

8390⁻⁰¹⁰
⁻⁰²⁰

INSTRUCTION MANUAL

This instruction manual applies to machines
from software version **0376/005** and serial
number **2 769 247** onwards



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 adjustment manual can also be ordered in book form under part no. **296-12-19 126**.

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**PFAFF Industriesysteme
und Maschinen AG**

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	Contents	Page
1	Safety	6
1.01	Directives	6
1.02	General notes on safety	6
1.03	Safety symbols	7
1.04	Important notes for the user	7
1.05	Operating and technical staff	8
1.05.01	Operating staff	8
1.05.02	Technical staff	8
1.06	Danger	9
2	Proper use.....	10
3	Specifications	11
4	Disposal of Machine	12
5	Transportation, packing and storage	13
5.01	Transportation to customer's premises	13
5.02	Transportation inside the customer's premises	13
5.03	Disposal of packing materials	13
5.04	Storage	13
6	Explanation of symbols	14
7	Controls	15
7.01	Summary of controls	15
7.02	Main switch	16
7.03	Foot switch (optional)	16
7.04	Pedal	17
7.05	Double foot switch (optional)	18
7.06	Adjustment wheel for the roller clearance	19
7.07	Joystick	19
7.08	Control panel.....	20
8	Installation and commissioning	21
8.01	Installation.....	21
8.02	Commissioning	22
8.03	Switching the machine on/off	23
8.04	Selecting the language and units	24
8.05	Carrying out a reference run	25
9	Preparation	28
9.01	Adjusting the feed roller clearance	28
9.02	Selecting the production type:.....	29
9.03	Entering the sealing parameters (Manual Heat Sealing)	31

	Contents	Page
9.03.01	Entering the sealing temperature	33
9.03.02	Entering the sealing speed	34
9.03.03	Stipulating the hot wedge type (only on the PFAFF 8390-010)	35
9.03.04	Adjusting the contact pressure of the hot wedge (only on the PFAFF 8390-010)	36
9.03.05	Stipulating the nozzle type and hot air volume (only on the PFAFF 8390-020)	36
9.03.06	Entering the roller pressure	38
9.04	Adjusting the control panel	39
10	Heat sealing	40
10.01	Heat sealing principle.....	40
10.02	Manual heat sealing.....	41
10.03	Creating/editing a heat sealing program	43
10.03.01	Notepad	44
10.03.02	Basic functions for the program input.....	45
10.03.03	Sealing parameters	46
10.03.04	Functions for switching to other zones	47
10.03.05	Entering further sealing parameters	48
10.03.06	Concluding programming.....	50
10.03.07	Example of how to enter a sealing program	51
10.04	Programmed heat sealing with individual programs	56
10.05	Creating/processing sequences.....	57
10.06	Programmed heat sealing with sequences.....	58
10.07	Error messages.....	59
10.08	Carriage menu	60
11	Input	61
11.01	Summary of the functions in the input mode	61
11.02	Program management	63
11.03	Further settings	65
11.03.01	Feed roller parameters.....	67
11.03.02	Rights of access	68
11.04	Installation and commissioning.....	70
11.04.01	8390-010 (Hot wedge sealing machine)	70
11.04.02	8390-020 (Hot air sealing machine).....	72
12	Care and Maintenance.....	74
12.01	Servicing and maintenance intervals	74
12.02	Cleaning	74
12.03	Checking/adjusting the air pressure.....	75
12.04	Cleaning the air filter of the air-filter/lubricator	75
12.05	Grinding the hot wedge (only on the PFAFF 8390-010).....	76

	Contents	Page
13	Adjustment	77
13.01	Notes on adjustment	77
13.02	Tools, gauges and other accessories	77
13.03	Changing the feed rollers	78
13.04	Adjusting the feed rollers	79
13.05	Changing the hot wedge (only on the PFAFF 8390-010))	80
13.06	Adjusting the hot wedge on the PFAFF 8390-010	81
13.06.01	Positioning the hot wedge crosswise to the feed direction	81
13.06.02	Adjusting the height and counter-balancing the weight of the hot wedge	82
13.06.03	Hot wedge to feed roller clearance and contact pressure	83
13.07	Adjusting the hot air nozzle on the PFAFF 8390-020	84
13.07.01	Lateral adjustment and setting the angle of the hot air nozzle	84
13.07.02	Adjusting the height and feed roller clearance of the hot air nozzle	85
13.08	Changing the heating cartridge (only on the PFAFF 8390-020)	86
13.09	Changing the temperature sensor (only on the PFAFF 8390-020))	87
13.10	Protective switch and boot key	88
13.11	Service menu	89
13.11.01	Machine configuration	90
13.11.02	Loading/updating the operating program	92
13.12	Description of the error numbers	93
13.12.01	General errors	93
13.12.02	Temperature control error	94
13.12.03	DC-motors error (Feed rollers)	95
13.12.04	Error with carriage	95
13.13	List of outputs and inputs	96
13.13.01	Digital Outputs	96
13.13.02	Digital Inputs	96
13.13.03	Analog Outputs	97
13.13.04	Analog Inputs	97
13.14	Parameter settings	98
13.14.01	Selection and changing parameters	98
13.14.02	List of parameters	99
14	Circuit diagrams	100
15	Pneumatic-circuit diagrams	106

1 Safety

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 feed rollers or the hot air nozzle, 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!
- During repair and maintenance work on pneumatic devices the machine must be disconnected from the pneumatic supply system! The only exceptions permitted are during adjustment work and function tests carried out by appropriately trained personnel!
- Repairs and special maintenance work may only be carried out by qualified service staff 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.



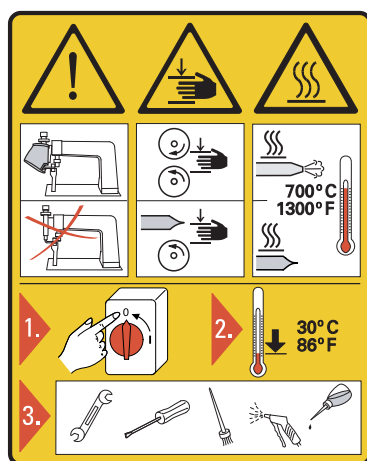
Danger of hands being crushed!



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 boundaries of the track system are electronically stored in the machine.
For this reason, the machine must not be moved when switched off!
If the machine is moved when switched off, the stored values are no longer correct.
- 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

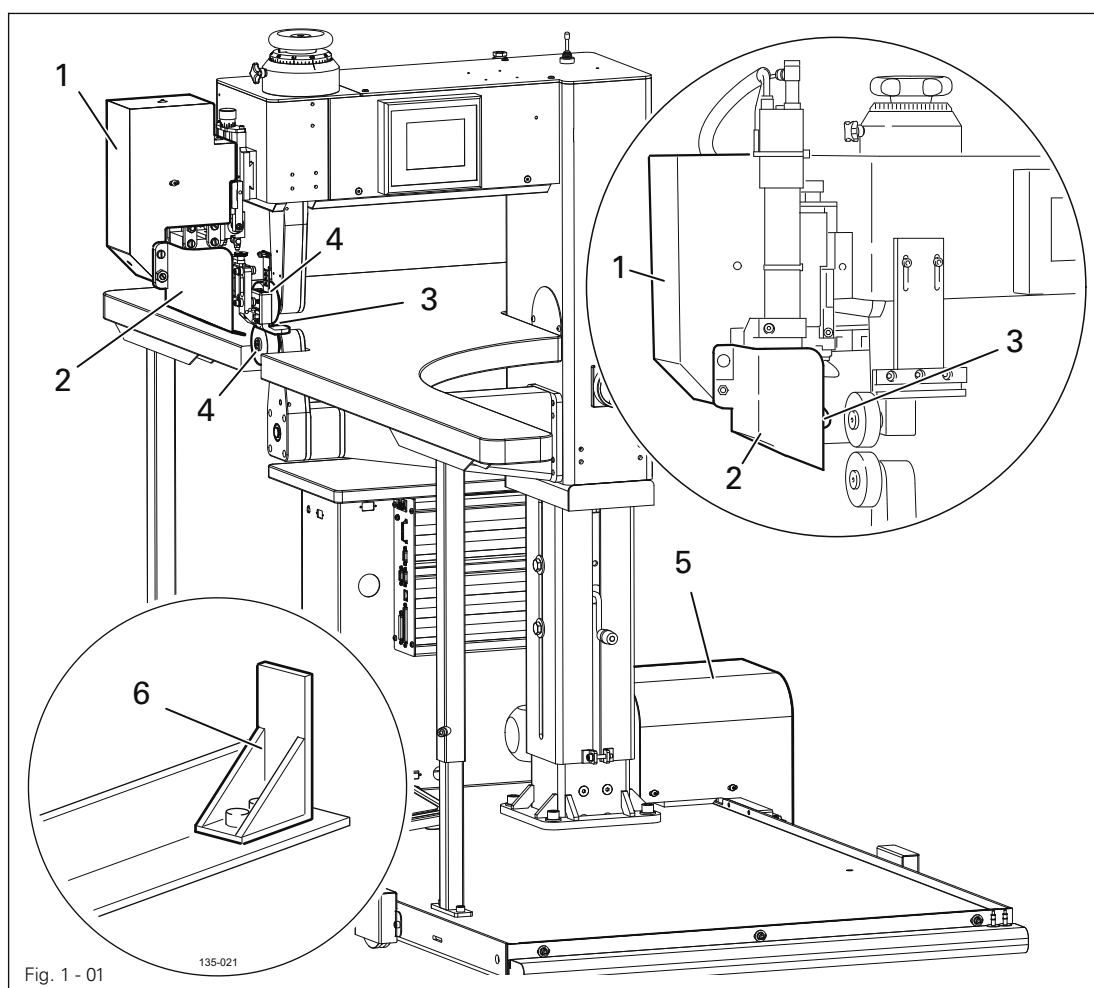
Danger



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.



If toxic vapours occur during processing, use extractor!
Danger to health if the toxic vapours are inhaled!



Do not operate the machine without protective cover 1 and only operate the machine with protective cover folded down. Danger of crushing when the heating element 3 is engaged and disengaged, as well as a danger of burns if touched!



During operation do not place hands near the feed rollers 4!
Danger of crushing if the fingers are drawn between the rollers!



Do not operate the machine without protective cover 5! Danger of crushing when operating the machine through the belt drive and chain-gear drive!



For the operation of the safety edge, attach fixtures 6 at both track ends!
Overrunning the track ends can cause damage to the machine!

2

Proper use

The **PFAFF 8390-010** is a mobile, hot wedge sealing machine mounted on a track system.

The **PFAFF 8390-020** is a mobile, hot air sealing machine mounted on a track system.

The machines are used for sealing heavy, large and flexible thermoplastic materials, for example, tarpaulins, covers, and tents.



Any and all uses of this machine which have not been approved of by the manufacturer are considered to be inappropriate! The manufacturer cannot be held liable for any damage caused by the inappropriate use of the machine!

The appropriate use of the machine includes the observance of all operational, adjustment, maintenance and repair measures required by the manufacturer!

3 Specifications ▲

Dimensions and weight:

Length: approx. 1840 mm

Width: approx. 1200 mm

Height: (without tape holder): approx. 1400 mm

Clearance width: approx. 480 mm

Clearance between rollers: approx. 20 mm

Net weight: approx. 305 kg

Mains voltage (set for): 230 V $\pm$ 10%, 50/60 Hz, 1 phase

Power input

8390-010 (hot-wedge version): max. 1 500 W

8390-020 (hot-air version): max. 3 500 W

Heating capacity

8390-010 (hot-wedge version): approx. 1 000 W

8390-020 (hot-air version): approx. 3 300 W

Fuse: 16 A

Working air pressure: 6 $\pm$ 10 %bar

Air consumption

8390-010 (hot-wedge version): 30 l/min

8390-020 (hot-air version): 30 - 150 l/min

Sealing speed: max. 10 m/min♦

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

Sealing temperature

8390-010 (hot-wedge version): max. 500 °C

8390-020 (hot-air version): max. 650 °C

▲ Subject to alterations

♦ Depending on the equipment, up to 20 m/min

■ $K_{pA} = 2,5$ 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 regulations; if necessary, a specialist is 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:



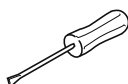
Note, information



Cleaning, care



Lubrication



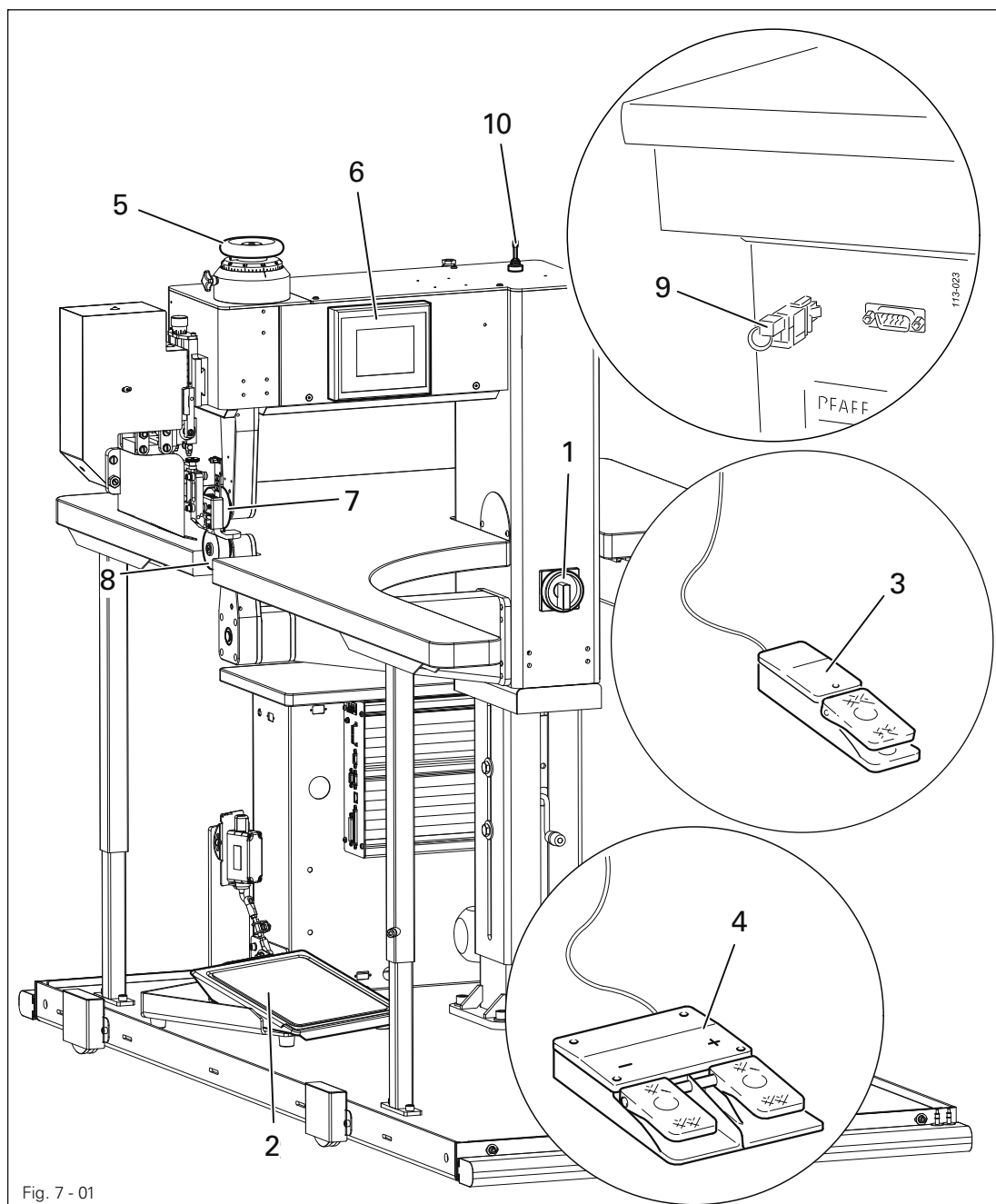
Maintenance, repairs, adjustment, service work
(only to be carried out by technical staff)

7

Controls

7.01

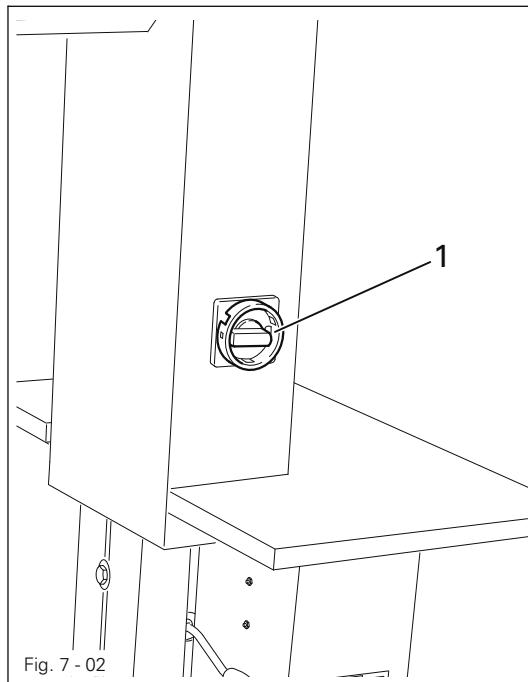
Summary of controls



- 1 Main switch, see Chapter 7.02
- 2 Pedal, see Chapter 7.04
- 3 Foot switch (available as an option), see Chapter 7.03
- 4 Double foot switch (available as an option), see Chapter 7.05
- 5 Adjustment wheel for roller clearance, see Chapter 7.06
- 6 Control panel, see Chapter 7.08
- 7 Top feed roller
- 8 Bottom feed roller
- 9 Key-switch, see Chapter 11.03.02 Rights of access
- 10 Joystick, see Chapter 7.07

7.02

Main switch



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

Position "0" : Machine is switched off

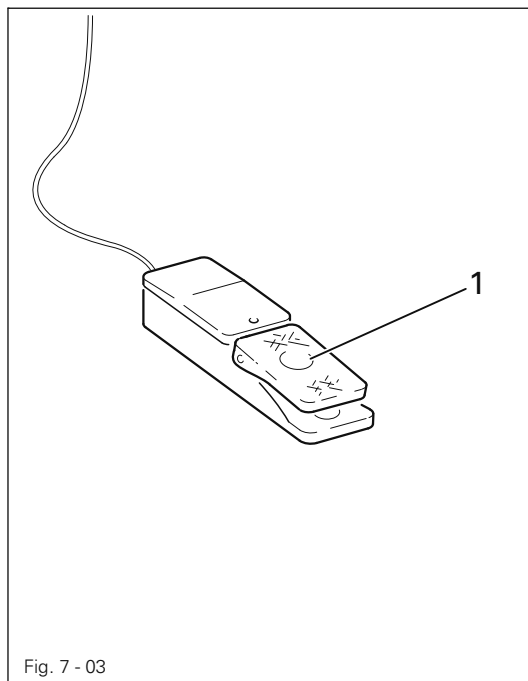
Position "1" : Machine is switched on



When switching the machine on or off, please observe the notes in Chapter 8.04 **Switching the machine on and off!**

7.03

Foot switch (optional)



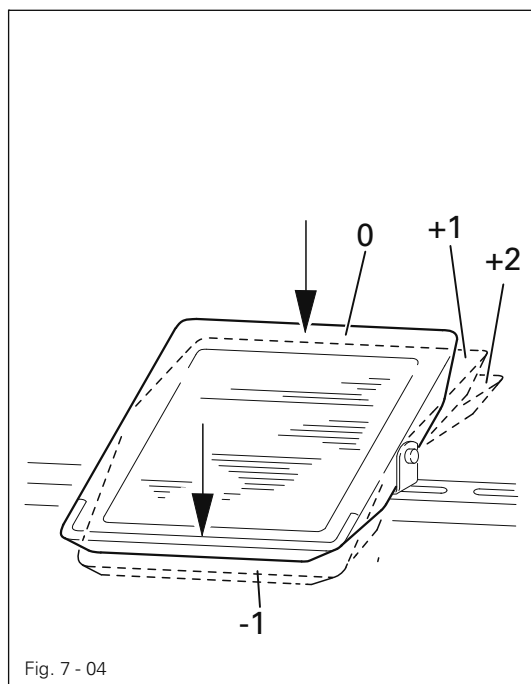
- Move to the next sealing section in the programmed sealing operation by pressing foot switch 1.



Alternatively, a knee switch can be ordered for this function.

7.04

Pedal



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

Sealing / level mode

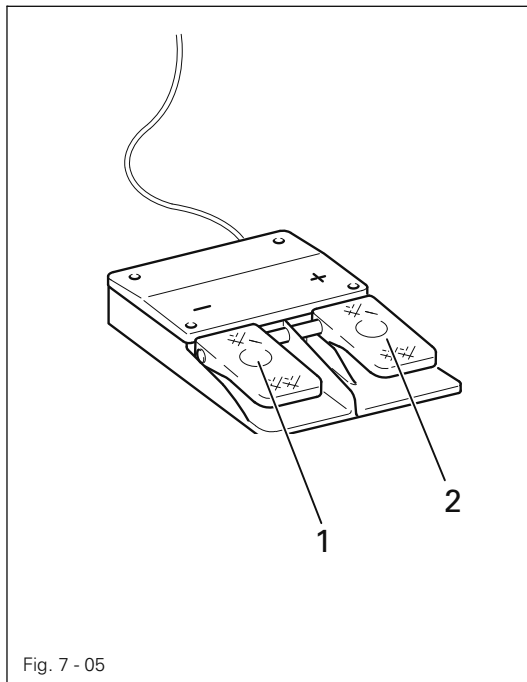
- 0 = Rest position / Stop sealing process
- +1 = Lower top feed roller
- +2 = Engage heating element / Sealing start
- 1 = Interrupt sealing process / Raise top feed roller

Sealing / flip-flop mode

- 0 = Rest position
- +1 = Lower top feed roller
- +2 = Start / Stop sealing
- 1 = Interrupt sealing process / Raise top feed roller

Reference run (carriage menu)

- 0 = Rest position / Stop
- +1 = Move at low speed
- +2 = Move at high speed
- 1 = Change direction

**During the sealing process**

- By pressing the foot switch **1** or **2**, the adjustable speed difference from carriage speed to roller speed is switched. The value of the speed difference can be set under parameter Gswred (see Chapter 13.14.02).

1 = Decrease carriage speed over the roller speed (reduction of material build-up)

2 = Increase carriage speed over the roller speed

After a sealing stop (switch / correct the carriage position to the sealing material)

- By pressing the foot switch **1** or **2** the carriage is moved.

1 = move the carriage slowly against the sealing direction

2 = move the carriage slowly in the sealing direction

In the carriage menu

- By pressing the foot switch **1** or **2** the carriage is moved.

1 = Move the carriage slowly against the sealing direction (after 3 seconds with the foot switch pressed, change-over to high speed)

2 = Move the carriage slowly in the sealing direction (after 3 seconds with the foot switch pressed, change-over to high speed)

During the sealing process with parameter "Diffmode = 1"

- By pressing the foot switch **1** or **2**, the value for the differential correction (speed difference from top to bottom feed roller) is gradually altered.

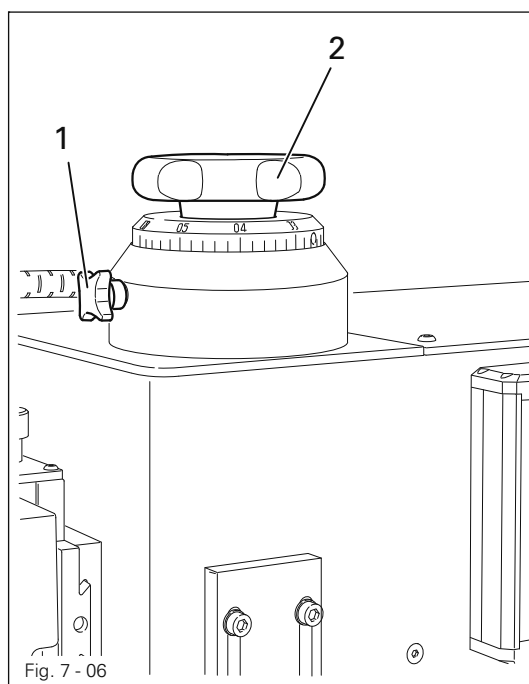
1 = Gradually decrease speed of the top feed roller

2 = Gradually increase speed of the top feed roller



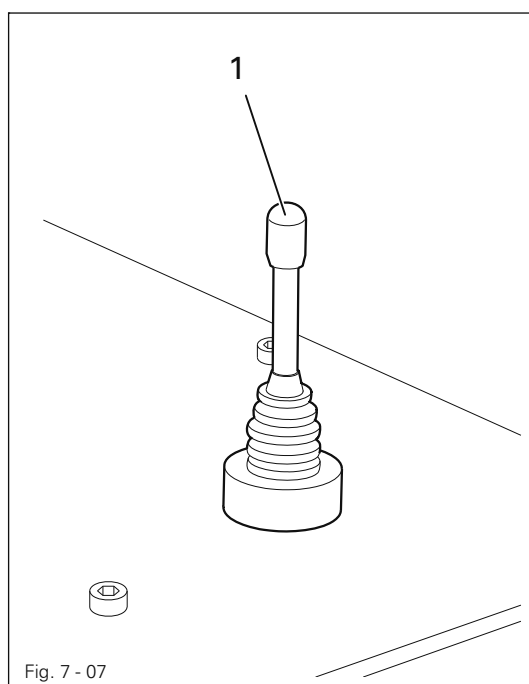
The differential correction is displayed in % on the control panel.

7.06 Adjustment wheel for the roller clearance

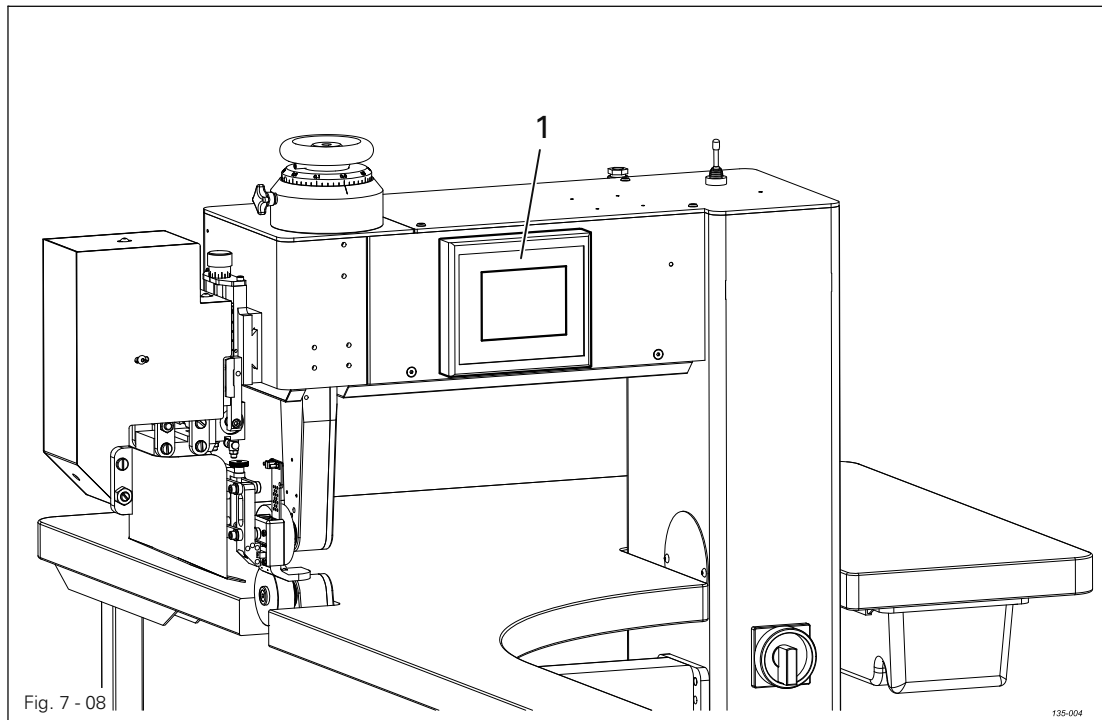


- After loosening clamp screw 1, the clearance between the top and bottom feed rollers is changed by turning adjustment wheel 2. The clearance can be read on the scale.

7.07 Joystick



- The machine can move along the track bed using joystick 1, so long as the relevant mode on the control panel is set, see **Chapter 10.08 Carriage menu**.



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.

Description of the functions



Normal symbol = function switched off (inactive)



Inverted symbol = function switched on (active)

8 Installation and commissioning



The machine must only be mounted and commissioned by qualified personnel!
All relevant safety regulations are to be observed!

8.01 Installation

Suitable connections for electricity and compressed air must be available at the machine's location (see Chapter 3 Specifications).

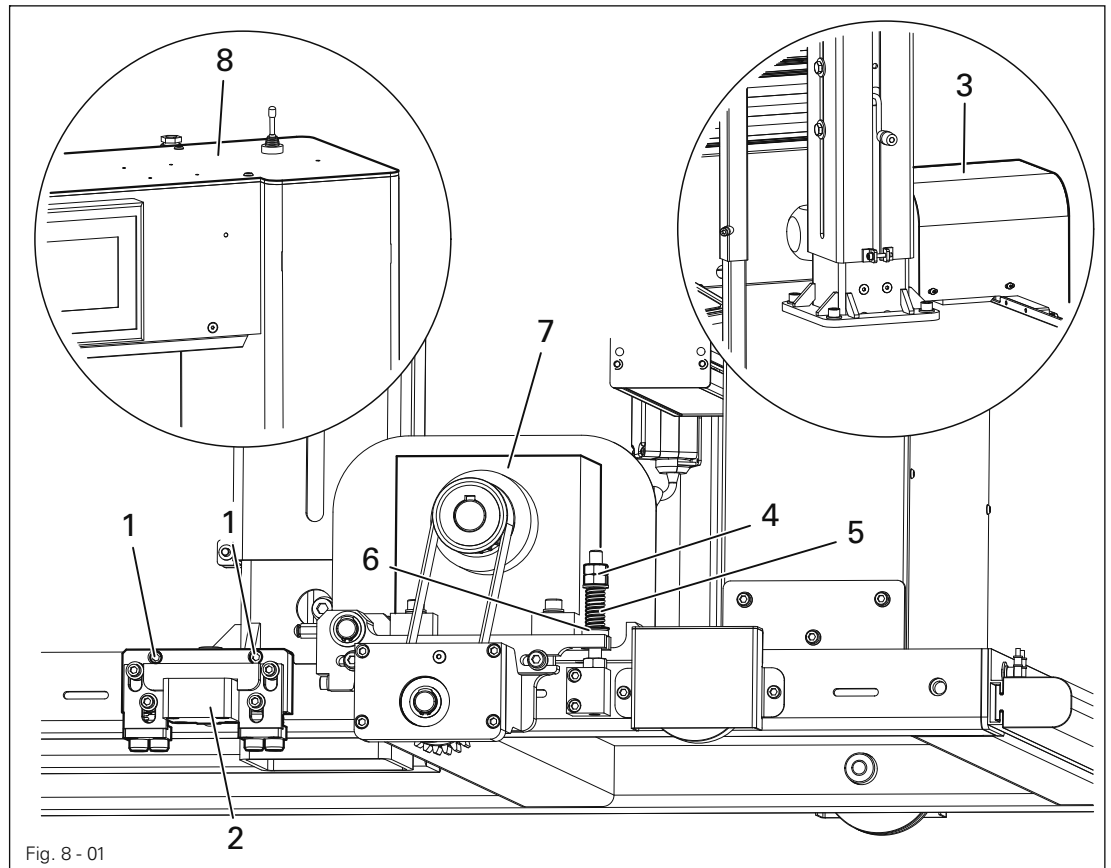
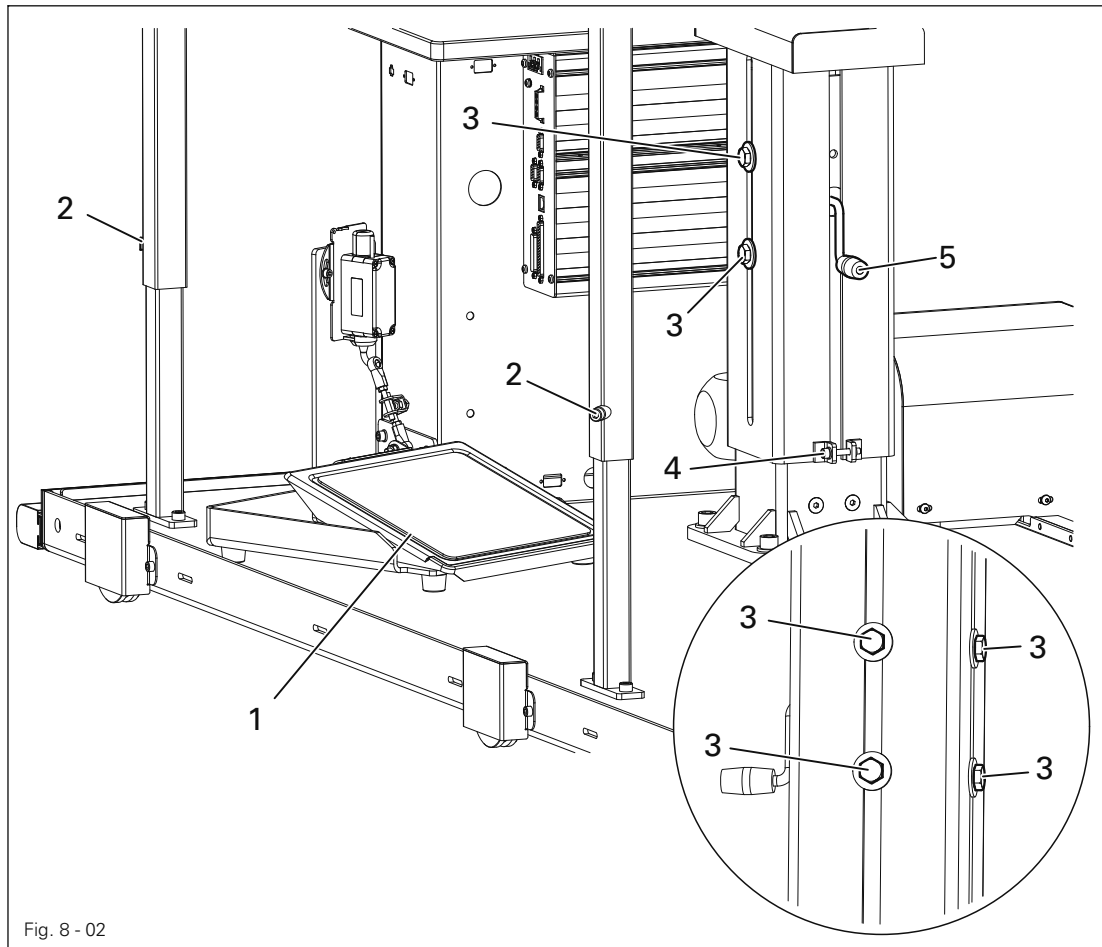


Fig. 8 - 01

- Unscrew screw 1 and swivel brake unit 2 upwards.
- Loosen the four hexagon socket screws and remove cover 3.
- Unscrew the nuts 4 and remove together with clip 5 and two washers 6.
- Swivel drive mechanism 7 upwards and secure.
- Loosen the five hexagon socket screws and remove cover 8 to make the lifting eye accessible.
- Lift the machine from the transport pallet and position on the track bed.
- Swivel drive mechanism 7 downwards and fasten with the washers 6, clip 5 and the nuts 4. The nuts 4 should stand approximately 1 cm under the upper edge of the threaded bolts.
- Mount brake unit 2 with screws 1.
- Mount covers 3 and 8.



- Connect the plug connectors of pedal 1 and if necessary the available foot switch on the control unit.
- Loosen screws 2, 3 and 4 and adjust the machine height by turning the crank 5.
- Tighten screws 2, 3 and 4 again.

8.02

Commissioning

- Before commissioning the machine, clean it thoroughly, see Chapter 12 Care and Maintenance!
- The machine, in particular the electric wires and pneumatic connection tubes, must be examined for any damage.
- Have skilled personnel check if the machine can be operated with the available mains voltage.



Do not operate the machine if there is any discrepancy!

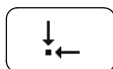


The machine may only be connected to an earthed socket!

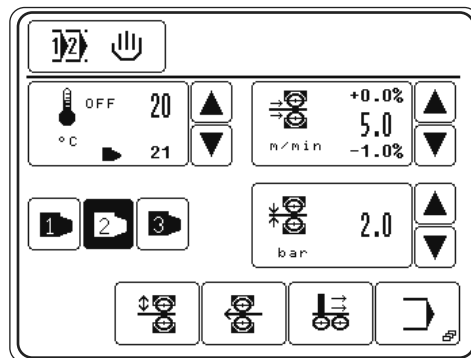
- Connect machine to the compressed air system. The manometer on the air filter/lubricator unit must display a pressure of 6 bar.
If necessary, set to the correct value (see chapter 12.05 Checking / regulating air compression).

8.03 Switching the machine on/off

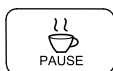
- To switch on the machine, turn the main switch to the "I" position, see Chapter 7.02 Main switch.



- After the boot operation of the control unit, call up the "basic position" function.



- To switch off the machine, call up the input function.



- Call up the "pause" function and wait until the blast air switches off automatically.



Danger of damage to the heating cartridge!

The hot air temperature must not exceed **100°C** when switched off!

Before switching off the compressed air system, wait until the blast air switches off automatically!

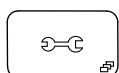
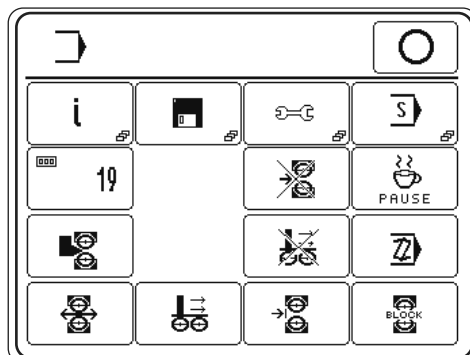
- Turn the main switch to the "0" position, see Chapter 7.02 Main switch.

8.04 Selecting the language and units

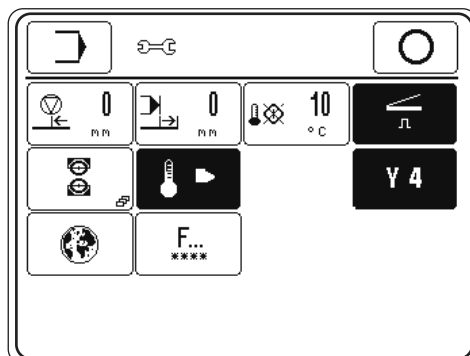
- Switch on the machine.



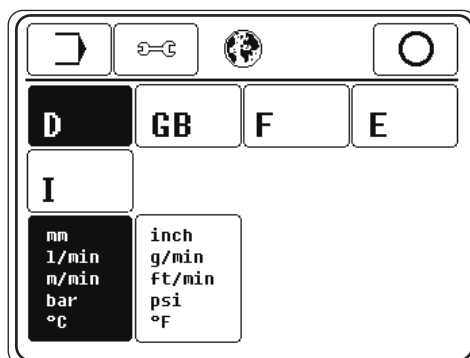
- Call up the input menu.



- Call up the settings menu.



- Call up the "language setting" menu.



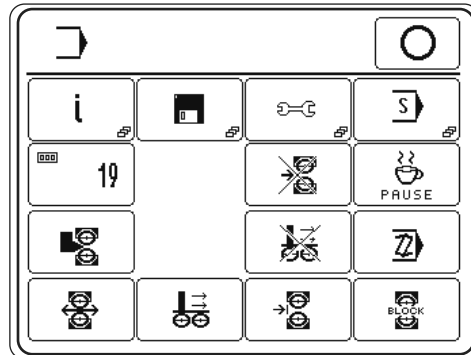
- Select the appropriate language and units.

8.05 Carrying out a reference run

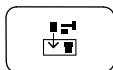
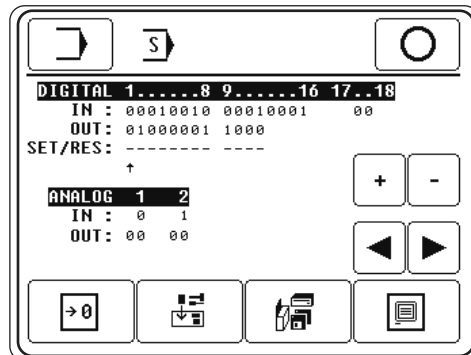
- Switch on the machine.



- Call up the input menu.

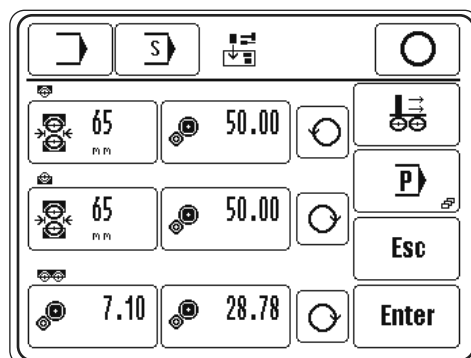


- Select the service menu.

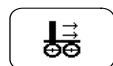
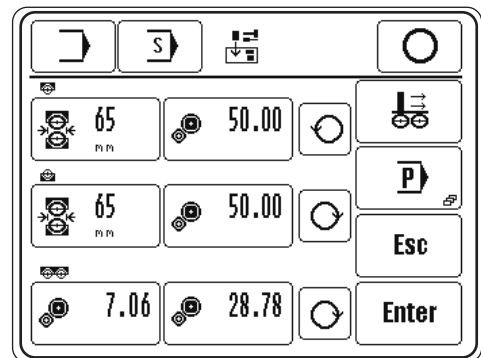


- Call up machine configuration.

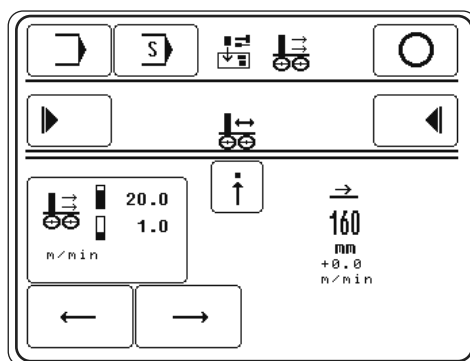
Gear drive



Chain drive

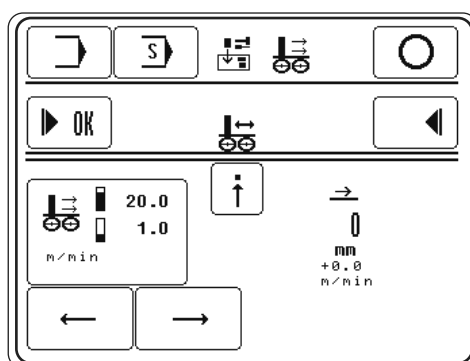


- Call up carriage menu.



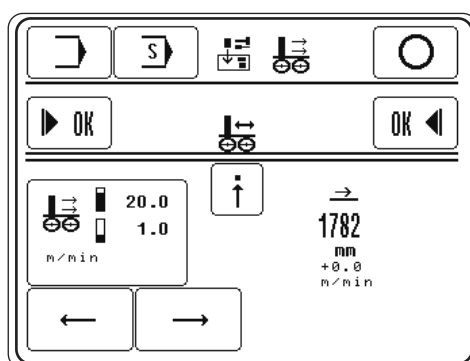
← ● Drive machine to track start, but does not drive to stop.

▶ ● Save position.

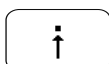
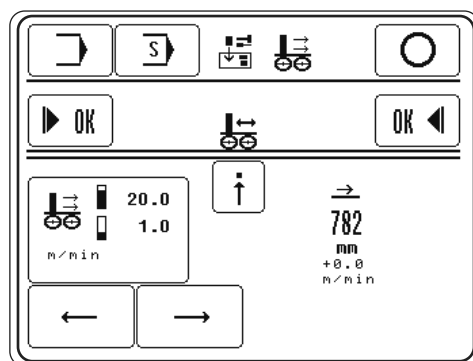


→ ● Drive machine to track end, but does not drive to stop.

◀ ● Save position.



← → ● If necessary, drives to the desired starting point (Home position).



- Save starting point.



- End setting.



The machine can also be driven to the reference points by using the joystick, the optional double foot switch or pedal, see **Chapter 7 Controls**.

9

Preparation



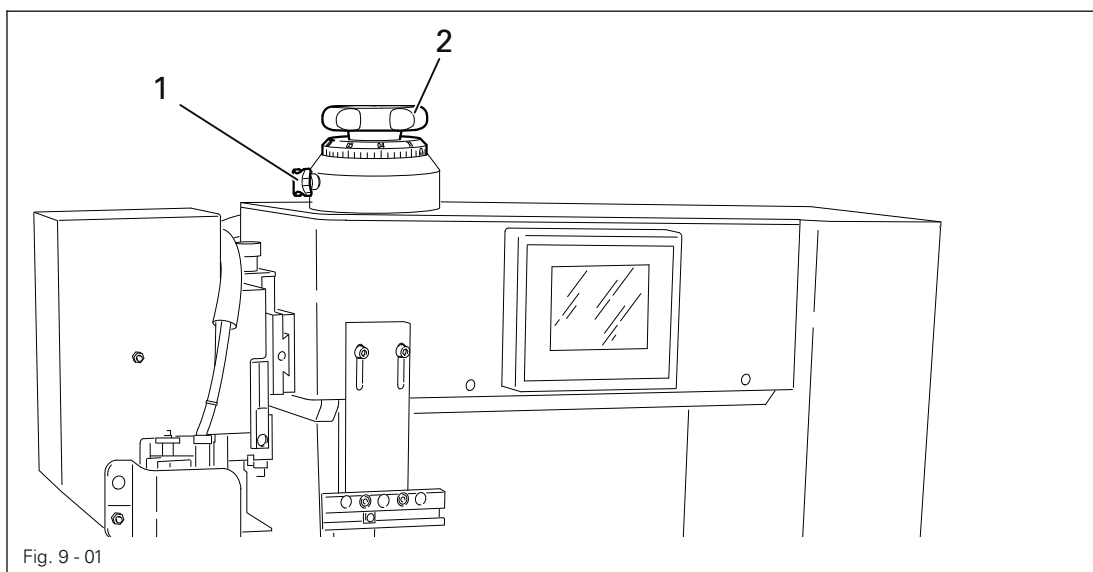
All regulations and notes in this Service Manual must be observed!
Special attention must be paid to the safety regulations!



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

9.01

Adjusting the feed roller clearance



- Switch on the machine.



- Lower the top feed roller.

- Loosen clamp screw 1.

- Adjust the clearance between the rollers with adjustment wheel 2 depending on the workpiece and sealing method, see Chapter 7.06 **Adjustment wheel for roller clearance**.

- Tighten clamp screw 1.

9.02 Selecting the production type:

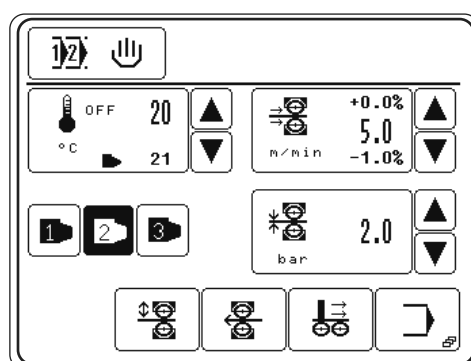
The **program selection** function is used to choose between the types of production

- Manual heat sealing (**Chapter 10.02**)
- Programmed heat sealing with individual programs (**Chapter 10.04**) and
- Programmed heat sealing with sequences (**Chapters 10.06**).

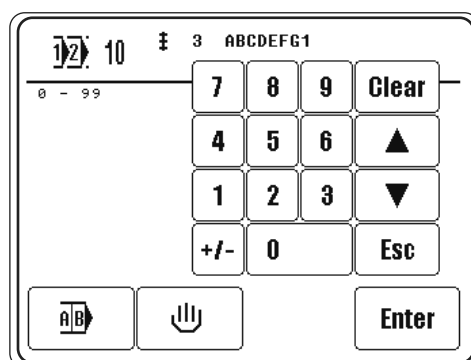


The types of production listed above, particularly their functions, are explained in more detail in **Chapter 10 Heat sealing**.

- Switch on the machine.



- Call up program selection.



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

or



- Select the desired program number.



(Selection can also be made by entering the program number on the figure panel directly.)

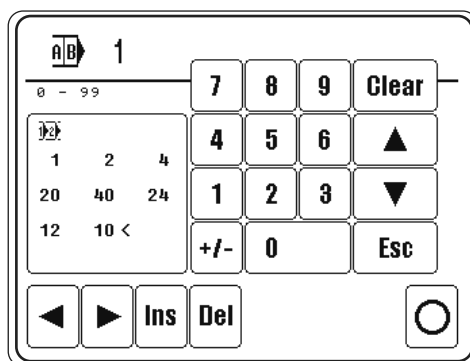


- Confirm selection and quit selection menu, the production type "Programmed Heat Sealing with individual program" is activated.

or



- Call up sequence selection.

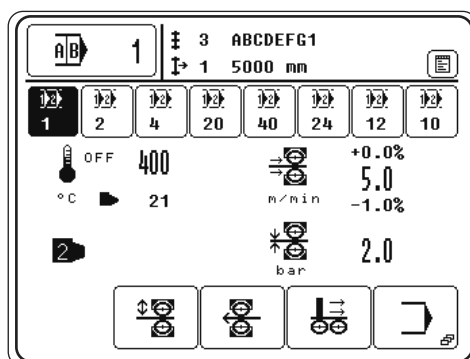


- Select desired sequence number.
(Selection can also be made by entering the sequence number on the figure panel directly.)



Enter

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



9.03 Entering the sealing parameters (Manual Heat Sealing)

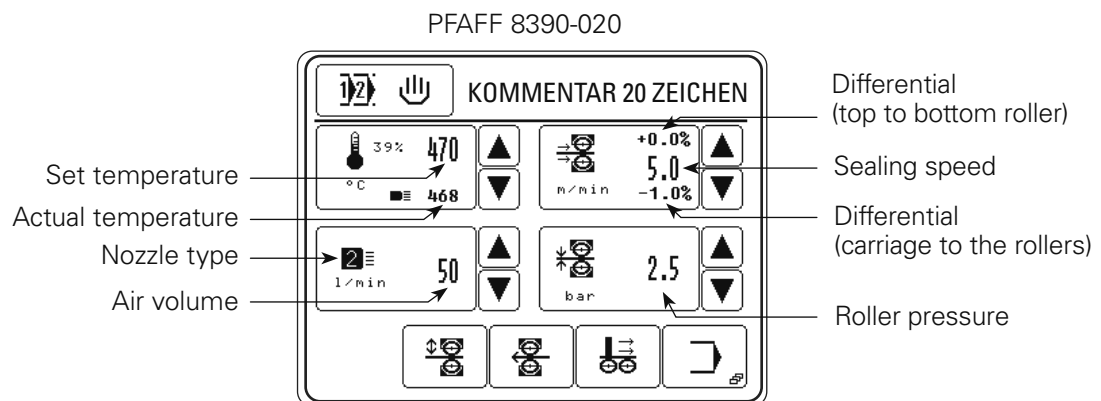
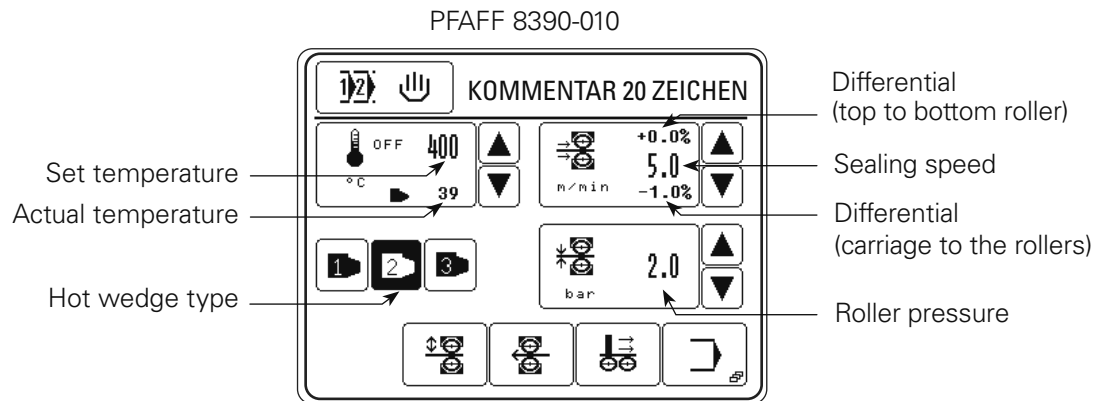
- Switch on the machine.



- Call up program selection.



- Call up manual heat sealing.



After selecting "Manual Heat Sealing", also see **Chapter 9.02 Selecting the production type**;, following values can be entered depending on the sealing method:

- Sealing temperature
In addition to the set sealing temperature, the value for the parameter (off = heating off) appears in the appropriate symbol as well as the actual sealing temperature.
- Sealing speed
In addition to the sealing speed, the value for the difference in speed in % between the top and bottom feed rollers appears in the appropriate symbol.
- Type of heating wedge or heating nozzle with hot air volume
- Roller pressure

The values can be entered directly by pressing the appropriate key symbol.



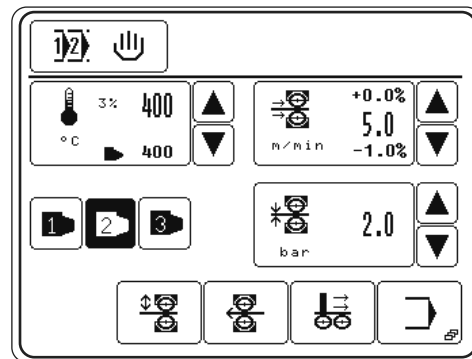
In Programmed Heat Sealing the direct input of sealing parameters is not possible. The alteration must be made in the appropriate sealing program, see **Chapter 10.03** Creating/altering a heat sealing program.



After switching the machine on, after the "pause" function or after detection of an error, the heating element is switched off (parameter "OFF"). After changing the sealing temperature, pressing the "start" function or after operating the pedal, the heating element is switched on again.

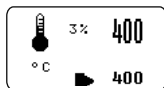
9.03.01 Entering the sealing temperature

Example PFAFF 8390-010

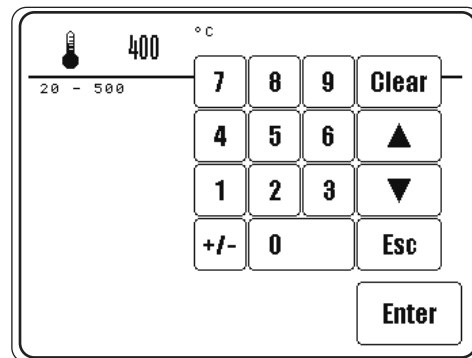


- Increase or reduce the value for the sealing temperature directly.

or



- Call up the figure panel to enter the sealing temperature.



- Enter the value for the sealing temperature within the permitted range.
- Conclude the input, permissible values will be taken over.

Enter

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.

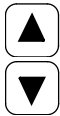
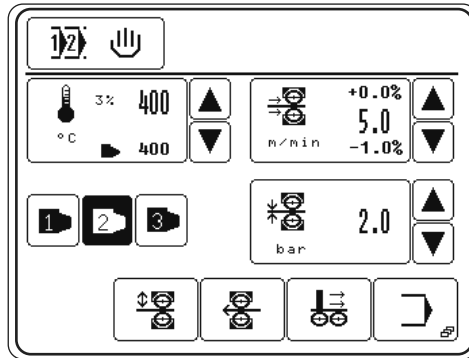
Esc

Esc

When this function key is pressed, the input is cancelled without the value entered being ta

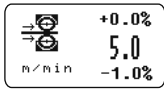
9.03.02 Entering the sealing speed

Example PFAFF 8390-010

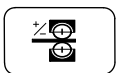
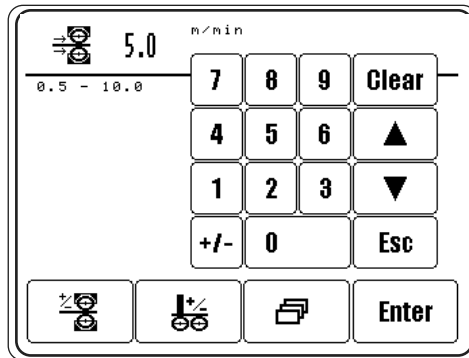


- Increase or reduce the value for the sealing speed directly.

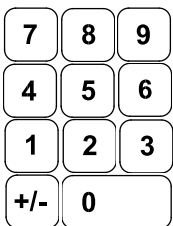
or



- Call up the figure panel to enter the sealing speed.



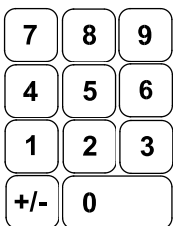
- If necessary call up the figure panel to enter the speed difference between the top and bottom feed roller.



- Enter the value for the speed difference within the permitted range.
The speed difference results from the change in speed of the top feed roller, which rotates either more quickly or more slowly than the bottom feed roller. The value for the speed difference depends on the material and application.



- If necessary call up the figure panel to enter the speed difference between the carriage and feed rollers.



- Enter the value for the sealing speed within the permissible range.
The speed difference depends on the change in speed of the carriage, that runs either faster or slower than the feed rollers.
The value for the speed difference depends on the material and application.



- Further sealing parameters
(see also Chapter 10.03.05)

Enter

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

789

456

123

+/-0

- Enter the value for the sealing speed within the permissible range.

Enter

- 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

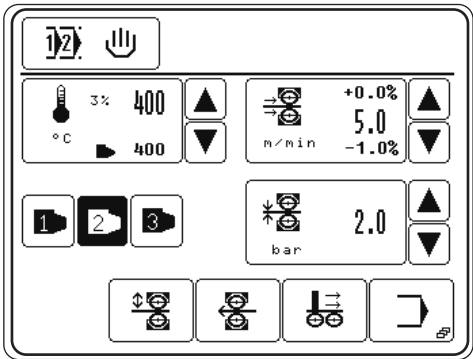
- When these function keys are pressed, the value is increased or reduced.

Esc

Esc

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

9.03.03 Stipulating the hot wedge type (only on the PFAFF 8390-010)

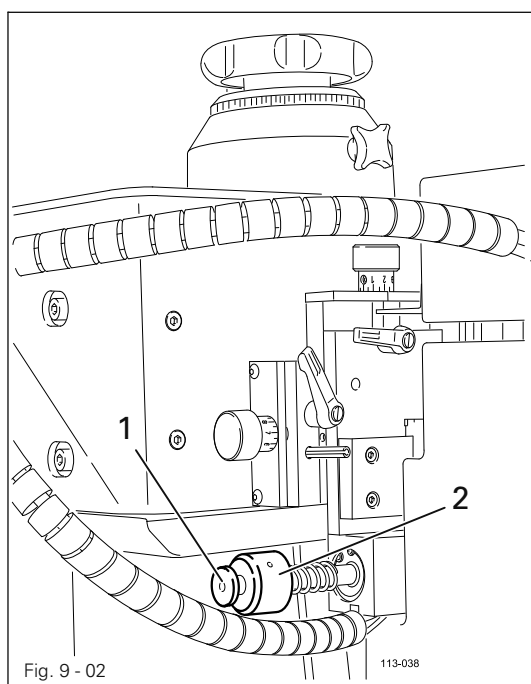


123

- Select the hot wedge type in accordance with the width of the hot wedge installed. The symbol for the selected hot wedge type appears as an inverse symbol.

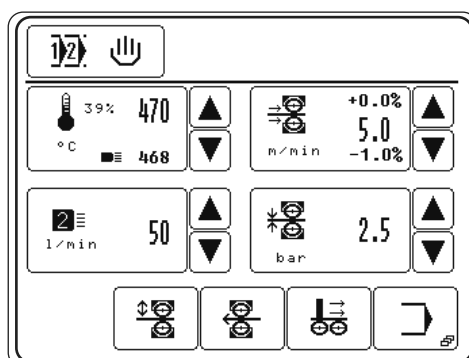
Hot wedge type	Width of hot wedge	Hot wedge power consumption
1	7 mm; 9 mm; 12 mm	320 W
2	15 mm; 20 mm; 30 mm	500 W
3	> 30 mm	800 - 1 000 W

9.03.04 Adjusting the contact pressure of the hot wedge (only on the PFAFF 8390-010)



- Loosen the locknut 1.
- Adjust the pressure by turning the nut 2 in accordance with the sealing operation, also see **Chapter 13.06.02 Hot wedge pressure on and clearance to the feed rollers.**
- Tighten locknut 1.

9.03.05 Stipulating the nozzle type and hot air volume (only on the PFAFF 8390-020)

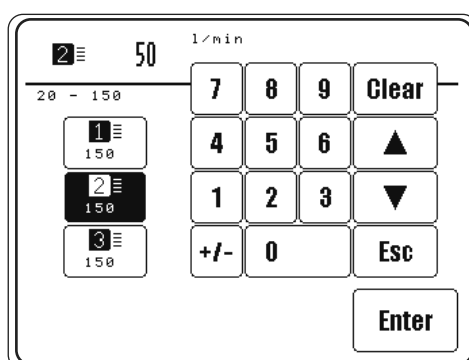


- Increase or reduce the hot air volume directly

or



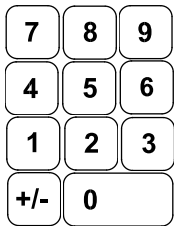
- Call up input menu to enter hot air volume.





- Select the nozzle type in accordance with the width of the nozzle installed.
The symbol for the selected nozzle type appears as an inverse symbol.

Nozzle type	Width of nozzle
1	< 10 mm
2	10 mm - 30 mm
3	> 30 mm



- Using the number block, enter the value for the hot air volume within the permitted range.



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

Description of further functions



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



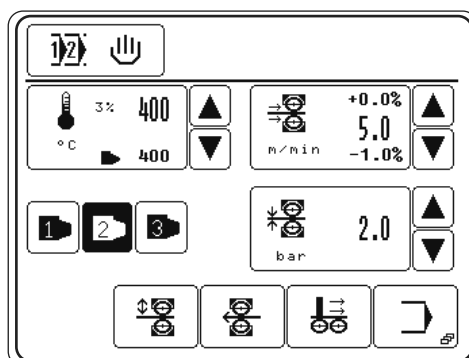
- Arrow keys
- When these function keys are pressed, the value is increased or reduced.



- Esc
- When this function key is pressed, the input is cancelled without the value entered being ta

9.03.06 Entering the roller pressure

Example PFAFF 8390-010

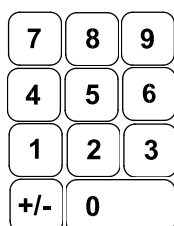


- Increase or reduce the roller pressure directly.

or



- Call up the number panel to enter the roller pressure.



- Enter the roller pressure within the permitted range

Enter

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

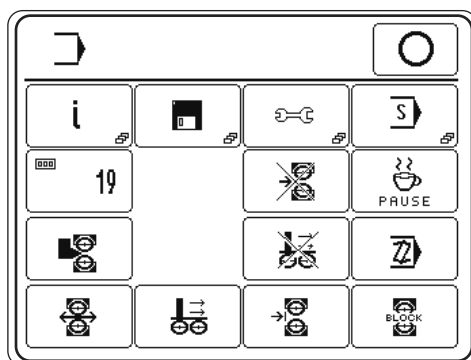
9.04 Adjusting the control panel

- Switch on the machine.

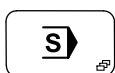
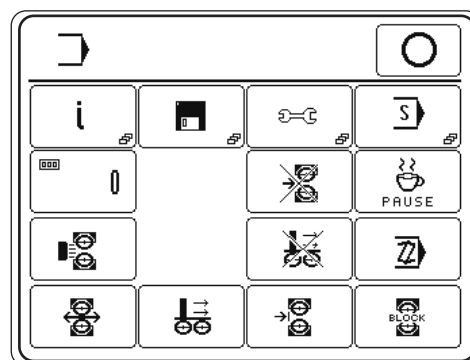


- Call up the input mode.

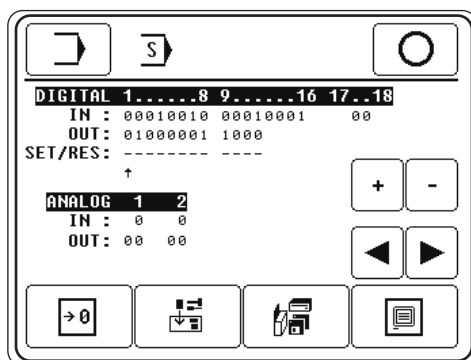
PFAFF 8390-010



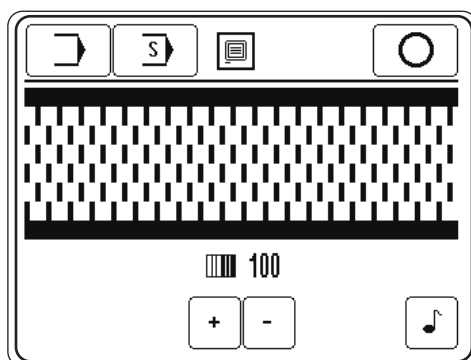
PFAFF 8390-020



- Select the service menu.



- Select control panel functions.



- Switch the key tone off or on.



- Change the display contrast.



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

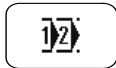


The machine may only be operated by properly instructed personnel. The operating personnel must make sure that only authorised persons are in the danger zone of the machine.

In particular for production, in addition to the input menu (see Chapter 11 Input), the „heat sealing“ mode is available, in which, irrespective of the program selected and the machine status, all functions and settings relevant for the sealing operation are shown on the display. With the program selection function, following production types can be selected in the "heat sealing" mode, see Chapter 9.02 **Selecting the production type**:



Manual heat sealing, see Chapter 10.02



Programmed heat sealing with individual programs, see Chapter 10.04



Programmed heat sealing with sequences, see Chapter 10.06

10.01

Heat sealing principle

To achieve optimum sealing results, certain conditions must be fulfilled with regard to material and machine setting.

The material must:

- be heat-sealable, and
- suitable for being processed by the machine with regard to thickness and structure.

In the seam area, the material to be heat sealed must be clean and free from separating agents, such as e.g. oil or silicone.

The basic conditions depending on the sealing device are:

- correct working temperature of the hot wedge or hot air temperature (sealing temperature);
- correct contact pressure of the hot wedge and the correct position of the hot air nozzle;
- correct setting for the hot air volume;
- correct choice of feed rollers (silicone or steel);
- optimum pressure of the feed rollers on the material being sealed (roller pressure);
- correct distance between the feed rollers and
- correct sealing speed (feed stroke).



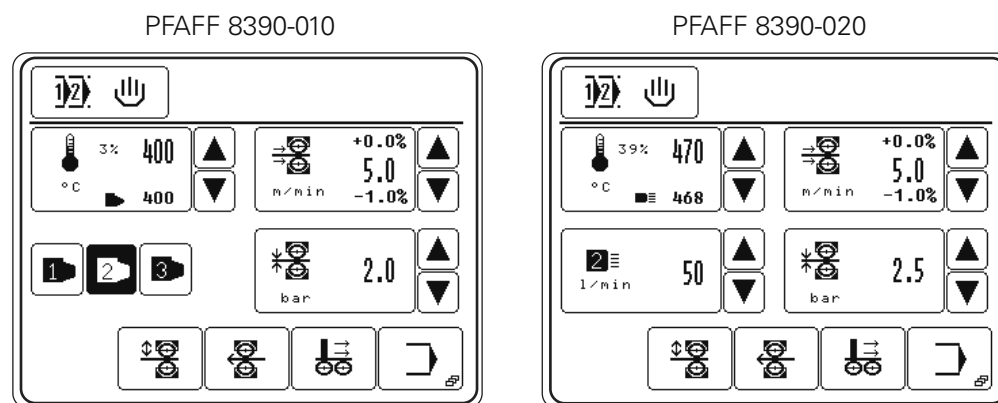
All the settings of the heat-sealing device are principally dependent on the material being sealed and the ambient temperature. Due to the influence of the individual operating parameter on each other, it is only possible to determine the optimum setting values by carrying out test sealing operations.

10.02 Manual heat sealing

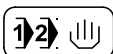
In the "Manual heat sealing" mode, all relevant parameters for the sealing operation can be entered or altered directly, see **Chapter 9.02 Selecting the production type**.



- Select "manual heat sealing", see **Chapter 9.02 Selecting the production type**



Description of the functions



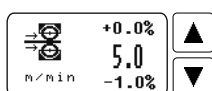
Selecting a program

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



Heat sealing temperature

These functions are used to alter the heat sealing temperature, see **Chapter 9.03.01 Entering the sealing temperature**.



Feed stroke (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 feed rollers, see **Chapter 9.03.02 Entering the sealing speed**.



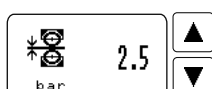
Hot wedge type (only on the PFAFF 8390-010)

These functions are used to stipulate the hot wedge type, see **Chapter 9.03.03 Stipulating the hot wedge type...** The selected function appears inverse.



Nozzle type / hot air volume (only on the PFAFF 8390-020)

These functions are used to alter the hot air volume or to open the menu for stipulating the nozzle type, see **Chapter 9.03.05 Stipulating the nozzle type and hot air volume ...**



Roller pressure

These functions are used to alter the roller pressure, see **Chapter 9.03.06 Entering the roller pressure**.



Start

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

With this function the sealing start is called up, analog to the pedal function "+2", also see **Chapter 7.04 Pedal**.



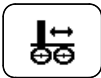
Feed roller up/down

With this function the top feed roller, depending on its position, can be raised or lowered, analog to the pedal functions "-1" and "+1", also see **Chapter 7.04 Pedal**.



Feed rollers in reverse

This function makes it possible to call up the reverse running function of the feed rollers.



Carriage menu

With this function the carriage menu is called up so that the machine can be moved on the track bed, see **Chapter 10.08 Carriage menu**.



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, analog to pedal function "-1", also see **Chapter 7.04 Pedal**.

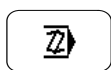
During the sealing process, the machine is operated by pedal and foot switch, see **Chapter 7 Controls**.

10.03 Creating/editing a heat 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.

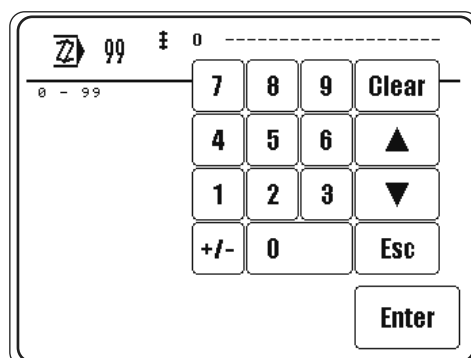


- Call up the input menu.

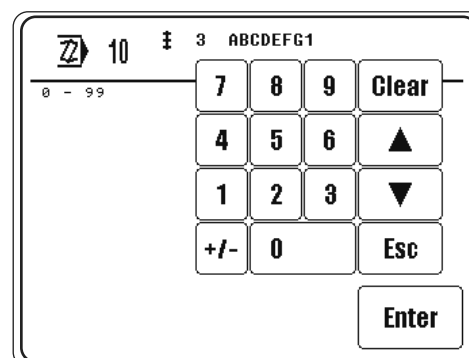


- With the “programming” function from the input menu it is possible to enter the programming function for sealing programs. A number block for entering the desired program number appears.

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 heat sealing function will be taken over and a new program created.

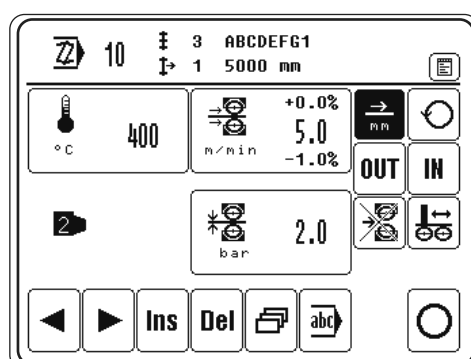
As an alternative to the creation of a new program, the program number of an existing program (e.g. 10) can be selected, and this program can be changed or copied to create a new program. In the case of existing programs, the number of zones and possibly a comment are displayed next to the program number in the headline.



- Enter the program number, e.g. "10".



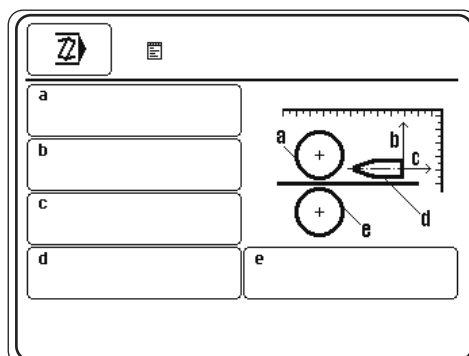
- Confirm selection.



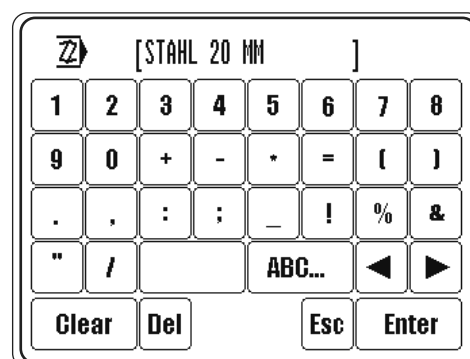
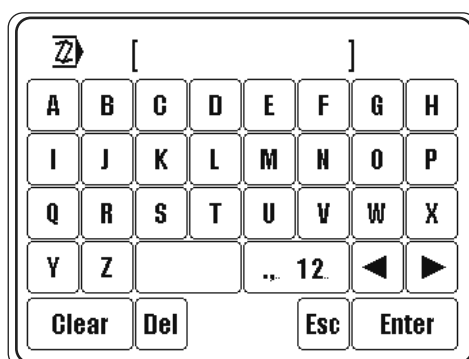
The first zone of the selected program is displayed on the screen with functions for entering sealing parameters, notes, switching to the next zone, as well as basic functions for the program input. For further descriptions of the functions see Chapter 10.03.07 Example for sealing program input.

10.03.01 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.



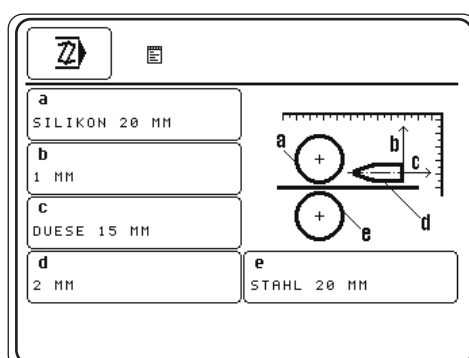
- Press the relevant key panels to enter the data.



- Enter the relevant data.

Enter

- Conclude the input



10.03.02 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.

**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.

**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, for example, nozzle or hot wedge type, see also Chapter 10.03.05 Further sealing parameters.

**Comment**

(This function only appears in the first zone.)

With this function, when entering a note, see Chapter 10.03.01 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**

(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.

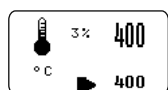
**Conclude programming**

This function concludes the programming, see Chapter 10.03.06 Concluding the programming.

10.03.03 Sealing parameters

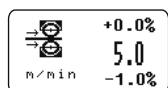
- Enter sealing parameters for each zone as described in Chapter 9.03 **Entering sealing parameters** (manual heat sealing).

Description of the functions



Heat sealing temperature

This function is used to alter the heat sealing temperature, see Chapter 9.03.01 **Entering the sealing temperature**.



Feed stroke (sealing speed)

This function is used to open the menu for entering the feed stroke difference, the brake and acceleration profiles and the start delay for the feed rollers, see Chapter 9.03.02 **Entering the sealing speed**.



Roller pressure

This function is used to alter the roller pressure, see Chapter 9.03.04 **Entering the roller pressure**.



Hot air volume (nur bei der PFAFF 8390-020)

This function is used to alter the hot air volume.

10.03.04 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.

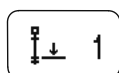
- Select appropriate functions for each zone, activated functions are displayed as inverse symbols on the screen.

Description of the functions**Programmed section**

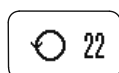
This function is used to determine the length of the current zone. The value in millimetres is entered on the appropriate number block. When this function is activated, the machine switches to the next sealing zone after processing the entered section.

**Loop program command**

When this function is switched on a loop is programmed into the program sequence.

**Entering the return target position**

Here, the number of a previous zone can be entered.

**Entering the number of loop iterations 0 - 99**

Input "0" = the loop runs endlessly



Interrupt the loop with a high level (24V) on free input IN2 (X8/PIN3)

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 switching function. The sealing operation is switched off or on and the machine moves to the next zone. For the following zones, the sealing remains switched off or on until the setting is changed again.

Drive carriage (rapid traverse)

When this function is switched on, the carriage can be driven according to the selection.

"0" = the carriage moves to the defined home position.

"+" = the carriage moves according to the inputted section in the sealing direction.

"-" = the carriage moves according to the inputted section against the sealing direction.

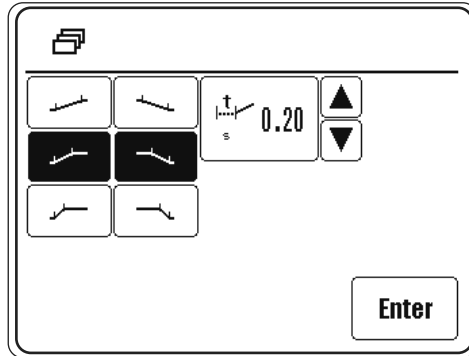
10.03.05 Entering further sealing parameters



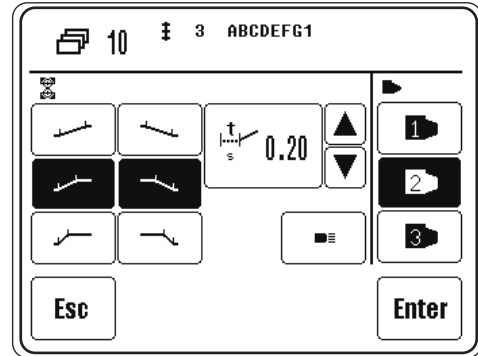
Further sealing parameters can be entered either

- from the manual resp. dynamic sealing mode in conjunction with the sealing speed input or
- when creating programs in conjunction with the input of the first zone.

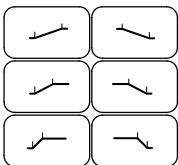
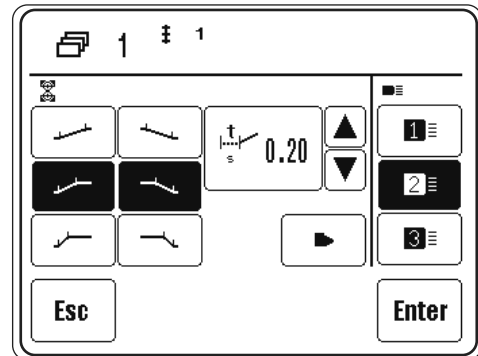
Input from manual
heat sealing mode



Input while
creating programs
with PFAFF 8390-010



Input while
creating programs
with PFAFF 8390-020



- 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.

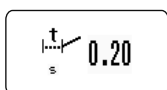
The values of the different acceleration and brake profiles can be stipulated in the input mode, see Chapter 11.03.01 Feed roller parameters.



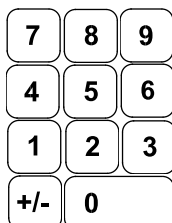
- Increase or reduce the start delay for the feed rollers directly.



or



- Call up the figure panel to enter the start delay.



Enter the start delay depending on the material being processed.



- 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.

Further functions are available for creating programs:



- Select the sealing tool by switching between heating wedge and hot air nozzle. This makes it possible e.g. to also create programs for hot air machines on hot wedge machines.



- Select the nozzle type in accordance with the width of the nozzle installed, see **Chapter 9.03.05 Stipulating the nozzle type and hot air volume ...**

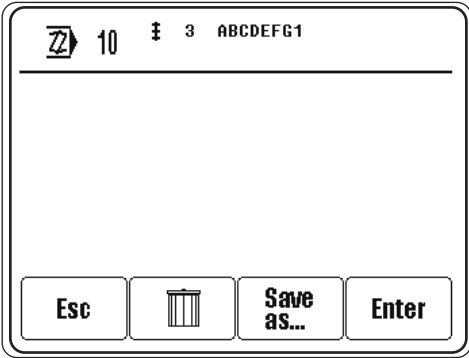
or



- Select the hot wedge type in accordance with the width of the hot wedge installed, see **Chapter 9.03.03 Stipulating the hot wedge type ...**

10.03.06 Concluding programming

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



Description of the functions

- Esc

Esc
The input is interrupted and the machine moves back to the initial state of the programming function.
- Discard alterations**
All program alterations are cancelled.
- Save as...

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

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

10.03.07 Example of how to enter a sealing program

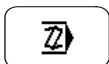
The following example should be filed under program number "10" with the comment "example 1", and consists of three seam zones:

1. Seam zone 1 with switch to another zone after **5000** mm seam length
2. Seam zone with increased sealing speed and switch to another zone after **1500** mm
3. A loop with **22** runs to zone 1.
4. Move back to starting position with rapid traverse.

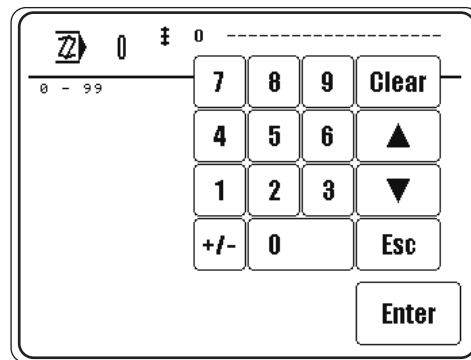
- Switch on the machine.



- Call up the input menu.

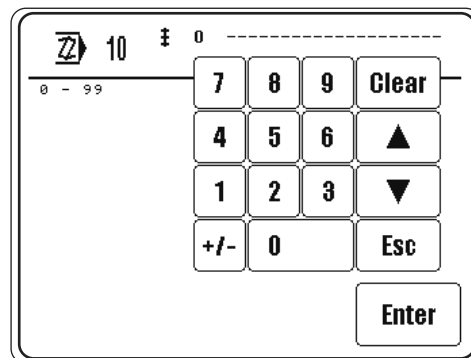


- Call up the programming function.



1 **0**

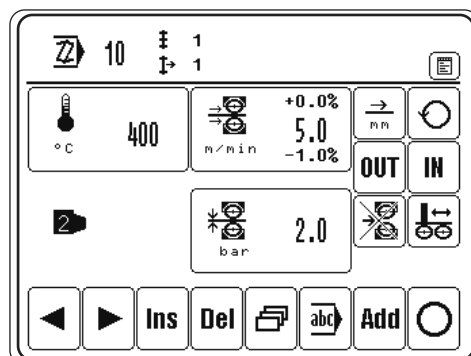
- Enter program number "10".



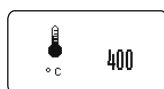
Enter

- Confirm input.

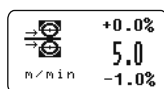
The sealing parameters from the manual sewing mode are taken over for seam zone 1.



Heat sealing



- Enter set value for sealing temperature.



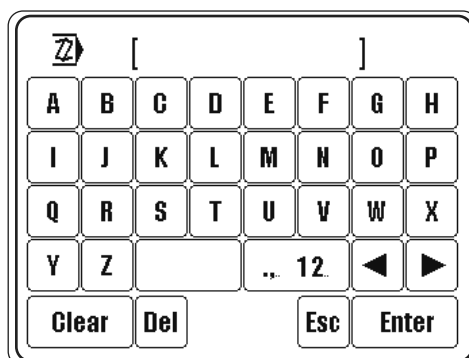
- Enter values for sealing speed and speed difference.



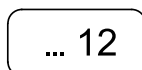
- Enter value for roller pressure.



- Call up comment input.



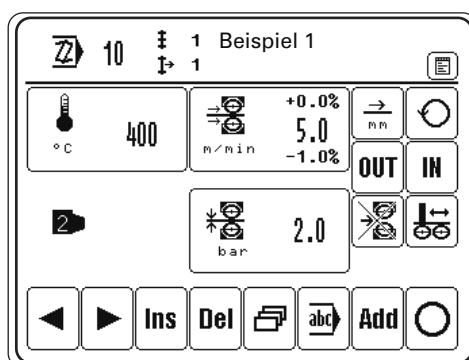
- Enter the term "example" with the appropriate symbols.



- Change to number input.
- Enter number "1" with the appropriate symbol.



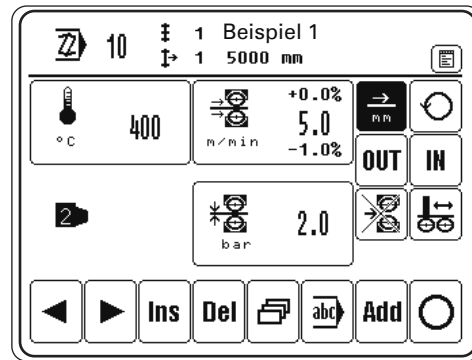
- Conclude the comment input.



- Activate the switch to another zone using the seam length.
- Enter the value "5000" as seam length with the number panel.



- Conclude the activated function for switching to another zone.

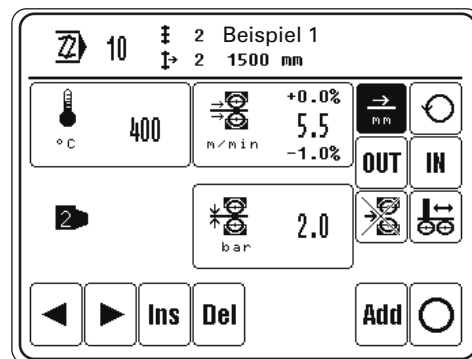


ADD ● Add seam zone 2.

Enter ● Confirm call up input for the second seam zone.

+0.0%
5.0
n/min -1.0% ● Change the values for sealing speed and speed difference.

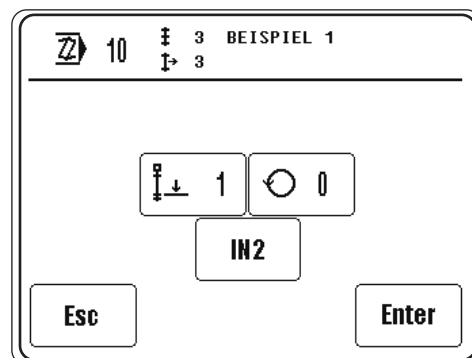
mm ● Activate the switch to another zone with the value "1 500" as seam length.



ADD ● 3. Add seam zone (loop)

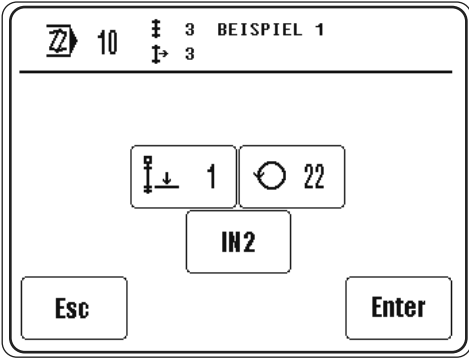
Enter ● Confirm call up input for the third seam zone.

● Call up "loop" function.

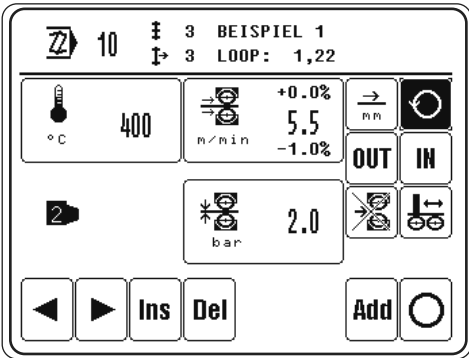


1 ● Enter return target zone "1".

0 ● Enter the number of loops "22".



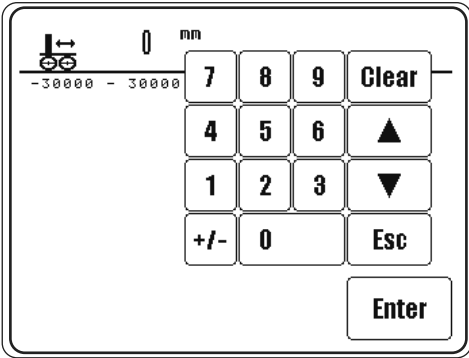
Enter ● End input entry.



ADD ● 4. Add seam zone (home)

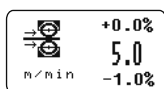
Enter ● Confirm call up input for the fourth seam zone.

 ● Call up "drive carriage" function.

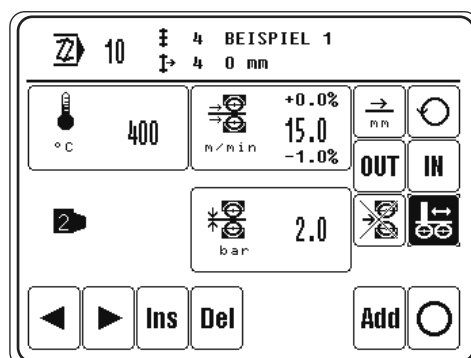


0 ● Enter value "0".

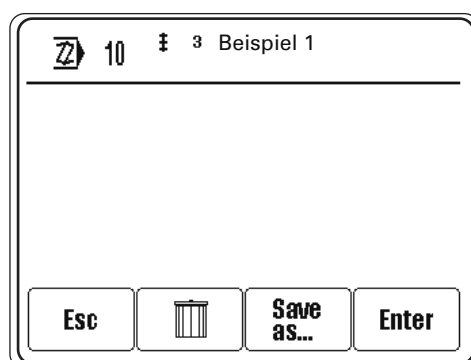
Enter ● End input entry.



- Enter value for sealing speed (here driving speed).

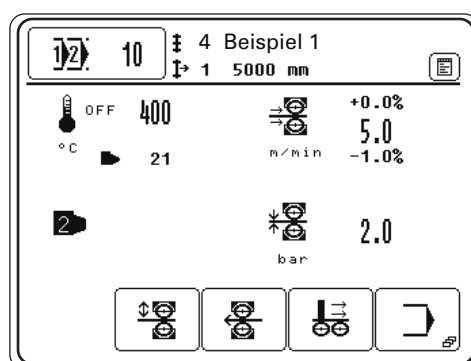


- Conclude programming.



Enter

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



The entered program is automatically activated.

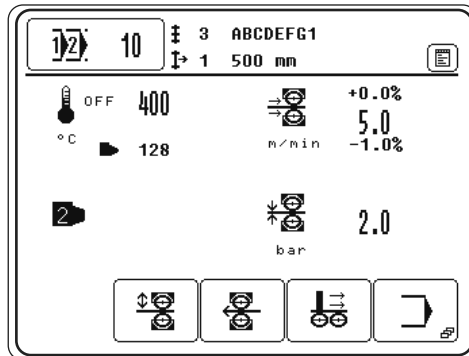
10.04 Programmed heat sealing with individual programs

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.

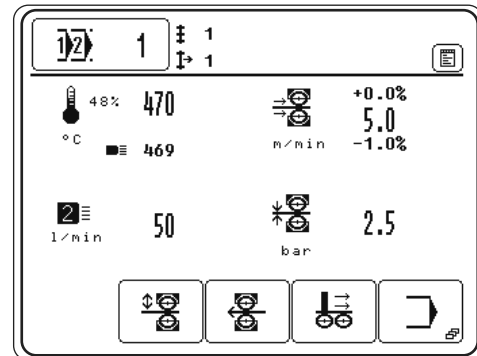
- Select the desired program, see **Chapter 9.02 Selecting the production type.**



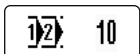
PFAFF 8390-010



PFAFF 8390-020



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 the production type.**



Notepad

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



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 7.04 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 7.04 Pedal**



Feed rollers in reverse

This function can be used to call up the reverse running function of the feed rollers.



Carriage menu

With this function the carriage menu is called up so that the machine can be moved on the track bed, see **Chapter 10.08 Carriage menu.**



Input menu

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



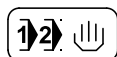
Stop

(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 7.04 Pedal.**

10.05 Creating/processing sequences

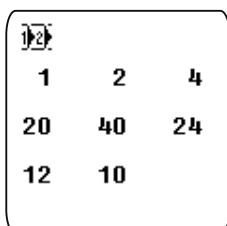
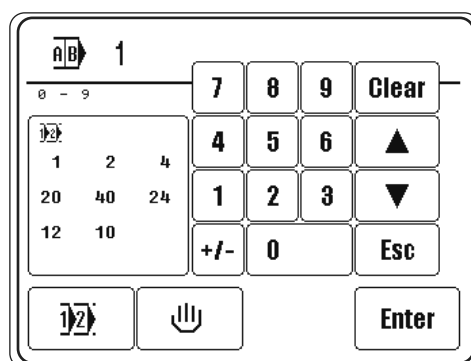
In sequences up to **8** heat sealing programs are combined in any order whatever and filed under a sequence number. A total of up to **10** sequence programs can be filed in the machine's memory.



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

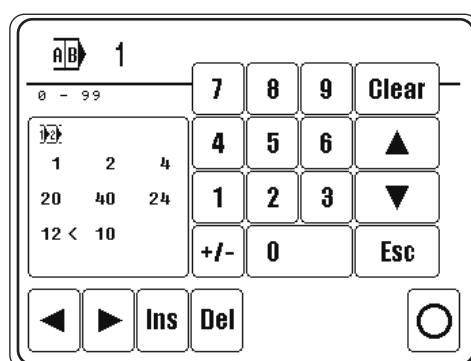


- Call up the Sequence selection function and select the desired sequence number.



- Call up sequence programming.

The cursor in the window shows which program is being deleted or at which point a new program is being inserted.



Description of the functions



Arrow keys

These functions are used to move the cursor.



Insert

This function inserts or adds a program to the sequence at the place marked.



Delete

This function deletes the marked program from the sequence.

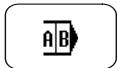


Conclude programming

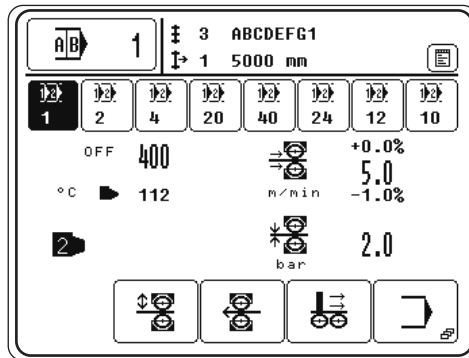
This function concludes the sequence programming.

10.06 Programmed heat sealing with sequences

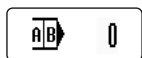
In the headline, in addition to the sequence number of the selected sequence, the number of zones, the current zone and the comment for the current program are displayed. For the current zone all heat-sealing parameters are displayed. The heat-sealing parameters have been stipulated during programming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



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 the production type**.



Notepad

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



Heat sealing program

Press this function to select the appropriate heat sealing program.



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 7.04 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 7.04 Pedal**



Feed rollers in reverse

This function can be used to call up the reverse running function of the feed rollers.



Carriage menu

With this function the carriage menu is called up so that the machine can be moved on the track bed, see **Chapter 10.08 Carriage menu**.



Input menu

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



Stop

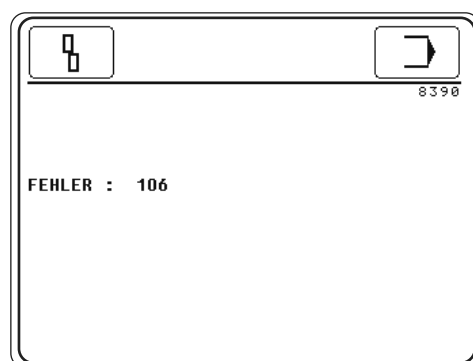
(This function appears during the heat-sealing operation.)

This function is used to stop the heat-sealing operation, analog to pedal function "-1", also see **Chapter 7.04 Pedal**.

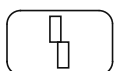
10.07 Error messages

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 13.12 Explanation of the error numbers**.



- Eliminate the error..



- Acknowledge the elimination of the error.

or



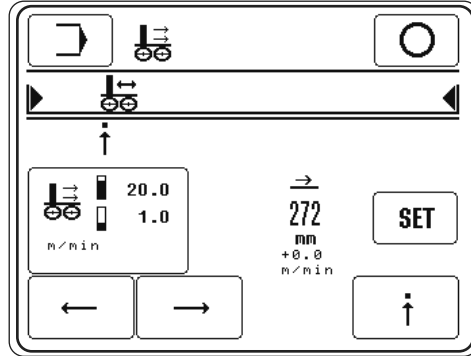
- Call up the input menu to eliminate the error with the service functions.

10.08 Carriage menu

With the carriage menu, the machine can be moved in a number of different ways.



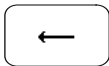
- Switch on the machine and call up the carriage menu.



The position of the machine on the track bed is shown in the display. The machine can be moved on the track bed in the following ways:

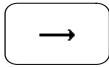
- By joystick

The operator can stand beside the machine and control the machine. Operating the joystick moves the machine in the direction of operation, see **Chapter 7.07 Joystick**.



- By arrow keys

The operator remains seated on the machine and drives the machine by the keys. Pressing the left arrow key drives the machine against the sealing direction. With the right arrow key, the machine drives in the sealing direction.



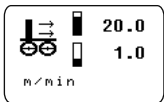
- By double foot switch

See **Chapter 7.05 Double foot switch**.

- By pedal

The operator remains seated on the machine and can control the machine with the pedal. If the backwards stage is pressed, the machine changes its direction of movement.

Pressing the forwards stage moves the machine in the new direction, see **Chapter 7.04 Pedal**.



Speed settings

This function opens the menu for speed settings. The machine moves at speeds which can be automatically changed as required. The machine moves first at slow speed, then afterwards switches to high speed. When approaching the track boundaries or the activated home position, the machine is reset to slow speed. When reaching the end positions, the machine is stopped automatically. With the pedal (see **Chapter 7.03**) the machine moves in the forwards stage **1** at slow speed, and in the forwards stage **2** at high speed.



Home

A home position can be defined on the section. To determine the position, the machine moves to the desired position and with the accompanying key sequence, the current position is defined as the home position.

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.

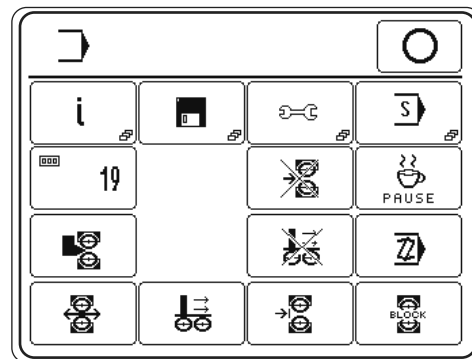
11.01 Summary of the functions in the input mode

- Switch on the machine.

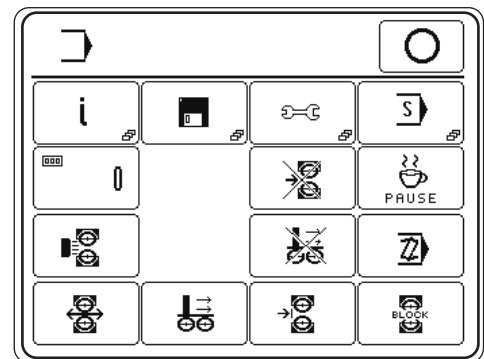


- Call up the input mode

PFAFF 8390-010



PFAFF 8390-020

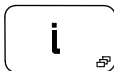


Description of the functions



Heat sealing mode

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



Info

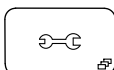
This function opens a menu to display the following information:

- Current software status of the machine
- Current firmware status of the machine
- Current firmware status of the control panel
- Regulation degree of the temperature control unit
- Number of operating hours (can be reset with the **Clear** function)
- Number of production hours (can be reset with the **Clear** function)



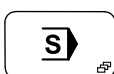
Program management

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 13.11 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.



Simulation on/off

With this function, a sealing process is simulated whereby the heating element (hot wedge or hot air nozzle) is disengaged.



Pause

This function is used to switch off the temperature control of the heating element. The heating element cools down.



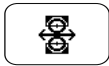
Grinding the hot wedge (only on the PFAFF 8390-010)

After this function has been called up, the hot wedge can be ground. The speed of the feed rollers can be altered in the menu displayed. The grinding operation is controlled with the pedal function, see **Chapter 12.05 Grinding the hot wedge...**



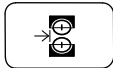
Pre-heating the feed rollers (only on the PFAFF 8390-020)

This function is used to switch the automatic pre-heating function of the feed rollers on or off. When the function is activated, a menu opens for entering the pre-heating time.



Feed rollers forwards/backwards

This function makes it possible to turn the feed rollers forwards/backwards at a freely selectable speed. For this purpose a menu is opened with functions for selecting the speed of the feed rollers and rotational direction, as well as for stopping and starting the feed rollers.



Positioning the heating element

With the use of this function, the heating element can be engaged manually to facilitate the positioning of the heating element to the feed rollers. A menu is opened with functions for carry out the engaging or disengaging operation.



Locking the feed rollers

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



Carriage drive off

With this function, the carriage drive is switched off for stationary operation of the machine. With the optional double foot pedal, the machine can still be driven, see **Chapter 7.05 Double foot switch.**

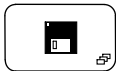
11.02 Program management

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.

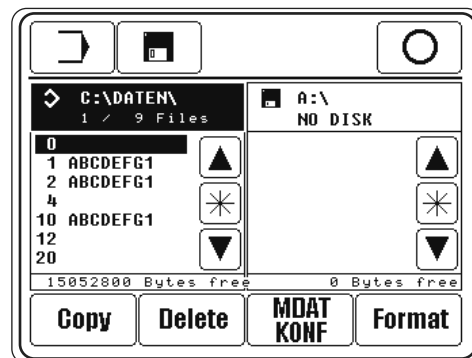
- Switch on the machine.



- 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.



Read data carrier

With this function, the data carrier is reread.



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

Copy

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

Delete**Delete**

This function is used to delete the selected files.

**MDAT
KONF****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 "MDAT8320" and "KONF8320.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**Format**

This function is used to format the disk inserted.



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

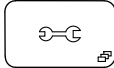
11.03 Further settings

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

- Switch on the machine.

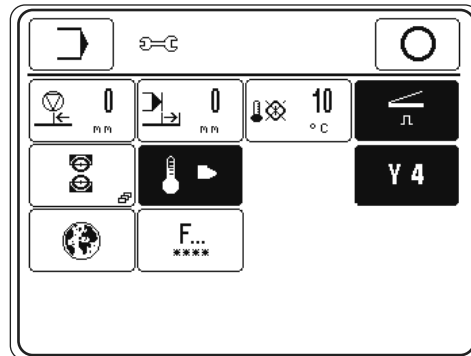


- Call up the input mode.

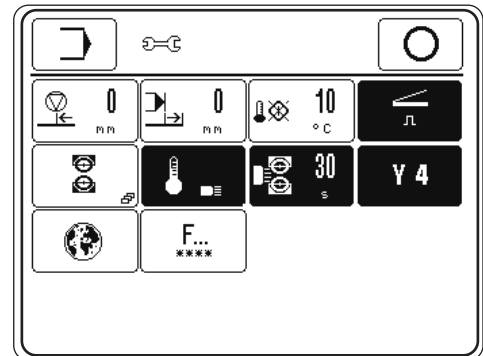


- Call up the input menu for further settings.

PFAFF 8390-010



PFAFF 8390-020



Description of the functions



Input menu

This function is used to call up the input menu.



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.



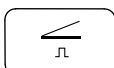
Feed unit forwards at end

The function can be switched on or off. When the function is switched on, the distance, which the feed unit should continue moving after the end of sealing, can be entered.



Temperature window for sealing start

This function is used to enter the tolerance between the actual and the set temperature, within which a sealing start is possible. If the actual temperature is outside the tolerance, the sealing start is blocked.



Flip-flop mode (pedal)

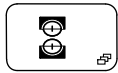
This function is used to switch the flip-flop mode for the pedal function on or off:

- Function switched on (symbol shown inverse)

The pedal function is only carried out as long as the pedal is held in the appropriate position.

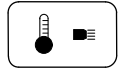
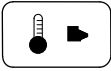
- Function switched off

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.



Feed roller parameters

This function opens a menu for entering the feed roller parameters, see Chapter 11.03.01 **Feed roller parameters**.



Automatic heat-up

This function switches the automatic heat-up function on or off. When the function is switched on, the heating element is slowly heated in a certain area, to prevent any damage to the heating element through an abrupt heat-up.



Pre-heating the feed rollers (only on the PFAFF 8390-020)

This function is used to switch the automatic pre-heating function of the feed rollers on or off. When the function is activated, a menu opens for entering the pre-heating time.



Country settings

This function opens a menu for setting the language and measuring units for each country, see Chapter 8.04 **Selecting the language and units**.



Right of access

This function calls up the menu for defining access rights, see Chapter 11.03.02 **Rights of access**.



Swivel sequence of the heating element

This function is used to switch the "Y4" valve for engaging and disengaging the heating element on or off. The "Y4" valve controls the cylinder for moving the heating element backwards and forwards.

When the function is switched on (standard) the heating element is engaged and disengaged in two steps:

1. Engage or disengage heating element crosswise to the feed rollers.
2. Engage or disengage heating element in the sealing direction.

When the function is switched off, step 2 is not carried out, the heating element is always in the forward position.

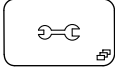
11.03.01 Feed roller parameters

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

- Switch on the machine.



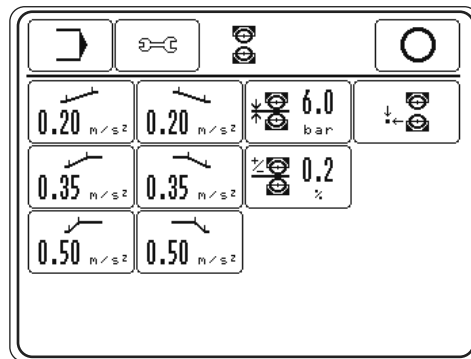
- Enter the input mode.



- Call up further settings.



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



Description of the functions



Input menu

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



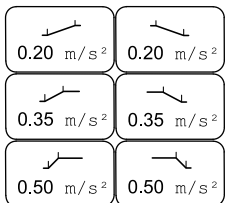
Further settings

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



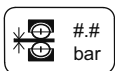
Sealing mode

This function is used to change to the sealing mode.



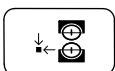
Acceleration and brake profiles

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



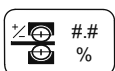
Feed roller pressure limit

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.



Feed difference inkrement

This function is used to enter the inkrement of the feed difference, see chapter. 7.05 Double foot switch.

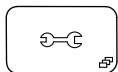
11.03.02 Rights of access

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.

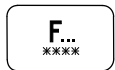
- Enter the key-switch and switch on the machine.



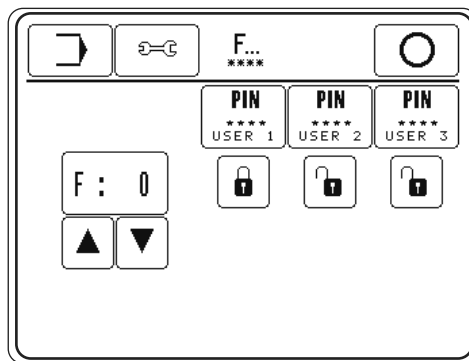
- Call up the input menu.



- Call up further settings.



- Call up the menu for entering rights of access.



Description of the functions



Input menu

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

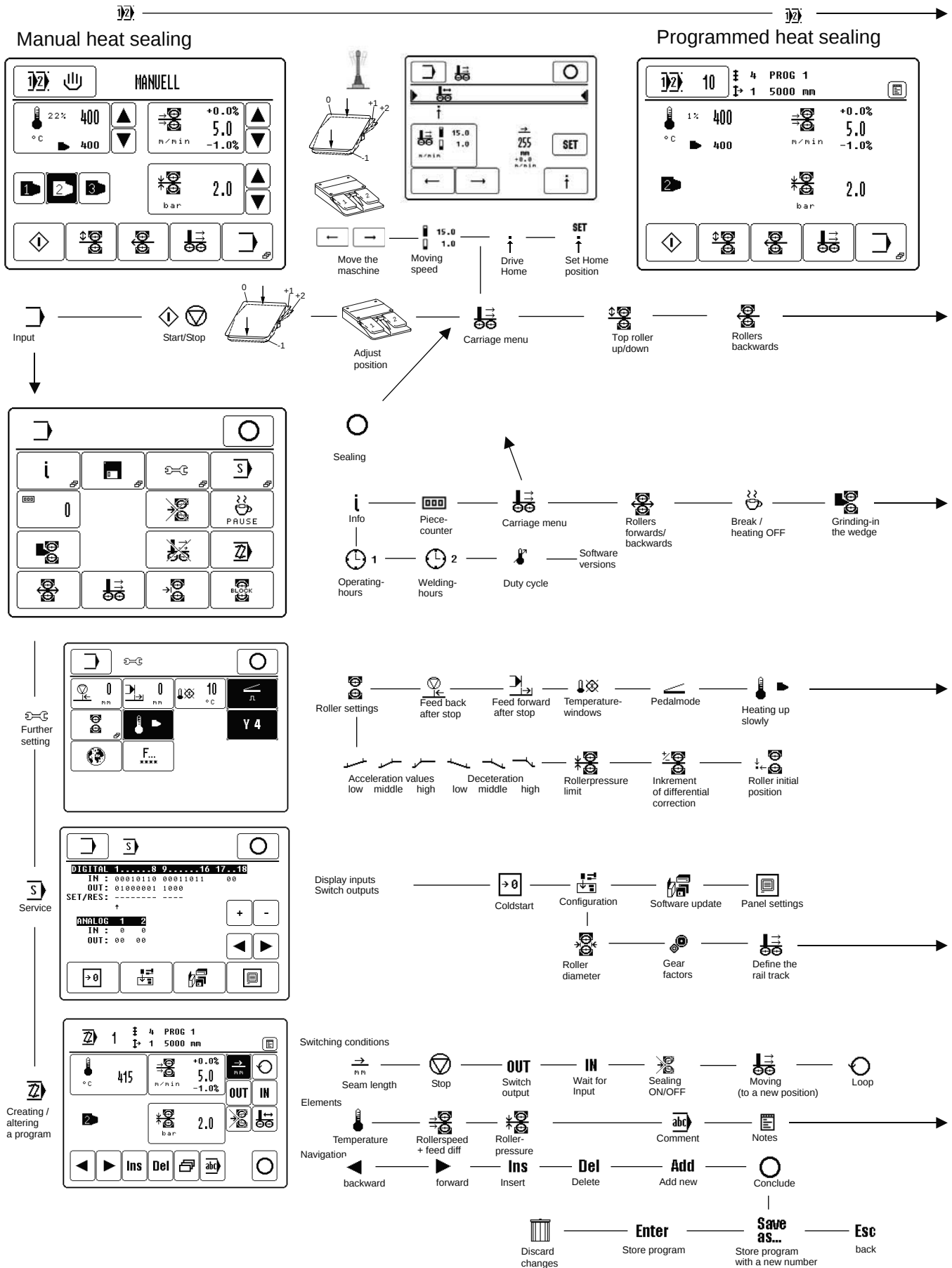
These functions are used to lock or release the function for the appropriate user.

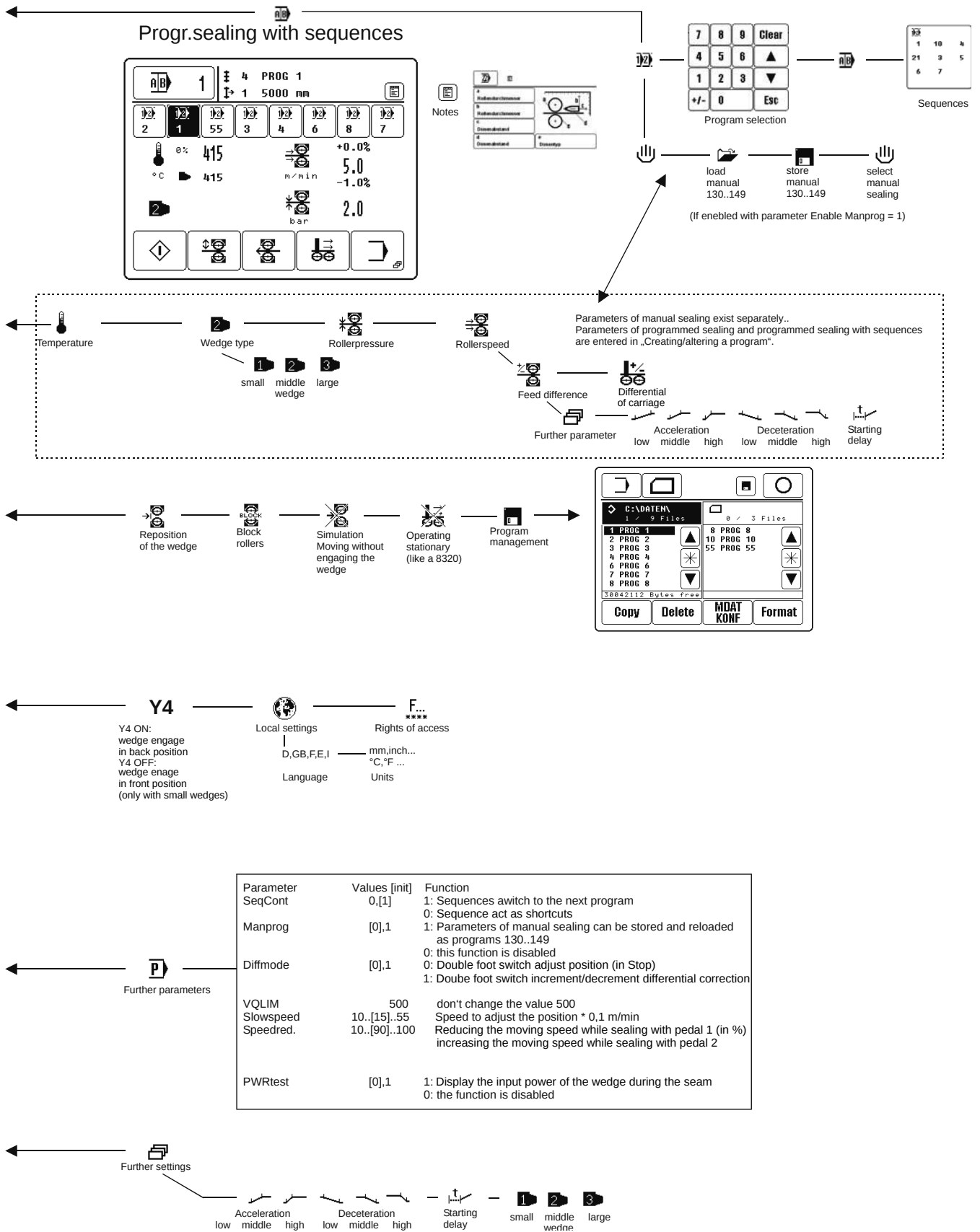
Allocation of the code numbers

Code number	Function	Symbol
F...0	Program numbers - selection	
F...1	Creating/editing program	
F...2	Input mode	
F...3	Settings	
F...4	Roller settings	
F...5	Section backwards after stop	
F...6	Section forwards after end	
F...7	Temperature window	
F...8	Pedal – mode	
F...9	Automatic pre-heating feed rollers	
F...10	Automatic hot wedge / Nozzle heat-up	
F...11	free	
F...12	Country setting	
F...13	Lock/release functions	
F...14	Program management	
F...15	Service	
F...16	Carry out a cold start	
F...17	Machine configuration	
F...18	Load software	
F...19	Reset daily piece counter	
-	Info	
F...20	Reset operating hours meter	
F...20	Reset production hours meter	
F...21	Parameter	PAR
F...22	Control panel functions	

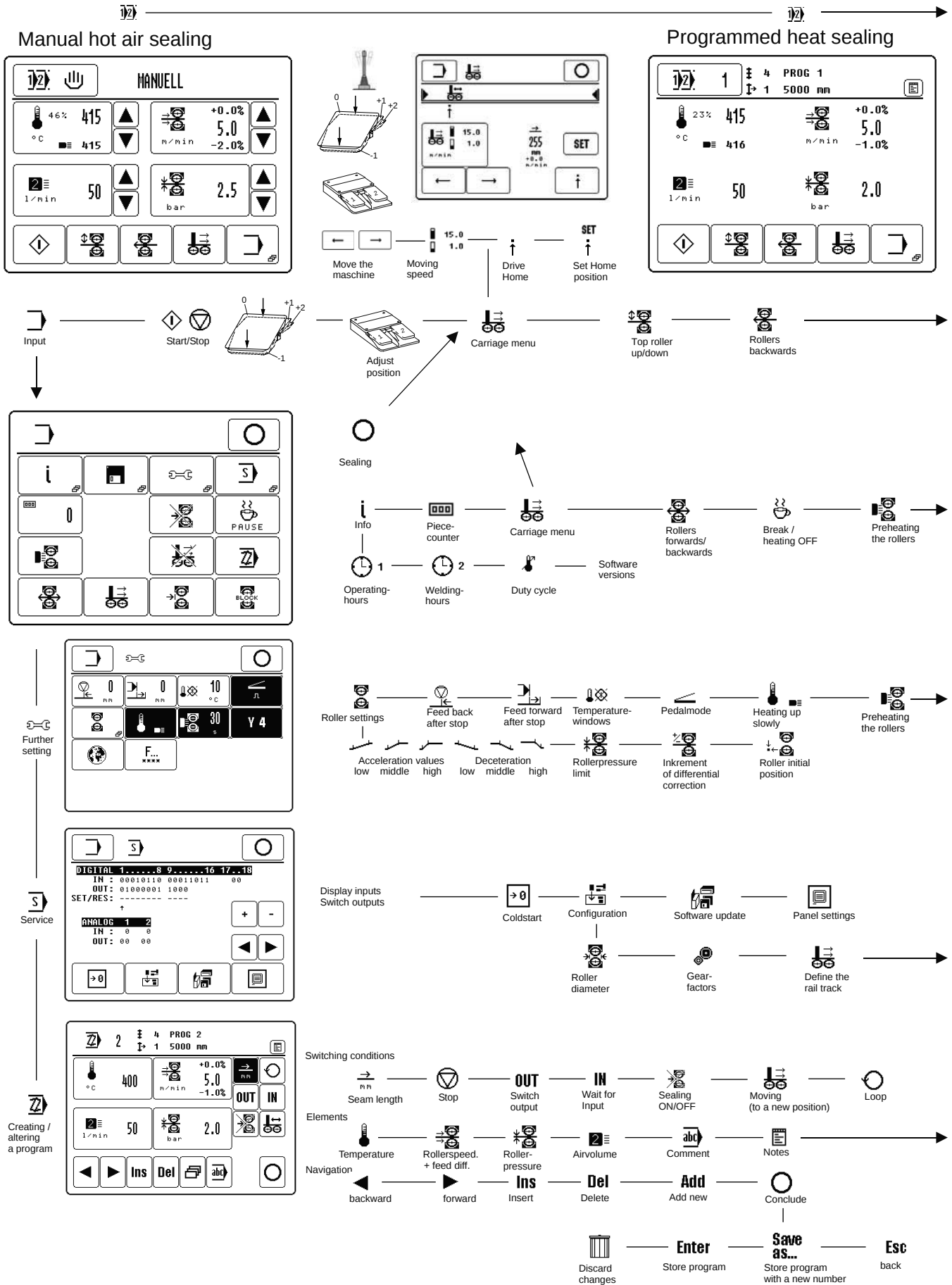
11.04 Installation and commissioning

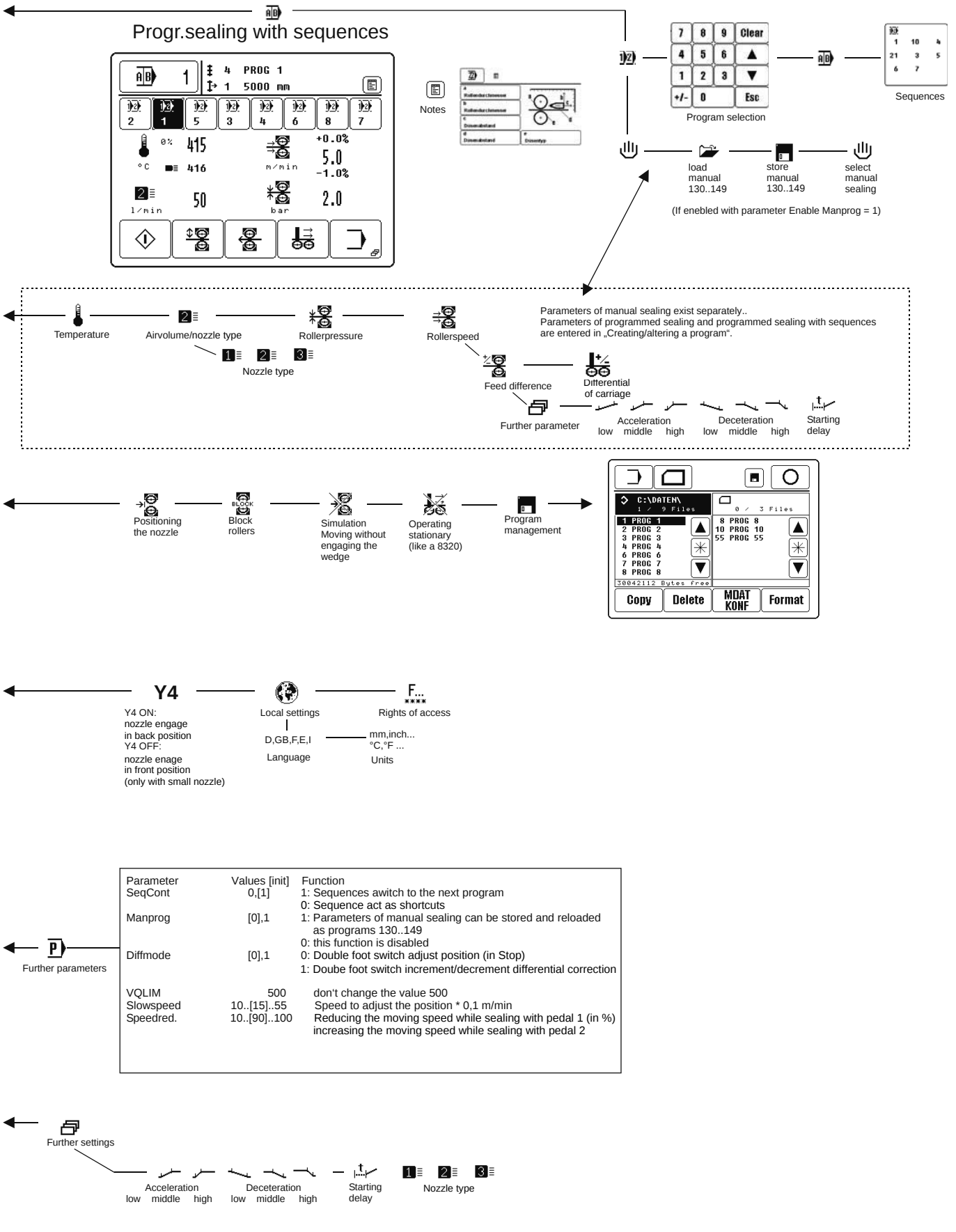
11.04.01 8390-010 (Hot wedge sealing machine)





11.04.02 8390-020 (Hot air sealing machine)





12 Care and Maintenance

12.01 Servicing and maintenance intervals

Cleaning the whole machine	weekly
Cleaning the hot wedge	as required
Cleaning the hot air nozzle	as required
Grind the hot wedge	as required
Clean air fi lter of air-fi lter/lubricator	when required
Check/adjust air pressure.....	daily, before use

12.02 Cleaning

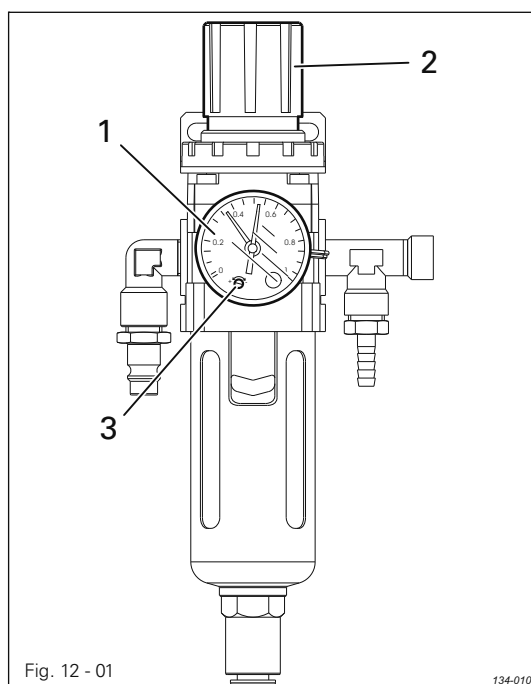


Switch off the machine and let it cool down!
Danger of burns if the heating element is touched!



- Before each start up remove any residues on the top or bottom side of the heating wedge with a soft wire brush.
or
- Clear the opening of the hot air nozzle from sealing residues as required.

12.03 Checking/adjusting the air pressure



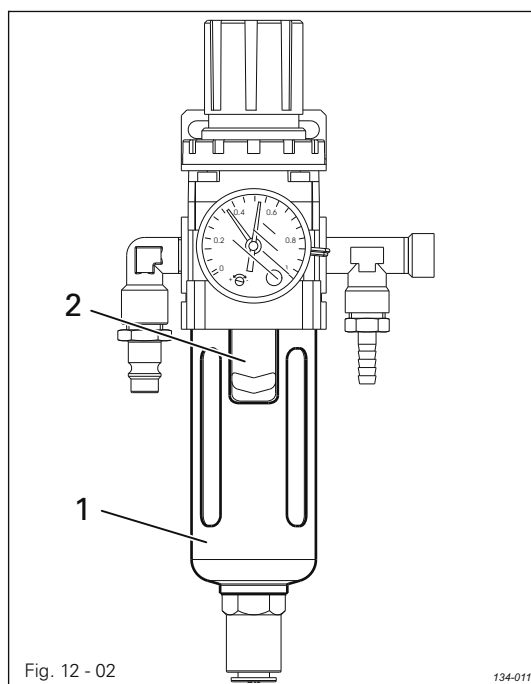
- Before operating the machine, always check the air pressure on gauge 1.
- Gauge 1 must show a pressure of 6 bar.
- If necessary adjust to this reading.
- To do so, pull knob 2 upwards and turn it so that the gauge shows a pressure of 6 bar.

Configuration of the pressure controller:

- Turn screw 3 until the green arrow points to 4.5 bar.

The machine is automatically switched off if a pressure of < 4.5 bar is reached, and can be automatically reactivated, once pressure reaches a value > 5.0 bar.

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



Switch the machine off!
Disconnect the air hose at the air-filter/lubricator.

To drain water bowl 1:

- Water bowl 1 drains itself automatically when 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.

12.05 Grinding the hot wedge (only on the PFAFF 8390-010)



It is only necessary to grind the hot wedge if it is deformed due to wear or corrosion (when processing PVC in a single shift operation, about once a week) or when a new hot wedge has been installed.

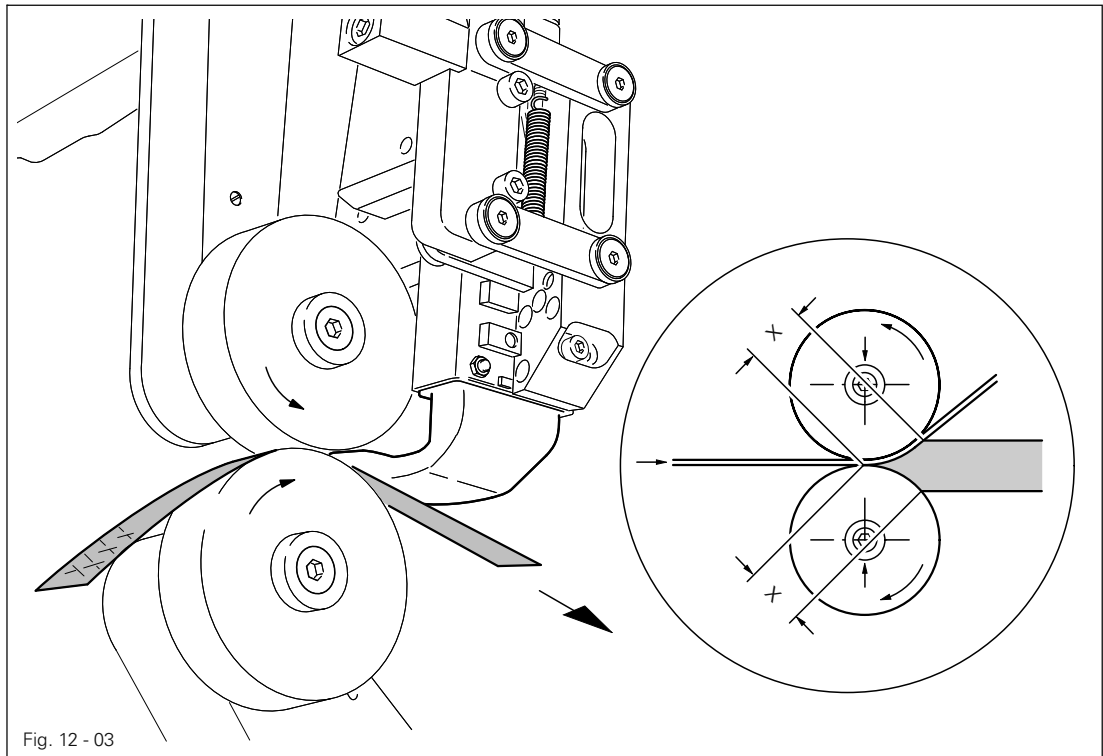
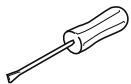


Fig. 12 - 03



- Switch on the machine and set the sealing temperature at its minimum value.

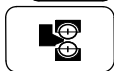


Let the hot wedge cool down!
Danger of burns if the hot wedge is touched!

- Fit the smooth feed rollers, see **Chapter 13.03 Changing the feed rollers**.



- Call up the input menu.



- Call up the Grinding the hot wedge function and, if necessary, adjust the feed speed.

- Place sandpaper (grain size **100**) between the feed rollers and lower the top feed roller with the pedal function.



Do not place fingers between the feed rollers!
Danger of crushing if the fingers are caught between the running feed rollers!

- Engage the hot wedge with the pedal function and start the feed rollers.
- Guide the sandpaper by hand and work both sides of the hot wedge until its shape fits the feed rollers and the measurement "x" is the same size at the top and bottom.
- Check the setting of the hot wedge and correct it if necessary, see **Chapter 13.06 Adjusting the hot wedge**.

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.



Unless stated otherwise, during all adjustment work the machine must be disconnected from the electric and pneumatic power supply!
Danger of injury if the machine is started accidentally!

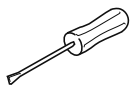
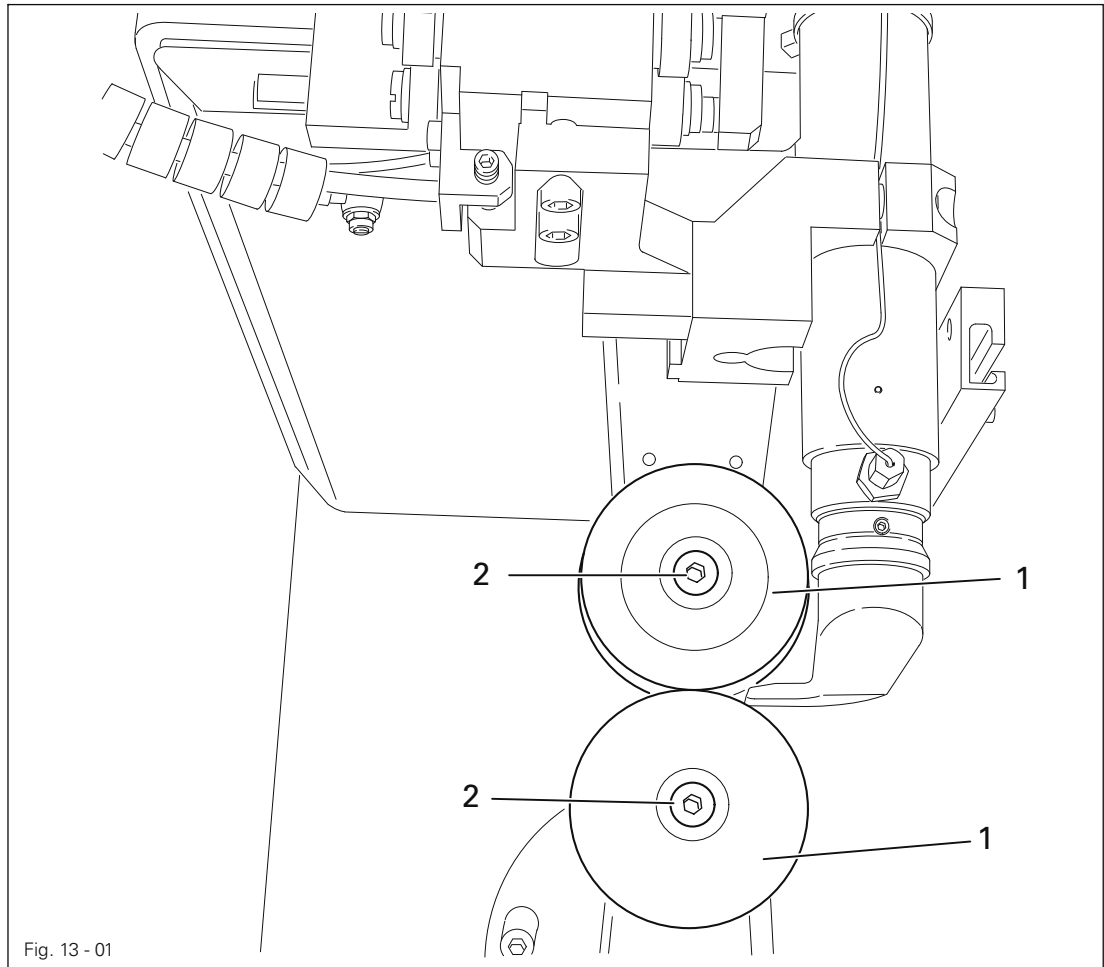


Before all adjustment work switch the machine off and let it cool down!
Danger of burns if the hot-air nozzle is touched!

13.02 Tools, gauges and other accessories

- 1 set of screwdrivers with blade widths from 2 to 10 mm
- 1 set of open-ended wrenches with opening sizes from 7 to 17 mm
- 1 set of allen keys from 1.5 to 6 mm
- 1 wire brush

13.03 Changing the feed rollers



- Switch on the machine and set the sealing temperature at its minimum value.



Let the heating element cool down!
Danger of burns if the heating element is touched!



- Call up the input menu.



- Lock the feed rollers.

- Change feed rollers 1 (screws 2).



If there is a difference between the diameters of the old and new feed rollers, the machine must be re-configured, see **Chapter 13.12.01 Machine configuration**.

- Check the position of the feed rollers and correct it if necessary, see **Chapter 13.04 Adjusting the feed rollers**.
- Switch off the machine.

13.04 Adjusting the feed rollers

Requirement

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

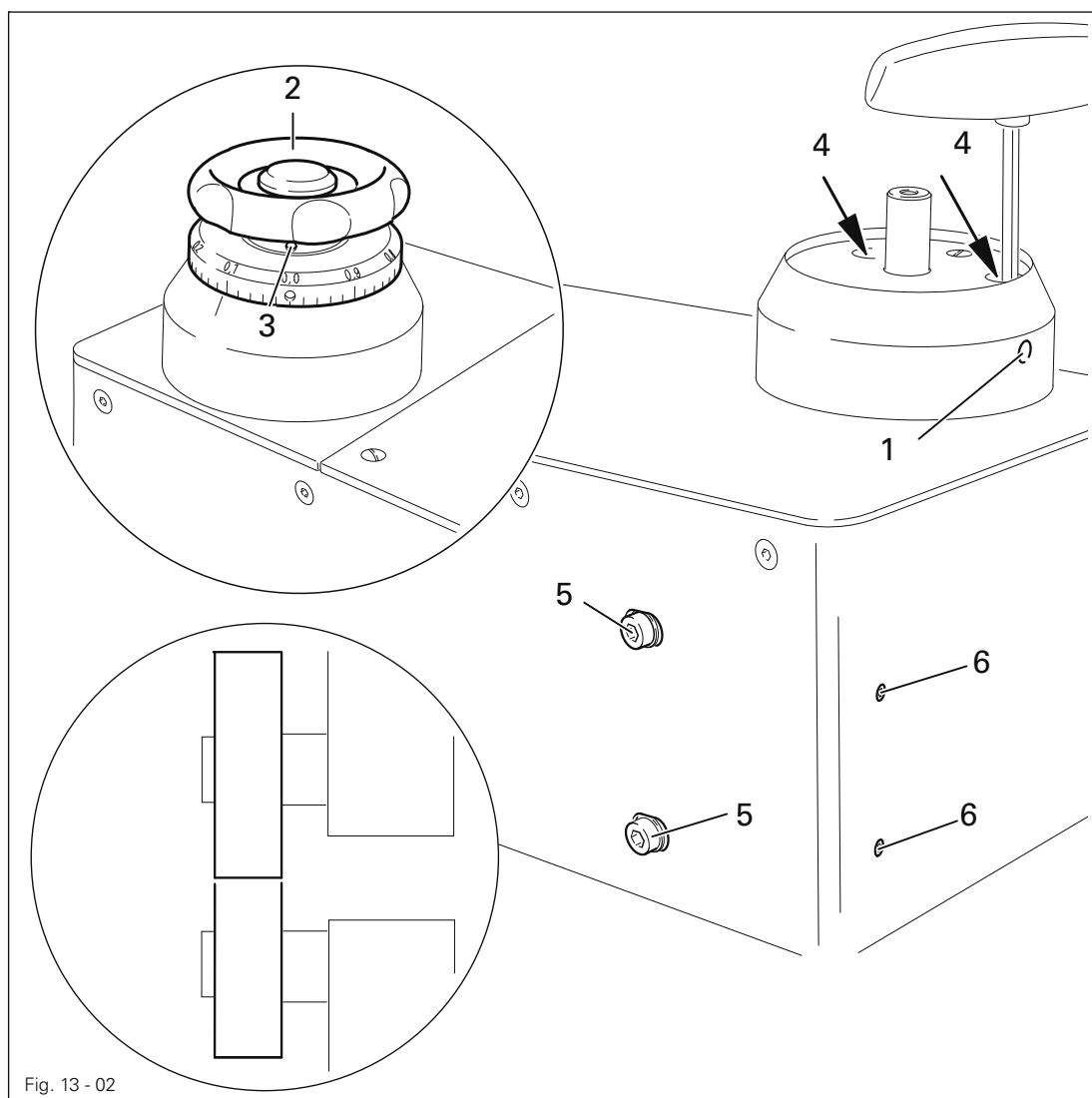
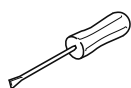
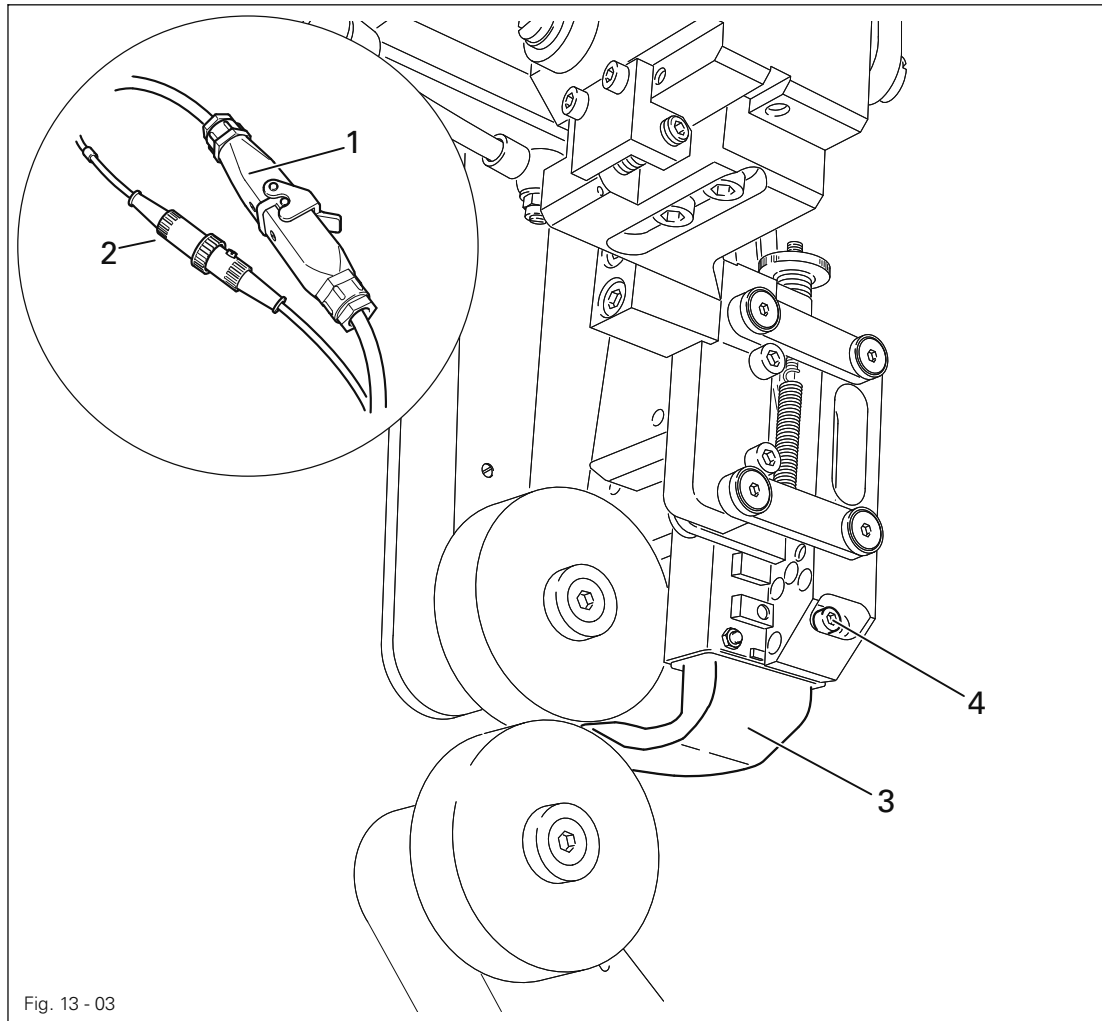


Fig. 13 - 02

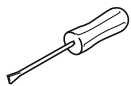


- Tighten screw 1.
- Remove adjustment wheel 2 (screw 3).
- Using an Allen key (width 5), loosen the two screws 4 on the bearing of the top feed roller (accessible through holes in the case).
- Loosen screws 5 and adjust screws 6 in accordance with the **requirement**.
- Tighten screws 4 and 5.
- Fit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

13.05 Changing the hot wedge (only on the PFAFF 8390-010))



Let the heating element cool down!
Danger of burns if the heating element is touched!



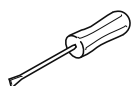
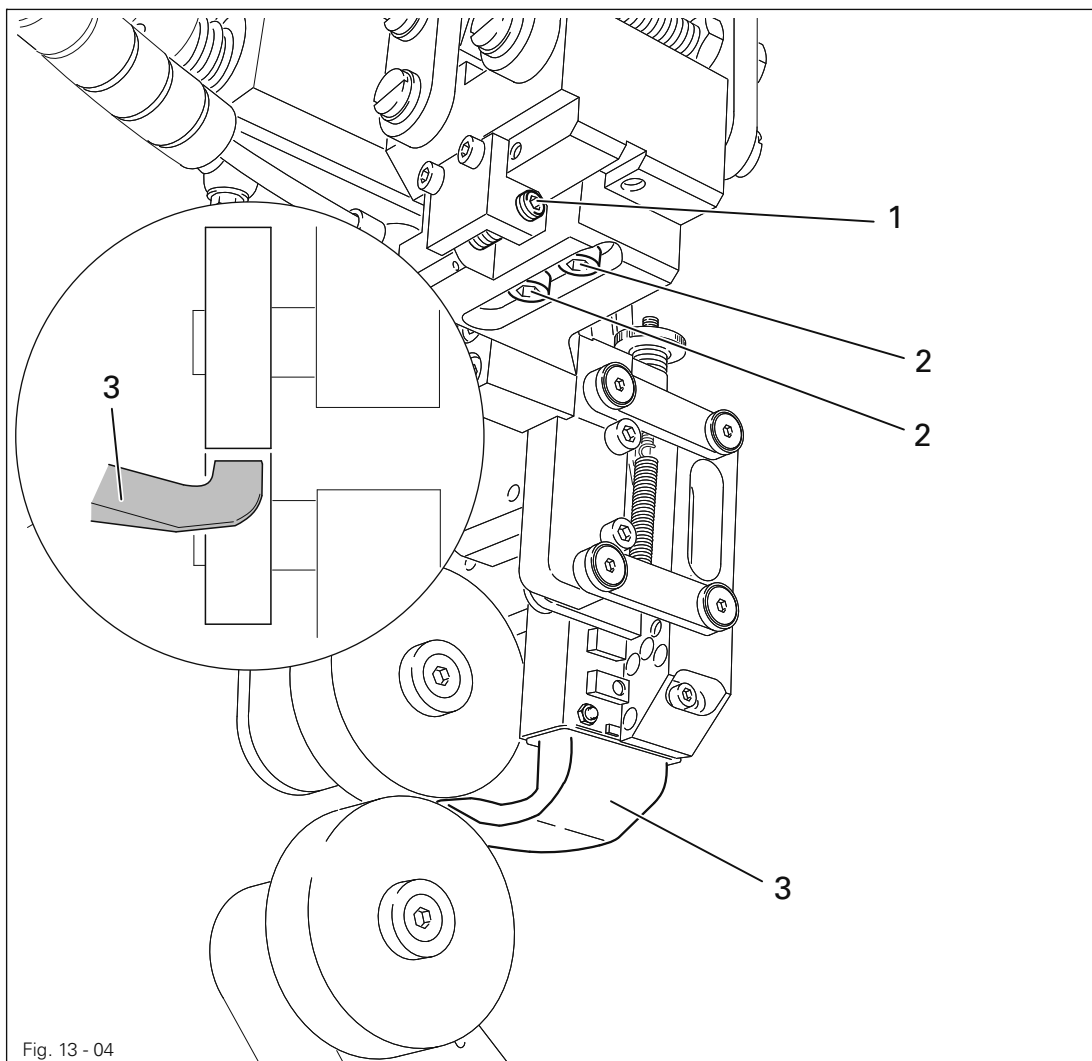
- Disconnect plug connections 1 and 2.
- Change hot wedge 3 (screws 4).
- Reconnect plug connections 1 and 2.
- Adjust the hot wedge, see **Chapter 13.06 Adjusting the hot wedge on the PFAFF 8390-010.**
- Grind the hot wedge, see **Chapter 12.05 Grinding the hot wedge.**

13.06 Adjusting the hot wedge on the PFAFF 8390-010

13.06.01 Positioning the hot wedge crosswise to the feed direction

Requirement

In the feed direction the hot wedge **3** should be centred to the feed rollers.



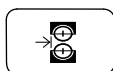
- Switch on the machine and set the sealing temperature at its minimum value.



Let the heating element cool down!
Danger of burns if the heating element is touched!



- Call up the input menu.



- Position the heating element.

- Adjust screw **1** (screws **2**) in accordance with the **requirement**.
- Switch off the machine.

13.06.02 Adjusting the height and counter-balancing the weight of the hot wedge

Requirement

1. When the hot wedge is engaged, the tip of the hot wedge **4** should have a clearance to the bottom feed roller corresponding to the thickness of the workpiece.
2. Spring **5** should have so much tension, that the hot wedge **4** remains in the centre position.

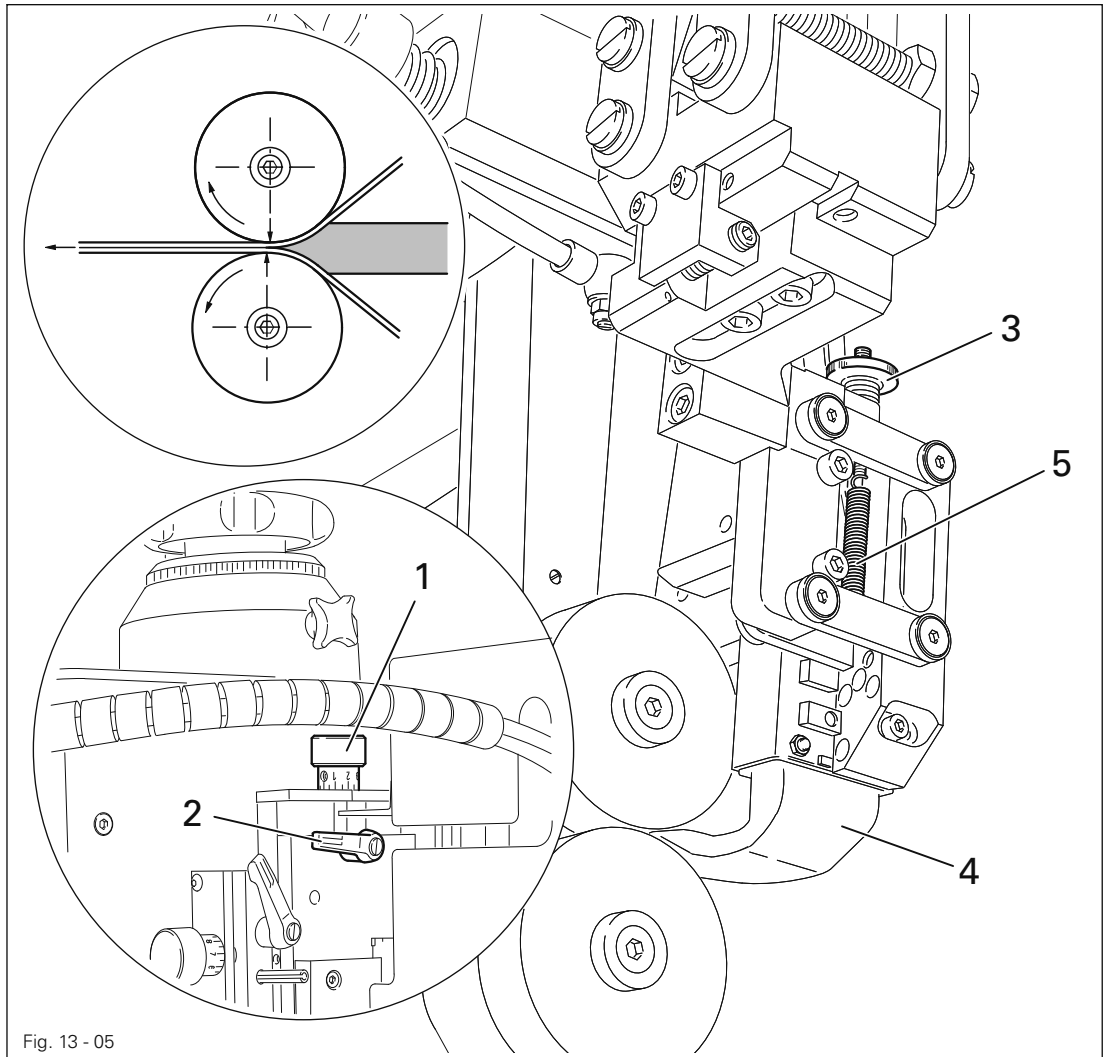
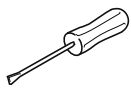


Fig. 13 - 05



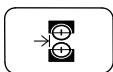
- Switch on the machine and set the sealing temperature at its minimum value.



Let the heating element cool down!
Danger of burns if the heating element is touched!



- Call up the input menu.



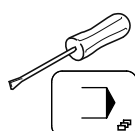
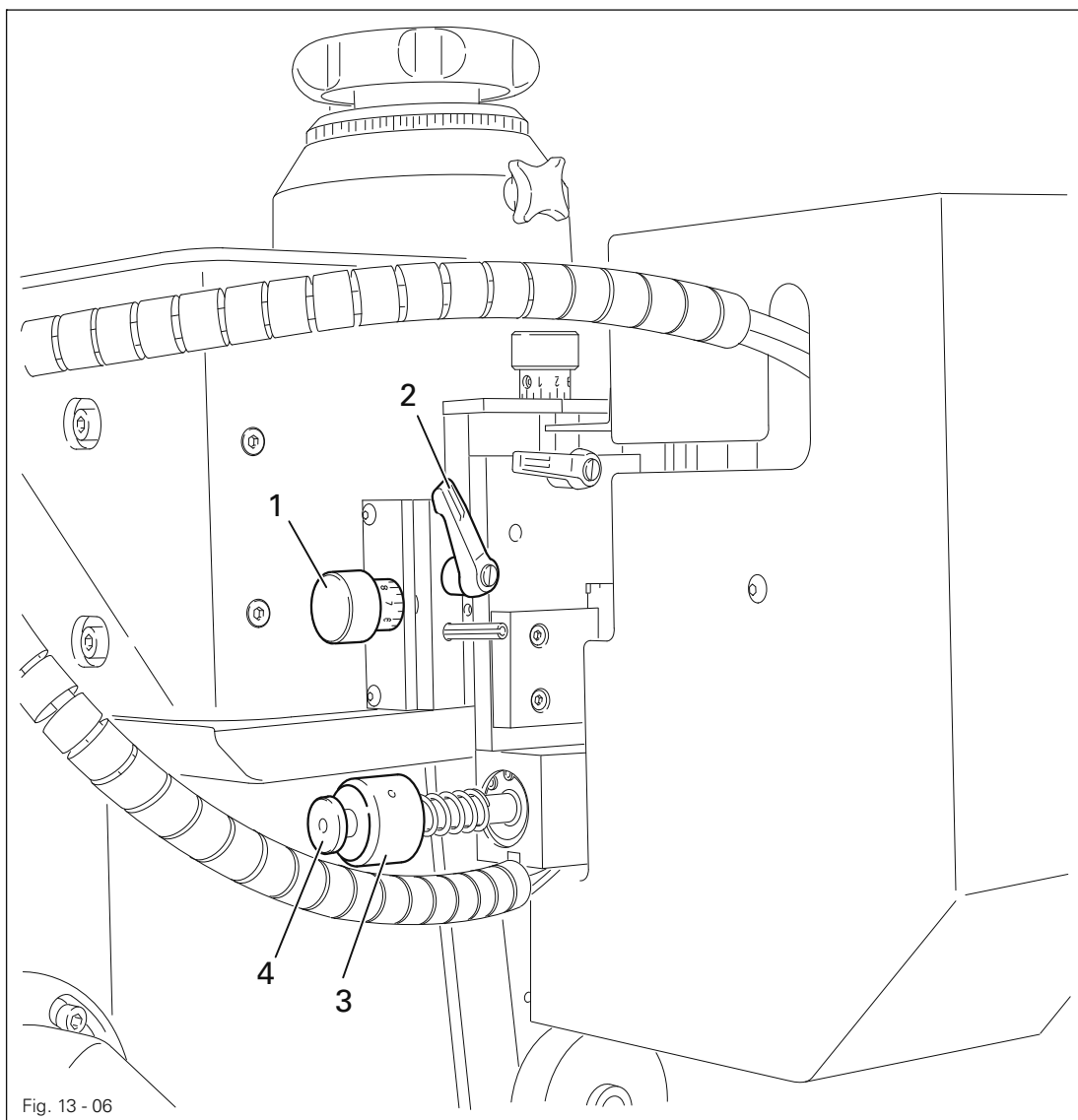
- Position the heating element.

- Adjust screw **1** (clamp screw **2**) in accordance with **requirement 1**.
- Adjust screw **3** in accordance with **requirement 2**.
- Switch off the machine

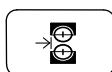
13.06.03 Hot wedge to feed roller clearance and contact pressure

Requirement

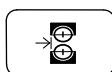
1. The hot wedge should be touching the workpiece.
2. The contact pressure of the hot wedge should be set so that a good seam quality is guaranteed, and so that the hot wedge cannot move backwards when sealing cross seams.



- Switch on the machine and set the sealing temperature at its minimum value.



- Call up the input menu.



- Position the heating element

- Adjust screw 1 (clamp screw 2) in accordance with **requirement 1**.

- Adjust screw 3 (lock screw 4) in accordance with **requirement 2**.

- Switch off the machine.

13.07 Adjusting the hot air nozzle on the PFAFF 8390-020

13.07.01 Lateral adjustment and setting the angle of the hot air nozzle

Requirement

1. When hot air nozzle **3** is engaged, in the feed direction it should be centred to the feed rollers.
2. The front edge of the hot air nozzle **3**, as seen from the rear, should be positioned parallel to the axes of the feed rollers.

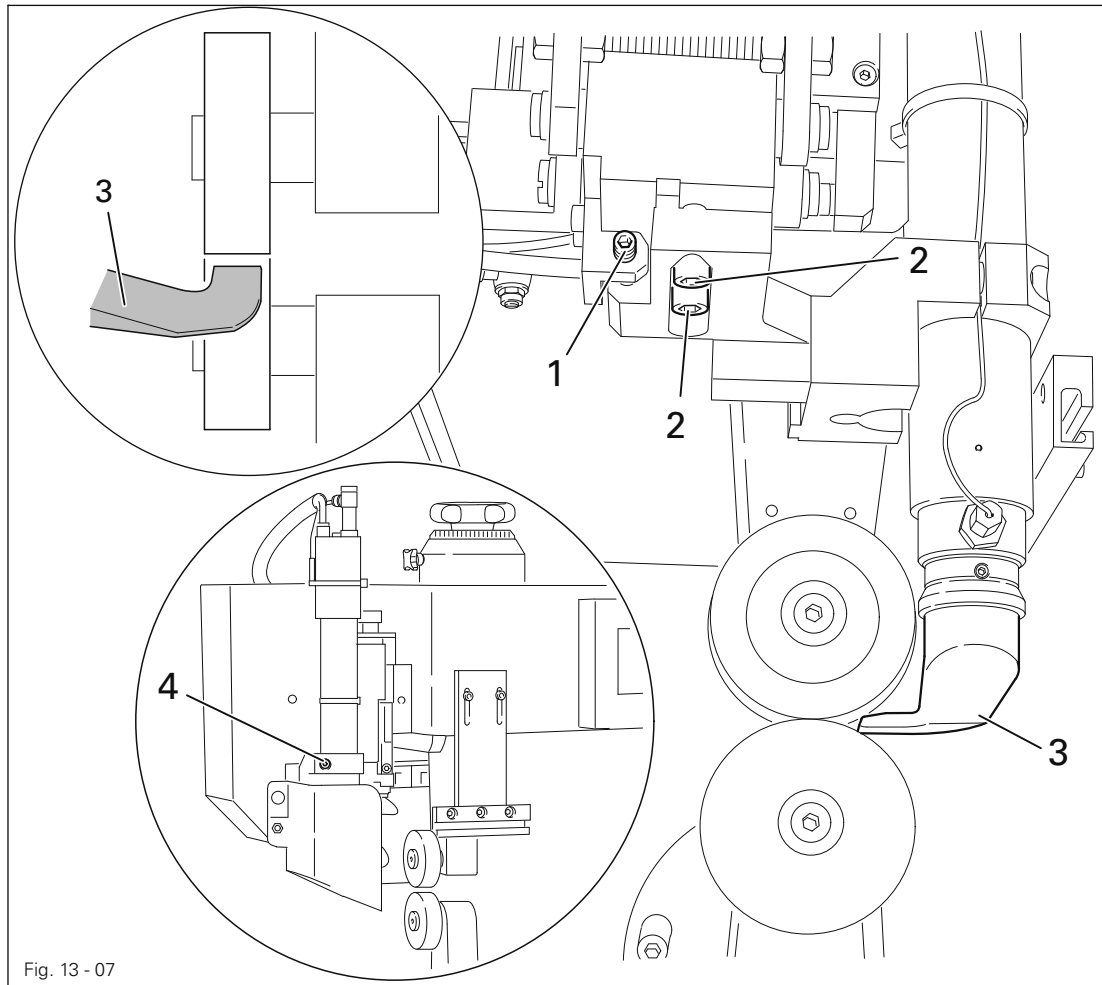
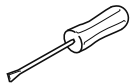


Fig. 13 - 07



- Switch on the machine and set the sealing temperature at its minimum value.

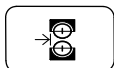


Let the heating element cool down!

Danger of burns if the heating element is touched!



- Call up the input menu.

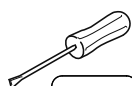
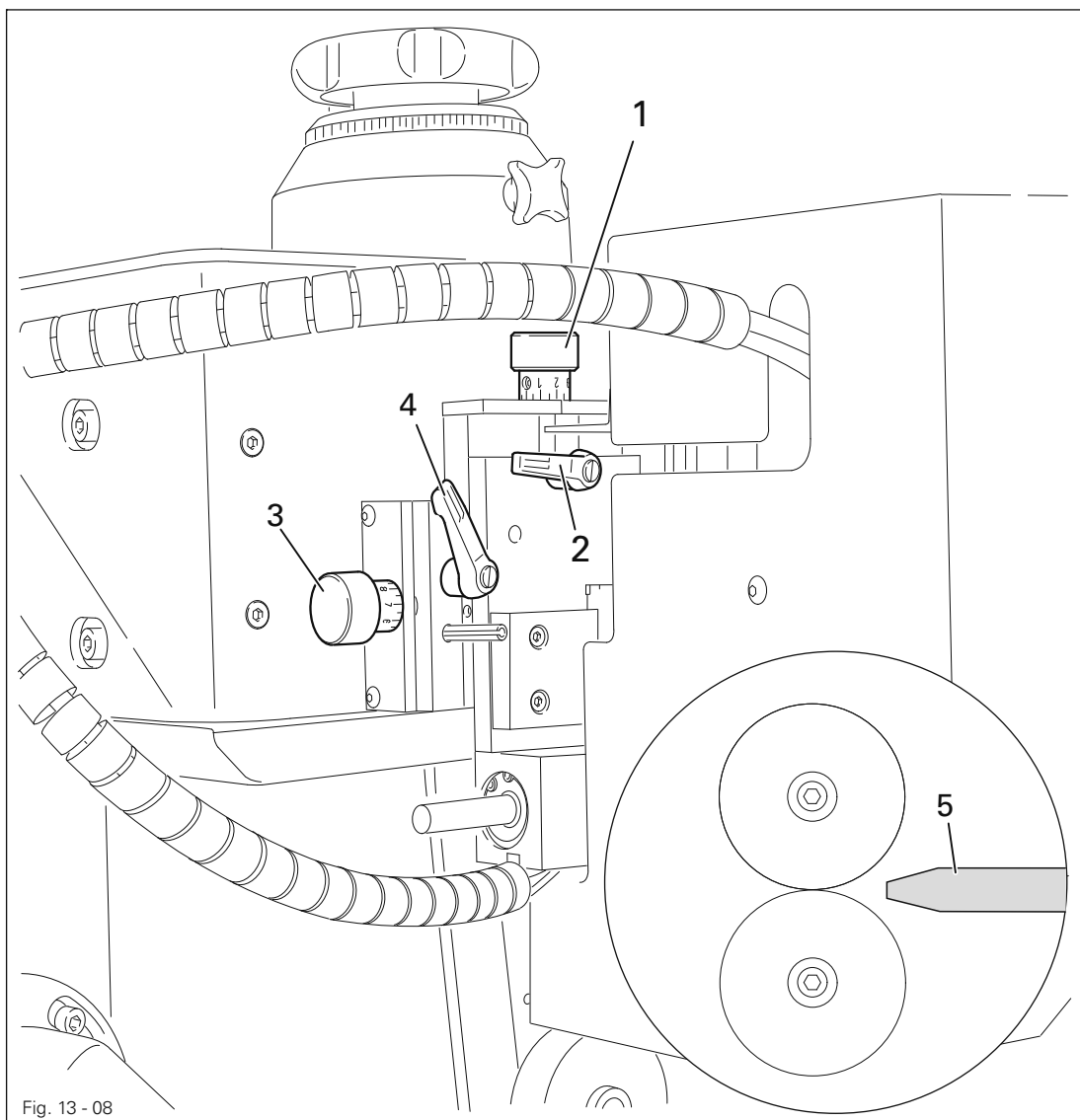


- Position the heating element
- Adjust screw **1** (screws **2**) in accordance with **requirement 1**.
- Adjust hot air nozzle **3** (screw **4**) in accordance with **requirement 2**.
- Switch off the machine.

13.07.02 Adjusting the height and feed roller clearance of the hot air nozzle

Requirement

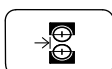
1. The height adjustment of not air nozzle **5** depends on the material, and the standard setting is centred to the feed rollers.
2. There should be clearance of ca. **1 -2 mm** between hot air nozzle **5** and the workpiece.



- Switch on the machine and set the sealing temperature to its minimum value.



- Call up the input menu.



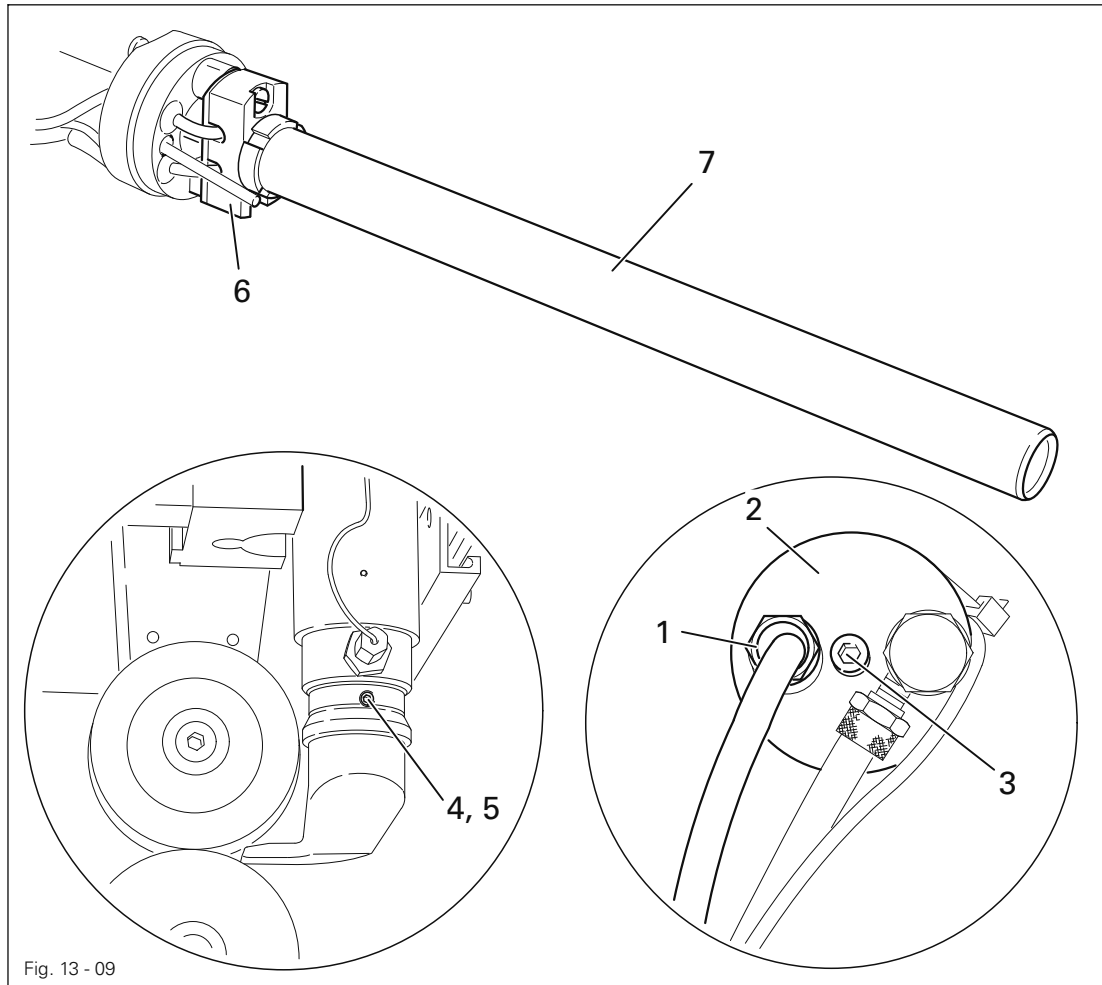
- Position the heating element.

- Adjust screw **1** (clamp screw **2**) in accordance with **requirement 1**.

- Adjust screw **3** (clamp screw **4**) in accordance with **requirement 2**.

- Switch off the machine.

13.08 Changing the heating cartridge (only on the PFAFF 8390-020)



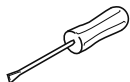
Wait until the heating element has cooled down! Danger of burns!



Disconnect the mains plug!



Danger from electric voltage!



- Loosen the cable screw 1.
- Remove cap 2 (screw 3).
- Remove screw 4 and loosen screw 5 (underneath).
- Pull out socket 6 together with the heating cartridge 7.
- Remove heating cartridge 7 from socket 6.
- Installation takes place in the reverse order, taking care that screw 5 must only be tightened slightly (**max. 1 Nm**).

13.09 Changing the temperature sensor (only on the PFAFF 8390-020))

Requirement

The temperature sensor **5** should be inserted as far as possible into the hot air tube.

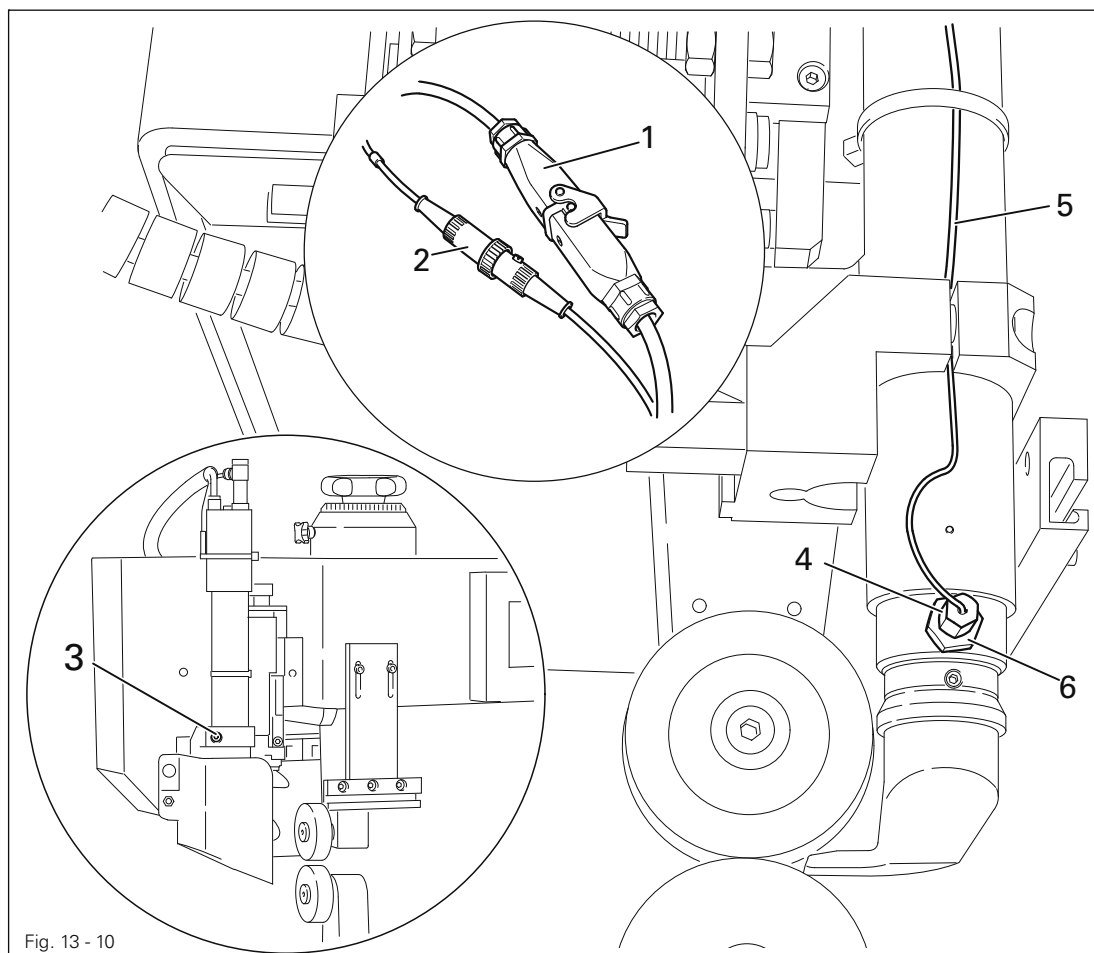


Fig. 13 - 10



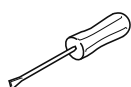
Wait until the heating element has cooled down! Danger of burns!



Disconnect the mains plug!



Danger from electric voltage!



- Disconnect plug connections **1** and **2** and loosen screw **3**.
- Remove nut **4** together with the temperature sensor **5**.
- Attach the new temperature sensor **5** together with new nut **4**.
- Slide temperature sensor **5** as far into the hot air tube as possible and fix it in this position by tightening nut **6**.
- The rest of the installation takes place in the reverse order.
- Carry out adjustments as described in **Chapter 13.07.02 Adjusting the height and feed roller clearance of the hot air nozzle**.

13.10 Protective switch and boot key

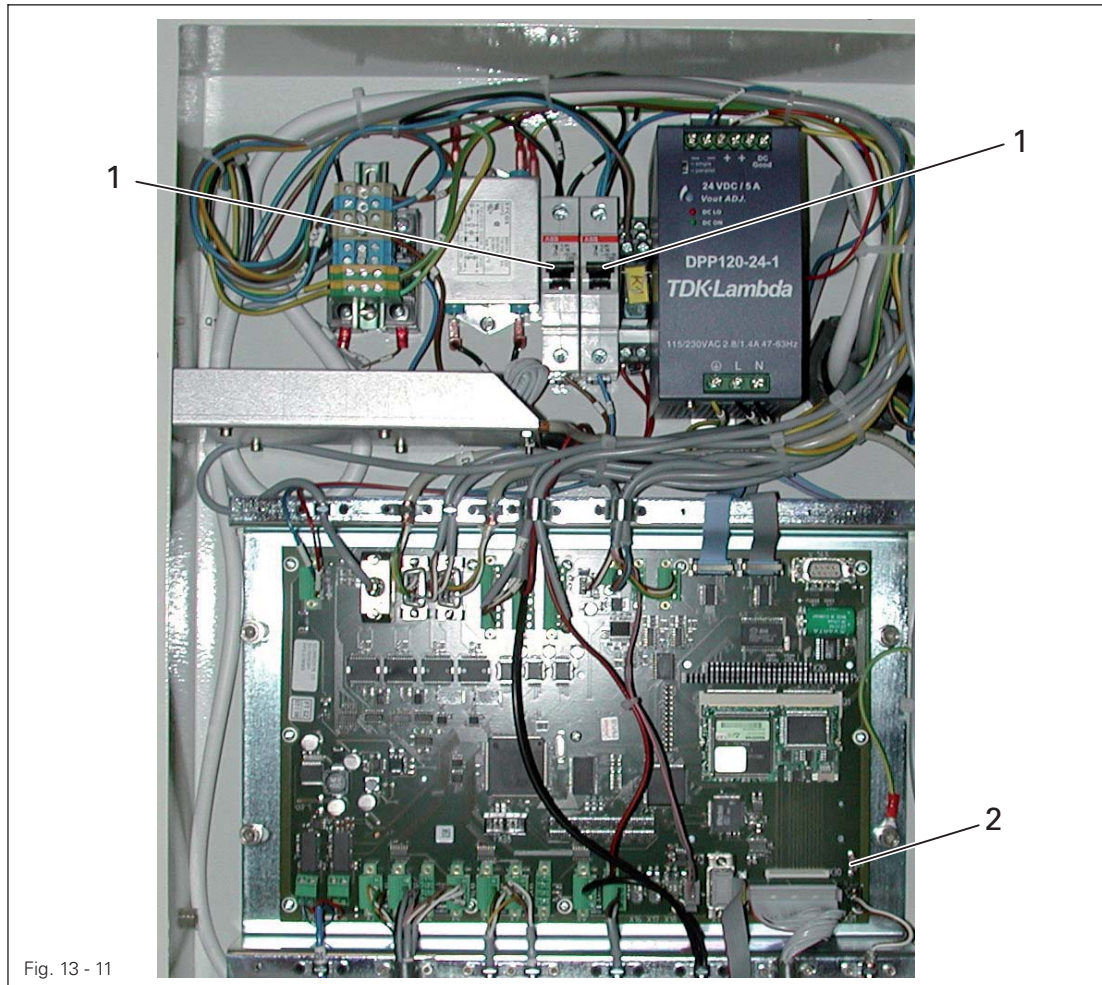


Fig. 13 - 11



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 13.11.02 Loading/updating the operating program**.



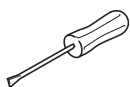
Disconnect the mains plug!



Danger from electric voltage!



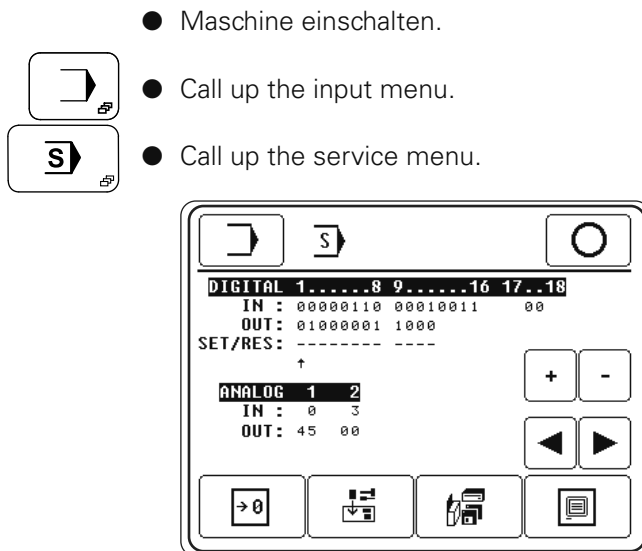
Before switching the machine on again, first eliminate the cause of the fault!



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

13.11 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.



Explanation of the functions



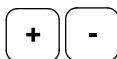
Input menu

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



Heat sealing mode

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



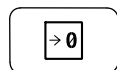
Plus/minus keys

These are used to set (+) or reset (-) the selected output.



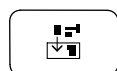
Arrow keys

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 13.11.01 Machine configuration**.



Loading the operating program

This function is used to load the machine operating program, see **Chapter 13.11.02 Loading/ updating the operating program**.



Control panel settings

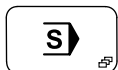
This function is used to call up a menu for changing the display contrast and for switching the key tone on or off, see **Chapter 9.04 Setting the control panel**.

13.11.01 Machine configuration

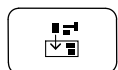
With the machine configuration function the machine control unit receives the necessary information about the attached components. If the machine components are changed, care must be taken to make the appropriate adjustment in the machine configuration.



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

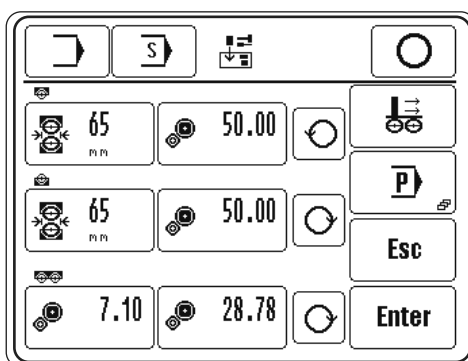


- Call up the service menu.

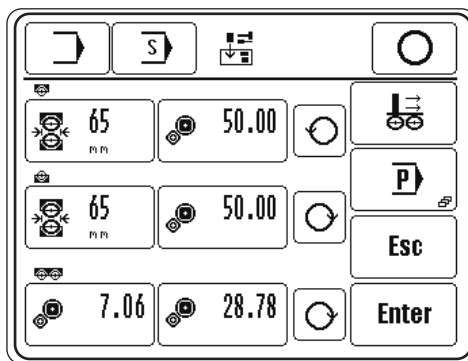


- Call up the menu for entering the machine configuration.

Gear drive



Chain drive



Explanation of the functions



Input menu

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



Service menu

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



Heat sealing mode

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



Feed roller diameter

This function is used to enter the diameter of the feed rollers installed.



Top/bottom/carriage gear factor

These functions are used to enter the gear factor for the top and bottom roller drive, as well as the carriage drive.



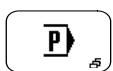
Rotational direction

This function is used to set the appropriate rotational direction of the drive.



Carriage configuration

This function calls up a menu for configuring the carriage or the track system.



Parameter menu

With this function, a menu appears for setting the machine parameters, see **Chapter 13.14 Parameter settings**.

Esc

Esc

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

Enter

Enter

All program changes are stored under the current program number.

13.11.02 Loading/updating the operating program

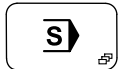
This function is used to update the machine software. For this purpose an appropriate boot disk must be available.



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



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



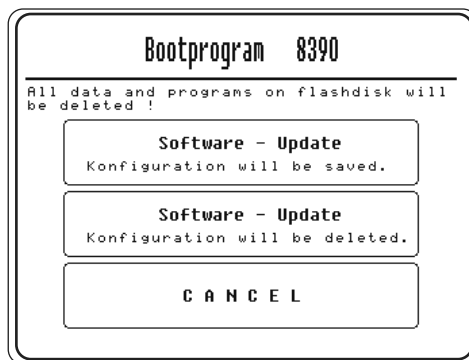
- Call up the service menu.



- 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 13.11.01 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 13.10 Protective switch and boot key**.

13.12 Description of the error numbers

13.12.01 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: 107	Error air volume (when air volume sensor is activated)
ERROR: 110 #ERROR no. Motor	Error DC-motor 1
ERROR: 120 #ERROR no. Motor	Error DC-motor 2
ERROR: 130 #ERROR no. Wagen	Error carriage
ERROR: 140 #Error no. Temp. Control	Error temperature control unit
ERROR: 201	Res. speed for man. sealing outside permissible range
ERROR: 301	Program too large
ERROR: 302	Contradiction between progar and progload
ERROR: 303	Flash read error or progr. Defect
ERROR: 304	Memory overflow
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
ERROR: 317	Write error in MDAT-file
ERROR: 318	Machine data identification incorrect
ERROR: 319	Read error in MDAT-file
ERROR: 330 #Prog. No. #Zone No.	Program. speed > max. gear-controlled speed

Display	Description
ERROR: 331 #Prog. No.. #Zone No.	Programmed roller pressure > roller pressure limit
ERROR: 332 #Prog. No.. #Zone No.	Speed and differential outside permissible values
ERROR: 340 # Zone No.	Selected temperature too high
ERROR: 341 # Zone No.	Air volume does not match nozzle type
ERROR: 342 # Zone No.	Programmed sealing off not plausible
ERROR: 343 # Zone No.	Programmed output (OUT) not plausible
ERROR: 344 # Program No.	Program not for this machine, nozzle/wedge
PROGRAM XX NOT IN MEMORY	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 Disconnect error

13.12.02 Temperature control error

Error number	Description
0	No error
1	Thermoelement 1 disconnection (HW-alarm-bit)
2	Control circuit not reacting
3	Temperature window (alarm) exceeded
4	No temperature increase despite of controller full scale (heating cartridge defective or thermo element slipped from holder)

13.12.03 DC-motors error (Feed rollers)

Error number	Discription
0	No error
10	Incorrect command code
11	Invalid speed
12	Invalid acceleration
13	Start with dead motor
14	Set differential with master
15	Contouring error
16	Overload current
17	Over 5 V positioning voltage with standing motor (possible cause: Load moment (tension, surge, stationary rollers, if necessary too large differential tolerance)

13.12.04 Error with carriage

Error number	Discription
0	No error
1	Transmission error
2	Data error
3	Parameter error
4	ETX missing
5	Watchdog
6	Timeout
7	ACK missing
8	Checksum
9	Error P40ED with error number
10	Safety monitoring

13.13 List of outputs and inputs

13.13.01 Digital Outputs

HWTerm	SWTerm	Function	Remark
AUS 1 X1/1	Y1	Roller down (reduced pressure)	Valve
AUS 2 X1/3	Y2	Additional blowing off	Valve
AUS 3 X1/5	Y3	Nozzle/wedge engaged	Valve
AUS 4 X1/7	Y4	Nozzle/wedge forwards	Valve
AUS 6 X11/3	OUT1	Programmable output 1	
AUS 7 X11/5	OUT2	Programmable output 2	
AUS 8 X11/7	K1	Carriage motor mains voltage	Relais
AUS 9 X12/1	Y6	Loosen carriage brakes	Valve
AUS 10 X12/3		free	
AUS 11 X12/5	Start/Stop	Start / stop monitor output #	
AUS 12 X12/7	Error	Monitor output error	

13.13.02 Digital Inputs

HWTerm	SWTerm	Function
EIN 1 X2/2	E1	Roller lowered
EIN 2 X2/3	E3	Nozzle/wedge engaged
EIN 3 X3/2	E4	Nozzle/wedge forwards
EIN 4 X3/3	E10	Code input wedge/air
EIN 5 X4/2	E12	free
EIN 6 X4/3	E13	free
EIN 7 X5/2	E11	Pressure monitor
EIN 8 X5/3	E14	Knee switc
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
EIN 15 X9/2		frei
EIN 16 X9/3	LAFEIN (Carriage drive mains on)	Carriage drive mains supply safety switch
EIN 17 X10/2	JOYVOR	Joystick forwards
EIN 18 X10/3	JOYZUR	Joystick backwards

13.13.03 Analog Outputs

HWTerm	SWTerm	Function	Remark
Roller up X33	DC-Motor 2	Roller motor up (slave)	DC Motor
Roller down X34	DC-Motor 1	Roller motor down (master)	DC Motor
SSR_EIN X13	SSR Ansteuerung	Heating capacity control unit	PWM
X24	LUFTOUT	Air volume control	prop. Valve
X23	RDRUCKOUT	Roller pressure set value	Pressure regulating valve

13.13.04 Analog Inputs

HWTerm	SWTerm	Function
AE4 X19/2	RDRUCKIN	Roller pressure regulator actual value control
Pedal X14/8	Pedal	Analog pedal
X35	Wagen	Carriage incremental encoder

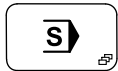
13.14 Parameter settings

All changeable parameters are listed in the parameter list, see Chapter 13.14.02 List of parameters. Parameter selection as well as changing the values is described below.

13.14.01 Selection and changing parameters



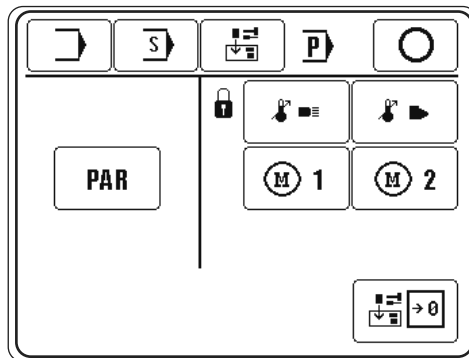
- Switch on the machine and call up the input menu.



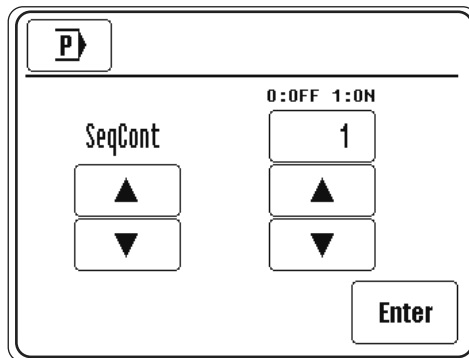
- Call up the service menu.



- Call up the Parameter menu.



- Call up parameter entry.



- Select parameter.



- Change the value of the selected parameter.



- Exit parameter entry.

13.14.02 List of parameters

Parameter	Description	Setting range	Set value
SeqCont	0: Process sequence program as quick key selection. 1: Sequence programs are automatically relayed.	0 - 1	1
Y1mode	0: lp 1: hp	0 - 1	1
Manprog	0: Manual data records cannot be saved or loaded. 1: Manual data records can be saved and loaded as programs in area 130..149.	0 - 1	0
Diffmode	0: Foot switch (3 stage, 2 stage) is used as a switch pedal during the sealing process for reducing and increasing speed. 1: Foot switch is used only for differential correction.	0 - 1	0
VQLIM	if positive: error #17 boundary stress if negative: max. stress at standstill	+/- 2400	500
Slowspeed	Switching speed * 0.1 m/min	10 - 55	15
Speedred	Reduction (or increase) of carriage speed when sealing with double foot switch in %	10 - 99	90
PWRtest	Experimental display of energy input when sealing 0: off; 1: on	0 - 1	0

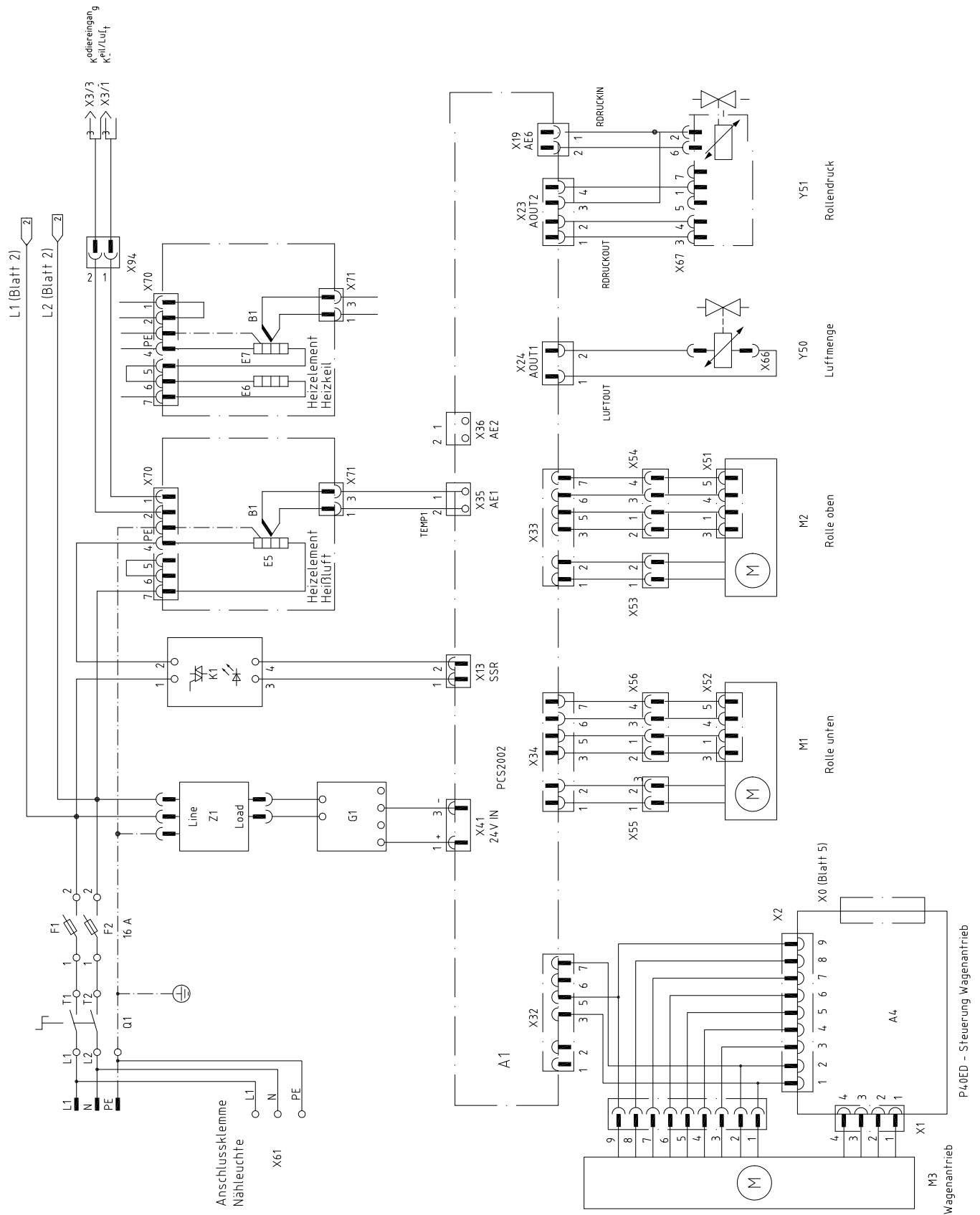
14 Circuit diagrams

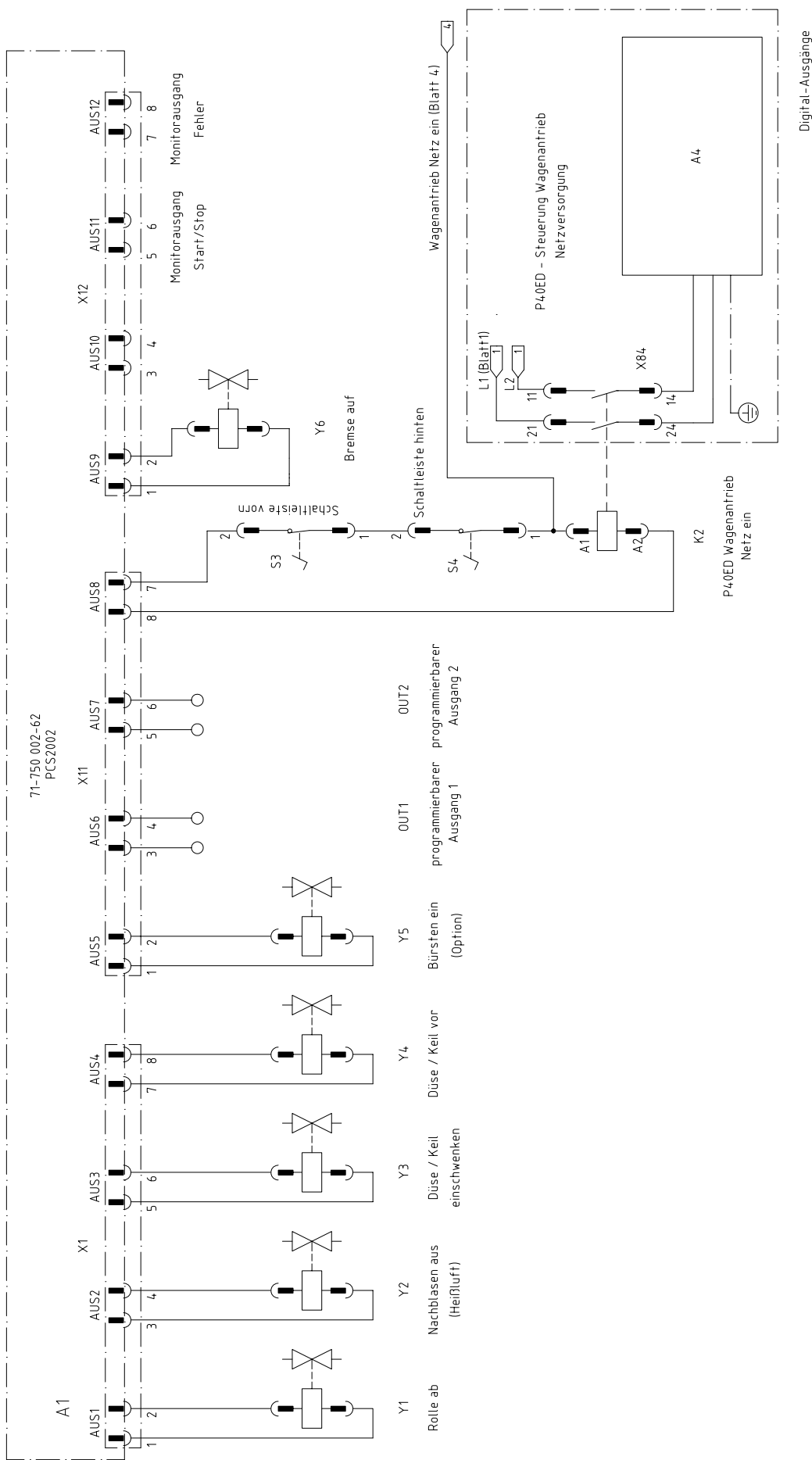
14.01 Reference list for the Circuit diagrams 95-212 062-95

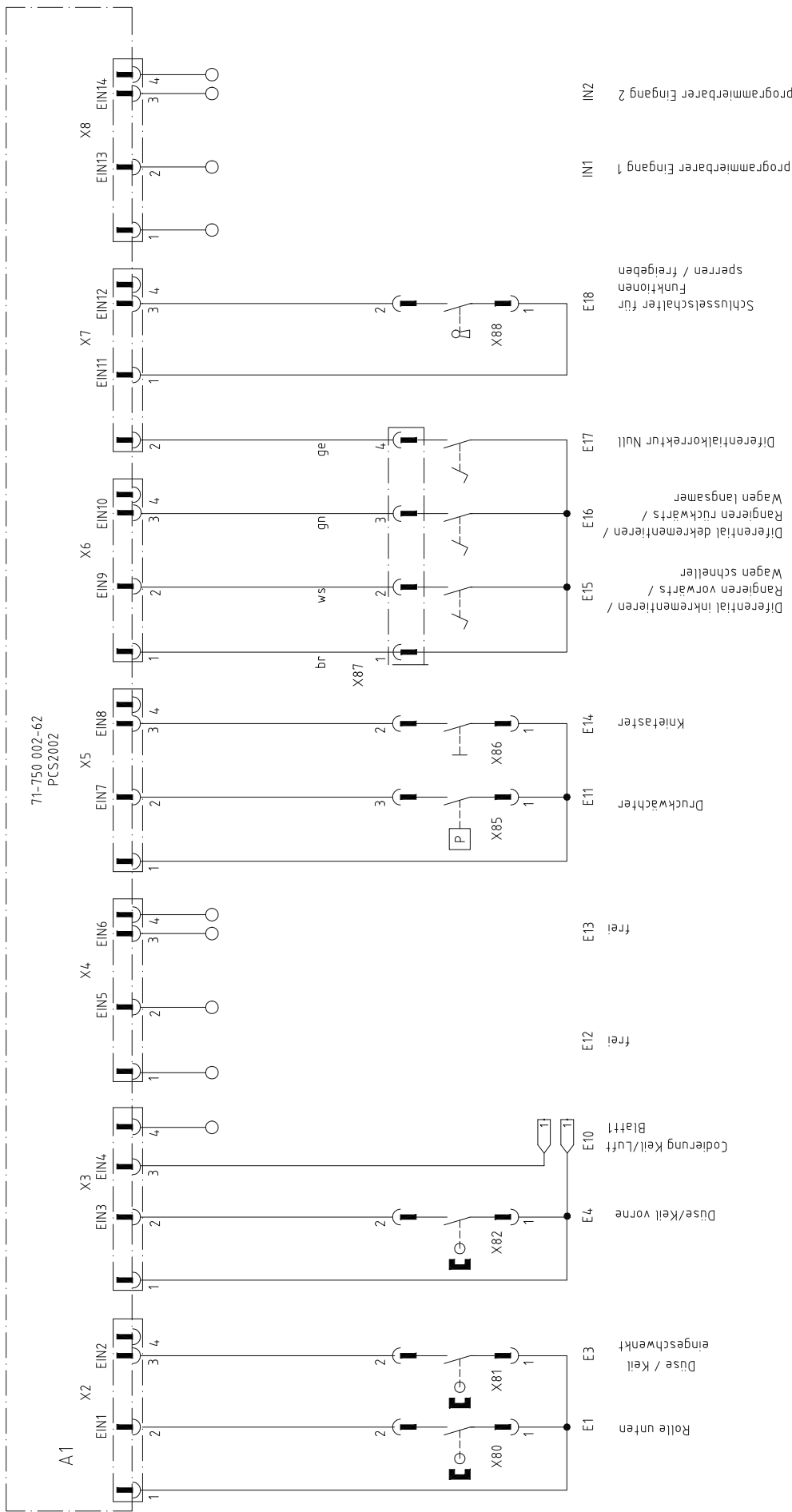
A1	Control device PCS2002	Out1	Programmable output 1
A2	Control panel	Out2	Programmable output 2
A3	Floppy disk drive		
A4	Control device P40ED (Carriage drive)	S3	Front safety edge
		S4	Rear safety edge
		S5	Joystick
B1	Temperature sensor		
B2	Pedal	Y1	Roller off
		Y2	Charge additional blowing
E1	Bottom roller	Y3	Engage nozzle/wedge
E3	Nozzle/wedge engaged	Y4	Front nozzle/wedge
E4	Front nozzle/wedge	Y5	Brushing one (optional)
E5	Hot air heating element	Y6	Open carriage brake
E6	Hot wedge heating element (1)		
E7	Hot wedge heating element (2)	Z1	Mains filter
E10	Nozzle/wedge coding input		
E11	Pressure controller		
E12	Unused		
E13	Unused		
E14	Knee switch		
E15	Increment differential / Switch forwards / Carriage faster		
E16	Decrement differential / Switch backwards / Carriage slower		
E17	Differential correction zero		
E18	Key switch		
F1	Fuse 16A L1		
F2	Fuse 16A L2		
G1	Power supply 24V, 5A		
IN1	Programmable input 1		
IN2	Programmable input 2		
K1	Solid state relay		
K2	Relay carriage drive power on		
M1	DC motor bottom roller		
M2	DC motor top roller		
M3	Carriage drive motor		

14.02

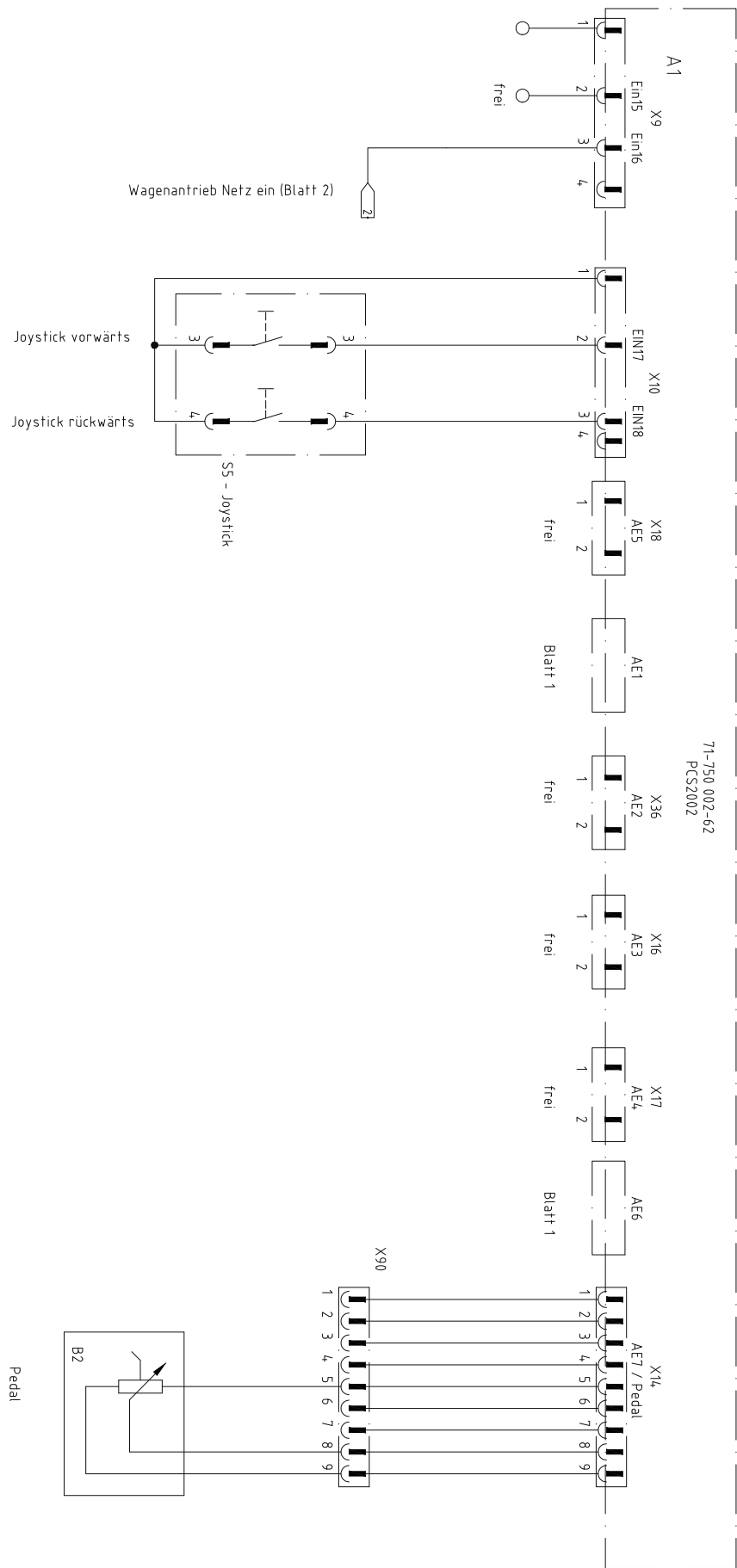
Circuit diagrams 95-212 062-95



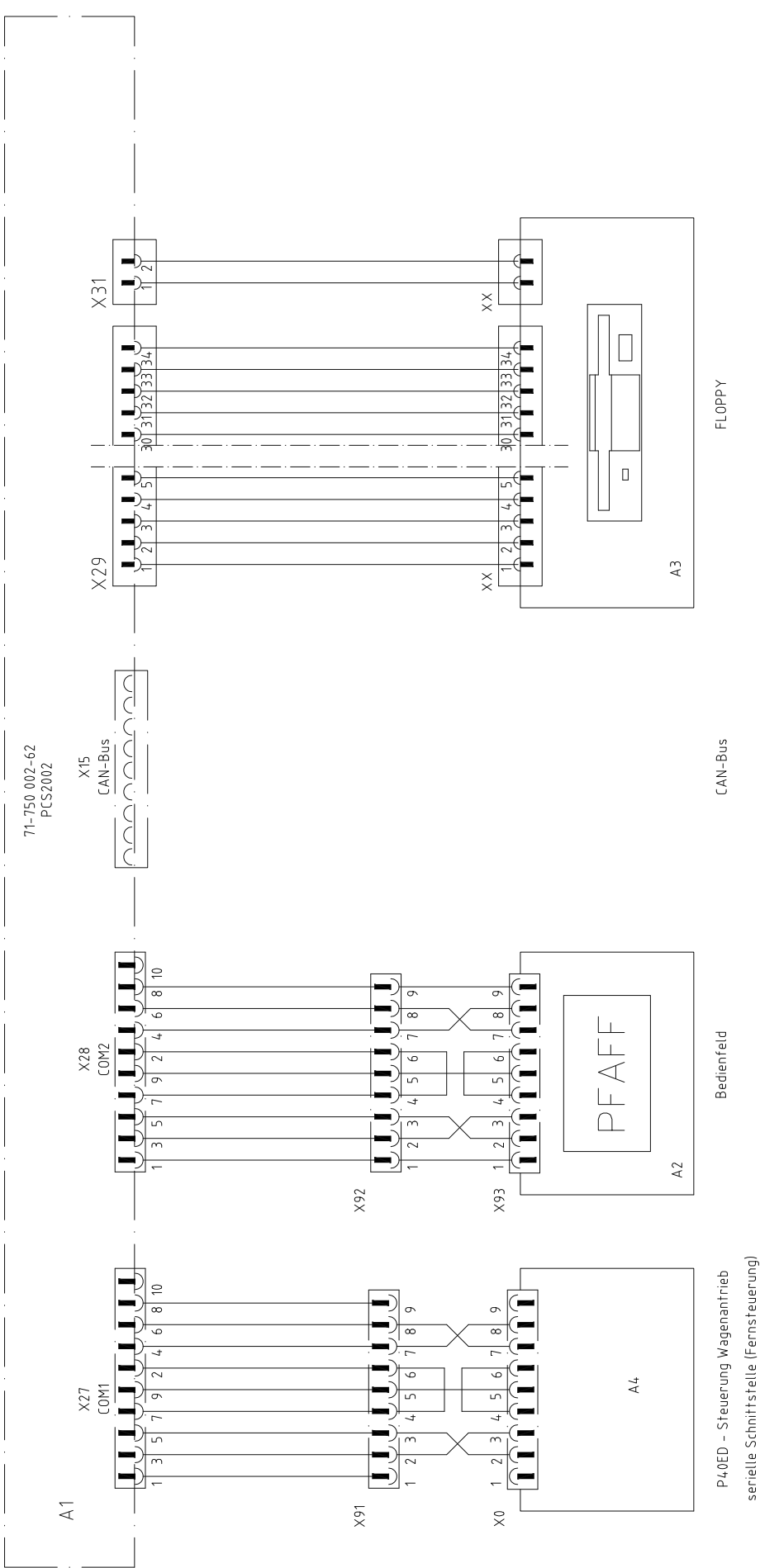




Digital-Eingänge



Digital-, Analog-Eingänge

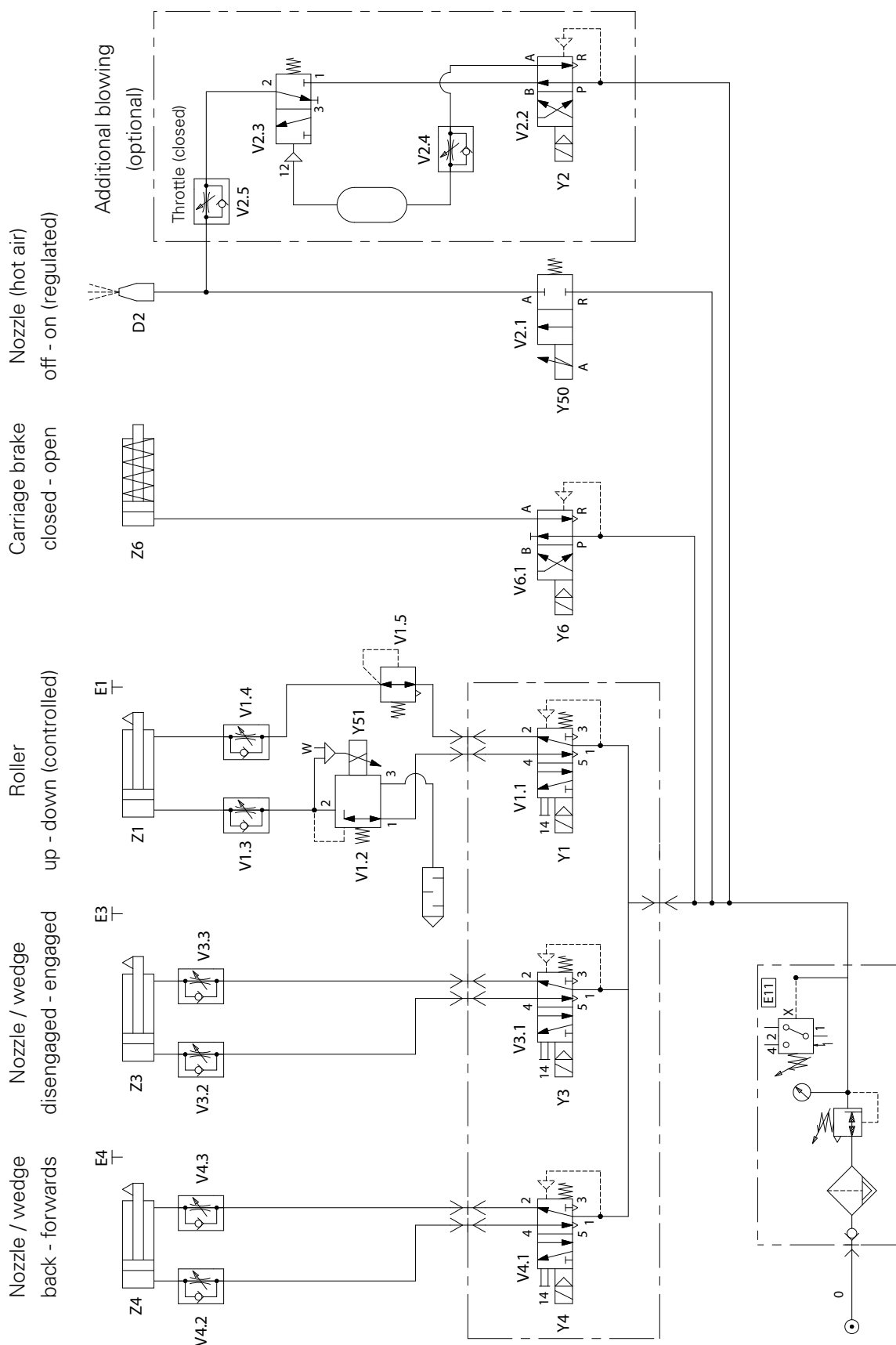


Datenverarbeitung

15

Pneumatic-circuit diagrams

The pneumatics circuit diagram is shown with the machine in its basic position. Energy (air and electricity) is switched on. The components take on fixed conditions.



[illegible]



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