DÜRKOPP ADLER

911-211-10

Service Instructions

IMPORTANT

READ CAREFULLY BEFORE USE KEEP FOR FUTURE REFERENCE

1 About these instructions

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

Should you notice any discrepancies or if you have improvement requests, then we would be glad to receive your feedback through **Customer Service** (📖 *p. 160*).

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. 10*).

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. 10*).

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. Failure to do so can result in serious injury and property damage.

2.1 Basic safety instructions

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

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

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

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

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

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

Transport

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

Setup

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

Obligations of the operator

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

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

Requirements to be met by the personnel

Only qualified specialists may be used for:

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

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

Operation

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

Safety equipment

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

2.2 Signal words and symbols used in warnings

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

Signal words

Signal words and the hazard they describe:

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

Symbols

The following symbols indicate the type of danger to personnel:

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

The settings 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 adjustments that are marked with in the margin.

NOTICE

Property damage may occur!

Machine damage from incorrect order.

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

3.2 Laying the cables

NOTICE

Machine damage and malfunctions can be caused by laying the cables incorrectly!

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

Lay excess cables as described.

To lay the cables:

1. Lay any excess cables neatly in proper cable snakes.
2. Bind together the cable loops with cable ties.
   Tie loops wherever possible to fixed parts.

Important

The cables must be secured firmly!

3. Cut off any overlapping cable ties.

3.3 Removing and opening covers

WARNING

Risk of injury from moving parts!

Crushing possible.

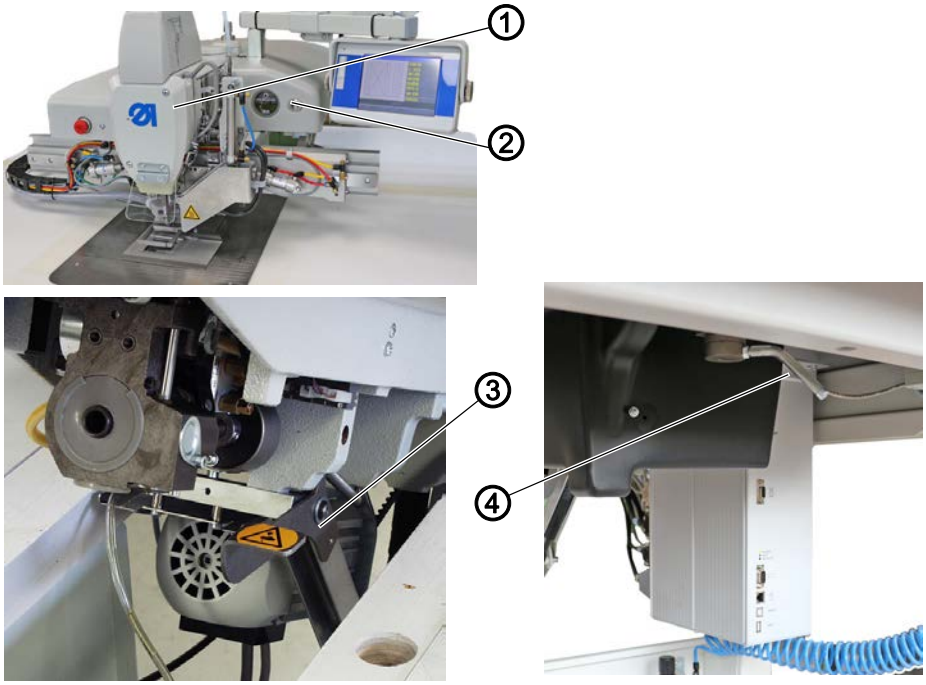
Switch off the machine before removing or re-assembling covers.

In many types of setting work, you will have to remove the machine covers 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 Swiveling up the machine head

Fig. 1: Swiveling up the machine head



(1) - Head cover
(2) - Transport carriage
(3) - Latch
(4) - Locking lever

Important

The transport carriage (2) must be at the rear.

To swivel up the machine head:

1. Release the locking lever (4) under the tabletop.

2. Lift the machine head in the head cover area (1) and swivel up carefully.

↳ The latch (2) latches into place.
The space under the stand is now accessible.

3.3.2 Swiveling down the machine head

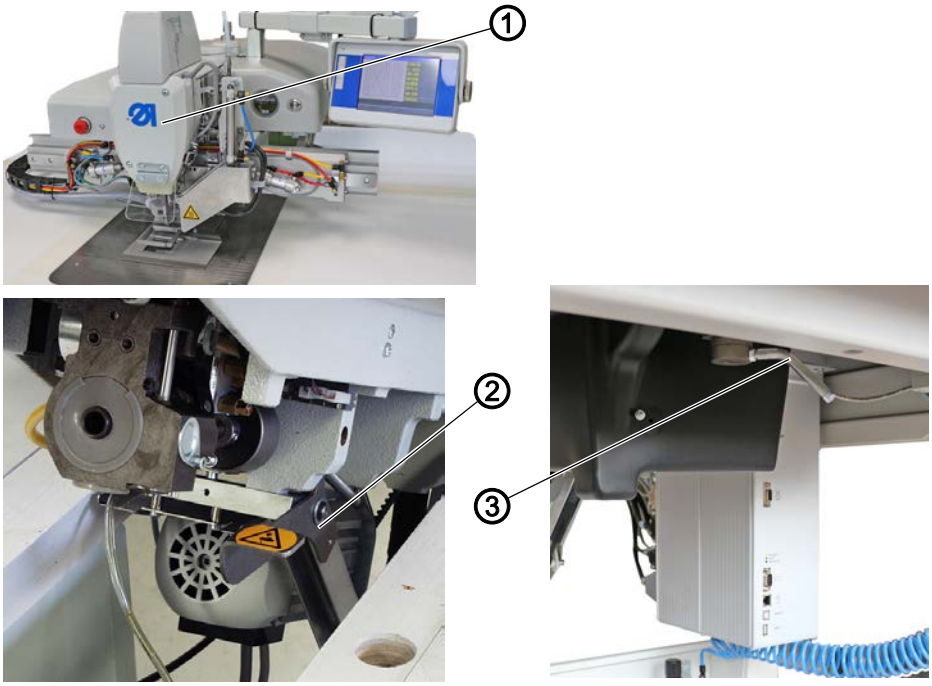
NOTICE

Property damage may occur!

Risk of machine damage from falling machine head.

When swiveling down the machine head, hold the machine head in place until it has returned to its position.

Fig. 2: Swiveling down the machine head



(1) - Head cover
(2) - Latch
(3) - Locking lever

To swivel down the machine head:

1. Hold the machine head in the head cover area (1).
2. Release the latch (2).
3. Swivel down the machine head carefully.
4. Latch the locking lever (3) under the tabletop.

3.3.3 Disassembling and assembling the motor cover

Fig. 3: Disassembling and assembling the motor cover

(1) - Screws
(2) - Motor cover

Disassembling the motor cover

To disassemble the motor cover:

1. Loosen both screws (1).
2. Disassemble the motor cover (2).

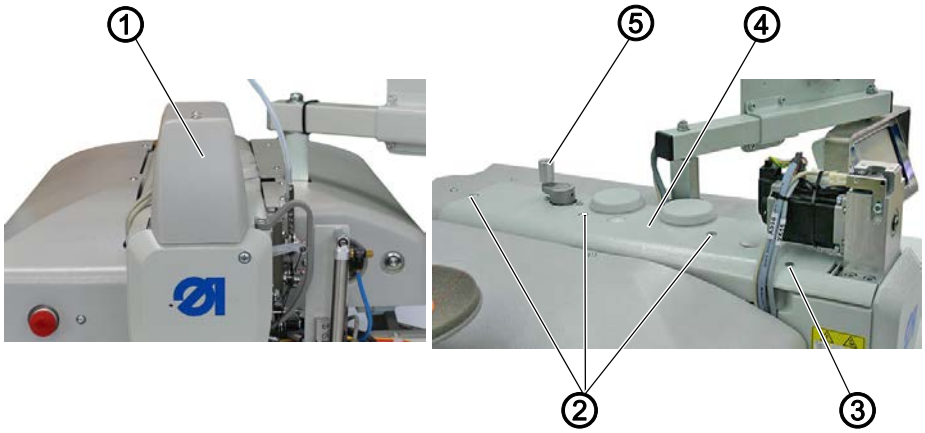
Assembling the motor cover

To assemble the motor cover:

1. Assemble the motor cover (2).
2. Tighten both screws (1).

3.3.4 Disassembling and assembling the arm cover

Fig. 4: Disassembling and assembling the arm cover



(1) - Motor cover
(2) - Screws
(3) - Countersunk screw
(4) - Arm cover
(5) - Hand crank

Disassembling the arm cover

To disassemble the arm cover:

1. Unscrew the motor cover (1).
2. Loosen screws (2) and countersunk screw (3).
3. Disassemble the arm cover (4).

Assembling the arm cover

To assemble the arm cover:

1. Assemble the arm cover (4).
2. Tighten the countersunk screw (3).
3. Tighten the screws (2).
4. Press down the hand crank (5) and check for ease of movement; adjust the arm cover position if necessary.

↳ The hand crank (5) must disengage.

5. Assemble the motor cover (1).

3.3.5 Disassembling and assembling the head cover

Fig. 5: Disassembling and assembling 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).

Assembling the head cover

To assemble the head cover:

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

3.3.6 Disassembling and assembling the rear cover

Fig. 6: Disassembling and assembling the rear cover

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

Disassembling the rear cover

To disassemble the rear cover:

1. Loosen the screws (1).
2. Disassemble the rear cover (2) by moving it back.

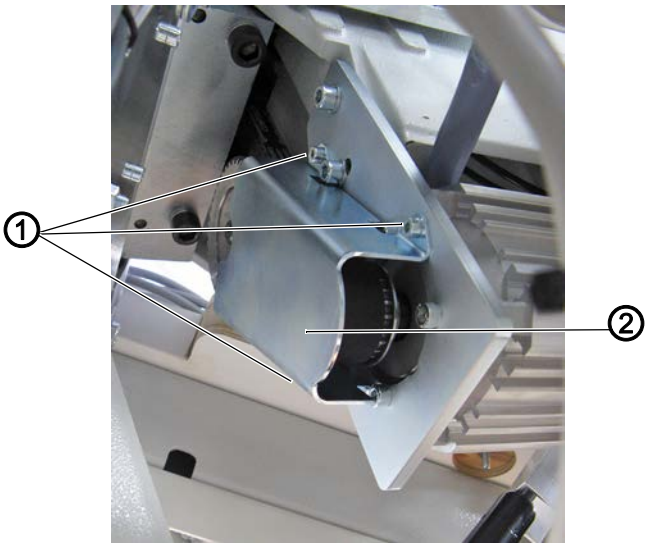
Assembling the rear cover

To assemble the rear cover:

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

3.3.7 Disassembling and assembling the toothed belt cover

Fig. 7: Disassembling and assembling the toothed belt cover



(1) - Screws *(2) - Toothed belt cover*

Disassembling the toothed belt cover

To disassemble the toothed belt cover:

1. Loosen the screws (1).
2. Disassemble toothed belt cover (2).

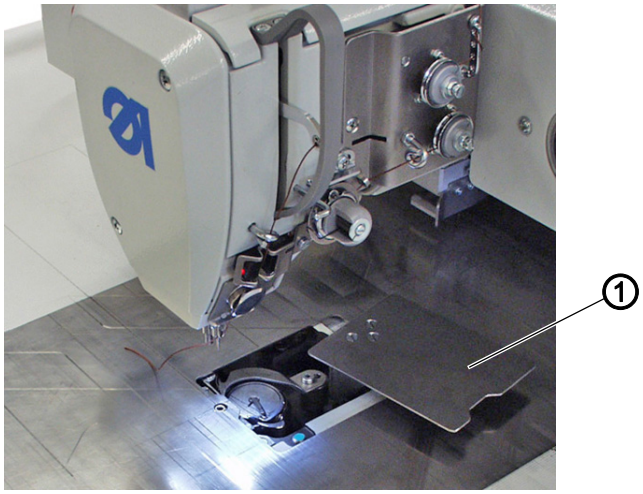
Assembling the toothed belt cover

To assemble the toothed belt cover:

1. Assemble the toothed belt cover (2).
2. Tighten the screws (1).

3.3.8 Opening and closing the hook cover

Fig. 8: Opening and closing the hook cover



(1) - Hook cover

Opening the hook cover

To open the hook cover:

1. Switch on the machine and reference it.
2. Remove the sewing material holder.
3. Press the **Threading mode** button.

↳ The hook cover (1) pivots to the side.

Closing the hook cover

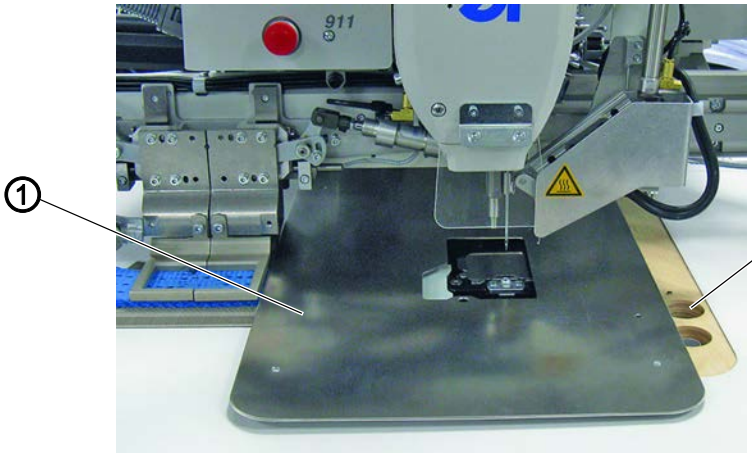
To close the hook cover:

1. Release the **Threading mode** button.

↳ The machine is ready to sew again.

3.3.9 Disassembling and assembling the fabric sliding plate

Fig. 9: Disassembling and assembling the fabric sliding plate



(1) - Fabric sliding plate *(2) - Hole*

Disassembling the fabric sliding plate

To disassemble the fabric sliding plate:

1. Reach through the hole (2) from below and lift the fabric sliding plate (1).
2. Disassemble the fabric sliding plate (1).

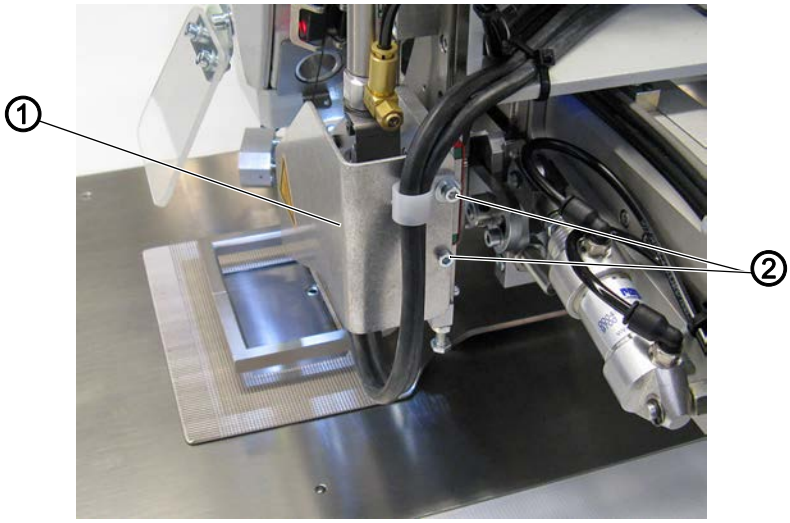
Assembling the fabric sliding plate

To assemble the fabric sliding plate:

1. Assemble the fabric sliding plate (1).

3.3.10 Disassembling and placing the thread burner cover (optional)

Fig. 10: Disassembling and assembling the thread burner cover



(1) - Thread burner cover *(2) - Screws*

Disassembling the thread burner cover

To disassemble the thread burner cover:

1. Loosen the screws (2).
2. Disassemble the thread burner cover (1).

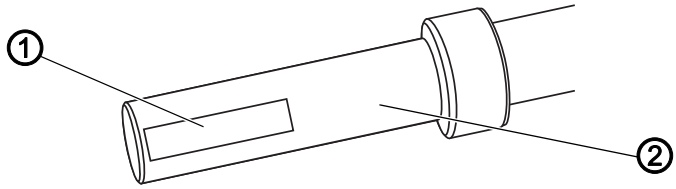
Assembling the thread burner cover

To assemble the thread burner cover:

1. Assemble the thread burner cover (2).
2. Tighten the screws (1).

3.4 Flats on shafts

Fig. 11: Flats on shafts



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

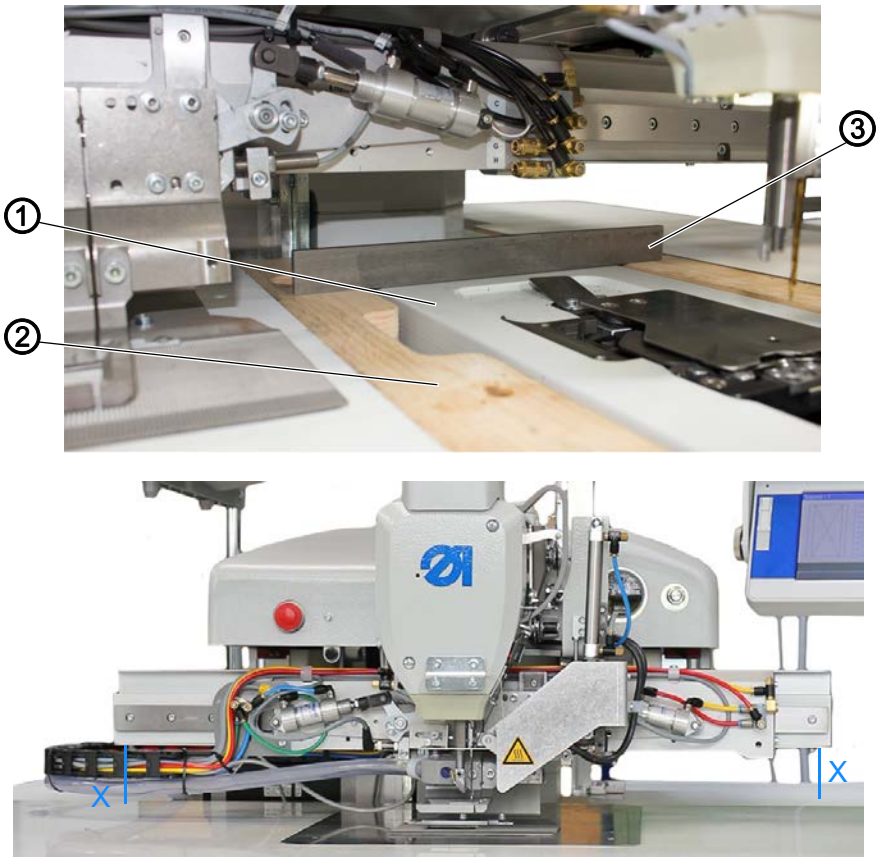
Some shafts have flat surfaces at the points where the components are clamped onto the shafts. This stabilizes the connection and makes adjusting easier.

Important

Ensure that the screws are completely flush with the surface.

3.5 Aligning the machine head

Fig. 12: Aligning the machine head (1)



(1) - Base plate *(3) - Flat material*
(2) - Tabletop

Proper setting

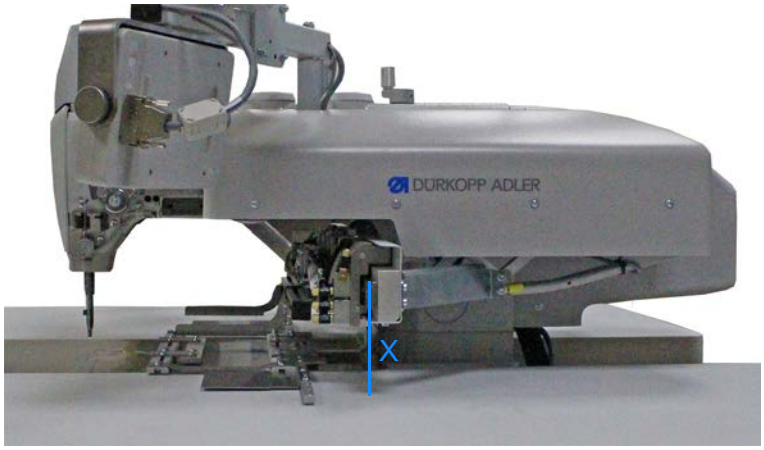
The upper side of the base plate (1) is level with the cutout in the tabletop (2). Height **X** of the transport system is identical on the left and the right both at the rear and the front position of the carriage. Check the height using the flat material (3).

To align the machine head:

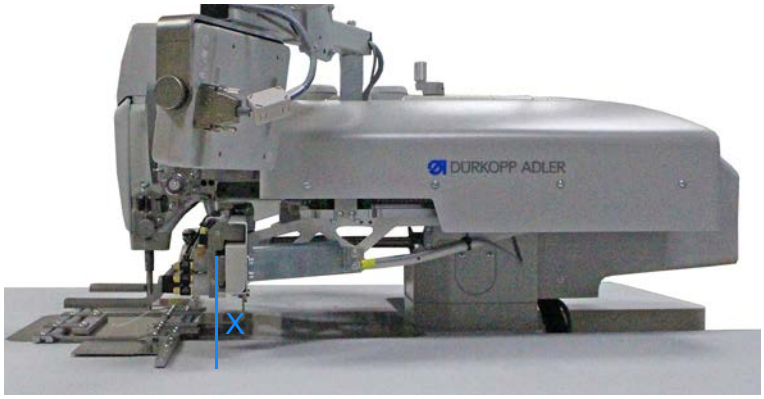
1. Remove the sliding plate.
2. Check the position of the machine head using the flat material (3).
3. Swivel up the machine head (📖 *p. 15*).
4. Set the height.

Fig. 13: Aligning the machine head (2)

Carriage at rear position

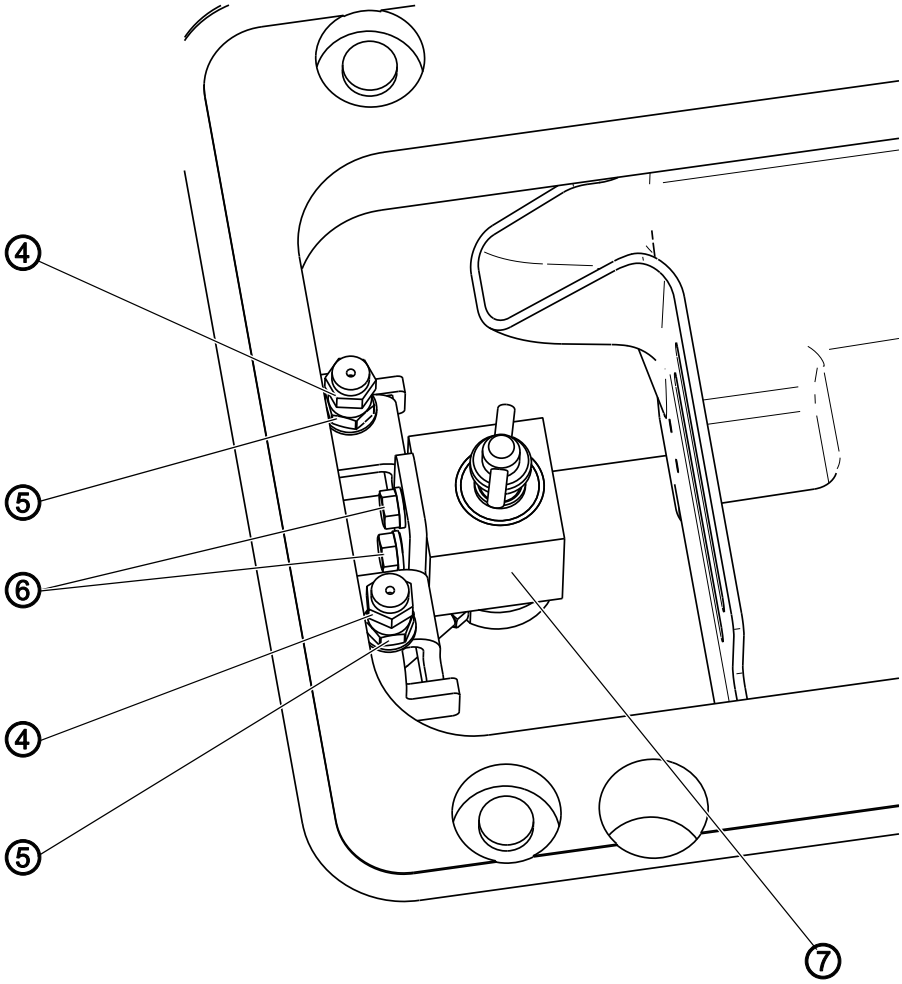


Carriage at front position



5. Check the position of the machine head again.
   - Front
   - Carriage at rear position
   - Carriage at front position

Fig. 14: Aligning the machine head (3)



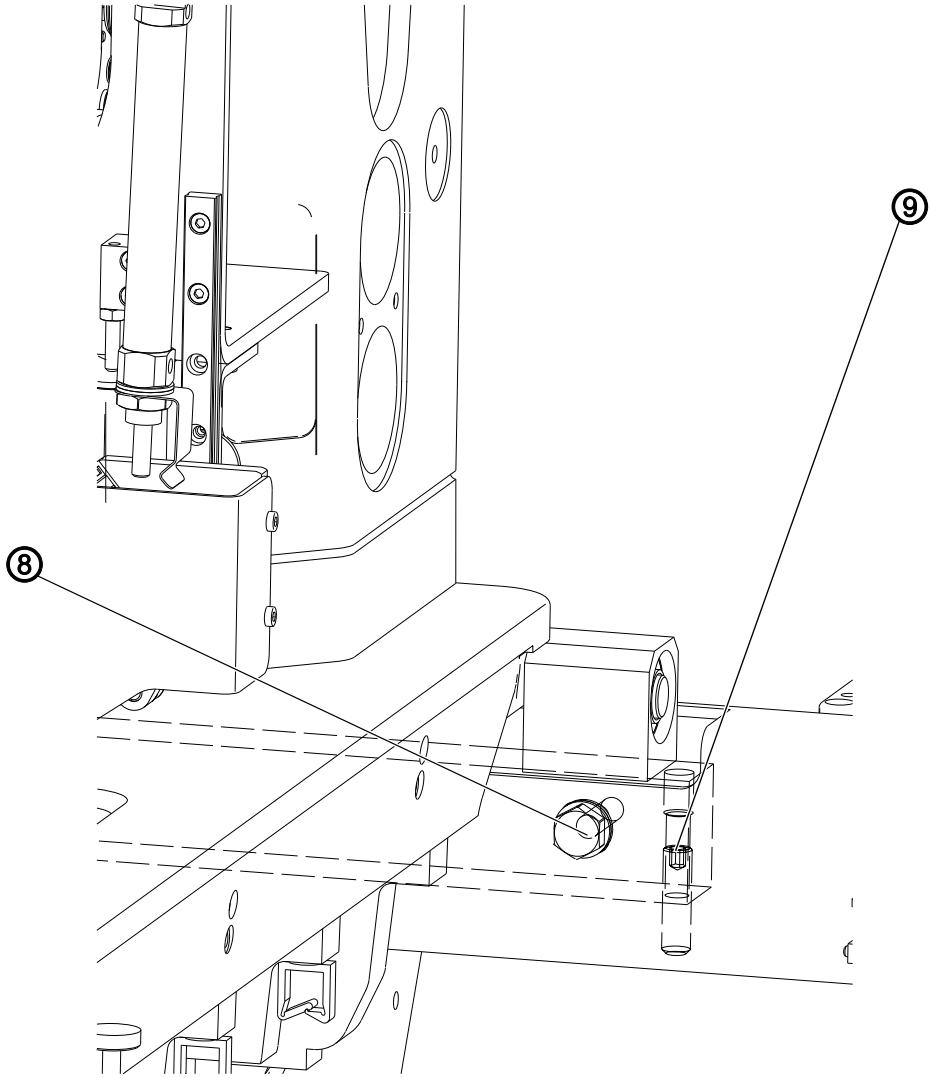
(4) - Screws
(5) - Nuts
(6) - Screws
(7) - Block

6. Loosen the nuts (5).
7. Swivel down the machine head and lock it in place.
8. Use screws (4) to correct the height of the machine head at the front:
   - higher = turn counterclockwise
   - lower = turn clockwise
9. To adjust the locking mechanism, loosen the screws (6).
10. Move the block (7) up or down.
    - To slacken the locking mechanism: Slide the block up
    - To tighten the locking mechanism: Slide the block down
11. To test the setting, lock the machine head and check the play.

Proper setting

The locking mechanism is set correctly if the machine head can be locked in place with ease while not showing any play at the front bearing when moved up and down.

Fig. 15: Aligning the machine head (4)



(8) - Screw on the right

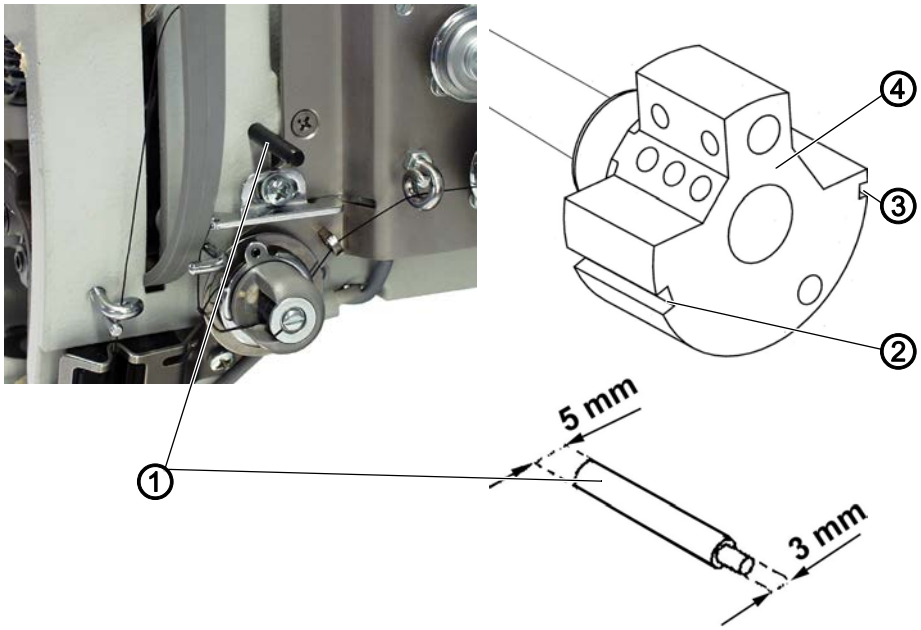
(9) - Threaded pin on the right

12. Loosen the screws on the left (not shown) and on the right (8).
13. Use the threaded pins on the left (not shown) and on the right (9) to adjust the height of the machine head at the rear:
    - higher = turn clockwise
    - lower = turn counterclockwise
14. Test the height of the base plate using flat material (3) and adjust as necessary.
15. Check heights **X** and adjust as necessary.
16. Check locking mechanism and adjust as necessary.

3.6 Locking the machine in place

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

Fig. 16: Locking the machine in place (1)

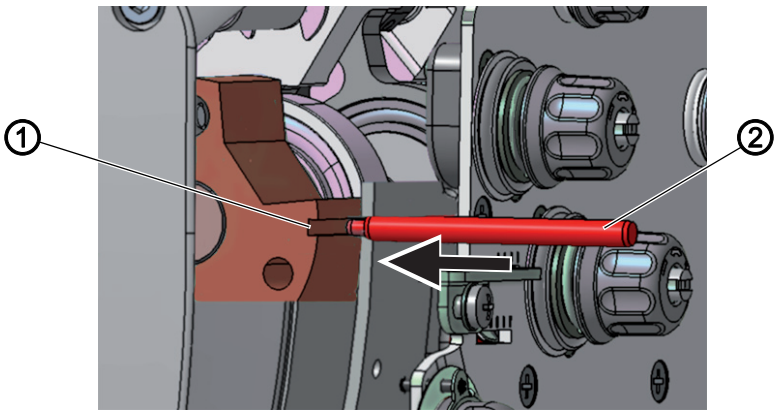


(1) - Locking peg
(2) - Large arresting groove
(3) - Small arresting groove
(4) - Arm shaft crank

There are 2 securing positions:

- **Position 1:** Looping stroke position
  - 5 mm end in the large slot
  - Adjusting the looping stroke and needle bar height
- **Position 2:** Needle at top dead center
  - 3 mm end in the small slot
  - Checking the top dead center of the needle bar

Fig. 17: Locking the machine in place (2)



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

Locking the machine in place

To lock the machine in place:

1. Insert the locking peg (2) with the appropriate end into the slot (1).

Removing the lock

To remove the lock:

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

3.7 Putting the machine into position

For some settings, the machine must be put into a certain position, using the hand crank on the arm cover.

Fig. 18: Putting the machine into position

(1) - Hand crank

To set the machine into position:

1. Press down and turn the hand crank (1) until the machine is in the setting position.

4 Positioning the arm shaft crank

WARNING

Risk of injury from moving parts!

Crushing possible.

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

Proper setting

The threaded pins (2) on the arm shaft crank (1) are seated completely on the flat.

Fig. 19: Positioning the arm shaft crank

(1) - Arm shaft crank *(2) - Threaded pins*

To adjust the arm shaft crank:

1. Disassemble the arm cover (📖 *p. 17*).
2. Loosen the threaded pins (2).
3. Turn the arm shaft crank (1) such that the threaded pins (2) are seated completely on the flat of the arm shaft.
4. Push the arm shaft crank (1) to the right as far as it will go.
5. Tighten the threaded pins (2).

5 Positioning the toothed belt wheels

WARNING

Risk of injury from moving parts!

Crushing possible.

Switch off the machine before positioning the toothed belt wheels.

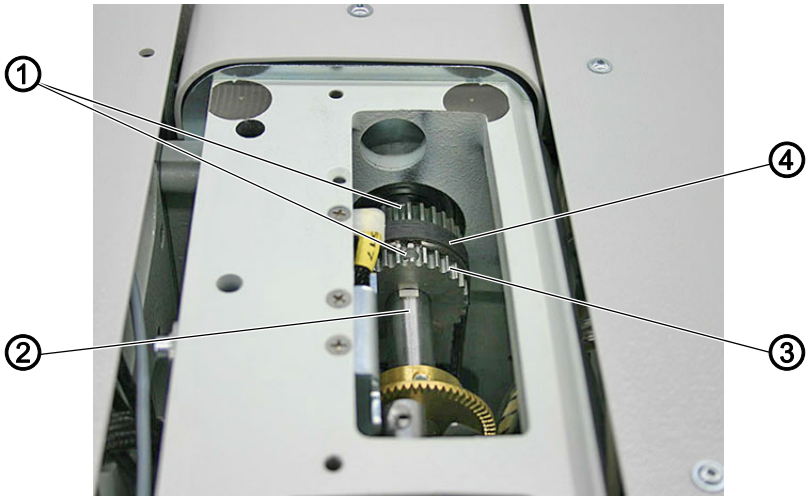
The two toothed belt wheels must be positioned relative to each other such that the toothed belt can run correctly.

Order

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

5.1 Adjusting the upper toothed belt wheel

Fig. 20: Adjusting the upper toothed belt wheel



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

Proper setting

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

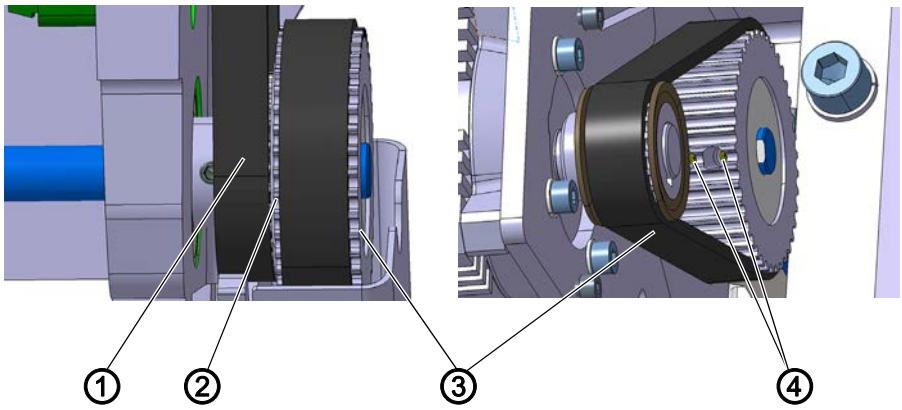
To adjust the upper toothed belt wheel:

1. Disassemble the arm cover (📖 *p. 17*).
2. Using the screwdriver, push the toothed belt (4) sufficiently far to the side so that the threaded pins (1) can be reached.
3. Loosen the threaded pins (1).

4. Turn the upper toothed belt wheel (3) such that the threaded pins (1) are seated flush on the flat (2) of the arm shaft.
5. Tighten the threaded pins (1).
6. Use the screwdriver to push the toothed belt (4) back again.

5.2 Adjusting the lower toothed belt wheel

Fig. 21: Adjusting the lower toothed belt wheel



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

Proper setting

Both 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 edge of the offset gear wheel or slipping off.

To adjust the lower toothed belt wheel:

1. Swivel up the machine head (📖 *p. 15*).
2. Remove the toothed belt cover (📖 *p. 19*).
3. Loosen the threaded pins (4).
4. Turn the lower toothed belt wheel (3) such that the threaded pins (4) are seated completely on the flat of the lower shaft.
5. Move the lower toothed belt wheel (3) sufficiently far to the side so that the toothed belt (1) makes contact with the edge (2) without being pushed away.
6. Tighten the threaded pins (4).

6 Aligning the needle bar linkage

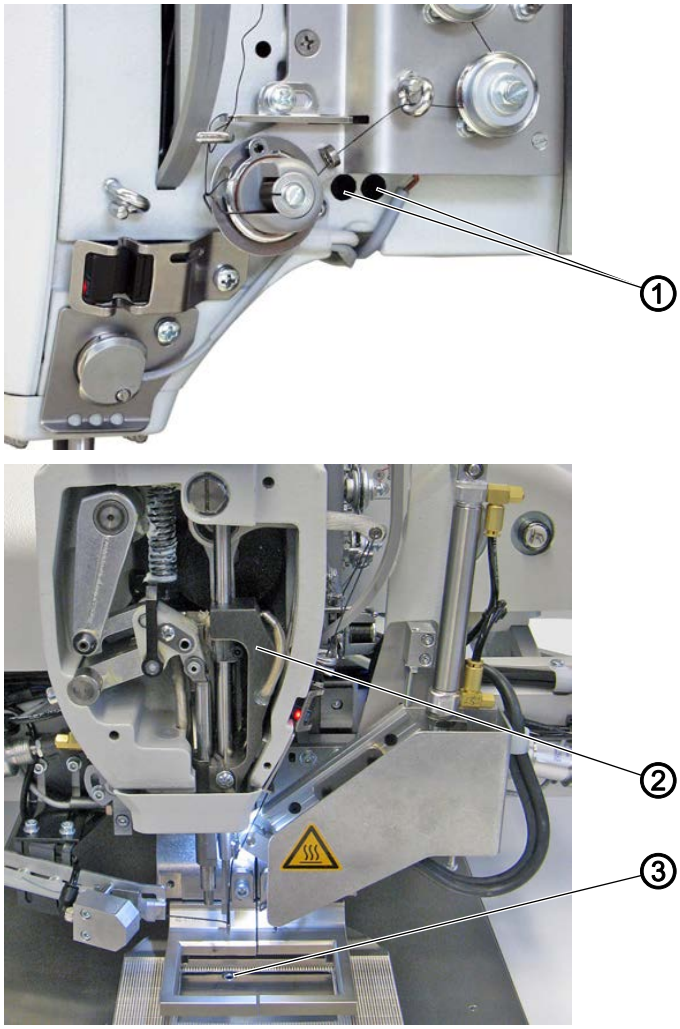
WARNING

Risk of injury from moving parts!

Crushing possible.

Switch off the machine before aligning the needle bar linkage.

Fig. 22: Aligning the needle bar linkage



(1) - Threaded pins
(2) - Needle bar linkage
(3) - Needle hole

Proper setting

The needle enters the needle hole precisely in the center when the needle bar is at the bottom dead center.

To align the needle bar linkage:

1. Disassemble the head cover (📖 *p. 18*).
2. Loosen the threaded pins (1).
3. Set the needle bar linkage (2) so that the needle enters the needle hole (3) precisely in the center.
4. Tighten the threaded pins (1).

7 Position of the hook and needle

WARNING

Risk of injury from sharp parts!

Puncture possible.

Switch off the machine before adjusting the hook settings.

WARNING

Risk of injury from moving parts!

Crushing possible.

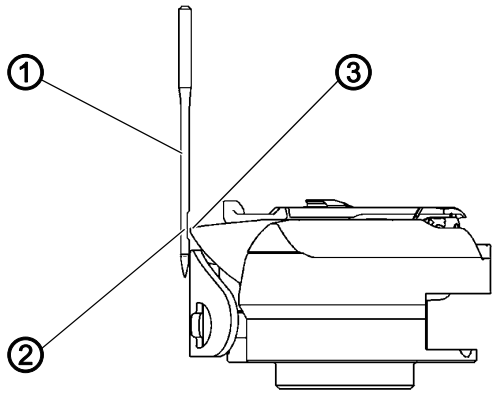
Switch off the machine before adjusting the hook settings.

7.1 Adjusting the looping stroke position

Information

The **looping stroke** is the path length from the bottom dead center of the needle bar up to the height where the hook tip picks up the loop of thread.

Fig. 23: Adjusting the looping stroke position (1)



(1) - Needle
(2) - Groove
(3) - Hook tip

Order

First, check the following settings:

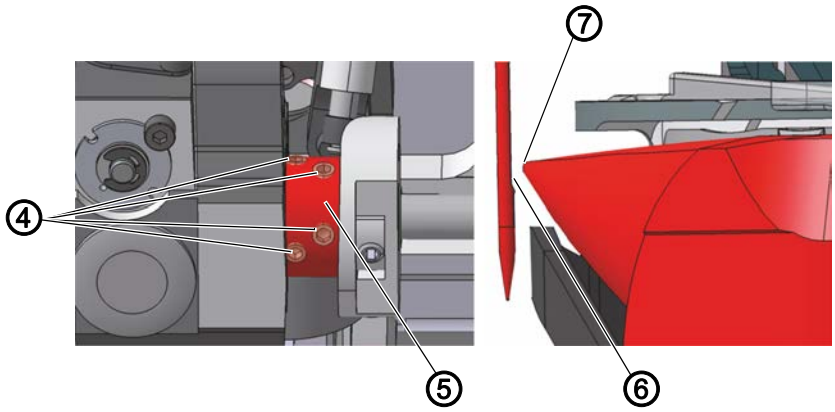
- Needle bar linkage (📖 *p. 33*)

Proper setting

The machine is locked in place at position 1 (📖 *p. 28*).

↳ The hook tip (3) is precisely at the center of the needle (1).
The looping stroke is precisely 2.4 mm.

Fig. 24: Adjusting the looping stroke position (2)



(4) - Threaded pins
(5) - Set collar
(6) - Groove
(7) - Hook tip

To adjust the looping stroke position:

1. Swivel up the machine head (📖 *p. 15*).
2. Lock the machine in place at position 1 (📖 *p. 28*).
3. Loosen the threaded pins (5) on the set collar (4).
4. Rotate the hook such that the hook tip (7) is precisely at the center of the groove (6).
5. Tighten the threaded pins (5).
6. Remove the lock (📖 *p. 28*).

Order

Then check the following settings:

- Adjusting the needle guard (📖 *p. 40*)
- Setting the timing of cutting by the thread trimmer (📖 *p. 75*)

7.2 Adjusting the needle bar height

Order

First, check the following settings:

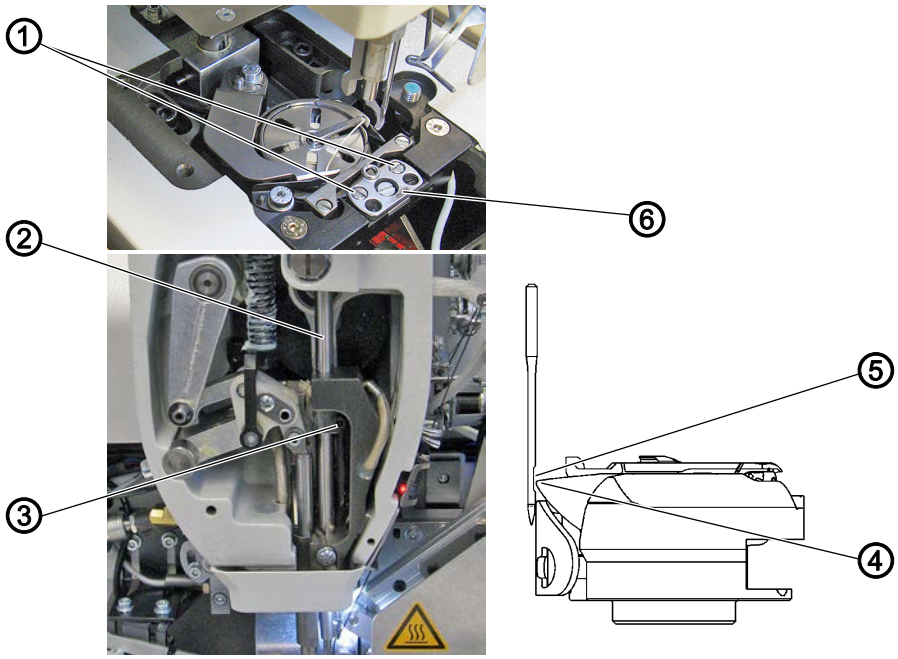
- Adjusting the looping stroke position (📖 *p. 35*)

Proper setting

The machine is locked in place at position 1 (📖 *p. 28*).

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

Fig. 25: Adjusting the needle bar height



(1) - Screws
(2) - Needle bar
(3) - Screw
(4) - Hook tip
(5) - Groove
(6) - Throat plate

To adjust the needle bar height:

1. Disassemble the head cover (📖 *p. 18*).
2. Open the hook cover (📖 *p. 21*).
3. Lock the machine in place at position **1** (📖 *p. 28*).
4. Loosen the screws (1).
5. Remove the throat plate (6).
6. Loosen the screw (3) of the needle bar (2).
7. Move the height of the needle bar (2) so that the hook tip (4) is in the middle of the lower third of the groove on the needle (5).

Important

When doing this, take care not to twist the needle.
The groove (5) must face toward the hook.

8. Tighten the screw (3) for the needle bar (2).
9. Place the throat plate (6).
10. Tighten the screws (1).
11. Remove the lock (📖 *p. 28*).

Order

Then check the following setting:

- Adjusting the needle guard (📖 *p. 40*)

7.3 Adjusting the hook side clearance

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.

Order

First, check the following settings:

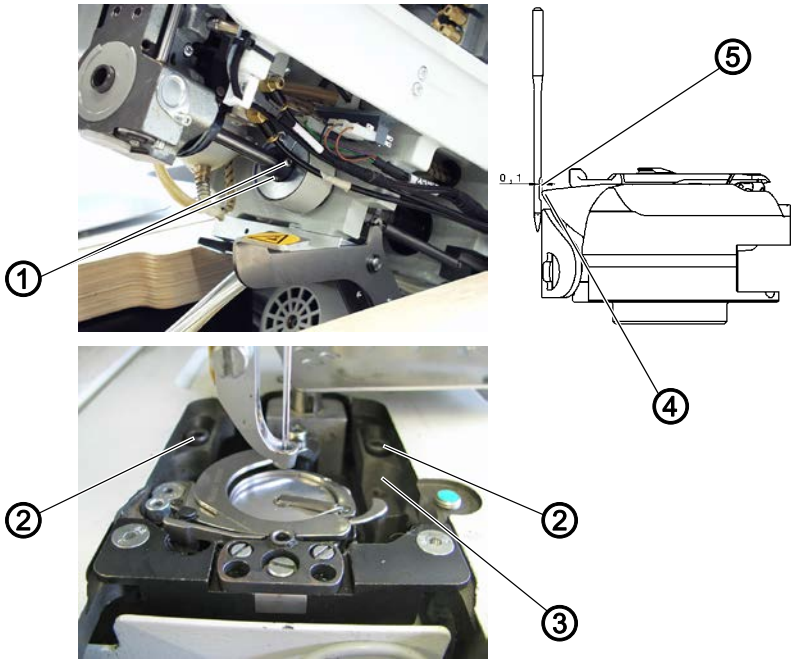
- Aligning the needle bar linkage (📖 *p. 33*)
- Adjusting the looping stroke position (📖 *p. 35*)

Proper setting

The machine is locked in place at position **1** (📖 *p. 28*).

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

Fig. 26: Adjusting the hook side clearance



(1) - Threaded pins
(2) - Screws
(3) - Hook support
(4) - Hook tip
(5) - Groove

To adjust the hook side clearance:

1. Lock the machine in place at position 1 (📖 *p. 28*).
2. Swivel up the machine head (📖 *p. 15*).
3. Loosen the screws (2).
4. Loosen the threaded pins (1).
5. Move the hook support (3) sideways such that the distance between the hook tip (4) and the groove of the needle (5) is no greater than 0.1 mm.
   Ensure that the hook tip (4) does not touch the needle.
6. Tighten the screws (2).
7. Tighten the threaded pins (1).
8. Check the looping stroke position (📖 *p. 35*).
9. Remove the lock (📖 *p. 28*).

Order

Then check the following setting:

- Adjusting the needle guard (📖 *p. 40*)

7.4 Adjusting the needle guard

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.

The needle guard prevents contact between needle and hook tip.

Order

First, check the following settings:

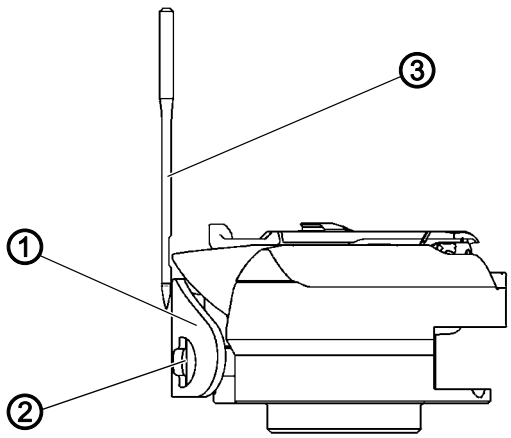
- Adjusting the looping stroke position (📖 *p. 35*)
- Adjusting the hook side clearance (📖 *p. 38*)
- Adjusting the needle bar height (📖 *p. 37*)

Proper setting

Machine is locked in place at position 1 (📖 *p. 28*).

↳ The needle guard pushes the needle away just enough so that it is not touched by the hook tip.

Fig. 27: Adjusting the needle guard



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

To adjust the needle guard:

1. Press down and turn the hand crank and check how far the needle guard (1) pushes the needle (3) away.

2. Turn the screw (2) such that the needle guard (1) just pushes the needle (3) far away enough so that it is not touched by the hook tip:
   - **To push away more forcefully**: turn counterclockwise
   - **To push away less forcefully**: turn clockwise

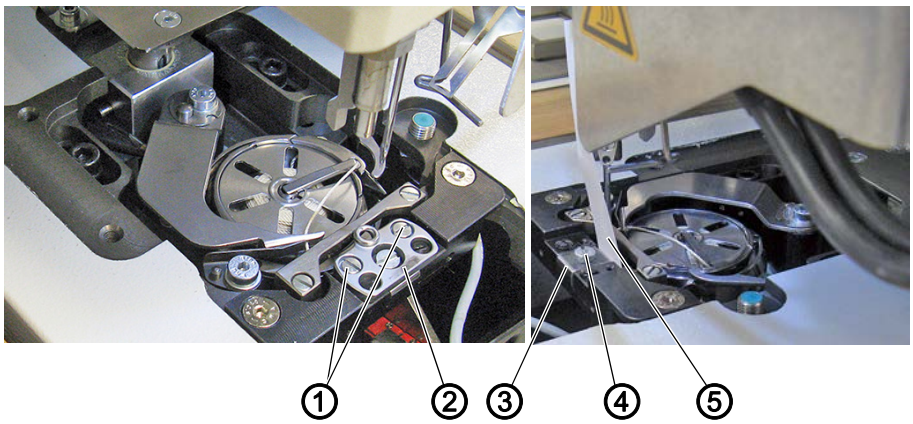
7.5 Adjusting the needle guide

Proper setting

Machine is locked in place at position 1 (📖 *p. 28*).

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

Fig. 28: Adjusting the needle guide



(1) - Screws
(2) - Throat plate
(3) - Needle guide
(4) - Screw
(5) - Paper

To adjust the needle guide:

1. Loosen the screws (1).
2. Remove the throat plate (2).
3. Lock the machine in place at position 1 (📖 *p. 28*).
4. Loosen the screw (4).
5. Move the needle guide (3) as close as possible against the needle.
6. Tighten the screw (4).
7. Check this distance using a piece of paper (5).

8 Adjusting the bobbin case lifter

WARNING

Risk of injury from moving parts!

Crushing possible.

Switch off the machine before adjusting the settings on the bobbin case lifter.

Fig. 29: Adjusting the bobbin case lifter

(1) - Bobbin case lifter
(2) - Bobbin case
(3) - Nose of the bobbin case
(4) - Middle section holder

The hook pulls the needle thread through between the nose of the bobbin case (3) and the middle section holder (4).
The bobbin case lifter (1) now pushes the bobbin case (2) away so that a gap appears for the thread.
If the hook tip is located below the bobbin case lifter, the bobbin case lifter 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.

8.1 Adjusting the lifting gap (standard hook bearing)

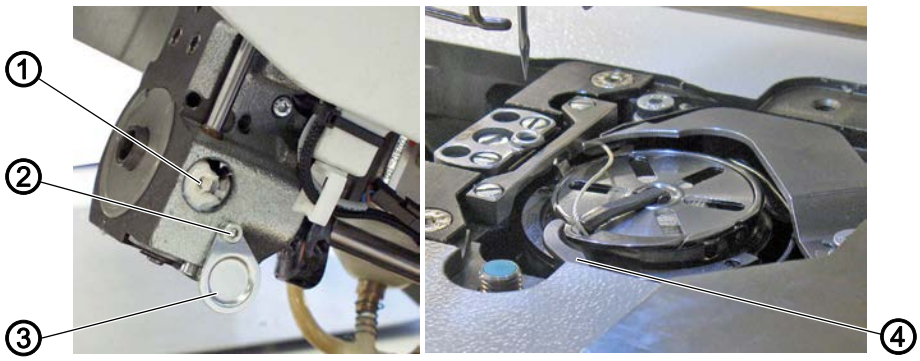
Order

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 and the middle section holder.

Fig. 30: Adjusting the lifting gap (standard hook bearing)



(1) - Threaded pin
(2) - Screw
(3) - Cover
(4) - Bobbin case lifter

To adjust the lifting gap:

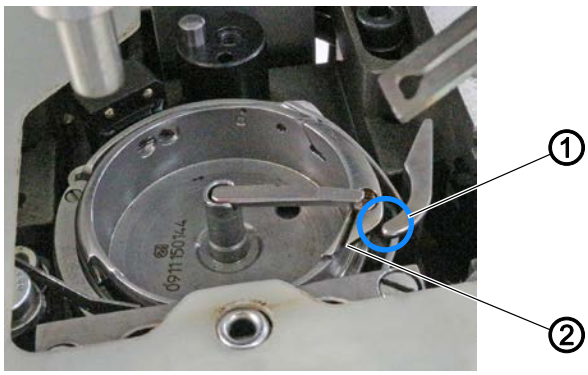
1. Swivel up the machine head (📖 *p. 15*).
2. Loosen the screw (2).
3. Push the cover (3) downwards.
4. Loosen the threaded pin (1).
5. Set the bobbin case lifter (4) such that the gap between the nose of the bobbin case and the middle section holder is just big enough for the needle thread to slip through without a problem.
6. Tighten the threaded pin (1).
7. Push the cover (3) upwards.
8. Tighten the screw (2).

8.2 Adjusting the lifting gap (special hook bearing for safety belts)

Information

The lifting gap on the special hook bearing used for belts is markedly wider than the gap on the standard hook bearing.
If the hook thread under the seam is too loose when using short stitch lengths, you need to widen the passage between bobbin case lifter and bobbin case.

Fig. 31: Adjusting the lifting gap (special hook bearing for safety belts) (1)

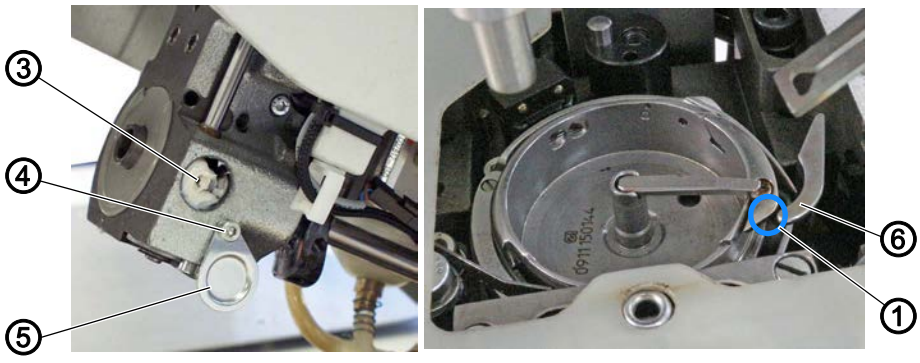


(1) - Passage
(2) - Point

Proper setting

The needle thread slides through the passage (1) unobstructed between bobbin case lifter and bobbin case.
At the moment when the bobbin case lifter is at the point (2), there must be still be a gap between the nose of the bobbin case and the middle section holder.

Fig. 32: Adjusting the lifting gap (2)



(1) - Passage
(3) - Threaded pin
(4) - Screw
(5) - Cover
(6) - Bobbin case lifter

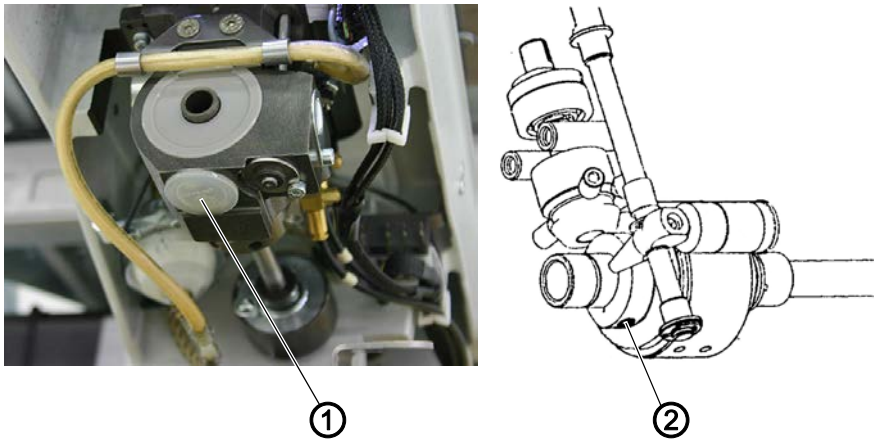
To adjust the lifting gap:

1. Swivel up the machine head (📖 *p. 15*).

2. Loosen the screw (4).
3. Push the cover (5) downwards.
4. Loosen the threaded pin (3).
5. Set the bobbin case lifter (6) such that the needle thread can pass through the passage (1) unobstructed between bobbin case lifter (6) and bobbin case.
   At the moment when the bobbin case lifter is at the point (2), there must be still be a gap between the nose of the bobbin case and the middle section holder.
6. Tighten the threaded pin (3).
7. Push the cover (5) upwards.
8. Tighten the screw (4).

8.3 Adjusting the timing for opening

Fig. 33: Adjusting the timing for opening



(1) - Plug

(2) - 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.

To adjust the timing for opening:

1. Remove the plug (1).
2. Press and turn the hand crank until the tip of the needle is level with the throat plate.

↳ The threaded pin (2) is accessible from the underside of the hook support.

3. Loosen the threaded pin (2) and use an allen key to turn it so that the allen key stands exactly vertical.
4. Tighten the threaded pin (2).
5. Insert the plug (1) into the opening.

9 Sewing foot lift

WARNING

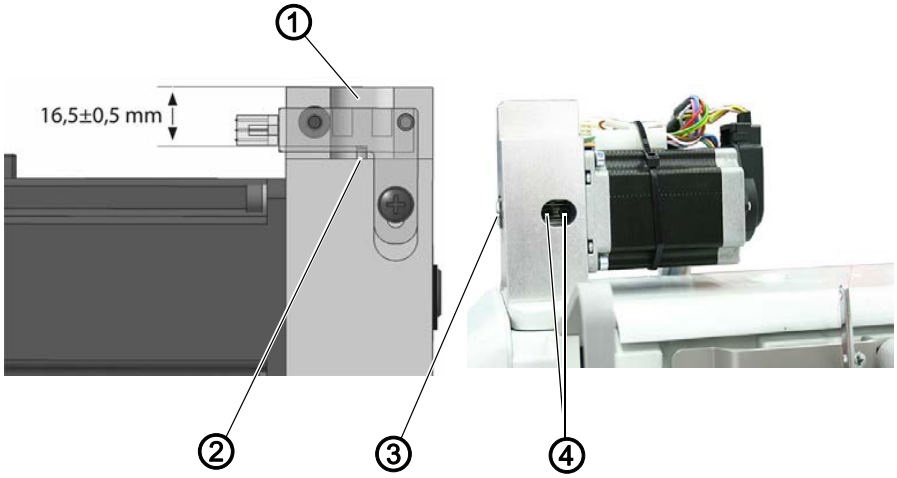
Risk of injury from sharp and moving parts!

Puncture or crushing possible.

Switch off the machine before adjusting the settings of the sewing foot lift.

9.1 Adjusting the stroke position drive

Fig. 34: Adjusting the stroke position drive



(1) - Top edge of the stroke position housing
(2) - Toothed rack
(3) - Gear wheel
(4) - Threaded pins

Proper setting

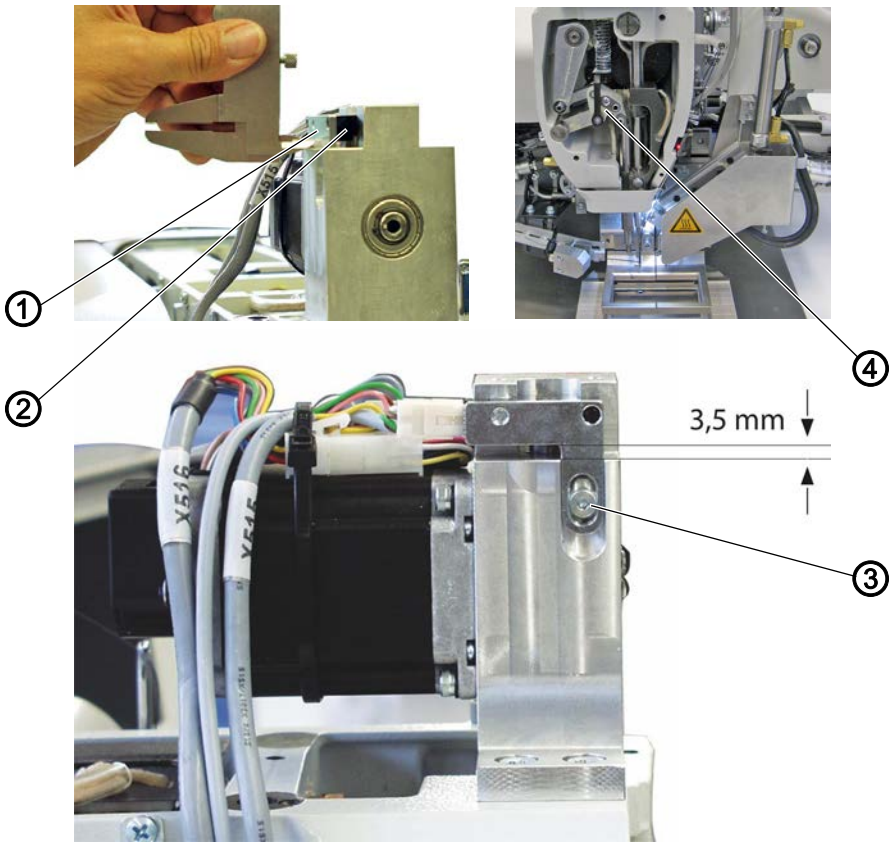
The toothed rack must be 16.5 ± 0.5 mm distant from the top edge (1) of the stroke position housing. The threaded pins must be visible in the slotted hole and must be horizontal.

To adjust the stroke position drive:

1. Remove the motor cover.
2. Loosen the threaded pins (4).
3. Remove the gear wheel (3).
4. Move the toothed rack (2) to 16.5 mm below the upper stop.
5. Insert the gear wheel (3) so that the threaded pins (4) are horizontal.
6. Tighten the threaded pins (4).

9.2 Adjusting the light barrier

Fig. 35: Adjusting the light barrier



(1) - Mounting plate
(2) - Light barrier
(3) - Screw
(4) - Lever

Proper setting

The light barrier with its mounting plate must be installed so that the toothed rack triggers it before reaching the upper stop.

↳ The distance between the bottom edge of the mounting plate and the stroke position housing should be approx. 3.5 mm.

To adjust the light barrier:

1. Disassemble the head cover (📖 *p. 18*).
2. Remove the motor cover.
3. Loosen the screw (3).
4. Adjust the mounting plate (2).
5. Tighten the screw (3).
6. Switch off and on the machine again.
7. Press *Service*.
8. Input the password (25483).
9. Press *Multitest (Multi test)* > *Eingänge/Ausgänge testen (Test inputs/outputs)*.

10. Push the lever (4) up and monitor the display.

↳ It will show either +103 or -103.

11. Check that the toothed rack still has about 0.5 mm clearance from the stop.

12. If necessary, set the light barrier again using the mounting plate.

9.3 Adjusting the left stop screw

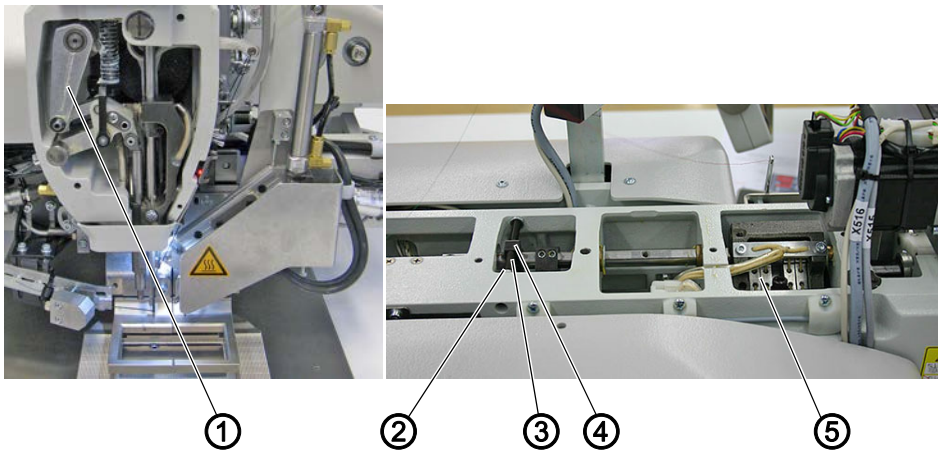
Proper setting

The left stop screw (3) of the lifting gear must be set so that the lever (1) performs no stroke when it is lying against the stop block (4). The levers of the lifting gear (5) overlap.

To adjust the left stop screw:

1. Switch off and on the machine again.
2. Reference the machine.
3. Press *Extras* > *Service* > *Multitest (Multi test)* > *Hublage einstellen (Set stroke position)*.
4. Press *Hüpfer/Drücker (Jumping foot/presser foot)* until the presser foot is selected.
5. Press and turn the hand crank and check that no stroke is performed.

Fig. 36: Adjusting the left stop screw

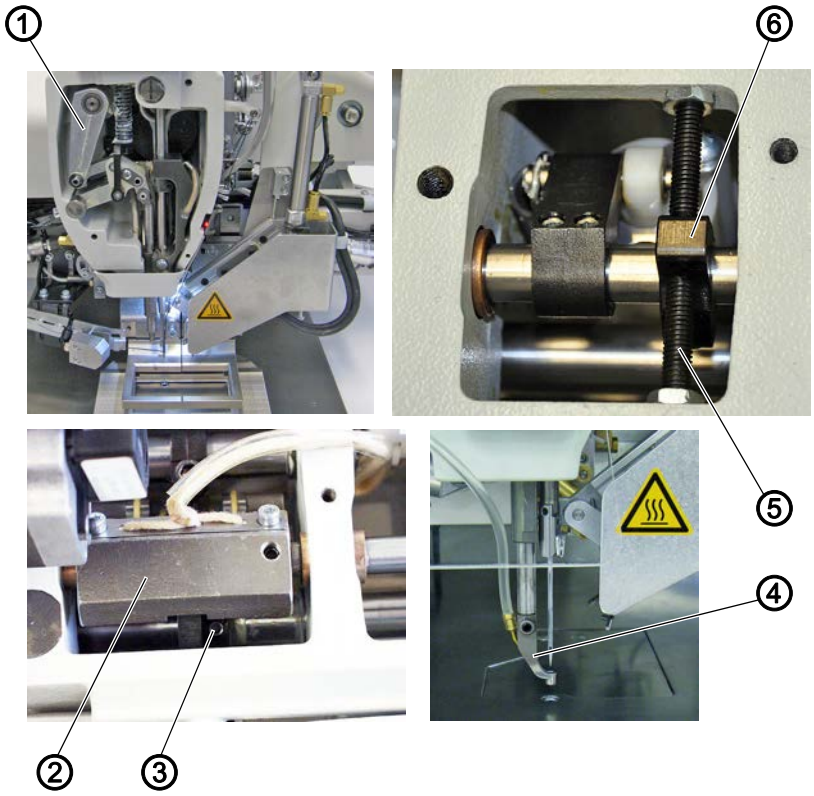


(1) - Lever
(2) - Nut
(3) - Stop screw
(4) - Stop block
(5) - Lifting gear lever

6. Loosen the nut (2).
7. Turn the stop screw (3).
8. Tighten the nut (4).

9.4 Adjusting the sewing foot stroke relative to the needle bar stroke

Fig. 37: Adjusting the sewing foot stroke relative to the needle bar stroke



(1) - Lever
(2) - Lifting gear
(3) - Eccentric
(4) - Sewing foot stroke
(5) - Stop screw
(6) - Stop block

Proper setting

The lifting gear (2) must be switched on so that it performs a stroke.
The stop block (6) must then lie against the right-hand stop screw (5).
The eccentric (3) for the sewing foot stroke must be set so that

- when the needle bar is at bottom dead center - the presser foot is lowered
- after the looping stroke – the sewing foot stroke starts

To set the sewing foot stroke relative to the needle bar stroke:

1. Switch off and on the machine again.
2. Reference the machine.
3. Press *Extras* > *Service* > *Multitest (Multi test)* > *Hublage einstellen (Set stroke position)*.
4. Press *Hüpfer/Drücker (Jumping foot/presser foot)* until the jumping foot is selected.
5. Switch on the sewing foot stroke in the control.
6. Set the machine head to the looping stroke position.

↳ The lever (1) must make a movement.

7. Loosen both threaded pins on the eccentric (3).
8. Rotate the eccentric (3) on the arm shaft.
9. Tighten both threaded pins on the eccentric (3).
10. Press and turn the hand crank and check that the lever (1) makes a movement.

9.5 Adjusting the sewing foot height

The sewing foot height can be set electronically from 1 mm to a maximum of 10 mm.

Proper setting

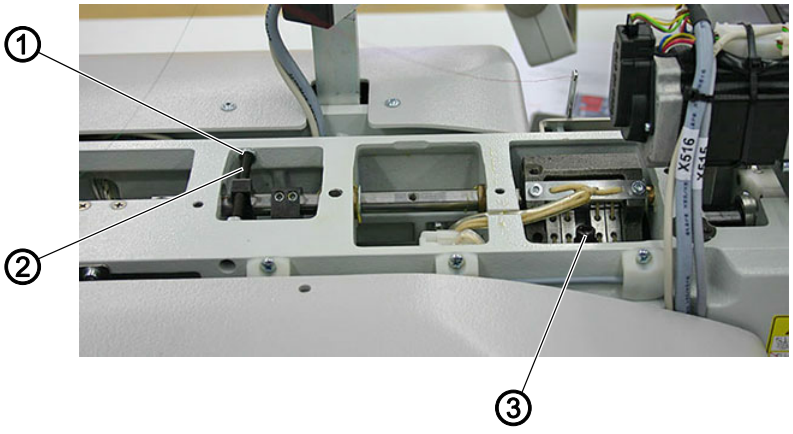
If a height of 1 mm is set in the control, the sewing foot must be 1 mm above the throat plate.

To adjust the height of the sewing foot:

1. Assemble the jumping foot.
2. Press *Extras* > *Service* > *Multitest (Multi test)* > *Hublage einstellen (Set stroke position)*.
3. Press *Hüpfer/Drücker (Jumping foot/presser foot)* until the jumping foot is selected.
4. Press *Nähfuß-Hub (Sewing foot stroke)*.
5. Enter a sewing foot height of 1.0 mm.
6. Move to position.
7. Turn the sewing foot to bottom dead center.

The distance between the throat plate and sewing foot must be 1 mm.

Fig. 38: Adjusting the sewing foot height



(1) - Nut
(2) - Screw
(3) - Screw

8. Loosen the screw (3).
9. Turn the pivot shaft so that the distance between throat plate and sewing foot is 1 mm.

10. Tighten the screw (3).
11. Turn the sewing foot to top dead center.

↳ The distance between the throat plate and sewing foot must be 5 mm.

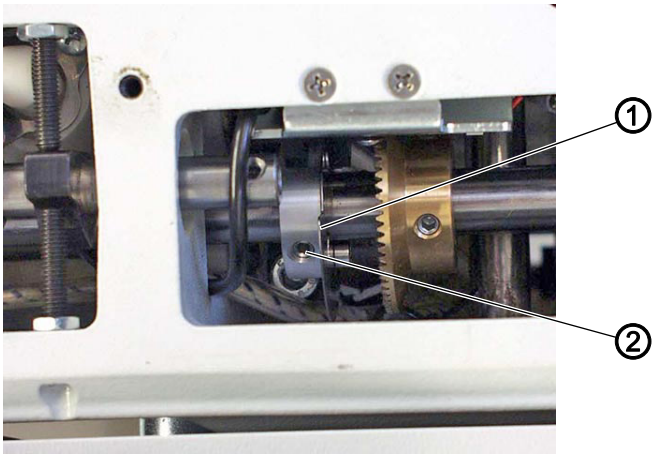
12. Loosen the nut (1).
13. Adjust the screw (2) so that the distance between the throat plate and sewing foot is 5 mm (corresponding to a 4 mm sewing foot stroke).

Information

The distance between min. and max. positions may have to be determined. If one of these settings is changed, the other setting must be checked again.

9.6 Adjusting the reference light barrier sewing axis

Fig. 39: Adjusting the reference light barrier sewing axis



(1) - Take-up lever disk *(2) - Threaded pin*

Proper setting

The machine moves to the reference position with the needle bar at top dead center.

To adjust the reference light barrier:

1. Disassemble the arm cover (📖 *p. 17*).
2. Switch off and on the machine again.
3. Press `Multitest (Multi test)`.
4. Input the password (25483).
5. Press `Multitest (Multi test)` > `Eingänge/Ausgänge testen (Test inputs/outputs)`.
6. Lock the machine in place at position 2 (📖 *p. 28*).
7. Loosen the threaded pin (1).
8. Rotate the take-up lever disk (2) on the arm shaft accordingly.

↳ The switch S100 then switches.

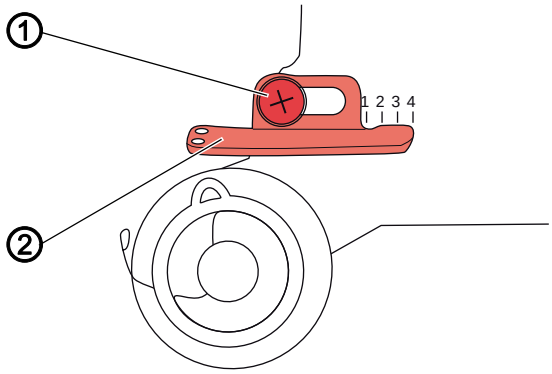
9. Tighten the threaded pin (1).
10. Remove the lock (📖 *p. 28*).
11. Switch off and on the machine again.
12. Check that the needle bar is at top dead center.

10 Adjusting the needle thread tension

10.1 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, the thread strength, and the stitch length.

Fig. 40: Adjusting the needle thread regulator



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

Proper setting

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

To adjust the needle thread regulator:

1. Press down and turn the hand crank and monitor the progress of the needle thread around the hook.
2. Loosen the screw (1).
3. Move the needle thread regulator (2):
   - **more thread**: slide to the left
   - **less thread**: slide to the right
4. Tighten the screw (1).

10.2 Adjusting the thread tensioning spring

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.

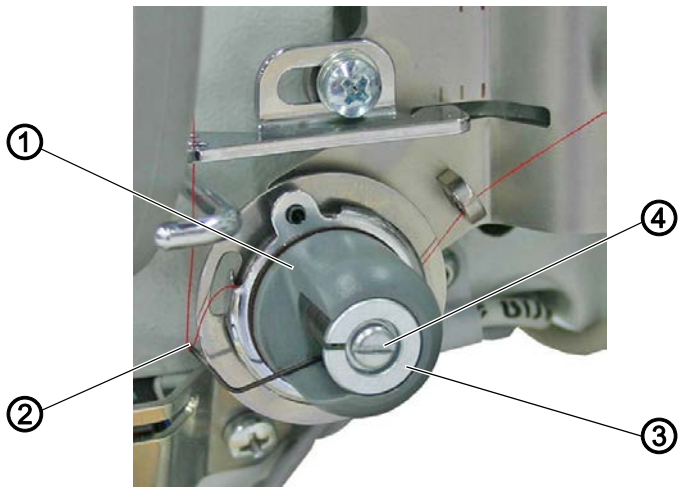
Proper setting

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

Important

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

Fig. 41: Adjusting the thread tensioning spring



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

To adjust the thread tensioning spring:

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

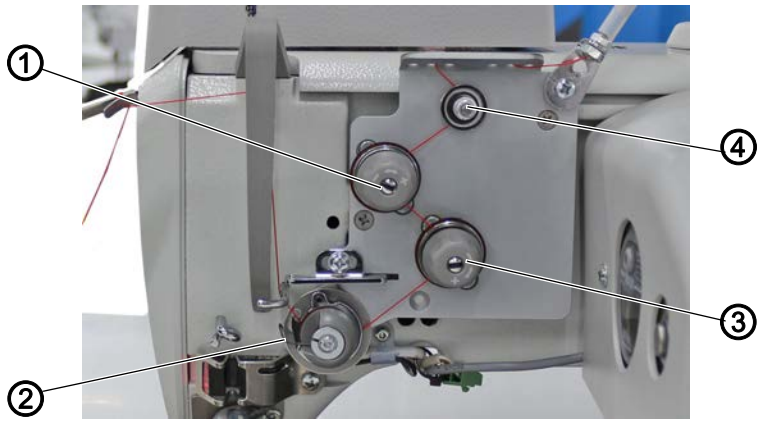
Important

Do not twist the stop collar in doing so.

4. Tighten the screw (4).

10.3 Calibrating the mechanical thread tension plate

Fig. 42: Calibrating the mechanical thread tension plate



(1) - Pretension
(2) - Thread tensioning spring
(3) - Main tension
(4) - Thread tension

Important

BEFORE calibrating the mechanical thread tension plate:
open the menu *Maschine (Machine)* - *Parameter (Parameters)* - *Konfiguration (Configuration)* - *Optionen (Options)* and select *mechanische Fadenspannung (mechanical thread tension)*.

To calibrate the mechanical thread tension plate:

Adjusting the thread tension

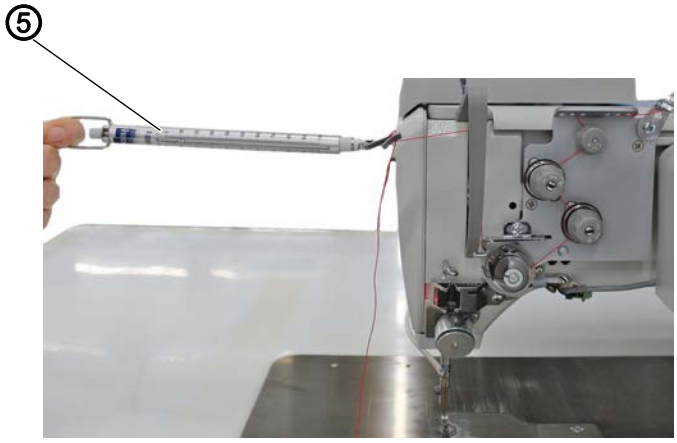
1. Thread the needle thread 40/3 times **without** the thread tensioning spring (2).
2. Set the thread lever to the securing position and secure it (📖 *p. 28*).
3. Open the menu *Extras* - *Service* - *Multitest (Multi test)*.
4. Enter the password 25483.
5. Next, use *Eingänge/Ausgänge testen (Test inputs/outputs)* to select output 15.
6. Confirm with *OK*.
7. Switch on output 15.

↳ Main tension is open.

8. Select output 14.
9. Confirm with *OK*.
10. Switch on output 14.

↳ Pretension is open.

Fig. 43: Calibrating the mechanical thread tension plate

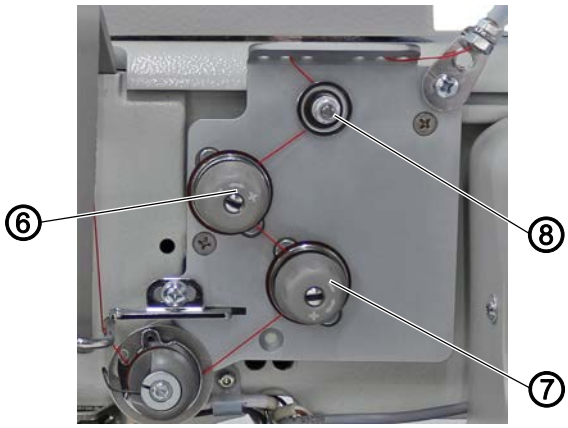


(5) - Spring balance

11. Hook the spring balance (5) (up to 1kg) into the needle thread and pull the needle thread off evenly and parallel to the tabletop.

↳ The value should be below approx. 100g - for the 911-211-10 with thread burner, the value should be as low as possible and barely allow for the thread to be guided in the thread tension (4).

Fig. 44: Calibrating the mechanical thread tension plate



(6) - Adjusting wheel
(7) - Adjusting wheel
(8) - Counternut

12. To adjust the thread tension, loosen the counternut (8) and turn the nut on the rear.
Increase the thread tension: turn clockwise
Reduce the thread tension: turn counterclockwise
13. To lock the tension, hold the nut in place and tighten the counternut (8) again.

Adjusting the pretension

14. Switch output 14 off again.

↳ The pretension is closed, while the main tension is still open.

15. Use the spring balance to check the thread tension again, which should be approx. 300g.

16. To adjust the thread tension, turn the adjusting wheel (6):
    Increase the thread tension: turn clockwise
    Reduce the thread tension: turn counterclockwise

Adjusting the main tension

17. Switch output 14 back on.

↳ The pretension is open again.

18. Switch output 15 off.

↳ The main tension is closed.

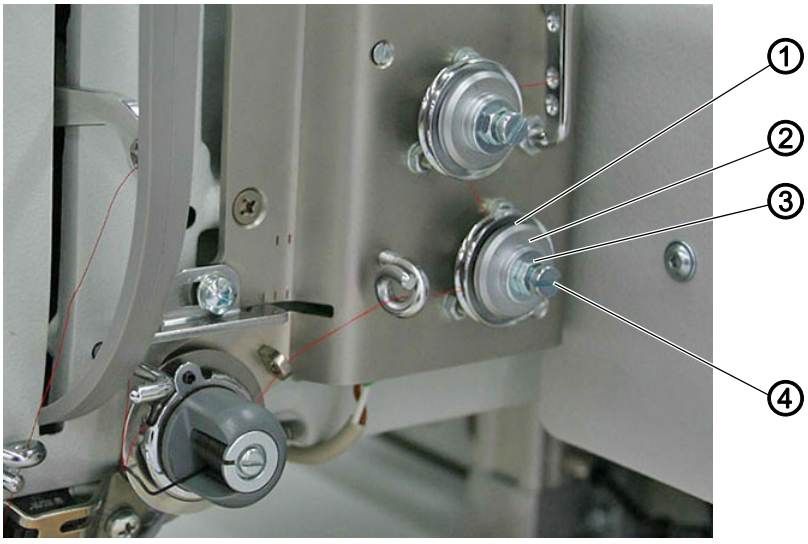
19. Use the spring balance to check the thread tension again, which should be approx. 400-500g.
20. To adjust the thread tension, turn the adjusting wheel (7):
    Increase the thread tension: turn clockwise
    Reduce the thread tension: turn counterclockwise

Information

To increase the main tension, it is possible to activate the pretension as well. In the DACCAD, switch off output 14 at the desired TP or enter a tension value over 50%.

10.4 Adjusting the electronical thread tension plate

Fig. 45: Adjusting the thread tension plate



(1) - Tension disks
(2) - Washer
(3) - Nut
(4) - Screw

To adjust the thread tension plate:

1. Remove the needle thread from the thread tension.
2. Press `Extras` > `Service` > `Multitest (Multi test)`.
3. Input the password (25483).

4. Press *Fadenspannung (Thread tension)* > *Kalibrierung (Calibration 3)*.

5. Loosen screw (4) and nut (3).
6. Loosen the washer (2).
7. Turn the washer (2) clockwise as far as it will go.

↳ The tension disks lie flush on each other.

8. Use a (lead) pencil to mark 12 o'clock on the disk (2) and turn it approx. 15-30° clockwise.

9. Press *ESC* or *OK*.
10. Press *Kalibrierung 1 (Calibration 1)*.

11. Turn back the nut (3) until reaching the screw head of the screw (4).
12. Screw in the screw (4) until the nut (3) is positioned approx. 2 mm in front of the washer (2).
13. Loosen the screw (4) until the tension disks (1) tighten.
14. Using an open-jaw wrench, lightly tighten the nut (3) and slowly loosen the screw (4) until the tension disks (1) tighten.

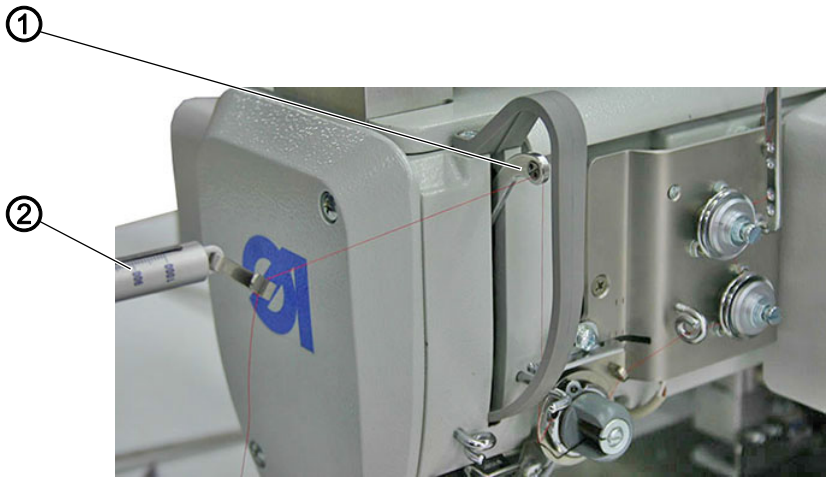
15. Press *ESC*.
16. Press *Kalibrierung 3 (Calibration 3)*.

17. Hold the screw (4) still with a screwdriver, and tighten the nut (3). Once again, take care the disk (2) does not turn with the nut.

18. Press *ESC* and check that the tension disks (1) open easily.
19. Press *Kalibrierung 1 (Calibration 1)* and check the closure of the tension disks.
20. Repeat the procedure for the 2nd thread tension.

10.5 Calibrating the electronical thread tension plate

Fig. 46: Calibrating the thread tension plate



(1) - Thread lever *(2) - Thread scale*

To calibrate the thread tension plate:

1. Thread the needle thread 8/3 times and on to the thread lever (5).
2. With *Kalibrierung 1 (Calibration 1)* selected, measure the thread tension with a thread scale (6).
3. Input the measured value into the control and confirm it with *OK*.
4. Perform the measurement and input also for *Kalibrierung 2 (Calibration 2)* and *Kalibrierung 3 (Calibration 3)*.

Checking the calibration

1. Input the percentage value = 50 in the *Fadenspannung (Thread tension)* menu.
2. Press the *Ein (On)* button to switch on the tension.
3. Test the tension using a thread scale: Setpoint: 1000 cN.
   If necessary, other percentage values can be input.
4. If variations ±10 % are found: Set the thread tensions once again and repeat the calibration.
5. If the variations persist: Clean any dirt from the thread tensions including the magnets.

11 Thread trimmer

WARNING

Risk of injury from sharp and moving parts!

Puncture or crushing possible.

Switch off the machine before setting the thread trimmer.

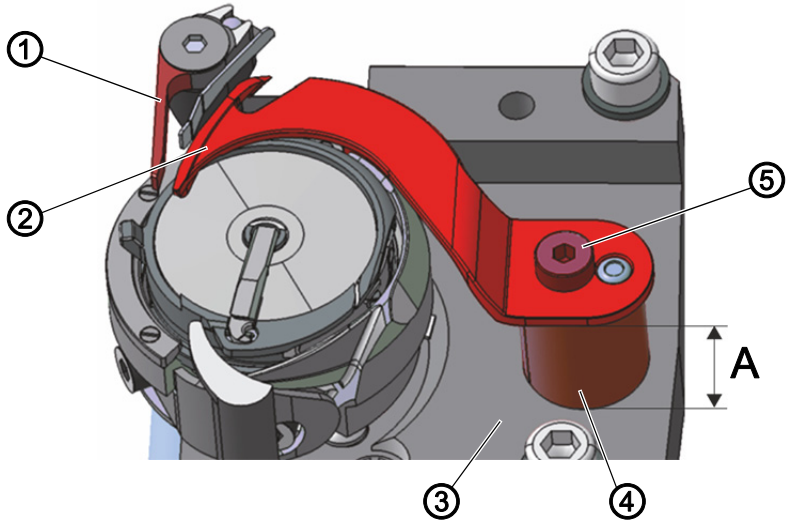
11.1 Adjusting the height of the thread-pulling knife

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.

Fig. 47: Adjusting the height of the thread-pulling knife



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

Proper setting

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

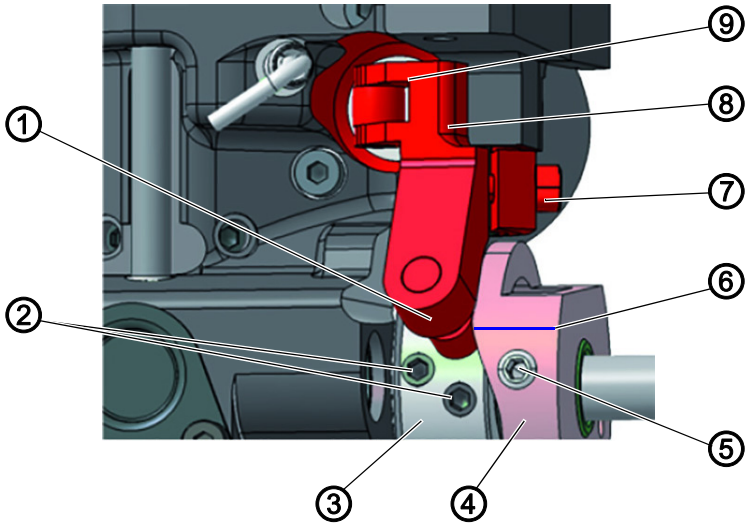
To adjust the height of the thread-pulling knife:

1. Loosen the screw (5).
2. Disassemble the thread-pulling knife (2).

3. Place as many washers between thread-pulling knife (2) and knife carrier (4) as necessary to ensure that the upper edges of counter blade (1) and thread-pulling knife (2) are at the same height.
4. Non-required washers on the top side between the thread-pulling knife (2) and screw (5) should be kept.
5. Screw down the thread-pulling knife (2) using screw (5).

11.2 Adjusting the cutoff curve

Fig. 48: Adjusting the cutoff curve (1)



(1) - Roller
(2) - Threaded pins
(3) - Set collar
(4) - Control cam
(5) - Threaded pins
(6) - Highest point
(7) - Clamping screws
(8) - Lever
(9) - Solenoid

Proper setting

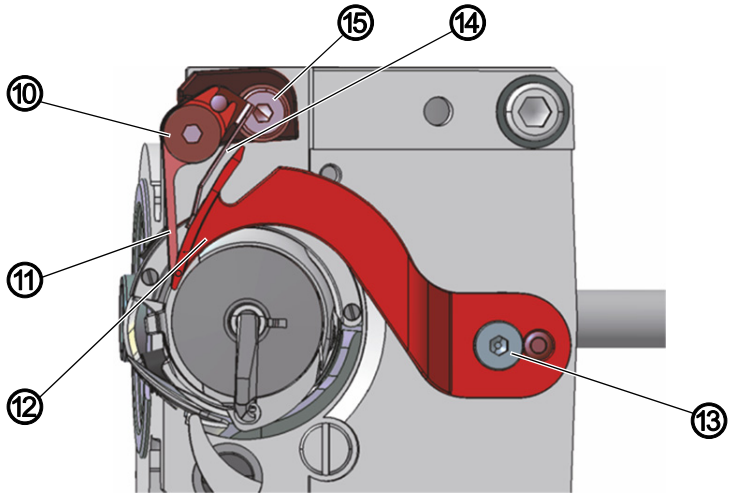
The control cam (4) makes direct contact with the set collar (1).
The distance between the widest extent (6) of the control cam (4) and the roller (3) is 0.1 mm at most.
In resting position, the circle mark on the cutting edge of the thread-pulling knife is exactly next to the tip of the counter blade.

To adjust the cutoff curve:

1. Swivel up the machine head (📖 *p. 15*).
2. Open the hook cover (📖 *p. 21*).
3. Loosen the threaded pins (2) on the set collar (3).
4. Push the clamping ring (3) towards the hook bearing as far as it will go.
5. Tighten the threaded pins (2) on the set collar (3).
   The clamping ring (3) and control cam (4) are both mutually used as a stop and should not be loosened at the same time.
6. Loosen the threaded pins (5).

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

Fig. 49: 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) such that the circle mark is exactly next to the tip of the counter blade (11).
13. Tighten the clamping screw (7) on the actuating lever (8) such that the actuating lever (8) has no axial play.
14. Loosen the threaded pins (2) on the set collar (3).
15. Push the set collar (3) to the right as far as it will go and against the control cam (4).

Important

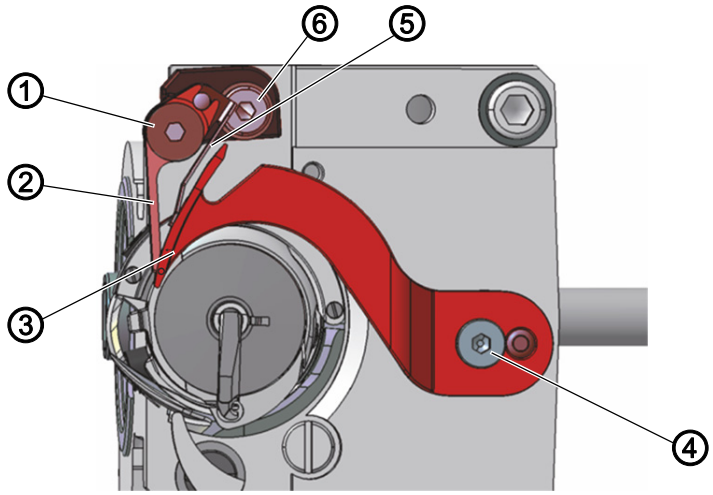
Check the looping stroke position (📖 *p. 35*).

16. Tighten the threaded pins (2) on the set collar (3).

11.3 Adjusting the cutting pressure

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.

Fig. 50: Adjusting the cutting pressure



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

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.

To adjust the cutting pressure:

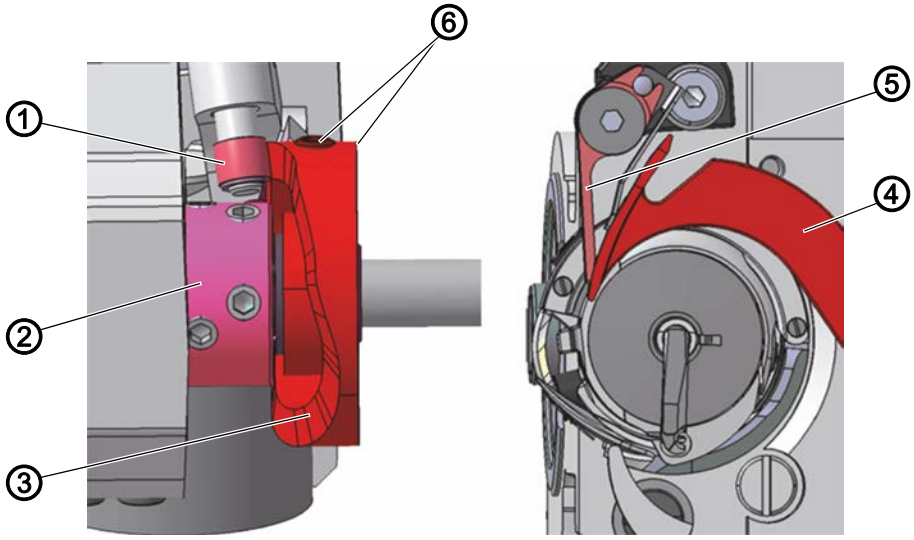
1. Open the hook cover (📖 *p. 21*).
2. Press and turn the hand crank until the thread-pulling knife (3) can be swung out by hand.
3. Loosen the screw (1).
4. Position the thread-pulling knife (3) such that the arrow mark is exactly next to the tip of the counter blade (2).
5. Turn the hook thread clamp (5) such that it rests against the thread-pulling knife (3).
6. Turn the counter blade (2) such that it rests against the thread-pulling knife (3).
7. Tighten the screw (1).

Important

Check the position of the knife, as the counter blade can easily become warped when the screw is being tightened.

11.4 Adjusting point in time for cutting

Fig. 51: Adjusting point in time for cutting



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

Proper setting

The threads are cut when the thread lever is at the top dead center.

To adjust the point in time for cutting:

1. Swivel up the machine head (📖 *p. 15*).
2. Open the hook cover (📖 *p. 21*).
3. Loosen the threaded pins (6).
4. Press and turn the hand crank until the thread-pulling knife (4) can be swung out by hand.
5. Pivot the thread-pulling knife (4) as far forward until the circle mark is exactly next to the tip of the counter blade (5).
6. Press and turn the hand crank until the thread lever is at the top dead center.
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 the control cam (3) and the widest extent of the control cam is at the highest point when the thread lever is at the top dead center.
9. Tighten the threaded pins (6).
10. Check the setting:
    - Insert the thread into thread-pulling knife (4) and slowly press and turn the hand crank
    - Determine the hand crank position at which the thread is cut
    - Repeat setting steps 1 – 7 if necessary

12 Thread burner (optional)

12.1 Adjusting the upper thread burner

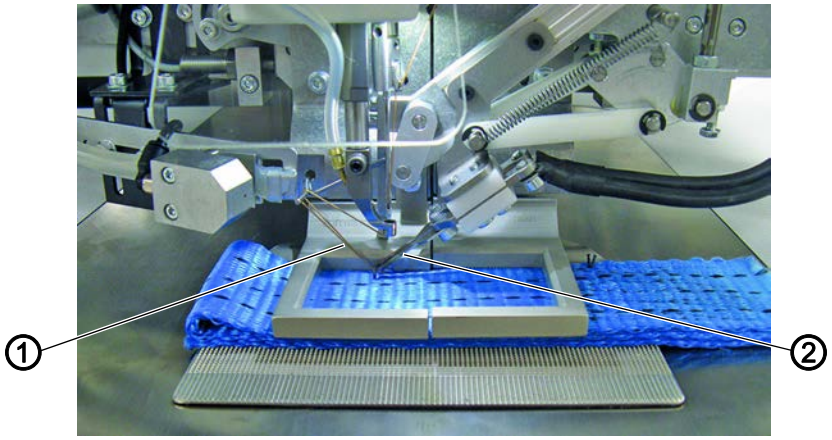
Proper setting

The burner burns the thread off cleanly without damaging the sewing material.
The burner pivots quickly without coming into contact with the stop.

To adjust the upper thread burner:

1. Remove the thread burner cover (📖 *p. 23*).
2. Press *Extras* > *Service* > *Multitest (Multi test)*.
3. Press *Fadenbrenner (Thread burner)*.
4. Press *Klammer schließen (Close clamp)*.
5. Use *Brenner oben runter (Upper burner down)* to check the movement sequence.

Fig. 52: Adjusting the upper thread burner

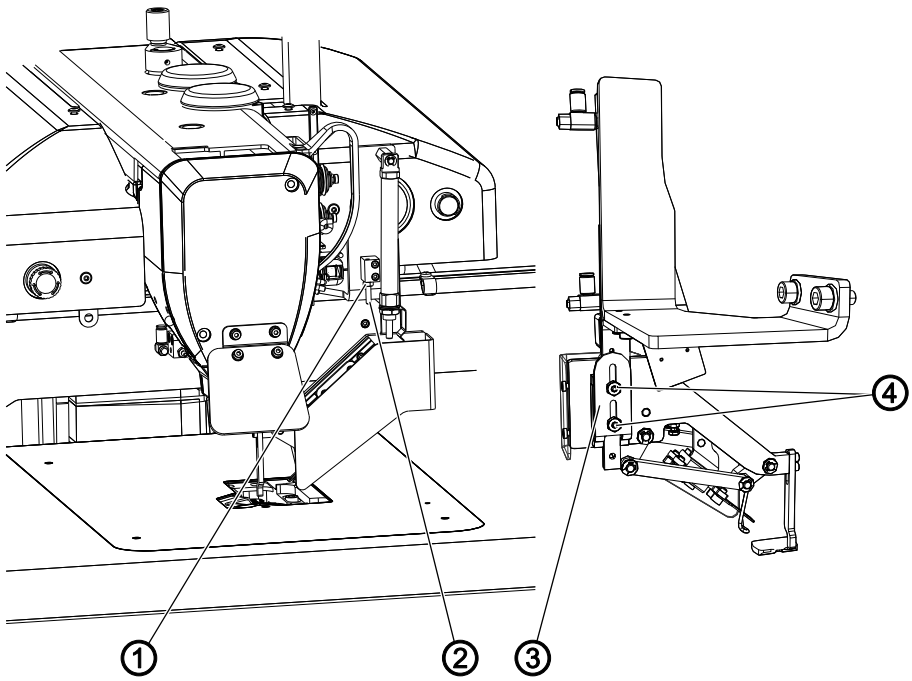


(1) - Threads *(2) - Thread burner*

↳ Both threads (1) are burnt off and sucked in.
The thread burner (2) is positioned slightly to the left opposite the needle hole.

12.1.1 Adjusting the thread burner height

Fig. 53: Adjusting the thread burner height (1)

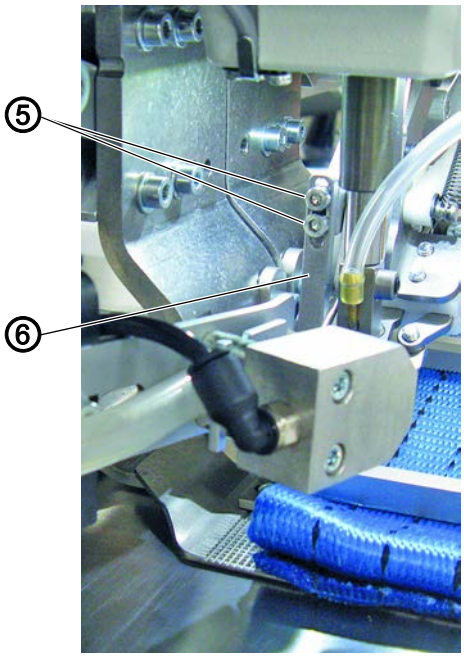


(1) - Nut
(2) - Threaded pin
(3) - Bracket
(4) - Nuts

To adjust the thread burner height:

1. Loosen the nuts (4).
2. Position the bracket (3) at the desired bottom limit.
3. Tighten the nuts (4).
4. Use the threaded pin (2) to adjust the upper limit such that there is as little play as possible when the thread burner is at its topmost position.
5. Lock with the nut (1)
6. Insert the sewing material.
7. Check the movement sequence.

Fig. 54: Adjusting the thread burner height (2), adjusting the material thickness scanner

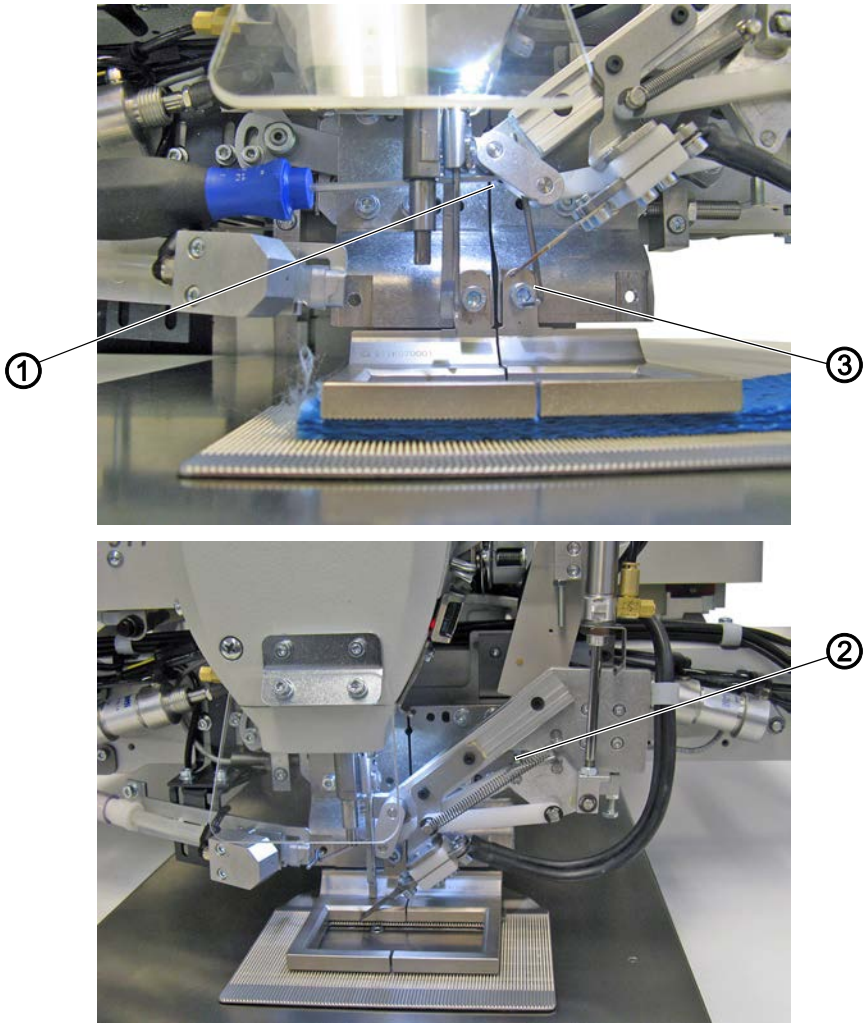


(5) - Screws *(6) - Material thickness scanner*

8. Adjust the material thickness scanner in relieved condition if necessary:
   - Loosen the screws (5) and adjust the height of the material thickness scanner (6)
   - Tighten the screws (5)

12.1.2 Adjusting the needle thread advancing device

Fig. 55: Adjusting the needle thread advancing device



(1) - Screw
(2) - Stop screw
(3) - Needle thread advancing device

Proper setting

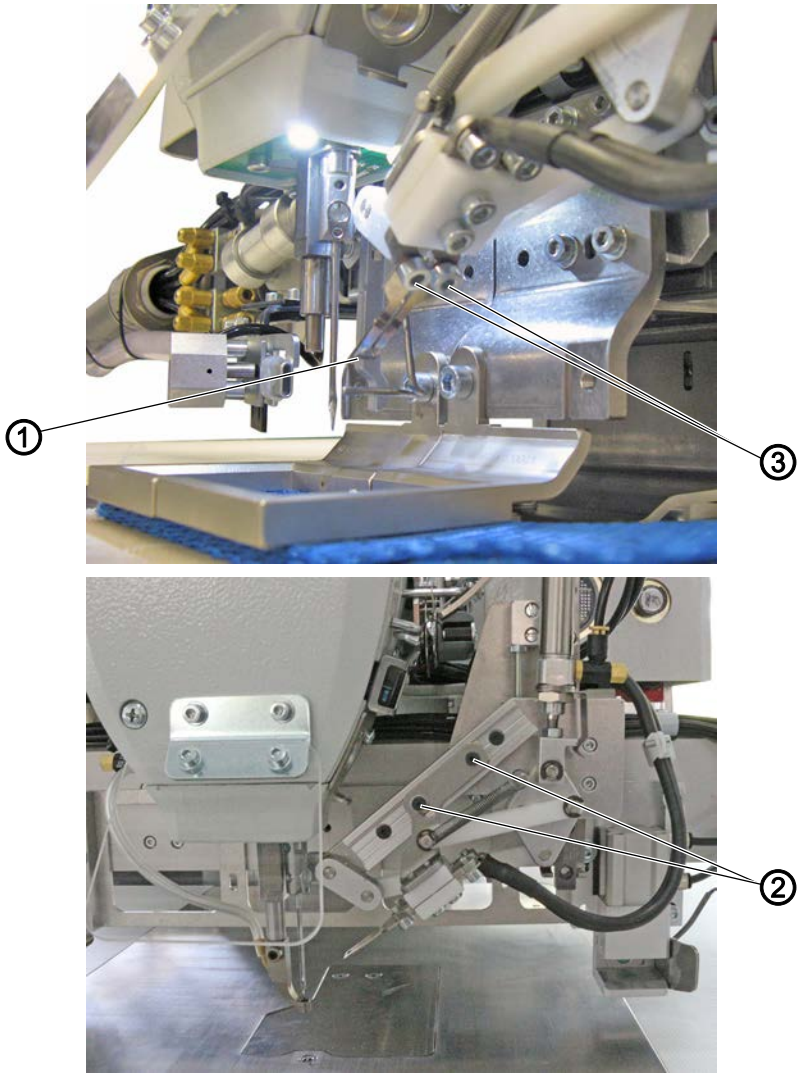
The needle thread advancing device pivots quickly while advancing and slightly pulling back the thread at the same time.
The needle thread advancing device positions the thread for the suction device.
When being burnt off, the thread is not under tension.

To adjust the needle thread advancing device:

1. Loosen the screw (1).
2. Move the needle thread advancing device (3) such that it passes over the clamp and under the sewing foot when completing its forward motion.
3. Tighten the screw (1).
4. Use the stop screw (2) to limit the swivel angle.

12.1.3 Adjusting the position of the thread burner tip

Fig. 56: Adjusting the position of the thread burner tip



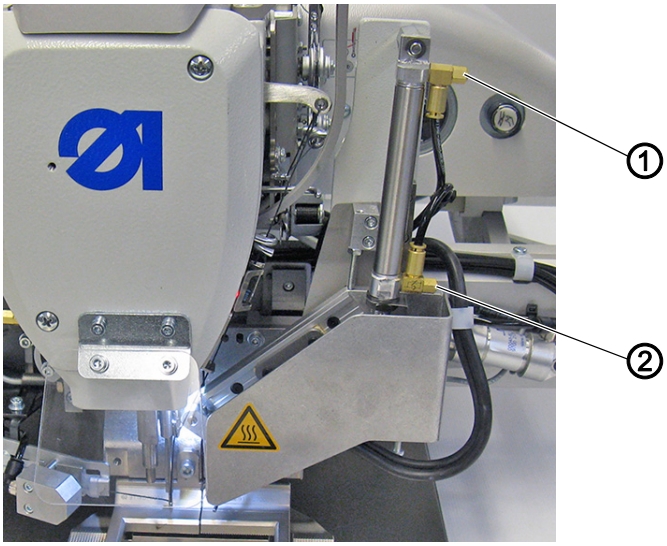
(1) - Thread burner tip
(2) - Screws
(3) - Screws

To adjust the position of the thread burner tip:

1. Loosen the screws (3).
2. Adjust the length of the thread burner tip (1).
3. Tighten the screws (3).
4. Use the screws (2) to make a height adjustment if necessary.

12.1.4 Adjusting the throttle valves

Fig. 57: Adjusting the throttle valves



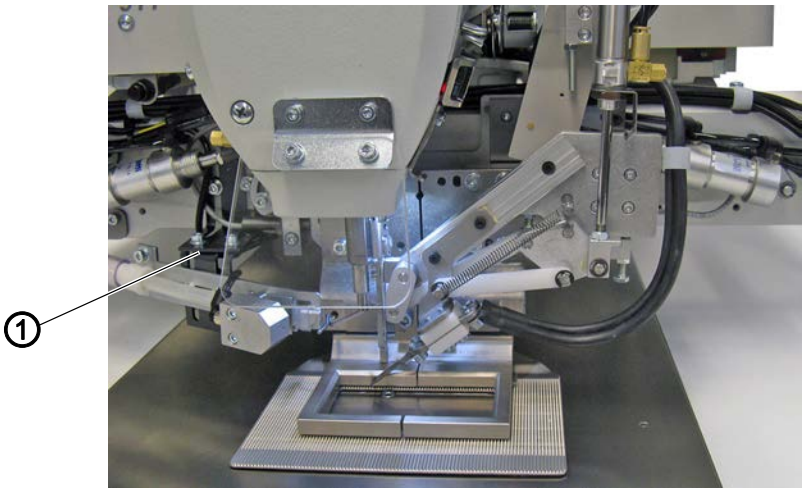
(1) - Throttle valve - upward movement (2) - Throttle valve - downward movement

To adjust the throttle valves:

1. Adjust throttle valves (1) and (2).

12.1.5 Adjusting the thread suction device

Fig. 58: Adjusting the thread suction device



(1) - Angle bracket with screws

Proper setting

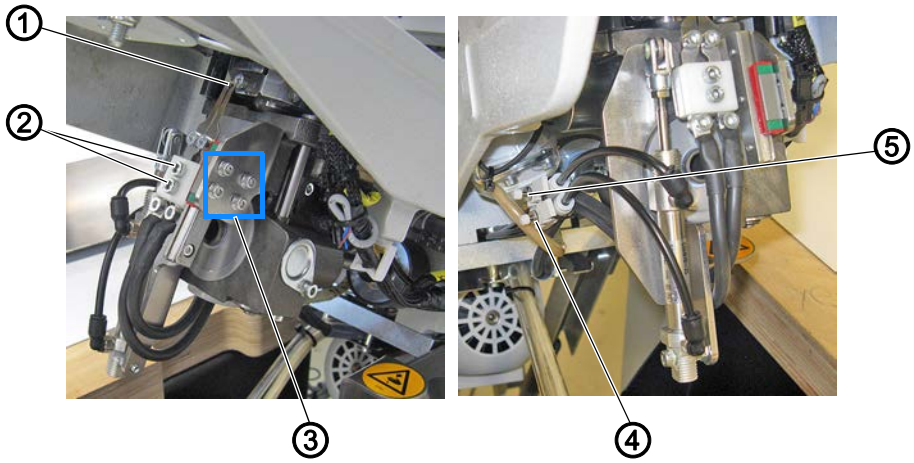
The thread suction device reliably sucks in the thread.
Even though positioned closely to the swung-out needle thread advancing device, the thread suction device does not interfere with the swivel motion performed by the needle thread advancing device.

To adjust the thread suction device:

1. Depending on the clamping system used, set the position of the thread suction device using the screws on the angle bracket (1).

12.2 Adjusting the lower thread burner

Fig. 59: Adjusting the lower thread burner



(1) - Thread burner tip
(2) - Screws
(3) - Screws
(4) - Throttle valve - upward movement
(5) - Throttle valve - downward movement

Proper setting

The burner burns the thread off cleanly without damaging the sewing material.
The movement is quick.

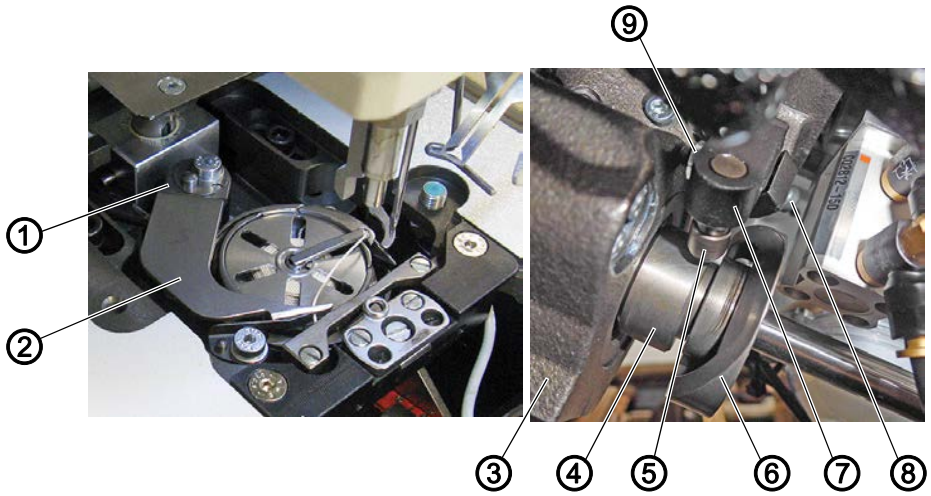
To adjust the lower thread burner:

1. Swivel up the machine head (📖 *p. 15*).
2. Loosen the screws (2).
3. Press `Extras` > `Service` > `Multitest (Multi test)`.
4. Press `Fadenbrenner (Thread burner)`.
5. Press `Klammer schließen (Close clamp)`.
6. Use `Brenner unten rauf (Lower burner up)` to check the movement sequence.
7. Adjust the height of the thread burner holder until the thread burner tip is positioned closely under the throat plate.
8. Tighten the screws (2).
9. Loosen the screws (3).
10. Move the thread burner holder sideways until the thread burner tip is positioned in the center, as seen from the top through the needle hole.
11. Tighten the screws (3).
12. Adjust throttle valves (4) and (5).

13. Check the movement sequence and readjust it if necessary.

12.2.1 Adjusting the thread advancing device

Fig. 60: Adjusting the thread advancing device



(1) - Carrier
(2) - Thread advancing device
(3) - Body casting
(4) - Set collar
(5) - Roller
(6) - Control cam
(7) - Lever
(8) - Clamping screw
(9) - Threaded pin

Proper setting

When the thread advancing device (2) is at rest, the distance between the highest point of the control cam (6) and the roller (5) is 0.1 mm.
The control cam (6) makes contact with the set collar (4).
The carrier (1) has no axial play, but can still run smoothly.

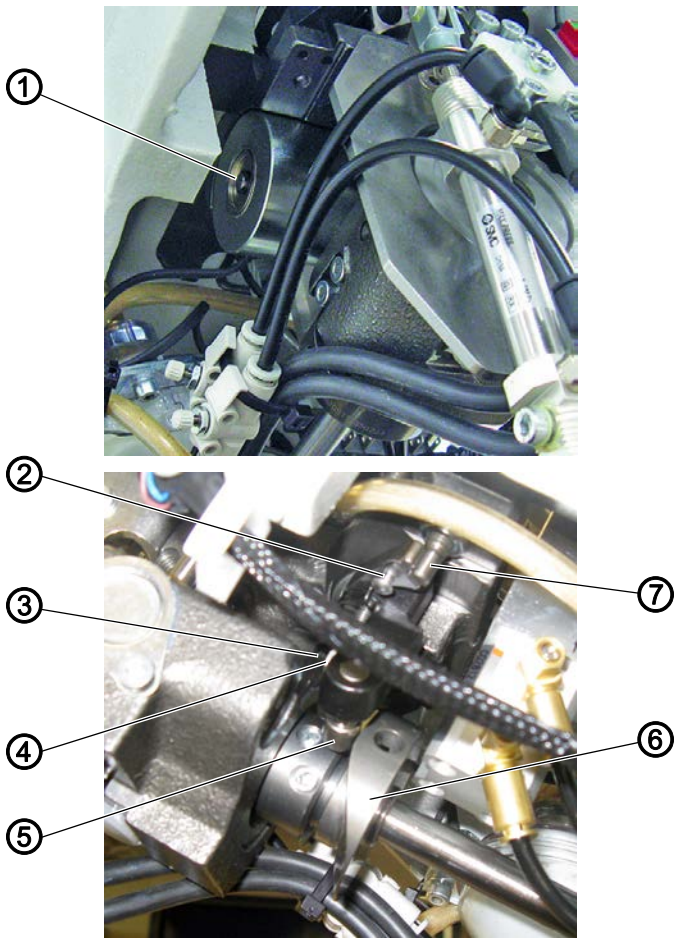
To adjust the thread advancing device:

1. Loosen the threaded pins on the clamping ring (4).
2. Push the clamping ring (4) towards the hook bearing as far as it will go.
3. Tighten the threaded pins on the clamping ring (4).
4. Loosen the threaded pins on the control cam (6).
5. Turn the lever (7) so that the threaded pin (9) on the body casting (3) strikes the hook support.
6. Set the distance between the roller (5) and the highest point of the control cam (6) to 0.1 mm.
7. Tighten both threaded pins on the control cam (6).
8. Loosen the clamping screw (8) on the lever (7).
9. Turn the thread advancing device (2) until the bobbin can be removed.
10. Tighten the clamping screw (8). Take care to ensure that there is no axial play.
11. Loosen the threaded pins on the clamping ring (4) and push the clamping ring as far as it will go and against the control cam (6).

12. Tighten the threaded pins on the clamping ring (4).
13. Check the looping stroke (📖 *p. 35*).

12.2.2 Adjusting the locking latch

Fig. 61: Adjusting the locking latch



(1) - Magnet armature
(2) - Locking latch
(3) - Threaded pin
(4) - Nut
(5) - Roller
(6) - Control cam
(7) - Locking pin

Proper setting

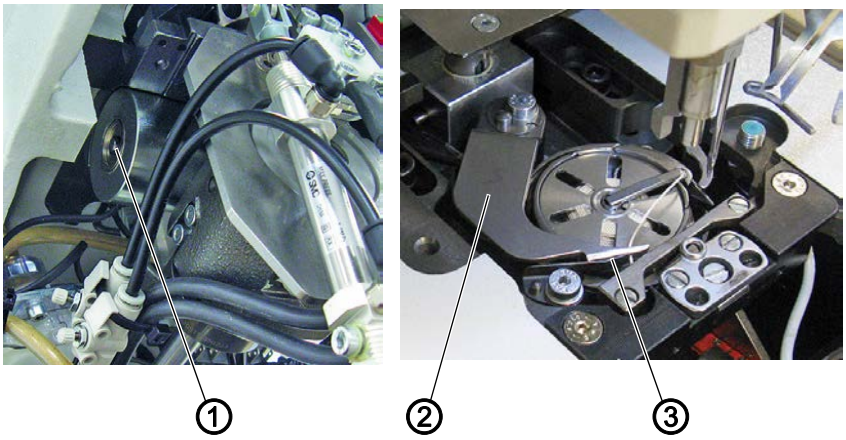
The roller (5) is at the highest point of the control cam (6).
Once pressure is exerted against the magnet armature (1), the locking latch (2) can be swung out without clamping.
When the latch is engaged, the distance between the locking latch (2) and locking pin (7) is no greater than 0.1 mm.

To adjust the locking latch:

1. Loosen the nut (4).
2. Turn the threaded pin (3) and set the distance.
3. Tighten the nut (4).

12.2.3 Adjusting the hook thread clamp

Fig. 62: Adjusting the hook thread clamp



(1) - Magnet armature
(2) - Thread advancing device
(3) - Hook thread clamp

Proper setting

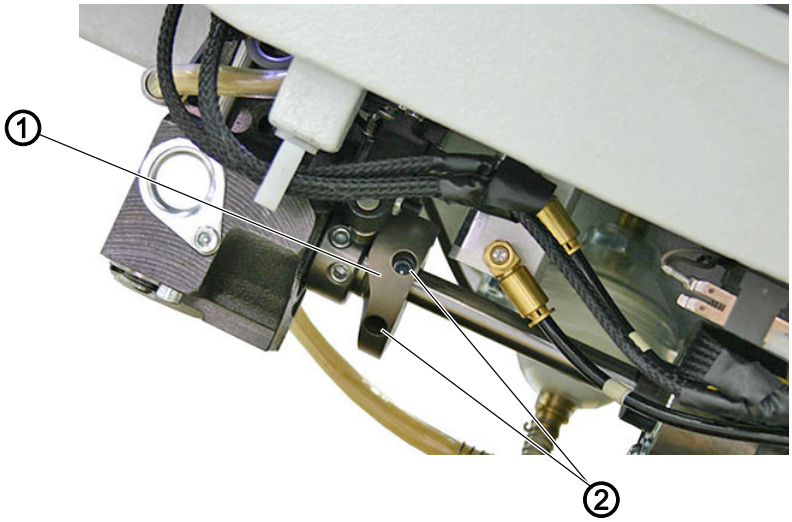
The thread is held in place, but not clamped.

To adjust the hook thread clamp:

1. Swivel up the machine head (📖 *p. 15*).
2. Open the hook cover (📖 *p. 21*).
3. Press against the magnet armature (1) while pressing and turning the hand crank until the thread advancing device (2) swings out.
4. Insert the end of the hook thread into the thread advancing device.
5. Press and turn the hand crank until the cutter swings back.
6. Check if the thread is held in place without being clamped.

12.2.4 Adjusting the control cam of the thread advancing device

Fig. 63: Adjusting the control cam of the thread advancing device



(1) - Control cam *(2) - Threaded pins*

Proper setting

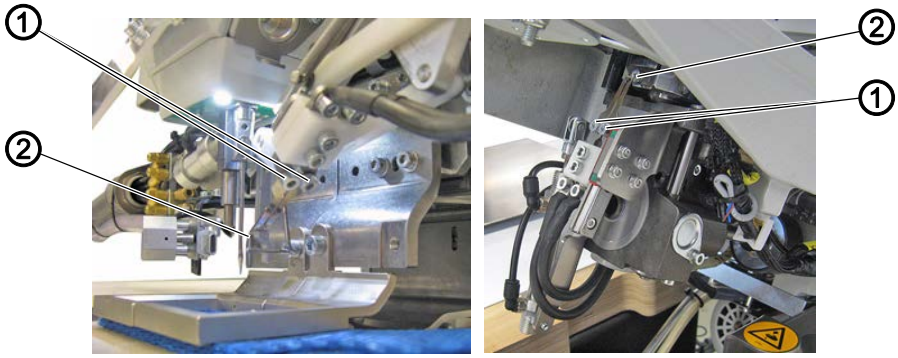
The thread advancing device is in its idle position when at the position *thread lever at top dead center*. When the machine is at the position *thread lever at top dead center*, the control cam (1) is at its highest position. The thread advancing device captures the hook thread, but not the needle thread. If there are any short pieces of thread in the area of the hook that have been burnt off on both sides, the thread advancing device will capture the needle thread as well. In this case, the control cam will have to be corrected to allow the thread advancing device to swing out with a delay.

To adjust the control cam of the thread advancing device:

1. Press the hand crank and turn it to the position "thread lever at top dead center".
2. Loosen the threaded pins (2).
3. Rotate the control cam (1).
4. Tighten the threaded pins (2).

12.3 Replacing the thread burner tips

Fig. 64: Replacing the thread burner tips



(1) - Screws *(2) - Thread burner tip*

To replace the thread burner tips:

1. Remove the thread burner cover (📖 *p. 23*).
2. Swivel up the machine head (📖 *p. 15*).
3. Loosen the screws (1).
4. Replace the thread burner tip (2).
5. Tighten the screws (1).
6. Press *Extras* > *Service* > *Multitest (Multi test)* > *Fadenbrenner (Thread burner)*.
7. Use *Brenner an (Burner on)* to verify that the thread burner tip is glowing (turns off automatically after 10 s).

13 Changing the presser bar

WARNING

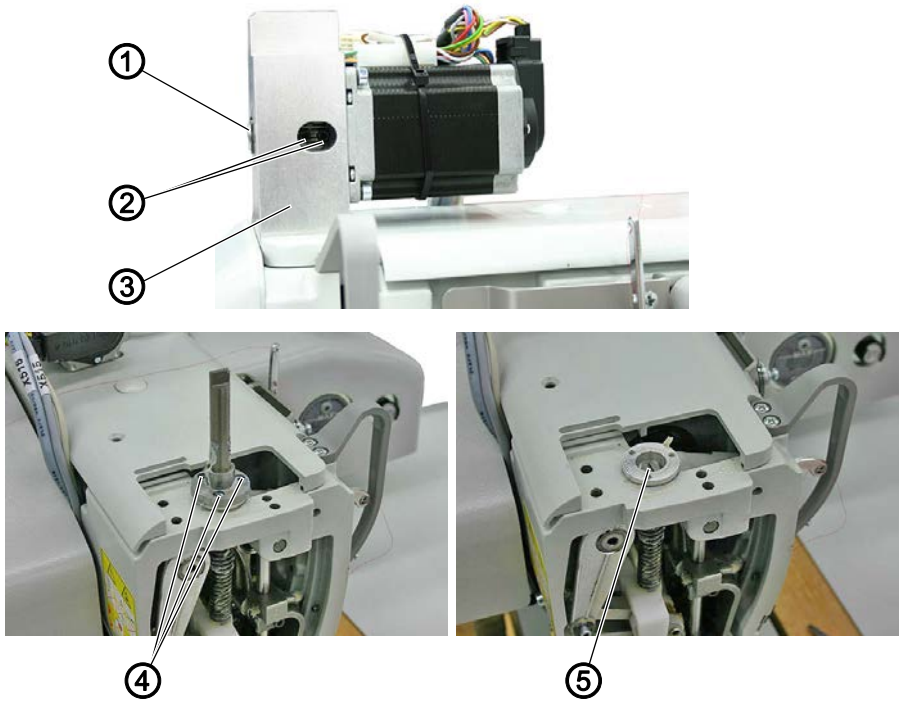
Risk of injury from sharp and moving parts!

Puncture or crushing possible.

Switch off the machine before you disassemble or assemble the cloth pressure bar.

13.1 Disassembling the presser bar

Fig. 65: Disassembling the presser bar (1)

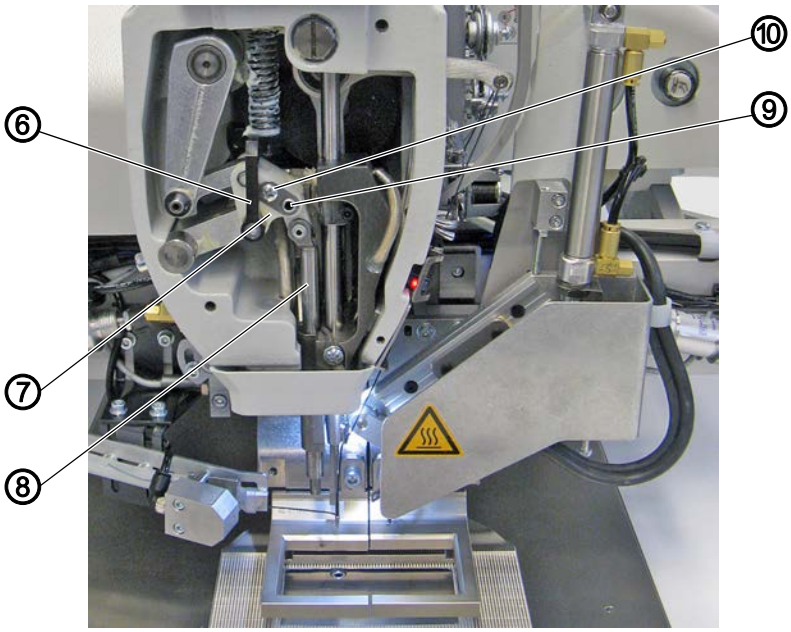


(1) - Bearing with gear wheel
(2) - Threaded pins
(3) - Drive
(4) - Screws
(5) - Screw

To disassemble the presser bar:

1. Remove the motor cover (📖 *p. 17*).
2. Loosen the threaded pins (2) and pull the bearing with the gear wheel (1) out towards the front.
3. Disassemble the drive (3).
4. Loosen the screws (4) and remove the drive shaft.
5. Loosen the screw (5).

Fig. 66: Disassembling the presser bar (2)

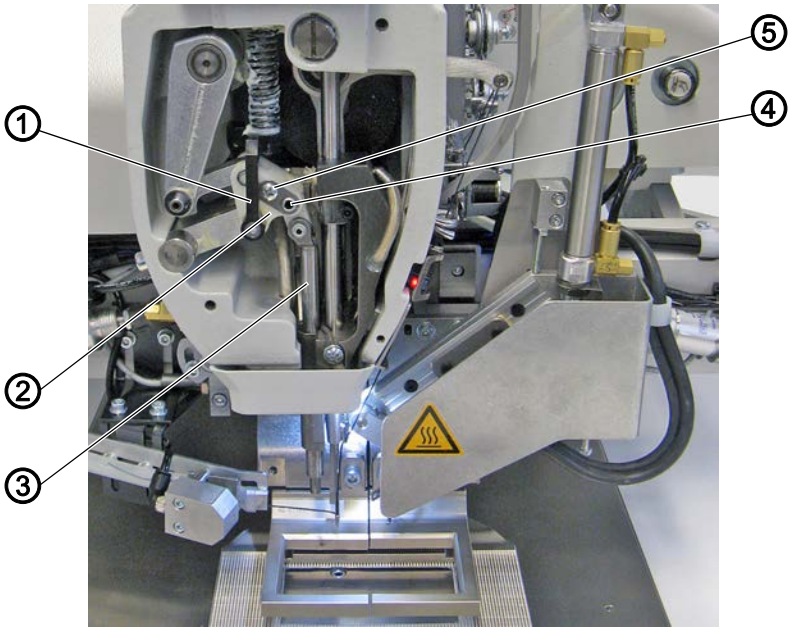


(6) - Block
(7) - Clip
(8) - Presser bar
(9) - Sleeve
(10) - Screw

6. Position the clip (7) so that the screw (7) is accessible.
7. Loosen the screw (10) and disassemble the clip (7).
8. Pull the sleeve (10) out.
9. Pull the clamp (6) right up to the top and pull the presser bar (8) out upwards.

13.1.1 Assembling the presser bar

Fig. 67: Assembling the presser bar (1)

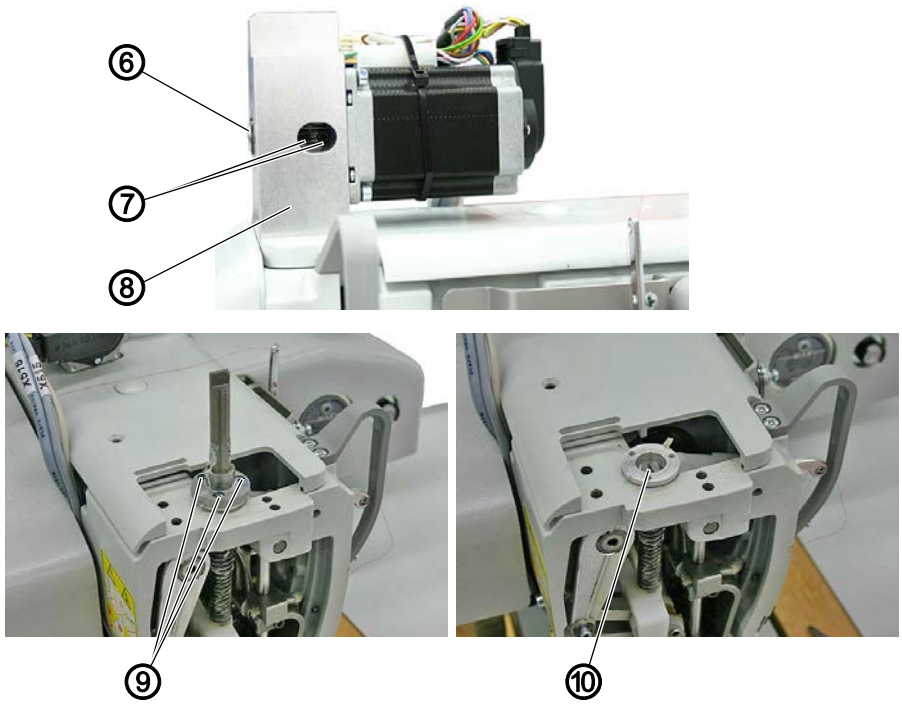


(1) - Block
(2) - Clip
(3) - Presser bar
(4) - Sleeve
(5) - Screw

To assemble the presser bar:

1. Insert the presser bar (3).
2. Push the block (1) downwards.
3. Insert the sleeve (4).
4. Place the clip (2) and tighten the screw (5).

Fig. 68: Assembling the presser bar (2)



(6) - Bearing with gear wheel
(7) - Threaded pins
(8) - Drive
(9) - Screws
(10) - Screw

5. Tighten the screw (10).
6. Place the drive shaft and tighten the screws (9).
7. Assemble the drive (8).
8. Slip on the bearing with gear wheel (6).
9. Tighten the threaded pins (7).

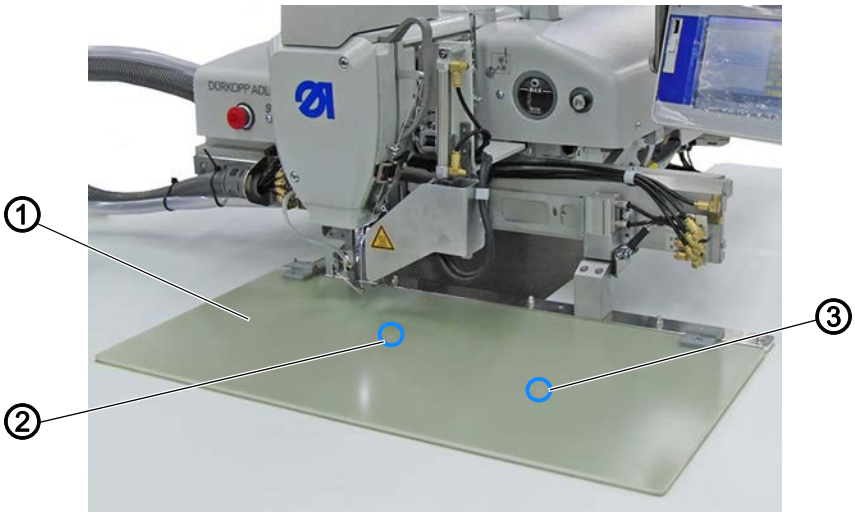
Order

After that, set the sewing foot height (📖 *p. 50*).

14 Checking the machine zero point

The machine zero point is factory-set to the correct value.

Fig. 69: Checking the machine zero point



(1) - Clamp with test bores
(2) - Center point bore
(3) - Test bore

Gage required: Clamp with test bore.

To check the machine zero point:

1. Press *Extras* > *Service* > *Multitest (Multi test)*.
2. Press *Transportklammer (Transport clamp)*.
3. Assemble the clamp with test bores (1).
4. Press *Referenzieren (Referencing)*.

↳ The machine moves to the reference position.

5. Press *Mittelpunkt (Center point)*.

↳ The machine moves to the center position. The needle is positioned within the center point bore (2).
The tip of the needle can be lowered into the bore by turning the arm shaft crank.

6. Press *Test*.

↳ The machine moves to the test position. The center of the needle is positioned within the test bore (3).
The tip of the needle can be lowered into the bore by turning the arm shaft crank.

15 Changing the drives

WARNING

Risk of injury from sharp and moving parts!

Puncture or crushing possible.

Switch off the machine before changing the drives.

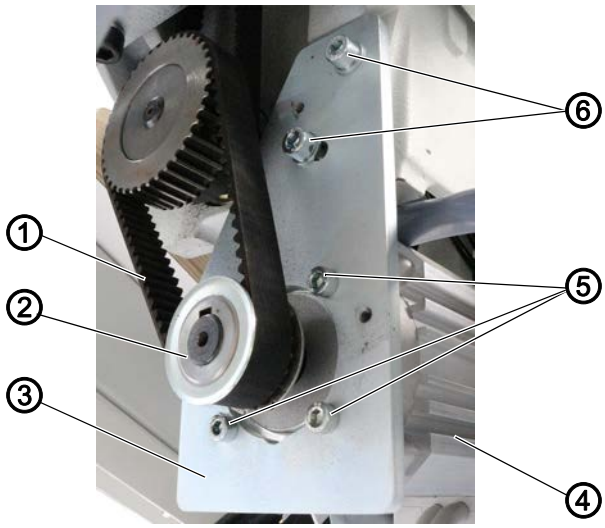
15.1 Changing the sewing motor

15.1.1 Disassembling the sewing motor

To disassemble the sewing motor:

1. Cut off the cable ties.
2. Disconnect the motor cable from the control.
3. Remove the toothed belt cover (📖 *p. 19*).

Fig. 70: Disassembling the sewing motor

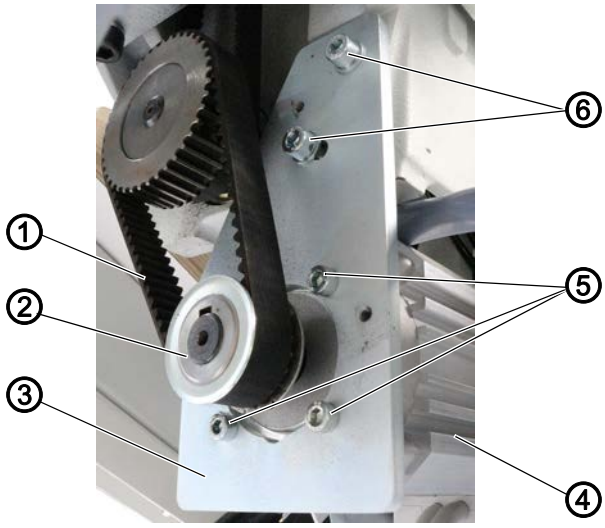


(1) - Toothed belt
(2) - Toothed belt wheel
(3) - Plate
(4) - Motor
(5) - Screws
(6) - Screws

4. Loosen the screws (6).
5. Remove the toothed belt (1).
6. Pull off the plate (3) with the motor (4).
7. Remove the toothed belt wheel (2).
   To do so, loosen the screw on the toothed belt wheel.
8. Loosen the screws (5).
9. Remove the motor (4) from the plate (3).

15.1.2 Assembling the sewing motor

Fig. 71: Assembling the sewing motor



(1) - Toothed belt
(2) - Toothed belt wheel
(3) - Plate
(4) - Motor
(5) - Screws
(6) - Screws

To assemble the sewing motor:

1. Screw the new motor (4) onto the plate (3) using the screws (5).
2. Assemble the toothed belt wheel (2).
   To do so, tighten the screw on the toothed belt wheel.
3. Insert the plate (3) with the motor (4).
4. Slightly tighten the screws (6).
5. Place and tighten the toothed belt (1).

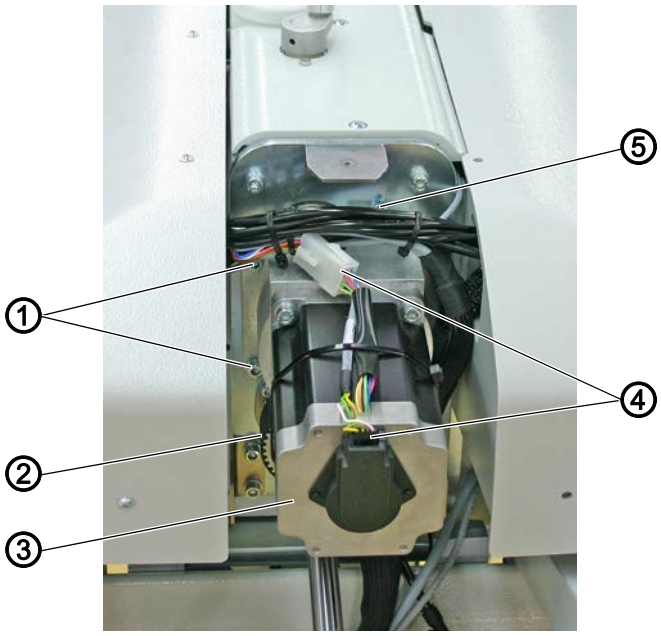
Information

The toothed belt tension is set to the optimum value when the belt oscillates at 284 Hz. Check the oscillation, for instance, using a device made by Contitech.

6. Tighten the screws (6).
7. Check if the toothed belt (1) operates in parallel.
   If necessary, set parallel operation at the toothed belt wheel.
8. Place the toothed belt cover (📖 *p. 19*).
9. Connect the motor plug with the control.

15.2 Changing the X drive

Fig. 72: Changing the X drive



(1) - Screws
(2) - Toothed belt
(3) - Motor with flange
(4) - Plug
(5) - Screw

Disassembling the X drive

To disassemble the X drive:

1. Disconnect both plugs (4).
2. Loosen all 4 screws (1).
3. Pull off the motor and flange (3).

Assembling the X drive

To assemble the X drive:

1. Insert a new motor and flange (3) on to the toothed belt (2).
2. Insert all 4 screws (1) and tighten them loosely.
3. Tension the toothed belt (2) using the screw (5).

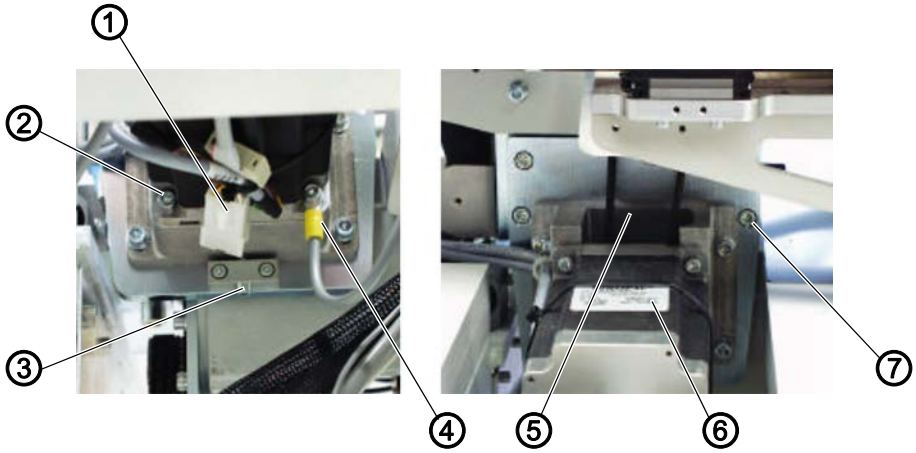
Information

The toothed belt tension is set to the optimum value when the belt oscillates at 384 Hz. Check the oscillation, for instance, using a device made by Contitech.

4. Tighten all 4 screws (1).
5. Connect the plug (4).

15.3 Changing the Y drive

Fig. 73: Changing the Y drive



(1) - Plug
(2) - Screws
(3) - Screw
(4) - Equipotential bonding
(5) - Toothed belt
(6) - Motor
(7) - Flange

Disassembling the Y drive

To disassemble the Y drive:

1. Disconnect the plug (1).
2. Unscrew the equipotential bonding (4).
3. Loosen the screw (3) to release the toothed belt (5) tension.
4. Loosen all 4 screws (2).
5. Pull the motor (6) off the flange (7).
6. Pull off the toothed belt wheel.

Assembling the Y drive

To assemble the Y drive:

1. Place the toothed belt wheel onto the new motor.
2. Insert the motor (6) into the toothed belt (5) and onto the flange (7).
3. Insert all 4 screws (2) and tighten them loosely.
4. Tension the toothed belt (5) using the screw (3) (185 Hz).

Information

The toothed belt tension is set to the optimum value when the belt oscillates at 185 Hz. Check the oscillation, for instance, using a device made by Contitech.

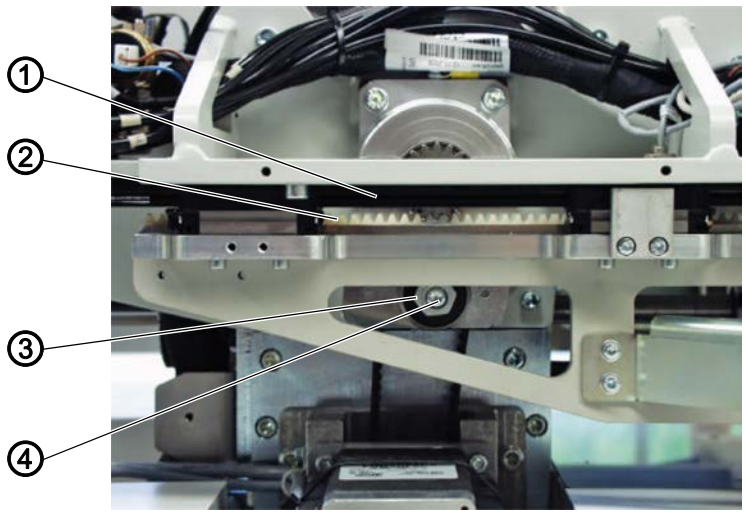
5. Tighten all 4 screws (2).
6. Connect the plug (1).

7. Tighten the equipotential bonding (4).

16 Checking the play between toothed rack and gear wheel

The play between the toothed rack and the gear wheel must be checked on both sides of the machine.

Fig. 74: Checking the play between toothed rack and gear wheel



(1) - Gear wheel
(2) - Toothed rack
(3) - Nut
(4) - Screw

Proper setting

There should be no play between the gear wheel (1) and toothed rack (2).

To check the play between toothed rack and gear wheel:

1. Loosen the screw (4).
2. Turn the nut (3) so that there is no play.
3. Tighten the screw (4).
4. Check the play along the entire length.

↳ The carriage can be moved without excessive play or stiffness.

17 Adjusting the safety release clutch

WARNING

Risk of injury from moving parts!

Crushing possible.

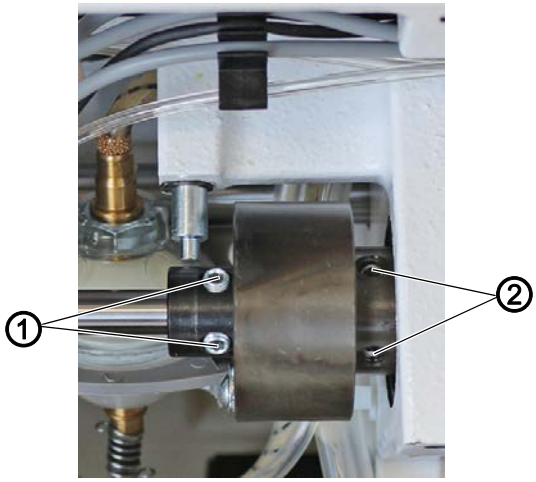
Switch the machine to bobbin change mode before adjusting the safety release clutch.

The safety release clutch disengages in the event of the thread jamming, thus separating the upper from the lower shaft and preventing the hook from being misadjusted or damaged.

17.1 Engaging the safety release clutch

Proper setting (DELTA)

Fig. 75: Engaging the safety release clutch (1)



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

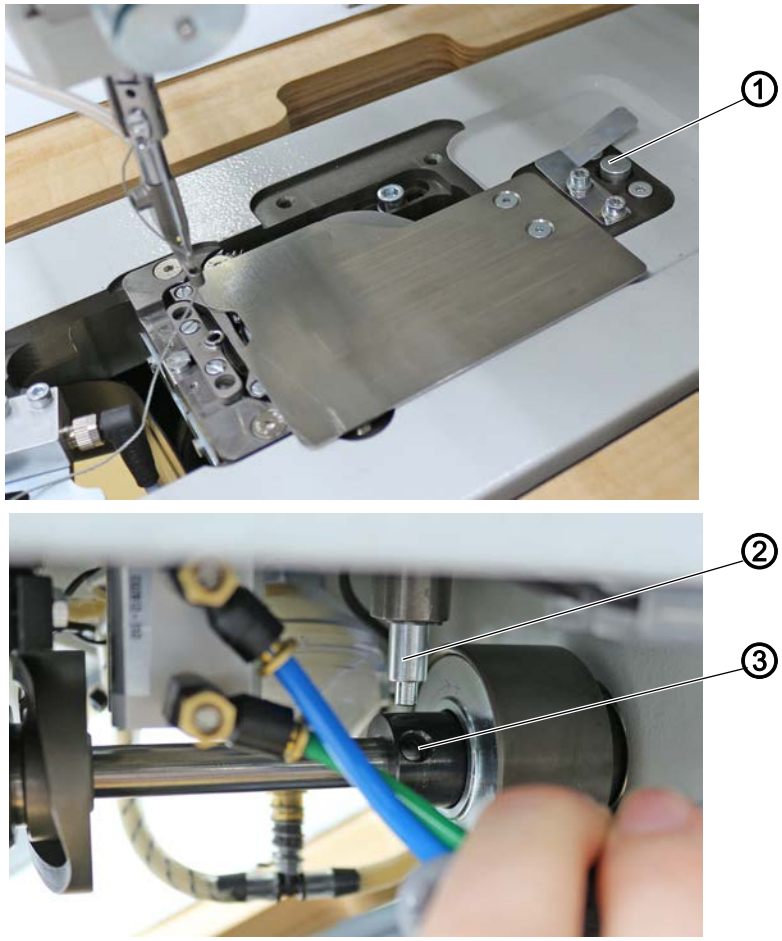
When the safety release clutch is engaged, threaded pins (1) and (2) are parallel to each other (figure above).
When the safety release clutch is disengaged, threaded pins (1) and (2) are not parallel to each other.

To engage the safety release clutch:

1. Activate bobbin change mode.
2. Clean the sewing area and the area around the hook.
3. Deactivate bobbin change mode.
4. Switch off the machine.
5. Slide the transport carriage to the rear left - use CAUTION with the needle and the clamp.

6. Remove the sliding plate.

Fig. 76: Engaging the safety release clutch (2)



(1) - Button
(2) - Pin
(3) - Hole

7. Press the button (1) and keep it pressed.

↳ The pin (2) extends.

8. Press and turn the hand crank until the pin (2) slides into the hole (3).
9. Continue to turn the hand crank until the safety release clutch engages with an audible click.
10. Release the button (1).
11. Reinsert the sliding plate.
12. Switch on the machine.

17.2 Adjusting the torque

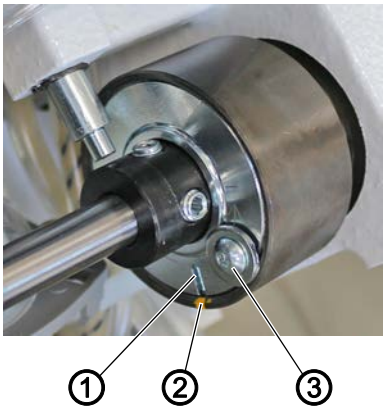
NOTICE

Property damage may occur!

If you change the torque, it could be that the safety release clutch 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. 77: Adjusting the torque



(1) - Slot
(2) - Marking point
(3) - Screw

Proper setting

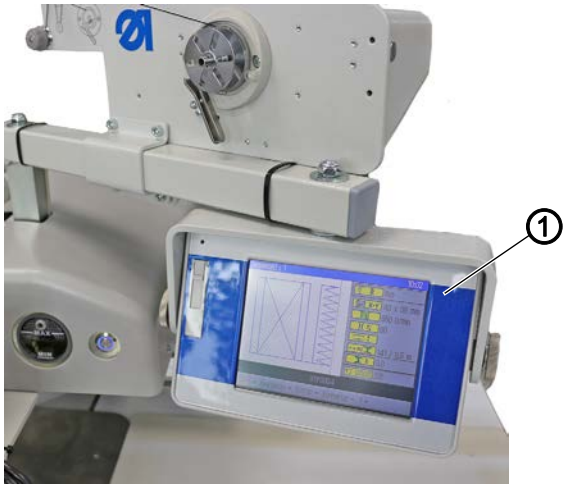
The machine is set at the factory such that the torque is 8 Nm when the marking point (2) is exactly above the slot (1) of the washer.

To adjust the torque:

1. Swivel up the machine head, 📖 *p. 15*.
2. Loosen the screw (3).
3. Using a screw driver, turn the washer on the slot (1):
   - Increase force: turn in the + direction
   - Decrease force: turn in the - direction
4. Tighten the screw (3).

18 Programming

Fig. 78: Programming



(1) - Control panel OP7000

The control is operated via the control panel OP7000 (1) located on the right next to the machine head.

The screen is a touchscreen, i.e. the buttons are displayed on the screen rather than provided as physical buttons. Buttons or functions are activated by tapping the corresponding position on the monitor.

Activating a button/selecting an element:

To activate a button or select an element:

1. Press the corresponding button or element with your finger or a touchscreen pen.

18.1 Structure of the software

You can create and manage seam programs and sequences via software. During sewing, these programs are called up and processed stitch by stitch.

Information

Seam program:

A seam program consists of a seam contour with parameters defining the individual contour sections.
Up to 99 seam programs can be stored in the system.
Seam programs have a file suffix of *.fnp911* after the filename.

Seam sequence:

Up to 30 seam programs can be combined in any order to form a seam sequence.
Up to 20 seam sequences can be stored in the system.
Seam sequences have a file suffix of *.seq911* after the filename.

The software is also used to define general settings that apply to all programs. There are also technical menu items for testing and maintaining the machine.

18.2 Overview of the menu structure

The following table provides an overview of the menu structure and the function buttons on the start screen.

Menu items in popup menus				
Menu item	**Function**	**Sub-items**	**Sub-items**	**Described on**
Datei (File)	Open existing programs for sewing Create new programs and copy or delete existing programs.	Löschen (Delete)		p. 127
		Kopieren (Copy)		p. 126
		Öffnen (Open)		p. 105
		Neu (New)	Nahtprogramm (Seam program)	p. 112
			Nahtsequenz (Sewing Sequence)	p. 123
		Speichern unter (Save As)		p. 125
Bearbeiten (Edit)	Define general settings for all programs or modify an existing program.	Maschinenparameter (Machine parameters)		p. 128
		Sequenz (Sequence)		p. 123
		Nahtprogramm (Seam program)	Parameter (Parameters)	p. 118
			Konturanpassung (Contour adjustment)	p. 116
			Konturtest (Testing Contour)	p. 115

Menu items in popup menus				
Menu item	**Function**	**Sub-items**	**Sub-items**	**Described on**
Extras	Display options: fullscreen and zoom Technician menu: Adjustments, system information and tests	Vollbild ein/aus (Full screen on / off)		p. 104
		Zoom ein/aus (Zoom on / off)		p. 104
		Service	Einstellungen (Settings)	p. 134
			System-Information (System information)	p. 141
			Multitest (Multi test)	p. 137
			Initialisierung und Update (Initialization and update)	p. 142
			Manufacturer (for DA personnel only))	
Korrektur (Corrections)	Shortterm sewing with other values	Fadenspannung (Thread tension)		p. 106
		Nähdrehzahl (Speed)		p. 107
Buttons on the start screen				
	Continue sewing the contour from a particular point		Reparatur-Modus (Repair mode)	p. 109
	Allow for a manual bobbin change		Spulenwechsel (Bobbin change)	p. 108
	Reset counter to a particular value		Zählerreset (Reset counter)	p. 111

18.3 Starting the software

After it was switched on, the machine performs a reference run. After this, the start screen is shown for a few seconds.

Fig. 79: Starting the software (1)

(1) - Button language selection *(2) - Button Service*

Here you can select the user interface language or use `Service` to quickly access the `Multitest (Multi test)` menu.

Information

Both functions can also be selected later from within the program via the menu items `Extras` > `Service`.
(See chapters **Testing the functions of the machine** (🕮 *p. 137*) and **Changing the language** (🕮 *p. 135*).)

If you do not press any buttons, the software automatically switches to the start screen after a few seconds.

Main screen

The start screen is displayed during sewing. When the machine is started, the start screen is opened with the settings of the last sewing program used.

Fig. 80: Main screen

(1) - Title bar
(2) - Status bar
(3) - Main window: Display of the seam contour
(4) - Program bar
(5) - Menu bar: Popup menu
(6) - Button for resetting the counter
(7) - Button for bobbin change
(8) - Button of the current sewing parameters
(9) - Button for Repair mode
(10) - Display of time of day

Structure of the start screen

- **Title bar (1)**

This shows the version of the machine on the start screen. It also contains information on the menu item currently selected in the various menus.

- **Status bar (2)**

On the start screen, the seam sequence currently open is displayed here, and the time of day (11) is displayed at the right. It also bar contains information on the currently selected step in the various menus.

- **Main window (3)**

The contour to be sewn is displayed here.

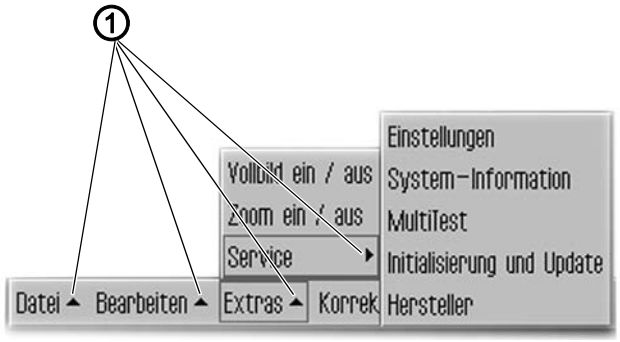
- **Program bar (4)**

The seam programs of the seam sequence currently open are displayed in this line. The program currently being executed is highlighted in black. You can use the arrow buttons (6) at the right side of the bar to navigate along the bar and display any additional programs that do not fit on the bar.
If a seam sequence is not currently open but rather only a single seam program, then this program fills the entire bar.

- **Menu bar (5)**

The bar at the bottom contains the popup menu. This allows you to access the various different menu items for creating and editing seam programs and for performing settings and tests on the machine. An arrow (1) next to a menu entry indicates that pressing the entry will display further sub-items.

Fig. 81: Menu bar



(1) - Popup arrows

- **Button for resetting the counter (6)**

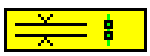
This button can be used for resetting the counter for the sewn programs or sequences. The current counter value is displayed next to this button.

- **Button for bobbin change (7)**

This button is used to inform the system that a new bobbin has been inserted (e.g. after a color change). The hook thread capacity is displayed next to this button.

- **Display of the current sewing parameters (8)**

The current sewing parameters are displayed below the repair mode button:

-  - Seam pattern size
-  - Sewing speed
-  - Thread tension
-  - Stitch length
-  - Number of stitches / hook thread consumed

Information

You can use the buttons Speed, Thread tension and Stitch length to access the sewing parameters directly (📖 *p. 118*).

- **Button for Repair mode (9)**

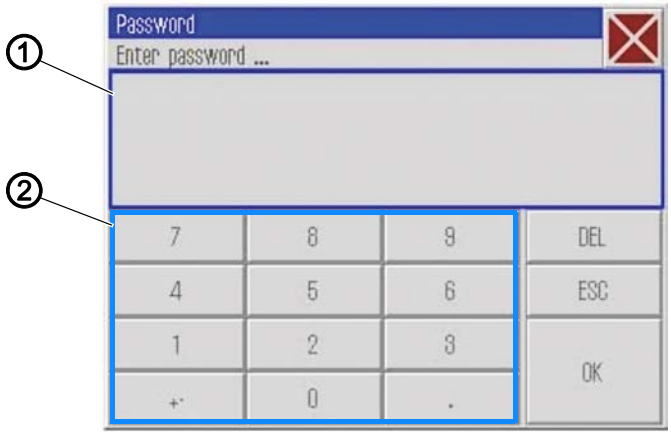
The topmost button at the right side is used for switching the repair mode on and off. The current status (*On*/*Off*) is displayed next to the button.

18.4 General operation of the software

18.4.1 Entering a password

Depending on the setting (see chapter **Changing the password options** (📖 *p. 134*)) a password is only required for accessing the technical menus or must be entered every time the machine is started.
Next, the password entry screen is displayed.

Fig. 82: Entering a password



(1) - Input field *(2) - Numeric buttons*

To enter a password:

1. Use the numeric buttons (2) to enter the password.

Information

The default password on delivery is: 25483.
The password can be changed via the *Extras* menu (📖 *p. 134*).
You can delete incorrect entries via the **DEL** button.

2. Press the **OK** button.

↳ The previously selected menu item opens.

18.4.2 Closing windows

A number of different buttons can be used for closing the currently open window.

Button	Meaning
	At the upper right in the title bar of all windows: ↳ The program jumps back by one navigation level.
OK **CR**	In windows with data entry or selection fields: ↳ The window is closed and the entered or selected data is adopted.
DEL **Abort**	In windows with data entry or selection fields: ↳ The window is closed and the entered or selected data is discarded.

18.4.3 Display principles

Fig. 83: Display principles

(1) - Grayed-out: Deactivated element (2) - Dark background: Activated element

- The currently activated or selected element is highlighted with a dark background (2)
- Buttons that are not used in the current context are grayed out (1)

18.4.4 Scrolling the display

Fig. 84: Scrolling the display

(1) - Scrollbar

A scrollbar (1) is displayed on the right when a displayed image is larger than the screen height.

To scroll the display:

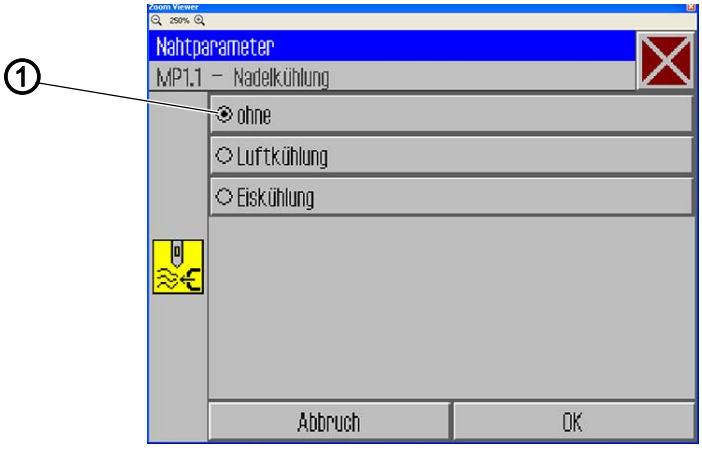
1. Drag the scrollbar (1) up or down.

18.4.5 Selecting options from a list

When selecting options, a distinction is made between round radio buttons and square check boxes.

Selection with radio buttons

Fig. 85: Selection with radio buttons



(1) - Radio buttons: Selected element

With round radio buttons only one of the displayed options can be selected.

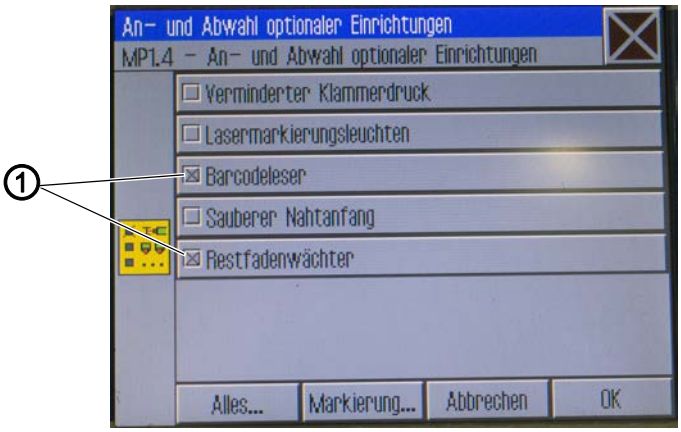
To select options using radio buttons:

1. Press the desired option.

↳ The selected option (1) is marked with a dot.

Selection with check boxes

Fig. 86: Selection with check boxes



(1) - Check box: Selected elements

Square check boxes allow for the selection of multiple entries.

To select options using check boxes:

1. Press the desired check box.

↳ The selected entries (1) are marked with a cross.

18.4.6 Using file filters

Fig. 87: Using file filters

When opening, copying or deleting seam programs a list of all available files is displayed.
You can use the filter functions to make the list more manageable:

To use file filters:

1. Press the **Dateifilter (File Filter)** button under the list.

↳ The file filter screen opens.

2. Press the desired filter criterion:
   - *.fnp911*: Seam programs only
   - *.seq911*: Seam sequences only
   - *All Files*: Seam programs and seam sequences
3. Press the **Öffnen (Open)** button.

↳ The list is updated according to the selected filter.

18.4.7 Entering text

A text entry window is displayed when text needs to be entered, e.g. for the name of a seam program.

Fig. 88: Entering text

(1) - Input line
(2) - Keyboard
(3) - OK (CR): Adopt the entered text
(4) - DEL: Delete a character
(5) - Aa: Switching between uppercase/ lowercase

Entering text

To enter text:

1. Use the keyboard (2) displayed to enter the text.

Switching between uppercase/lowercase

To switch between uppercase and lowercase:

1. Press the **Aa** (5) button.

Deleting the last character

To delete the last character:

1. Press the **DEL** (4) button.

Adopting the entered text

To adopt the entered text:

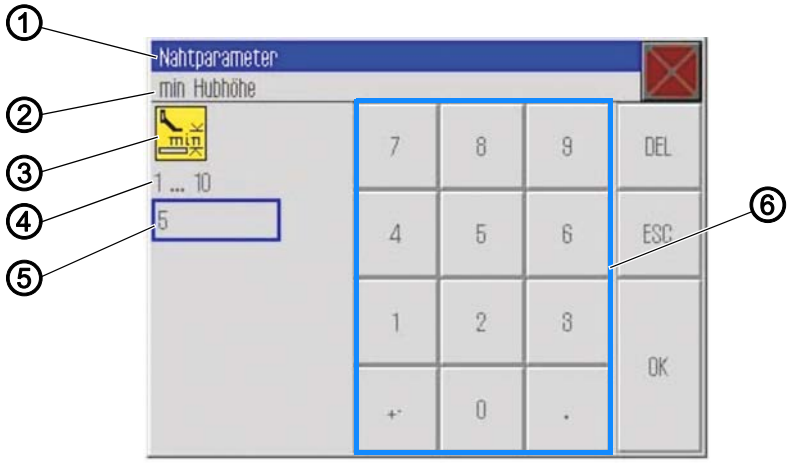
1. Press the **OK** (*CR*) (3) button.

↳ The entered text is adopted, and the text entry window is closed.

18.4.8 Entering parameter values

A numeric entry window opens when numeric values for program or machine parameters need to be entered.

Fig. 89: Entering parameter values



(1) - Title bar
(2) - Status bar
(3) - Symbol
(4) - Value range
(5) - Input field
(6) - Numeric buttons

The title bar (1) shows the parameter group.
The status bar (2) shows the name of the parameter currently being edited. The symbol (3) for the corresponding parameter is displayed below the parameter name.
The prescribed value range (4) for the parameter is displayed below the symbol (3).
The current valid value is displayed in the data entry field (5) below the value range (4).

Entering a value

To enter a value:

1. Press the desired value using the numeric buttons (6).

Deleting a value

To delete a value:

1. Press the **DEL** button.

Adopting a value

To adopt a value:

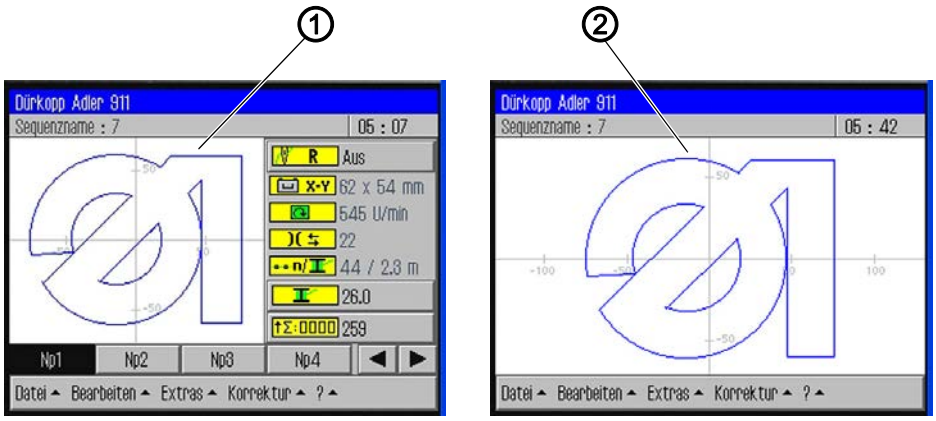
1. Press the **OK** button.

↳ The entered value is adopted, and the numeric entry window is closed.

18.4.9 Switching the full-screen display on and off

In order to see the seam contour in more detail you can switch the main window (1) to occupy the full screen and hide the buttons (2) on the right side of the start screen.

Fig. 90: Switching the full-screen display on and off



(1) - Full-screen switched off

(2) - Full-screen switched on

To switch full-screen on and off:

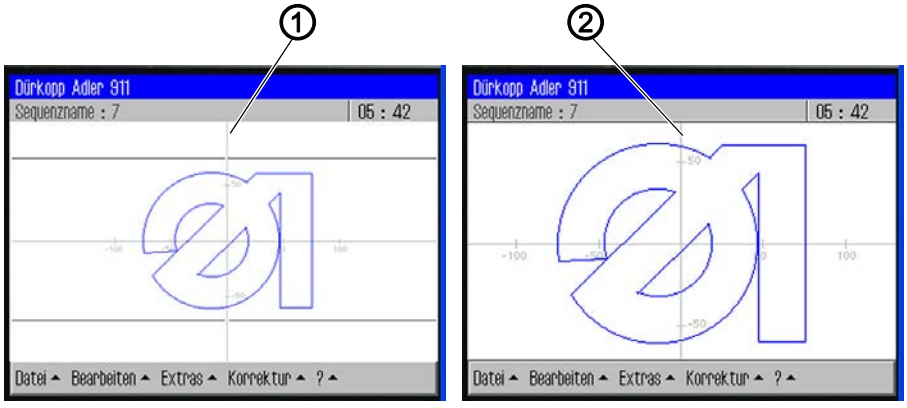
1. Press the menu items *Extras* > *Vollbild ein/aus (Full screen on/off)*.

↳ The display switches to the respective mode.

18.4.10 Switching zoom on and off

You can magnify the display in order to see the seam contour in more detail. There is only one zoom level that can be switched on or off.

Fig. 91: Switching zoom on and off



(1) - Zoom switched off

(2) - Zoom switched on

To switch zoom on and off:

1. Press the menu items *Extras* > *Zoom ein/aus (Zoom on/off)*.

↳ The display switches to the respective mode.

18.5 Opening a seam program or seam sequence for sewing

To open a seam program or seam sequence for sewing:

1. Press the menu items *Datei (File)* > *Öffnen (Open)*.

↳ The file selection screen is displayed.
All existing seam programs and seam sequences are displayed.

Information

You can use the *Dateifilter (File Filter)* to make the list more manageable (📖 *p. 101*).

Fig. 92: Opening a seam program or seam sequence for sewing

2. Press the desired file.
3. Press the **Öffnen (Open)** button.

↳ The seam program/seam sequence is opened on the start screen.

4. Press the pedal forwards.

↳ The seam program is sewn.

18.6 Briefly sewing with modified values

If you briefly need to with sew a special material or use a particular thread strength with different values, without changing the seam program, you can use the *Korrektur (Correction)* menu item to temporarily change the values for thread tension and speed. The values then apply to all subsequently executed seams until the machine is switched off.

Important

If you wish to adopt the changes, you must modify and save the program. Otherwise, the values are automatically reset to the original settings when the machine is switched off.

18.6.1 Sewing with a modified thread tension

To sew with a modified thread tension:

1. Press the menu items *Korrektur (Correction)* > *Fadenspannung (Thread tension)*.

↳ The window for changing the thread tension appears:

Fig. 93: Sewing with a modified thread tension

2. Enter the desired value.
3. Press the **OK** button.

↳ The value is adopted and used for all seams until the machine is switched off.

18.6.2 Sewing with a modified speed

To sew with a modified speed:

1. Press the menu items *Korrektur (Correction)* > *Nähdrehzahl (Sewing speed)*.

↳ The window for changing the thread tension appears:

Fig. 94: Sewing with a modified speed

2. Enter the desired speed.
3. Press the **OK** button.

↳ The value is adopted and used for all seams until the machine is switched off.

18.7 Changing the bobbin/managing a thread breaking

WARNING

Risk of injury from sharp and moving parts!

Puncture or crushing possible.

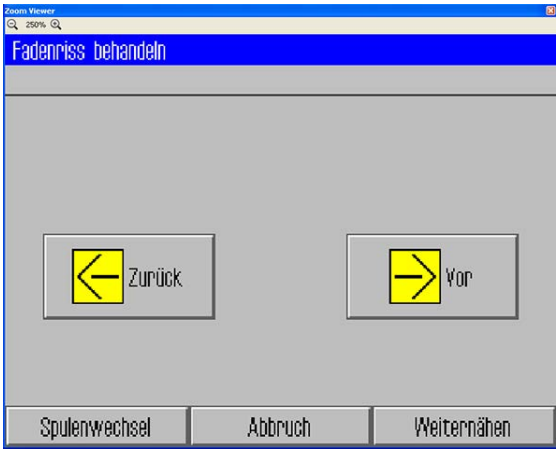
Switch the machine to threading mode before changing the bobbin.

The machine automatically detects when the hook thread has been used up and a new bobbin needs to be inserted.

In this case, or if thread breaking occurs, the *Fadenriss behandeln (Fix thread breaking)* window is automatically displayed.

18.7.1 Changing the bobbin

Fig. 95: Changing the bobbin



To change the bobbin:

1. Press the **Spulenwechsel (Bobbin change)** button.
2. Change the bobbin (📖 *p. 108*).
3. Use the `Vor (Forwards)` and `Zurück (Back)` buttons to move to the point where sewing is to continue.
4. Press the **Weiternähen (Continue sewing)** button.

↳ The program jumps back to the start screen and sewing of the seam continues from the selected point.

18.7.2 Bobbin change without a request from the program

If you wish to independently insert a new bobbin without being requested to do so by the program, then you have to press the **Spulenwechsel (Bobbin change)** button on the start screen.
This will inform the program that a new bobbin has been inserted, causing it to resume counting thread consumption starting with the full bobbin capacity.

18.7.3 Updating the bobbin capacity

To update the bobbin capacity:

1. Press the button **Spulenwechsel (Bobbin change)**  on the start screen.

↳ The counter for the bobbin capacity begins anew with a full bobbin.

18.8 Continuing a seam after an error

18.8.1 Continuing a seam in Repair mode after an error

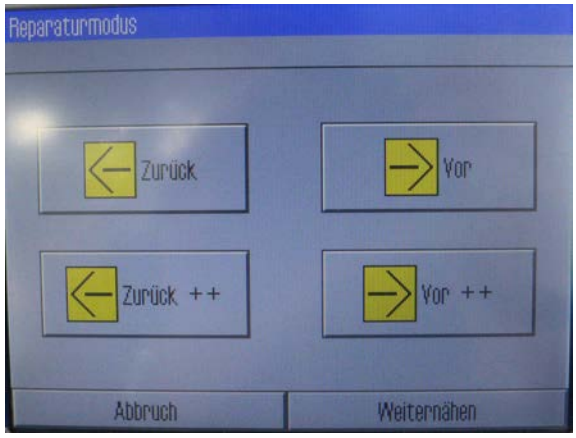
In Repair mode you can move to any desired point on the contour, e.g. in order to continue the seam program from this position after an error has occurred.

To continue a seam in Repair mode after an error:

1. Press the button **Reparaturmodus (Repair mode)** R on the start screen.

↳ The *Reparaturmodus (Repair mode)* window is displayed.

Fig. 96: Continuing a seam in Repair mode after an error



2. Use the **Vor (Forwards)** and **Zurück (Back)** buttons to move to the point where sewing is to continue.

OR

3. Use the buttons **Vor (Forwards ++)** and **Zurück (Back ++)** to skip to the beginning of the next or the beginning of the previous seam section.
4. Press the **Weiternähen (Continue sewing)** button.

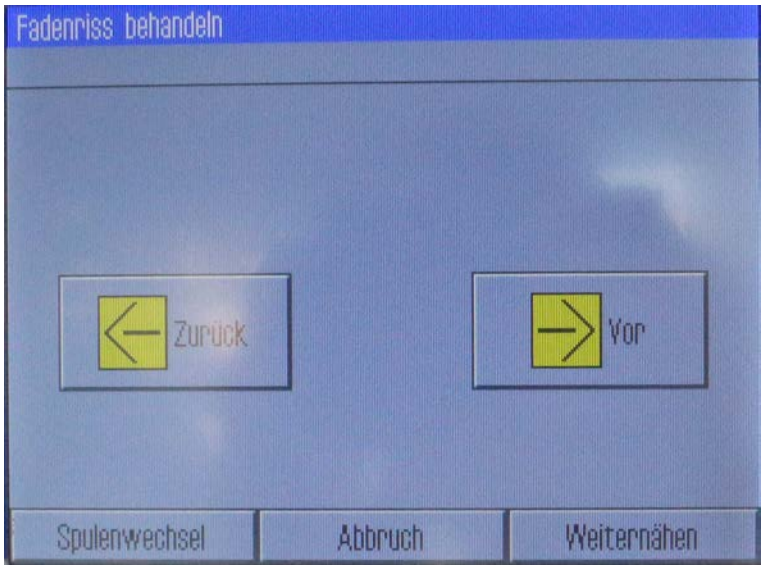
↳ The program jumps back to the start screen and sewing of the seam continues from the selected point.

18.8.2 Continuing a seam after thread breaking

When the machine was set up, the needle thread monitor mode that is supposed to be active was selected in the machine parameters (MP 3 (📖 *p. 131*)).
In the event of an error, the machine will undo a certain number of preset stitches and stop.

The control panel will show the display *`Fadenriss behandeln (Fix thread breaking)`*:

Fig. 97: Continuing a seam after thread breaking



Continuing a seam

To continue a seam after thread breaking:

1. Re-thread the needle thread.
2. Use the **Vor (Forwards)** and **Zurück (Back)** buttons to move to the point where sewing is to continue.
3. Continue sewing.

Canceling sewing and starting a new seam

To cancel sewing after thread breaking and start a new seam:

1. Press the **Abbruch (Cancel)** button.
2. Remove the transfer plate.
3. Press the pedal backwards.

↳ The machine performs a reference run.

4. Press the pedal forwards.

↳ The machine moves to the loading position, and you can start a new seam.

Checking or changing the bobbin

To change or check the bobbin:

1. Press the **Spulenwechsel (Bobbin change)** button.

↳ The display shows a prompt asking whether you wish to reset the bobbin counter.

2. Press the **Ja (Yes)** button if you wish to change the bobbin.

↳ The bobbin counter will be reset.

OR

3. Press the **Nein (No)** button if you merely wish to check the bobbin.

↳ The bobbin counter will not be reset.

4. Remove the transfer plate.
5. Press the **Einfädelmodus (Threading mode)** button on the machine head.

↳ The hook cover opens.

6. Change or check the bobbin.
7. Press the **Einfädelmodus (Threading mode)** button on the machine head.

↳ The hook cover closes.

8. Press the pedal forwards.

↳ The machine moves into the insertion position.

9. Insert the transfer plate.
10. Press the pedal or press the **Weiternähen (Continue sewing)** button.

↳ The machine moves to the sewing position.

11. Press the pedal or press the **Weiternähen (Continue sewing)** button.

↳ The sewing procedure is resumed.

18.9 Resetting the counter

Depending on the set machine parameters, the counter counts the sewn programs or sequences up or down. You can use the *Zähler-Reset (Reset counter)* button to reset the counter to the start value (📖 *p. 111*).

To reset the counter:

1. Press the button **Zähler-Reset (Reset counter)** ↑Σ:0000 on the start screen.

↳ The counter is reset to the value defined in the machine parameters.

18.10 Seam programs and seam sequences

18.10.1 Creating a new seam program

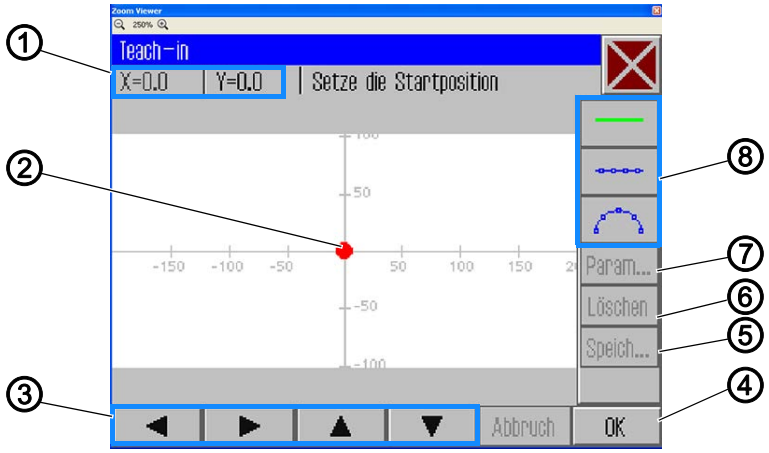
New seam programs are created using a Teach-In procedure. Individual seam paths with specific sewing parameters are defined via the control panel in order to do this.

To create a new seam program:

1. Press the menu items *Datei (File)* > *Neu (New)* > *Nahtprogramm (Seam program)*.

↳ The Teach-In window appears.

Fig. 98: Creating a new seam program



(1) - Cursor position
(2) - Cursor
(3) - Arrow buttons
(4) - OK button: Accept
(5) - Save button
(6) - Delete button
(7) - Parameter button
(8) - Line selection buttons

Defining the starting point

2. Define the starting point:

Method	Coordinate area
Using the **arrow buttons** (3) **Caution** For safety reasons, you cannot use the arrow buttons (3) to select a position beyond 90.1 or -92.6 on the Y-axis. Settings beyond these coordinates require that you use the pedal.	X -150 to X 230 Y 90.1 to Y -92.6
Using the **pedal** Every press of the pedal moves the cursor (2) by 0.1 in the direction of the selected axis (X or Y)	X -150 to X 230 Y 100 to Y -100
Entering coordinates **directly** via the **cursor position** (1)	X -150 to X 230 Y 100 to Y -100

3. Press the **OK** (4) button.

↳ The desired starting point is adopted and marked with a green / blue dot.

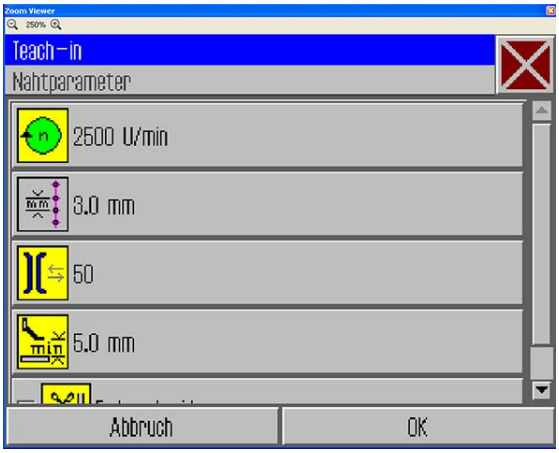
Selecting the line type

4. Use the line selection buttons (8) to select the type of line to be defined:
   - **Seamless path**: The clamp moves over this path to the next position without sewing
   - **Straight seam**: A straight path is sewn
   - **Curved seam**: A curve is sewn

↳ After pressing the button for a straight or curved seam, the corresponding window for entering the sewing parameters for this path opens.

Defining the sewing parameters for the path

Fig. 99: Defining the sewing parameters for the path



5. Press the desired parameter.

↳ The window for entering the parameter value opens.

6. Enter the desired value for the parameter (📖 *p. 103*).

Sewing parameters for Teach-In

Button	Meaning
	Speed
	Stitch length

Button	Meaning
	Thread tension
	Stroke height
	Thread cutting

Drawing a path

7. Use the arrow buttons to move the cursor to the end point of the desired path.

Information

Alternatively, you can press an arrow button once in order to define the direction and then continue moving in this direction by pressing the pedal.

Important

Take care to ensure that the contour remains within the permissible sewing field of the machine.
Especially with curved paths, you should remember that the start and end points are not directly connected and that a curve is generated between these two points.

8. Press the **OK** button.

↳ The seam path is adopted with the specified parameters.

Adding further seam paths

You can now define all further seam paths in the same manner.

1. Begin every new seam path by selecting the type of line (📖 *p. 113*).

Deleting a seam path

1. Press the **Löschen (Delete)** button.

↳ The last section of the seam path is deleted.

Saving a seam program

After you have defined all the seam paths, you can save the seam program and specify a name for the program.

1. Press the **Speich... (Save...)** button.

↳ The window for entering the name of the seam program opens.

2. Enter the desired name (📖 *p. 102*) and adopt the change by pressing **OK** (*CR*).

↳ The seam program is now available under this name for sewing, editing or copying.

Important

Always perform a contour test after creating a new seam program (📖 *p. 115*).

NOTICE

Property damage may occur!

If you have entered contour points that lie outside the sewing field, the movement of the clamps during sewing can cause damage to the machine or the sewing material.

Always perform a contour test after creating or editing a contour to ensure that the entire contour lies within the permissible sewing field.

18.10.2 Performing a contour test

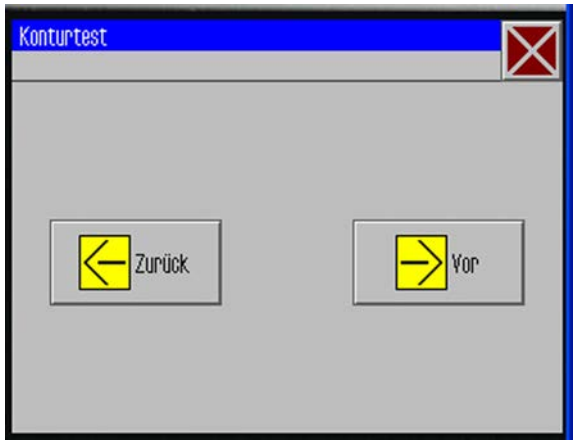
Perform a contour test every time after creating a new seam program or editing a seam contour to ensure that the contour you entered lies within the permissible sewing field.

To perform a contour test:

1. Press the menu items *Bearbeiten (Edit)* > *Nahtprogramm (Seam program)* > *Konturtest (Testing Contour)*.

↳ The *Konturtest (Testing Contour)* window appears.

Fig. 100: Performing a contour test



2. Move along the contour stitch by stitch using the **Vor** (Forwards) and **Zurück (Back)** buttons or the pedal.
3. Check that all points lie within the sewing field.

18.10.3 Editing a seam program

You can change the contour and the sewing parameters of existing seam programs. The changes are applied to the seam program that is currently open on the start screen.

To edit an existing seam program:

1. Open the seam program you wish to modify via the menu items *Datei (File)* > *Öffnen (Open)*.

↳ The seam program opens on the start screen.

Changing the contour of a seam program

NOTICE

Property damage may occur!

If you have entered contour points that lie outside the sewing field, the movement of the clamps during sewing can cause damage to the machine or the sewing material.

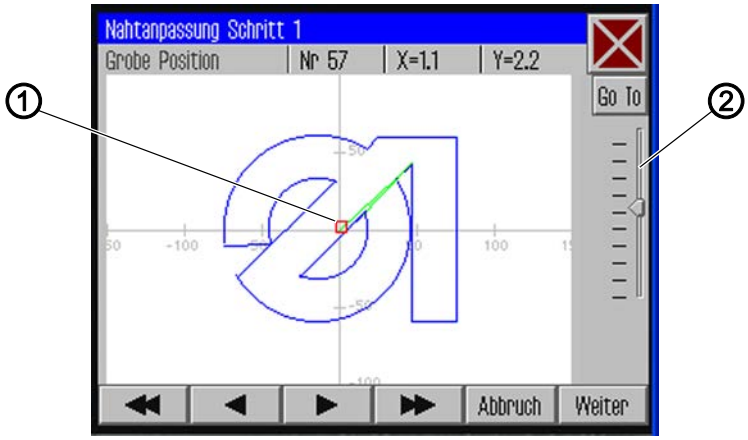
Always perform a contour test after creating or editing a contour to ensure that the entire contour lies within the permissible sewing field.

To change the contour of a seam program:

1. Press the menu items *Bearbeiten (Edit)* > *Nahtprogramm (Seam program)* > *Konturanpassung (Contour adjustment)*.

↳ The contour adjustment window appears:

Fig. 101: Changing the contour of a seam program (1)



(1) - Cursor *(2) - Scale: First to last stitch*

2. Use the arrow buttons to move the cursor (1) to the position on the contour that is to be changed.

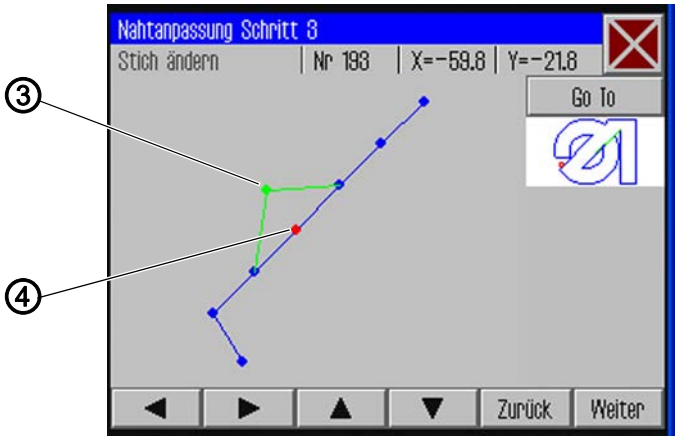
Information

You can also use the slider control on the scale (2) to select the stitching area you wish to change:
The first stitch of the seam pattern is at the top and the last stitch is at the bottom.

3. Press the **Go To** button.

↳ The selected contour region is displayed in detail.
The stitching point (2) to be modified is marked in red.

Fig. 102: Changing the contour of a seam program (2)



(3) - Old stitching point *(4) - New stitching point*

4. Use the arrow buttons to move the stitching point to the new position (4).

↳ The modified seam path is displayed in green.

5. Press the **Weiter (Next)** button.

↳ The window for selecting the technology operations opens.

Fig. 103: Changing the contour of a seam program (3)

6. Select the desired technology operation(s) for the new seam path (📖 *p. 99*).
7. Confirm the selection with **OK**.

↳ You are returned to the detail window with the modified contour.

8. Press the **Weiter (Next)** button.

↳ A query dialog is displayed, asking if you wish to adopt the changes. Confirm the prompt with **Ja (Yes)** to save the modified contour.

Important

Always perform a contour test after modifying a contour to ensure that the new seam path lies within the permissible sewing field (📖 *p. 115*).

Changing seam program parameters

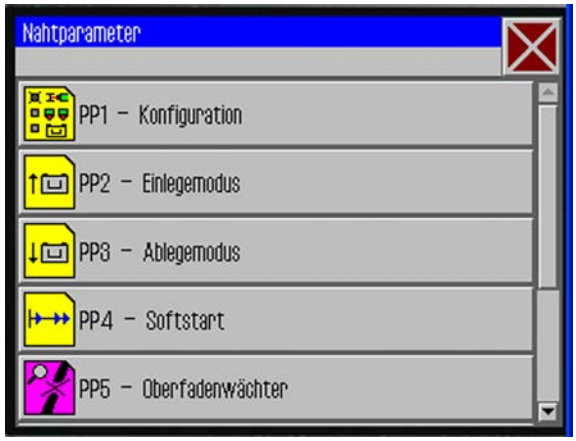
You can change the general settings that apply to the entire seam program.

To change the seam program parameters:

1. Press the menu items `Bearbeiten (Edit)` > `Nahtprogramm (Seam program)` > `Parameter (Parameters)`.

↳ The window for selecting the program parameter group appears:

Fig. 104: Changing seam program parameters



2. Press the desired parameter group.

↳ The individual parameters of this group are displayed.

3. Press the desired parameter.

↳ The window for modifying the parameter value opens.

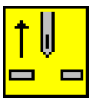
4. Set the parameter to the desired value (📖 *p. 103*).

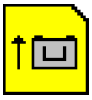
There are 8 program parameter groups:

Symbol	Parameter group
	**PP1 - Configuration** General settings
	**PP2 - Load mode** Load mode and position
	**PP3 - Deposit mode** Deposit mode and position
	**PP4 - Soft start** Number of stitches and speed
	**PP5 - Needle thread monitor** Sensitivity value for the needle thread monitor
	**PP6 - Thread consumption** Values for determining thread consumption
	**PP7 - Move:** Contour is moved in a particular direction
	**PP8 - Scaling:** Size of the contour is changed.

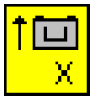
Overview of the individual program parameters

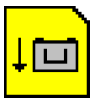
	**PP1 - Configuration**
Symbol	**Meaning**
	**Seam name** max. 20 characters
	**Minimum sewing foot stroke height** (min. = 1.0 .. max. = 10.0; Def. = 5.0 mm) Sets this as the minimum value of the programmable sewing foot stroke height so that only this value needs to be adjusted when sewing thicker materials.
	**Adjust thread tension** (min. = 10… max. = 200; Def. = 100 %) The thread tension profile for the entire contour is adjusted accordingly. A value of 100% means that no adjustments are made.
	**Adjust empty-run speed** (min. = 10… max. = 200; Def. = 100 %) The travel speeds are adjusted.
	**Clamp ID code** Barcode (ID code) of max. 10 characters for performing a safety check before the start of sewing (the barcode scanner additional equipment must be activated)

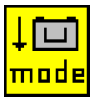
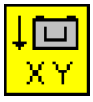
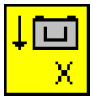
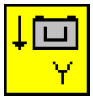
Symbol	Meaning
	**Marking lamps** Up to 4 marking lamps for easier alignment of the sewing material can be controlled (the additional equipment must be activated)
	**Reversal mode** The following options can be set: • **Not activated:** The needle remains at the Stop position • **After the entire contour:** After completing all seams in the contour, the needle is reversed to the value specified in the machine parameters • **After each seam** (Def.): The needle is reversed after every seam
	**Needle cooling** (On / Off) Activates/deactivates the needle cooling.
	**Adjust sewing speed** (min. = 10… max. = 200; Def. = 100%) The sewing speed is adjusted by the specified percent value.

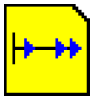
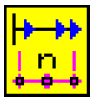
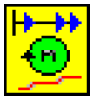
	**PP2 - Load mode**

Symbol	Meaning
	**Load mode** The following options can be set: • **Mode 1** (Def.) The clamp is opened in the loading position. The clamp is closed when the pedal is pressed. Pressing the pedal again starts the sewing of the seam. • **Mode 2** The clamp is opened in the loading position. Pressing the pedal closes the left part of the two-piece clamp for angle mounting. Pressing the pedal again closes the right part. Another press of the pedal starts the sewing of the seam. • **Mode 3** The clamp is opened in the loading position. Pressing the pedal closes the right part of the two-piece clamp for angle mounting. Pressing the pedal again closes the left part. Another press of the pedal starts the sewing of the seam. • **Mode 4** Quick-start mode: The clamp is opened in the loading position. The clamp is closed, and the sewing of the seam is started when the pedal is pressed. With the alternating clamp, the seam is automatically started after insertion. This mode is only active when quick-start is activated in the machine parameters. The machine must be switched off and on in order to activate the quick-start mode. • **Mode 5** The clamp remains closed in the loading position. Pressing the pedal again starts the sewing of the seam.
	**Loading position** (On / Off) With the loading position activated the clamps move to the desired position for convenient insertion of the sewing material.

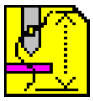
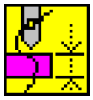
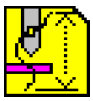
Symbol	Meaning
	**Loading position X** The value range varies depending on the subclass and sewing field size.
	**Loading position Y** The value range varies depending on the subclass and sewing field size.

	**PP3 - Deposit mode**

Symbol	Meaning
	**Deposit mode** The following options can be set: • **Mode 1** (Def.) Clamp is opened in the removal position. • **Mode 2** The clamp remains closed in the removal position. The clamp is opened when the pedal is pressed. • **Mode 3** The clamp remains closed in the removal position. Pressing the pedal opens the left part of the two-piece clamp for angle mounting. Pressing the pedal again opens the right part. • **Mode 4** The clamp remains closed in the removal position. Pressing the pedal opens the right part of the two-piece clamp for angle mounting. Pressing the pedal again opens the left part. • **Mode 5** Clamp remains closed in the removal position.
	**Removal position** (On / Off) With the removal position activated the clamps move to the desired position for convenient removal of the sewing material after the sewing procedure.
	**Removal position X** The value range varies depending on the subclass and sewing field size.
	**Removal position Y** The value range varies depending on the subclass and sewing field size.

	**PP4 - Soft start**
Symbol	**Meaning**
	**Soft-start stitch count** (min. = 0.. max. = 10; Def. 5)
	**Soft-start speed** (min. = 100 .. max. = 2000; Def. 300 rpm)

	**PP5 - Needle thread monitor**
	(min. = 0 .. max. = 99; Def. 5) Only active if activated in the machine parameters. (A higher value makes the needle monitor less sensitive. 99 = Needle thread monitor switched off in this program only.)

	**PP6 - Thread consumption**
Symbol	**Meaning**
	**Sewing material thickness** (min. = 0.. max. = 20.0; Def. 0) The thickness of the sewing material when pressed together.
	**Adjust thread consumption** (min. = -10.0.. max. = 10.0; Def. 0) Correction of the calculated values.

	**PP7 - Move**
Symbol	**Meaning**
	**X move** (min. = -5.0… max. = 5.0; Def. = 0.0 mm)
	**Y move** (min. = -5.0… max. = 5.0; Def. = 0.0 mm)

	PP8 - Scaling.
Symbol	**Meaning**
	X scaling (min. = 80… max. = 120; Def. = 100 %) 100% corresponds to the original size.
	Y scaling (min. = 80… max. = 120; Def. = 100 %)
	X scaling origin (min. = -150.0… max. = 150.0; Def. = 0.0 mm)
	Y scaling origin (min. = -150.0… max. = 150.0; Def. = 0.0 mm)

18.10.4 Creating a new seam sequence

You can combine up to 30 seam programs to form a seam sequence. You can create up to 20 seam sequences in total.

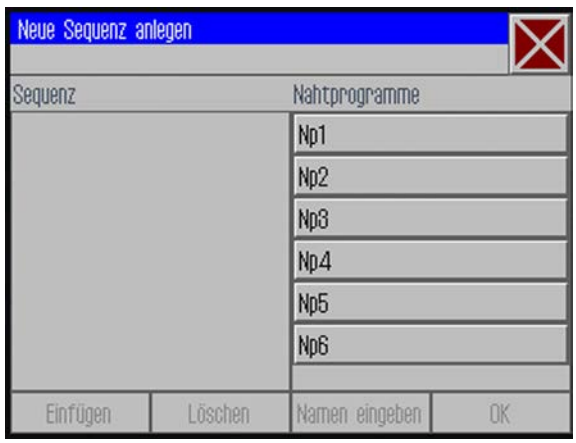
Selecting seam programs

To select seam programs:

1. Press the menu items *Datei (File)* > *Neu (New)* > *Sequenz (Sequence)*.

↳ The window for selecting the seam program appears.

Fig. 105: Selecting seam programs



The existing seam programs are displayed at the right side of the screen. The *Sequenz (Sequence)* field on the left shows which seam programs have been transferred to the seam sequence.

2. Press the desired seam program.
↳ The selected seam program is highlighted with a dark background.
3. Press the **Einfügen (Insert)** button.
↳ The seam program is transferred to the seam sequence and is displayed in the *Sequenz (Sequence)* field on the left side of the screen.
4. Add further seam programs in the same manner.

Removing a seam program from a seam sequence

To remove a seam program from a seam sequence:

1. Press the seam program in the *Sequenz (Sequence)* field and then press the **Löschen (Delete)** button.
↳ The seam program is removed from the seam sequence.

Assigning a name to a seam sequence

To assign a name to a seam sequence:

1. Press the **Namen eingeben (Set name)** button.
↳ The window for entering the name of the seam sequence opens.
2. Enter the desired name and adopt the change by pressing **OK** *(CR)* (📖 *p. 102*).
↳ The seam sequence is now available under this name for sewing, editing or copying.

18.10.5 Editing a seam sequence

You can edit an existing seam sequence by adding or removing seam programs.

To edit a seam sequence:

1. Open the seam program you wish to modify via the menu items *Datei (File)* > *Öffnen (Open)*.
↳ The seam sequence opens on the start screen.
2. Press the menu items *Bearbeiten (Edit)* > *Sequenz (Sequence)*.
↳ The window for editing the seam sequence appears.

Fig. 106: Editing a seam sequence

3. Use the buttons **Einfügen (Insert)** and **Löschen (Delete)** to add programs to the seam sequence or remove programs from the seam sequence.

18.10.6 Saving a seam program or seam sequence under a different name

You can also save existing seam programs or seam sequences under a different name.

Information

If you wish to create a new program that is similar to an existing program, you do not need to create the entire program anew. You can save the existing program under a new name and then change the details you wish to modify.

To save a seam program or a seam sequence under a different name:

1. Press the menu items *Datei (File)* > *Speichern unter (Save As)*.

↳ A selection window allowing you to select a seam program or seam sequence appears.

Information

You can use the *Dateifilter (File Filter)* to make the list more manageable (📖 *p. 101*).

2. Press the desired element.
3. Press the **Speichern unter (Save As)** button.

↳ The window for entering the new name is opened.

4. Enter the desired name and adopt the change by pressing **OK** *(CR)* (📖 *p. 102*).

↳ The seam program or seam sequence is now available under this name for sewing, editing or copying.

18.10.7 Copying a seam program or seam sequence

You can also copy seam programs or seam sequences from a USB key to the control or from the control to a USB key.

Important

Not all commonly available USB keys are suitable for the copying process. You can obtain a suitable USB key from Dürkopp Adler.

To copy a seam program or a seam sequence:

1. Press the menu items *Datei (File)* > *Kopieren (Copy)*.

↳ The window for selecting the file to be copied appears:

Fig. 107: Copying a seam program or seam sequence

(1) - Select the source to be copied *(2) - File selection window*

2. Use the buttons (1) to select whether the data is to be copied from the DAC control or the USB key.

↳ The selected button is highlighted with a dark background.
The files present at this location are listed in a selection window (2).

Information

You can use the *Dateifilter (File Filter)* to make the list more manageable (📖 *p. 101*).

3. Press the desired file.

↳ The selected file is highlighted with a dark background.

4. Press the **Datei kopieren (Copy File)** button.

↳ The selected file is copied to the USB key or the control.

18.10.8 Deleting a seam program or seam sequence

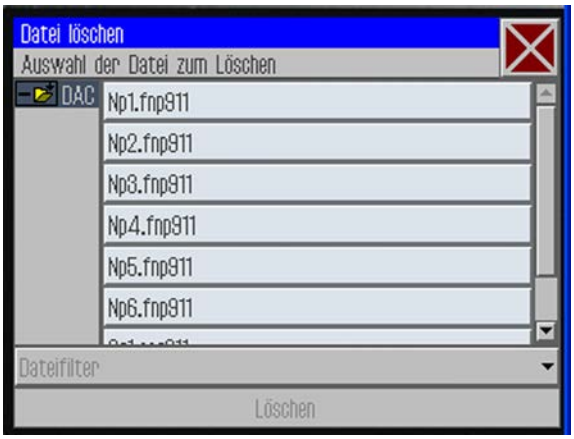
Seam programs or seam sequences that are no longer required can be deleted from the control.

To delete a seam program or a seam sequence:

1. Press the menu items *Datei (File)* > *Löschen (Delete)*.

↳ The window for selecting the file to be deleted appears:

Fig. 108: Deleting a seam program or seam sequence



Information

You can use the *Dateifilter (File Filter)* to make the list more manageable (🕮 *p. 101*).

2. Press the desired file.

↳ The selected file is highlighted with a dark background.

3. Press the **Löschen (Delete)** button.

↳ The selected file is deleted.

18.11 Editing machine parameters

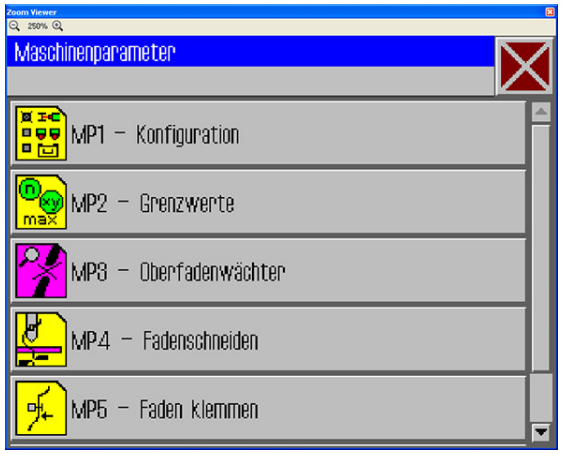
You use the machine parameters to define the basic machine settings. These basic settings apply to all programs.

To edit the machine parameters:

1. Press the menu items *Bearbeiten (Edit)* > *Maschinenparameter (Machine parameters)*.

↳ The window for selecting the machine parameter group appears.

Fig. 109: Editing machine parameters



2. Press the desired parameter group.

↳ The individual parameters of this group are displayed.

3. Press the desired parameter.

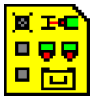
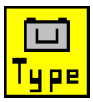
↳ The window for modifying the parameter value opens.

4. Set the parameter to the desired value (📖 *p. 103*).

There are 6 machine parameter groups:

Symbol	Parameter group
	**MP1 - Configuration** General settings
	**MP2 - Limit values** Limit values for speeds and positions
	**MP3 - Needle thread monitor** Behavior after thread breaking
	**MP4 - Thread cutting** Speed, position and tension
	**MP5 - Thread clamping** Starting angle
	**MP6 - Counters** Settings for program and bobbin counters

Overview of the individual machine parameters

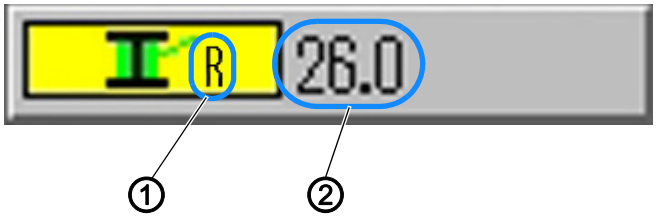
	**MP1 - Configuration**
Symbol	**Meaning**
	**Needle cooling** The following options can be set: • **Without**: No needle cooler activated. • **Air cooling** (Def.): The needle is cooled with air while sewing the seam • **Ice cooling**: Optional equipment
	**Sewing foot mode** The sewing foot can be operated in the following modes: • **Jumping foot**: The sewing foot only presses on the sewing material while the needle is in the sewing material • **Presser foot**: The sewing foot presses continuously on the sewing material
	**Sewing field size** Take care to ensure a valid sewing field size for your subclass when making the selection! (See chapter **Technical data** (🕮 *p. 168*)) • **Normal sewing field** (Def.): A sewing field of up to 200 x 300mm is available • **Extra-large sewing field**: A larger sewing field can be used in conjunction with the alternating clamps
	**Optional equipment** • **Reduced clamp pressure:** Optional equipment limiting the amount of clamp pressure to allow for better alignment on insertion. • **Neat seam beginning:** Optional equipment, activates stitch position optimization (🕮 *Additional Instructions Stitch Position Optimization*) • **Marking lamps:** Optional equipment providing orientation lines on insertion for easier alignment. Up to 4 marking lamps can be switched on for each program. This setting only activates the option, the actual switching is defined in the program parameters (see **Marking lamps** (🕮 *p. 120*)) • **Barcode scanner:** Optional equipment for performing a safety check before sewing. A barcode can be stored with each program. Agreement with the barcode on the clamp is checked. Sewing only proceeds when the barcodes agree. You enter the barcode ID in the program parameters (see **Clamp ID code** (🕮 *p. 119*)).
	**Clamp type** The following clamp types are available: • **Single clamp:** One-piece parallel clamp with angle mount • **Single clamp with hanger** (Def.): One-piece parallel clamp with hanger mount • **Double clamp:** Two-piece parallel clamp with angle mount • **Alternating clamp:** Removable clamp • **Special clamp:** Special clamp
	**Clamp limitation** • **Preset limitation** (Def.): No additional structures are taken into account • **Special limitation:** Individual limits are taken into account

Symbol	Meaning
	**Pedal mode** The following options are available: • **Mode 1:** The current position of the pedal is evaluated • **Mode 2** (Def.): The pedal must be returned to the initial position after every press before a new press is recognized • **Mode 3:** The current position of the pedal is evaluated. The quick-start mode is also enabled (see **Load mode** (📖 *p. 120*)). The machine must be switched off and on in order to activate the quick-start mode. • **Push button:** In push button mode one sensor is used only for controlling the clamp motion (up and down). The other sensor is used for starting the sewing process.
	**Barcode mode** The following options are available: • **Manual:** Machine checks whether the inserted clamp matches the entered seam program. If the clamp is correct, the machine is ready for sewing. If the clamp is incorrect, an error message will be displayed, and the clamp will have to be replaced. • **Automatic:** The machine looks for the seam program that matches the inserted clamp. The machine is ready for sewing once the seam program has been selected.

Information

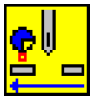
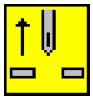
The remaining thread monitor (MP 1, *Optional equipment*) and the bobbin counter (MP 6) can be activated simultaneously. The display shows the two options as follows:

Fig. 110: Remaining thread monitor and bobbin counter



(1) - Display - remaining thread monitor:
Remaining thread monitor active:
***R** shown*
Remaining thread monitor inactive:
***R** hidden*

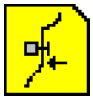
(2) - Display - bobbin counter:
Bobbin counter active:
Number black
Bobbin counter inactive:
Number grayed-out

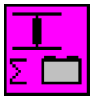
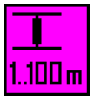
	**MP2 - Limit values**
Symbol	**Meaning**
	**Max. speed** (min. = 500 .. max. = 2700; Def. 2700 rpm) All sewing programs are limited to this maximum speed
	**Max. run-empty speed** (min. = 10 .. max. = 100; Def. 100 %) Limits all clamp movements between the seams to this value
	**Feed starting angle** (min. = 30 .. max. = 350; Def. 210 degrees) The clamp motion during the stitch starts at this angle of needle motion
	**Feed phase** (min. = 30 .. max. 100; Def. 80 %) This parameter defines how the clamp is to be moved during the stitch. (A value of 100 % means that the desired clamp motion is distributed over the entire stitch.)
	**Reversal position** (min. = 0 .. max. 359; Def. 0 degrees) The needle is reversed at this angle in order to increase the clearance to the clamp.
	**Edit times and routes** This function is only for Dürkopp Adler Service personnel

	**MP3 - Needle thread monitor**
Symbol	**Meaning**
	**Needle thread monitor mode** The following options are available: • **Threading position**: After detection of a thread breaking, the thread is cut, and the clamp then moves to the threading position • **Thread cutting** (Def.): After detection of a thread breaking, the thread is cut, and the clamp then moves to the contour position according to the defined reversing path • **Pausing:** After detection of a thread breaking, seam motion is stopped • **Not activated:** The needle thread monitor is ignored
	**Reversing path after thread breaking** (min. = 0 .. max. 20; Def. 5 stitches) Number of stitches to be taken into account when reversing after a thread breaking

Symbol	Meaning
	**Position of bobbin change X** The value range varies depending on the subclass and sewing field size
	**Position of bobbin change Y** The value range varies depending on the subclass and sewing field size

	**MP4 - Thread cutting**
Symbol	**Meaning**
	**Cutting speed** (min. = 70 .. max. 500; Def. 180 rpm) Speed of the cutting stitch
	**Cutting position on** (min. = 0° .. max. 359°; Def. 180°) Angular position of the needle at which the thread cutting knife is switched on
	**Cutting position off** (min. = 0° .. max. 359°; Def. 359°) Angular position of the needle at which the thread cutting knife is switched off
	**Thread tension during thread cutting** (min. = 00 .. max. 100; Def. 10 %) Thread tension of the cutting stitch
	**Position for thread tension during thread cutting** (min. = 0° .. max. 400°; Def. 370°) Starting angle for the thread tension during the cutting stitch (At an angle greater than 359° the thread tension is activated in the next stitch.)

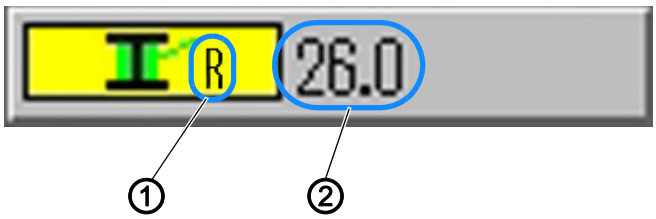
	**MP5 - Thread clamping**
Symbol	**Meaning**
	**Close thread clamp at 1st stitch** (min. = 0° .. max. 250°; Def. 180°) Start angle for closing the thread clamp during the first stitch
	**Open thread clamp at 1st stitch** (min. = 0° .. max. 359°; Def. 340°) Starting angle for opening the thread clamp during the first stitch. If the closing and opening angles are the same then the thread clamp is not activated

	**MP6 - Counters**
Symbol	**Meaning**
	**Counter type** The following options are available: • **Increment counter** (Def.): The counter is incremented after each sewn program • **Decrement counter**: The counter is decremented after each sewn program • **Increment seam sequence counter:** The counter is incremented after each seam sequence sewn • **Decrement seam sequence counter:** The counter is decremented after each seam sequence sewn
	**Reset value for the counter** (min. = 0 .. max. 9999; Def. 0) Value to which the counter is set when a counter reset is performed
	**Adjust seam count for bobbin reserve** (min. = 0 .. max. 100; Def. 0) A message is displayed to the user after the number of seams specified here have been sewn. A value of 0 deactivates the function
	**Bobbin supply capacity** (min. = 0.0 .. max. 400.0; Def. 0.0 m) A message is displayed to the user after the bobbin supply capacity has been consumed. A value of 0 deactivates the function

Information

The remaining thread monitor (MP 1, *Optional equipment*) and the bobbin counter (MP 6) can be activated simultaneously. The display shows the two options as follows:

Fig. 111: Remaining thread monitor and bobbin counter



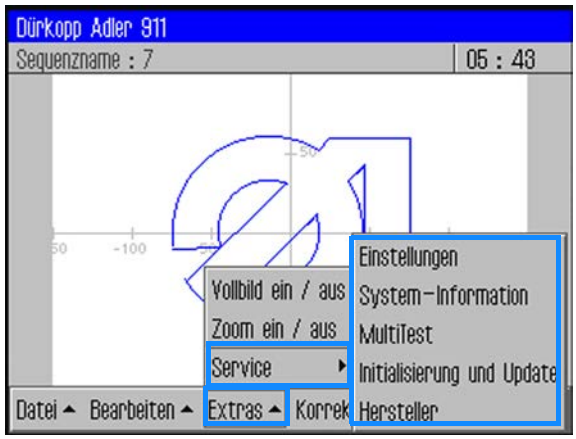
(1) - Display - remaining thread monitor:
Remaining thread monitor active:
***R** shown*
Remaining thread monitor inactive:
***R** hidden*

(2) - Display - bobbin counter:
Bobbin counter active: Number black
Bobbin counter inactive:
Number grayed-out

18.12 Checking and changing the technical settings

The technical settings are made via the menu item *Extras* > *Service*.

Fig. 112: Checking and changing the technical settings



Important

A password must always be entered in order to access the additional menu items in *Extras* > *Service* (🕮 *p. 97*).

18.12.1 Changing the password options

The default password on delivery is: 25483.

You can change this password and also define whether the password only applies to the technical menu items or must always be entered after the machine is switched on.

Changing the password

To change the password:

1. Press the menu items *Extras* > *Service* > *Einstellungen (Adjustments)*.

↳ The *Einstellungen (Adjustments)* window appears.

2. Press the *Operator Passwort (Operator Password)* option.
3. In the following window press the option *Passwort ändern (Change password)*.

↳ The window for entering the new password appears.

4. Enter the new password (🕮 *p. 97*).

Important

The password must not have more than 5 digits.

5. Confirm the new password with **OK**.

Defining the password protected areas

To define the password protected areas:

1. Press the menu items *Extras* > *Service* > *Einstellungen (Adjustments)*.

↳ The *Einstellungen (Adjustments)* window appears.

2. Press the *Operator Passwort (Operator Password)* option.

↳ In the next window the *Aktivieren/Deaktivieren (Activate/Deactivate)* option indicates the type of password protection:

- ☒ - Comprehensive password protection activated:
  Password protection of the first action after switching on
- ❑ - Comprehensive password protection deactivated:
  Password protection for the technical menu items only

3. Press the *Aktivieren/ Deaktivieren (Activate/ Deactivate)* option to switch between each respective setting.
4. Confirm with **OK**.

Important

Switch off and on again the machine to adopt the setting.

18.12.2 Changing the language

To change the language:

1. In the menu item *Extras* > *Service* > *Einstellungen (Adjustments)* press the *Sprache (Language)* option.

↳ The list of available languages is displayed.

2. Press the desired language.
3. Confirm with **OK**.

↳ The screen is reloaded in the selected language.

18.12.3Setting date and time

To set date and time:

1. In the menu item *Extras* > *Service* > *Einstellungen (Adjustments)* press the option *Datum und Uhrzeit (Date and time)*.

↳ The data entry window for date and time is displayed.

2. Enter the date and/or time.
3. Confirm with **OK**.

↳ The entered values are adopted.

18.12.4 Setting the brightness

To set the brightness:

1. In the menu item *Extras* > *Service* > *Einstellungen (Adjustments)* press the *Bedienfeld-Einstellungen (Control panel settings)* option.
2. In the following window press the *Kontrast (Contrast)* *Helligkeit (Brightness)* option.

↳ A window with slider controls is displayed.

3. Pull the corresponding slider control up or down to change the value.

↳ The changes are immediately visible on the display.

18.12.5 Testing the touchscreen

You can use the *Extras* > *Service* > *Einstellungen (Adjustments)* menu item to check that the touchscreen is functioning correctly over all areas of the screen.

To test the touchscreen:

1. In the menu item *Extras* > *Service* > *Einstellungen (Adjustments)* press the *Bedienfeld-Einstellungen (Control panel settings)* option.
2. In the following window press the *Touch Test* option.

↳ An empty window is opened.

3. Use your finger to press various different points or draw lines.

↳ When the touchscreen is functioning correctly all touched points of the screen are marked.

18.13 Testing the functions of the machine

You can use the *Extras* > *Service* > *Multitest (Multi test)* menu item to check the inputs and outputs, test the sewing motor and set the stroke position.

Fig. 113: Testing the functions of the machine

Information

The functions *Transport clamp* and *Thread burner* are only intended for use by Dürkopp Adler Service personnel.

18.13.1 Test inputs and outputs

Important

The instructions only provide an overview of the test possibilities.

The tests may only be performed by qualified specialists that have received training from Dürkopp Adler.

WARNING

Risk of injury from sharp and moving parts!

Puncture or crushing possible.

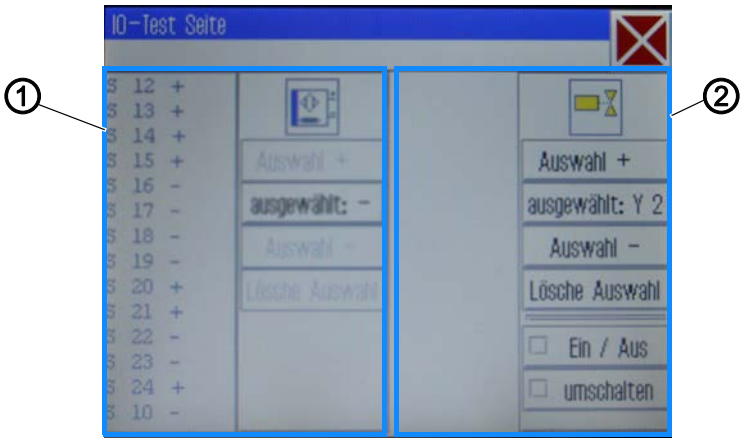
Do NOT reach into the machine during function testing of inputs and outputs.

To test inputs and outputs:

1. In the menu item *Extras* > *Service* > *Multitest (Multi test)* press the *Eingänge/Ausgänge testen (Test inputs / outputs)* option.

↳ The *IO-Testseite (IO Test Page)* window is displayed.

Fig. 114: Test inputs and outputs



(1) - Area for input elements *(2) - Area for output elements*

The input elements are listed and selected at the left side (1) and the output elements at the right side (2).

2. For the 1st time: Press the button *selected:* and select an output.
3. Next, use *Auswahl + (Select +)* or *Auswahl - (Select -)* to select the desired element in the respective area.

↳ The number of the element is displayed on the *ausgewählt: (selected:)* button.

4. Test the element using the *Ein/Aus (On/Off)* or *umschalten (Toggle)* buttons, depending on the type of the input or output element.

	Input elements
No.	**Meaning**
S1	Lower right clamp
S2	Lower left clamp
S9	Needle thread monitor active
S10	Hook cover closed
S11	Machine head latch closed
S13	Pedal forwards
S14	Pedal backwards
S16	Pressure switch
S17	Quick-stop
S100	Sewing motor reference
S101	X-axis reference
S102	Y-axis reference
S103	Z-axis reference

	Output elements
No.	**Meaning**
Y1	Foot mode
Y2	Hook cover
Y3	Needle cooling on
Y4	Right clamp
Y5	Left clamp
Y9	Threading switch lamp on
Y10	Oil level indicator warning light on
Y11	Burner transformer on
Y12	Upper burner
Y13	Lower burner
Y14	Thread suction device
Y25	Marking lamp 1 (Z)
Y26	Marking lamp 2 (Z)
Y27	Marking lamp 3 (Z)
Y28	Marking lamp 4 (Z)

18.13.2 Adjusting the stroke position

WARNING

Risk of injury from sharp and moving parts!

Puncture or crushing possible.

Do not reach into the machine when setting the stroke position.
Switch off the power to the drives when you wish to test the freedom of motion of the sewing foot rod.

To adjust the stroke position:

1. In the menu item *Extras* > *Service* > *Multitest (Multi test)* press the *Hublage einstellen (Set stroke position)* option.

↳ The following options are displayed:

Symbol	Meaning
	**Perform a reference run** Check the movement
	**Switch between jumping foot and presser foot** Switch over the mode of operation
	**Go to position** Adjust the sewing foot height
	**Switch off the power to the drives** Manually check the freedom of motion of the sewing foot rod

2. Press the desired symbol and execute the function.

18.13.3Testing the sewing motor

WARNING

Risk of injury from sharp and moving parts!

Puncture or crushing possible.

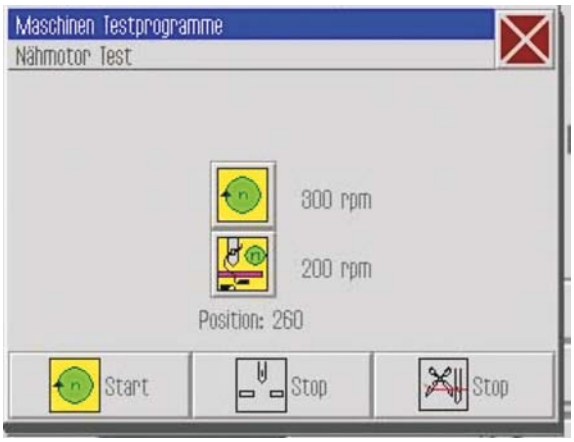
Do not reach into the machine during the function test of the motor.

To test the sewing motor:

1. In the menu item *Extras* > *Service* > *Multitest (Multi test)* press the *Nähmotor testen (Test sewing motor)* option.

↳ The sewing motor test screen is displayed:

Fig. 115: Testing the sewing motor



Important

Remove the thread from the needle and the thread lever before starting the test.

2. Press the button.

↳ The window for entering the speed opens.

3. Enter the desired value (300 - 2000 rpm).

4. Press the button.

↳ The window for entering the cutting speed opens.

5. Enter the desired value (70 - 500 rpm).

6. Press the Start button.

↳ The sewing motor runs at the entered speed.

7. Press the Stop button.

↳ The sewing motor stops.

8. Press the Start button.

↳ The sewing motor runs at the entered speed.

9. Press the Stop button.

↳ The sewing motor stops, and the thread trimmer is actuated.

18.13.4 Calling up log displays and error lists

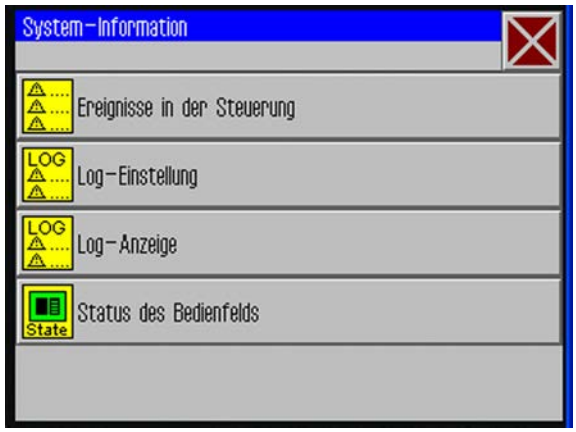
You can access the log settings and error lists via *Extras* > *Service* > *System-Information (System information)*.

To call up log displays and error lists:

1. Press the menu items *Extras* > *Service* > *System-Information (System information)*.

↳ The selection screen for system information appears.

Fig. 116: Calling up log displays and error lists



2. Press the desired symbol.

Symbol	Meaning
	**Control unit events** List of the latest errors
	**Log configuration** Only for Dürkopp Adler Service personnel
	**Log display** List of the last log settings
	**State of control panel** Status appears in the log display

18.14 Initializing the control and performing updates

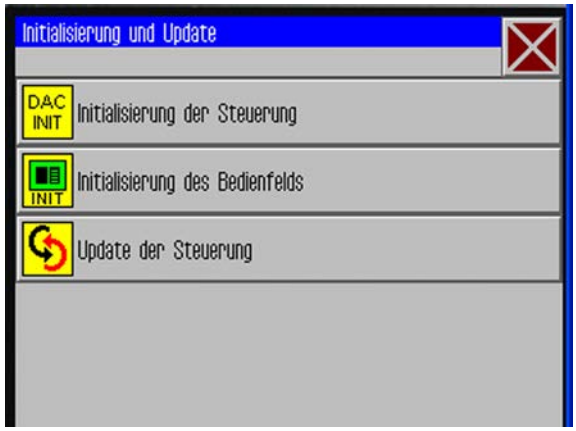
You can use *Extras* > *Service* > *Initialisierung und Update (Initialization and Update)* to reset the control and control panel to the factory defaults and to update the control with a new software version.

To initialize the control and perform updates:

1. Press the menu items *Extras* > *Service* > *Initialisierung und Update (Initialization and Update)*.

↳ The screen for initialization and update appears.

Fig. 117: Initializing the control and performing updates



18.14.1 Initializing the control

Important

Initializing the control resets all values to the factory default settings.
All changes are lost.
Only execute this option if you really want to return to the factory settings.

Order

Save your seam programs and seam sequences to a USB key before performing initialization.

1. Press the *Initialisierung der Steuerung (Initialization Control)* option.

↳ The control is completely reset to the factory default settings.

18.14.2 Initializing the control panel

Important

Initializing the control panel resets all values to the factory default settings.
All changes are lost.
Only execute this option if you really want to return to the factory settings.

1. Press the *Initialisierung des Bedienfelds (Operation panel initialization)* option.

↳ The control panel is completely reset to the factory default settings.

18.14.3Performing an update of the control

Information

The latest software version is available in the download area at *www.duerkopp-adler.com*.

You can easily transfer a new software version from a USB key to the control.

Important

Not all commonly available USB keys are suitable for the copying process.
You can obtain a suitable USB key from Dürkopp Adler.

To perform an update of the control:

1. Switch off the machine.
2. Insert the USB key into the USB port (1) on the control panel.

Fig. 118: Performing an update of the control

(1) - USB port

3. Switch on the machine.

↳ The software update is performed automatically.

Information

If the automatic update does not function then you can use the menu items *Extras* > *Service* > *Initialisierung und Update (Initialization and Update)* > *Update der Steuerung (Update the control)* to load a specific software version.

Contact the Dürkopp Adler Service Hotline for this.

Displaying software version information

The menu item ***?*** displays information on the software currently installed on the machine.

To display information on the software version currently used:

1. Press menu items *?* > Press on *Info*.

↳ The following information is displayed:

- Class
- Subclass
- Software version
- Date of creation of this software version

18.15 DA CAD professional

You can use the DA-CAD professional program to create seam programs on a PC (📖 *Operating Instructions DA CAD professional*).

19 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.

Advanced maintenance work may only be carried out by qualified specialists (🕮 *Service Instructions)*.

Maintenance intervals

Work to be carried out	Operating hours			
	8	40	160	500
Cleaning				
Removing sewing dust and thread residues	●			
Cleaning the motor fan mesh		●		
Lubricating				
Lubricating the machine head	●			
Lubricating the hook		●		
Servicing the pneumatic system				
Adjusting the operating pressure	●			
Draining the water condensation	●			
Cleaning the filter element		●		
Servicing specific components				
Checking the toothed belt		●		

19.1 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!

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

Clean the machine as described.

NOTICE

Property damage from solvent-based cleaners!

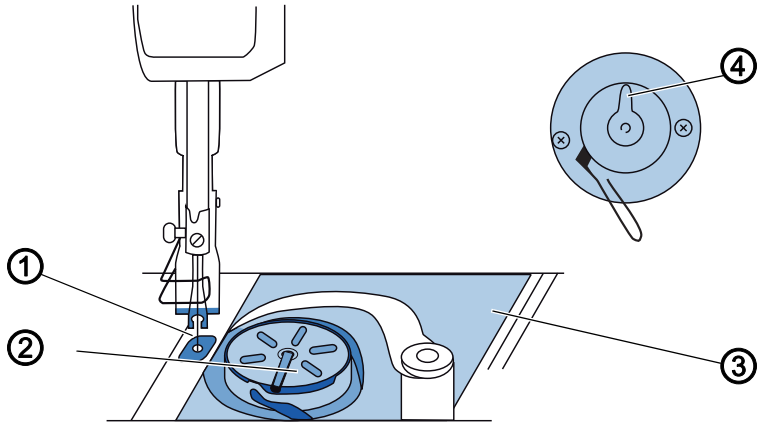
Solvent-based cleaners will damage paintwork.

Use only solvent-free substances for cleaning.

19.1.1 Cleaning the machine

Sewing dust and thread residues 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. 119: Cleaning the machine



(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 dust and thread residues using a compressed air gun or a brush.

19.1.2 Cleaning the motor fan mesh

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

Fig. 120: Cleaning the motor fan mesh

To clean the motor fan mesh:

1. Remove any sewing dust and thread residues using a compressed air gun.

19.2 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:

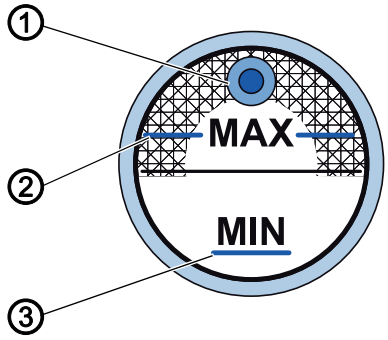
Container	Part no.
250 ml	9047 000011
1 l	9047 000012
2 l	9047 000013
5 l	9047 000014

19.2.1 Lubricating the machine head

Proper setting

The oil level is between the minimum level marking and the maximum level marking.

Fig. 121: Lubricating the machine head



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

To lubricate the machine head:

1. Check the oil level indicator every day.
2. If the oil level is below the minimum level marking (3):
   Top off oil through the refill opening (1) but no higher than the maximum level marking (2).

19.2.2 Lubricating the hook

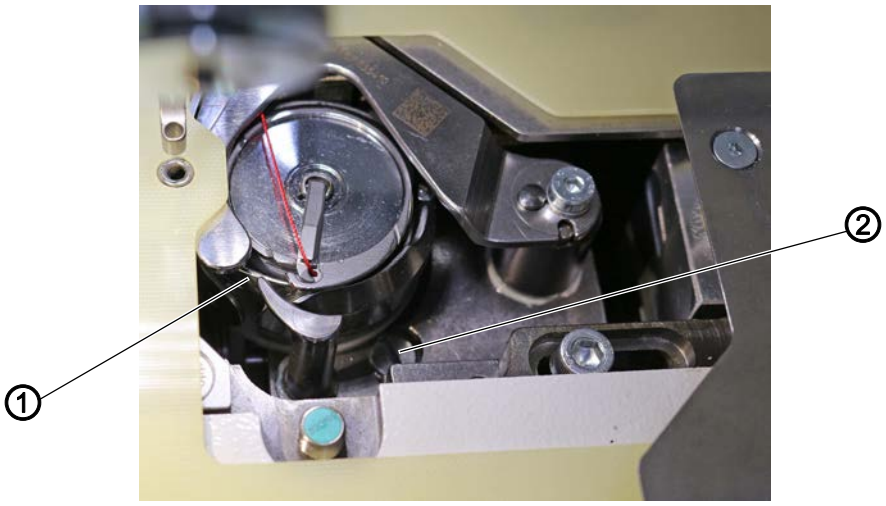
The approved oil quantity for hook lubrication is a factory specification.

Proper setting

1. Hold a piece of blotting paper next to the hook (1) while sewing.

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

Fig. 122: Lubricating the hook



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

To lubricate the hook:

1. Turn the screw (2):
   - **more oil**: turn counterclockwise
   - **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.

19.3 Servicing the pneumatic system

19.3.1 Adjusting the operating pressure

NOTICE

Property damage from incorrect adjustment!

Incorrect operating pressure can result in damage to the machine.

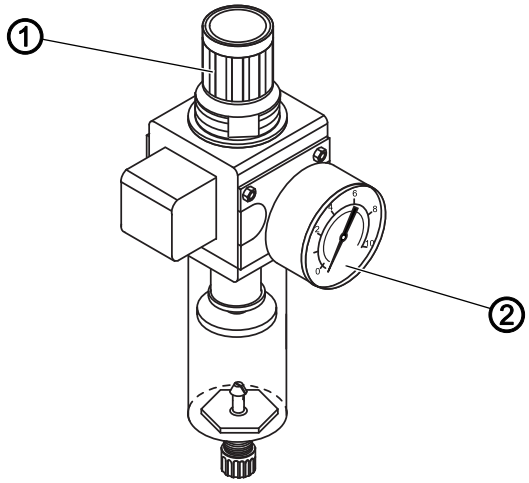
Ensure that the machine is only used when the operating pressure is set correctly.

Proper setting

Refer to the **Technical Data** (📖 *p. 168*) 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. 123: 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.

19.3.2 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.

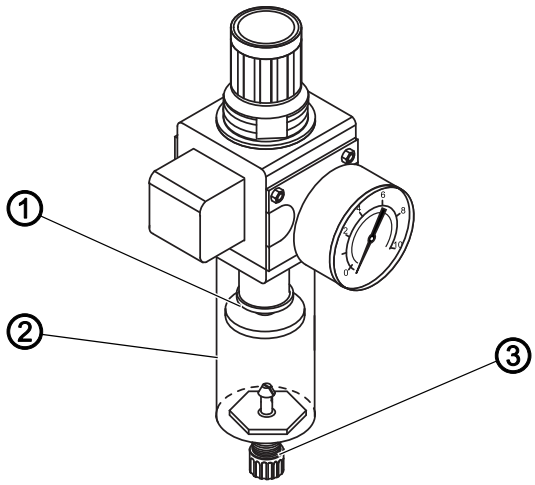
The collection tray (2) of the pressure regulator will show accumulation of a water-oil mixture.

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. 124: 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.

19.3.3 Cleaning the filter element

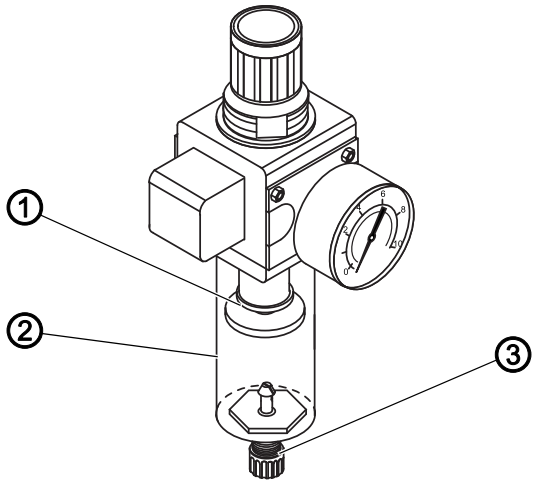
NOTICE

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. 125: 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. 153*).
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.

19.4 Servicing specific components

19.4.1 Checking the toothed belt

WARNING

Risk of injury from moving parts!

Crushing possible.

Switch off the machine before checking the condition of 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.

19.4.2 Checking the thread suction device

Proper setting

The thread is sucked in properly.
Check on a regular basis if the thread suction device sucks in the thread properly without the walls of the hose sticking together.

To check the thread suction device:

1. As soon as the thread is no longer sucked in properly, blow talcum powder into the hose through the opening of the thread suction device.

19.5 Parts list

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

www.duerkopp-adler.com

20 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.

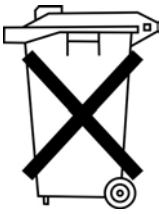
21 Disposal

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.

22 Troubleshooting

22.1 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.comError and information messages

22.2 Messages of the software

Error code	Description	Troubleshooting
Sewing motor		
1051	Sewing motor timeout • Cable to sewing motor reference switch defective • Reference switch defective • Machine head does not move freely or has excessive belt tension	• Replace cable • Replace the reference switch • Check the ease of movement and belt tension of the machine head
1052	Sewing motor excess current • Sewing motor cable defective • Sewing motor defective • Control defective	• Replace sewing motor cable • Replace sewing motor • Replace control
1053	Sewing motor mains voltage too high	Check mains voltage
1055	Sewing motor overload • Sewing motor blocked/not moving freely • Sewing motor defective • Control defective	• Fix blockage/sluggishness • Check the sewing motor • Check the control
1056	Sewing motor overtemperature • Sewing motor not moving freely • Sewing motor defective • Control defective	• Eliminate seizing • Replace sewing motor • Replace control
1058 1302 1342 1344	Sewing motor speed • Sewing motor defective Sewing motor error Control not receiving pulses from pulse encoder in motor Sewing motor error Internal error	• Replace sewing motor • Check the cable from the pulse encoder in the motor to the control • Switch off and on the machine again • Software update
Stepper motors		
2101	X-axis stepper motor referencing timeout • Faulty reference switch setting • Cable to reference switch defective • Reference switch defective	• Align reference switch • Replace cable • Check reference switch
2102	X-axis stepper motor current error • Stepper motor blocked • Encoder cable not connected or defective • Encoder defective	• Fix blockage • Check/replace the encoder cable • Replace stepper motor
2152	X-axis stepper motor excess current	• Replace stepper motor • Replace control
2153	X-axis stepper motor overvoltage • Mains voltage too high	• Check mains voltage

Error code	Description	Troubleshooting
2155	X-axis stepper motor overload • Feed system not moving freely • Obstacle to feed movement	• Eliminate sluggishness • Remove obstacles/adjust the motion
2156	X-axis stepper motor overtemperature • Stepper motor sluggish • Stepper motor faulty • Control defective	• Eliminate seizing • Replace stepper motor • Replace control
2201	Y-axis stepper motor referencing timeout • Faulty reference switch setting • Cable to reference switch defective • Reference switch defective	• Align reference switch • Replace cable • Replace the reference switch
2202	Y-axis stepper motor current error • Stepper motor blocked • Encoder cable not connected or defective • Encoder defective	• Fix blockage • Check/replace the encoder cable • Replace encoder
2252	Y-axis stepper motor excess current	• Replace stepper motor • Replace control
2253	Y-axis stepper motor overvoltage • Mains voltage too high	• Check mains voltage
2255	Y-axis stepper motor overload • Feed system not moving freely • Obstacles to the feed motion	• Eliminate sluggishness • Remove obstacles/adjust the motion
2256	Y-axis stepper motor overtemperature • Feed system not moving freely • Stepper motor faulty • Control defective	• Eliminate seizing • Replace stepper motor • Replace control
2301	Stroke position stepper motor referencing timeout • Faulty reference switch setting • Cable to reference switch defective • Reference switch defective	• Align reference switch • Replace cable • Replace the reference switch
2302	Stroke position stepper motor current error • Stepper motor blocked • Encoder cable not connected or defective • Encoder defective	• Fix blockage • Check/replace the encoder cable • Replace encoder
2352	Stroke position stepper motor excess current	• Replace stepper motor • Replace control
2353	Stroke position stepper motor overvoltage • Mains voltage too high	• Check mains voltage

Error code	Description	Troubleshooting
2355	Stroke position stepper motor overload • Feed system not moving freely • Obstacles to the feed motion	• Eliminate sluggishness • Remove obstacles/adjust the motion
2356	Stroke position stepper motor overtemperature • Feed system not moving freely • Stepper motor faulty • Control defective	• Eliminate sluggishness • Replace stepper motor • Replace control
Machine control		
3100	Machine control voltage • Temporary mains voltage interruption	• Check mains voltage
3102	Machine voltage in sewing motor intermediate circuit • Temporary mains voltage interruption	• Check mains voltage
3103	Machine voltage in stepper motor intermediate circuit • Temporary mains voltage interruption	• Check mains voltage
3107	Machine temperature • Ventilation openings closed • Ventilation grille dirty	• Clean ventilation grille • Check ventilation openings
3109	Threading mode is switched on	Switch off threading mode
3121	Compressed air is missing, not sufficient	Turn up air pressure and stabilize
3123	Oil sensor active	Top off the oil
3210	Thread broken	Re-thread the thread
3215	Bobbin empty (remaining thread counter)	Insert full bobbin
3220	Bobbin empty (remaining thread counter)	Insert full bobbin
3500	Error in calculating the contour data	• Reload the contour data • Check the contour data
3501	Target position of the XY clamps outside the motion limits	Adjust the contour data
3502	Target position of the XY clamps within the "forbidden areas"	Adjust the contour data
3721 3722	Internal error	• Switch off and on the machine • Software update • Notify DA Service
4201	Internal CF card defective	• Switch off and on the machine • Retrofit/replace control
5301	Program cannot be sewn	Copy program to DAC

Error code	Description	Troubleshooting
6551 6554 6651 6653 6751 6761	Error in machine head position/AD converter/process error Internal error	• Switch off and on the machine • Software update • Notify DA Service
6952	Stepper motor driver error Internal error	• Switch off and on the machine • Software update • Notify DA Service
Communication		
7801	Control panel interface communication • Cable disturbance • Cable	• Switch off and on the machine • Software update • Notify DA Service
8151 8156 8159	IDMA error • Disturbance • Control defective	• Switch off and on the machine • Replace control
8152 8154	IDMA error • Internal error	• Switch off and on the machine • Software update • Notify DA Service
8252 8257 8258 8256 8254	ADSP Boot/Xilinx Boot/ Boot error Disturbance	• Switch off and on the machine
8351	Test pins error	• Switch off and on the machine • Software update • Notify DA Service
8400	Control panel has no valid program for the DAC.	Load the current program into the control panel from a USB key.
8401 8402	Control panel has no valid program for the DAC.	Load the current program into the control panel from a USB key.
8403	Program in DAC is no longer current.	Load the current program into the DAC.
8404 8407	DAC update was faulty.	• Attempt the update again • Check cable connection • Replace the DAC
8408	Waiting for a DAC reset.	Wait until the restart has been performed (Duration: several seconds).
8411	DAC program check is active.	Wait until the test has been performed (Duration: several seconds).
8414	DAC update succeeded.	

Error code	Description	Troubleshooting
8801 8805 8806 8890 8891	Error in test pins/signal processing/ event processing/ Memory wrapper/ list functions Internal error	• Switch off and on the machine • Software update • Notify DA Service
System		
9000	Reference run active	
9002	Machine head not locked down	Lock down machine head
9006	Quick-stop switch is activated.	Releasing the quick-stop switch
9016	Wrong bar code ID	Change the program
9100	The counter has not reached the default value.	Press the OK button. The counter is reset.
9601	Stop while sewing on the contour Continue sewing?	• OK button = Continuing the sewing process • ESC button = Canceling the sewing process
9700	Bobbin case retainer for bobbin change not closed	Close the bobbin case retainer for bobbin change
9701	Parallel clamps not lowered	• Remove obstacles • Align sensors
9900	Incorrect machine parameters	Initialize the data
9901	Incorrect sequences	Initialize the data
9902	Incorrect program parameters	Initialize the data

22.3 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
Skip stitches	Needle thread and hook thread have not been threaded correctly	Check threading path
	Needle is blunt or bent	Replace the needle
	Needle is not inserted correctly into the needle bar	Insert the needle correctly into the needle bar
	The needle thickness used is unsuitable	Use recommended needle thickness
	The reel stand is assembled incorrectly	Check the assembly of the reel stand
	Thread tensions are too tight	Check thread tensions
	Throat plate, hook or spread have been damaged by the needle	Have parts reworked by qualified specialists

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

23 Technical data

23.1 Data and characteristic values

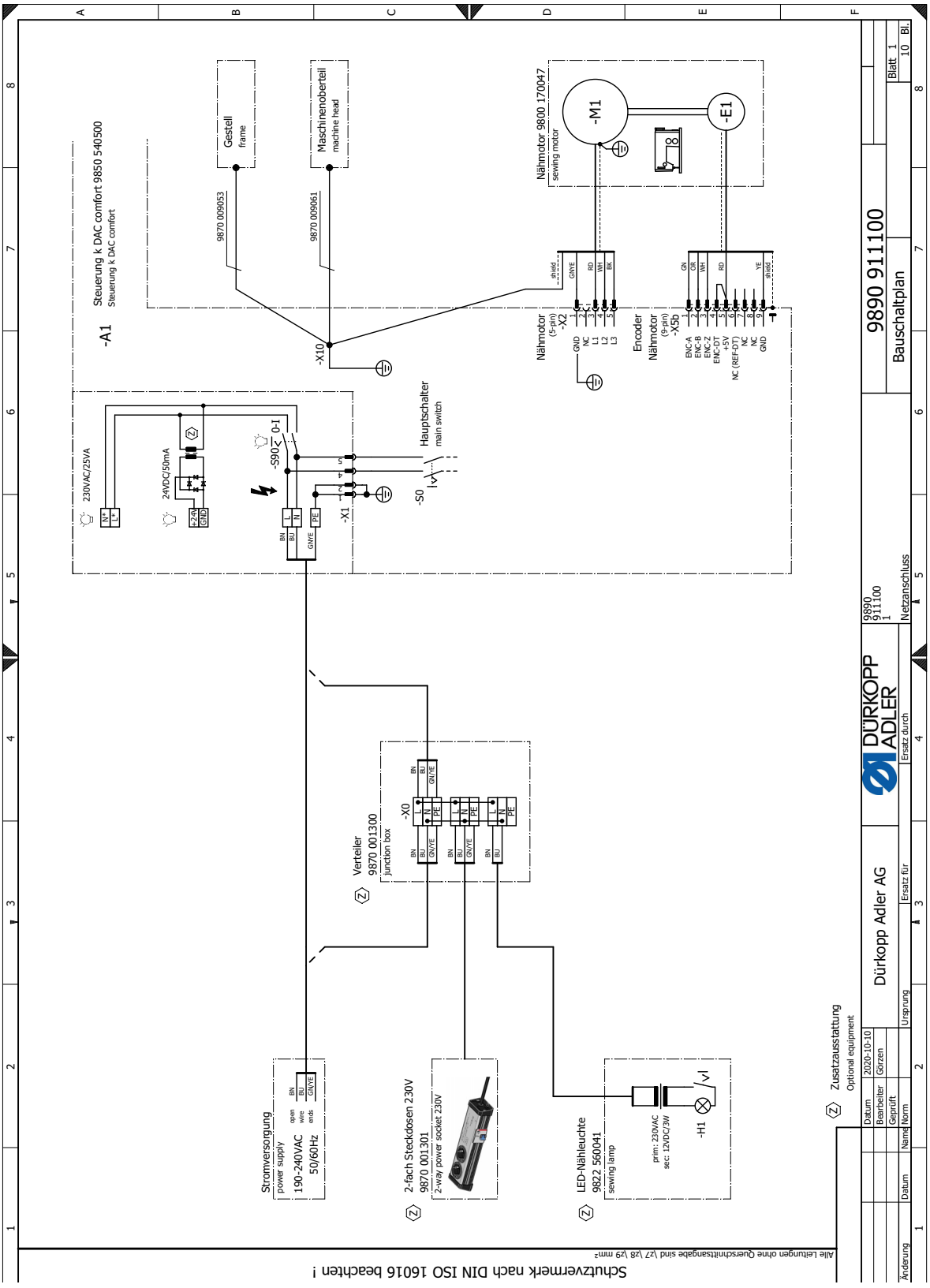
Technical data	Unit	911-211-2010-10	911-211-3020-10	911-211-1006-10
Type of stitches		301		
Hook type		Vertical hook		
Number of needles		1		
Needle system		794		
Needle strength	[Nm]	140 - 230		
Thread strength	[Nm]	min. 20/3 max. 8/3		
Stitch length	[mm]	programmable: 1 - 12.7		
Speed maximum	[min^{-1}]	1400 intermittent		
Needle bar stroke	[mm]	48		
Clamp stroke	[mm]	30 with material thickness monitoring: 24		
Foot lifter	[mm]	20		
Sewing foot stroke	[mm]	4 can also be switched on and off pneumatically during the seam		
Sewing field size	[mm]	200 x 100	300 x 200	100 x 60
Number of free seam contours		99		
Mains voltage	[V]	230		
Mains frequency	[Hz]	50/60		
Operating pressure	[bar]	6		
Length	[mm]	940	1200	
Width	[mm]	1100	1200	
Weight	[kg]	230		

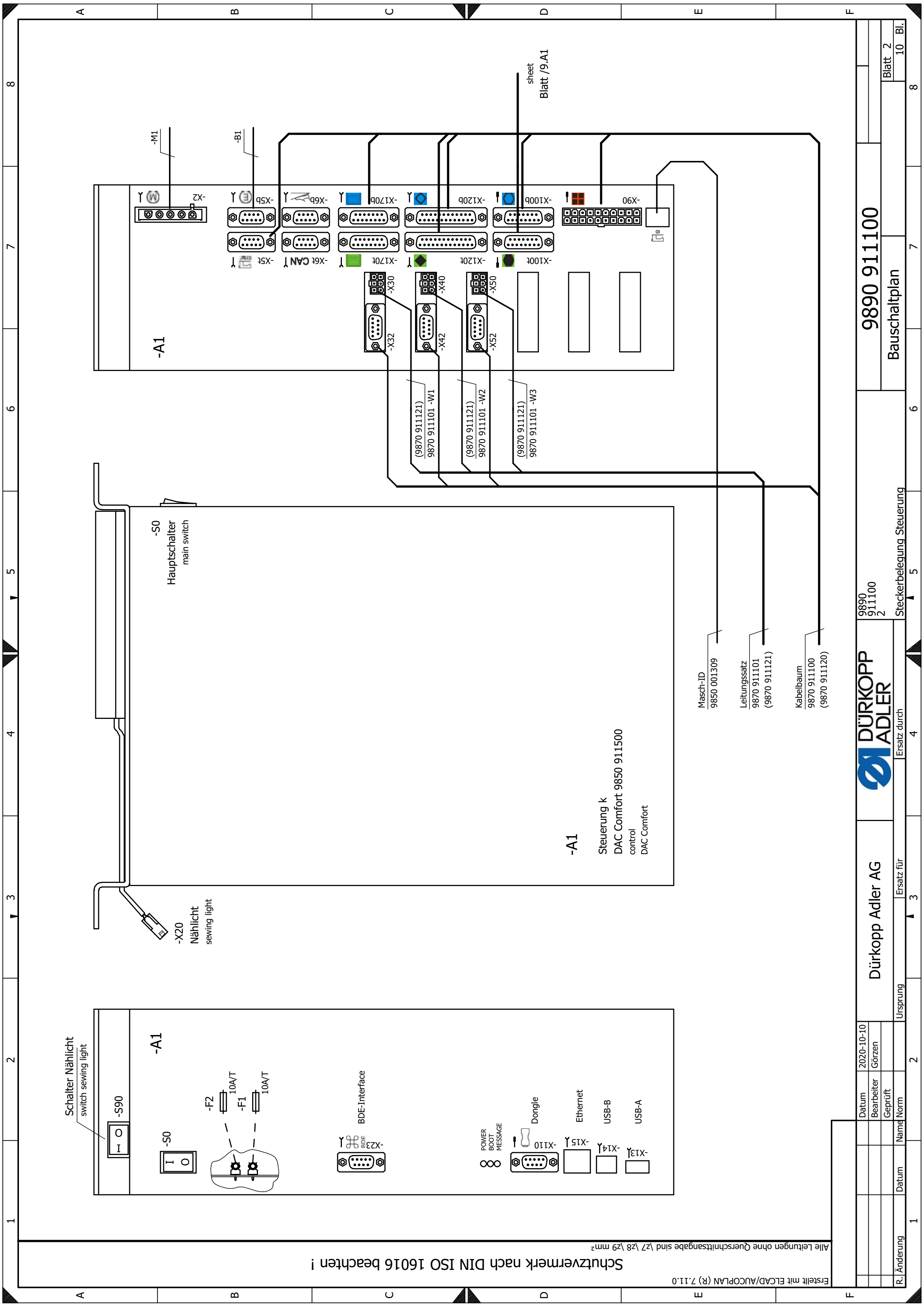
23.2 Requirements for fault-free operation

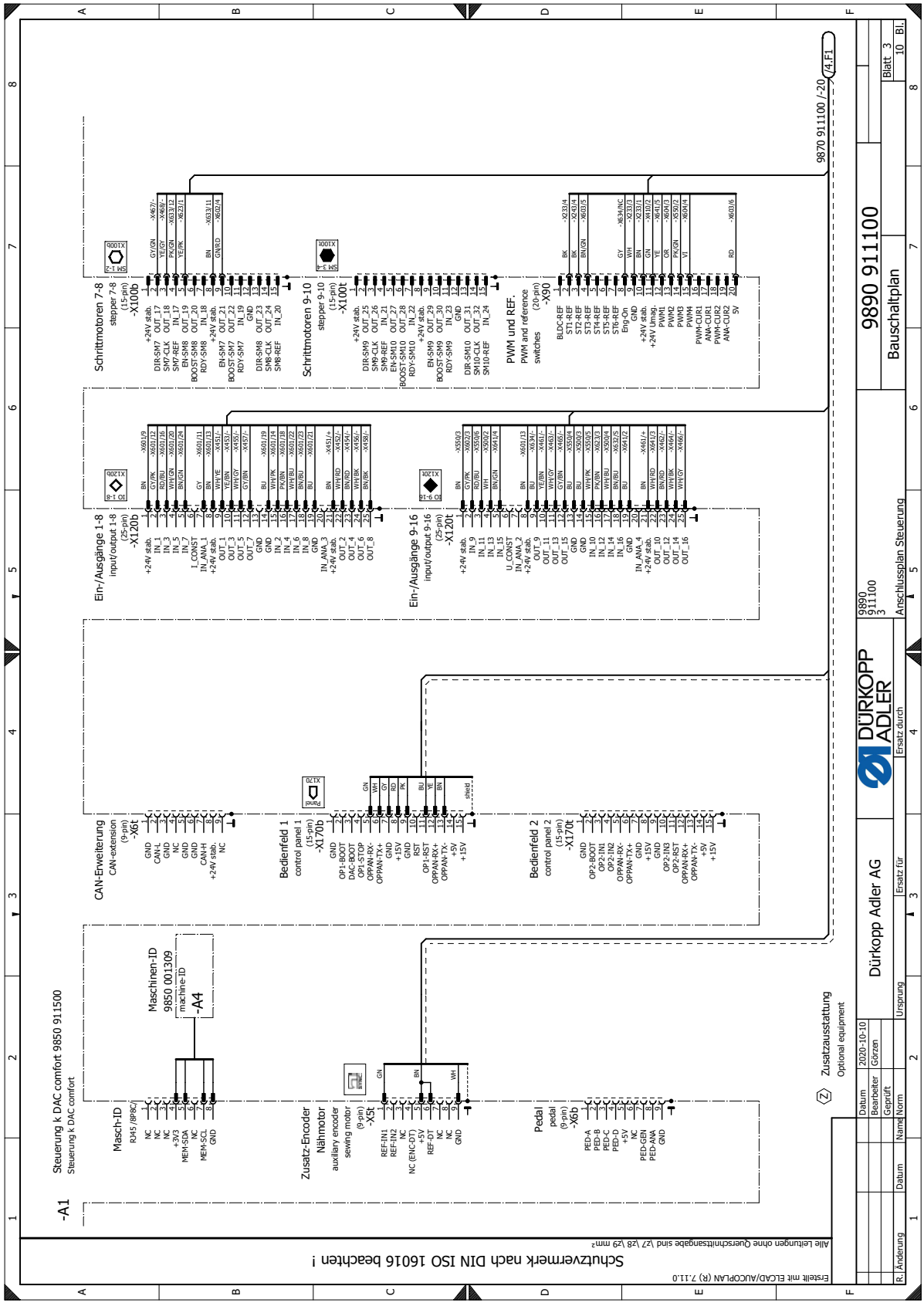
Compressed air quality must conform to ISO 8573-1: 2010 [7:4:4].

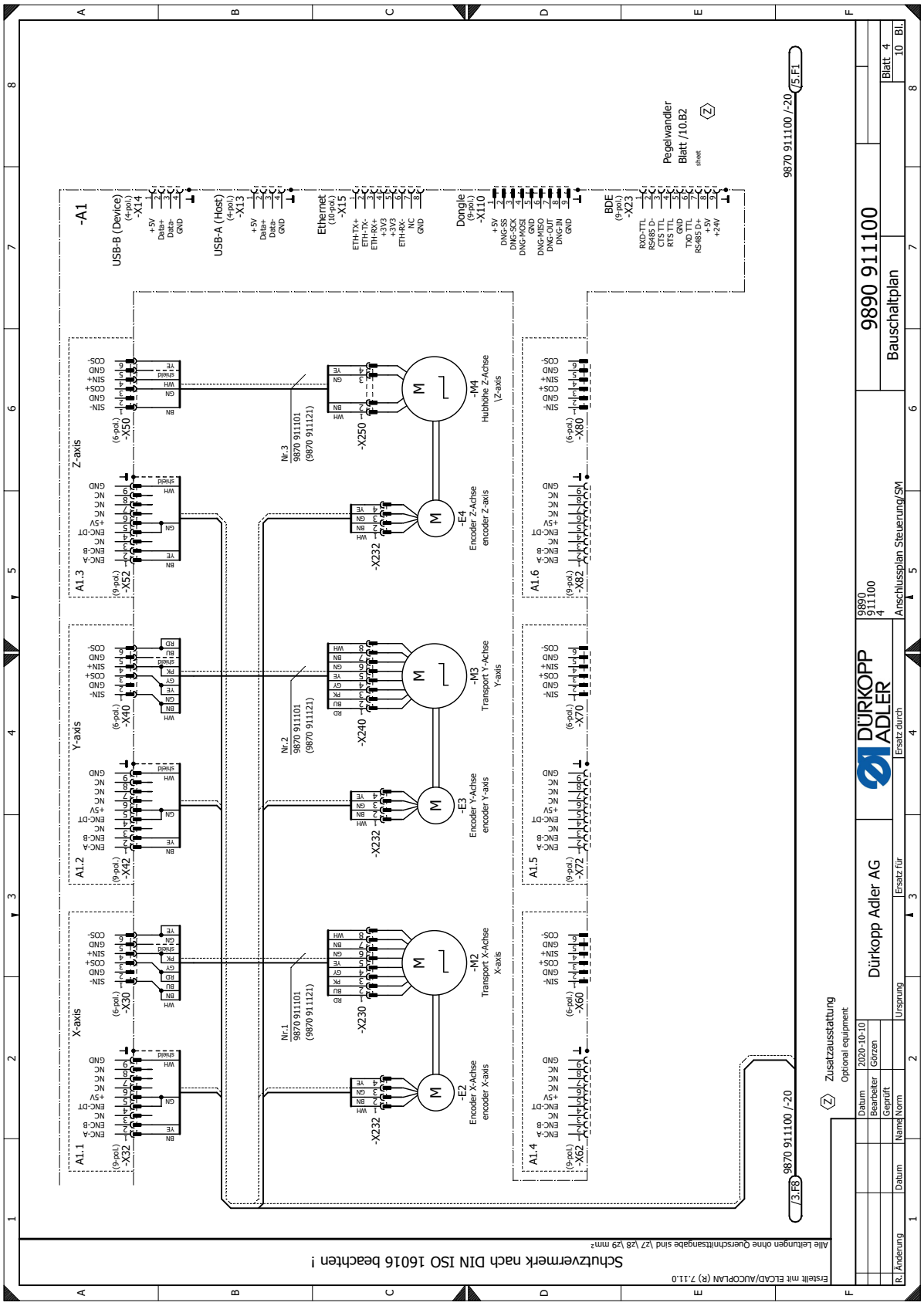
24 Appendix

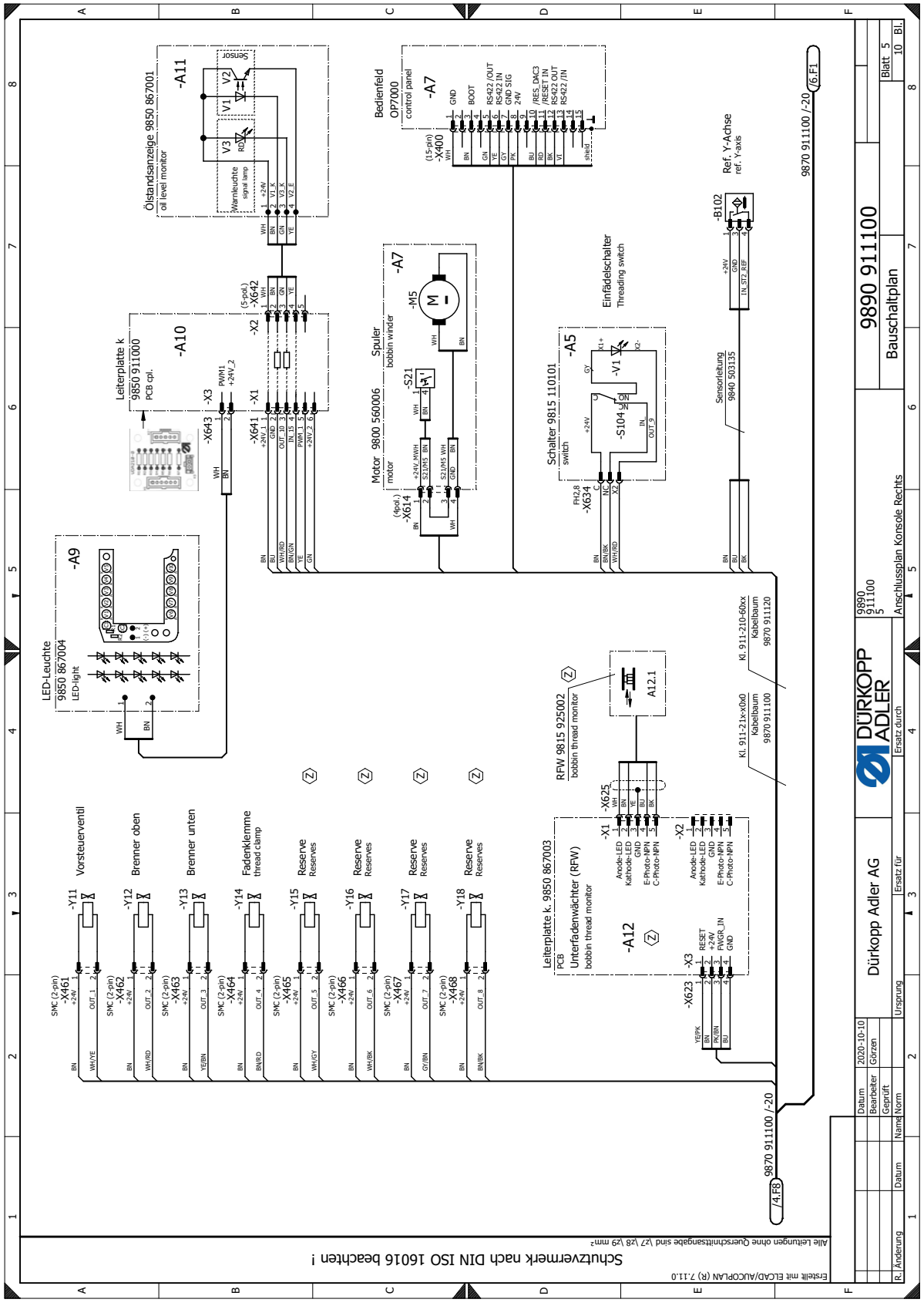
24.1 Wiring diagram

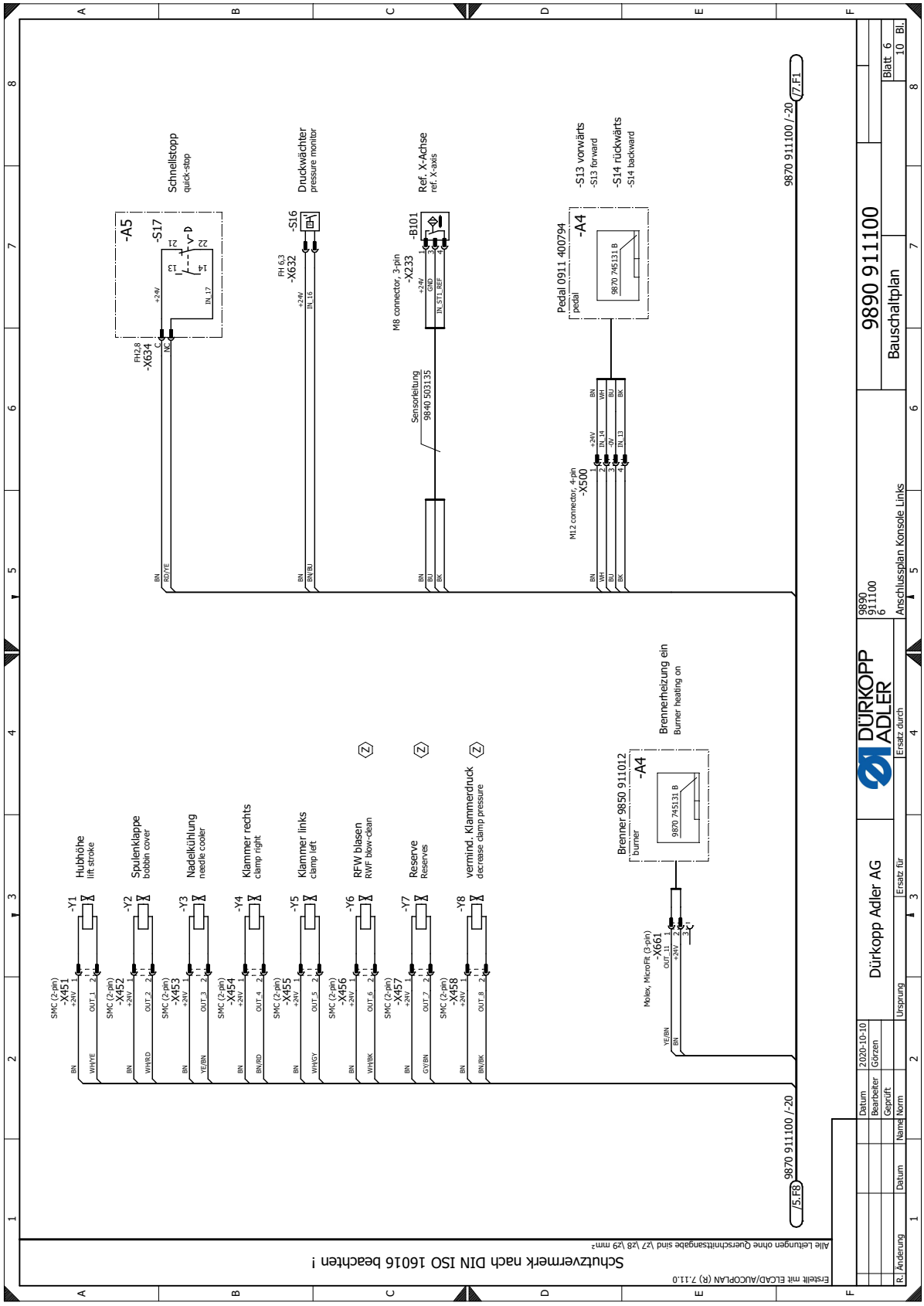


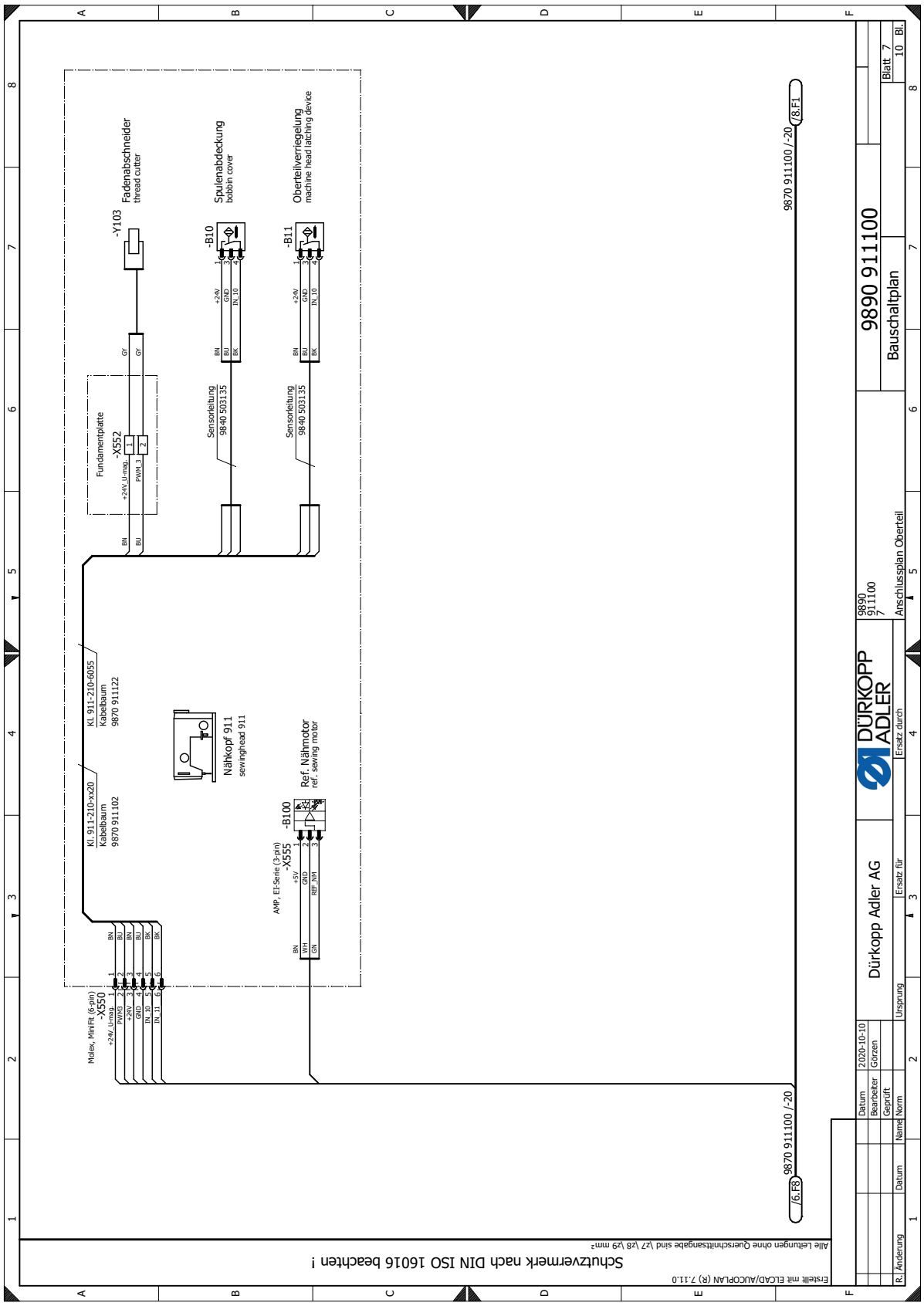

9890 911100
Bauschaltplan
Steckerbelegung Steuerung
Dürkopp Adler AG
DÜRKOPP ADLER
-A1
Steuerung k
DAC Comfort 9850 911500
control
DAC Comfort
-S0
Hauptschalter
main switch
-X20
Nählicht
sewing light
Schalter Nählicht
switch sewing light
-S90
-F2
-F1
10A/T
BDE-Interface
Dongle
Ethernet
USB-B
USB-A
POWER
BOOT
MESSAGE
-X23
-X110
-X15
-X14
-X13
-M1
-B1
-X2
-X5
-X5b
-X6b
-X6b CAN
-X170b
-X120b
-X100b
-X90
-X30
-X40
-X50
-X32
-X42
-X52
9870 911101 -W1
(9870 911121)
9870 911101 -W2
(9870 911121)
9870 911101 -W3
(9870 911121)
sheet
Blatt /9.A1
Masch-ID
9850 001309
Leitungssatz
9870 911101
(9870 911121)
Kabelbaum
9870 911100
(9870 911120)
Datum
2020-10-10
Bearbeiter
Görzen
Geprüft
Name
Norm
Ursprung
Ersatz für
Ersatz durch
Blatt 2
10 Bl.
R. Änderung
Schutzvermerk nach DIN ISO 16016 beachten !
Alle Leitungen ohne Querschnittsangabe sind \27 \28 \29 mm²
Erstellt mit ELCAD/AUCOPLAN (R) 7.11.0

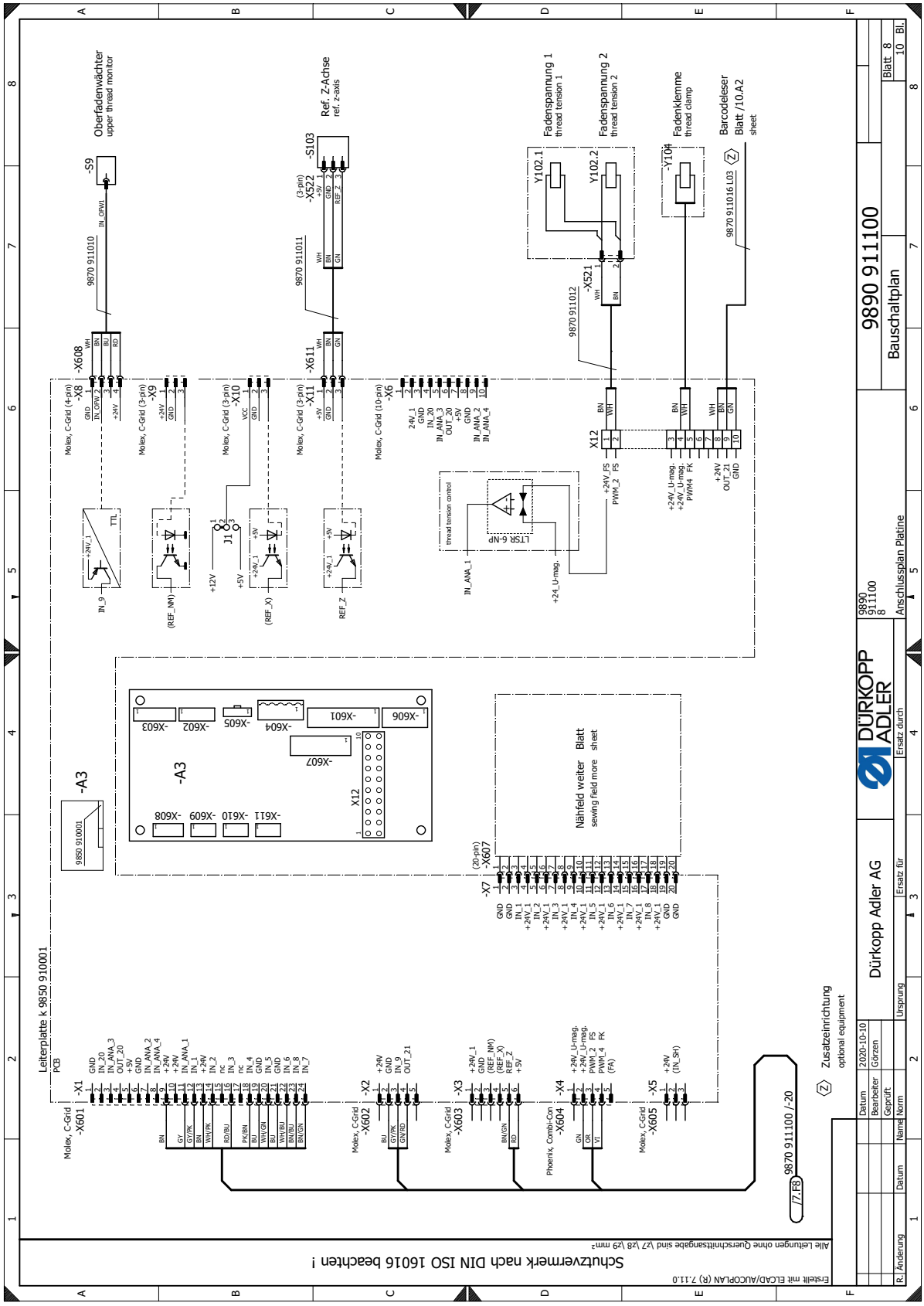

-A1
Steuerung k DAC comfort 9850 911500
Steuerung k DAC comfort
Maschinen-ID
9850 001309
machine-ID
-A4
Masch-ID
RJ45 (8P8C)
-X5t
Zusatz-Encoder
Nähmotor
auxiliary encoder
sewing motor
(9-pin)
-X6b
Pedal
pedal
(9-pin)
CAN-Erweiterung
CAN-extension
(9-pin)
-X6t
Bedienfeld 1
control panel 1
(15-pin)
-X170b
Bedienfeld 2
control panel 2
(15-pin)
-X170t
Ein-/Ausgänge 1-8
input/output 1-8
(25-pin)
-X120b
Ein-/Ausgänge 9-16
input/output 9-16
(25-pin)
-X120t
Schrittmotoren 7-8
stepper 7-8
(15-pin)
-X100b
Schrittmotoren 9-10
stepper 9-10
(15-pin)
-X100t
PWM und REF.
PWM and reference
switches
(20-pin)
-X90
9870 911100 /-20
/4.F1
Zusatzausstattung
Optional equipment
Dürkopp Adler AG
DÜRKOPP ADLER
9890 911100
Bauschaltplan
Blatt 3
10 Bl.
Anschlussplan Steuerung
Ersatz durch
Ersatz für
Ursprung
Datum 2020-10-10
Bearbeiter Görzen
Geprüft
Name Norm
Datum
R. Änderung
Schutzvermerk nach DIN ISO 16016 beachten !
Alle Leitungen ohne Querschnittsangabe sind \27 \28 \29 mm²
Erstellt mit ELCAD/AUCOPLAN (R) 7.11.0

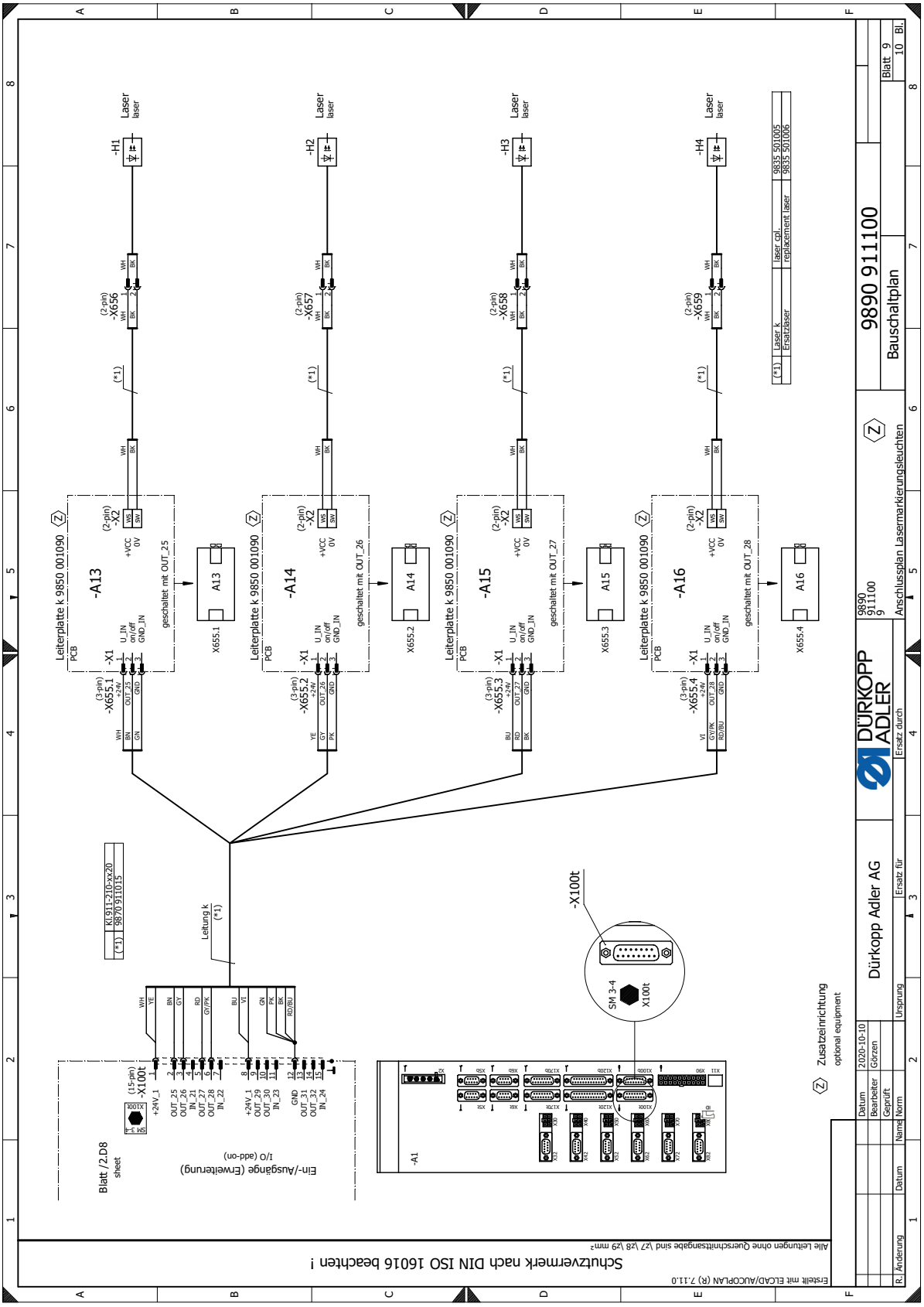

9890 911100
Bauschaltplan
Dürkopp Adler AG
Anschlussplan Steuerung/SM
-A1
USB-B (Device) -X14
USB-A (Host) -X13
Ethernet -X15
Dongle -X110
BDE -X23
Pegelwandler Blatt /10.B2
9870 911100 /-20
-M2 Transport X-Achse X-axis
-M3 Transport Y-Achse Y-axis
-M4 Hubhöhe Z-Achse \Z-axis
-E2 Encoder X-Achse encoder X-axis
-E3 Encoder Y-Achse encoder Y-axis
-E4 Encoder Z-Achse encoder Z-axis
Nr.1 9870 911101 (9870 911121)
Nr.2 9870 911101 (9870 911121)
Nr.3 9870 911101 (9870 911121)
X-axis
Y-axis
Z-axis
Zusatzausstattung
Optional equipment
Schutzvermerk nach DIN ISO 16016 beachten !

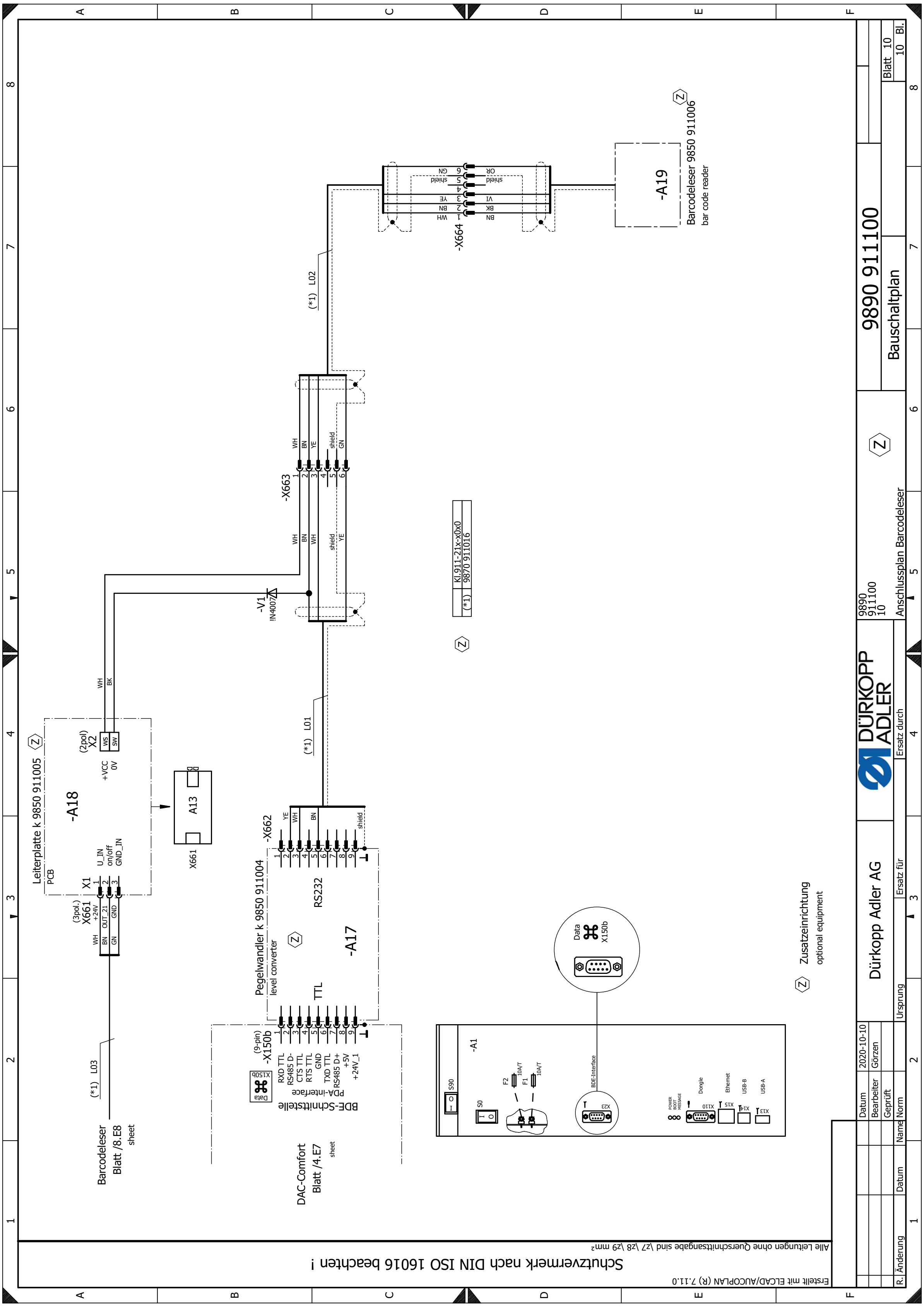

Ölstandsanzeige 9850 867001
oil level monitor
-A11
Warnleuchte
signal lamp
Bedienfeld
OP7000
control panel
-A7
Leiterplatte k
9850 911000
PCB cpl.
-A10
Motor 9800 560006
motor
Spuler
bobbin winder
Schalter 9815 110101
switch
Einfädelschalter
Threading switch
Sensorleitung
9840 503135
Ref. Y-Achse
ref. Y-axis
LED-Leuchte
9850 867004
LED-light
-A9
Vorsteuerventil
Brenner oben
Brenner unten
Fadenklemme
thread clamp
Reserve
Reserves
RFW 9815 925002
bobbin thread monitor
A12.1
Leiterplatte k. 9850 867003
PCB
Unterfadenwächter (RFW)
bobbin thread monitor
-A12
Kl. 911-210-60xx
Kabelbaum
9870 911120
Kl. 911-21x-x0x0
Kabelbaum
9870 911100
9870 911100 /-20
/6.F1
/4.F8
Dürkopp Adler AG
9890 911100
Bauschaltplan
Anschlussplan Konsole Rechts
Blatt 5
10 Bl.
Ersatz durch
Ersatz für
Ursprung
Datum
Name
Norm
Bearbeiter
Görzen
Geprüft
2020-10-10
R. Änderung
Schutzvermerk nach DIN ISO 16016 beachten !
Erstellt mit ELCAD/AUCOPLAN (R) 7.11.0


9890 911100
Bauschaltplan
Dürkopp Adler AG
Anschlussplan Konsole Links
Schutzvermerk nach DIN ISO 16016 beachten !
Alle Leitungen ohne Querschnittsangabe sind \Z7 \Z8 \Z9 mm²
Erstellt mit ELCAD/AUCOPLAN (R) 7.11.0
Schnellstopp
quick-stop
Druckwächter
pressure monitor
Ref. X-Achse
ref. X-axis
-S13 vorwärts
-S13 forward
-S14 rückwärts
-S14 backward
Pedal 0911 400794
pedal
Sensorleitung
9840 503135
Brennerheizung ein
Burner heating on
Brenner 9850 911012
burner
Hubhöhe
lift stroke
Spulenklappe
bobbin cover
Nadelkühlung
needle cooler
Klammer rechts
clamp right
Klammer links
clamp left
RFW blasen
RWF blow-clean
Reserve
Reserves
vermind. Klammerdruck
decrease clamp pressure
9870 911100 /-20
/7.F1
/5.F8

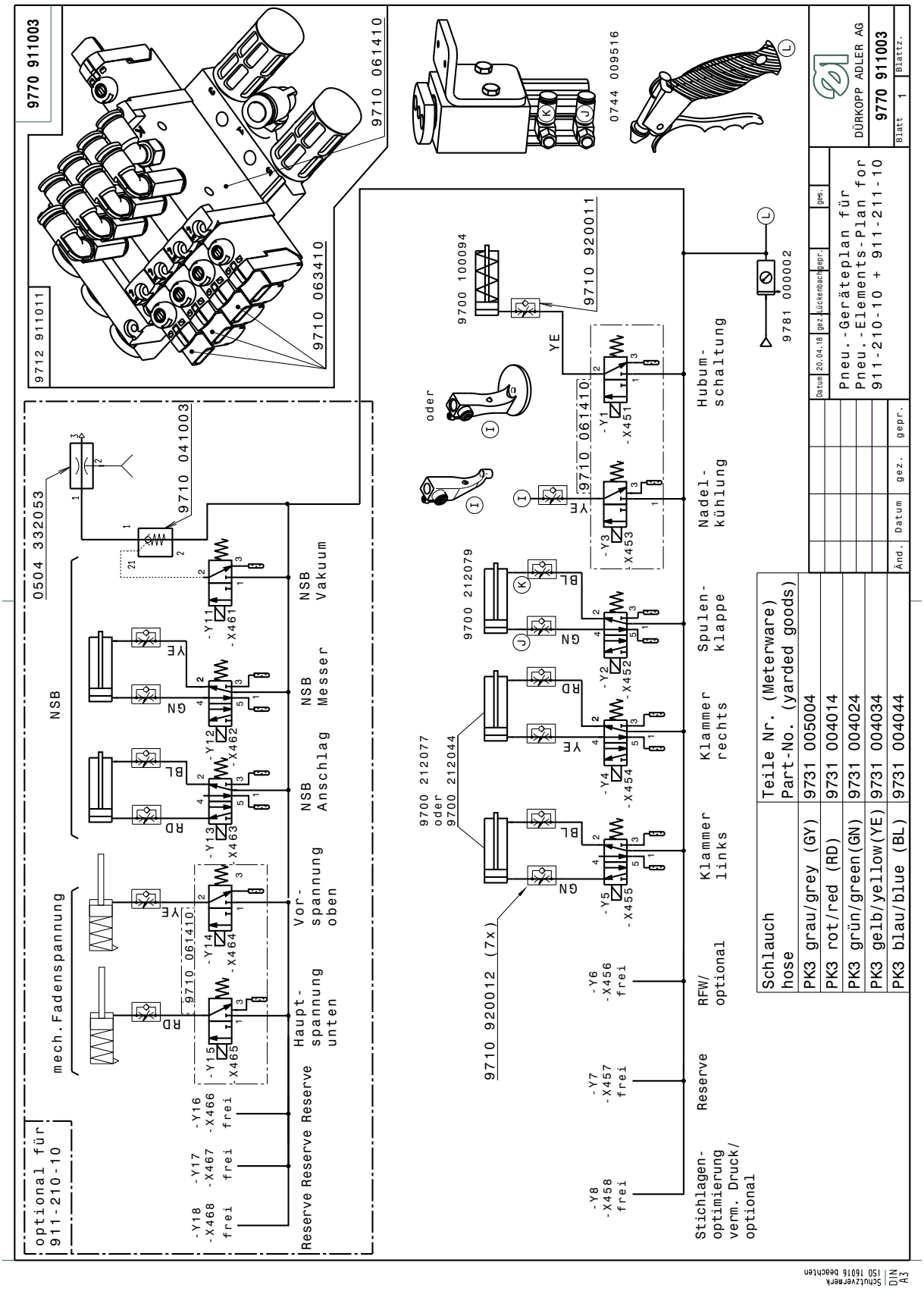

9890 911100
Bauschaltplan
Anschlussplan Oberteil
Dürkopp Adler AG
Schutzvermerk nach DIN ISO 16016 beachten !
Fadenabschneider
thread cutter
Spulenabdeckung
bobbin cover
Oberteilverriegelung
machine head latching device
Nähkopf 911
sewinghead 911
Ref. Nähmotor
ref. sewing motor
Fundamentplatte
Kl. 911-210-6055
Kabelbaum
9870 911122
Kl. 911-210-xx20
Kabelbaum
9870 911102
Sensorleitung
9840 503135
9870 911100 /-20
/8.F1
/6.F8


Leiterplatte k 9850 910001
PCB
-A3
9850 910001
Dürkopp Adler AG
9890 911100
Bauschaltplan
Anschlussplan Platine
Oberfadenwächter
upper thread monitor
Ref. Z-Achse
ref.: z-axis
Fadenspannung 1
thread tension 1
Fadenspannung 2
thread tension 2
Fadenklemme
thread clamp
Barcodeleser
Blatt /10.A2
sheet
Nähfeld weiter
sewing field more
Blatt
sheet
Zusatzeinrichtung
optional equipment
9870 911100 /-20
/7.F8
Schutzvermerk nach DIN ISO 16016 beachten !

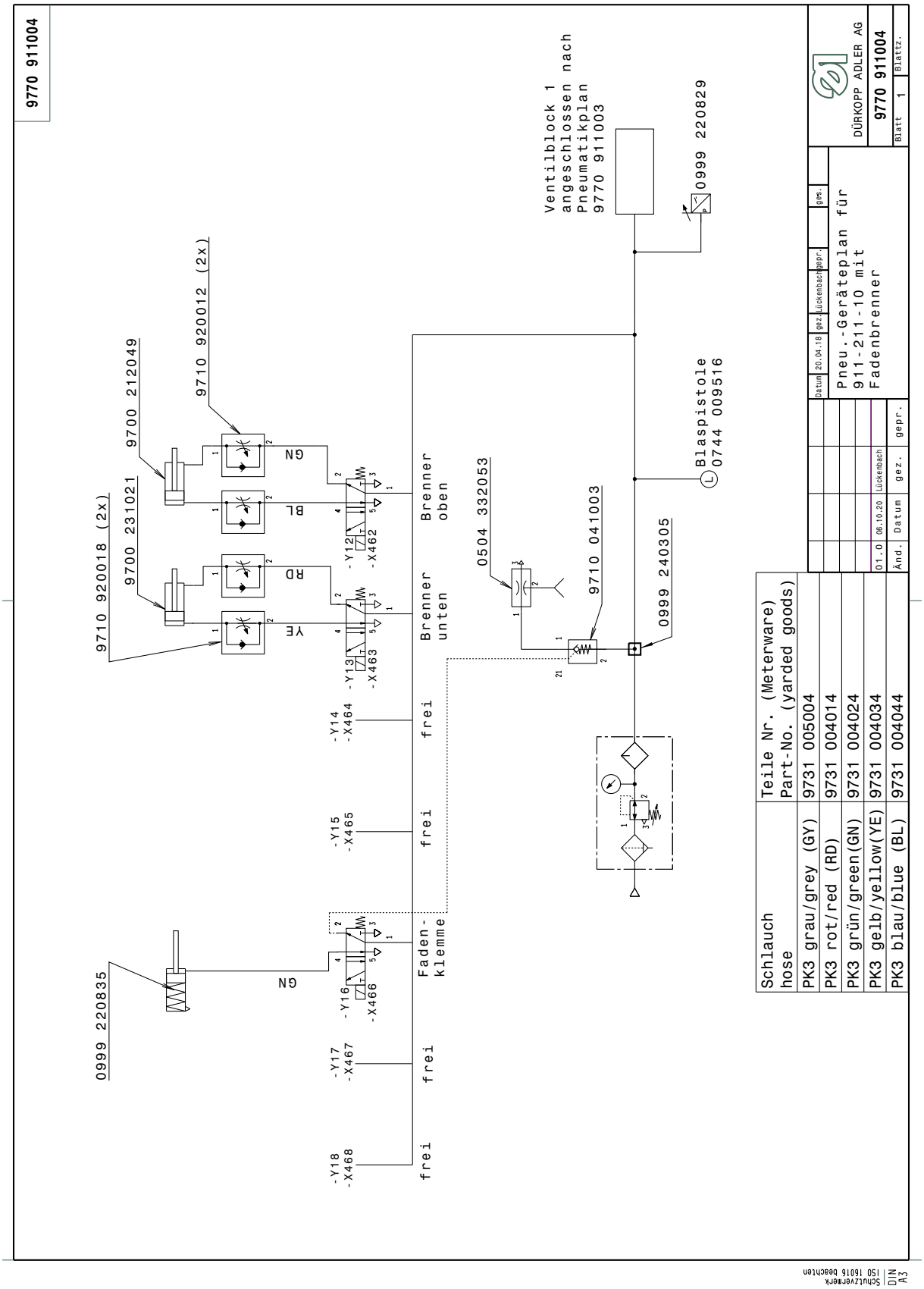

Schutzvermerk nach DIN ISO 16016 beachten !
Alle Leitungen ohne Querschnittsangabe sind \27 \28 \29 mm²
Erstellt mit ELCAD/AUCOPLAN (R) 7.11.0
Dürkopp Adler AG
9890 911100
Bauschaltplan
Anschlussplan Lasermarkierungsleuchten
Zusatzeinrichtung
optional equipment
Leiterplatte k 9850 001090
-A13
-A14
-A15
-A16
-X1
-X2
-X655.1
-X655.2
-X655.3
-X655.4
-X100t
-H1
-H2
-H3
-H4
Laser
laser
geschaltet mit OUT_25
geschaltet mit OUT_26
geschaltet mit OUT_27
geschaltet mit OUT_28
Leitung k
(*1)
Kl.911-210-xx20
9870 911015
Ein-/Ausgänge (Erweiterung)
I/O (add-on)
Blatt /2.D8
sheet
SM 3-4
X100t
-A1
Laser k
Ersatzlaser
laser cpl.
replacement laser
9835 501005
9835 501006


9890 911100
Bauschaltplan
Anschlussplan Barcodeleser
Dürkopp Adler AG
Barcodeleser 9850 911006
bar code reader
-A19
-X664
-X663
-X662
Leiterplatte k 9850 911005
PCB
-A18
A13
X661
Pegelwandler k 9850 911004
level converter
-A17
RS232
TTL
-X150b
(9-pin)
BDE-Schnittstelle
PDA-interface
DAC-Comfort
Blatt /4.E7
sheet
Barcodeleser
Blatt /8.E8
sheet
-A1
Zusatzeinrichtung
optional equipment
Schutzvermerk nach DIN ISO 16016 beachten !
Alle Leitungen ohne Querschnittsangabe sind \z7 \z8 \z9 mm²
Erstellt mit ELCAD/AUCOPLAN (R) 7.11.0
2020-10-10
Görzen
Blatt 10
10 Bl.

24.2 Pneumatic diagram



24.3 Pneumatic diagram with thread burner



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Subject to design changes - Part of the machines shown with additional equipment - Printed in Germany