

# PFAFF

## 3371-10/..

### Instruction Manual

This instruction manual applies to machines from software version **0300/009** and serial number **6 001 000** onwards



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



The adjustment manual for the machines can be downloaded free of charge from the internet address

**[www.pfaff-industrial.com/de/service/download/index.php3](http://www.pfaff-industrial.com/de/service/download/index.php3)**.

As an alternative to the internet download the adjustment manual can also be ordered in book form under part no. **296-12-18 621/002**.

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## **PFAFF Industrie Maschinen AG**

Postfach 3020

D-67653 Kaiserslautern

Königstr. 154

D-67655 Kaiserslautern

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## **1 Safety**

### **1.01 Directives**

This machine is constructed in accordance with the European regulations contained in the conformity and manufacturer's declarations.

In addition to this Instruction Manual, also observe all generally accepted, statutory and other regulations and legal requirements and all valid environmental protection regulations!

The regionally valid regulations of the social insurance society for occupational accidents or other supervisory organizations are to be strictly adhered to!

### **1.02 General notes on safety**

- This machine may only be operated by adequately trained operators and only after having completely read and understood the Instruction Manual!
- All Notes on Safety and Instruction Manuals of the motor manufacturer are to be read before operating the machine!
- The danger and safety instructions on the machine itself are to be followed!
- This machine may only be used for the purpose for which it is intended and may not be operated without its safety devices. All safety regulations relevant to its operation are to be adhered to.
- When exchanging sewing tools (e.g. needle, roller presser, needle plate and bobbin), when threading the machine, when leaving the machine unattended and during maintenance work, the machine is to be separated from the power supply by switching off the On/Off switch or by removing the plug from the mains!
- Everyday maintenance work is only to be 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! The only 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 regulations!
- Only spare parts which have been approved by us are to be used for repairs! We expressly point out that any replacement parts or accessories which are not supplied by us have not been tested and approved by us. The installation and/or use of any such products can lead to negative changes in the structural characteristics of the machine. We are not liable for any damage which may be caused by non-original parts.

## 1.03

### Safety symbols



Danger!  
Points to be observed.



Danger of injury for operating and specialist personnel!



### Caution

Do not operate without finger deflector and safety devices.

Before threading, changing bobbin and needle, cleaning etc. switch off main switch.

## 1.04

### Important points for the user

- This Instruction Manual is an integral part of the machine and must be available to the operating personnel at all times.
- The Instruction Manual must be read before operating the machine for the first time.
- The operating and specialist personnel is to be instructed as to the safety equipment of the machine and regarding safe work methods.
- It is the duty of the user to only operate the machine in perfect running order.
- It is the obligation of the user to ensure that none of the safety mechanisms are removed or deactivated.
- It is the obligation of the user to ensure that only authorized persons operate and work on the machine.

Further information can be obtained from your PFAFF agent.

## 1.05 Operating and specialist personnel

### 1.05.01 Operating personnel

Operating personnel are persons responsible for the equipping, operating and cleaning of the machine as well as for taking care of problems arising in the sewing area.

The operating personnel is required to observe the following points and must:

- always observe the Notes on Safety in the Instruction Manual!
- never use any working methods which could adversely affect the safety of the machine!
- not wear loose-fitting clothing or jewelery such as chains or rings!
- also ensure that only authorized persons have access to the potentially dangerous area around the machine!
- always immediately report to the person responsible any changes in the machine which may limit its safety!

### 1.05.02 Specialist personnel

Specialist personnel are persons with a specialist education in the fields of electrics, electronics and mechanics. They are responsible for the lubrication, maintenance, repair and adjustment of the machine.

The specialist personnel is obliged to observe the following points and must:

- always observe the Notes on Safety in the Instruction Manual!
- switch off the On/Off switch before carrying out adjustments or repairs, and ensure that it cannot be switched on again unintentionally!
- wait until the luminous diode on the control box is no longer blinking or on before beginning adjustment or repair work.
- never work on parts which are still connected to the power supply! Exceptions are explained in the regulations EN 50110.
- replace the protective coverings and close the electrical control box after all repairs or maintenance work!

1.06

## Danger



A working area of **1 meter** is to be kept free both in front of and behind the machine while it is in operation so that it is always easily accessible.



Never reach into the sewing area while sewing! Danger of injury by the needle!



Never leave objects on the table while adjusting the machine settings!  
Objects can become trapped or be slung away! Danger of injury!

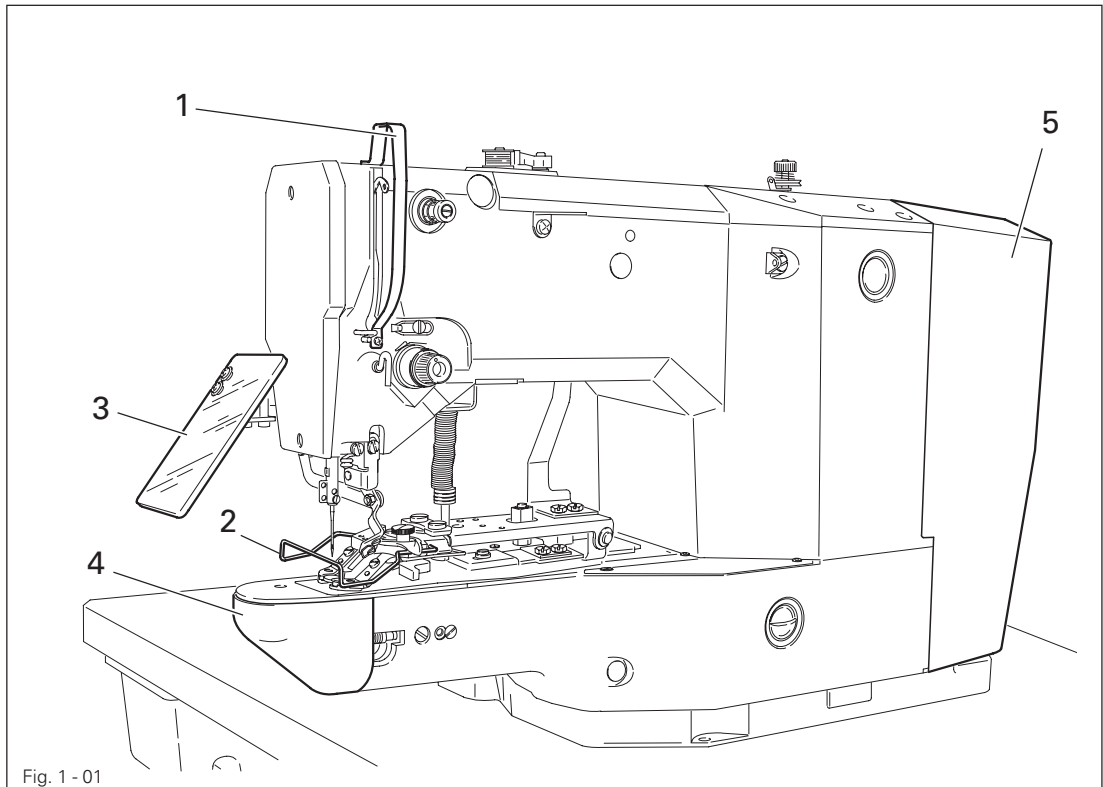


Fig. 1 - 01



Do not operate the machine without its take-up-lever guard **1!**  
Danger of injury due to the motion of the take-up lever!



Do not operate the machine without finger deflector **2!**  
Danger of injury by the needle!



Do not operate the machine without eye shield **3!**  
Danger of injury from flying needle or button fragments!



Only operate the machine with cover **4** closed!  
Danger of injury from rotating hook!



Do not operate the machine without cover **5!**  
Danger of injury from moving parts!



2

## Proper use

The Pfaff 3371-10/.. is used for attaching buttons to articles of clothing automatically.



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 ▲

Max. sewing speed: ..... 2500 spm  
Feed type: ..... intermittent  
Stitch length: ..... 0.1 – 10.0 mm  
Stitch type: ..... 301 (lockstitch)

Needle sizes in 1/100 mm:  
for fine materials: ..... 70 - 100  
for medium-weight materials: ..... 100 - 120  
Needle system: ..... DPx17  
Needle bar stroke: ..... 45 mm

Fabric clearance: ..... max. 13 mm  
Max. size of sewing area: ..... 6,5 x 6,5 mm

Power supply: ..... 220 V ± 10%, 50/60 Hz, single phase  
Power consumption: ..... 0.55 kVA  
Electrical power rating: ..... 1,2 kVA  
Fuse protection: ..... 1x 16 A, inert

Noise data:  
Noise emission level at workplace  
with a sewing cycle of 4 sec. on and 2 sec. off: .....  $L_{pa} = 74 \text{ dB(A)}$  ■  
(Noise measurement in accordance with DIN 45 635-48-B-1, ISO 11204, ISO 3744, ISO 4871)

Sewing head dimensions:  
Length: ..... approx. 770 mm  
Width: ..... approx. 220 mm  
Height: ..... approx. 380 mm

Dimensions of standard base:  
Length: ..... approx. 1060 mm  
Width: ..... approx. 600 mm  
Height: ..... approx. 820 mm

Weights  
Sewing head: ..... approx. 42 kilos  
Base incl. control box: ..... approx. 45 kilos

▲ Subject to alterations

■  $K_{pa} = 2,5 \text{ dB}$

### 4 Disposal of machine

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



Special care is to be taken that parts soiled with lubricants are separately disposed of in accordance with the locally valid pollution control regulations!

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## *Transport, packaging and storage*

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### 5      **Transport, packaging and storage**

#### 5.01      **Transport to the customer's premises**

The machines are delivered completely packed.

#### 5.02      **Transport within the customer's premises**

The manufacturer bears no liability for transport within the customer's premises or to the individual locations of use. Make sure that the machines are always transported upright.

#### 5.03      **Disposal of the packaging**

The packaging of these machines consists of paper, cardboard and VCE fiber. The proper disposal of the packaging is the responsibility of the customer.

#### 5.04      **Storage**

The machine can be stored for up to 6 months if not in use. During this time it should be protected from dust and moisture.

For longer storage the individual parts of the machine, especially the moving parts, must be protected from corrosion, e.g. by a film of oil.

### 6 Explanation of the symbols

In the following section of this Instruction Manual, certain tasks or important pieces of information are accentuated by symbols.

The symbols used have the following meanings:



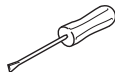
Note, information



Cleaning, care



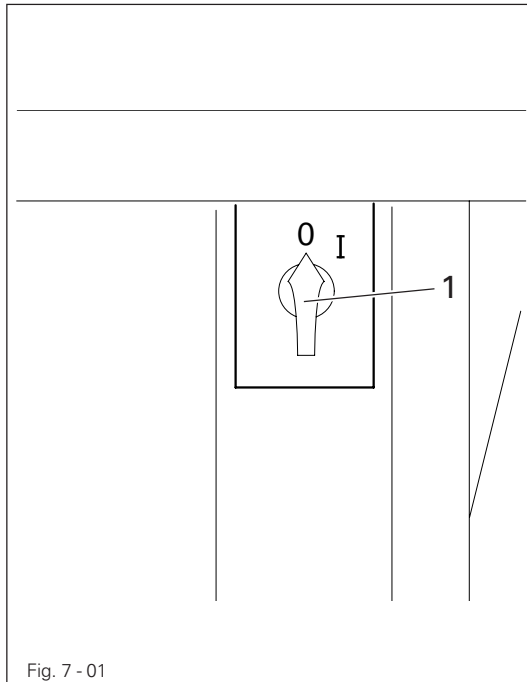
Lubrication, greasing



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

## 7 Control elements

### 7.01 Main switch

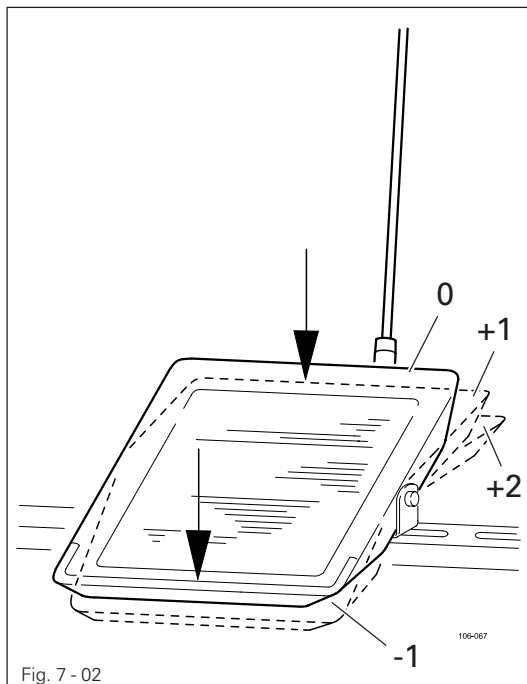


- Switch the machine on or off by turning main switch 1.



After switching the machine on, first press the "TE" key to bring the machine into its neutral position.

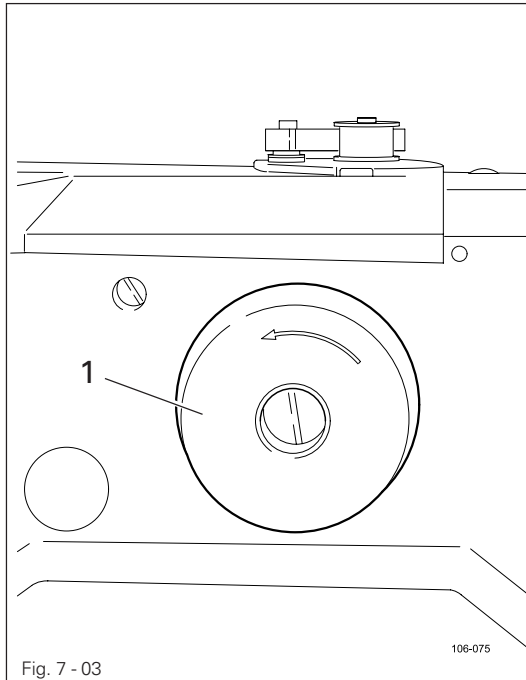
### 7.02 Pedal



The pedal is used to lower and raise the button clamp, and to start the sewing program.

- 1 = sewing interruption
- 0 = neutral position
- +1 = lower button clamp
- +2 = sewing

7.03 Balance wheel

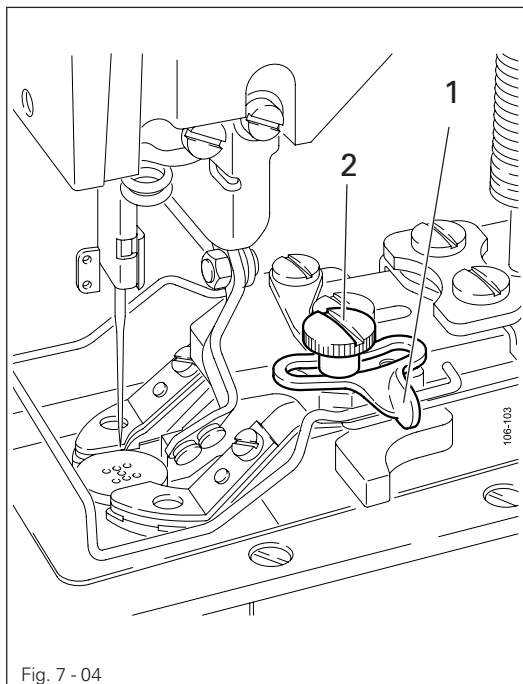


- By pressing and holding down balance wheel 1, it is possible to adjust the needle bar manually.



Release the balance wheel 1 before operating the **basic position** or **tacting backwards/forwards** keys on the control panel.

7.04 Lever for adjusting the button clamp size



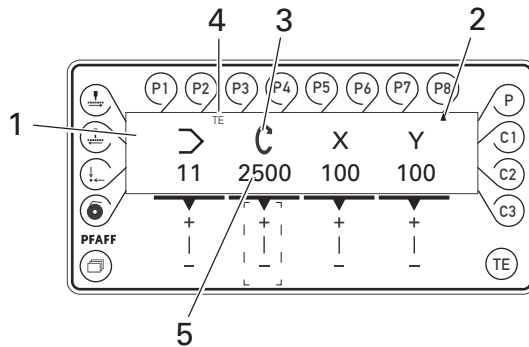
- Adjust lever 1 to set the size of the button clamp. To do so, loosen screw 2.



After screw 2 has been loosened, the clamp jaws close automatically! Danger of crushing in the button clamp zone!

## 7.05 Control panel

The control panel is used to select seam programs, change parameter values, control the different operating modes, as well as for reading error signals and service settings.



The control panel consists of screen 1 with the appropriate displays and a row of function keys.

### 7.05.01 Screen displays

Depending on the operating mode, on the screen 1 information is shown about the machine status, program selection, sequence program progress, input parameters, as well as error signals.

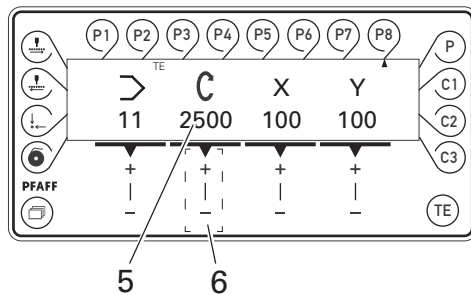
- Activated functions are displayed with the triangular marking 2 beneath and next to the respective function key.
- Depending on the operating mode, relevant data is displayed in combination with the appropriate symbol or text, and can be altered directly (e.g. speed 3 with the value 5).
- When the parameters are entered, the number of the parameter selected is shown with the corresponding parameter value, see **Chapter 11.03 Parameter input**.
- After the input mode has been selected, the text 4 ("TE") appears at the top edge of the display, the input mode is activated, see **Chapter 11 Input**.
- If faults occur in the sewing operation, a corresponding error signal appears in the display, see **Chapter 11.08 Error messages on the display**.



7.05.02 Display symbols

- **Program number**  
The current seam program number appears under this symbol.
- Ⓒ **Speed**  
The current speed appears under this symbol.
- X **Size factor X (crosswise)**  
The size factor in X-direction in % appears under this symbol.
- Y **Size factor Y (lengthwise to arm)**  
The size factor in Y-direction in % appears under this symbol.
- ▢▢▢ **Bobbin thread counter/piece counter**  
The current value for counting the piece or bobbin thread appears under this symbol.
- ↵ **Enter**  
If the key under this symbol is pressed, the input is concluded.

7.05.03 Function keys



With the function keys functions are switched on or off, parameters and operating modes are selected and relevant values changed.

Each time a key is pressed, an acoustic signal is given (factory setting). If function keys are pressed which are not permitted in accordance with the machine status, or if the top or bottom limit of the input value is reached, a double signal tone can be heard.



A value is changed with the corresponding +/-key. In this way, e.g. by pressing and holding +/- on key 6, the speed value 5 can be changed.



### Menu

This function is used to scroll within various different screen displays.



### Wind

The bobbin thread winding function is called up, see Chapter **9.03 Winding the bobbin thread**.



### Basic position

The button clamp and needle are positioned in the basic position and, if necessary, the thread cutting function activated.



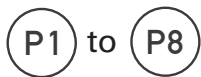
### Tacting backwards

Each time the key is pressed, the selected seam program is sewn stitch by stitch in reverse, and the coordinates for each stitch are shown on the control panel.



### Tacting forwards

Each time the key is pressed, the selected seam program is sewn forwards stitch by stitch, and the coordinates for each stitch are shown on the control panel.



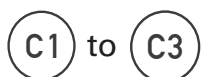
### Program stations

The function keys P1 to P8 are used to enter and select seam programs, see Chapter **9.06.02 Selecting the program station**.



### Direct program selection

This function is used to select a seam pattern. After selection, speed and size can be altered, see Chapter **9.06.01 Selecting and altering the seam pattern**.



### Sequences

The function keys C1 to C3 are used to enter and select sequences, see Chapter **9.06.03 Selecting a sequence**.



### TE

In the production mode, this key is used to change into the input mode. In the input mode this key is used to acknowledge the input of program stations and sequences, to change into the basic status of the input mode and to change into the sewing mode.

## 8 Installation and commissioning



The machine must only be installed and commissioned by qualified personnel!  
All relevant safety regulations must be strictly adhered to!  
If the machine is delivered without a table, be sure to use a stand and table top that can hold the weight of the machine with its motor.  
It is very important to ensure that the stand of the machine is firm and steady, also during sewing.

### 8.01 Installation

The site where the machine is installed must be provided with suitable connections for electric current.

It must be ensured that the standing surface of the machine site is firm and horizontal, and that sufficient lighting is provided for.



For packing and transportation reasons the table top is in the lowered position.  
The table height is adjusted as described below.



If the machine is delivered with stand, the transit lock must be removed before commissioning, see Chapter 8.01.02 Removing the transit lock.

#### 8.01.01 Adjusting the table height

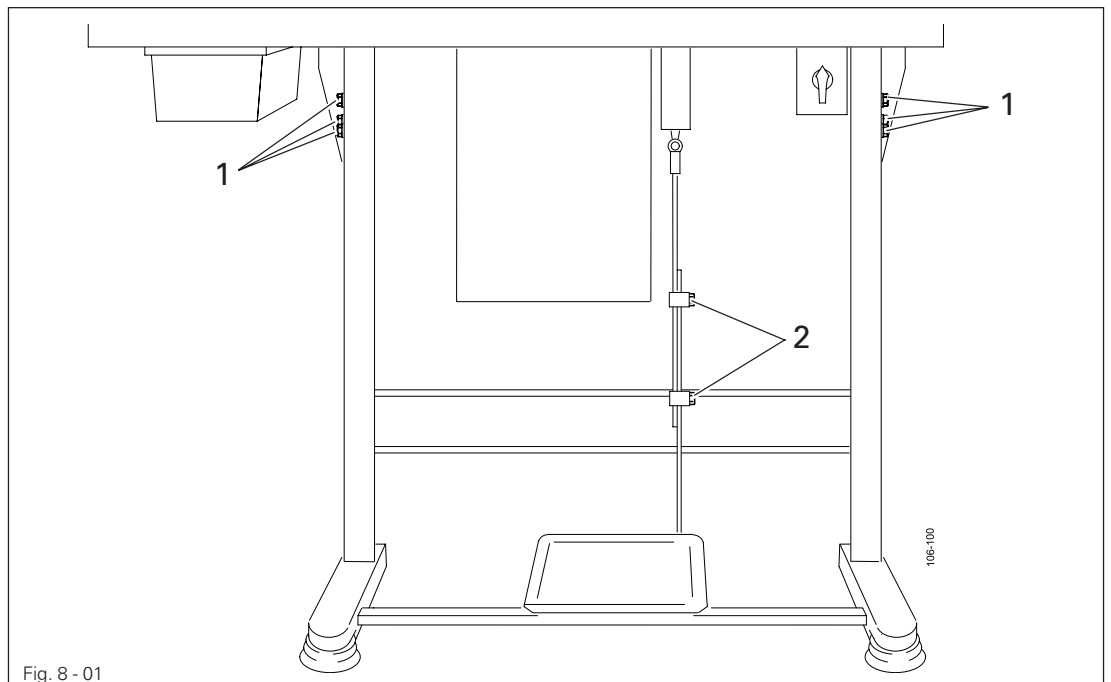
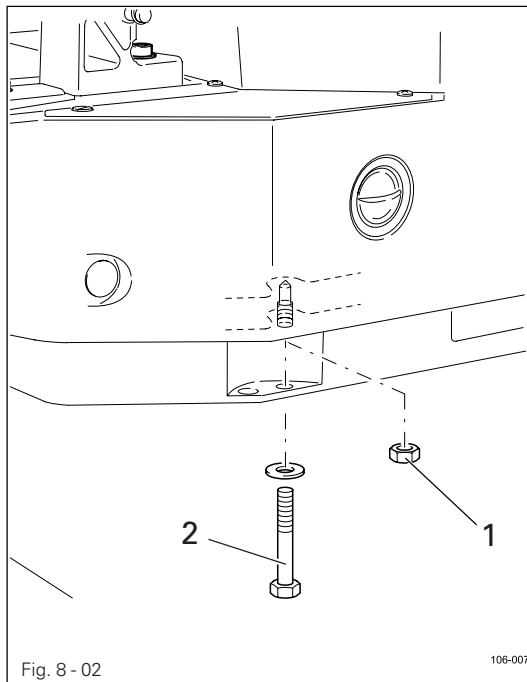


Fig. 8 - 01

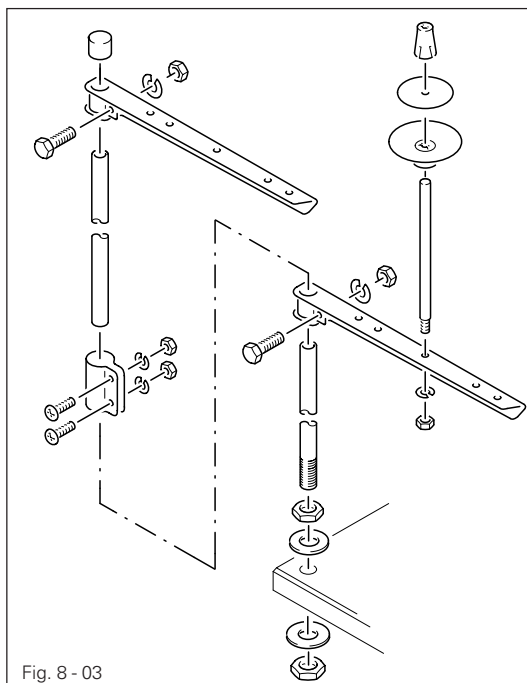
- Loosen screws 1 and 2 and set the table height as required.
- Firmly tighten screw 1.
- Set the required pedal position and tighten screw 2.

## 8.01.02 Removing the transit lock



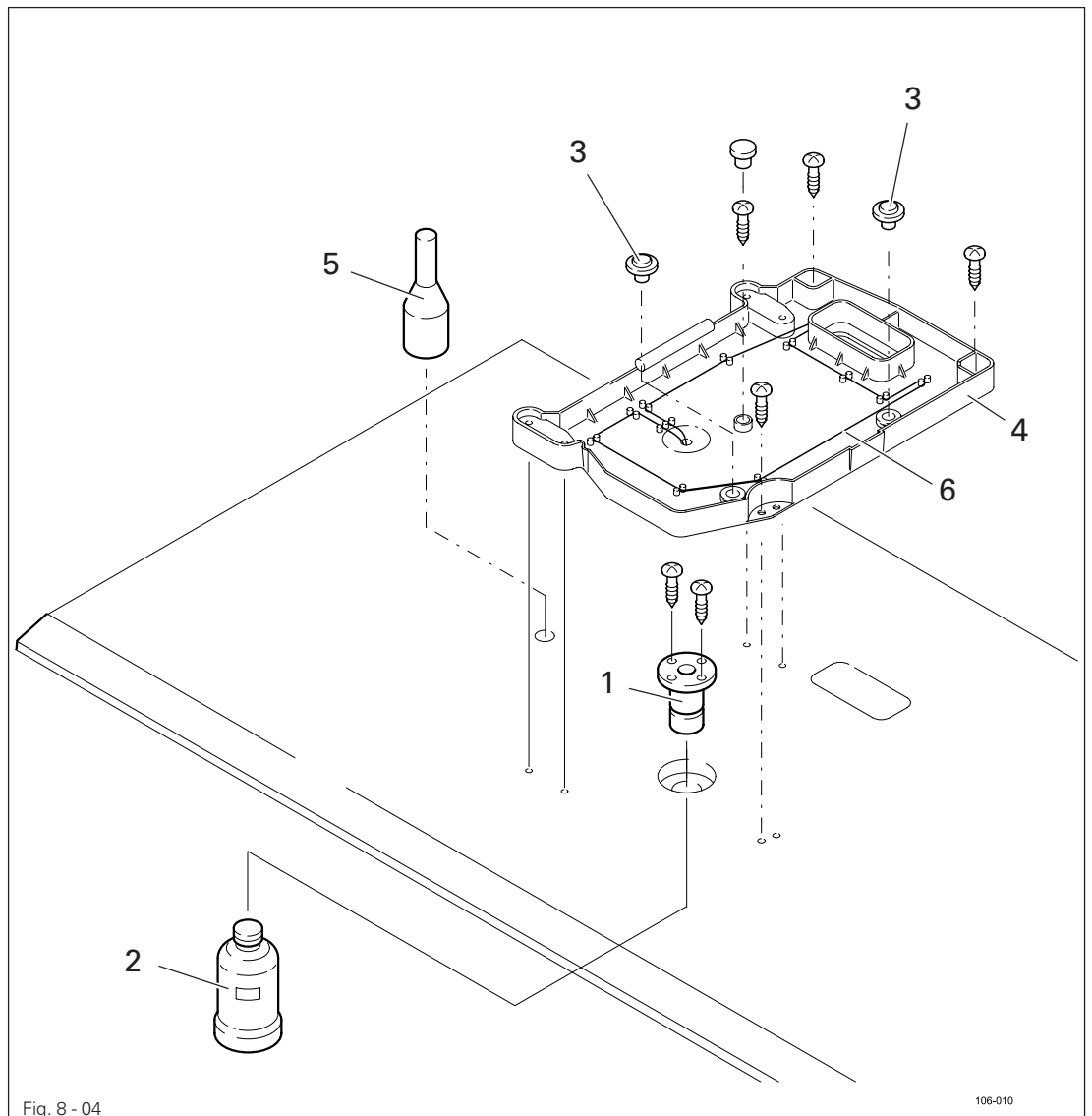
- Loosen nut 1.
- Remove screw 2.

## 8.01.03 Fitting the reel stand



- Fit the reel stand as shown in Fig. 8 - 03.
- Afterwards insert the stand in the hole in the table top and secure it with nuts provided.

## 8.01.04 Mounting the table top (for deliveries without stand)

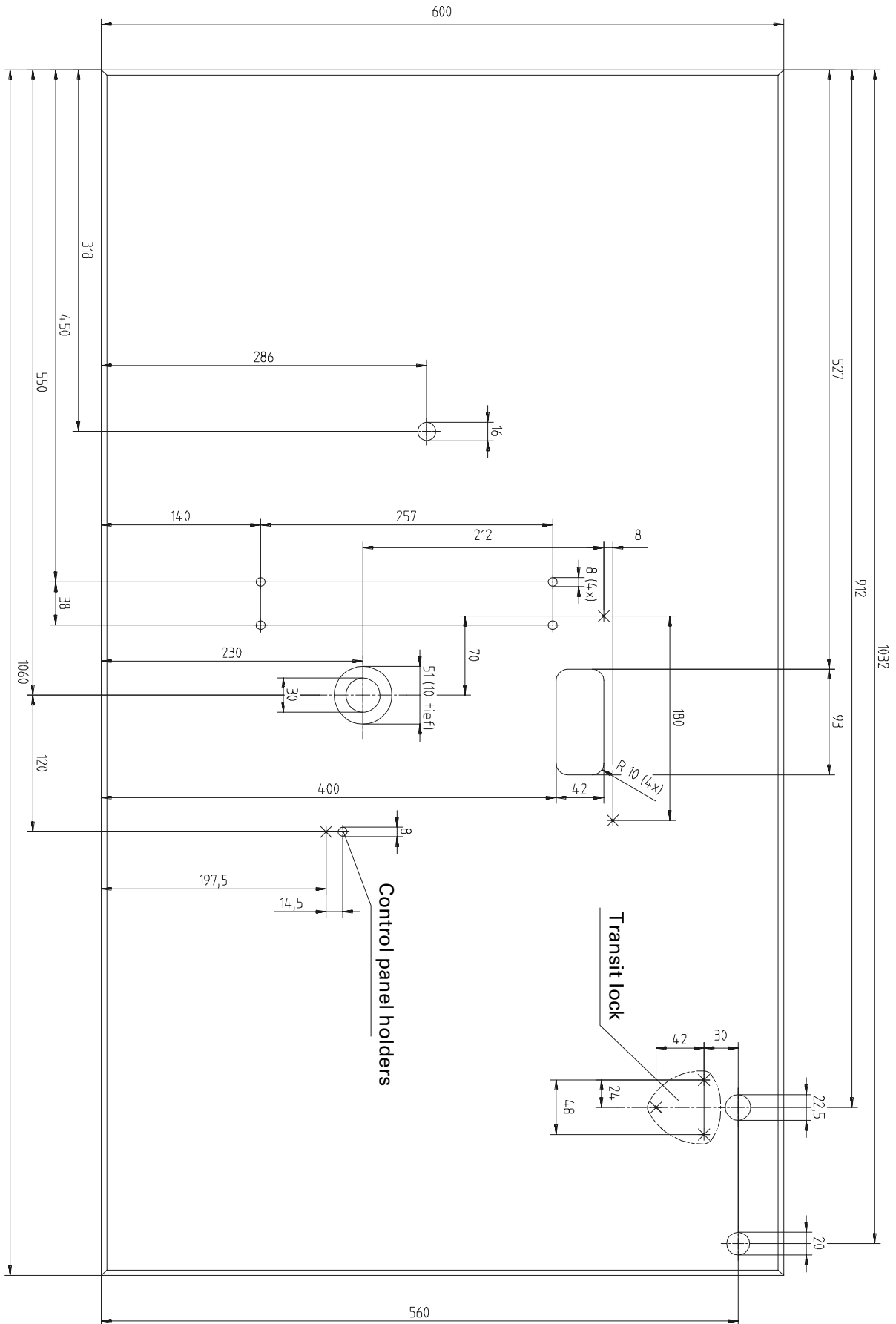


- Drill holes in the table top as shown in the drawing, see Chapter 8.01.05 Table top drill hole plans.
- Screw on the oil outlet 1.
- Screw the oil tank 2 to oil outlet 1.
- Set the rubber pads 3 in the fastening holes of the oil pan 4 and screw oil pan 4 to the table top.
- Set support 5 in the appropriate hole.
- Place wick 6 in the holders of oil pan 4.

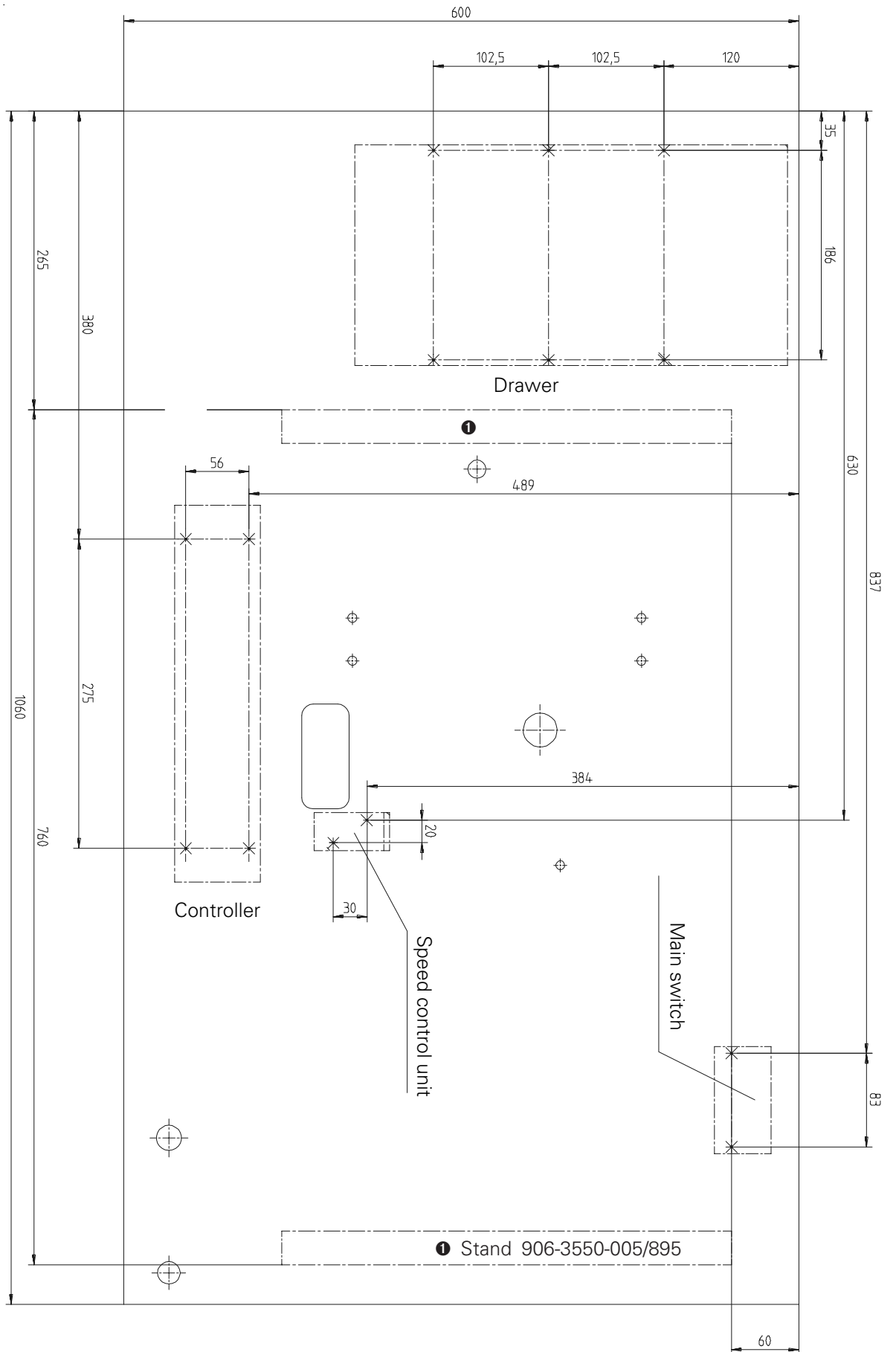
# Installation and commissioning

## 8.01.05 Table top drill hole plans

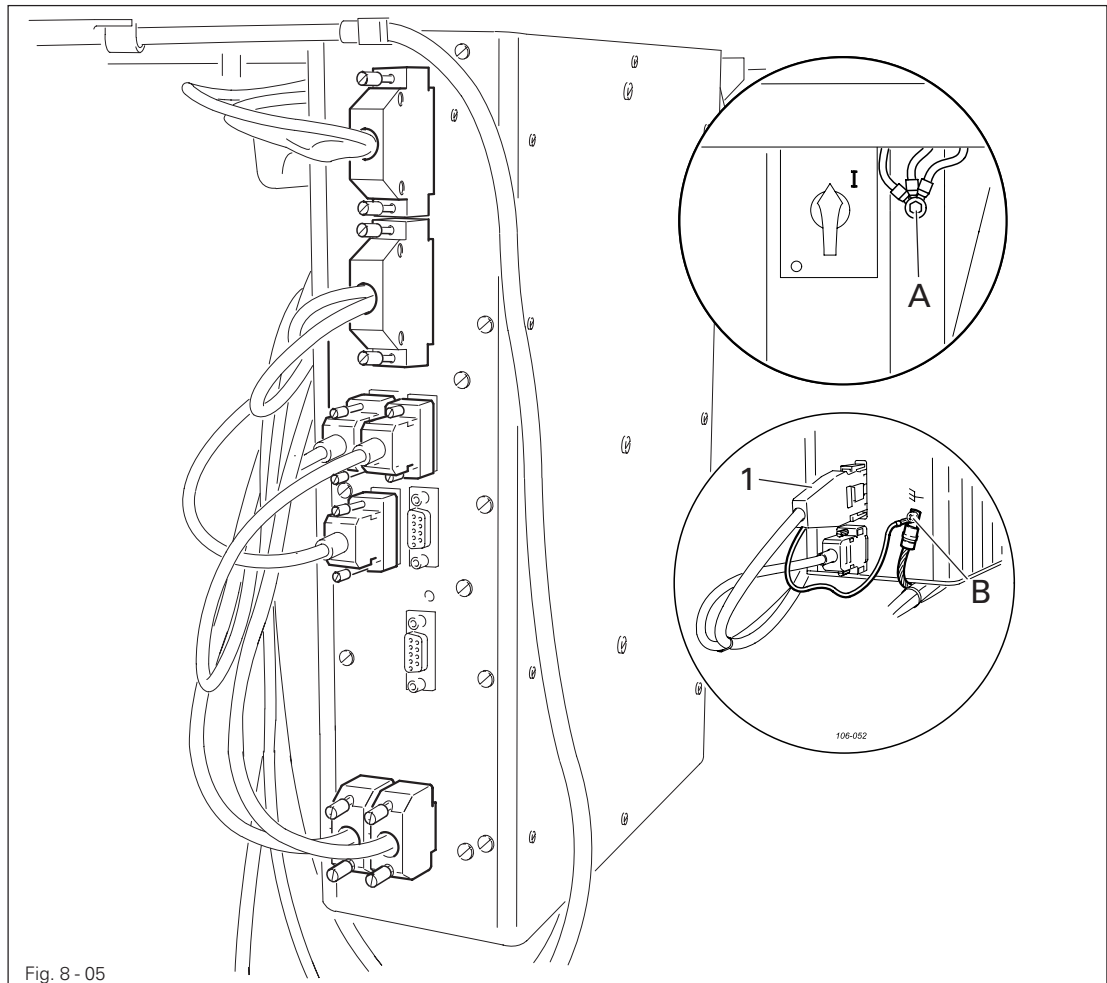
Top view



Bottom view



## 8.01.06 Connecting the plug-in connections and earth cable



- Connect all plugs as labelled in the control box.
- Screw the earth cable from the machine and the main switch to earth point **A**.
- Connect earth point **A** and earth point **B** with an earth cable.
- Screw the earth cable of plug **1** to earth point **B**.

## 8.02 Commissioning the machine

- Clean the machine thoroughly.
- Check the oil level, see **Chapter 12 Care and Maintenance**.
- Check the machine, especially the electric wires, for any damage.
- Have specialists check, whether the machine's motor can be used with the existing mains voltage.

## 8.03 Switching the machine on/off

- Switching the machine on/off, see **Chapter 7.01 Main switch**.



9

Setting up



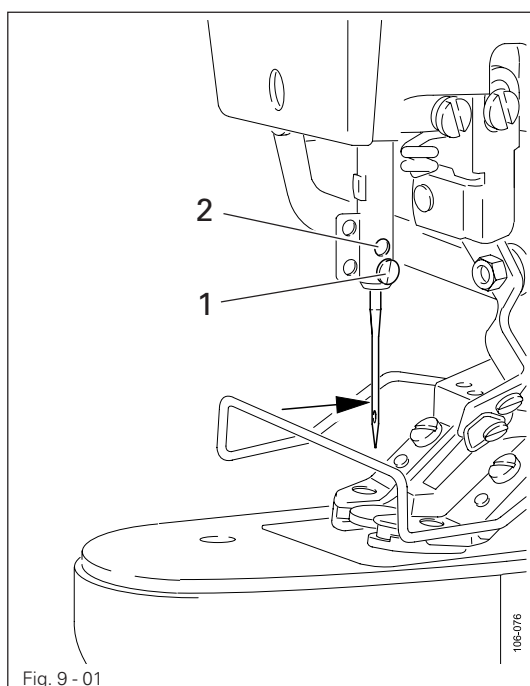
All instructions and regulations in this instruction manual must be observed. Special attention must be given to all safety regulations!



All setting-up work must only be done by personnel with the necessary training. For all setting-up work the machine must be isolated from its power supply by turning off the on/off switch or removing the machine plug from the electric power socket!

9.01

Inserting the needle



Switch off the machine!  
Danger of injury if the machine is started accidentally!



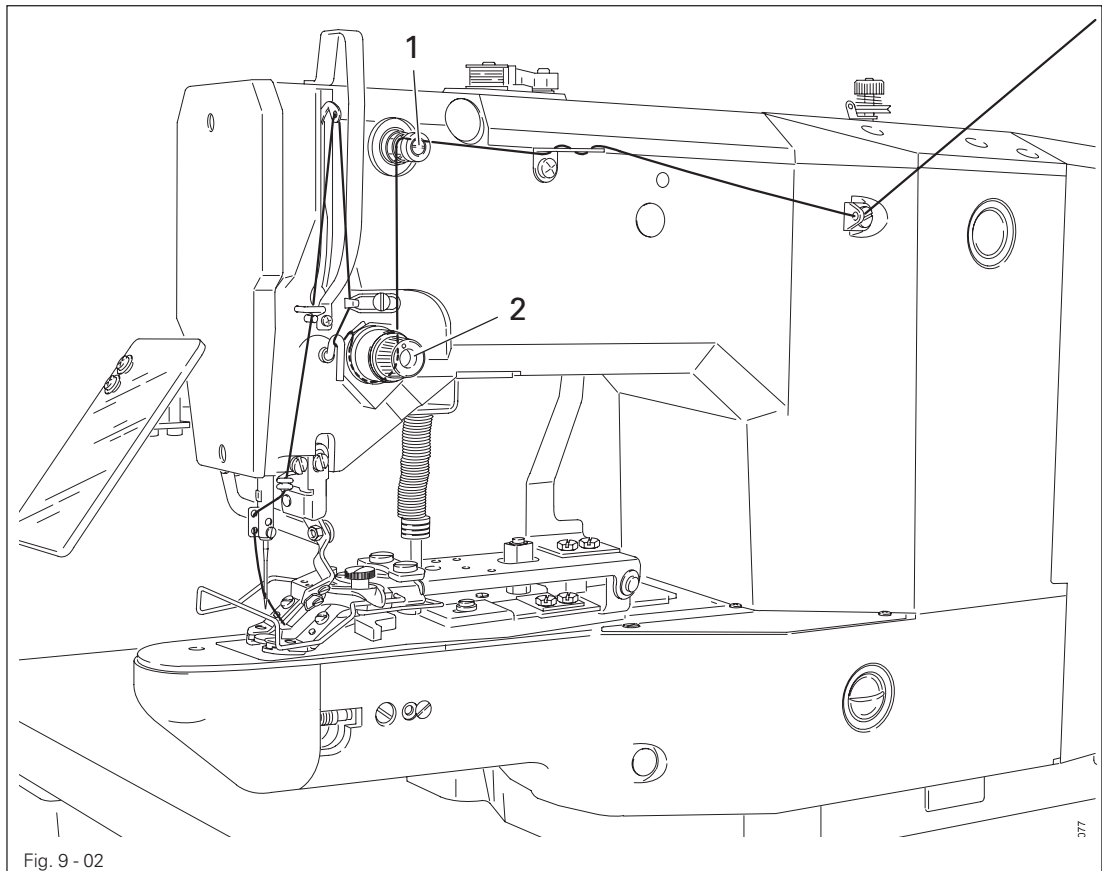
Only use needles from the system intended for the machine, see Chapter 3 Specifications.

- Loosen screw 1.
- Insert the needle as far as possible. The long needle groove (see arrow) must be facing forwards.
- Tighten screw 1.



Through hole 2 it is possible to check whether the needle has been inserting as far as possible.

Broken needles can be removed by inserted suitable tools in hole 2.



Switch off the machine!

Danger of injury if the machine is started accidentally!

- Thread the needle thread as shown in Fig. 9-02.
- Adjust the needle thread tension by turning milled nuts 1 and 2.

9.03 Winding the bobbin thread

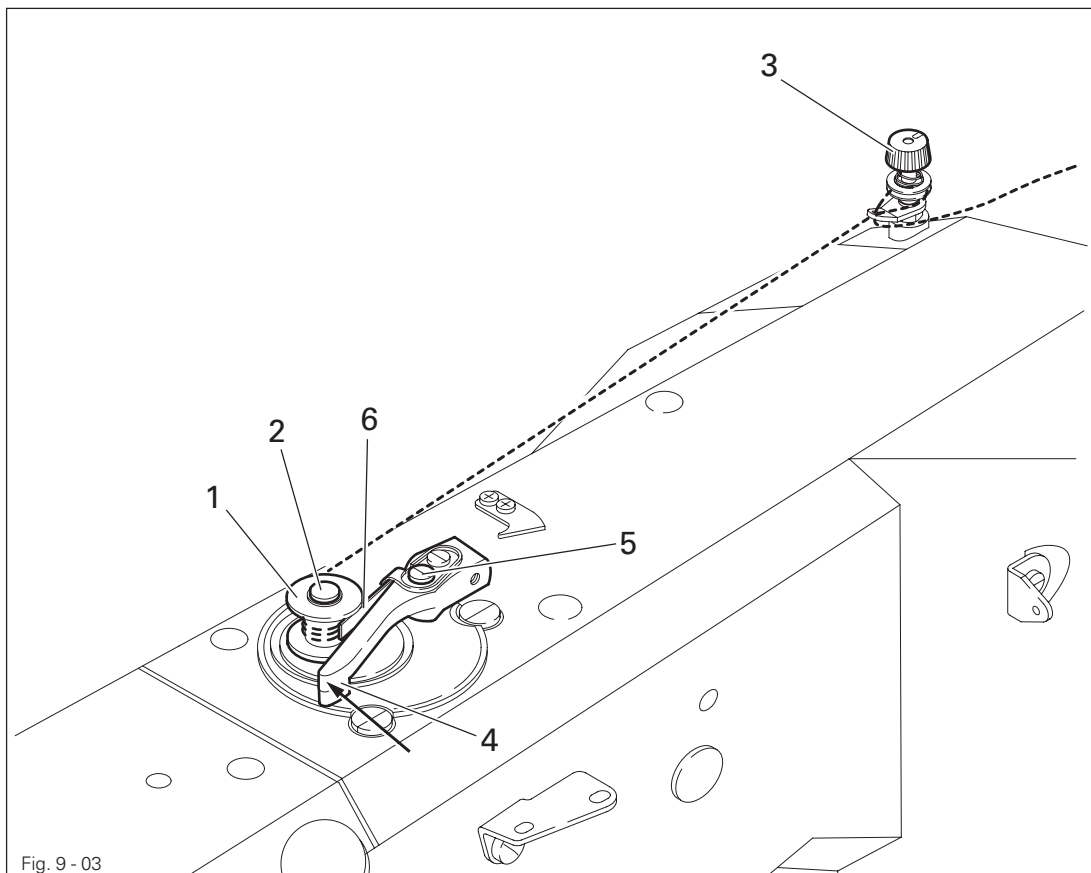


Fig. 9 - 03

- Place the empty bobbin 1 on the bobbin winder spindle 2.
- Thread the thread as shown in Fig. 9-03 and wind it round bobbin 1 a few times in the anti-clockwise direction.
- Set the preliminary thread tension by turning milled screw 3.
- Press lever 4 in the direction of the arrow until it clicks into place.



The bobbin is filled during sewing.



- Winding is also possible as follows:
- Switch on the machine and press the key for **winding**.
- Remove the thread from the needle and take-up lever.
- Operate the pedal to carry out winding, the bobbin winder stops automatically as soon as the bobbin is adequately full.

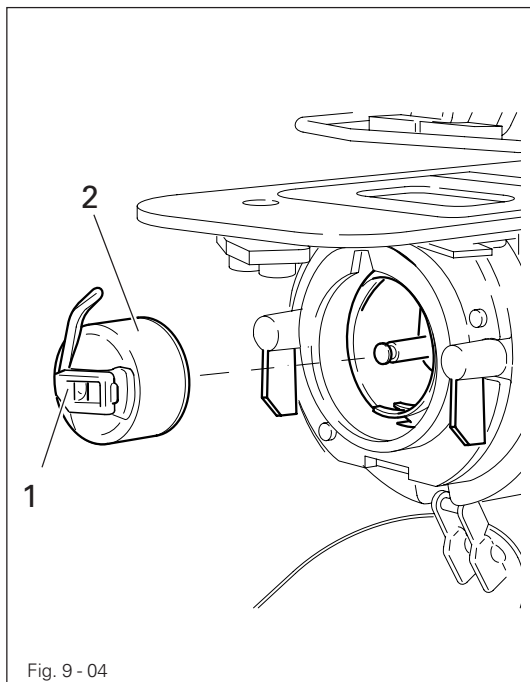


- Press the key for **winding**, the machine stops.
- Thread the machine again.

**Adjusting the amount of thread on the bobbin**

- Loosen screw 5.
- Set stop 6 so that the bobbin winder switches off automatically when the thread is still ca. 1 mm from the edge of the bobbin.
- Tighten screw 5.

## 9.04 Removing / replacing the bobbin case



Switch off the machine.  
Danger of injury if the machine starts accidentally!

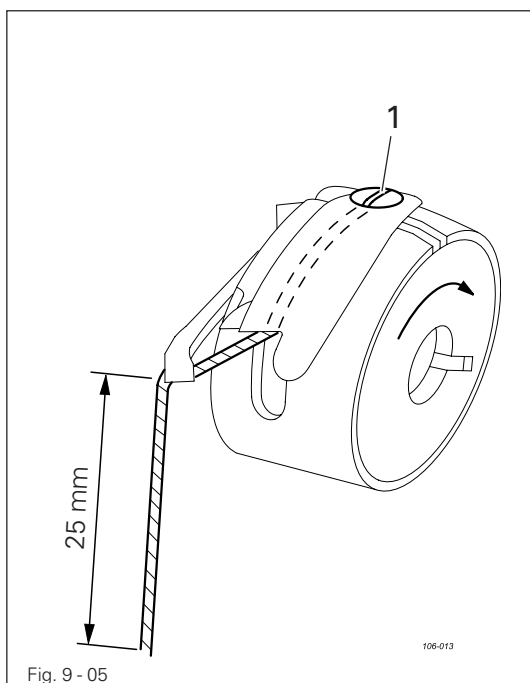
### Removing the bobbin case

- Open the hook cover
- Pull out latch 1
- Remove bobbin case 2

### Replacing the bobbin case

- Push bobbin case 2 into the bobbin case base until you feel it click into place
- Close the hook cover.

## 9.05 Threading the bobbin thread / adjusting the bobbin thread tension



- Place the bobbin into the bobbin case, so that this turns in the direction shown by the arrow when the thread is pulled.
- Insert the thread as shown in Fig. 9-05.
- Set the thread tension by turning screw 1.

## 9.06 Selecting a seam program

TE

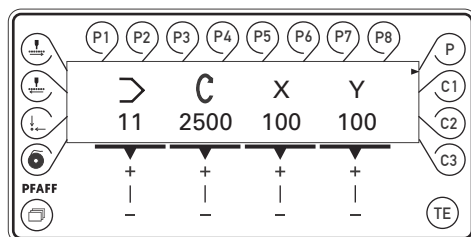
To avoid the machine starting accidentally, to begin with the **TE** key must be pressed, after the machine has been switched on. The machine is then in its basic position and offers a number of possibilities for selecting seam programs.

- Direct selection of the seam pattern and its individual adaptation by changing the speed and size factors.
- Selection of the seam program via a program station. For this purpose a seam pattern with its respective speed and corresponding size factors must have been stored previously.
- With the selection of a sequence several seam programs are sewn after each other. For this purpose a sequence must have been compiled beforehand from individual seam programs (program stations).

### 9.06.01 Selecting and changing the seam pattern.

P

- With the machine in the basic position, select the direct seam pattern.



➤ 11

- With the corresponding **plus/minus key** select the desired seam pattern, e.g. 11. The seam patterns are stored in the machine under program numbers, see **Chapter 11.06 Summary of the seam patterns**.

Ⓒ 2500

- Select the desired speed with the corresponding **plus/minus key**.

X 100

- Enter the desired size factor (in %) (X-direction) with the corresponding **plus/minus key**.

Y 100

- Enter the desired size factor (in %) (Y-direction) with the corresponding **plus/minus key**.

TE

- Conclude the input by pressing the **TE** key. (The machine changes to the sewing mode).



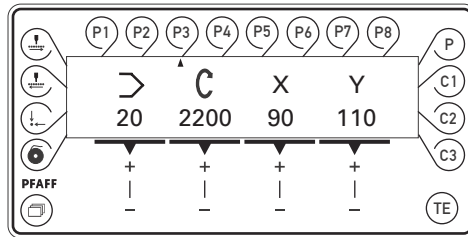
The enlargement of the seam pattern is limited by the size of the machine's sewing area.



The altered speed and size factors entered are not stored when the machine changes to another seam program. If you wish to store these values, a station key must be reserved with the corresponding seam program, see **Chapter 11.01 Reserving program stations**.

## 9.06.02 Selecting a program station.

- P3** ● With the machine in its basic position, select the desired program station, e.g. **P3**.



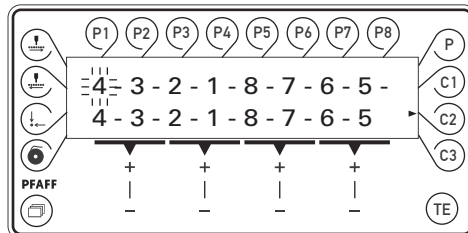
Only those program stations can be selected, which have been reserved previously with a seam pattern with its respective speed and size factors, see **Chapter 11.01 Reserving program stations**.



Speed and size factors cannot be changed directly in a seam program selected via a program station.

## 9.06.03 Selecting a sequence

- C2** ● With the machine in its basic position, select the desired sequence, e.g. **C2**.



The next seam program waiting to be sewn is depicted by the relevant flashing station number.



- By selecting the **menu** function, the parameters of the current program station, such as number of seam pattern, speed and size factors are shown.

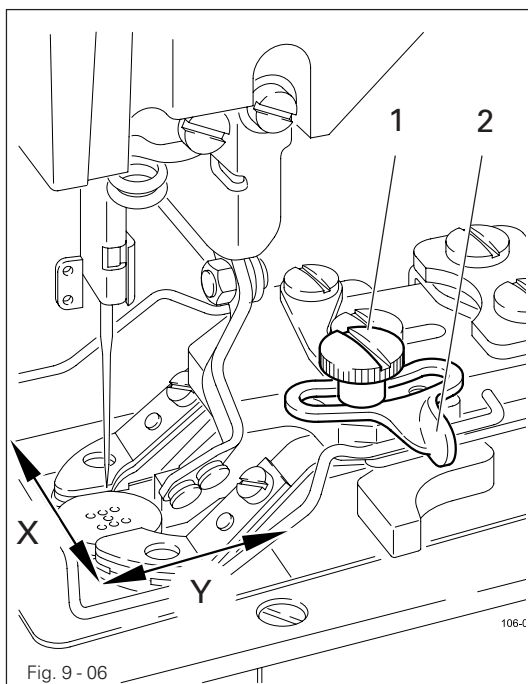


- With any desired **plus/minus key** the automatic sequence cycle is interrupted and the machine moves to the previous or subsequent program station within the sequence.



- Conclude the input by pressing the **TE** key. (The machine changes to the sewing mode).

9.07 Adjusting the size of the button clamp and sewing area



A comparison between the sewing area size entered and the actual sewing area size of the button clamp ensures that seam programs, which extend outside the sewing area size, cannot be sewn.



If the actual and the entered sewing area size do not concur with each other, severe damage can be caused to the machine!

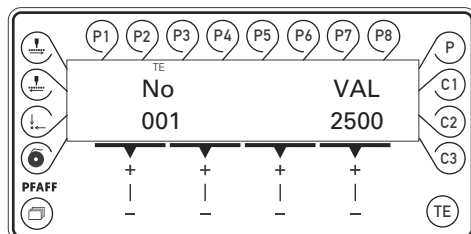
- Loosen screw 1 and with lever 2 adjust the button clamp size to match the button being sewn.
- Measure the sewing area size.



Take care that the feed dog cut-out and the needle plate insert do not collide.



- With the machine in its basic position, select the input mode.



- With the corresponding plus/minus key select parameter "023".
- If required, enter the access code, see Chapter 11.06.01 Entering the access code.



- With the corresponding plus/minus key enter the measured value (in 1/10 mm) for the X-axis.



- With the corresponding plus/minus key select parameter "024".



- With the corresponding plus/minus key enter the measured value (in 1/10 mm) for the Y-axis.



- Conclude the input by pressing the TE key. (Machine changes to the sewing mode).

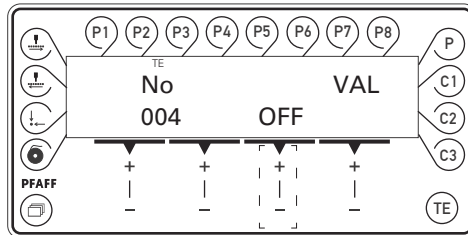
## 9.08 Setting up the bobbin thread counter



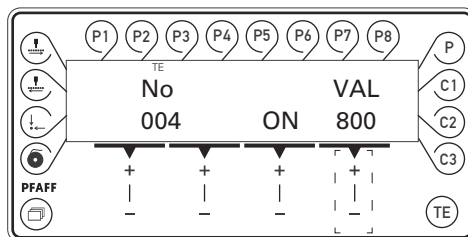
- With the machine in its basic position, select the input mode.



- With the corresponding plus/minus key select parameter "004".
- If required, enter the access code, see Chapter 11.05.01 Entering the access code.



- ON ● With the corresponding plus/minus key switch on the bobbin thread counter.



VAL  
800

- With the corresponding plus/minus key enter the number of workpieces to be sewn.

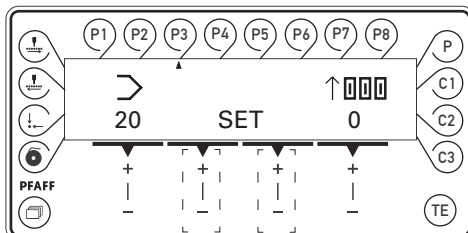


- Conclude the input by pressing the TE key. (Machine changes to the sewing mode).

## 9.09 Resetting the piece counter



In the sewing mode (basic position of the machine) the piece counter or the bobbin thread counter can be displayed by pressing the menu key. (When the bobbin thread counter is switched off, the piece counter is displayed - Selection under parameter 004).





The piece counter counts from 0 onwards and differs from the bobbin thread counter in the display through the upwards pointing arrow.

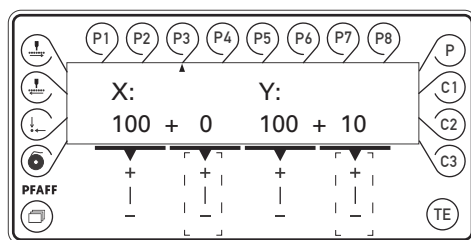
- SET ● Reset the piece counter with the corresponding plus/minus keys.



## 9.10 Shifting the seam pattern

To adapt the seam patterns to formed workpiece holders, selected seam patterns can be shifted.

- 
  - From the basic position of the machine select the desired program station, e.g. P3.
- 
  - Tact through the seam pattern, e.g. forwards.  
The actual coordinates are shown together with the shift values for each stitch.



- The shift values are changed with the corresponding plus/minus key.



- Conclude the seam pattern shifting operation.



The seam pattern shift is allocated to the respective actual program station and is deleted when the program number is changed.



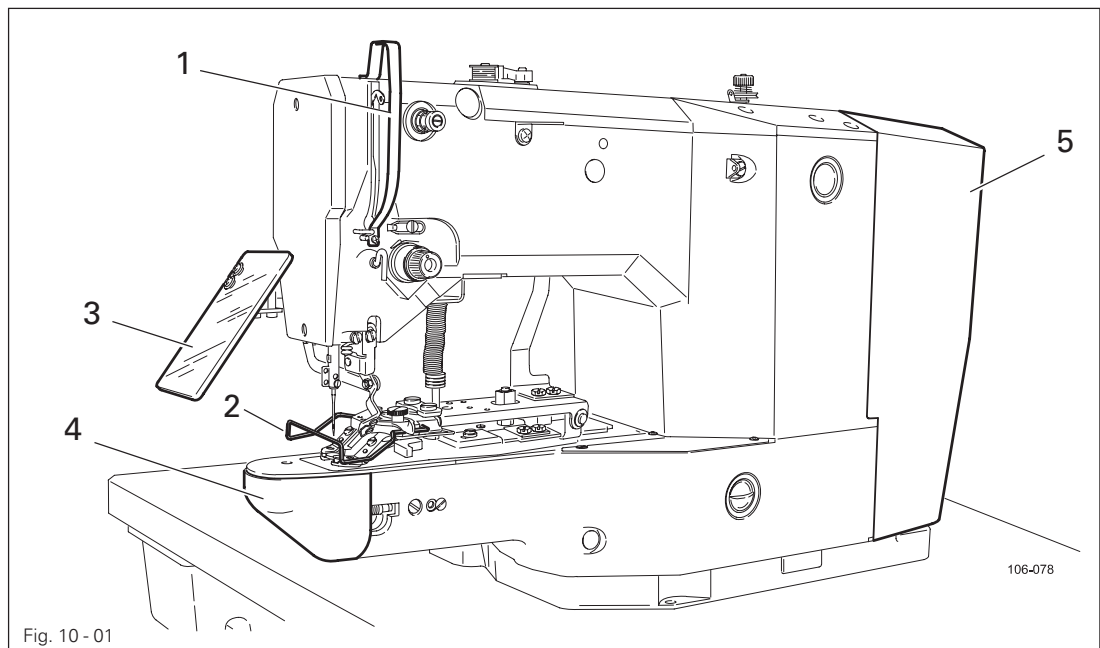
If a shift value is changed, no matter at whatever point in the seam pattern, the entire seam pattern is shifted.



The machine must be installed, connected and set up as described in **Chapter 8 Installation and Commissioning**.



The machine must not be operated without the safety devices 1 to 5, see **Chapter 1.06 Danger warnings! Danger of injury!**



## 10.01

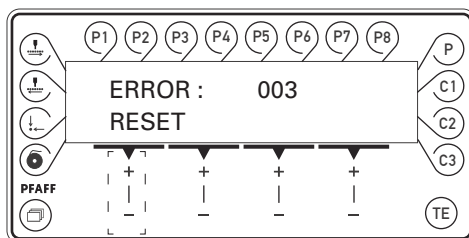
### Operating cycle

- Carry out all steps in accordance with **Chapter 9 Setting up**.
- Place the button in the button clamp.
- Place the material accordingly under the button clamp.
- Lower the button clamp and start the sewing sequence, see **Chapter 7.02 Pedal**.

## 10.02

### Error messages

When an error occurs, the text „ERROR“ appears on the display together with an error code and short instructions. An explanation of the error codes can be found in the **Chapter 11.08 Error messages on the display**.



- Correct the error.

- RESET** ● Acknowledge the correction of the error by pressing the corresponding plus/minus key or by switching the machine off and on.

11 Input

After the machine has been switched on, it is in the input mode. The letter combination "TE" appears on the control panel display. The input mode is used to reserve program stations, to enter sequences and to change machine parameters. In addition information and input possibilities for the service area are available in this mode.

11.01 Reserving program stations

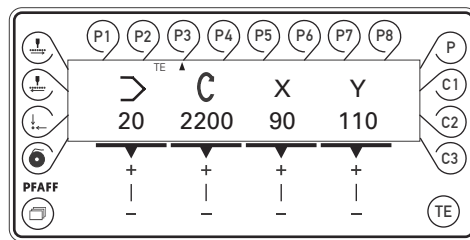
P1 to P8

The station keys P1 to P8 are used to enter and select seam programs. A complete seam program is configured from the following parameter:

- seam pattern
- speed
- size factor in X-direction
- size factor in Y-direction

P3

● In the input mode, select the desired program station, e.g. P3.



>

● With the corresponding **plus/minus key** select the desired seam pattern, e.g. 20. The seam patterns are stored in the machine under program numbers, see **Chapter 11.06 Summary of the seam patterns**.

C

2200

● Select the desired speed with the corresponding **plus/minus key**.

X  
90

● Enter the desired size factor (in %) (X-direction) with the corresponding **plus/minus key**.

Y  
110

● Enter the desired size factor (in %) (Y-direction) with the corresponding **plus/minus key**.



The enlargement of the seam pattern is limited by the size of the machine's sewing area.

TE

● Conclude the input by pressing the **TE** key. (The machine changes to the sewing mode).

## 11.02 Entering sequences

**C1** to **C3** The sequence program keys **C1** to **C3** are used to enter and select sequence programs. The sequence programs are put together from seam programs, which have been deposited under the station keys P1 to P8.

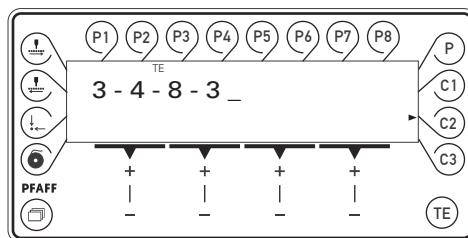
**C2** ● In the input mode, select the desired sequence program key, e.g. **C2**.

**P3** ● Enter the desired seam programs in any order by using the station keys, e.g. **P3**.

**P4** P4,

**P8** P8

**P3** and **P3**.



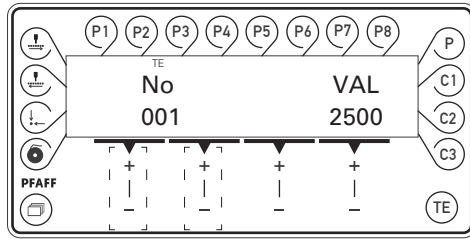
Up to 16 entries are possible. The station keys for selection must have been reserved beforehand, see **Chapter 11.01 Reserving program stations**.

● By pressing the **tacting in reverse** key, the current entry is deleted.

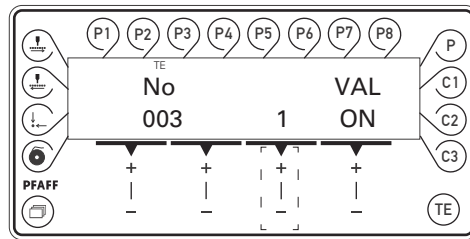
**TE** ● Conclude the input by pressing the **TE** key. (The machine changes to the sewing mode).

### 11.03 Parameter input

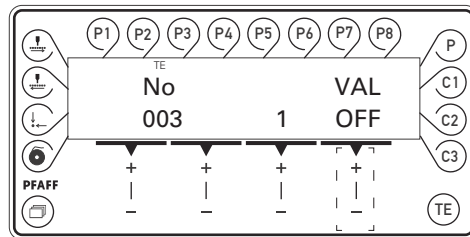
After the machine has been switched on, it is in the input mode.



- With the corresponding **plus/minus key** select the desired parameter, e.g. **003** lock seam patterns.



- With the corresponding **plus/minus key** select the desired seam pattern.



- With the corresponding **plus/minus key** lock the desired seam pattern.

- Conclude the input by pressing the **TE** key. (The machine changes to the sewing mode).



There is a list explaining all the parameters in **Chapter 11.07 List of parameters**.

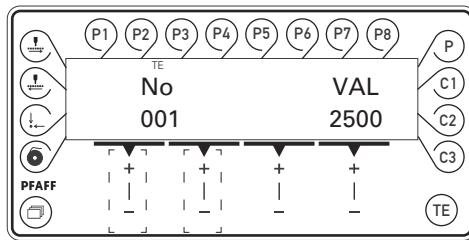
## 11.04 Free input of the seam pattern (Teach in)

In addition to the selection of firmly stored seam patterns (see **Chapter 11.06 Summary of the seam patterns**), there is also a possibility of setting seam patterns (button type) as desired using the corresponding parameter input.

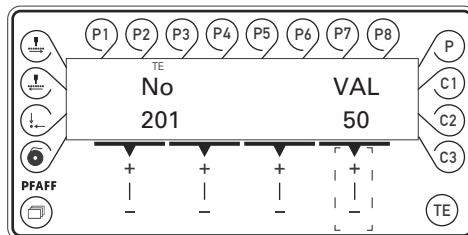


The program numbers P50 to P99 are reserved for the free input of seam patterns.

- Switch on the machine.  
After the machine has been switched on, it is in the input mode.



- No 201 ● With the corresponding **plus/minus keys**, select the parameter **201** to enter the program number.

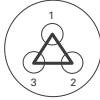
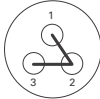



- 50 ● With the corresponding **plus/minus keys**, select the desired program number.

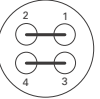
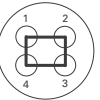
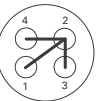
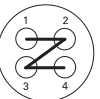
- No 202 ● With the corresponding **plus/minus keys**, select the parameter **202** to enter the button type.

- With the corresponding **plus/minus keys**, select the desired button type.  
(2 = two-hole button, 3 = three-hole button, 4 = four-hole button)
- With the corresponding **plus/minus keys**, select the parameters **203 – 208** in turn to enter the coordinates of the buttonholes 1 – 6, and enter the relevant values for the X- and Y-direction.
- If necessary, with the corresponding **plus/minus keys**, select the parameter **209** to enter the number of stitch positions and enter the desired value.
- If necessary, with the corresponding **plus/minus keys**, select the parameter **210** to choose the stitch formation.  
The stitch formation can only be chosen for three- and four-hole buttons and depends on the previously selected button type.

Stitch formations for the three-hole button

	<p>Seam cycle Value for parameter <b>210 = 0</b></p>
	<p>Point Value for parameter <b>210 = 1</b></p>
	<p>Stitching Value for parameter <b>210 = 2</b></p>

Stitch formations for the four-hole button

	<p>Normal Value for parameter <b>210 = 0</b></p>
	<p>Seam cycle Value for parameter <b>210 = 1</b></p>
	<p>Arrow Value for parameter <b>210 = 2</b></p>
	<p>Z Value for parameter <b>210 = 3</b></p>

- Select the desired stitch formation with the corresponding **plus/minus key**.
- If necessary, select parameter **211** with the corresponding **plus/minus keys** and activate the intermediate trimming function.  
The intermediate trimming function can only be activated for four-hole buttons. When the function is activated, the thread is trimmed between the second and third hole of the button.



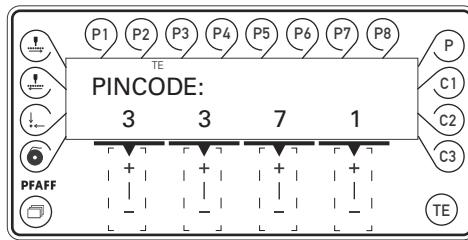
A summary with explanations of all the parameters can be found in **Chapter 11.07 List of parameters**.

## 11.05 Access codes

The selection of seam patterns, the reservation of the program stations, the input of sequences and the selection of individual parameter levels can be locked with a 4-figure access code. The access code can be changed as desired. The factory set access code is "3371".

### 11.05.01 Entering the access code

If, in the input mode, a function is selected, which has an access code, the demand for entering the access code appears on the display.



- Enter the access code with the corresponding **plus/minus keys**.



- Conclude the input.



Once the access code has been entered, all functions with access protection are freely accessible, until the machine is switched off.

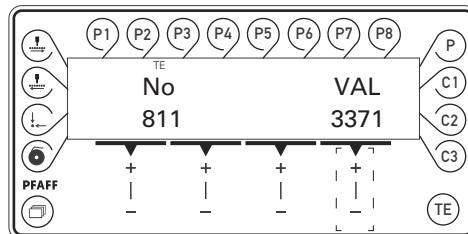
### 11.05.02 Changing the access code



- In the input mode, select parameter "811"



- Enter the access code, see **Chapter 11.05.01 Entering the access code**.



- Change the access code with the corresponding **plus/minus keys**.



- Conclude the input.



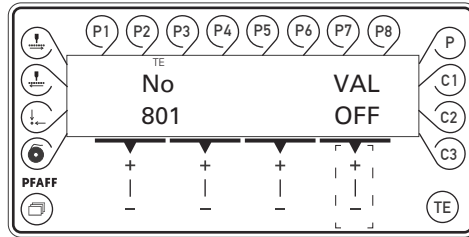
11.05.03 Granting access rights



- In the input mode select the corresponding parameter ("801" to "806"), see **Chapter 11.07 List of parameters.**



- If required, enter the access code, see **Chapter 11.05.01 Entering access codes.**

























- With the corresponding **plus/minus key** approve (on) or lock (OFF) access.














- Conclude the input.

11.06 Summary of the seam patterns

No.	Seam pattern	Size of sewing area [mm]]	Penetrations/ button row	Total number of stitches
P1		3,4 x 3,4	6	18
P2		3,4 x 3,4	8	22
P3		3,4 x 3,4	10	26
P4		3,4 x 3,4	12	22
P5		3,4 x 3,4	6	22
P6		3,4 x 3,4	8	26
P7		3,4 x 3,4	8	26
P8		3,4 x 3,4	12	3
P9		3,4 x 3,4	6	18
P10		3,4 x 3,4	8	22
P11		3,4 x 3,4	10	26

No.	Seam pattern	Size of sewing area [mm]]	Penetrations/ button row	Total number of stitches
P12		3,4 x 3,4	6	18
P13		3,4 x 3,4	8	22
P14		3,4 x 3,4	10	26
P15		3,4 x 3,4	6	22
P16		3,4 x 3,4	8	26
P17		3,4 x 3,4	10	30
P18		3,4 x 0,0	6	11
P19		3,4 x 0,0	8	13
P20		3,4 x 0,0	10	15
P21		3,4 x 0,0	12	17
P22		3,4 x 0,0	16	21

No.	Seam pattern	Size of sewing area [mm]]	Penetrations/ button row	Total number of stitches
P23		0,0 x 3,4	6	11
P24		0,0 x 3,4	10	15
P25		0,0 x 3,4	12	17
P26		3,4 x 3,4	6	18
P27		3,4 x 3,4	10	26
P28		3,4 x 3,4	6	22
P29		3,4 x 3,4	10	30
P30		3,0 x 2,6	5	20
P31		3,0 x 2,6	8	29
P32		3,0 x 2,6	5	20
P33		3,0 x 2,6	8	29

## 11.07 List of parameters



The parameter setting values may only be altered by appropriately trained staff!

Group	Parameter	Description	Setting range	Set value
000	001	<b>Maximum speed</b> This parameter is used to fix the max. sewing speed (upper limit).	500 – 2500	2500
	002	<b>Sewing speed for start stitches</b> With this parameter the speeds for the 5 start stitches are fixed.		
		Speed (spm) for start stitch no. 1	500 – 2500	500
		Speed (spm) for start stitch no. 2	500 – 2500	900
		Speed (spm) for start stitch no. 3	500 – 2500	2500
		Speed (spm) for start stitch no. 4	500 – 2500	2500
	Speed (spm) for start stitch no. 5	500 – 2500	2500	
	003	<b>Locking/releasing seam patterns</b> This parameter is used to release (ON) or lock (OFF) the individual seam patterns (0 to 99) to be carried out in the sewing mode.	ON – OFF	ON
004	<b>Switch bobbin thread counter on/off</b> <b>Standard value (pieces per bobbin)</b> In the sewing mode, the bobbin thread counter counts the pieces sewn backwards from the standard value. If the bobbin thread counter is switched on, in the sewing mode a signal is given when the value 0 is reached.	ON – OFF 1 - 9999	OFF 1000	
006	<b>Reversing after thread trimming</b> <b>Reverse position [°]</b> With this parameter it is possible to switch the automatic reversing function after thread trimming on or off. If the reversing function is switched on, the reverse position can be set by turning the balance wheel. The access code is necessary for this adjustment.	ON – OFF 0 – 14	OFF 11	
007	<b>Starting point = scale reference point</b> With this parameter it is possible to choose whether the scale reference point is the starting point (ON) or the zero point (OFF).	ON – OFF	OFF	
008	<b>Speed for the "winding" function</b> This parameter is used to fix the speed for the winding operation.	500 2700	1500	

Group	Parameter	Description	Setting range	Set value
000	009	<p><b>Via zero point to starting point after end of sequence</b></p> <p>With this parameter it is possible to choose that, after the end of the sequence, the X-, Y-drive moves to the seam starting point via the reference initiators.</p>	ON – OFF	OFF
	010	<p><b>Via zero point to starting point after number of program cycles</b></p> <p><b>Number of program cycles</b></p> <p>With this parameter it is possible to choose that, after a certain number of program cycles, the X-, Y-drive moves to the seam starting point via the reference initiators.</p>	ON – OFF 1 - 100	OFF
	011	<p><b>Pedal mode</b></p> <p>Switchover between level mode (0) and flip flop mode (1).</p>	0 – 1	0
	012	<p><b>Needle or balance wheel position in degrees</b></p>	0 - 360	11
	013	<p><b>NIS "needle in material" [°]</b></p> <p>This parameter is used to set the NIS signal. If the function is executed, the position can be entered by turning the balance wheel. If the position is altered, the result is a change in the point of time when the carriage is moved. The access code is necessary for this adjustment.</p>	65 – 166	107
	014	<p><b>Thread trimming speed [min-1]</b></p> <p>This parameter is used to fix the speed for thread trimming.</p>	100 – 700	300
	015	<p><b>Reduced current for stepping motors</b></p> <p>The reduction function of the holding current at rest with closed work clamp is switched on or off.</p>	ON – OFF	ON
	016	<p><b>Key tone</b></p> <p>The key tone, as reaction to a key on the control panel being pressed, is switched on or off. The double tone for incorrect inputs always remains switched on.</p>	ON – OFF	ON

Group	Parameter	Description	Setting range	Set value
000	017	<b>Button clamp solenoid Operating time [10 ms]</b> The time, for which the solenoid is under full current, is entered.	5 – 100	10
	018	<b>Button clamp solenoid duty-cycle [%]</b> At the end of the clamp solenoid operating time (Parameter "017") the solenoid is clocked. The relationship between duration of operation and non-operation is entered here.	5 – 100	20
	019	<b>Thread trimming solenoid operating time [10 ms]</b> The time, for which the solenoid is under full current, is entered.	5 – 100	25
	020	<b>Thread trimming solenoid duty-cycle</b> At present without a function	5 – 100	100
	021	<b>Thread take-up lever t.d.c. [°]</b> The position for the t.d.c. thread take-up lever is entered here. If the function is executed, the position can be set by turning the balance wheel. The access code is necessary for this adjustment.	45 – 53	51
	022	<b>Thread trimming position (in relation to t.d.c. needle) [°]</b> The position, at which the thread trimming solenoid is switched on, is entered here. The adjustment is set by turning the balance wheel. The access code is necessary for this adjustment.	180 - 253	180
	023	<b>Sewing area size X [1/10 mm]</b> To avoid mechanical collisions, the sewing area size of the button clamp in use is entered. The control unit checks the path and, if necessary, issues an error message.	± 33	-23 / +23
	024	<b>Sewing area size Y [1/10 mm]</b> To avoid mechanical collisions, the sewing area size of the button clamp in use is entered. The control unit checks the path and, if necessary, issues an error message.	± 33	-23 / +23

Group	Parameter	Description	Setting range	Set value
000	025	<b>Thread wiper solenoid operating time [10 ms]</b> The time, for which the solenoid is under full current, is entered.	5 – 100	10
	026	<b>Thread wiper solenoid Duty-cycle [%]</b> No function at present	5 – 100	100
100	101	<b>Software version main processor</b> The software version of the main processor is displayed		0300.xxx
	102	<b>Software version sewing drive unit</b> The software version of the sewing drive module is displayed.		V.xx
	103	<b>Software version control panel</b> The soft- and hardware version of the control panel are displayed.		V.xxx/ H.xxx
200	201	<b>Program number</b> The program number of the program to be processed is selected.	50 - 99	50
	202	<b>Button hole model</b> The button hole model (number of holes in the button) is selected.	2 – 4	2
	203	<b>Coordinates of the first hole</b> The coordinates of the hole are entered.		xx.yy
	204	<b>Coordinates of the second hole</b>		xx.yy
	205	<b>Coordinates of the third hole</b>		xx.yy
	206	<b>Coordinates of the fourth hole</b>		xx.yy
	207	<b>Coordinates of the fifth hole</b>		xx.yy
	208	<b>Coordinates of the sixth hole</b>		xx.yy
	209	<b>Stitch positions</b> The number of stitch positions on one edge are entered.	1 - 20	4
	210	<b>Stitch formation</b> The stitch formation depends on the type of button selected, see <b>Chapter 11.04 Free input of the seam pattern (Teach in)</b> of the instruction manual.	0 – 2 (0 – 3)	0



Group	Parameter	Description	Setting range	Set value
200		Three-hole button: 0 = cycle, 1 = point, 2 = stitching		
		Four-hole button: 0 = normal, 1 = cycle, 2 = arrow, 3 = Z		
	211	<b>Intermediate trimming</b> On four-hole buttons the thread can be trimmed between the second and third hole.	ON - OFF	OFF
600	601	<b>Display inputs</b> With this function the digital inputs can be checked. "IN" shows the input numbers (1 – 16). Under "VAL" the respective switch status is displayed.		
	1	IN VAL IN1, programmable input 1		
	2	IN2, programmable input 2		
	3	E3, button clamp raised		
	4			
	5			
	6			
	7			
	8			
	9			
	10			
	11			
	12			
	13			
	14			
	15			
	16			
	602	<b>Display special inputs</b> With this function it is possible to check the special inputs pedal, reference X (SM1) and reference Y (SM2). "IN" shows the inputs (PED, REFX, REFY). Under "VAL" the respective switch status is displayed.		
		IN VAL		
		PED Pedal (speed control unit -1; 0; +1; 2)		
		REFX Reference input X		
		REFY Reference input Y		

Group	Parameter	Description	Setting range	Set value																																																			
600	603	<p><b>Connect outputs</b>                      With this function the outlets can be connected. "OUT" shows the outlet selected (1-16). Under "VAL" the selected output is set (S) with the plus/minus key (+), and reset (R) with the plus/minus key. Interlocks are checked. Non-assigned outlets are not connected.</p> <table border="0"> <tr> <td>OUT</td> <td>VAL</td> <td></td> </tr> <tr> <td>1</td> <td>S/R</td> <td>Solenoid for button clamp open</td> </tr> <tr> <td>2</td> <td>S/R</td> <td></td> </tr> <tr> <td>3</td> <td>S/R</td> <td>Solenoid for thread trimming</td> </tr> <tr> <td>4</td> <td>S/R</td> <td>Solenoid for thread wiper</td> </tr> <tr> <td>5</td> <td>S/R</td> <td></td> </tr> <tr> <td>6</td> <td>S/R</td> <td>Program outlet</td> </tr> <tr> <td>7</td> <td>S/R</td> <td>Program outlet</td> </tr> <tr> <td>8</td> <td>S/R</td> <td></td> </tr> <tr> <td>9</td> <td>S/R</td> <td></td> </tr> <tr> <td>10</td> <td>S/R</td> <td></td> </tr> <tr> <td>11</td> <td>S/R</td> <td></td> </tr> <tr> <td>12</td> <td>S/R</td> <td></td> </tr> <tr> <td>13</td> <td>S/R</td> <td></td> </tr> <tr> <td>14</td> <td>S/R</td> <td></td> </tr> <tr> <td>15</td> <td>S/R</td> <td></td> </tr> <tr> <td>16</td> <td>S/R</td> <td></td> </tr> </table>	OUT	VAL		1	S/R	Solenoid for button clamp open	2	S/R		3	S/R	Solenoid for thread trimming	4	S/R	Solenoid for thread wiper	5	S/R		6	S/R	Program outlet	7	S/R	Program outlet	8	S/R		9	S/R		10	S/R		11	S/R		12	S/R		13	S/R		14	S/R		15	S/R		16	S/R			
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	604	<p><b>Move stepping motors</b>                      The stepping motors SM1 (X-axis) and SM2 (Y-axis) are moved individually with the respective plus/minus keys. Interlocks are not checked.</p>																																																					
	605	<p><b>Turn sewing motor</b>                      The sewing motor can be operated with a selectable set speed by pressing the pedal. After the sewing motor has been started, the current speed is also displayed.</p>	500 - 2500	500																																																			
	606	<p><b>Thread trimming sequence</b>                      The sequence for a complete thread trimming cycle is started with the plus/minus key (+) below CUT and below THR.</p>																																																					

Group	Parameter	Description	Setting range	Set value
600	607	<p><b>Cold start (RESET)</b>            With this function the control unit carries out a cold start (RESET) with which the data is reset. After this function has been selected, the machine must be switched off and then on again.</p>		
	608	<p><b>Setting zero points</b>            With this function and the adjustment gauge, the zero points for the X/Y-drive unit can be set. (stepping motor correction values for the reference points REF<sub>X</sub>, REF<sub>Y</sub>). The access code is required for this adjustment.</p>		
	609	<p><b>Setting the button clamp centre X</b>            This function is used to set the centre of the button clamp in X-direction. When entering the function, the machine moves to the current button clamp centre, after which it is possible to move to the right or left edge, depending on the set limits (param. "023"). A correction can be made with the plus/minus keys. The relocation value is displayed.</p>		
	610	<p><b>Setting the button clamp centre Y</b>            This function is used to help set the centre of the button clamp in Y-direction. After entering this function, the machine moves to the current button clamp centre, after pressing a key to the front or the rear limit (param. "024"). The button clamp must be shifted manually.</p>		
	611	<p><b>Automatic button clamp opening off</b>            With this function the automatic opening of the button clamp after thread trimming can be switched off. After the machine has been switched off, the automatic button clamp opening function is always activated.</p>	ON - OFF	OFF
	612	<p><b>Test function continuous start</b></p>	ON - OFF	OFF

Group	Parameter	Description	Setting range	Set value
800		The function groups and the functions Programming the Function Keys P, P1-P8 and C1-C3 can be released for manipulation (ON) or locked (OFF). If a function group is suppressed, its parameters cannot be changed until a valid access code has been entered. Once a valid access code has been entered, the suppression is cancelled until the machine is switched off.		
	801	Right of access function group 000	0N – OFF	ON
	802	Right of access function group 100	0N – OFF	ON
	803	Right of access function group 200	0N – OFF	ON
	807	Right of access function group 600	0N – OFF	OFF
	808	Right of access function group 700	0N – OFF	OFF
	809	Right of access function group 800	0N – OFF	OFF
	810	Right of access to keys "P", "P1" – "P8" and "C1" – "C3"	0N – OFF	ON
	811	Access code This parameter is used to alter the access code. Upon delivery the machine is set with the access code "3371".		3371

## 11.08 Error messages on the display

Following error messages are shown on the control panel display.

ERROR: 1	Processor error STACK_OVERFLOW
ERROR: 2	Processor error STACK_UNDERFLOW
ERROR: 3	Processor error UNDEF_OPCODE
ERROR: 4	Processor error PROTECTION_FAULT
ERROR: 5	Processor error ILLEGAL_WORD_OPERAND
ERROR: 6	Processor error ILLEGAL_INSTRUCTION
ERROR: 7	Processor error ILLEGAL_BUS_ACCESS
ERROR: 8	Processor error NMI
ERROR: 10	OTE (Sewing head recognition unit) not attached
ERROR: 11	OTE not programmed (new)
ERROR: 12	OTE check sum error
ERROR: 13	OTE header invalid
ERROR: 14	OTE user data invalid
ERROR: 30(#)	(OTE error see cap. 11.10)
ERROR: 31(#)	(Error Sewing motor see cap. 11.09)
ERROR: 50	Incorrect control panel
ERROR: 51	Incorrect machine class in OTE
ERROR: 52	Incorrect software for main drive
ERROR: 101	Mains voltage
ERROR: 102	Power supply overload
ERROR: 103	24 V too low
ERROR: 201(#)	(Error Sewing motor see cap. 11.09)
ERROR: 202	Pattern too large
ERROR: 203	Overload data transfer sewing motor
ERROR: 204	Tacting function locked
ERROR: 205	Run function locked
ERROR: 206	No NIS
ERROR: 207	Not end of ramp
ERROR: 208	Zero point not found
ERROR: 209	Sewing function locked
ERROR: 210	Bobbin thread fault
ERROR: 211	Stitch too large
ERROR: 301	Raise clamp not completed
ERROR: 302	Lower clamp not completed
ERROR: 303	Raise clamp locked (needle position)
ERROR: 304	Lower clamp locked (needle position)

ERROR: 305	Thread wiper on locked (needle position)
ERROR: 401	Error sewing motor
ERROR: 402	Overload data transfer sewing motor
ERROR: 403	Program station not programmed
ERROR: 404	Program locked
ERROR: 405	Program does not exist
ERROR: 406	No NIS
ERROR: 407	Zero points invalid
ERROR: 408	Machine not in basic position
ERROR: 409	Zero point not found
ERROR: 410	Program too long
ERROR: 411	Incorrect program number
ERROR: 412	Incorrect number of holes in button
ERROR: 413	Coordinates of 2 holes are the same
ERROR: 414	Incorrect number of plies
ERROR: 415	Incorrect stitch formation value

## 11.09 Sewing motor errors

1	Time out	70	Motor blocking
9	Position not reached	71	No incremental connector
34	Brake path too short	73	Motor running interrupted
35	Communication error	75	Controller locked
36	Initialisation (Init.) not completed	170	Invalid transmission
65	Extint low at Init	171	Zero mark invalid
66	Short circuit	175	Start error
68	Extint low in operation	222	Time-out monitoring
69	No increments		

## 11.10 OTE-errors

1	Read error
2	Write error
3	Full EEPROM
4	No EEPROM
5	Invalid size
6	Invalid address
7	Address overflow
8	Checksum failed
9	Serialnr. changed

12 Care and maintenance

12.01 Maintenance intervals

Clean the entire machine .....	once a week
Clean the hook compartment .....	once a day, more often when in continuous operation
Oiling the needle head parts .....	as required
Oiling the hook .....	as required
Oiling the bearing points in the arm .....	once a month



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

12.02 Cleaning the machine

The cleaning cycle required for the machine depends on following factors:

- Single or several shift operation
- Amount of dust resulting from the workpiece

It is therefore only possible to stipulate the best possible cleaning instructions for each individual case.



For all cleaning work the machine must be disconnected from the mains by switching off the on/off switch or by removing the mains plug!  
Danger of injury if the machine suddenly starts up .



To avoid breakdowns, the following cleaning work is recommended for single shift operation:

- Clean hook compartment and needle area of sewing head several times daily.
- Clean the entire machine at least once a week.

### 12.03 Cleaning the hook compartment

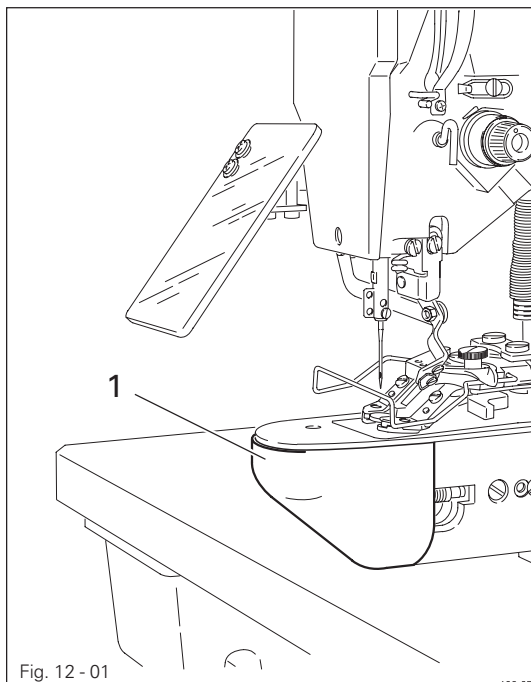


Fig. 12 - 01



Switch off the machine!  
Danger of injury if the machine is started accidentally!

- Open the hook compartment cover 1.
- Clean the hook and the hook compartment daily, more often if in continuous operation.

### 12.04 Oiling the needle head parts

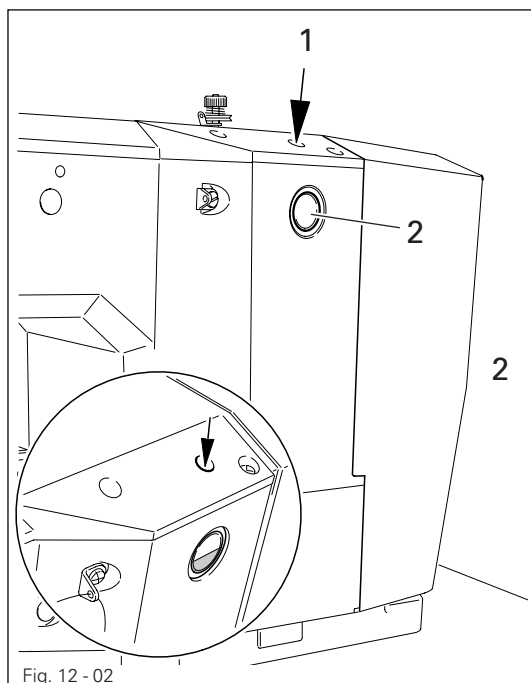
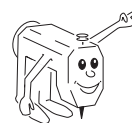


Fig. 12 - 02

- When required, pour oil through hole 1 up to the upper marking in inspection glass 2.



Only use oil with a mean viscosity of 10.0 mm<sup>2</sup>/s at 40°C and a density of 0.847 g/cm<sup>3</sup> at 15°C.



We recommend  
PFAFF sewing machine oil, part no. 280-1-120 105.



12.05 Oiling the hook

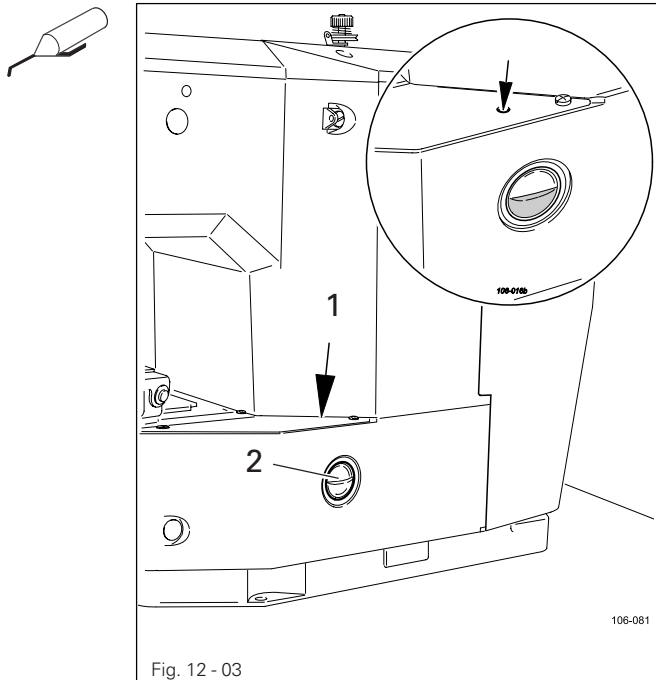


Fig. 12 - 03

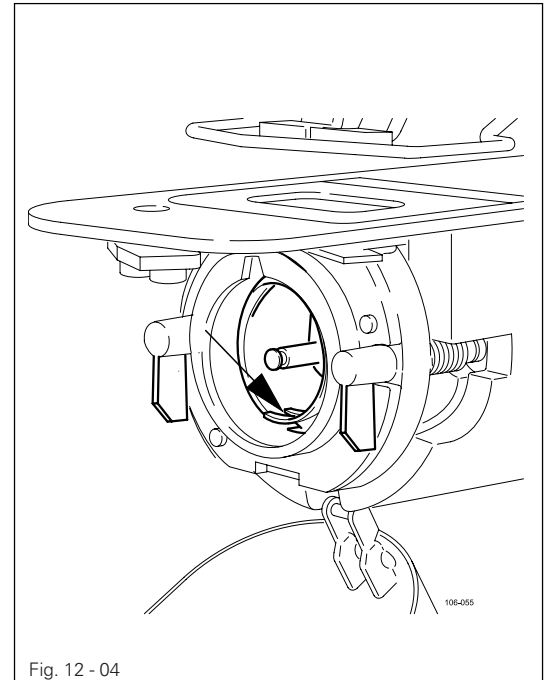


Fig. 12 - 04

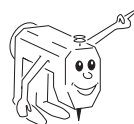


Switch off the machine!  
Danger of injury if the machine is started accidentally!

- When required, pour oil through hole 1 up to the upper marking in inspection glass 2.
- Before commissioning the machine, and after long downtimes, also add a few drops of oil to the hook race, see arrow in Fig. 12-04.

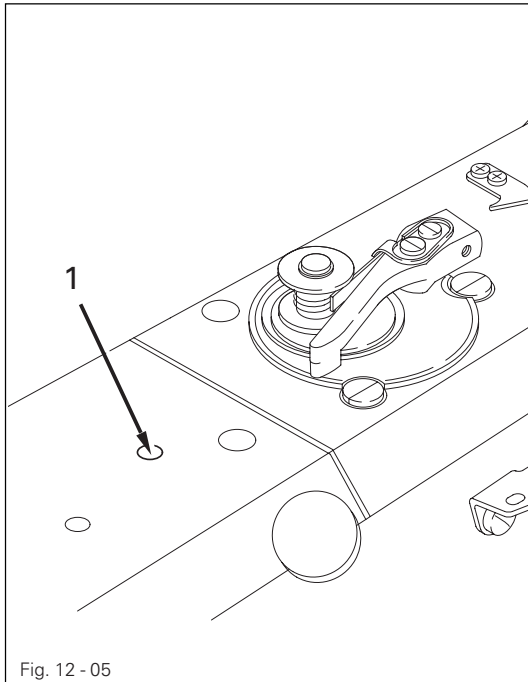


Only use oil with a mean viscosity of 10.0 mm<sup>2</sup>/s at 40°C and a density of 0.847 g/cm<sup>3</sup> at 15°C.



We recommend PFAFF sewing machine oil, part no. 280-1-120 105.

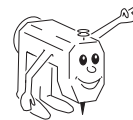
### 12.06 Oiling the bearing points in the arm



- Once a month pour a few drops of oil into hole 1.

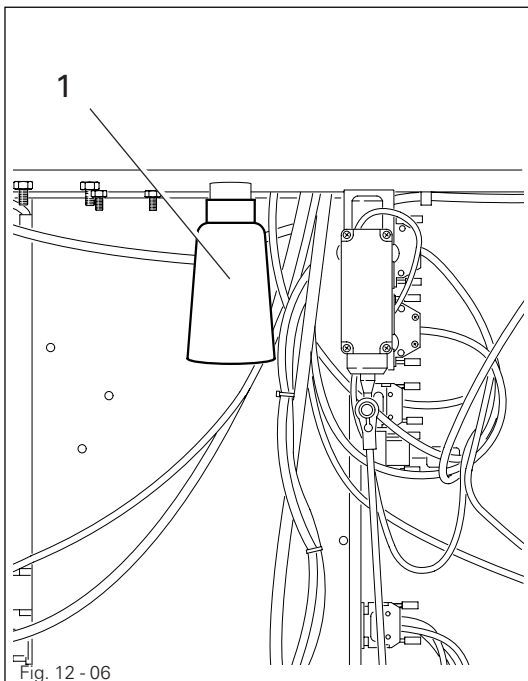


Only use oil with a mean viscosity of 10.0 mm<sup>2</sup>/s at 40°C and a density of 0.847 g/cm<sup>3</sup> at 15°C.



We recommend PFAFF sewing machine oil, part no. 280-1-120 105.

### 12.07 Oil disposal



- When required, unscrew oil collector 1 and dispose of the oil in accordance with the valid local environmental regulations.



The oil must not get into the sewer system! Danger of damage to the environment!

Wearing parts

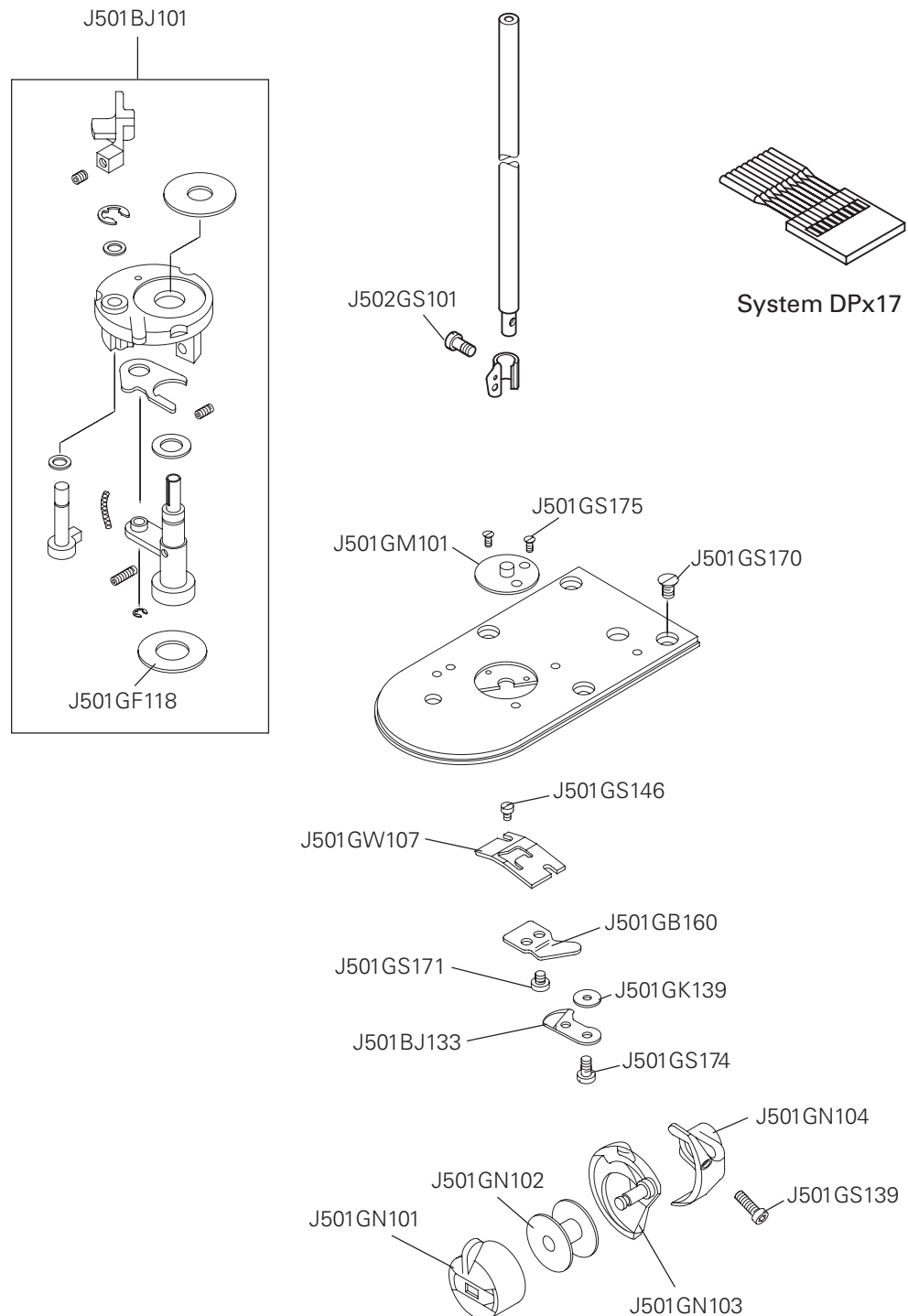
This is a list of the most important wearing parts.

A detailed parts list for the complete machine is included with the accessories.

In case of loss the parts list can be downloaded from the internet address

[WWW.pfaff-industrial.com/de/service/download/index.php3](http://WWW.pfaff-industrial.com/de/service/download/index.php3). As an alternative to the internet download the parts lists can also be ordered in book form

under part no. 296-12-18 618.



# PFAFF

## PFAFF Industrie Maschinen AG

Postfach 3020  
D-67653 Kaiserslautern

Königstr. 154  
D-67655 Kaiserslautern

Telefon: (0631) 200-0  
Telefax: (0631) 17202  
E-Mail: [info@pfaff-industrial.com](mailto:info@pfaff-industrial.com)