PFAFF

8304 -040 -042

Instruction Manual

This instruction manual applies to machines from the following serial numbers onwards:

15055 →

296-12-18 419/002
Betriebsanleitung engl. 08.2002

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PFAFF

Dept. TES

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1 Safety

1.01 Regulations

This machine was built in accordance with the European regulations listed in the conformity and manufacturer's declarations.
In addition to this instruction manual, also observe all generally accepted statutory and other regulations and legal requirements - including those of the country in which the machine will be operated and all valid environmental-protection regulations. Regionally applicable regulations of the social insurance society for occupational accidents or other supervisory organisations are to be strictly adhered to!

1.02 General notes on safety

- This machine may only be operated by adequately trained operators and only after the instruction manual has been completely read and understood !
- The danger and safety instructions on the machine itself are to be followed!
- The machine may only be used for the purpose for which it was intended and must not be operated without its safety devices. Observe all relevant safety regulations!
- When replacing the feed rollers or the hot wedge, when leaving the workplace unattended and during servicing or repairs, the machine must be switched off at the mains switch and the plug pulled!
- Daily servicing work may be carried out only by appropriately trained personnel!
- Repairs and special maintenance work may be carried out only by technicians or persons with appropriate training!
- Work on the electrical equipment may be carried out only by qualified electricians!
- Work is not permitted on live parts and equipment! Exceptions to this are contained in the regulations EN 50110.
- Modifications and alterations to the machine may only be carried out under observance of all the relevant safety regulations!
- Only spare parts which have been approved by us are to be used for repairs! We expressly point out that any replacement parts or accessories not supplied by us have not been tested and approved by us. The installation and/or use of any such products can lead to negative changes in the structural characteristics of the machine. We shall not be liable for any damage which may be caused by non-original parts.

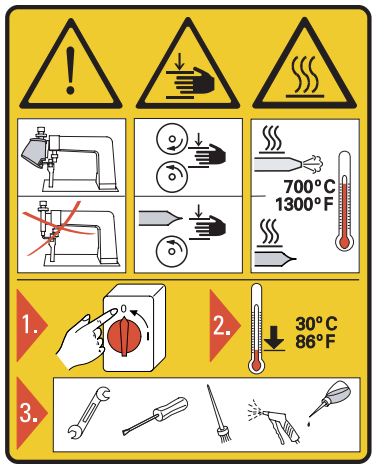
1.03 Safety symbols

Danger!
Special points to observe.

Danger of hands being crushed!

Danger of burns from hot surface!

Danger from electric voltage!



Caution

Do not operate without finger guard and safety devices. **Turn off the main switch** and **let the machine cool down** before any setting up, maintenance or cleaning work!

1.04 Important points for the user

- This instruction manual is a component part of the machine and must be available to operating personnel at all times.
  The instruction manual must be read before commissioning the machine.
- The operating and technical personnel are to be instructed as to the machine's safety mechanisms and with regard to safe working methods.
- It is the duty of the owner to operate the machine only when it is in perfect running order.
- The owner is obliged to ensure that none of the safety mechanisms are removed from the machine or deactivated.
- When processing PVC, PTFE and similar materials, the user must ensure that the maximum permissible level of toxic fumes is not exceeded.

For further information please refer to the sales agency responsible.

1.05 Operating and technical personnel

1.05.01 Operating personnel

Operating personnel are persons responsible for setting up, operating and cleaning the machine as well as for eliminating any faults which may occur.

Operating personnel must observe the following:

- Always comply with the notes on safety in the instruction manual!
- Never adopt a working method which could have an adverse effect on the level of safety in using the machine!
- Never wear loose-fitting clothing or jewelry such as chains or rings!
- Ensure that only authorized persons have access to the danger zone around the machine.
- Always report any changes in the machine, which may limit its safety, to the immediately!

1.05.02 Technical personnel

Technical personnel are persons with special training in the fields of electrical/electronics engineering and mechanics. They are responsible for the lubrication, maintenance and repair of the machine.

Technical personnel must observe the following:

- always comply with the notes on safety in the instruction manual!
- switch the machine off at the main switch before carrying out servicing or repair work!
- never work on live parts and equipment! Exceptions are contained in the regulations EN 50110.
- replace the protective coverings after all repairs or maintenance work.

1.06 Danger warning

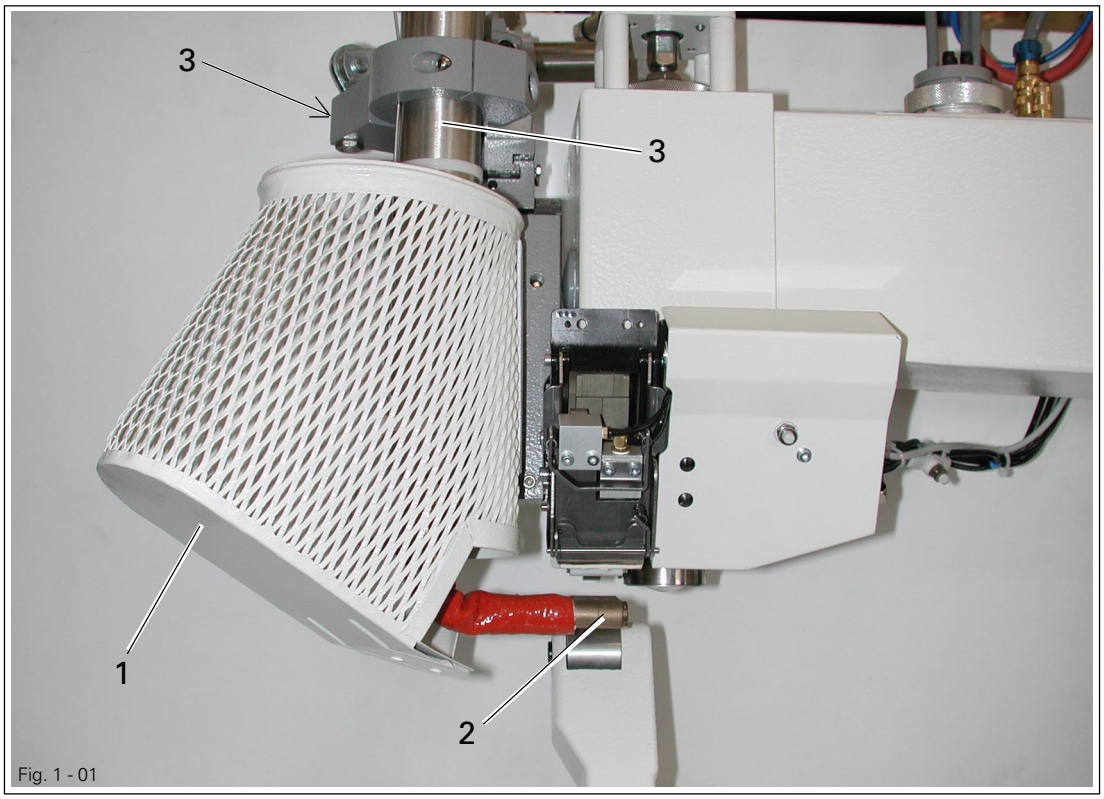


Fig. 1 - 01

Do not operate the machine without the protective cover **1** !
Danger of burns if the hot air nozzle **2** is touched!

Do not put your fingers between protective cover **1** and swivel unit **3**!
Danger of crushing when swivel unit **3** is swung in and out of place!

2 Proper use

The **PFAFF 8304-040** is a hot-air sealing machine with front off-set post.

The **PFAFF 8304-042** is a hot-air sealing machine with rear off-set post.

The purpose of the machines is to heat-seal seams on waterproof and breathable membrane sheeting for leisure and hiking shoes and for all kinds of sportswear and weatherproof clothing, using a heat-sealing tape.

Any and all uses of this machine which have not been approved of by the manufacturer are considered to be inappropriate! The manufacturer cannot be held liable for any damage caused by inappropriate use of the machine! Appropriate use of the machine presupposes the observance of all operational, adjustment, maintenance and repair measures required by the manufacturer!

3 Specifications ▲

Dimensions and weight:
Length: ..... approx. 1265 mm
Breadth: ..... approx. 600 mm
Height: (without tape reel bracket) ..... approx. 1450 mm

Weight: ..... approx. 110 kg

Mains voltage
set for: ..... 230 V± 10%, 50/60 Hz, single-phase

Power input: ..... approx. 3300 W
Max. heating capacity: ..... 3000 W
Mains fuse protection: 16A

Working air pressure ..... 6 bar
Air consumption ..... 60-120l/min.
Hot air pressure ..... 0.2 - 2 bar

Max. heat-sealing temperature: ..... 650°C, infinitely variable
Heat-sealing tape width: ..... up to 30 mm
Fusible membrane sheet materials: .....

- Goretex
- Sympatex
- Puratex
- Membrane fabrics for shoes
- 2- and 3-ply laminates

▲ Subject to alteration

4 Disposal of the machine

- The proper disposal of the machine is the responsibility of the customer.
- The materials used on the machine are steel, aluminium, brass and various plastics. The electrical equipment consists of plastics and copper.
- The machine is to be disposed of in accordance with the locally valid environmental protection regulations.

Special care is to be taken that parts soiled with lubricants are disposed of separately in accordance with the locally valid environmental protection regulations.

5 Transport, packing and storage

5.01 Transport to the customer's premises

Within Germany the machine is delivered without packing. Machines for export are packed.

5.02 Transport within the customer's premises

The manufacturer bears no liability for transport within the customer's premises.

5.03 Disposal of packing

The packing of this machine consists of paper, cardboard, fusible fabric and wood. Proper disposal of the packing is the responsibility of the customer.

5.04 Storage

If not in use, the machine can be stored for up to six months as it is. During this time it should be protected against dust and dampness.
If the machine is stored for longer periods, its parts, especially moving parts, must be protected against corrosion, e.g. by a film of oil.

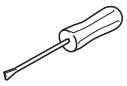
6 Explanation of the symbols

In this Instruction Manual, tasks to be carried out and important information are drawn to your attention by symbols. The symbols have the following meanings:

Note, information

Cleaning, care

Lubrication



Servicing, repairing, adjustment, maintenance
(only to be carried out by specialist personnel)

7 Controls

7.01 Main switch

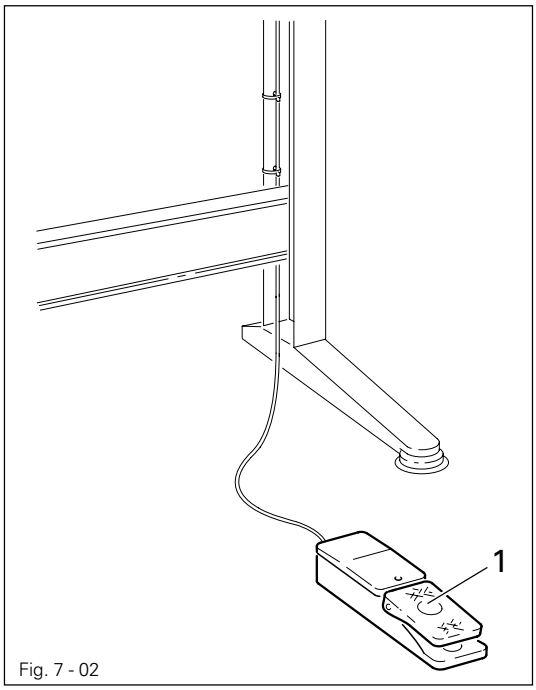
- The machine is switched on or off by turning main switch **1**.

Position " **0** " : Machine is switched off

Position " **I** " : Machine is switched on

When switching off the machine, please observe the notes in **Chapter 8.03 Switching the machine on and off!**

7.02 Foot switch



- The heat-sealing process is carried out using the 2 positions of foot switch **1.**

Position 1: Positioning the workpiece (top feed roller is lowered)

Position 2: Starting the heat-sealing process (the hot-air nozzle is swung into position/feed rollers are started)

The functions triggered by pedal **1** differ according to the operational mode of the machine (see **Chapter 7.08 Operational modes-selection switch).**

7.03 Knee switch (only on machines with tape-cutting device)

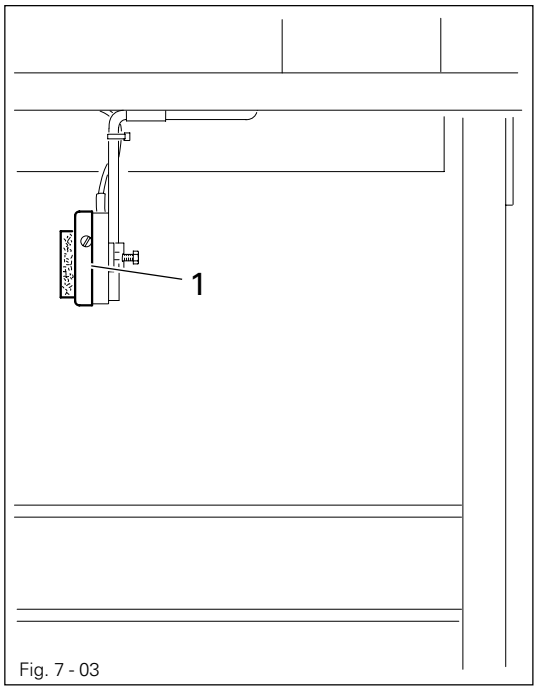


Fig. 7 - 03

- The heat-sealing tape is cut by operating knee switch **1**.

If required, the function can also be triggered by a second pedal, instead of by knee switch **1**.

7.04 Temperature regulator / fault indicator

Fig. 7 - 04

- The temperature can be set with the buttons **1**.
- Display **2** shows the required value and display **3** the actual value.
- When the following faults occur, fault indicator **4** lights up:

- Fault on temperature regulator or sensor.
- Overheating of the heating cartridge.

When a fault has occurred:

- Eliminate the fault.
- Acknowledge elimination of fault by pressing fault indicator button (lamp off).

7.05 Status display of temperature control

Fig. 7 - 05

- Depending on the status of the temperature control, diodes **1 - 6** light up.

Diode 1 lights up when the actual temperature deviates from the required temperature by +/-50°C.

Diode 2 lights up, if the temperature exceeds 650°C, or if the sensor breaks.

Diode 3 - no function

Diode 4 - no function

Diode 5 lights up as soon as the heating is switched on.

Diode 6 lights up when the machine is heated.

7.06 Regulator for drive roller start delay

Fig. 7 - 06

- On regulator **1** the time can be set, when the drive roller is activated after the hot-air nozzle has been swung into position.

7.07 Tape feed regulator/hot-sealing speed

Fig. 7 - 07

- The feed of the sealing band is set with regulator **1**.
- The hot-sealing speed is set with regulator **2**.

7.08 Selection switch for operational modes

Fig. 7 - 08

- The operational modes of the machine can be set with the selection switch **1** by means of four switch settings. The functions are triggered by two switch positions on the pedal.

1 = **hot sealing**
Position 1 - top feed roller is lowered
Position 2 - hot-air nozzle swings into position, feed rollers run forwards

2 = **Test run 1**
Position 1 - top feed roller is lowered
Position 2 - hot-air nozzle swings into position

3 = **Test run 2**
Position 1 - top feed roller is lowered
Position 2 - feed rollers run forwards

4 = **Reverse**
Position 1 - no function
Position 2 - feed rollers run backwards

7.09 Regulator for hot-air pressure

Fig. 7 - 09

- The hot-air pressure is adjusted by turning regulator **1**.
- The hot-air pressure level can be read from pressure gauge **2**.

The hot-air pressure must not drop below 0.2 bar!
If the hot-air pressure is too low, there is a risk of the heating rod burning out. The heating therefore switches off automatically when the hot-air pressure is too low.

7.10 Regulator for feed roller pressure

Fig. 7 - 10

- The feed roller pressure is adjusted by turning regulator **1**.
- The pressure level can be read from pressure gauge **2**.

7.11 Penetration depth adjustment ring

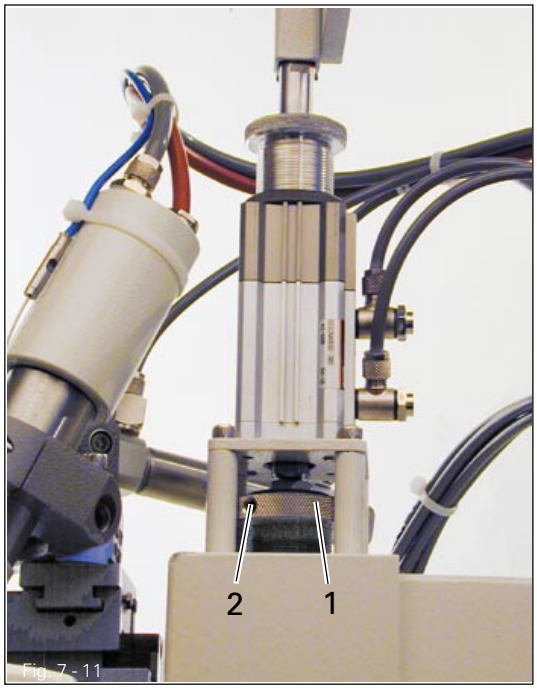


Fig. 7 - 11

Switch off the machine!
Danger of crushing between the housing and adjustment ring **1**.

- The penetration depth (feed roller clearance) is set by turning adjustment ring **1**.
- Before turning adjustment ring **1**, the three screws **2** must be loosened (see also **Chap. 9.02**).

7.12 Tape feed regulator / time delay after trimming

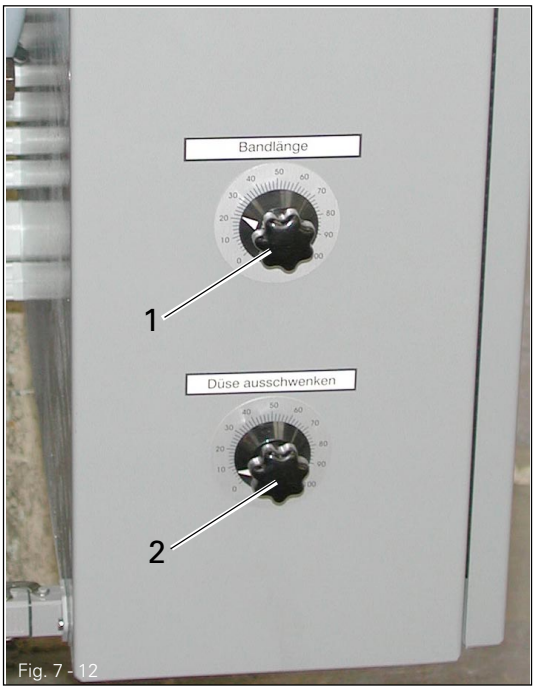


Fig. 7 - 12

- The tape feed is adjusted with regulator **1**.
- With regulator **2** the time delay can be set between tape trimming and disengagement of the hot air nozzle.

8 Installation and commissioning

The machine must only be installed and commissioned by qualified personnel!
All relevant safety regulations must be observed!.

8.01 Installation

Suitable connections for power and compressed air, an even and firm floor surface and sufficient lighting must be provided for at the installation site.

8.01.01 Adjusting the table height

Fig. 8 - 01

- Loosen screws **1** and set the table at the required height.
- Tighten screws **1** firmly again.

8.01.02 Connecting the compressed air

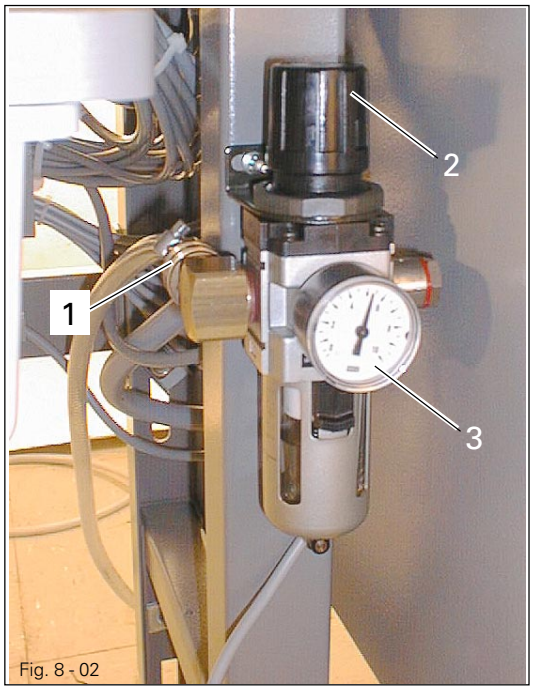


Fig. 8 - 02

- Connect the compressed air hose to coupling **1**.
- Pull regulator **2** up and turn it until gauge **3** shows an air pressure of **6 bar**.

The air must be completely oil-free and dry.
The compressed air quality influences the service life of the heating cartridge in the air heater. If the air is very damp, a compressed air cold drier with preliminary filter and secondary fine filter must be installed in front of the heat-sealing machine

8.01.03 Fitting the tape reel bracket

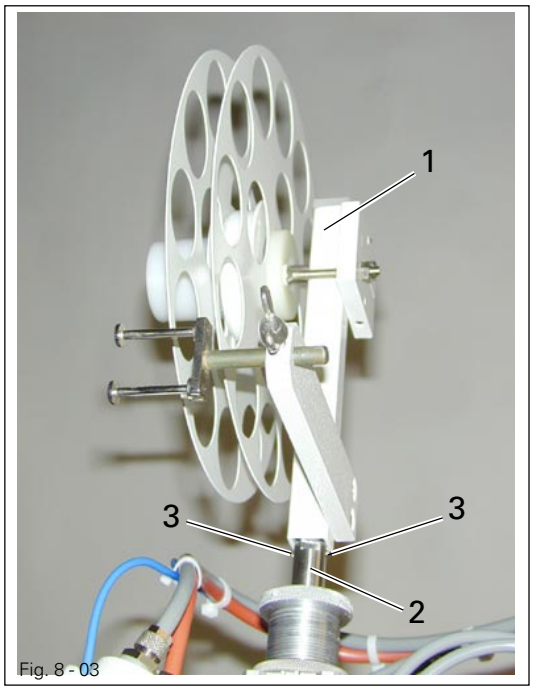


Fig. 8 - 03

- Insert tape reel bracket **1** into socket **2**, align it and screw it into place with screws **3**.

8.02 Commissioning

The machine must only be commissioned by qualified personnel. All relevant safety regulations must be observed.

- Check the machine, especially its electrical leads, for any damage.
- Have qualified personnel check that the machine can be operated with the local mains voltage and that it is correctly connected.
  If anything is not correct, do not start the machine **under any circumstances**!

8.03 Switching the machine on/off

Fig. 8 - 04

Fig. 8 - 05

- Set main switch **3** at position "**1**".
- Turn regulator **1** until the hot-air pressure on gauge **2** is at least **0.2 bar**.

The hot-air pressure must not drop below **0.2 bar**!
If the hot-air pressure is too low, there is a risk of the heating rod burning out. The heating therefore switches off automatically when the hot-air pressure is too low.

9 Setting up

All setting-up work must only be carried out by appropriately trained personnel!.For all setting-up work , the machine must be disconnected by pulling out the mains switch.

9.01 Inserting the sealing tape

9.01.01 Adjusting the tape reel bracket to the diameter of the tape reel core

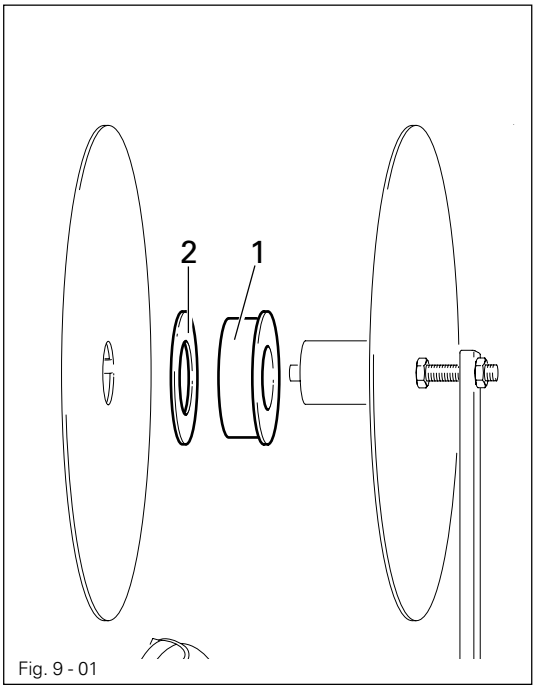


Fig. 9 - 01

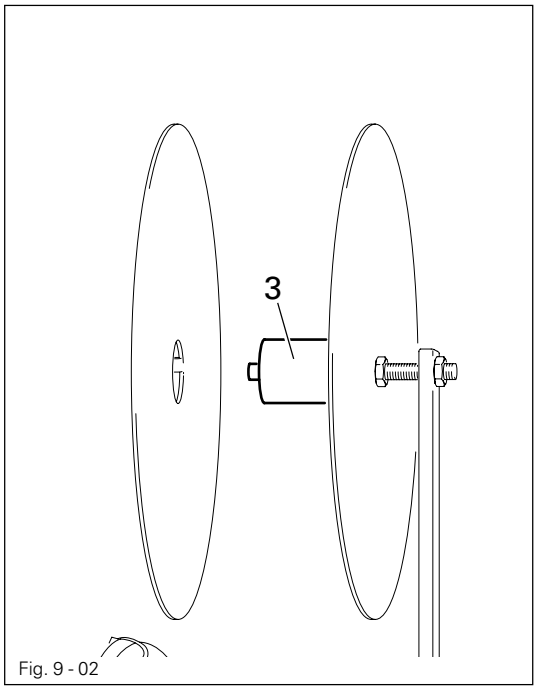


Fig. 9 - 02

- The tape reel bracket must be adjusted to the diameter of the tape reel core:
- For large core diameters ring **1** and washer **2** must be fitted,
  for small core diameters the fitted holder **3** is sufficient.

When rolling off the reel, the sealing tape must not touch the inner wall of the tape reel bracket

9.01.02 Inserting the heat-sealing tape / Adjusting the tape width and the tape brake

Requirement

1. The sealing tape should run easily through the narrow guide section.
2. The tape should run easily from the reel, but not be slack.

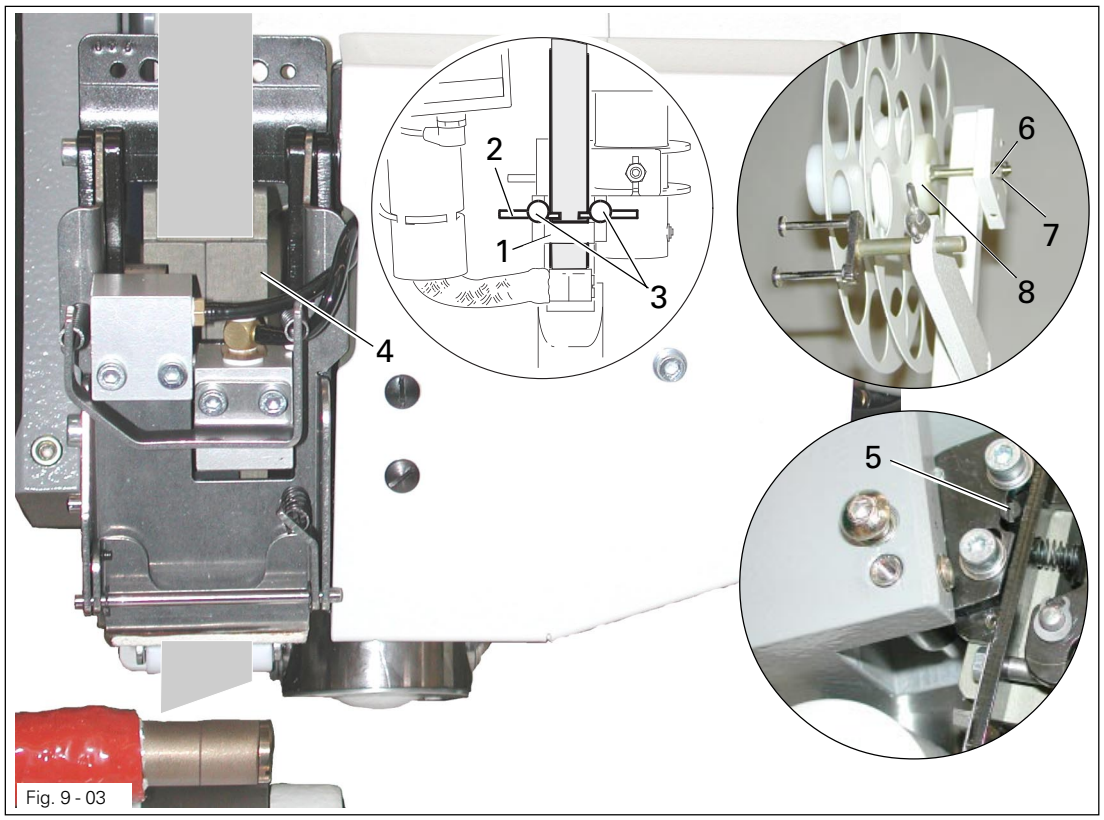


Fig. 9 - 03

Switch the machine off and let it cool down!
Danger of burns if the hot-air nozzle is touched!

- Fit the tape reel on the tape reel bracket.

Machines without tape trimming device

- Cut the tape at a slant so that it is easier to insert.
- Insert the tape into guide **1** and pull it through up to the feed rollers.
- Adjust guide pin **2** (screws **3**) in accordance with the **requirement 1**.

Machines with tape trimming device

- Cut the tape at a slant and insert it as far as possible into guide **4**.
- Switch on the machine.
- Trigger a band trimming operation (see Chapter 7.0.3).
- Adjust the guide with screw **5** in accordance with the **requirement 1**.

If the tape is not drawn in straight, **switch off the machine** and pull the tape in with tweezers.

- Loosen bolt **6** and adjust the tape brake **8** with screw **7** according to **requirement 2**.

9.02 Adjusting the penetration depth

The feed roller clearance depends on the thickness of the material to be sealed. The clearance is adjusted correctly, when one ply of the workpiece fits just between the feed rollers with the top feed roller lowered.

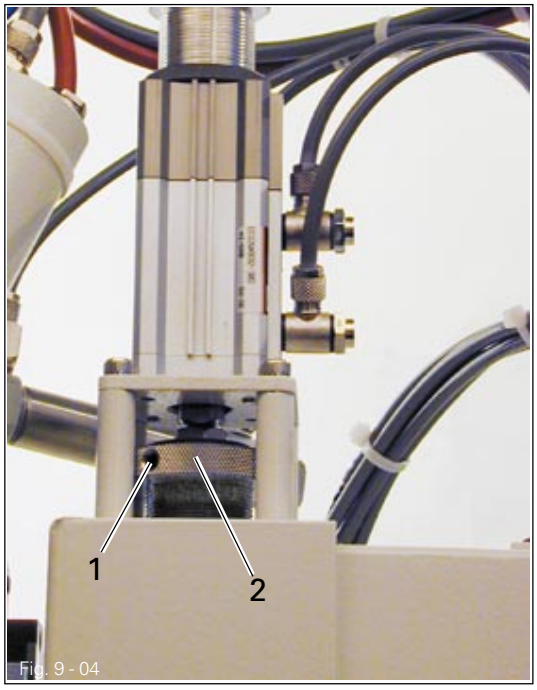


Fig. 9 - 04

Switch off the machine!
Danger of crushing between the housing and adjustment ring **1**.

- Loosen the three screws **1**.
- Adjust the feed roller clearance with adjusting ring **2**.
- Tighten screws **1**.

9.03 Setting the feed motion of the sealing tape

Fig. 9 - 05

- With regulator **1** adjust the feed motion of the sealing tape so that a reliable sealing seam start is guaranteed.

9.04 Hot-air pressure, hot-sealing temperature, -pressure and -speed

Fig. 9 - 06

Fig. 9 - 07

- Switch the machine on.

Hot-air pressure:

- Adjust hot-air pressure on regulator **1** depending on the workpiece (at least **0.3 bar**).
- To adjust the hot-air pressure on regulator **1** first set the pressure at "0". Then adjust regulator **1** to the required level.

Before switching the main switch on, make sure that the hot-air pressure is higher than **0.2 bar**!
If the hot-air pressure is too low, the heating switches off automatically.

Heat-sealing temperature:

- Adjust the heat-sealing temperature on the buttons **2** depending on the material (max. **650°C**).
- Display **3** shows the required temperature and display **4** the actual temperature.

Heat-sealing speed and feed roller pressure:

- The heat-sealing speed and feed roller pressure depend on the material and can be adjusted as described in Chapter 7.07 or 7.10.

10 Heat sealing

The machine must only be operated by appropriately trained personnel! The operating staff must also make sure that only authorized persons are in the danger area of the machine!

10.01 Heat-sealing principle

In order to achieve optimum heat-sealing, certain conditions concerning the workpiece and the machine settings have to be fulfilled.

The heat-sealing tape must be:
- heat-sealable
- be suitable for use on the machine with regard to thickness and properties

The material to be heat-sealed must be clean in the seam area.

The basic requirements on the heat-sealing machine are:
- the correct working temperature of the hot-air nozzle (hot-air temperature)
- the correct setting of the hot-air pressure
- correct selection of the feed rollers
  - top roller silicone (standard)
  - bottom roller steel (standard)
- optimum pressure of the feed rollers on the workpiece
- correct distance between the feed rollers and
- correct sealing speed.

All settings of this heat-sealing machine always depend on the type of material being heat-sealed.

Errors which may occur during heat-sealing:

- Hot-air temperature too high: heat-sealing tape and workpiece (membranes) can burn.
- Hot-air temperature too low: complete heat-sealing of the seam not possible. Melting temperature for the heat-sealing tape is not achieved.
- Seam is uneven: Seam is not adequately sealed (Pay attention to the symmetrical and parallel alignment of the feed rollers, hot-air nozzle and sealing tape).

10.02 Heat-sealing process

- Select the correct machine setting for each material (see **Chapter 9 Setting up**)
- Place the workpiece between the feed rollers.
- Fix the material using the foot switch (first position).
- Using the foot switch (second position), move the hot-air nozzle into position – the feed rollers start automatically.
- During the heat-sealing process the material must be fed manually.
- To interrupt the heat-sealing process (e.g. to change the position) use the position 1 setting of the foot switch. The hot-air nozzle then moves out of position and the feed rollers move slightly in the reverse direction.
- At the end of the seam trigger the cutting process for cutting the heat-sealing tape by operating the knee switch, or a second foot switch (only on machines with tape cutting device).

The cutting operation should be triggered about **5 cm** before the end of the seam.

11 Care and maintenance

Clean hot-air nozzle	daily, before use
Check air pressure	daily, before use
Clean water bowl of air filter/regulator	daily, before use
Clean water bowl of fine filter	daily, before use
Change fine filter	once a year
Change top feed roller	as required
Lubricate drive chains	as required

These maintenance intervals apply to the average machine running time in single-shift operation. If machine running times are increased, it is advisable to shorten these intervals.

11.01 Clean hot-air nozzle

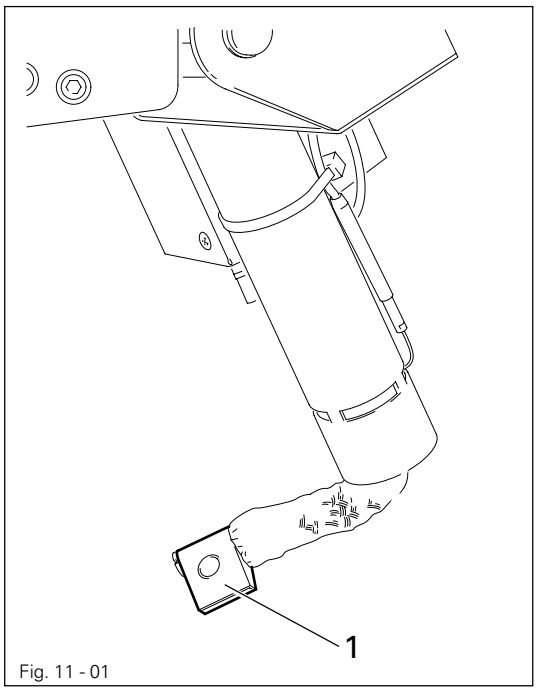
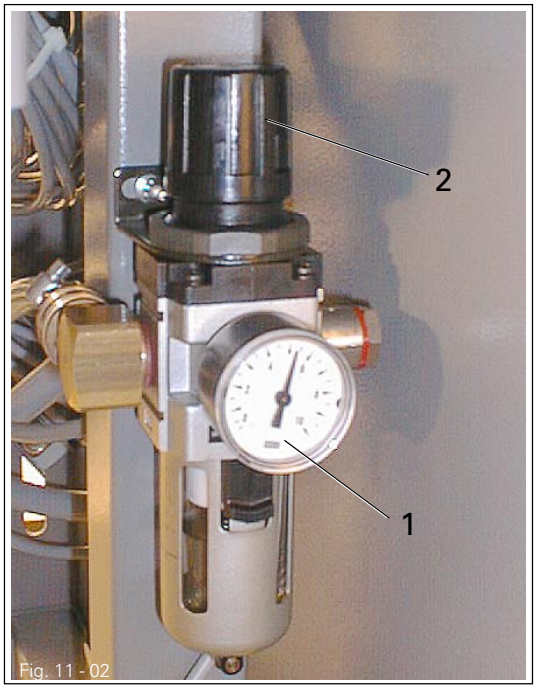


Fig. 11 - 01

Switch the machine off and let it cool down!
Danger of burns if the hot-air nozzle is touched!

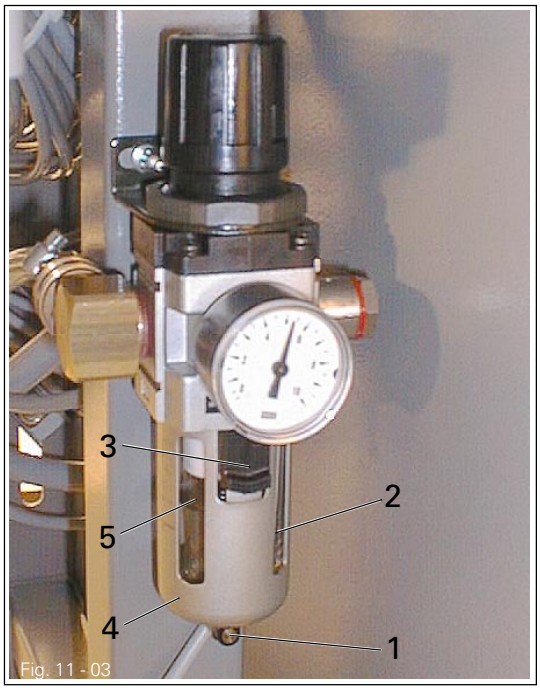
- Before each use remove any residues from the air slot of hot-air nozzle **1.**

11.02 Check the air pressure



- Before each use check the air pressure on gauge **1**.
- Gauge **1** must show a pressure of **6 bar**.
- Adjust this setting if necessary.
- To do so, pull knob **2** up and turn it until the gauge shows a pressure of **6 bar**.

11.03 Draining the water bowl of the air filter/regulator/cleaning the filter



Switch off the machine!
Remove the compressed air tube from the air filter/regulator.

Draining the water bowl:

- Open drain plug **1** and drain water into water bowl **2**.

Cleaning the filter:

- Pull down catch **3** and unscrew sleeve **4**.
- Remove water bowl **2**.
- Unscrew filter **5** and clean with compressed air or with isopropyl-alcohol (order no. 95-665 735-91).
- Replace filter **5**, insert water bowl **2** and screw on sleeve **4**.

11.04 Draining the water bowl of the fine filter/changing the fine filter

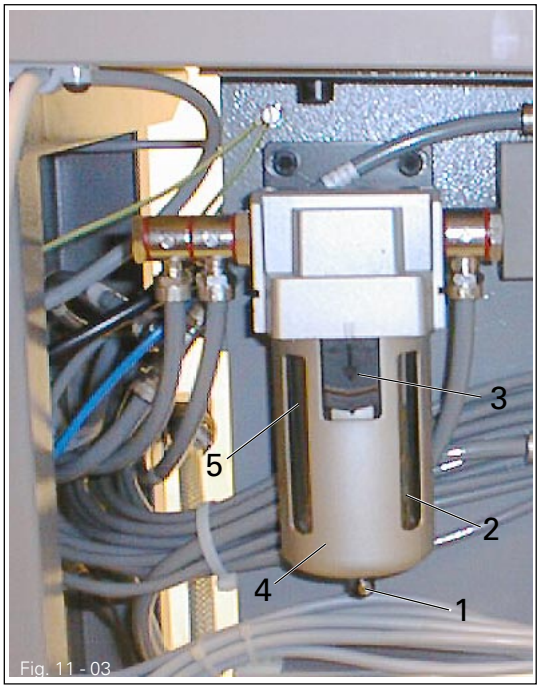


Fig. 11 - 03

Switch off the machine!
Remove the compressed air tube from the air filter/regulator.

Draining the water bowl:

- Open drain plug **1** and drain water into water bowl **2**.

Changing the filter

- Pull down catch **3** and unscrew sleeve **4**.
- Unscrew filter **5** and insert a new filter.
- Replace filter **5**, insert water bowl **2** and screw on sleeve **4**.

11.05 Lubricating the drive chains

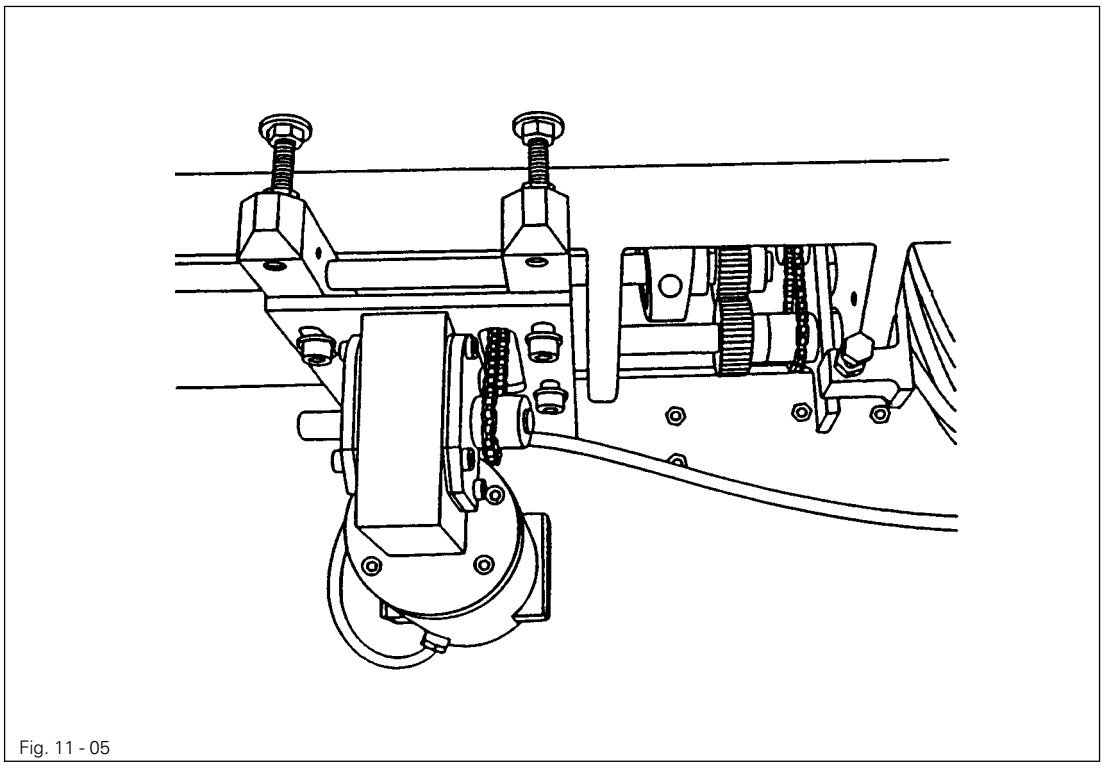
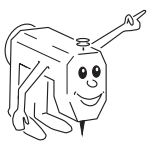


Fig. 11 - 05

- Lubricate all drive chains as required.
- Switch off the machine. Remove the machine covers and lubricate the accessible part of the chains.
- Switch on the machine and let it run a little further.
- Switch off the machine and lubricate the remaining part of the chains.

The intervals for lubrication depend on working conditions (dampness, soiling etc.).

Only use sodium bicarbonate grease with a dripping point of 150°C and a fulling penetration of 375 – 405 mm /10 at 25°C.



We recommend PFAFF chain lubricant, order no. 280-1-120 243.

12 Adjustment

12.01 Notes on adjustment

All adjustments in this manual are based on a fully assembled machine and may only be carried out by expert staff trained for this purpose.
Machine covers, which have to be removed and replaced to carry out checks and adjustments, are not mentioned in the text.
Screws, nuts indicated in brackets ( ) are fastenings for machine parts, which must be loosened before adjustment and tightened again afterwards.

Before all adjustment work switch the machine off and let it cool down!
Danger of burns if the hot-air nozzle is touched!

12.02 Tools, gauges and other equipment

- 1 set of screwdrivers with blade widths from 2 to 10 mm
- 1 set of spanners/wrenches from 7 to 13 mm across flats
- 1 set of allen keys from 1.5 to 6 mm

12.03 Hot-air nozzle

Requirement

1. When hot-air nozzle **5** has been swung into place, it should be positioned in the centre of the feed roller 6 in feed direction.
2. The height adjustment of the hot-air nozzle **5** depends on the material and can be set from **5 – 12 mm** (see magnifying glass in Fig. 12.01)

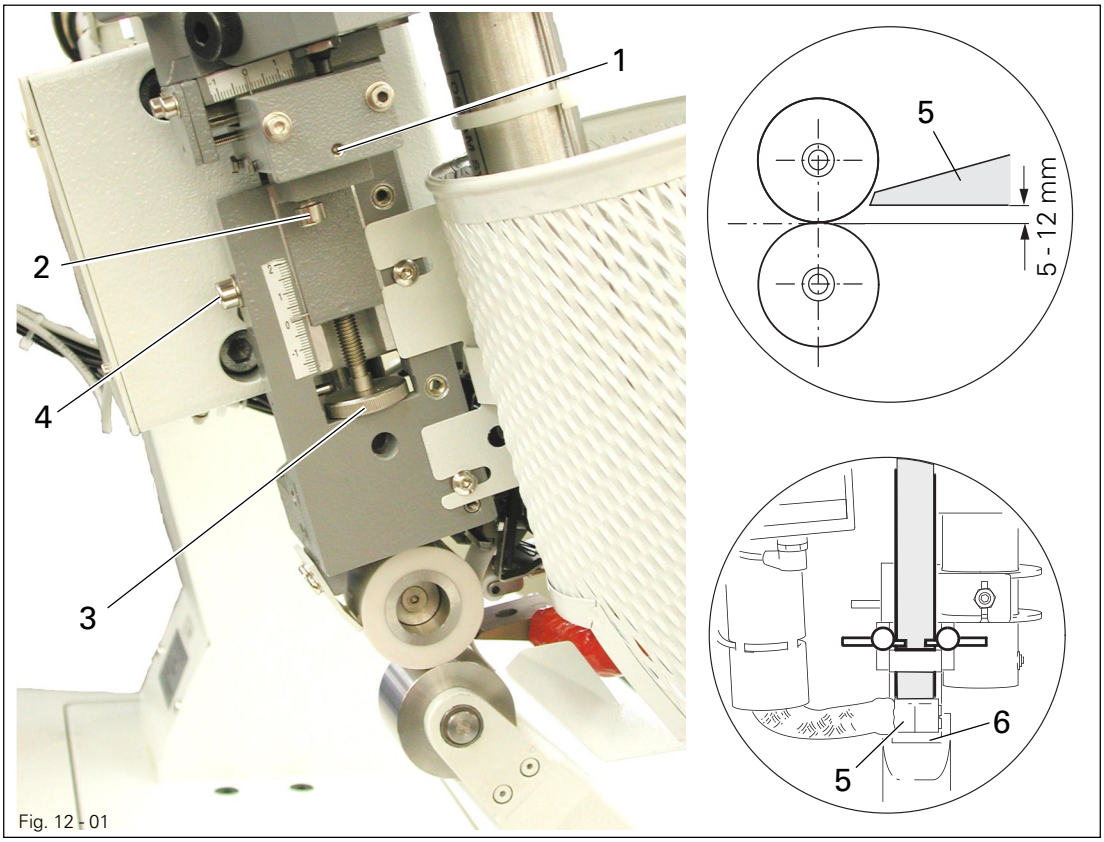
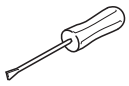


Fig. 12 - 01



- Turn adjusting screw **1** (screw **2**) according to **requirement 1**.
- Turn adjusting screw **3** (screw **4**) according to **requirement 2**.

12.04 Distance of hot-air nozzle from the feed rollers

Requirement
There must be distance of **1-2 mm** between hot-air nozzle **3** and top feed roller **4**.

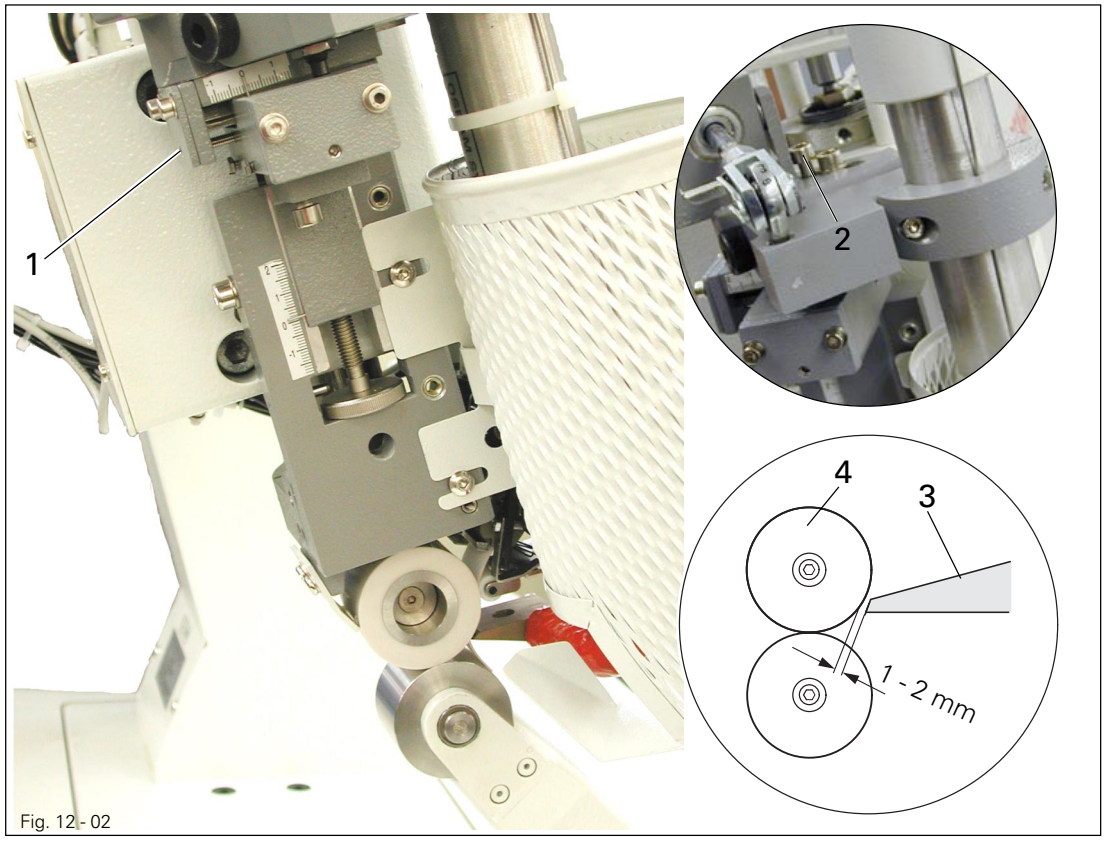
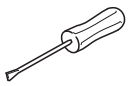


Fig. 12 - 02



- Turn adjustment screw **1** (screw **2**) according to **requirement 1**.

12.05 Changing the heating cartridge

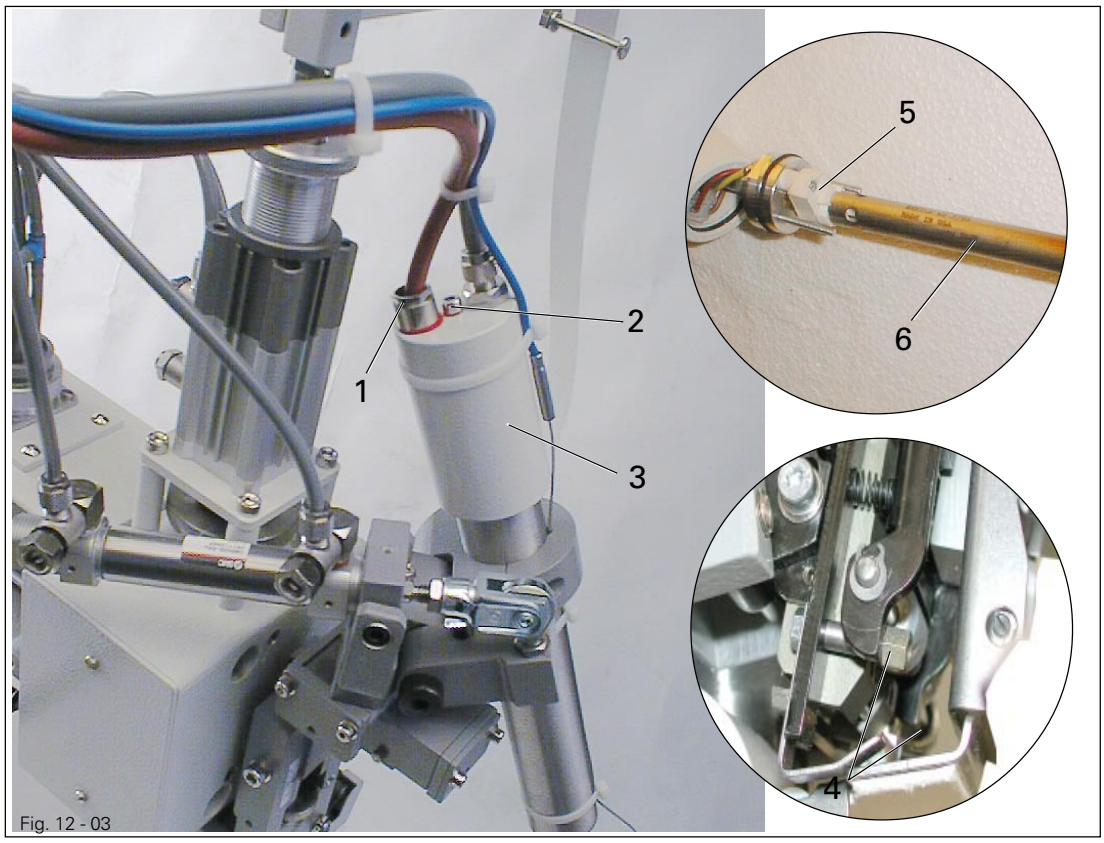


Fig. 12 - 03

Wait until the heating element has cooled down! Danger of burns!

Disconnect the mains plug!

Danger from electric voltage!

- Loosen screw-on cable connection **1**.
- Remove screw **2** and take off cap **3**.
- Loosen screws **4** and pull out holder **5** of heating cartridge **6**.
- Remove heating cartridge **6** from holder **5**.
- Replace in reverse order.

12.06 Changing the temperature probe

Requirement
The tip of temperature probe **5** must be positioned in the centre of hot-air tube **6.**

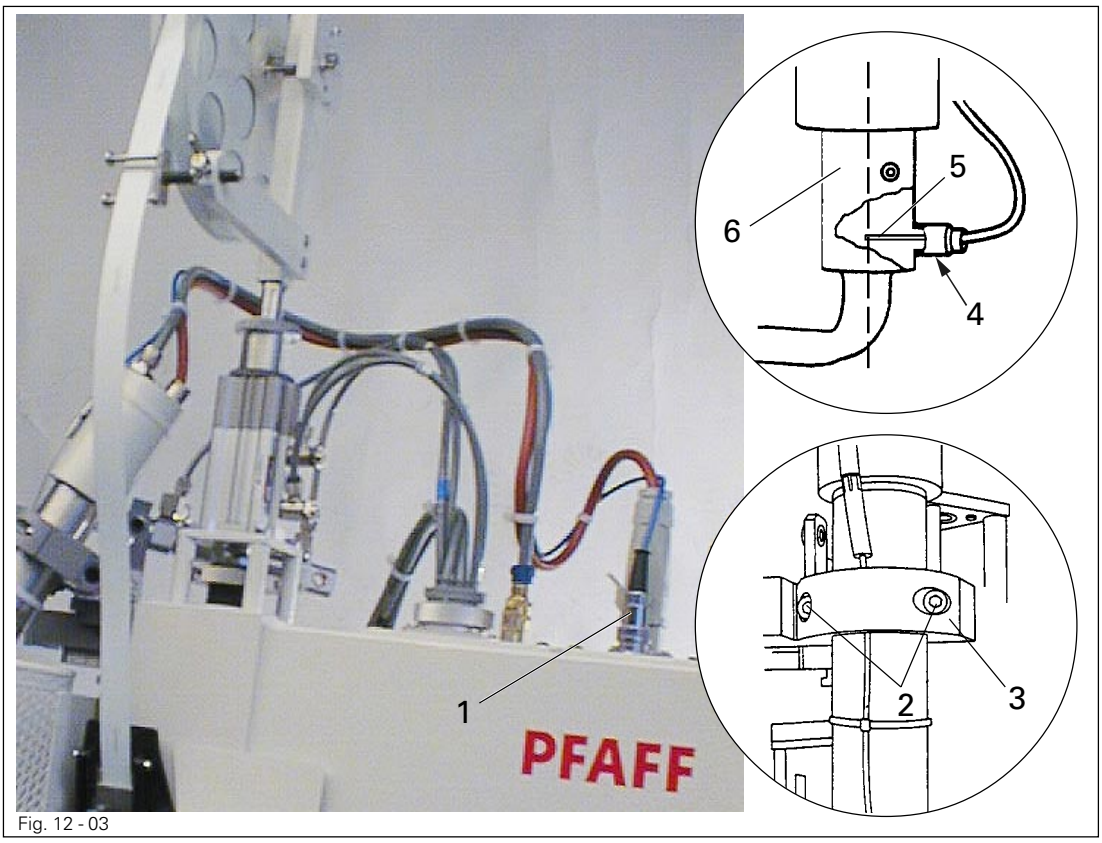


Fig. 12 - 03

Wait until the heating element has cooled down! Danger of burns!

Disconnect the mains plug!

Danger from electric voltage!

- Pull out plug **1.**
- Unscrew screws **2** and remove shell **3**.
- Loosen screws **4** and pull out temperature probe **5**.
- Installation in reverse order, observing the **requirement**.

After changing the temperature probe, check the adjustments of the hot-air nozzle (**Chapter 12.03** and **12.04**).

12.07 Drive chains

12.07.01 Tensioning the main drive chains

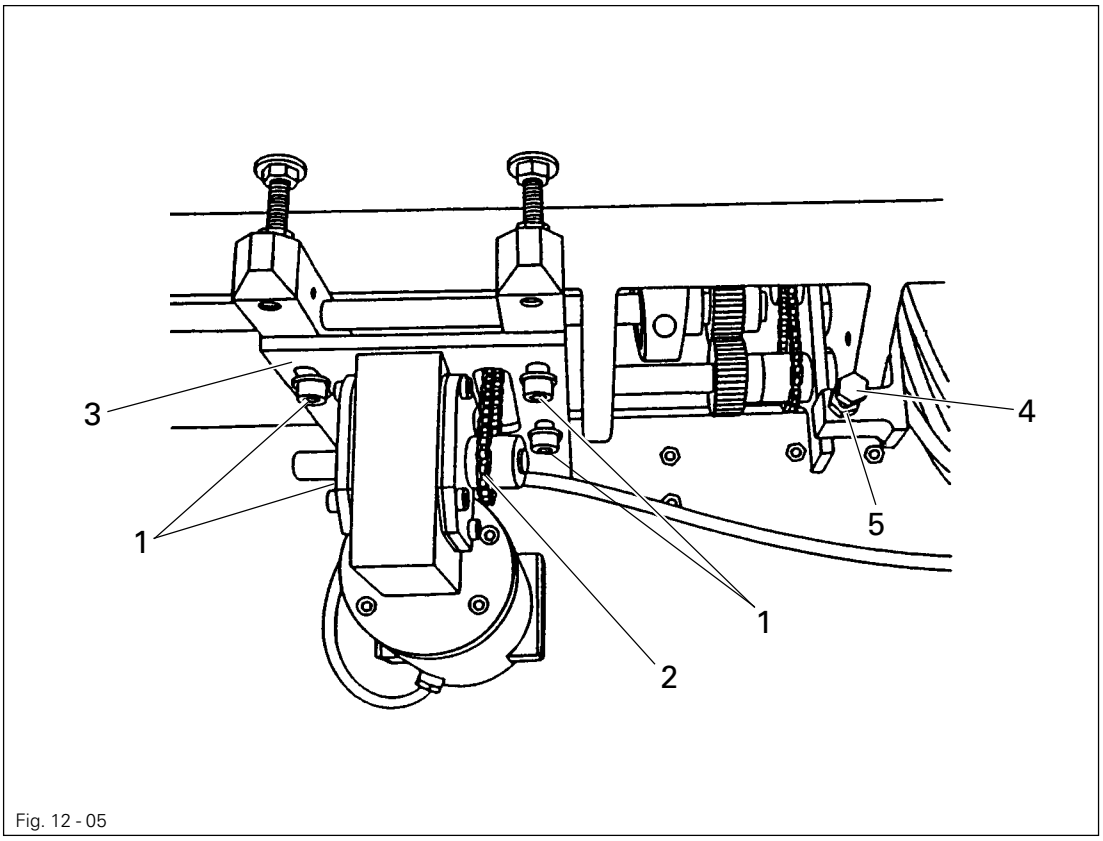


Fig. 12 - 05

Switch off the machine!

- Loosen screws **1**.
- Tension bottom drive chain **2** by shifting the mounting plate **3**.
- Tension top drive chain with adjusting screw **4** (bolt **5**).

12.07.02 Tensioning drive chains to post

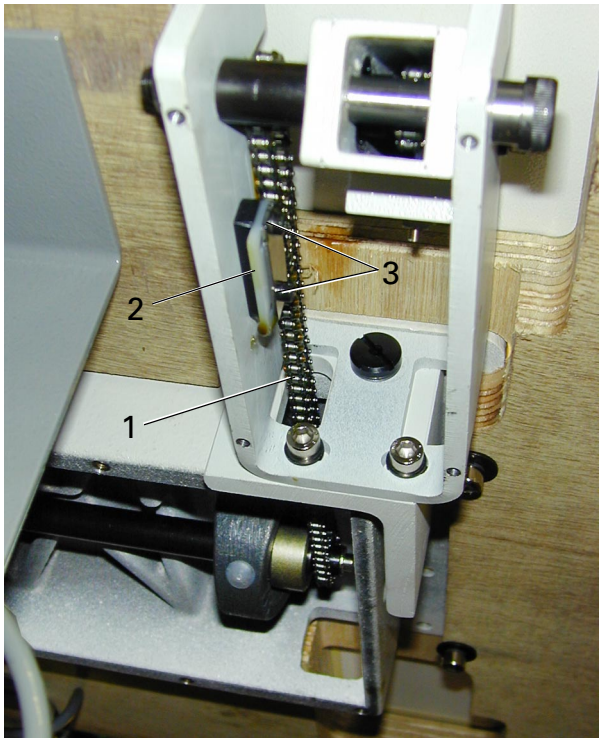


Fig. 12 - 06

Switch off the machine!

- Tension drive chain **1** by shifting plate **2** (screws **3**).

12.07.03 Tensioning drive chain in bottom post and to top feed roller

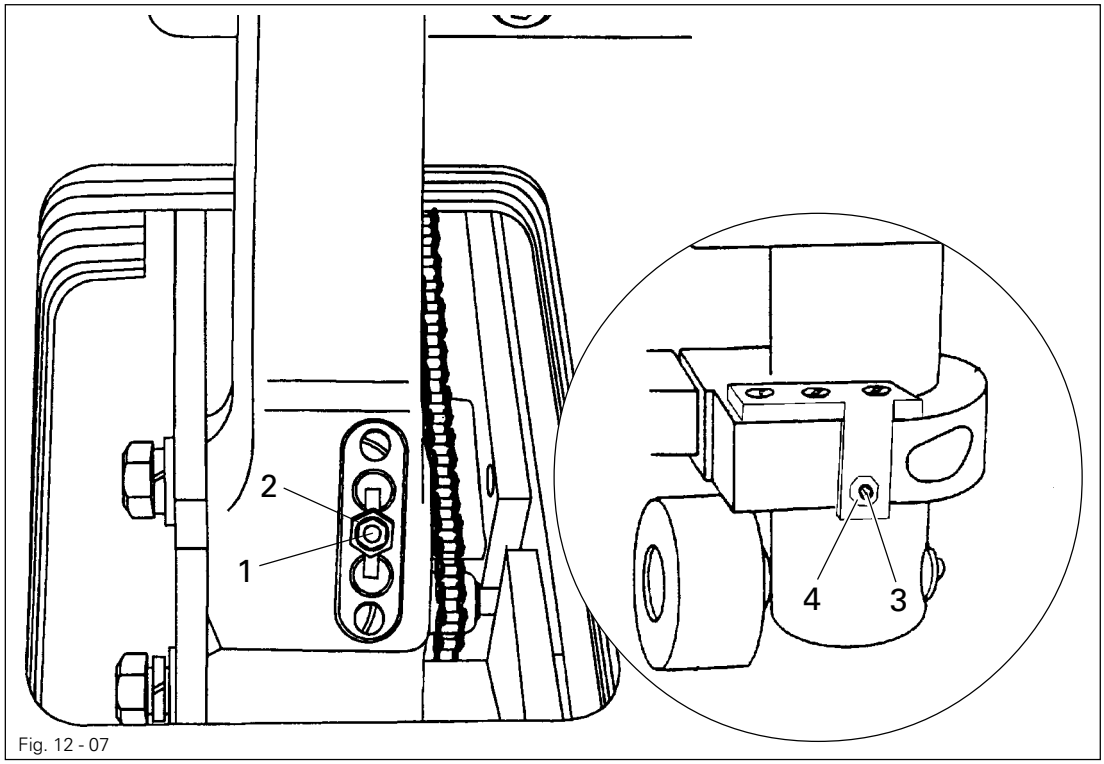


Fig. 12 - 07

Switch off the machine!

- Tension drive chain in post with adjusting screw **1** (nut **2**).
- Tension drive chain of top feed roller with adjusting screw **3** (nut **4**).
- On machines with tape cutting device, this must be removed before adjustment.
- Screw on tape cutting device and adjust according to **Chapter 12.09**.

12.08 Fuses

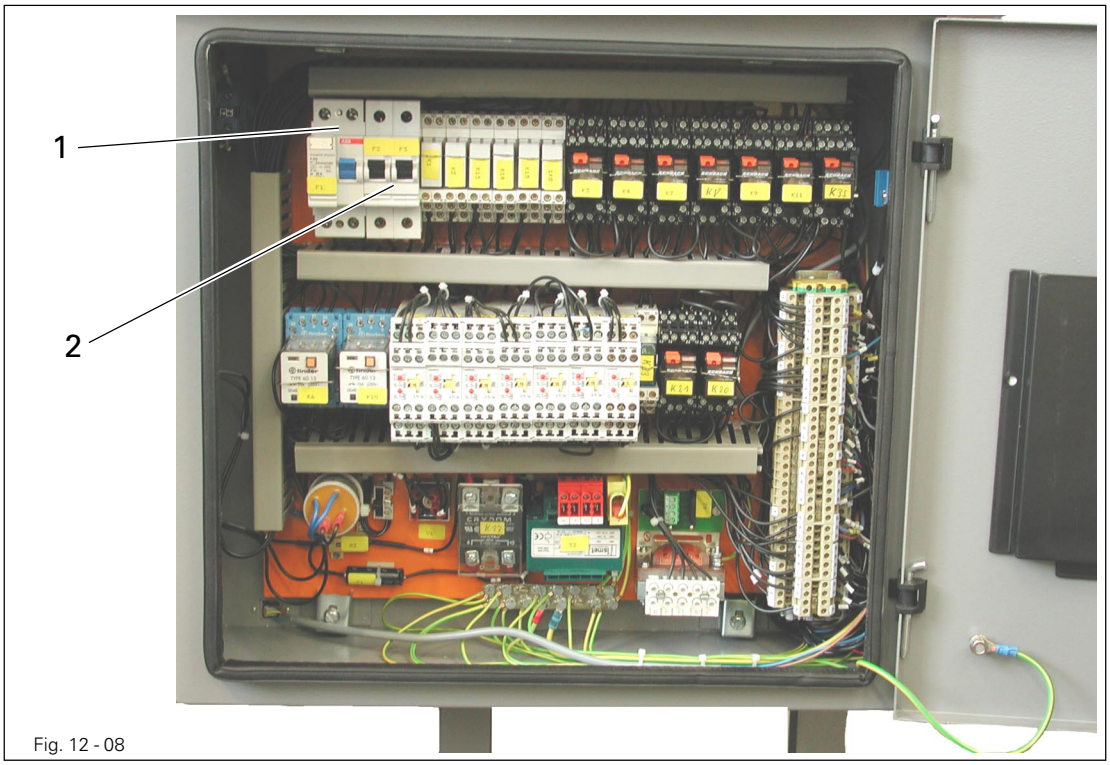


Fig. 12 - 08

The purpose of the fuses is to provide protection against major damage in case of a short-circuit or overload.

Disconnect the mains plug!

Danger from electric voltage!

Before switching the machine on again, first eliminate the cause of the fault!

1 = residual current operated device

2 = main fuse

12.09 Tape-cutting device

12.09.01 Knife

Requirement
Knife **1** should move easily and cut reliably.

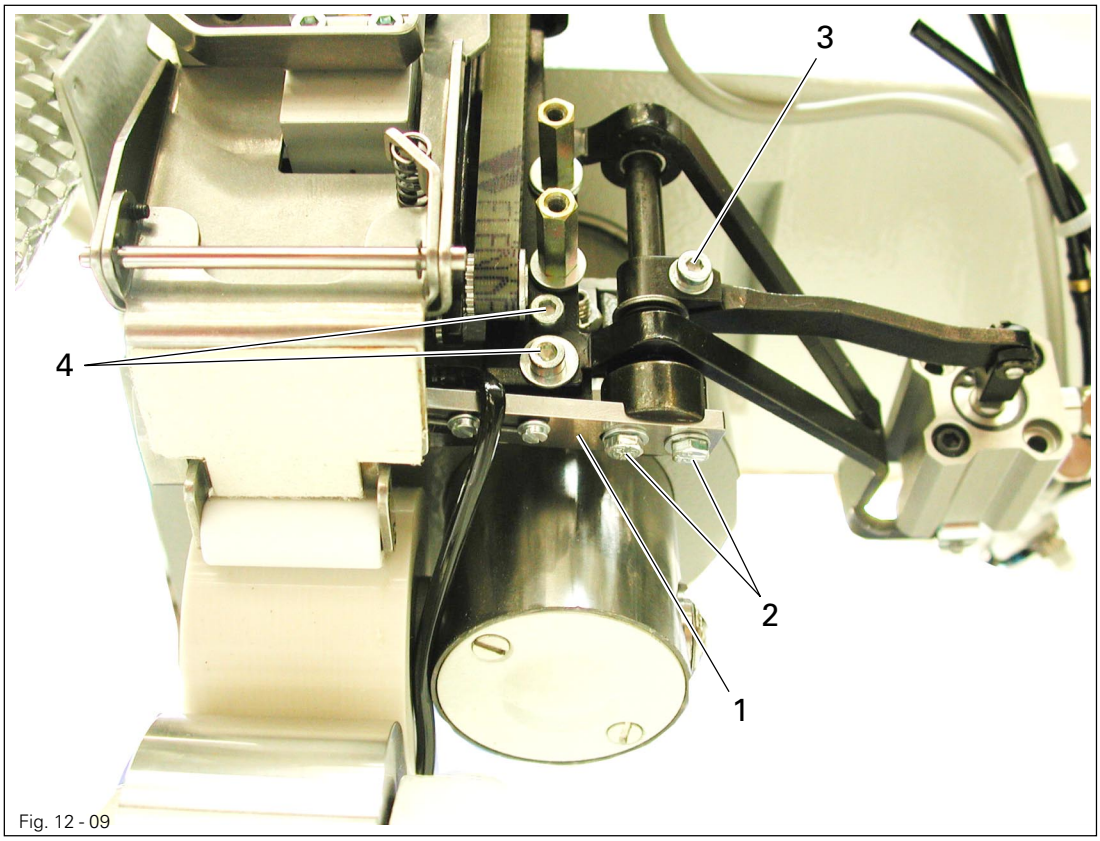
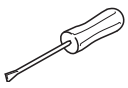


Fig. 12 - 09

Switch off the machine!



- Remove knife **1** (screws **2**) and screw on a new knife.
- Adjust knife pressure (screw **3**) according to the requirement.
- Set cutting angle (screws **4**) according to the requirement.
- Carry out a cutting test.

12.09.02 Air jet setting

Requirement

1. During insertion the tape must not roll itself up.
2. After cutting the tape must be pressed against feed roller **3** by the air current.

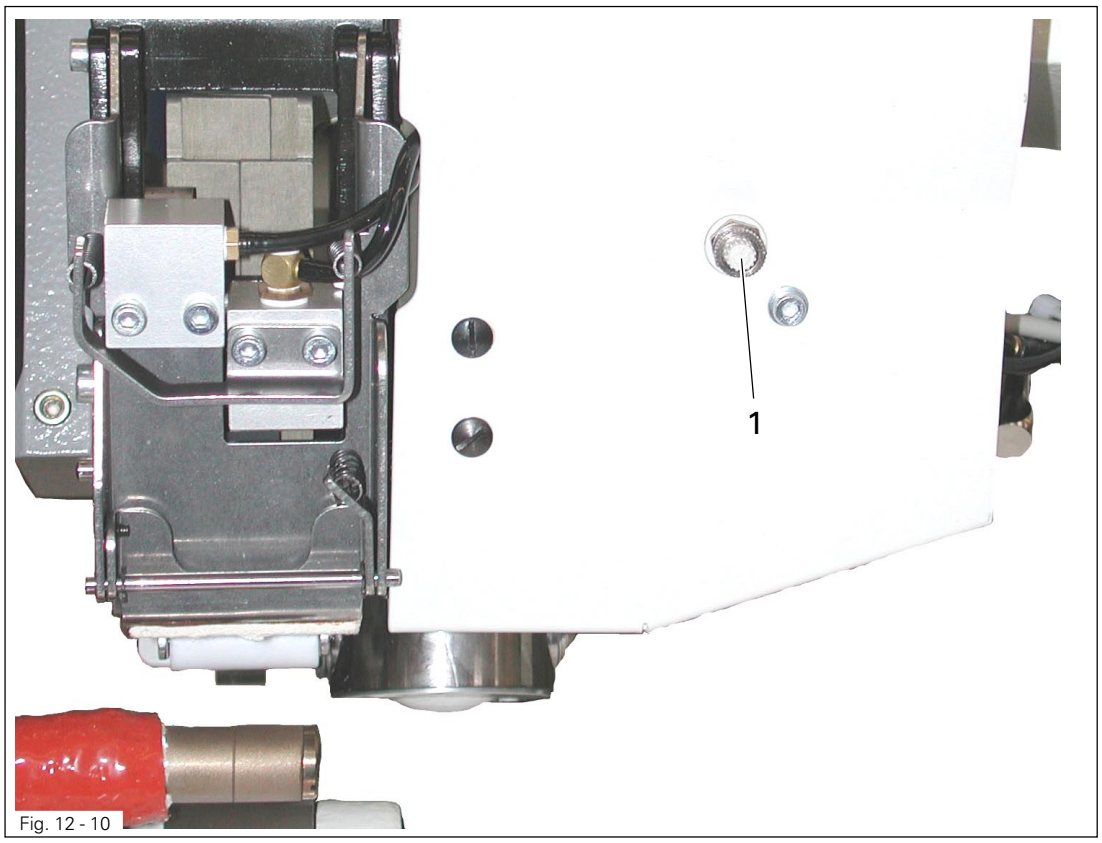
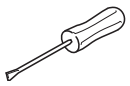


Fig. 12 - 10



- Adjust throttle **1** according to the **requirements.**

12.09.03 Throttling the pressure and drive roller

Requirements

1. The throttle **3** of pressure roller **1** must be set so that the pressure roller **1** is raised slightly.
2. The throttle **3** of drive roller **2** must be set so that the drive roller **2** does not rise until the pressure roller **1** has complete contact.

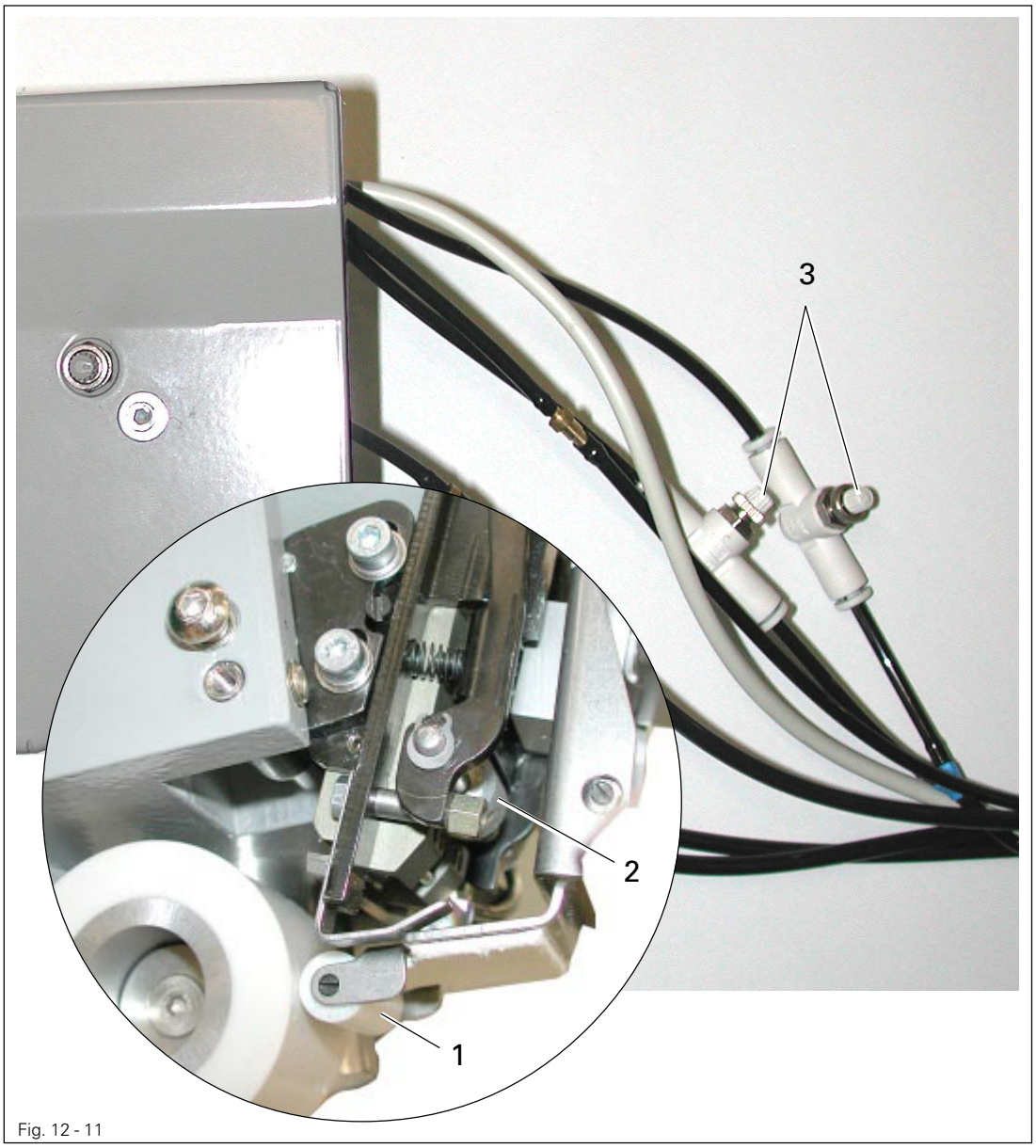
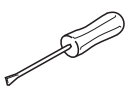


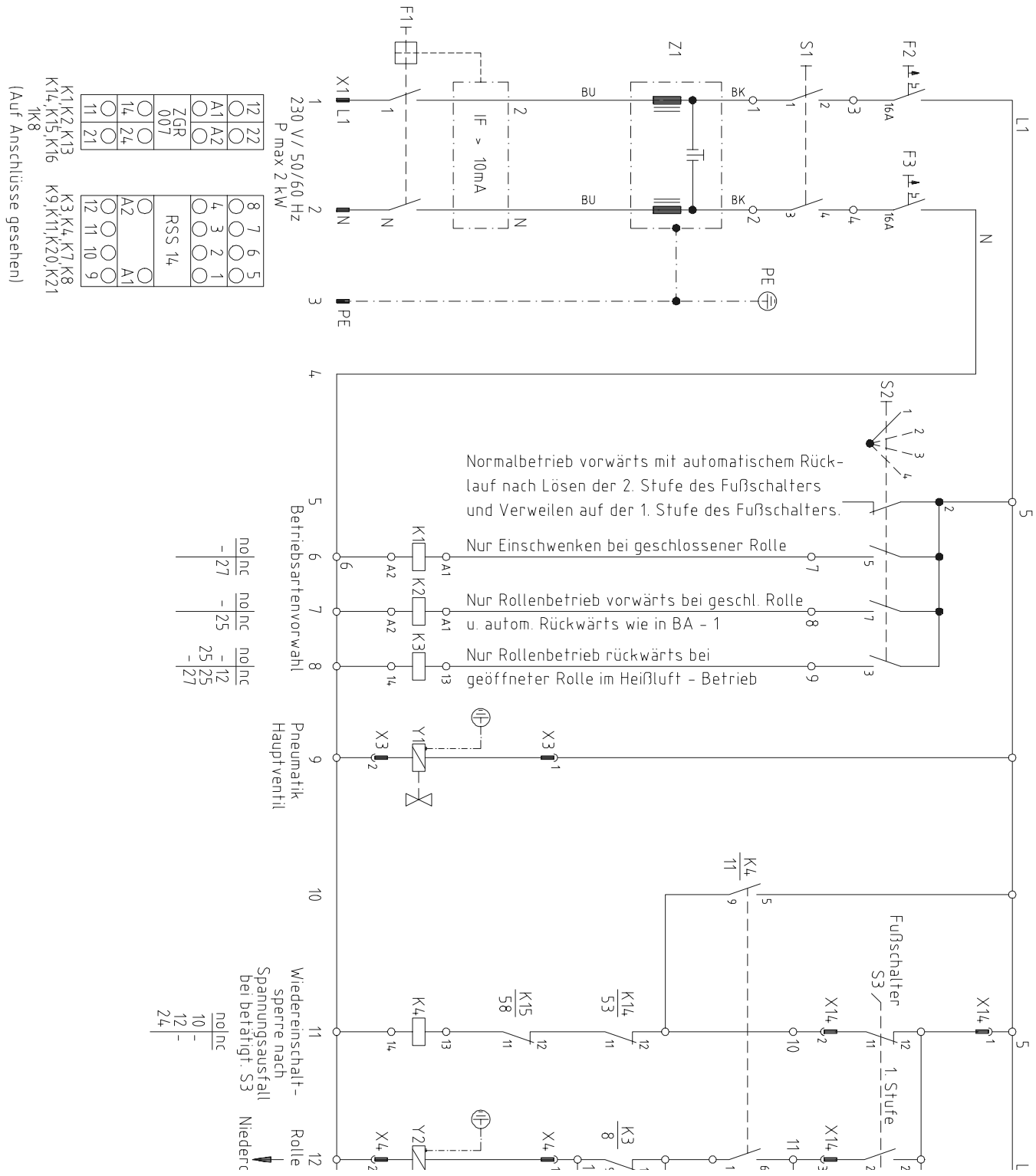
Fig. 12 - 11

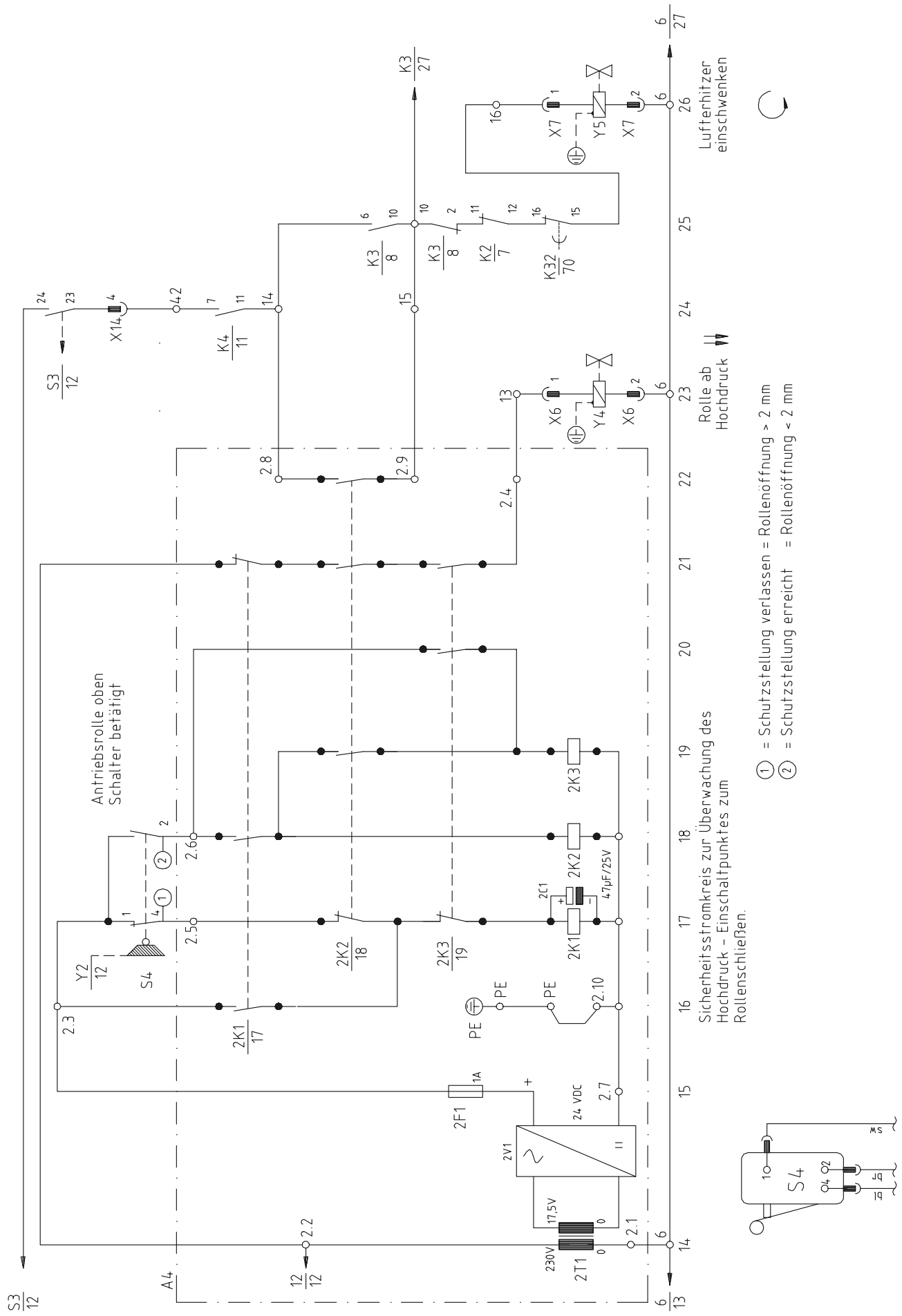


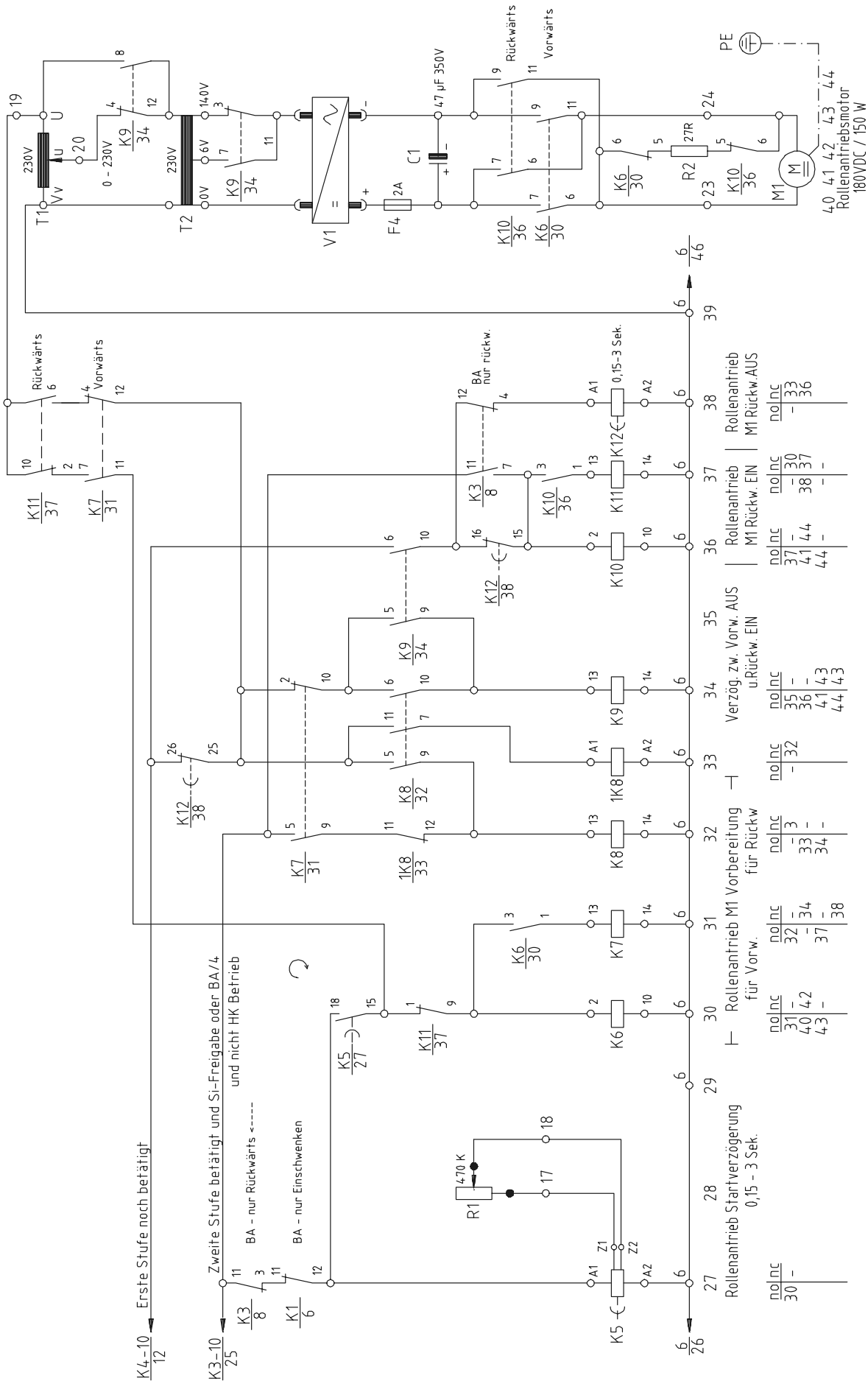
- Adjust throttles **3** of the pressure roller **1** and the drive roller **2** according to the **requirements.**

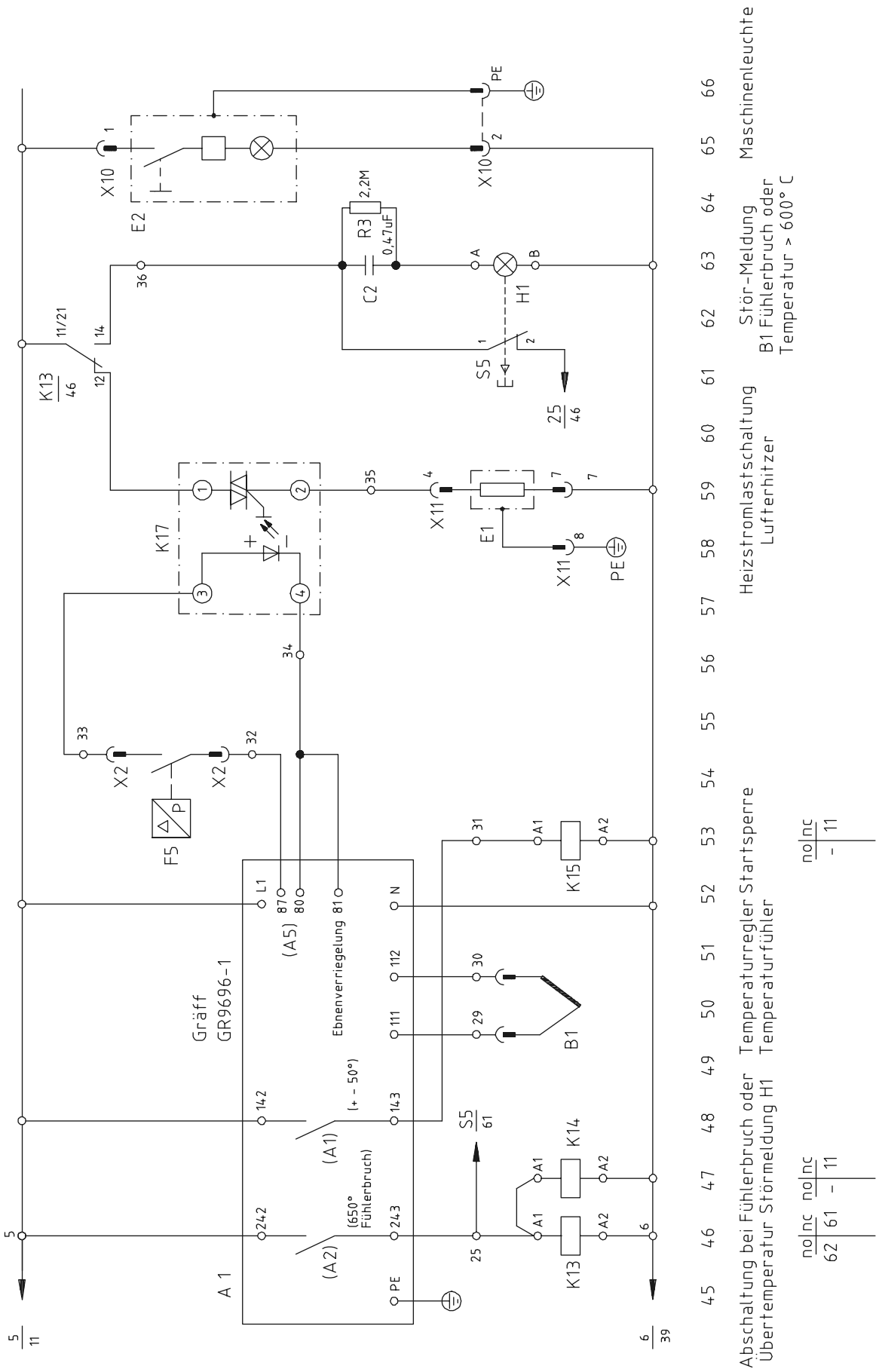
Reference list for the circuit diagrams

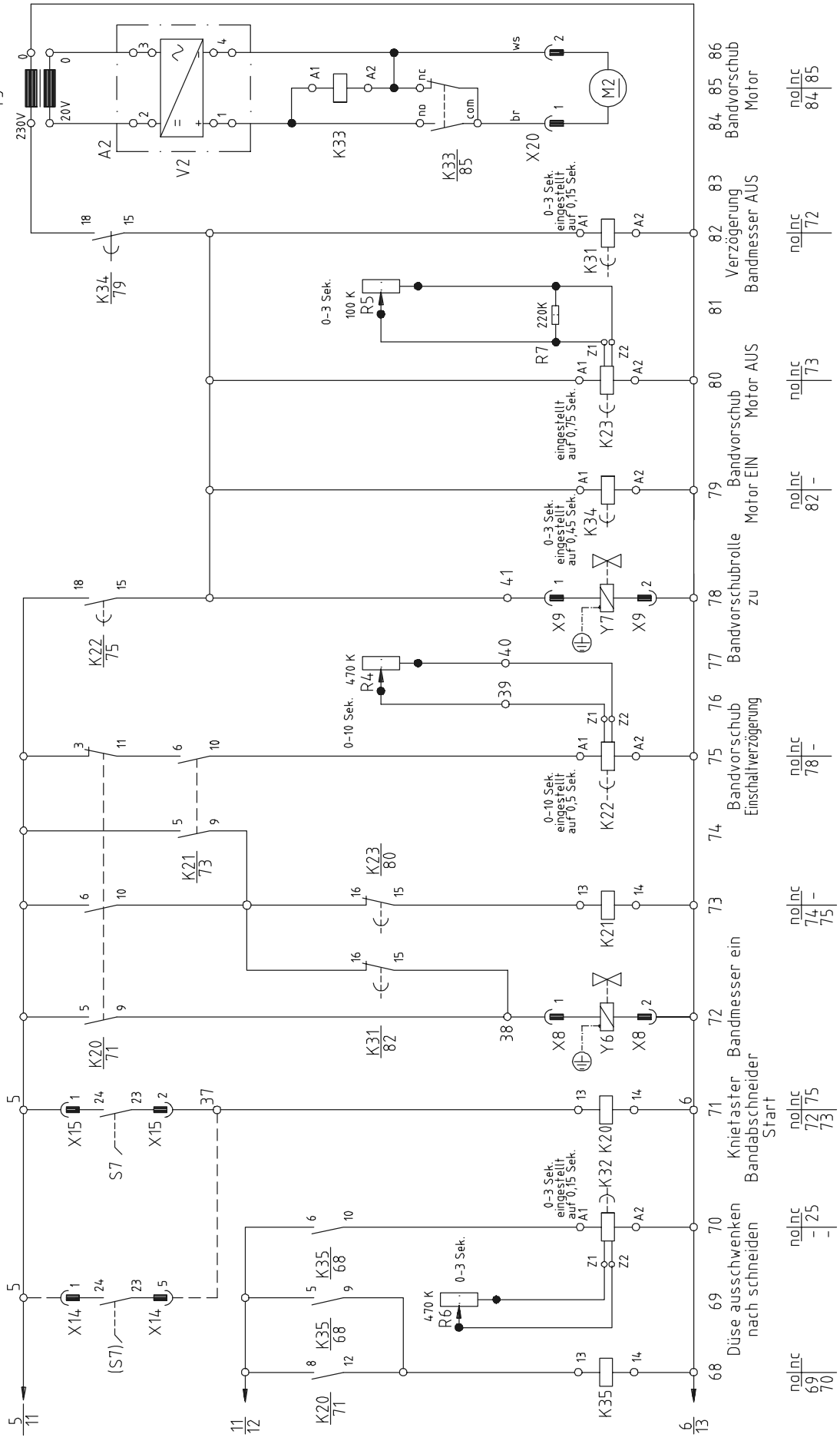
A1	Temperature regulator
B1	Temperature sensor
E1	Air heater
E2	Machine lamp
F1	Fault current safety switch
F5	Pressure monitor
H1	Fault message B1 broken sensor or temperature > 600°C
K4	Restart lock after power cut with S3 activated
K5	Start delay roller drive
K6, K7	Roller drive M1 preparation for forwards movement
K8, 1K8	Roller drive M1 preparation for reverse movement
K9	Delay between forwards OFF and reverse ON
K10, K11	Roller drive M1 reverse ON
K12	Roller drive M1 reverse OFF
K13, K14	Stop in case of broken sensor or excessive temperature fault message H1
K15	Start lock
K17	Heating current load switch
K22	Tape feed switch-on delay
K23	Tape feed motor OFF
K31	Delay tape cutter OFF
K32	Disengage nozzle after trimming
K34	Tape feed motor ON
M1	Roller drive motor
M2	Tape feed motor
S1	Mains switch
S2	Operational mode pre-selection
S3	Pedal
S4	Drive roller raised
S7	Knee switch tape cutter start
X1	Mains plug
Y1	Pneumatics main valve
Y2	Roller lowered – low pressure
Y3	Ventilation off
Y4	Roller lowered – high pressure
Y5	Engage air heater
Y6	Tape cutter on
Y7	Tape feed roller off
Z1	Network filter











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