAX marking (2) or drop below the MIN marking (3).
If the oil level falls below the minimum level marking (3), the oil level indicator lights up in red.

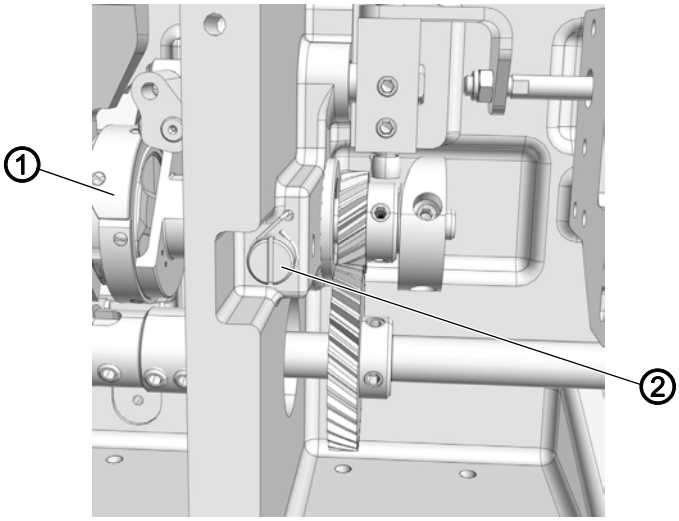
To top off the oil:

1. Fill oil through the oil filler opening (1) up to the MAX marking (2).
2. Turn the machine off, then on again after refilling oil.

↳ The red light will turn off.

15.2.2 Checking the hook lubrication

Fig. 85: Checking the hook lubrication



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

The approved oil quantity for hook lubrication is a factory specification. Hold a piece of blotting paper next to the hook (1) while sewing.

Proper setting

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

To set the hook lubrication:

1. Turn the screw (3):
   - Release more oil: turn counterclockwise
   - Release less oil: turn clockwise

Important

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

15.3 Servicing the pneumatic system

15.3.1 Setting the operating pressure

NOTICE

Property damage from incorrect setting!

Incorrect operating pressure can result in damage to the machine.

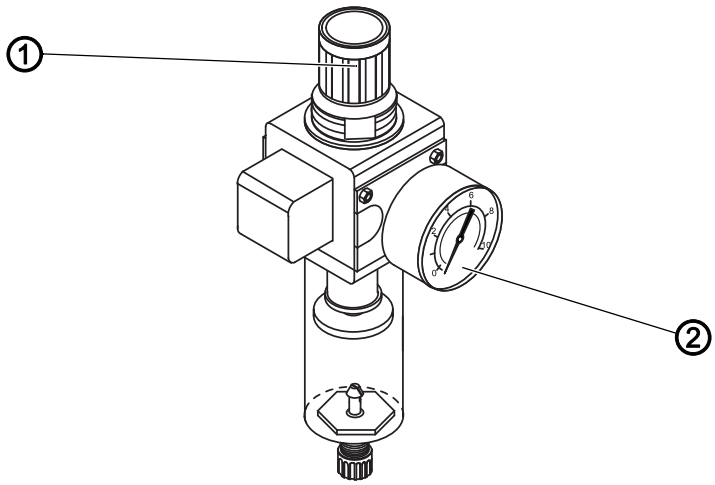
Ensure that the machine is only used when the operating pressure is set correctly.

Proper setting

Refer to the **Technical data** (📖 *p. 145*) 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. 86: Setting the operating pressure



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

To set the operating pressure:

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

15.3.2 Draining the water condensation

NOTICE

Property damage from excess water!

Excess water can cause damage to the machine.

Drain water as required.

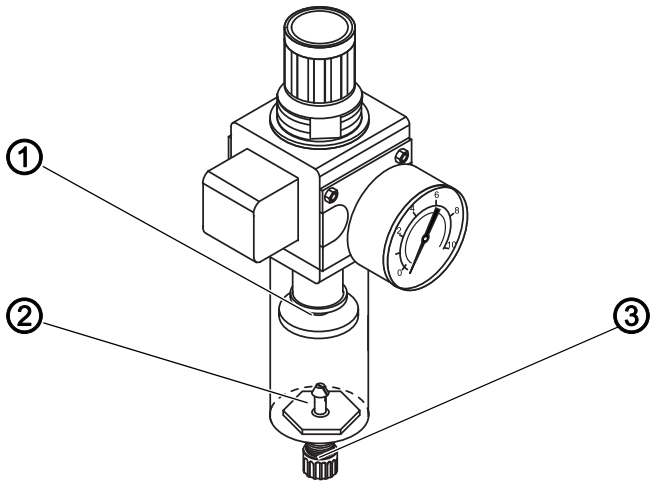
Water condensation accumulates in the water separator (2) of the pressure controller.

Proper setting

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

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

Fig. 87: 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.

15.3.3 Cleaning the filter element

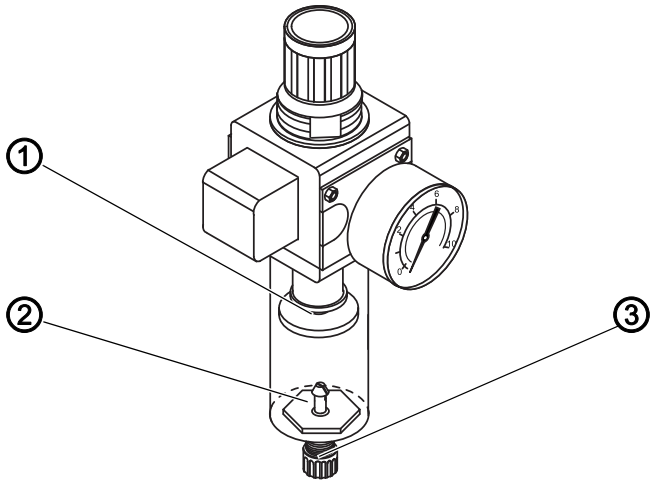
NOTICE

Damage to the paintwork from solvent-based cleaners!

Solvent-based cleaners damage the filter.

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

Fig. 88: 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. 125*).
3. Loosen the water separator (2).
4. Loosen the filter element (1).
5. Blow out the filter element (1) using the compressed air gun.
6. Wash out the filter tray using benzine.
7. Tighten the filter element (1).
8. Tighten the water separator (2).
9. Tighten the drain screw (3).
10. Connect the machine to the compressed air supply.

15.4 Checking the toothed belt

WARNING

Risk of injury from moving parts!

Crushing possible.

Switch off the machine before checking the toothed belt.

The condition of the toothed belt must be checked once a month.

Important

A damaged toothed belt must be replaced immediately.

Proper setting

The toothed belt exhibits no cracks or fragile areas.
When pressed with a finger, the toothed belt must yield no more than 10 mm.

15.5 Parts list

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

www.duerkopp-adler.com

16 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.

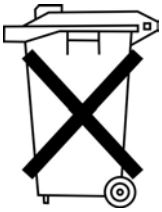
17 Disposal

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.

18 Troubleshooting

18.1 Customer Service

Contact for repairs and issues with the machine:

Dürkopp Adler AG

Potsdamer Str. 190
33719 Bielefeld, Germany

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

18.2 Errors in sewing process

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

Error	Possible causes	Remedial action
Loose stitches	Thread tensions are not adjusted to the sewing material, the sewing material thickness or the thread used	Check thread tensions
	Needle thread and hook thread have not been threaded correctly	Check threading path
Needle breakage	Needle thickness is unsuitable for the sewing material or the thread	Use recommended needle thickness

18.3 Software messages

Code	Art	Bedeutung	Abhilfe
1000	Error	Sewing motor encoder plug (Sub-D, 9-pin) not connected	• Connect encoder cable to the control, use correct connection
1001	Error	Sewing motor error: Sewing motor plug (AMP) not connected	• Check connection and plug in, if necessary • Test sewing motor phases (R= 2.8 Ω, high impedance to PE) • Replace the encoder • Replace the sewing motor • Replace the control
1002	Error	Sewing motor insulation error	• Check motor phase and PE for low-impedance connection • Replace the encoder • Replace the sewing motor
1004	Error	Sewing motor error: Incorrect sewing motor direction of rotation	• Replace the encoder • Check plug assignment and change, if necessary • Check wiring in machine distributor and change it, if necessary • Test motor phases and check for correct value
1005	Error	Motor blocked	• Eliminate stiff movement in the machine • Replace the encoder • Replace the motor
1006	Error	Maximum speed exceeded	• Replace the encoder • Perform reset • Check class (t 51 04)
1007	Error	Error in the reference run	• Replace the encoder • Eliminate stiff movement in the machine
1008	Error	Encoder error	• Replace the encoder
1010	Error	External synchronizer plug (Sub-D, 9-pin) not connected	• Connect cable of external synchronizer to control, use correct connection (Sync) • Only required for machines with transmission!
1011	Error	Encoder Z pulse missing	• Switch off the control. Turn handwheel and switch on the control again • If error is not corrected, check encoder
1012	Error	Synchronizer fault	• Replace the synchronizer
1054	Error	Internal short circuit	• Replace the control

Code	Art	Bedeutung	Abhilfe
1055	Error	Sewing motor overload	• Eliminate stiff movement in the machine • Replace the encoder • Replace the sewing motor
1060	Error	Sewing motor overload / overvoltage /overcurrent	• Check the machine class • Replace the control • Replace the encoder • Replace the sewing motor
1061	Error	Sewing motor overload / overvoltage /overcurrent	• Check the machine class • Replace the control • Replace the encoder • Replace the sewing motor
1120	Error	Sewing motor init failure	• Software update • Check the machine class
1121	Error	Sewing motor watchdog	• Software update • Check the machine class
1203	Error	Position not reached (during thread cutting, reversal, etc.)	• Check and, if necessary, change controller settings. Mechanical changes to the machine. (e. g. thread cutting setting, belt tension, etc.) • Check position (thread lever at top dead center)
1302	Error	Failure with sewing motor current	• Check the service stop switch • Eliminate stiff movement in the machine • Replace the encoder • Replace the sewing motor
1330	Error	No response from sewing motor	• Software update • Replace the control
2101	Error	Stepper card X reference run timeout (Stitch length)	• Check reference sensor
2105	Error	Stepper card X stepping motor blockage	• Check for stiff movement
2121	Error	Stepper card X encoder plug (Sub-D, 9-pin) not connected	• Connect encoder cable to the control, use correct connection
2122	Error	Stepper card X flywheel position not found	• Check stepper motor 1 for stiff movement
2130	Error	Stepper card X not responding	• Software update • Replace the control
2131	Error	Stepper card X init failure	• Software update • Check the machine class
2152	Error	Stepper card X overcurrent	• Check for stiff movement
2201	Error	Stepper card Y reference run timeout (Foot lifting)	• Check reference sensor

Code	Art	Bedeutung	Abhilfe
2205	Error	Stepper card Y stepping motor blockage	• Check for stiff movement
2221	Error	Stepper card Y encoder plug (Sub-D, 9-pin) not connected	• Connect encoder cable to the control, use correct connection
2222	Error	Stepper card Y flywheel position not found	• Check stepper motor 1 for stiff movement
2230	Error	Stepper card Y not responding	• Software update • Replace the control
2231	Error	Stepper card Y init failure	• Software update • Check the machine class
2252	Error	Stepper card Y overcurrent	• Check for stiff movement
2271	Error	Stepper card Y watchdog (Foot lifting)	• Software update • Check the machine class
2301	Error	Stepper card Z reference run timeout (Foot Stroke)	• Check reference sensor
2305	Error	Stepper card Z stepping motor blockage	• Check for stiff movement
2321	Error	Stepper card Z encoder plug (Sub-D, 9-pin) not connected	• Connect encoder cable to the control, use correct connection
2322	Error	Stepper card Z flywheel position not found	• Check stepper motor 1 for stiff movement
2330	Error	Stepper card Z not responding	• Software update • Replace the control
2331	Error	Stepper card Z init failure	• Software update • Check the machine class
2352	Error	Stepper card Z overcurrent	• Check for stiff movement
2371	Error	Stepper card Z watchdog (Foot lifting)	• Software update • Check the machine class
2401	Error	Stepper card U reference run timeout (Edge guide)	• Check reference sensor
2430	Error	Stepper card U not responding	• Software update • Replace the control
2431	Error	Stepper card U init failure	• Software update • Check the machine class
3010	Error	U100V Start up error	• Disconnect the stepping motor plugs; if error persists, replace control
3011	Error	U100 V short circuit	• Disconnect the stepping motor plugs; if error persists, replace control
3012	Error	U100 V (I^2T) overload	• One or more stepper motor defective

Code	Art	Bedeutung	Abhilfe
3020	Error	U24V Start up error	• Disconnect the magnet plugs; if error persists, replace control
3021	Error	U24 V short circuit	• Disconnect the magnet plugs; if error persists, replace control
3022	Error	U24 V (I^2T) overload	• One or more magnets defective
3030	Error	Motor phase failure	• Replace 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 necessary	• 📖 *S. 119*
3354	Information	Failure in thread trimmer process	• Software update
3383	Information	Failure in with the motor referencing process	• Check the motors • Software update
4201	Warning	Failure SD-Card	• Insert a SD-Card • Replace control
4430	Warning	OP300 connection lost	• Check the connection of OP3000 • Replace OP3000 • Replace Control
4440	Error	OP3000: DAC Receive buffer overrun	• Check the connection of OP3000 • Replace OP3000 • Replace Control
4441	Warning	OP3000: DAC Receive timeout	• Check the connection of OP3000 • Replace OP3000 • Replace Control
4442	Warning	OP3000: DAC Unknown message	• Check the connection of OP3000 • Replace OP3000 • Replace Control
4443	Warning	OP3000: DAC Invalid checksum	• Check the connection of OP3000 • Replace OP3000 • Replace Control

Code	Art	Bedeutung	Abhilfe
4445	Error	OP3000: DAC Transmit buffer overrun	• Check the connection of OP3000 • Replace OP3000 • Replace Control
4446	Warning	OP3000: DAC Transmit no response	• Check the connection of OP3000 • Replace OP3000 • Replace Control
4447	Warning	OP3000: DAC Transmit invalid response	• Check the connection of OP3000 • Replace OP3000 • Replace Control
4450	Error	OP3000: OP Receive buffer overrun	• Check the connection of OP3000 • Replace OP3000 • Replace Control
4451	Warning	OP3000: OP Receive timeout	• Check the connection of OP3000 • Replace OP3000 • Replace Control
4452	Warning	OP3000: OP Unknown message	• Check the connection of OP3000 • Replace OP3000 • Replace Control
4456	Warning	OP3000: DAC Transmit no response	• Check the connection of OP3000 • Replace OP3000 • Replace Control
4460	Warning	OP700 connection lost	• Check the connection of OP7000 • Replace OP7000 • Replace Control
5001	Information	Wrong machine class	• Change the machine class • Make a reset
5002	Information	Wrong machine class or machine id connector failure	• Change the machine class • Make a reset
5003	Information	Data version to old	• Make a reset
5004	Information	Checksum failure	• Make a reset
6360	Information	No valid data on external EEprom (internal data structures are not compatible with the external data storage device)	• Software updater
6361	Information	No external EEprom connected	• Connect machine ID

Code	Art	Bedeutung	Abhilfe
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 are off and then switch on 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 are off and then switch on again • Software update
6364	Information	No valid data on internal EEprom and external EEprom not connected (the internal data structures are not compatible with the external data storage device, emergency operating features only)	• Check machine ID connection • Switch off the control, wait until the LEDs are off and then switch on 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 EEprom not connected (emergency operating features only)	• Replace the control
7270	Information	External can	• Check connection cables • Software update • Replace CAN Slaves
9330	Information	Fabric thickness sensor not connected	• Check connection cables • Software update • Replace fabric thickness sensor
9340	Error	Bobbin control not connected	• Check connection cables • Software update • Replace bobbin control
9922	Error	Service Stop	• Check the service stop switch • Check the 24V • Replace the control

18.4 Error in the software

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

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

To access the Technician level during startup:

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

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

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

↳ You are on the Technician level:
Only the two menus *Multitest* (📖 *p. 102*) and *Reset* (📖 *p. 109*) are available with this access.

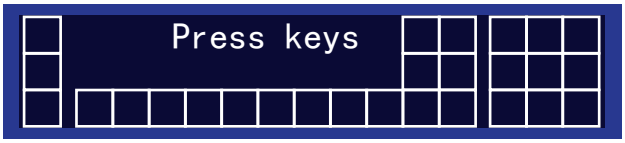
18.5 Testing the function of the buttons

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

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

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

↳ The display shows the this mask:

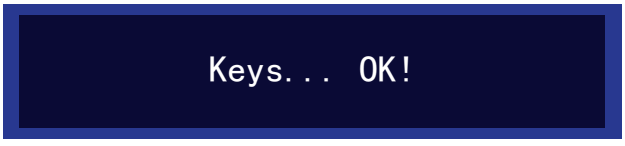


3. Press all the buttons on the control panel in any order except for **ESC**.

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

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

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



5. Press the **OK** button.

If one or several buttons are not functional:

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

19 Technical data

Data and characteristic values

Technical data	Unit	667-180912	667-180932
Machine type		Double lockstitch 301	
Hook type		Horizontal, L (large)	Horizontal, XXL (extra-large)
Number of needles		1	
Needle system		134-35	
Needle strength	[Nm]	Nm 80 - 150	Nm 100 - 180
Thread strength	[Nm]	Nm 80/3 - 15/3	Nm 80/3 - 10/3
Stitch length	[mm]	9/9	
Speed maximum	[min^{-1}]	3000	
Speed on delivery	[min^{-1}]	3000	
Mains voltage	[V]	230 V	
Operating pressure	[bar]	6 (Compressed air only required in combination with optional additional equipment)	
Length	[mm]	630	
Width	[mm]	290	
Height	[mm]	420	
Weight	[kg]	54	

Characteristics

- Single-needle double lockstitch flatbed sewing machine with bottom feed, needle feed and alternating foot-top feed.
- Thread cutter
- 2nd stitch length
- Automatic bartack
- DAC comfort control with OP3000 control panel
- Actuators without compressed air
- Electromagnetic thread cutter
- The remaining thread length following the thread cutting process is approx. 10 mm
- Programmable setting of the stitch length via stepper motor (max. 9 mm)
- Programmable stroke adjustment of the alternating sewing feet via stepper motor (max. 9 mm)
- Material thickness detection with programmable functions for sewing speed, sewing foot pressure, sewing foot stroke, thread tension and stitch length
- Sewing foot pressure can be programmed via stepper motor
- Sewing foot lift via stepper motor (max. 20 mm)
- Electronically regulated thread tension ETT (electromagnetically)
- Speed compensation
- Electronic handwheel (ENP 10-1)
- Integrated, motorized winder
- Safety clutch prevents any misadjustment or damage to the hook in the event of a thread jamming
- Automatic wick lubrication with an inspection glass housed in the machine arm
- Integrated LED sewing lamp including power supply and dimming function
- Intuitive control software with graphical user interface for programming and activating up to 999 different seam programs supporting a maximum of 30 individual seam sections each
- Sequential mode for a maximum of 9 interlinked seam programs
- Service button for service routines with the sewing motor switched off.

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