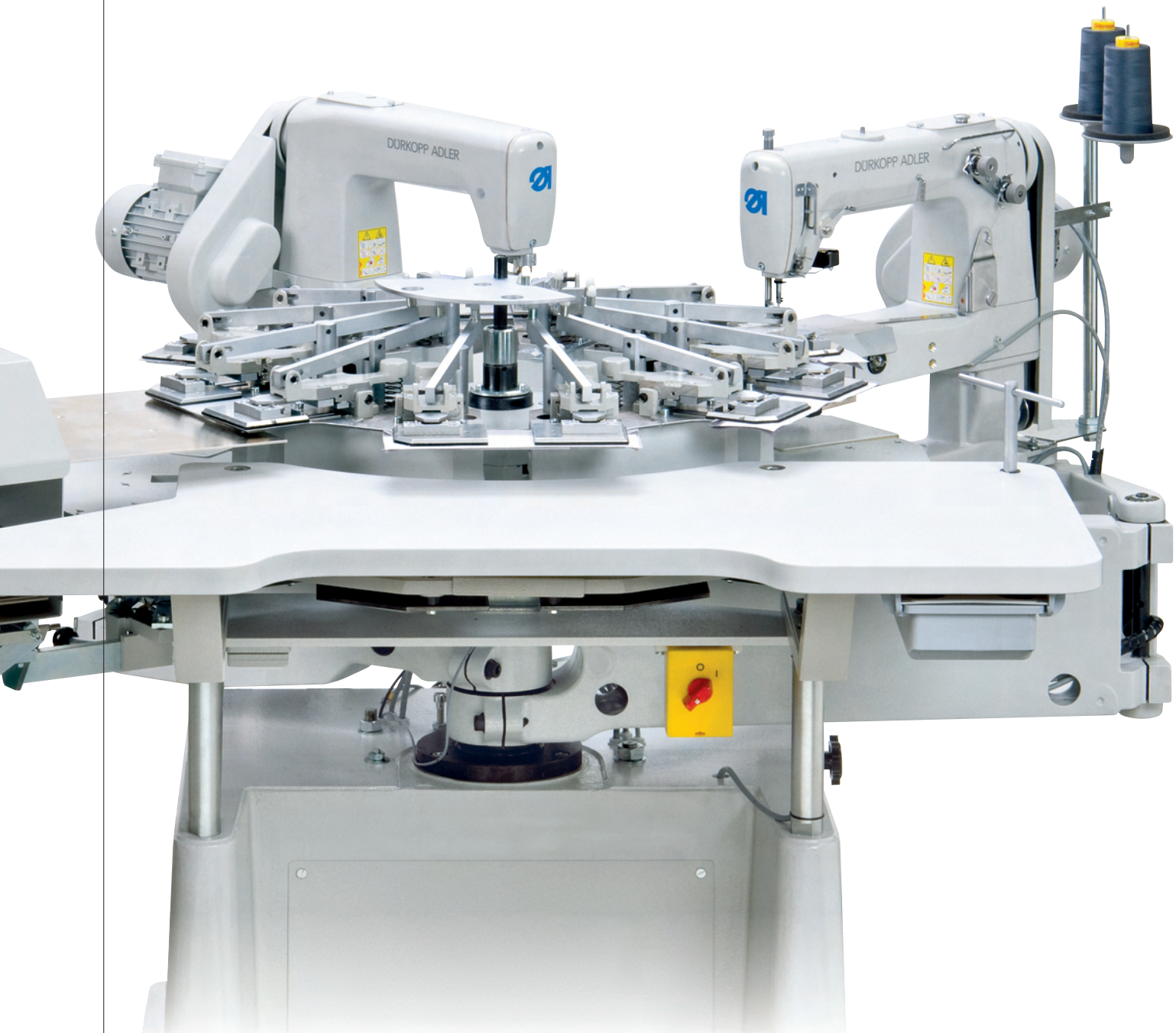
DÜRKOPP ADLER

971-01

Operating Instructions



IMPORTANT
READ CAREFULLY BEFORE USE
KEEP FOR FUTURE REFERENCE

1 About these instructions

These instructions for the 971 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** (📖 *S. 57*).

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

1.1 For whom are these instructions intended?

These instructions are intended for:

- Operators:
  This group is familiar with the machine and has access to the instructions. Specifically, chapter **Operation** (📖 *S. 17*) is important for the operators.
- Specialists:
  This group has the appropriate technical training for performing maintenance or repairing malfunctions. Specifically, the chapter **Setup** (📖 *S. 43*) is important for specialists.

Service Instructions are supplied separately.

With regard to minimum qualification and other requirements to be met by personnel, please also follow the chapter **Safety** (📖 *S. 7*).

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 due to an incorrect setting.

Cover

Specifies which covers must be removed 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. 1. First step
2. 2. Second step

The steps must always be followed in the specified order.

…

- Lists are marked by bullet points.

Result of performing an operation

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

Important

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

Information

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

Order

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

References

🕮 Reference to another section in these instructions.

Safety Important warnings for the user of the machine are specifically marked. Since safety is of particular importance, hazard symbols, levels of danger and their signal words are described separately in the chapter **Safety** (🕮 *S. 7*).

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

1.3 Other documents

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

1.4 Liability

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

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

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

Transport

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

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

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

2 Safety

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

2.1 Basic safety instructions

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

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

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

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

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

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

Transport

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

Setup

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

Obligations of the operator

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

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

Requirements to be met by the personnel

Only qualified specialists may:

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

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

Operation

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

Safety equipment

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

2.2 Signal words and symbols used in warnings

Warnings in the text are distinguished by color bars. The color scheme 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.

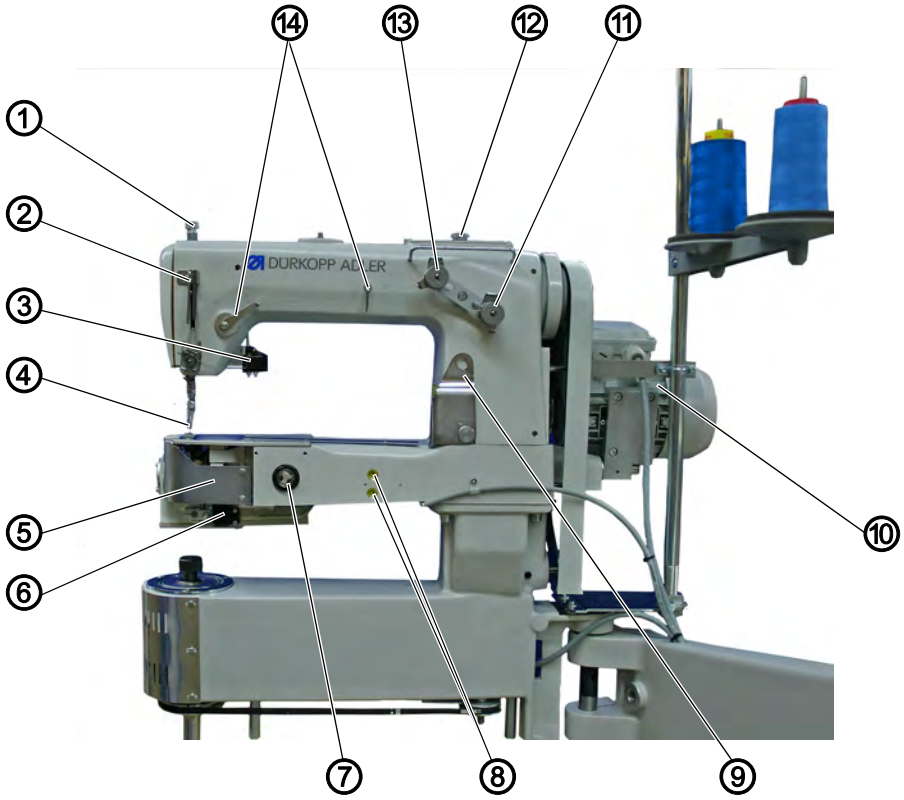
Measures for avoiding the danger.

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

3 Machine description

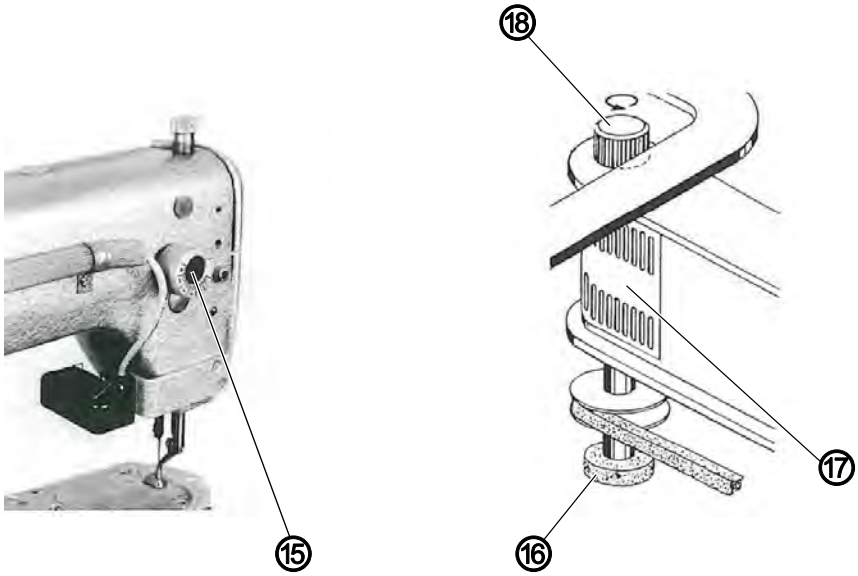
3.1 Elements on the sewing head

Fig. 1: Elements on the sewing head (1)



(1) - Knurled screw for the sewing foot pressure
(2) - Needle thread regulator
(3) - Needle thread monitor
(4) - Needle
(5) - Flap
(6) - Thread monitor
(7) - Oil level sight
(8) - Thread monitor LEDs
(9) - Guide plate
(10) - Motor
(11) - Looper thread tension
(12) - Inspection glass for sewing head oil
(13) - Needle thread tension
(14) - Needle thread guide

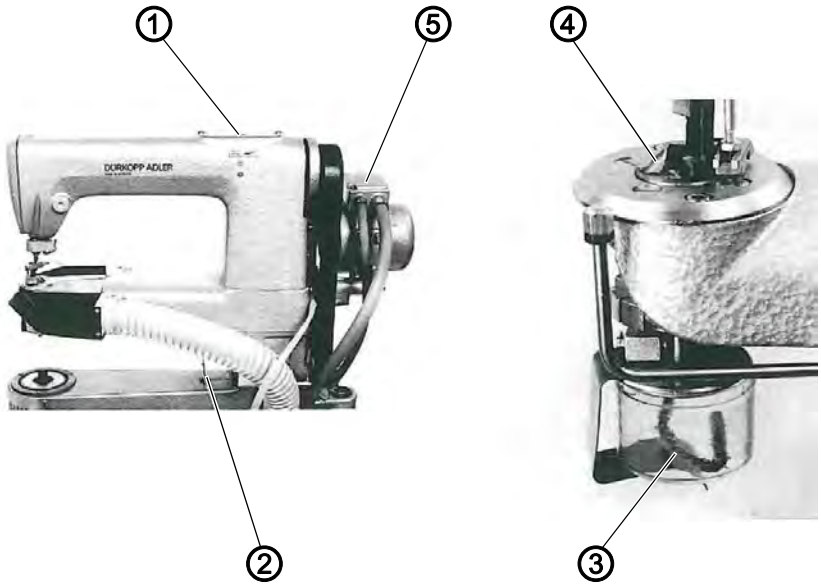
Fig. 2: Elemente am Nähkopf (2)



(15) - Rotary knob for the sewing foot stroke
(16) - Plastic disc: pull the magnetic roller down in order to swing the sewing head out
(17) - Magnet: creates a magnetic field for the magnetic roller
(18) - Transport roll to set the correct needle thread quantity

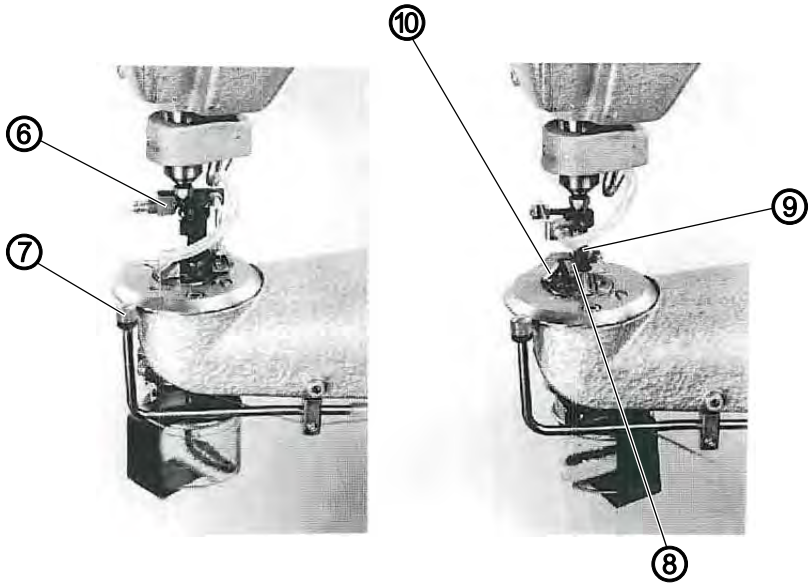
3.2 Elements on the cutting head

Fig. 3: Elements on the cutting head (1)



(1) - Oil pot for the moving parts in the machine head
(2) - Weight
(3) - Oil reservoir for top blade holder and rotating parts
(4) - Sliding block for the parallelism of the blade with the seam contour
(5) - Motor for the cutter and the magnetic roller

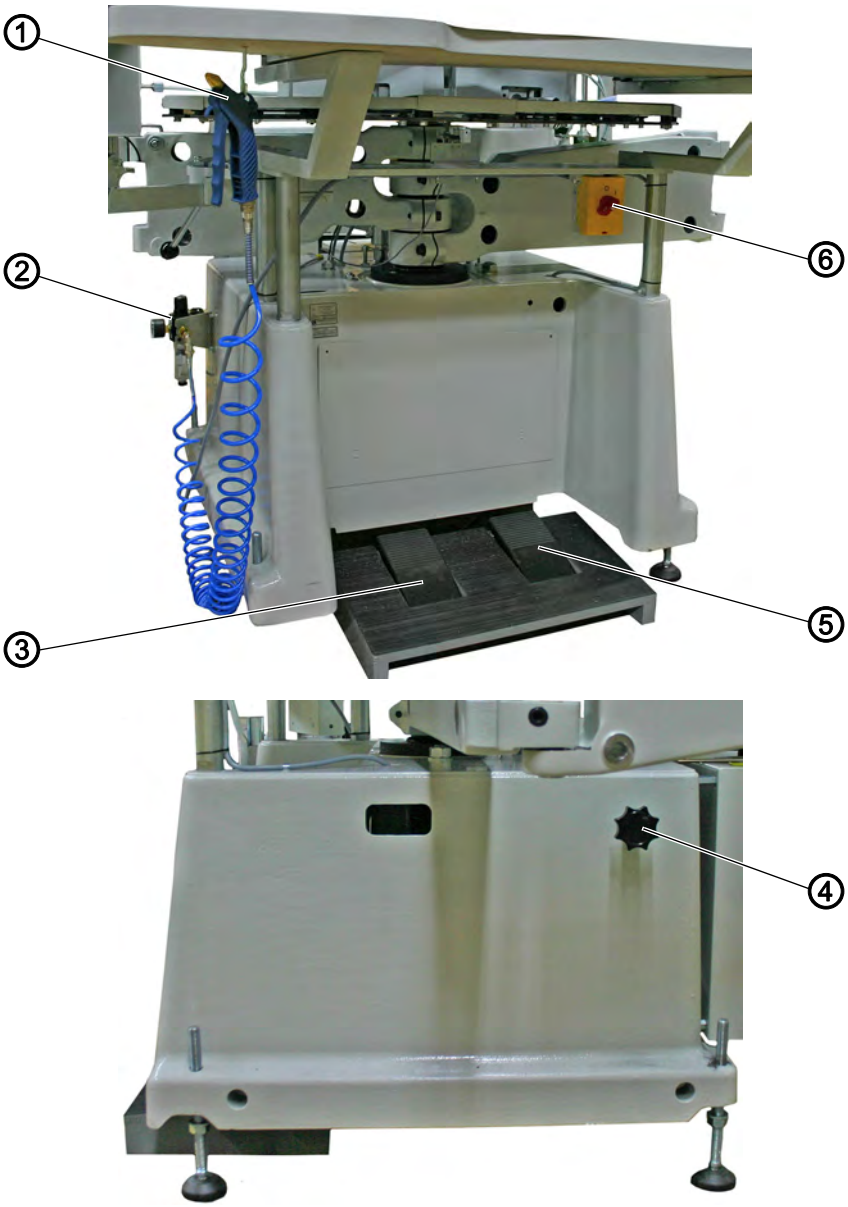
Fig. 4: Elements on the cutting head (2)



(6) - Blow pipe for the sewing material
(7) - Blow pipe for the chain
(8) - Bottom blade
(9) - Top blade
(10) - Sliding block

3.3 Elements on the frame

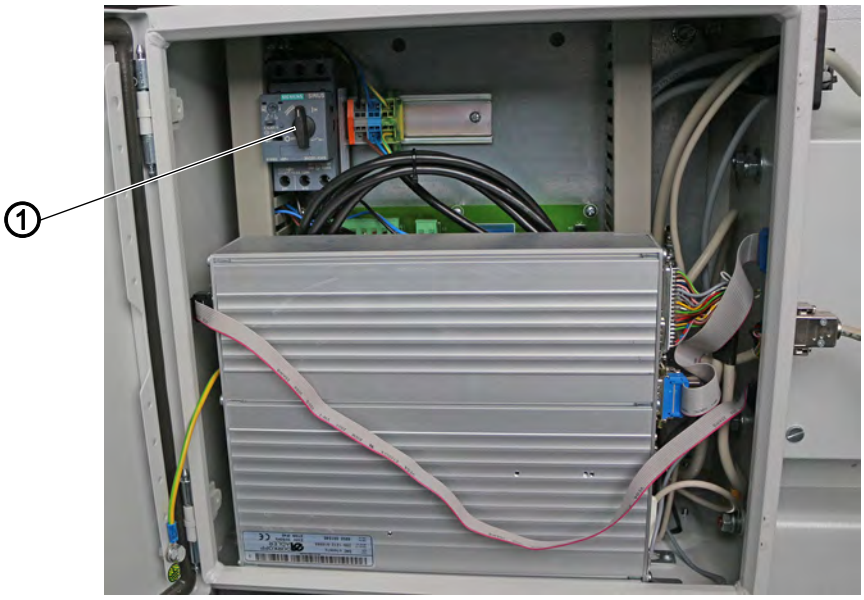
Fig. 5: Elements on the frame



(1) - Compressed air gun
(2) - Pressure controller with pressure gage
(3) - Left pedal
(4) - Rotary knob for the speed of the tzurn-table
(5) - Right pedal
(6) - Main switch

3.4 Elements on the control box

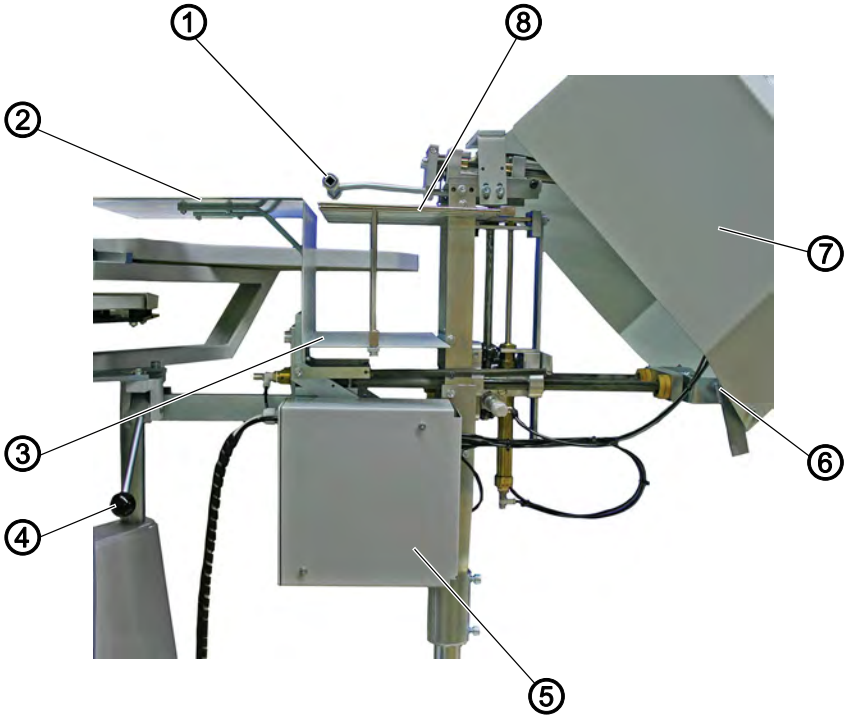
Fig. 6: Elemente am Steuerkasten



(1) - Motor circuit breaker

3.5 Elements on the stacker

Fig. 7: Elements on the stacker



(1) - Looper for sewing material transport
(2) - Connecting plate between the material holder and the rack of the stacker
(3) - Magazine receiving the material parts
(4) - Lever
(5) - Solenoid valve box
(6) - Fastening rail for the stacker cover
(7) - Stacker cover
(8) - Rack

4 Operation

4.1 Preparing the machine for operation

- Changing the needle
- Threading the needle thread
- Winding the bobbin thread
- Replacing the bobbin thread reel
- Thread tension
  - Setting the needle thread tension
  - Setting the bobbin thread tension

4.2 Switching on the machine

Fig. 8: Switching on the machine

To switch on the machine:

1. Turn the main switch from position **0** to position **I**.

↳ The machine starts up.
The control panel starts up.

To switch off the machine:

1. Turn the main switch from position **I** to position **0**.

↳ The machine switches off.

4.3 Threading the needle thread

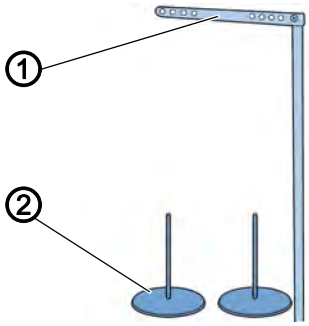
WARNING

Risk of injury from sharp parts!

Punctures possible.

Switch off the machine before threading.

Fig. 9: Threading the needle thread (1)



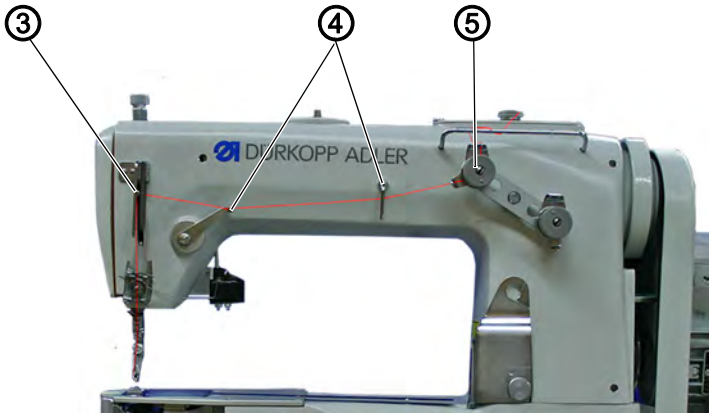
(1) - Take-up arm

(2) - Thread reel holder

To thread the needle thread:

1. Place the spool of thread on the thread reel holder (2).
2. Guide the thread alternately through the guide eyelets of the take-up arm (1).

Fig. 10: Threading the needle thrad (2)



(3) - Thread lever

(4) - Thread guides

(5) - Needle thread tensioner

3. Feed the thread through the needle thread tensioner (5) and thread guides (4).

4. Guide the thread through the thread lever (3) and the preliminary tensioner, via the finger of the needle thread monitor, through the eyelet on the needle bar and through the needle.

4.4 Threading the looper thread

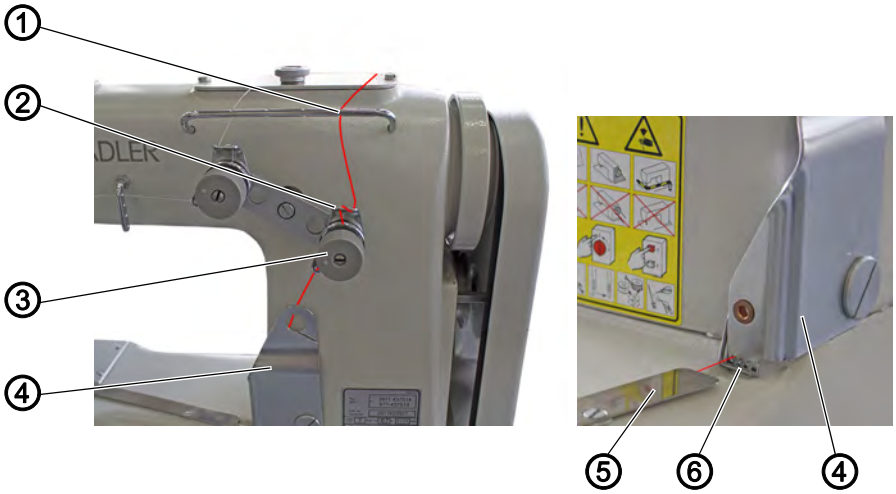
WARNING

Risk of injury from sharp parts!

Punctures possible.

Switch off the machine before threading.

Fig. 11: Threading the looper thread (1)



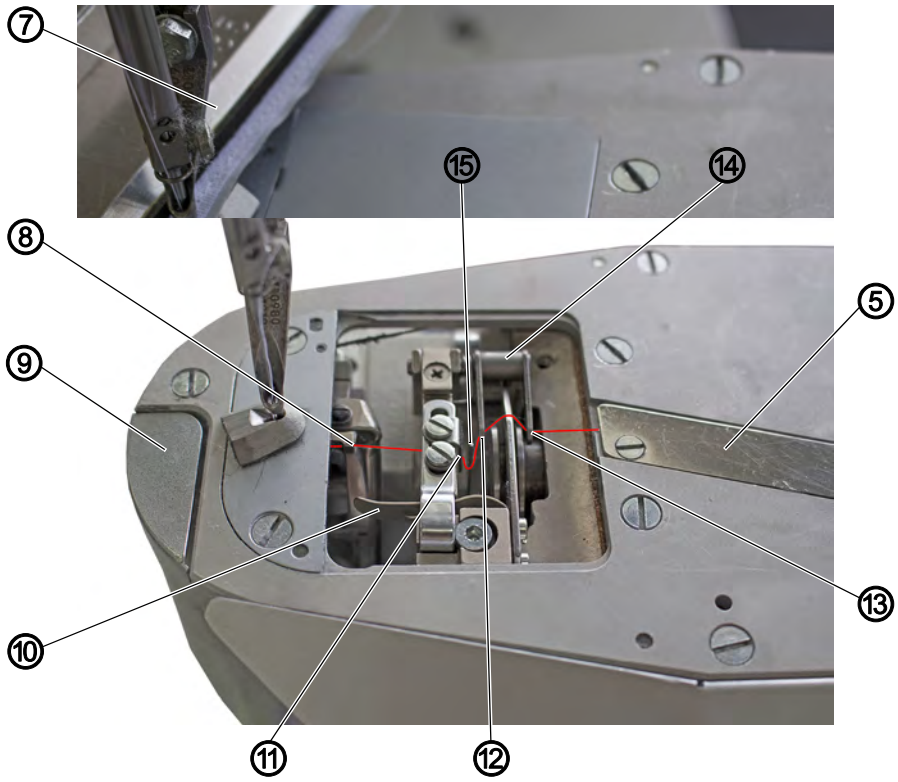
(1) - Thread guide
(2) - Thread guide
(3) - Thread tension
(4) - Guide plate
(5) - Bar
(6) - Bar

To thread the looper thread:

1. Place the spool of thread on the thread reel holder.
2. Guide the thread through the thread guide (1).
3. Guide the thread top down through the right opening of the thread guide (2).
4. Guide the thread top down through the left opening of the thread guide (2).
5. Feed the thread through the needle thread tension (3) and behind the thread guide plate (4).
6. Tilt the thread guide plate (4) to the right side.

7. Guide the thread over the bar (6) on the left side of the thread guide plate (4) through the left of the 3 thread guides.
8. Guide the thread under the bar (5).

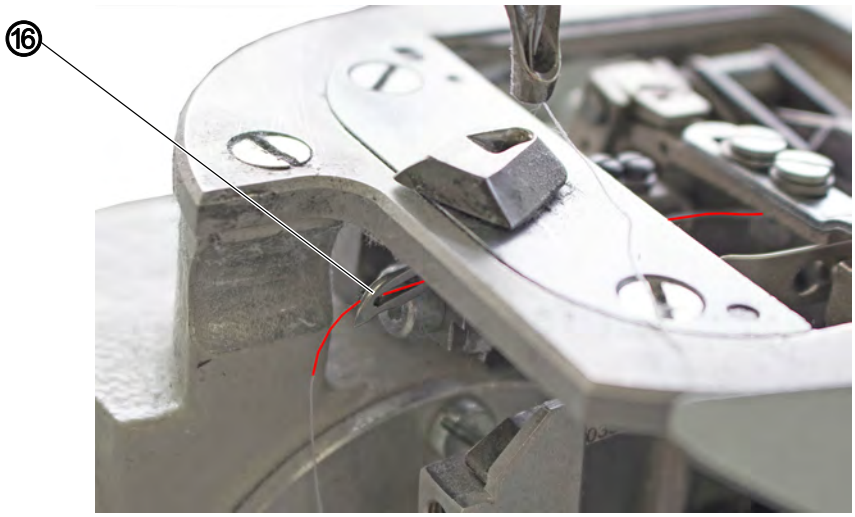
Fig. 12: Threading the looper thread (2)



(5) - Bar
(7) - Cover plate
(8) - Looper hole
(9) - Hatch
(10) - Spring
(11) - Hole
(12) - Hole
(13) - Hole
(14) - Thread down-holder
(15) - Remaining thread monitor

9. Remove cover plate (7).
10. Lift the thread down-holder (14) from its latching. For this purpose, press the spring (10) to the back.
11. Pull the thread through the holes (13) and (12).
12. Place the thread in front of the wire of the remaining thread monitor (13).
13. Pull the thread through the hole (11).
14. Turn the handwheel until the hole (8) is visible.
15. Pull the thread through the hole (8).
16. Open hatch (9).

Fig. 13: Threading the looper thread (3)



(16) - Hole

17. Turn the handwheel until the hole (16) is visible.
18. Pull the thread through hole (16).
19. Snap the thread down-holder (14) shut.
20. Close hatch (9).
21. Insert cover plate (7).

4.5 Adjusting the thread tensions

The thread tension of the needle thread should be tighter than that of the looper thread. Overly tight thread tensions cause the material to be pulled together.

Overly loose looper thread tensions can cause missed stitches.

4.6 Removing a thread break

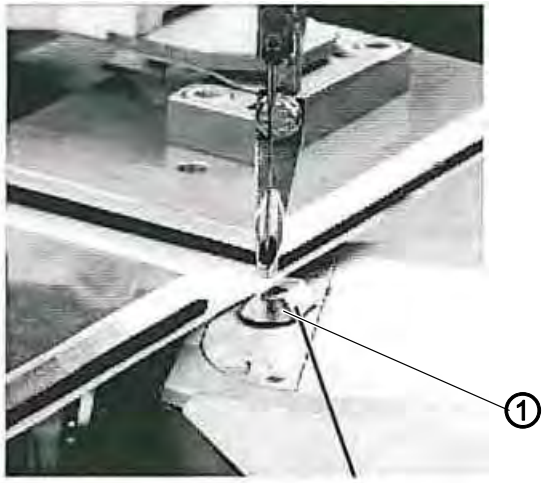
WARNING

Risk of injury from sharp parts!

Punctures possible

Switch off the machine before threading.

Fig. 14: Removing a thread break



(1) - Throat plate insert

On the sewing head there are two thread monitors, whose switching flags are released, if the needle or looper thread is torn. In this case, the automatic sequence is stopped and the LEDs on the sewing head indicate whether it is the needle or looper thread that is torn.

To remove a thread break:

1. Bring the needle bar into the top position by turning the hand wheel.
2. Swing the sewing head out. For this purpose, pull the magnetic roller downwards (📖 *S. 24*).
3. Thread the thread(📖 *S. 19*).
4. Swing the sewing head back in. When doing so, ensure that the throat plate insert (1) is in the position shown in the figure and that its left side is pressed firmly against the fabric support surface.
5. Sew 2 - 3 securing stitches. To do this, first hold the needle and looper threads securely and turn the hand wheel accordingly.
6. Switch on the machine and start the normal sewing sequence.

4.7 Setting the sewing foot height

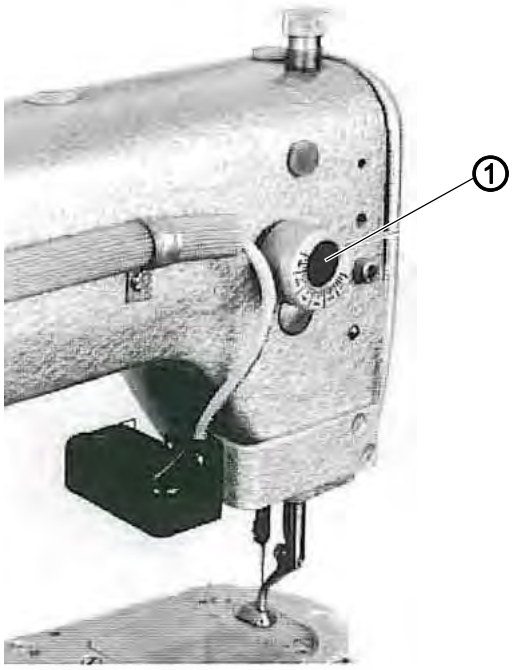
WARNING

Risk of injury from moving parts!

Crushing possible.

Switch off the machine before setting the sewing foot height.

Fig. 15: Setting the sewing foot height



(1) - Adjusting wheel

To set the needle foot height:

1. Using the hand wheel, bring the sewing foot into the lowest position.
2. Turn the adjusting wheel (1) until the sewing foot is gently touching the sewing material.

4.8 Swinging the sewing head in and out

WARNING

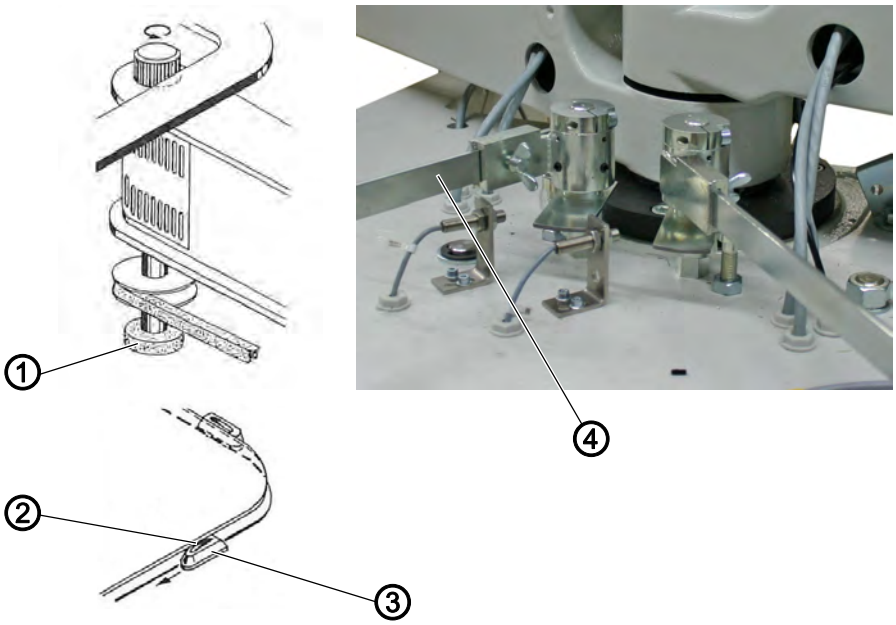
Risk of injury from moving parts!

Crushing possible.

Switch off the machine before swinging the sewing head in or out.

The sewing head can be swung out in order to thread the looper thread and for service and maintenance works.

Fig. 16: Swinging the sewing head in or out



(1) - Magnetic roller shaft
(2) - Side of the throat plate insert
(3) - Throat plate insert
(4) - Switching flag

Swinging the sewing head out

To swing the sewing head out:

1. Bring the needle to the upper position. For this purpose, turn the hand wheel against the running direction until the needle is out of the material.
2. Pull the magnetic roller shaft (1) downwards completely.
3. Swing the sewing head out to the side.
4. Release the magnetic roller shaft.

Swinging the sewing head in

To swing the sewing head in:

1. Pull the magnetic roller shaft (1) downwards completely.
2. Turn the throat plate insert (3) clockwise against the spring force.
3. Swing the sewing head into the turntable.
   When doing so, ensure:
   - that the side (2) of the throat plate insert (3) is pressed firmly against the fabric support surface
   - that the switching flag (4) is behind the magnetic roller.
4. Push the magnetic roller shaft (1) up.

4.9 Swinging the cutting head in or out

WARNING

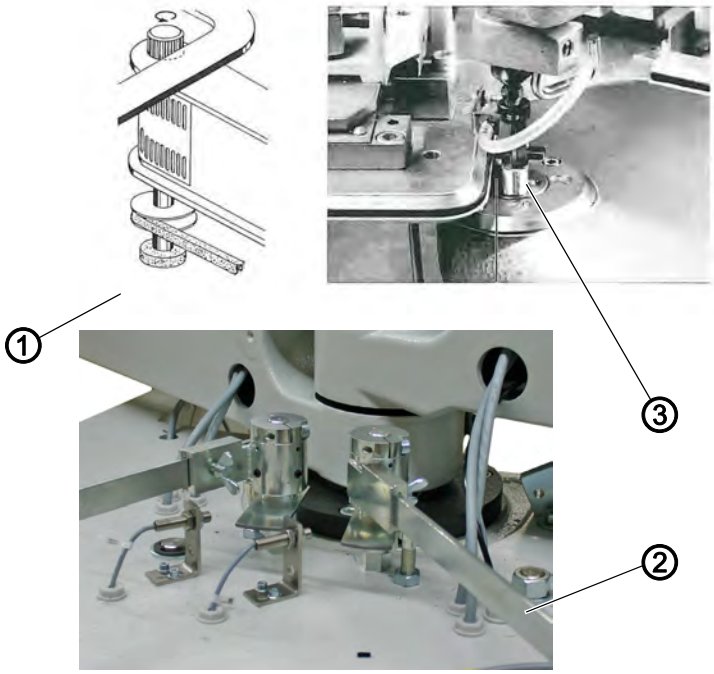
Risk of injury from moving parts!

Crushing possible.

Switch off the machine before swinging the cutting head in or out.

The cutting head can be swung out for service and maintenance works.

Fig. 17: Swinging the cutting head in or out



(1) - Magnetic roller shaft
(2) - Switching flag
(3) - Guide piece

Swinging the cutting head out

To swing the cutting head out:

1. Pull the magnetic roller shaft (1) downwards completely.
2. Switch the cutter out to the side.
3. Release the magnetic roller shaft (1).

Swing the cutting head in

To swing the cutting head in:

1. Pull the magnetic roller shaft (1) downwards completely.
2. Turn the guide piece (2) clockwise against the force of the counter-weight.
3. Swing the cutter into the turntable.
   When doing so, note:
   - The guide piece (2) must be pressed firmly against the fabric support surface.
   - The switching flag (3) must be in front of the magnetic roller.
4. Push the magnetic roller shaft (1) up.

4.10 Preparing, starting and interrupting the automatic sequence

4.10.1 Replacing the adjustable material holders

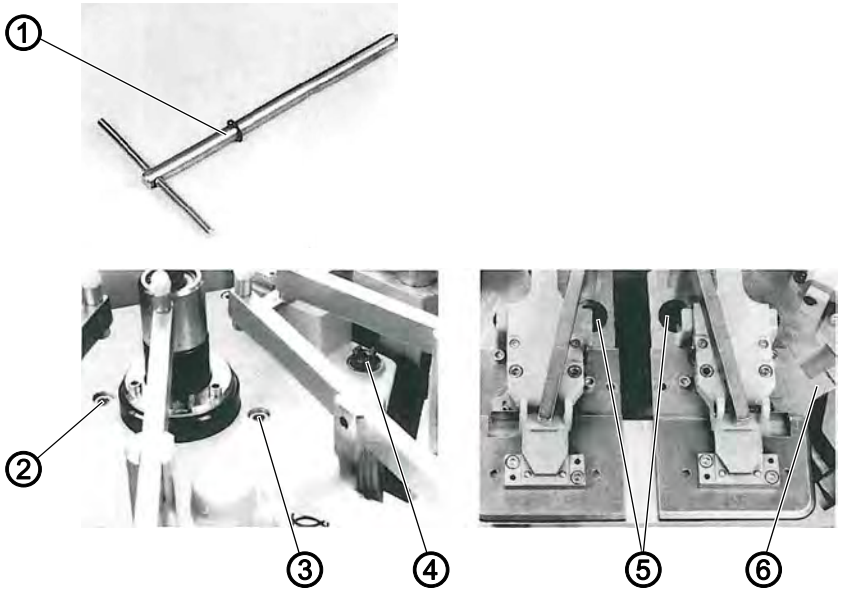
WARNING

Risk of injury from moving parts!

Crushing possible.

Switch off the machine before replacing the adjustable material holders.

Fig. 18: Replacing the adjustable material holders



(1) - Special key
(2) - Screw
(3) - Screw
(4) - Adjusting screw
(5) - Fastening screw
(6) - Numbering

To replace material holders:

1. Set the material holders to the largest size by loosening the screws (3) and (4) with the special key (1).
2. Turn the adjusting screws (2) accordingly.
3. Swing out the sewing and cutting heads, by pulling the magnetic roller shafts downward and swinging out the sewing head (📖 *S. 24*),and the cutting head (📖 *S. 25*).
4. Loosen the fastening screws (6) on each material holder using the special key (1) and remove the material holders.
5. Screw the new material holders to the turntable; the numbering (5) on the holders indicates their placement on the turntable.

6. Set the desired size by turning the adjusting screw (2) using the special key (1) (📖 *S. 28*).
7. Swing the sewing and cutting heads back in, (📖 *S. 24*), (📖 *S. 25*).

4.10.2 Changing the size of the adjustable material holders

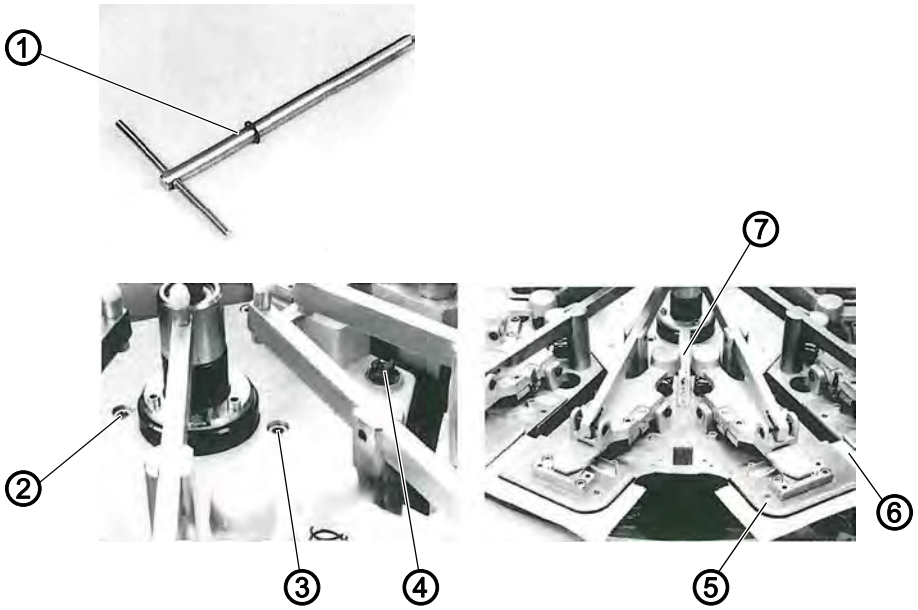
WARNING

Risk of injury from moving parts!

Crushing possible.

Switch off the machine before changing the size of the adjustable material holders.

Fig. 19: Changing the size of the adjustable material holders



(1) - Special key
(2) - Screw
(3) - Screw
(4) - Adjusting screw
(5) - Clamp halves
(6) - Plastic plate
(7) - Scale

By changing the size of the adjustable material holders you adjust the length of the cuff.

To change the size of the adjustable material holders:

1. Release the lock by loosening screws (3) and (4) with the special key (1).
2. Adjust the size by turning the adjusting screw (2) using the special key (1) accordingly.
   The value set is displayed by the scale (7).

3. When setting a smaller size, open the left clamp half (6) in good time to bring plastic plate (5), which is rounded upwards, back into the prescribed position.
4. Secure the lock by tightening screws (3) and (4) with the special key (1).

4.10.3 Adjusting the depth stop of the adjustable material holders

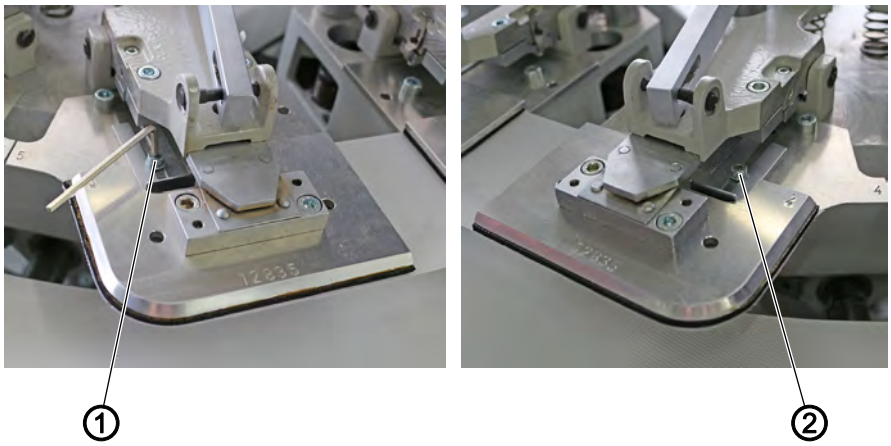
WARNING

Risk of injury from moving parts!

Crushing possible.

Switch off the machine before adjusting the depth stop of the adjustable material holders.

Fig. 20: Adjusting the depth stop od the adjustable material holders



(1) - Screw

(2) - Screw

By adjusting the depth stop of the adjustable material holders you adjusth the width of the cuff.

To adjust the depth stop of the adjustable material holders:

1. Lossen the screws (1) and (2) at the side of the material holder.
2. Adjust the material holder in the elongated hole.
3. Screw in the screws (1) and (2).

4.10.4 Extending the opening time of the clamp

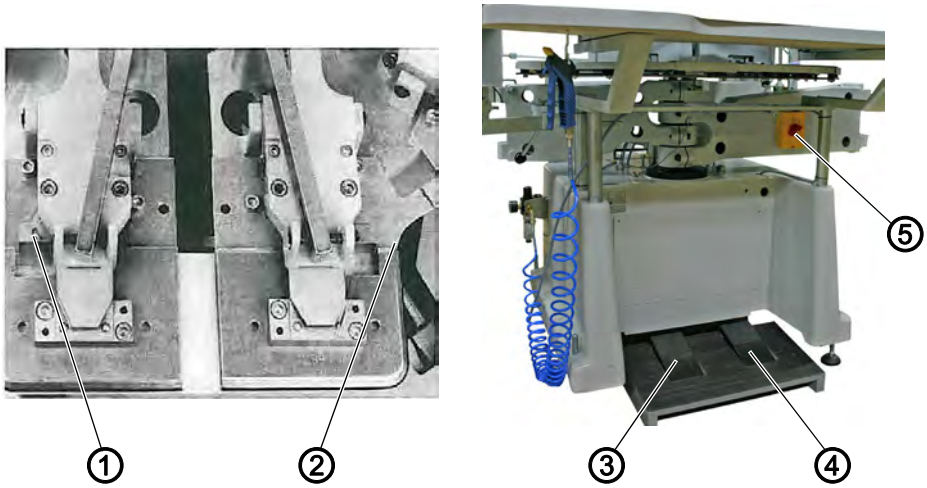
The clamp is opened after the table is turned and closed again after the stacker function is complete. Only a certain period of time is available therefore for the feed process.

If there is not enough time to position the material correctly, the clamp's opening time can be extended by pressing the left foot pedal.

If the clamp is opened for too long, the automatic sequence is stopped.

4.10.5 Inserting the sewing material and starting the automatic sequence

Fig. 21: Inserting the sewing material and starting the automatic sequence



(1) - End stop
(2) - End stop
(3) - Left pedal
(4) - Right pedal
(5) - Main switch

To start the automatic sequence:

1. Switch on the main switch (5).
2. Press the left foot pedal and hold in this position.
3. Place the sewing material at both rear end stops (1) and (2) and align it centered to the clamp.
4. Release the left foot pedal (3).
5. It may be necessary to raise the clamp a little to align the material more precisely.
6. Press and hold the left foot pedal (3).
7. Align the material.
8. Release the left foot pedal (3).
9. Start the automatic sequence by pressing the right foot pedal (4).

Automatic sequence

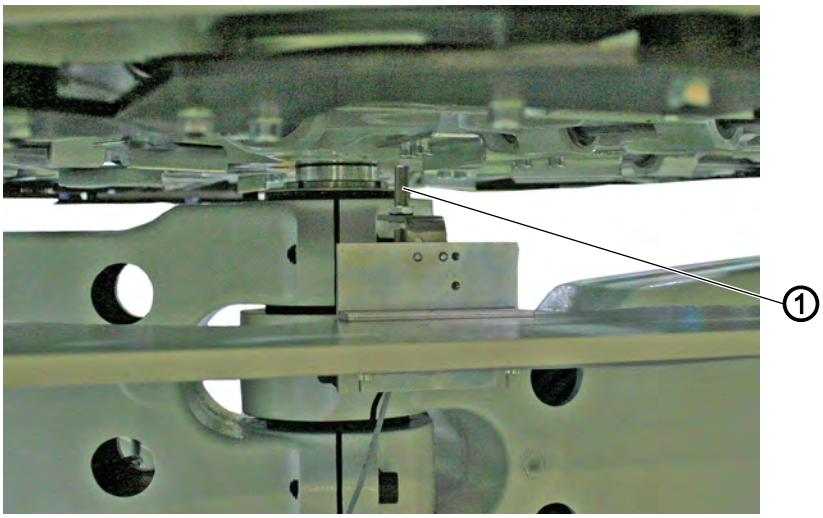
WARNING

Risk of injury from moving parts!

Crushing possible.

Do not reach into the area of the turntable or the sewing/cutting heads during the automatic sequence.

Fig. 22: Automatic sequence (1)



(1) - Switch S1

Order

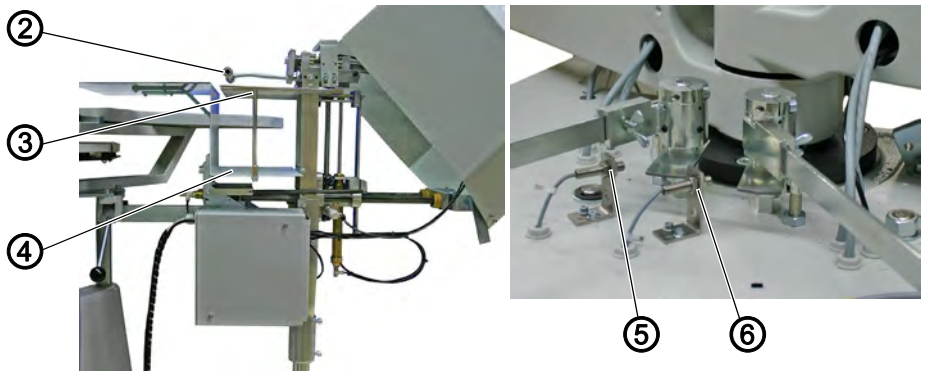
This is the process of the automatic sequence:

- The sewing head is switched on.
- The cutting head is switched on.
- The turntable is switched on, if the cutting head and sewing head are run on the switch. The turntable is turned counterclockwise.

The turntable activates switch S1 (1) for the insertion position.

- The turntable is switched off.
- The clamp in the insertion position is opened after a delay and can be fed.

Fig. 23: Automatic sequence (2)



(2) - Looper
(3) - Rack
(4) - Magazine
(5) - Initiator S3
(6) - Initiator S4

Clamp with sewing material is opened.

↳ The looper (2) moves to the material holder.

Stacker process

The looper (2) pulls the material onto the rack (3).

The rack (3) lowers with the sewing material.

The looper (2) moves upwards.

↳ The rack (3) moves backwards. With this movement, the material is removed and thus conveyed into the magazine (4).

The rack (3) moves upwards and to the front into its starting position.

Stopping/starting the sewing cycle

The cutting head reaches the initiator S4 (6).

↳ The cutter switches off.

The sewing head reaches the initiator S3 (5).

↳ The turntable starts.

5 Maintenance

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*).

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.

Maintenance interval

Work to be carried out	Operating hours			
	8	40	160	500
Sewing head				
Removing lint accumulation	●			
Cleaning the side channel blower and the strainer in the ton		●		
Cutting head				
Removing lint accumuliation	●			
Pneumatic system				
Checking the water level	●			
Top off the oil reservoir	●			
Check the pneumatic system	●			

5.1 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 sump.

NOTICE

Property damage from soiling!

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

Clean the machine as described.

NOTICE

Property damage from solvent-based cleaners!

Solvent-based cleaners will damage paintwork.

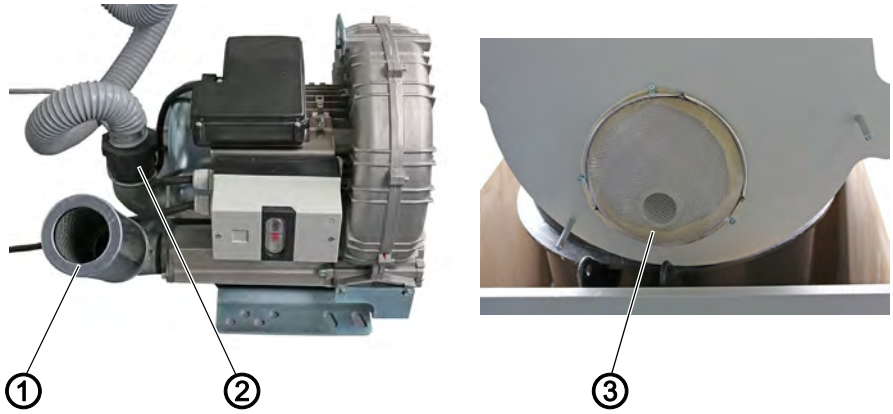
Use only solvent-free substances for cleaning.

To clean the machine:

1. Use a compressed air gun or a brush to remove lint accumulations at the sewing head.
2. Use a compressed air gun or a abrush to remove lint accumulations at the cutting head.

Cleaning the side channel blower and the strainer in the ton

Fig. 24: Cleaning the side channel blower and the strainer in the ton



(1) - Connection
(2) - Connection
(3) - Strainer

To clean the side channel blower and the strainer in the ton:

1. Disconnect the connections (1) and (2).
2. Use a compressed air gun to remove lint accumulations.
3. Remove the cover from the ton.
4. Use a compressed air gun to remove lint accumulations.

5.2 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 old oil!

Incorrect handling of old oil can result in severe environmental damage.

ALWAYS observe the legally prescribed regulations for handling and disposal of mineral oil.

Take care to ensure that oil is NEVER spilled.

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

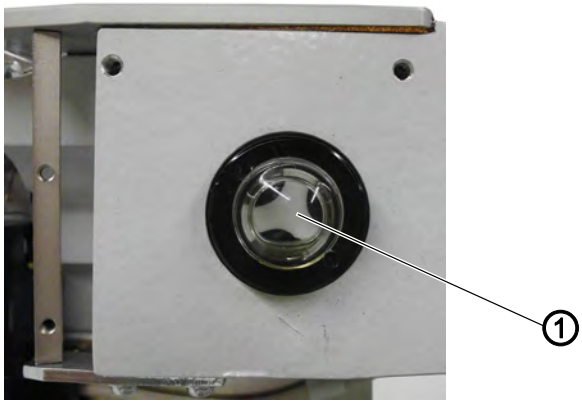
- Viscosity at 40 °C: 10 mm²/s
- Flash point: 150 °C

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

Container	Part number
250 ml	9047 000011
1 l	9047 000012
2 l	9047 000013
5 l	9047 000014

Check the oil level at the sewing head

Fig. 25: Check the oil level at the sewing lamp



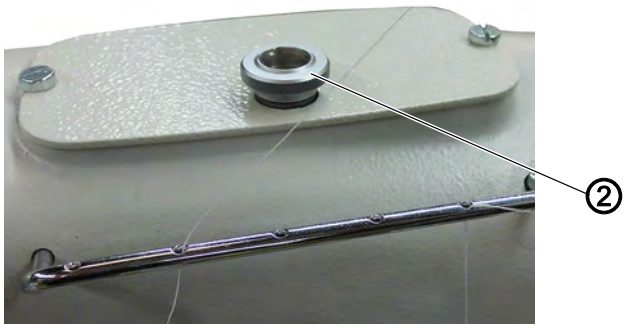
(1) - Inspection glass

To check the oil level at the sewing head:

1. Check the oil level on the inspection glass (1) of the sewing head.
2. If the oil can be seen at the lower edge, the oil level is correct.
3. If no oil is to be seen, top up oil.

Topping up oil at the sewing head

Fig. 26: Topping up oil at the sewing head



(2) - Inspection glass

To top up oil at the sewing head:

1. Unscrew the inspection glass (2).
2. Raise the inspection glass (2) a little.
3. Top up oil - watching the inspection glass (1) continuously.
4. Only top up oil until it is just visible on the inspection glass (1).

5.3 Servicing the pneumatic system

5.3.1 Setting the operating pressure

NOTICE

Property damage from incorrect setting!

Incorrect operating pressure can result in damage to the machine.

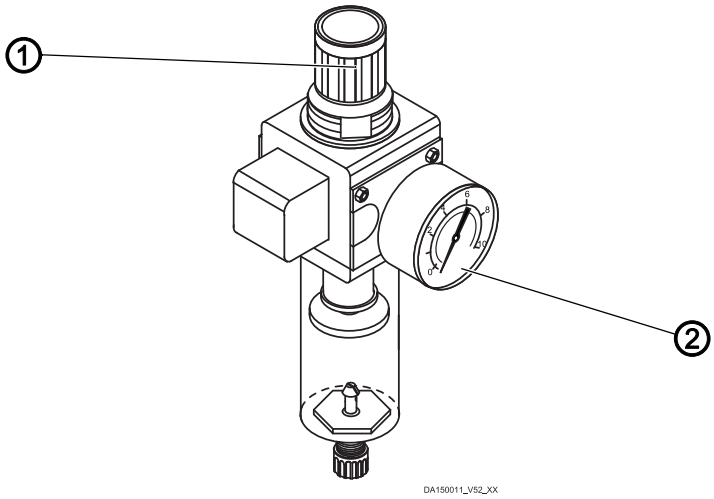
Ensure that the machine is only used when the operating pressure is set correctly.

Proper setting

Refer to the **Technical data** (📖 *S. 61*) chapter for the permissible operating pressure. The operating pressure must not deviate by more than ± 0.5 bar.

Check the operating pressure on a daily basis:

Fig. 27: Setting the operating pressure



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

To set the operating pressure:

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

5.3.2 Draining the water condensation

NOTICE

Property damage from excess water!

Excess water can cause damage to the machine.

Drain water as required.

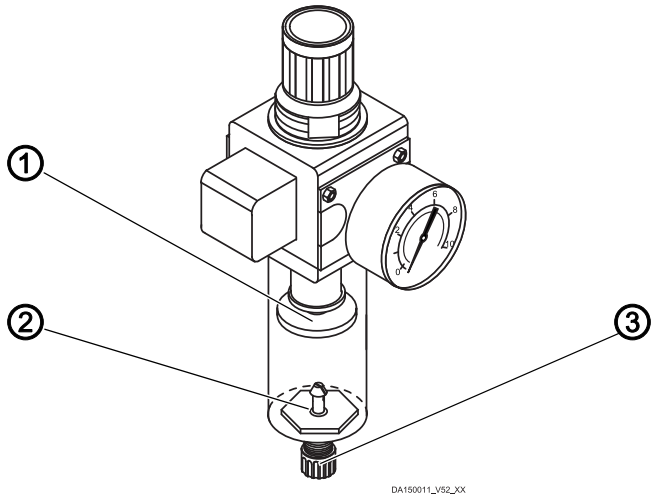
Water condensation accumulates in the water separator (2) of the pressure controller.

Proper setting

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

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

Fig. 28: Draining the water condensation



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

To drain water condensation:

1. Disconnect the machine from the compressed air supply.
2. Place the collection tray under the drain screw (3).
3. Unscrew the drain screw (3) completely.
4. Allow water to drain into the collection tray.
5. Tighten the drain screw (3).
6. Connect the machine to the compressed air supply.

5.3.3 Cleaning the filter element

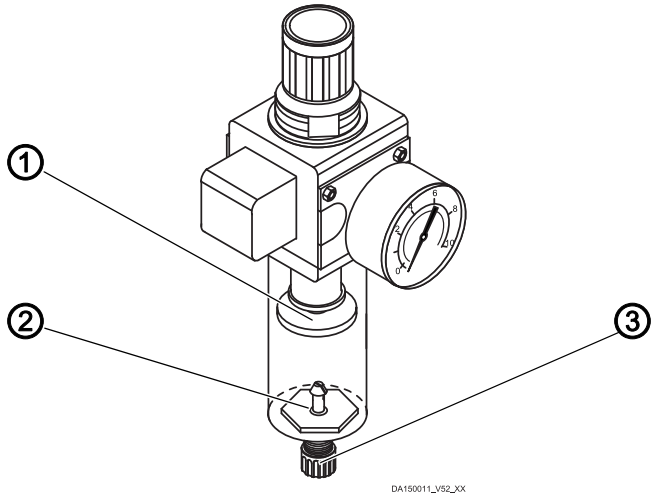
NOTICE

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. 29: Cleaning the filter element



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

To clean the filter element:

1. Disconnect the machine from the compressed air supply.
2. Drain the water condensation (📖 *S. 39*).
3. Unscrew the water separator (2).
4. Unscrew the filter element (1).
5. Blow out the filter element (1) using a compressed air gun.
6. Wash out the filter tray using benzine.
7. Tighten the filter element (1).
8. Tighten the water separator (2).
9. Tighten the drain screw (3).
10. Connect the machine to the compressed air supply.

5.4 Parts list

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

www.duerkopp-adler.com

6 Setup

6.1 Components of the sewing unit

Fig. 30: Components of the sewing unit

The sewing unit comprises the following components on delivery:

- Base machine

Sewing machine

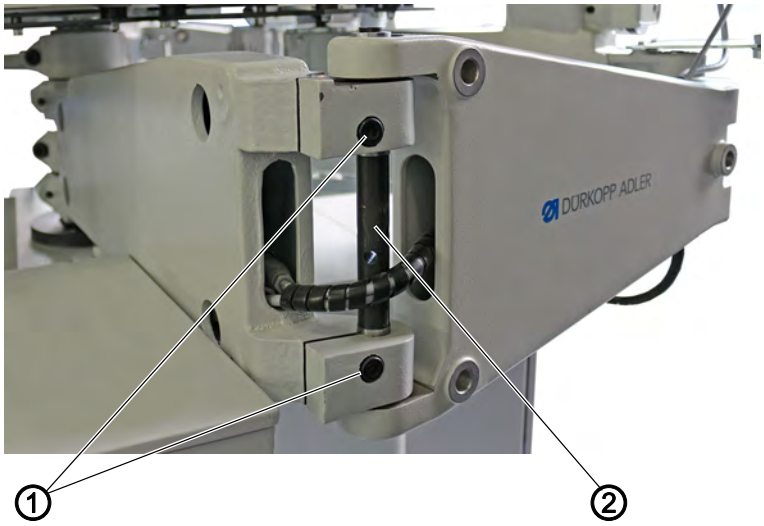
- Cutter
- Material holder
- Reel stand
- Control box
- Pedal with foot switches
- Small parts in accessories

Additional equipment:

- Stacker
- Air suction device

6.2 Adjusting the sewing head heigth and the cutting head height

Fig. 31: Adjusting the sewing head height and the cutting head height



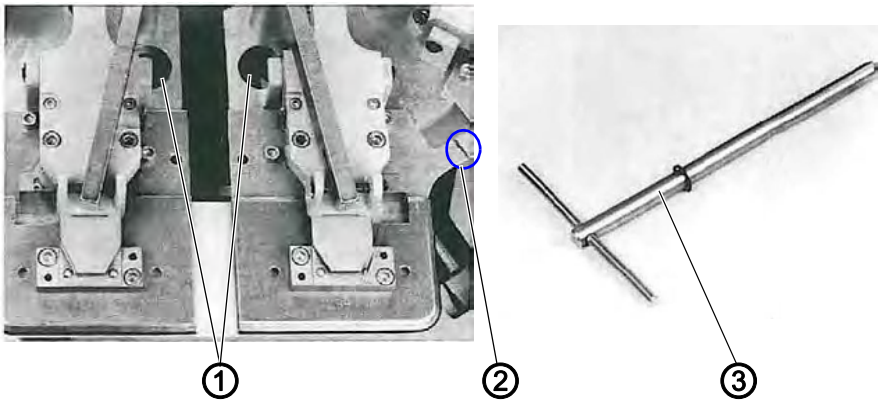
(1) - Screws
(2) - Bolt

To adjust the sewing head heigth and the cutting head heigth:

1. Loosen the screws (1).
2. Twist the bolt (2) until the sewing head and the cutting head are in the desired height.
3. Screw in the screws (1).

6.3 Installing the material holders

Fig. 32: Installing the material holders



(1) - Screws
(2) - Numbering
(3) - Special key

To install the material holders:

1. Install the holder on the turntable ensuring the following:
   - The numbering (2) (1, 2, 3, 4 etc.) on the holders indicates their placement in the turntable.
   - Tighten the fastening screws (1) with the special key (3).

6.4 Installing the reel stand

The setup and position of the reel stand can be seen in the photo at the device description. Note:

- Insert the reel stand and tighten the nut under the retaining plate.
- Reel stand holder and unwinding bracket must be above one another.

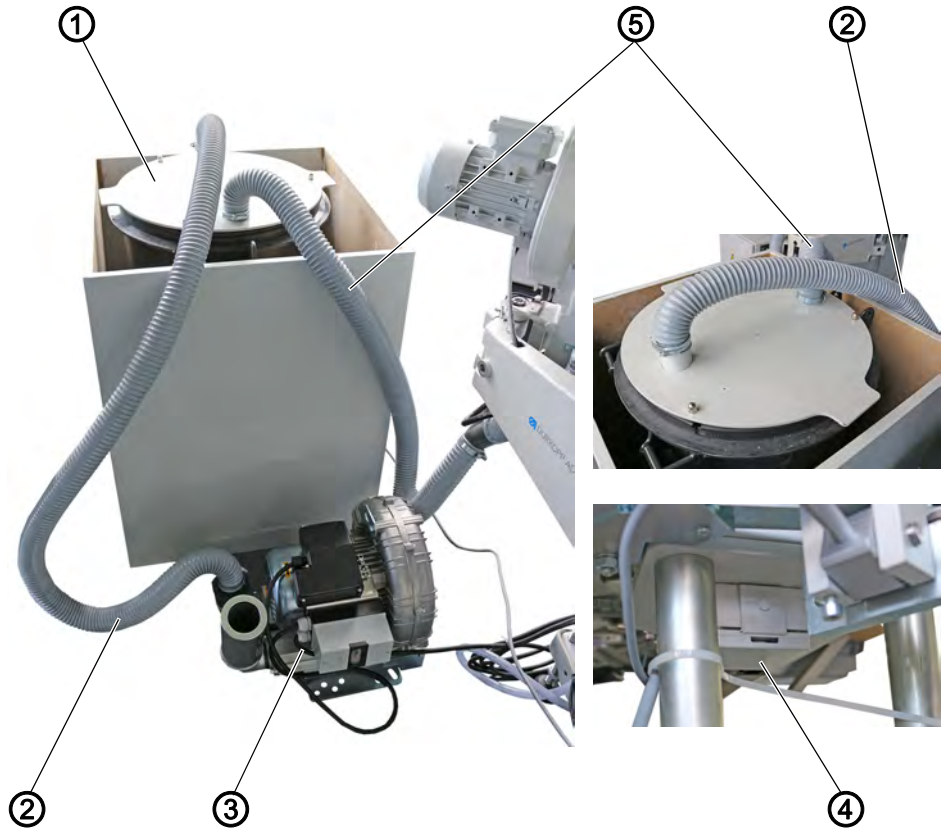
6.5 Aligning the sewing unit

Correctly align the sewing unit as follows:

1. Place the plates with rubber disks (in the accessory pack) under the 4 feet.
2. Adjust the height so that the cast iron body has sufficient clearance from the ground; to do this, turn the 4 feet appropriately.
   - Place a spirit level on the frame and align the sewing unit using the 4 feet. If a spirit level is not available, align the sewing unit such that the swung out sewing head does not move from its position.

6.6 Connecting the side channel blower

Fig. 33: Connecting the side channel blower



(1) - Cover
(2) - Hose
(3) - Cable
(4) - Socket
(5) - Hose

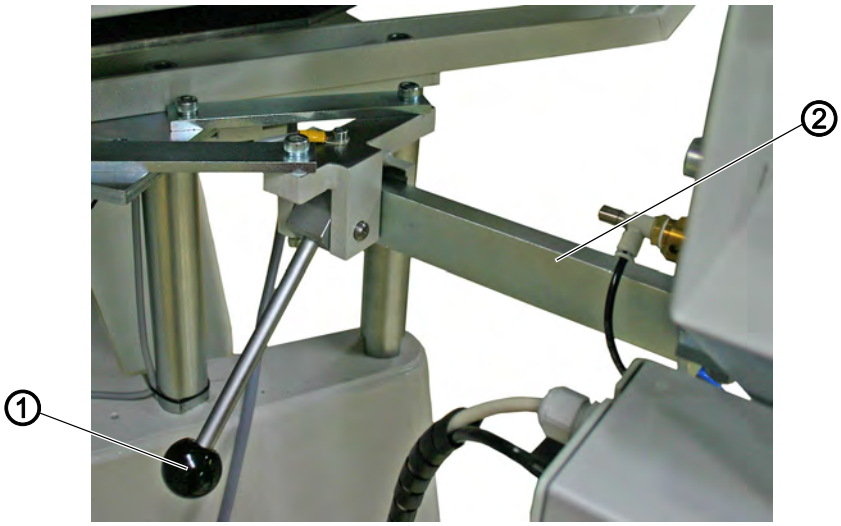
The side channel blower sucks cutting waste into the ton.

To connect the side channel blower:

1. Plug the hose (5) into the connection of the cover (1), under which is NOT the strainer.
2. Plug the hose (2) from the connection of the cover (1) WITH the strainer into the side channel blower.
3. Put the cover (1) on the ton.
4. Plug the cable (3) into the socket (4) at the bottom of the machine.

6.7 Connecting the stacker to the sewing unit

Fig. 34: Connecting the stacker to the seing unit



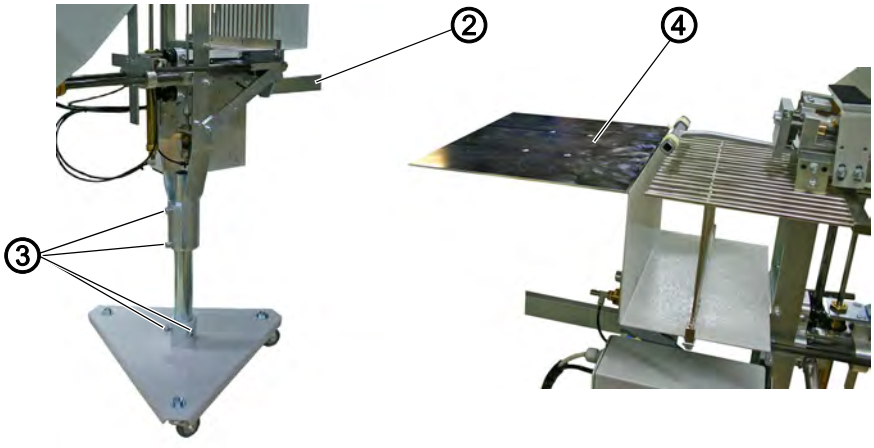
(1) - Clamping lever
(2) - Fastening rail

To connect the stacker to the sewing unit:

1. Release the clamping lever (1).
2. Push the stacker onto the sewing unit and guide the fastening rail (2) into the bracket.
3. Set the clamping lever (1).

Adjusting the height of the stacker

Fig. 35: Adjusting the heigt of the stacker



(2) - Fastening rail
(3) - Screws
(4) - Support plate

To adjust the height of the stacker:

1. Loosen the screws (3) and adjust the height of the stacker.

↳ The stacker's support plate (4) should have a clearance of approx. 3 mm to the underside of the material holder.

6.8 Electrical connection

DANGER

Risk of injury from electricity!

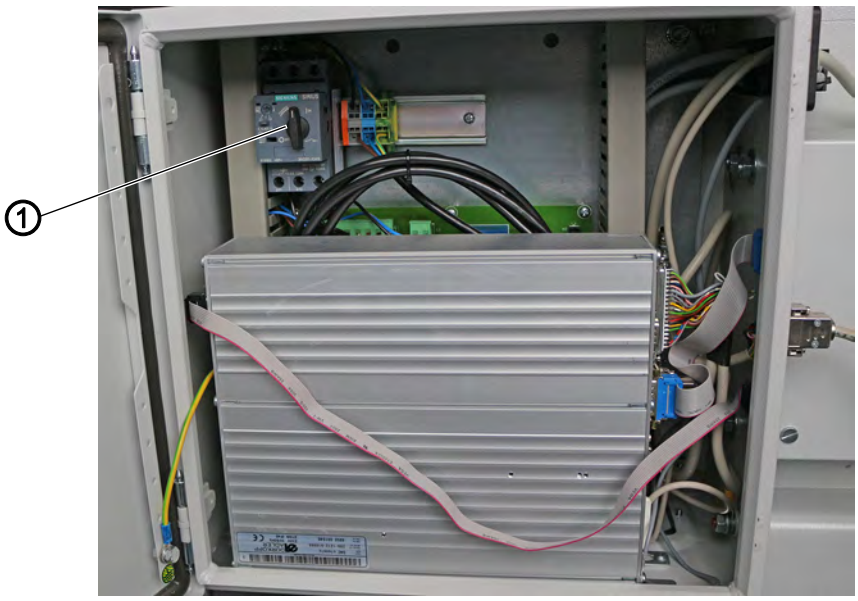
Unprotected contact with electricity can result in serious injuries or death.

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

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

6.8.1 Setting the motor circuit breaker

Fig. 36: Setting the motor circuit breaker



(1) - Motor circuit breaker

The motor circuit breaker (1) must be adjusted according to the mains voltage.

Correct setting

Netzspannung	3 Phasen+N 400VAC (-20%/10%) 50 Hz
Motorschaltung	Sternschaltung
Motorschutzschalter Typ	1,8...2,5A Einstellung bei: 380V > 2,0 A 400V > 2,0 A 415V > 2,2 A

Netzspannung	3 Phasen 230VAC (-20%/10%) 50/60 Hz
Motorschaltung	Dreieckschaltung
Motorschutzschalter Typ	2,8...4,0A Einstellung bei: 220V > 3,2 A 230V > 3,2 A 240V > 3,4 A

6.8.2 Checking the direction of rotation

To check the direction of rotation:

1. Switch on the main switch.
2. Switch the automatic sequence on and off again using the right foot pedal.
3. The turntable must turn counterclockwise.
4. If the direction of rotation is **NOT** correct, two phases in the connecting plug must be interchanged.

6.9 Pneumatic connection

NOTICE

Property damage from oily compressed air!

Oil particles in the compressed air can cause malfunctions of the machine and soil the sewing material.

Ensure that no oil particles enter the compressed air supply.

NOTICE

Property damage from incorrect setting!

Incorrect system pressure can result in damage to the machine.

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

6.9.1 Fitting the compressed air maintenance unit

To fit the compressed air maintenance unit:

1. Connect the connection hose to the compressed air supply using a hose coupling R 1/4”.

6.9.2 Setting the operating pressure

NOTICE

Property damage due to incorrect operating pressure!

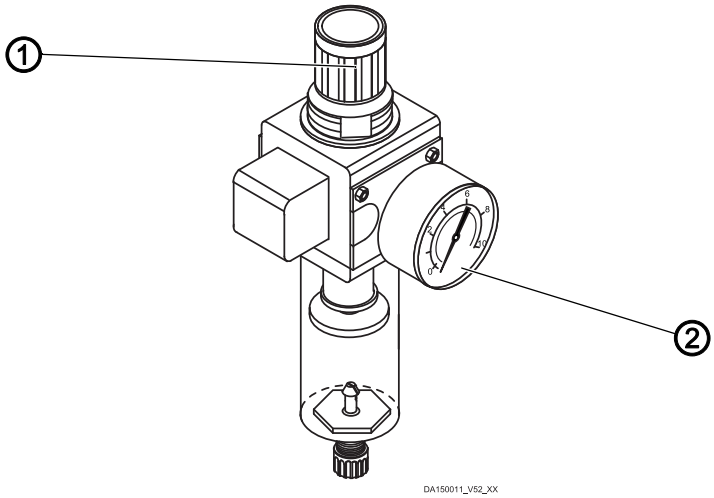
Incorrect operating pressure can result in damage to the machine.

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

Proper setting

Refer to the **Technical data** (📖 *S. 61*) chapter for the permissible operating pressure. The operating pressure must not deviate by more than ± 0.5 bar.

Fig. 37: Setting the operating pressure



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

To set the operating pressure:

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

7 Starting up for the first time

Test run

First perform a test run using the sewing material in order to test that the unit is working properly.

Starting sewing for the first time

1. Start and stop the automatic sequence if a material holder is in front of the sewing head.
2. Thread the needle and hook threads.
3. Place the sewing material in the clamp at the sewing head; to do this, press down manually on the opening lever.
4. Sew the first stitches manually.
5. Insert the sewing material into the next clamp.
6. Start automatic sequence.

8 Decommissioning

A number of activities must be carried out if the machine is to be shut down for a longer period of time or completely decommissioned.

WARNING

Risk of injury from a lack of care!

A lack of care or a lack of sufficient technical knowledge when decommissioning the machine can result in serious injuries.

ONLY clean the machine when it is switched off.

Avoid contact with oil residues.

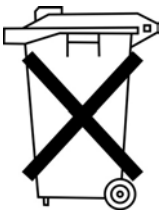
Allow ONLY trained personnel to disconnect the machine.

To decommission the machine:

1. Switch off the main switch.
2. Unplug the power plug.
3. Disconnect the pneumatic connection.
4. Remove residual oil from the oil pan under the fabric support surface using a cloth.
5. Cover the control panel to protect it from soiling.
6. Cover the entire machine if possible to protect it from soiling and damage.

Observe the necessary safety precautions for transport.

9 Disposal



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

The machine must be disposed of in an appropriate and correct manner according to the national regulations.

ATTENTION

Risk of environmental damage due to incorrect disposal.

Incorrect disposal of the machine can result in severe environmental damage.

ALWAYS observe the legally prescribed regulations for disposal.

When disposing of the machine, be aware that it consists of a range of different materials (steel, plastic, electronic components, etc.). Observe the applicable national regulations for disposal.

10 Troubleshooting

10.1 Customer Service

Contact for repairs and issues with the machine:

Dürkopp Adler GmbH

Potsdamer Str. 190
33719 Bielefeld, Germany

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

10.2 Errors in sewing process

Meaning	Possible causes	Remedial action
Knife does not cut properly	Knife pressure is too high or too low	Check knife pressure
	Sewing material is not held down properly	Check orientation of the blow pipes
Loose stitches	• Thread tensions are not adjusted to the sewing material, the sewing material thickness nor to the thread used	• Check the thread tensions
	• The needle and looper threads are incorrectly threaded	• Check the threading path (📖 *Operating Instructions, Operation*)

Meaning	Possible causes	Remedial action
Missed stitches	• The needle and looper threads are incorrectly threaded	• Check the threading path (🕮 *Operating Instructions, Operation*)
	• Needle is blunt or bent • Needle is not correctly inserted into the needle bar	• Replace the needle • Insert the needle into the needle bar
	• Needle strength used is unsuitable	• Use the recommended needle strength (🕮 *9 Technical data*, p. 178)
	• Reel stand is incorrectly fitted	• Check the reel stand (🕮 *Operating Instructions, Set-up*)
	• Thread tensions are too tight	• Check the thread tensions (🕮 *Operating Instructions, Operation*)
	• Sewing material is not held correctly	• Check the clamping pressure (🕮 *S. 38*)
	• Sewing material is not spread or is insufficiently spread	• Check the spread (🕮 *S. 32*)
	• After resetting the zigzag stitch width, the looper stroke was not corrected	• Set the looping stroke (🕮 *S. 61*)
	• Incorrect parts are installed for the desired sewing equipment	• Check parts using the equipment sheet
	• The looper or spreader is misaligned	• Check individual settings
	• Throat plate, looper or spread were damaged by the needle	• Have parts reworked by qualified specialists
Needle break	• Needle strength is not suitable for the sewing material or the thread	• Use the recommended needle

Meaning	Possible causes	Remedial action
Thread break	• The needle and looper threads are incorrectly threaded	• Check the threading path (📖 *Operating Instructions, Operation*)
	• Needle is bent or sharp-edged • Needle is not correctly inserted into the needle bar	• Replace the needle • Insert the needle into the needle bar
	• Thread used is unsuitable	• Use the recommended thread (📖 *S. 4*)
	• Thread tensions are too tight for the thread used	• Check the thread tensions (📖 *Operating Instructions, Operation*)
	• Thread-guiding parts, e.g. thread tubes, thread guide or thread take-up disk are sharp-edged	• Check the thread path
	• Throat plate, looper or spread were damaged by the needle	• Have parts reworked by qualified specialists

11 Technical data

Data and parameters

Technical data	Unit	971
Machine type		One needle double chainstitch machine
Type of stitches		401
Hook type		Crossline
Number of needles		1
Needle system		971-B/1cf
Needle thickness	[Nm]	80-110
Thread strength	[Nm]	• 80/2 - 120/2 (core spun thread) • 120/2 (polyester)
Stitch length	[mm]	2
Max. speed	[min^{-1}]	2800
Speed on delivery	[min^{-1}]	2800
Cutting distance	[mm]	3,5 - 5,4 - 5,5
Line voltage	[V]	3 phases+N 400VAC (-20%/+10%) 3 phases 230VAC(-20%/+10%)
Mains frequency	[Hz]	50/60
Operating pressure	[bar]	5
Length	[mm]	200
Width	[mm]	2000
Height	[mm]	1000
Weight	[kg]	555

Features

The rotation concept enables an overlapped mode of operation and thus yields a high volume output. Through optimal workplace design, everything is within easy reach and a high level of operating comfort is assured.

The 971-01 has work stations for inserting or feeding the sewing material, for sewing, for cutting excess material ends and for stacking the sewn pieces. These are loaded via a turntable, to which the individual material holders are secured. The size of these can be adjusted when sewing cuffs. The speed of rotation can be adjusted steplessly and can be adapted to the relevant requirements.

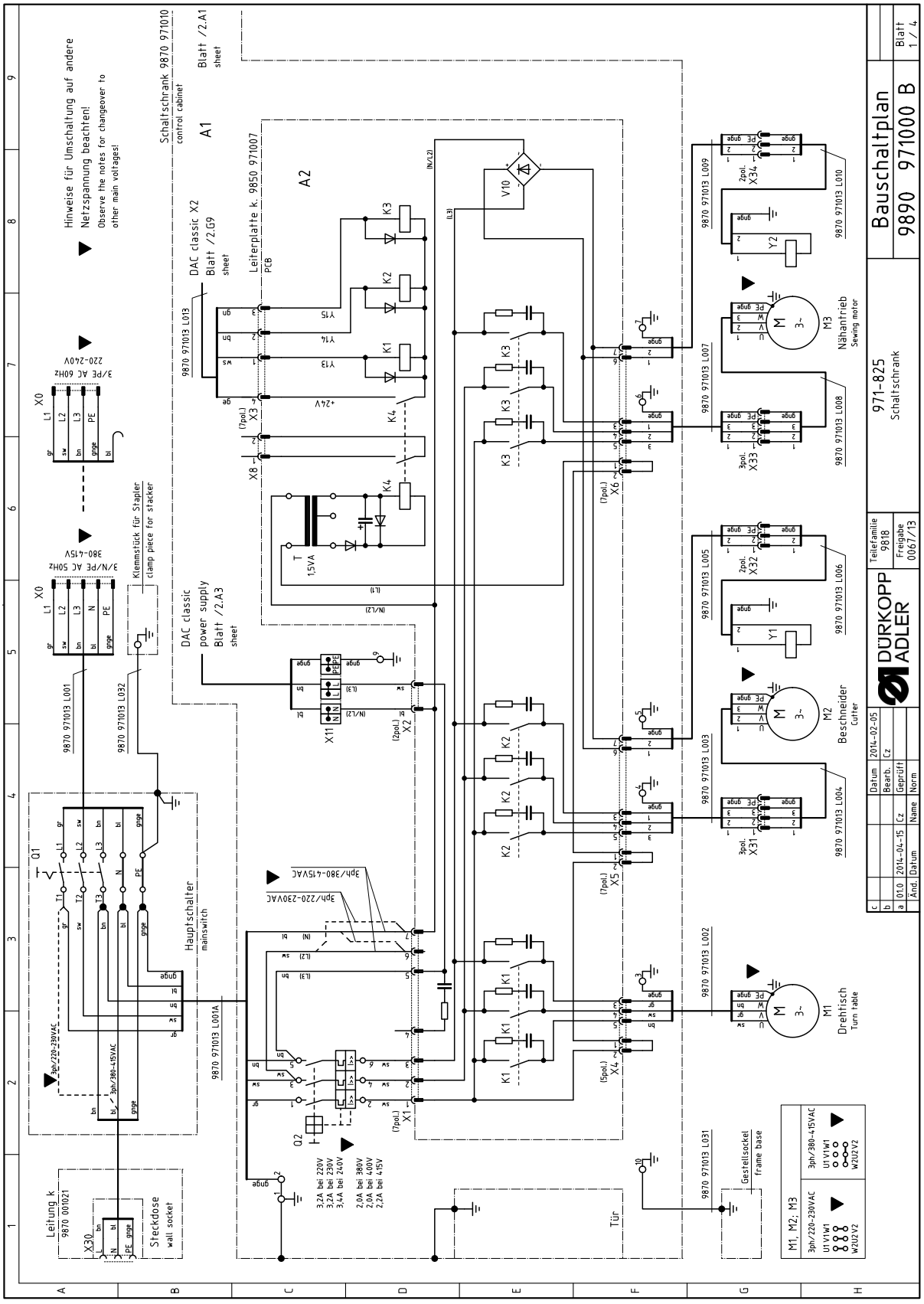
The double chain stitch sewing head of the 971-01 is fitted with a needle and looper thread monitor, which stops the sewing machine automatically should the thread break or run out.

Parallel cutting and separating of the thread chain is performed by the

cutting head. The cutting distance can be changed using corresponding part sets.

To remove cutting waste, suction systems with one-sided or two-sided suction are available. The corresponding air compressor is available in different voltage versions.

12 Appendix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9890 971000 B
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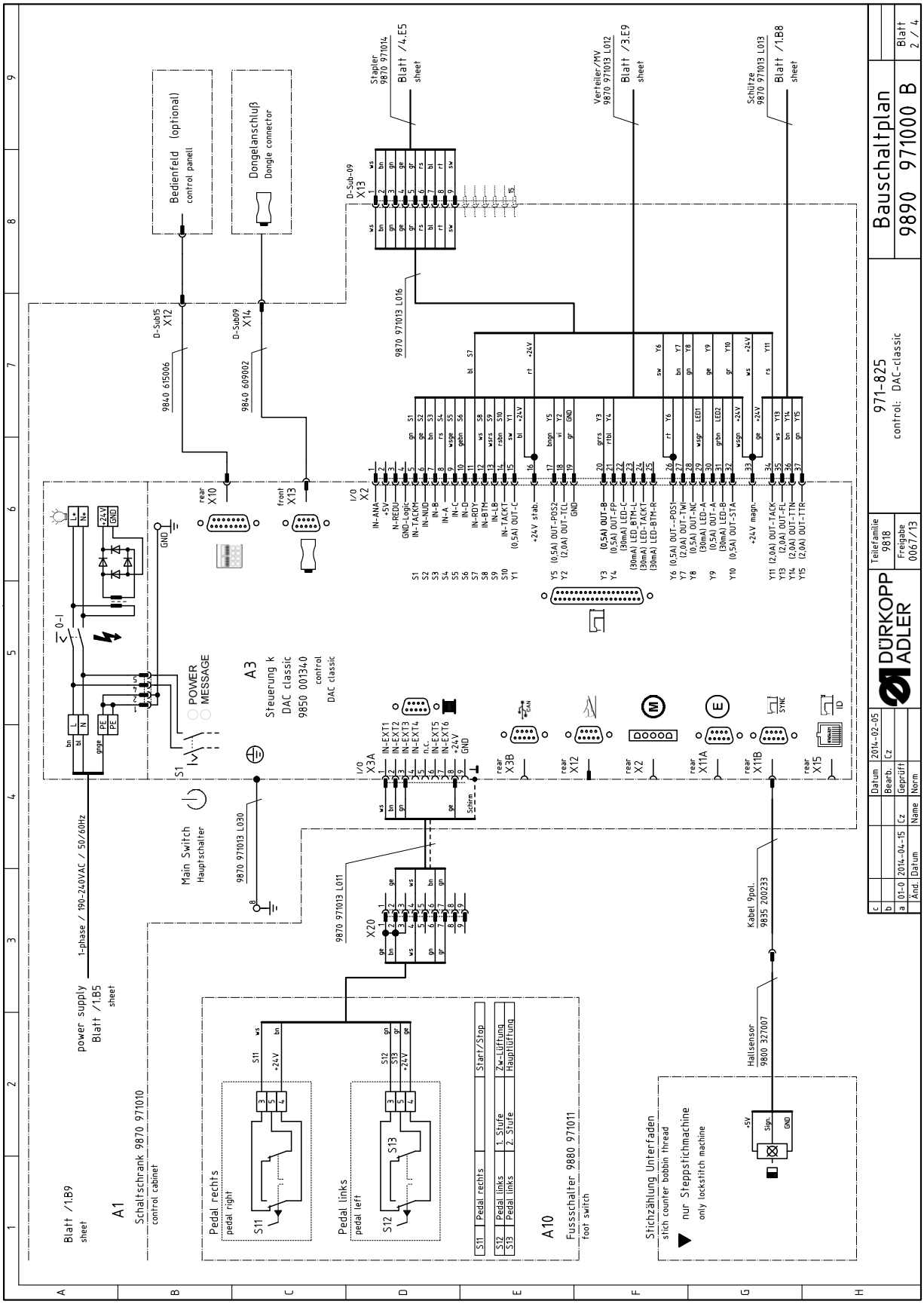
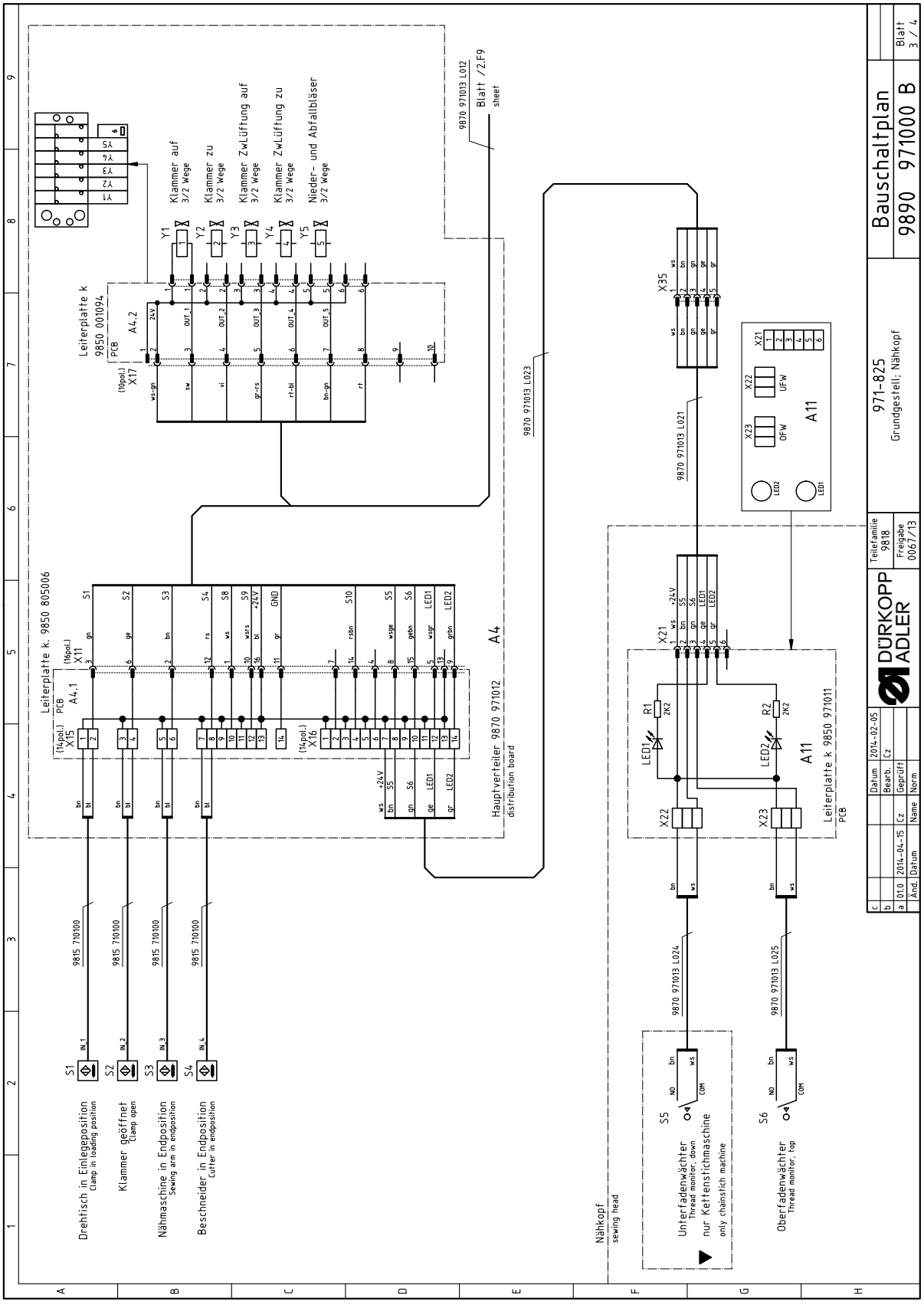
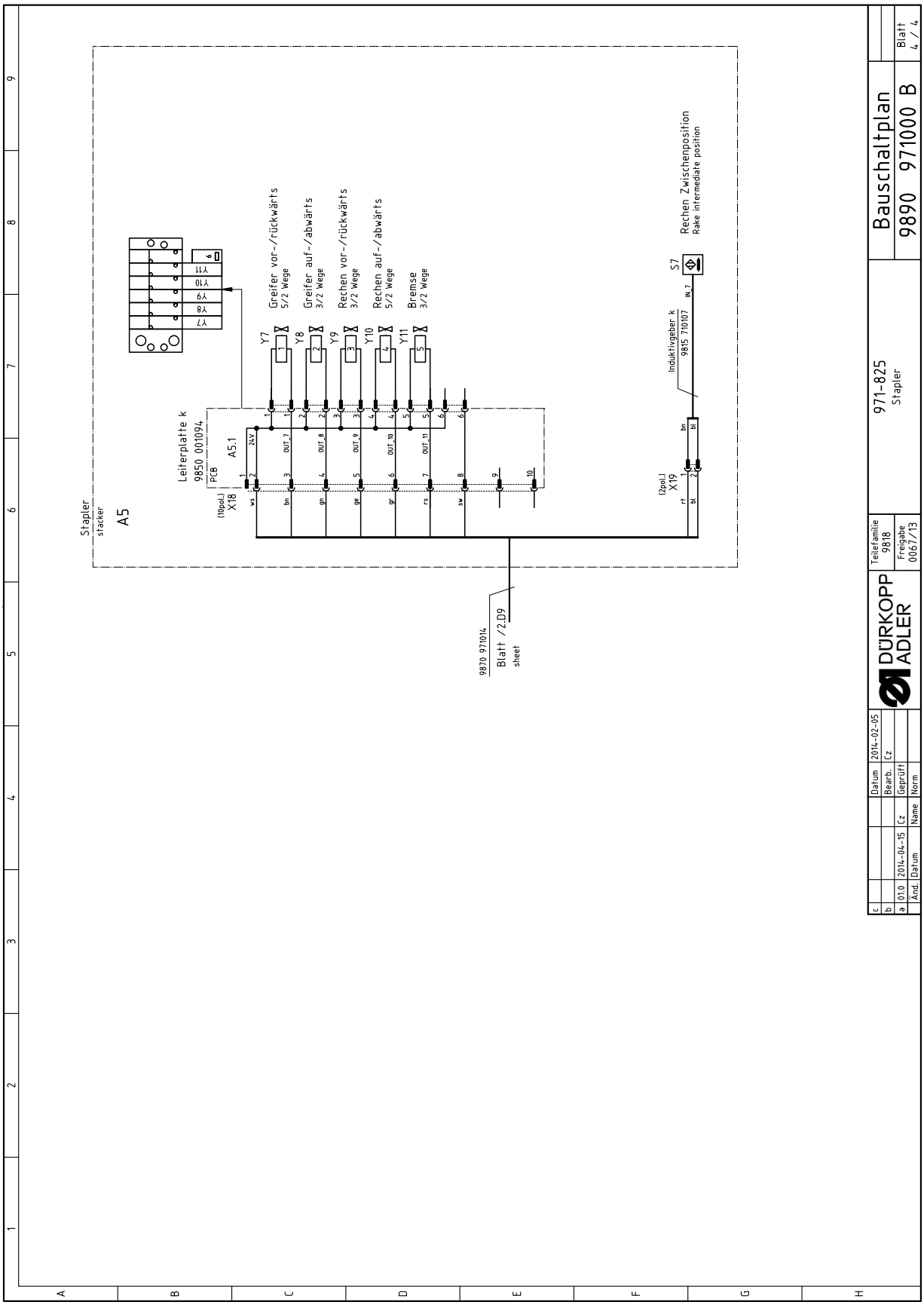
Schaltschrank
DÜRKOPP ADLER
Hinweise für Umschaltung auf andere Netzspannung beachten!
Observe the notes for changeover to other main voltages!
Schaltschrank 9870 971010
control cabinet
A1
A2
DAC classic X2
Leiterplatte k. 9850 971007
PCB
DAC classic power supply
Hauptschalter
mainswitch
Klemmstück für Stapler
clamp piece for stacker
Steckdose
wall socket
Drehtisch
Turn table
Beschneider
Cutter
Nähantrieb
Sewing motor
Gestellsocket
frame base
Tür


Bauschaltplan
9890 971000 B
971-825
control: DAC-classic
DÜRKOPP ADLER
Bedienfeld (optional)
control panell
Dongelanschluß
Dongle connector
Stapler
9870 971014
Vertiler/MV
9870 971013 L012
Schürze
9870 971013 L013
A1
Schaltschrank 9870 971010
control cabinet
A3
Steuerung k
DAC classic
9850 001340
control
DAC classic
A10
Fussschalter 9880 971011
foot switch
power supply
1-phase / 190-240VAC / 50/60Hz
Main Switch
Hauptschalter
Pedal rechts
pedal right
Pedal links
pedal left
Start/Stop
Hallsensor
9800 327007
Kabel 9pol.
9835 200233
Stichzählung Unterfaden
stich counter bobbin thread
nur Steppstichmaschine
only lockstitch machine


Bauschaltplan
9890 971000 B
971-825
Grundgestell; Nähkopf
Blatt 3 / 4
Leiterplatte k. 9850 805006
Hauptverteiler 9870 971012
distribution board
A4
Leiterplatte k 9850 001094
A4.2
Klammer auf 3/2 Wege
Klammer zu 3/2 Wege
Klammer Zwlüftung auf 3/2 Wege
Klammer Zwlüftung zu 3/2 Wege
Nieder- und Abfallbläser 3/2 Wege
Leiterplatte k 9850 971011
A11
Nähkopf
sewing head
Drehtisch in Einlegeposition
Clamp in loading position
Klammer geöffnet
Clamp open
Nähmaschine in Endposition
Sewing arm in endposition
Beschneider in Endposition
Cutter in endposition
Unterfadenwächter
Thread monitor, down
nur Kettenstichmaschine
only chainstich machine
Oberfadenwächter
Thread monitor, top
9870 971013 L012
9870 971013 L021
9870 971013 L023
9870 971013 L024
9870 971013 L025
9815 710100
DÜRKOPP ADLER
Datum 2014-02-05
Bearb. Cz
Geprüft
Norm
Name
Datum 2014-04-15 Cz
Änd.


Stapler
stacker
A5
Leiterplatte k
9850 001094
PCB
A5.1
X18
(10pol.)
Y7
Greifer vor-/rückwärts
5/2 Wege
Y8
Greifer auf-/abwärts
3/2 Wege
Y9
Rechen vor-/rückwärts
3/2 Wege
Y10
Rechen auf-/abwärts
5/2 Wege
Y11
Bremse
3/2 Wege
S7
Rechen Zwischenposition
Rake intermediate position
Induktivgeber k
9815 710107
X19
(2pol.)
9870 971014
Blatt /2.09
sheet
971-825
Stapler
Bauschaltplan
9890 971000 B
Blatt 4 / 4
DÜRKOPP ADLER
Teilefamilie 9818
Freigabe 0067/13
Datum 2014-02-05
Bearb. Cz
Geprüft
Norm
Name
Cz
2014-04-15
Datum
And.
01.0
a
b
c

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