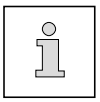
PFAFF® Industrial

8310 -041, -042, -043

INSTRUCTION MANUAL

This instruction manual applies to machines from the following serial numbers onwards:
2 731 737 →

296-12-18 934/002
Betriebsanleitung engl. 06.09



This Instruction Manual is valid for all models and subclasses listed in the chapter "Specifications ".

The parts list for the machines can be downloaded free of charge from the internet address

www.pfaff-industrial.com/pfaff/de/service/downloads

As an alternative to the internet download the parts list can also be ordered in book form under part no. 296-12-18 934.

PFAFF Industriesysteme
und Maschinen AG

Hans-Geiger-Str. 12 - IG Nord
D-67661 Kaiserslautern

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1 Safetyt

1.01 Directives

This machine is constructed in accordance with the European regulations indicated in the conformity and manufacturer's declarations.
In addition to this instruction manual, please also observe all generally accepted, statutory and other legal requirements, including those of the user's country, and the applicable pollution control regulations! The valid regulations of the regional social insurance society for occupational accidents or other supervisory authorities are to be strictly adhered to!

1.02 General notes on safety

- The machine may only be operated by adequately trained operators and only after these have read the appropriate Instruction Manual!
- The danger and safety instructions attached to the machine must be followed!
- The machine may only be used for the purpose intended and may not be operated without its safety devices. All relevant safety regulations must be adhered to.
- When changing the anvil wheel, when leaving the machine unattended or during maintenance work, the machine must be disconnected from the power supply by operating the main switch or by pulling out the plug!
- The daily maintenance work may only be carried out by appropriately trained personnel!
- Repair work and special maintenance work many only be carried out by specialists or appropriately trained personnel.
- Work on electrical equipment may only be carried out by appropriately trained personnel!
- Work is not permitted on parts and equipment which are connected to the power supply! Exceptions to this rule are found in the regulations EN **50110.**
- Modifications and alterations to the machine may only be carried out under observance of all the relevant safety operations!
- Only spare parts which have been approved by us are to be used for repairs! We draw special attention to the fact that spare parts and accessories not supplied by us have not been subjected to testing nor approval by us. Fitting and/or use of any such parts may cause negative changes to the design characteristics of the machine. We shall not accept any liability for damage caused by the use of non-original parts.

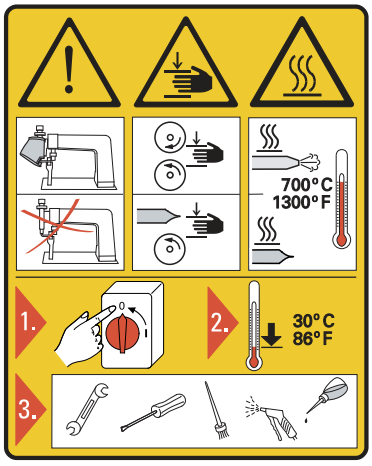
1.03 Safety symbols

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 notes for the user

This instruction manual belongs to the equipment of the machine and must be available to the operating staff at all times.

- This instruction manual must be read before the machine is operated for the first time.
- Both operating and technical staff must be instructed on the safety devices of the machine and on safe working methods.
- It is the duty of the user to operate the machine in perfect running order only.
- The user must ensure that none of the safety devices are removed nor put out of working order.
- The user must ensure that only authorized persons operate and work on the machine.
- The user must make sure there is no high-frequency welding equipment being operated in direct proximity to the machine that exceeds the EMC limit values according to EN 60204-31 for the machine.

For further information please refer to your PFAFF agency.

1.05 Operating and technical staff

1.05.01 Operating staff

Operating staff are the persons responsible for setting up, operating and cleaning the machine and for removing any disturbances in the sewing area.

The operating staff is obliged to observe the following points, and must:

- always observe the notes on safety in this instruction manual!
- avoid using any working methods which adversely affect the safety of the machine!
- avoid wearing loose-fitting clothing or jewelry such as necklaces or rings!
- also ensure that only authorized persons are allowed near the danger area of the machine!
- immediately report to the user any changes to the machine that may affect its safety!

1.05.02 Technical staff

Technical staff are persons who have been trained in electrical engineering, electronics and mechanical engineering. They are responsible for lubricating, servicing and repairing the machine.

The technical staff is obliged to observe the following points, and must:

- always observe the notes on safety in this instruction manual!
- switch off the on/off switch before carrying out any maintenance and repair work on the machine!
- never work on parts or equipment still connected to the power supply! Exceptions to this are only permissible according to regulations EN **50110.**
- replace all safety covers after maintenance and repair work!

1.06 Danger

When the machine is in operation, a work area of **1** m must be kept free in front of and behind the machine, so that access to the machine is possible at all times without difficulty.

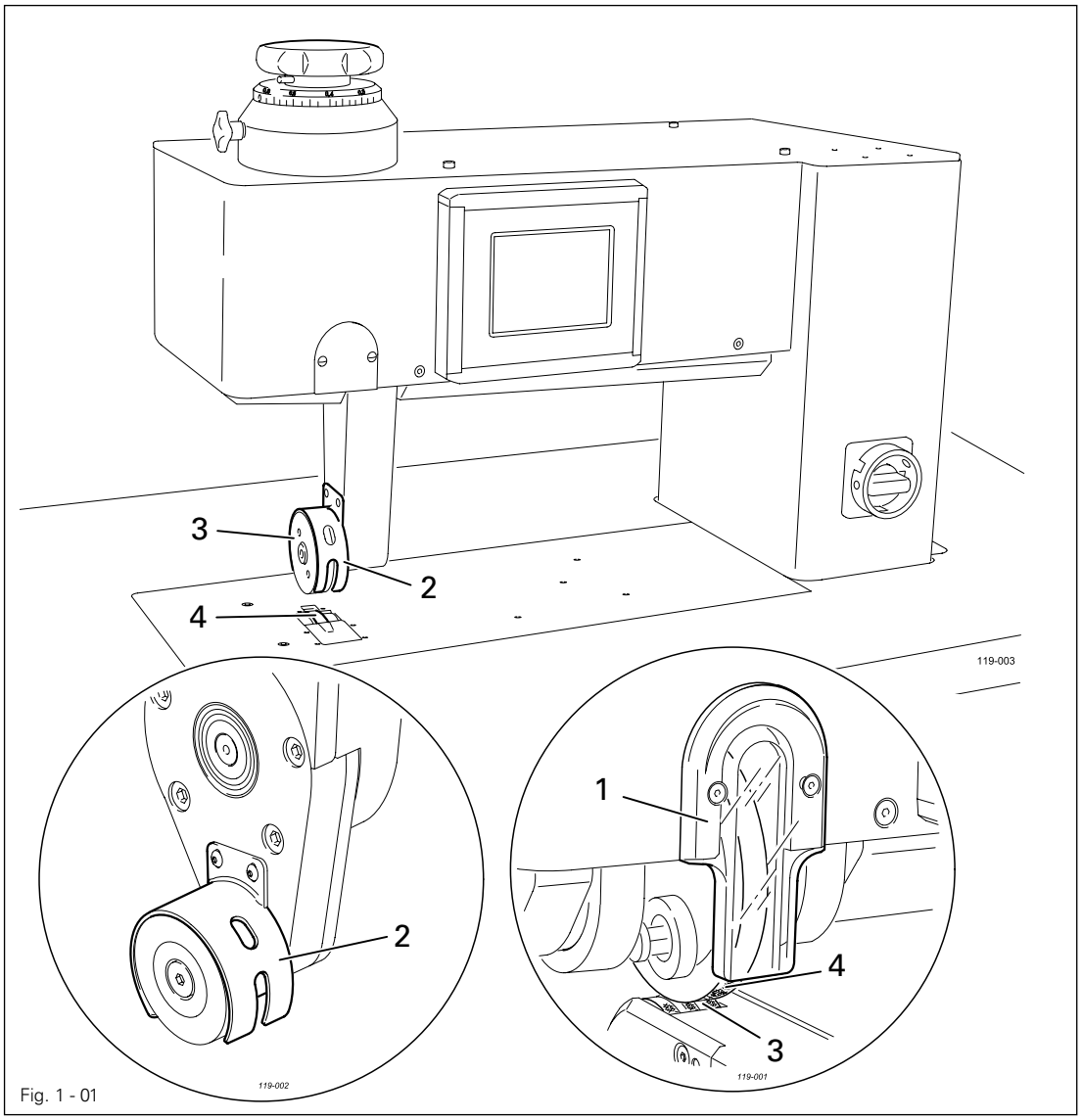


Fig. 1 - 01

Do not operate the post-bed and feed-off-the-arm versions of the machine without ultrasonic guard **1.** Danger of hearing damage!

Do not operate the flat-bed versions of the machine without finger guard **2**! Danger of crushing if the fingers are drawn in!

During operation do not place your hands in the area of feed roller **3** and sonotrode **4!** Danger of fingers being drawn in and crushed!

During operation do not touch sonotrode **4!**
Danger of burns from the heat-generating surface!

2 Proper use

2.01 General

The **PFAFF 8310** is available in four versions. The special applications of the individual versions are described below, see Chapter **2.02 Machine versions**. All the machine versions are used for continuous sealing of thin, thermoplastic materials, such as e.g. fleeces, felts, woven and knitted fabrics using ultrasonics.

Any use of these machines which is not approved by the manufacturer shall be considered as improper use! The manufacturer shall not be liable for any damage arising out of improper use! Proper use shall also be considered to include compliance with the operation, adjustment, service and repair measures specified by the manufacturer!

2.02 Machine versions

2.02.01 Post version (PFAFF 8310-041/001)

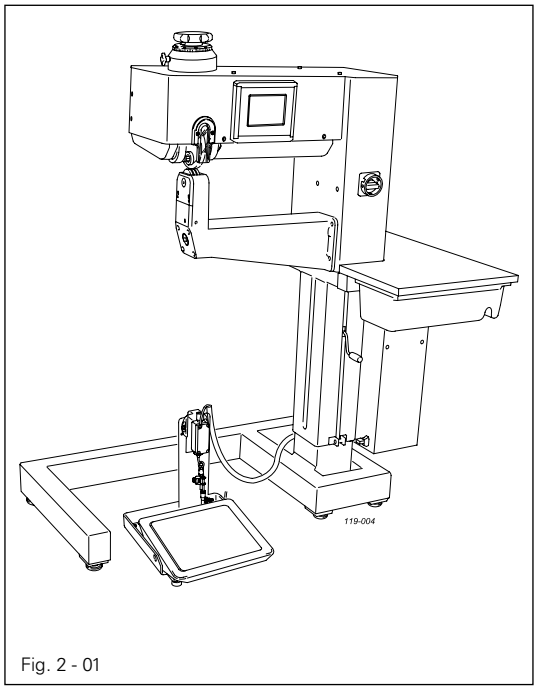


Fig. 2 - 01

The post version is particularly suitable for heat-sealing three-dimensional shapes, such as e.g. hoods, caps, pouches etc. With the aid of the post, two parts can be joined together flat or one part sealed to form a shorter tube. To do so the part is wrapped around the post and then sealed from out of the post (e.g. the lengthwise seam of a sleeve or a filter tube).
On the post-bed version the top roller is the sonotrode.

2.02.02 Off arm version (PFAFF 8310-041/002)

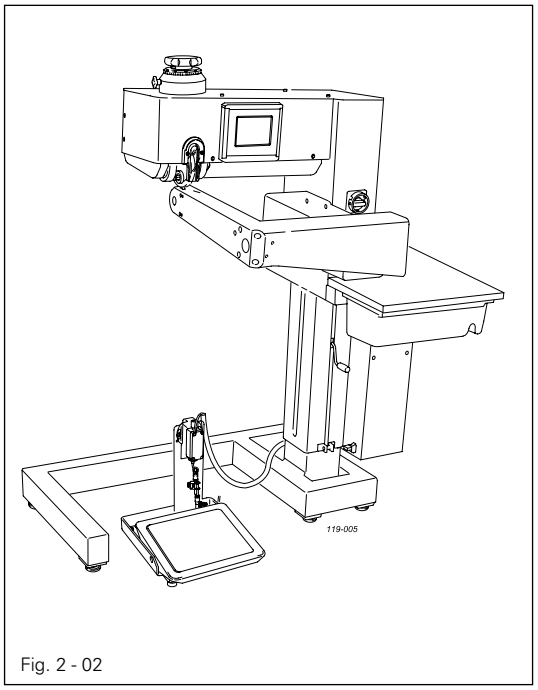


Fig. 2 - 02

The off arm version is ideal for heat-sealing the lengthwise seam of a sleeve or tube (up to a length of ca. **30** cm). A variation is also available as a special version, which is suitable for sealing the lengthwise seam of a longer or endlessly long tube.
On the feed-off-the-arm version the top roller is the sonotrode.

2.02.03 Flat-bed version (PFAFF 8310-042 und PFAFF 8310-043)

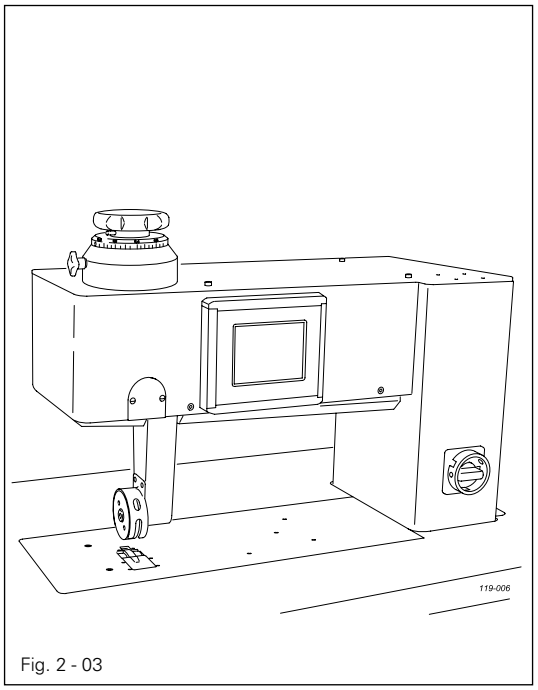


Fig. 2 - 03

The flat-bed version is used in particular for sealing two flat parts. Possible seam types are lapped seams, peeling seams, topstitched and binding seams. The application possibilities correspond to those of a typical high-speed sewing machine.
On the flat-bed version the bottom roller is the sonotrode.

The only difference between the **PFAFF 8310-043** and the **PFAFF 8310-042** is that the former has a smaller roller enabling a smaller curve radius.

3 Specifications▲

Abmessungen und Gewichte

Version: **8310**	Post **-041/001**	Off arm **-041/002**	Flat-bed **-042, -043**
Depth:	ca. 700 mm	ca. 750 mm	ca. 600 mm
Width:	ca. 1.100 mm	ca. 1.100 mm	ca. 1.250 mm
Height:	ca. 1.300 mm	ca. 1.300 mm	ca. 1.300 mm
Weight:	ca. 170 kg	ca. 175 kg	ca. 145 kg

Clearance width: ..... 400 mm
Clearance under the rollers: ..... 25 mm

Connection data
Operating voltage: ..... 230 V ± 10%, 50/60 Hz, 1-phase
Max. capacity: ..... 800 VA
Fuse: ..... 1 x 16 A, inert

Working air pressure: ..... 6 bar
Air consumption: ..... < 10 l/min.

Sealing pressure ..... 750 N
Sealing power: ..... 500 W
Sealing speed: ..... max. 10 m/min.
(optional max. 20 m/min. or 30 m/min.)
Seam width: ..... max. 10 mm

Noise data
Emission sound level at the workplace: ..... L_{pA} < 70 dB(A)■
(Noise measurement in acc. with DIN 45 635-48-A-1, ISO 11204, ISO 3744, ISO 4871)

Ambient temperature
85% rel. humidity (condensation not permitted): ..... 5 – 40° C

▲ Subject to alterations

■ K_{pA} = 2,5 dB

4 Disposal of Machine

- Proper disposal of the machine is the responsibility of the customer.
- The materials used for the machine are steel, aluminium, brass and various plastic materials. The electrical equipment comprises plastic materials and copper.
- The machine is to be disposed of according to the locally valid pollution control regula-ti-ons; if necessary, a specialist ist to be commissioned.

Care must be taken that parts soiled with lubricants are disposed of separately according to the locally valid pollution control regulations!

5 Transportation, packing and storage

5.01 Transportation to customer's premises

The machines are delivered completely packed.

5.02 Transportation inside the customer's premises

The manufacturer cannot be made liable for transportation inside the customer's premises nor to other operating locations. It must be ensured that the machines are only transported in an upright position.

5.03 Disposal of packing materials

The packing materials of this machine comprise paper, cardboard and VCE fibre. Proper disposal of the packing material is the responsibility of the customer.

5.04 Storage

If the machine is not in use, it can be stored as it is for a period of up to six months, but It should be protected against dust and moisture.
If the machine is stored for longer periods, the individual parts, especially the surfaces of moving parts, must be protected against corrosion, e.g. by a film of oil.

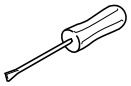
6 Explanation of symbols

In this instruction manual, work to be carried out or important information is accentuated by symbols. These symbols have the following meanings:

Note, information

Cleaning, care

Lubrication



Maintenance, repairs, adjustment, service work
(only to be carried out by technical staff)

7 Controls

7.01 Summary of control elements

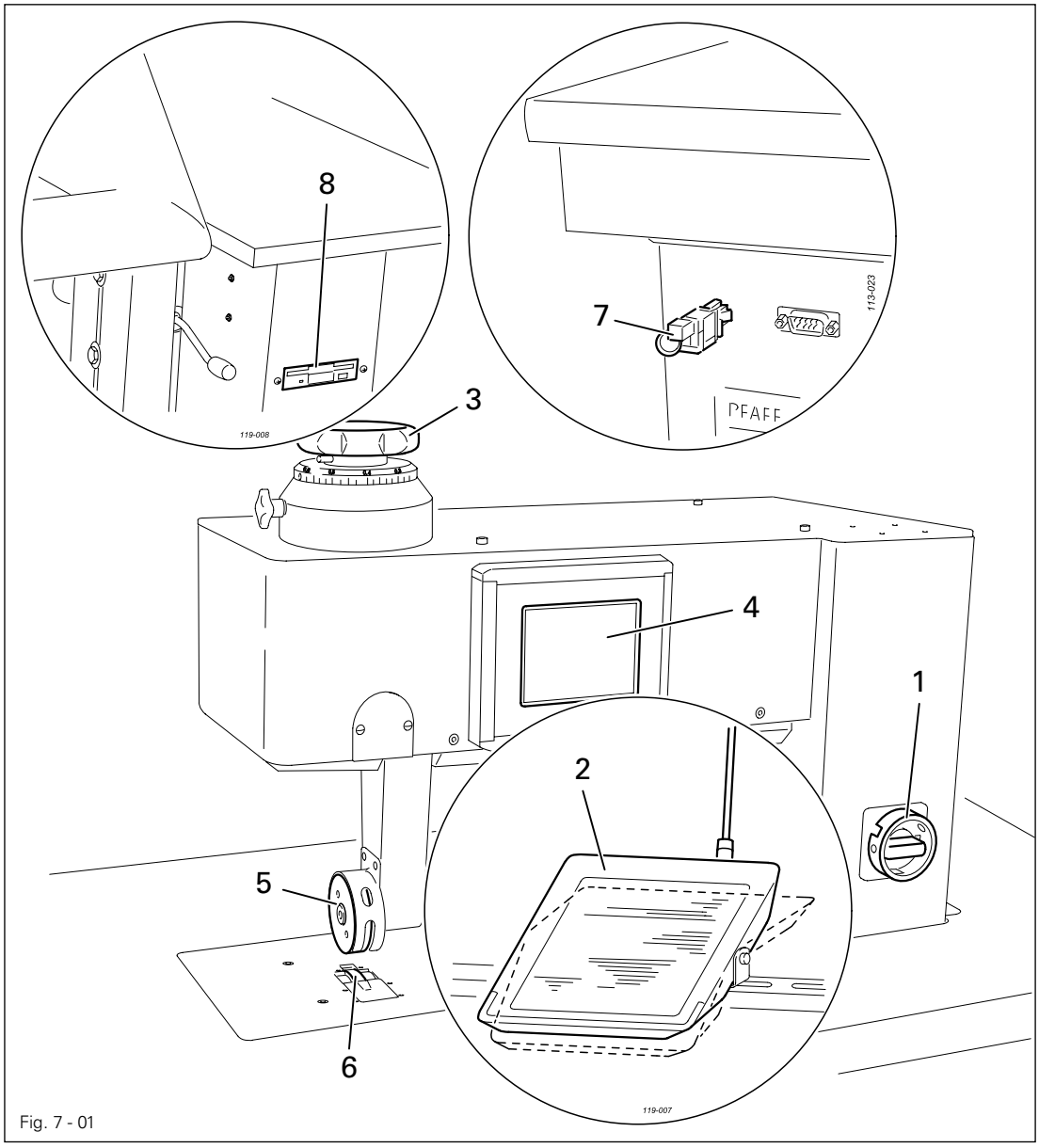


Fig. 7 - 01

The machine has the following control elements:

- Main switch **1**, see **Chapter 7.02**
- Pedal **2**, see **Chapter 7.03**
- Adjustment wheel **3** for roller clearance, see **Chapter 7.04**
- Control panel **4**, see **Chapter 7.05**
- Top roller **5**
- Bottom roller **6**
- Key switch **7**, see **Chapter 11.03.03 Rights of access**
- Disk drive **8**

7.02 Main switch

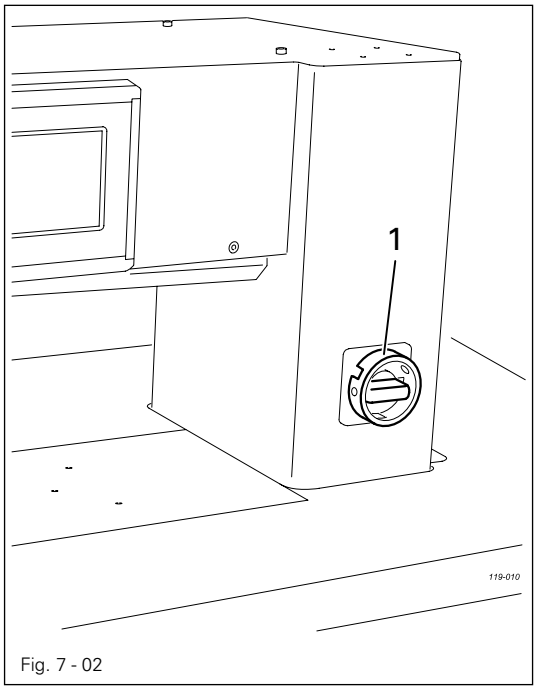


Fig. 7 - 02

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

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

7.03 Pedal

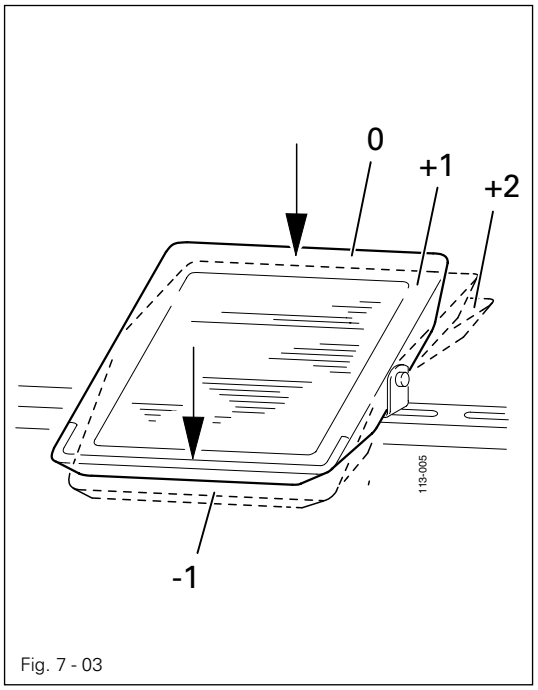


Fig. 7 - 03

The function method of the pedal depends on the selected pedal mode (level or flip-flop mode), see Chapter **11.03 Further settings**

-1 = Stop sealing operation / raise top roller
0 = Neutral position
+1 = Lower top roller
+2 = Sealing start

7.04 Adjustment wheel for roller clearance

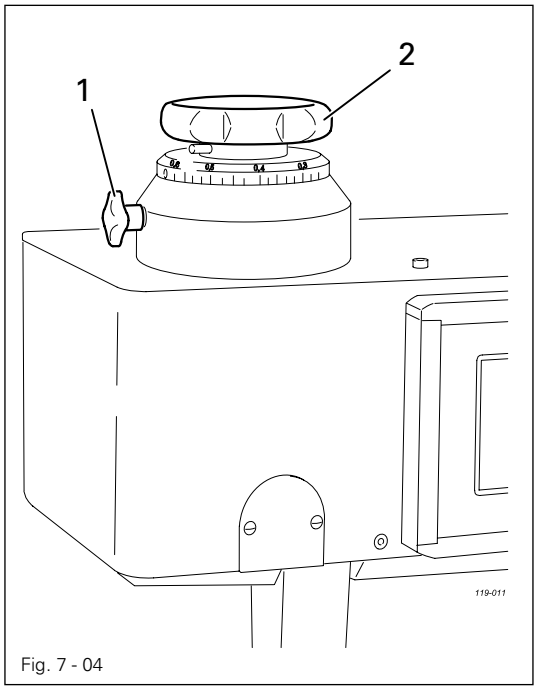


Fig. 7 - 04

- After loosening clamp screw **1,** the clearance between the top and bottom feed rollers is changed by turning adjustment wheel **2.**
  The clearance can be read on the scale.

7.05 Control panel

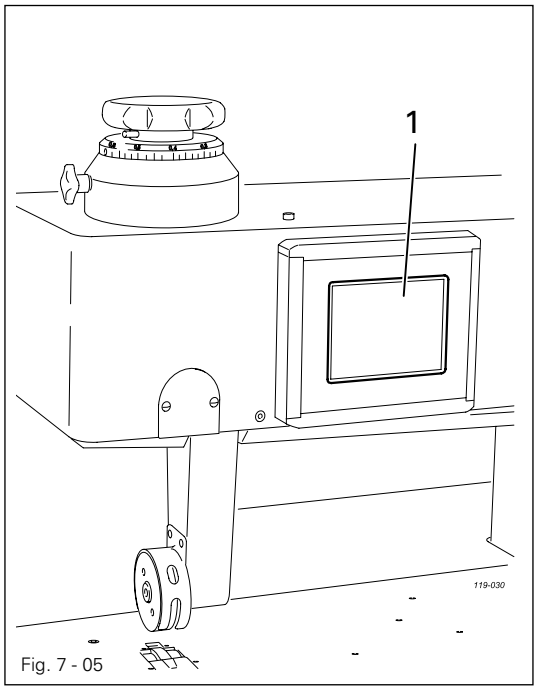


Fig. 7 - 05

The current operating conditions are displayed on control panel **1.** Operation takes place in a constant dialogue between the control unit and the operator. For this purpose, depending on the operating condition of the machine, different symbols and/or texts are displayed. If the symbols or texts are framed, these show functions which can be selected by pressing the appropriate position on the monitor. By pressing the corresponding function this is carried out or switched on or off immediately, or a further menu appears, e.g. for entering a value. Activated functions are shown with inverted symbols. Unframed symbols or texts are only used for display purposes and cannot be selected by pressing.

8 Installation and commissioning

After the machine has been unpacked, check it for any damages caused during transportation. If there are any damages, please notify the transport company and your local PFAFF agency.

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

8.01 Installation

Suitable connections for electricity and compressed air must be available at the machine's location (see **Chapter 3 Specifications**). An even and firm foundation as well as sufficient lighting must also be available at the machine's location.

8.01.01 Setting up the PFAFF 8310-041/001 and the PFAFF 8310-041/002

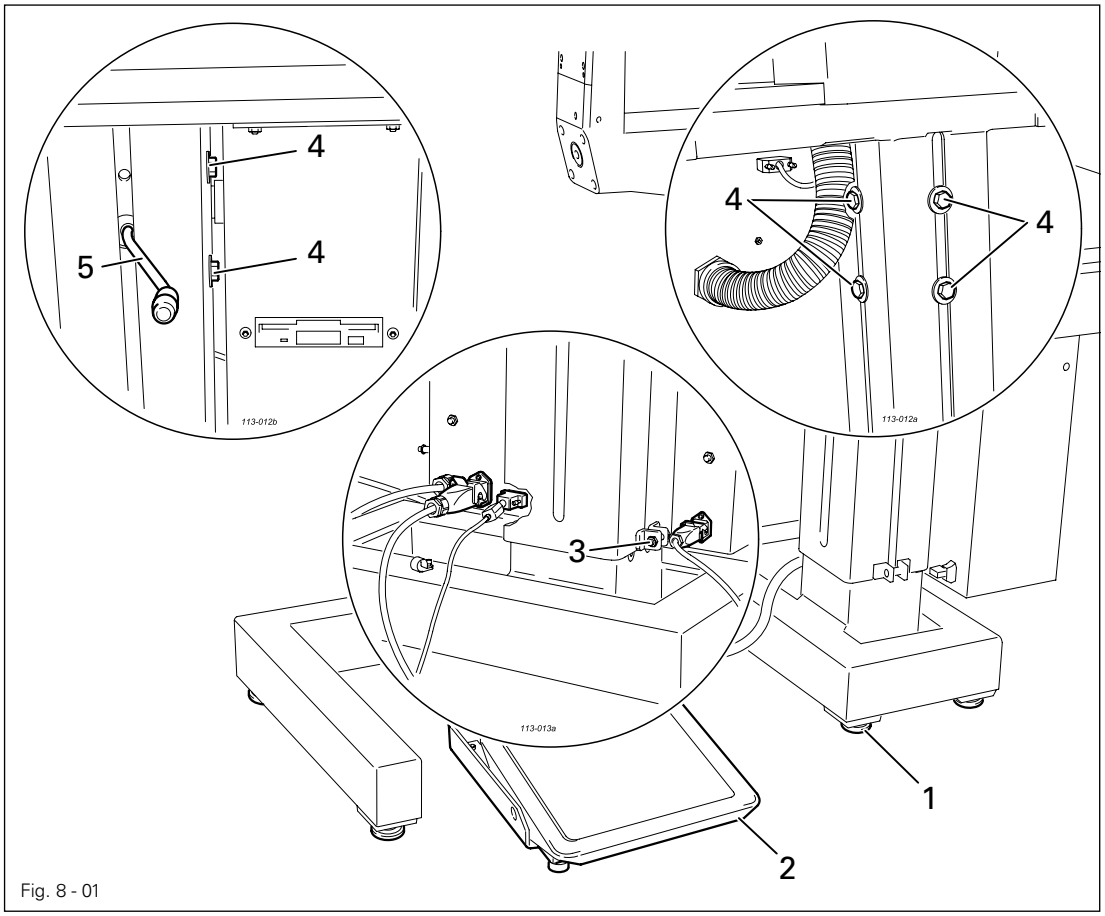


Fig. 8 - 01

- Slide the machine off the pallet.
- Turn the six legs **1** to level the machine horizontally.
- Connect the plugs from pedal **2** and from any existing foot switches to the control box.
- Loosen screws **3** and **4** and adjust the height of the machine by turning crank **5.**
- Well tighten screws **3** and **4** again.

8.01.02 Setting up the PFAFF 8310-042 and the PFAFF 8310-043

If the machine is delivered without a table, be sure that the frame and the table top which you intend to use can hold the weight of the machine and the motor. It must be ensured that the supporting structure is sufficiently sturdy, even during sewing operations.

The method of packaging used requires that the table top be lowered for transport. The following is a description of how to adjust the height of the table top.

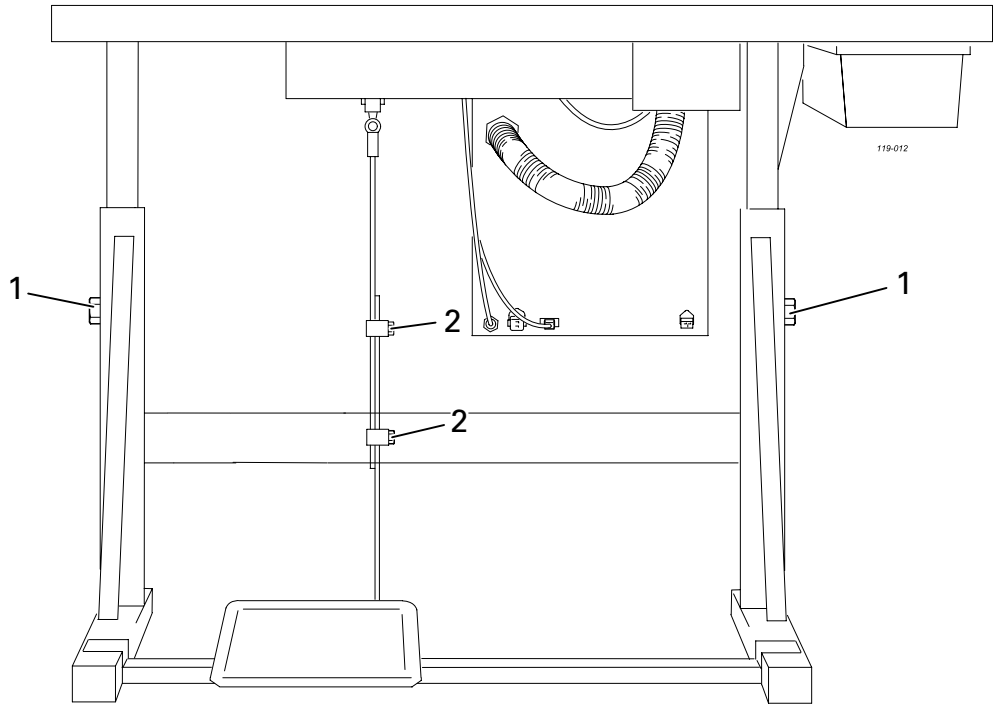


Fig. 8 - 02

- Loosen screws **1** and **2** and set the desired table-top height
- Tighten screws **1** well.
- Adjust the position of the pedal so that you can operate it comfortably and tighten screw **2.**

8.02 Commissioning

- Clean the machine thoroughly, also see Chapter **12 Maintenance**.
- Check the machine, particularly its electrical wiring and pneumatic tube connections, for any damage.
- Have a qualified person check whether the motor can be driven with the existing power voltage.

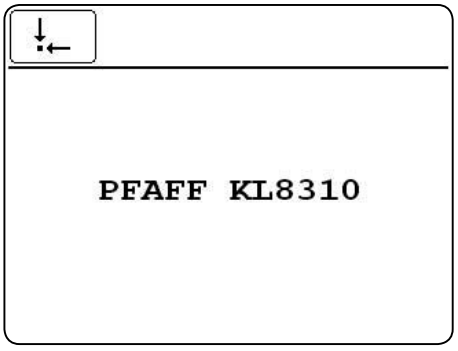
If there are any differences, the machine must definitely not be operated!

The machine must only be connected to a suitably earthed socket!

- Connect the machine to the compressed air supply. When it is connected, the gauge should indicate a pressure of approx. **6** bar. If necessary have this reading correctly set (see Chapter **12.02 Checking/adjusting the air pressure**).

8.03 Switching the machine on/off

- To switch on the machine, turn the main switch to the "I" position, see Chapter **7.02 Main switch.**



- Operate the “basic position” function to confirm the switch-on operation.
- Carry out a test run, see Chapter **10 Sealing**
- To switch off the machine, turn the main switch to the "o" position, see Chapter **7.02 Main switch**.

9 Preparation

All regulations and notes in this Service Manual must be observed!
Special attention must be paid to the safety regulations!

All setting-up work must only be carried out by personnel with the appropriate training!

9.01 Adjusting the roller clearance

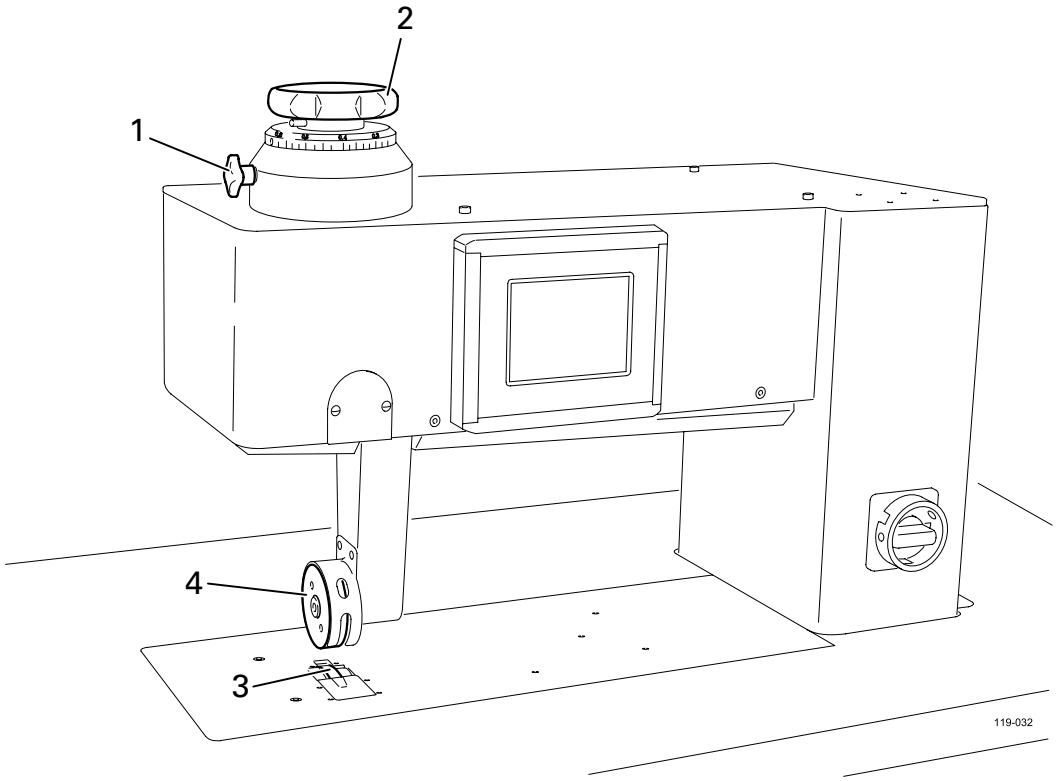


Fig. 9 - 01

Sonotrode **3** and roller **4** must never have direct contact!
Danger of serious damage to the machine!

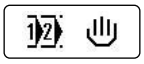
- Switch on the machine.
- Lower the top roller.
- Loosen clamping screw **1.**
- Adjust the roller clearance to match the workpiece and sealing application with adjustment wheel **2,** see Chapter **7.04 Adjustment wheel for the roller clearance**.
- Tighten clamping screw **1.**

9.02 Selecting a program

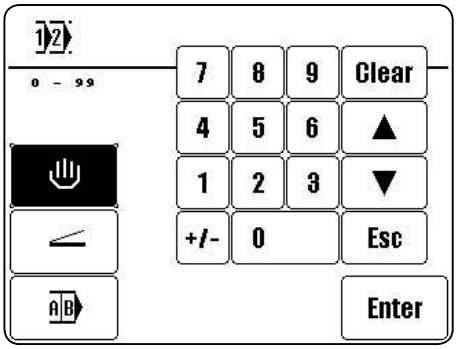
The program selection function is used to choose between the types of production
- Manual sealing, see **Chapter 10.02,**
- Dynamic sealing, see **Chapter 10.03,**
- Programmed sealing with individual programs, see **Chapter 10.06** and
- Programmed sealing with sequences, see **Chapter 10.07 or Chapter 10.08**

The types of production listed above, particularly their functions, are explained in more detail in Chapter **10 Sealing**.

- Switch on the machine, see Chapter **8.03 Switching the machine on/off**.



- Call up program selection.



- Call up manual sealing, the production type, "Manual Sealing" is activated.

or

- Call up dynamic sealing, the production type "Dynamic Sealing" is activated, the sealing speed can be controlled by the pedal.

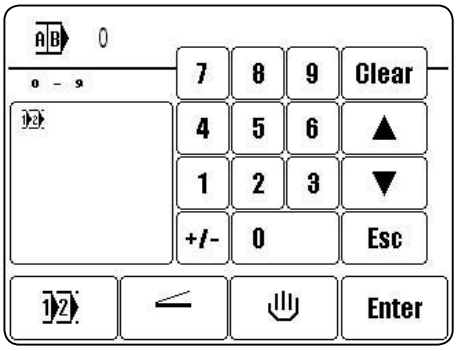
or

- Select the desired program number on the number block.

- Confirm selection and quit selection menu, die production type "rogrammed Sealing with individual program" is activated.

or

- Call up sequence selection.



- Select the desired sequence number on the number block.

Enter

- Confirm selection and quit selection menu, die production type "Programmed Sealing with sequence program" is activated.

9.03 Entering the sealing parameters

The direct input and alteration of sealing parameters is only possible in Manual or Dynamic Sealing. In Programmed Sealing the direct input of the sealing parameters is not possible. The alteration must be made in the appropriate sealing program, see Chapter **10.05 Creating/altering** a sealing program. Depending on the selected production type and the corresponding pre-settings (power sealing/amplitude sealing) the following parameters can be altered directly:

- Sealing power or sealing amplitude, see **Chapter 9.03.01**
- Sealing speed, see **Chapter 9.03.02**
- Roller pressure, see **Chapter 9.03.03**

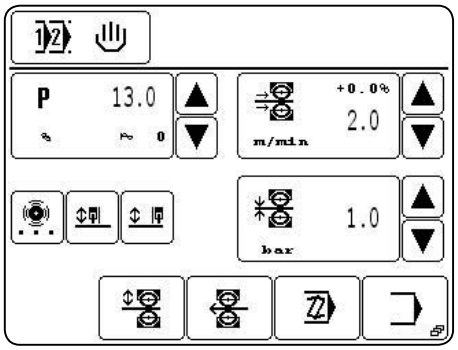
- Switch on the machine, see Chapter **8.03, Switching the machine on/off**.

- Call up program selection.

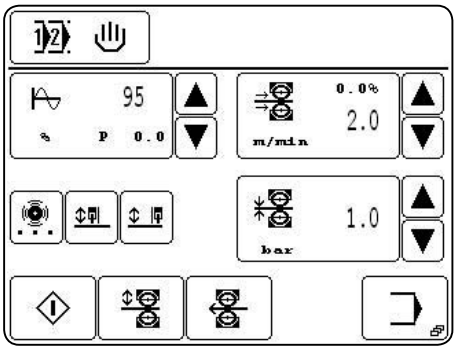
- Call up manual sealing.

The screen displays described below only appear if manual sealing is selected. If dynamic sealing is selected, the sealing speed input is different, see Chapter **9.03.02 Entering the sealing speed**.

Power sealing (standard)



Amplitude sealing



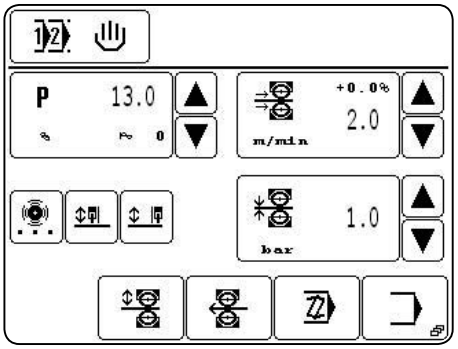
In Programmed Sealing the direct input of the sealing parameters is not possible. The alteration must be made in the appropriate sealing program, see Chapter **10.05 Creating/altering a sealing program**.

9.03.01 Entering the sealing power or the sealing amplitude

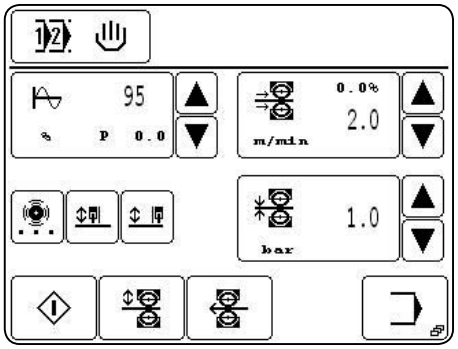
Depending on the presetting of the machine, either the value for the sealing power or the value for the sealing amplitude is altered, see Chapter **11.03 Further settings**. During the input a difference must also be made between manual and dynamic sealing. In the case of manual sealing, a value is fixed for the sealing power or sealing amplitude, in the case of dynamic sealing a range is fixed for sealing power and sealing amplitude.

Entering the values in manual sealing

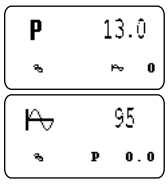
Power sealing (standard)



Amplitude sealing



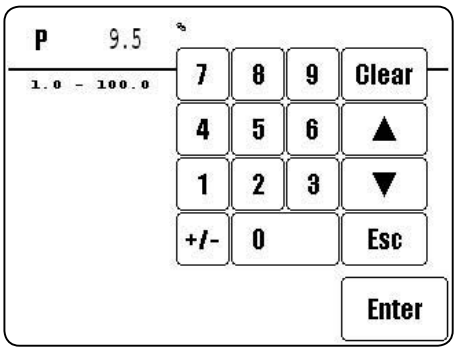
- Alter the value for sealing power/amplitude directly.



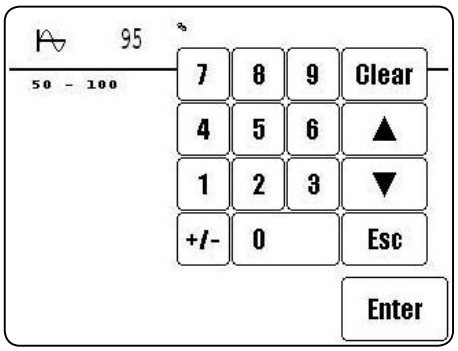
or

- Call up the number block for entering the sealing power/amplitude.

Power sealing (standard)



Amplitude sealing



- Enter the desired value for sealing power/amplitude on the number block.

- Conclude the input, permissible values will be taken over.

Description of further functions

Clear

Clear
When this function key is pressed, the value is set at "0".

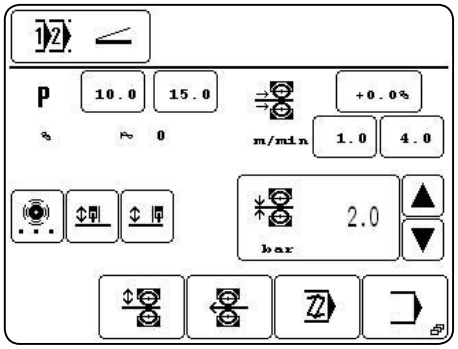
Arrow keys
When these function keys are pressed, the value is increased or reduced.

Esc

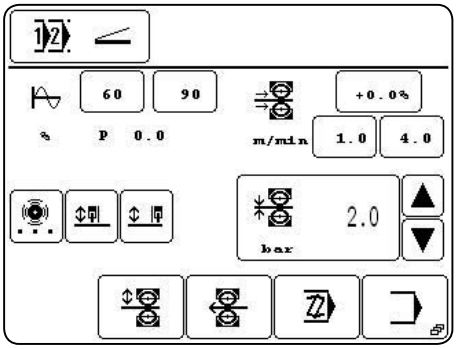
Esc
When this function key is pressed, the input is cancelled without the value entered being taken over.

Entering the values in dynamic sealing

Power sealing (standard)



Amplitude sealing



10.0 60
- Call up the number block for entering the bottom value for sealing power/amplitude.
- Enter the desired value on the number block.

Enter
- Conclude the input, permissible values will be taken over.

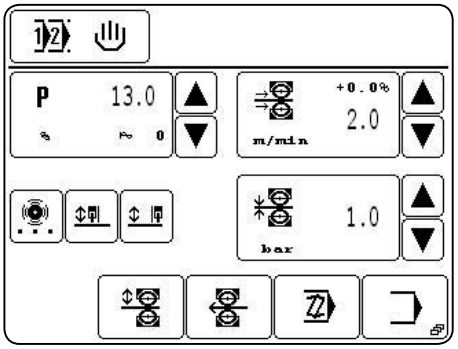
15.0 90
- Call up the number block for entering the top value for sealing power/amplitude.
- Enter the desired value on the number block.

Enter
- Conclude the input, permissible values will be taken over.

9.03.02 Entering the sealing speed

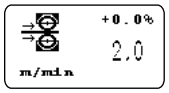
During the input a difference must be made between manual and dynamic sealing. In the case of manual sealing, the sealing speed is fixed, in the case of dynamic sealing a speed range is fixed.

Entering the values in manual sealing

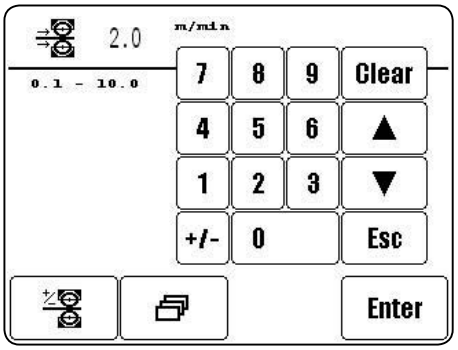


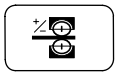
- Alter the value for the sealing speed directly.

or



- Call up the number block for entering the sealing speed.





- If necessary, call up the number block for entering the speed difference between the top and bottom roller.
- Enter the value for the speed difference within the permissible range on the number block.
- The speed difference results from the change in speed of the top roller, which turns either more quickly or more slowly than the bottom roller. The value for the speed difference depends on the material and the application.

Enter

- Conclude the input for the speed difference, permissible values will be taken over.
- Enter the value for the speed difference within the permissible range on the number block.

Enter

- Conclude the input for the sealing speed, permissible values will be taken over.

Description of further functions

Clear

When this function key is pressed, the value is set at "0".

Arrow keys

When these function keys are pressed, the value is increased or reduced.

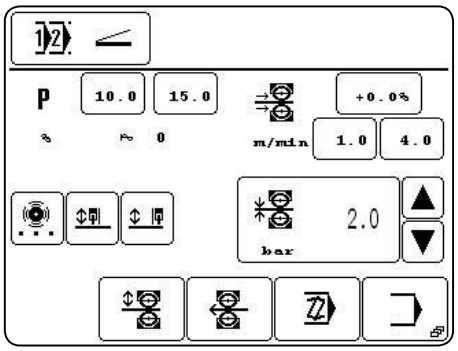
Esc

When this function key is pressed, the input is cancelled without the value entered being taken over.

Further parameters

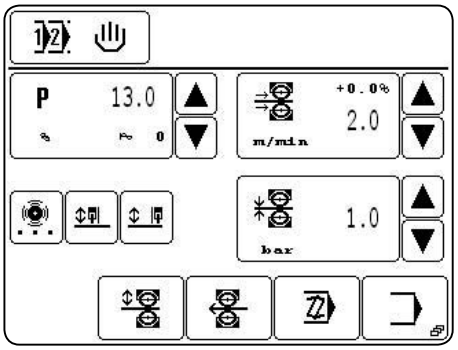
This function opens a menu for entering the brake and acceleration profile and for setting the start delay, see Chapter **10.03.05 Entering further sealing parameters**.

Entering the values in dynamic sealing



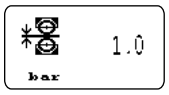
- Call up the number block for entering the bottom value for the sealing speed.
- Enter the desired value on the number block.
- Conclude the input, permissible values will be taken over.
- Call up the number block for entering the top value for the sealing speed.
- Enter the desired value on the number block.
- Conclude the input, permissible values will be taken over.
- If necessary, call up the number block for entering the speed difference between the top and bottom roller.
- Enter the value for the speed difference within the permissible range on the number block.
  The speed difference results from the change in speed of the top roller, which turns either more quickly or more slowly than the bottom roller. The value for the speed difference depends on the material and the application.
- Conclude the input for the speed difference, permissible values will be taken over.

9.03.03 Entering the roller pressure

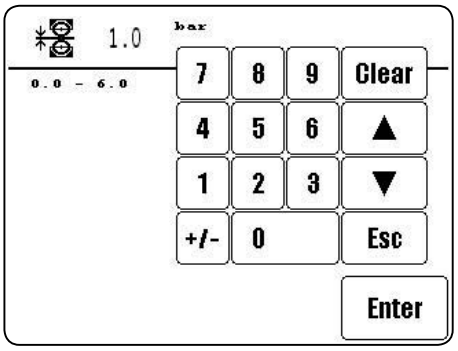


- Change the value for the roller pressure directly.

or



- Call up the number block for entering the roller pressure.



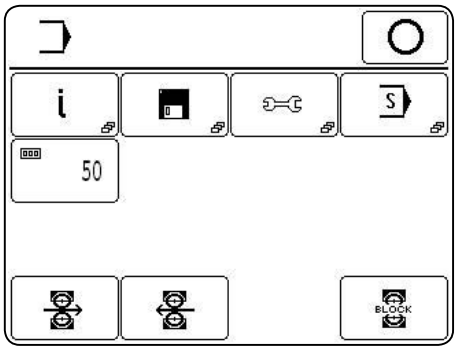
- Enter the desired value for the roller pressure on the number block.

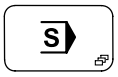
- Conclude the input, permissible values will be taken over.

9.04 Adjusting the control panel

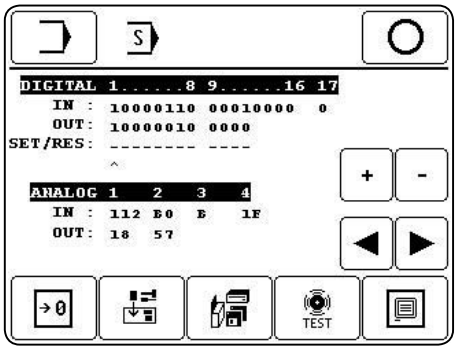
- Switch on the machine.

- Call up the input mode.

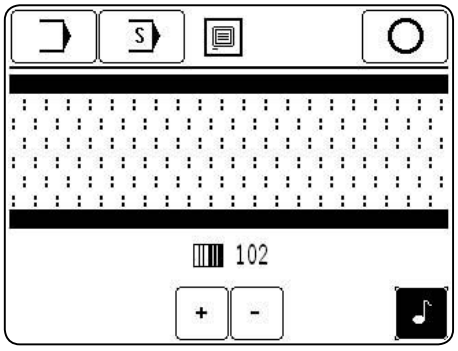


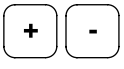


- Select the service menu.



- Select control panel functions.





- Change the display contrast.

- Switch the key tone off or on.

Never reduce the display contrast to the extent, that the display can no longer be read!

10 Sealing

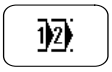
The machine may only be operated by properly instructed personnel. The operating personnel must make sure that only authorised persons are in the danger zone of the machine.

In particular for the production, in addition to the input mode (see Chapter **11 Input**), the sealing mode is available. Here, depending on the program selection and the machine status, all relevant functions and settings for the sealing operation are shown on the display.

In the sealing mode, with the program selection function following production types can be selected, see Chapter **9.02 Program selection**:

 Manual sealing, see Chapter **10.02**

 Dynamic sealing, see Chapter **10.03**

 Programmed sealing with individual programs, see Chapter **10.06**

 Programmed sealing with sequences, see Chapter **10.08**

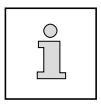
10.01 Sealing principle

Due to the vibrations of the sonotrode, the plies of the workpiece are mechanically "hammered" in the seam area. Through the hammering motions of the sonotrode the workpiece is heated until it becomes viscous and at the same time it is pressed and fed to form the seam.

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

The workpiece must be:
- sealable (thermoplast),
- suitable for processing with the PFAFF **8310-003** with regard to thickness and properties and
- clean in the seam area.

The basic requirements on the machine are:
- selection of the correct feed roller and setting
- roller pressure
- sealing power
- sealing speed and
- roller gap (distance of the anvil roller to the sonotrode during sealing).



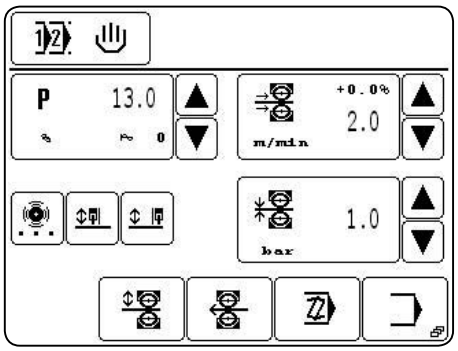
All settings of the sealing machine are always dependent on the type being sealed and the ambient temperature. As a result of the influence of the individual parameters on each other, optimum settings can only be determined by means of test sealing operations.

10.02 Manual sealing

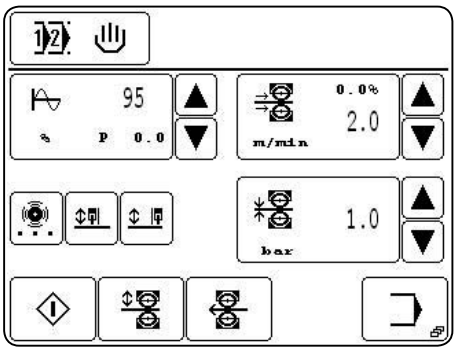
In the manual sealing mode, all relevant parameters for the sealing operation can be entered or altered directly, see Chapter **9.03 Entering the sealing parameters**.

- Select Manual Sealing, see Chapter **9.02 Selecting a program**

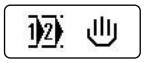
Power sealing (standard)



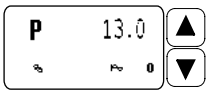
Amplitude sealing



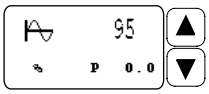
Description of the functions



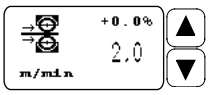
Selecting a program
This function opens the menu for entering the program number or for selecting the production type, see Chapter **9.02 Selecting a program**.



Sealing power
These functions are used for altering the sealing power, see Chapter **9.03.01 Entering the sealing power** or the sealing amplitude



Sealing amplitude
These functions are used for altering the sealing amplitude, see Chapter **9.03.01 Entering the sealing power** or the **sealing amplitude**

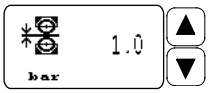


Sealing speed
These functions are used to alter the feed stroke or to open the menu for entering the feed stroke difference, the brake and acceleration profiles and the start delay for the rollers, see Chapter **9.03.02 Entering the sealing speed**

Basting
This function opens a menu for entering the sealing parameters for basting, see Chapter **10.04** Basting.

Left secondary roller
This function is used to switch the left secondary roller on or off.

Right secondary roller
This function is used to switch the right secondary roller on or off.



Roller pressure
These functions are used to alter the roller pressure, see Chapter **9.03.03 Entering the roller pressure**.

Start

(This function appears when the top roller is lowered.)

With this function the sealing start is called up, analogue to the pedal function "+2", also see Chapter **7.03 Pedal**.

Roller up/down

With this function the top roller, depending on its position, can be raised or lowered, analogue to the pedal functions "-1" and "+1", also see Chapter **7.03 Pedal**.

Turn rollers

This function opens the menu for turning the rollers, see Chapter 10.10 **Turning the rollers.**

Programming

These functions are used for creating or altering sealing programs, see Chapter 1**0.05 Creating/altering a sealing program**.

Input menu

This function is used to call up the input mode, see Chapter **11 Input**.

Stop

(This function appears during the sealing operation.)

This function is used to stop the sealing operation, analogue to pedal function "-1", also see Chapter **7.03 Pedal**.

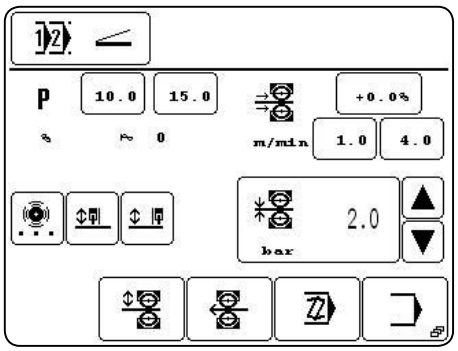
- Carry out the sealing operation using the pedal functions, see Chapter **7.03** Pedal.

10.03 Dynamic sealing

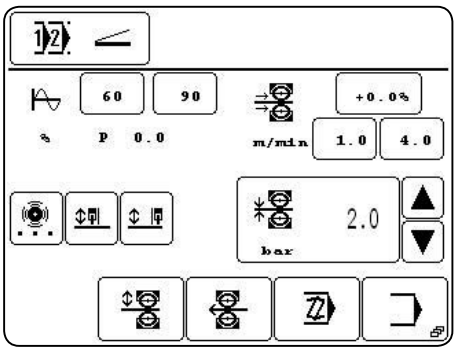
In the dynamic sealing mode, all relevant parameters for the sealing operation can be entered or altered directly, see Chapter **9.03 Entering the sealing parameters**. With the pedal function the sealing power/sealing amplitude and sealing speed can be varied infinitely within the set range.

- Select Dynamic Sealing, see Chapter **9.02 Selecting a program**.

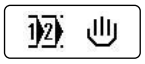
Power sealing (standard)



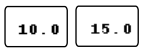
Amplitude sealing



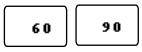
Description of the functions



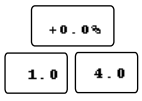
Selecting a program
This function opens the menu for entering the program number or for selecting the production type, see Chapter **9.02 Selecting a program**.



Sealing power
These functions are used for altering the sealing power, see Chapter **9.03.01 Entering the sealing power** or the sealing amplitude



Sealing amplitude
These functions are used for altering the sealing amplitude, see Chapter **9.03.01 Entering the sealing power** or the sealing amplitude

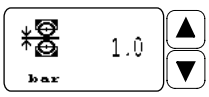


Sealing speed
These functions are used to alter the feed stroke or to open the menu for entering the feed stroke difference, the brake and acceleration profiles and the start delay for the rollers, see Chapter **9.03.02 Entering the sealing speed**

Basting
This function opens a menu for entering the sealing parameters for basting, see Chapter **10.04** Basting.

Left secondary roller
This function is used to switch the left secondary roller on or off.

Right secondary roller
This function is used to switch the right secondary roller on or off.



Roller pressure
These functions are used to alter the roller pressure, see Chapter **9.03.03 Entering the roller pressure**.

Start

(This function appears when the top roller is lowered.)

With this function the sealing start is called up, analogue to the pedal function "+2", also see Chapter **7.03 Pedal**.

Roller up/down

With this function the top roller, depending on its position, can be raised or lowered, analogue to the pedal functions "-1" and "+1", also see Chapter **7.03 Pedal**.

Turn rollers

This function opens the menu for turning the rollers, see Chapter **10.10 Turning the rollers.**

Programming

These functions are used for creating or altering sealing programs, see Chapter 1**0.05 Creating/altering a sealing program**.

Input menu

This function is used to call up the input mode, see Chapter **11 Input**.

Stop

(This function appears during the sealing operation.)

This function is used to stop the sealing operation, analogue to pedal function "-1", also see Chapter **7.03 Pedal**.

- Carry out the sealing operation using the pedal functions, see Chapter **7.03 Pedal**.

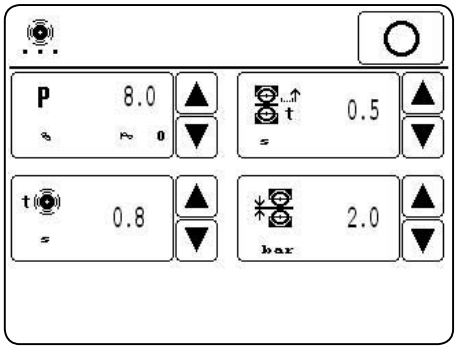
10.04 Basting

With the basting function sealing is performed point for point (without feed stroke) in accordance with specified parameters.

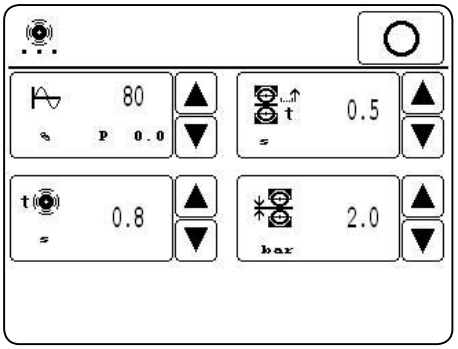
- Call up manual sealing or dynamic sealing, see Chapter **9.02 Selecting a program**.

- Call up basting.

Power sealing (standard)

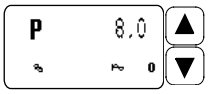


Amplitude sealing

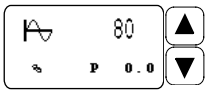


Description of the functions

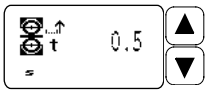
Sealing
This function is used to change to the sealing mode.



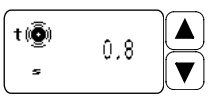
Sealing power
These functions are used for altering the sealing power, see Chapter **9.03.01 Entering the sealing power** or the sealing amplitude



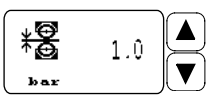
Sealing amplitude
These functions are used for altering the sealing amplitude, see Chapter **9.03.01 Entering the sealing power** or the sealing amplitude



Hold time
These functions are used to alter the time, after which the top roller is raised again after the end of the sealing time



Sealing time
These functions are used to alter the sealing time.



Roller pressure
These functions are used to alter the roller pressure, see Chapter **9.03.03 Entering the roller pressure**.

- Enter the parameter for basting according to the material to be sealed.

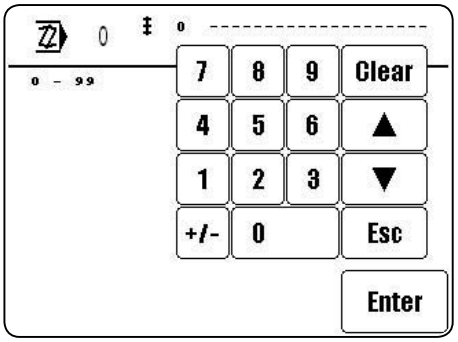
- Start the basting operation with the pedal function "**+1**", see Chapter **7.03 Pedal**.

10.05 Creating/altering a sealing program

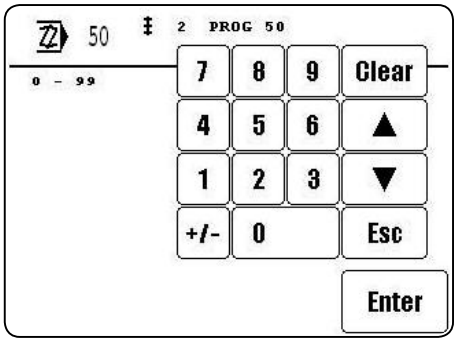
Up to **100** sealing programs (**0 – 99**) each with up to **20** sealing zones can be filed and managed in the machine memory.

- With the programming function it is possible to enter the programming function of the sealing programs. A number block for entering the desired program number appears on the display.

Creating a new program



Altering a program



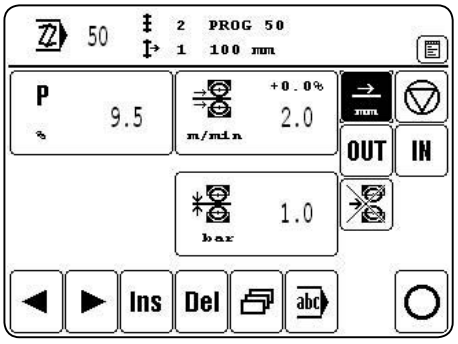
If no program is filed in the memory under the program number selected, the current sealing parameter of the manual sealing function will be taken over and a new program created.
As an alternative to the creation of a new program, the program number of an existing program (e.g. **50**) can be selected, and this program can be changed or copied to create a new program. In the case of existing programs, the number of zones and possibly a comment are displayed next to the program number in the headline.

5 **0**

- Enter the program number, e.g. "**50**".

Enter

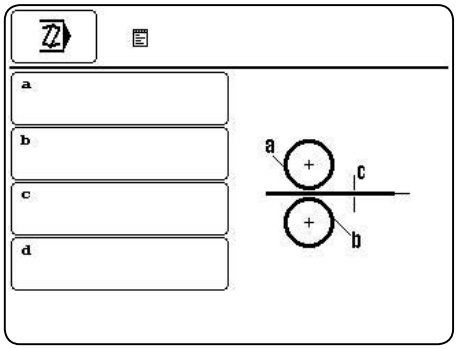
- Confirm selection.



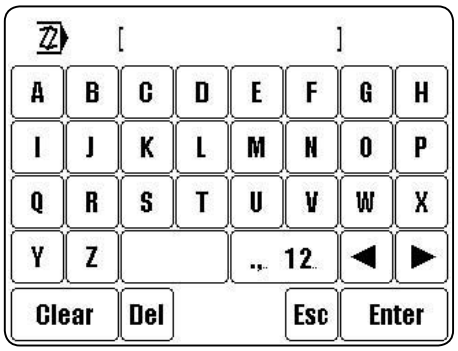
The first zone of the selected program is displayed on the screen with functions for entering sealing parameters, notes, switching to the next zone, as well as basic functions for the program input. For further descriptions of the functions see Chapter **10.05.07 Example for sealing program input.**

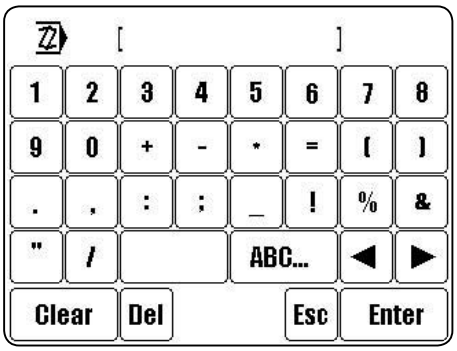
10.05.01 Notepad

When creating a sealing program, this function is used to enter data about the sealing tools for the program. The data serves as information for the operator and can be called up in the programmed sealing mode.



- Press the relevant key panels to enter the data.

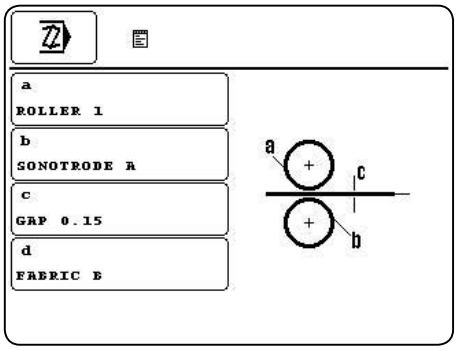




- Enter the relevant data.

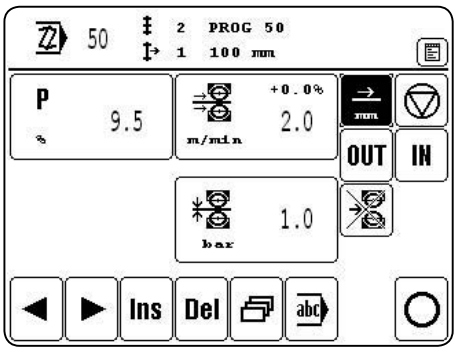
Enter

- Conclude the input



10.05.02 Basic functions for the program input

The following functions are used to enter the basic information for the currently selected program. In addition to functions for navigating in the different zones and functions for inserting and deleting zones, depending on the zone displayed, functions can be called up for entering further parameters and comments as well as for concluding the program input.



- Call up the appropriate functions to process or conclude the program.

Description of the functions

◀ ▶ **Selecting a zone**
These functions are used to switch forwards and backwards to other zones in the current program.

INS **Insert**
This function inserts a new zone at the current location. The data of the current zone are copied for the new zone and the following zones are moved one place back.

DEL **Delete**
This function deletes the current zone.

Further sealing parameters
(This function only appears in the first zone.)
This function opens a menu for entering further sealing parameters.

abc **Comment**
(This function only appears in the first zone.)
With this function, when entering a note, see Chapter **10.05.01 Notepad**, the analog entry of a comment about the current program is possible. The comment is displayed as information about the appropriate program in the program selection and program management functions.

ADD **Add**
(This function only appears in the last zone.)
This function is used to copy the data of the current zone and add it as a new zone.

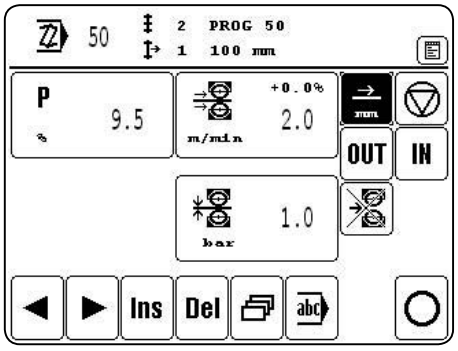
Conclude programming
This function concludes the programming, see Chapter 1**0.05.06 Concluding the programming**.

10.05.03 Sealing parameters

- Sealing parameters for each zone as described in Chapter **9.03 Entering sealing parameters.**

10.05.04 Functions for switching to other zones

In addition to the sealing parameters, further functions can be allocated to each zone, which serve to enable the automatic switch to other zones and a more exact setting of the sealing operation sequence.



- Select appropriate functions for each zone, activated functions are displayed as inverse symbols on the screen.

Description of the functions

Programmed section
This function is used to determine the length of the current zone. The value in millimetres is entered on the appropriate number block. When the function is activated, the machine switches to the next seam zone after processing the entered section.

Programmed stop
When this function is switched on, the current zone takes on a stop function. The sealing operation stops and the machine moves to the next zone. The sealing parameters entered for this zone are not taken into account.

Programmed output
When this function is switched on, the current zone takes on an output switch function. Two outputs can be stipulated with the appropriate menu. The sealing parameters entered for this zone are not taken into account.

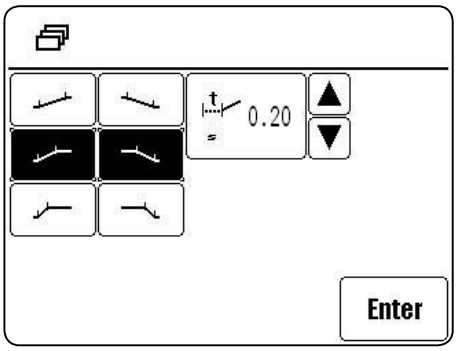
Programmed input
When this function is switched on, the machine does not switch to another zone until an appropriate input signal is given or not given. The two different inputs can be set up with the appropriate menu.

Sealing on/off
When this function is switched on, the current zone takes on a switch function. The sealing operation is switched off or on and the machine switches to the next zone. The sealing **function remains switched off/on for the following zones, until the setting is altered again.**

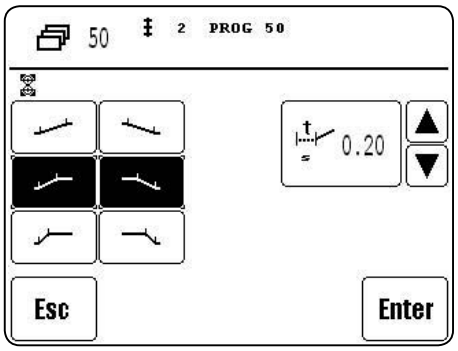
10.05.05 Entering further sealing parameters

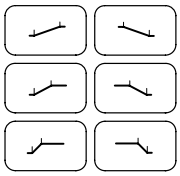
Further sealing parameters can be entered either
- from the Manual Sealing mode in conjunction with the sealing speed input or
- when creating programs in conjunction with the input of the first zone..

Input from manual/dynamic sealing mode



Input during program creation



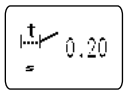


- Select acceleration and brake profile of the feed rollers, dependent on the material for sealing. Each of the profiles selected is displayed as an inverse symbol. A flat ramp stands for slight acceleration of the feed rollers. The selection of a steep ramp means high acceleration.

If the sealing result is unsatisfactory, the alteration of the acceleration or brake profile can lead to an improvement.
The values of the different acceleration and brake profiles can be stipulated in the input mode, see Chapter **11.03.02 Feed roller parameters**.

- Increase or reduce the start delay for the feed rollers directly.

or



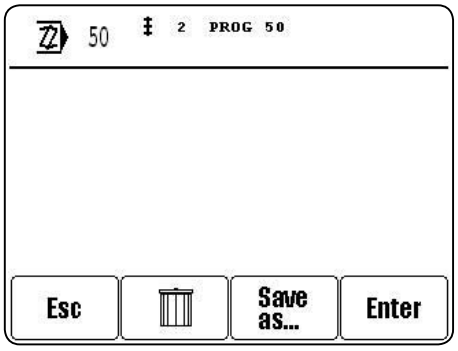
- Call up the figure panel to enter the start delay.
- Using the number block, enter the start delay time depending on the work material.

- Conclude the input, permissible values will be taken over.

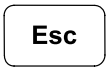
The start delay function is used to stipulate the amount of time which should pass between the engaging of the heating element and the start of the feed rollers.

10.05.06 Concluding programming

Once all the details for programming have been entered, the programming can be concluded by pressing the appropriate function key.



Description of the functions



Esc
The input is interrupted and the machine moves back to the basic programming condition.

Discard alterations
All program alterations are cancelled.

Save as…
If this function key is pressed, the number panel opens to enter any program number.

Enter
All program alterations are saved under the current program number.

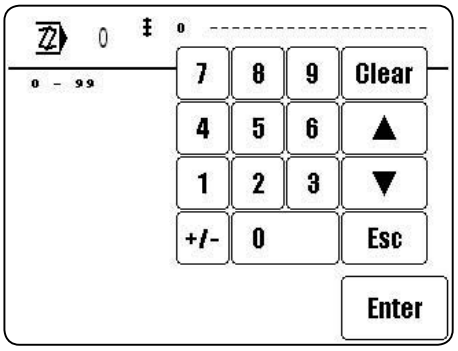
10.05.07 Example of how to enter a sealing program

The following example should be filed under program number "**10**" with the comment "PROG**10**", and should consist of three seam zones:

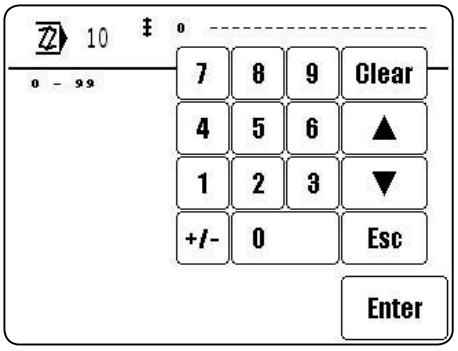
- Seam zone **1** with switch to another zone after **200** mm seam length
- Seam zone **2** with reduced sealing speed and speed difference between the top and bot tom feed roller, and switch to another zone after **100** mm
- Seam zone **3** with original sealing speed without speed difference between the feed rollers and with switch to another zone after **400** mm

● Switch on the machine.

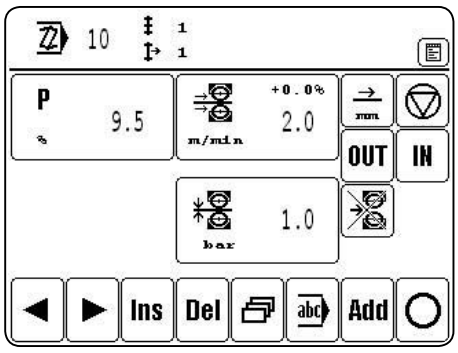
[ ] ● Call up the programming function.



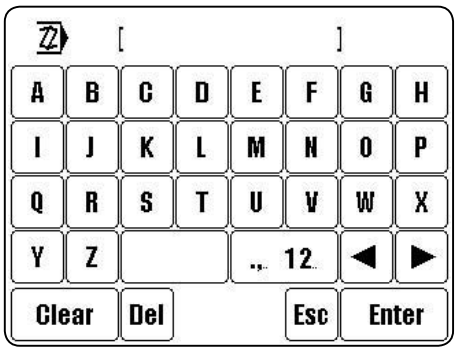
[1] [0] ● Enter program number "**10**".



[Enter] ● Confirm input.
The sealing parameters from the manual sewing mode are taken over for seam zone **1.**



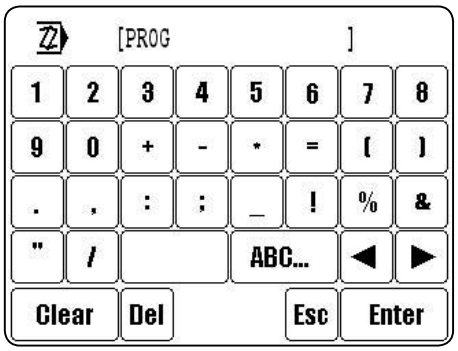
- Call up comment input.



- Enter the term "PROG" using the appropriate symbols.

.,- 12

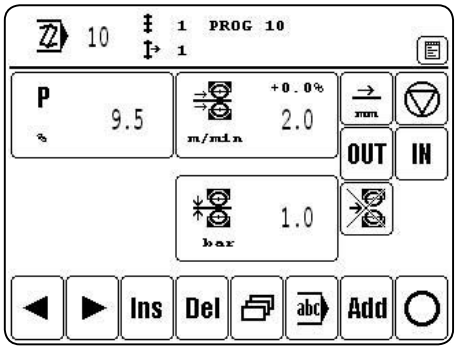
- Change to number input.



- Enter number "10" with the appropriate symbol.

Enter

- Conclude the comment input.



mm

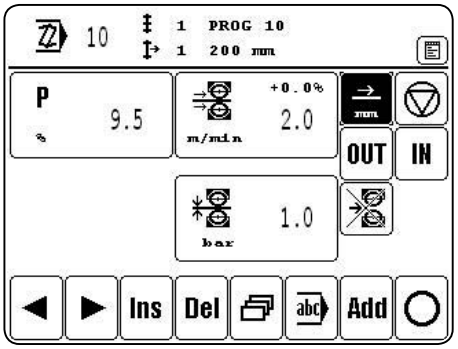
- Activate the switch to another zone using the seam length.

2 0 0

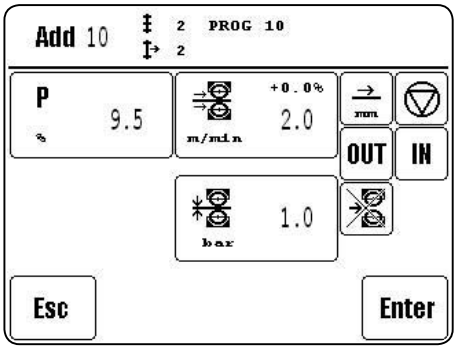
- Enter the value "200" as seam length with the number panel.

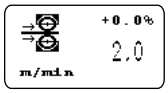
Enter

- Conclude the activated function for switching to another zone.



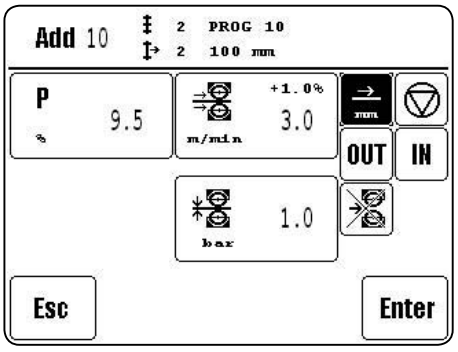
ADD ● Add seam zone 2.



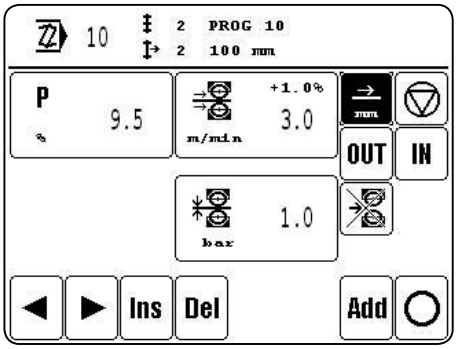


● Alter the values for sealing speed and speed difference, also see Chapter **9.03.02 Entering the sealing speed.**

mm ● Activate the switch to another zone with the value "**100**" as seam length.



Enter ● Conclude the input of seam zone 2.

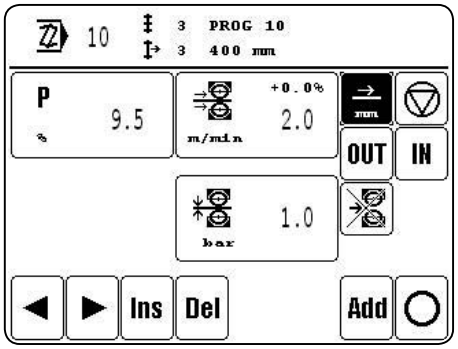


ADD ● Add seam zone 3.

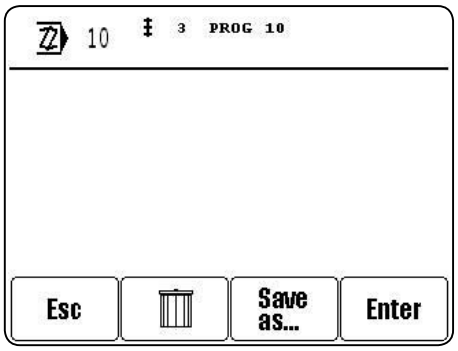
+1.0% 3.0 m/min ● Reset the values for sealing speed and speed difference.

mm ● Activate the switch to another zone with the value "400" as seam length.

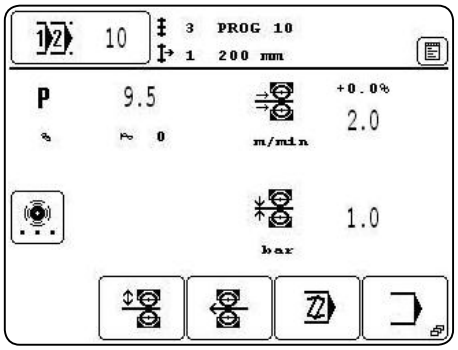
Enter ● Conclude the input of seam zone 3.



○ ● Conclude programming.



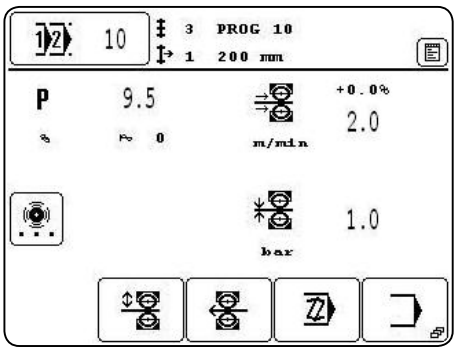
Enter ● Reconfirm the sealing program input.
The programmed sealing function is called up to process the created sealing program.



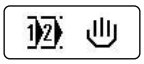
10.06 Programmed sealing with individual programs

In the headline, in addition to the program number of the selected program, the number of zones, the current zone and the comment for the program are displayed. For the current zone all heat-sealing parameters are displayed. The heat-sealing parameters have been stipulated during programming and cannot be processed without changing the program.

- Select the desired program, see Chapter **9.02 Selecting a program**.



Description of the functions



Program selection
The function opens the menu for entering the program number or for choosing the production type, see Chapter **9.02 Selecting a program**.

Notepad
This function opens the notepad with program details about the heat-sealing tools to be used.

Basting
This function opens a menu for entering the sealing parameters for basting, see Chapter **10.04 Basting**.

Start
(This function appears, when the top feed roller is lowered.)
This function is used to call up the sealing start, analog to pedal function "+2", also see Chapter **7.03 Pedal**.

Feed roller up/down
This function is use to raise or lower the top feed roller, depending on its position, analog to the pedal functions "-1" and "+1", also see Chapter **7.03 Pedal**.

Turn rollers
This function opens the menu for turning the rollers, see Chapter **10.10 Turning the rollers.**

Programming
These functions are used to enter the Creating or Altering Heat-Sealing Programs, see Chapter **10.03 Creating/altering sealing programs**.

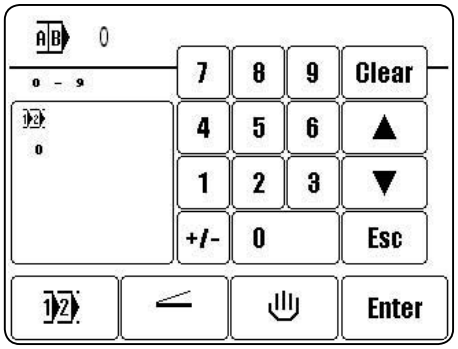
Input menu
This function is used to call up the "Input" mode, see Chapter **11 Input**.

Stop
(This function appears during the heat-sealing operation.)
This function is used to stop the heat-sealing operation, analog to pedal function "-1", also see Chapter 7.03 Pedal.

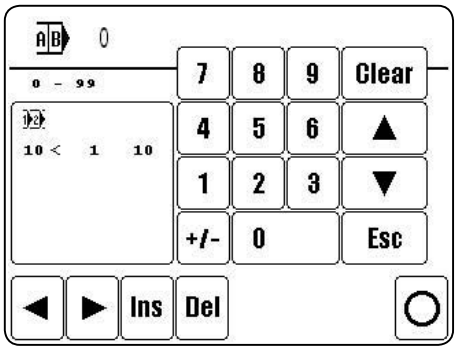
10.07 Creating/processing sequences

In sequences up to 8 sealing programs are combined in any order whatever and filed under a sequence number. A total of up to 10 sequence programs can be filed in the machine's memory.

- To enter sequence programming, first of all call up the Program selection function.
- Call up the Sequence Selection function.



- Select the desired sequence number on the number block.
- Call up sequence programming.

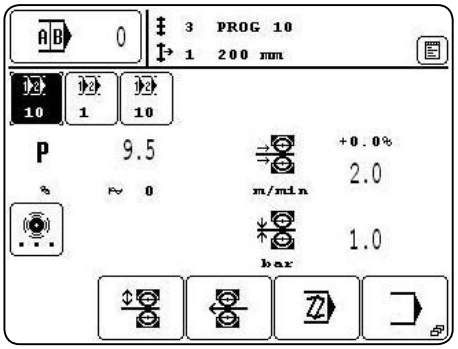


- Compile a sequence from the existing individual programs by entering the program numbers on the number block.
  The cursor in the window shows which program is being deleted or at which point a new program is being inserted. The cursor can be moved with the arrow keys.
- Insert the program (INS) at the current cursor position or delete (DEL) a marked program from the sequence, as required.
- Conclude sequence programming.

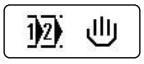
10.08 Programmed sealing with sequences

In the headline, in addition to the sequence number of the selected sequence, the number of zones, the current zone and the comment for the current program are displayed. For the current zone all heat-sealing parameters are displayed. The heat-sealing parameters have been stipulated during programming and cannot be processed without changing the program. In addition, in the case of sealing with sequence programs, the individual programs belonging to the sequence are displayed, and the current program is shown here as an inverse symbol.

- Select the desired sequence, see Chapter **9.02 Selecting a program.**



Description of the functions



Program selection
The function opens the menu for entering the program number or for choosing the production type, see Chapter **9.02 Selecting a program**.

Notepad
This function opens the notepad with program details about the heat-sealing tools to be used.

Sealing program
Press this function to select the appropriate sealing program.

Basting
This function opens a menu for entering the sealing parameters for basting, see Chapter **10.04 Basting**.

Start
(This function appears, when the top feed roller is lowered.)
This function is used to call up the sealing start, analog to pedal function "+2", also see Chapter **7.03 Pedal**.

Feed roller up/down
This function is use to raise or lower the top feed roller, depending on its position, analog to the pedal functions "-1" and "+1", also see Chapter **7.03 Pedal**.

Turn rollers
This function opens the menu for turning the rollers, see Chapter **10.10 Turning the rollers.**

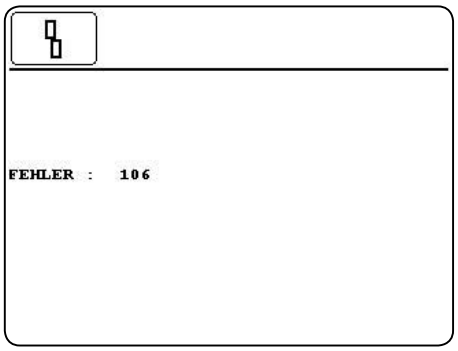
Programming
These functions are used to enter the Creating or Altering Heat-Sealing Programs, see Chapter **10.03 Creating/altering sealing programs**.

Input menu
This function is used to call up the "Input" mode, see Chapter **11 Input**.

Stop
(This function appears during the heat-sealing operation.)
This function is used to stop the heat-sealing operation, analog to pedal function "-1", also see Chapter **7.03 Pedal**.

10.09 Error messages

In case of a malfunction, an error code appears on the display. An error message may be caused by incorrect handling, faults on the machine or by overload conditions.
For the explanation of the error code, see Chapter **13.11 Explanation of the error numbers**.



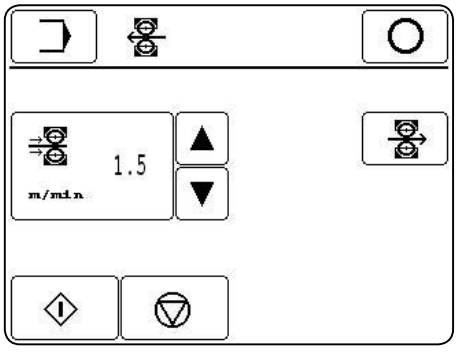
- Eliminate the error.

- Acknowledge the elimination of the error.

10.10 Turning the rollers

- Call up manual sealing or dynamic sealing, see Chapter **9.02 Selecting a program**.

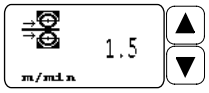
- Call up the function for turning the rollers.



Description of the functions

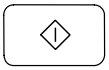
Input mode
This function is used to change to the initial state of the input mode.

Sealing mode
This function is used to change to the sealing mode.

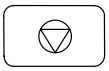


Turning speed
This function is used to change the turning speed of the rollers.

Feed direction
This function is used to change the feed direction of the rollers.



Start
After this function is activated, the rollers start turning.



Stop
After this function is activated, the turning motion of the rollers is stopped.

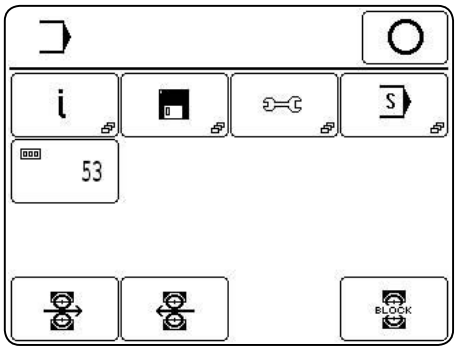
11 Input

Contained in the input mode are the functions for displaying information, for program management, for machine adjustment and configuration (incl. choice of country and access rights), as well as for supporting service and adjustment work.

11.01 Summary of the functions in the input mode

- Switch on the machine.

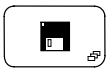
- Call up the input mode



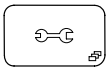
Description of the functions

Sealing mode
This function is used to change to the sealing mode.

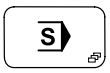
Info
This function opens a menu to display the following information:
- Current software status of the machine
- Current firmware status of the machine
- Current firmware status of the control panel
- Measured sealing power/amplitude
- Number of operating hours (can be reset with the Clear function)
- Number of production hours (can be reset with the Clear function)



Program management
This function is used to manage the data from the machine memory and disks, see Chapter **11.02 Program management.**

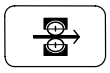


Further settings
This function is used to call up a menu for stipulating further machine settings, the choice of country and the access rights, see Chapter **11.03 Further settings**.



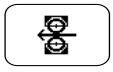
Service menu
This function is used to call up the menu for selecting various service functions, see Chapter **13.12 Service menu**.

Daily piece counter
This function is used to call up the daily piece counter. The daily piece counter can be reset with the Clear function.



Feed rollers forwards

This function makes it possible to turn the feed rollers forwards at a freely selectable speed. For this purpose a menu is opened with functions for selecting the speed of the feed rollers and for starting or stopping the feed rollers.



Turn rollers

This function opens the menu for turning the rollers, see Chapter **10.10 Turning the rollers.**

Blocking the rollers

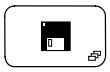
This function is used to block the rollers, in order to facilitate a roller change. A menu is opened with a function for releasing the blocking function again.

11.02 Program management

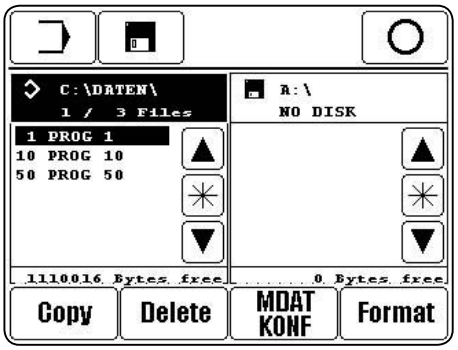
The program management function is used to manage sealing programs as well as configuration and machine data. Files can be selected from the machine memory or from a disk and be copied or deleted.

- Switch on the machine.

- Call up the input mode.



- Call up the program management function.



Both data carriers with the corresponding files appear on the display:
- Machine memory ("C:\DATEN\") is currently selected
- Disk ("A:\) is not inserted at present (NO DISK)

The data carrier is selected by touching the appropriate box. The content of the appropriate data carrier is also updated. The selected data carrier and the selected files are shown as inverse symbols:

Sealing programs are filed at a different level to that for the configuration and machine data, in order to avoid the configuration and machine data being processed by mistake.

Description of the functions

Input mode
This function is used to change from the initial state to the input mode.

Sealing mode
This function is used to change to the sealing mode.

Data selection
With these functions the desired files are marked in the current drive. Individual files are selected with the arrow keys. In combination with the Lock key (*) several files can be selected at one time with the arrow keys.

Copy
This function is used to copy the files selected from the current data carrier onto the second data carrier.

Delete
This function is used to delete the selected files.

MDAD/KONF
This function is used to call up the level for the configuration and machine data. The current settings and the machine configuration are stored in the files "MDAT8310" and "KONF8310. BIN". In this way the machine data can be copied on to a disk as a backup, or several machines with the same designation can be configured quickly by reading the machine data.

Format
This function is used to format the disk inserted.

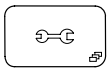
In the course of the formatting operation, all data on the disk is deleted!

11.03 Further settings

The further settings are use for stipulating further machine settings, the choice of country and access rights.

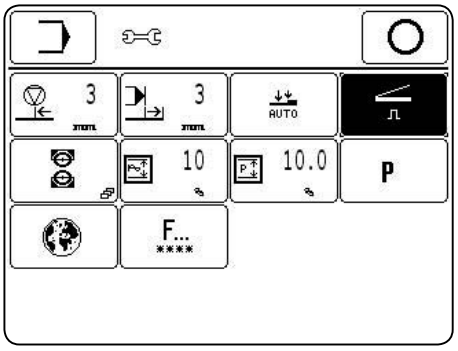
- Switch on the machine.

- Call up the input mode.

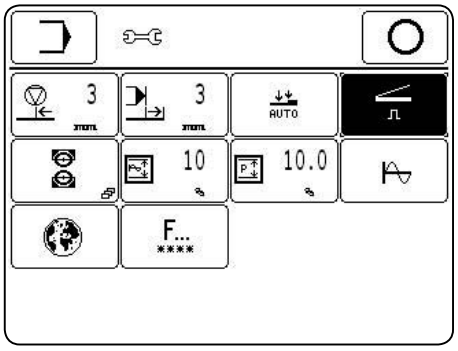


- Call up the input menu for further settings.

Power sealing (standard)



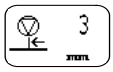
Amplitude sealing



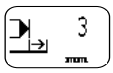
Description of the functions

Input mode
This function is used to change from the initial state to the input mode.

Sealing mode
This function is used to change to the sealing mode.

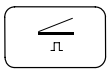


Feed unit backwards after stop
This function is used to enter the distance which the feed unit should move back after a sealing stop.

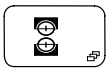


Feed unit forwards at end
This function is used to enter the distance which the feed unit should continue moving after the end of the sealing.

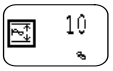
Automatic recognition of ply (only for power sealing)
This function is used to switch the automatic ply recognition function on or off, see Chapter 11.03.01 Automatic ply recognition.



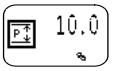
Flip-flop mode (pedal)
This function is used to switch the flip-flop mode for the pedal function on or off:
- Function switched on (symbol shown inverse)
  The pedal function is carried out as soon as the pedal is brought into the appropriate position and remains active after the pedal has been released.
- Function switched off
  The pedal function is only carried out as long as the pedal is held in the appropriate position.



Feed roller parameters
This function opens a menu for entering the feed roller parameters, see Chapter **11.03.02 Feed roller parameters.**



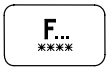
Amplitude window
This function is used to set the permissible difference between the actual and the required value for the sealing amplitude. If the actual value is outside the defined range, an error message is displayed, see Chapter **10.09 Error messages**.



Power window
This function is used to set the permissible difference between the actual and the required value for the sealing power. If the actual value is outside the defined range, an error message is displayed, see Chapter **10.09 Error messages**.

Selection power sealing/amplitude sealing
This function is used to select the sealing type directly.

Country settings
This function opens a menu for setting the language and measuring units for each country.



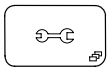
Right of access
This function calls up the menu for defining access rights, see Chapter **11.03.03 Rights of access.**

11.03.01 Automatic ply recognition

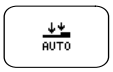
In this menu all relevant parameters are determined, which are required for the automatic ply recognition.

- Switch on the machine.

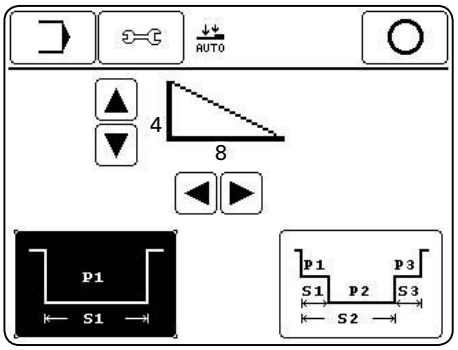
- Call up the input mode.



- Call up further settings.



- Call up the menu for entering the parameters for the automatic ply recognition.

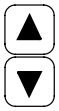


Description of the functions

Input mode
This function is used to change from the initial state to the input mode.

Further settings
This function is used to call up the menu for entering further settings.

Sealing mode
This function is used to change to the sealing mode.

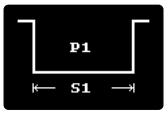


Setting the sensitivity to change in material ply
This function is used to enter the sensitivity to a change in the ply thickness. The thicker the material (the ply change), the higher the level for this value.

These functions are used to set the time for reaction to a change in ply. This is the time which passes from the initial recognition of a ply change to the actual reaction of the machine. The more even the structure of the work material, the lower the setting for this value.

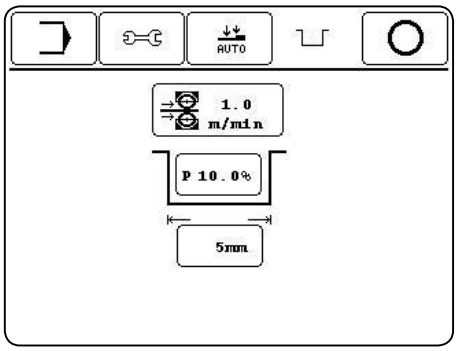
Each time there is a change in the material ply, a signal sounds.
The setting of both values for the sensitivity is correct, if an actual ply change is recognized reliably and quickly, and if during the sealing of the normal plies there is no case of a "recognition" (no signal).

The reaction to a recognition of a ply change can take place either in one or two steps.



One-step ply change

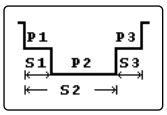
This function is used to activate the one-step ply change. A menu is opened for entering the required parameters.



With the corresponding functions the values for
- sealing speed,
- sealing power and
- max. seam length

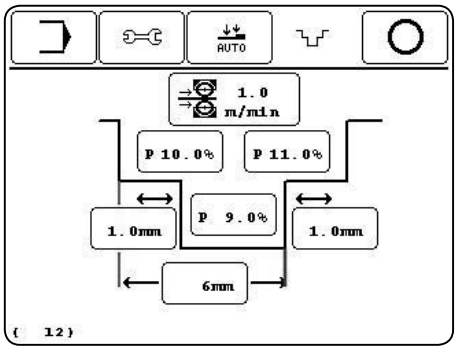
can be entered for the ply change section.

The sealing parameters are reset automatically at the end of ply change section or at the latest after the maximum seam length has been sewn.



Two-step ply change

This function is used to activate the two-step ply change. A menu is opened for entering the required parameters.



With the corresponding functions the values for
- sealing speed,
- sealing powers and
- max. seam lengths

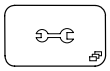
can be entered for both ply change sections.

11.03.02 Feed roller parameters

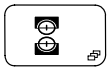
In this menu the relevant parameters for the feed rollers are preset.

- Switch on the machine.

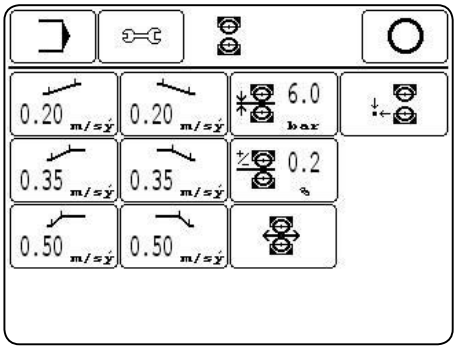
- Enter the input mode.



- Call up further settings.



- Call up the menu for entering the feed roller parameters.

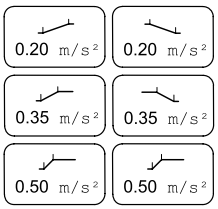


Description of the functions

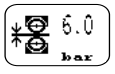
Input mode
This function is used to change from the initial state to the input mode.

Further settings
This function calls up the menu for entering further settings again.

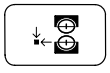
Sealing mode
This function is used to change to the sealing mode.



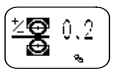
Acceleration and brake profiles
This function is used to enter the values for the corresponding acceleration or brake profiles.



Feed roller pressure limit
This function is used to enter the maximum permissible value for the feed roller pressure.



Basic position of the top feed roller
This function is used to select the basic position of the top feed roller. The basic position of the feed roller can be raised or lowered.



Size of the feed difference
This function is used to stipulate the size of the feed difference of the feed rollers (only with the triple foot switch, which is available as an option)

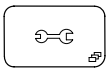
Reversing the feed direction
This function is used to switch the complete reversing function of the feed direction on or off.

11.03.03 Rights of access

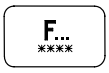
The functions, which can be called up with the control panel, are classified by code numbers and can be protected from unauthorised access. For this purpose, the control unit differentiates between 3 user groups (user 1, 2 and 3), all of which can be assigned a corresponding PIN. If a function is selected, for which the user does not have an authorisation, the user is requested to enter a PIN. After the appropriate PIN has been entered, the selected function is carried out. In addition to the 3 user groups, the control unit also recognises the so-called "super user", who, equipped with a key-switch, has access to all functions and who is authorised to stipulate the rights of access.

- Enter the key-switch and switch on the machine.

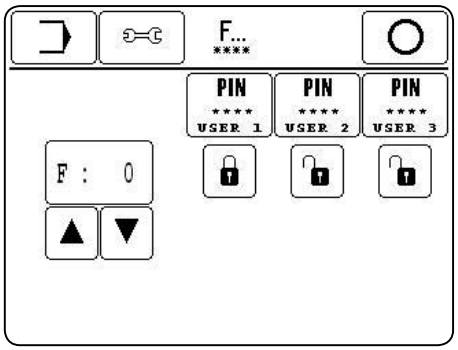
- Call up the input mode.



- Call up further settings.



- Call up the menu for entering rights of access.



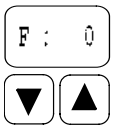
Description of the functions

Input mode
This function is used to change from the initial state to the input mode.

Further settings
This function calls up the menu for entering further settings again.

Sealing mode
This function is used to change to the sealing mode.

Entering the PIN
With this function an individual PIN for each user can be stipulated.



Function selection

These functions are used to select the code number for the function to be locked or released.

Locking/releasing

These functions are used to lock or release the function for the appropriate user.

Allocation of the code numbers

Code number	Function	Symbol
F ... 0	Program selection	
F ... 1	Creating/altering sealing programs	
F ... 2	Input mode	
F ... 3	Further settings	
F ... 4	Feed roller parameters	
F ... 5	"Feed unit" backwards after stop	
F ... 6	"Feed unit" forwards after end	
F ... 7	Amplitude/power window	
F ... 8	Flip-flop mode (pedal)	
F ... 9	T-seam mode	AUTO
F ... 10	Amplitude/power switch	P
F ... 11	not assigned	
F ... 12	Country settings	
F ... 13	Rights of access	F... ****
F ... 14	Program management	
F ... 15	Service menu	S
F ... 16	Carry out a cold start	0
F ... 17	Machine configuration	
F ... 18	Load software	

Code number	Function	Symbol
F ... 19	Reset daily piece counter	
F ... 20	Reset operating hours meter	
F ... 21	Reset production hours meter	
F ... 22	Control panel functions	
F ... 23	Ultrasonic test	

12 Care and Maintenance

12.01 Maintenance intervals

Check the air pressure	daily, before start-up
Clean the air filter of the maintenance unit	as required
Clean the feed rollers	as required
Change the lamps	as required

During all cleaning work the machine must be disconnected from the power supply by switching off the main switch or pulling out the plug!
Danger of injury if the machine is started accidentally!

12.02 Checking/adjusting the air pressure

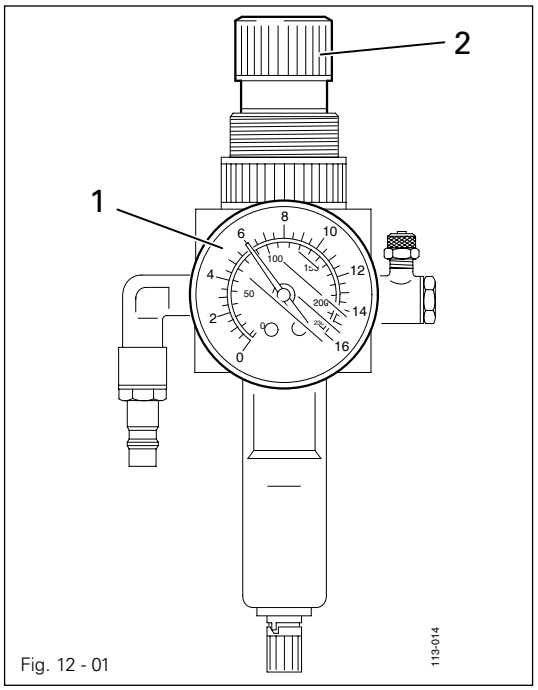


Fig. 12 - 01

- Before operating the machine, always check the air pressure on gauge **1.**
- Gauge **1** must show a pressure of **6** bar.
- If necessary adjust to this reading.
- To do so, pull knob **2** upwards and turn it so that the gauge shows a pressure of **6** bar.

12.03 Cleaning the air filter of the air-filter/lubricator

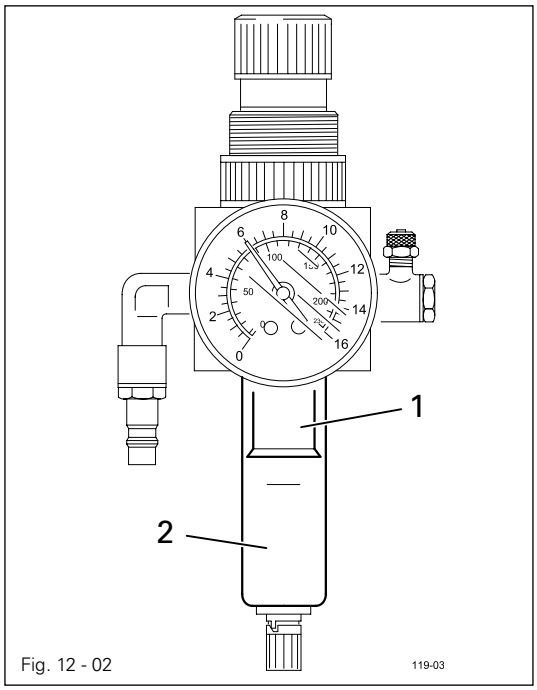


Fig. 12 - 02

Switch the machine off!

Disconnect the air hose at the air-filter/lubricator.

To drain water bowl 1:

- Water bowl **1** drains itself automatically whe the compressed-air hose is disconnected from the air-filter/lubricator.

Cleaning filter 2:

- Unscrew water bowl **1.**
- Take out filter **2.**
- Clean filter **2** with compressed air or isopropyl alcohol (part No. **95-665 735-91).**
- Screw in filter **2** and screw on water bowl **1.**

12.04 Cleaning the feed rollers

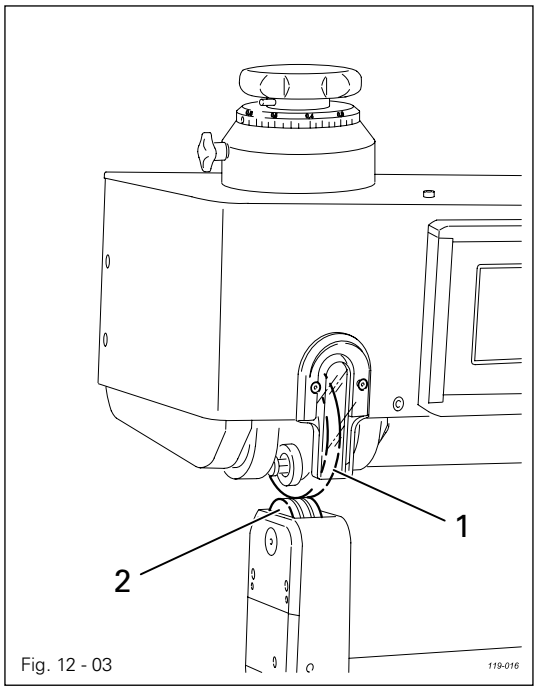


Fig. 12 - 03

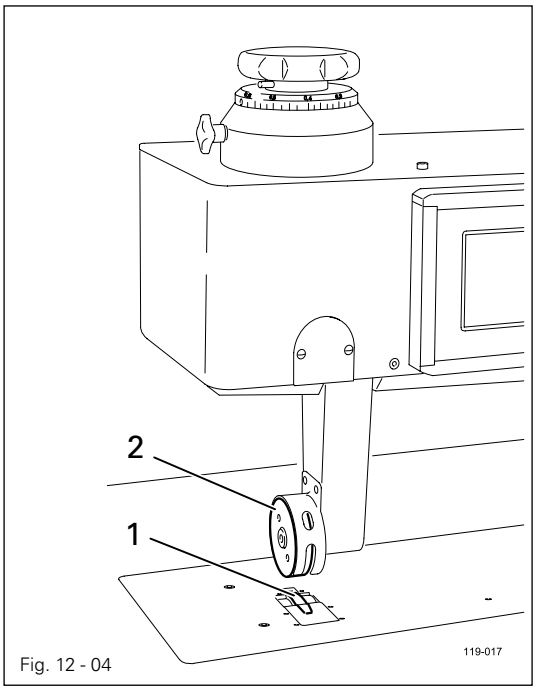


Fig. 12 - 04

Switch off the machine and let it cool down!

Danger of burns when touching the sonotrode!

- When necessary, remove any sealing residues left on the top and bottom feed rollers **1** and **2.**

12.05 Changing the lamps (only on flat-bed version)

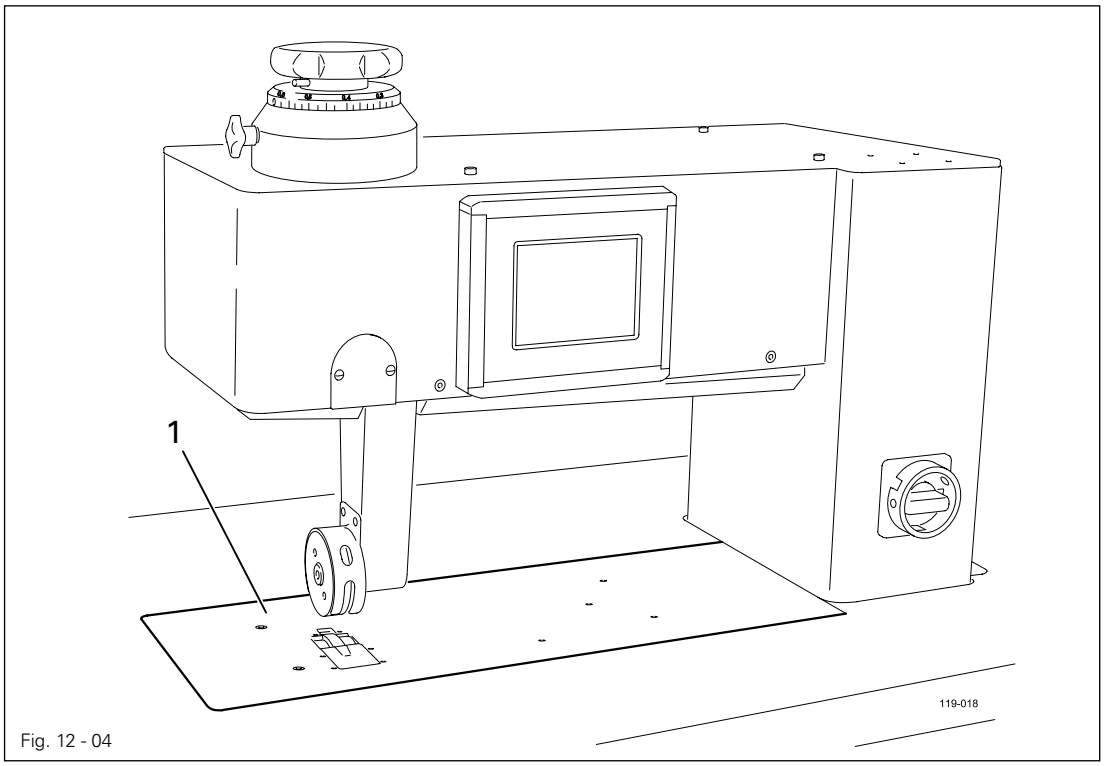


Fig. 12 - 04

Switch off the machine and let it cool down!

Danger of burns when touching the sonotrode!

Do not touch the glass section of the new halogen lamps with bare fingers!

- Switch off the machine.
- Detach cover **1.**
- Remove the halogen lamp located under the cover from its socket and replace it with a new lamp of the same type (12 V, 5 W).
- Replace cover **1.**

13 Adjustment

13.01 Notes on adjustment

All following adjustments 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.
The order of the following chapters corresponds to the most logical work sequence for machines which have to be completely adjusted. If only specific individual work steps are carried out, both the preceding and following chapters must be observed.
Screws, nuts indicated in brackets ( ) are fastenings for machine parts, which must be loosened before adjustment and tightened again afterwards.

If not otherwise specified, the machine must be disconnected from the electric and pneumatic networks for all adjustment work!
Danger of injury if the machine starts up accidentally!

13.02 Tools, gauges and other accessories

- 1 set of screwdrivers with blade widths from 2 to 10 mm
- 1 set of wrenches with jaw widths from 7 to 14 mm
- 1 set of Allen keys from 1.3 to 10 mm
- 1 feeler gauge from 0.05 to 1.00 mm
- 1 spanner wrench for feed wheel (on machines with arm for overlapped seams)

13.03 Abbreviations

TDC = top dead center
BDC = bottom dead center

13.04 Changing the top feed roller on the flat-bed version

After being dismounted, feed roller **3** must be stored carefully!

Any minor damage to the roller has a negative effect on the sealing result!

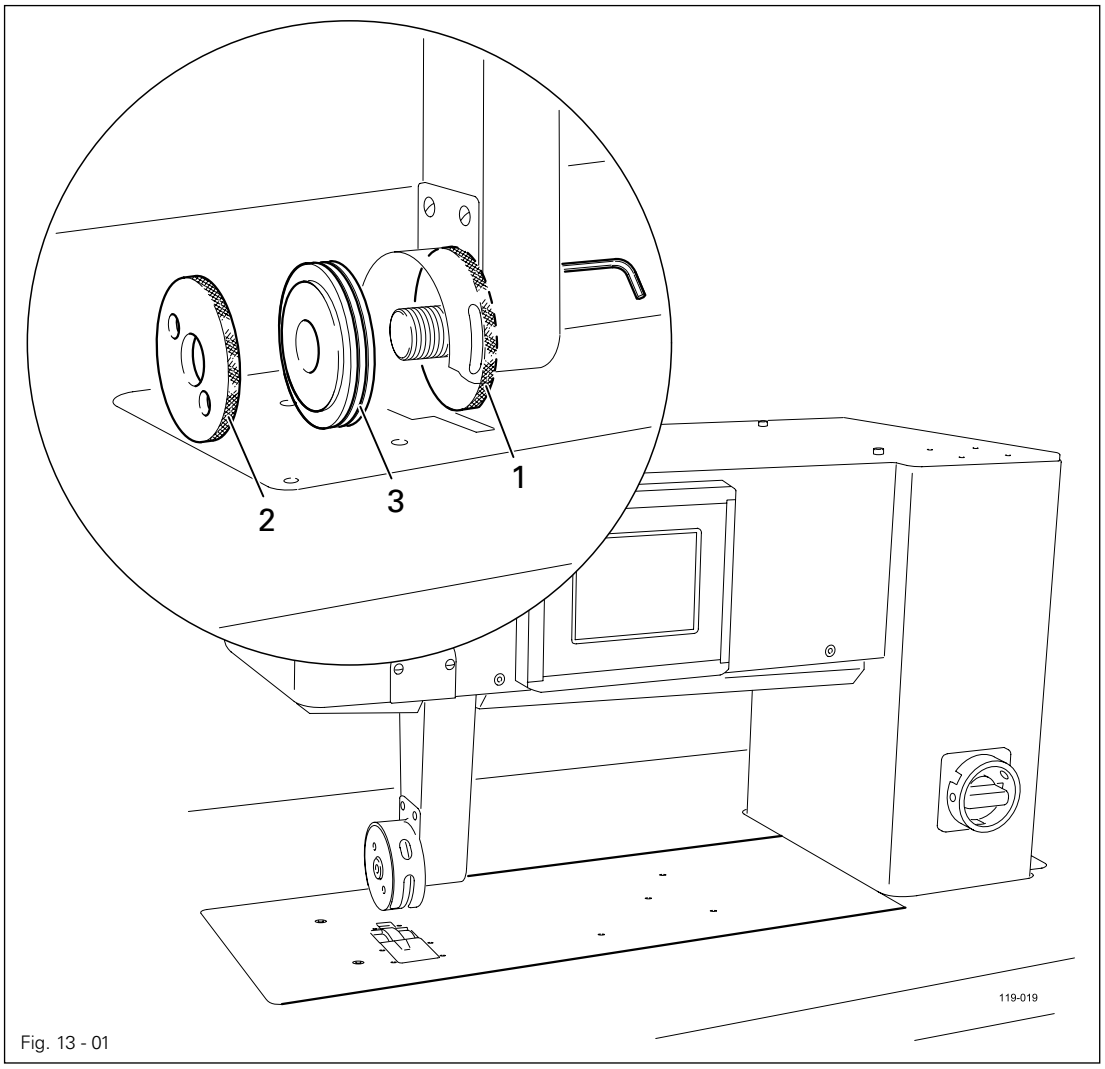


Fig. 13 - 01

- Lock feed roller **1** with an Allen key (SW 4) by passing the Allen key from the right through the hole in the post and turning feed roller **1,** until the Allen key clicks into place.
- Loosen feed roller **2** with a spanner wrench and twist it out.
- Pull off feed roller **3** and keep it in a safe place.
- Slide the new feed roller onto the shaft, hold it tightly and screw feed roller **2** into place.
- Remove the Allen key.
- Set the clearance of the sonotrode to feed roller **3** as described in Chapter **13.06 Feed roller clearance.**
- Check the position of the sonotrode with regard to feed roller **3** as described in Chapter **13.07 Position of the feed rollers**, and adjust it if necessary.

13.05 Changing the bottom feed roller on the feed-off-the-arm and post version

After its removal feed roller **7** must be kept in a safe place.
Every minor damage to the roller has a negative effect on the sealing result!

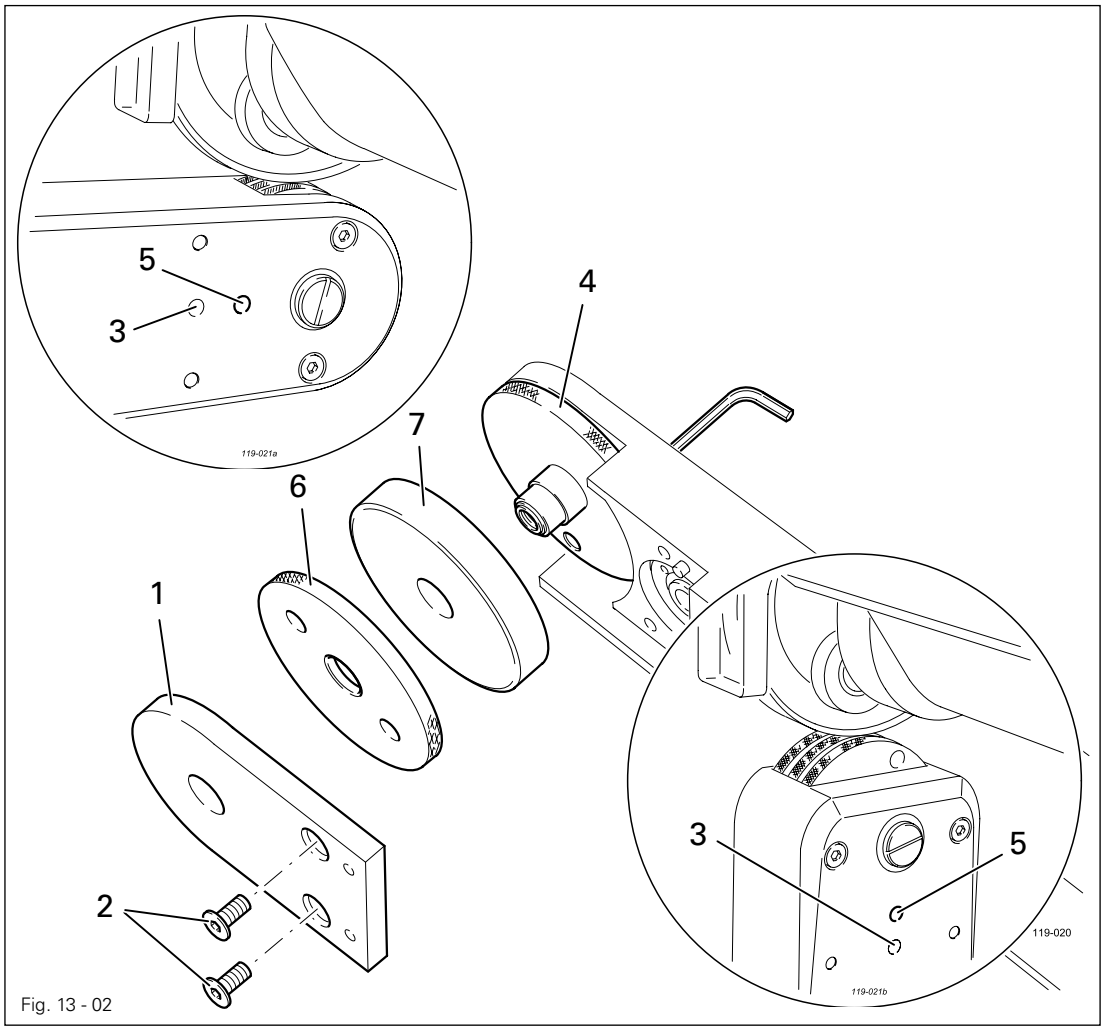


Fig. 13 - 02

- Remove cover **1** (screws **2**) by inserting Allen key (SW 4) into hole **3** and pushing off cover **1.**
- Lock feed roller **4** with an Allen key (SW 4) by passing the Allen key from the right through the hole **5** in the arm and turning feed roller **4,** until the Allen key clicks into place.
- Loosen feed roller **6** with a spanner wrench and twist it out.
- Pull off feed roller **7** and keep it in a safe place.
- Extract any dirt (fluff) in the feed roller area.
- Place the new feed roller **7** onto the shaft and tighten the screws on feed roller **6**
- Remove the Allen key and replace cover **1** (screws **2**).
- Set the clearance of the sonotrode to feed roller **7** as described in Chapter **13.06 Feed roller clearance**.
- Check the position of the sonotrode with regard to feed roller **7** as described in Chapter **13.07 Position of the feed rollers**.

13.06 Feed roller clearance

Requirement
The scale setting on adjustment wheel **1** should correspond to the actual clearance between the feed rollers.

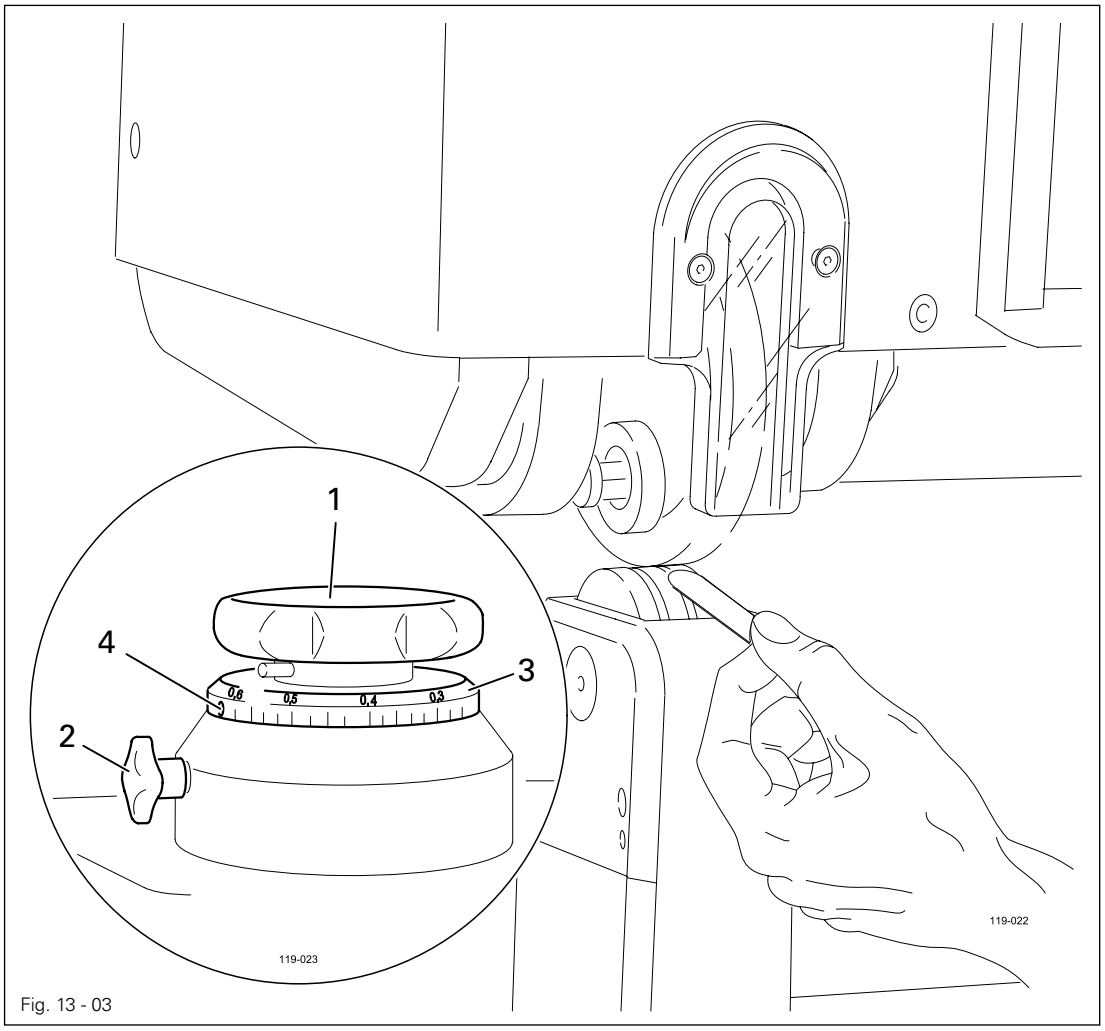
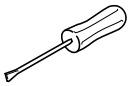


Fig. 13 - 03



- Switch on the machine.
- Obere Transportrolle absenken.
- Lower the top feed roller.
- With the aid of a feeler gauge (**0.1** mm) set the clearance between the feed rollers by turning adjustment wheel **1** (screw **2**) to **0.1** mm.
- Turn the scale dial **3** (screw **4**) so that the value"**0.1**" shows on the marking on the machine case.
- Switch off the machine.

When the generator is switched on, the feed rollers must never be in direct contact with each other! Danger of severe damage to the equipment!

13.07 Position of the feed rollers to each other

Requirement
The feed rollers **7** should be centred and parallel to each other.

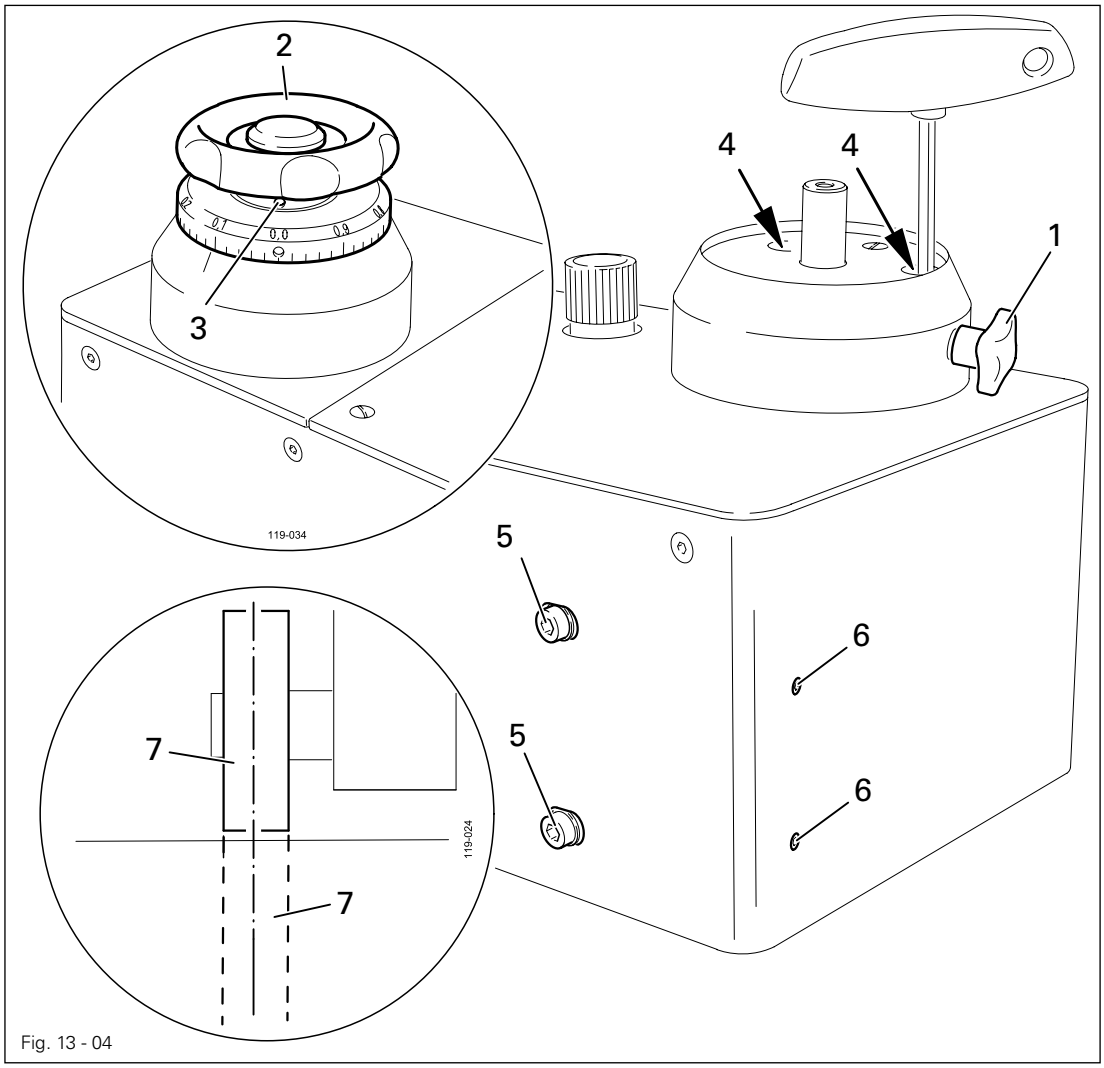


Fig. 13 - 04

- Tighten screw **1.**
- Remove balance wheel **2** (screw **3).**
- Loosen two screws **4** on the bearing of the top feed roller with an Allen key (jaw width **5,** accessible through holes in the case).
- Adjust screws **5** and screws **6** in accordance with the **requirement**.
- Tighten screws **4** and **5.**
- Fit balance wheel **2** (screw **3)** and loosen screw **1.**
- Check the feed roller clearance, see Chapter **9.01 Adjusting the feed roller clearance**.

It is possible to check that the feed rollers are parallel to each other with a layer of carbon paper between two layers of paper. For this purpose, use the "Turning the rollers" function, see Chapter **10.10 Turning the rollers**.

13.08 Adjusting the secondary rollers

Requirement

1. A sufficient feed pressure must be guaranteed.
2. The workpiece should not be damaged by a too high pressure of the secondary rollers **4**.

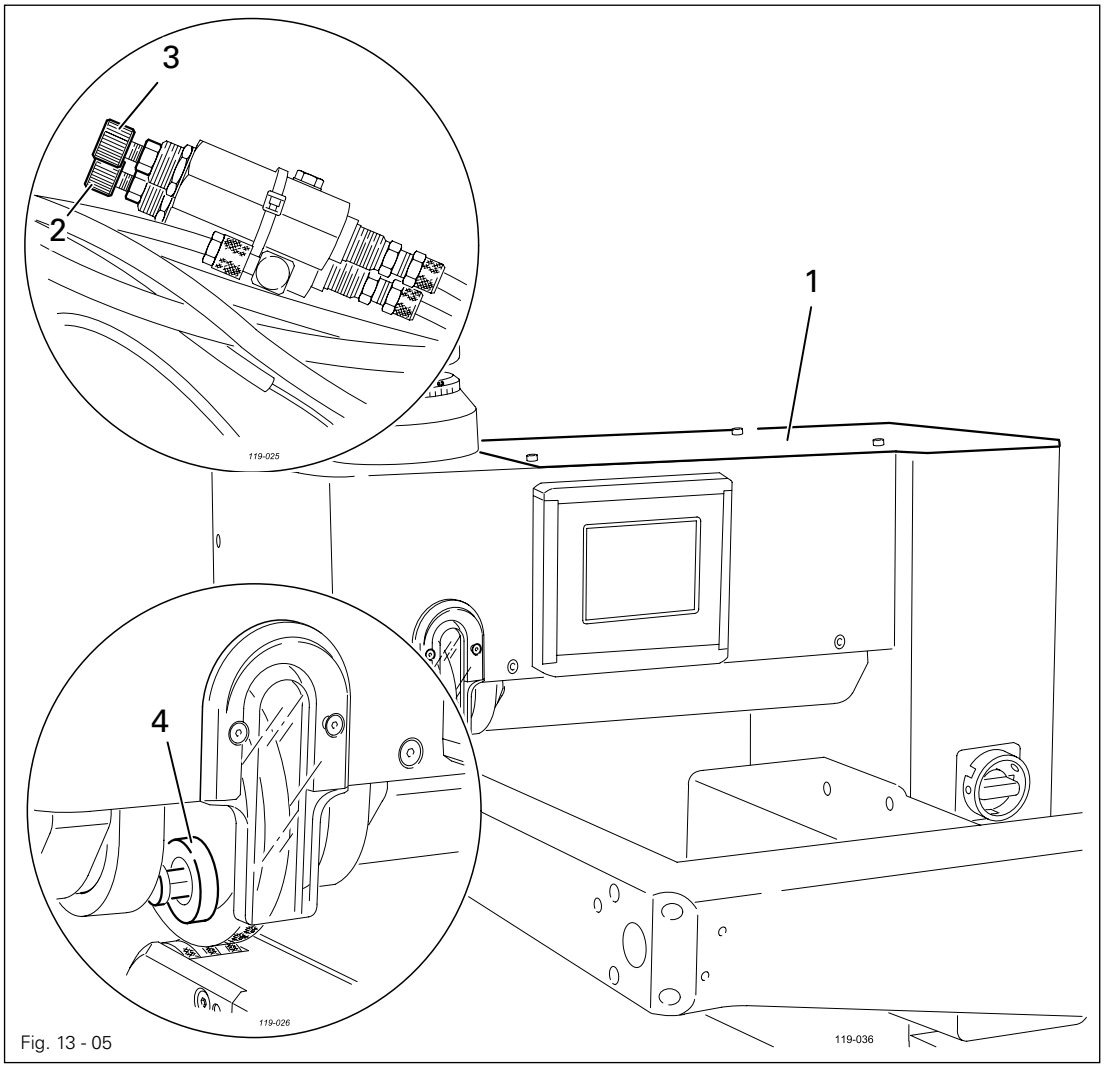


Fig. 13 - 05

- Detach cover **1**.
- Turn throttles **2** and **3** in accordance with the **requirements**.
- Attach cover **1**.

13.09 Protective switch and boot key

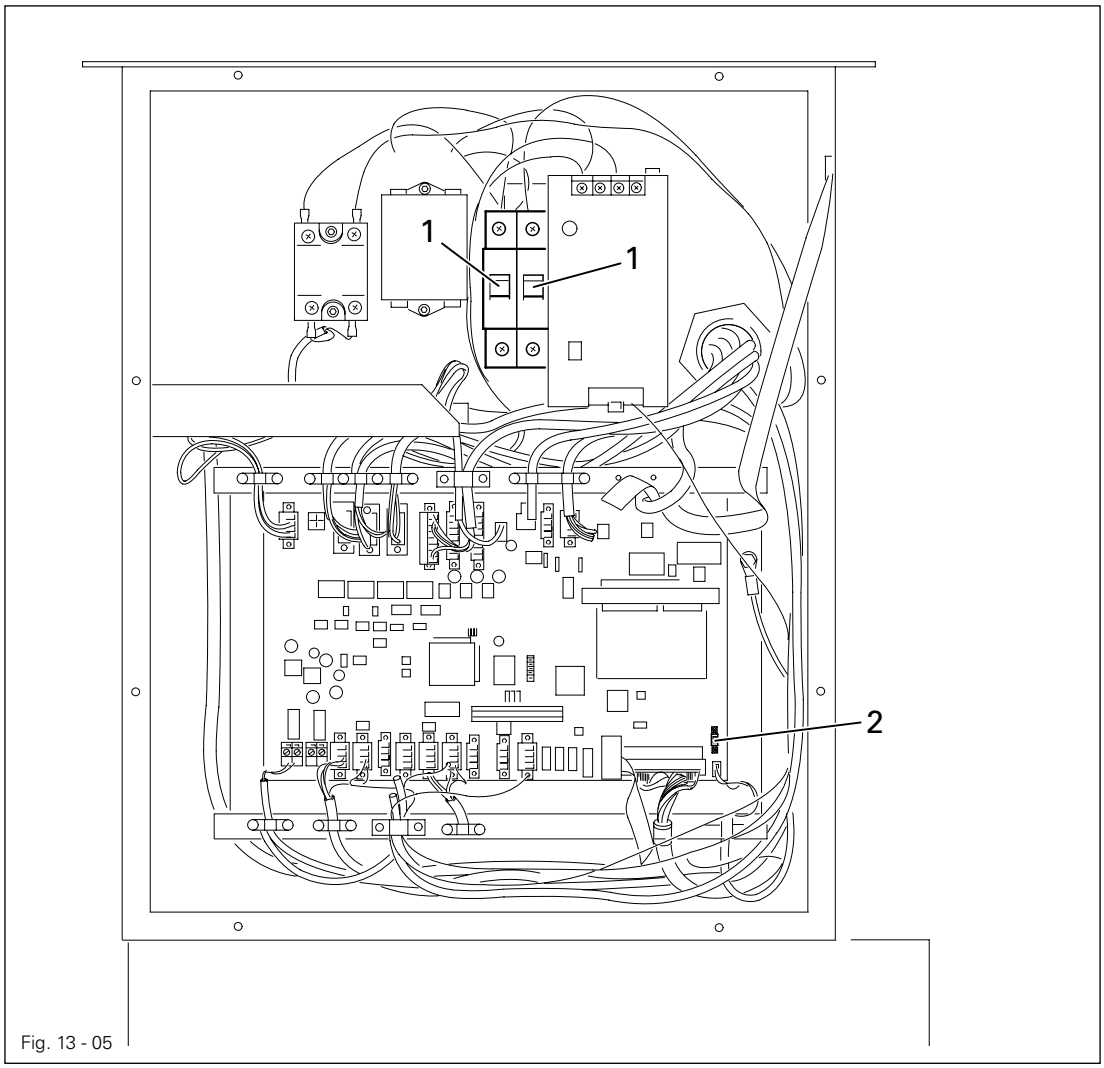


Fig. 13 - 05

The protective switch **1** serves as a protection against major damage in case of a short circuit or overload. The boot key **2** is used to boot-up the machine control unit, see Chapter **13.10.02 Loading/updating the operating program**.

Disconnect the mains plug!

Danger from electric voltage!

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

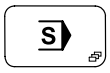
- Eliminate the cause of the fault.
- Open the control box and reset protective switch **1.**
- Close the control box again.

13.10 Service menu

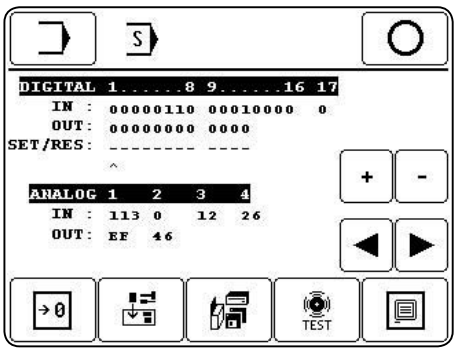
The status of the digital and analog inputs and outputs are displayed in the service menu. In addition it is also possible to call up functions for carrying out a cold start, for the machine configuration, for loading the operating program and for setting the control panel.

- Switch on the machine.

- Call up the input mode.



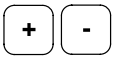
- Call up the service menu.



Explanation of the functions

Input mode
This function is used to change to the initial state of the input mode.

Sealing mode
This function is used to change to the sealing mode.



Plus/minus keys
These are used to set (+) or reset (-) the selected output.

Arrow keys
These are used to select the desired outputs.

Cold start
This function is used to carry out a cold start.
After a cold start all machine parameters are set back to their original state.

Machine configuration
This function calls up a menu for configuring the machine, see Chapter **13.12.01 Machine configuration.**

Loading the operating program
This function is used to load the machine operating program, see Chapter **13.02.02 Loading/ updating the operating program.**

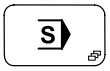
Test
With this function, for test purposes, it is possible to turn the feed rollers and to switch the ultrasonic unit on and off.

Control panel settings
This function is used to call up a menu for changing the display contrast and for switching the key tone on or off, see Chapter **9.04 Setting the control panel**.

13.10.01 Machine configuration

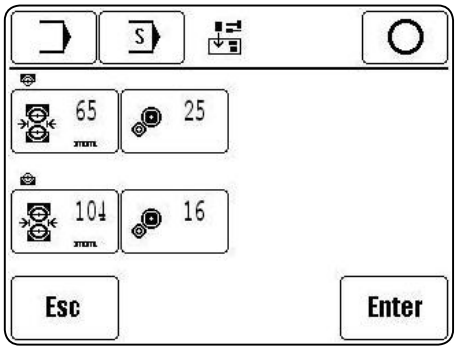
With the machine configuration function the machine control unit receives the necessary information about the attached components. If the machine components are changed, care must be taken to make the appropriate adjustment in the machine configuration.

- Switch on the machine and call up the input mode.



- Call up the service menu.

- Call up the menu for entering the machine configuration.



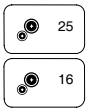
Explanation of the functions

Input mode
This function is used to change to the initial state of the input mode.

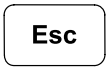
Service menu
This function is used to call up the service menu again.

Sealing mode
This function is used to change to the sealing mode.

Top/bottom feed roller diameter
These functions are used to enter the diameter of the feed rollers installed.



Top/bottom gear mechanism
These functions are used to call up the menu for entering the appropriate gear data.



Esc
The input is interrupted and the machine moves back to the initial state of the programming function.

Enter
All program changes are stored under the current program number.

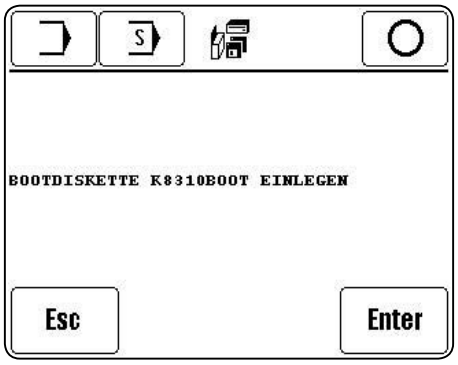
13.10.02 Loading/updating the operating program

This function is used to update the machine software. For this purpose an appropriate boot disk must be available.

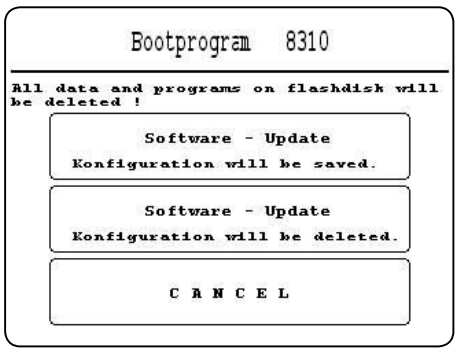
The current machine software can be downloaded from the directory " control software" on the PFAFF-homepage under **www.pfaff-industrial.com/pfaff/de/service/downloads**.

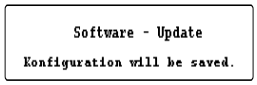
When the operating program is loaded, all data in the machine memory is deleted!

- Switch on the machine and call up the input mode.
- Call up the service menu.
- Function loading/updating the operating program .



- Insert the boot disk.

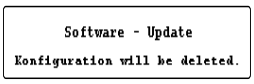




Choose between the **3** options:

1. Load operating program and retain the old machine configuration

or



2. Load the operating program and delete the old machine configuration. After the operating program has been loaded, the machine must be reconfigured, see Chapter **13.10.01 Machine configuration**

or

3. Interrupt the loading operation and continue working with the old software.

Before loading the operating software for the first time, the boot disk must be inserted before the main switch is operated, and the boot switch pressed during the switch-on operation, see Chapter **13.09 Backups and boot switch**.

13.11 Description of the error numbers

13.11.01 General errors

Display	Description
ERROR: 3	Error in allocation EMS memory
ERROR: 4	C167 not reacting
ERROR: 5	Boot file (c167boot.bin) cannot be opened
ERROR: 6	Error in flash-programming
ERROR: 7	Error when opening a file
ERROR: 8	Battery
ERROR: 9	Firmware version conflict
ERROR: OPERATING DATA CHECK SUM (CARRY OUT COLD START)	Operating data check sum
NEW OPERATING SOFTWARE (CARRY OUT COLD START)	New operating software
COLD START CARRIED OUT	Cold start
ERROR: 101	C167-error
ERROR: 106	Error compressed air
ERROR: 110 # Error no. motor	Error DC-Motor 1
ERROR: 120 # Error no. motor	Error DC-Motor 2
ERROR: 140 # Error no. Ultrasonic generator	Error ultrasonic generator
ERROR: 201	Res. speed for man. sealing outside permissible range
ERROR: 202	Outside amplitude window
ERROR: 203	Outside power window
ERROR: 301	Program too large
ERROR: 302	Contradiction between progpar and progload
ERROR: 303	Flash read error or progr. Defect
ERROR: 304	Memory overlow
ERROR: 305	Invalid configuration
ERROR: 310	File not on source
ERROR: 311	Source reading error, file cannot be opened
ERROR: 312	Target write error, file cannot be opened
ERROR: 313	Source reading error
ERROR: 314	Target write error
ERROR: 315	File config cannot be opened
ERROR: 316	Error when opening MDAT-file

Display	Description
ERROR: 317	Write error in MDAT-file
ERROR: 318	Machine data identification incorrect
ERROR: 319	Read error in MDAT-file
ERROR: 330 #Prog. No. #Range No.	Program. speed > max. gear-controlled speed
ERROR: 331 #Prog. No. #Range No.	Programmed feed roller pressure is higher than the feed roller pressure limit
ERROR: 332 #Prog. No. #Range No.	Speed and differential are outside the permissible values
ERROR: 340 #Range No.	Incorrect value amplitude/power switch
ERROR: 341 #Range No.	Incorrect value for power or amplitude
FEHLER: 342 #Range No.	Programmed sealing off not plausible
ERROR: 343 #Range No.	Programmed output (OUT) not plausible
PROGRAMM XX NICHT IM SPEICHER	Program XX does not exist
ERROR: 401	Text file cannot be opened
ERROR: 402	Error in read text file
ERROR: 501	Error when opening file "pikto.hex" or "vorlagen.hex" disconnect error
ERROR: 502	No ACK from control panel

13.11.02 Ultrasonoic generator errors

Error no.	Description
0	No error
1	Excess temperature
2	Short circuit
3	Amplitude
4	Overload / wobble

13.11.03 DC-motors error

Error no.	Description
0	No error
10	Incorrect command code
11	Invalid speed
12	Invalid acceleration
13	Start with dead motor
14	et differential with master
15	Contouring error
16	Overload current
17	Over 5 V positioning voltage with standing motor (possible cause: break in cable to incremental transmitter

13.12 List of outputs and inputs

13.12.01 Digital Outputs

HW Term	SW Term	Function	Remark
AUS (OUT)1 X1/1	Y1	Activate "lower roller"	Valve
AUS (OUT)2 X1/3	Y2	Right secondary roller /top air blast (optional)	Valve
AUS (OUT)3 X1/5	Y3	Left secondary roller / bottom air blast (optional)	Valve
AUS (OUT)4 X1/7	OUT1	Programmable output 1	
AUS (OUT)5 X11/1	OUT2	Programmable output 2	
AUS (OUT)6 X11/3	USSTART	Start ultrasonic generator	
AUS (OUT)7 X11/5	USPOWER	Standard power	

13.12.02 Digital Inputs

HW Term	SW Term	Function
EIN 1 X2/2	E1	Roller lowered
EIN 2 X2/3	E5	Generator error: Temperature
EIN 3 X3/2	E6	Generator error: Short circuit
EIN 4 X3/3	E7	Generator error: Amplitude
EIN 5 X4/2	E8	Generator error: Overload
EIN 6 X4/3	E9	Generator ready
EIN 7 X5/2	E11	Pressure monitor
EIN 8 X5/3	E14	Knee switch
EIN 9 X6/2	E15	Increment differential
EIN 10 X6/3	E16	Decrement differential
EIN 11 X7/2	E17	Differential correction zero
EIN 12 X7/3	E18	Lock/release key-switch for functions
EIN 13 X8/2	IN1	Programmable input 1
EIN 14 X8/3	IN2	Programmable input 2

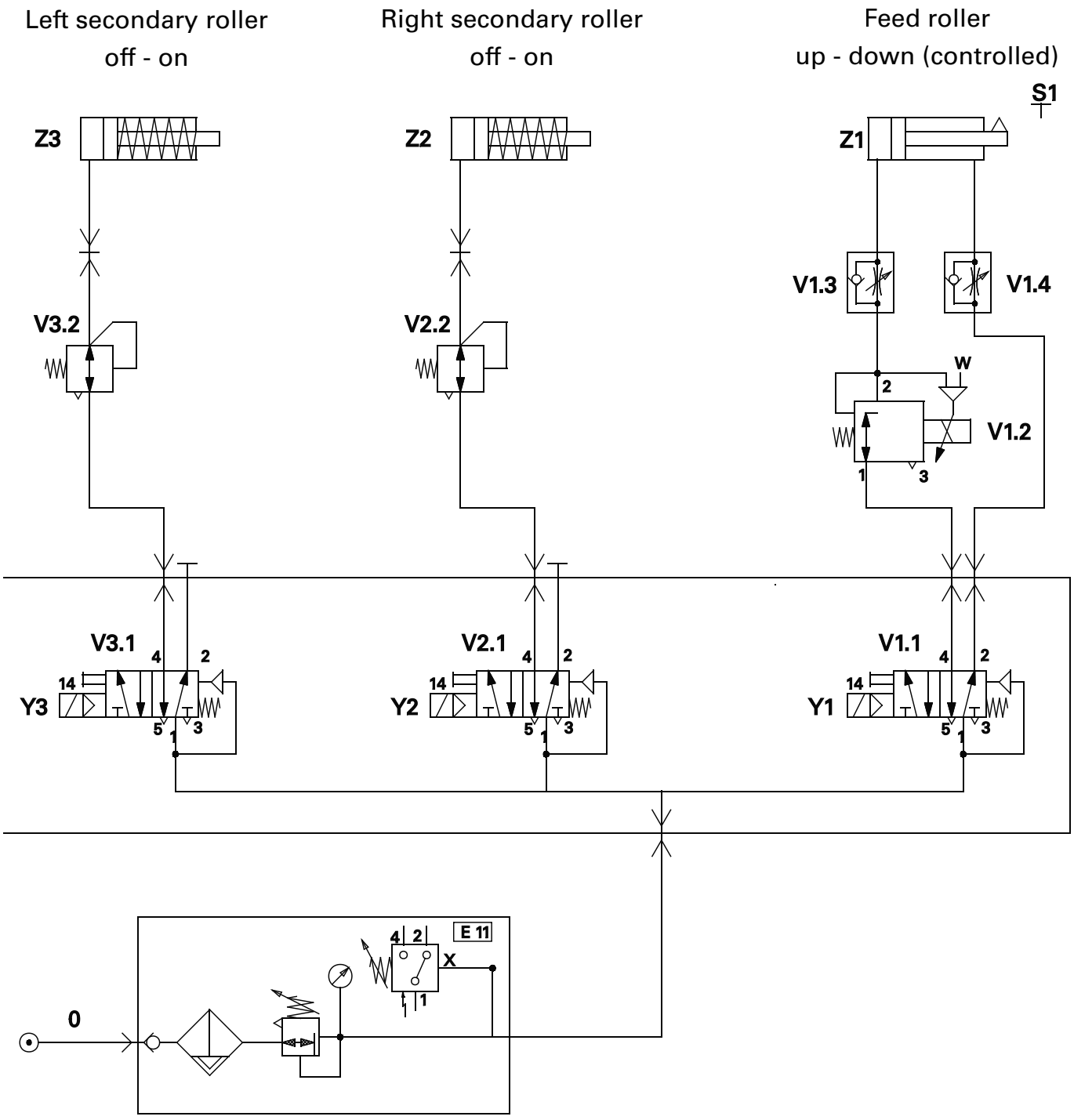
HW Term	SW Term	Function
EIN 17 X10/2		Generator frequency

13.12.03 Analog Outputs

HW Term	SW Term	Function	Remark
Top roller X33	DC-Motor 2	Top roller motor (slave)	DC-Motor
Bottom roller X34	DC-Motor 1	Bottom roller motor (master)	DC-Motor
X23	RDRUCKOUT	Roller pressure set value	Pressure regulating valve
X22	PAMPLOUT	Standard power amplitude	Ultrasonic generator

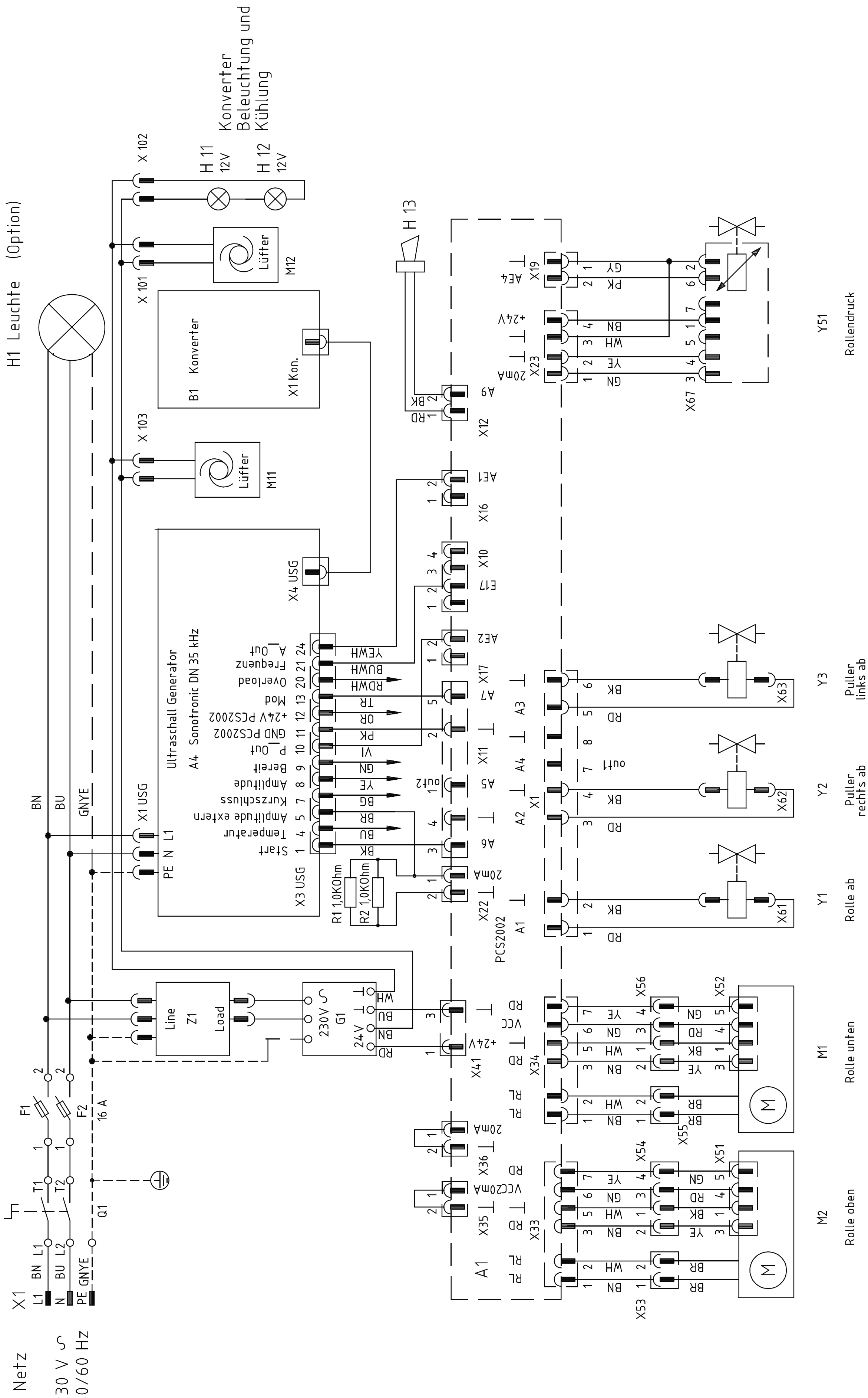
13.12.04 Analog Inputs

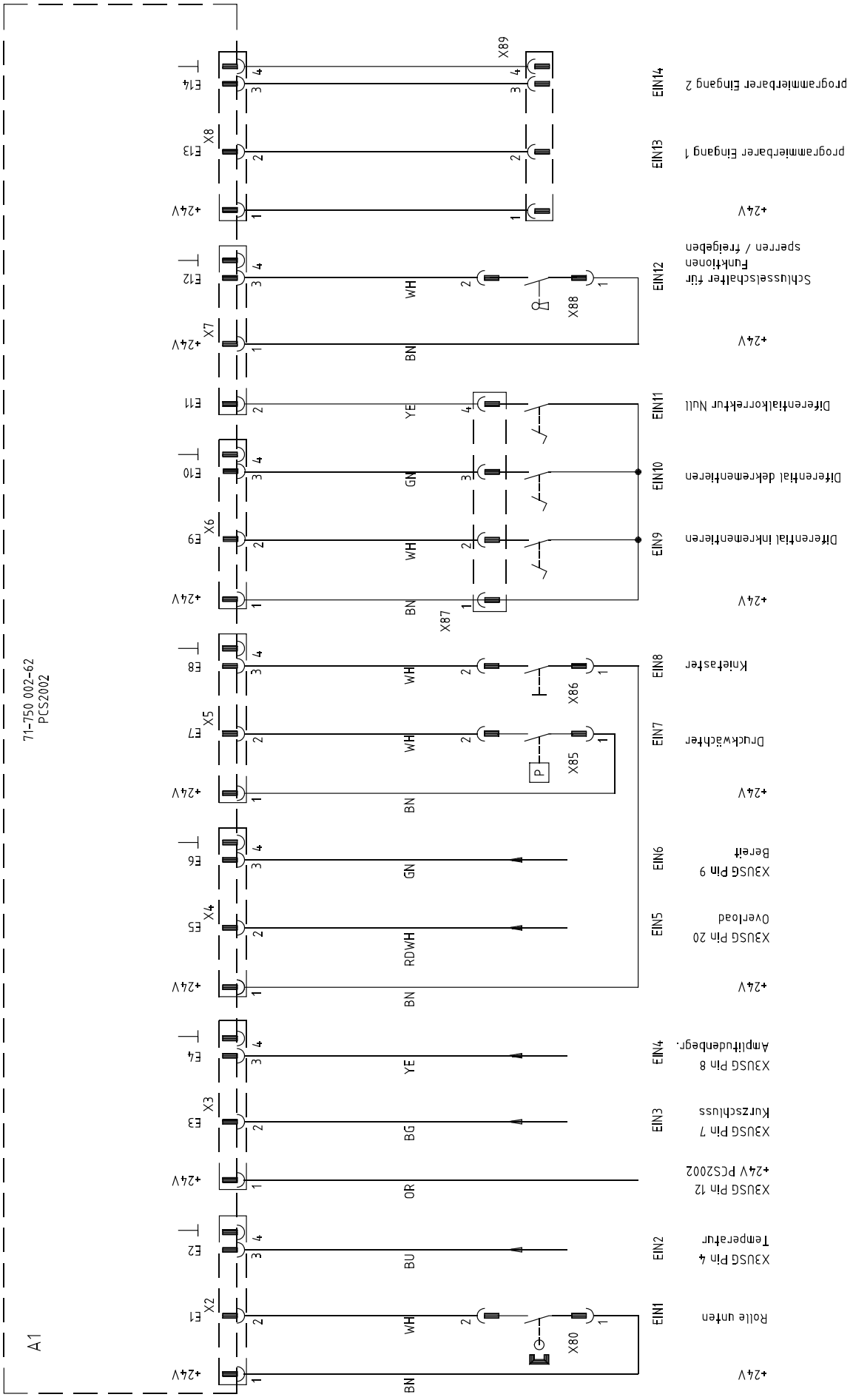
HW Term	SW Term	Function
AE2 X19/2	RDRUCKIN	Roller pressure regulator actual value control
AE1 Pedal X14/8	Pedal	Analog pedal
AE3 X16	Amplitude	Generator signal
AE4 X17	Power	Generator signal

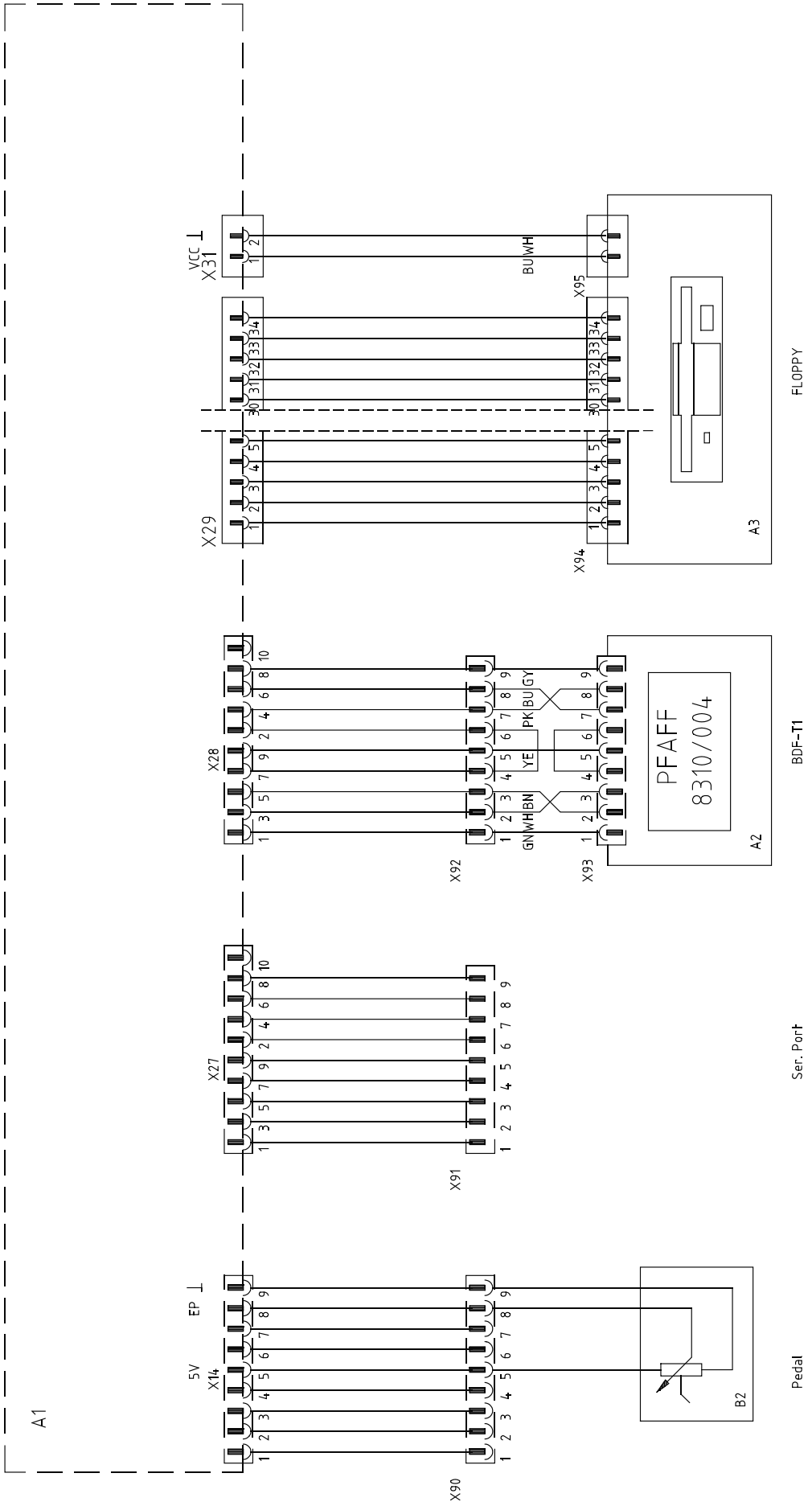

Left secondary roller
off - on
Right secondary roller
off - on
Feed roller
up - down (controlled)
S1
Z3
Z2
Z1
V1.3
V1.4
V3.2
V2.2
W
2
V1.2
1
3
V3.1
V2.1
V1.1
4
2
14
Y3
Y2
Y1
5
1
3
E 11
X
0

Reference list for circuit diagrams

A1	Controller, PCS 2002
A2	Control panel T1
A3	Floppy
A4	Ultrasonic generator
B1	Converter
B2	Pedal
H1	Lamp (optional)
H11	Converter – light
H12	Converter – light
H13	Horn
M1	DC motor, bottom roller
M2	DC motor, top roller
M11	Fan ultrasonic generator
M12	Fan converter
In 1	Roller down
In 2	Temperature
In 3	Short circuit
In 4	Amplitude limit
In 5	Overload
In 6	Ready
In 7	Pressure monitor
In 8	Knee switch
In 9	Increment differential
In 10	Decrement differential
In 11	Differential correction zero
In 12	Key-switch
In 13	Programmable input 1
In 14	Programmable input 2
F1	Fuse 16A L1
F2	Fuse 16A L2
G1	Power supply unit-24V, 5A
Q1	Main switch
Y1	Roller down
Y2	Puller, right down
Y3	Puller, left down
Y4	Out 1, programmable output 1
Y5	Out 2, programmable output 2
Y6	Start, ultrasonic generator
Y7	Standard power (mode)
Y9	H13 horn (test)
Y51	Roller pressure
Z1	Mains filter


Konverter
Beleuchtung und
Kühlung
H 11 12V
H 12 12V
H 13
H1 Leuchte (Option)
Lüfter M12
Lüfter M11
B1 Konverter
X1 Kon.
Ultraschall Generator
A4 Sonotronic DN 35 kHz
X4 USG
X3 USG
X1 USG
Line Z1 Load
230V G1 24V
R1 1,0KOhm
R2 1,0KOhm
PCS2002
A1
Y51 Rollendruck
Y3 Puller links ab
Y2 Puller rechts ab
Y1 Rolle ab
M1 Rolle unten
M2 Rolle oben
F1
F2 16 A
Q1
X1
Netz
230 V
50/60 Hz


A1
71-750 002-62
PCS2002
+24V
BN
Rolle unten
EIN1
X80
WH
X2
E1
X3USG Pin 4
Temperatur
EIN2
BU
E2
X3USG Pin 12
+24V PCS2002
OR
X3USG Pin 7
Kurzschluss
EIN3
BG
X3
E3
X3USG Pin 8
Amplitudenbegr.
EIN4
YE
E4
+24V
BN
X3USG Pin 20
Overload
EIN5
RDWH
X4
E5
X3USG Pin 9
Bereit
EIN6
GN
E6
+24V
BN
Druckwächter
EIN7
WH
X85
X5
E7
Knietaster
EIN8
X86
E8
+24V
BN
Differential inkrementieren
EIN9
WH
X6
E9
Differential dekrementieren
EIN10
GN
E10
Differentialkorrektur Null
EIN11
YE
E11
+24V
BN
Schlüsselschalter für
Funktionen
sperren / freigeben
EIN12
WH
X88
X7
E12
+24V
Programmierbarer Eingang 1
EIN13
X8
E13
+24V
Programmierbarer Eingang 2
EIN14
X89
E14


A1
X90
X91
X92
X93
X94
X95
X14
X27
X28
X29
X31
5V
EP
VCC
BU WH
PK BU GY
YE
GN WH BN
PFAFF
8310/004
A2
A3
B2
BDF-T1
Ser. Port
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PFAFF Industriesysteme
und Maschinen AG

Hans-Geiger-Str. 12 - IG Nord
D-67661 Kaiserslautern

Telefon: +49-6301 3205 - 0
Telefax: +49-6301 3205 - 1386
E-mail: info@pfaff-industrial.com

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