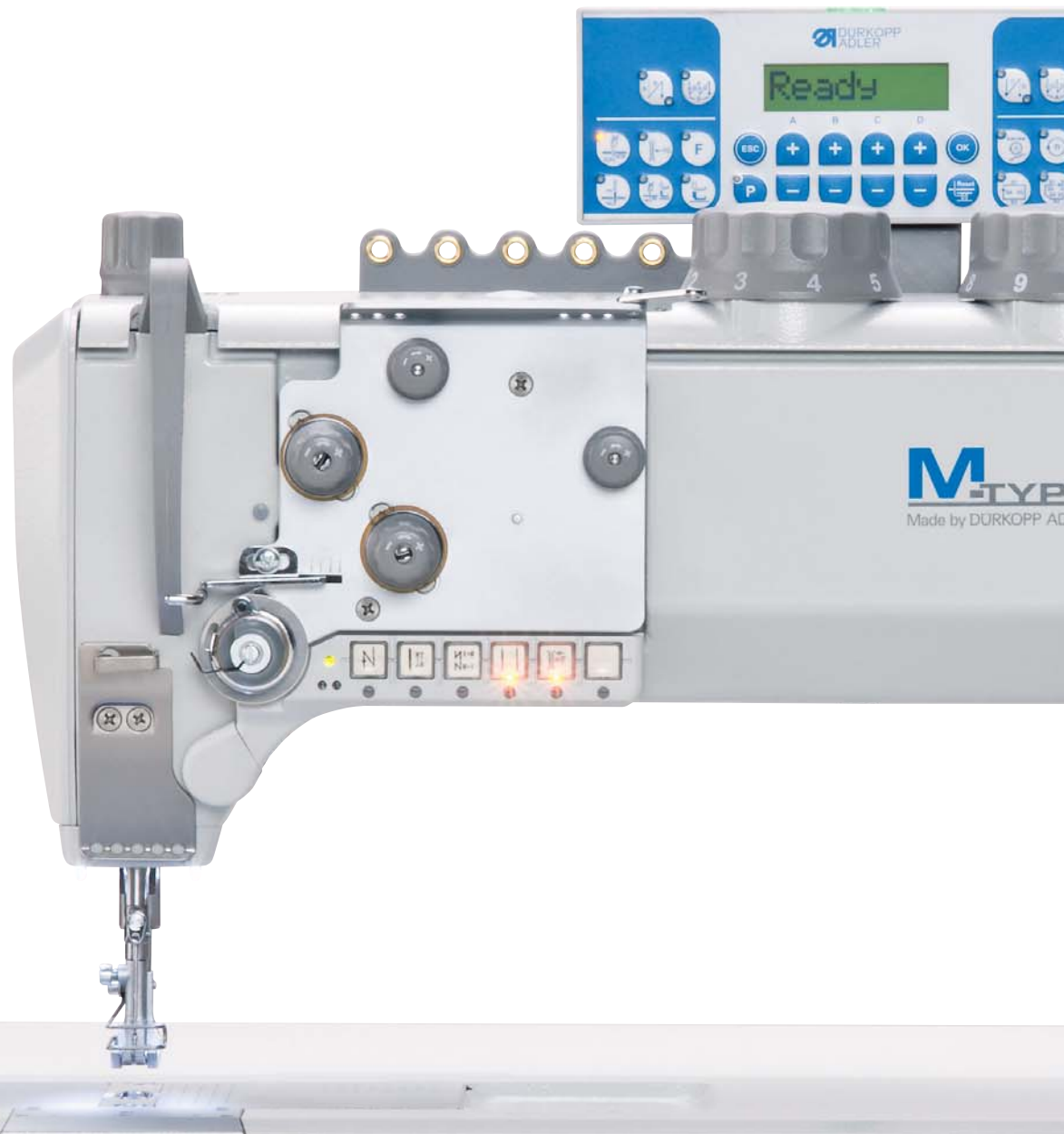


867

Service Instructions



IMPORTANT
READ CAREFULLY BEFORE USE
KEEP FOR FUTURE REFERENCE

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1 About these instructions

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


Should you notice any discrepancies or if you have improvement requests, then we would be glad to receive your feedback through **Customer Service** ( p. 129).

Consider these instructions as part of the product and keep it easily accessible.

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 adjustment.



Cover

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



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



Steps to be performed for service, maintenance, and installation



Steps to be performed via the software control panel

The individual steps are numbered:

1. First step
 2. Second step
 - ...
- The steps must always be followed in the specified order.

- Lists are marked by bullet points.



Result of performing an operation

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



Important

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



Information

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



Order


Specifies the work to be performed before or after an adjustment.

References



Reference to another section in these instructions.

Safety

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

Location information

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

1.3 Other documents

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

1.4 Liability

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

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

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

Transport

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

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

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

2 Safety

This chapter contains basic information for your safety. Read the instructions carefully before setting up or operating the machine. 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 stacker to transport the machine. Raise the machine max. 20 mm and secure it to prevent it from slipping off.

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

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

All the warnings and safety signs on the machine must always be in legible condition. Do not remove!

Missing or damaged warnings and safety signs must be replaced immediately.

Requirements to be met by the personnel

Only qualified specialists may:

- Set up the machine/put the machine into operation
- Performing maintenance work and repairs
- Performing work on electrical equipment

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

- Operation** Check the machine during operating for any externally visible damage. Stop working if you notice any changes to the machine. Report any changes to your supervisor. Do not use a damaged machine any further.
- Safety equipment** Safety equipment should not be disassembled or deactivated. If it is essential to disassemble or deactivate safety equipment for a repair operation, it must be assembled and put back into operation immediately afterward.



2.2 Signal words and symbols used in warnings




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

Signal words Signal words and the hazard they describe:

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

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

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 adjustments



Order

The adjustment positions for the machine are interdependent.

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

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

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 cables

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.

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



To lay the cables:

1. Lay any excess 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.

3.3 Removing the covers

WARNING



Risk of injury!

Crushing injuries from moving parts.

Switch off the machine before you remove the covers or refit them.

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

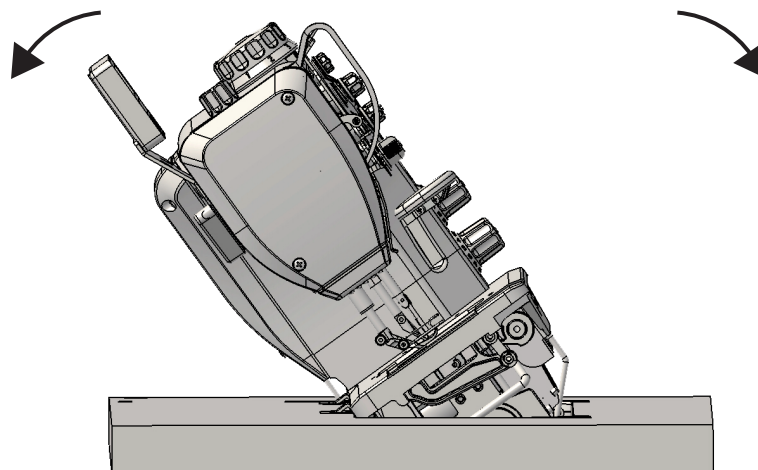
This chapter describes how to remove and then assemble the individual covers again. The text for each type of adjustment work then specifies only the cover that needs to be removed at that particular time.

3.3.1 Tilting the machine head



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

Fig. 1: Tilting the machine head



Tilting the machine head



To tilt the machine head:

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

Erecting the machine head

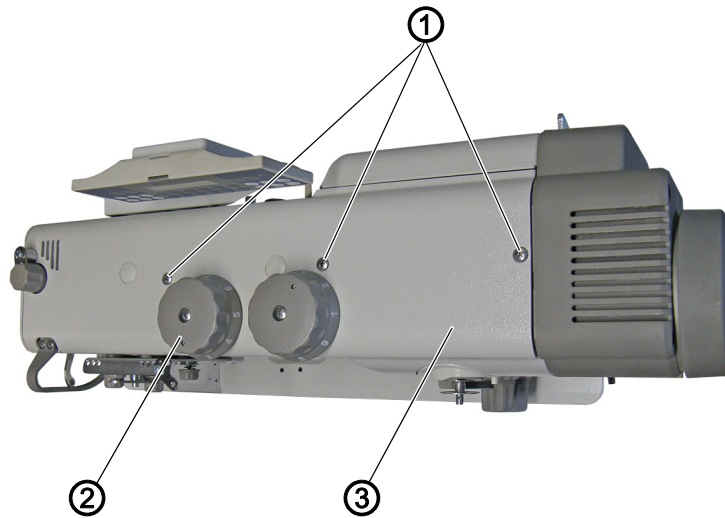


To erect the machine head:

1. Erect the machine head.

3.3.2 Assembling and disassembling the arm cover

Fig. 2: Assembling and disassembling the arm cover



(1) - Screws

(3) - Arm cover

(2) - left adjusting wheel for sewing foot stroke

Disassembling the arm cover



To disassemble the arm cover:

1. Position the left adjusting wheel for the sewing foot stroke (2) to 2.
2. Loosen the screws (1).
3. Hold the arm cover (3) at the adjusting wheels and remove it.

Assembling the arm cover

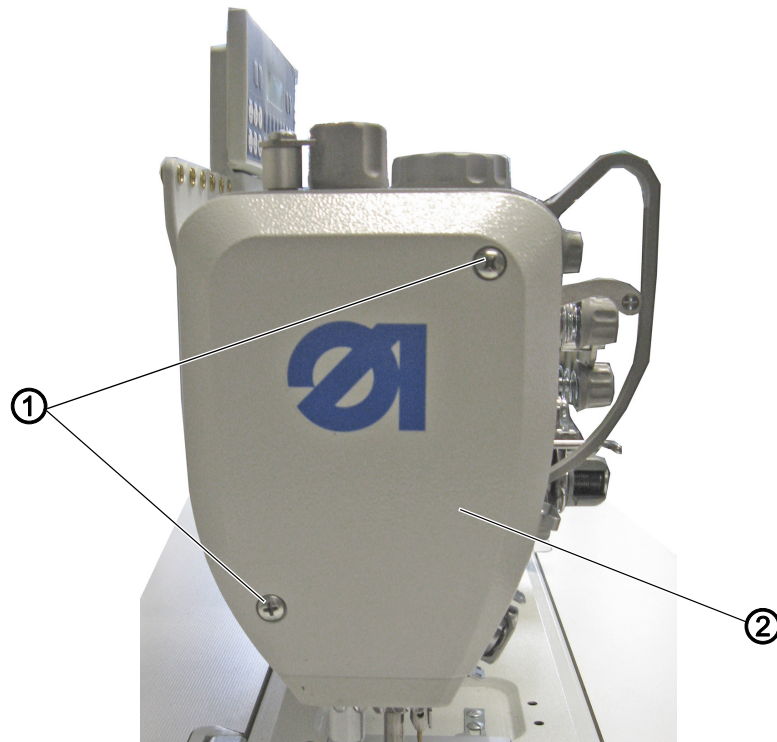


To assemble the arm cover:

1. Position the left adjusting wheel for the sewing foot stroke (2) to 2.
2. Assemble the arm cover (3).
3. Tighten the screws (1).

3.3.3 Assembling and disassembling the head cover

Fig. 3: Assembling and disassembling the head cover



(1) - Screws

(2) - Head cover

Disassembling the head cover



To disassemble the head cover:

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

Assemble the head cover



To assemble the head cover:

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

3.3.4 Assembling and disassembling the valve cover

Fig. 4: Assembling and disassembling the valve cover



(1) - Screws

(2) - Valve cover

Disassembling the valve cover



To disassemble the valve cover:

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



Important

Make sure not to tear off any cables.

Assembling the valve cover



To assemble the valve cover:

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

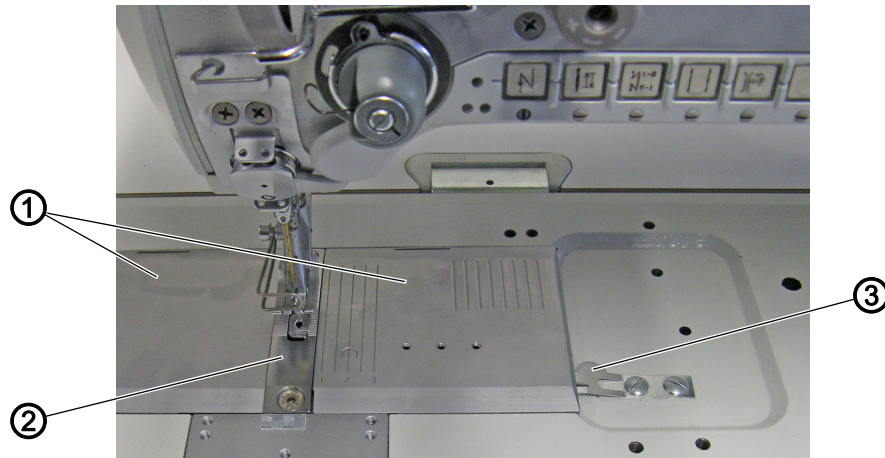


Important

Make sure not to pinch any cables.

3.3.5 Opening and closing the throat plate slides

Fig. 5: Opening and closing the throat plate slides



(1) - Throat plate slide
(2) - Throat plate

(3) - Clamping spring

Opening the throat plate slides



To open the throat plate slides:

1. Press the clamping spring (3) downwards.
2. Push the throat plate slides (1) apart.

Closing the throat plate slides



To close the throat plate slides:

1. Push the throat plate slides (1) up to the throat plate (2).

3.3.6 Assembling and disassembling the throat plate

WARNING



Risk of injury from sharp and moving parts!

Puncture or crushing possible.

Switch off the machine before you assemble or disassemble the throat plate.

Fig. 6: Assembling and disassembling the throat plate



(1) - Screws


(2) - Throat plate

(3) - Nose of the bobbin case

Disassembling the throat plate




To disassemble the throat plate:

1. Open the throat plate slides ( p. 18).
2. Loosen the screws (1).
3. Disassemble the throat plate (2).

Assembling the throat plate



To assemble the throat plate:

1. Insert the throat plate (2).
Ensure that the nose of the bobbin case (3) is in the cutout of the throat plate.
2. Tighten the screws (1).
3. Close the throat plate slides ( p. 18).

3.3.7 Assembling and disassembling the feed dog

WARNING

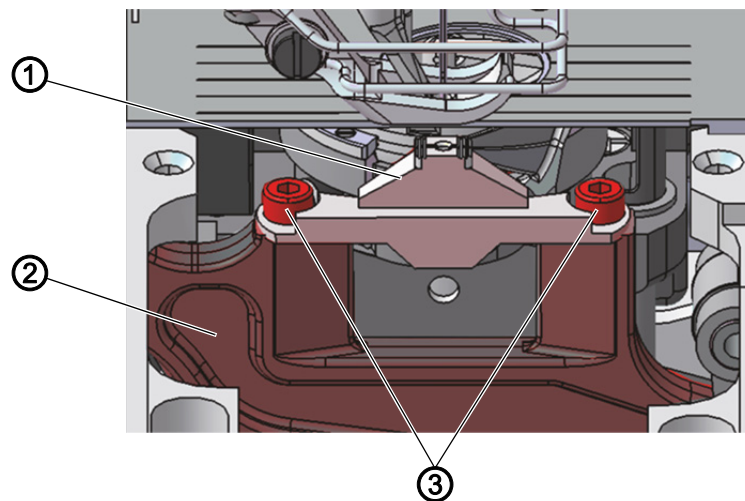


Risk of injury from sharp and moving parts!

Puncture or crushing possible.

Switch off the machine before you assemble or disassemble the feed dog.

Fig. 7: Assembling and disassembling the feed dog



(1) - Feed dog


(2) - Feed dog carrier

(3) - Screws

Disassembling the feed dog




To disassemble the feed dog:

1. Disassemble the throat plate ( p. 19).
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. Assemble the throat plate ( p. 19).



Important

Check the feed dog position in its movement at maximum stitch length (depending on the equipment: 6, 9 or 12) by turning the handwheel. The feed dog must not hit against the throat plate.

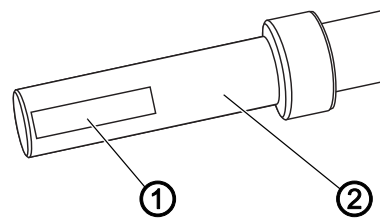
**Order**

Then check the following adjustment:

- Feed dog ( p. 35)

3.4 Flats on shafts

Fig. 8: Flats on shafts



(1) - Flat

(2) - Shaft

Some shafts have flat surfaces at the points where the components are screwed on. This stabilizes the connection and makes adjusting easier. For all adjustments on the surface, the first screw in the direction of rotation is screwed onto the surface.

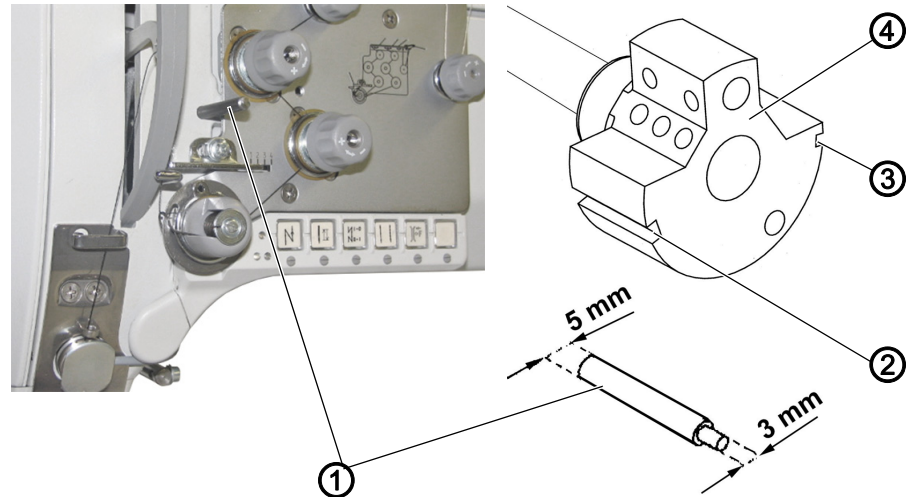
**Important**

Always ensure that the screw faces are completely flush with the surface.

3.5 Locking the machine in place

For some adjustments, 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.

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



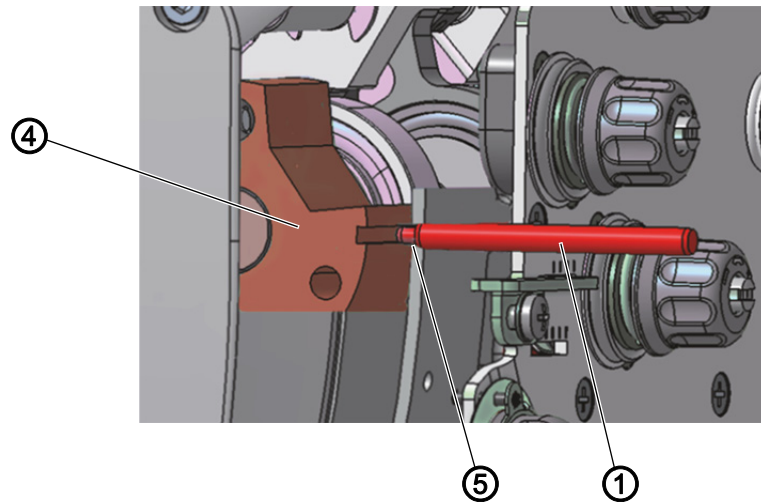
(1) - Locking peg
(2) - large arresting groove

(3) - small arresting groove
(4) - Arm shaft crank

There are 2 securing positions:

- **Position 1:** Looping stroke position
 - 5 mm end in the large slot
 - Adjusting the loop stroke and needle bar height
- **Position 2:** Handwheel zero position
 - 3 mm end in the small slot
 - Adjusting the handwheel position and checking the top dead center for the needle bar

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



(1) - Locking peg
(4) - Arm shaft crank

(5) - Locking opening

Locking the machine in place



To lock the machine in place:

1. Remove the plug from the locking slot (5).
2. Turn the handwheel until the appropriate slot is in front of the locking opening (5):
 - Small slot at handwheel position 0°
 - Large slot at handwheel position 200 – 205°
3. Insert the locking peg (1) with the appropriate end into the slot.

Removing the lock

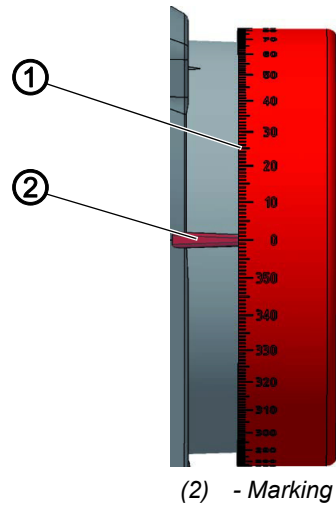


To remove the lock:

1. Pull the locking peg (1) out of the slot.
2. Insert the plug into the locking opening (5).

3.6 Adjusting the handwheel into position

Fig. 11: Adjusting the handwheel into position



(1) - Graduated scale

(2) - Marking

For some adjustments, the graduated scale (1) on the handwheel has to be moved to a certain position.



To adjust the handwheel into position:

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

4 Adjusting the handwheel scale

WARNING



Risk of injury from moving parts!

Crushing possible.

Switch off the machine before you adjust the handwheel scale.



Proper setting


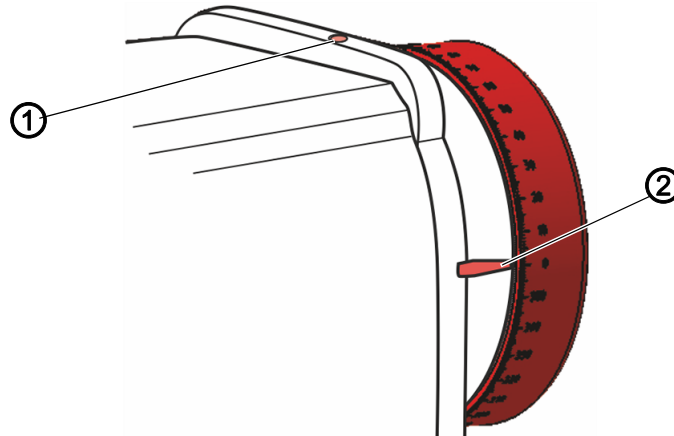
1. Lock the machine in place at position 2 ( p. 22).
- ↳ The handwheel is at position 0°.
 - If a different degree number is next to the marking (2) then you will have to reset the graduated scale.

Fig. 12: Adjusting the handwheel scale





(1) - Slot

(2) - Marking

The handwheel is fastened using 2 threaded pins, which you can see through the slot (1).



To adjust the handwheel scale:

1. Turn the handwheel until the 1st threaded pin is under the slot (1).
2. Loosen the threaded pin through the opening (1).
3. Turn the handwheel by 50° such that the 2nd threaded pin is under the slot (1).
4. Loosen the threaded pin through the opening (1).
5. Lock the machine in place at position 2 ( p. 22).
6. Turn the handwheel scale so that the 0° is at the center of the marking (2).
7. Tighten the threaded pin through the opening (1).
8. Remove the lock ( p. 23).
9. Move the handwheel into the 50° position.
10. Tighten the threaded pin through the opening (1).

5 Positioning the arm shaft

WARNING



Risk of injury from moving parts!

Crushing possible.

Switch off the machine before positioning the arm shaft.

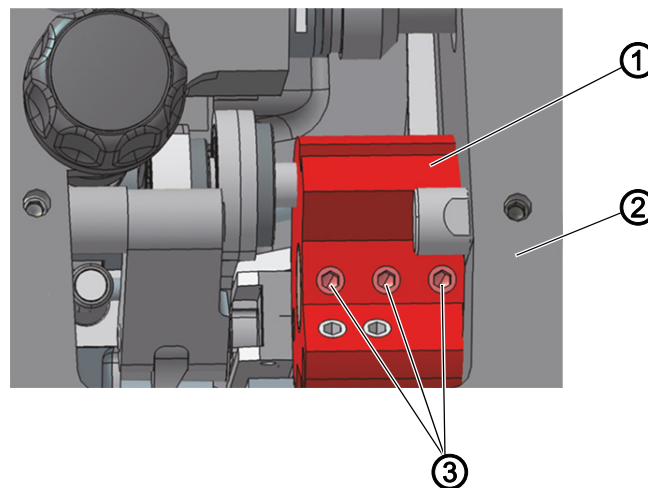


Proper setting

The threaded pins (3) on the arm shaft crank (1) are seated completely on the flat.

The arm shaft crank (1) is flush with the machine casting (2).

Fig. 13: Positioning the arm shaft




(1) - Arm shaft crank
(2) - Machine casting

(3) - Threaded pins



To position the arm shaft:

1. Disassemble the arm cover ( p. 15).
2. Loosen the threaded pins (3).
3. Turn the arm shaft crank (1) such that the threaded pins (3) are seated completely on the flat of the arm shaft.
4. Push the arm shaft with the arm shaft crank (1) to the right as far as it will go and flush with the machine casting.
5. Tighten the threaded pins (3).

6 Toothed belt wheels


The two toothed belt wheels must be positioned above each other so that the toothed belt can run correctly. In machines with normal lengths, the winder wheel is directly next to the upper toothed belt wheel and determines its alignment. In long arm machines, the winder wheel is fastened farther away in the center of the arm.



Order

- Always check the position of the other toothed belt wheel after making a change on either of the toothed belt wheels.

Differences between long arm machines and machines with normal lengths

In **long arm machines**, the winder wheel on the driver wheel is aligned in the center of the arm ( p. 64). It is irrelevant for the toothed belt wheels. Therefore, in long arm machines, it does not matter which toothed belt wheel you check first.

In **machines with normal lengths**, the position of the upper toothed belt wheel is defined by the distance to the winder wheel.



Important

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

6.1 Positioning the upper toothed belt wheel

WARNING



Risk of injury from moving parts!

Crushing possible.

Switch off the machine before you position the upper toothed belt wheel.



Proper setting

The 2 threaded pins for the upper toothed belt wheel are seated flush on the flat.

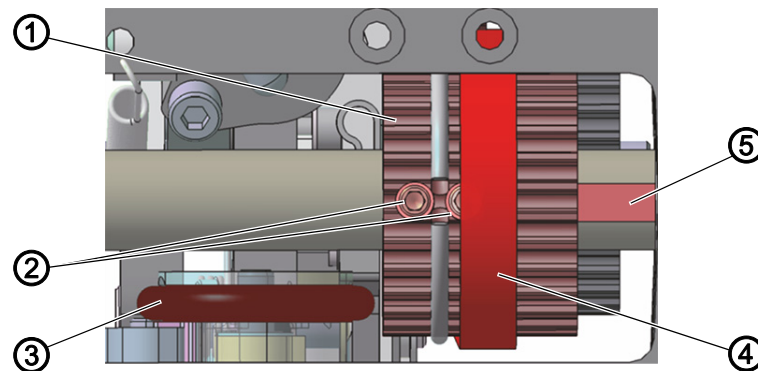


Information

Additional checks for machines with normal lengths:

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

Fig. 14: Positioning the upper toothed belt wheel



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



To position the upper toothed belt wheel:

1. Disassemble the arm cover (📖 p. 15).
2. Using the screwdriver, push the toothed belt (4) sufficiently far to the side so that the threaded pins (2) can be reached.
3. Loosen the threaded pins (2).
4. Turn the upper toothed belt wheel (1) such that the threaded pins (2) are seated flush on the flat (5) of the arm shaft.



Information

Additional setting step for machines with normal lengths:

Move the upper toothed belt wheel (1) to the side so that the distance to the winder wheel (3) is 0.8 mm.

5. Tighten the threaded pins (2).
6. Use the screwdriver to push the toothed belt (4) back again.

6.2 Positioning the lower toothed belt wheel

WARNING



Risk of injury from moving parts!

Crushing possible.

Switch off the machine before you position the lower toothed belt wheel.

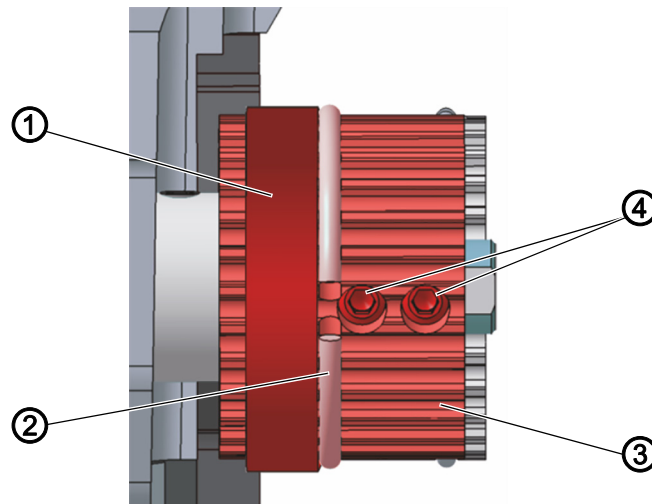


Proper setting

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

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

Fig. 15: Adjusting the lower toothed belt wheel




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

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



To position the lower toothed belt wheel:

1. Tilt the machine head ( p. 14).
2. Loosen the threaded pins (4).
3. Turn the lower toothed belt wheel (3) such that the threaded pins (4) are seated on the flat of the arm shaft.
4. Move the lower toothed belt wheel (3) sufficiently far to the side so that the toothed belt (1) makes contact with the snap ring (2) without being pushed away.
5. Tighten the threaded pins (4).

7 Adjusting the stitch length adjusting wheels

CAUTION



Risk of injury from moving parts!

Crushing possible.

Switch off the machine before you adjust the stitch length adjusting wheel.

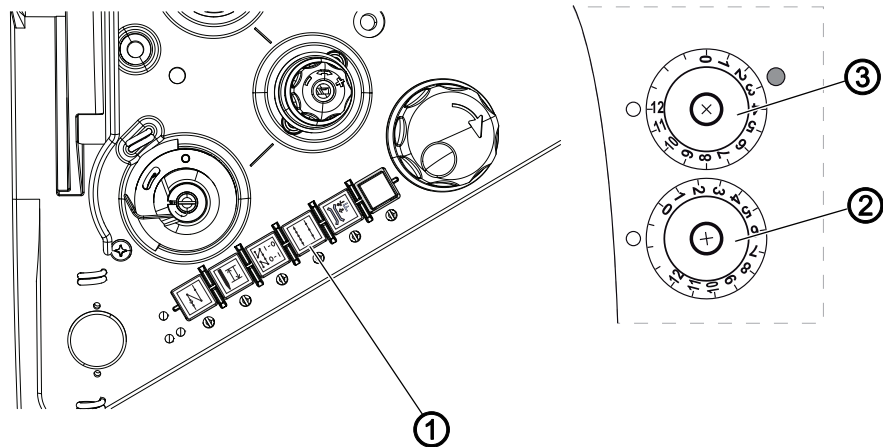
NOTICE

Property damage may occur!

If you turn the shaft too far, parts on the stitch regulator gear may bend or get stuck.

Turn the shaft carefully and stop as soon as you feel a slight resistance.

Fig. 16: Adjusting the stitch length adjusting wheels



(1) - Button for the stitch length

(2) - Lower stitch length adjusting wheel

(3) - Upper stitch length adjusting wheel

The 2 adjusting wheels on the machine column determine the stitch length.

- Upper adjusting wheel: large stitch length
- Lower adjusting wheel: small stitch length

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

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

To switch over between the stitch lengths: Press the button for the stitch length on the machine arm (1).

- ↳ If the upper adjusting wheel is activated, then the button (1) lights up. Upon switching on the machine, the stitch length adjusting wheel activated most recently is always active.



Order

Adjust the upper stitch length adjusting wheel first before adjusting the lower stitch length adjusting wheel.

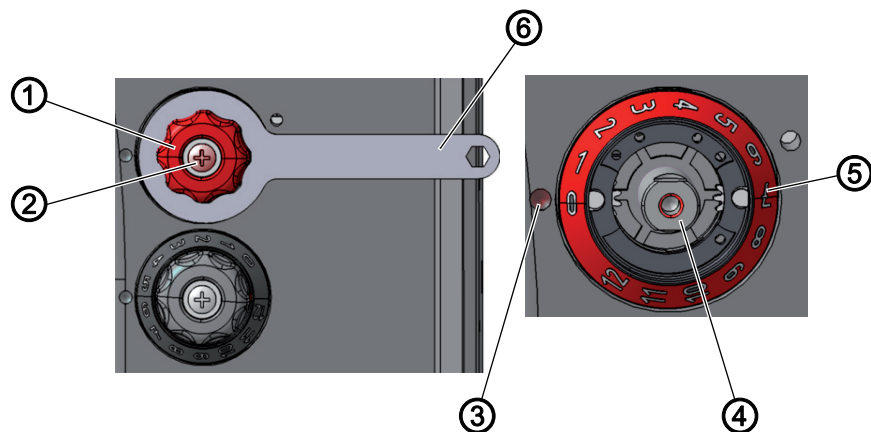
7.1 Adjusting the upper stitch length adjusting wheel



Proper setting

The upper stitch length adjusting wheel is set to the maximum stitch length that can be achieved with the built-in sewing equipment.


Fig. 17: Adjusting the upper stitch length adjusting wheel



- | | |
|---|--------------|
| (1) - Upper stitch length adjusting wheel | (4) - Shaft |
| (2) - Screw | (5) - Scale |
| (3) - Adjusting mark | (6) - Wrench |



To adjust the upper stitch length adjusting wheel:

1. Switch on the machine.
2. Unthread the needle thread.
3. Press the button  on the machine arm.
- ↳ The button lights up. The machine switches over to the upper stitch length adjusting wheel.
4. Hold the upper stitch length adjusting wheel (1) in place using a wrench (6).
5. Loosen the screw (2).
6. Remove the upper stitch length adjusting wheel (1) from the shaft (4).

7. To set the stitch length, use a size 10 wrench to carefully turn the shaft (4).
 - **to set a shorter stitch length:** turn clockwise
 - **to set a longer stitch length:** turn counterclockwise
8. Perform a sewing test with a sheet of paper and readjust if necessary.
9. Turn the scale (5) so that the number indicating the stitch length is exactly next to the adjusting mark (3).
10. Place the upper stitch length adjusting wheel (1) onto the shaft (4) and tighten it with the wrench (6).
11. Tighten the screw (2).

7.2 Adjusting the lower stitch length adjusting wheel

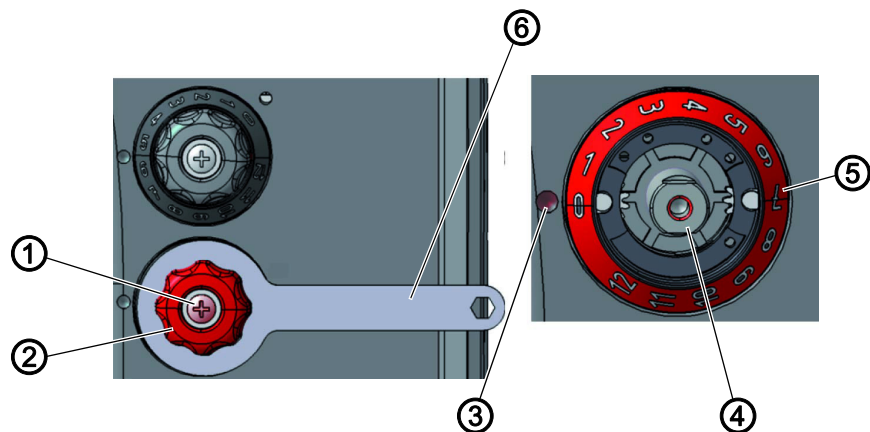


Proper setting

Sew with 2 different stitch lengths.

- ↳ The stitch lengths on the seam correspond with the set stitch lengths. The lower stitch length adjusting wheel can only be turned up to the stitch length set on the upper stitch length adjusting wheel.


Fig. 18: Adjusting the lower stitch length adjusting wheel



- | | |
|---|--------------|
| (1) - Screw | (4) - Shaft |
| (2) - Lower stitch length adjusting wheel | (5) - Scale |
| (3) - Adjusting mark | (6) - Wrench |



To adjust the lower stitch length adjusting wheel:

1. Switch on the machine.
2. Unthread the needle thread.
3. Press the button  on the machine arm.
 - ↳ The button turns off. The machine switches over to the lower stitch length adjusting wheel.
4. Hold the lower stitch length adjusting wheel (2) in place using the wrench (6).
5. Loosen the screw (1).

6. Remove the lower stitch length adjusting wheel (2) from the shaft (4).
7. To set the stitch length, use a size 10 wrench to carefully turn the shaft (4).
 - **to set a shorter stitch length:** turn counterclockwise
 - **to set a longer stitch length:** turn clockwise
8. Perform a sewing test with a sheet of paper and readjust if necessary.
9. Turn the scale (5) so that the number indicating the stitch length is exactly next to the adjusting mark (3).
10. Place the lower stitch length adjusting wheel (2) onto the shaft (4) and tighten it with the wrench (6).
11. Tighten the screw (1).

7.3 Adjusting the stitch length limit

If not all of the stitch lengths are available during sewing operation, a limit can be placed on the maximum stitch length that can be set.

12, 9, or 6 mm can be selected as the maximum stitch length. The appropriate throat plate must be selected for the selected maximum stitch length. The throat plate cutout must be large enough to prevent the feed dog from hitting the edges of the throat plate at the front and rear dead center.

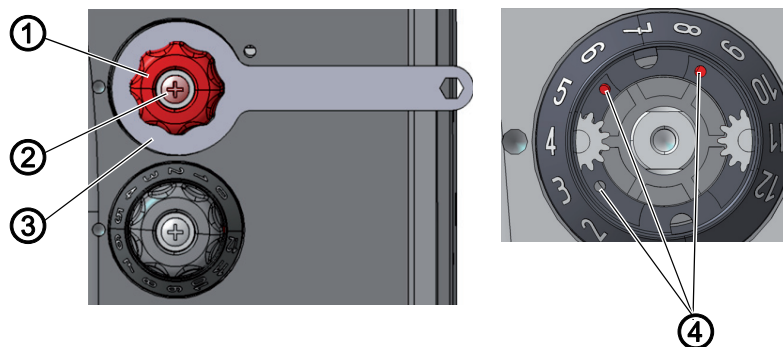


Proper setting

Turn the upper stitch length adjusting wheel clockwise as far as it will go.

- ✎ The upper stitch length adjusting wheel can only be turned up to the set maximum stitch length.

Fig. 19: Adjusting the stitch length limit



- | | |
|---|----------------------|
| (1) - Upper stitch length adjusting wheel | (3) - Wrench |
| (2) - Screw | (4) - Mark-off slots |



To adjust the stitch length limit:

1. Position the upper stitch length adjusting wheel (1) to **0**.
2. Hold the upper stitch length adjusting wheel (1) in place using the wrench (3).
3. Loosen the screw (2).

4. Remove the upper stitch length adjusting wheel (1).
5. Loosen the threaded pin from one of the 3 mark-off openings.
6. Screw the threaded pin into the mark-off opening for the required maximum stitch length.
The slots are marked with numbers for the stitch length.
7. Turn the scale so that the **0** is exactly next to the adjusting mark.
8. Place the upper stitch length adjusting wheel (1) and hold it in position using the wrench.
9. Tighten the screw (2).

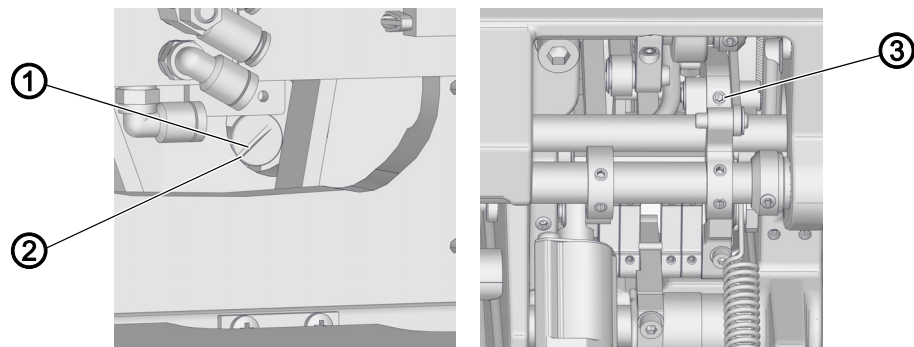
7.4 Adjusting the eccentric for the forward and backward stitches



Proper setting

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

Fig. 20: Adjusting the eccentric for the forward and backward stitches



(1) - Eccentric slot
(2) - Recess

(3) - Threaded pin



To adjust the eccentric for forward and backward stitches:

1. Tilt the machine head (📖 p. 14).
2. Loosen the threaded pin (3).
3. Turn the eccentric screw (1) from the right through the slot in the base plate:

Initial position:

The slot in the eccentric screw (1) is parallel to the axle of the machine, and the recess (2) faces down.

If the forward and backward stitches are not the same length:

- **Turn clockwise:** the forward stitch becomes larger, the backward stitch smaller.
- **Turn counterclockwise:** the forward stitch becomes smaller, the backward stitch larger.

4. Tighten the threaded pin (3).

8 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. 45)

8.1 Adjusting the feed dog position

WARNING



Risk of injury from moving parts!

Crushing possible.

Switch off the machine before you set the feed dog position.





Proper setting

The feed dog is exactly in the center of the throat plate cutout, both sideways and in the sewing direction.

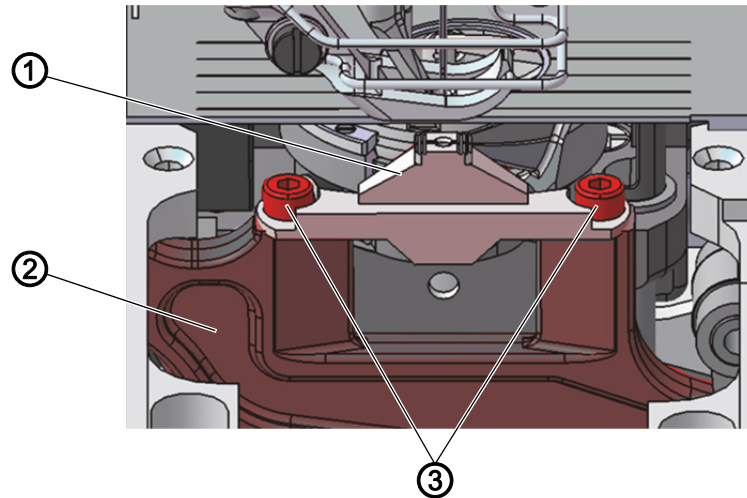
If the stitch length is 0, the needle pierces exactly in the center of the needle hole.

Various settings can be made depending on how far the position of the feed dog differs from the correct setting:

- For minimal deviations, it suffices to move the feed dog on the carrier ( p. 36)
- If this is not sufficient, move the entire feed dog carrier on the pusher shaft ( p. 37)

8.1.1 Moving the feed dog

Fig. 21: Moving the feed dog




(1) - Feed dog

(2) - Feed dog carrier

(3) - Screws



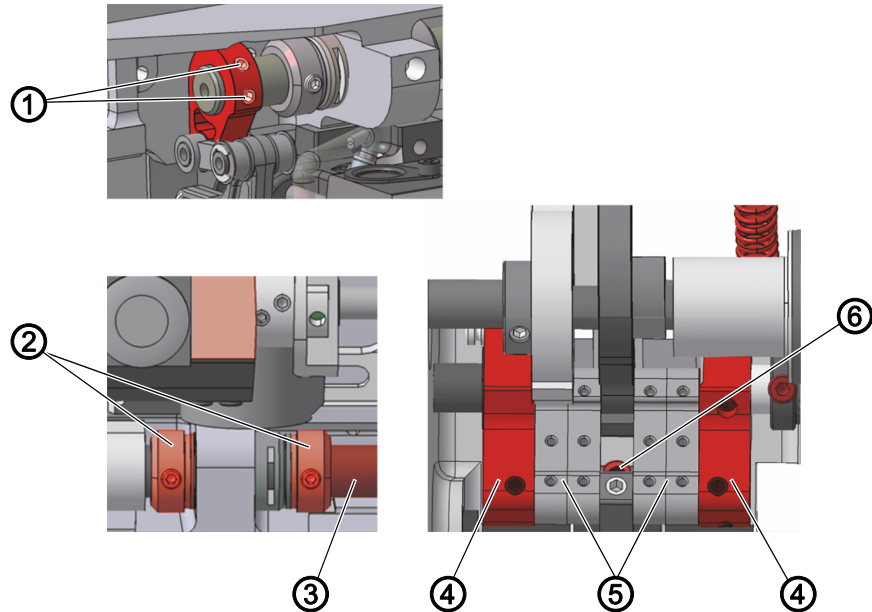
To move the feed dog:

1. Disassemble the throat plate ( p. 19).
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 can be screwed on straight.
4. Tighten the screws (3).

8.1.2 Moving the feed dog carrier

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

Fig. 22: Moving the feed dog carrier




- (1) - Screws
 (2) - Set collars
 (3) - Pusher shaft

- (4) - Adjusting frame
 (5) - Plates
 (6) - Screw



To move the feed dog carrier:

1. Tilt the machine head ( p. 14).
2. Set the upper stitch length adjusting wheel to 0.
3. Loosen the connection to the pull rod using the two screws (1).
4. Loosen the screw (6).
5. Unscrew threaded pins for the set collars (2).
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 set collars (2) toward each other as far as they will go.




Important

Make sure that the pusher shaft (3) is tightened by the set collars.

8. Tighten the threaded pins for the set collars (2).
9. Move the feed dog carrier in the sewing direction such that the feed dog is exactly in the center of the throat plate cutout.
10. Tighten the rear screw (6).
11. Tighten the connection to the pull rod using the screws (1).



Important

In the process, make sure that the feed dog height has the correct setting ( p. 39).

8.2 Adjusting the feed dog movement

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



Order

First, check the following setting:

- Feed dog (📖 p. 35)

8.2.1 Adjusting the feed movement

WARNING



Risk of injury from moving parts!

Crushing possible.

Switch off the machine before you adjust the feed movement.

The proper setting for the feed movement is checked at standstill and adjusted using the pusher eccentric.

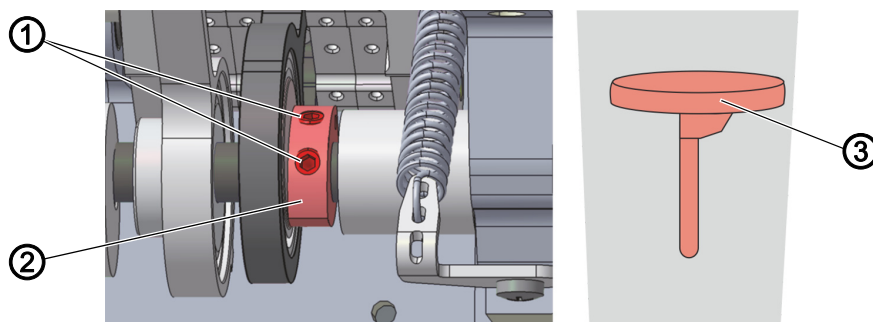


Proper setting

Handwheel at the 190° position and set the upper stitch length adjusting wheel to the maximum stitch length.

👉 When the stitch regulator is pressed down, the feed dog stops.

Fig. 23: Adjusting the feed movement



- (1) - Threaded pins
(2) - Pusher eccentric

- (3) - Stitch regulator



To adjust the feed movement:

1. Tilt the machine head (📖 p. 14).
2. Set the upper stitch length adjusting wheel to the maximum stitch length.
3. Loosen the threaded pins (1).
4. Move the handwheel into the 190° position.

5. Press the stitch regulator (3) down and observe how the feed dog and needle respond.
6. Turn the pusher eccentric (2) so that the feed dog and needle no longer move when the stitch regulator (3) is pressed.
7. Tighten the threaded pins (1).

8.2.2 Adjusting the feed dog height at top dead center

WARNING



Risk of injury from moving parts!

Crushing possible.

Switch off the machine before you adjust the feed dog height.

The feed dog reaches the maximum stroke height at top dead center when the handwheel is positioned at 190°.

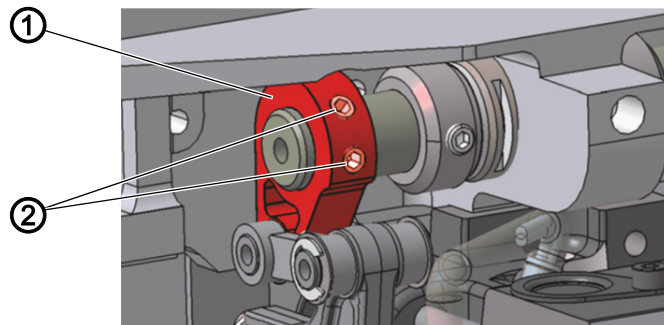


Proper setting

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.
In machines with short thread cutters (KFA), the upper edge of the feed dog protrudes 0.8 mm above the throat plate.

Fig. 24: Adjusting the feed dog height at top dead center




(1) - Lever

(2) - Threaded pins



To adjust the feed dog height at top dead center:

1. Tilt the machine head ( p. 14).
2. Move the handwheel into the 190° position.
3. Loosen the threaded pins (2) on the lever (1) at the left, above the hook.
4. Turn the lever (1) such that the upper edge of the feed dog protrudes 0.5 mm (KFA = 0.8 mm) above the throat plate.
5. Tighten the threaded pins (2).

8.3 Feed dog lift (default)

WARNING



Risk of injury from moving parts!

Crushing possible.

Switch off the machine before adjusting the feed dog lift.

8.3.1 Adjusting the stroke movement



Order

First, check the following setting:

- Feed dog height (📖 p. 39)

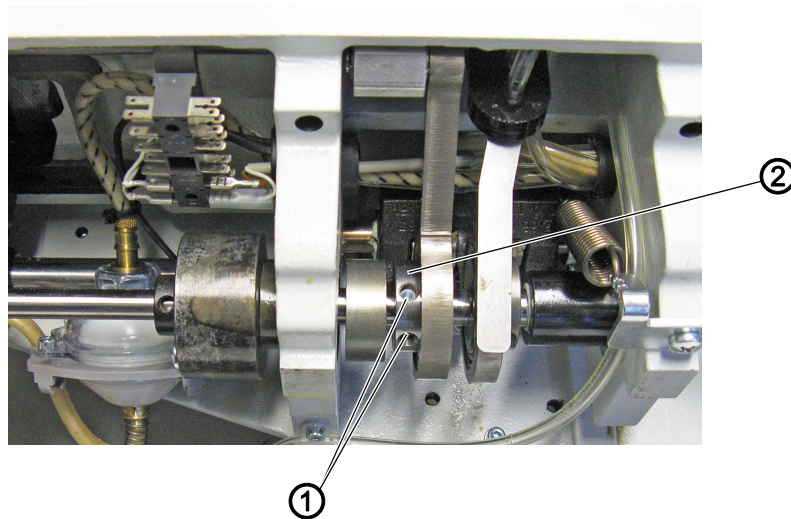


Proper setting

At the front dead center (handwheel position 90°) and at the rear dead center (handwheel position 270°) for the feed dog, the upper edge of the feed dog is at the same height as the upper edge of the throat plates.

At 90°, the feed dog is in the upward movement; at 270°, in the downward movement.

Fig. 25: Adjusting the stroke movement



(1) - Threaded pins

(2) - Stroke eccentric



To adjust the stroke movement:

1. Tilt the machine head (📖 p. 14).
2. Loosen the threaded pins (1).
3. Move the handwheel into the 90° position.

4. Turn the stroke eccentric (2) such that the upper edge of the feed dog is in the upward movement and at the same height as the upper edge of the throat plate.
5. Tighten the threaded pins (1).

8.3.2 Adjusting the compensating weight

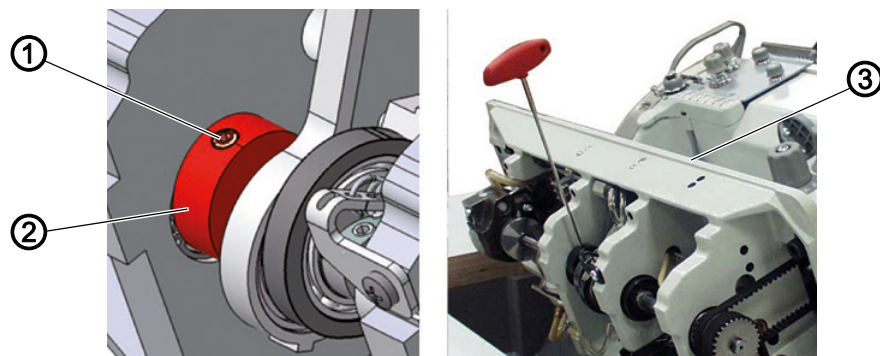


Proper setting

Handwheel position 210°:

- ✎ The threaded pin for the compensating weight is parallel to the base plate.

Fig. 26: Adjusting the compensating weight




(1) - Threaded pin
(2) - Compensating weight

(3) - Base plate



To adjust the compensating weight:

1. Tilt the machine head ( p. 14).
2. Move the handwheel into the 210° position.
3. Unscrew the threaded pin (1) and leave the allen key inserted in the threaded pin.
4. Turn the compensating weight (2) such that the threaded pin (1) is parallel to the base plate (3).
Use the allen key inserted in the threaded pin as a means of orientation.
5. Tighten the threaded pin (1).

8.4 Feed dog lift (adjustable stroke eccentric)

WARNING



Risk of injury from moving parts!

Crushing possible.

Switch off the machine before adjusting the feed dog lift.

8.4.1 Adjusting the stroke movement



Order

First, check the following setting:

- Feed dog height (📖 p. 39)

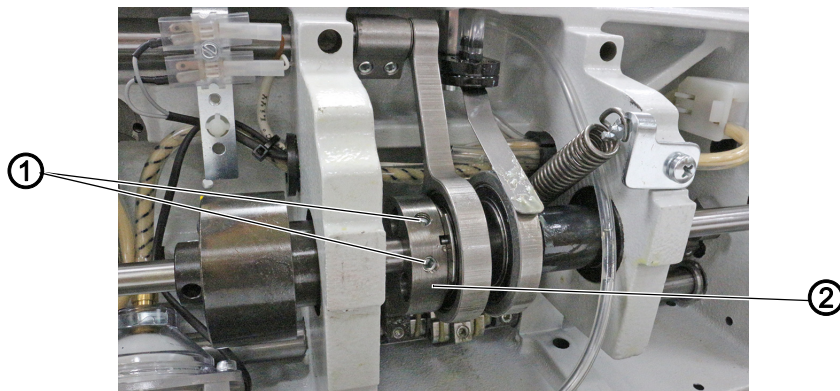


Proper setting

At the front dead center (handwheel position 90°) and at the rear dead center (handwheel position 270°) for the feed dog, the upper edge of the feed dog is at the same height as the upper edge of the throat plate.

At 90°, the feed dog is in the upward movement; at 270°, in the downward movement.

Fig. 27: Adjusting the stroke movement



(1) - Threaded pins

(2) - Stroke eccentric



To adjust the stroke movement:

1. Tilt the machine head (📖 p. 14).
2. Loosen the threaded pins (1).
3. Move the handwheel into the 90° position.
4. Turn the stroke eccentric (2) such that the upper edge of the feed dog is in the upward movement and at the same height as the upper edge of the throat plate.
5. Tighten the threaded pins (1).

8.4.2 Adjusting the stroke eccentric

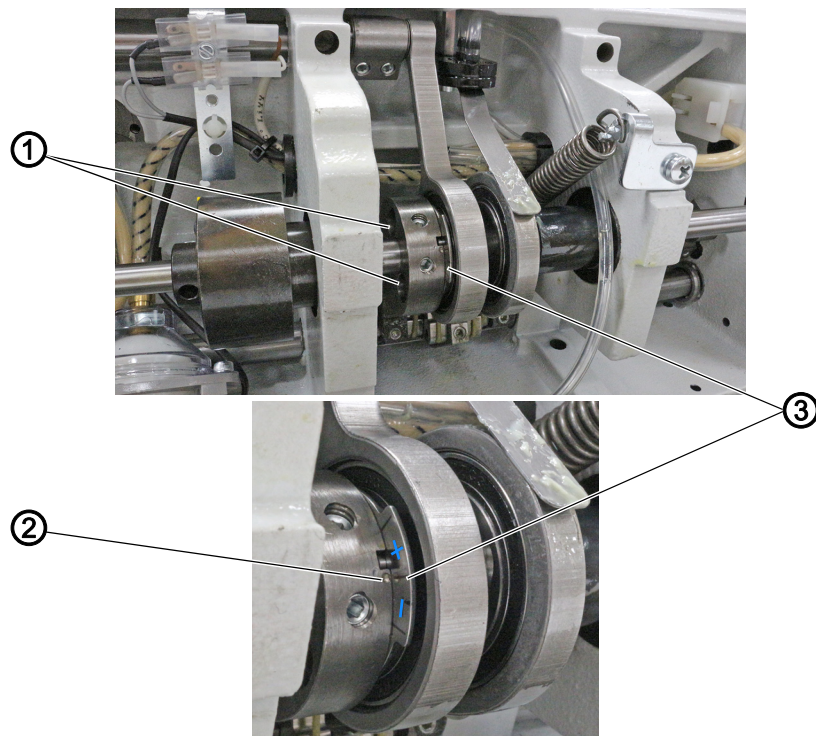
NOTICE

Property damage may occur!

The feed dog may damage the thread-pulling knife on machines with a short thread cutter.

Make sure the feed dog does not sink too deeply into the throat plate to prevent damage to the thread-pulling knife.

Fig. 28: Adjusting the stroke eccentric




(1) - Screws
(2) - Grain

(3) - Disk



To adjust the stroke eccentric:

1. Tilt the machine head ( p. 14).
2. Loosen the screws (1).
3. Turn the disk (3).
 - Grain (2) in the + range: Increase the feed dog lift
 - Grain (2) in the - range: Reduce the feed dog lift
 - Grain (2) on the center line: Default feed dog lift
4. Tighten the screws (1).
5. Erect the machine head.
6. Check the feed dog lift and readjust it if necessary.

**Important**

The higher the feed dog lift, the deeper the feed dog plunges into the throat plate and may damage the thread-pulling knife or the hook tip. Making sure that the feed dog lift is not set too high is particularly important on machines with a short thread cutter (setting in the + range) in order to keep the thread-pulling knife from sustaining damage.



7. Check the setting.

- Position the feed dog at top bottom center
- Slide a sheet of paper between feed dog and thread-pulling knife



If the sheet of paper can be slid effortlessly between feed dog and thread-pulling knife, the feed dog lift is set correctly.

If the sheet of paper cannot be slid or is crushed between feed dog and thread-pulling knife, the feed dog lift must be reduced.

9 Aligning the needle bar linkage



Proper setting

Position the upper and lower stitch length adjusting wheel to 0.

✎ The needle pierces exactly in the center of the feed dog needle hole.

9.1 Aligning the needle bar linkage sideways

WARNING

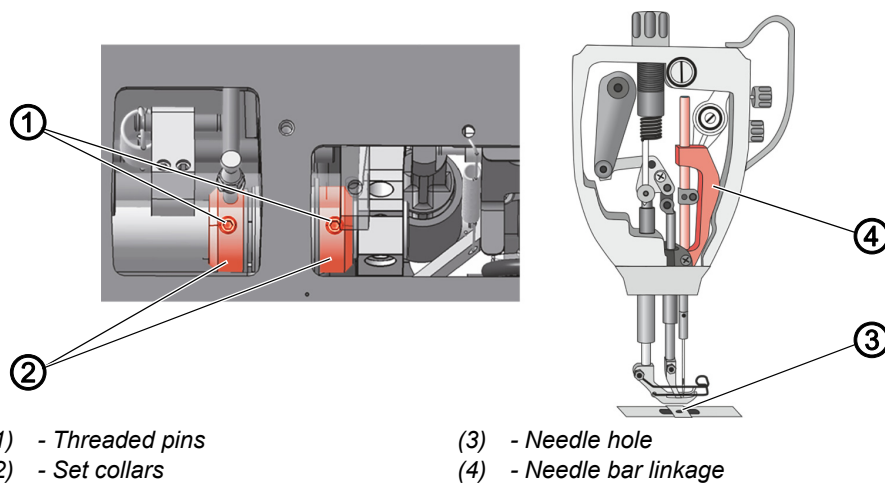


Risk of injury from moving parts!

Crushing possible.

Switch off the machine before aligning the needle bar linkage.

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



(1) - Threaded pins
(2) - Set collars

(3) - Needle hole
(4) - Needle bar linkage



To align the needle bar linkage sideways:



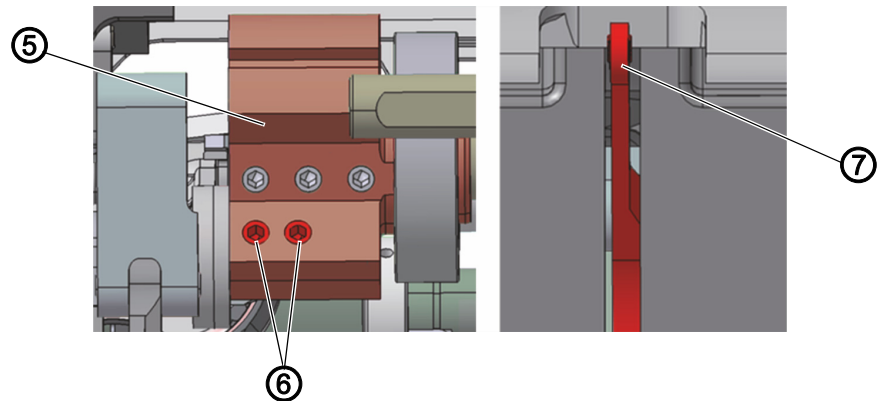
1. Disassemble the arm cover ( p. 15).
2. Disassemble the head cover ( p. 16).
3. Set the upper and lower stitch length adjusting wheel to 0.
4. Loosen the threaded pins (1) on the two set collars (2) at the right-hand end of the shaft for the needle bar linkage.

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



(5) - Arm shaft crank
(6) - Threaded pins

(7) - Thread lever



5. Loosen the threaded pins (6) on the arm shaft crank (5).
Make sure that the threaded pins stay on the surface.



Important

6. Move the needle bar linkage (4) sideways such that the needle pierces exactly in the center of the needle hole (3) for the feed dog.
7. Push the set collars (2) inwards as far as they will go and tighten them.
8. Tighten the threaded pins (1).
9. Align the thread lever (7) exactly in the middle of the slot.
10. Tighten the threaded pins (6).



Order

Then check the following settings:

- Looping stroke position (📖 p. 50)
- Distance between hook and needle (📖 p. 49)

9.2 Aligning the needle bar linkage in the sewing direction

WARNING

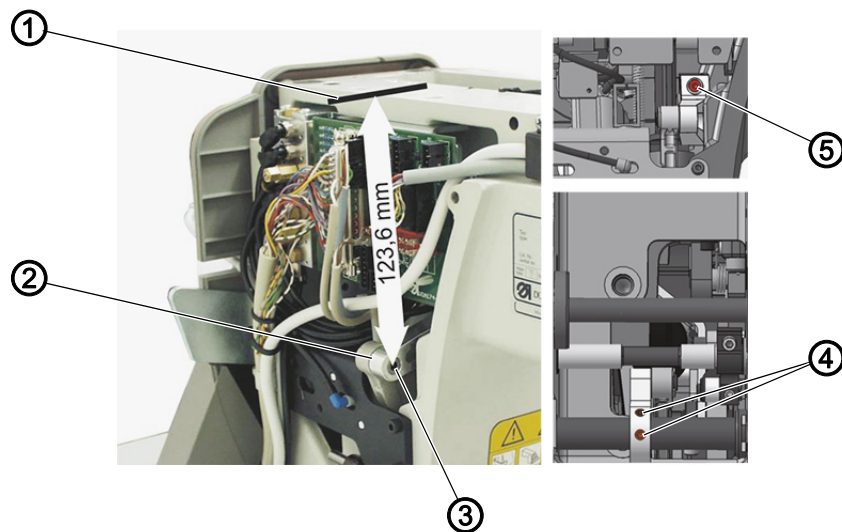


Risk of injury from moving parts!

Crushing possible.

Switch off the machine before aligning the needle bar linkage.

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



- (1) - Machine arm surface
(2) - Lever
(3) - Center of bolt

- (4) - Threaded pins
(5) - Screw





Proper setting

Stitch length adjusting wheels to 0.

↪ The lever (2) is positioned so that the distance from the surface of the arm (1) to the center of the bolt (3) is 123.6 mm.




To align the needle bar linkage in the sewing direction:

1. Disassemble the valve cover ( p. 17).
2. Tilt the machine head ( p. 14).
3. Set the lower stitch length adjusting wheel to 0.
4. Set the upper stitch length adjusting wheel to 0.
5. Loosen the threaded pins (4).
6. Loosen the screw (5).
7. Position the lever (2).
8. Tighten the threaded pins (4).
9. Tighten the screw (5).

**Order**

Then check the following setting:

- Looping stroke position ( p. 50)

10 Position of the hook and needle

WARNING



Risk of injury from sharp and moving parts!

Puncture or crushing possible.

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

NOTICE

Property damage may occur!

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



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

10.1 Adjusting the hook side clearance



Order

First, check the following settings:

- Needle bar linkage is aligned correctly ( p. 45)
- Looping stroke position ( p. 50)

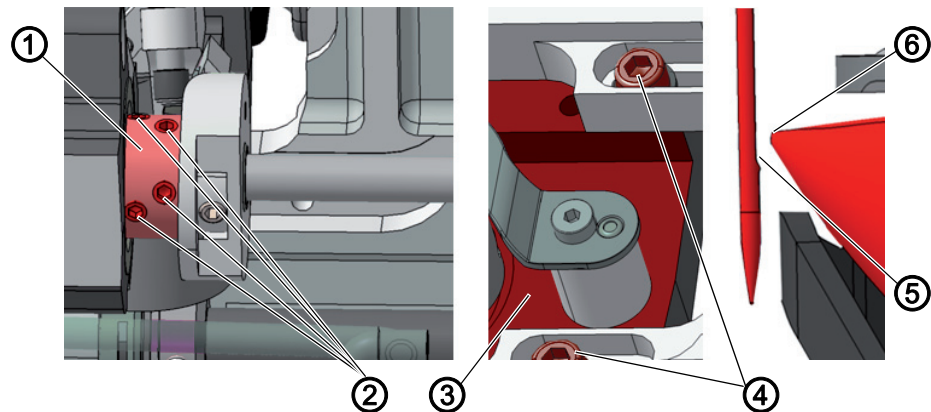


Proper setting

Machine is locked in place at position 1 ( p. 22).

↘ The distance between the hook tip and the groove of the needle is no greater than 0.1 mm.

Fig. 32: Adjusting the hook side clearance



- (1) - Set collar
(2) - Threaded pins
(3) - Hook support

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



To adjust the hook side clearance:

1. Tilt the machine head (📖 p. 14).
2. Open the throat plate slides (📖 p. 18).
3. Lock the machine in place at position **1** (📖 p. 22).
4. Loosen the screws (4) for the hook support (3).
5. Loosen the threaded pins (2) for the set collar (1).
6. Shift the hook support (3) laterally.
7. The distance between the hook tip (6) and the groove of the needle (5) is maximum 0.1 mm.
The hook tip (6) does not touch the needle.
8. Tighten the screws (4) for the hook support (3).
9. Check the looping stroke position (📖 p. 50).
10. Tighten the threaded pins (2) for the set collar (1).
11. Remove the lock.



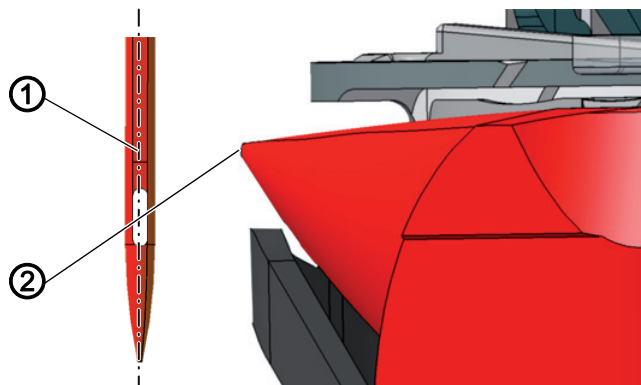
Order

Then check the following setting:

- Position of the needle guard (📖 p. 52)

10.2 Adjusting the looping stroke position

Fig. 33: Adjusting the looping 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 looping stroke is precisely 2 mm.



Order

First, check the following settings:

- Needle bar linkage is aligned correctly (📖 p. 45)

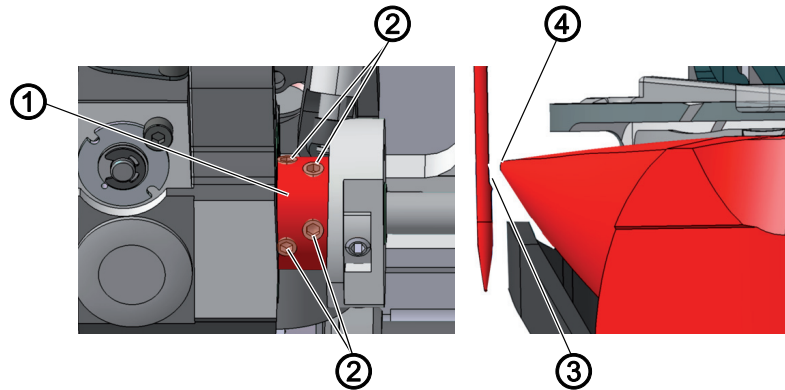


Proper setting

Machine is locked in place at position **1** ( p. 22).

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

Fig. 34: Adjusting the looping stroke position (2)



(1) - Set collar





(2) - Threaded pins

(3) - Needle groove

(4) - Hook tip






To adjust the looping stroke position:

1. Tilt the machine head ( p. 22).
2. Disassemble the throat plate ( p. 19).
3. Disassemble the feed dog ( p. 20).
4. Lock the machine in place at position **1** ( p. 22).
5. Loosen the threaded pins (2) for the set collar (1).
6. Turn the hook such that the hook tip (4) points exactly to the vertical center line of the needle (3).
7. Tighten the threaded pins (2) for the set collar (1).
8. Remove the lock.



Order

Then, check the following settings:

- Position of the needle guard ( p. 52)
- Timing of cutting by the thread trimmer ( p. 73), ( p. 81)

10.3 Adjusting the needle guard

The needle guard prevents contact between needle and hook tip.



Order

First, check the following settings:

- Looping stroke position (📖 p. 50)
- Hook side clearance (📖 p. 49)
- Needle bar height (📖 p. 53)

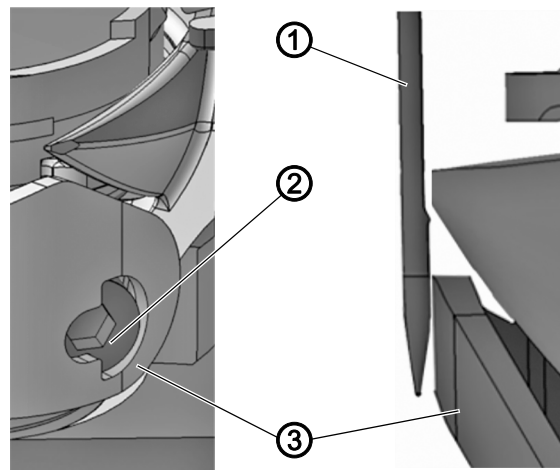


Proper setting

Machine is locked in place at position **1** (📖 p. 22).

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

Fig. 35: Adjusting the needle guard



(1) - Needle
(2) - Screw

(3) - Needle guard



To adjust the needle guard:


1. Disassemble the throat plate (📖 p. 19).
2. Disassemble the feed dog (📖 p. 20).
3. Turn the handwheel and check how far the needle guard (3) pushes the needle (1) away.
4. Turn the screw (2) such that the needle guard (3) just pushes the needle (1) far away enough so that it cannot be touched by the hook tip:
 - **Pushing away more strongly:** turn counterclockwise
 - **Pushing away less strongly:** turn clockwise

10.4 Adjusting the needle bar height



Order

First, check the following settings:

- Looping stroke position ( p. 50)



Proper setting

Machine is locked in place at position 1 ( p. 22).

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

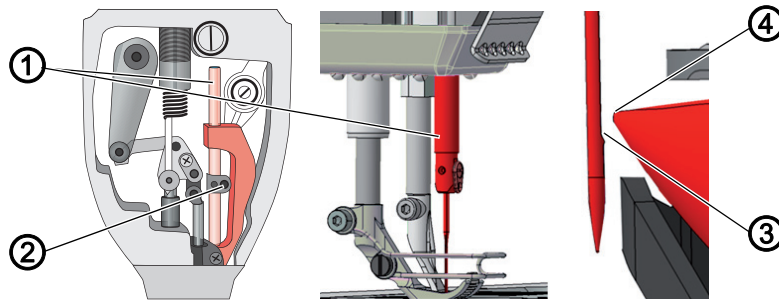


Disturbance

Disturbances caused by an incorrect needle bar height

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

Fig. 36: Adjusting the needle bar height




(1) - Needle bar
(2) - Screw

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



To adjust the needle bar height:

1. Disassemble the head cover ( p. 16).
2. Loosen the screw (2) of the needle bar (1).
3. Move the height of the needle bar (1) such that the hook tip (4) is in the middle of the lower third of the groove for the needle.
When doing so, take care not to twist the needle to the side.
The groove (3) must face toward the hook.
4. Tighten the screw (2) for the needle bar (1).



Order

Then, check the following settings:

- Position of the needle guard ( p. 52)

11 Adjusting the bobbin case lifter

WARNING

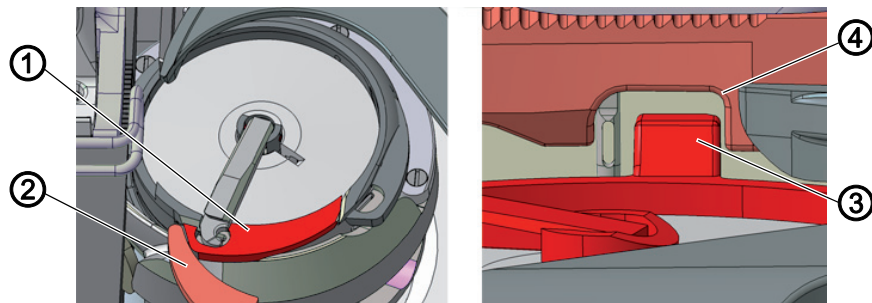


Risk of injury from moving parts!

Crushing possible.

Switch off the machine before adjusting the bobbin case lifter.

Fig. 37: Adjusting the bobbin case lifter



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

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

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

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

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

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



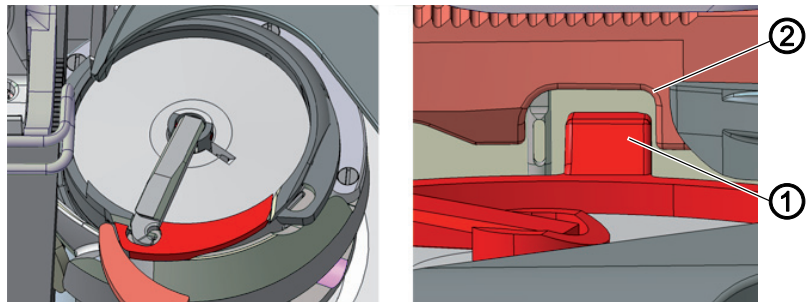
Disturbance

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

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

11.1 Adjusting the lifting gap

Fig. 38: Adjusting the lifting gap (1)



(1) - Nose of the bobbin case

(2) - Slot in the throat plate

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



Proper setting

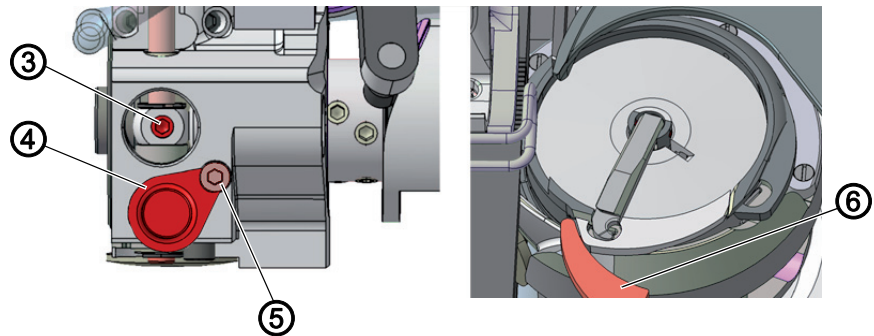
The needle thread slides through unobstructed between the nose of the bobbin case (1) and the slot in the throat plate (2).



To adjust the lifting gap:

1. Tilt the machine head ([p. 14](#)).
2. Open the throat plate slides ([p. 18](#)).

Fig. 39: Adjusting the lifting gap (2)



(3) - Threaded pin

(4) - Cover

(5) - Screw

(6) - Bobbin case lifter



3. Loosen the screw (5).
4. Push the cover (4) downwards.
5. Loosen the threaded pin (3).
6. Set the bobbin case lifter (6) so that the gap between the nose of the bobbin case (1) and the slot in the throat plate (2) is just large enough to allow the needle thread to slip through without a problem.



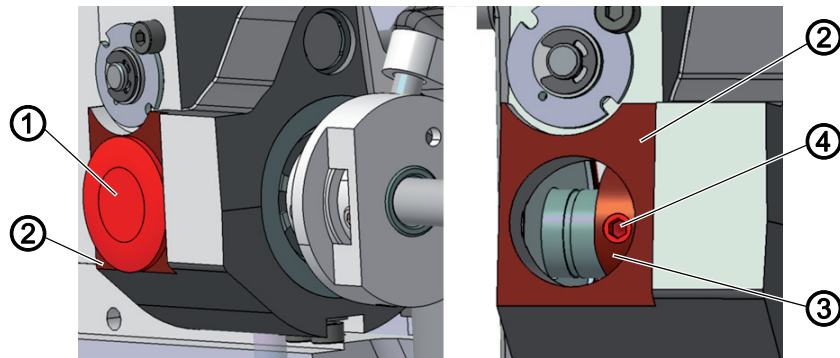
Important

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

7. Tighten the threaded pin (3).
8. Push the cover (4) upwards.
9. Tighten the screw (5).

11.2 Adjusting the timing for lifting

Fig. 40: Adjusting the timing for lifting



(1) - Plug
(2) - Hook housing

(3) - Control cam
(4) - Threaded pin



Proper setting

The bobbin case lifter starts to open exactly at the point when the hook tip is located below the bobbin case lifter after the loop is taken up.

In 1-needle machines, this happens when the handwheel position is approx. 100°.

In 2-needle machines, this happens when the handwheel position is approx. 100° for the right-hand hook, and when the handwheel position is approx. 300° for the left-hand hook.

For 100° or 300°, the threaded pin (4) is exactly in the middle of the opening. (Insert allen key in the threaded pin for orientation.)



To adjust the timing for lifting:

1. Tilt the machine head (📖 p. 14).
2. Remove the plug (1) on the bottom side of the hook housing (2).
3. Loosen the threaded pin (4) through the opening.
4. Turn the handwheel until the hook tip is exactly below the bobbin case lifter.
5. Use the allen key to turn the control cam (3) so that the bobbin case lifter opens at the correct point in time.
6. Tighten the threaded pin (4).
7. Insert the plug (1) into the opening.
8. Perform a sewing test.

12 Sewing Feet

WARNING



Risk of injury from sharp and moving parts!

Puncture or crushing possible.

Switch off the machine before you adjust the sewing feet.

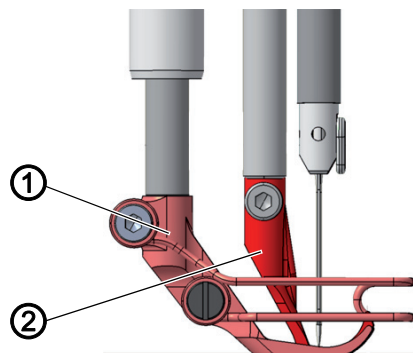
NOTICE

Property damage may occur!

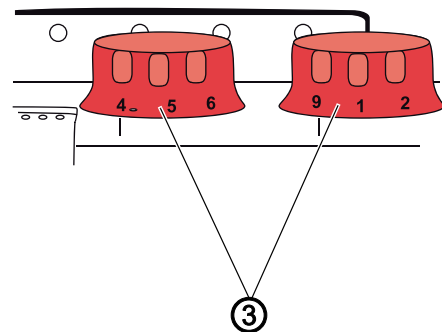
Machine can be damaged if the adjusting wheels are forced.

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

Fig. 41: Sewing Feet



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



- (3) - Adjusting wheels for the sewing foot stroke

The 2 adjusting wheels (3) on the machine arm determine how high the presser foot (1) and walking foot (2) are raised when sewing. The left adjusting wheel determines the normal sewing foot stroke. The right adjusting wheel determines the increased sewing foot stroke. The increased sewing foot stroke must NOT be lower than the normal sewing foot stroke.

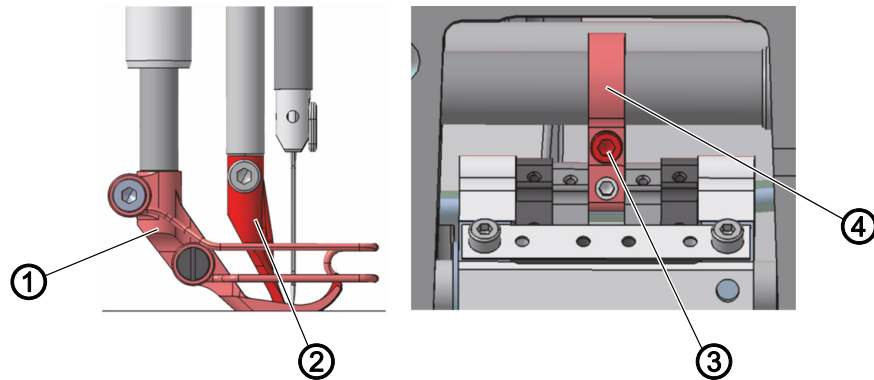
12.1 Adjusting an even sewing foot stroke



Proper setting

For sewing foot stroke 3, the presser foot and walking foot are raised by the same height.

Fig. 42: Adjusting an even sewing foot stroke



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

(3) - Screw
(4) - Sewing foot lever



To set an even sewing foot stroke:

1. Disassemble the arm cover (📖 p. 15).
2. Move the handwheel into the 0° position.
3. Loosen the screw (3).
4. Lower the presser foot (1) and walking foot (2) together down to the throat plate.



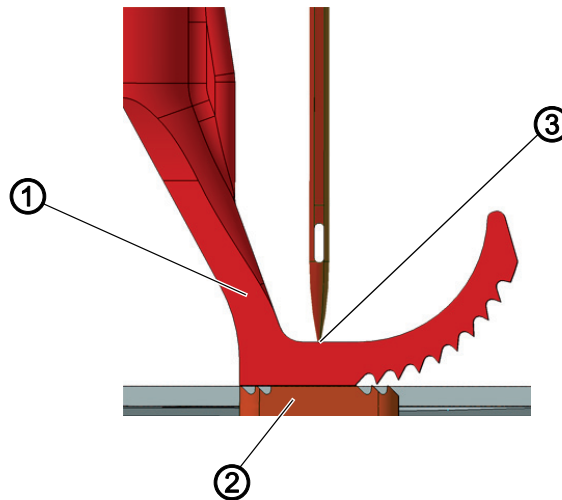
Important

While doing so, make sure that the walking foot is only lowered down to the throat plate. Do not inadvertently lower the walking foot through the throat plate cutout down to the feed dog.

5. Tighten the screw (3).

12.2 Adjusting the stroke movement for the walking foot

Fig. 43: Adjusting the stroke movement for the walking foot (1)





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

(3) - Needle tip



Order

First, check the following adjustment:

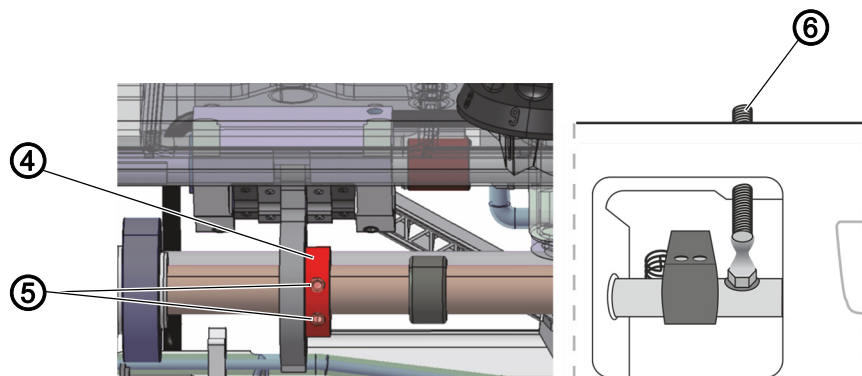
- Even sewing foot stroke ( p. 58)
- The feed dog stroke movement ( p. 40)



Proper setting

The walking 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 walking foot. This occurs at handwheel position 95°.

Fig. 44: Adjusting the stroke movement for the walking foot (2)




(4) - Stroke eccentric
(5) - Threaded pins

(6) - Threaded pin



To adjust the stroke movement for the walking foot:

1. Disassemble the arm cover ( p. 15).
2. Screw in the threaded pin (6) so that there is a stroke.

3. Set the upper stitch length adjusting wheel to the maximum stitch length.
4. Loosen the threaded pins (5).
5. Turn the stroke eccentric (4) such that the walking foot touches down on the feed dog when the handwheel is in the 95° position.



Important

When doing so, ensure not to move the stroke eccentric (4) laterally on the axle.

6. Tighten the threaded pins (5).
7. Unscrew the threaded pin (6) far enough so that there is no longer any contact with the clamp.

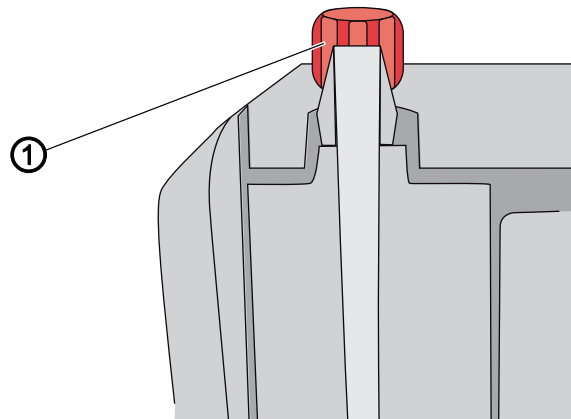
12.3 Adjusting the sewing foot pressure

The adjusting wheel at the top left of the machine arm determines the pressure for the sewing feet on the sewing material. The pressure can be adjusted continuously by turning the adjusting wheel.

The correct pressure depends on the sewing material:

- Lower pressure for soft materials
- Higher pressure for durable materials

Fig. 45: Adjusting the sewing foot pressure



(1) - Adjusting wheel for the sewing foot pressure



To adjust the sewing foot pressure:

1. Turn the adjusting wheel for the sewing foot pressure (1):
 - **greater pressure:** turn clockwise
 - **lower pressure:** turn counterclockwise

12.4 Adjusting the sewing foot lifting height

CAUTION



Risk of injury from moving parts!

Crushing possible.

The machine must remain switched on so that the sewing feet can be raised.

Exercise particular caution when adjusting the sewing foot lifting height.

Do NOT place your hands under the sewing feet when they are being lowered.

When the pedal is pressed back halfway, the sewing feet can be raised during sewing, e. g. to move the sewing material.

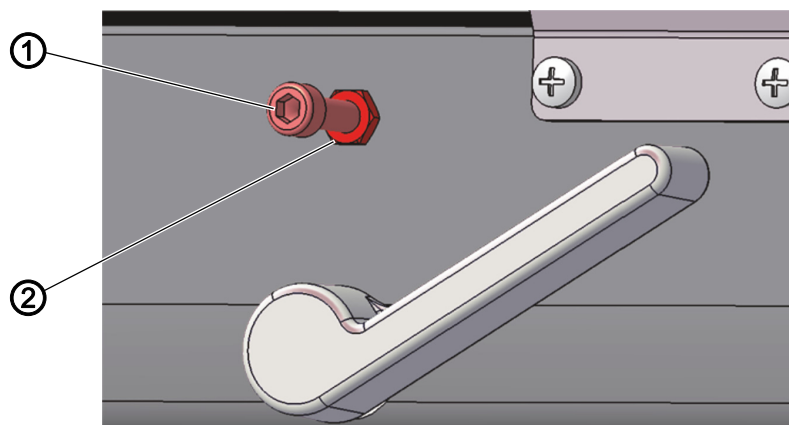
When the pedal is pressed completely back, the sewing feet will be raised after the thread is cut so that the sewing material can be exchanged.



Proper setting

The distance between the raised sewing feet and the throat plate is preset to 25 mm on delivery.

Fig. 46: Adjusting the sewing foot lifting height



(1) - Screw

(2) - Counternut



To adjust the lifting height of the sewing foot:

1. Loosen the counternut (2).
2. Turn the screw (1) to adjust the distance between the raised sewing feet and the throat plate:
 - **Raise the sewing feet to a lesser height:** turn clockwise
 - **Raise the sewing feet higher:** turn counterclockwise
3. Tighten the counternut (2).

13 Adjusting the needle thread tension

CAUTION



Risk of injury from moving parts!

Crushing possible.

Switch off the machine before adjusting the needle thread tension.

13.1 Adjusting 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 thread tension for

- thin sewing material
- low thread strengths

Greater thread tension for

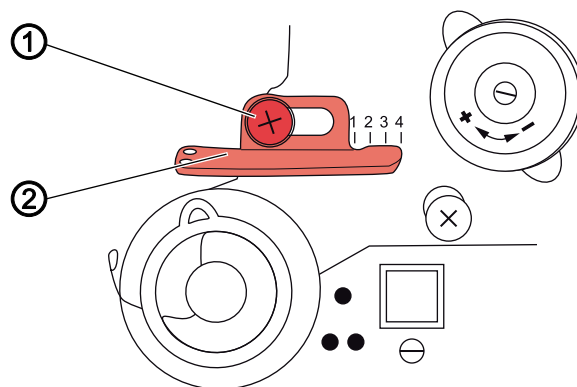
- thick sewing material
- high thread strengths



Proper setting

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

Fig. 47: Adjusting the needle thread regulator



(1) - Screw

(2) - Needle thread regulator

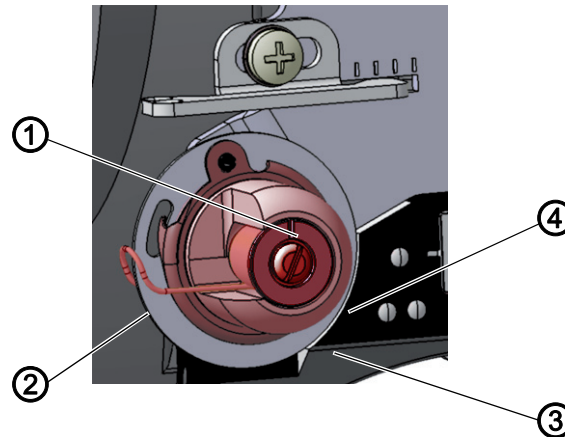


1. Open the throat plate slides (📖 p. 18).
2. Turn the handwheel and observe the cycle of the needle thread around the hook.
3. Loosen the screw (1).

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

13.2 Adjusting the thread tensioning spring

Fig. 48: Adjusting the thread tensioning spring



(1) - Stop collar
(2) - Spring

(3) - Tension disk
(4) - Screw

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



Proper setting

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

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



To adjust the thread tensioning spring:

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



Important

Do not twist the stop collar in doing so.

4. Tighten the screw (4).

14 Winder

WARNING



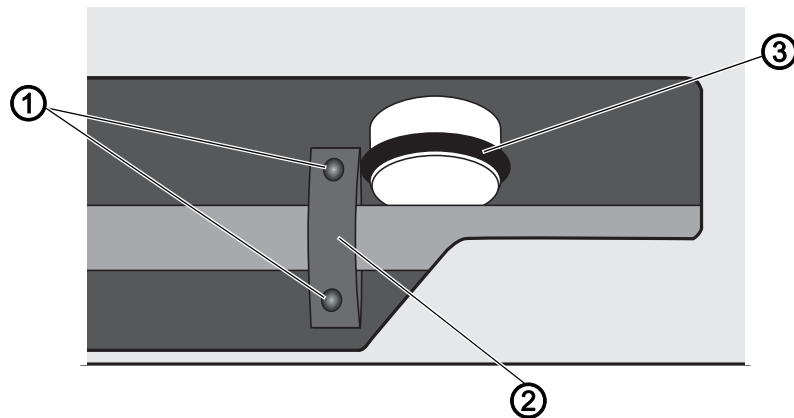
Risk of injury from moving parts!

Crushing possible.

Switch off the machine before adjusting the winder.

14.1 Adjusting the winder wheel and the driver wheel (long arm machines)

Fig. 49: Adjusting the winder wheel and the driver wheel



(1) - Threaded pins
(2) - Driver wheel

(3) - Winder wheel



Proper setting

The distance between the winder wheel and the driver wheel is 0.8 mm.

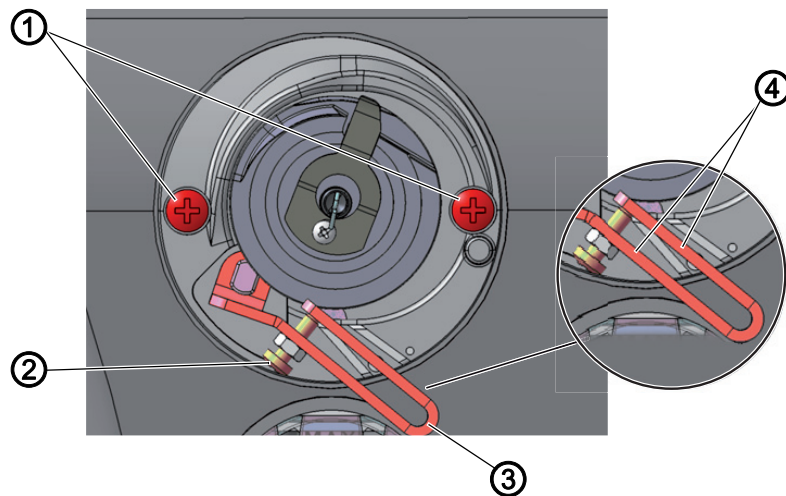


To adjust the winder wheel and driver wheel:

1. Disassemble the arm cover (📖 p. 15).
1. Loosen the threaded pins (1).
2. Move the driver wheel (2) to the right or left so that the distance to the winder wheel (3) is exactly 0.8 mm.
3. Tighten the threaded pins (1).

14.2 Adjusting the winder

Fig. 50: Adjusting the winder (1)



(1) - Screws
(2) - Screw

(3) - Winder lever
(4) - Shank




Proper setting

The winder wheel runs smoothly and without axial play.
The winding process will stop automatically when the required filling quantity of the bobbin is reached.



To adjust the winder:

1. Disassemble the arm cover ( p. 15).

Disassembling the winder

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

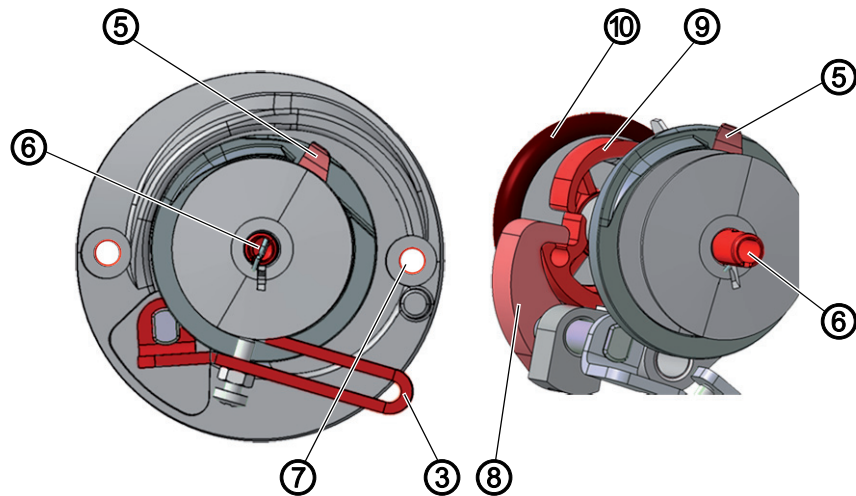
Adjusting the winder filling quantity

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.

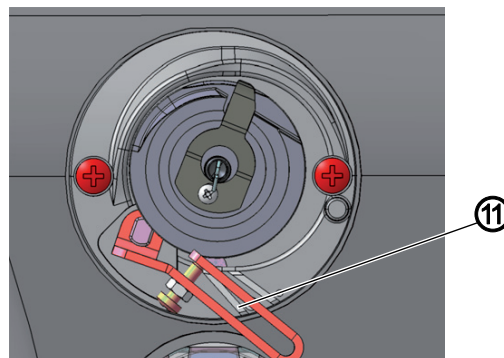
Adjusting the winder spacing

Fig. 51: Adjusting the winder (2)



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

Fig. 52: Adjusting the winder (3)



- (11) - Marking for XXL hook

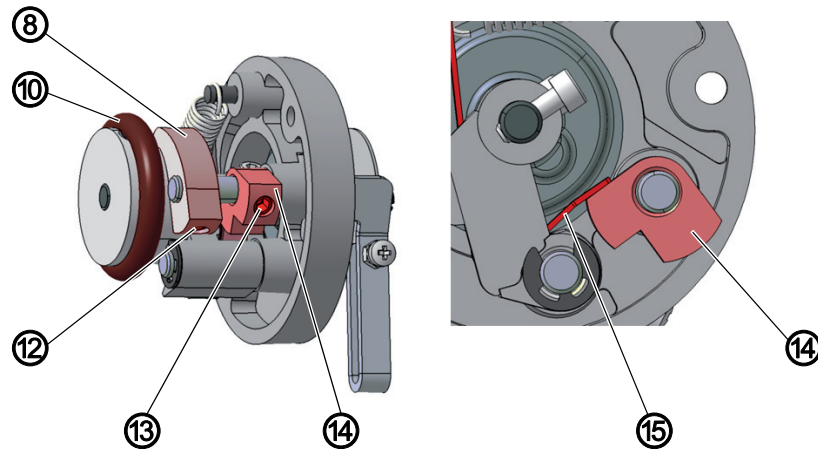


To adjust the winder spacing:

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. Adjust 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. Adjust the block (8) such that it is resting against the locking disk (9).
11. Adjust 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).

Adjusting the winder run

Fig. 53: Adjusting the winder (4)



(8) - Block

(10) - Winder wheel

(12) - Threaded pin

(13) - Threaded pin

(14) - Switch cam

(15) - Leaf spring



To adjust the winder run:

13. Loosen the threaded pin (13).

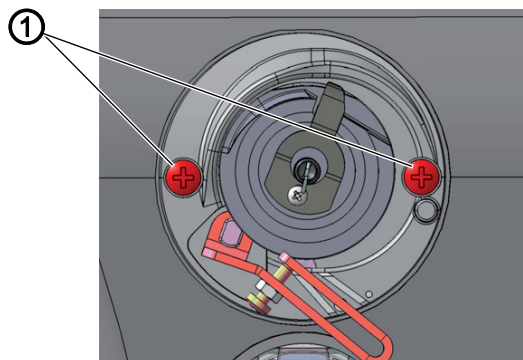
14. Adjust the switch cam (14) such that it is just contacting the leaf spring (15) when the block (8) has engaged in the locking disk.

15. Adjust the switch cam (14) such that the winder lever (3) has no axial play.

16. Tighten the threaded pin (13).

Assembling the winder

Fig. 54: Adjusting the winder (5)



(1) - Screws



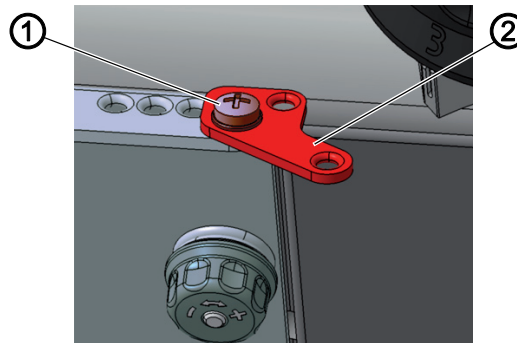
To assemble the winder:

17. Place the winder on the machine arm.

18. Tighten the screws (1).

14.3 Adjusting the hook thread guide

Fig. 55: Adjusting 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 adjust 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

15 Thread trimmer

WARNING



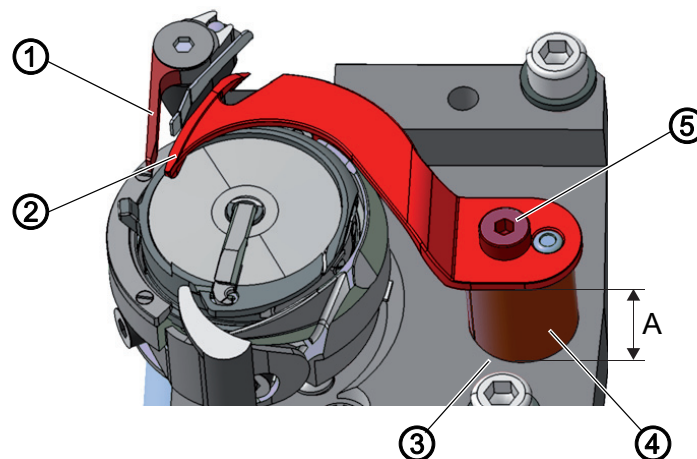
Risk of injury from sharp and moving parts!

Cutting and crushing possible.

Switch off the machine before adjusting the thread trimmer.

15.1 Adjusting the height of the thread-pulling knife

Fig. 56: Adjusting the height of the thread-pulling knife



- | | |
|-------------------------------------|---------------------|
| (1) - Counter blade | (4) - Knife carrier |
| (2) - Thread-pulling knife | (5) - Screw |
| (3) - Hook bearing screw-on surface | A - Distance |

The height of the thread-pulling knife is factory-set so that the distance **A** between the upper edge of the knife carrier (4) and the hook bearing screw-on surface (3) is 10.7 ± 0.05 mm. Fine adjustment is made by means of washers between the knife carrier (4) and the thread-pulling knife (2).



Important

When changing the knives, make sure that you do not lose the washers.



Proper setting

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

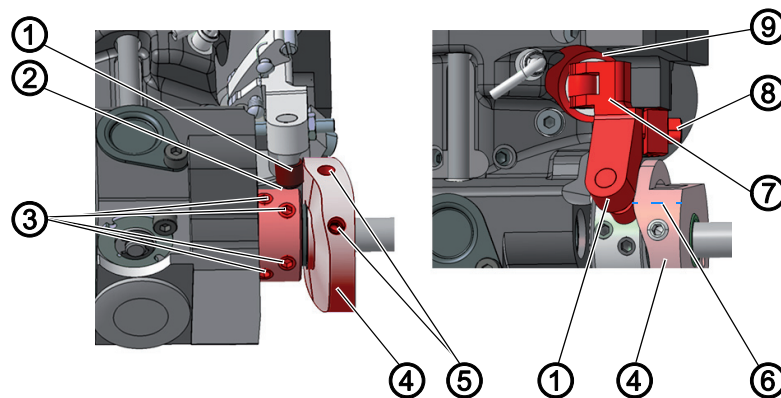


To adjust the height of the thread-pulling knife:

1. Open the throat plate slides (📖 p. 18).
2. Loosen the screw (5).
3. Remove the thread-pulling knife (2).
4. Place as many washers between thread-pulling knife (2) and knife carrier (4) as necessary to ensure that the upper edges of the counter blade (1) and thread-pulling knife (2) are at the same height.
5. Keep any non-required washers on the top side between the thread-pulling knife (2) and screw (5).
6. Tighten the thread-pulling knife (2) using the screw (5).

15.2 Adjusting the cutoff curve

Fig. 57: Adjusting the cutoff curve (1)



- (1) - Roller
 (2) - Set collar
 (3) - Threaded pins
 (4) - Control cam
 (5) - Threaded pins

- (6) - Widest extent
 (7) - Actuating lever
 (8) - Clamping screw
 (9) - Solenoid



Proper setting

The control cam (4) makes direct contact with the set collar (2). The distance between the widest extent (6) of the control cam (4) and the roller (1) is 0.1 mm at most. In resting position, the circle mark on the cutting edge of the thread-pulling knife is exactly next to the tip of the counter blade.



To adjust the cutoff curve:

1. Tilt the machine head (📖 p. 14).
2. Open the throat plate slides (📖 p. 18).
3. Loosen the threaded pins (3) on the set collar (2).
4. Push the set collar (2) as far as it will go to the left.
5. Tighten the threaded pins (3) on the set collar (2).

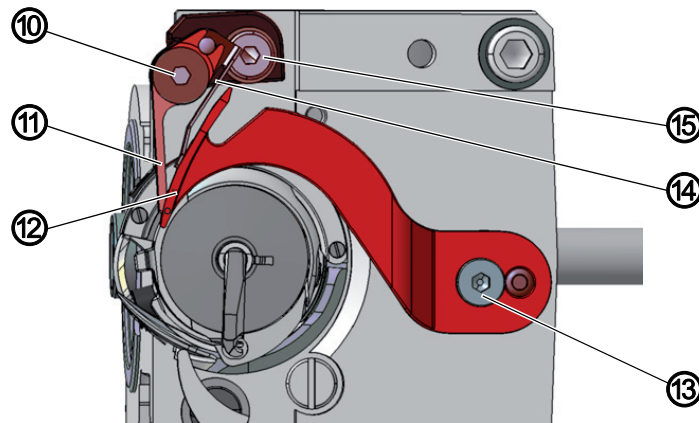


Important

Screw the 4 threaded pins (3) tightly in place on the set collar (2) before you loosen the threaded pins (5). The set collar (2) and control cam (4) are both mutually used as a stop and must not be loosened at the same time.

6. Loosen the threaded pins (5).
7. Press the actuating lever (7) against the solenoid (9).
8. Turn the control cam (4) such that its widest extent (6) is at the top, next to the roller (1).
9. Move the control cam (4) such that the distance between its widest extent (6) and the roller (1) is 0.1 mm at most.
10. Tighten the threaded pins (5).
11. Loosen the clamping screw (8) on the actuating lever (7).

Fig. 58: Adjusting the cutoff curve (2)



(10) - Screw

(11) - Counter blade


(12) - Thread-pulling knife

(13) - Screw

(14) - Hook thread clamp

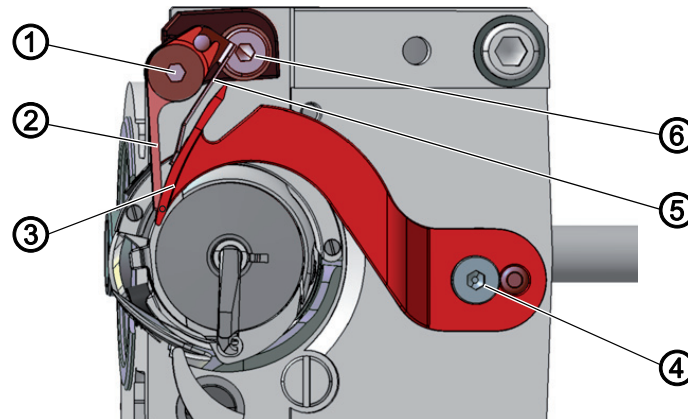
(15) - Screw



12. Turn the thread-pulling knife (12) so that the circle mark is exactly next to the tip of the counter blade (11).
13. Tighten the clamping screw (8) on the actuating lever (7) such that the actuating lever (7) has no axial play.
14. Loosen the threaded pins (3) on the set collar (2).
15. Push the set collar (2) to the right as far as it will go and against the control cam (4).
16. Check the looping stroke position ( p. 50).
17. Tighten the threaded pins (3) on the set collar (2).

15.3 Adjusting the cutting pressure

Fig. 59: Adjusting the cutting pressure



- | | |
|----------------------------|-------------------------|
| (1) - Screw | (4) - Screw |
| (2) - Counter blade | (5) - Hook thread clamp |
| (3) - Thread-pulling knife | (6) - Screw |

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



Proper setting

In resting position, the hook thread clamp makes contact with the thread-pulling knife without any pressure being applied. Any 2 threads with the greatest strength used for sewing can be neatly cut simultaneously.




Disturbance

Disturbances caused by an incorrect setting:

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

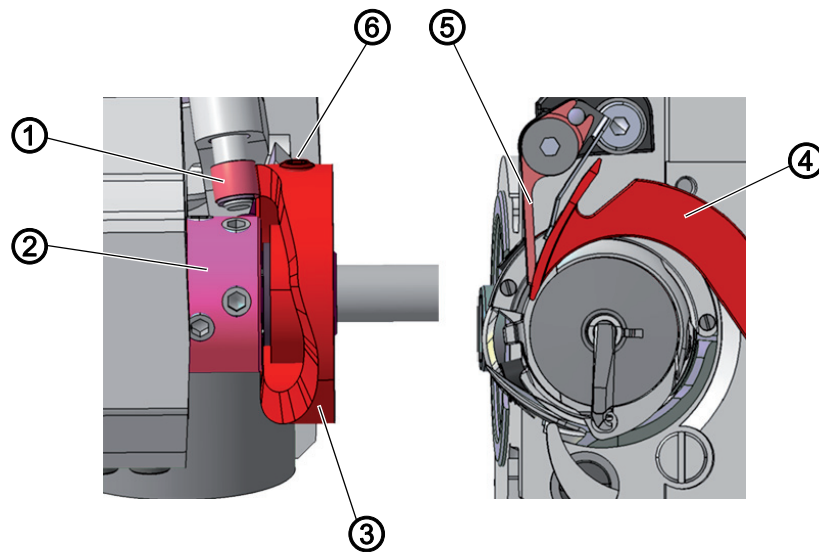


To adjust the cutting pressure:

1. Open the throat plate slides ( p. 18).
2. Turn the handwheel until the thread-pulling knife (3) can be swung out by hand.
3. Loosen the screw (1).
4. Position the thread-pulling knife (3) so that the arrow mark is exactly next to the tip of the counter blade (2).
5. Turn the hook thread clamp (5) so that it rests against the thread-pulling knife (3).
6. Turn the counter blade (2) so that it rests against the thread-pulling knife (3).
7. Tighten the screw (1).
8. Check the position of the knife, as the counter blade can easily become warped when the screw is being tightened.

15.4 Adjusting point in time for cutting

Fig. 60: Adjusting point in time for cutting



- | | |
|-------------------|----------------------------|
| (1) - Roller | (4) - Thread-pulling knife |
| (2) - Set collar | (5) - Counter blade |
| (3) - Control cam | (6) - Threaded pins |





Proper setting

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



To adjust the point in time for cutting:

1. Tilt the machine head ( p. 14).
2. Open the throat plate slides ( p. 18).
3. Loosen the threaded pins (6).
4. Turn the handwheel until the thread-pulling knife (4) can be swung out by hand.
5. Swivel the thread-pulling knife (4) forward until the circle mark is exactly next to the tip of the counter blade (5).
6. Adjust the handwheel position to 60°.
7. Push the control cam (3) to the left as far as it will go and against the set collar (2).
8. Turn the control cam (3) such that the roller (1) runs up at the contour of control cam (3) and the widest extent of the control cam is at handwheel position 60° at the highest point.
9. Tighten the threaded pins (6).
10. Check adjustment:
 - Insert the thread into thread-pulling knife (4) and slowly turn the handwheel.
 - Check the handwheel position at which the thread is cut.
11. If necessary, repeat adjustment steps 1 – 7 until the cut takes place at 60°.

16 Short thread cutter (KFA)

WARNING



Risk of injury from sharp and moving parts!

Cutting and crushing possible.

Switch off the machine before adjusting the short thread cutter.

NOTICE

Property damage may occur!

Damage to the machine from missing thread-pulling knife.

Risk of breakage.

The reverse-motion lock for the bobbin case is on the thread-pulling knife.

Use the machine only with a fitted thread-pulling knife.






Order

Correct setup of the short thread cutter (KFA) requires that the necessary work steps be performed in the order given in this chapter.



Cover

- Open the throat plate slides ( p. 18)
- Disassemble the throat plate ( p. 19)
- Disassemble the feed dog ( p. 20)

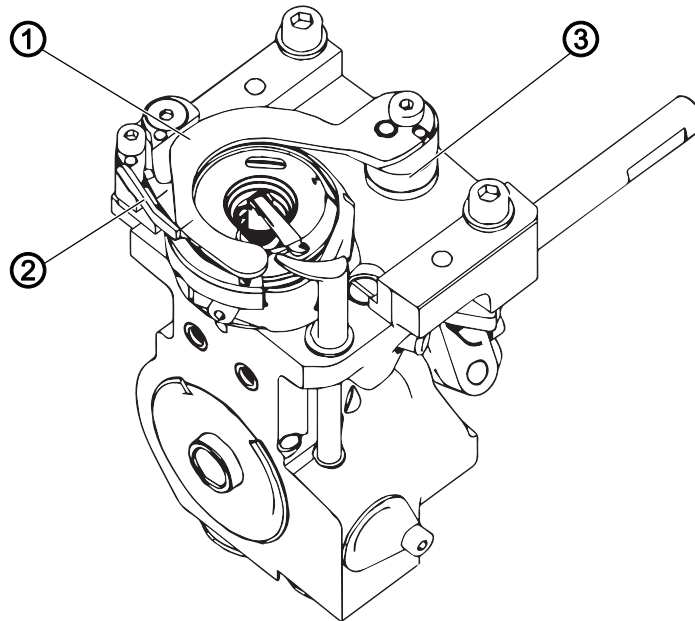
16.1 General information



Information

For [videos](#) of KFA settings, visit our YouTube channel.

Fig. 61: General information (1)





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

(3) - Knife carrier



Important

The needle bar must be at the top dead center when the handwheel is at 0° ( p. 45).

The hook bearing must be set correctly ( p. 49).

The height of the thread-pulling knife is determined by the height of the counter blade. The upper edges of the two knives must be on the same level.

Thread-pulling knife height

The height of the thread-pulling knife has been set at the factory using adjusting washers between thread-pulling knife (1) and knife carrier (3). When changing the knives make sure that you do not lose the adjusting washers.

Thread-pulling knife position

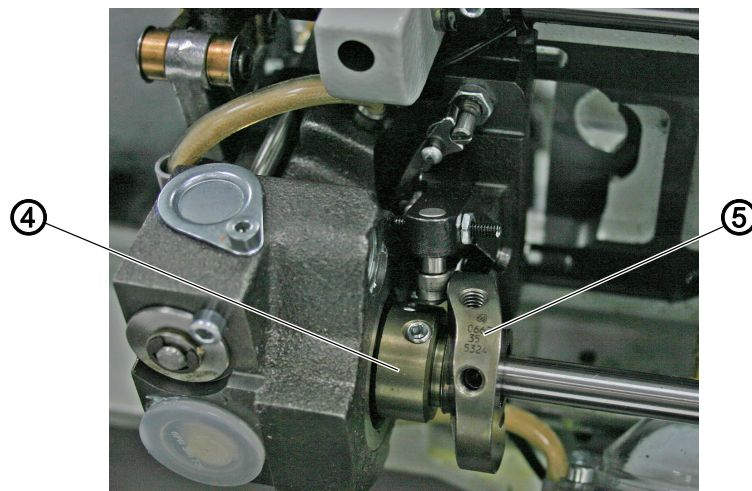
The thread-pulling knife (1) cannot be moved on the knife carrier (3). Therefore, you will not have to adjust the cutting pressure after replacing the thread-cutting knife (1).

The knife carrier (3) can be installed in 2 different positions: Large hook and XXL hook. To do this, the knife carrier (3) is rotated by 180°.

In rest position, the thread-pulling knife (1) completely covers the cutting edge of the counter blade (2). This prevents the needle thread from being damaged.

The pivot range of the thread-pulling knife is 23°.

Fig. 62: General information (2)



(4) - Set collar

(5) - Control cam

The control cam (5) is designed for operating with the large hook and the XXL hook.

The control cam (5) can be on the right-hand side (label is right side up) or on the left side (label is upside down) of the set collar (4).



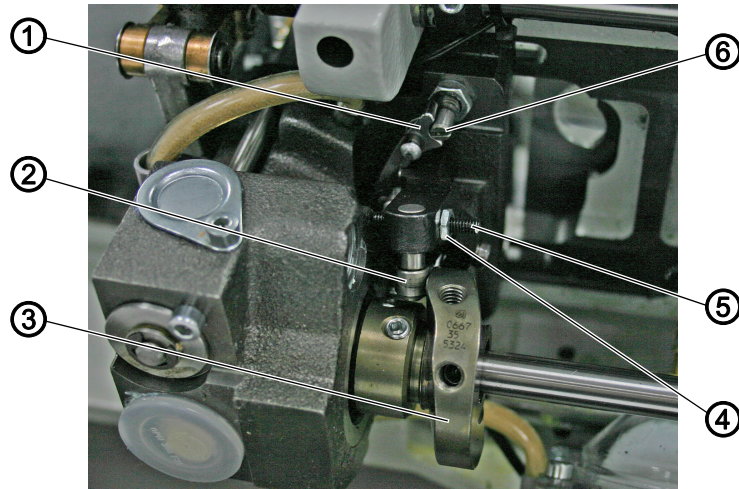
Proper setting

The control cam (5) makes contact with the set collar (4).

The label of the control cam (5) is correct in accordance with the installation situation.

16.2 Adjusting the locking latch

Fig. 63: Adjusting the locking latch



(1) - Locking latch
(2) - Roller
(3) - Control cam

(4) - Nut
(5) - Screw
(6) - Locking pin



To adjust the locking latch:

1. Loosen the nut (4).
2. Turn the screw (5) and adjust the distance.
3. Tighten the nut (4).

Checking the adjustment of the locking latch

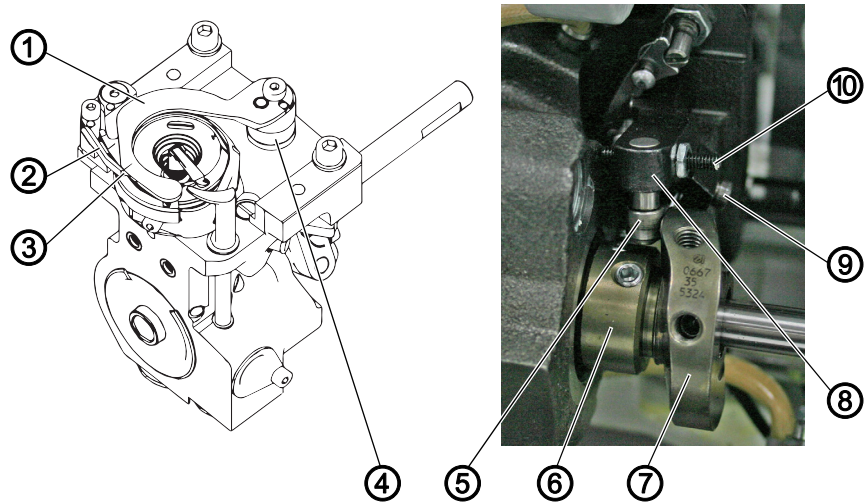


To check the setting of the locking latch:

1. Turn the handwheel until the roller (2) is at the highest point of the control cam (3).
2. Press the roller (2) against the control cam (3).
- ↳ The locking latch (1) can be swung out without clamping.
The distance between the locking latch (1) and locking pin (6) is not greater than 0.1 mm.

16.3 Adjusting the thread-pulling knife

Fig. 64: Adjusting the thread-pulling knife



- (1) - Thread-pulling knife
- (2) - Counter blade
- (3) - Marking
- (4) - Knife carrier
- (5) - Roller

- (6) - Set collar
- (7) - Control cam
- (8) - Lever
- (9) - Clamping screw
- (10) - Screw




Proper setting

When the thread-pulling knife (1) is at rest, the distance between the highest point of the control cam (7) and the roller (5) is 0.1 mm. The control cam (7) makes contact with the set collar (6). The marking (3) on the thread-pulling knife (1) is adjacent to the cutting edge of the counter blade (2). The knife carrier (4) has no axial play, but can still run smoothly.



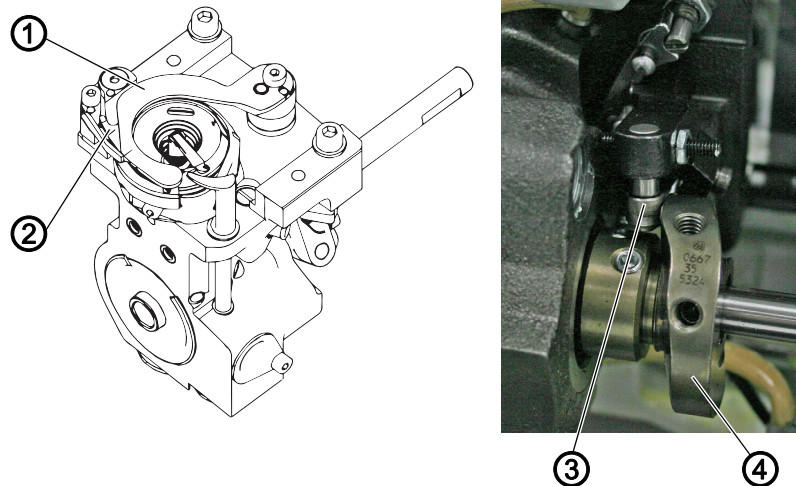
To adjust the thread-pulling knife:

1. Loosen all 4 screws on the set collar (6) and push the set collar (6) toward the hook bearing.
2. Tighten all 4 screws on the set collar (6).
3. Loosen both threaded pins on the control cam (7).
4. Turn the lever (8) as far as it will go against the screw (10).
5. Set the distance between the roller (5) and the highest point of the control cam (7) to 0.1 mm.
6. Tighten both threaded pins on the control cam (7).
7. Loosen the clamping screw (9) on the lever (8).
8. Turn the thread-pulling knife (1) until the marking (3) on the cutting edge of the counter blade (2) is adjacent to it.
9. Tighten the clamping screw (9). Take care to ensure that there is no axial play.

10. Loosen all 4 screws (6) on the set collar and push the set collar (6) as far as it will go and against the control cam (7).
11. Tighten all 4 screws on the set collar (6).
12. Check the loop stroke ( p. 50).

16.4 Adjusting the counter blade

Fig. 65: Adjusting the counter blade (1)



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

(3) - Roller
(4) - Control cam



Proper setting

The thread must be reliably cut using little pressure. The pressure is built up starting at the marking (2). Any 2 threads with the greatest strength used for sewing can be neatly cut simultaneously.



Checking the proper setting

To check the proper setting of the counter blade:

1. Turn the handwheel until the thread-pulling knife (1) can be swung out after the latch is triggered.
2. Swing out the thread-pulling knife (1) manually. To do this, press the lever with the roller (3) to the right against the control cam (4).
3. Insert 2 threads into the thread-pulling knife (1).
4. Turn the handwheel until the knife swivels down.
5. Check whether the sewing threads have been cleanly cut and pressure is built up starting at the marking (2).



Disturbance

Disturbances caused by an incorrect setting:

- Increased knife wear when the pressure is too great
- Problems in cutting the thread

Adjusting the cutting pressure

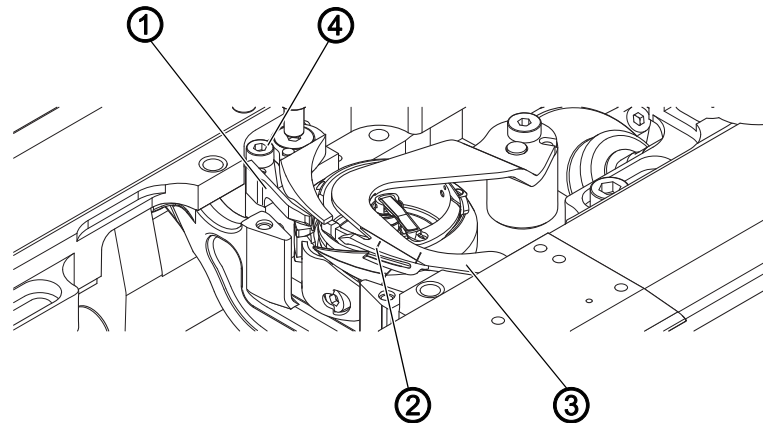
The shape of the thread-pulling knife automatically creates the required cutting pressure as soon as both cutting edges are on top of one another.



To adjust the cutting pressure:

1. Open the throat plate slides (📖 p. 18).
2. Disassemble the throat plate (📖 p. 19).
3. Disassemble the feed dog (📖 p. 20).

Fig. 66: Adjusting the counter blade (2)



(1) - Counter blade
(2) - Marking

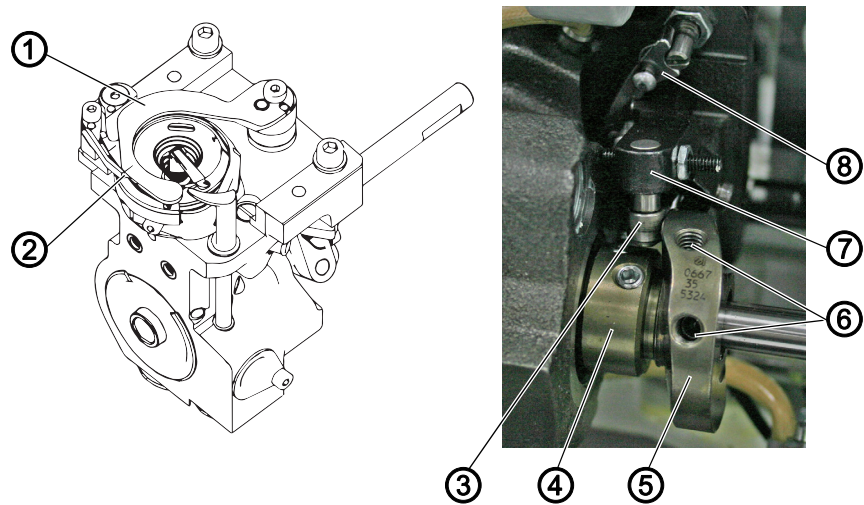
(3) - Thread-pulling knife
(4) - Screw



4. Swing out the thread-pulling knife (3) until the marking (2) is next to the cutting edge of the counter blade (1).
5. Loosen the screw (4).
6. Place the counter blade (1) in position against the thread-pulling knife (3).
7. Tighten the screw (4).

16.5 Adjusting point in time for cutting

Fig. 67: Adjusting point in time for cutting



- (1) - Thread-pulling knife
 (2) - Marking
 (3) - Roller
 (4) - Set collar

- (5) - Control cam
 (6) - Threaded pins
 (7) - Lever
 (8) - Locking latch






Proper setting

The default is that the time for cutting is at 65° on the handwheel (thread lever at top dead center). When the machine is at the 65° position on the handwheel, the control cam (5) is at its highest point.



Cover

- Open the throat plate slides ( p. 18)
- Disassemble the throat plate ( p. 19)
- Disassemble the feed dog ( p. 20)

Checking the proper setting



To check the proper setting:

1. Turn the handwheel to the 0° position (needle bar at top dead center).
2. Loosen the locking latch (8).
3. Press the lever (7) with the roller (3) to the right against the control cam (5).
4. Swing out the thread-pulling knife (1) manually.
5. Insert thread into the thread-pulling knife (1).
6. Use the handwheel to turn the machine until the thread is cut shortly before reaching the marking (2).
7. Check if the cut was made at the 65° position on the handwheel.

Adjusting point in time for cutting

To adjust the point in time for cutting:

1. Loosen the threaded pins (6) on the control cam (5).
2. Move the control cam (5) towards the set collar (4) until it makes contact and correct the position of the control cam (5).
3. Tighten the threaded pins (6) on the control cam (5).
4. Check and, if necessary, correct the cutting position.

17 Adjusting the potentiometer

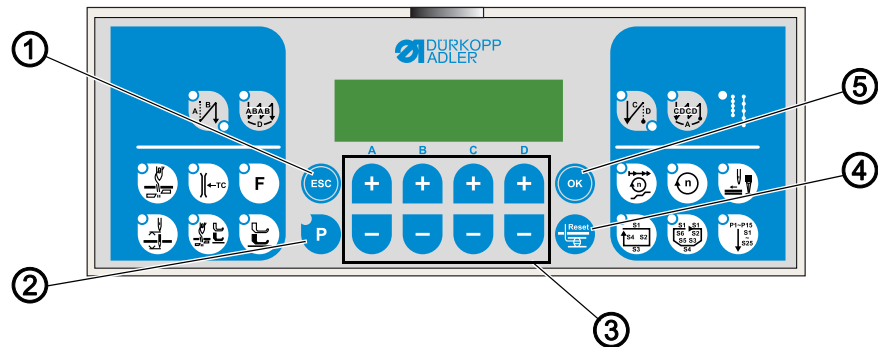
The potentiometer adjusts the s.p.m. to the set sewing foot stroke and reduces the s.p.m. if the sewing foot stroke is too much.



Proper setting

After accessing the technician level and pressing the **OK** button, the left display will show 1 in the first instance and the relevant maximum speed next to it.


Fig. 68: Adjusting the potentiometer (1)



- | | |
|--------------------------|--------------------|
| (1) - ESC button | (4) - Reset button |
| (2) - P button | (5) - OK button |
| (3) - Plus/Minus buttons | |



To adjust the potentiometer:

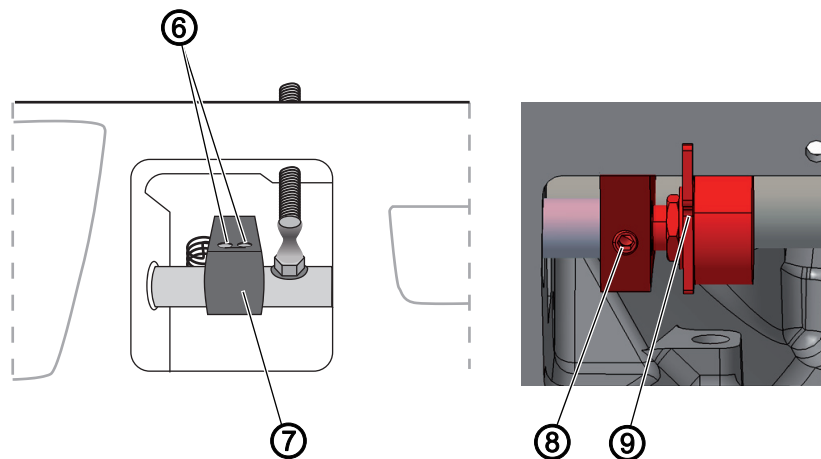
1. Switch off the machine.
2. Disassemble the arm cover ( p. 15).
3. Keep the buttons **P** (2) and **Reset** (4) pressed down simultaneously and switch on the machine when doing so.
- ↳ The display starts.
4. Release the buttons **P** (2) and **Reset** (4).
- ↳ The display indicates the current level.



The potentiometer is set at technician level $t\ 10\ 04$.
If the display indicates a different level:

5. Calling the technician level using the Plus/Minus buttons (3):
As the case may be, press the Plus or Minus button below the letter or the number until the display indicates $t\ 10\ 04$.
6. Press the **OK** button.

Fig. 69: Adjusting the potentiometer (2)



(6) - Threaded pins
(7) - Block

(8) - Threaded pin
(9) - Potentiometer



7. Check whether the lifting gear plates are flush.

If the plates are not flush:

8. Loosen the threaded pins (6).
9. Adjust the block (7) for the lifting cylinder such that the plates are flush.
10. Tighten the threaded pins (6).
11. Loosen the threaded pin (8).
12. Turn the potentiometer axle such that the left display shows 1 in the first instance and the relevant maximum speed next to it.
13. Tighten the threaded pin (8) without changing the value shown in the display.



14. Press the ESC button two times.



Important

15. Switch off the machine.
 16. Switch on the machine.
- ↩ Switching off and on will save the adjustment.

18 Adjusting the safety snap-on coupling

WARNING



Risk of injury from moving parts!

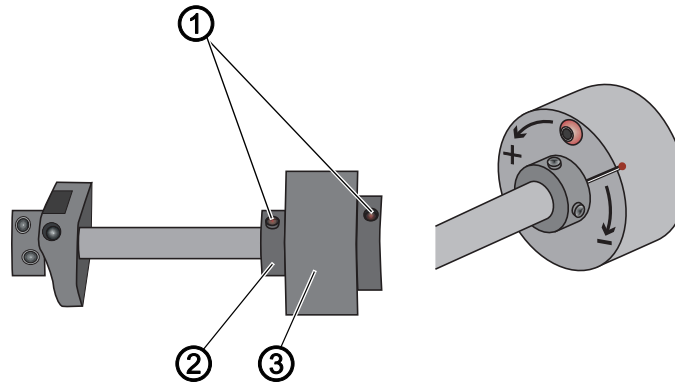
Crushing possible.

Switch off the machine before you adjust the safety release clutch.

The safety release clutch disengages in the event of the thread jamming and thus prevents the hook from being misadjusted or damaged.

18.1 Attaching the safety release clutch

Fig. 70: Attaching the safety release clutch



(1) - Threaded pins
(2) - Left-hand set collar

(3) - Safety release clutch





Proper setting

The 4 threaded pins (1) on the two set collars next to the safety release clutch (3) must be parallel to one another. After the safety release clutch has disengaged, they are no longer parallel.



To latch the safety release clutch:

1. Tilt the machine head ( p. 14).
2. Turn the left set collar (2) such that the threaded pins (1) are parallel to one another.

 The safety release clutch latches into place.

18.2 Adjusting the torque

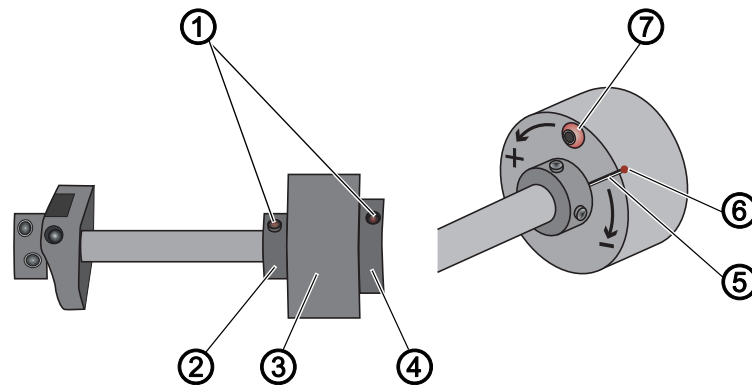
NOTICE

Property damage may occur!

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

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

Fig. 71: Adjusting the torque



- | | |
|-----------------------------|-----------------------|
| (1) - Threaded pins | (5) - Adjustment slot |
| (2) - Left-hand set collar | (6) - Marking point |
| (3) - Safety release clutch | (7) - Screw |
| (4) - Right-hand set collar | |




Proper setting

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



To adjust the torque:

1. Tilt the machine head ( p. 14).
2. Loosen the screw (7).
3. Using the screw driver, turn the disk on the adjustment slot (5) so that 8 Nm is reached for the torque.
 - Increase force: turn in the direction +
 - Decrease force: turn in the direction -
4. Tighten the screw (7).

19 Machines with integrated motor

DANGER



Risk of injury from electricity!

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

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

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

WARNING



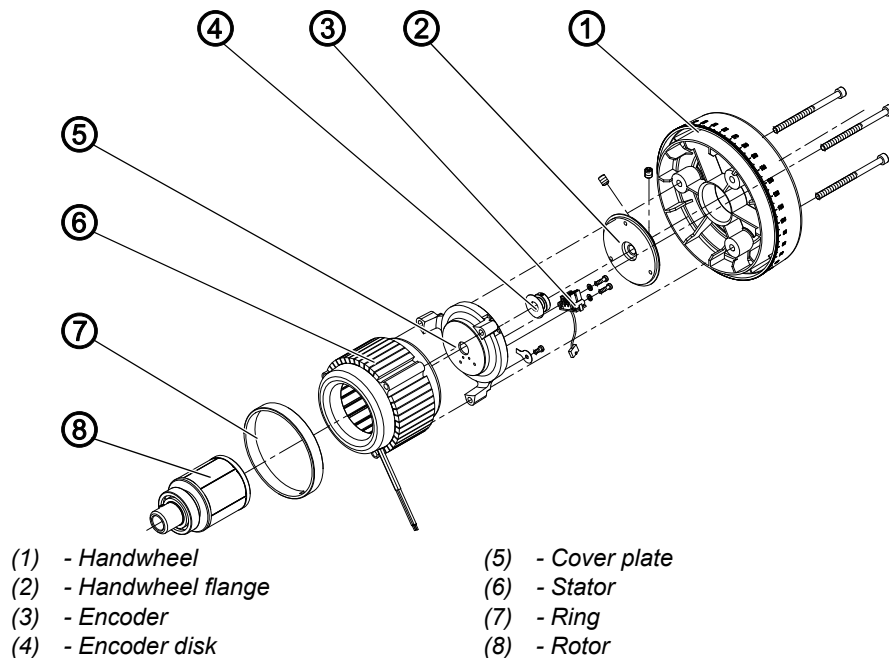
Risk of injury from moving parts!

Crushing possible.

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

19.1 Overview of the components

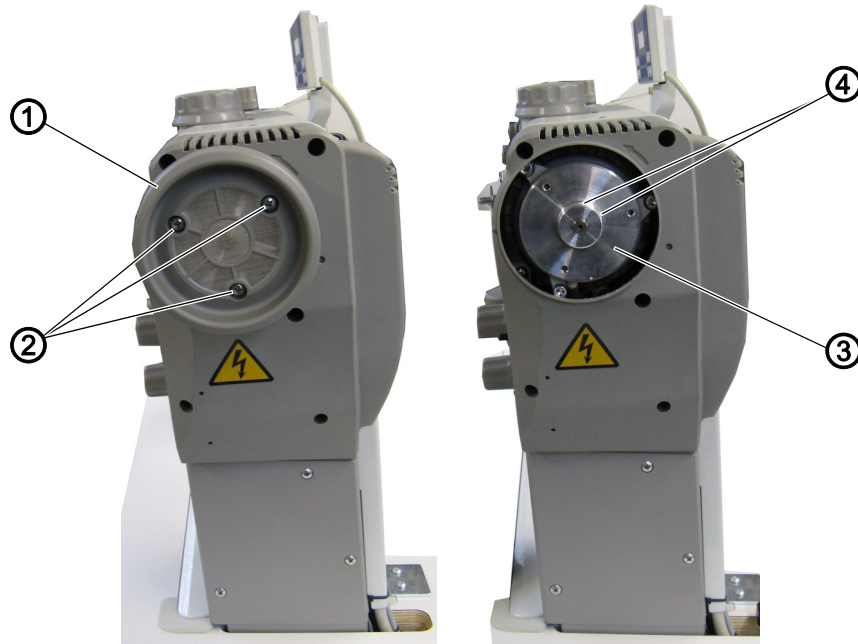
Fig. 72: Overview of the components



19.2 Disassembling the drive

19.2.1 Disassembling the handwheel and handwheel flange

Fig. 73: Disassembling the handwheel and handwheel flange



(1) - Handwheel
(2) - Screws

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

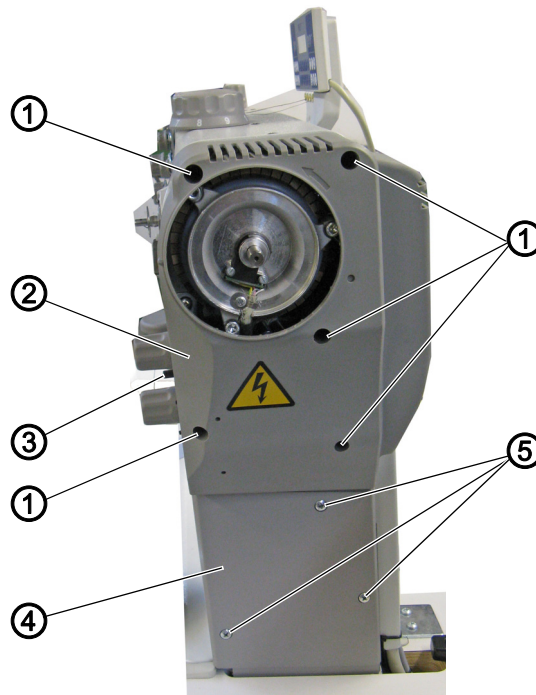


To disassemble the handwheel and handwheel flange:

1. Loosen the screws (2).
2. Disassemble the handwheel (1).
3. Loosen the threaded pins (3).
4. Disassemble the handwheel flange (4).

19.2.2 Disassembling the cover

Fig. 74: Disassembling the cover



- | | |
|-----------------------|--|
| (1) - Screws | (4) - Lower cover (depending on machine) |
| (2) - Upper cover | (5) - Screws |
| (3) - Adjusting wheel | |



To disassemble the cover:

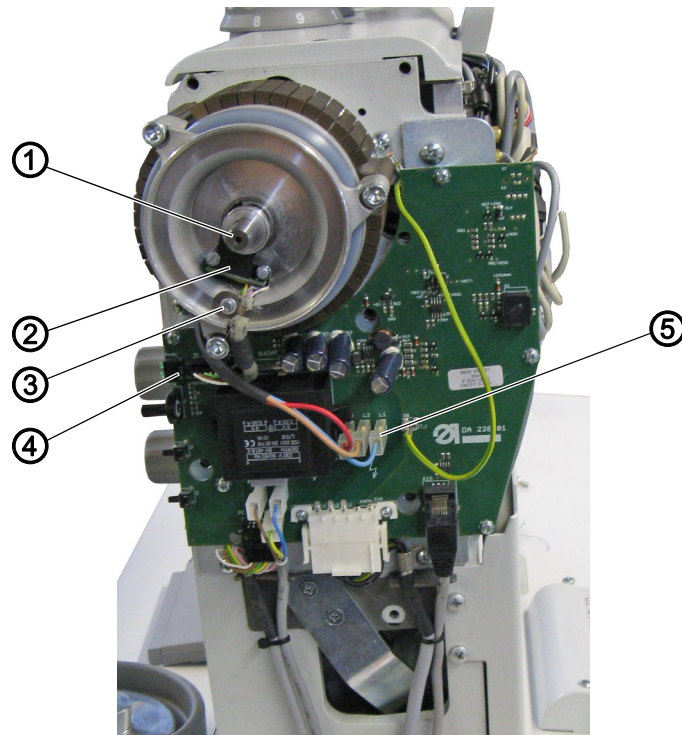
1. Loosen the screws (1).
2. Carefully remove the upper cover (2) from the side, paying attention to the adjusting wheel (3) in doing so.

If there is a lower cover mounted:

3. Loosen the screws (5).
4. Remove the lower cover (4).

19.2.3 Disassembling the encoder

Fig. 75: Disassembling the encoder



(1) - Encoder disk
(2) - Encoder
(3) - Plate

(4) - Encoder plug
(5) - Plugs L1, L2, L3

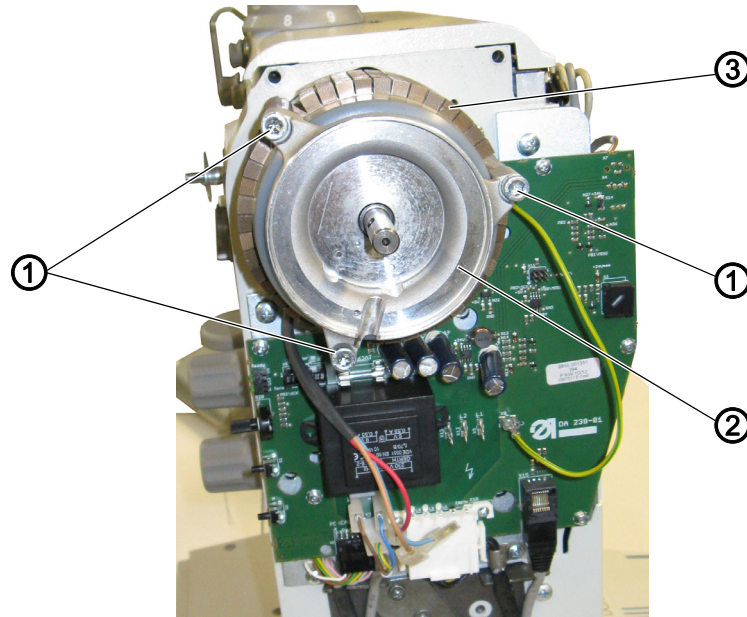


To disassemble the encoder:

1. Disconnect plugs L1, L2, and L3 (5).
2. Disconnect the encoder plug (4).
3. Unscrew the plate (3).
4. Loosen the screws on the encoder (2).
5. Loosen the screw on the encoder disk (1).
6. Carefully and uniformly pull the encoder (2) and encoder disk (1) away from the shaft.

19.2.4 Disassembling the stator

Fig. 76: Disassembling the stator



(1) - Screws
(2) - Plate

(3) - Stator with ring

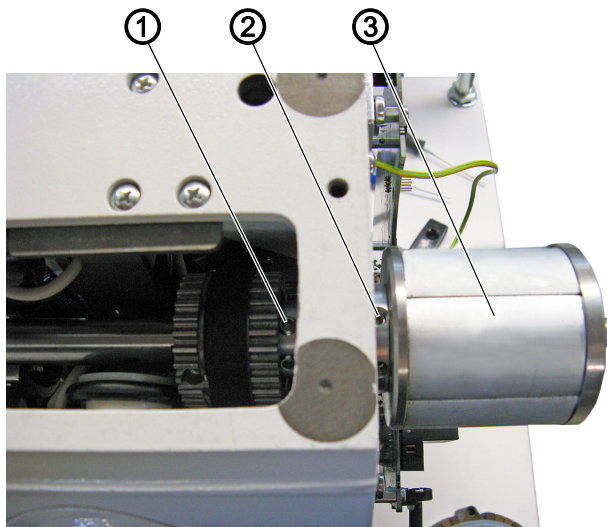


To disassemble the stator:

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

19.2.5 Disassembling the rotor

Fig. 77: Disassembling the rotor




(1) - Threaded pins

(2) - Threaded pins

(3) - Rotor with deep groove ball bearing



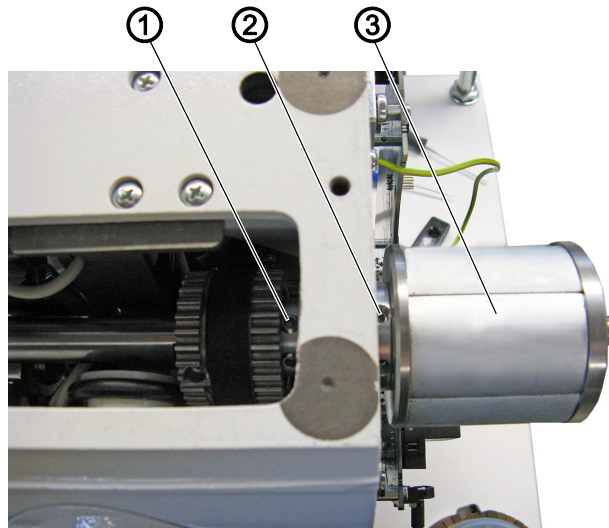
To disassemble the rotor:

1. Disassemble the arm cover ( p. 15).
2. Loosen threaded pins (1) and (2).
3. Remove the rotor with deep groove ball bearing (3).

19.3 Assembling the drive

19.3.1 Assembling the rotor

Fig. 78: Assembling the rotor



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

(3) - Rotor with deep groove ball bearing



To assemble the rotor:

1. Push the rotor with deep groove ball bearing (3) onto the shaft until the deep groove ball bearing is resting against the stop.
2. Tighten threaded pins (1) and (2).

Observe the surface of the shaft in doing so: Tighten the 1st screw in the direction of rotation firmly in place on the surface.

19.3.2 Assembling the stator

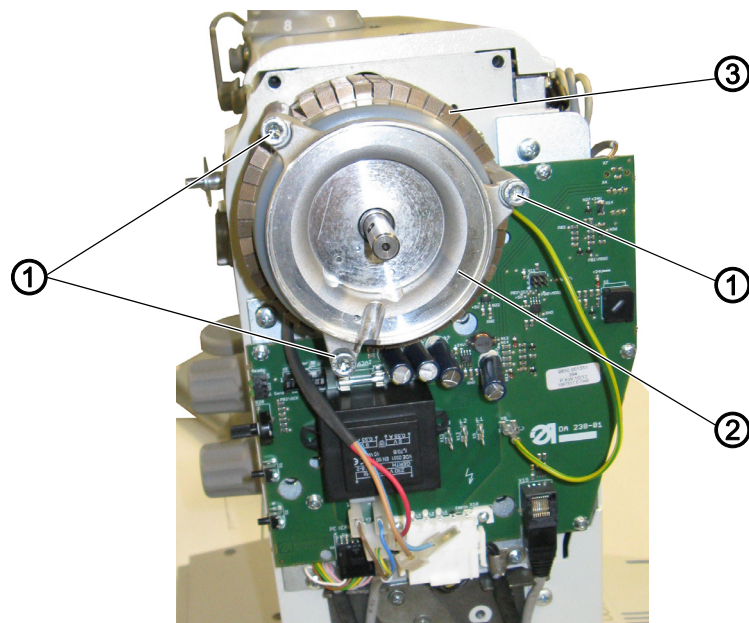
NOTICE

Property damage may occur!

The stator can be attracted by applying magnetic force.

Work carefully and in a controlled manner.

Fig. 79: Assembling the stator



(1) - Screws
(2) - Plate

(3) - Stator with ring

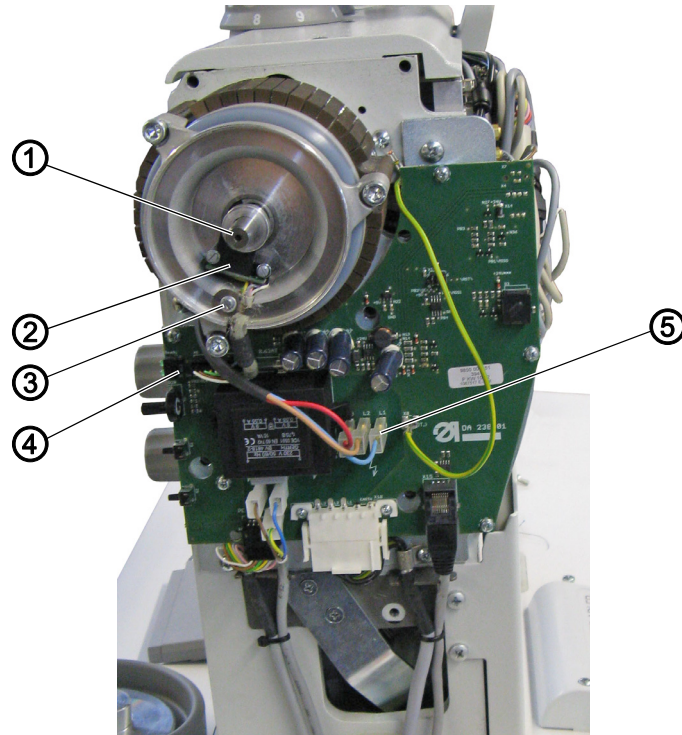


To assemble the stator:

1. Push the stator with ring (3) onto the shaft.
In doing so, pay attention to the ring gap for the cable.
Place the plate (2).
2. Evenly tighten the screws (1) firmly in place so that a uniform gap exists between the plate (2) and shaft.

19.3.3 Assembling the encoder

Fig. 80: Assembling the encoder



(1) - Encoder disk
(2) - Encoder
(3) - Plate

(4) - Encoder plug
(5) - Plugs L1, L2, L3

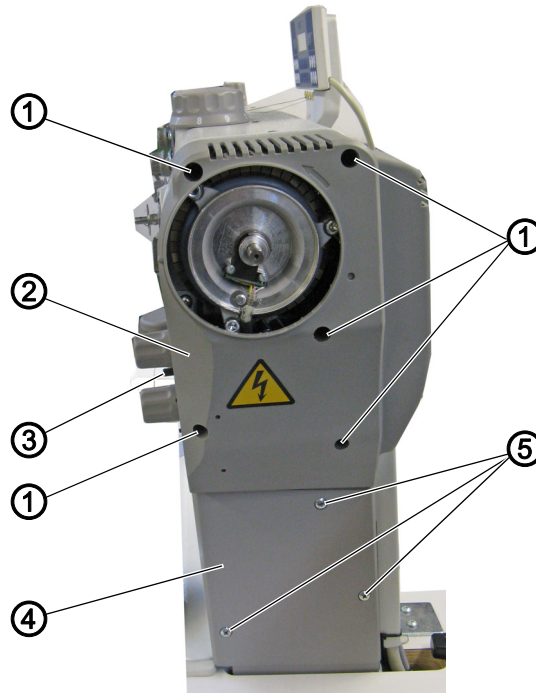


To assemble the encoder:

1. Push the encoder (2) and encoder disk (1) onto the shaft.
2. Align the encoder disk (1) such that it runs in the middle of the encoder (2).
3. Screw the encoder disk (1) and encoder (2) firmly in place.
4. Tighten the plate (3).
5. Insert plugs L1, L2, and L3 (5).
6. Insert the encoder plug (4).

19.3.4 Assembling the cover

Fig. 81: Assembling the cover



- (1) - Screws
- (2) - upper cover
- (3) - Adjusting wheel

- (4) - lower cover (depending on machine)
- (5) - Screws

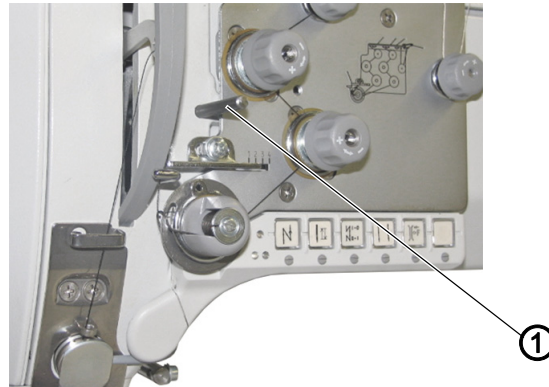


To assemble the cover:

1. Carefully attach the upper cover (2) from the side. Pay attention to the adjusting wheel (3) in doing so.
2. Tighten the screws (1).
3. Attach the lower cover (5).
4. Tighten the screws (4).

19.3.5 Locking the machine in place

Fig. 82: Locking the machine in place (1)



(1) - Locking peg

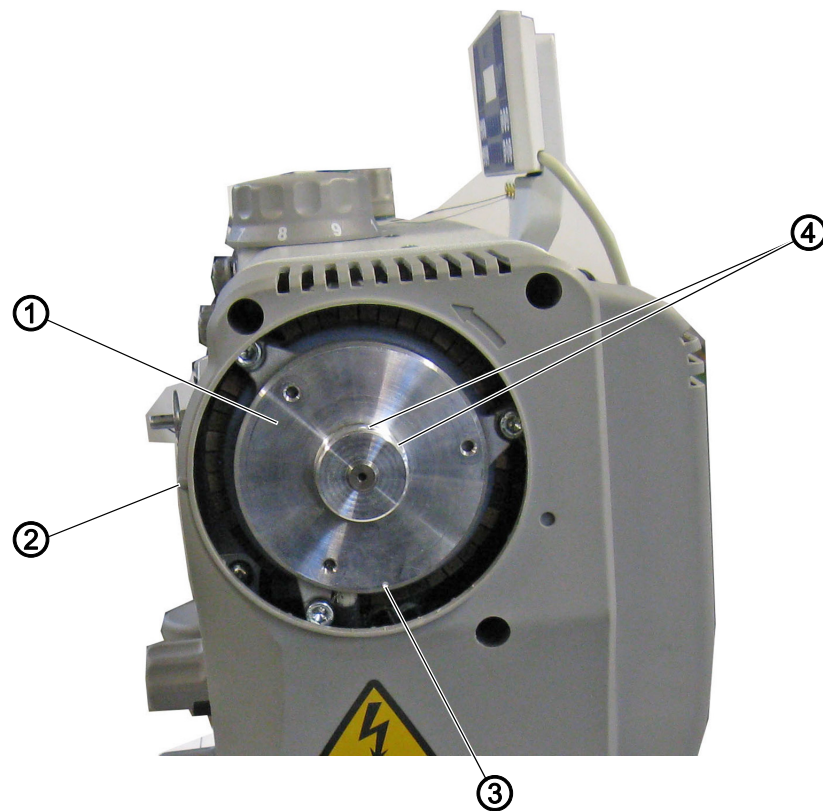


To lock the machine in place:

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

19.3.6 Assembling the handwheel flange

Fig. 83: Assembling the handwheel flange



(1) - Handwheel flange
 (2) - Marking

(3) - Marking
 (4) - Threaded pins

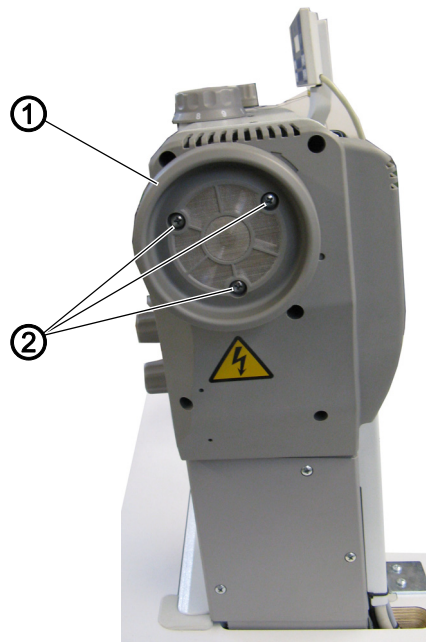


To assemble the handwheel flange:

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

19.3.7 Assembling the handwheel

Fig. 84: Assembling the handwheel




(1) - Handwheel

(2) - Screws



To assemble the handwheel:

1. Attach the handwheel (1).
2. Tighten the screws (2).
3. Adjust the reference position via the control; see  *Instructions for use DAC basic/classic*.

19.4 Replacing the fuse of the sewing light transformer

Fig. 85: Replacing the fuse of the sewing light transformer

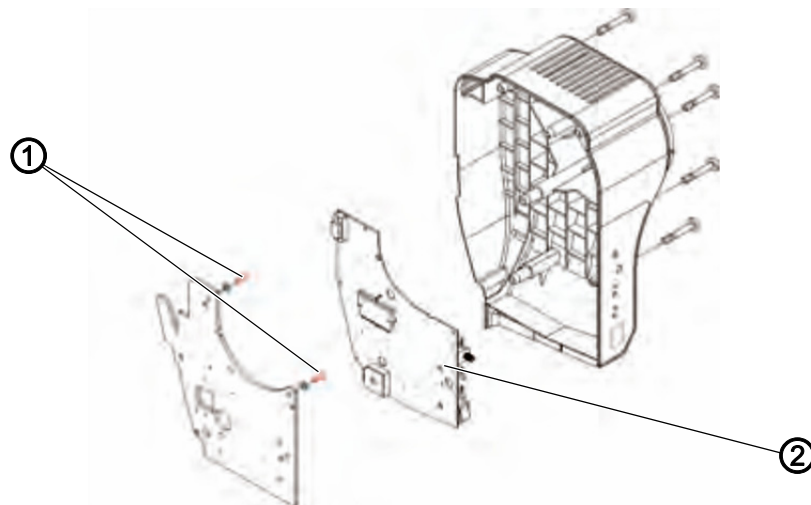


(1) - Fuse

Fuse: Value 0.63 A T.

19.5 Replacing the PCB

Fig. 86: Replacing the PCB



(1) - Screws

(2) - PCB



To replace the PCB:

1. Pull off plugs.
2. Loosen the screws (1) for the carrier plate of the PCB.
3. Replace the PCB (2).
4. Tighten the screws (1).
5. Insert plugs.



Important

Ensure that the motor is correctly connected!

20 Special machines

20.1 Machines with switchable needle bars

20.1.1 Adjusting the needle bar height

WARNING



Risk of injury from sharp and moving parts!

Puncture or crushing possible.

Switch off the machine before you adjust the needle bar height.

The needle bar height cannot be adjusted for machines with switchable needles. The height of the needles in relation to the hook tip is adjusted using the needle holders (1).



Proper setting

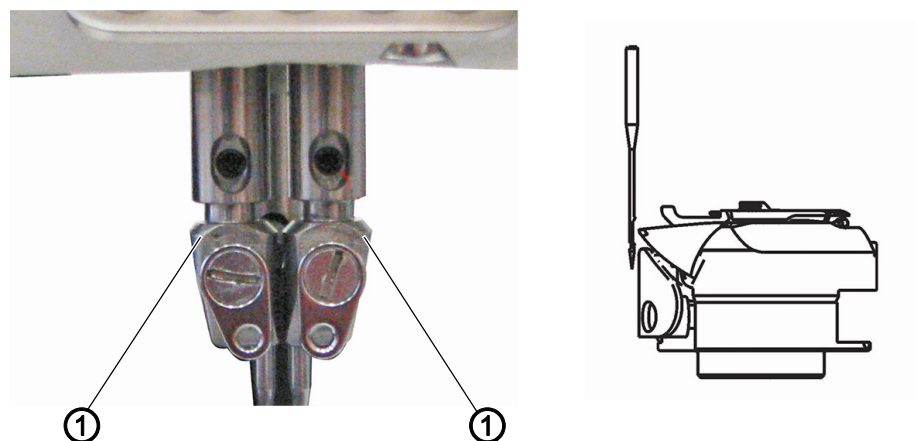
The height of the needle holders (1) should be set such that the hook tip is in the lower third of the groove when the stitch length is 0 and in looping stroke position.



Disturbances caused by an incorrect setting

- Damage to the hook tip
- Jamming of the needle thread between the needle and the needle guard
- Skip stitches and thread breaking

Fig. 87: Adjusting the needle bar height (1)



(1) - Needle holder

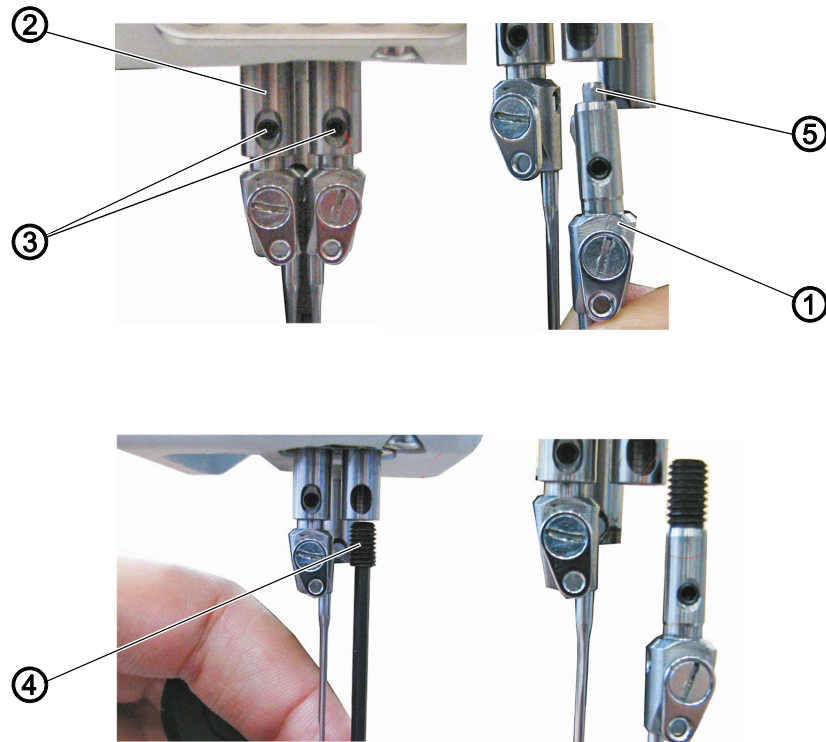


To adjust the needle bar height:

1. Set the stitch length adjusting wheel to 0.
2. Lock the machine in place at position 1 (📖 p. 22).

3. Check the position of the needle to the hook tip.

Fig. 88: Adjusting the needle bar height (2)



- (1) - Needle holder
(2) - Needle bar
(3) - Threaded pins


- (4) - Threaded pin
(5) - Hexagonal pin



4. Set the stitch length adjusting wheel to 0.
5. Loosen the threaded pins (3).
6. Remove the needle holder (1).
7. Using an allen key (SW 2.5), turn the threaded pin (4) in the needle bar (2).
- ↙ The threaded pin serves as a stop for the needle holder (1).
8. Insert the needle holder (1) into the needle bar (2) and push it upwards as far as it will go.
- ↙ In doing so, ensure that the hexagonal pin (5) on the needle holder (1) rests in the hexagon socket of the threaded pin (4).
9. Tighten the threaded pins (3).



Order

After correcting the needle bar height, check the position of the needle guard ( p. 52).

20.1.2 Adjusting the slide

WARNING



Risk of injury from sharp and moving parts!

Puncture or crushing possible.

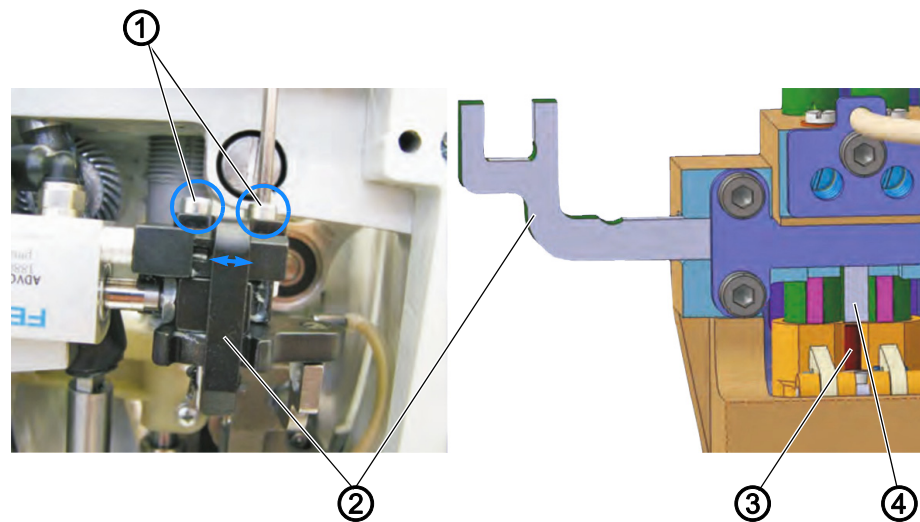
Switch off the machine before adjusting the slide.



Proper setting

The position of the slide (2) must be adjusted such that the center of the pin (4) of the slide (2) is exactly on the pin (3) when the slide is in zero position (both needles switched on).

Fig. 89: Adjusting the needle bar slide



(1) - Screws
(2) - Slide

(3) - Pin
(4) - Center of pin



To adjust the slide:

1. Loosen the screws (1).
2. Adjust slide (2).
3. Tighten the screws (1).
4. Check whether the needle bars switch cleanly.

20.2 Machines with moving binder

WARNING



Risk of injury from sharp and moving parts!

Puncture or crushing possible.

Switch off the machine before adjusting the binder.

Machines with a moving binder allow the edge of the sewing material to be bound simultaneously.

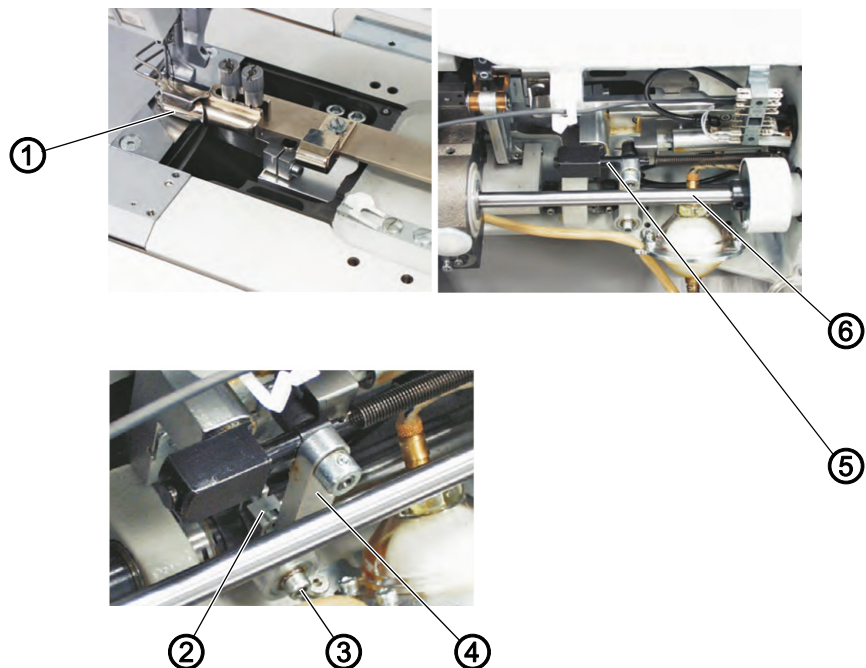


Proper setting

The binder (1) operates in sync with the feed.

You can use the **Plus/Minus** buttons to adjust the binder for more width or less feed.

Fig. 90: Machines with moving binder



- (1) - Binder
- (2) - Clamping block
- (3) - Screw

- (4) - Lever
- (5) - Shaft
- (6) - Hook shaft

Basic setting for synchronous operation



To adjust the basic setting for synchronous operation:

1. Set the handwheel to 100°.
- ↙ 2. The shaft (5) must be parallel to the hook shaft (6).
2. Remove the shaft (5).
3. Check for synchronous operation.

Fine adjustment of synchronous operation



To perform the basic adjustment of synchronous operation:

1. Loosen the screw (3).
2. Remove the lever (4).
3. Adjust the clamp (2) on the shaft (5).
The clamp can be adjusted to the right or left as well as up or down.

20.3 Machines with edge trimmer

WARNING



Risk of injury from sharp and moving parts!

Puncture or crushing possible.

Switch off the machine before adjusting the edge trimmer.

Machines with an edge trimmer allow the sewing material to be cut during the sewing process. The edge trimmer is disabled each time the sewing feet are pneumatically lifted.

When the knee lever is actuated, it is only disabled after the second/third lifting.

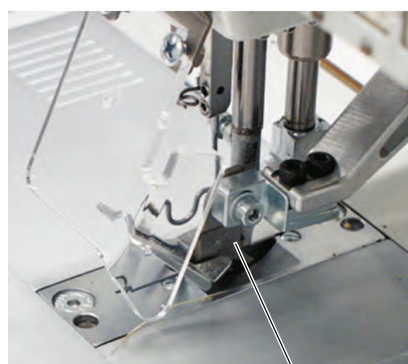
20.3.1 Adjusting the time for knife movement



Proper setting

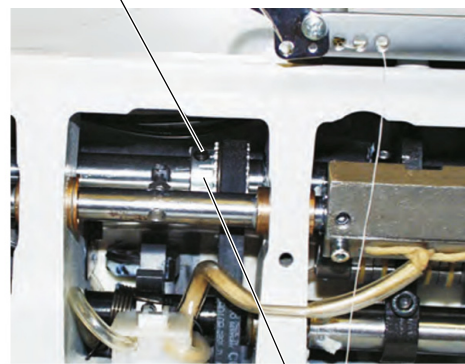
The knife cuts the sewing material when material is not being fed.

Fig. 91: Adjusting the time for knife movement



(2)

- (1) - Threaded pins
(2) - Edge trimmer



(3)

- (3) - Toothed belt wheel

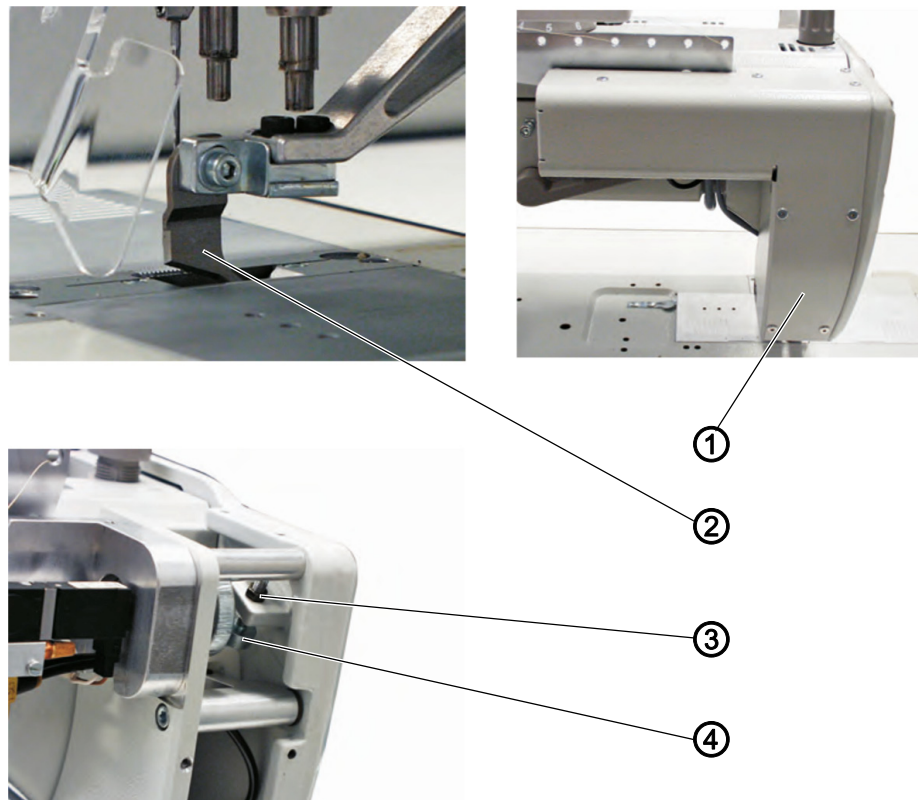


To adjust the time for the knife movement:

1. Disassemble the head cover (📖 p. 16).
2. Loosen the threaded pins (1).
3. Adjust the toothed belt wheel (3) such that the knife only cuts when no material is being fed.
4. Tighten the threaded pins (1).

20.3.2 Adjusting the knife stroke

Fig. 92: Adjusting the knife stroke



(1) - Cover
(2) - Knife

(3) - Nut
(4) - Screw

The stroke height of the knife (1) can be adjusted. This is necessary if the knife was reground and is now shorter.

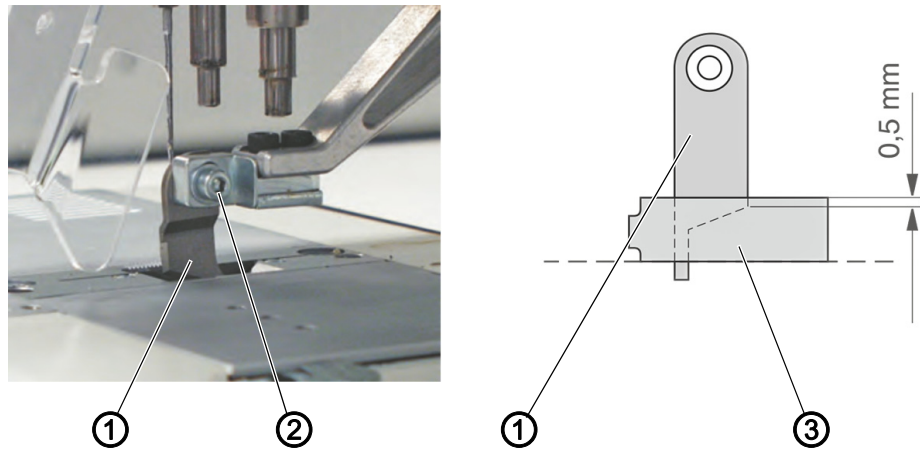


To adjust the knife stroke:

1. Disassemble the cover (1).
2. Loosen the nut (3).
3. Turn the screw (4):
 - **Increase the knife stroke:** Turn screw upwards
 - **Reduce the knife stroke:** Turn screw downwards
4. Tighten the nut (3).

20.3.3 Adjusting the blade overlap

Fig. 93: Adjusting the blade overlap



(1) - Knife
(2) - Screw

(3) - Counter blade



Proper setting

If the knife (2) is at the bottom dead center, the overlap is 0.5 mm.

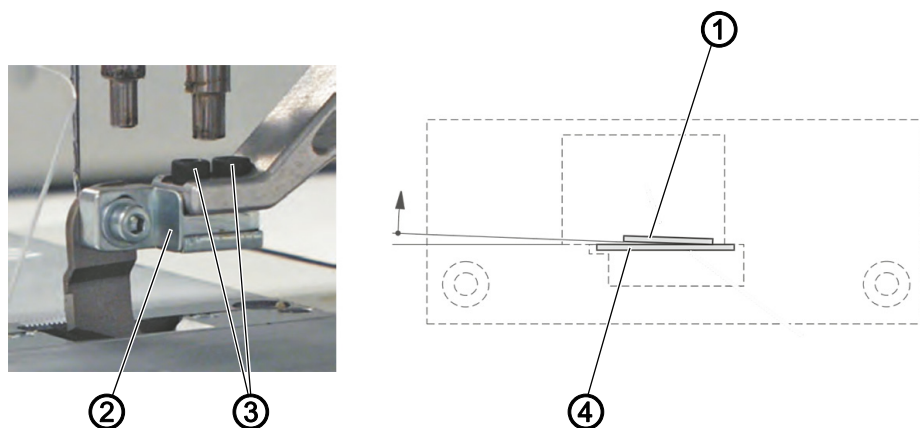


To adjust the blade overlap:

1. Loosen the screw (2).
2. Push the knife (1) down until it overlaps with the counter blade (3) by 0.5 mm.
3. Tighten the screw (2).

20.3.4 Adjusting the position and pressure of the cutting edges

Fig. 94: Adjusting the position and pressure of the cutting edges



(1) - Knife
(2) - Knife holder

(3) - Screws
(4) - Counter blade

The knife (2) should be somewhat diagonal to the counter blade (3).
The knife (2) should cut reliably with the least possible pressure.

21 Programming

All software settings are performed using the OP1000 control panel.

The control panel is composed of a display and buttons.

Using the control panel you can:

- Use groups of buttons to select machine functions
- Read service and error messages.



Information

This chapter describes the machine-specific functions of the OP1000 control panel.


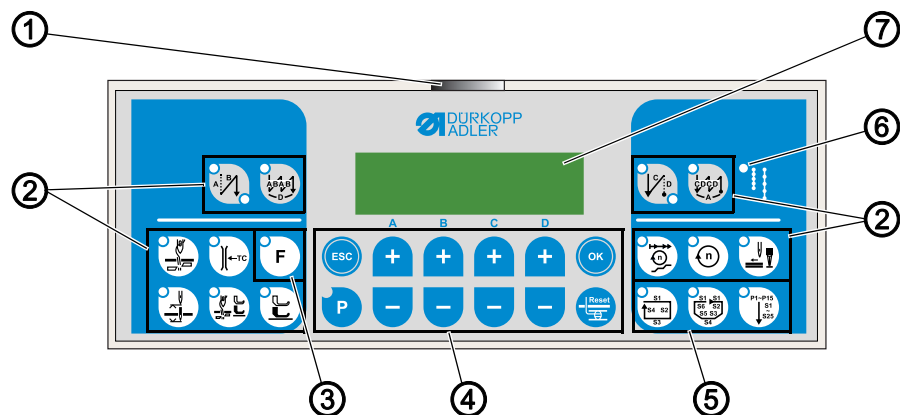













Refer to the  *Instructions for use DAC basic/classic* for further information on the control and the OP1000 control panel.










Fig. 95: Programming








- | | |
|--------------------------------|---|
| (1) - Power LED | (5) - Seam program button group |
| (2) - Thread button group | (6) - LED for 2 nd stitch length |
| (3) - Function button | (7) - Display |
| (4) - Programming button group | |

OP1000 buttons and functions

Button	Function
Thread button group	
 Start bartack	<ul style="list-style-type: none"> • Sets the start bartack
 Multiple start bartack	<ul style="list-style-type: none"> • Sets the multiple start bartack
 End bartack	<ul style="list-style-type: none"> • Sets the end bartack
 Multiple end bartack	<ul style="list-style-type: none"> • Sets the multiple end bartack
 Thread trimmer	<ul style="list-style-type: none"> • Activates or deactivates the thread trimmer
 Thread clamp	<ul style="list-style-type: none"> • Activates or deactivates the thread clamp
 Needle position after sewing stop	<ul style="list-style-type: none"> • Sets the needle position after sewing stop
 Sewing foot lift after thread trimmer	<ul style="list-style-type: none"> • Activates or deactivates the sewing foot lift after the thread trimmer
 Sewing foot lift after sewing stop	<ul style="list-style-type: none"> • Activates or deactivates the sewing foot lift after sewing stops
 Soft start	<ul style="list-style-type: none"> • Activates or deactivates the soft start
 Speed	<ul style="list-style-type: none"> • Reduces the motor speed
 Function button	<ul style="list-style-type: none"> • Activates or deactivates any stored function
Programming button group	
 ESC	<ul style="list-style-type: none"> • Ends parameter mode

Button		Function
	A+	<ul style="list-style-type: none"> Increases parameter Changes user level Selects subprogram
	B+	<ul style="list-style-type: none"> Increases parameter Changes to next higher category Selects subprogram
	C+	<ul style="list-style-type: none"> Increases parameter Selects subprogram
	D+	<ul style="list-style-type: none"> Increases parameter Selects subprogram
	OK	<ul style="list-style-type: none"> Calls parameter or saves it
	P	<ul style="list-style-type: none"> Starts or ends the parameter mode
	A-	<ul style="list-style-type: none"> Decreases parameter Changes user level Selects subprogram
	B-	<ul style="list-style-type: none"> Decreases parameter Changes to next lower category Selects subprogram
	C-	<ul style="list-style-type: none"> Decreases parameter Selects subprogram

Button		Function
	D-	<ul style="list-style-type: none"> Decreases parameter Selects subprogram
	Reset	<ul style="list-style-type: none"> Resets the (piece) counter
Seam program button group		
	Seam program I	<ul style="list-style-type: none"> Activates seam program I
	Seam program II	<ul style="list-style-type: none"> Activates seam program II
	Seam program III	<ul style="list-style-type: none"> Sets seam program III

21.1 Activating the tensioner lift

NOTICE

Production of loose stitches!

When sewing corners with active tensioner lift and simultaneous sewing foot lift, the machine will produce a loose stitch.





Do not activate the pneumatic tensioner lift when lifting the sewing feet unless the sewing feet are NOT lifted during the seam.

The factory setting for the machine is such that the tensioner will remain closed during a seam regardless of whether the sewing feet are lifted or not.

Opening the tensioner while the sewing feet are lifted and the seam is not yet completed makes sense, for instance, when you DO NOT sew corners.

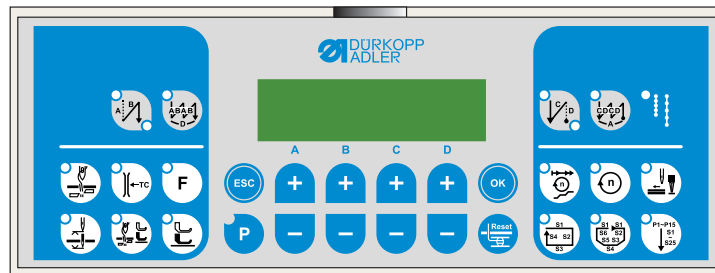


To activate the tensioner lift:

1. Press the  and  buttons at the same time.
- ↳ You are on the technician level.
2. Use the buttons under the display to select the parameter **t 09 00**.
3. Use +/- to enter the desired value ( *Parameter list 867*).
4. Confirm with .

21.2 Activating the NSB

Fig. 96: Activating the NSB







To activate the NSB:

1. Check the software version.



Important

The software version must be **B03.50** or later.
You can download the latest machine software on the Internet
(<https://software.duerkopp-adler.com/maschinenprogramme.html>).

2. Update to the latest software version if necessary.
3. Press and hold the buttons  and  at the same time.
4. Open parameter $t\ 01\ 30$.
5. Enter the value **2**.
- ↳ The NSB has been activated in the software.
6. Check all NSB parameters and adjust them if necessary
(See  *Parameter list 867*).
7. To activate the NSB during sewing, press the  button.

22 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	●			
Check the oil level	●			
Check the hook lubrication		●		
Pneumatic system				
Adjusting the operating pressure	●			
Draining the water-oil mixture	●			
Cleaning the filter element				●
Specific components				
Cleaning the motor fan mesh		●		
Checking the toothed belt		●		

22.1 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

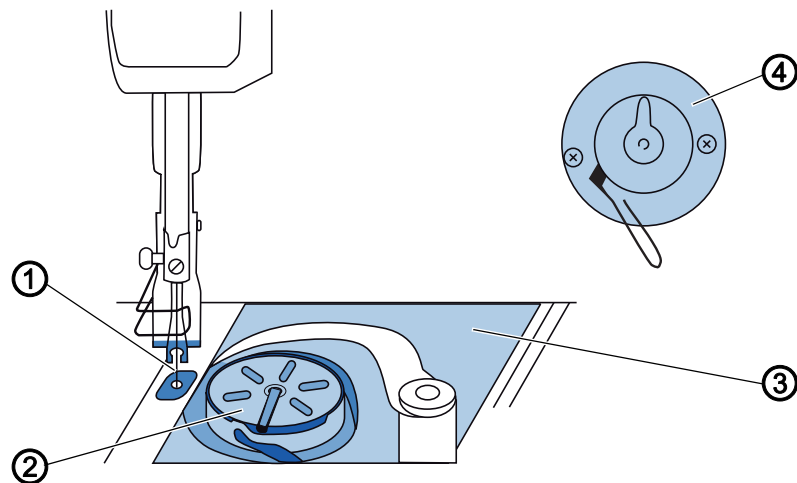
Property damage from solvent-based cleaners!

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. 97: Cleaning



(1) - Area around the needle
(2) - Hook

(3) - Area under the throat plate
(4) - Knife on the winder

Areas particularly susceptible to soiling:

- Knife on the winder (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.

22.2 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:

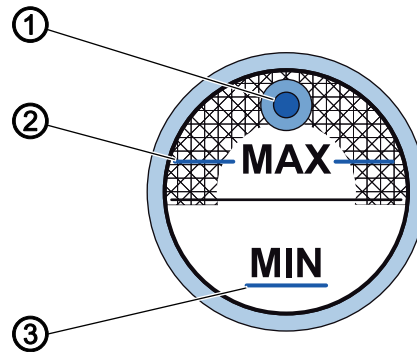
- Viscosity at 40 °C: 10 mm²/s
- Flash point: 150 °C

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

22.2.1 Lubricating the machine head

Fig. 98: 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.

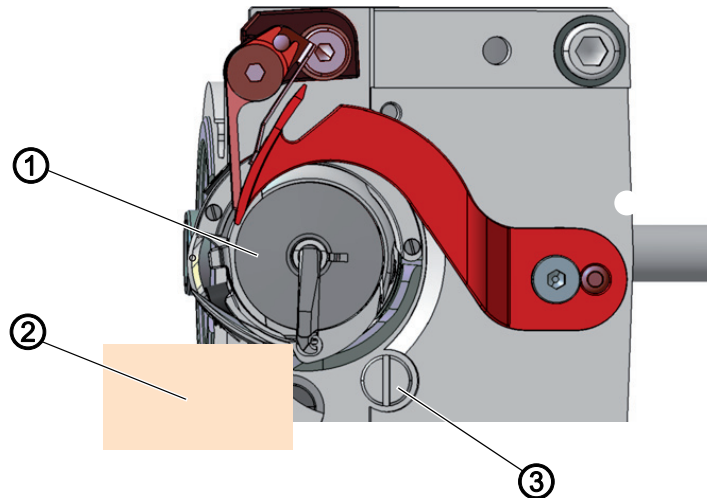


To top off the oil:

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.

22.2.2 Adjusting the hook lubrication

Fig. 99: Adjusting the hook lubrication



(1) - Hook
(2) - Blotting paper

(3) - Screw

The approved oil quantity for hook lubrication is a factory specification. Hold a piece of blotting paper (2) next to the hook (1) while sewing.



Proper setting

After sewing a stretch of approx. 1 m, the blotting paper (2) will have been sprayed with a thin and even film of oil.



To adjust the hook lubrication:

1. Open the throat plate slides (📖 p. 18).
2. 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.

22.3 Servicing the pneumatic system

22.3.1 Adjusting the operating pressure

NOTICE

Property damage from incorrect adjustment!

Incorrect operating pressure can result in damage to the machine.

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

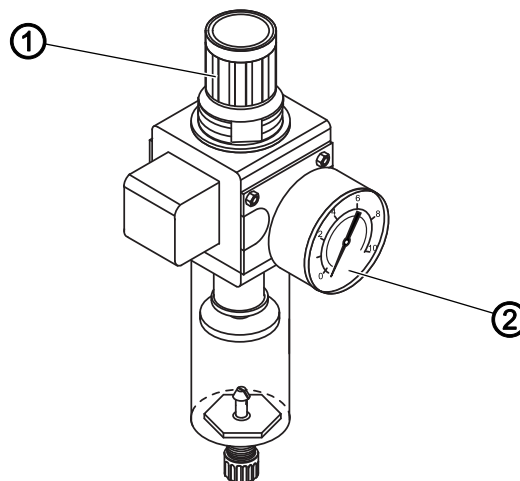


Proper setting

Refer to the **Technical data** (📖 p. 137) 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. 100: Adjusting the operating pressure



(1) - Pressure regulator

(2) - Pressure gage



To adjust the operating pressure:

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

22.3.2 Draining the water-oil mixture

NOTICE

Property damage from excess liquid!

Too much liquid can result in damage to the machine.

Drain liquid as required.

The collection tray (2) of the pressure regulator will show accumulation of a water-oil mixture.

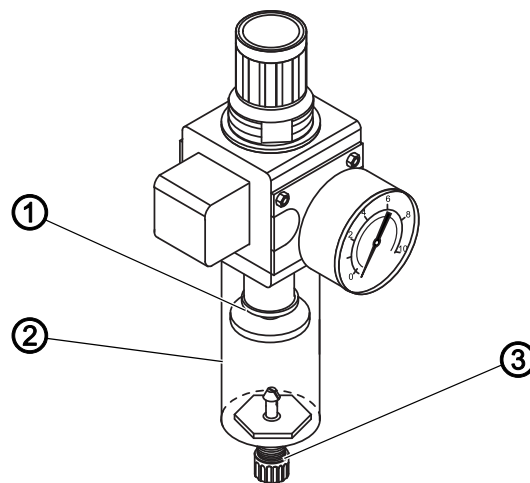


Proper setting

The water-oil mixture must not rise up to the level of the filter element (1).

Check the level of the water-oil mixture in the collection tray (2).

Fig. 101: Draining the water-oil mixture



(1) - Filter element
(2) - Collection tray

(3) - Drain screw



To drain the water-oil mixture:

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

22.3.3 Cleaning the filter element

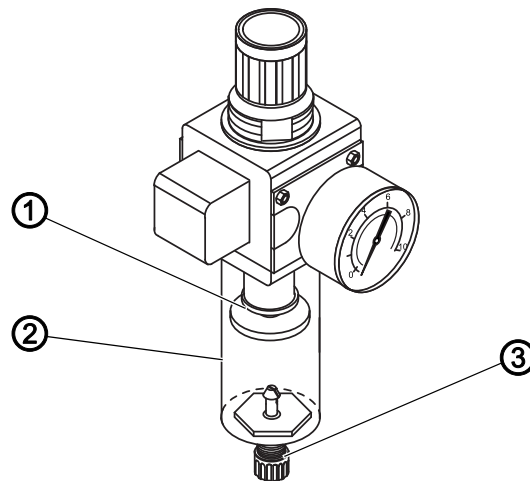
NOTICE

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. 102: Cleaning the filter element




(1) - Filter element
(2) - Collection tray

(3) - Drain screw



To clean the filter element:

1. Disconnect the machine from the compressed air supply.
2. Drain the water-oil mixture ( p. 120).
3. Unscrew the collection tray (2).
4. Unscrew the filter element (1).
5. Blow out the filter element (1) using the compressed air gun.
6. Wash out the filter tray using benzine.
7. Tighten the filter element (1).
8. Tighten the collection tray (2).
9. Tighten the drain screw (3).
10. Connect the machine to the compressed air supply.

22.4 Servicing specific components

22.4.1 Cleaning the motor fan mesh

WARNING



Risk of injury from flying particles!

Flying particles can enter the eyes, causing injury.

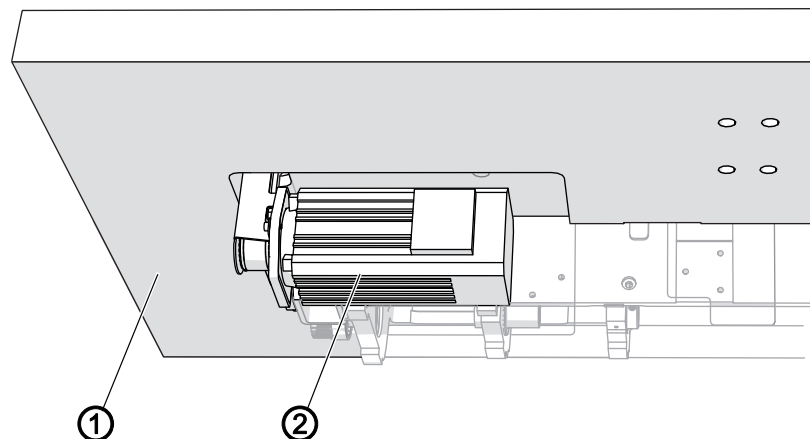
Wear safety goggles.

Hold the compressed air gun so that the particles do not fly close to people.

Make sure no particles fly into the oil pan.

The motor fan mesh must be cleaned once a month using a compressed air gun. When very fluffy material is used for sewing, the motor fan mesh must be cleaned more frequently.

Fig. 103: Cleaning the motor fan mesh



(1) - Tabletop

(2) - Motor fan mesh



To clean the motor fan mesh:

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

22.4.2 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.

22.5 Parts list

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

www.duerkopp-adler.com



23 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.

24 Disposal

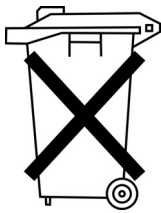
CAUTION



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.

25 Troubleshooting

25.1 Customer Service

Contact for repairs and issues with the machine:

Dürkopp Adler GmbH

Potsdamer Str. 190
33719 Bielefeld, Germany

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




25.2 Messages of the software

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

25.2.1 Information messages

Code	Type	Remedial action
1203	Position not reached (during thread cutting, reversal, etc.)	<ul style="list-style-type: none"> • Check the controller settings and change them if required; make mechanical changes to the machine (e.g. thread trimmer, setting for belt tension, etc.) • Check position (thread lever at top dead center)
2020	DACextension box not responding	<ul style="list-style-type: none"> • Check connection cables • Check LEDs of DACextension box • Software update
2021	Sewing motor encoder plug (Sub-D, 9-pin) not connected to DACextension box	<ul style="list-style-type: none"> • Connect encoder cable to DACextension box using the correct connection
2120	DA stepper card 1 not responding	<ul style="list-style-type: none"> • Check connection cables • Check LEDs of DACextension box • Software update

Code	Type	Remedial action
2121	DA stepper card 1 encoder plug (Sub-D, 9-pin) not connected	<ul style="list-style-type: none"> Connect encoder cable to the control, use correct connection
2122	DA stepper card 1 rotor position not found	<ul style="list-style-type: none"> Check connection cables Check stepper motor 1 for stiff movement
2220	DA stepper card 2 not responding	<ul style="list-style-type: none"> Check connection cables Check LEDs of DACextension box Software update
2221	DA stepper card 2 encoder plug (Sub-D, 9-pin) not connected	<ul style="list-style-type: none"> Connect encoder cable to the control, use correct output
2222	DA stepper card 2 rotor position not found	<ul style="list-style-type: none"> Check connection cables Check stepper motor 2 for stiff movement
3103	Low voltage warning (1 st threshold) Mains voltage < 180 V AC	<ul style="list-style-type: none"> Check mains voltage Stabilize the mains voltage Use generator
3108	Speed limited due to insufficient mains voltage	<ul style="list-style-type: none"> Check mains voltage
3150	Maintenance necessary	<ul style="list-style-type: none"> Information on lubricating the machine  <i>Service Instructions</i>
3155	No release for sewing process	<ul style="list-style-type: none"> Parameter t 51 20-t 51 33 = 25 Input signal for sewing process release required
3160	Stitch loosening device	<ul style="list-style-type: none"> Stitch loosening cannot be performed
3215	Bobbin stitch counter (info value 0 reached)	<ul style="list-style-type: none"> Change bobbin, set counter value Press counter reset button
3216	Remaining thread monitor left	<ul style="list-style-type: none"> Change the left bobbin
3217	Remaining thread monitor right	<ul style="list-style-type: none"> Change the right bobbin
3218	Remaining thread monitor left and right	<ul style="list-style-type: none"> Change the left and right bobbin
3223	Skip stitch detected	
3224	Bobbin failed to rotate	
6360	No valid data on external EEPROM (internal data structures are not compatible with the external data storage device)	<ul style="list-style-type: none"> Software update
6361	No external EEPROM connected	<ul style="list-style-type: none"> Connect machine ID


Code	Type	Remedial action
6362	No valid data on internal EEPROM (internal data structures are not compatible with the external data storage device)	<ul style="list-style-type: none"> • Check machine ID connection • Switch off the control, wait until the LEDs are off, and then switch the control on again • Software update
6363	No valid data on internal and external EEPROM (software version is not compatible with the internal data storage device, emergency operating features only)	<ul style="list-style-type: none"> • Check machine ID connection • Switch off the control, wait until the LEDs are off, and then switch the control on again • Software update
6364	No valid data on internal EEPROM and no external EEPROM connected (the internal data structures are not compatible with the external data storage device, emergency operating features only)	<ul style="list-style-type: none"> • Check machine ID connection • Switch off the control, wait until the LEDs are off, and then switch the control on again • Software update
6365	Internal EEPROM defective	<ul style="list-style-type: none"> • Replace control
6366	Internal EEPROM defective and external data not valid (emergency operating features only)	<ul style="list-style-type: none"> • Replace control
6367	Internal EEPROM defective and external EEPROM not connected (emergency operating features only)	<ul style="list-style-type: none"> • Replace control
7202	DACextension box boot error	<ul style="list-style-type: none"> • Check connection cables • Software update • Replace DACextension box
7203	Checksum error during update	<ul style="list-style-type: none"> • Check connection cables • Software update • Replace DACextension box
7212	DA stepper card 1 boot error	<ul style="list-style-type: none"> • Check connection cables • Software update • Replace DACextension box
7213	Checksum error occurred while updating DA stepper card 2	<ul style="list-style-type: none"> • Check connection cables • Software update • Replace DACextension box
7222	DA stepper card 2 boot error	<ul style="list-style-type: none"> • Check connection cables • Software update • Replace DACextension box
7223	Checksum error occurred while updating DA stepper card 2	<ul style="list-style-type: none"> • Check connection cables • Software update • Replace DACextension box

Code	Type	Remedial action
7801	Software version error (DAC classic only; only the functions of the DAC basic will remain available)	<ul style="list-style-type: none"> • Software update • Replace control
7802	Software update error (DAC classic only; only the functions of the DAC basic will remain available)	<ul style="list-style-type: none"> • Software update • Replace control
7803	Communication error (DAC classic only; only the functions of the DAC basic will remain available)	<ul style="list-style-type: none"> • Restart of the control • Software update • Replace control

25.2.2 Error Messages

Code	Type	Meaning	Remedial action
1000	Error	Sewing motor encoder plug (Sub-D, 9-pin) not connected	<ul style="list-style-type: none"> • Connect encoder cable to the control, use correct connection
1001	Error	Sewing motor error: Sewing motor plug (AMP) not connected	<ul style="list-style-type: none"> • Check connection and plug in, if necessary • Test sewing motor phases (R= 2.8 Ω, high impedance to PE) • Replace encoder • Replace sewing motor • Replace control
1002	Error	Sewing motor insulation fault	<ul style="list-style-type: none"> • Check sewing motor phase and PE for low-impedance connection • Replace encoder • Replace sewing motor
1004	Error	Sewing motor error: Incorrect sewing motor direction of rotation	<ul style="list-style-type: none"> • Replace encoder • Check plug assignment and change, if necessary • Check wiring in machine distributor and change it, if necessary • Test sewing motor phases and check for correct value
1005	Error	Sewing motor blocked	<ul style="list-style-type: none"> • Eliminate stiff movement in the machine • Replace encoder • Replace sewing motor

Code	Type	Meaning	Remedial action
1006	Error	Maximum speed exceeded	<ul style="list-style-type: none"> • Replace encoder • Perform reset • Check class (t 51 04)
1007	Error	Error in the reference run	<ul style="list-style-type: none"> • Replace encoder • Eliminate stiff movement in the machine
1008	Error	Encoder error	<ul style="list-style-type: none"> • Replace encoder
1010	Error	External synchronizer plug (Sub-D, 9-pin) not connected	<ul style="list-style-type: none"> • Connect cable of external synchronizer to control; use correct connection (Sync) • Only required for machines with transmission!
1011	Error	Encoder Z pulse missing	<ul style="list-style-type: none"> • Switch off the control, adjust the handwheel, and switch the control on again • If error is not corrected, check encoder
1012	Error	Synchronizer fault	<ul style="list-style-type: none"> • Replace synchronizer
1052	Error	Sewing motor overcurrent, internal current increase >25 A	<ul style="list-style-type: none"> • Check selection of class • Replace control • Replace sewing motor • Replace encoder
1053	Error	Sewing motor overvoltage	<ul style="list-style-type: none"> • Check selection of class • Replace control
1054	Error	Internal short circuit	<ul style="list-style-type: none"> • Replace control
1055	Error	Sewing motor overload	<ul style="list-style-type: none"> • Eliminate stiff movement in the machine • Replace encoder • Replace sewing motor
2101	Error	DA stepper card 1 reference run timeout	<ul style="list-style-type: none"> • Check reference sensor
2103	Error	DA stepper card 1 step losses	<ul style="list-style-type: none"> • Check for stiff movement
2155	Error	DA stepper card 1 overload	<ul style="list-style-type: none"> • Check for stiff movement
2201	Error	DA stepper card 2 reference run timeout	<ul style="list-style-type: none"> • Check reference sensor
2203	Error	DA stepper card 2 step losses	<ul style="list-style-type: none"> • Check for stiff movement
2255	Error	DA stepper card 2 overload	<ul style="list-style-type: none"> • Check for stiff movement

Code	Type	Meaning	Remedial action
3100	Error	AC-RDY timeout, intermediate circuit voltage did not reach the defined threshold in the specified time	<ul style="list-style-type: none"> • Check mains voltage • If the mains voltage is OK, replace the control
3101	Error	High voltage fault, mains voltage > 290 V for an extended period	<ul style="list-style-type: none"> • Check mains voltage, if nominal voltage is continuously exceeded • stabilize it or use a generator
3102	Error	Low voltage failure (2 nd threshold), mains voltage < 150 V AC	<ul style="list-style-type: none"> • Check mains voltage • Stabilize the mains voltage • Use generator
3104	Warning	Pedal is not in position 0	<ul style="list-style-type: none"> • When switching the control on, take your foot off the pedal
3105	Error	U24 V short circuit	<ul style="list-style-type: none"> • Disconnect 37-pin plug • Replace control if error is not corrected • Test inputs/outputs for 24 V short circuit
3106	Error	U24 V (I ² T) overload	<ul style="list-style-type: none"> • One or several magnets defective
3107	Error	Pedal not connected	<ul style="list-style-type: none"> • Connect analog pedal
3109	Warning	Operation lock	<ul style="list-style-type: none"> • Check tilt sensor on machine
3151	Warning	Maintenance necessary (operation cannot continue unless parameter t 51 14 is reset)	<ul style="list-style-type: none"> • Service is urgently required  <i>Service Instructions</i>
6353	Error	Internal EEprom communication error	<ul style="list-style-type: none"> • Switch off the control • Wait until the LEDs are off • Switch the machine back on
6354	Error	External EEprom communication error	<ul style="list-style-type: none"> • Switch off the control • Wait until the LEDs are off • Check machine ID connection • Switch the control back on
8401	Error	Watchdog	<ul style="list-style-type: none"> • Software update • Machine ID reset • Replace control

Code	Type	Meaning	Remedial action
8402-8405	Error	Internal error	<ul style="list-style-type: none"> • Software update • Machine ID reset • Replace control
8406	Error	Checksum error	<ul style="list-style-type: none"> • Software update • Replace control
8501	Error	Software protection	<ul style="list-style-type: none"> • Always use the DA tool for software updates

25.3 Errors in sewing process

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

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

26 Technical data

26.1 Noise emission

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

$L_{pA} = 79 \text{ dB (A)}$; $K_{pA} = \pm 0.64 \text{ dB (A)}$ at

- Stitch length: 6.0 mm
- Alternating sewing foot stroke: 1.5 mm
- Speed: 2200 rpm
- Sewing material: 4-layer material G1 DIN 23328

26.2 Data overview by subclasses

1-needle machines with large hook (L)

Subclasses: 867-	-160122	-190020 ECO	-190122	-190125	-190322	-190425	-160426
Type of stitches	Double lockstitch 301						
Hook type	Vertical hook, large (L)						
Number of needles	1						
Needle system	134-35						
Maximum needle strength [Nm]	130	180					
Maximum sewing thread size	120/3-30/3	80/3-10/3 (up to 15/3 with short thread cutter)					
Stitch length, forwards / backwards [mm]	7/7	12/12					
Number of adjustable stitch lengths	1			2			
Maximum s.p.m.	3800						
Number of stitches on delivery	3400	3000	3400				
Maximum stroke height (*only with reversing mechanism)	16*	20	20*				
Maximum sewing foot stroke	9						
Positive operating pressure [bar]	6		6				
Air consumption [NL]	0.7		0.7				
Length/width/height [mm]	690/220/460						
Weight/with direct drive [kg]	55/59						
Rated voltage [V, Hz]	230, 50/60						
Rated power [kVA]	0.75						

1-needle machines with extra-large hook (XXL)

Subclasses: 867-	-160446	-160146	-190040 ECO	-190142	-190145	-190342	-190445	-392040 ECO	-392342	-393342	-394342	
Type of stitches	Double lockstitch 301											
Hook type	Vertical hook, extra-large (XXL)											
Number of needles	1											
Needle system	134-35											
Maximum needle strength [Nm]	180											
Maximum sewing thread size	80/3-10/3 (up to 15/3 with short thread cutter)	20/3	80/3-10/3 (up to 15/3 with short thread cutter)	15/3	80/3 – 10/3 (up to 15/3 with short thread cutter)	15/3	80/3-10/3 (up to 15/3 with short thread cutter)					
Stitch length, forwards/backwards [mm]	12/12											
Number of adjustable stitch lengths	2	1			2		1	2				
Maximum s.p.m.	3400						3000					
Number of stitches on delivery	3400	3000	3400				3000					
Maximum fan height (*only with reversing mechanism)	20*	20	20*				20	20*				
Maximum sewing foot stroke	9		9									
Positive operating pressure [bar]	6		6									
Air consumption [NL]	0.7		0.7					0.7				
Length/width/height [mm]	690/220/460						690/320/460					
Weight/with direct drive [kg]	55/59						58				59	
Rated voltage [V, Hz]	230, 50/60											
Rated power [kVA]	0.75											

2-needle machines with large/extra-large hook (L/XXL)

Subclasses: 867-	-260122	-290020 ECO	-290040 ECO	-290122	-290142	-290322	-290342	-290445	-490322	
Type of stitches	Double lockstitch 301									
Vertical hook, large (L)	x	x		x		x			x	
Vertical hook, extra-large (XXL)			x		x		x	x		
Number of needles	2									
Needle system	134-35									
Maximum needle strength [Nm]	130	180								
Maximum sewing thread size	80/3-10/3 (up to 15/3 with short thread cutter)							15/3	80/3-10/3 (up to 15/3 with short thread cutter)	
Stitch length, forwards/backwards [mm]	7/7	12/12								
Number of adjustable stitch lengths	1				2					
Maximum s.p.m.	3400**		3500**	3200**	3500**	3200**		3000		
Number of stitches on delivery	3400	3000								
Maximum fan height (*only with reversing mechanism)	16*	20		20*						
Maximum sewing foot stroke	9									
Positive operating pressure [bar]	6			6						
Air consumption [NL]	0.7			0.7						
Length/width/height [mm]	690/220/460									
Weight/with direct drive [kg]	55/59									
Rated voltage [V, Hz]	230, 50/60									
Rated power [kVA]	0.75									

** For 2-needle machines equipped with the DC1550-DA321G and a motor assembled to the machine head, the maximum possible speed is 3,000 rpm.

1 and 2-needle long arm machines

Subclasses: 867-	-190020-70 ECO	-190040-70 ECO	-190122-70	-190322-70	-190342-70	-290020-70 ECO	-290040-70 ECO	-290122-70	-290322-70	-290342-70	-290342-100
Type of stitches	Double lockstitch 301										
Vertical hook, large (L)	x		x		x		x				
Vertical hook, extra-large (XXL)		x			x		x				x
Number of needles	1					2					
Needle system	134-35										
Maximum needle strength [Nm]	180										
Maximum sewing thread thickness	80/3-10/3										
Stitch length Forwards/backwards [mm]	12/12										
Number of adjustable stitch lengths	1		2		1		2				
Maximum s.p.m.	3000										2500
Number of stitches on delivery	3000										2500
Maximum fan height (*only with reversing mechanism)	20		20*		20		20*				
Maximum sewing foot stroke	9										
Positive operating pressure [bar]	6										
Air consumption [NL]			0.7				0.7				
Length/width/height [mm]	1090/220/460										1390/ 220/ 460
Weight/with direct drive [kg]	85/89										95/99
Rated voltage [V, Hz]	Depends on the drive package										
Rated power [W]	Depends on the drive package										

1-needle machines with integrated motor

Subclasses: 867-	-190020-M ECO	-190040-M ECO	-190122-M	-190125-M	-190142-M	-190145-M	-190146-M	-190322-M	-190342-M	-190425-M	-190445-M	-160122-M	-190426-M	-190446-M
Type of stitches	Double lockstitch 301													
Vertical hook, large (L)	x		x	x				x		x		x	x	
Vertical hook, extra-large (XXL)		x			x	x	x		x		x			x
Number of needles	1													
Needle system	134-35													
Maximum needle strength [Nm]	180											130	180	
Maximum Sewing thread thickness	80/3 – 10/3 (up to 15/3 and 20/3, respectively, with short thread cutter and neat seam beginning)											120/3 – 30/3	80/3 – 10/3 (up to 15/3 and 20/3, respectively, with short thread cutter and neat seam beginning)	
Stitch length, forwards/backwards [mm]	12/12											7/7	12/12	
Number of adjustable stitch lengths	1						2				1	2		
Maximum Number of stitches	3800	3400	3800	3400			3800	3400	3800	3400	3800	3400		
Number of stitches on delivery	3000		3400											
Maximum Stroke height (*only with reversing mechanism)	20											16	20	

Subclasses: 867-	-190020-M ECO	-190040-M ECO	-190122-M	-190125-M	-190142-M	-190145-M	-190146-M	-190322-M	-190342-M	-190425-M	-190445-M	-160122-M	-190426-M	-190446-M
Maximum Sewing foot stroke	9													
Positive operating pressure [bar]	6													
Air consumption [NL]	0.7													
Length/width/height [mm]	740/220/460													
Weight/with direct drive [kg]	59	58												
Rated voltage [V, Hz]	230, 50/60													
Rated power [W]	375													

1 and 2-needle machines with integrated motor

Subclasses: 867-	-290020-M ECO	-290040-M ECO	-290122-M	-290125-M	-290142-M	-290322-M	-290342-M	-290445-M	-392040-M ECO	-392342-M	-393342-M	-394342-M	-490322-M	-260122-M
Type of stitches	Double lockstitch 301													
Vertical hook, large (L)	x		x			x								x
Vertical hook, extra-large (XXL)		x			x					x				
Number of needles	2						1				2			
Needle system	134-35													
Maximum needle strength [Nm]	180													130
Maximum Sewing thread thickness	80/3-10/3 (up to 15/3 and 20/3, respectively, with short thread cutter and neat seam beginning)													120/3 – 30/3

Subclasses: 867-	-290020-M ECO	-290040-M ECO	-290122-M	-290125-M	-290142-M	-290322-M	-290342-M	-290445-M	-392040-M ECO	-392342-M	-393342-M	-394342-M	-490322-M	-260122-M
Stitch length, forwards/backwards [mm]	12/12													7/7
Number of adjustable stitch lengths	1			2			1	2		1				
Maximum s.p.m.	3400	3500	3200	3500	3200	3000			3400					
Number of stitches on delivery	3000													3400
Maximum Stroke height (*only with reversing mechanism)	20													16
Maximum Sewing foot stroke	9													
Positive operating pressure [bar]	6													
Air consumption [NL]	0.7													
Length/width/height [mm]	740/220/460													
Weight/with direct drive [kg]	59	58			59	60	59	58						
Rated voltage [V, Hz]	230, 50/60													
Rated power [W]	375													

1-needle long arm machines with integrated motor (-M)

Subclasses: 867-	-190020-70-M ECO	-190040-70-M ECO	-190122-70-M	-190322-70-M	-190342-70-M	-190142-70-M
Type of stitches	Double lockstitch 301					
Vertical hook, large (L)	x		x	x		
Vertical hook, extra-large (XXL)		x			x	x
Number of needles	1					
Needle system	134-35					
Maximum needle strength [Nm]	180					
Maximum sewing thread size	80/3-10/3					
Stitch length, forwards/backwards [mm]	12/12					
Number of adjustable stitch lengths	1	1	1	2	2	1
Maximum s.p.m.	3000					
Number of stitches on delivery	3000					
Maximum stroke height (*only with reversing mechanism)	20	20	20*	20*	20*	20*
Maximum sewing foot stroke	9					
Positive operating pressure [bar]	6					
Air consumption [NL]			0.7			
Length/width/height [mm]	1090/220/460					
Weight/with direct drive [kg]	89					
Rated voltage [V, Hz]	230, 50/60					
Rated power [W]	375					

2-needle long arm machines with integrated motor (-M)

Subclasses: 867-	-290020-70-M ECO	-290040-70-M ECO	-290122-70-M	-290322-70-M	-290342-70-M	-290142-70-M	-290342-100-M (Long arm)
Type of stitches	Double lockstitch 301						
Vertical hook, large (L)	x		x	x			
Vertical hook, extra-large (XXL)		x			x	x	x
Number of needles	2						
Needle system	134-35						
Maximum needle strength [Nm]	180						
Maximum sewing thread size	80/3-10/3						
Stitch length, forwards/ backwards [mm]	12/12						
Number of adjustable stitch lengths	1	1	1	2	2	1	2
Maximum s.p.m.	3000						2500
Number of stitches on delivery	3000						2500
Maximum stroke height (*Only with reversing mechanism)	20	20	20*	20*	20*	20*	20*
Maximum sewing foot stroke	9						
Positive operating pressure [bar]	6						
Air consumption [NL]	0.7						
Length/width/height [mm]	1090/220/460						1390/ 220/ 460
Weight/with direct drive [kg]	89						99
Rated voltage [V, Hz]	230, 50/60						
Rated power [W]	375						

26.3 Permissible maximum speeds

To ensure safe operation, optimum sewing results and a long service life of the machine, do NOT exceed the permissible maximum speeds:

1-needle machines with large hook (L)

Subclasses: 867-		-160122	-190020 ECO	-190122	-190125	-190322	-190425	-190426
Stitch length 0-6	Stroke 1-3	3800	3000	3800	3800	3800	3800	3800
	Stroke 4	3100	3000	3100	3100	3100	3100	3100
	Stroke 5	2500	2500	2500	2500	2500	2500	2500
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800
Stitch length 6-9	Stroke 1-4		3000	3000	3000	3000	3000	3000
	Stroke 5		2500	2500	2500	2500	2500	2500
	Stroke 6-9		1800	1800	1800	1800	1800	1800
Stitch length 9-12	Stroke 1-5		2000	2000	2000	2000	2000	2000
	Stroke 6-9		1800	1800	1800	1800	1800	1800

1-needle machines with extra-large hook (XXL)

Subclasses: 867-		-160446	-160146	-190040 ECO	-190142	-190145	-190146	-190342	-190445	-392040 ECO	-392342	-393342	-394342
Stitch length 0-6	Stroke 1-3	3400	3400	300 0	340 0	340 0	340 0	340 0	340 0	300 0	340 0	340 0	340 0
	Stroke 4	3100	3100	300 0	310 0	310 0	310 0	310 0	310 0	300 0	310 0	310 0	310 0
	Stroke 5	2500	2500	250 0	250 0	250 0	250 0	250 0	250 0	250 0	250 0	250 0	250 0
	Stroke 6-9	1800	1800	180 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0
Stitch length 6-9	Stroke 1-4			300 0	300 0	300 0	300 0	300 0	300 0	300 0	300 0	300 0	300 0
	Stroke 5			250 0	250 0	250 0	250 0	250 0	250 0	250 0	250 0	250 0	250 0
	Stroke 6-9			180 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0
Stitch length 9-12	Stroke 1-5			200 0	200 0	200 0	200 0	200 0	200 0				
	Stroke 6-9			180 0	180 0	180 0	180 0	180 0	180 0				

2-needle machines with large/extra-large hook (L/XXL)

Subclasses: 867-		-260122	-290020 ECO	-290040 ECO	-290122	-290142	-290322	-290342	-290445	-490322
Stitch length 0-6	Stroke 1-4	3000	3000	3000	3000	3000	3000	3000	3000	3000
	Stroke 5	2500	2500	2500	2500	2500	2500	2500	2500	2500
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800	1800	1800
Stitch length 6-9	Stroke 1-4	3000	3000	3000	3000	3000	3000	3000	3000	3000
	Stroke 5	2500	2500	2500	2500	2500	2500	2500	2500	2500
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800	1800	1800
Stitch length 9-12	Stroke 1-5	2000	2000	2000	2000	2000	2000	2000	2000	2000
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800	1800	1800

1 and 2-needle long arm machines

Subclasses: 867-		-190020-70 ECO	-190040-70 ECO	-190122-70	-190322-70	-190342-70	-290020-70 ECO	-290040-70 ECO	-290122-70	-290322-70	-290342-70	-290342-100
Stitch length 0-6	Stroke 1-3	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	2500
	Stroke 4	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800	2300
	Stroke 5	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Stitch length 6-9	Stroke 1-3	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	2500
	Stroke 4	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800
	Stroke 5	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Stitch length 9-12	Stroke 1-5	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800

1-needle machines with integrated motor and large hook (L)

Subclasses: 867-		-190020-M ECO	-190122-M	-190125-M	-190322-M	-190425-M	-160122-M	-190426-M
Stitch length 0-6	Stroke 1-3	3000	3800	3800	3800	3800	3800	3800
	Stroke 4	3000	3100	3100	3100	3100	3100	3100
	Stroke 5	2500	2500	2500	2500	2500	2500	2500
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800
Stitch length 6-9	Stroke 1-4	3000	3000	3000	3000	3000	3800	3000
	Stroke 5	2500	2500	2500	2500	2500	3100	2500
	Stroke 6-9	1800	1800	1800	1800	1800	2500	1800
Stitch length 9-12	Stroke 1-5	2000	2000	2000	2000	2000		2000
	Stroke 6-9	1800	1800	1800	1800	1800		1800

1-needle machines with integrated motor and extra-large hook (XXL)

Subclasses: 867-		-190040-M ECO	-190142-M	-190145-M	-190146-M	-190342-M	-190445-M	-190446-M	-392040-M ECO	-392342-M	-393342-M	-394342-M
Stitch length 0-6	Stroke 1-3	3000	3400	3400	3400	3400	3400	3400	3000	3400	3400	3400
	Stroke 4	3000	3100	3100	3100	3100	3100	3100	3000	3100	3100	3100
	Stroke 5	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Stitch length 6-9	Stroke 1-4	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
	Stroke 5	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Stitch length 9-12	Stroke 1-5	2000	2000	2000	2000	2000	2000	2000				
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800				

2-needle machines with integrated motor (-M)

Subclasses: 867-		-290020-M ECO	-290040-M ECO	-290122-M	-290125-M	-290142-M	-290322-M	-290342-M	-290445-M	-490322-M	-260122-M
Stitch length 0-6	Stroke 1-3	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
	Stroke 4	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
	Stroke 5	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
	Stroke 6-9	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
Stitch length 6-9	Stroke 1-4	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
	Stroke 5	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
	Stroke 6-9	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Stitch length 9-12	Stroke 1-5	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
	Stroke 6-9	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000

1-needle long arm machines with integrated motor (-M)

Subclasses: 867-		-190020-70-M ECO	-190040-70-M ECO	-190122-70-M	-190322-70-M	-190342-70-M	-190142-70-M
Stitch length 0-6	Stroke 1-3	3000	3000	3000	3000	3000	3000
	Stroke 4	2800	2800	2800	2800	2800	2800
	Stroke 5	2000	2000	2000	2000	2000	2000
	Stroke 6-9	1800	1800	1800	1800	1800	1800
Stitch length 6-9	Stroke 1-3	3000	3000	3000	3000	3000	3000
	Stroke 4	2800	2800	2800	2800	2800	2800
	Stroke 5	2000	2000	2000	2000	2000	2000
	Stroke 6-9	1800	1800	1800	1800	1800	1800
Stitch length 9-12	Stroke 1-5	2000	2000	2000	2000	2000	2000
	Stroke 6-9	1800	1800	1800	1800	1800	1800

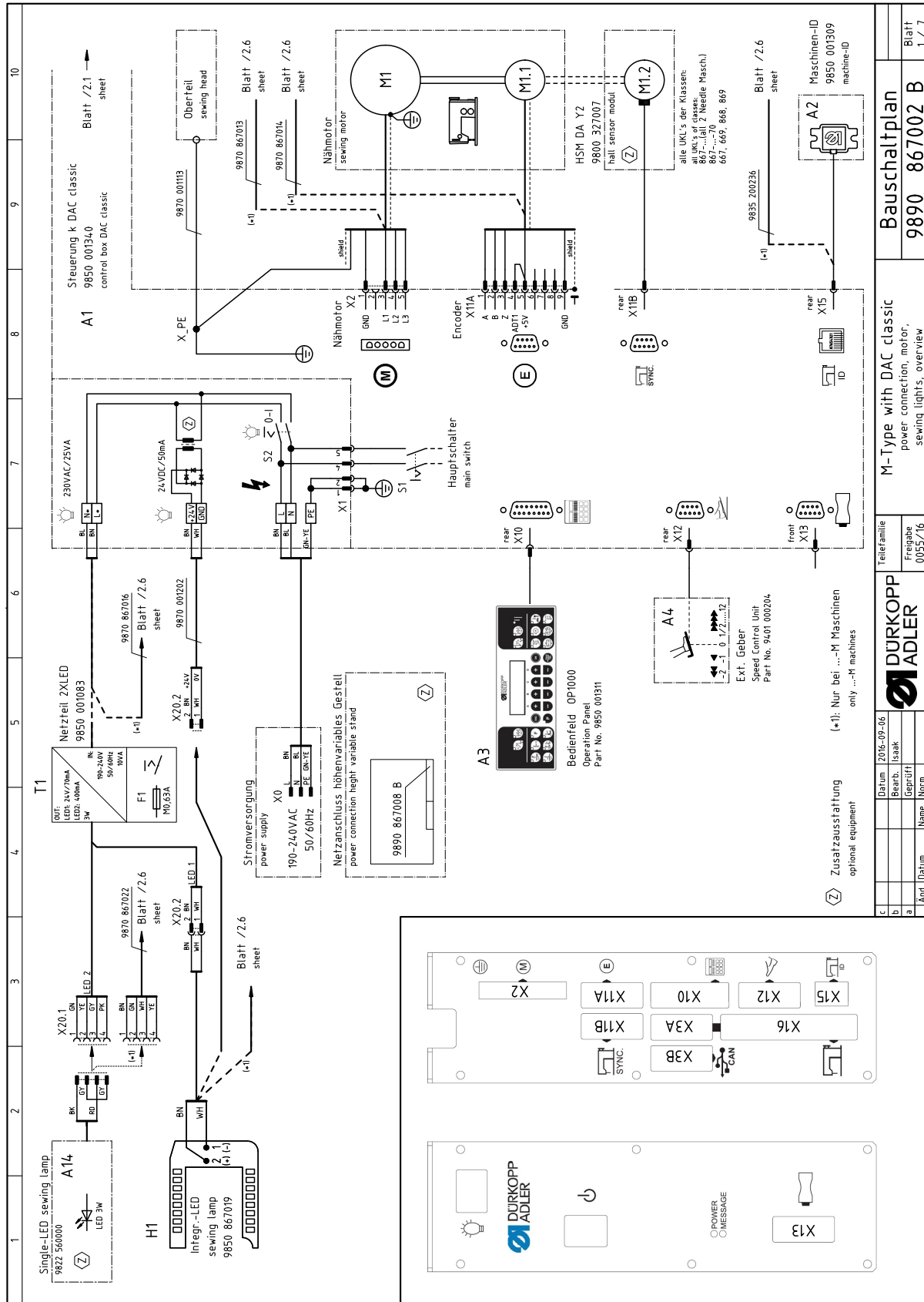
2-needle long arm machines with integrated motor (-M)

Subclasses: 867-		-290020-70-M ECO	-290040-70-M ECO	-290122-70-M	-290322-70-M	-290342-70-M	-290142-70-M	-290342-100-M (Long arm)
Stitch length 0-6	Stroke 1-3	3000	3000	3000	3000	3000	3000	2500
	Stroke 4	2800	2800	2800	2800	2800	2800	2300
	Stroke 5	2000	2000	2000	2000	2000	2000	2000
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800
Stitch length 6-9	Stroke 1-3	3000	3000	3000	3000	3000	3000	2500
	Stroke 4	2800	2800	2800	2800	2800	2800	2800
	Stroke 5	2000	2000	2000	2000	2000	2000	2000
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800
Stitch length 9-12	Stroke 1-5	2000	2000	2000	2000	2000	2000	2000
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800

26.4 Requirements for fault-free operation

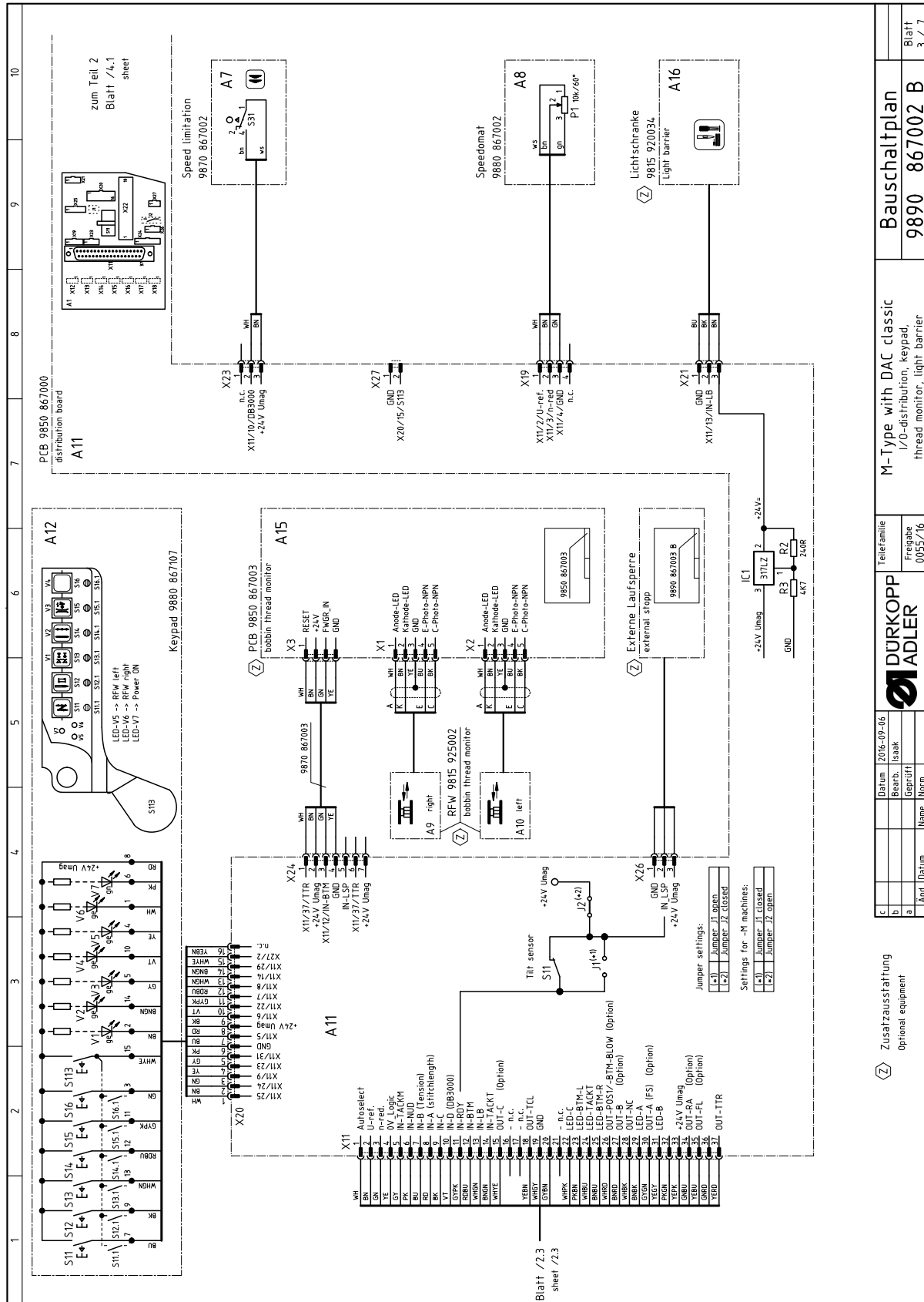
Compressed air quality must conform to ISO 8573-1: 2010 [7:4:4].

Fig. 105: Wiring diagram



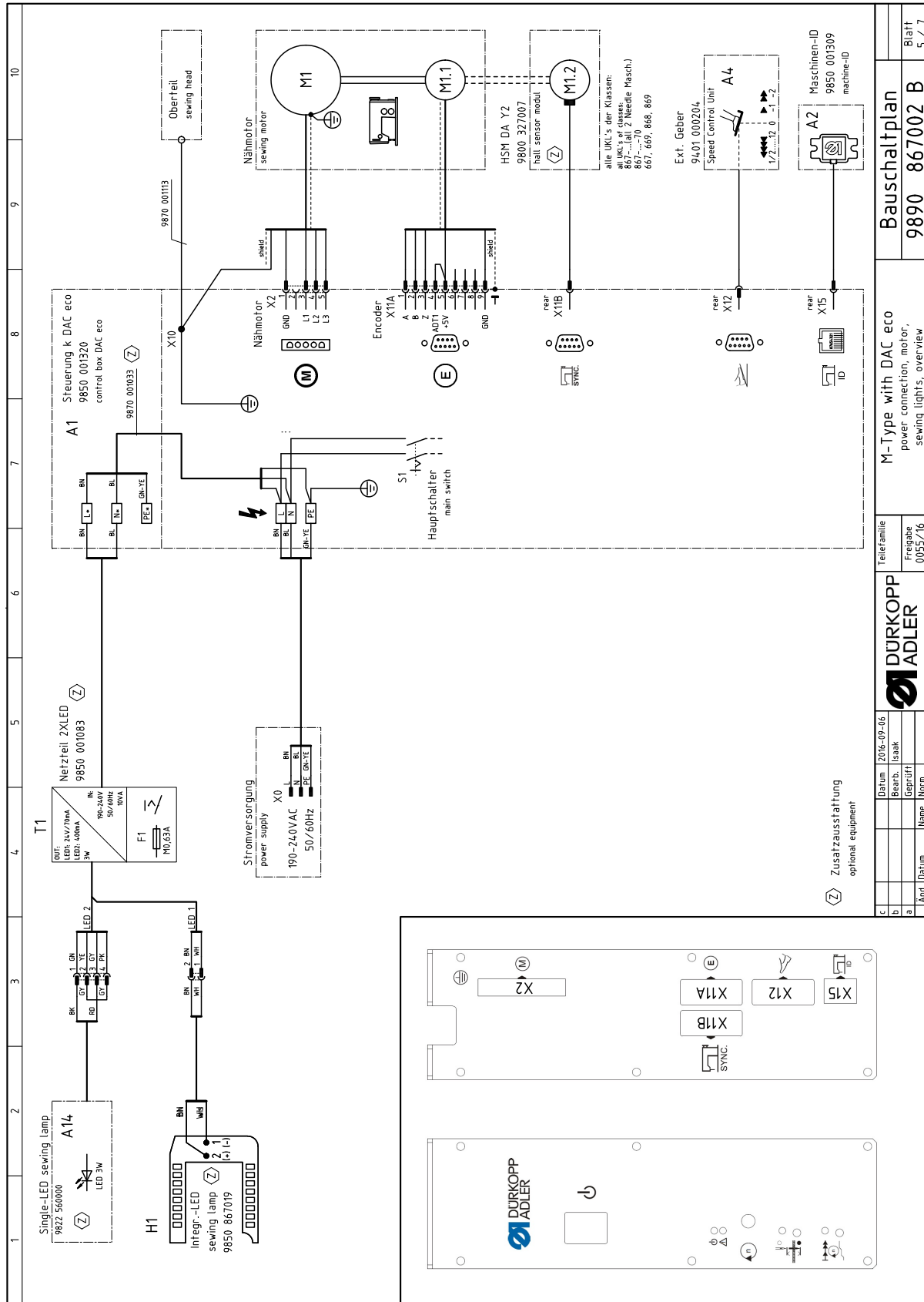
Teilerfamilie		Bauchaltplan	
Freigabe		9890 867002 B	
Dateiname		M-Type with DAC classic	
Datei		power connection, motor, sewing lights, overview	
Datum		2016-09-06	
Bearb.		Isaak	
Geprüft			
Name		Norm	
Änd.		Datum	
Blatt		1 / 7	

Fig. 107: Wiring diagram



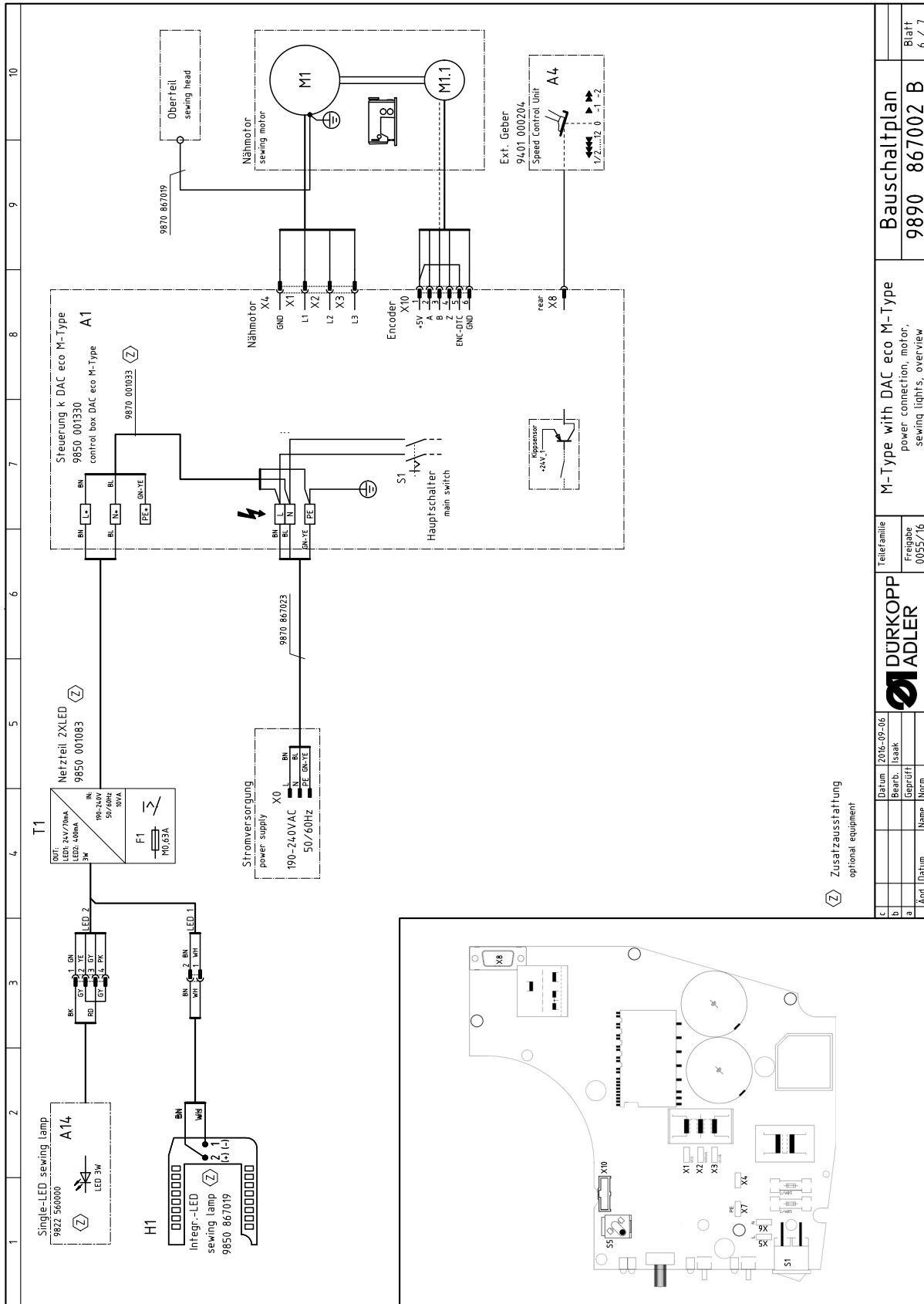
Zusatzausstattung Optional equipment		Teilerfamilie Freigabe		M-Type with DAC classic I/O-distribution, keypad, thread monitor, light barrier		Bauschaltplan 9890 867002 B		Blatt 3 / 7	
c	Datum	2016-09-06	Name		Norm	DÜRKOPP ADLER		Freigabe	
b	Bearb.	Isaak	Name		Norm	DÜRKOPP ADLER		0055/16	
a	Geprüft		Name		Norm	DÜRKOPP ADLER		0055/16	

Fig. 109: Wiring diagram



Zusatzausstattung optional equipment		Teilerfamilie Freigabe 0055/16		Bauschaltplan 9890 867002 B		Blatt 5 / 7	
M-Type with DAC eco power connection, motor, sewing lights, overview		DÜRKOPP ADLER		M-Type with DAC eco power connection, motor, sewing lights, overview		Blatt 5 / 7	
a	Änd.	Datum	Name	Norm			
b		2016-09-06	Isaak				
c							

Fig. 110: Wiring diagram



Bauschaltplan	
9890 867002 B	

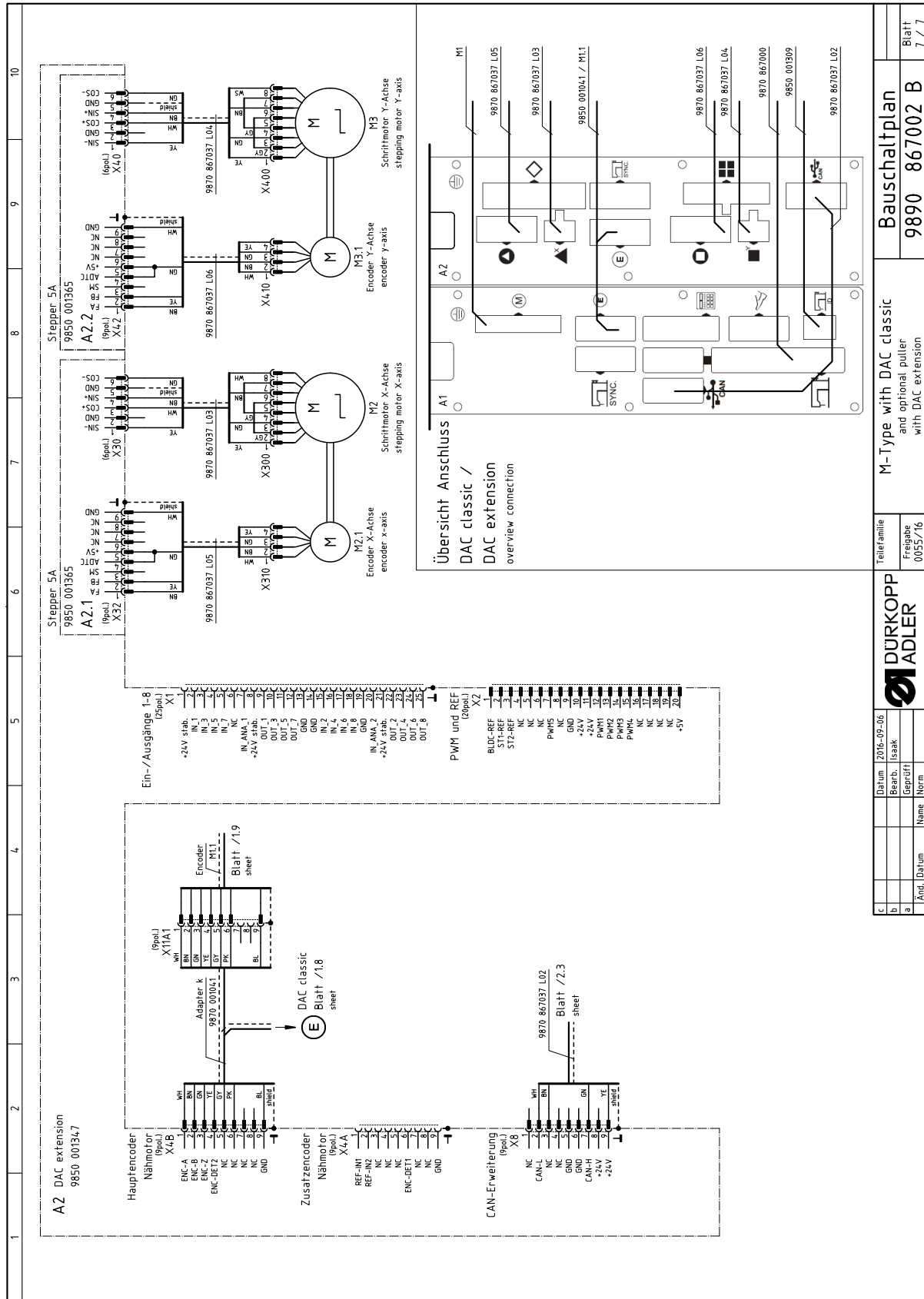
M-Type with DAC eco M-Type	
power connection, motor, sewing lights, overview	

DURKOPP ADLER	
Teilerfamilie	
Freigabe	
0055/16	

Datum: 2016-09-06	
Bearb.: Isaak	
Geprüft:	
Änd.	Datum Name Norm

Blatt	
6 / 7	

Fig. 111: Wiring diagram



c	Datum	2016-09-06
b	Bearb.	Isaak
a	Geprüft	
	Name	Norm
	Änd.	Datum



Teilerfamilie
Freigabe
0055/16

M-Type with DAC classic
and optional puller
with DAC extension

Bauschaltplan
9890 867002 B
Blatt
7 / 7

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