PFAFF

3588-02/021

Instruction Manual

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

\# 2566698 ⟶

Contents .... Chapter

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1 Safety

1.01 Directives

This machine was built in accordance with the European regulations stated in the Conformity and Manufacturer's Declaration.
In addition to this Instruction Manual, also observe all generally accepted, statutory and other regulations and legal requirements - also those of the country in which the machine will be operated - and all valid environmental protection regulations!
Applicable local 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 must 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 must only be used for the purpose for which it is intended and must not be operated without its safety devices. All applicable safety regulations must be observed.

● When sewing parts (e.g. needle, presser or bobbin) are exchanged, when the machine is being threaded, when the machine is left unattended and during maintenance work, the machine is to be separated from the power supply by turning off the On/Off switch or removing the plug from the mains!

● Daily maintenance work must only be carried out by appropriately trained personnel!

● Repair work and special maintenance work must only be carried out by specialists or appropriately trained personnel!

● Work on electrical equipment must only be carried out by appropriately trained specialist personnel!

● Work is not permitted on parts and equipment which are connected to the power supply! Exceptions to this are contained in the regulations EN 50110.

● Modifications and alterations to the machine must only be carried out pursuant to all relevant safety regulations!

● Only spare parts which have been approved by us are to be used for repairs! We expressly point out that any replacement parts or accessories not supplied by us have not been tested and approved by us. The installation and/or use of any such products may result in negative changes to the constructional 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 to operating and specialist personnel!

Warning, electric voltage!

Caution

Do not operate without finger guard 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 a component 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 on 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 at the point of sale.

1.05 Operating and specialist personnel

1.05.01 Operating personnel

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

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

● always observe the Notes on Safety in the Instruction Manual!

● never use any working methods which could reduce the level of safety in using the machine!

● not wear loosely 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 user any changes in the machine which may reduce its level of safety!

1.05.02 Specialist personnel

Specialist personnel are persons who have completed expert education/training 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!

● never work on parts and devices which are still connected to the power supply! The only exceptions to this directive are found 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!
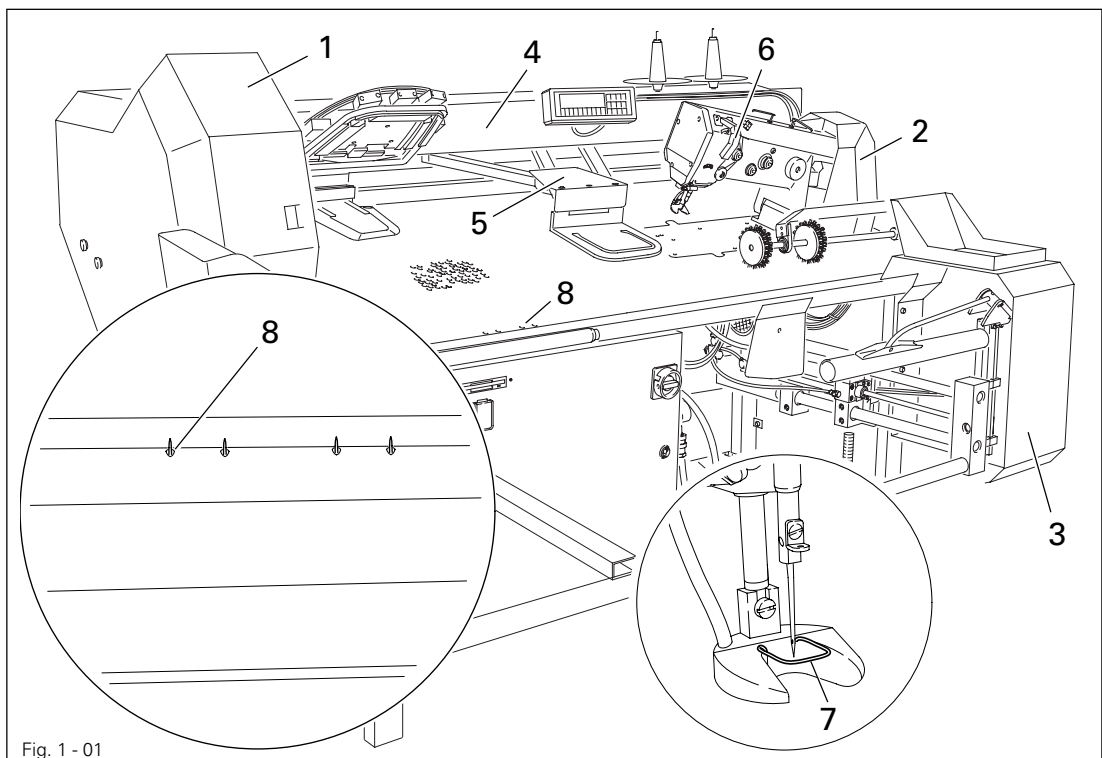Danger of injury by hurled objects!

Fig. 1 - 01

Do not operate the machine without protective covers **1, 2, 3, 4** and **5**!
Danger of crushing between moving parts of the pneumatic or feed systems!

Do not operate the machine without take-up lever guard **6**!
Danger of injury by the movement of the take-up lever!

Do not operate the machine without the finger guard **7**!
Danger of injury by the needle!

Do not put your hands or fingers in needles **8** of the fabric retainer!
With the needle strip engaged (needles up) there is danger of injury near the needle strip due to the projecting needles!

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2   Proper use

The **PFAFF 3588-02/021** is used for folding and sewing on pockets on shirts and similar garments.

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 means that all operational, adjustment, maintenance and repair measures required by the manufacturer are to be observed!

3   Specifications ▲

Sewing head: .... PFAFF sewing head for mechanized sewing units with horizontal hook

Sewing speed: .... max. 4000 spm
Stitch length: .... max. 6 mm
Stitch type: .... 301 (lockstitch)

Needle system: 134
Needle size: .... 70 - 110 Nm

Sewing motor: .... PFAFF Syncro 6040
Motor speed: .... max. 4000 rpm
Connection voltage: .... 230 V, 50 - 60 Hz a. c. voltage
Power requirement: .... 2.2 kW

Range of control: .... 250 x 250 mm
Storage capacity: .... 320 KB

Working air pressure: .... min. 6 bar
Air consumption: .... approx. 25 l / cycle

Working noise level:
Emission at workplace at n = 4000 spm: .... 78 dB(A)
(Noise measurement in accordance with DIN 45 635-48-A-1)

Dimensions of machine:
Length: .... approx. 2250 mm
Width: .... approx. 1150 mm
Height: .... approx. 1450 mm
Table height: .... 870 - 1170 mm

Net weight: .... 600 kg

▲ Subject to alteration

4   Disposal of the machine

● The proper disposal of the machine is the responsibility of the customer.

● The materials used for the machine are steel, aluminium, brass and various plastics. The electrical equipment consists of plastics and copper.

● The machine must be disposed of in accordance with applicable local environmental protection regulations. If necessary, a specialist is to be commissioned.

⚠ Special care is to be taken that parts soiled by lubricants are separately disposed of in accordance with the applicable local environmental protection regulations!

5   Transport, packaging and storage

5.01   Transport to the customer's premises

Within Germany, machines are delivered without packaging.
Machines for export are packaged.

5.02   Transport within the customer's premises

The manufacturer bears no liability for transport within the customer's premises or to the location of use.
The machine may only be transported in an upright position.

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, should be protected against corrosion, e.g. by a film of oil.

6   Explanation of the symbols

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

Note, information

Cleaning, care

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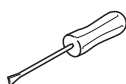
Servicing, repairing, adjustment, maintenance
(only to be carried out by specialist personnel)

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7 Controls

7.01 On/off switch

Fig. 7 - 01
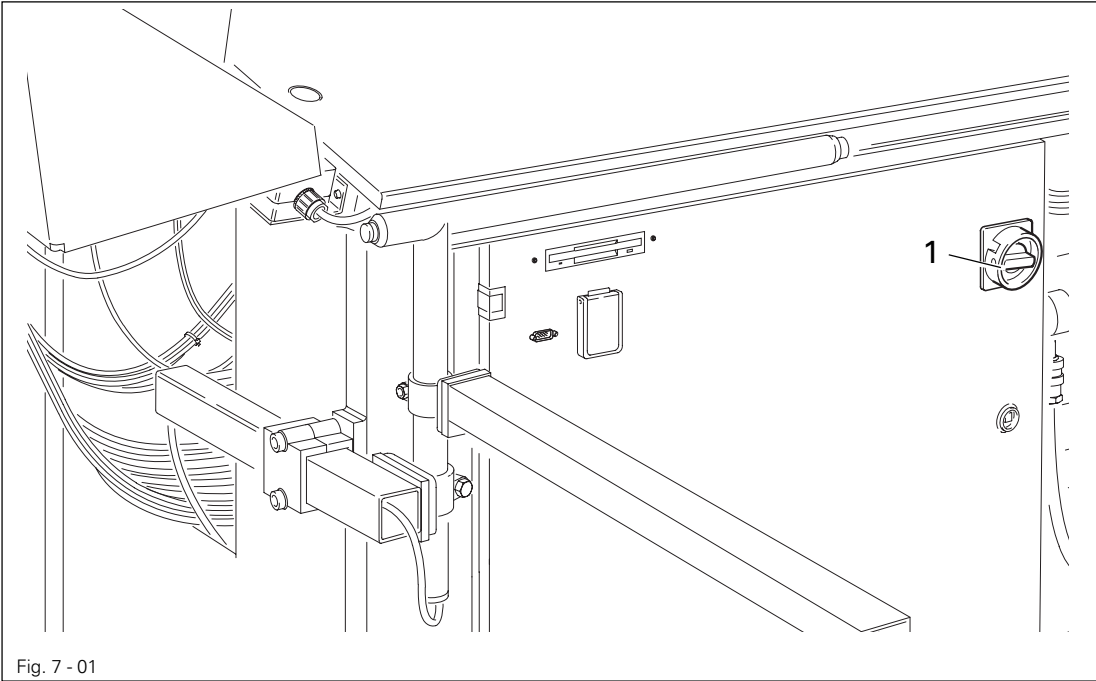
● By turning on/off switch **1**, the power supply to the machine is switched on or off.

7.02 Stop switch
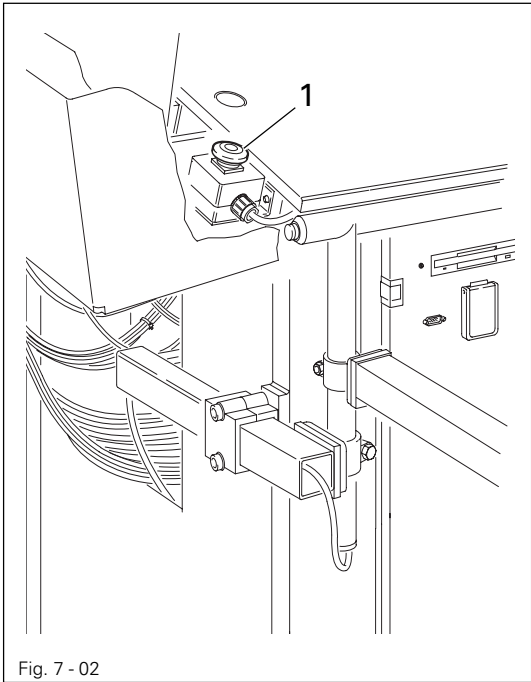
Fig. 7 - 02

● By pressing the stop switch **1**, the complete work cycle is stopped.

Refer to **chapter 10.04 Program interruption.**

7.03 Switch for the loading function
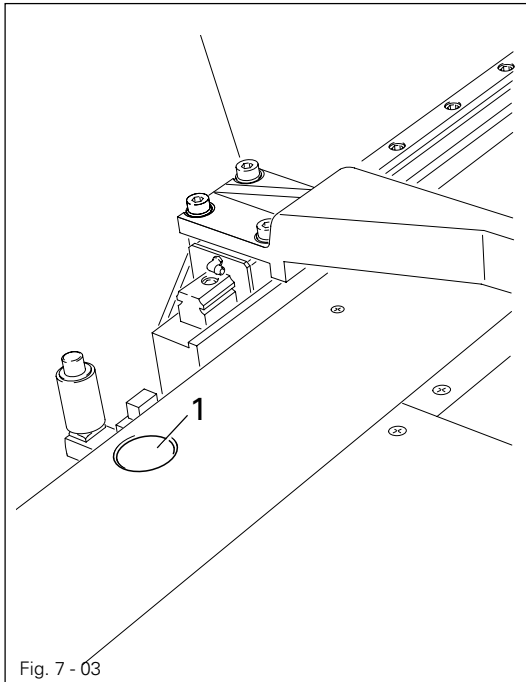
Fig. 7 - 03

● The function of the switch **1** can be adapted to the various requirements for loading the workpiece.

> The foot switch is adjusted via the menu. Refer to **chapter 11.05 Functions in the INPUT mode.**

> ⚠ With the needle strip engaged (needles up) there is danger of injury near the needle strip due to the projecting needles!

By selecting the functions BASIC POSITION POCKET PLATE FRONT or BASIC POSITION POCKET PLATE BACK and by switching the function UNI-MATERIAL on or off, the following menu combinations can be created:

| Menu combinations	Switch functions
BASIC POSITION POCKET PLATE FRONT and UNI-MATERIAL ON	Switch fabric suction/needle strip on/off
BASIC POSITION POCKET PLATE FRONT on PLAIN-MATERIAL OFF	1st actuation: Fabric suction/needle strip on. 2nd actuation: Lower pocket plate and raise it a little. Switch off fabric suction/needle strip. 3rd and further actuations: Lower pocket plate and raise it a little. Switch fabric suction/needle strip on/off.

Menu combinations	Switch functions	
BASIC POSITION POCKET PLATE BACK PLAIN-MATERIAL OFF	1st	Actuation: Fabric suction/needle strip on.
	2nd	actuation: Move pocket plate forward.
	3rd	and further actuations: Switch fabric suction/needle strip on/off.
BASIC POSITION POCKET PLATE BACK PLAIN-MATERIAL OFF	1st	actuation: Move pocket plate forward/switch fabric suction/needle strip on.
	2nd	actuation: Lower pocket plate and raise it a little. Switch fabric suction/needle strip off.
	3rd	and further actuations: Lower pocket plate and raise it a little. Switch fabric suction/needle strip on/off.

7.04   Double-start keys

Fig. 7 - 04
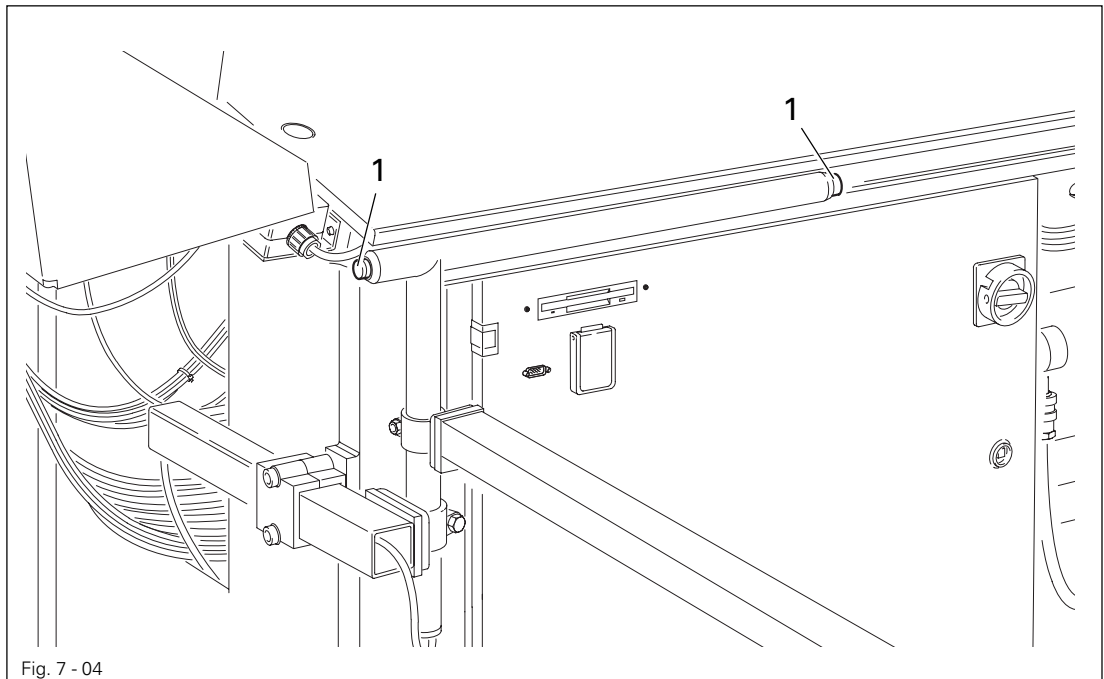
● In **MANUAL** operation mode, when both double-start keys **1** are activated simultaneously the folder is moved forward and lowered.
● In **AUTOMATIC** operation mode, when both double-start keys **1** are activated simultaneously the entire program sequence is started.
● The double-start keys **1** also are used to continue the program after the bobbin has been replaced or the program has been interrupted.
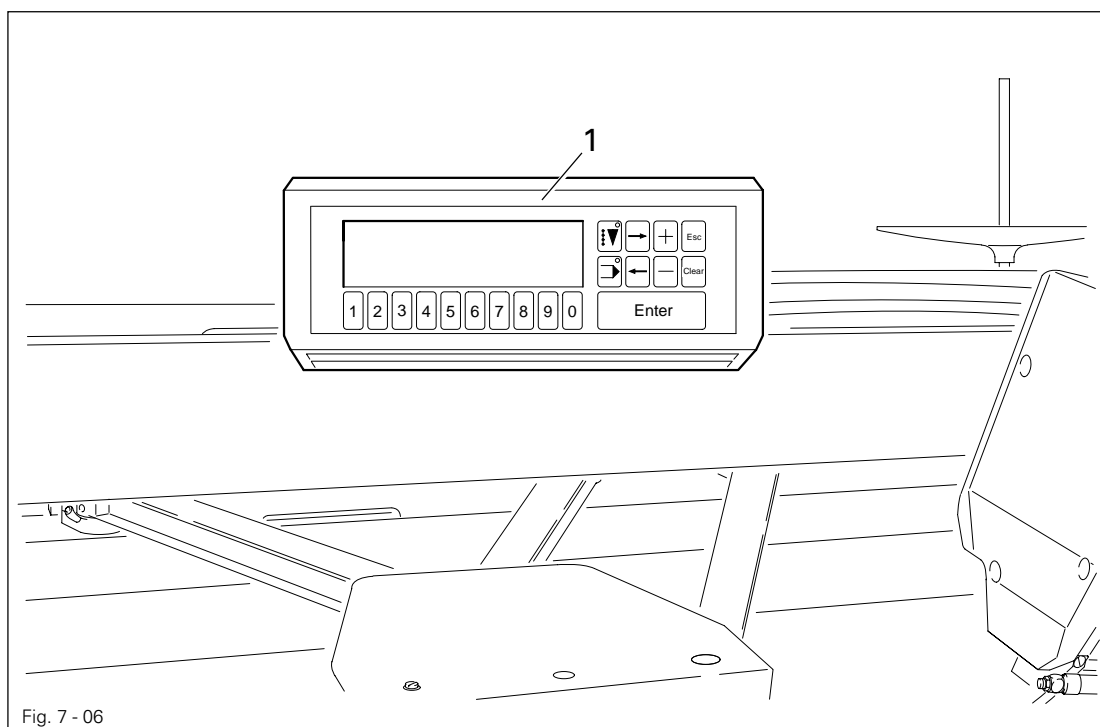
7.05   Handwheel

Fig. 7 - 05
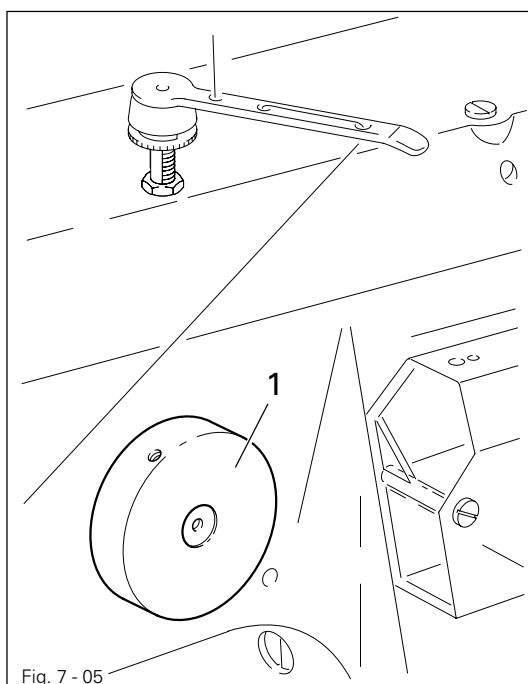
● By turning and simultaneously pushing the handwheel **1** in, the needle bar can be positioned manually as required.

7.06   Control panel

The control panel **1** consists of the display and two key panels.

Fig. 7 - 06

7.06.01   Display

In the basic screen the messages in the display are divided into three sections:

Status bar
The status bar is in the upper section of the display. Here, up to 5 pictograms with the corresponding values can be displayed (refer to **chapter 10.01 Status bar**)

Text field
The text field is in the middle section of the screen. Here, messages can be displayed in 2 lines.

Pictogram bar
The pictogram bar is found at the bottom of the display. Here, symbols are displayed whose corresponding function can be called up via the **number keys**. Active functions are shown by a symbol displayed on a dark background.

Example:

Normal symbol (function not active)
The **manual sewing** function is not activated, but the **automatic sewing** function is activated.

Symbol on dark background (function active)
Manual sewing is activated.

Controls

7.06.02   Operation-mode keys

By pressing the corresponding key, one of two possible operation modes can be selected. The selected mode is indicated by the light emitting diode in the respective key.
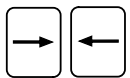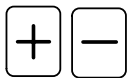
SEWING mode

INPUT mode

7.06.03   Function keys

Arrow keys (right/left)
- To jump to another menu page
- To position the cursor when entering several values in one line

Plus/Minus keys
- To select the +/- sign on input values
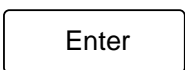- To raise and lower input values

Esc key
- To interrupt functions without taking on the value entered
- To return to superordinate menu functions
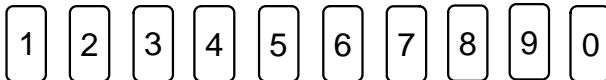
Clear key
- To reset the input value to 0

Enter key
- To confirm an input value
- To acknowledge an error after an error message

7.06.04   Number keys

Below the display there is a row of number keys (1 - 0).
Depending on the current operating mode, these keys have the following functions:

- carrying out the function shown by the symbol displayed above the number key
- entering a numerical value
- selecting functions or menu levels

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8 Mounting and commissioning the machine

After unpacking the machine, check it for any transport damage. In case of damage, inform the shipping company and the responsible PFAFF dealer.

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

8.01 Mounting

At the machine's location, there must be a stable and horizontal surface as well as suitable electricity and compressed air supplies (see **chapter 3 Specifications**).
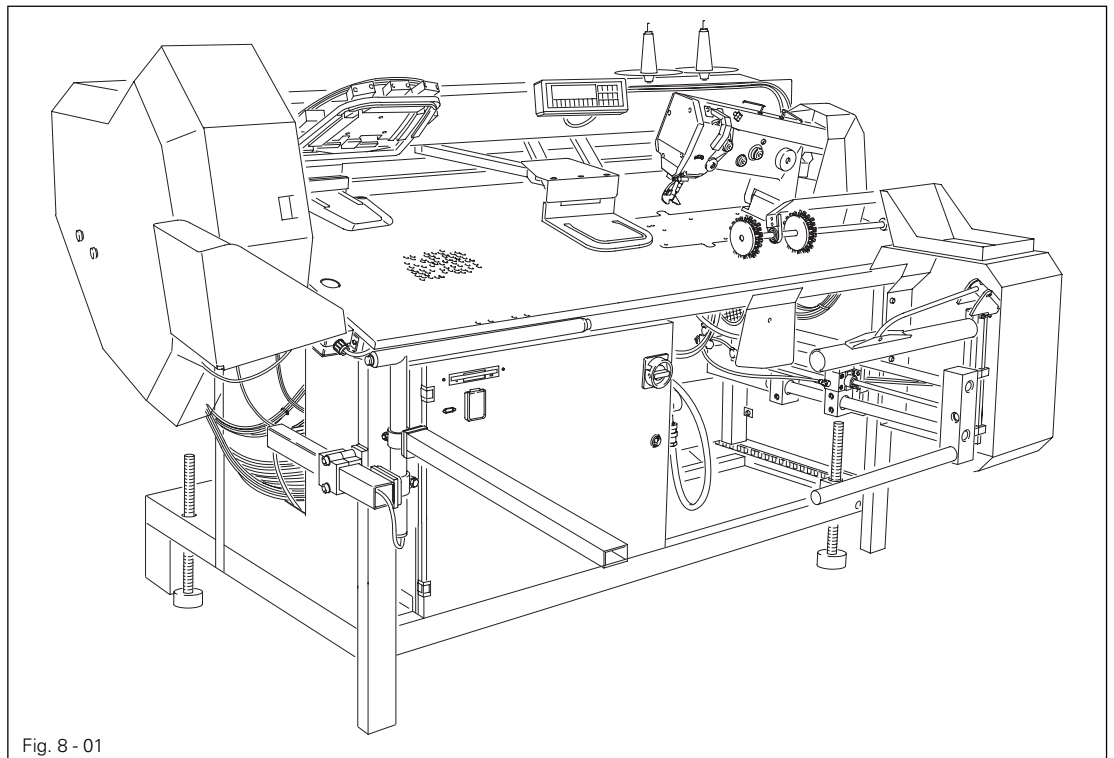

Fig. 8 - 01

● Lift the machine with a forklift from the shipping pallet.

For machines without vertical adjustment:
● Align the machine horizontally just above the floor and move the four legs accordingly before setting the machine down on the ground.

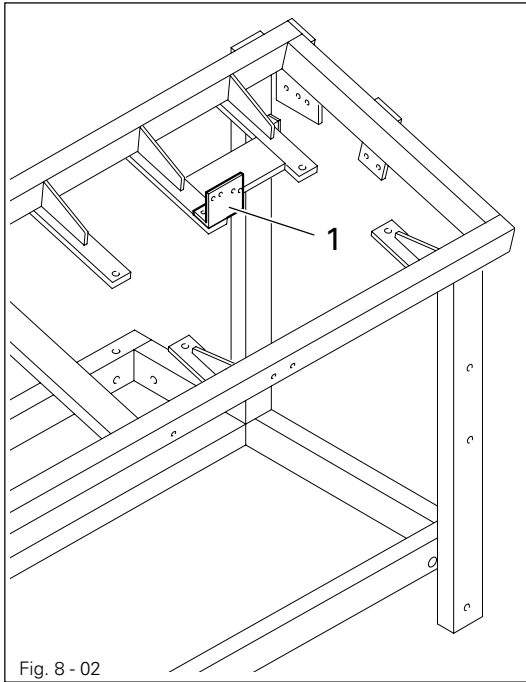For machines with vertical adjustment:
● Set down the machine on the ground and align it by turning the four spindles.

ℹ️ The vertical adjustment is available as an optional feature.
Fig. 8-01 shows a machine with vertical adjustment.
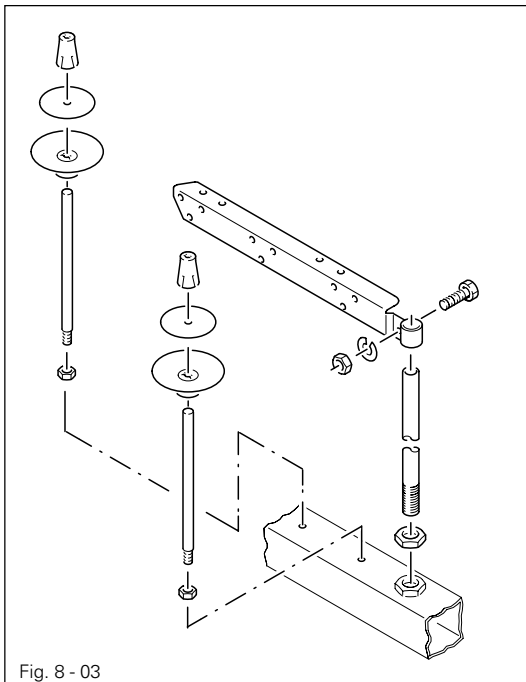
Mounting and commissioning the machine

8.02 Removing the transit support bracket

Fig. 8 - 02

⚠ Before the machine is commissioned, transit support bracket **1** must be removed!

Transit support bracket **1** serves to secure the sewing machine during transit and must not be used during sewing.

8.03 Mounting the spool holder

Fig. 8 - 03

● Mount the spool holder according to **Fig. 8.03**.

PFAFF

Mounting and commissioning the machine
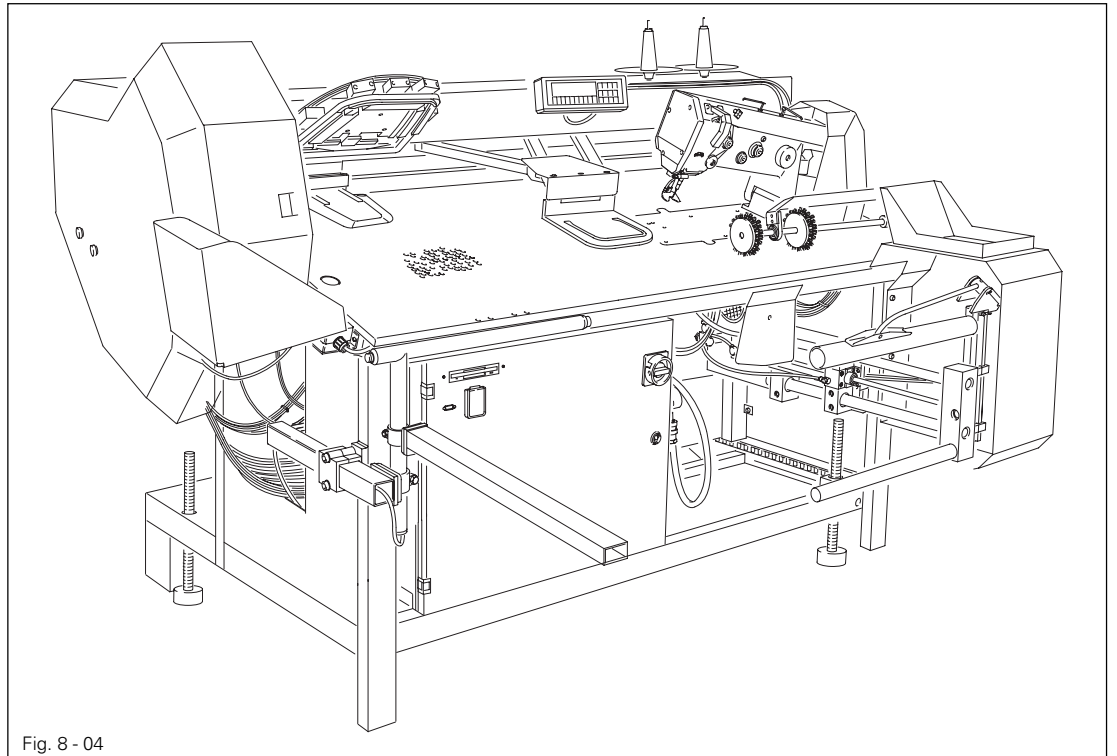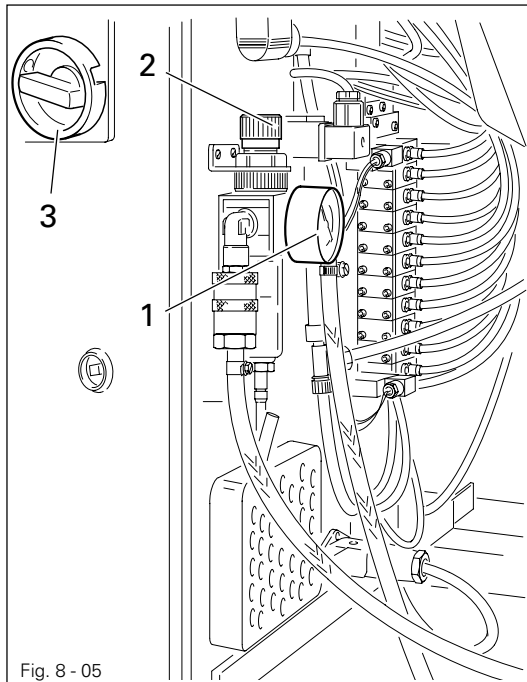
8.04   Commissioning

Fig. 8 - 04

- ● Clean the whole machine thoroughly and check the electrical leads and pneumatic connecting tubes for any damage.

- ● Make sure that the mains voltage corresponds to the connection voltage of the machine (see **chapter 3 Specifications**). If the mains voltage and the connection voltage differ, the machine must not be operated under any circumstances.

- ● Have specialists connect the machine to the mains.

- ● Oil the machine and/or fill with oil (see **chapter 12 Care and maintenance**).

- ● 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 12.04 Checking / regulating air compression**).

Mounting and commissioning the machine

8.05 Turning the machine on/off

Fig. 8 - 05

● Check air pressure on the manometer **1**. If necessary, adjust the air pressure on adjusting knob **2**.
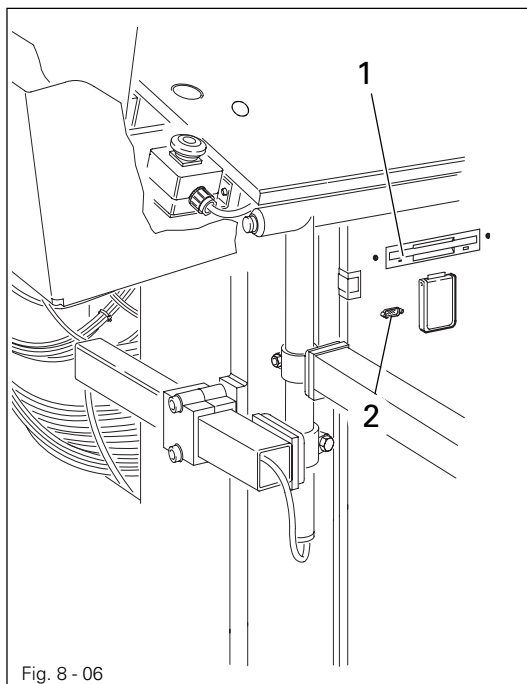● Turn On/Off switch **3** to position "**I**".

> ℹ️ After the machine has been switched on, it is always in the **automatic sewing** mode.

> ⚠️ When commissioning the machine, the zero point must be checked and, if necessary, adjusted (see **chapter 8.07 Adjusting zero point**).

● To switch off the machine, turn the On/Off switch **3** to position " **0** ".

8.06 Disk drive and PC interface

Fig. 8 - 06

● Disk drive **1** can be used to read in seam programs and operating software.
● Socket **2** is for connecting the programming system OSCA.

> ℹ️ With OSCA existing CAD data records can be used to generate seam programs.

Mounting and commissioning the machine

8.07 Adjusting zero point

It is necessary to adjust the zero point when the machine is commissioned and after replacing the controller or one of the proximity switches of the sewing jig transport.

● Select INPUT mode.

● Select **Input menu** function (number key 0).

6 ● Select the SERVICE function.

5 ● Select the ADJUST ZERO POINT function.

● Enter the code number via the **number keys**.

The four-digit code number (factory setting: 3588) can be altered via the menu functions. Please see **chapter 11.03 Summary of the service functions** and **11.05 Functions in the INPUT mode**.)

Gauge position

1 ● Select the GAUGE POSITION function.

+ ● Press the **plus key** to position the sewing jig transport in the gauge position.
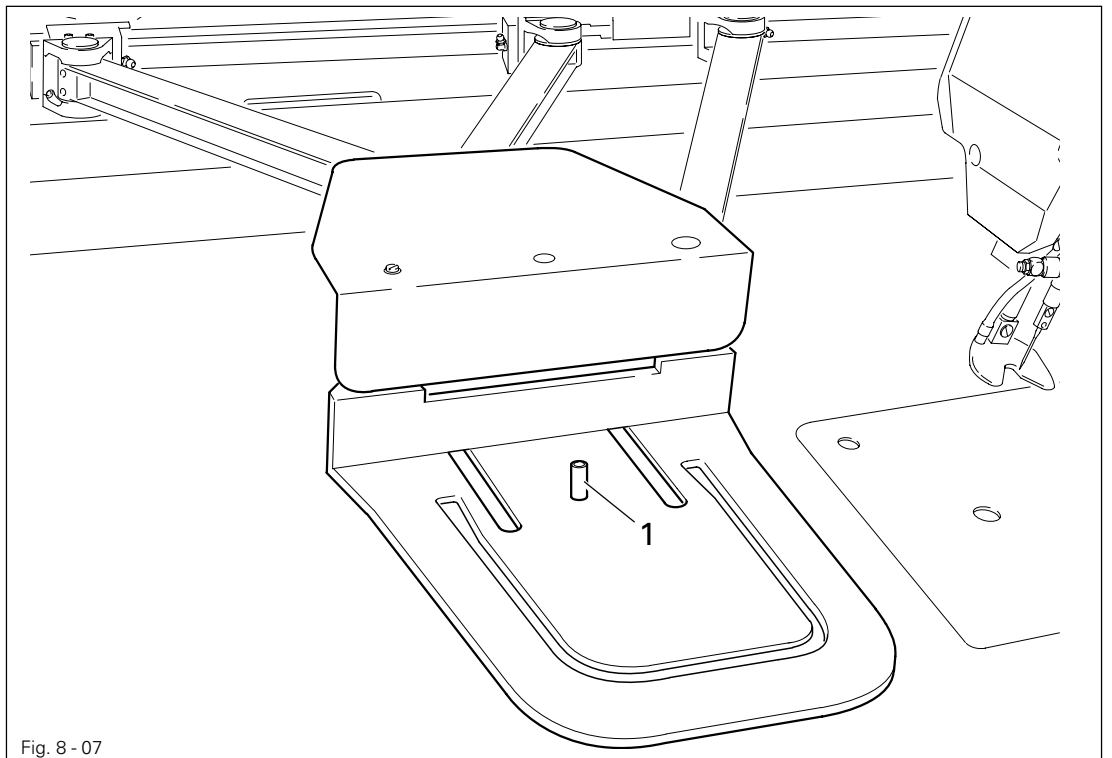

Fig. 8 - 07

● Check if adjustment pin **1** can be inserted in the holes of the sewing jig and table when the sewing jig is in this position.

Mounting and commissioning the machine

```
ENTER GAUGE POSITION
    CONFIRM WITH ENTER KEY

SM : -11           JIG          SM2 : 0
 ←   →            ↑   ↓           ←   →

1  2  3  4  5  6  7  8  9  0        Enter
```
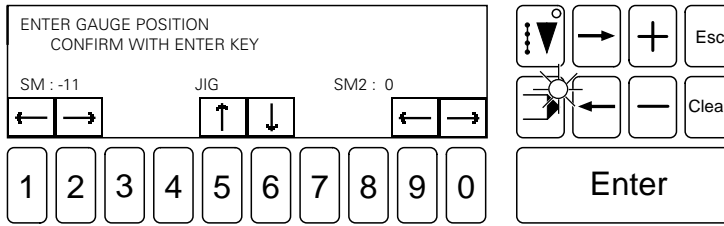
Fig. 8 - 08

● If required, correct the position of the sewing jig with the **number keys** (according to the function shown in the display).

Enter

● Confirm by pressing **Enter** and remove adjustment pin **1** from the holes.

```
1 - GAUGE POSITION
2 - NEEDLE POSITION
3 - FOLDER POSITION



1  2  3  4  5  6  7  8  9  0        Enter
```
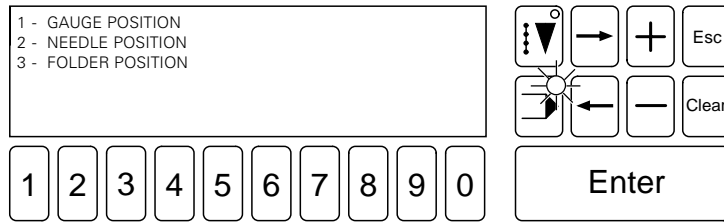
Fig. 8 - 09

Needle position

2

● Select the NEEDLE POSITION function from the menu for adjusting the zero point.

+

● Press the **plus key** to position the sewing jig transport in needle position.
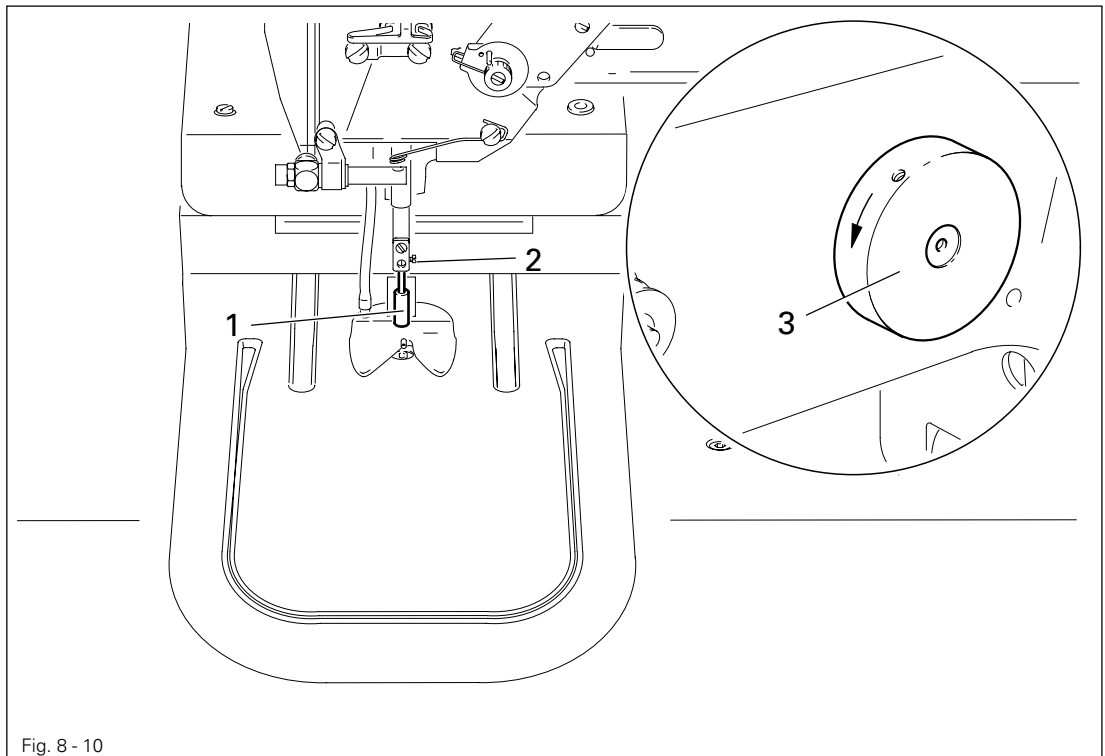

Fig. 8 - 10

● Secure adjustment pin **1** in the needle bar using screw **2**.
● Check by turning handwheel **3** whether the adjustment pin **1** can be guided into the adjustment hole of the sewing jig.

Mounting and commissioning the machine


```
ENTER NEEDLE POSITION
    CONFIRM WITH ENTER KEY

X :   2        Y :   4
←    →    ↑    ↓
```
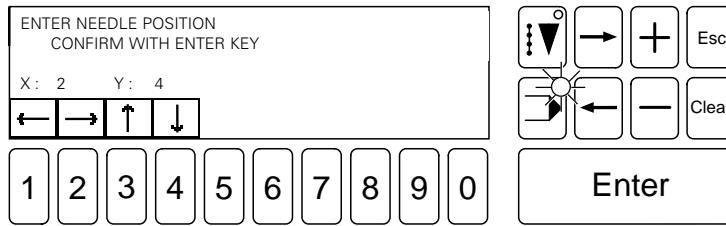
1 2 3 4 5 6 7 8 9 0   Enter

Fig. 8 - 11

● If required, correct the position of the sewing jig with the **number keys** (according to the function shown in the display).

Enter

● Confirm by pressing **Enter**, loosen screw **2** and remove adjustment pin **1**.


```
1 -  GAUGE POSITION
2 -  NEEDLE POSITION
3 -  FOLDER POSITION
```

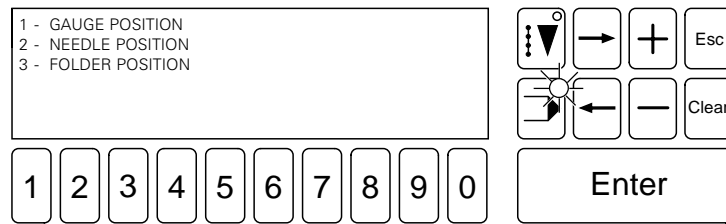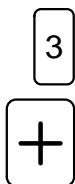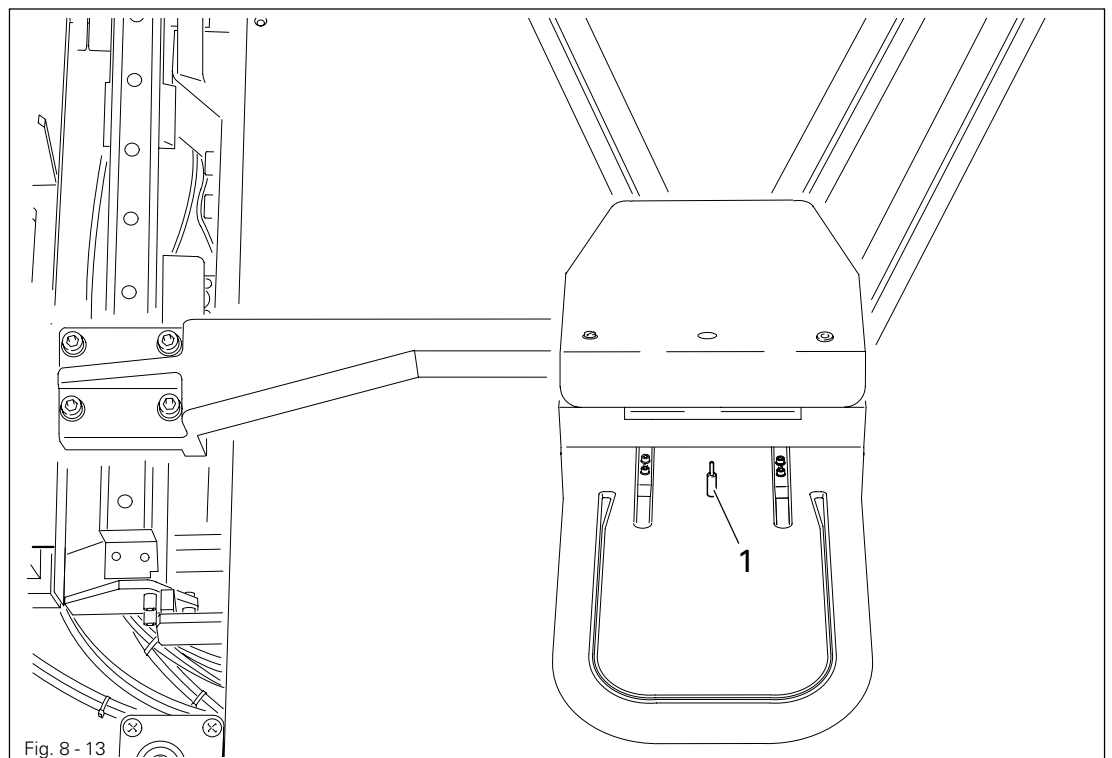1 2 3 4 5 6 7 8 9 0   Enter

Fig. 8 - 12

Folder position

3

● Select the FOLDER POSITION function from the menu for adjusting the zero point.

+

● Press the **plus key** to position the sewing jig transport in folder position.

Fig. 8 - 13

● Check whether adjustment pin **1** can be guided into the adjustment hole of the sewing jig and the pocket plate.

```
┌─────────────────────────────────────────┐   ┌──┐┌──┐┌──┐┌────┐
│ ENTER FOLDER POSITION                     │   │▼ ││→ ││ +││Esc │
│    CONFIRM WITH ENTER KEY                 │   │  │└──┘└──┘└────┘
│                                           │   ├──┤┌──┐┌──┐┌────┐
│  X :  10      Y :   0                      │   │↘ ││← ││ −││Clear│
│  ┌──┐┌──┐┌──┐┌──┐                          │   └──┘└──┘└──┘└────┘
│  │← ││→ ││↑ ││↓ │                          │
│  └──┘└──┘└──┘└──┘                          │
└─────────────────────────────────────────┘
┌──┐┌──┐┌──┐┌──┐┌──┐┌──┐┌──┐┌──┐┌──┐┌──┐       ┌──────────┐
│1 ││2 ││3 ││4 ││5 ││6 ││7 ││8 ││9 ││0 │       │  Enter   │
└──┘└──┘└──┘└──┘└──┘└──┘└──┘└──┘└──┘└──┘       └──────────┘
```
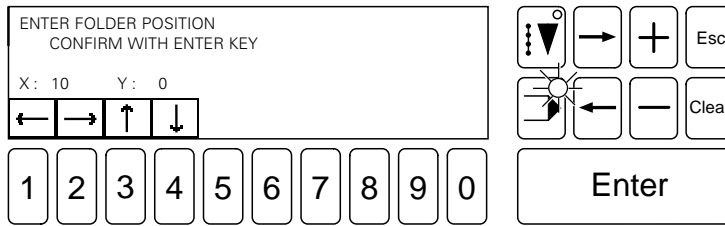
Fig. 8 - 14

- If necessary, correct the position of the sewing jig in the X-direction using the **number keys** according to the functions shown in the display.
- Set the value for the Y-direction at "0" and if necessary correct the position of the pocket plate according to **Chapter 13.06.05, Pocket plate position, front**.
- Verify the input by pressing the **Enter key** and remove the blocking pin..

Enter

- Select **Sewing mode**.

ℹ️ If you have not entered and selected a sewing program (see **chapter 9.06 Selecting a seam program**) an error message will be displayed.

- Select the **basic position** function.
  (The machine is ready for operation.)

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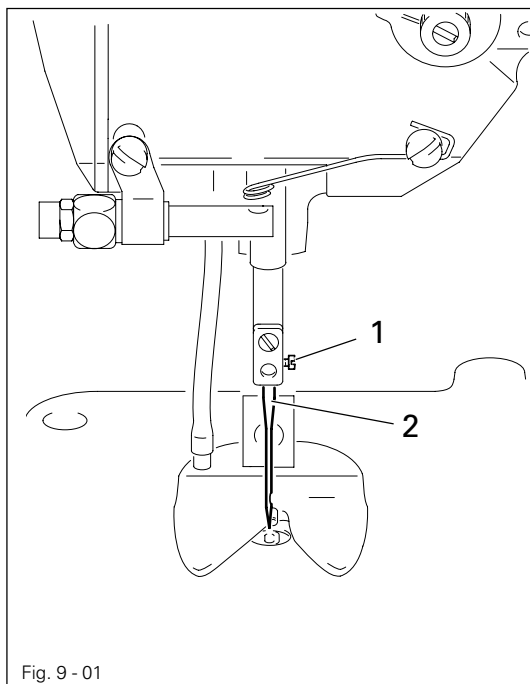
9 Preparation

All regulations and instructions in this Instruction Manual are to be observed! Special attention is to be paid to the safety regulations!

All preparation work is only to be carried out by appropriately trained personnel!

9.01 Inserting the needle

Fig. 9 - 01

Turn the machine off! Danger of injury if the machine starts up suddenly!

Only use **134** system needles!

● Raise the needle bar to its highest postion by turning the handwheel.
● Loosen screw **1** and insert needle **2** in the needle bar as far as it will go.
● Align needle **2** in such a way that the long needle groove is pointing to the folder station and tighten screw **1**.

9.02   Winding the bobbin thread / adjusting the thread tension
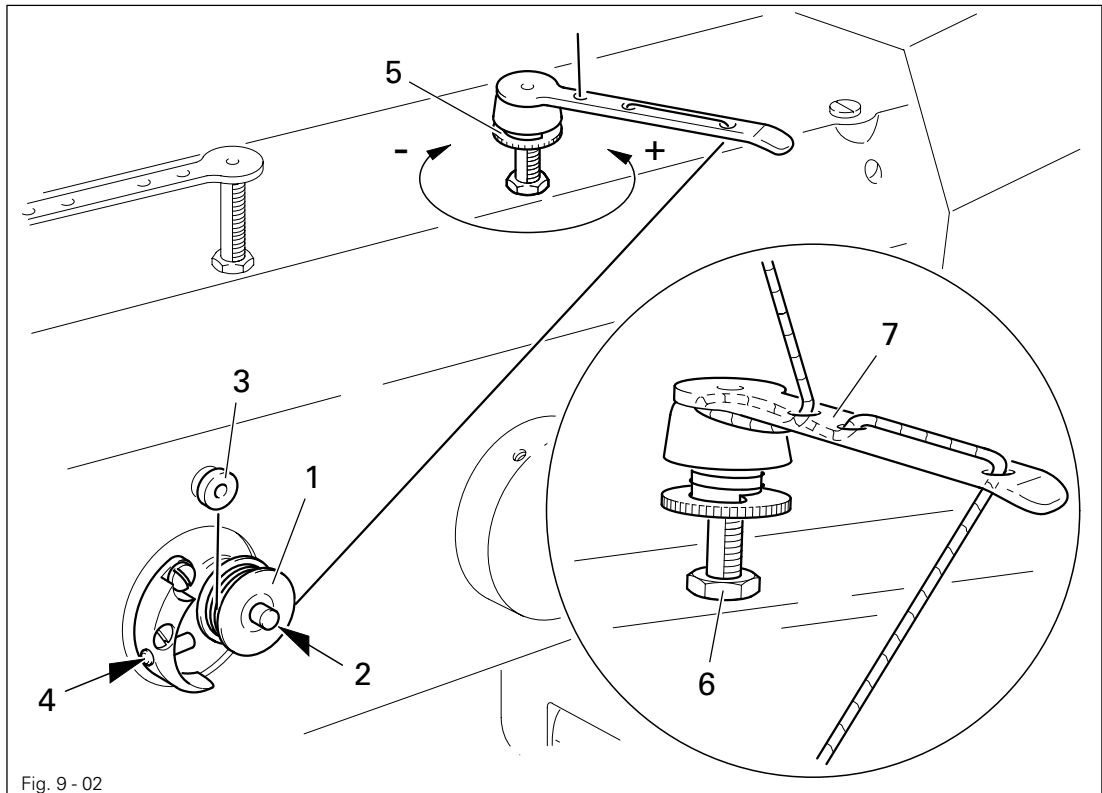
Fig. 9 - 02

- ● Place an empty bobbin **1** onto shaft **2**.
- ● Thread the bobbin in accordance with **Fig. 9-02** and wind it clockwise around bobbin **1** a few times.
- ● Cut thread end using thread cutter **3**.
- ● Switch on the bobbin winder by pressing the spindle **2** and cam **4** simultaneously.

> ℹ️   The bobbin **1** fills up while you are sewing.

- ● The thread tension on bobbin **1** can be adjusted with screw **5**.
- ● The bobbin winder stops automatically when bobbin **1** is full.

> ℹ️   To adjust the filling amount, see **chapter 13.05.19 Bobbin winder.**

If the thread is wound unevenly:
- ● Loosen nut **6**.
- ● Turn thread guide **7** accordingly.
- ● Tighten nut **6**.

9.03   Changing the bobbin / adjusting the bobbin thread tension
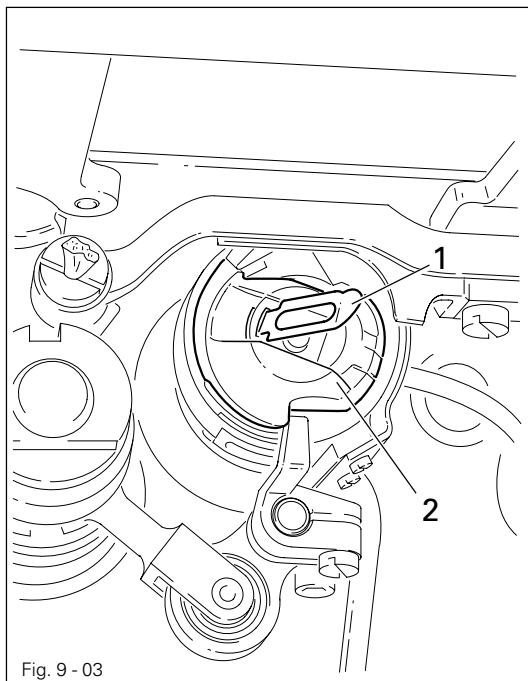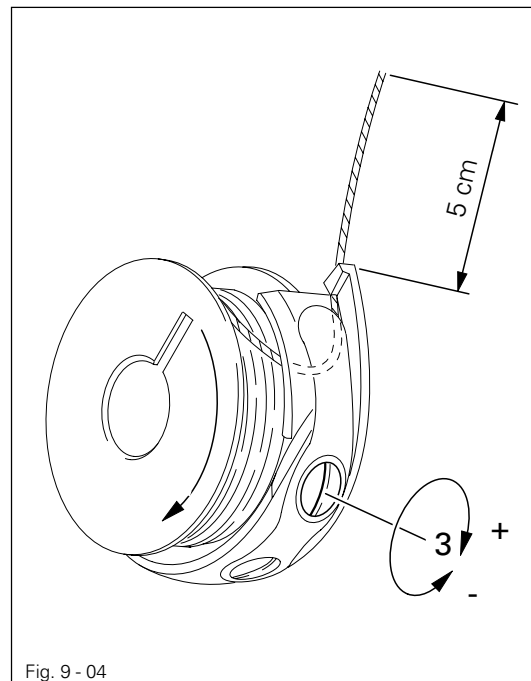

Fig. 9 - 03

5 cm

3 +
-

Fig. 9 - 04

Automatic SEWING

● If the number of the stitches previously entered via the BOBBIN-THREAD PRESELECT
  function (see **chapter 11.05 Functions in the INPUT mode**) has been carried out, the
  sewing jig automatically moves to the folder station and stops there. The bedplate is
  raised.

● Change bobbin / adjust bobbin thread tension (see next section).

| Enter |

● Confirm bobbin change by pressing **Enter**.

● Press double-start keys (see **chapter 7.04 Double-start keys**).
  (The program cycle is continued.)

Manual SEWING

● Select **Change bobbin** function (number key 8).

● Change bobbin / adjust bobbin thread tension (see next section).

● Press double-start keys (hook compartment cover **1** closes).

Changing the bobbin/ adjusting the bobbin thread tension:

● Lift up latch **1** and remove bobbin case.

● Remove empty bobbin from bobbin case **2** and insert full bobbin.

● Thread bobbin according to **Fig. 9-04**.

| ℹ | When the thread is drawn, the bobbin must rotate in the direction of the arrow.

● If necessary, adjust the bobbin thread tension by turning screw **3**.

● Press the bobbin case **2** until you feel it engage in the hook.

9.04   Threading the needle / adjusting the needle thread tension

on machines with
roller-type tension
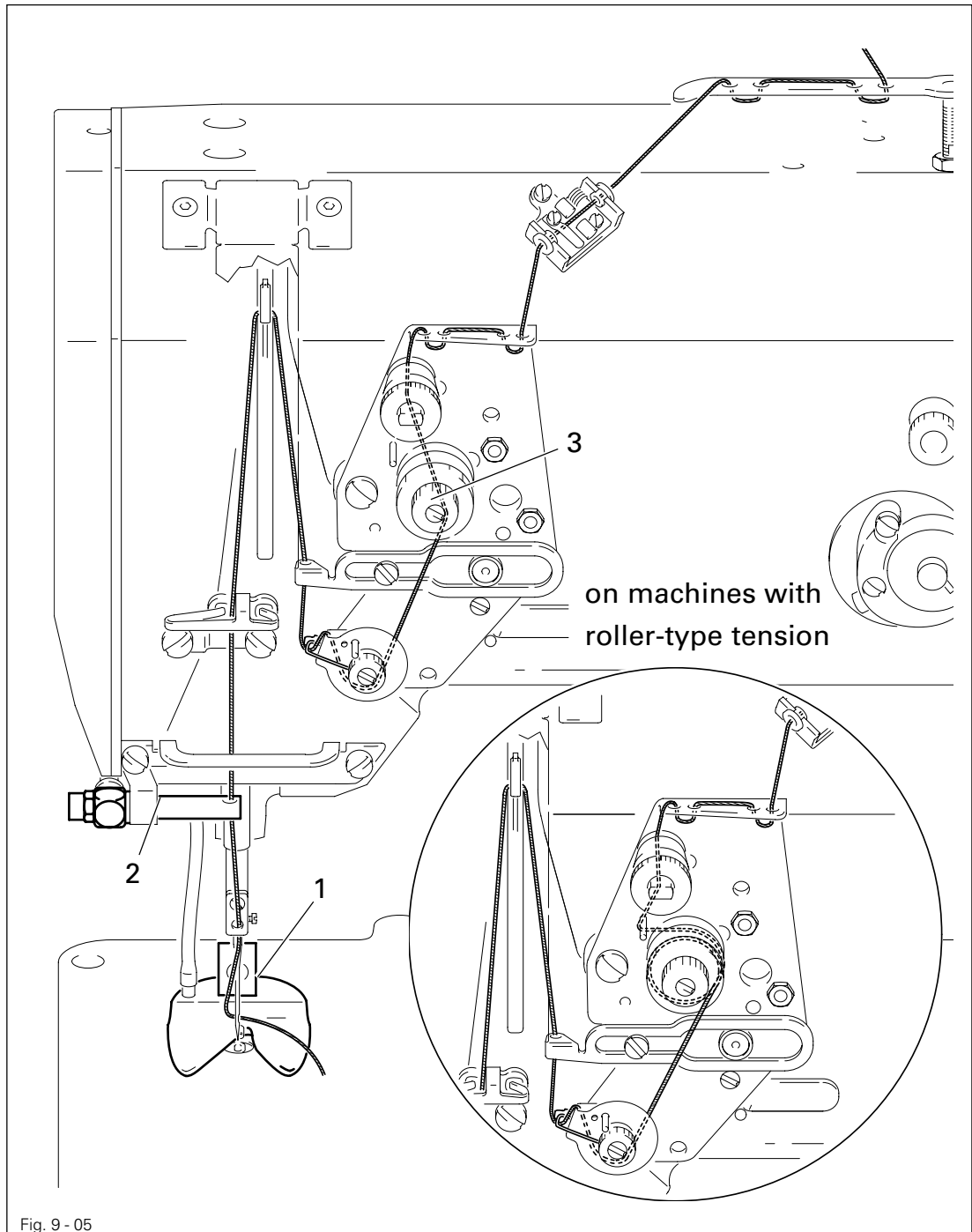
Fig. 9 - 05

- Lower presser foot **1** (number key 2).
  (Thread trapper **2** opens.)
- Thread the needle according to **Fig. 9-05**.
- Adjust the needle thread tension by turning knurled screws **3**.
- Raise presser foot **1** (number key 2).
  (Thread trapper **2** closes.)

9.05   Selecting a language

● Select INPUT mode by pressing the respective key.

Depending on the setting and configuration of the machine the displayed status bar may differ from the following example.
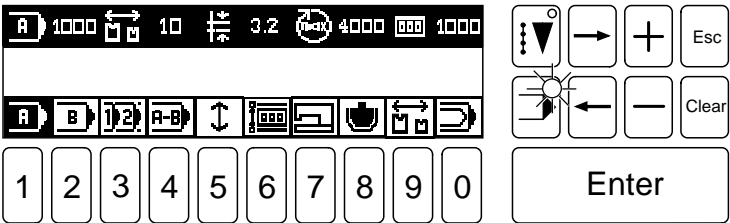
Fig. 9 - 06

● Select the **input menu** function (number key 0).

4   ● Select the SWITCH FUNCTIONS function with **number key 4**.

2   ● Select the LANGUAGES function with **number key 2**.

1 to 6   ● Select the desired language with the **number keys 1 - 7**:

1   =   D

2   =   GB

3   =   F

4   =   E

5   =   I

6   =   PL

7   =   TR

● The language selected is assumed immediately once the corresponding number has been entered.

9.06   Selecting a seam program

When changing to a different seam program, please make sure that the part set (folder, pocket plate and sewing jig) correspond to the new seam program.
If the wrong combination of parts and seam program is used, the machine may be damaged seriously!

● Select **INPUT** mode by pressing the respective key.

Depending on the setting and configuration of the machine the displayed status bar may be different from the following example.
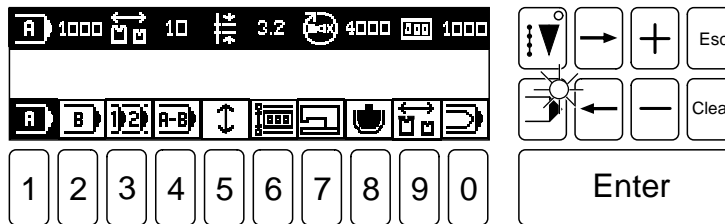
Fig. 9 - 07

● Activate the program station in which the seam program to be selected is to be stored (number key 1 or 2).

● Select the **Program number selection** function (number key 3).

● Select a previously entered seam program using the **number keys**.

PROGRAM-NO. : 1000   PARTPROGR.NO. :   0
[PERMISSIBLE 0 - 9999]

Fig. 9 - 08

● If required, press **right arrow key** to go to parts program number selection.

● Select a previously entered parts program using the **number keys**.

● Confirm the selection by pressing **Enter**.

It is possible to transfer seam programs from a disk to the machine memory. To do this, a disk drive must be connected (see **chapter 8.06 Connecting a disk drive**) and the READ/WRITE PROGRAM function must be selected (see **chapter 11.05 Functions in the INPUT mode**).

If you want to create a seam program on the control panel, use the CREATE/ MODIFY PROGRAMM function (see **chapter 11.05 Functions in the INPUT mode**).

9.07 Automatic change in program station

If you want to change back and forth between two seam programs, a program must be stored in each of both program stations (see **chapter 9.06 Selecting a seam program**)

● Select the **INPUT** mode by pressing the respective key.

Depending on the setting and configuration of the machine the displayed status bar may differ from the following example.
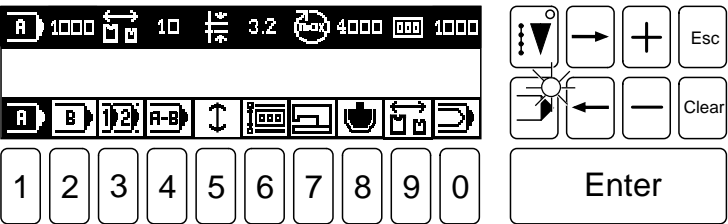
Fig. 9 - 09

● Activate the **Automatic change in program station** function (number key 4).

A or **B** ● Select the program station with which you would like to start (number keys 1 or 2).

9.08   Edge folder configuration

With this function enabled, the program stations (A and B) may have different edge-folder configurations assigned to them.

● Press the key to call up the INPUT mode.

> ℹ️ Depending on the machine position and configuration, the illustration of the status line may differ from the following example:
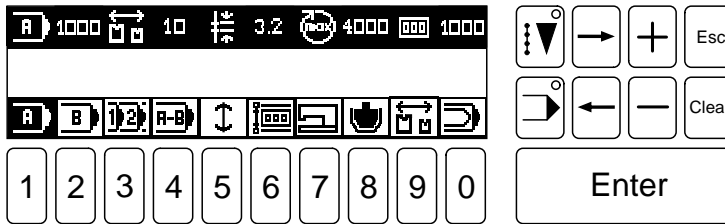
Fig. 9 - 10

● Call up the **edge folder functions** (number key 8).

● Scroll through the menu page using the **right arrow key**.

● Call up the EDGE FOLDER CONFIGURATION function.
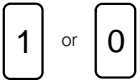
● Switch the function on or off using **number keys 1 or 0**.

> ℹ️ Using the EDGE FOLDER CONFIGURATION function (number key 2) is is possible to change the edge-folder configuration as required.

Example:

A	B
Y6 - 1	Y6 - 0
Y7 - 0	Y7 - 1
Y8 - 1	Y8 - 1
Y9 - 1	Y9 - 1
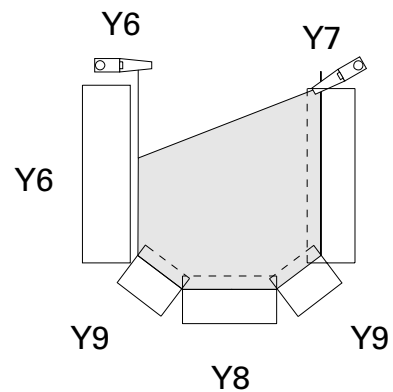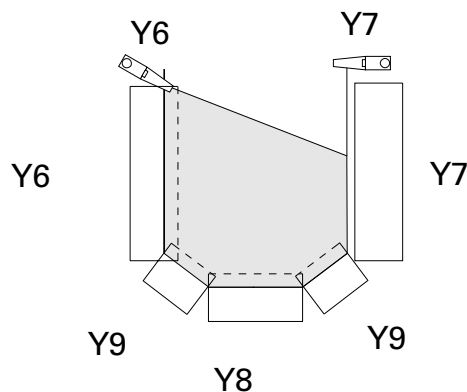
9.09 **Jig monitor** (optional)

To make it possible to monitor the jig, the sewing jig is given a code using magnets which the controller can recognize via an additional device. This is a means of preventing combining a seam program with the wrong sewing jig which could cause the needle to break.

If the machine is equipped with this optional device, the JIG MONITOR function must be activated, and a jig code must be entered in the seam program in order to use the jig monitor.

9.09.01 Activating the jig monitor

● Select the INPUT mode by pressing the respective key.

> ℹ️ Depending on the setting and configuration of the machine the displayed status bar may differ from the following example.

Fig. 9 - 11

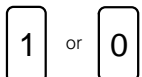● Select the **Input menu** function (number key 0).

4 ● Select the SWITCH FUNCTIONS function.

3 ● Select the OPTIONS function.

2 ● Select the JIG MONITOR function.

1 or 0 ● Activate or deactivate the function by pressing the number keys **1** or **0** respectively.

9.09.02   Determining the jig code
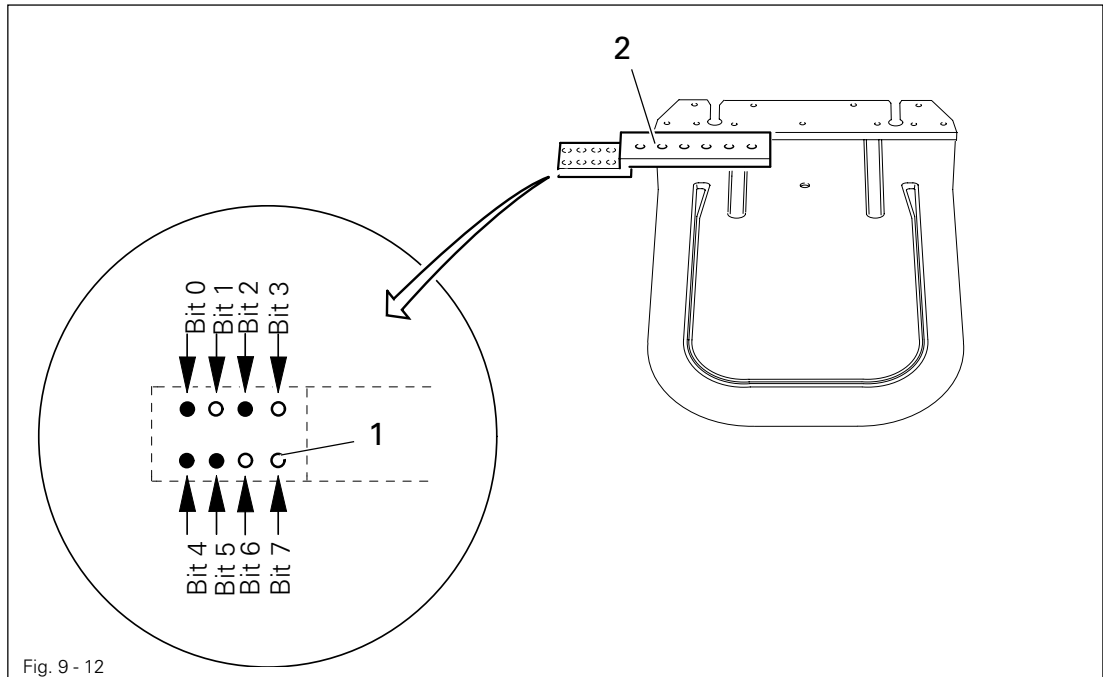
Fig. 9 - 12

The jig code is entered in the sewing program as a number value (0-99).
The code is created on the jig as a binary number by arranging up to 8 magnets **1** in a particular way on carrier **2**.

Bit assignment

Example: decimal number (**3 5**) is equal to the binary combination (11 00   10 1 0)

TENS PLACE (3)

ONES PLACE (5)

Ones place Tens place	Bit 0 Bit 4	Bit 1 Bit 5	Bit 2 Bit 6	Bit 3 Bit 7
0	free	free	free	free
1	magnet	free	free	free
2	free	magnet	free	free
3	magnet	magnet	free	free
4	free	free	magnet	free
5	magnet	free	magnet	free
6	free	magnet	magnet	free
7	magnet	magnet	magnet	free
8	free	free	free	magnet
9	magnet	free	free	magnet

PFAFF

9.10   Changing the part set

⚠️   The seam program, parts program and part set (folding set, pocket plates and sewing jig) must match and always be used together!
The wrong combination could seriously damage the machine!
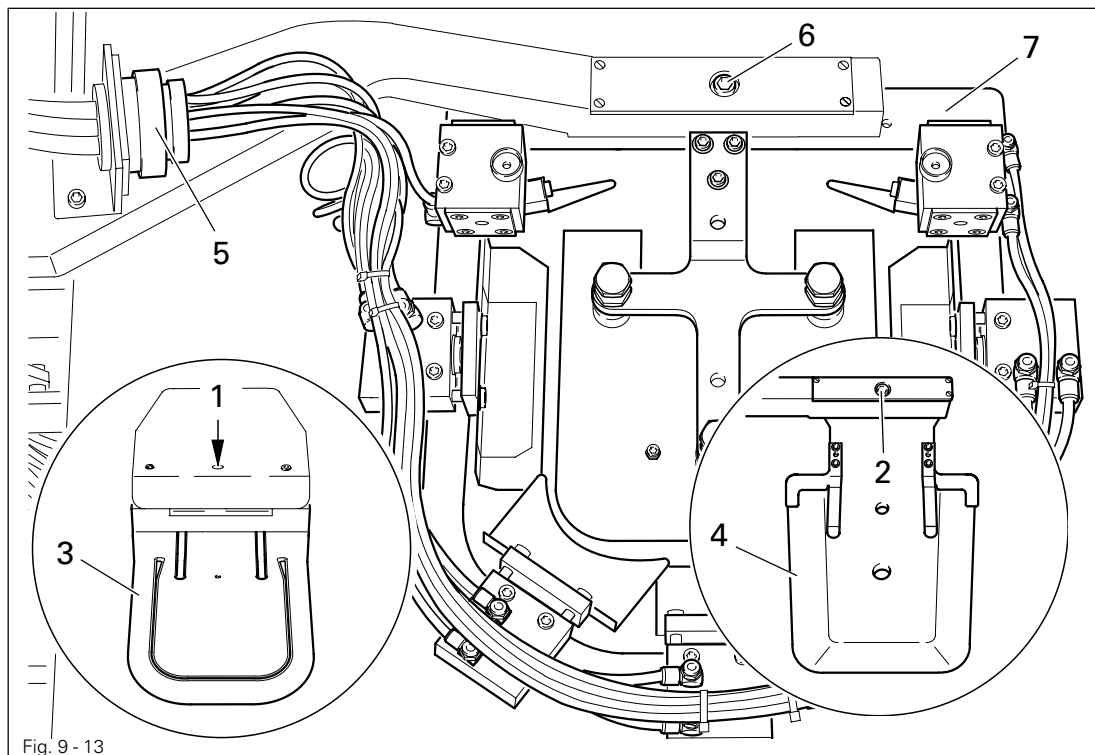
Fig. 9 - 13

● Select INPUT mode.

● Select Folder position function (number key 8).

6   ● Select PART SET function.

● Loosen screws 1 and 2, and remove both sewing jig 3 and pocket plate 4.
● Insert a new pocket plate and a matching sewing jig.
● Tighten screws 1 and 2.

+   ● Confirm the new pocket plate and sewing jig by pressing the plus key.

● Unscrew the compressed air supply 5.
● Loosen screw 6 and remove folder set 7.
● Insert the folder set which matches the pocket plate and the sewing jig, tighten screw 6 and screw the compressed air supply 5 back on.

● Select INPUT mode.

● Select the Program number selection function and enter the program and parts program numbers which correspond to the part set.

Enter   ● Confirm by pressing Enter.

9.10   Placement of the cuttings

Fig. 9 - 14

● Select the **SEWING** mode.

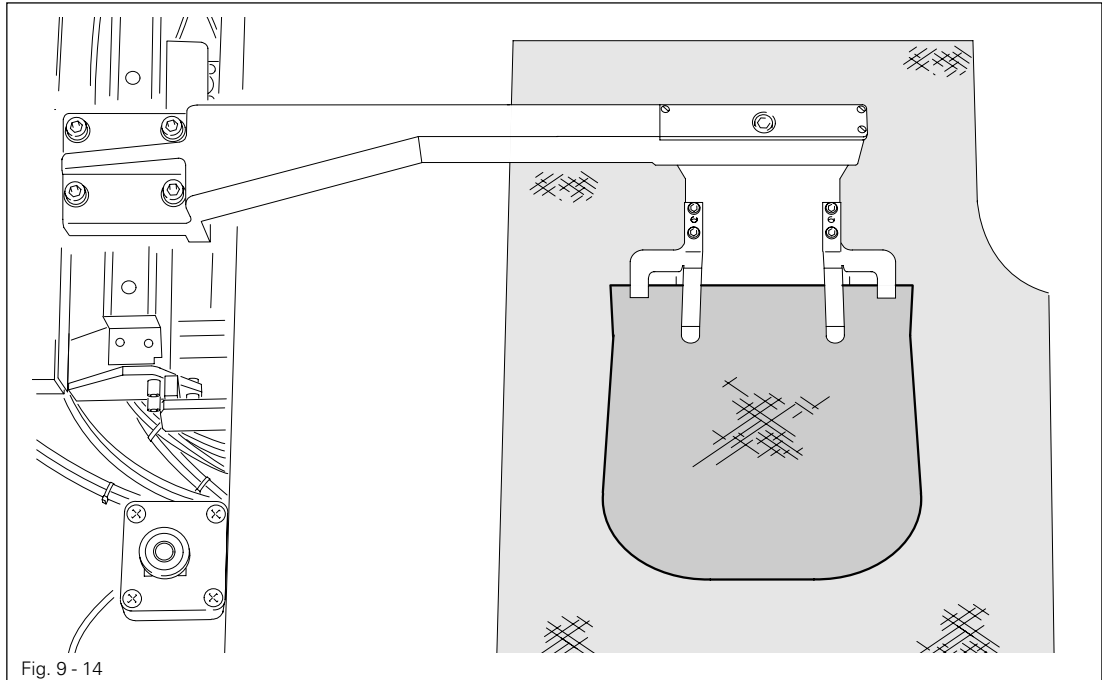● Select the **Basic position** function.

● Lay the cutting for the shirt on the table and align it.

> ℹ️ Loading and alignment of the pocket cuttings depends on the menu combination selected (see **chapter 7.03**).

Menu combination: BASIC POSITION POCKET PLATE FRONT/PLAIN-MATERIAL FABRIC ON
● Slide the pocket cutting onto the pocket plate according to **Fig. 9-12**.

Menu combination: BASIC POSITION POCKET PLATE BACK/PLAIN-FABRIC ON
● Actuate the loading function switch twice pocket plate moves forward.
● Slide the pocket cutting onto the pocket plate according to **Fig. 9-12**.

Menu combination: BASIC POSITION POCKET PLATE FRONT/PLAIN-MATERIAL OFF
● Slide the pocket cutting onto the pocket plate according to **Fig. 9-12**.
● Activate the inserting function switch - the pocket plate is lowered.
● Activate the inserting function switch to raise the pocket plate so that the shirt cutting can be aligned.
● Activate the inserting function switch to lower the pocket plate again.

Menu combination: BASIC POSITION POCKET PLATE BACK/PLAIN-MATERIAL OFF
● Actuate the loading function switch to move the pocket plate forward.
● Slide the pocket cutting onto the pocket plate according to **Fig. 9-12**.
● Actuate the loading function switch twice: the pocket plate is lowered and raised slightly to allow positioning of the shirt cutting.
● Actuate the loading function switch: the pocket plate is lowered and raised slightly to allow positioning of the shirt cutting.

Contents ....Chapter - Page

10 Sewing

In the **SEWING** mode you will find functions in **automatic** and **manual SEWING** which are used for production and its preparation. The mode can be selected via the corresponding keys on the control panel.

10.01 Status bar

In the upper section of the display the current machine status is displayed by means of symbols and corresponding values.

Fig. 10 - 01

Explanation of the symbols:

Program station
Next to the symbol for the selected program station (A or B) you will find the assigned program number.

Parts program number
Next to this symbol the number of the current parts program is displayed.

Stitch length
Next to this symbol you will find the stitch length value for the selected seam program.

Maximum speed
Next to this symbol the maximum speed of the machine is indicated.

Piece-counter
Next to this symbol the current piece count is displayed.

10.02 Error messages

If an error occurs at the machine, an error message is displayed.
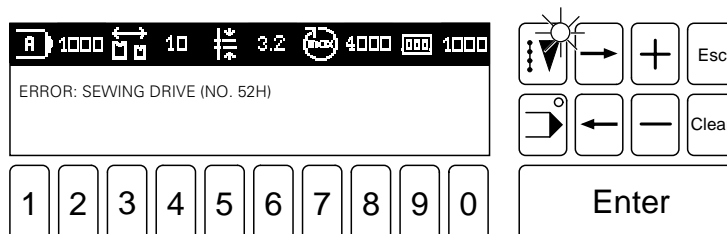
ERROR: SEWING DRIVE (NO. 52H)

Fig. 10 - 02

Before the machine can be further operated, the error must be corrected. Errors may only be corrected by authorized specialist personnel (see **chapter 14.02 Error description**).

10.03   Automatic SEWING

Automatic SEWING is used primarily in this type of production.
● Press the double-start keys (see **chapter 7.04 Double-start keys**) or
● activate the inserting fuction switch (see **chapter 7.03**)
to start the program cycle after you have inserted the workpiece.
Depending on the stage of the cycle and the machine configuration, different symbols
(functions) are displayed.

Basic position of the machine

When the machine has just been switched on, it is in the **automatic SEWING**
mode. The sewing jig transport, folder and sewing station as well as the
stacker station are in the basic position. The function **Manual SEWING** is
switched off.
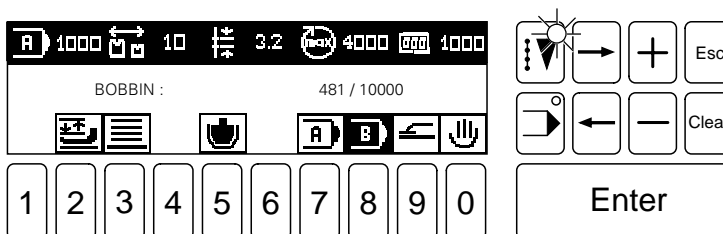
Fig. 10 - 03

Explanation of the symbols in the display:

Presser foot up/down (number key 2)
Direct function for lifting and lowering the presser foot as well as for opening and closing
the thread trapper.

Retainer clamp up/down (number key 3)
Direct function for opening and closing the retainer clamp at the stacker station (for
removing the workpiece).

Folding on/off (number key 5)
(only when ALTERNATING FOLDING is selected)
Direct function for manipulating the automatic alternating folding. If the symbol is displayed
on a dark background, folding will be carried out in the next program cycle.

Program station A (number key 7)/**Program station B** (number key 8)
(The function **Automatic program change** must be switched on.)
Direct function for manipulating the automatic program change. The program of the station
whose symbol is displayed on a dark background will be executed next.

Label feed on/off (number key 9)
(only available if label feed mechanism is installed)
Direct function for switching the label feed on or off respectively. If the symbol is displayed
on a dark background, a label will be fed during the next program cycle.

Switch on manual sewing (number key 0)
With this function you can switch between **automatic** and **manual SEWING**. If this
function is switched off, the **automatic SEWING** mode is active.

Machine in operation
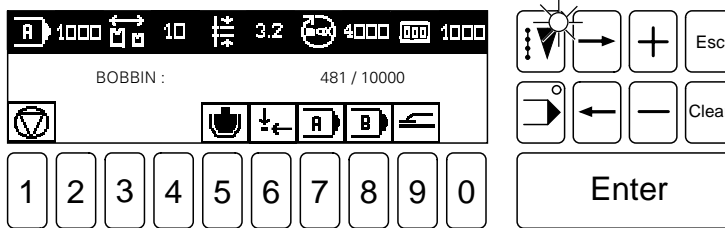
Fig. 10 - 04

Symbols in the display:

Stop (number key 1)
Direct function for stopping the entire program cycle (see **chapter 10.04 Program interruption**).

Folding on/off (number key 5)

Basic position (number key 6)
With this direct function you can move the folder to its basic position without interrupting the program cycle. For example, this is useful if you want to align a workpiece which has been inserted incorrectly.

Program station A (number key 7)

Program station B (number key 8)

Label feed on/off (number key 9)

10.04 Program interruption

To interrupt the program cycle of a seam program
● press the stop switch (see **chapter 7.02 Stop switch**) or
● activate the **Stop** function on the control panel.

When a program is interrupted, the following display appears:
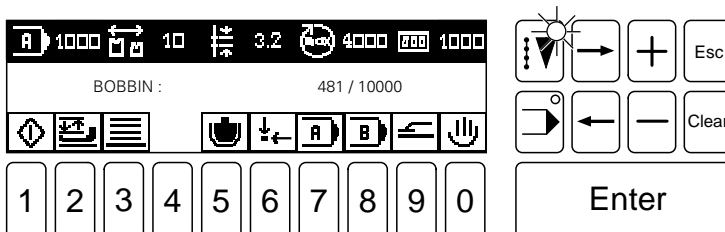
Fig. 10 - 05

When the machine is stopped in this way, the folder and stacker devices as well as the sewing station and the sewing jig transport do **not** position in the basic position!

● To continue the program cycle activate the **Start** function (number 1) or
● press the double-start key (see **chapter 7.04 Double-start key**).

10.05 Manual SEWING

Manual SEWING is predominantly used for checking and setting up the machine as well as for altering the program cycle manually.

● Select the **Manual SEWING** function (number key 0).

| A 1000 | 10 | 3.2 | 4000 | 1000 |

BOBBIN : 481 / 10000

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

Enter
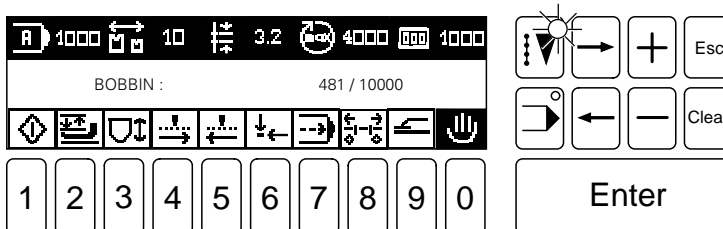
Fig. 10 - 06

Explanation of the symbols in the display:

Start (number key 1)
Direct function for starting the seam program cycle (sewing only).

Presser foot up/down (number key 2)
Direct function for raising and lowering the presser foot as well as for opening and closing the thread trapper.

Sewing jig up/down (number key 3)
Direct function for raising and lowering the sewing jig.
press once = without pressure, press twice = with pressure

Step-by-step forwards (number key 4) / **Step-by-step backwards** (number key 5).
With this function the seam pattern can be traced step by step forwards or backwards, respectively; in combination with the **Start** function the entire seam pattern is traced automatically. To do this, press the **Step-by-step forwards/backwards** function simultaneously with the **Start** function.

Basic position (number key 6)
Direct function for positioning the folder, stacker and sewing stations and the sewing jig transport in basic position.

Single step (number key 7)
With this function the folding sequence can be traced step by step. For the first step the double-start keys or the inserting function switch have to be actuated.

Change bobbin (number key 8)
The bobbin can be changed after this function has been selected.

Label feed on/off (number key 9)
(only available if label feed mechanism is installed)
Direct function for switching the label feed on or off respectively.
If the symbol is displayed on a dark background, a label will be fed during the next program cycle.

Switch off manual SEWING (number key 0)
With this function you can switch between **automatic** and **manual SEWING**. If this function is active (symbol on a dark background), the program cycle is interrupted and you are in the **manual SEWING** mode.

11   Input mode functions

This chapter lists and describes the functions in the **INPUT** mode. In this mode you will find functions for program management, language selection, machine settings and configuration as well as for service and adjustment work. However, this chapter does not describe how to create seam programs. For information on how to create seam programs please refer to the relevant instruction manual.

11.01   Summary of the functions in the INPUT mode

INPUT mode

     Program station A

     Program station B

     Program number selection / Station key programming

     Automatic program station change

     Frame up/down

     Bobbin thread functions

        1 - RESET STITCH-COUNTER
        2 - BOBBIN-THREAD PRESELECT

     Head functions

        1 - STANDARD STITCH LENGTH
        2 - MAXIMUM SPEED
        3 - REDUCED SPEED
        4 - DELAY ZIGZAG ON
        5 - DELAY ZIGZAG OFF
        6 - SEWING

     Folder functions

        1 - INTERMEDIATE STOP
        2 - UNI-MATERIAL
        3 - BASIC POSITION POCKET PLATE
        4 - ALTERNATING FOLDING
        5 - ALTERNATING LABELLING
        6 - EDGE FOLDER CONFIGURATION
        7 - CHANGE PART SET

     Parts program functions

        1 - ROLLING DIRECTION STACKER
        2 - SLOW ROLLING TIME STACKER
        3 - FAST ROLLING TIME STACKER
        4 - TIME FOR STACK TRESTLE BACK
        5 - TIME FOR EDGE FOLDERS BACK
        6 - TIME FOR POCKET PLATE UP
        7 - FEED SPEED
        8 - SEAM CORRECTION X
        9 - SEAM CORRECTION Y
        0 - STACKER

     Input menu (see chapter 11.02 Summary of the functions in the input menu)

        1 - PROGRAM MANAGEMENT
        2 - CREATE / MODIFY PROGRAM
        3 - COUNTER
        4 - SWITCH FUNCTIONS
        5 - TIMES
        6 - SERVICE (see **chapter 11.03 Summary of the service functions**)

11.02 Summary of the functions in the input menu

INPUT mode

Input menu

1 - PROGRAM MANAGEMENT —— 1 - DIRECTORY —————— 1 - DIRECTORY OF MEMORY
                                                            2 - DIRECTORY OF DISK
                          2 - READ / WRITE PROGRAM —— 1 - READ ONE PROGRAM FROM DISK
                                                            2 - READ ALL PROGRAMS FROM DISK
                                                            3 - WRITE ONE PROGRAM ON DISK
                                                            4 - WRITE ALL PROGRAMS ON DISK
                          3 - DELETE PROGRAM ———— 1 - DELETE ONE PROGRAM IN MEMORY
                                                            2 - DELETE ALL PROGRAMS IN MEMORY
                                                            3 - DELETE ONE PROGRAM ON DISK
                                                            4 - DELETE ALL PROGRAMS ON DISK
                          4 - FORMAT DISK
                          5 - STATISTICAL PROGRAM DATA
                          6 - DATA TRANSFER WITH PC

2 - CREATE / MODIFY PROGRAM (see **chapter 11.06 Creating / modifying seam programs**)

3 - COUNTER ——————— 1 - RESET PIECE-COUNTER
                          2 - THREAD MONITOR ———— 1 - SURPR.ST. NEEDLE THREAD MON.
                                                            2 - SURPR.ST. BOBBIN THREAD MON.
                                                            3 - STITCH REVERSAL
                                                            4 – RESPONSE TIME, NEEDLE THR. MONITOR
                          3 - SLOW START-STITCHES
                          4 - CARRIAGE START (NIS)
                          5 - START FOR THREAD TRIMMING

4 - SWITCH FUNCTIONS ——— 1 - THREAD MONITOR ———— 1 - NEEDLE THREAD MONITOR
                                                            2 - BOBBIN THREAD MONITOR
                                                            3 - BOBBIN THREAD SENSOR
                          2 - LANGUAGE SELECTION ——— 1 - GERMAN
                                                            2 - ENGLISH
                                                            3 - FRENCH
                                                            4 - SPANISH
                                                            5 - ITALIAN
                                                            6 - POLISH
                                                            7 - TURKISH
                          3 - OPTIONS ——————— 1 - TILT HEAD
                                                            2 - JIG MONITOR
                                                            3 - FOLDER VERSION
                                                            4 - LABEL FEED
                                                            5 - JIG VERSION
                          4 - CONTINUOUS CARRIAGE MOVEMENT
                          5 - LOCK / RELEASE FUNCTIONS

5 - TIMES ——————————— 1 - TIME FOR LABEL CLAMP CLOSED
6 - SERVICE (see **chapter 11.03 Summary of the service functions**)

Input mode functions

11.03   Summary of the service functions

INPUT mode

└─ Input menu

└─ 6 - SERVICE

├─ 1 - SEWING DRIVE FUNCTIONS ────── 1 - TURN SEWING MOTOR
│   2 - THREAD TRIMMING PROCEDURE
│   3 - CUTTING SPEED - PRE-SEL.
│
├─ 2 - STEPPING MOTOR FUNCTIONS ──── 1 - STEPPING MOTOR 1
│   2 - STEPPING MOTOR 2
│   3 - MOVE CARRIAGE
│   4 - TEST CARRIAGE
│
├─ 3 - SWITCH OUTPUTS
│
├─ 4 - DISPLAY INPUTS / OUTPUTS
│
├─ 5 - ADJUST ZERO POINT ─────────── 1 - GAUGE POSITION
│   2 - NEEDLE POSITION
│   3 - FOLDER POSITION
│
├─ 6 - CONFIGURE MACHINE ─────────── 1 - TILTABLE HEAD
│   2 - VERTICAL HOOK
│   3 - JIG MONITOR
│   4 - LABEL FEED
│   5 - HEIGHT ADJUSTMENT
│
└─ 7 - OTHER FUNCTIONS ───────────── 1 - WRITE MACHINE DATA ON DISK
                                     2 - READ MACHINE DATA FROM DISK
                                     3 - CARRY OUT COLD START
                                     4 - DISPLAY SOFTWARE STATUS
                                     5 - CONTRAST SETTING OF DISPLAY
                                     6 - CHANGE CODE NUMBER

For an explanation of the service functions please refer to **chapter 11.05 Functions in the Input mode, page 11-16 ff**.

11.04 Selecting functions from the menu

By using an example, we will now explain how to move about within menu levels.
Contrast setting of the display:

● Select INPUT mode by pressing the corresponding key (the LED in the key lights up).

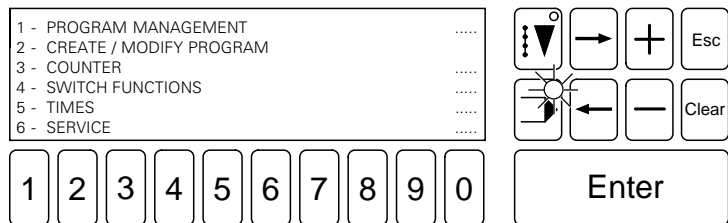Fig. 11 - 01

● Select **input menu** function (number key 0).

```
1 - PROGRAM MANAGEMENT          .....
2 - CREATE / MODIFY PROGRAM
3 - COUNTER                     .....
4 - SWITCH FUNCTIONS
5 - TIMES                       .....
6 - SERVICE                     .....
```

Fig. 11 - 02

6   ● Press **number key 6** to call up the SERVICE function.

```
< - - - >
1 - SEWING DRIVE FUNCTIONS      .....
2 - STEPPING MOTOR FUNCTIONS    .....
3 - SWITCH OUTPUTS
4 - DISPLAY INPUTS / OUTPUTS
5 - ADJUST ZERO POINT           .....
```
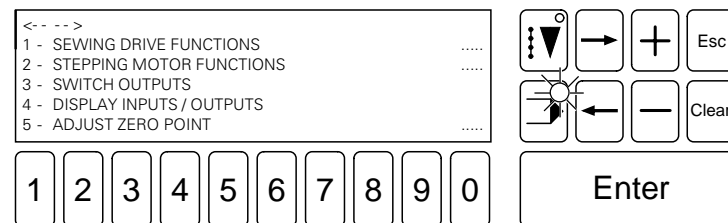
Fig. 11 - 03

● Scroll to the next page by pressing the **right arrow key**.

```
< - - - >
6 - CONFIGURE MACHINE           .....
7 - OTHER FUNCTIONS             .....
```
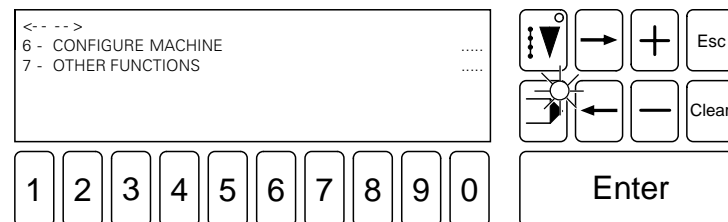
Fig. 11 - 04

7   ● Select OTHER FUNCTIONS by pressing **number key 7**.

The menu item can also be accessed directly, i. e. without scrolling the page,
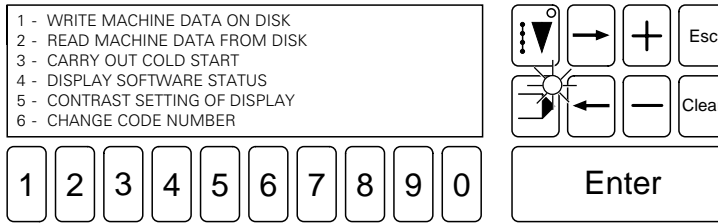by pressing the corresponding number key.

Input mode functions

```
1 - WRITE MACHINE DATA ON DISK
2 - READ MACHINE DATA FROM DISK
3 - CARRY OUT COLD START
4 - DISPLAY SOFTWARE STATUS
5 - CONTRAST SETTING OF DISPLAY
6 - CHANGE CODE NUMBER
```

1 2 3 4 5 6 7 8 9 0   Enter

Fig. 11 - 05

5 ● Select the CONTRAST SETTING OF DISPLAY function (number key 5).
● If required, enter the 4-digit code number via the **number keys**.

```
CONTRAST SETTING:

  ADJUST WITH +,- KEYS
```
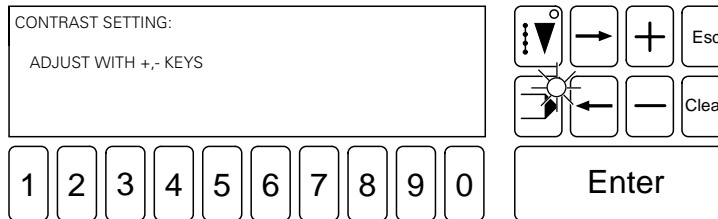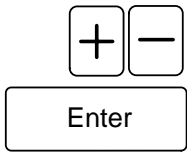
1 2 3 4 5 6 7 8 9 0   Enter

Fig. 11 - 06

⚠ The contrast setting changes when the plus/minus keys are pressed and does not have to be confirmed with Enter. Do **not** lower the contrast setting to the extent that the display cannot be read anymore!

+ − ● Change the contrast setting as desired by pressing the **plus/minus keys**.

Enter ● Press **Enter** to exit the function.

Summary of the function selections

INPUT mode

0 Input menu function (number key 0)

— **1**- PROGRAM MANAGEMENT ....
— **2**- CREATE / MODIFY PROGRAM
— **3**- COUNTER ....
— **4**- SWITCH FUNCTIONS ....
— **5**- TIMES ....
6 — **6**- SERVICE —— **1**- SEWING DRIVE FUNCTIONS ....
— **2**- STEPPING MOTOR FUNCTIONS ....
— **3**- SWITCH OUTPUTS
— **4**- DISPLAY INPUTS / OUTPUTS
— **5**- ADJUST ZERO POINT ....
— **6**- CONFIGURE MACHINE ....
7 — **7**- OTHER FUNCTIONS —— **1**- WRITE MACHINE DATA ON DISK
— **2**- READ MACHINE DATA FROM DISK
— **3**- CARRY OUT COLD START
— **4**- DISPLAY SOFTWARE STATUS
5 — **5**- CONTRAST SETTING OF DISPLAY
— **6**- CHANGE CODE NUMBER

11.05   Functions in the INPUT mode
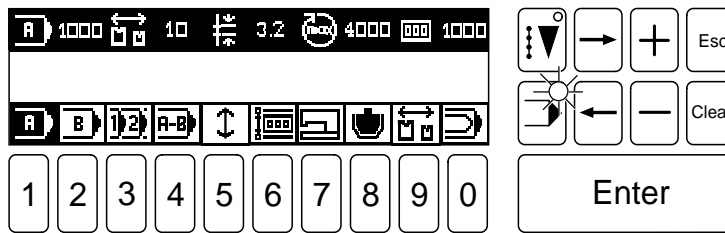
Initial state in the INPUT mode

Fig. 11 - 07

Explanation of the symbols in the display:

Program station A (number key 1)
When this function is active, a seam program previously assigned to this program station is called up for sewing.

Program station B (number key 2)
When this function is active, a seam program previously assigned to this program station is called up for sewing.

Program number selection (number key 3)
With this function the desired seam program can be assigned to the currently active program station.
If necessary, the parts program can also be selected with this function.

Automatic program change (number key 4)
When this function is active, an automatic change between the program station A and B is carried out after the seam program has been sewn.

Vertical adjustment of frame (number key 5)
If the machine is equipped with a vertically adjustable frame (optional feature), the height of the frame can be adjusted after this function has been selected.

Bobbin thread functions (number key 6)
This function opens a menu for selecting various bobbin thread functions:

```
1 -  RESET STITCH-COUNTER
2 -  BOBBIN THREAD PRE-SELECT:          10000 STITCHES
```
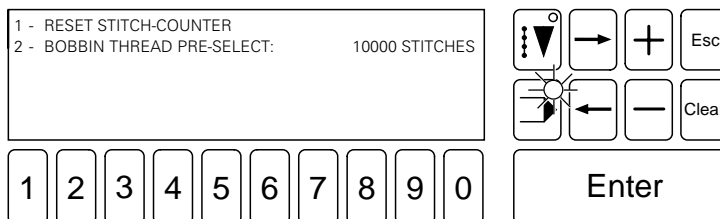
Fig. 11 - 08

1   RESET STITCH-COUNTER
Resets the stitch-counter to "0", e.g. after an unplanned bobbin change.

2   BOBBIN-THREAD PRESELECT
Used to enter the number of stitches after which the machine automatically stops for a bobbin change.

Input mode functions

Head functions (number key 7)

Opens a menu for selecting various head functions:

1 - STANDARD STITCH LENGTH:	3.2 mm
2 - MAXIMUM SPEED:	4000 RPM
3 - REDUCED SPEED:	4000 RPM
4 - DELAY ZIGZAG ON:	3 STITCHES
5 - DELAY ZIGZAG OFF:	3 STITCHES
6 - SEWING:	ON
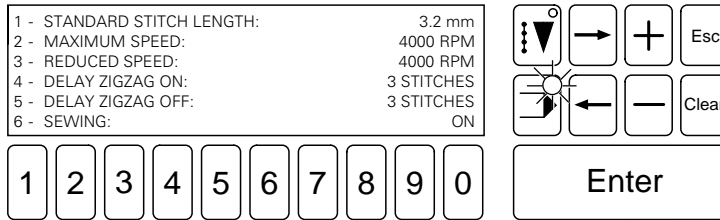
Fig. 11 - 09

1 STANDARD STITCH LENGTH

For entering the standard stitch length of the seam program in the active program station.

2 MAXIMUM SPEED

For entering the maximum speed.

3 REDUCED SPEED

For entering the reduced speed.

4 ZIGZAG DELAY ON

For entering the number of stitches which are sewn until the command "Zigzag on" is output (see **Fig. 11-10**).

5 ZIGZAG DELAY OFF

For entering the number of stitches which are sewn until the command "Zigzag off" is output (see **Fig. 11-11**).

Zick-Zack on	Zick-Zack off
Delay correct	Delay correct
Delay too short, increase stitch count	Delay too short, increase stitch count
Delay too long, decrease stitch count	Delay too long, decrease stitch count
Fig. 11 - 10	Fig. 11 - 11

Due to the delay of the valve and cylinder, output of the commands for DELAY ZIGZAG ON and OFF must be delayed as a function of the speed.

6 SEWING

Switches the sewing operation on or off during the program cycle. When the sewing operation is switched off the pockets are stacked after the folding operation.

Folder functions (number key 8)

Opens a menu for selecting various folder functions:

```
<- - - ->
1 - INTERMEDIATE STOP:                    OFF
2 - UNI-MATERIAL :                        OFF
3 - BASIC POSITION POCKET PLATE:        FRONT
4 -  ALTERNATING FOLDING:                 OFF
5 - ALTERNATING LABELLING:                OFF
```
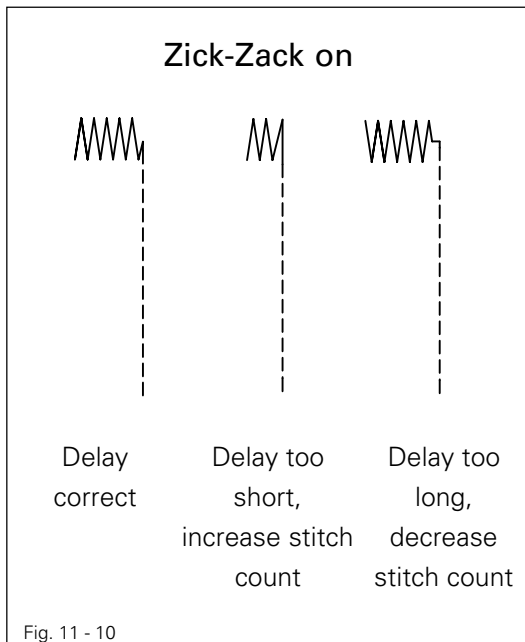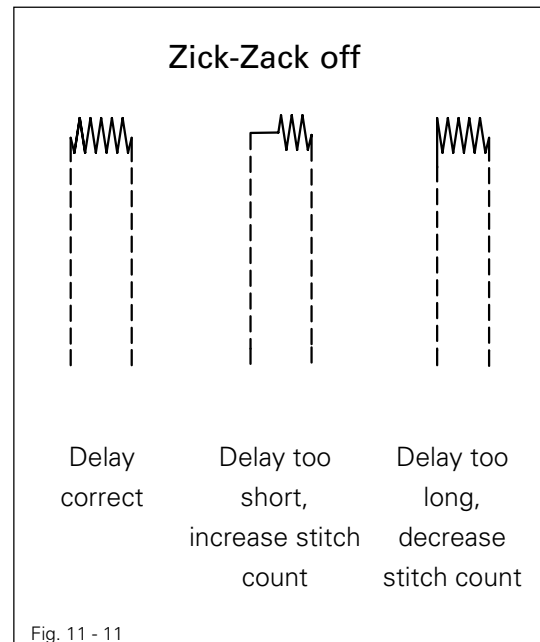
Fig. 11 - 12

```
<- - - ->
6 - EDGE FOLDER CONFIGURATION            OFF
7 - CHANGE PART SET
```
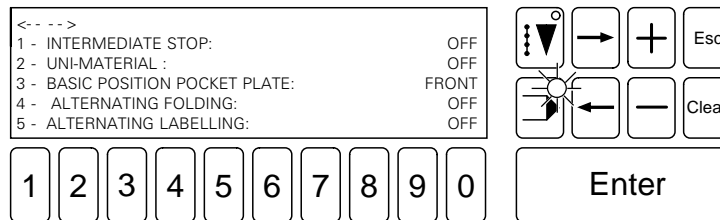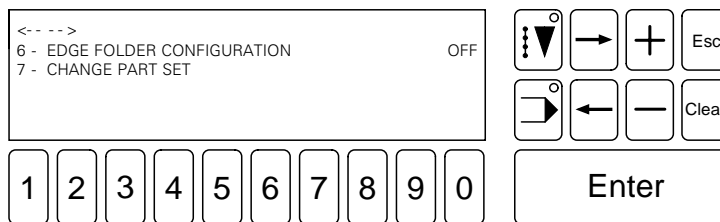
Fig. 11 - 12a

1 INTERMEDIATE STOP

Switches a function on or off which causes the program to stop on completion of the folding operation (e. g. for correction of the pocket position).

The seam program can be continued by pressing the **double-start keys.**

2 UNI-MATERIAL

Changes the foot switch functions for working uni-materials (see **chapter 7.03**).

3 BASIC POSITION POCKET PLATE

Determines the baisc position of the pocket plate.

4 ALTERNATING FOLDING

When this function is active, every second pocket is not folded.

5 ALTERNATING LABELLING

When this function is active, only every second pocket receives a label.

6 EDGE FOLDER CONFIGURATION

With this function enabled, different edge-folder configurations

can be assigned to program stations "A" and "B"

7 CHANGE PART SET

After the function has been selected, the part set may be changed.

Input mode functions

 Parts program functions (number key 9)

Opens a menu for entering values which refer to the material and size of the pieces to be worked (see chapter 9.09 Changing the part set).

The values are automatically attributed to the selected parts program (see Chapter 11.05, section: Program Number Selection).

```
<- - - ->
1 - ROLLING DIRECTION STACKER:        BACKWARDS
2 - SLOW ROLLING TIME STACKER:             0.50 s
3 - FAST ROLLING TIME STACKER:             0.35 s
4 - TIME FOR STACK TRESTLE BACK:            0.0 s
5 - TIME FOR EDGE FOLDERS BACK:            0.10 s
```

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | Enter |

Fig. 11 - 13

```
<- - - ->
6 - TIME FOR POCKET PLATE UP                0.50s
7 - FEED SPEED:                             100%
8 - SEAM CORRECTION X:                      0.2 mm
9 - SEAM CORRECTION Y:                      0.5mm
0 - STACKER                               STANDARD
```

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | Enter |
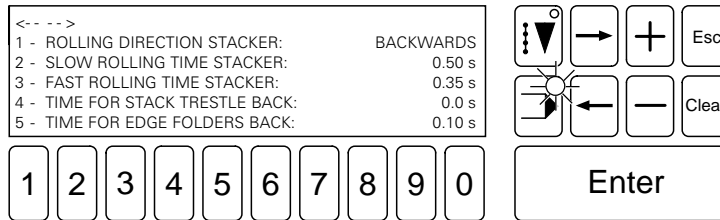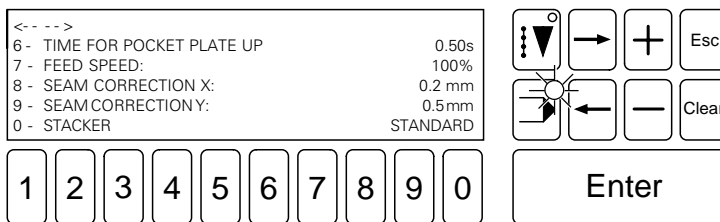
Fig. 11 - 14

|1| ROLLING DIRECTION STACKER

With this function, the direction in which the stacker roller is to roll slowly is determined (see Fig. 11-15).

|2| SLOW ROLLING TIME STACKER

For entering the rolling time of the slow rolling movement of the stacker roller (see Fig. 11-15).

|3| FAST ROLLING TIME STACKER

For entering the rolling time of the fast rolling movement of the stacker roller (see Fig. 11-15).

slow rolling time, correct rolling direction

slow rolling time, change rolling direction if necessary

Fig. 11 - 15

PFAFF

4 TIME FOR STACK TRESTLE BACK

For entering the delay time between the slow rolling movement of the stacker roller and the stack trestle back.

5 TIME FOR EDGE FOLDERS BACK

For entering the delay time for the edge folder. The time should be set in such a way that the edge folder only starts moving upwards after the folder plates have positioned in their furthest end position.
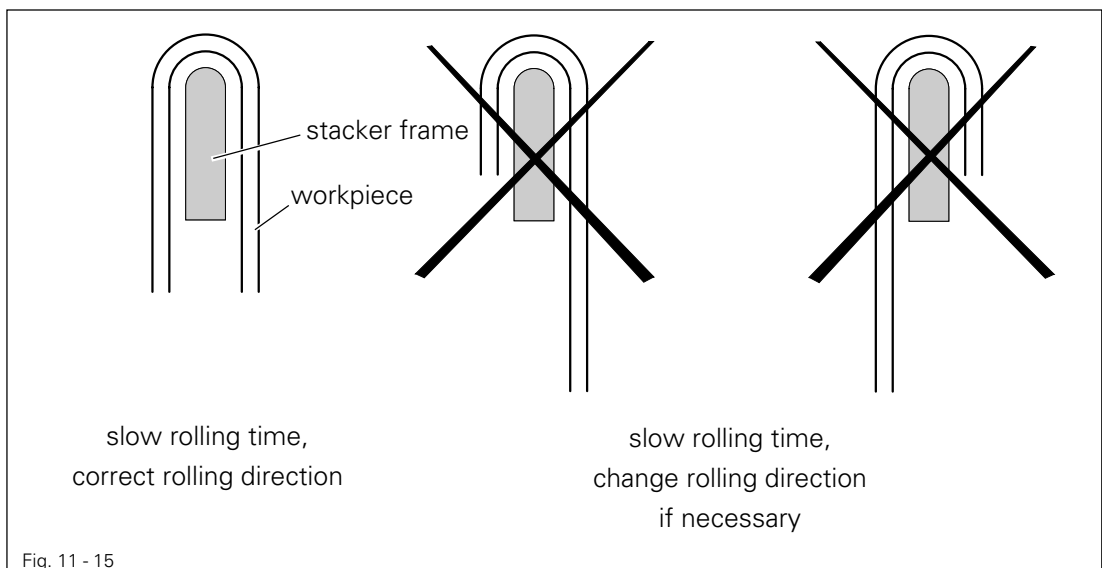
6 TIME FOR POCKET PLATE UP

For entering the delay time between pocket plate back and pocket plate up.

7 FEED SPEED

For entering the speed of the sewing jig feed from the folding station to the sewing station.

8 SEAM CORRECTION X

Changes the position of the seam on the pocket in the horizontal direction.

9 SEAM CORRECTION Y

Changes the position of the seam on the pocket in the vertical direction.

0 STACKER

With this function it is possible to choose between the standard cycle and the cycle for stacking short parts (version 1).

Input mode functions

Input menu (number key 0)

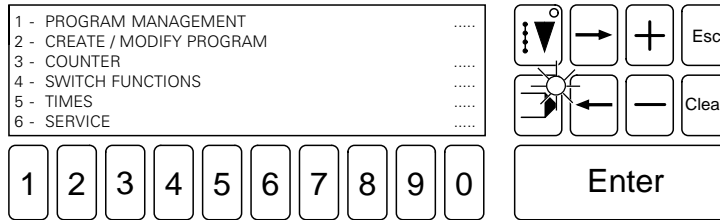Opens a menu for selecting diverse functions from other menu levels:

```
1 - PROGRAM MANAGEMENT          .....
2 - CREATE / MODIFY PROGRAM
3 - COUNTER                     .....
4 - SWITCH FUNCTIONS            .....
5 - TIMES                       .....
6 - SERVICE                     .....
```

Fig. 11 - 16

1 PROGRAM MANAGEMENT

Opens a menu for organizing seam programs:

```
1 - DIRECTORY                   .....
2 - READ / WRITE PROGRAM        .....
3 - DELETE PROGRAM              .....
4 - FORMAT DISK
5 - STATISTICAL PROGRAM DATA
6 - DATA TRANSFER WITH PC       .....
```
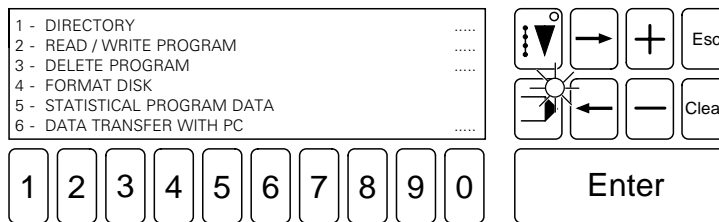
Fig. 11 - 17

1 DIRECTORY

Opens a menu with items for listing memory contents:

```
1 - DIRECTORY OF MEMORY
2 - DIRECTORY OF DISK
```

Fig. 11 - 18

1 DIRECTORY OF MEMORY

Displays the contents of the machine memory.

2 DIRECTORY OF DISK

Displays the contents of a disk. Program numbers valid for this machine are shown.

2 READ / WRITE PROGRAM

Opens a menu for transferring seam programs:

```
1 - READ ONE PROGRAM FROM DISK
2 - READ ALL PROGRAMS FROM DISK
3 - WRITE ONE PROGRAM ON DISK
4 - WRITE ALL PROGRAMS ON DISK
```

Fig. 11 - 19

|1| READ ONE PROGRAM FROM DISK

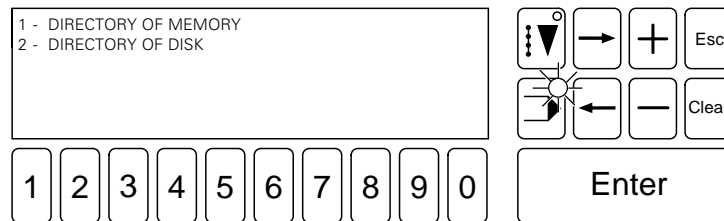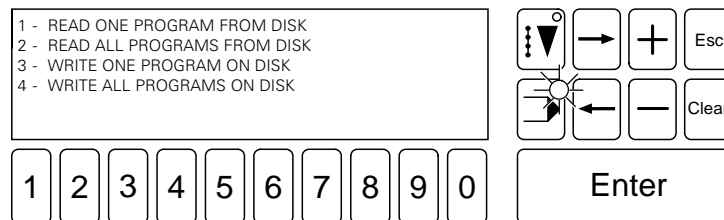One program to be selected is read into the machine memory from a disk.

|2| READ ALL PROGRAMS FROM DISK

All programs on the disk are read into the machine memory.

|3| WRITE ONE PROGRAM ON DISK

One program to be selected from the machine memory is written on disk.

|4| WRITE ALL PROGRAMS ON DISK

All programs in the machine memory are written on disk.

|3| DELETE PROGRAM

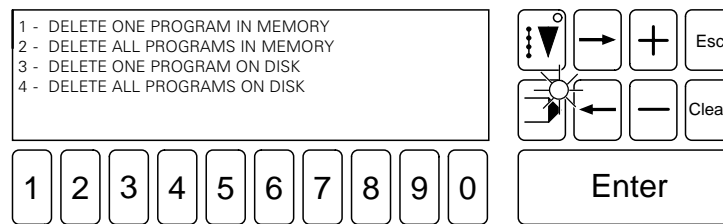Opens a menu where you can delete seam programs:

```
1 - DELETE ONE PROGRAM IN MEMORY
2 - DELETE ALL PROGRAMS IN MEMORY
3 - DELETE ONE PROGRAM ON DISK
4 - DELETE ALL PROGRAMS ON DISK
```

| | → | + | Esc |
| | ← | − | Clear |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | Enter |

Fig. 11 - 20

|1| DELETE ONE PROGRAM IN MEMORY

Deletes a selected program from the machine memory.

|2| DELETE ALL PROGRAMS IN MEMORY

Deletes all programs in the machine memory.

|3| DELETE ONE PROGRAM ON DISK

Deletes a selected program from the disk.

|4| DELETE ALL PROGRAMS ON DISK

Deletes all programs on a disk.

|4| FORMAT DISK

Formats a disk and names it "K3588".

⚠ When you format a disk, all data on the disk are erased!

|5| STATISTICAL PROGRAM DATA

Displays the following program data:
- program number
- jig code
- obstacles
- stitch count
- stitch length
- number of bytes

|6| DATA TRANSFER WITH PC

Enables the machine to communicate directly with a personal computer using the software SYS3000 (for more detailed information please refer to the SYS3000 manual).

2 CREATE / MODIFY PROGRAM

After the function has been selected, you can create and/or modify seam programs via the control panel (see **chapter 11.06 Creating / modifying seam programs**).
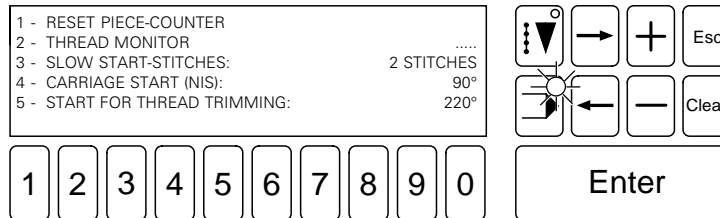
3 COUNTER

Opens a menu for customizing the counters:

```
1 -  RESET PIECE-COUNTER
2 -  THREAD MONITOR                              .....
3 -  SLOW START-STITCHES:              2 STITCHES
4 -  CARRIAGE START (NIS):                    90°
5 -  START FOR THREAD TRIMMING:              220°
```

1 2 3 4 5 6 7 8 9 0   Enter

Fig. 11 - 21

1 RESET PIECE-COUNTER

Resets the piece-counter to "0" for the daily production.

2 THREAD MONITOR

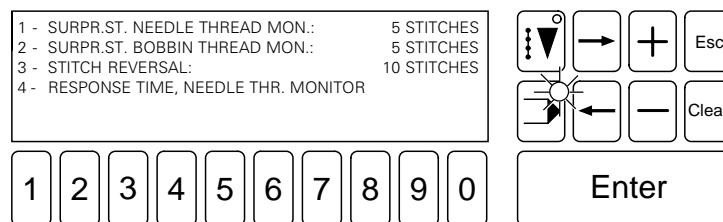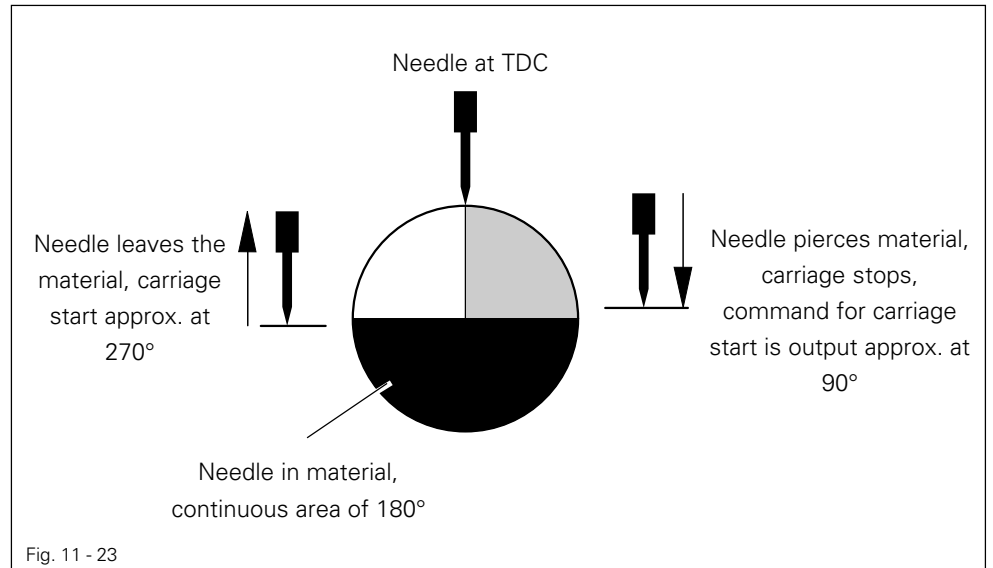Opens a menu which allows you to change the counters for the thread monitor:

```
1 -  SURPR.ST. NEEDLE THREAD MON.:      5 STITCHES
2 -  SURPR.ST. BOBBIN THREAD MON.:      5 STITCHES
3 -  STITCH REVERSAL:                  10 STITCHES
4 -  RESPONSE TIME, NEEDLE THR. MONITOR
```

1 2 3 4 5 6 7 8 9 0   Enter

Fig. 11 - 22

1 SURPRESSED STITCHES NEEDLE THREAD MONITOR

Changes the number of stitches for which the needle thread monitor is not active while the workpiece is sewn on.

2 SURPRESSED STITCHES BOBBIN THREAD MONITOR

Changes the number of stitches for which the bobbin thread monitor is not active while the workpiece is sewn on.

3 STITCH REVERSAL

Changes the number of stitches which the needle automatically traces back if a needle thread disturbance occurs.

4 RESPONSE TIME, NEEDLE THREAD MONITOR

This function is for changing the sensitivity of the needle thread monitor (1 = quick response, max. sensitivity)

3 SLOW START-STITCHES

Changes the number of stitches which are to be sewn with reduced speed when sewing on a section of the workpiece.

4 CARRIAGE START (NIS)

Changes the timing for starting the motors of the sewing jig feed (° = degrees after needle bar at TDC, see **Fig. 11-23**).

Needle at TDC

Needle leaves the material, carriage start approx. at 270°

Needle pierces material, carriage stops, command for carriage start is output approx. at 90°

Needle in material, continuous area of 180°

Fig. 11 - 23

The command for the carriage start is output when the needle pierces the material. The carriage, however, starts half a revolution later (180°), when the needle leaves the material.

⚠️ Under certain conditions, the stitch formation can be influenced by the setting.

5 START FOR THREAD TRIMMING
Changes the point in time at which the impulse to start thread trimming is sent to the thread trimming valve (° = degree after needle bar at TDC).

4 SWITCH FUNCTIONS
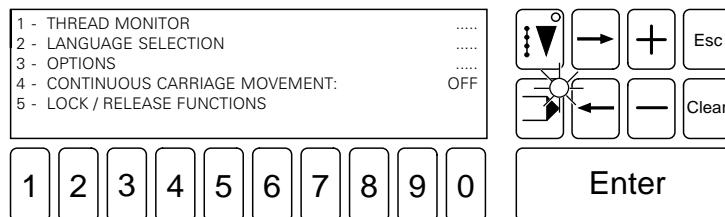Opens a menu for switching machine functions on and off.


```
1 - THREAD MONITOR                      .....
2 - LANGUAGE SELECTION                  .....
3 - OPTIONS                             .....
4 - CONTINUOUS CARRIAGE MOVEMENT:       OFF
5 - LOCK / RELEASE FUNCTIONS
```

Fig. 11 - 24

1 THREAD MONITOR
Opens a menu where you can select different thread monitors:


```
1 - NEEDLE THREAD MONITOR:       ON
2 - BOBBIN THREAD MONITOR:       ON
3 - BOBBIN THREAD SENSOR:        OFF
```
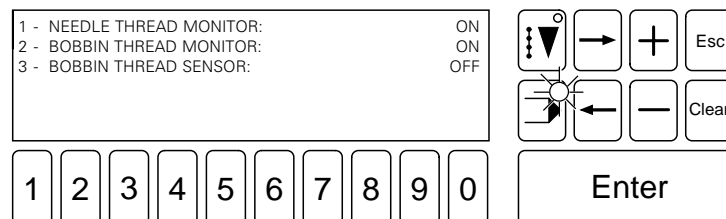
Fig. 11 - 25

|1| NEEDLE THREAD MONITOR

Switches the needle thread monitor on or off.

|2| BOBBIN THREAD MONITOR

Switches the bobbin thread monitor on or off.

|3| BOBBIN THREAD SENSOR

Switches the bobbin thread sensor on or off.

|2| LANGUAGE SELECTION

Opens a menu where you can select different languages in the display (see **chapter 9.05 Selecting a language**).

```
LANGUAGE SELECTION:
1 - GERMAN          6 - POLISH
2 - ENGLISH         7 - TURKISH
3 - FRENCH
4 - SPANISH
5 - ITALIAN
```

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | Enter |

Fig. 11 - 26

|3| OPTIONS

Opens a menu where you can switch optional work aids on or off:

```
1 -  TILT HEAD:                       -
2 -  JIG MONITOR:                    ON
3 -  FOLDER VERSION:           STANDARD
4 -  LABEL FEED:                      -
5 -  JIG VERSION:              STANDARD
```

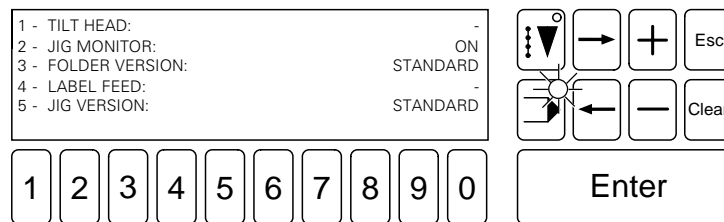| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | Enter |

Fig. 11 - 27

|1| TILT HEAD

(for changing the bobbin for sewing heads with a horizontal hook)

If the machine is equipped with a tiltable head, this function serves to switch the extra on or off.

|2| JIG MONITOR

If the machine is equipped with the optional jig monitoring device, this function serves to switch the optional feature on or off.

|3| FOLDER VERSION

Lets you choose between 5 folding operations.

● Standard

The parts cutting is kept on the table by means of a vacuum blower while the pocket cutting is slid over the pocket plate. After the start keys have been pressed, the pocket cutting is folded and, together with the parts cutting, is transported to the sewing station.

● Version 1

The parts cutting is kept on the table by means of a vacuum blower. After the start keys have been pressed the workpiece is transported to the sewing station.

● Version 2

The parts cutting is kept on the table by means of a vacuum blower while the pocket cutting is slid over the pocket plate. After the start keys have been pressed, both cuttings are transported to the sewing station (without folding).

● Version 3

The cut part is held on the table by suction air. After the start button is pressed a frame is lowered for loading the pre-folded pocket. When the start button is pressed again, both parts are transferred to the sewing station.

● Version 4

Same as "standard" version, but for folding rounded pockets.

4   LABEL FEED

If the machine is equipped with the optional label feed mechanism, this function serves to switch this option on or off.

5   JIG VERSION

For selecting one of various jig modes.

● Standard

Standard jig, that is, no flaps, no variable sewing slot.

● Flap version 1

The flap part is moved into position on the sewing jig.

● Flap version 2

The flap part is turned over into position on the sewing jig.

● Variable sewing slot

The sewing jig is equipped with a variable sewing slot.

4   CONTINUOUS CARRIAGE MOVEMENT

Lets you choose the type of carriage movement (continuous or intermittent).

5   LOCK / RELEASE FUNCTIONS

Releases/locks all functions in the **INPUT** mode, secures them with a code number or makes them accessible to authorized personnel only by means of a key.

For the table of code numbers of the individual functions please refer to **chapter 14.03.01 Tables for lock/release functions**).
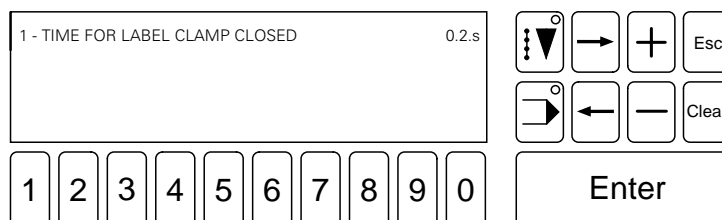
5   TIMES

This function opens a menu for changing times

| 1 - TIME FOR LABEL CLAMP CLOSED | 0.2.s |

1 2 3 4 5 6 7 8 9 0   Enter

Fig. 11 - 27a

1   TIME FOR LABEL CLAMP CLOSED

With this function, the reaction time for label clamp closed can be changed.

Input mode functions

6   SERVICE

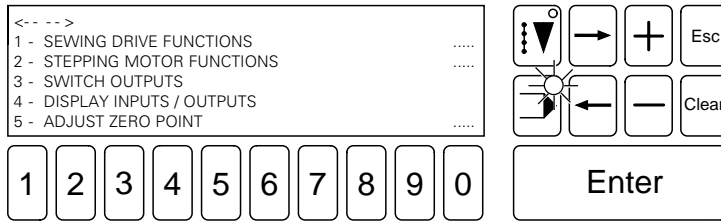Opens a menu where you can select service functions:

```
<-- --->
1 -  SEWING DRIVE FUNCTIONS          .....
2 -  STEPPING MOTOR FUNCTIONS        .....
3 -  SWITCH OUTPUTS
4 -  DISPLAY INPUTS / OUTPUTS
5 -  ADJUST ZERO POINT               .....
```
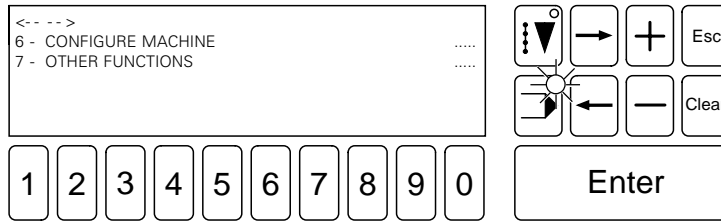
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

Enter

Fig. 11 - 28

```
<-- --->
6 -  CONFIGURE MACHINE               .....
7 -  OTHER FUNCTIONS                 .....
```

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

Enter

Fig. 11 - 29

PFAFF

1 SEWING DRIVE FUNCTIONS

Opens a menu where you can test the sewing motor:

```
1 - TURN SEWING MOTOR
2 - THREAD TRIMMING PROCEDURE
3 - CUTTING SPEED - PRE-SEL.:              200 RPM
```

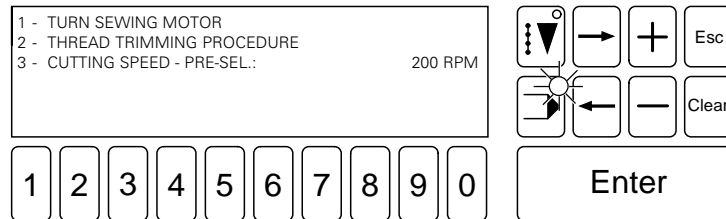| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | Enter |

Fig. 11 - 30

⚠ Before performing the following functions please make sure that the needle can penetrate the needle hole without being obstructed!

1 TURN SEWING MOTOR

Starts and stops the sewing motor. The speed can either be preselected or changed via the **plus/minus keys** while the motor is running.

2 THREAD TRIMMING PROCEDURE

Starts the thread trimming procedure.

3 CUTTING SPEED - PRE-SEL.

Pre-selects the positioning speed for thread cutting.

2 STEPPING MOTOR FUNCTIONS

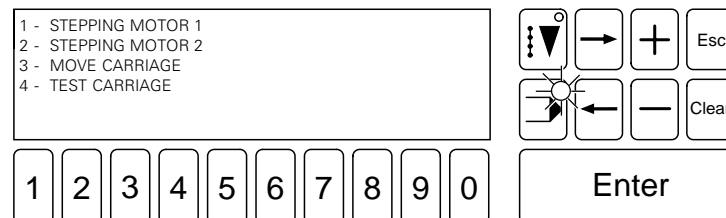Opens a menu where you can move the stepping motors:

```
1 - STEPPING MOTOR 1
2 - STEPPING MOTOR 2
3 - MOVE CARRIAGE
4 - TEST CARRIAGE
```

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | Enter |

Fig. 11 - 31

⚠ Before performing the following functions, make sure that the sewing jig feed moves without being obstructed!

1 STEPPING MOTOR 1

Moves stepping motor 1.

2 STEPPING MOTOR 2

Moves stepping motor 2.

3 MOVE CARRIAGE

Moves the sewing jig feed.

4 TEST CARRIAGE

(presently no function)

Tests the sewing jig feed.

|3| SWITCH OUTPUTS

Sets and resets outputs (see **chapter 14.03.03 Tables of outputs**)

|4| DISPLAY INPUTS / OUTPUTS

After this function has been selected, the states of the inputs and outputs are

displayed: **1**   =   Input actuated / output switched

0   =   Input not actuated / Output not switched
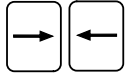
Use the **arrow keys** to toggle between the input and output display.

> For an input and output table please refer to **chapter 14.03.04 Tables of inputs**.

|5| ADJUST ZERO POINT

Opens a menu where you can adjust different zero points (see **chapter 8.07 Adjusting zero point**):

```
1 - GAUGE POSITION
2 - NEEDLE POSITION
3 - FOLDER POSITION
```
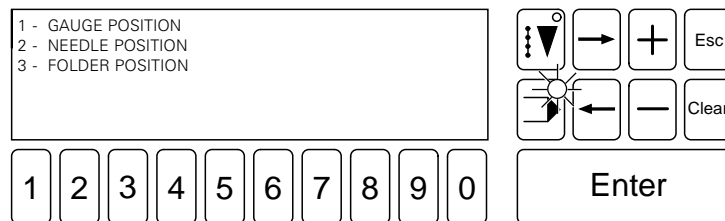
Fig. 11 - 32

|1| GAUGE POSITION

Sets the basic position of the linkage based on the carriage's proximity switches using the zero point gauge.

|2| NEEDLE POSITION

Adjusts the needle's zero point based on the gauge position. Simultaneously the machine's zero point is also adjusted, which lies 250 mm from the needle's zero point in the direction of the folder station.

|3| FOLDER POSITION

Adjusts the folder position.

|6| CONFIGURE MACHINE

Opens a menu which shows you which optional features the machine is equipped with:

```
1 - TILTABLE HEAD:        NO
2 - VERTICAL HOOK:        YES
3 - JIG MONITOR:          YES
4 - LABEL FEED:           NO
5 - FLAP FEED:            YES
```
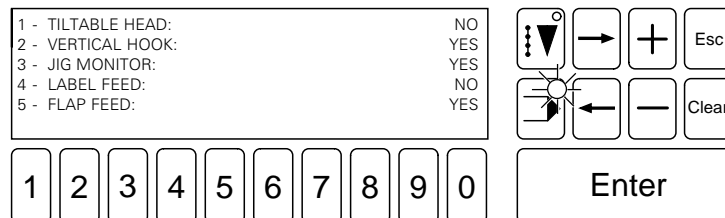
Fig. 11 - 33

When commissioning the machine, or when equipping it with additional devices, the settings must be entered or changed accordingly.

7 OTHER FUNCTIONS

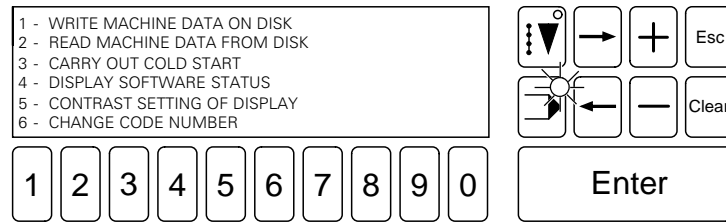Opens a menu with various other functions:

```
1 - WRITE MACHINE DATA ON DISK
2 - READ MACHINE DATA FROM DISK
3 - CARRY OUT COLD START
4 - DISPLAY SOFTWARE STATUS
5 - CONTRAST SETTING OF DISPLAY
6 - CHANGE CODE NUMBER
```

1 2 3 4 5 6 7 8 9 0   Enter

Fig. 11 - 34

1 WRITE MACHINE DATA ON DISK

Writes the data of the machine configuration (file name: MDAT) on a disk.

> For a table of all transferable machine data please refer to
> **chapter 14.03.02 Table of machine data (MDAT)**.

2 READ MACHINE DATA FROM DISK

Reads machine data which are stored on a disk into the machine memory (e. g. after a cold start).

3 CARRY OUT COLD START

Carries out a cold start.

When carrying out a cold start, all settings except the zero point and the machine configuration settings are reset to boot-up values. All programs in the machine memory are deleted.

4 DISPLAY SOFTWARE STATUS

When this function is selected, the software versions of various control units are displayed.

5 CONTRAST SETTING OF DISPLAY

> ⚠ Do **not** lower the contrast setting to such an extent that the display becomes illegible!

This function lets you change the contrast setting of the display.

6 CHANGE CODE NUMBER

After a cold start, the code number is **3588**. This function lets you choose your own code number between 0000 - 9999.

> Functions which are secured by a code number can only be selected via the respective code.

Input mode functions

11.06   Creating / modifying seam programs

The function CREATE / MODIFY PROGRAM allows you to modify seam programs directly on the machine via the control panel. Data records created in this way can still be processed and modified by SYS3000 (and vice versa).

⚠️ A newly created or modified seam program must be executed step by step on the machine to make sure that it matches the sewing jig!

11.06.01   Seam program structure

Every data record consists of three elements:

Program header
The program header contains information on the number and the length of the program, and is used for managing the programs.

Geometrical data record
A geometrical data record consists of elements (so-called sections) which can be divided into two groups:
- Sections which influence the geometry of the seam pattern
- Sections with machine functions

Stitch data record
The stitch data record is required for the sewing operation exclusively and is generated from the geometrical data record by stitch generation. It consists of coordinate pairs and machine commands, and is concluded by the end-of-program command.

11.06.02   Status bar when entering seam programs

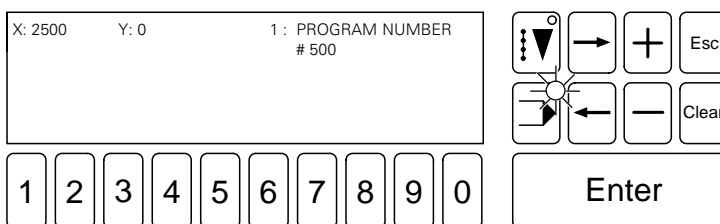When entering seam programs, the status bar is displayed in the first line of display:

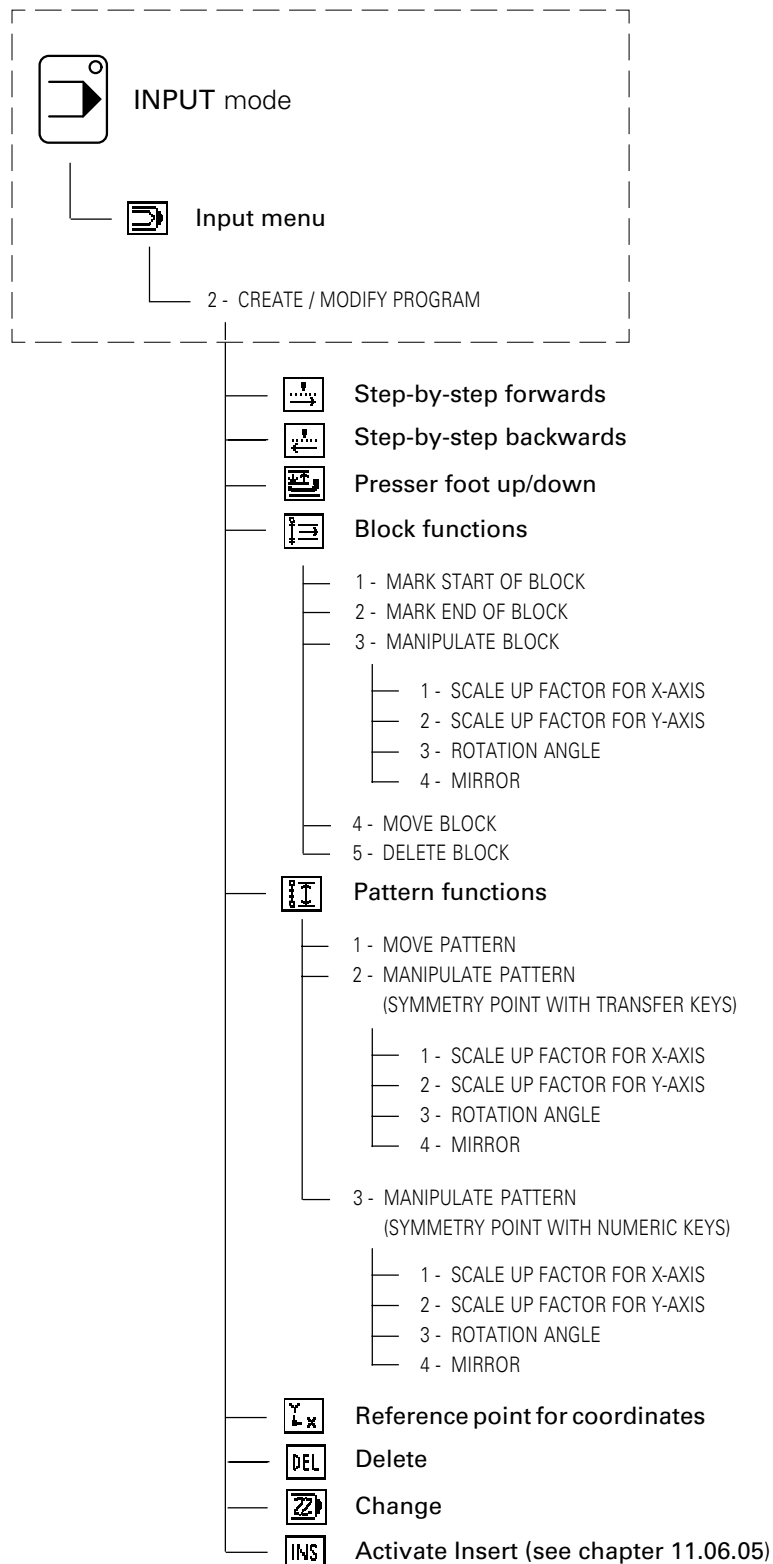Fig. 11 - 35

The status bar structure is from left to right:

- x-axis coordinate
- y-axis coordinate
- section number together with type of section

Section parameters belonging to the section are displayed below the section type. Sections within a marked block are displayed on a dark background.

11.06.03   Summary of the functions in the initial state (entering seam programs)

The function CREATE / MODIFY PROGRAM is only accessible when the machine is in its basic position. If required, a code number must be entered, a sewing pattern inserted and a program number must be selected.

INPUT mode

Input menu

2 - CREATE / MODIFY PROGRAM

Step-by-step forwards

Step-by-step backwards

Presser foot up/down

Block functions

1 - MARK START OF BLOCK
2 - MARK END OF BLOCK
3 - MANIPULATE BLOCK

1 - SCALE UP FACTOR FOR X-AXIS
2 - SCALE UP FACTOR FOR Y-AXIS
3 - ROTATION ANGLE
4 - MIRROR

4 - MOVE BLOCK
5 - DELETE BLOCK

Pattern functions

1 - MOVE PATTERN
2 - MANIPULATE PATTERN
(SYMMETRY POINT WITH TRANSFER KEYS)

1 - SCALE UP FACTOR FOR X-AXIS
2 - SCALE UP FACTOR FOR Y-AXIS
3 - ROTATION ANGLE
4 - MIRROR

3 - MANIPULATE PATTERN
(SYMMETRY POINT WITH NUMERIC KEYS)

1 - SCALE UP FACTOR FOR X-AXIS
2 - SCALE UP FACTOR FOR Y-AXIS
3 - ROTATION ANGLE
4 - MIRROR

Reference point for coordinates

Delete

Change

Activate Insert (see chapter 11.06.05)

Input mode functions

11.06.04 Explanation of the functions in the initial state (when entering seam programs)
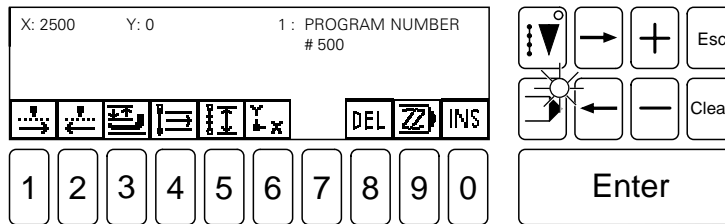
Fig. 11 - 36

Step-by-step forwards (number key 1)
This function allows you to trace the seam pattern step by step in a forward direction; by pressing **Enter** simultaneously, the entire seam pattern is traced automatically.

Step-by-step backwards (number key 2)
This function allows you to trace the seam pattern step by step backwards; by pressing **Enter** simultaneously, the entire seam pattern is traced automatically.

Presser foot up / down (number key 3)
Allows you to raise and lower the presser foot.

Block functions (number key 4)

1 - MARK START OF BLOCK
2 - MARK END OF BLOCK
3 - MANIPULATE BLOCK
4 - MOVE BLOCK
5 - DELETE BLOCK
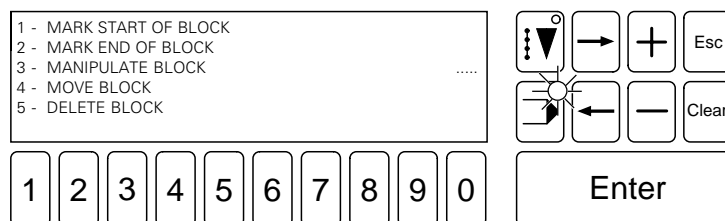
Fig. 11 - 37

1 MARK START OF BLOCK/MARK END OF BLOCK
After a desired point in the program has been selected by tracing the seam pattern, the function MARK START OF BLOCK allows you to determine the start of a block. Marking the block must be completed by determining the end of the block. To do so, trace the pattern to the desired point and select the function

2 MARK END OF BLOCK. When tracing the seam pattern, the marked block can be identified since the section number and type are displayed on a dark background.

3 MANIPULATE BLOCK
This function comprises the sub-functions SCALE UP FACTOR FOR X-AXIS, SCALE UP FACTOR FOR Y-AXIS, ROTATION ANGLE and MIRROR. The functions can be performed separately or at the same time (see **Fig. 11-38**).
If the ROTATION ANGLE and MIRROR functions are to be performed simultaneously, the block is first mirrored and then rotated.

```
1 - SCALE UP FACTOR FOR X-AXIS:        1.00
2 - SCALE UP FACTOR FOR Y-AXIS:        1.00
3 - ROTATION ANGLE                       0°
4 - MIRROR                              OFF
```
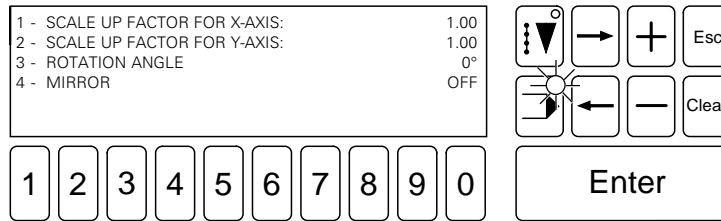
Fig. 11 - 38

1 SCALE UP FACTOR FOR X-AXIS

Enlarges a block.

2 SCALE UP FACTOR FOR Y-AXIS

Reduces a block in size.

3 ROTATION ANGLE

Rotates a block.

The block is rotated anti-clockwise around the start-of-block point.

4 MIRROR

Mirrors a block. The block is mirrored around a straight line which runs through the start-of-block point and is parallel to the y-axis.

4 MOVE BLOCK

After the MOVE BLOCK function has been selected, the sewing jig feed device has to locate in a new spot. Press **Enter** to confirm the new position and move the block.

5 DELETE BLOCK

Deletes a block.

Pattern functions (number key 5)

```
1 - MOVE PATTERN
2 - MANIPULATE PATTERN
    (SYMMETRY POINT WITH TRANSFER KEYS)      .....
3 - MANIPULATE PATTERN
    (SYMMETRY POINT WITH NUMERIC KEYS)       .....
```
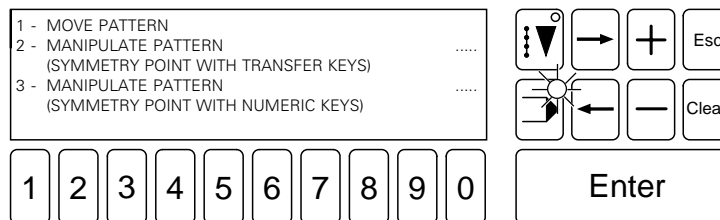
Fig. 11 - 39

1 MOVE PATTERN

After the MOVE PATTERN function has been selected, the sewing jig feed device has to locate in a new spot. Press **Enter** to confirm the new position. The pattern is then moved from the current position to the end of the program.

2 MANIPULATE PATTERN

(SYMMETRY POINT WITH TRANSFER KEYS)

The symmetry point is located (entered) by pressing the transfer keys.

3 MANIPULATE PATTERN

(SYMMETRY POINT WITH NUMERIC KEYS)

The symmetry point is determined by entering the coordinates via the **numeric keys**. After the symmetry point has been entered, the functions SCALE UP FACTOR FOR X-AXIS, SCALE UP FACTOR FOR Y-AXIS, ROTATION ANGLE and MIRROR are available. For a description of the function please refer to **page 11-21 MANIPULATE BLOCK**. All functions are applied to the entire program.

Input mode functions

Reference point for coordinates (number key 6)
Sets the coordinates in the display to "0", thus creating a new reference point.

Delete (number key 8)
Deletes the current section.

Change (number key 9)
Allows you to modify the current section.
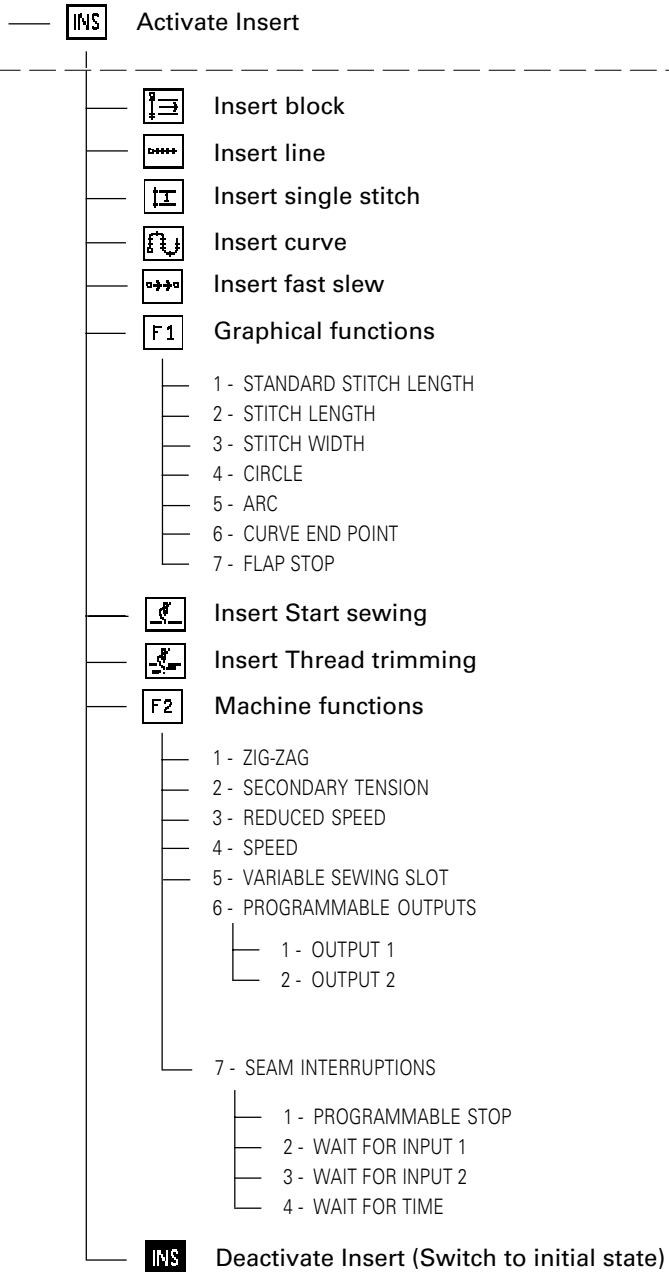
Activate Insert (number key 0)
Allows you to switch between the **Insert** and **Initial state** mode.
When the function is switched off, **Initial state** is active.

11.06.05   Summary of the functions in the Insert mode

> The **Activate Insert** can only be selected in the initial state of entering seam programs and after the program header has been traced (see **chapter 11.06.03 Summary of the functions in the initial state (entering seam programs))**.
>
> —— [INS]   Activate Insert

    —— [icon]   Insert block

    —— [icon]   Insert line

    —— [icon]   Insert single stitch

    —— [icon]   Insert curve

    —— [icon]   Insert fast slew

    —— [F1]   Graphical functions

        —— 1 - STANDARD STITCH LENGTH
        —— 2 - STITCH LENGTH
        —— 3 - STITCH WIDTH
        —— 4 - CIRCLE
        —— 5 - ARC
        —— 6 - CURVE END POINT
        —— 7 - FLAP STOP

    —— [icon]   Insert Start sewing

    —— [icon]   Insert Thread trimming

    —— [F2]   Machine functions

        —— 1 - ZIG-ZAG
        —— 2 - SECONDARY TENSION
        —— 3 - REDUCED SPEED
        —— 4 - SPEED
        —— 5 - VARIABLE SEWING SLOT
            6 - PROGRAMMABLE OUTPUTS

                —— 1 - OUTPUT 1
                └— 2 - OUTPUT 2

        —— 7 - SEAM INTERRUPTIONS

                —— 1 - PROGRAMMABLE STOP
                —— 2 - WAIT FOR INPUT 1
                —— 3 - WAIT FOR INPUT 2
                └— 4 - WAIT FOR TIME

    └—— [INS]   Deactivate Insert (Switch to initial state)

Input mode functions

11.06.06   Explanation of the functions in the Insert mode

Fig. 11 - 40

Block (number key 1)
Inserts a block at the current position in forward direction.

Line (number key 2)
A line (straight line) is defined as a direct link between two points. In order to enter a line the stitch length must be defined.

Single stitch (number key 3)
Enters a single stitch or feed without taking any stitch length into account. The maximum size of the single stitch or feed is 6 mm.

Curve (number key 4)
You can enter as many points of the curve as you please. The control device calculates the course of the curve, taking the stitch length into account. Curve points do not necessarily have to be needle penetration points. A stitch length must be defined. The more curve points you enter, the more precise the course of the curve will be.

Fast Slew (number key 5)
With Fast Slew the sewing jig feed can be transferred quickly. Both axes are moved to the end point independently of each other and in the quickest possible way. Therefore, the resulting path of travel is not a straight line (be careful with obstacles on the jig). If the path has to be very precise, you have to work with the Line or Curve functions without the Start Sewing function.

Graphical functions F1 (number key 6)
The function key F1 accommodates graphical functions. They are displayed in a menu where they can be selected.

<- - - ->
1 - STANDARD STITCH LENGTH
2 - STITCH LENGTH
3 - STITCH WIDTH
4 - CIRCLE
5 - ARC

Fig. 11 - 41

<- - - ->
6 - CURVE END POINT
7 - FLAP STOP P
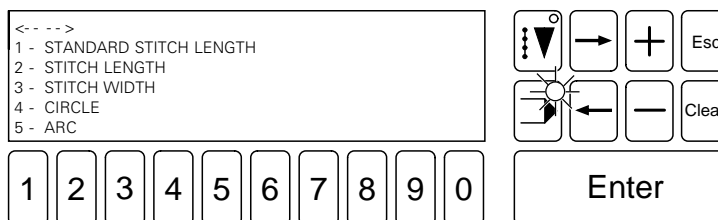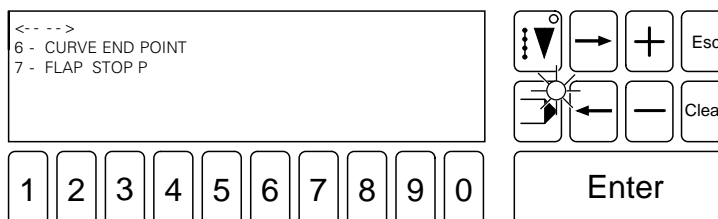
Fig. 11 - 42

1 STANDARD STITCH LENGTH

Determines the stitch length predominantly needed in the program. The standard stitch length is displayed in the status bar during sewing and can be changed at the stitch length control on the machine without having to go into the programming mode.

2 STITCH LENGTH

Determines a stitch length for a certain seam section.

This stitch length is not displayed in the status bar and can only be changed in the programming mode.

3 STITCH WIDTH

Performs a zig-zig movement of the sewing jig feed on a base line. Here, the stitch length determines the feed along the base line from penetration point to penetration point and has to be selected accordingly. The stitch width runs perpendicular to the base line. The position of the zig-zag must be determined, too. To switch the stitch width off, enter 0.0 as width.

4 CIRCLE

If you wish to enter a circle, you have to determine three points. The first point is automatically the starting point. The two remaining points have to be entered. A stitch length must be defined.

5 ARC

For the arc, the same applies as for the circle. The last point, however, determines the end of the arc.

6 CURVE END POINT

Turns a curve point into a curve end point.

7 FLAP STOP

With this function the flap starting point is determined. The flap program will be cycled from this point on.

Start sewing (number key 7)

Starts the sewing operation. All following sections are sewn until the Thread trimming function is selected.

Thread trimming (number key 8)

Trims the thread. The Start sewing function must have been active before.

Machine functions F2 (number key 9)

This function key accommodates machine functions. They are displayed in a menu where they can be selected. All machine functions are assigned a relocation parameter with which the function can be shifted 99 stitches before or after the current position.

```
< - - - >
1 -  ZIG-ZAG
2 -  SECONDARY TENSION
3 -  REDUCED SPEED
4 -  SPEED
5 -  VARIABLE SEWING SLOT                    .....
```
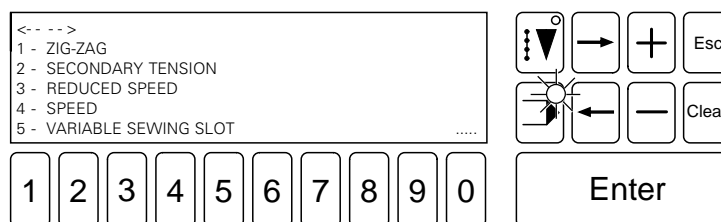
Fig. 11 - 43

Input mode functions

```
<- - - - >
6 -  PROGRAMMABLE OUTPUTS        .....
7 -  SEAM INTERRUPTIONS          .....
```

▼ → + Esc

⌐→ ← − Clear

1 2 3 4 5 6 7 8 9 0   Enter
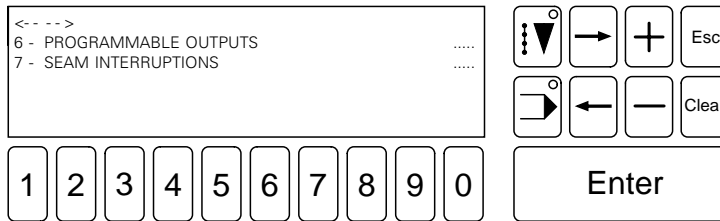
Fig. 11 - 43a

1 ZIG-ZAG

Allows you to enter a section for which the zig-zag device at the sewing head is additionally switched on. Without having to change into the programming mode, the zig-zig can be delayed at the machine (see **chapter 11.05**).

2 SECONDARY TENSION

Allows you to enter a section for which the secondary tension is switched on.

3 REDUCED SPEED

Allows you to enter a section for which the machine sews with reduced speed. The value for the reduced speed is selected at the machine (see **chapter 11.05**).

4 SPEED

A fixed speed is entered in the program.

5 VARIABLE SEWING SLOT

The sewing slot can be set wide or narrow.

6 PROGRAMMABLE OUTPUTS

Allows you to switch selectable outputs via a menu.

1 OUTPUT 1

2 OUTPUT 2

7 SEAM INTERRUPTIONS

Interrupts the sewing of the program. When you select this function, a menu is displayed which lets you choose the type of interruption.

1 PROGRAMMABLE STOP

A stop is programmed in the program.

◇ Press the **Start** function to continue the sewing operation.

2 WAIT FOR INPUT 1

The sewing of the program is interrupted until the input has reached the corresponding value.

3 WAIT FOR INPUT 2

The sewing of the program is interrupted until the input has reached the corresponding value.

4 WAIT FOR TIME

The sewing of the program is stopped until the program time has elapsed.

PFAFF

INS Deactivate Insert (number key 0)

Allows you to switch between the **Insert** and **Initial state** mode.

When the function is active (i.e. displayed on a dark background), the **Insert** mode is active.

The CREATE / MODIFY PROGRAM function can be ended at any time by pressing the operation mode keys (**INPUT/SEWING**). In general, the function should be concluded with stitch generation since only complete programs, i.e. programs with a stitch data record, can be sewn. It is, however, possible to end the program without stitch generation so that faulty or uncompleted programs can be saved.

Input mode functions

11.06.07   Example for programming a seam
In the following, the programming of a seam is explained by means of an example. As a pattern for programming we will use a drawing with the corresponding coordinates (see **Fig. 11-44**).

⚠️ In order to use the seam program, the sewing jig and the corresponding part set must match.
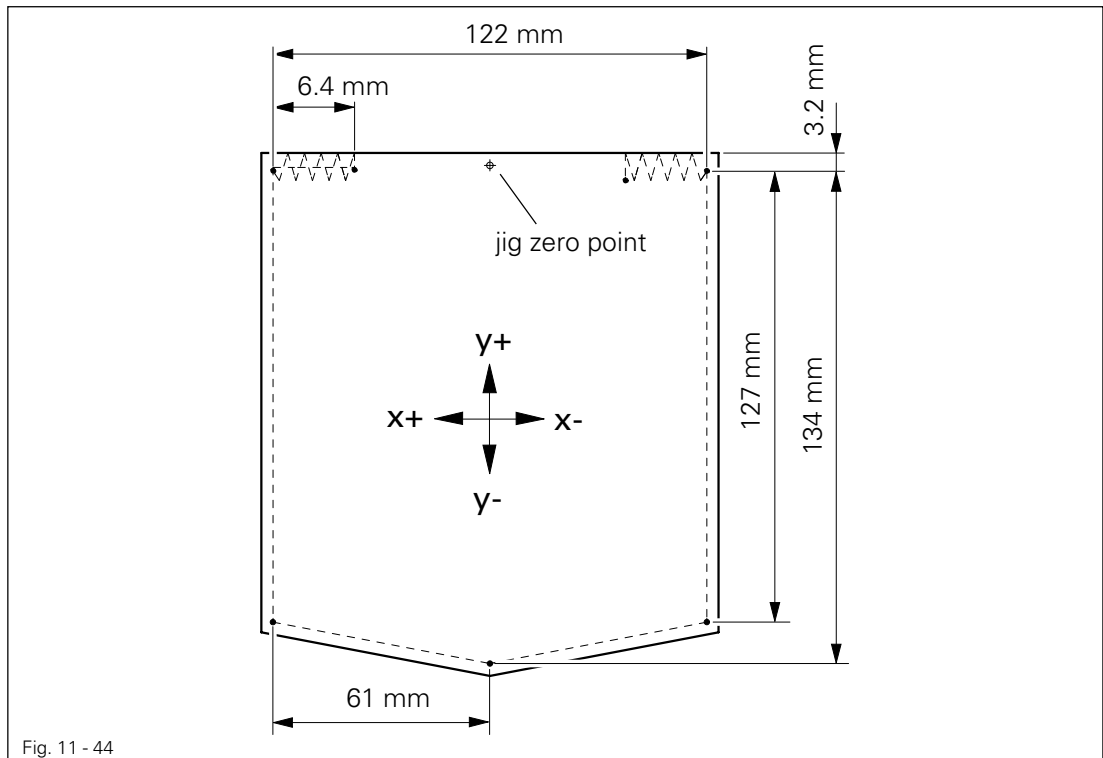
Fig. 11 - 44

● **Select INPUT mode** (prior to the selection, the machine must be in basic position).

● Select the **Input menu** function (number key 0).

2 ● Select the CREATE / MODIFY PROGRAM function.

● If required, enter the respective code number via the **number keys**.
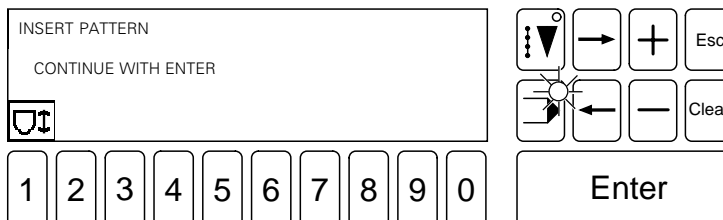
Fig. 11 - 45

● Lift the sewing jig (number key 1) and insert the pattern.

● Lower the sewing jig (number key 1).

Enter   ● Press **Enter**.

PROGRAM NUMBER : 4034

[PERMISSIBLE   0 - 9999]

1 2 3 4 5 6 7 8 9 0   Enter
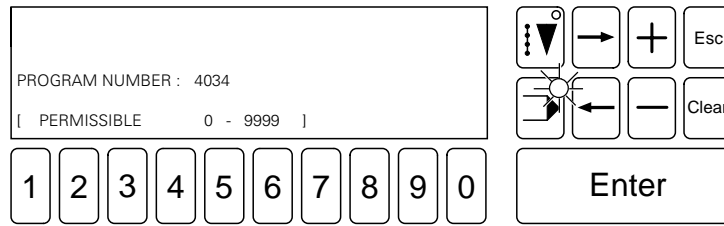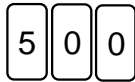
Fig. 11 - 46

5 0 0 ● Enter the desired program number via the **number keys** (e. g. 500 for a seam program to be created)

Enter ● Confirm by pressing **Enter**.

X: 2500   Y: 0   1 : PROGRAM NUMBER
                                   # 500

DEL ◕ INS

1 2 3 4 5 6 7 8 9 0   Enter
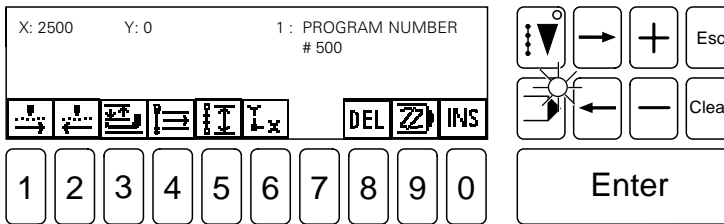
Fig. 11 - 47

● Move step by step through the program header over the section „Obstructions" with the **number keys 1** or **2,** until you find the display where you can input the jig code (in this case, „obstructions" means that additional devices have been attached to the sewing jig, e.g. a variable sewing slot).

X: 2500   Y: 0   2 : JIG CODE

DEL ◕ INS

1 2 3 4 5 6 7 8 9 0   Enter
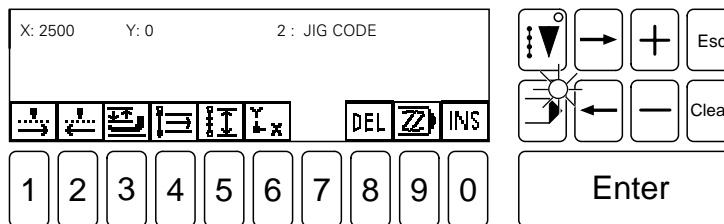
Fig. 11 - 48

◕ ● Select the **Change** function to change the setting for the jig code (number key 9).

JIG CODE : OFF   ◁   CODE: _ _

  0- OFF
  1- ON

1 2 3 4 5 6 7 8 9 0   Enter
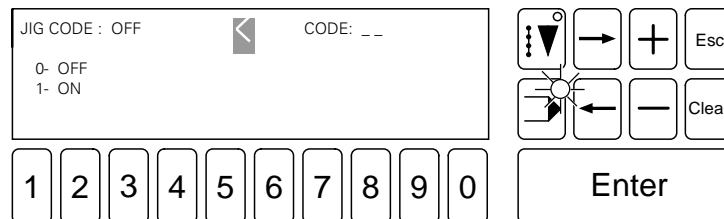
Fig. 11 - 49

1 ● Press **number key 1** to switch the jig code on.

→ ● Press **right arrow key** to be able to enter the jig-code number.
   (The cursor jumps to CODE: __.)

9 9 ● Enter the jig-code number via the **number keys** (e. g. 99).
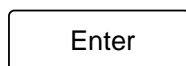
Enter ● Confirm by pressing **Enter**.

Input mode functions

X: 2500   Y: 0   2 : JIG CODE
                                           # 99
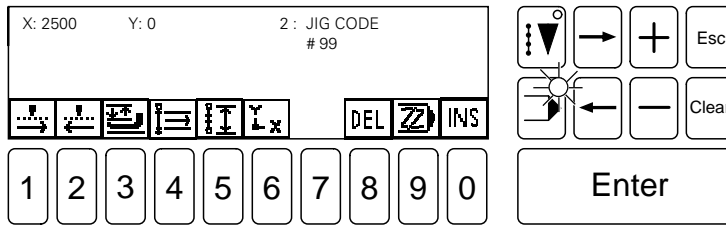
Fig. 11 - 50

● Select the **Step-by-step forwards** function (number key 1). The sewing jig now positions in the starting position.

X: 0   Y: 0   5 : START POINT
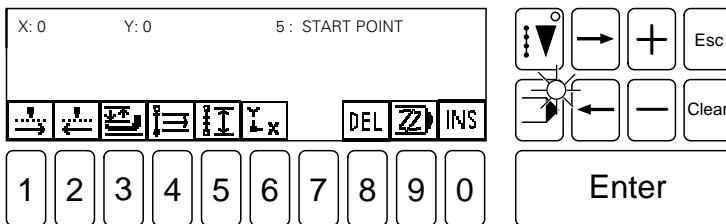
Fig. 11 - 51

● Select the **Change** function (number key 9) to enter the starting position.

X: 0   Y: 0   5 : START POINT
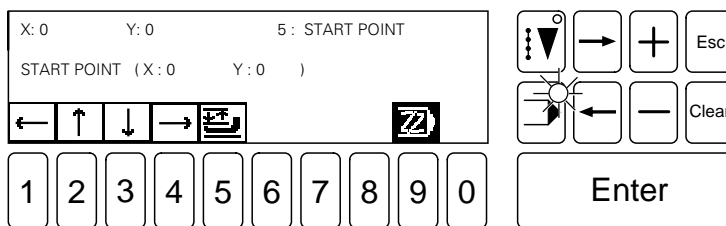
START POINT   (X : 0   Y : 0   )

Fig. 11 - 52

● Move to the start point using the **number keys 1 - 4**.

> By pressing **Esc**, the value of the coordinates can be reset to value which was last stored.

Enter   ● Confirm by pressing **Enter**.

X: -610   Y: 0   5 : START POINT
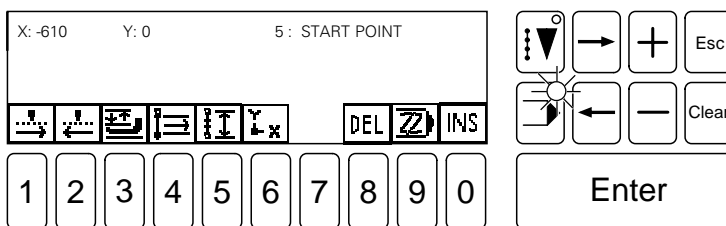
Fig. 11 - 53

● Activate the **Insert** mode (number key 0).

X: -610   Y: 0   5 : START POINT

Fig. 11 - 54

PFAFF
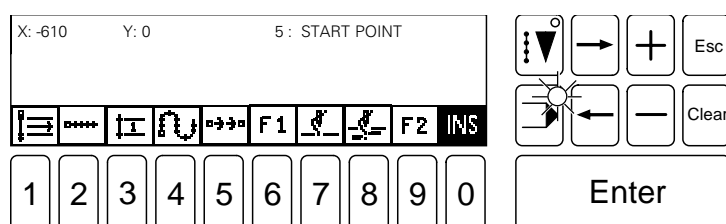
● Select the **Start sewing** function (number key 7).

X: -610   Y: 0   6 : START SEWING

1 2 3 4 5 6 7 8 9 0   Enter

Fig. 11 - 55

F 1 ● Select **Graphical functions** (number key 6).

< - - - >
1 - STANDARD STITCH LENGTH
2 - STITCH LENGTH
3 - STITCH WIDTH
4 - CIRCLE
5 - ARC

1 2 3 4 5 6 7 8 9 0   Enter
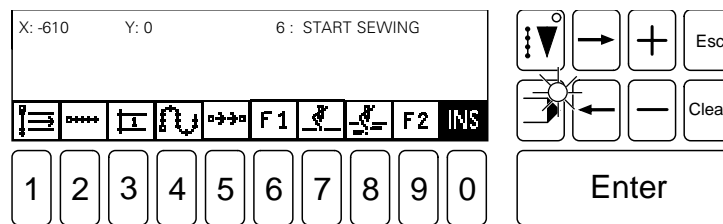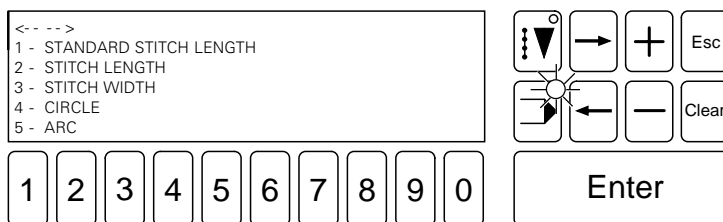
Fig. 11 - 56

1 ● Select the STANDARD STITCH LENGTH function.

STANDARD STITCH LENGTH :

3,00 мм

[PERMISSIBLE 0.10 - 6.00 мм]

1 2 3 4 5 6 7 8 9 0   Enter
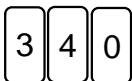
Fig. 11 - 57

3 4 0 ● Enter the value for the standard stitch length via the **number keys** (e.g. 3.40 mm)

Enter ● Confirm by pressing **Enter**.

X: -610   Y: 0   7 : ST.STITCH LENGTH
                                              3.4 мм
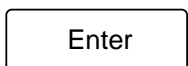
1 2 3 4 5 6 7 8 9 0   Enter
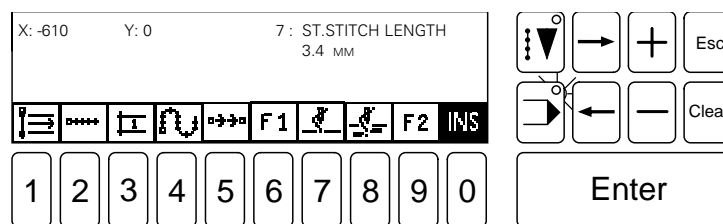
Fig. 11 - 58

● Select the **Line** function (number key 2) to insert a straight line.

X: -610   Y: 0   7 : ST.STITCH LENGTH

LINE END POINT   (X: -610   Y: 0   )

← ↑ ↓ →

1 2 3 4 5 6 7 8 9 0   Enter
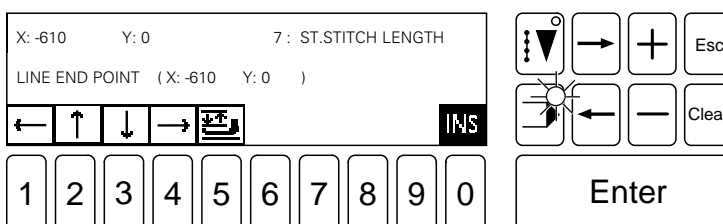
Fig. 11 - 59

● Move to the line end point using the **number keys 1 - 4**.

Input mode functions

Enter   ● Confirm by pressing **Enter**.

Esc   ● Press **Esc** to end entering data for the straight line.

```
X: -546      Y: 0              8 : LINE
```
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

Enter

Fig. 11 - 60

F2   ● Select **Machine functions** (number key 9).

```
<- - - - >
1 -  ZIG-ZAG
2 -  SECONDARY TENSION
3 -  REDUCED SPEED
4 -  SPEED
5 -  VARIABLE SEWING SLOT                    .....
```
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

Enter

Fig. 11 - 61

1   ● Select the ZIG-ZAG function.

1   ● Switch on the ZIG-ZAG function.

Enter   ● Confirm by pressing **Enter**.

```
X: -546      Y: 0              9 : ZIGZAG ON
                               S-PAR :    0
```
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

Enter

Fig. 11 - 62

F1   ● Select **Graphical functions** (number key 6).

2   ● Select the STITCH LENGTH function.

0 2 3   ● Enter the stitch length via the number keys (e. g. 0.23 mm).

Enter   ● Confirm by pressing **Enter**.

```
X: -546      Y: 0              10: STITCH LENGTH
                                   0.23 мм
```
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

Enter

Fig. 11 - 63

▭▭▭ ● Select the **Line** function (number key 2).

● Move to the line end point (number keys 1 - 4).

| Enter | ● Press **Enter**.

| Esc | ● Press **Esc.**

X: -610   Y: 0   11: LINE
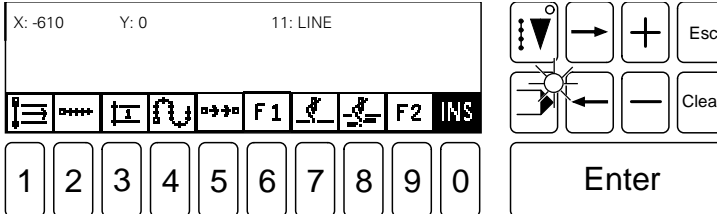
Fig. 11 - 64

| F2 | ● Select **Machine functions** (number key 9).

| 1 | ● Switch off the ZIG-ZAG function (number key 1).

| Enter | ● Press **Enter**.

X: -610   Y: 0   12: ZIGZAG OFF
                                        S-PAR: 0
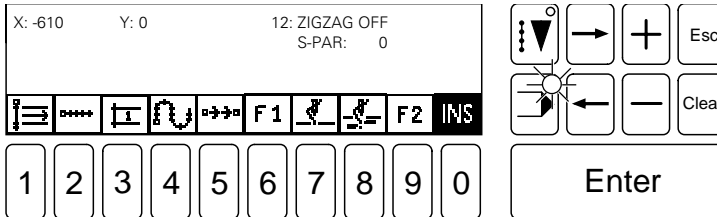
Fig. 11 - 65

| F1 | ● Select **Graphical functions** (number key 6).

| 1 | ● Switch on the STANDARD STITCH LENGTH function.
(You will jump to the new menu - the value stays unchanged.)

X: -610   Y: 0   13: ST. STITCH LENGTH
                                        3.4 мм
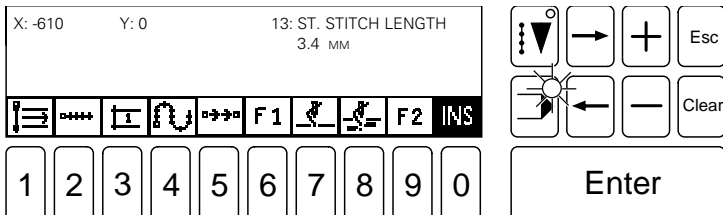
Fig. 11 - 66

▭▭▭ ● Select the **Line** function.

● Move to the end point of the line (number keys 1 - 4).

| Enter | ● Press **Enter**.
(You remain in the menu for entering straight lines.)

Input mode functions


```
X: -610      Y: 1270           14: LINE
LINE END POINT   ( X: -610   Y: 1270 )
←  ↑  ↓  →  ⊞                        INS
1  2  3  4  5  6  7  8  9  0      Enter
```
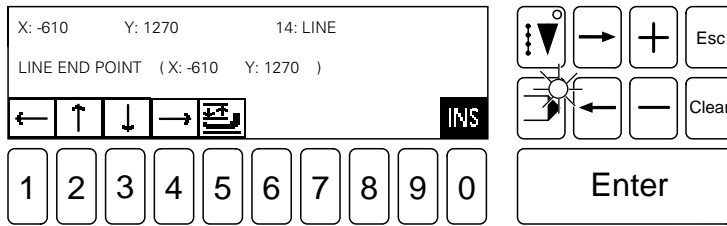
Fig. 11 - 67

● Move to the next end point of the line.

Enter   ● Press **Enter**.


```
X: 0         Y: -1340          15: LINE
LINE END POINT   ( X: 0      Y: -1340 )
←  ↑  ↓  →  ⊞                        INS
1  2  3  4  5  6  7  8  9  0      Enter
```
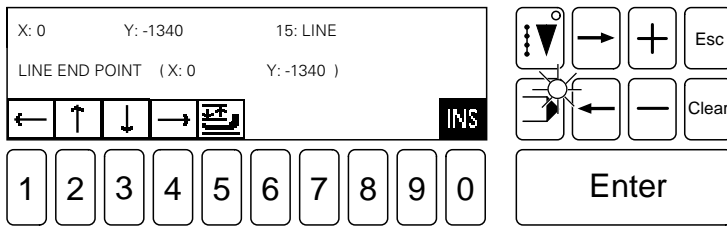
Fig. 11 - 68

● Move to the next end point of the line.

Enter   ● Press **Enter**.


```
X: 610       Y: -1270          16: LINE
LINE END POINT   ( X: 610   Y: -1270 )
←  ↑  ↓  →  ⊞                        INS
1  2  3  4  5  6  7  8  9  0      Enter
```
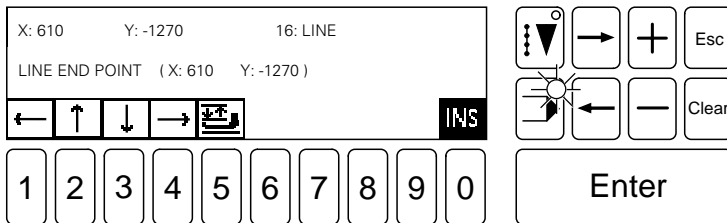
Fig. 11 - 69

● Move to the next end point of the line.
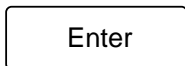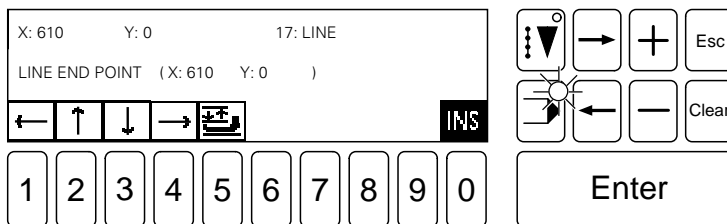
Enter   ● Press **Enter**.


```
X: 610       Y: 0              17: LINE
LINE END POINT   ( X: 610   Y: 0       )
←  ↑  ↓  →  ⊞                        INS
1  2  3  4  5  6  7  8  9  0      Enter
```

Fig. 11 - 70

Esc   ● Press **Esc**.

F2   ● Select **Machine functions**.

1   ● Select the ZIG-ZAG function.

Enter   ● Press **Enter**.

| X: 610 | Y: 0 | 18: ZIGZAG ON |
| | | S-PAR: 0 |
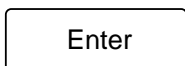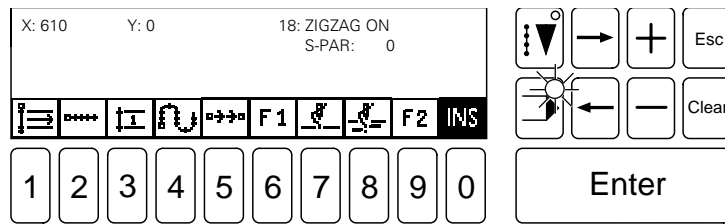
Fig. 11 - 71

F 1 ● Select **Graphical functions**.

2 ● Select STITCH LENGTH function.

0 2 3 ● Enter the value for the stitch length (e. g. 0.23 mm)

Enter ● Press **Enter**.
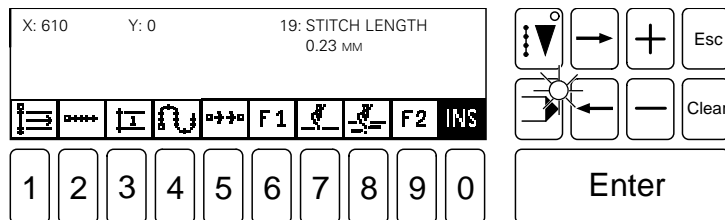
| X: 610 | Y: 0 | 19: STITCH LENGTH |
| | | 0.23 мм |

Fig. 11 - 72

● Select the **Line** function.

● Move to the end point of the line.

Enter ● Press **Enter**.

| X: 546 | Y: 0 | 20: LINE |
| LINE END POINT | (X: 546 | Y: 0) |
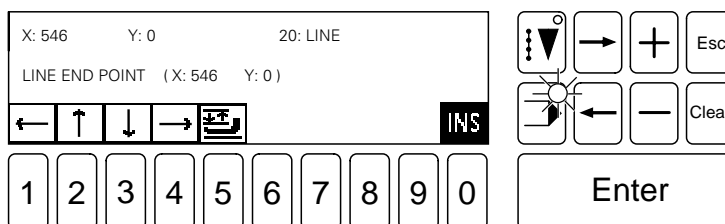
Fig. 11 - 73

Esc ● Press **Esc**.

F 2 ● Select **Machine functions**.

1 ● Select the ZIG-ZAG function.

Enter ● Press **Enter**.

Input mode functions

```
X: 546        Y: 0                    21: ZIGZAG OFF
                                       S-PAR:      0
```
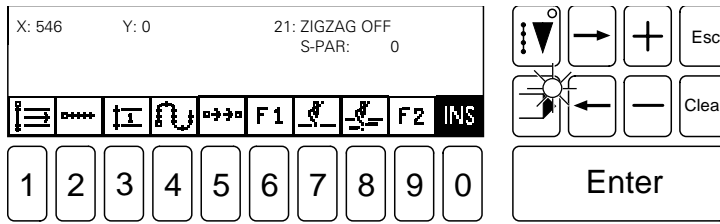
Fig. 11 - 74

● Switch on **Thread trimming**.

```
X: 546        Y: 0                    22: THREAD TRIMMING
```
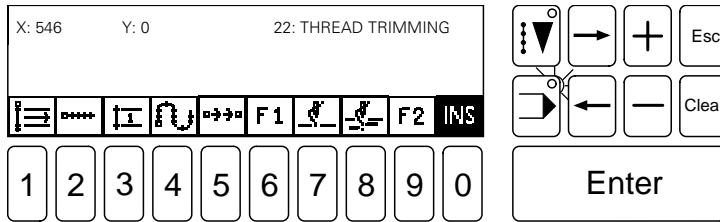
Fig. 11 - 75

● Select INPUT mode to end the seam programming.
  (The seam program is loaded in the machine memory.)

> You must perform the stitch generation in order to be able to sew with the created or modified seam program. Incomplete or faulty programs may be ended without stitch generation. However, when selecting the seam program in the SEWING mode, the respective error message will be displayed.

```
GENERATE STITCHES ?

  0- NO
  1- YES
```
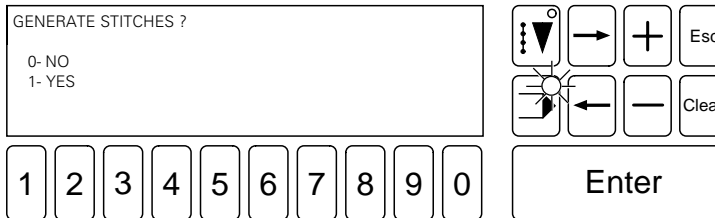
Fig. 11 - 76

1 ● Perform the stitch generation.

> ⚠ Always execute a newly created or modified seam program step by step to make sure that it matches the sewing jig!

● After the respective program number has been entered, the created seam program can be sewn in the SEWING mode.

PFAFF

Contents .... Chapter - Page

Contents .... Chapter - Page

12   Care and maintenance

Clean the entire machine .... weekly

Clean the hook compartment .... several times daily

Clean needle area .... several times daily

Check oil level for sewing head lubrication .... daily before use

Lubricate jig guides ....every 2 months

Lubricating the pocket plate guide ....every 2 months

Clean the blower air filter ....as required

Check air pressure .... daily before use

Clean air filter of the air filter/lubricator unit ....as required

These maintenance intervals are calculated for the average running time of a single-shift operation. If the machine is operated more often, shorter intervals are recommended.

Care and maintenance

12.01 Cleaning the machine

The required cleaning cycle for the sewing machine is dependent on the following factors:

● Single or multi-shift operation
● Accumulation of dust from the various fabrics

Thus, appropriate cleaning instructions can only be determined on an individual basis for each machine.

Fig. 12 - 01
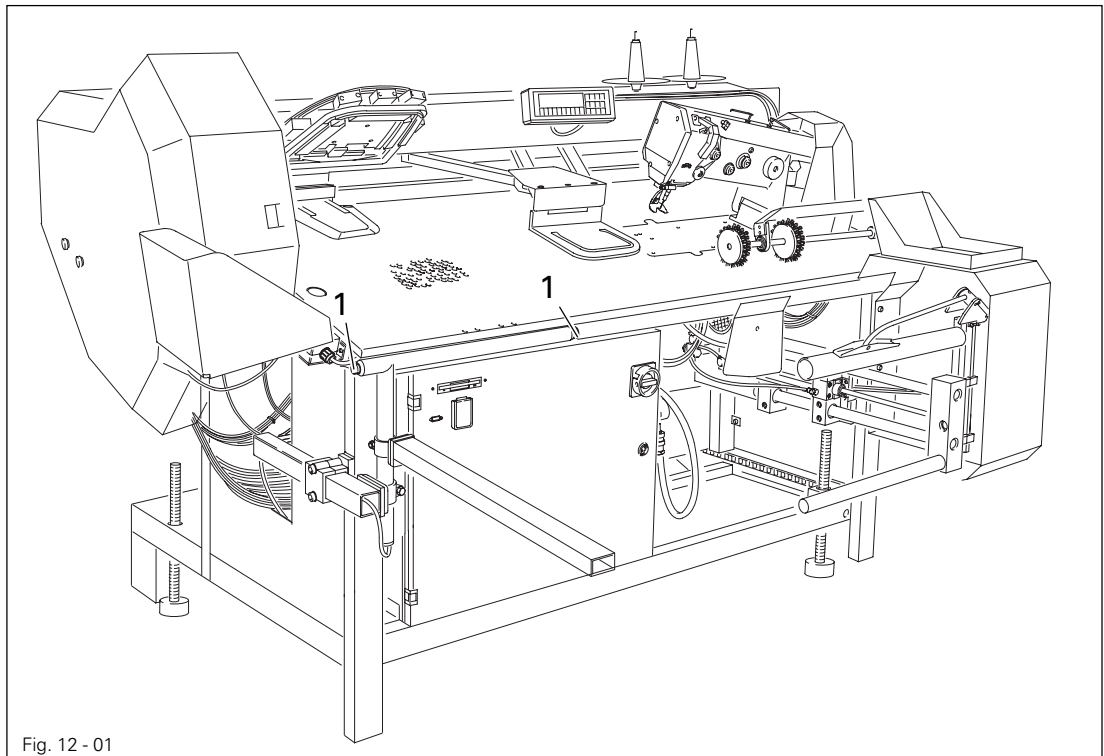
To avoid operation disturbances, we recommend the following cleaning work for a machine in single shift operation:

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

To do this:

● Select SEWING mode.

● Select MANUAL SEWING function (number key 0).

● Select the **change bobbin** function (number key 8).
(Sewing head tilts up / hook compartment cover opens).

● After cleaning is finished, press the double-start keys **1** simultaneously.
(Sewing head tilts down / hook compartment cover closes).
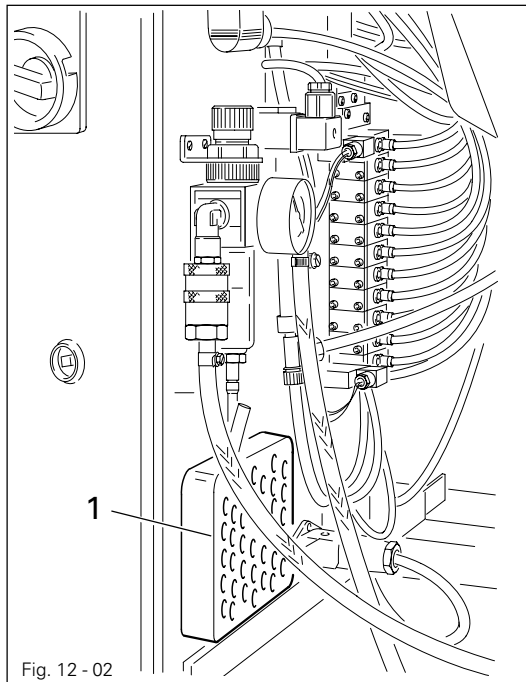
PFAFF

12.02   Cleaning the blower air filter

Fig. 12 - 02

● Remove cover **1**.
● Take out filter element and clean with compressed air.
● Insert the clean filter element and replace cover **1**.

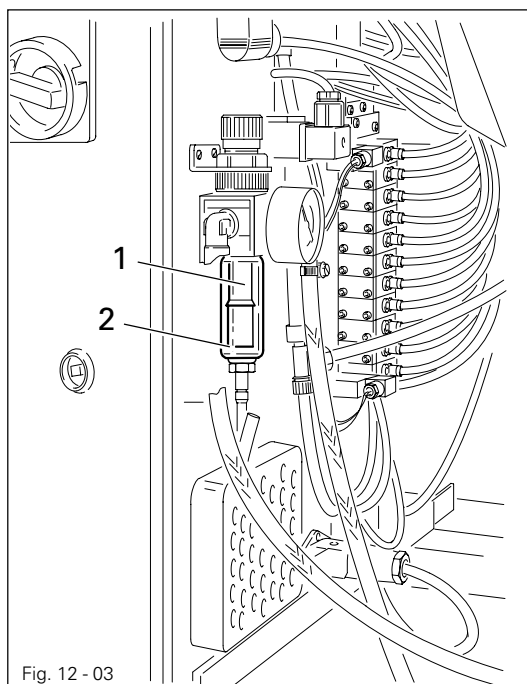## 12.03   Cleaning the air filter of the air filter/lubricator unit

Fig. 12 - 03

The filter element **1** must be cleaned whenever the working pressure of **6 bar** is no longer achieved.

Switch off the machine and ensure that it cannot be switched on accidentally! Turn off compressed air!

● Unscrew drum **2**.
● Remove filter element **1**.
● Clean filer element **1** and drum **2** with benzine.
● Blast filter element **1** from the inside out with compressed air.
● Screw on drum **2**. (Make sure that the seals are positioned properly!)

Care and maintenance
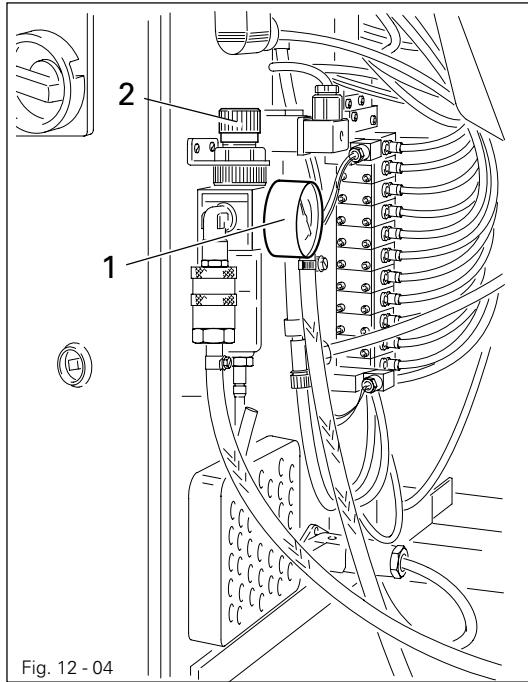
12.04 Checking / regulating air compression

Fig. 12 - 04

⚠ The manometer **1** must indicate a pressure of **6 bar**!

● Always check the air compression on the manometer **1** before operating the machine.
● When required, adjust this value by turning control **2**.

ℹ When the compressed air is turned off, the water trap is emptied automatically. Place a suitable container underneath the opening.

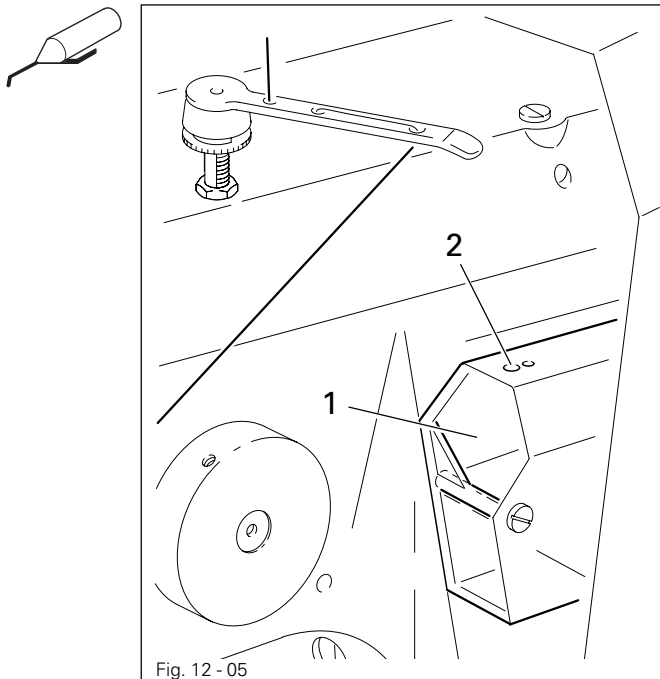### 12.05 Checking the oil level of the sewing head lubrication

Fig. 12 - 05

● The oil level in drum **1** must be checked daily before use of the machine.
● The oil level must be between the upper and lower markings of drum **1**.
● When necessary, pour oil through hole **2**.

⚠ Only use oil with a mean viscosity of 22.0 mm^2/s at 40°C and a density of 0.865 g/cm^3 at 15°C.

● Before the machine is first operated or whenever the machine has been at a standstill for a longer period of time, also add a few drops of oil to the hook race.
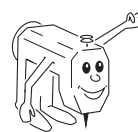
We recommend PFAFF sewing machine oil, part no. 280-1-120 144.

12.06   Lubricating sewing jig feed

Fig. 12 - 06

Switch off the machine
and ensure that it cannot be switched on accidentally!

Only use Isoflex Topas L32, high-performance grease, part No. 280-1-120 210.

● Unscrew the cover of the sewing jig feed.
● Grease the guides via grease nipple **1**, **2** and **3** using a grease gun every 2 months for single-shift operation and monthly for double-shift operation.
● Screw on cover.

Care and maintenance

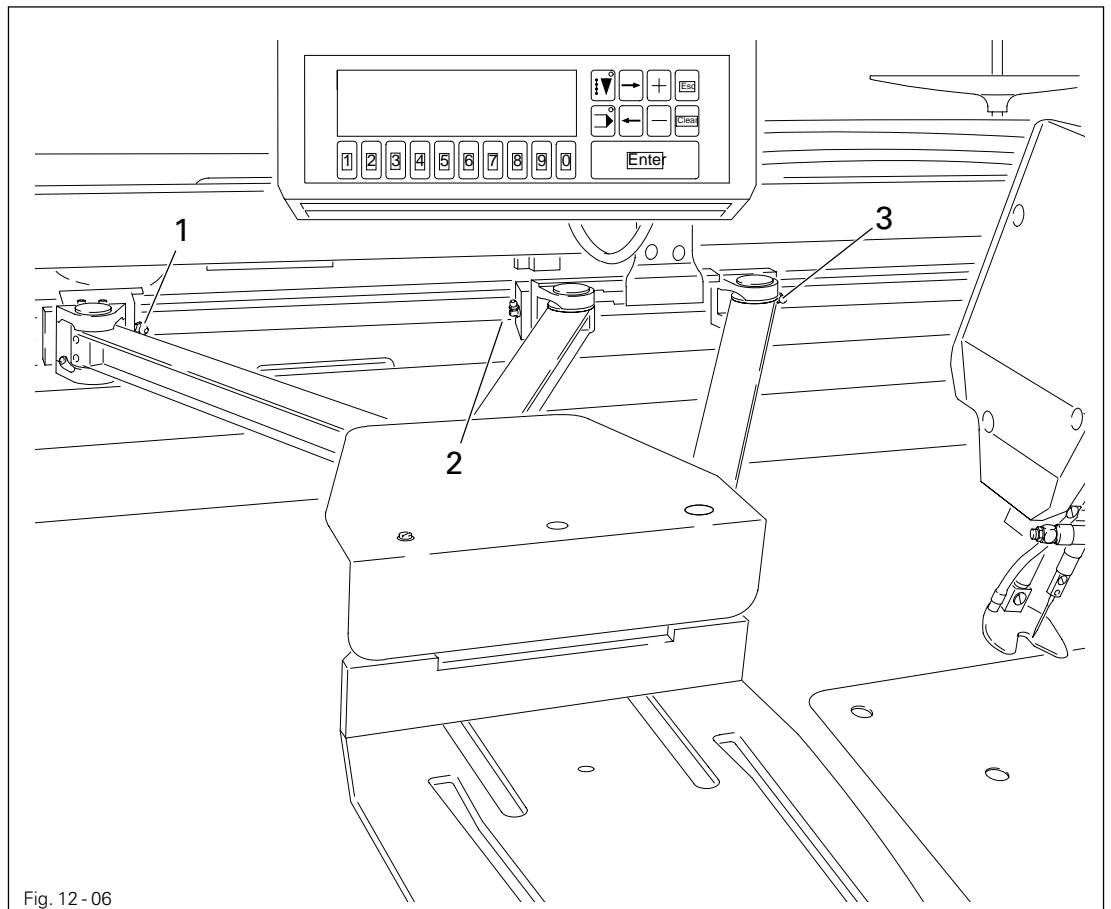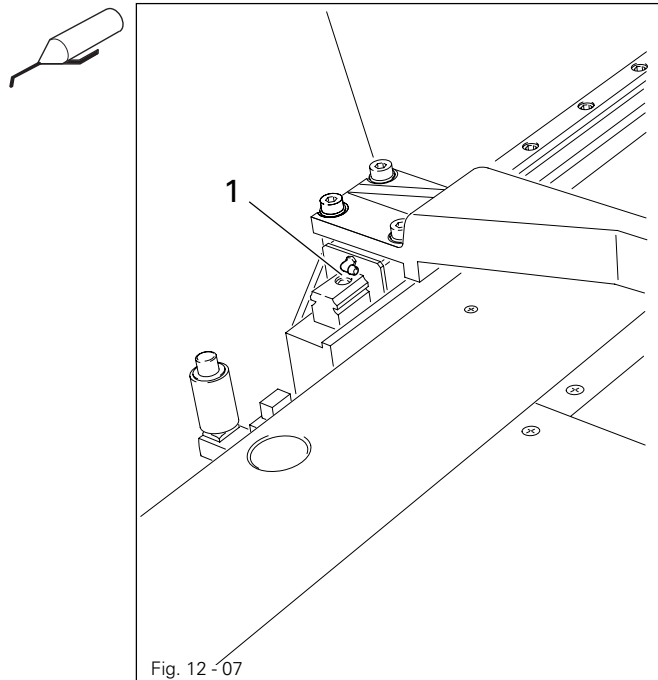### 12.07 Lubricating the pocket plate guide

Fig. 12 - 07

Switch off the machine and ensure that it cannot be switched on accidentally!

Only use Isoflex Topas L32, high-performance grease, part No. 280-1-120 210.

● Grease the guide at grease nipple 1 using a grease gun every two months for single-shift operation and monthly for two-shift operation.

PFAFF

13   Adjustment

⚠️ Before beginning any adjustment work, take note of the safety regulations found in **chapter 1 Safety** of this instruction manual!

13.01   Notes on adjustments

All adjustments in these adjustment instructions are based on a completely assembled machine and must only be carried out by appropriately trained specialists. Covers on the machine which have to be removed for checks and adjustment work and later remounted are not mentioned. The parts in () are for securing machine parts and must be loosened before the adjustment and retightened after all adjustments are carried out.

13.02   Tools, gauges and other accessories

- 1 set of screwdrivers with blade widths from 2 to 10 mm
- 1 set of wrenches with jaw widths from 6 to 22 mm
- 1 set of Allan keys from 1.5 to 6 mm
- 1 universal screwdriver with interchangeable blades
- 1 metal ruler
- 1 adjustment pin (zero point adjustment)
- 1 adjustment gauge (for sewing head adjustments)
- 1 adjustment gauge (for adjustments to feed)
- 1 needle rise gauge, part no. 61-111 600-01
- 1 adjustable clamp, part no. 08-880 137 00
- Sewing thread and test material
- Needles

13.03   Abbreviations

TDC = top dead center
BDC = bottom dead center

13.04   Removing/inserting sewing head

⚠ Turn off compressed air!
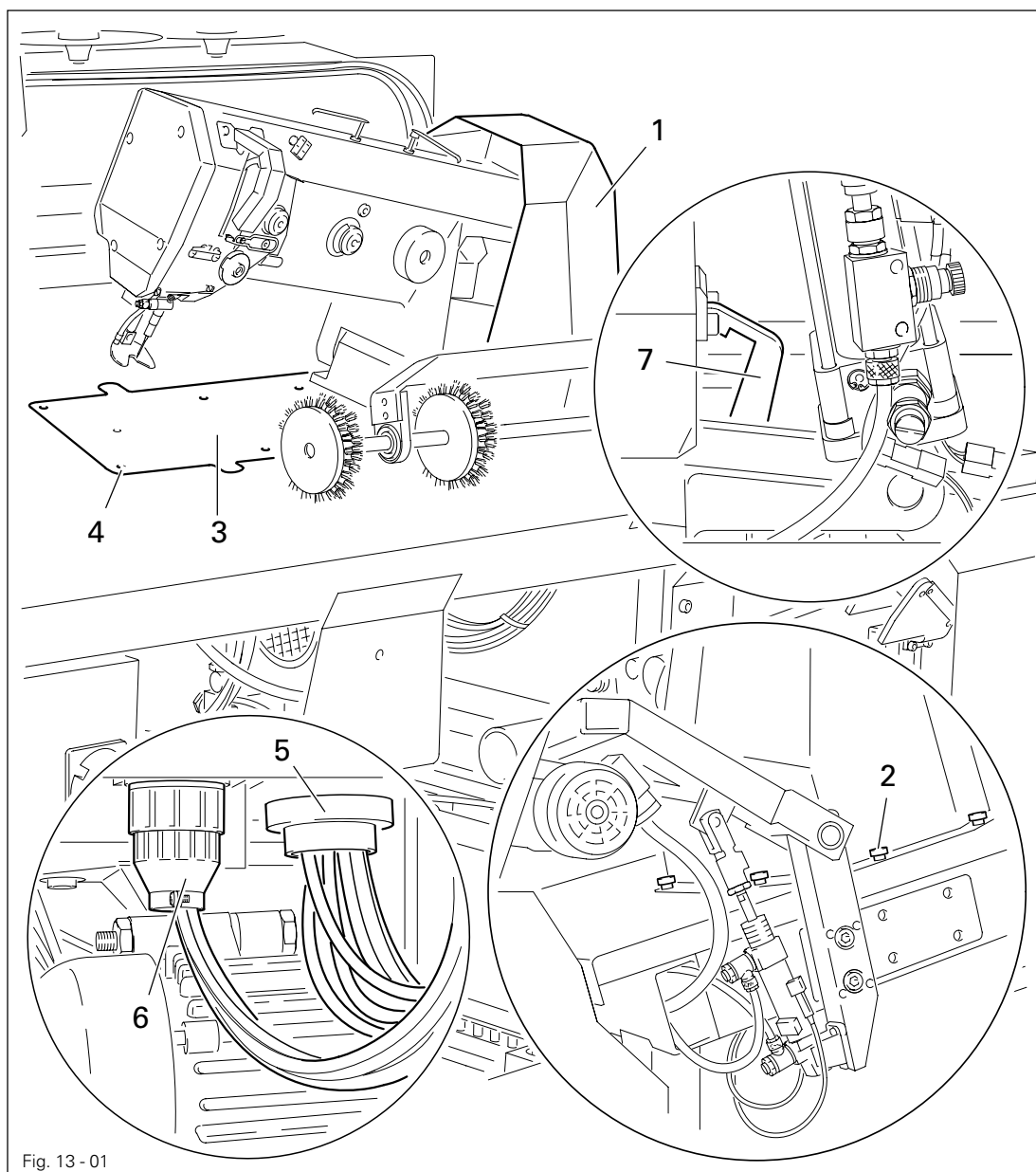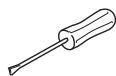Switch off main switch and ensure that it cannot be turned back on accidentally.

Fig. 13 - 01

● To remove the sewing head, remove the protective cover **1** (screws **2**).
● Remove the cover plate **3** (screws **4**; 6 screws altogether)
● Unplug pneumatic power supply **5** and electrical power supply **6**.
● Unhook catch **7** and fold down sewing head.
● Remove V-belt from belt pulley on motor.
● Remove the ground cable of the sewing head.
● Lift sewing head and remove from its bracket.
● To insert the sewing head, carry out the steps above in reverse.

13.05 Adjusting the sewing head

13.05.01 Spacing between sewing head and bedplate

> **Requirement**
> When the sewing head is lowered, the distance from the lower edge of the shaft **1** to the bedplate must be **132.8 mm.**
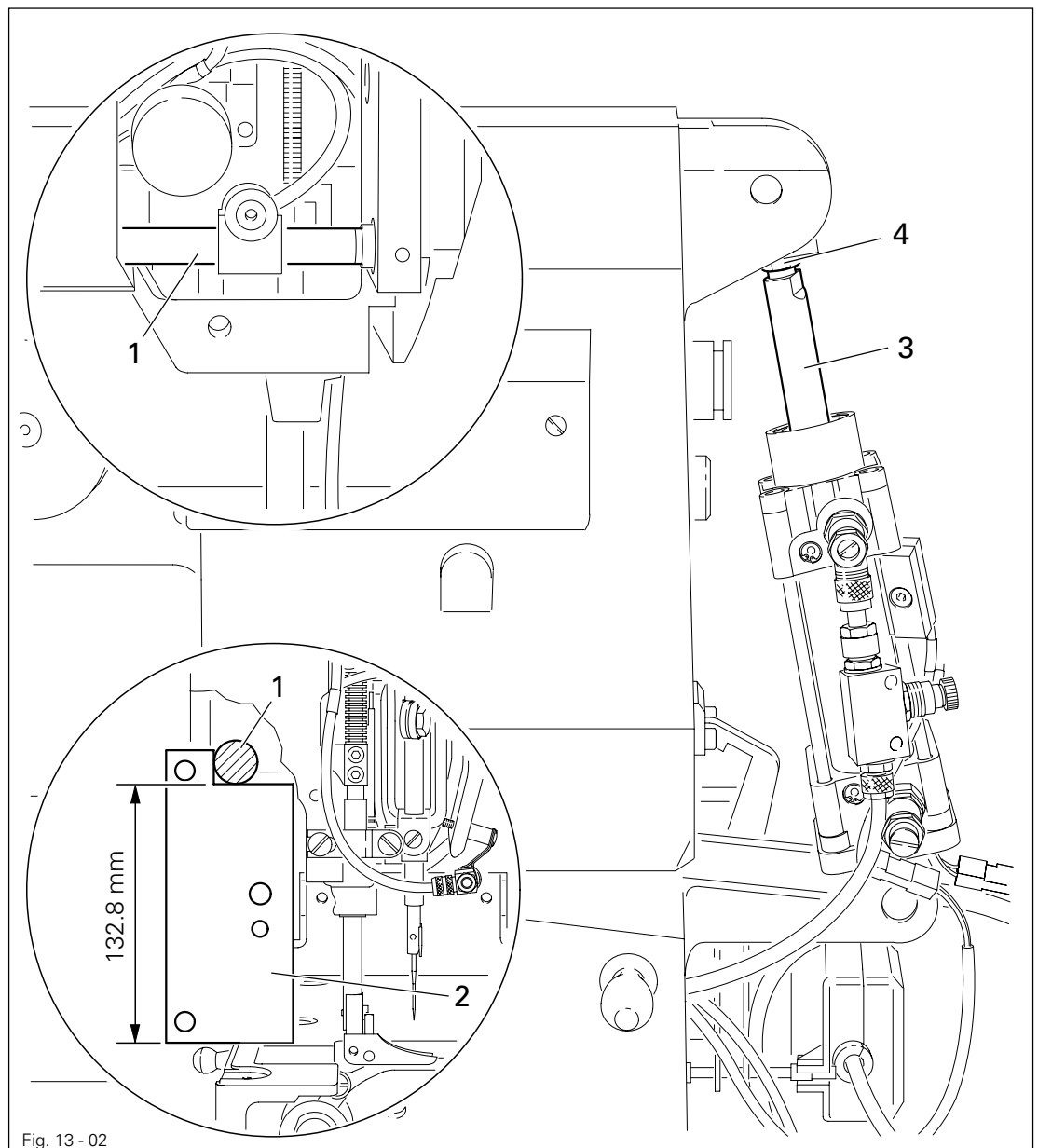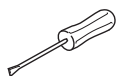

Fig. 13 - 02

● Check the distance between the shaft **1** and the bedplate using adjustment gauge **2**.
● If required, turn plunger **3** (nut **4**) according to the **requirement.**

Adjustment

> **Requirement**
> When the sewing head is lowered, after the screws **3** have been loosened, the presser
> bar **4** must pass exactly through the corresponding hole in the adjustment gauge **1**.
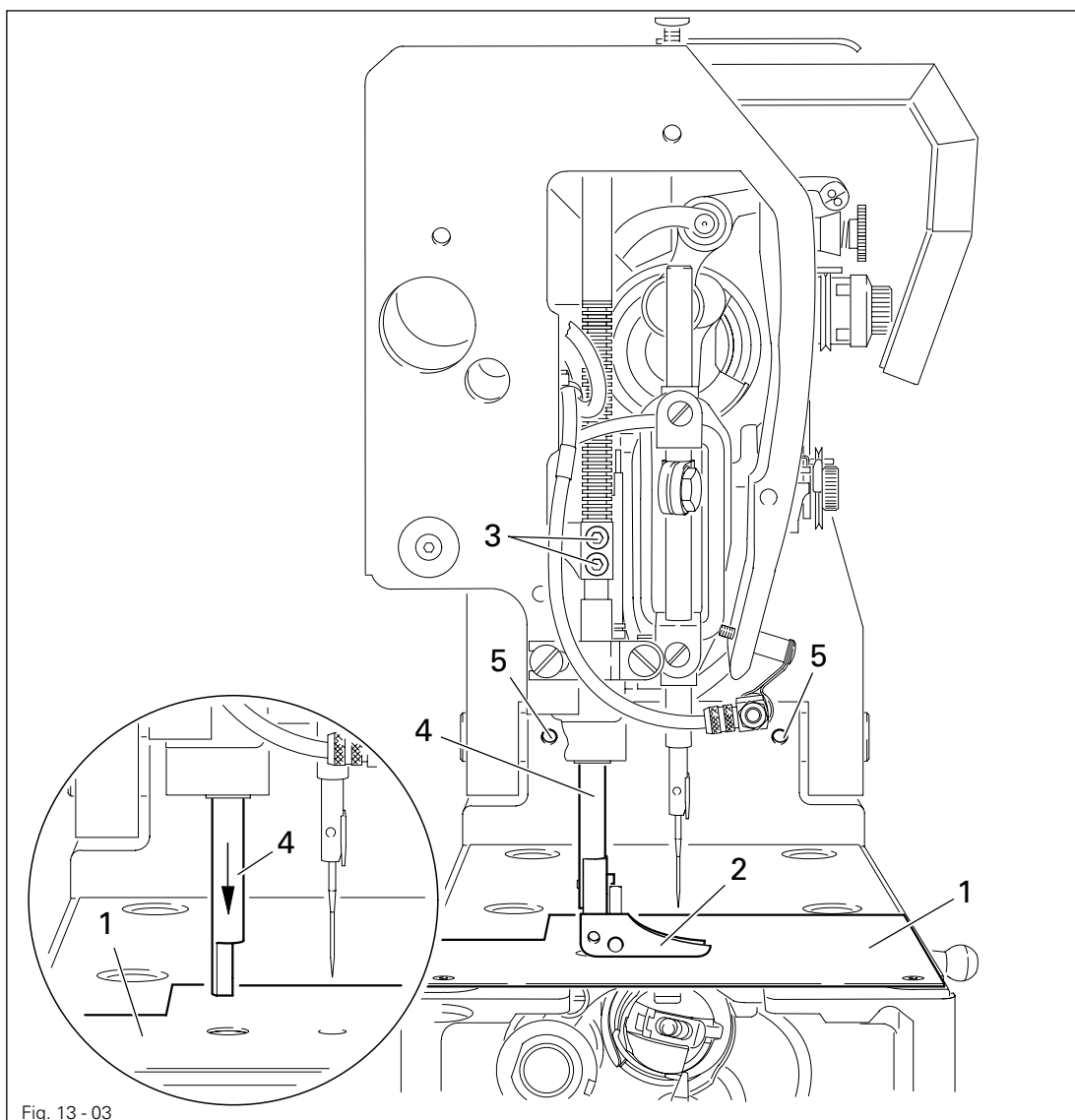
Fig. 13 - 03
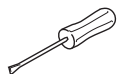
● Unscrew needle plate and screw on adjustment gauge **1**.
● Unscrew presser **2**.
● Loosen screws **3** and guide presser bar **4** into the hole in the adjustment gauge **1**.
● If required, move sewing head (screws **5**) according to the **requirement.**
● Move presser bar **4** back to its original position and tighten screws **3** lightly.

> Adjustment gauge **1** remains screwed on for further adjustments.
> The precise adjustment of the presser bar **4** is described in **chapter 13.05.18**
> **Presser height.**

13.05.03 Upper and lower toothed belt guards

Requirement
The upper and lower toothed belt guards must be positioned as close as possible over the toothed belt sprockets without touching them.
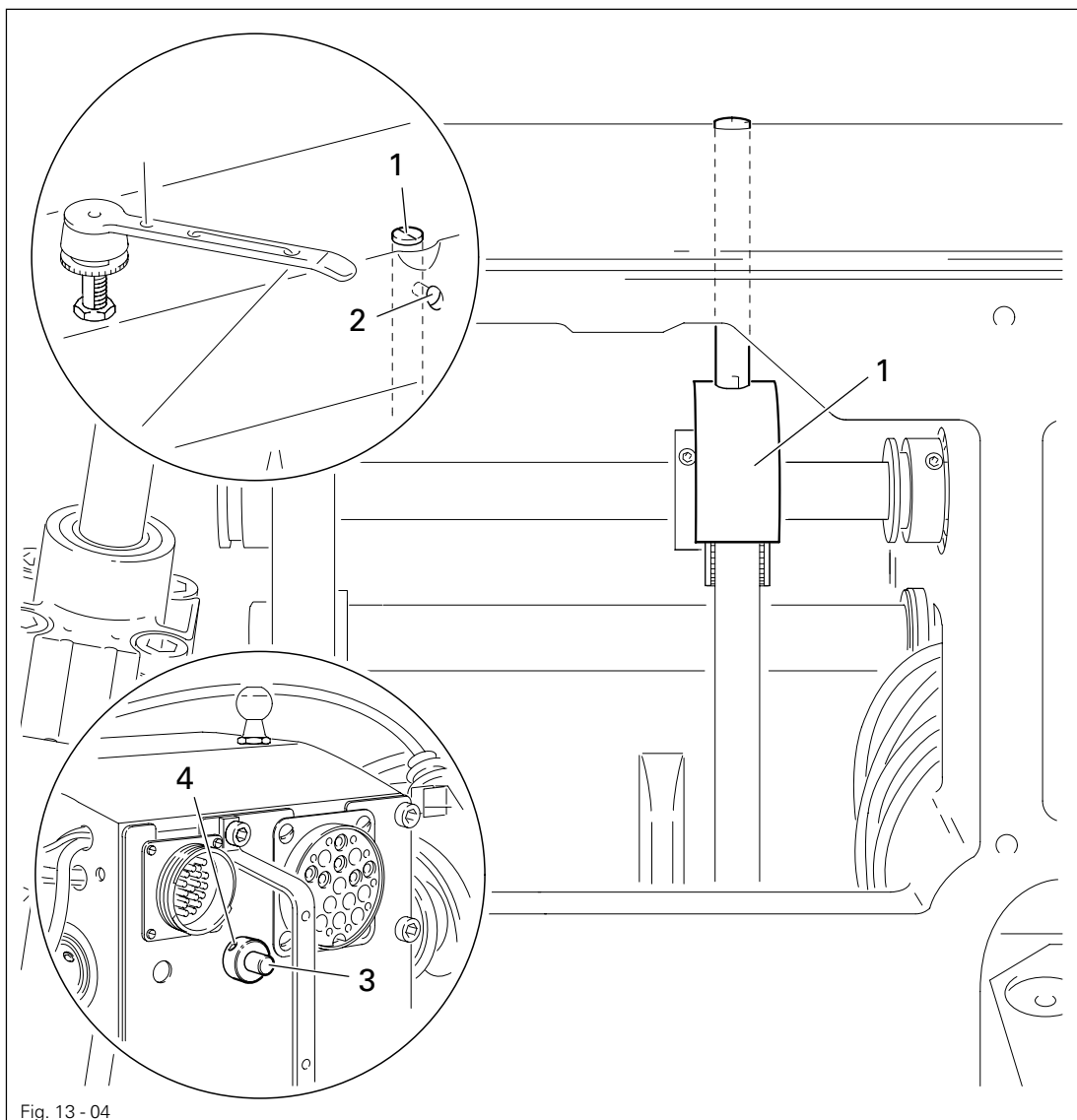
Fig. 13 - 04
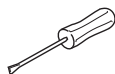
● Move the upper **1** (screw **2**) and lower toothed belt guards **3** (screws **4**) at the underside of the sewing head according to the **requirement.**

⚠ Carry out the adjustment carefully!
Otherwise, when the sewing head is raised up, the toothed belt could disengage!

Adjustment

13.05.04 Counterweight

> **Requirement**
> In needle bar position BDC the largest eccentricity of the counterweight **1** must be at the top.
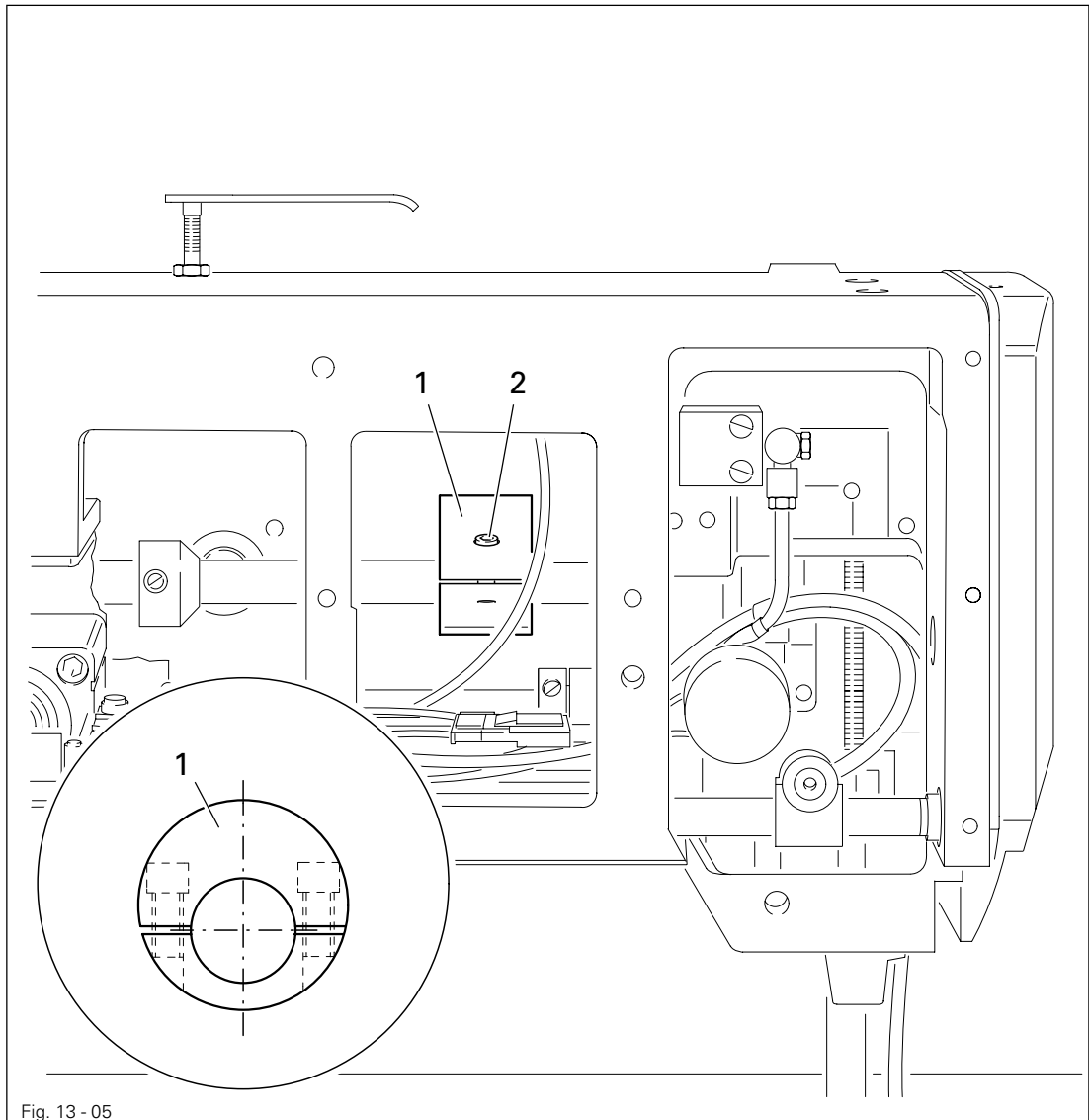
Fig. 13 - 05
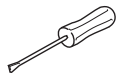
● Move needle bar to BDC.
● Turn counterweight **1** (screws **2**) according to the **requirement.**

13.05.05   Preadjusting the needle height

Requirement

At needle bar position TDC, the distance between the needle point and the adjustment
gauge must be approx. **22 mm.**

Fig. 13 - 06
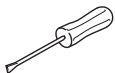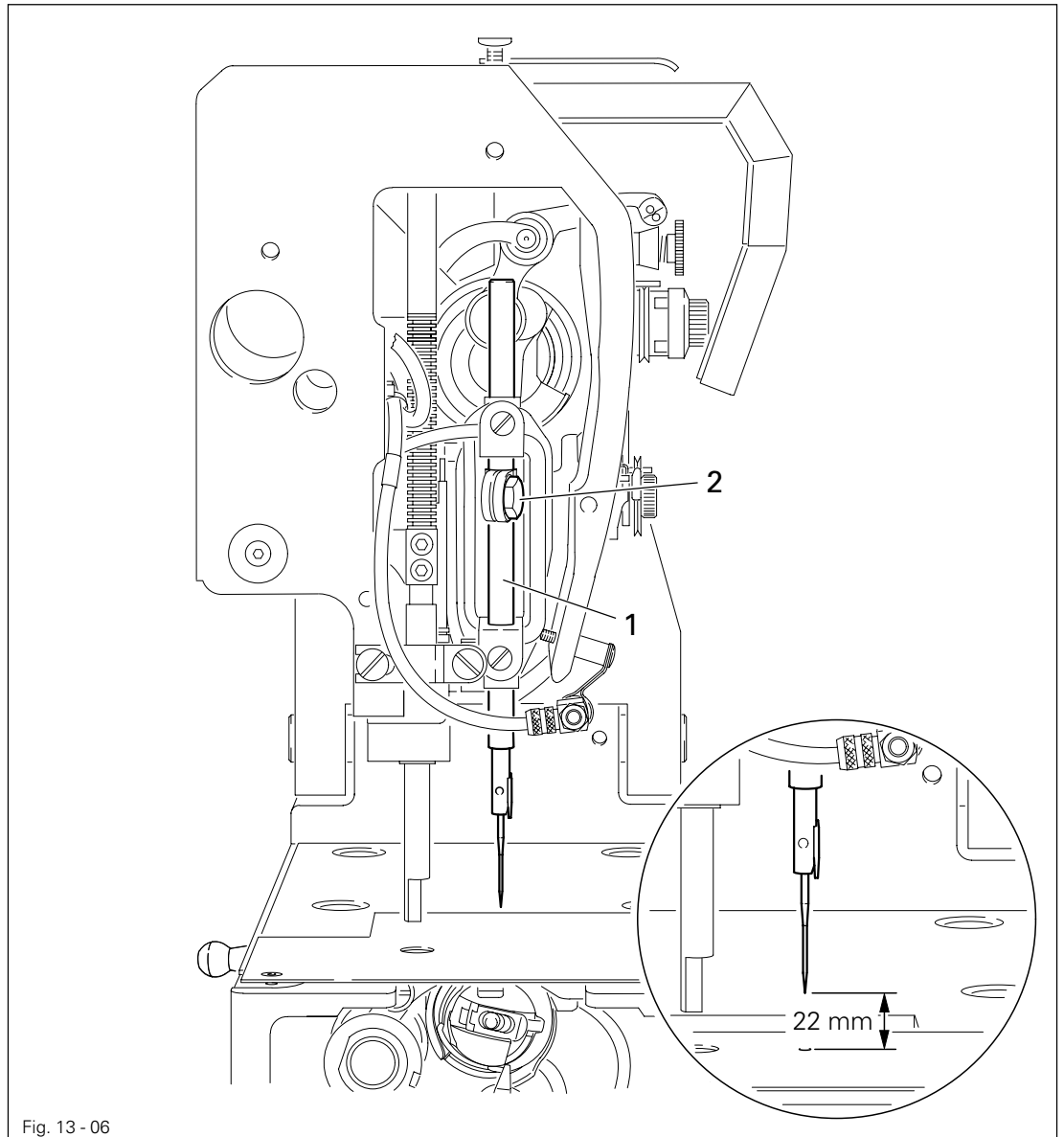
● Move needle bar **1** (screws **2**) without twisting it according to the **requirement.**

Adjustment

Centering the needle in the needle hole

Requirement
The adjustment pin **1** must fit precisely into the corresponding adjustment hole of the
adjustment gauge **6**.

Fig. 13 - 07
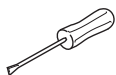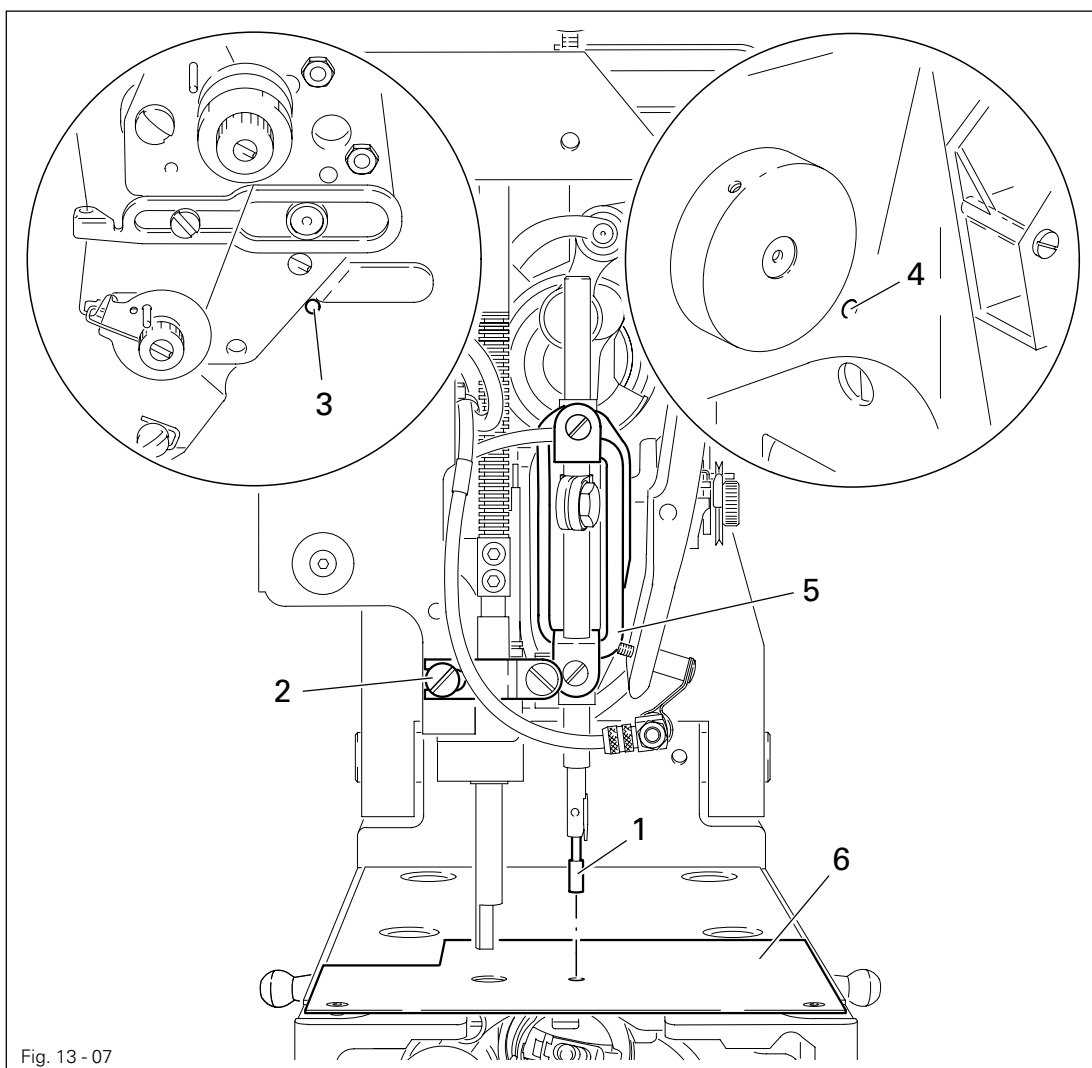
- Insert adjustment pin **1** into the needle bar and screw tight.
- Loosen screws **2**, **3** and **4**.
- Move needle bar frame **5** according to the **requirement.**
- Tighten screws **2**, **3** and **4**.
- Unscrew adjustment gauge **6** and adjustment pin **1**.

13.05.07   Needle bar rise, hook-to-needle clearance, needle height and bobbin case position finger

Requirement
With the needle bar 2.2 past BDC,
1. the hook point must be at the **middle of the needle**; the distance between the needle and the hook point must be from **0.05** to **0.1 mm.**
2. the top edge of the needle eye must be **1.0 mm** below the hook point.
3. there must be a distance of **0.5 mm** between the lug of the bobbin case position finger **3** and the bottom of the position finger groove.
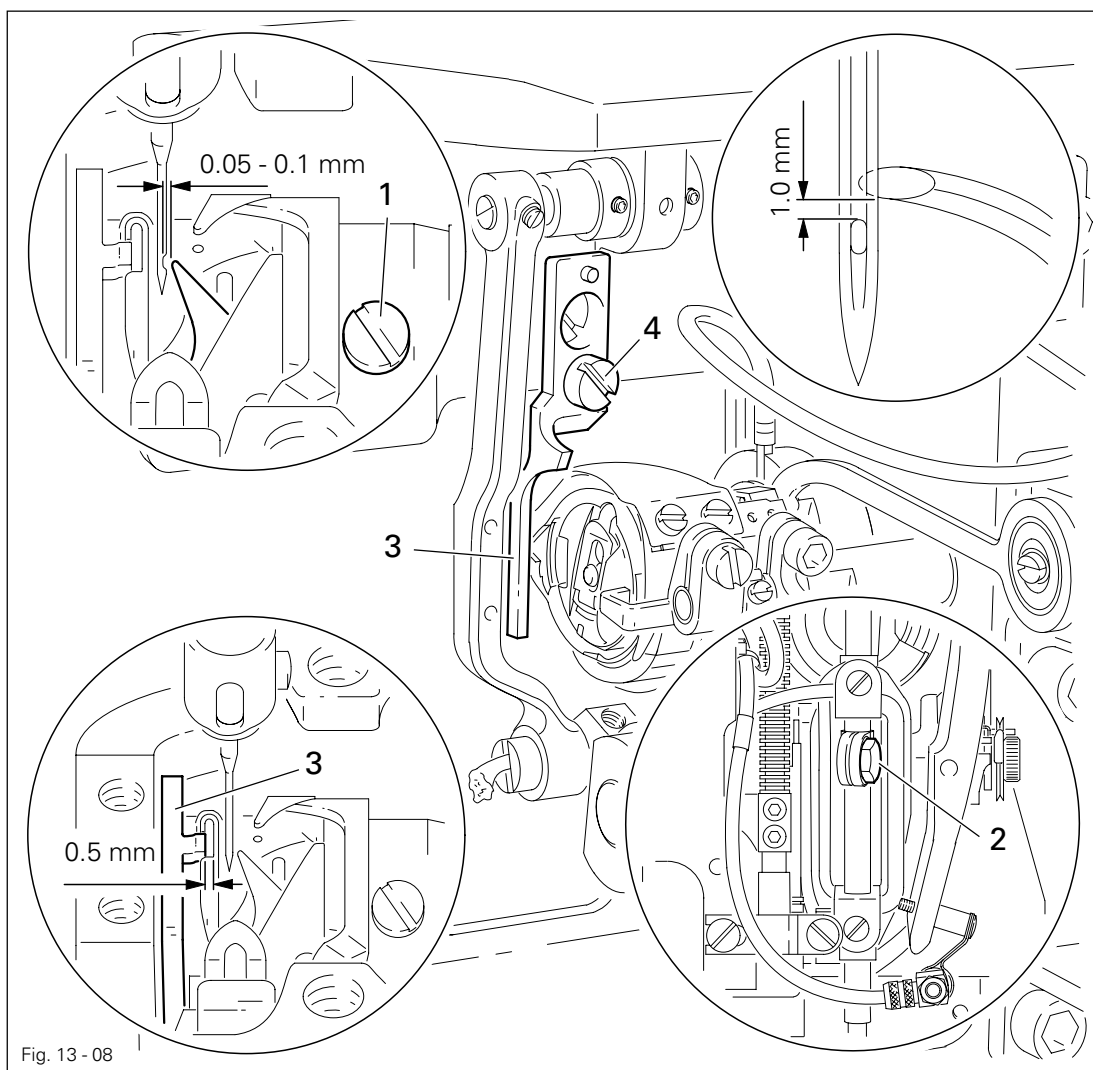
Fig. 13 - 08
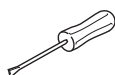
● Move the needle bar to BDC.
● In this position, slide the 2.2 mm thick feeler gauge of the needle bar rise gauge closely under the needle bar bearing.
● Move adjustable clamp (part no. 08-880 137 00) against feeler gauge as far as possible and screw it onto the needle bar.
● Remove the feeler gauge and turn the handwheel **3** in the direction of rotation until the adjustable clamp is resting on the needle bar.
● Adjust the hook (screws **1**) according to **requirement 1**.
● Move needle bar (screw **2**) without twisting it according to **requirement 2**.
● Align bobbin case position finger **3** (screw **4**) according to **requirement 3**.

Adjustment

Bobbin case opener height

> **Requirement**
> At its left point of reversal, the bobbin opener **3** must be flush with the upper edge of the
> lug of the bobbin case base.
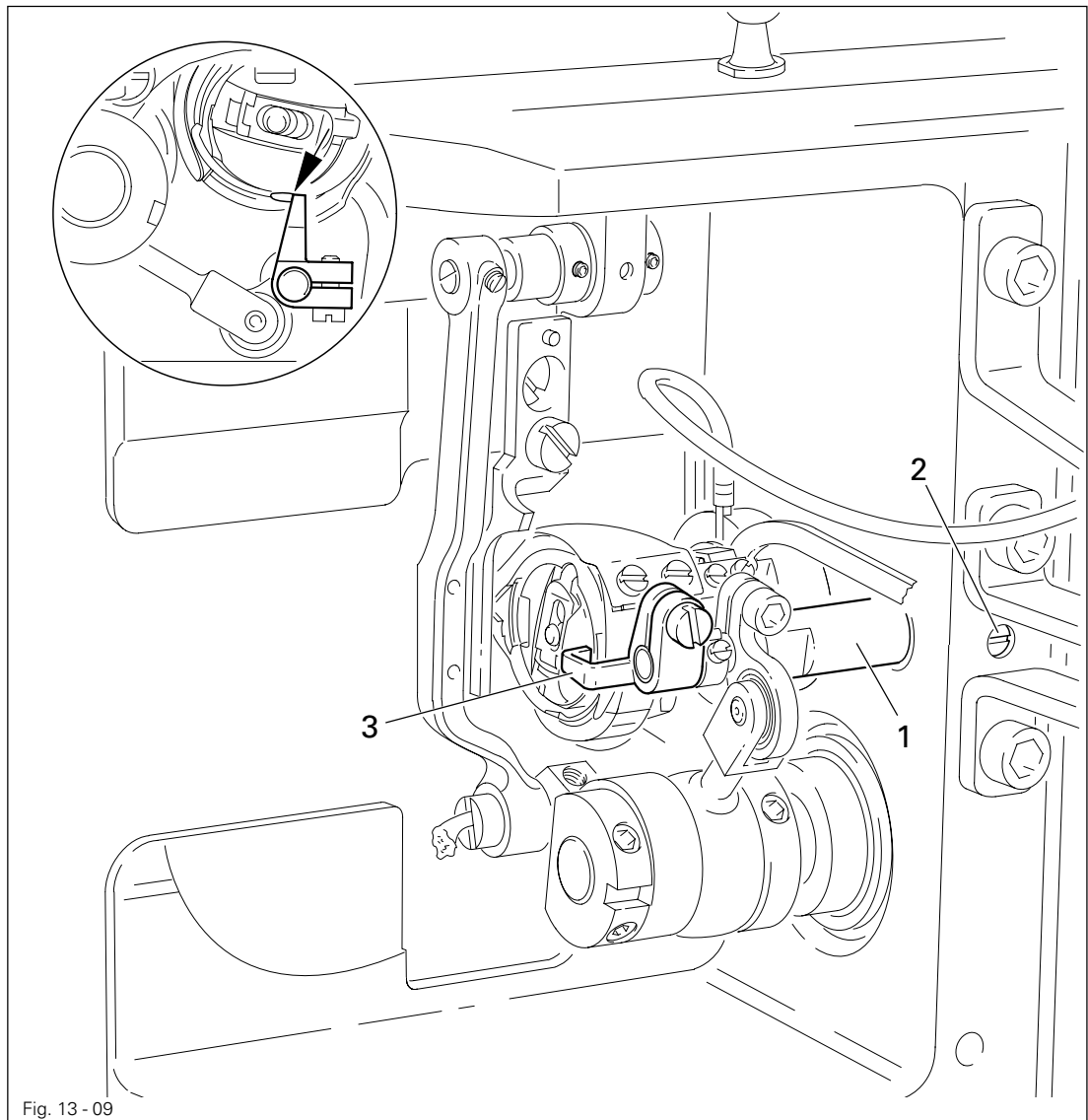
Fig. 13 - 09
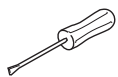
● Turn the bobbin opener bearing **1** (screw **2**) according to the **requirement.**

PFAFF

13.05.09   Bobbin case opener position

Requirement

At the left point of reversal of the bobbin case opener **2**,

1. the distance between the bobbin case opener **2** and the edge of the bobbin case base must be approx. **0.8 mm.**
2. the distance between the bobbin case base and the lug of the position finger **5** must be approx. **0.3 mm**.
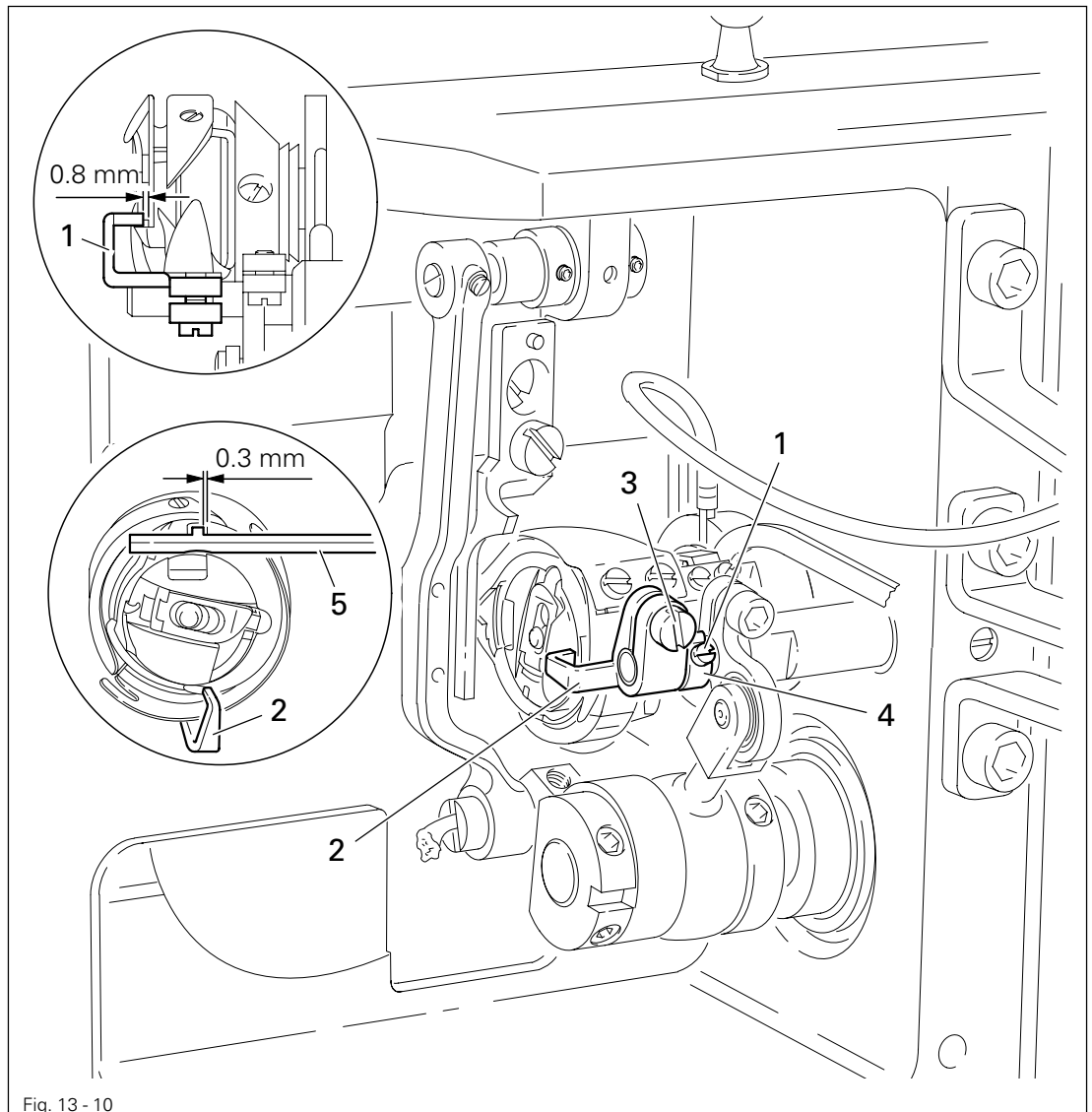
Fig. 13 - 10
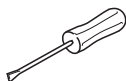
● Loosen screw **1**.
● Move bobbin case opener **2** (loosen screw **3** slightly) according to **requirement 1** and/or turn according to **requirement 2**.
● Move retaining collar **4** against bobbin case opener **1** as far as possible and tighten screw **1**.

Adjustment

13.05.10   Bobbin case opener movement

> **Requirement**
> With the needle bar positioned 2.2 after BDC (needle bar rise), the bobbin case opener **3** must be at its right point of reversal.
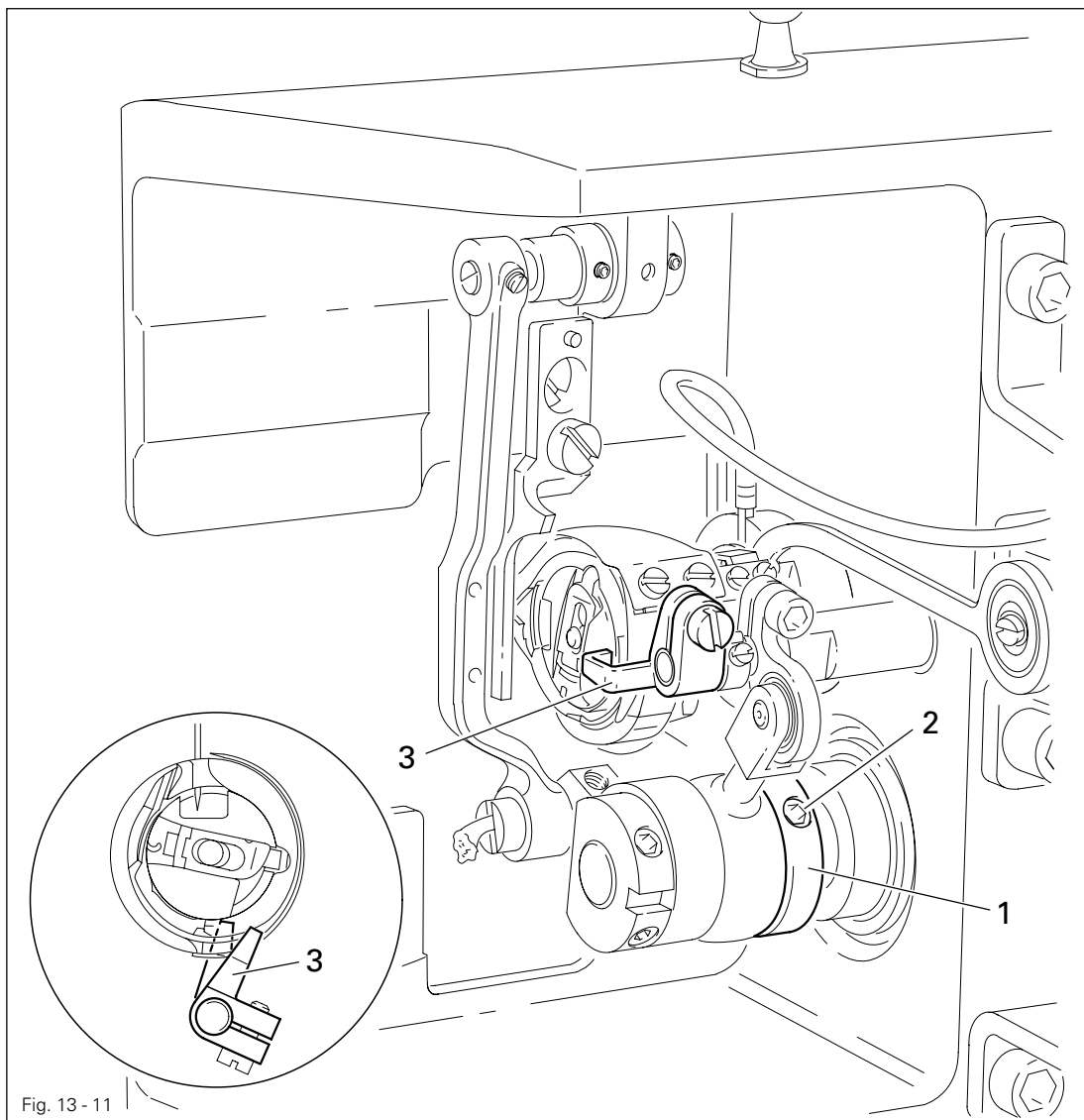
Fig. 13 - 11
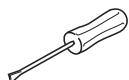
● Adjust the eccentric **1** (screws **2**) according to the **requirement.**

ℹ️ A screwdriver can be inserted in the jamming slot of the bobbin case opener **3** to make it easier to observe the movement of the bobbin case opener.

13.05.11   Counter presser lifting stroke

Requirement
At needle bar position BDC, the counter presser **3** must be positioned at its top point of reversal, and the eccentric cutout **1** must be approx. perpendicular under the middle of the axle.

Fig. 13 - 12
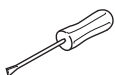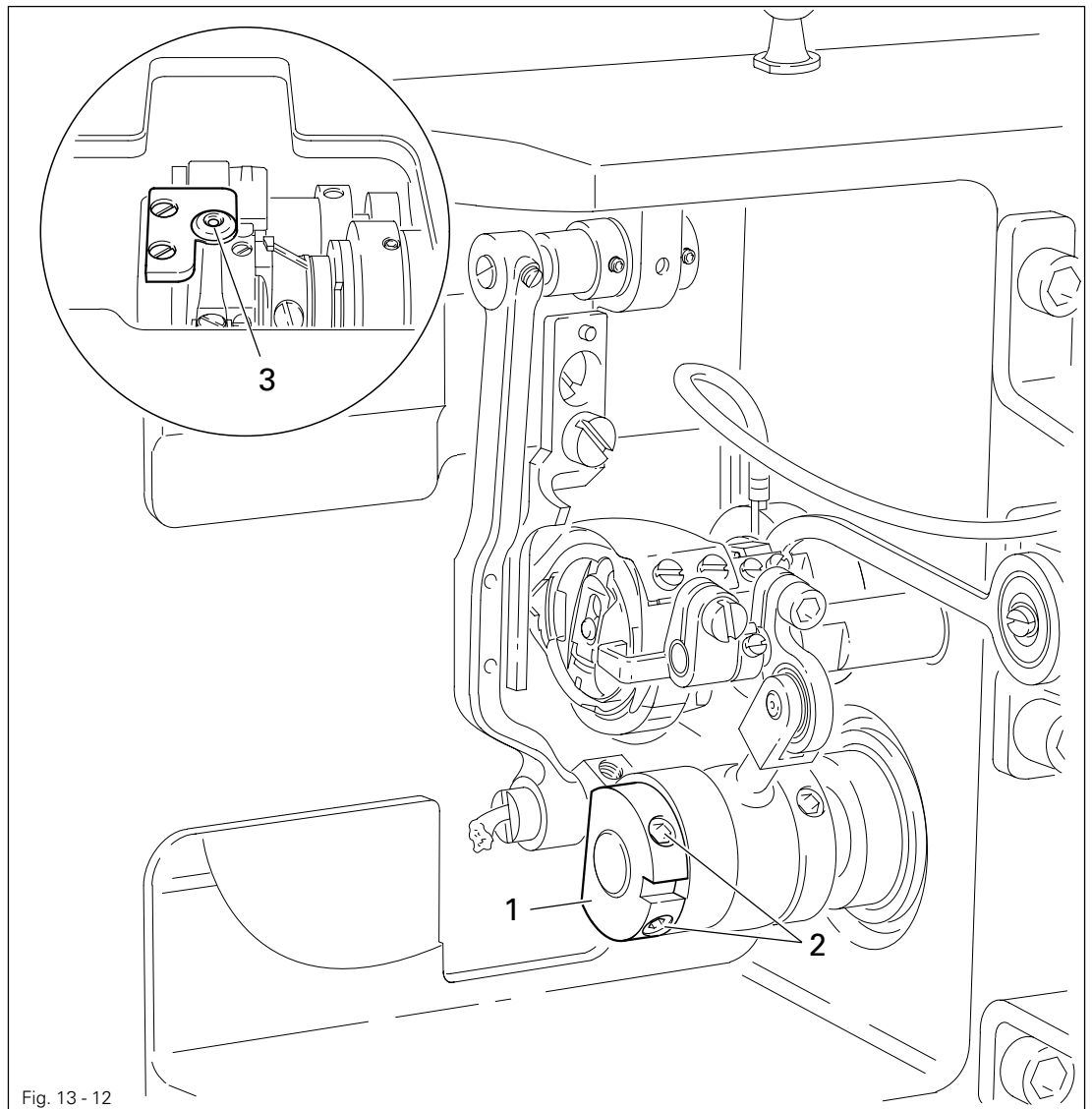
● Move needle bar to BDC.
● Turn eccentric **1** (screws **2**) according to the **requirement.**

Adjustment

13.05.12   Counter presser height

> **Requirement**
>
> When the needle bar is at BDC, the top edge of the counter presser **6** must be **1 mm** over the closed hook compartment cover **1**.
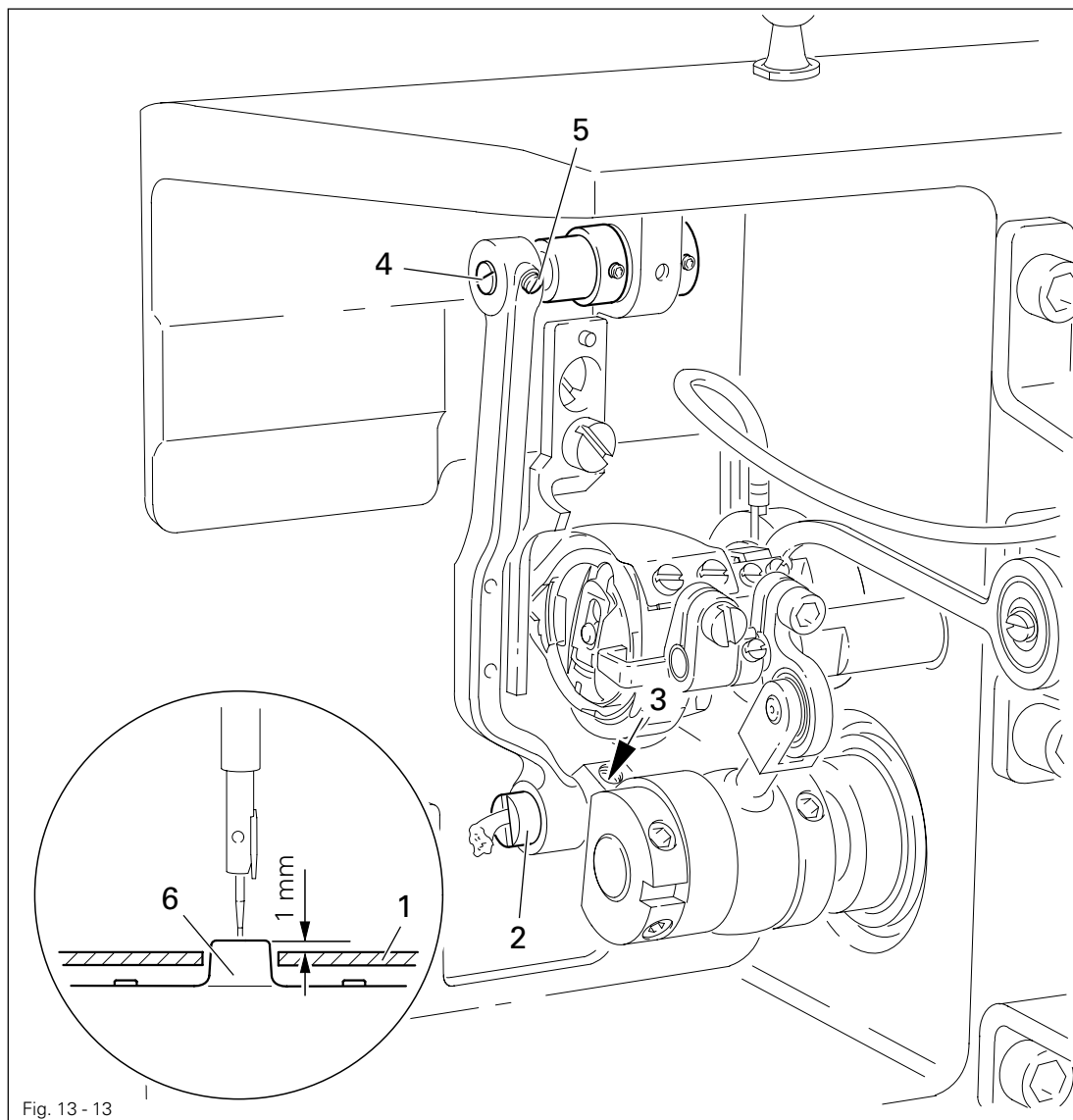
Fig. 13 - 13
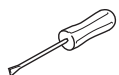
● Fit hook compartment cover **1**.

● Turn eccentric **2** (screw **3**) and eccentric pin **4** (screw **5**) according to the **requirement.**

13.05.13   Counter presser position

> **Requirement**
> When the needle penetrates, it must be centered in the needle hole of the counter presser **1**.
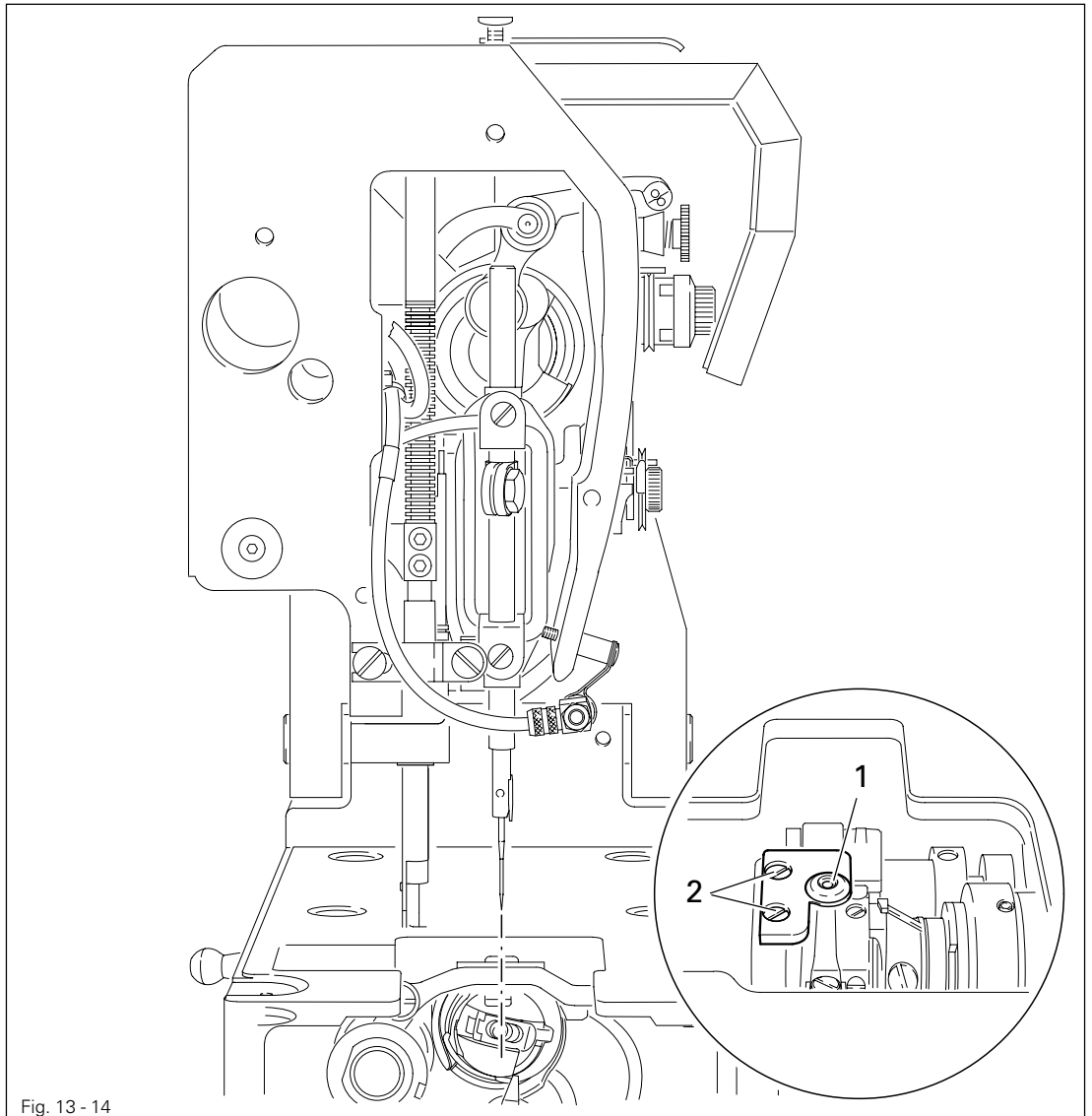
Fig. 13 - 14
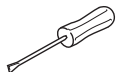
● Adjust the counter presser **1** (screws **2**) according to the **requirement.**

Adjustment

Lateral alignment of the thread catcher

> **Requirement**
> 1. The tip of the thread catcher **3** must point exactly to the center of the needle; however, if required, it may deviate to the left of the needle center by up to **0.3 mm**.
> 2. The thread catcher **3** must not graze anything when it is moving.
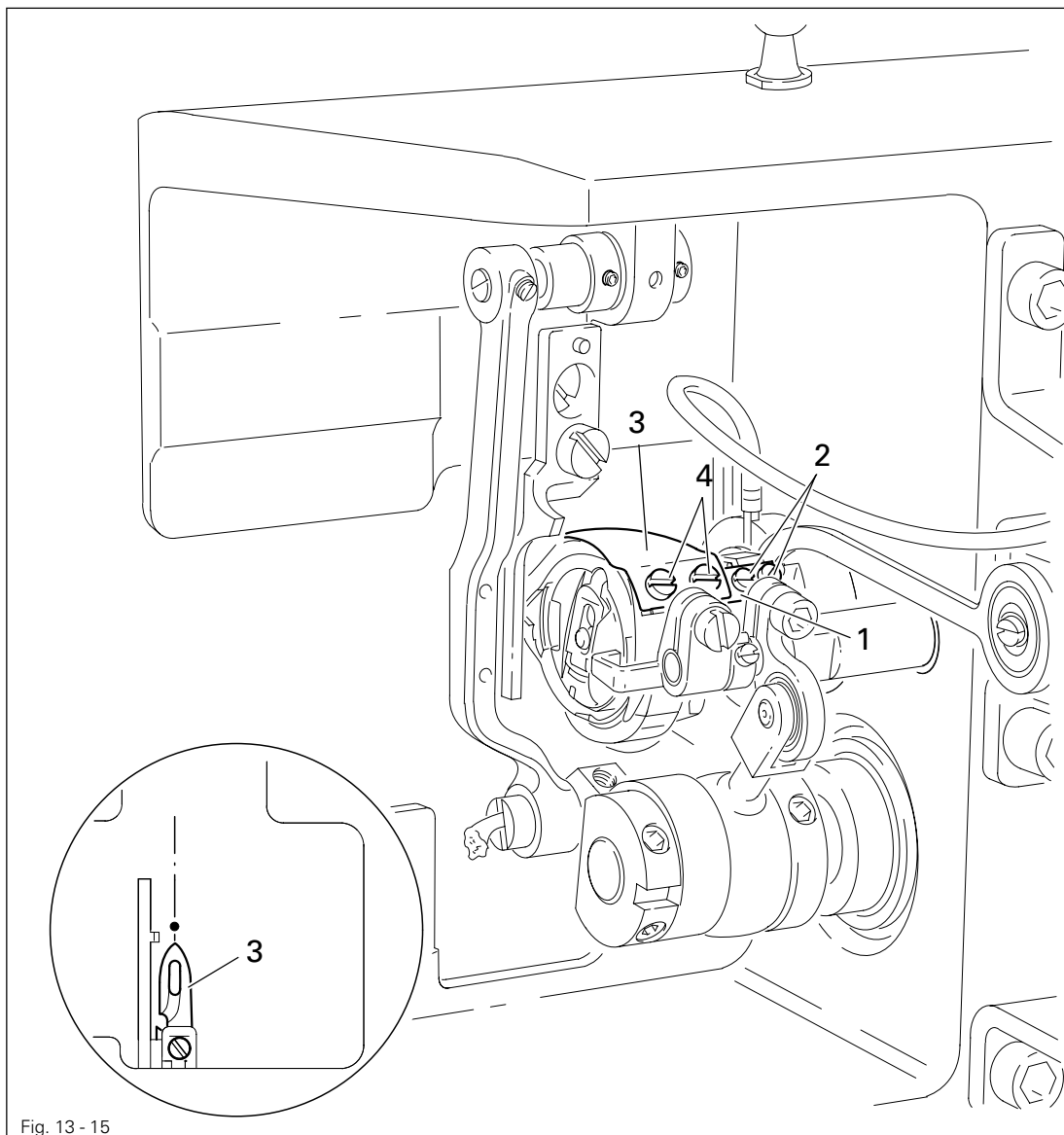
Fig. 13 - 15
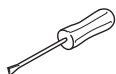
● Bring the needle bar to BDC.
● Remove the thread catcher stop **1** (screws **1**).
● Position the tip of the thread catcher **2** in front of the needle by hand.
● Align the thread catcher **3** (screws **4**) laterally according to **requirement 1**. Make sure that the back of the thread catcher is horizontal.

| | Thread catcher stop **1** remains disassembled for further adjustments. |

13.05.15   Front reversal point of the thread catcher

Requirement
When the thread catcher **6** is at its front reversal point, the back edge of the thread catcher cutout must be positioned **1** to **1.5 mm** in front of the front edge of the bobbin case position finger **7**.
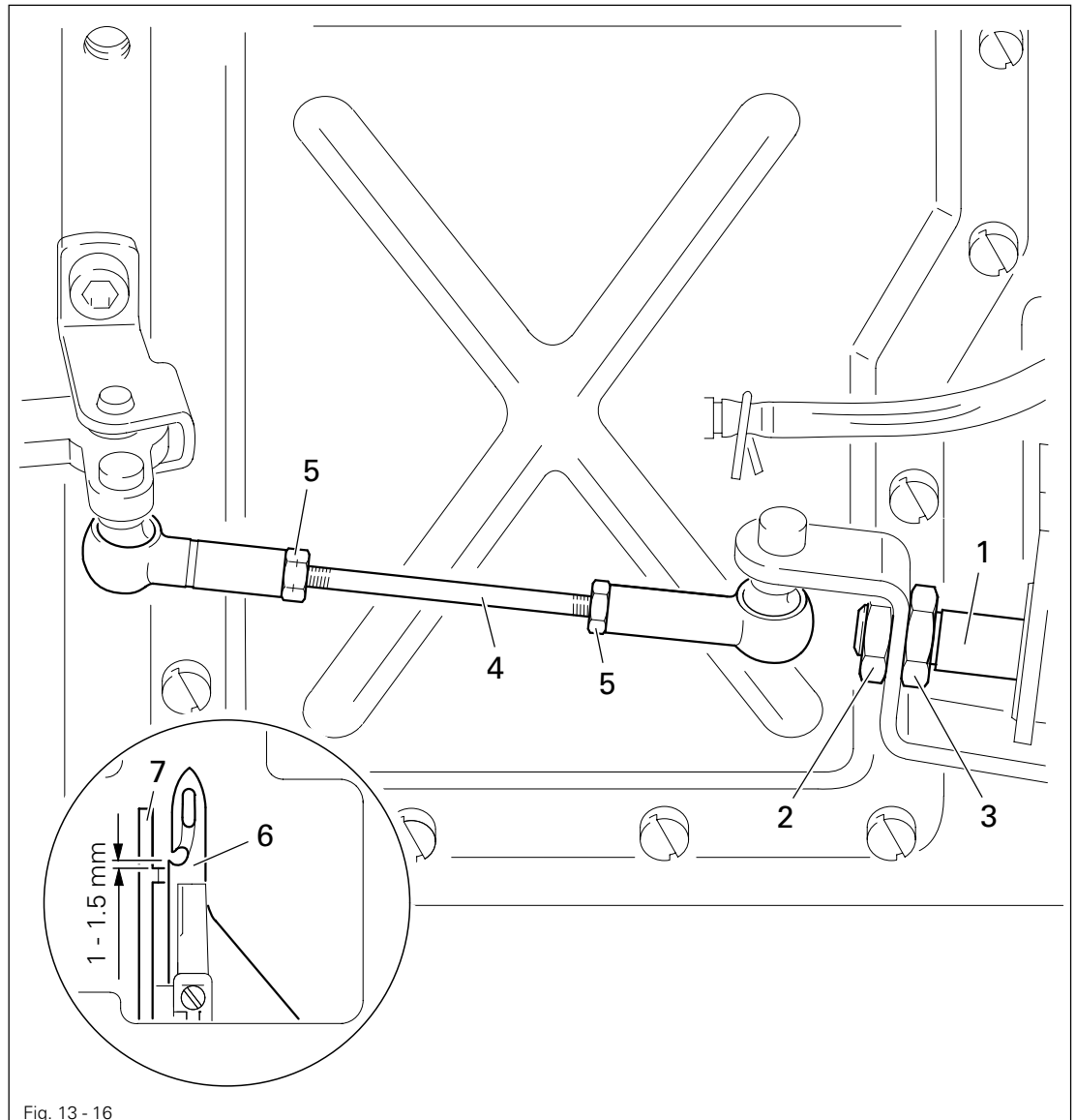
Fig. 13 - 16

● Move the needle bar to TDC.
● Position the front surfaces of the plunger **1** and the nut **2** (nut **3**) so that they are flush.
● Fully extend the plunger **1** by hand.
● Turn the connecting rod **4** (nuts **5**, left- and right-hand threads) according to the **requirement**.

13.05.16   Distance of the knife to the needle

Requirement
There must be a distance of **4 mm** between the front edge of the knife **1** and the needle.
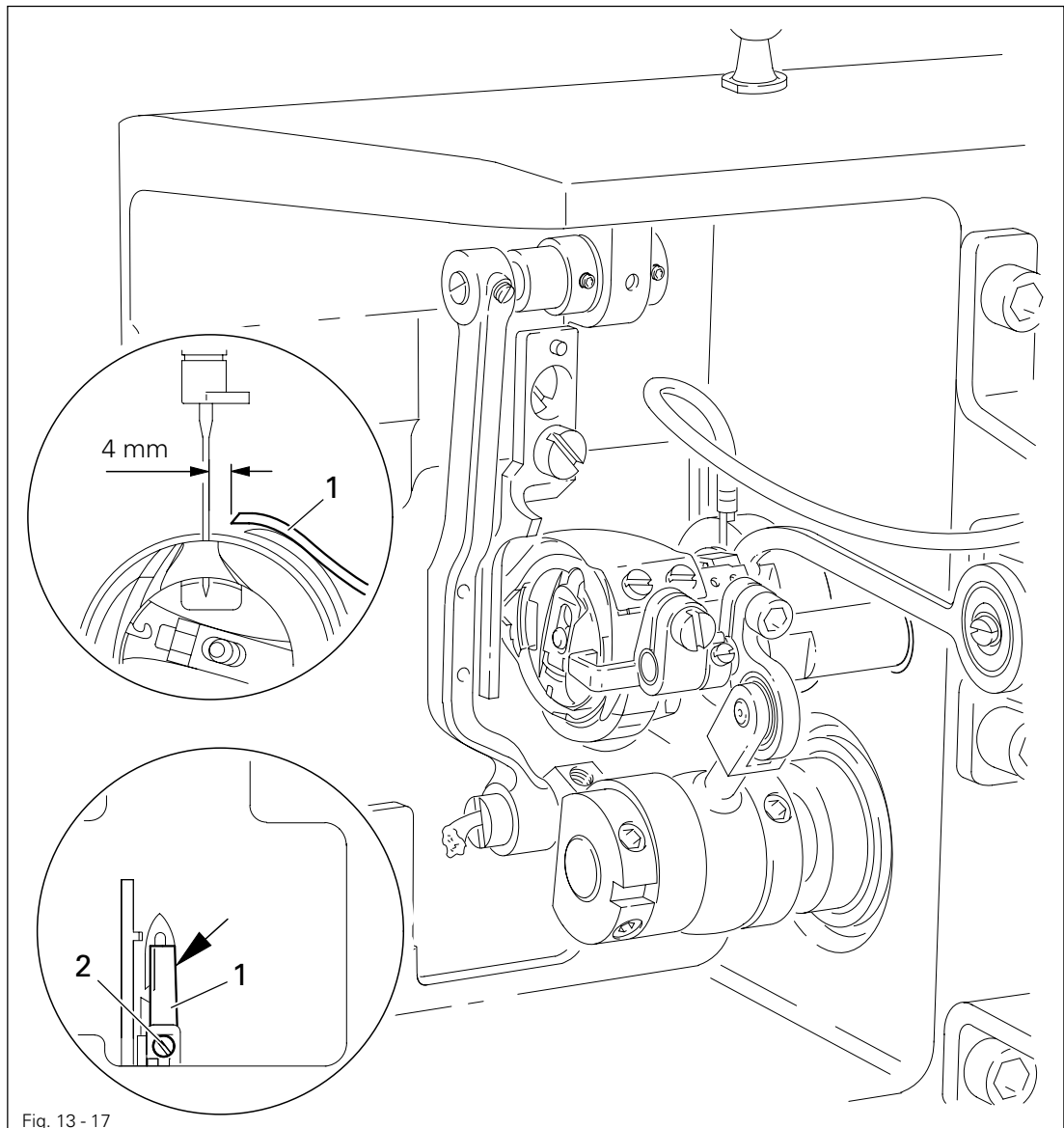
Fig. 13 - 17
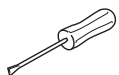
● Bring the needle bar to BDC.
● Align the knife **1** (screw **2**) according to the **requirement**. Make sure that the right edge of the knife does not project beyond the right edge, which is positioned further back, of the thread catcher.

13.05.17   Manual cutting test

> **Requirement**
> Both threads must be cut perfectly both at the right and left in the thread catcher cutout.
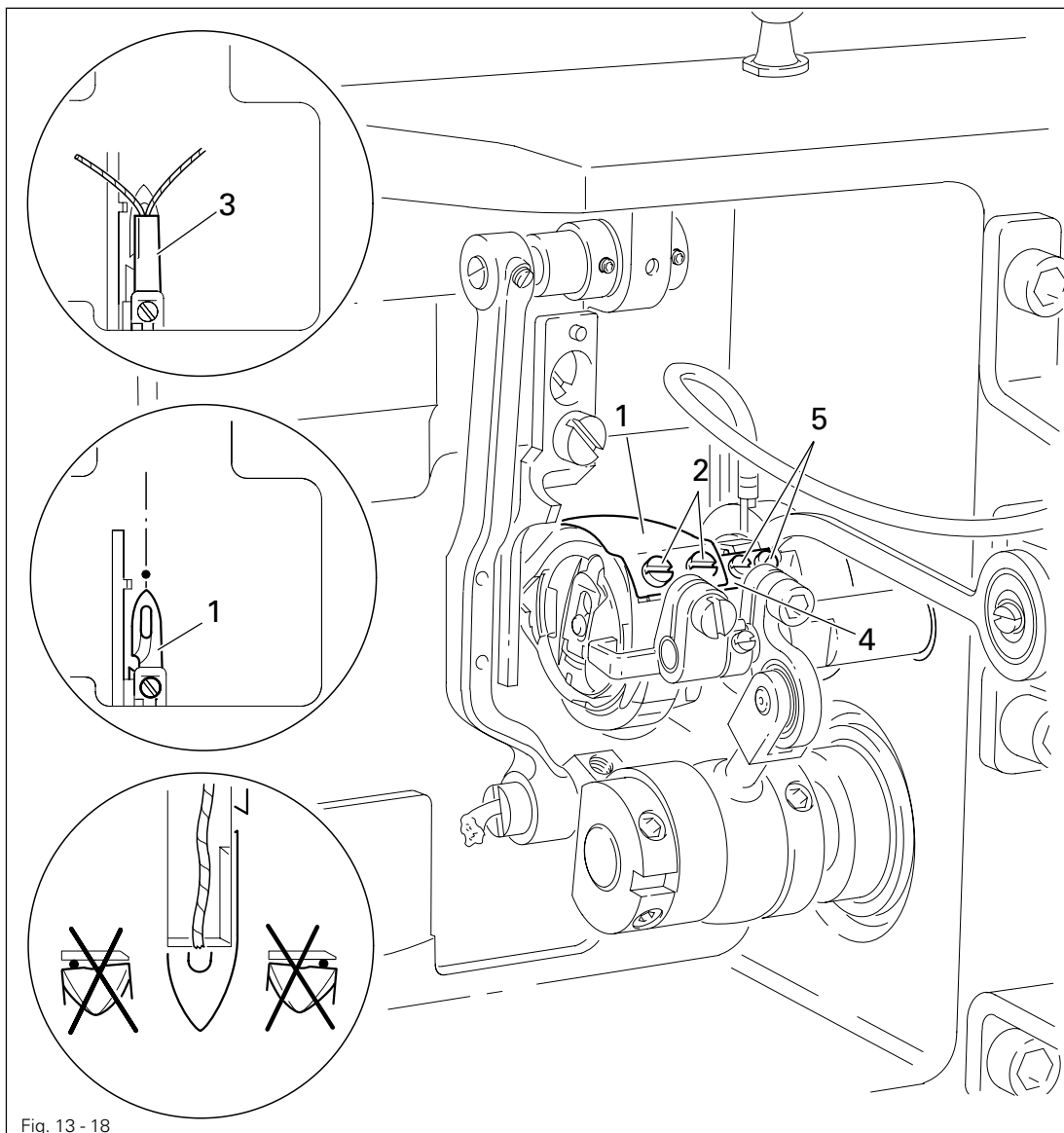
Fig. 13 - 18
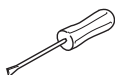
- ● Bring the needle bar to TDC, and position the thread catcher **1** in its front reversal point.
- ● Take two threads simultaneously, double them and hang in the cutout of the thread catcher **1.**
- ● Conduct a manual cutting test.
- ● If both threads are not cut properly according to the **requirement**, loosen screw **2** and align the thread catcher **1** with the knife **3** accordingly.
- ● Tighten screws **2** while ensuring that the thread catcher point points to the needle middle.
- ● Position thread catcher stop **4** at the thread catcher **1** and tighten screws **5**.

Adjustment

13.05.18   Presser height

> **Requirement**
> 1. When the take-up lever is at TDC, the needle point must not extend under the presser **1** when the presser **1** is raised.
> 2. The presser **1** must be aligned laterally so that the sewing thread is blown out from under the presser **1** when the sewing jig is moved into position.

Fig. 13 - 19
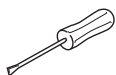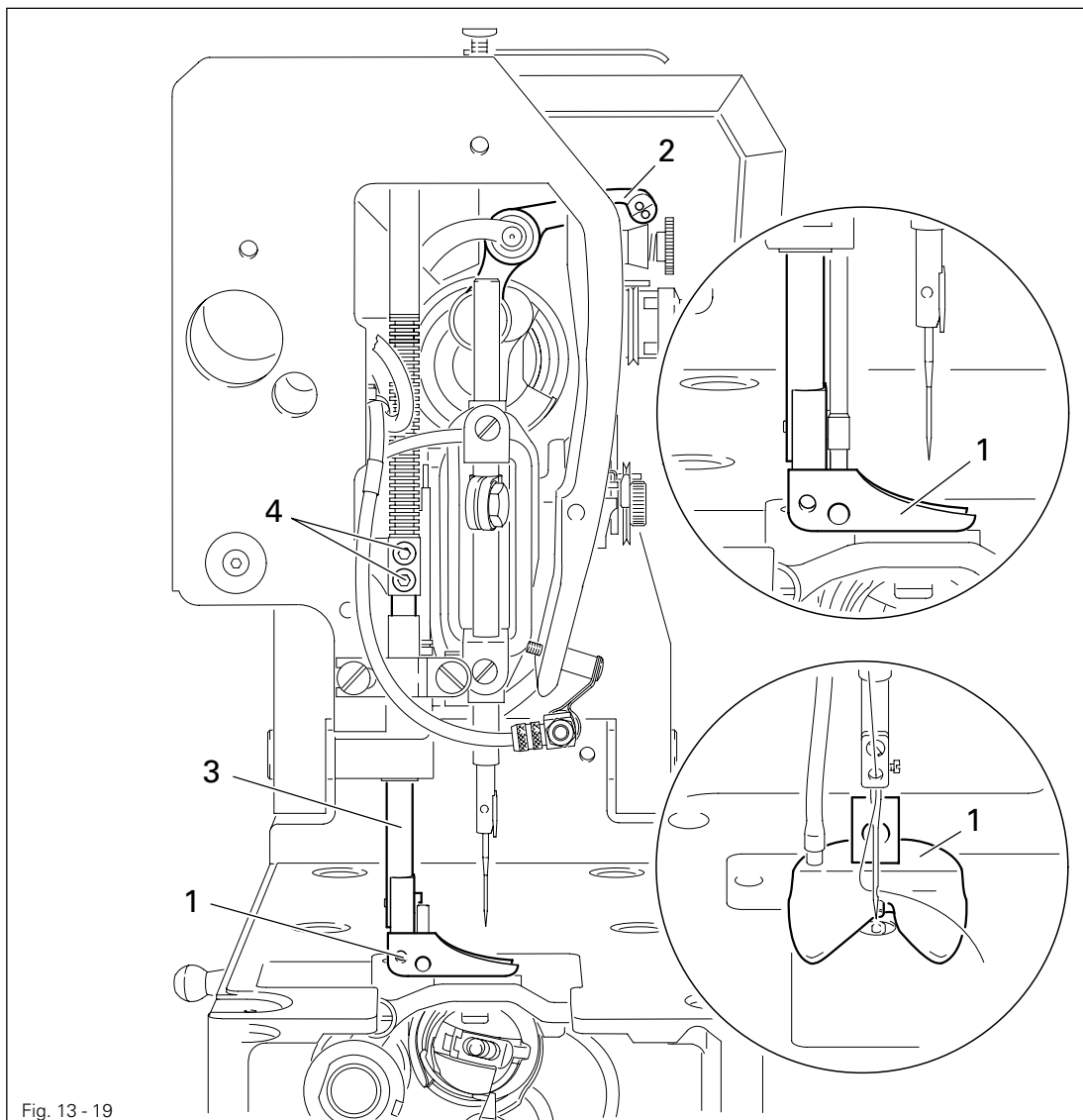
● Screw on presser **1**.
● Bring the take-up lever **2** to TDC.
● Move the presser bar **3** (screws **4**) according to **requirement 1** and/or turn according to **requirement 2**.

13.05.19   Bobbin winder

Requirement
1. When the bobbin winder is switched on, the bobbin winder spindle must move securely with the winder.
2. When the bobbin winder is switched off, friction wheel **5** must not be driven by drive wheel **1**.
3. The bobbin winder must switch off automatically when the bobbin has been filled to approx. **1 mm** from the edge.

Fig. 13 - 20
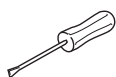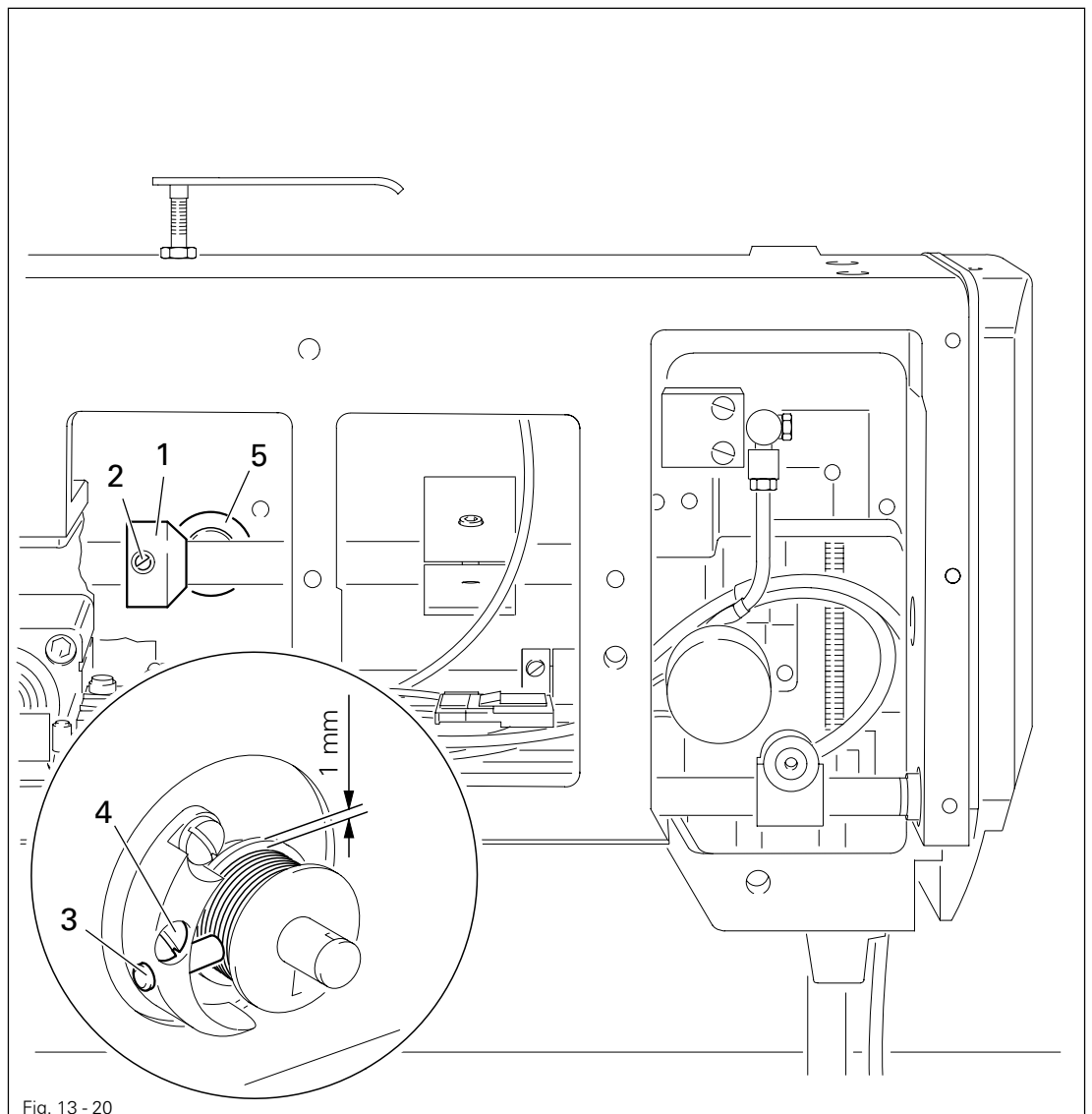
● Move drive wheel **1** (screws **2**) according to **requirements 1** and **2**.
● Move pin **3** (screw **4**) according to **requirement 3.**

Adjustment

13.05.20   Needle thread tension release

> **Requirement**
> For the tension release, the distance between the tension disks must be **0.5 mm.**

Fig. 13 - 21
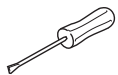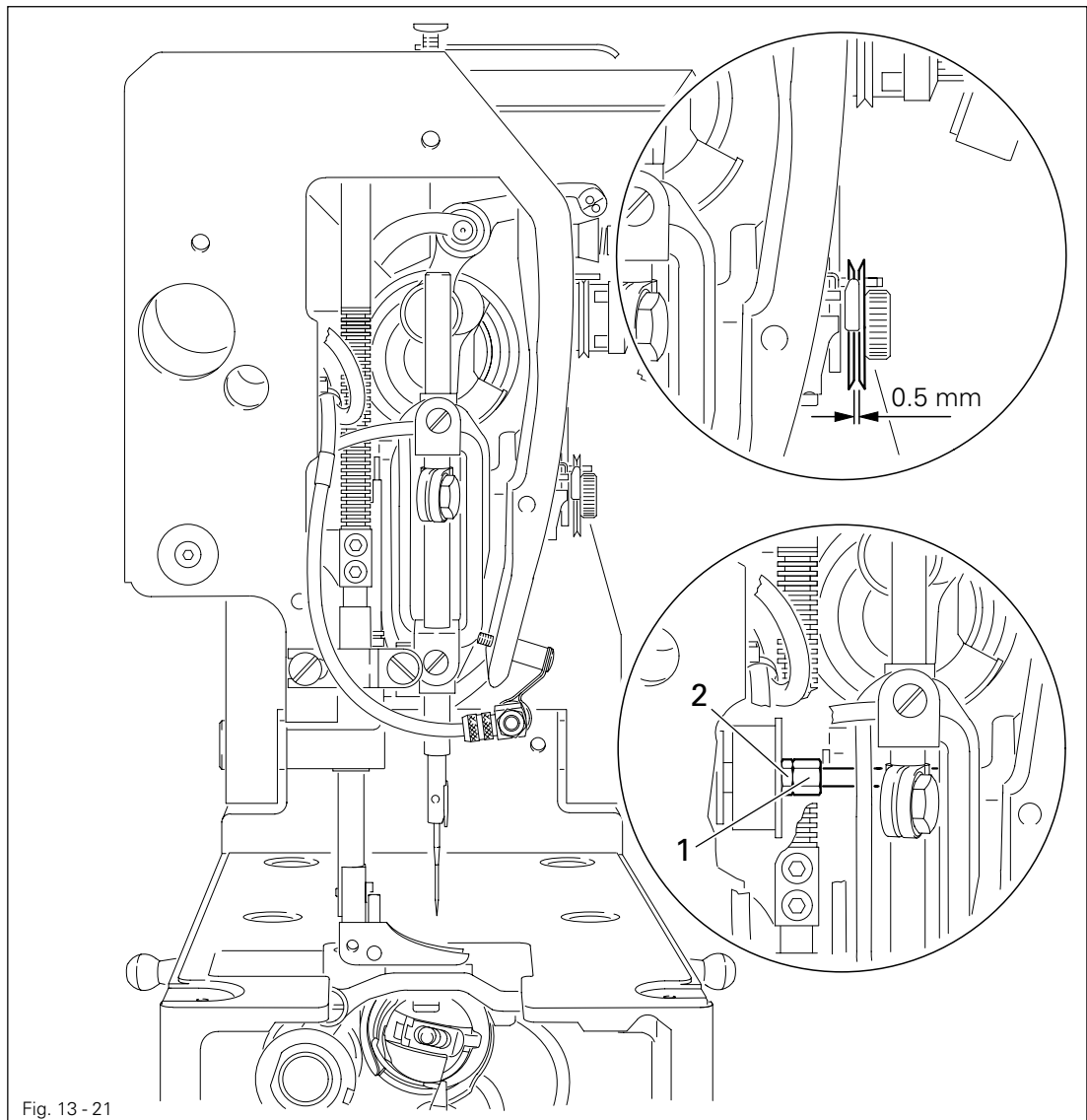
● Turn screw **1** (nut **2**) according to the **requirement.**

13.05.21   Thread check spring and slack thread regulator

Requirement
1. The stroke of thread check spring **7** must be completed when the needle point penetrates the material (travel of the spring approx. **7 mm**).
2. When the thread loop is at its largest when going round the hook, the thread check spring **7** must be raised slightly above support **1.**

Fig. 13 - 22
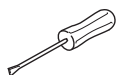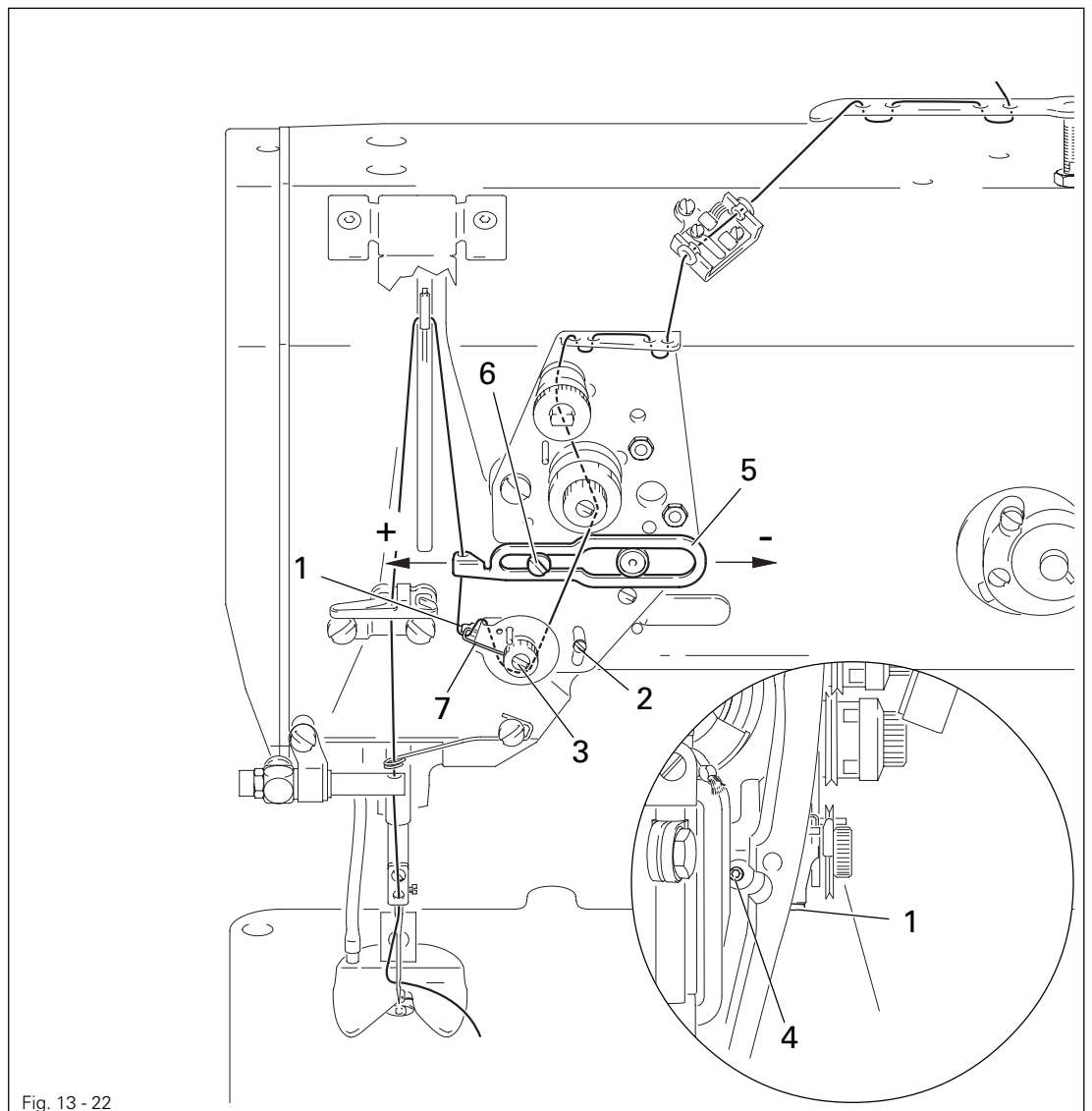
● Position rest **1** (screw **2**) according to **Requirement 1**.
● To adjust the spring tension, turn screw **3** (screw **4**).
● Position thread regulator **5** (screw **6**) according to **Requirement 2**.

For technical reasons, it may be necessary to deviate from the travel of the spring and/or the spring tension indicated here.

Adjustment

Requirement
The up and down movement of the sewing head must be uniform.
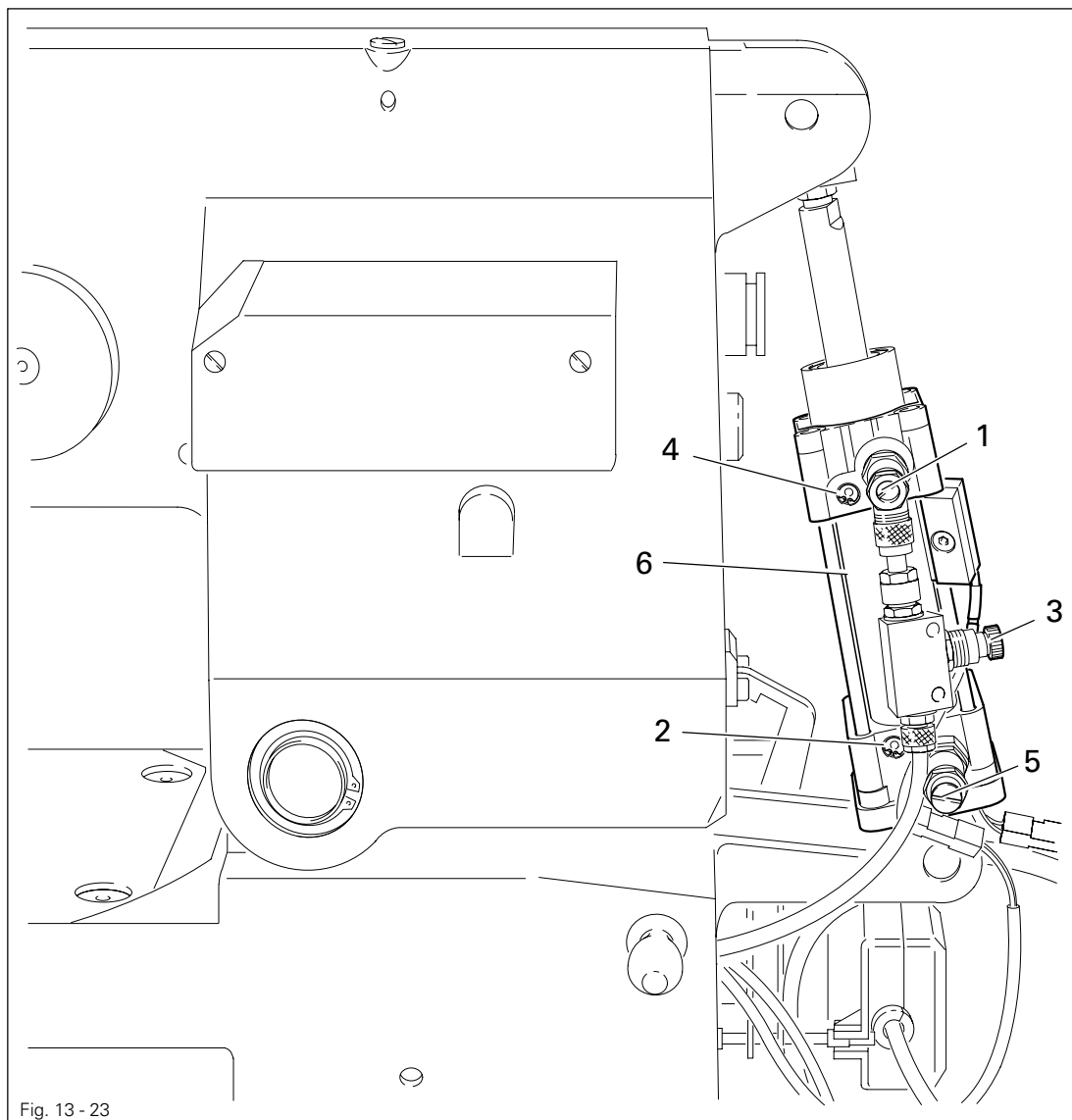
Fig. 13 - 23
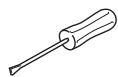
● Insert the sewing head and connect. (See **chapter 13.04 Removing/inserting sewing head.**)

● Adjust the speed (screw **1**) and shock absorbing action (screw **2**) of the upwards movement of the sewing head, and the speed (screw **3**) and shock absorbing action (screw **4**) of the downwards movement of the sewing head according to the **requirement.**

The pressure for the downward movement can be regulated with screw **5** (standard setting **4.5 bar**).

When adjusting the shock absorbing action, make sure that the cylinder **6** moves as far as it can go especially for the downward movement of the sewing head!

13.05.23   Synchronizer

> **Requirement**
> After the sewing operation has been completed, the machine is to position at TDC of the take-up lever.
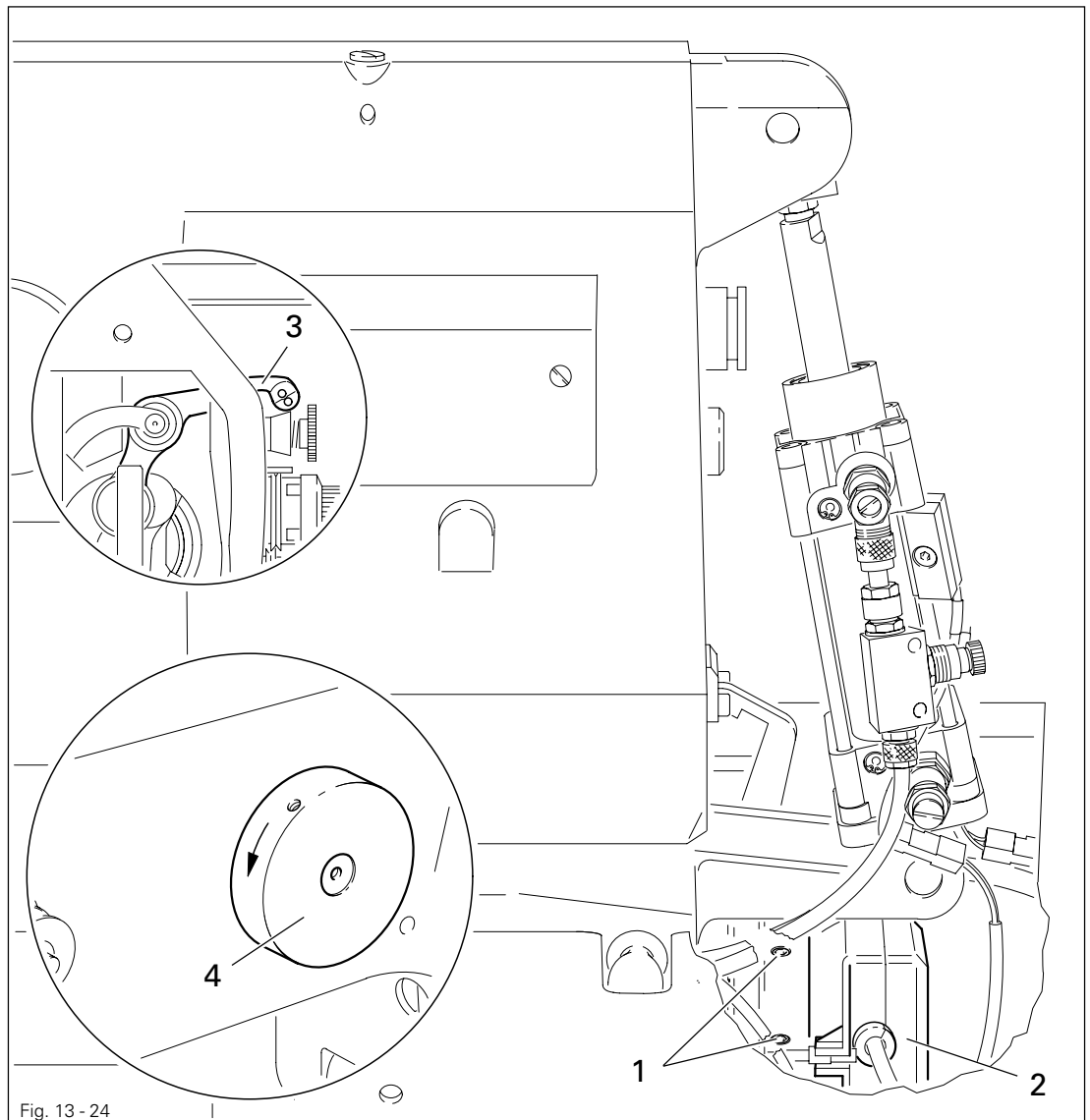
Fig. 13 - 24
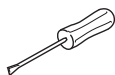
● Allow sewing machine to carry out positioning (switch on/off).
● Loosen screws **1**.
● Hold synchronizer **2** firmly and bring take-up lever **3** to TDC by turning the handwheel **4**.
● Tighten screws **1**.

⚠ After positioning is completed and the presser foot is raised, the needle must not extend underneath the presser foot.

Adjustment

13.05.24   Hook lubrication

> **Requirement**
>
> When the machine is running, after approx. **10 seconds** a fine line of oil must form on a paper strip held above the hook **1.**
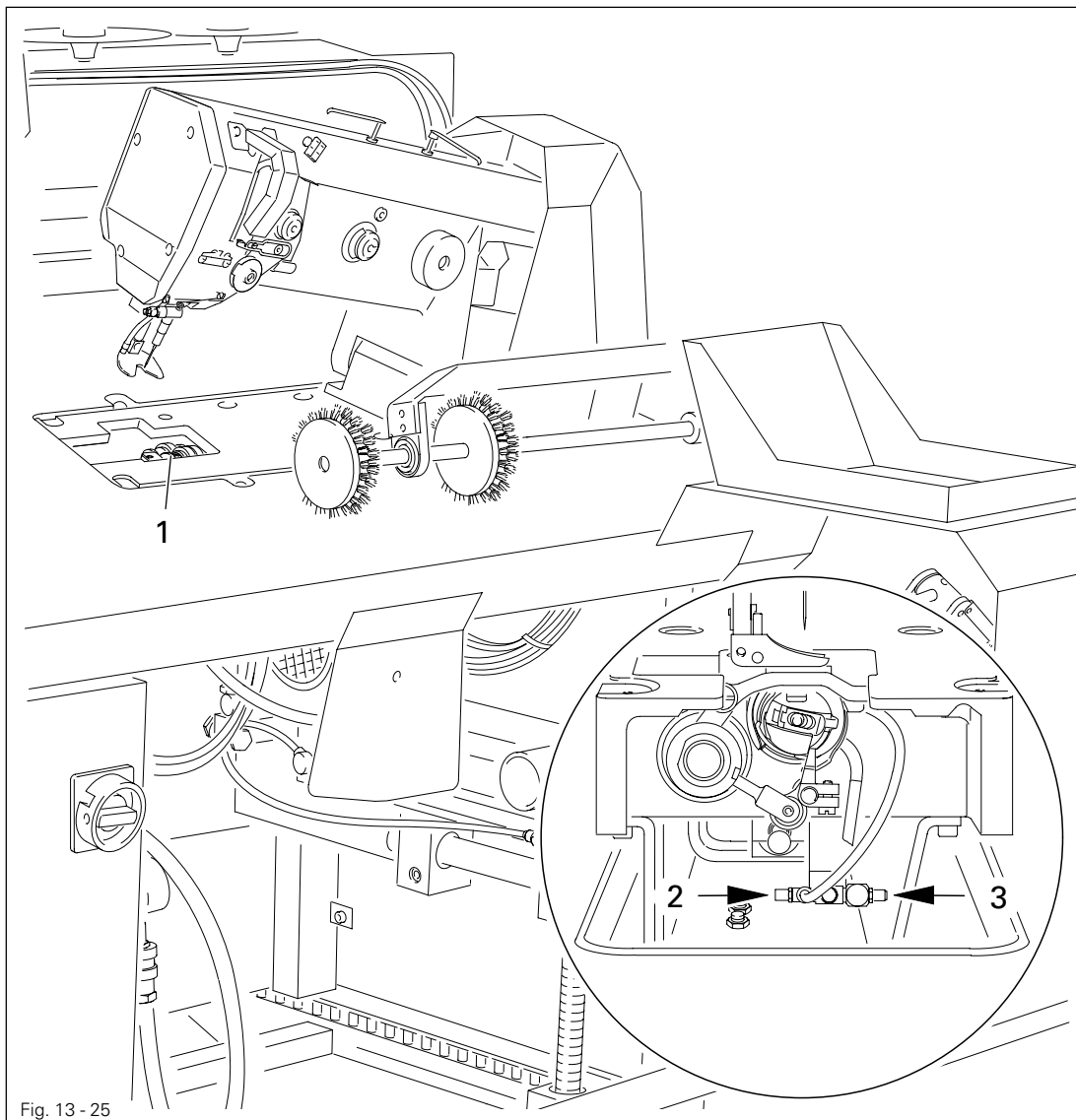
Fig. 13 - 25
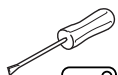
● Turn on machine.

● Select **INPUT** mode.

● Select **Input menu** function (number key 0).

6   ● Select SERVICE function.

1   ● Select SEWING DRIVE FUNCTIONS function

1   ● Select TURN SEWING MOTOR function.

PFAFF

● Set the speed to **4000 min⁻¹** using the **number keys.**

⚠ When the sewing motor is running, do not reach into the needle area!
Danger of injury by the moving parts!

Enter ● Confirm input with the **Enter key.**

◇ ● Select the **start** function.
● Allow the sewing motor to run for **2-3 min.**
● While the motor is running, hold a paper strip next to the hook **1** and check the **requirement.**
● If necessary, adjust the oil supply with screw **2.**
● Switch the machine off and screw on the hook compartment cover.

⚠ The wick used for lubricating the front parts must always be impregnated with oil. However, oil must not drip onto the bedplate!

● If necessary, adjust the amount of oil with screw **3.**

Adjustment

13.06   Adjusting the folding, feed and stacker devices

13.06.01   Aligning the sewing jig

> **Requirement**
> The lowered sewing jig must lie evenly and lightly on the table top at both the folding and the sewing stations, and hold the workpiece securely.
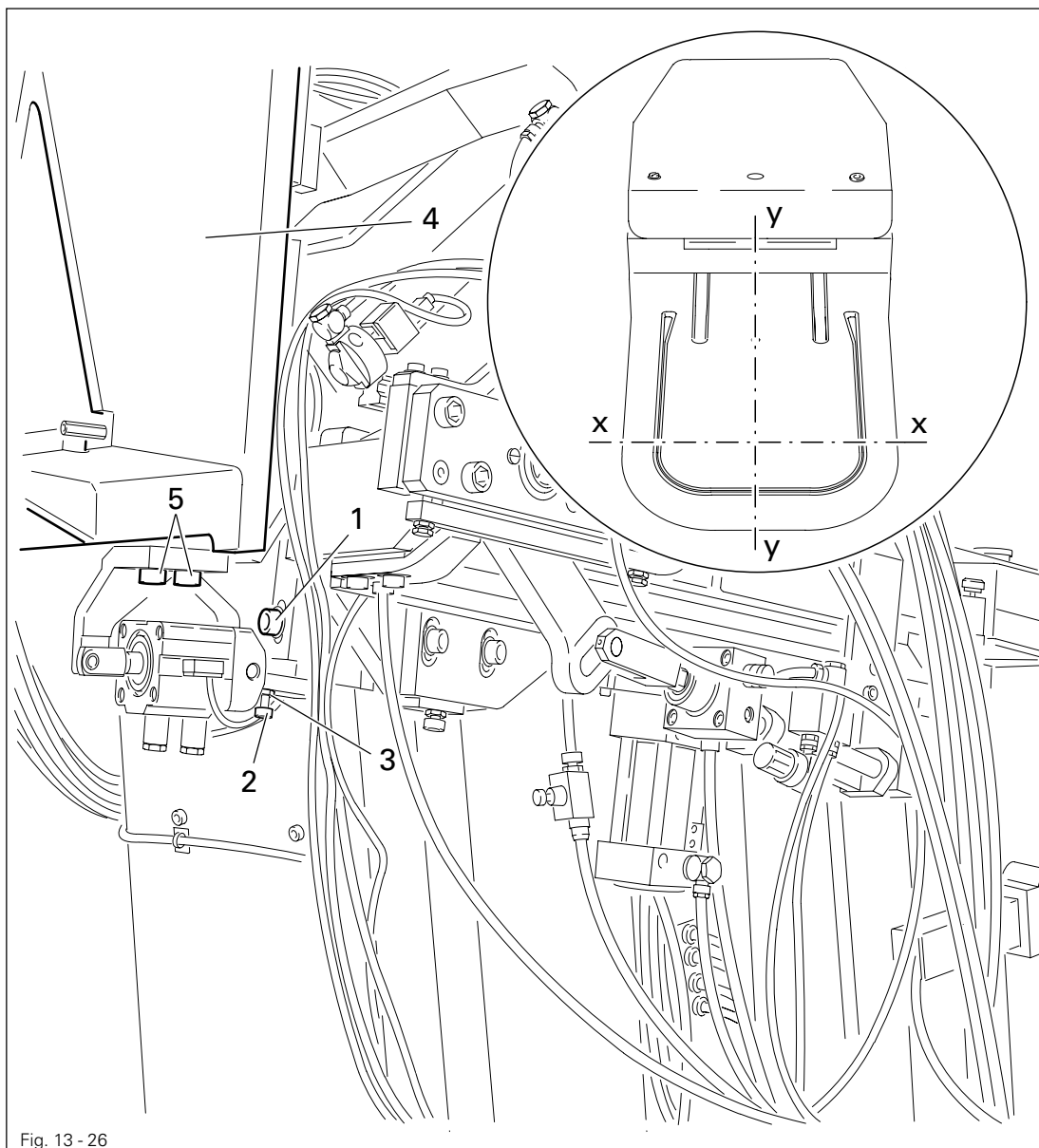
Fig. 13 - 26
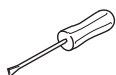
● Loosen screws **1** on both sides of the machine.
● Align the sewing jig by turning screws **2** (nuts **3)** on both sides of the machine so that it is parallel to the table top in the x-direction.
● Tighten screws **1.**
● Align the sewing jig by moving the carrier **4** (screws **5** on both sides of the machine) so that it is parallel to the table top in the y-direction.

13.06.02   Height of the pocket plate guide

Requirement
When the pocket plate is lowered, the guide **3** must be parallel to the top edge of the table.
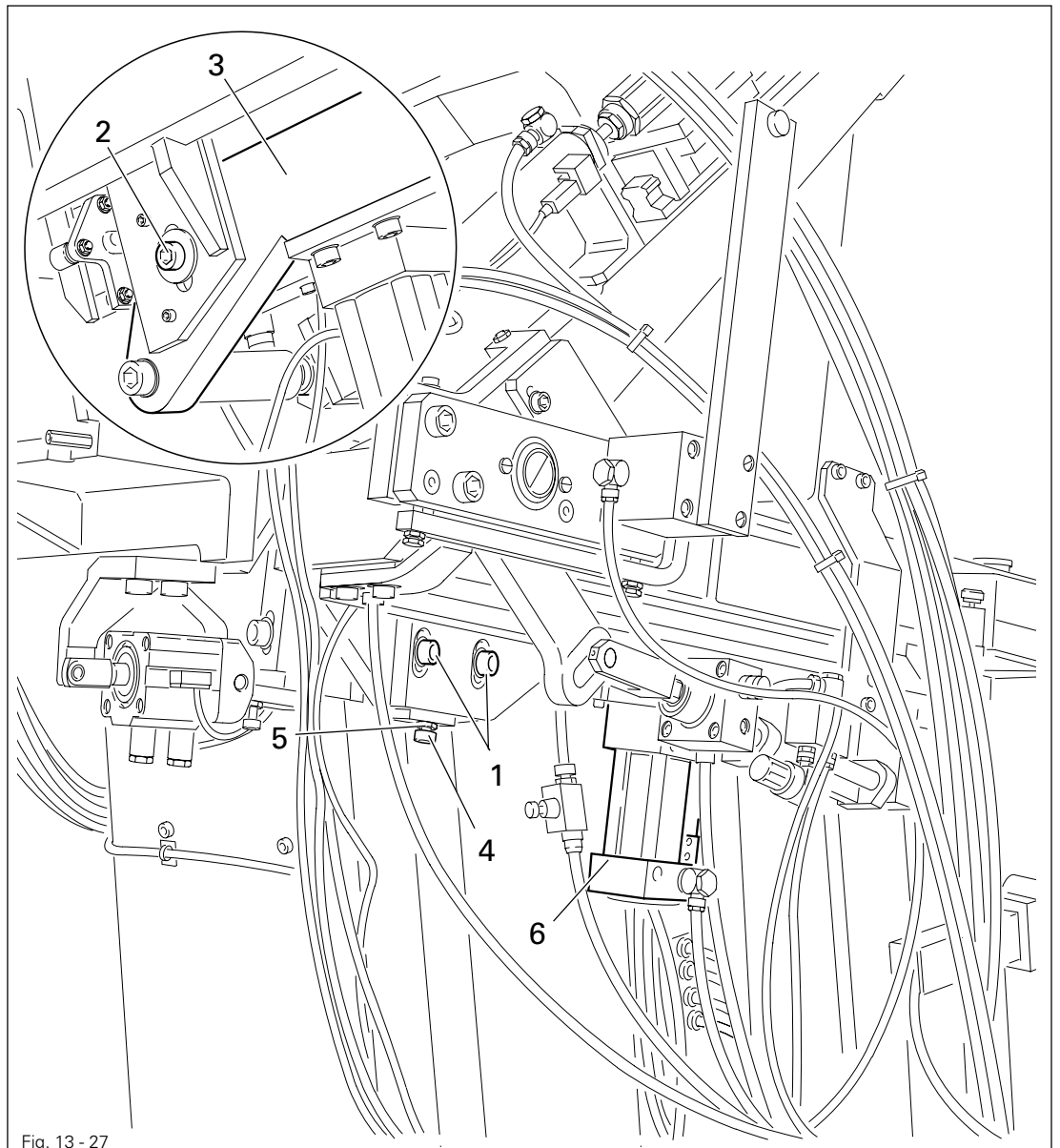
Fig. 13 - 27
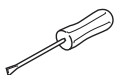
● Loosen screws **1** and **2**.
● Adjust the height of the guide **3** with screw **4** (nut **5**) according to the **requirement**.
● Turn the plunger (lock nut) of cylinder **6** until the guide **3** is parallel to the table top.
● Tighten screws **1** and **2**.

Adjustment

13.06.03   Aligning the pocket plate arm

> **Requirement**
>
> When the pocket plate **4** is lowered, it must lie evenly on the table.
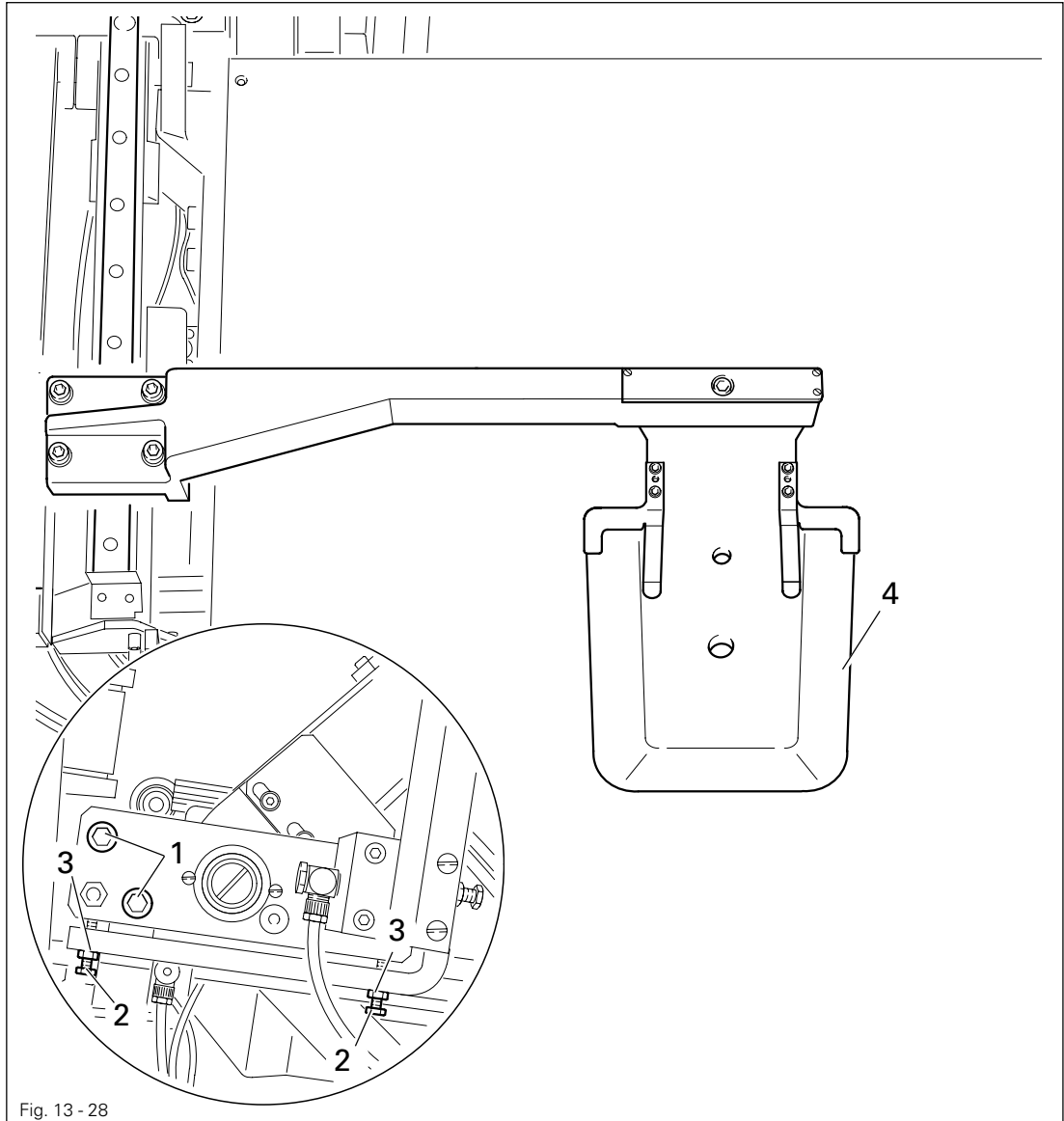
Fig. 13 - 28
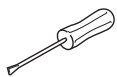
● Loosen screws **1**.

● Turn screws **2** (nuts **3**) according to the **requirement**.

● Tighten screws **1**.

Recheck the height of the pocket plate (see **chapter 13.06.02**).

13.06.04   Aligning the pocket plate guide

Requirement
Guide **7** must be positioned perpendicular to guide **8** of the sewing jig feed.
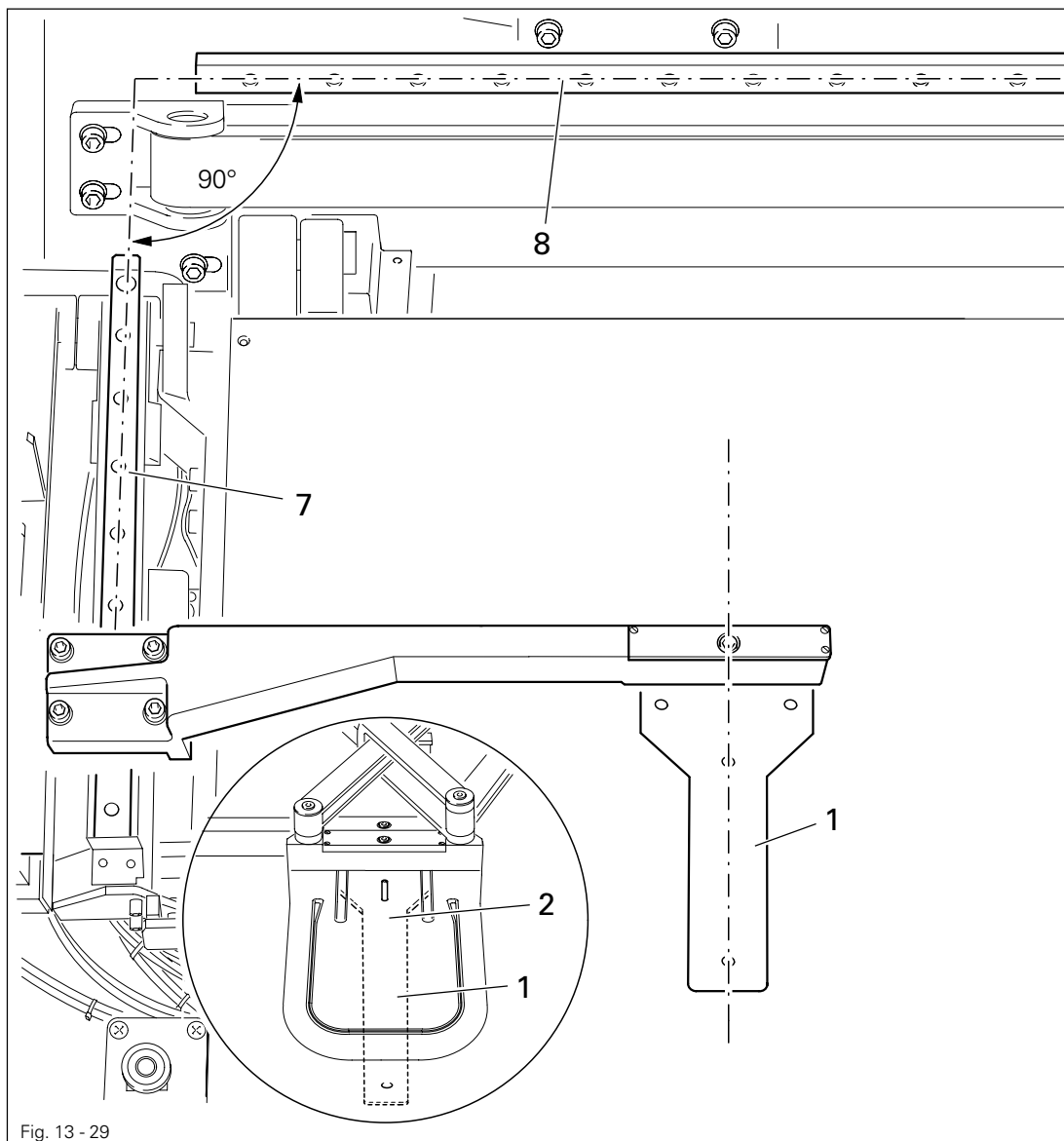
Fig. 13 - 29
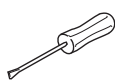
- Select the **Sewing** mode.
- Machine moves to basic position.
- Remove pocket plate and insert pocket plate gauge **1**.
- Select **INPUT** mode.
- Select the FOLDER POSITION function from the service menu (see **chapter 11.03 Summary of the service functions**).
- Check the **requirement** using adjustment pin **2**.
- Turn off compressed air.
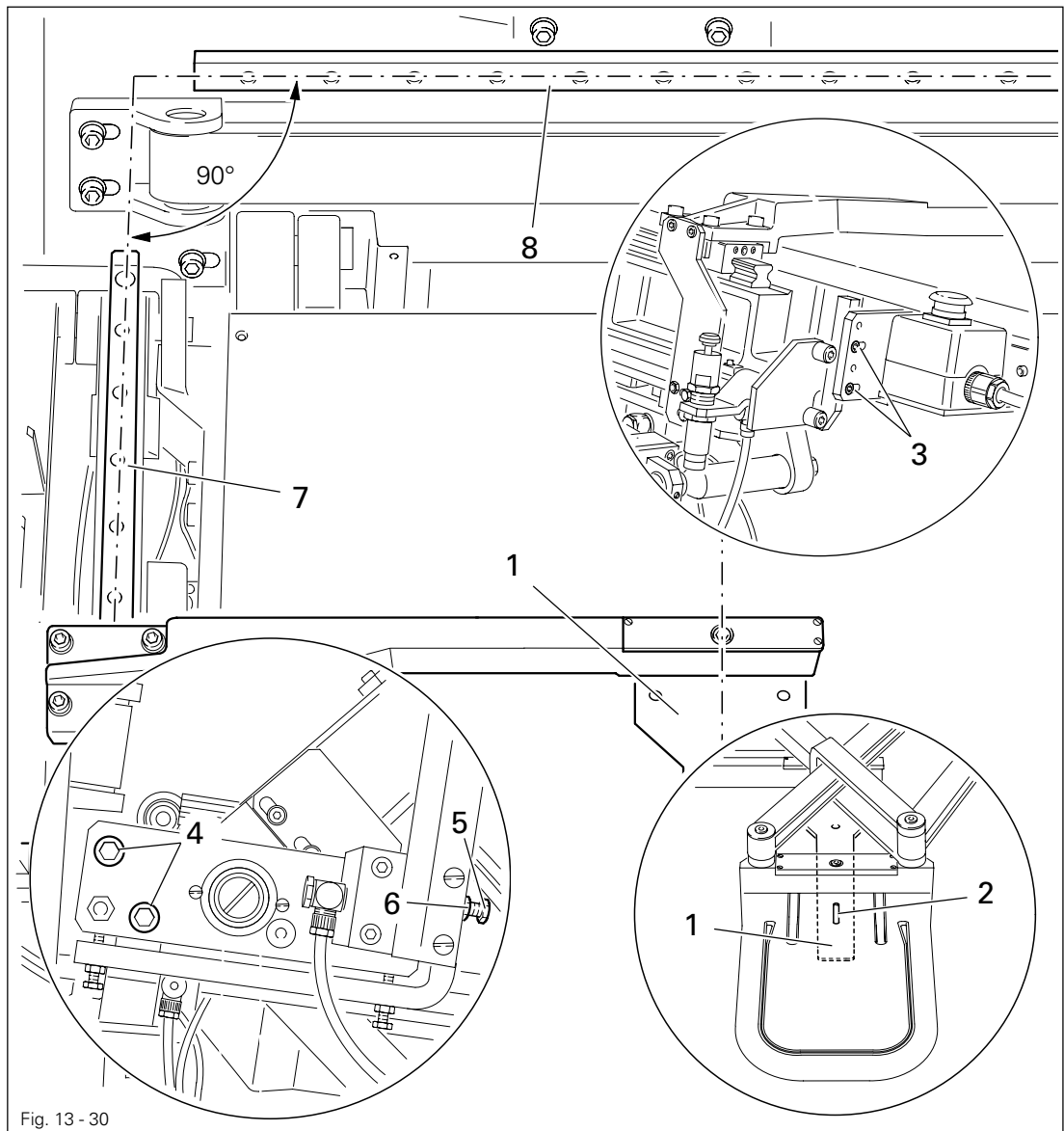
Fig. 13 - 30
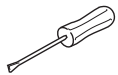
● Slide pocket plate gauge **1** to the back and mark front position.

● Loosen screws **3** and **4**.

● Turn screw **5** (nut **6**) according to the **requirement.**

Design Hints
Tensioning for optibelt Belts, Kraftbands and Ribbed Belts for the automotive industry

This simplified tensioning method should be used for installation and maintenance tensioning of the belt when the important technical data is unavailable and the optimum tension cannot be calculated.

Optibelt Tensioning Gauges – Instructions for use
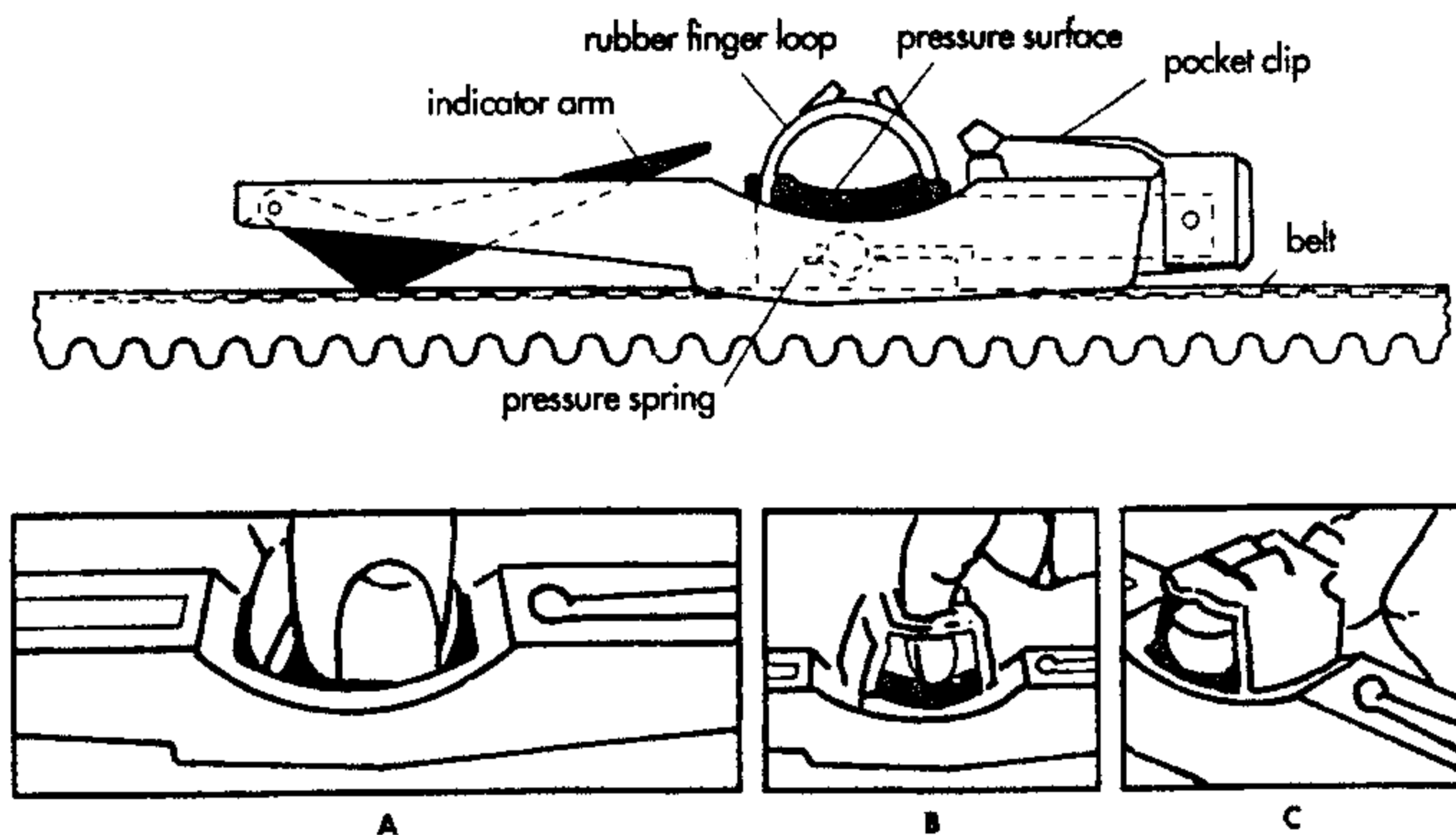
1. Select the gauge appropriate to the belt section and construction being tensioned. See notes below the simplified tensioning table.
2. Figure 2 shows three ways to hold the gauges so that pressure is applied to the black pad only.
3. Position the gauge on one of the belts on the drive in the middle of an accessible span length. Take care to ensure that the gauge is only in contact with one of the belts, and that the indicator is pushed down into the gauge body. Align the gauge so that its body is parallel with the sides of the belt.
4. Push slowly and firmly on the black pad. When a CLICK is heard and/or felt, stop immediately and remove the gauge carefully to avoid disturbing the indicator arm.
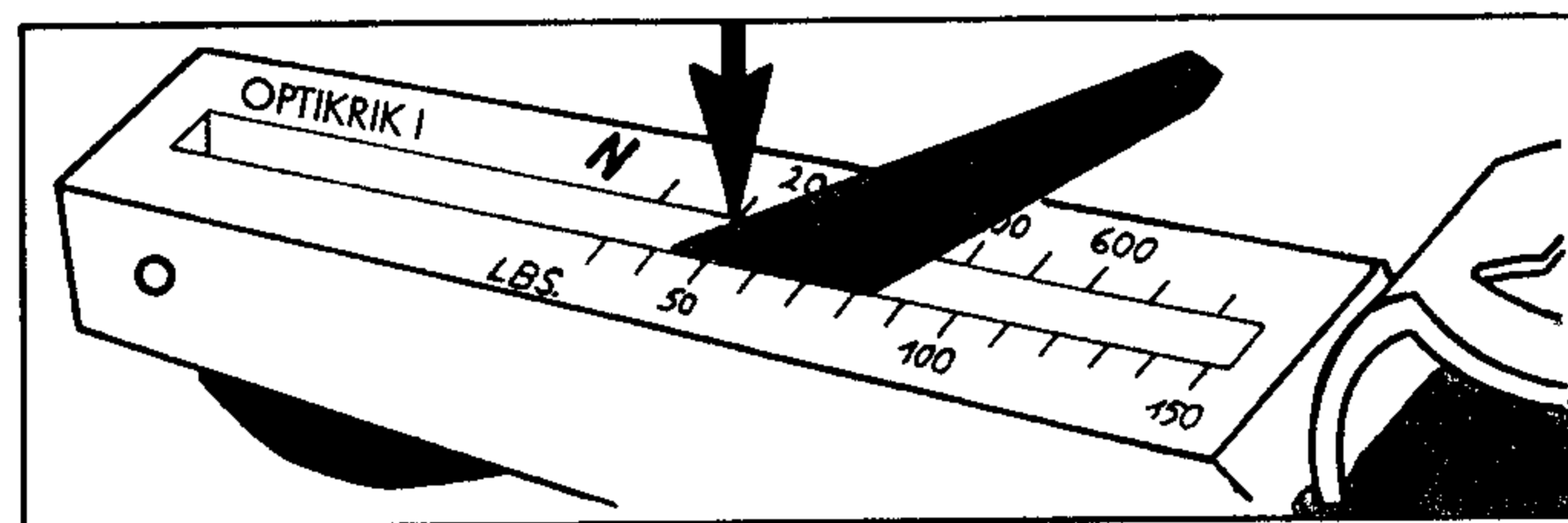
5. Read the gauge to judge the tension as follows.
6. Turn the gauge sideways to ascertain the exact point where the top surface of the black indicator crosses the scale.
7. Mark this point mentally or with a thumbnail and turn the gauge to read the scale.
8. Check the tension found against the simplified tensioning table. Tighten or slacken the belt, if necessary.

Example – refer to table headings

1. Optibelt Belt Section   AVX 10
2. Initial Installation – Static tension (N)   600 N
3. Tension after 15 - 60 min. running – Static tension (N) 300 N
   The static tension in the belt after 15 to 60 minutes running under load should be not less than 300 N. If the tension is below this level retension to 300 N.

Over the life of the belt the static tension should <u>never</u> be allowed to fall below 200 N. If this occurs must be retension up to 300 N.

Belt Section	Initial installation	Tension after 15-60 min. running	Minimum tension
	Static tension (N)	Static tension (N)	Static tension (N)
AVX 10 Marathon 1 Marathon 2	600 ± 50	300 ± 50	≥ 200
AVX 13 Marathon 1 Marathon 2	700 ± 50	400 ± 50	≥ 300
KB - 2 AVX 10	1200 ± 50	600 ± 50	≥ 400
KB - 3 AVX 10	1800 ± 50	900 ± 50	≥ 600
KB - 2 AVX 13	1400 ± 50	800 ± 50	≥ 600
KB - 3 AVX 13	2100 ± 50	1200 ± 50	≥ 900
RB - 3 PK	400 ± 50	250 ± 50	≥ 200
RB - 4PK	500 ± 50	350 ± 50	≥ 250
RB - 5 PK	600 ± 50	400 ± 50	≥ 300
RB - 6 PK	750 ± 50	500 ± 50	≥ 350

Tension Gauges:

Optikrik I	Range: 150 – 600 N
Optikrik II	Range: 500 – 1400 N
Optikrik III	Range: 1300 – 3100 N

The tension values for Marathon 1 and Marathon 2 automotive belts and Kraftbands are identical even though the constructions are different.

Select the appropriate tension gauge Optikrik I, Optikrik II or Optikrik III according to the tension range to be measured.

Refer our Terms and Conditions of Sale regarding liability for these products.

13.06.05   Front pocket plate position

Requirement
When the folder is positioned at zero point, the adjustment holes of the pocket plate and the sewing jig must be aligned.
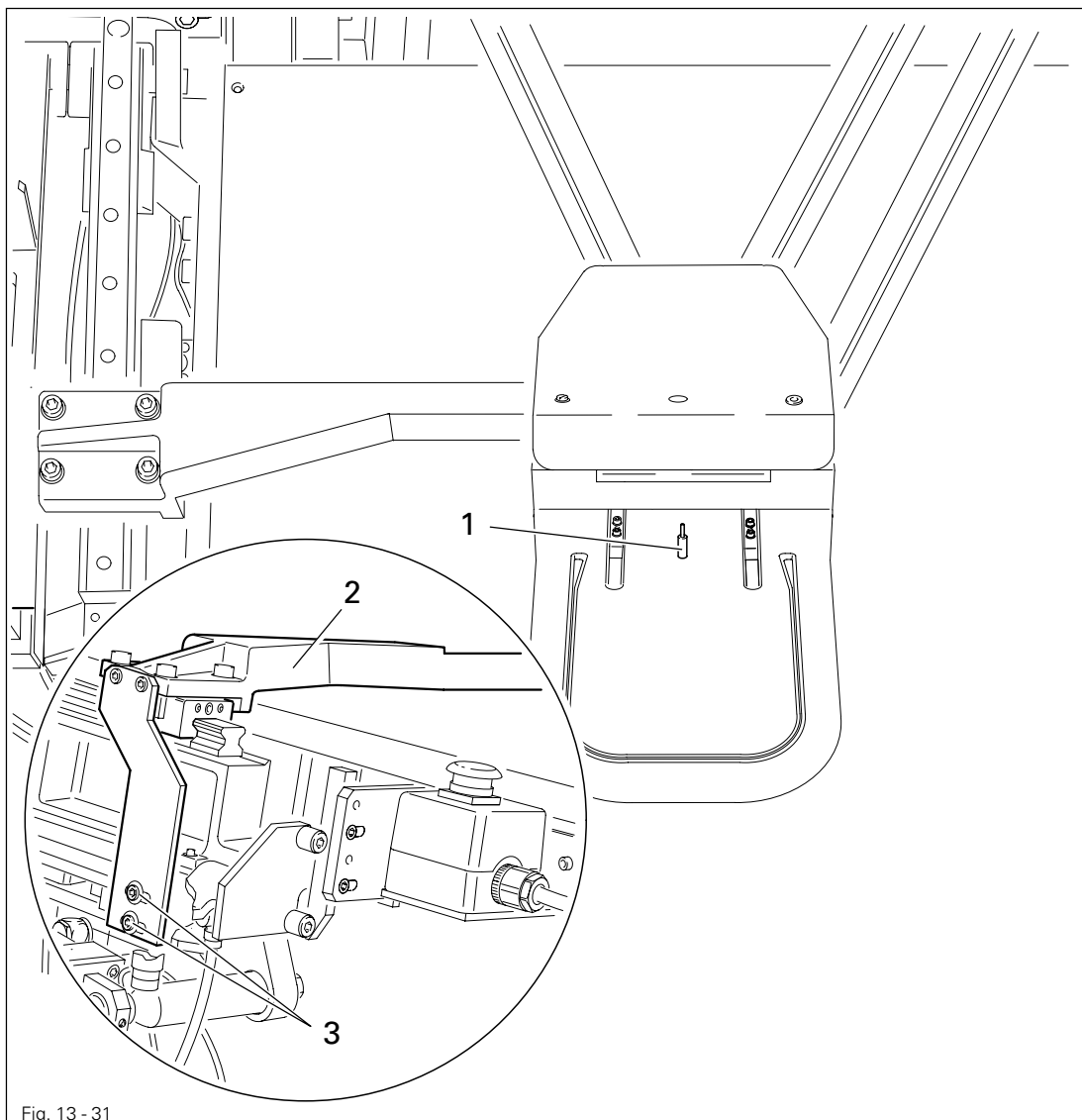
Fig. 13 - 31
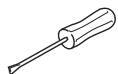
- ● Switch on the machine.
- ● Select the **INPUT** mode.
- ● Select the FOLDER POSITION function from the service menu (**see chapter 11.03 Summary of the service functions**).
- ● Set the value for the y-axis to „**0**".
- ● Check the **requirement** using the adjustment pin **1**.
- ● Change the value for the x-axis according to the **requirement** via the control panel and store.
- ● Move the pocket plate arm **2** (screws **3**) according to the **requirement.**

ℹ️   The machine remains switched on for further adjustments.

Adjustment

Monitoring the sewing jig feed

Requirement

1. In the y-direction, the sewing jig **5** must not be able to move from its zero point more than **5 mm** toward the bottom and **260 mm** to the top.
2. The proximity switch **3** must be **0.2 mm** below the switch vane **1**.

Fig. 13 - 32
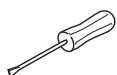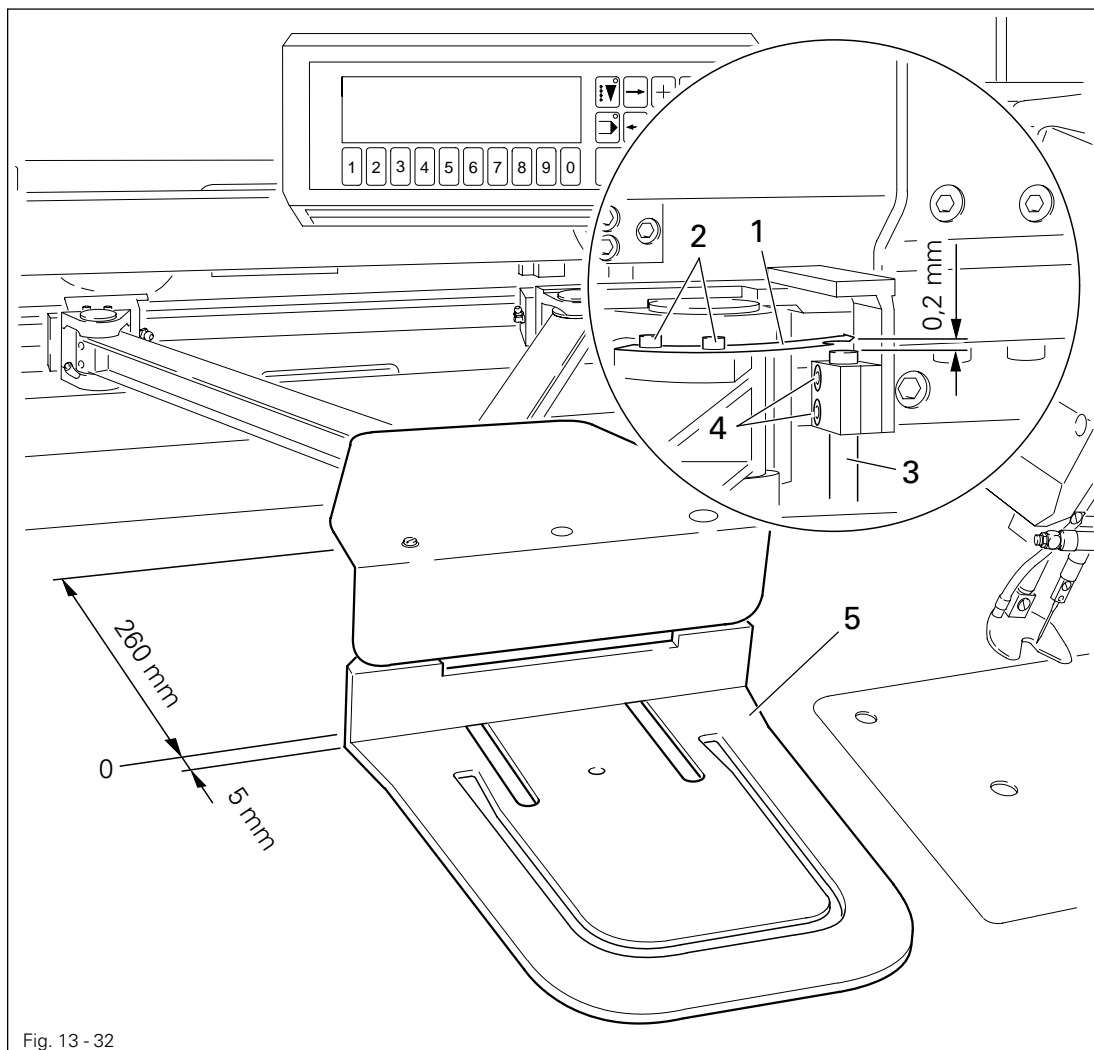
● Move the switch vane **1** (screws **2**) according to **requirement 1**.
● Move the proximity switch **3** (screw **4**) according to **requirement 2**.

13.06.07   Positioning the edge folding unit

Requirement

When the edge folding unit and pocket plate are lowered
1. Folder arm **4** must be parallel with pocket plate arm **3** and the table top.
2. The pins in folder arm **4** and the bushes **2** in pocket plate gauge **1** must be aligned, and
3. there must be a clearance of **19 mm** between folder arm **4** and pocket plate gauge.
4. The folder arm must rest lightly on the table top and hold the workpiece securely.
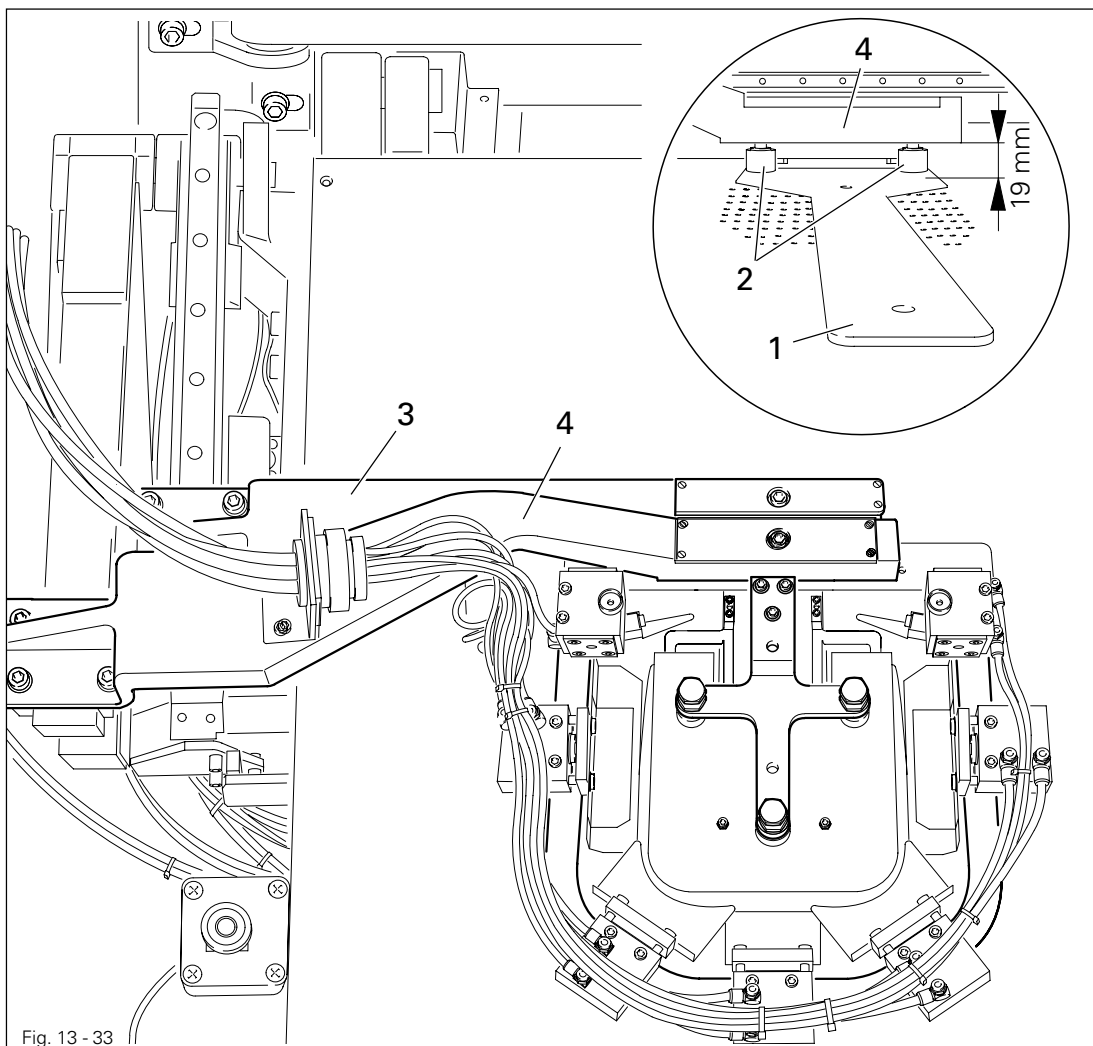
Fig. 13 - 33
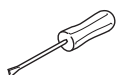
● Remove pocket plate and edge folder
● Insert pocket plate gauge **1** and bushes **2**.

● Call up the SEWING mode.

● Switch on the **manual sewing** function (number key 0).

● Press the double start buttons.

● Operate the **cycle forwards** function until pocket plate arm **3** and folder arm **4** are lowered.
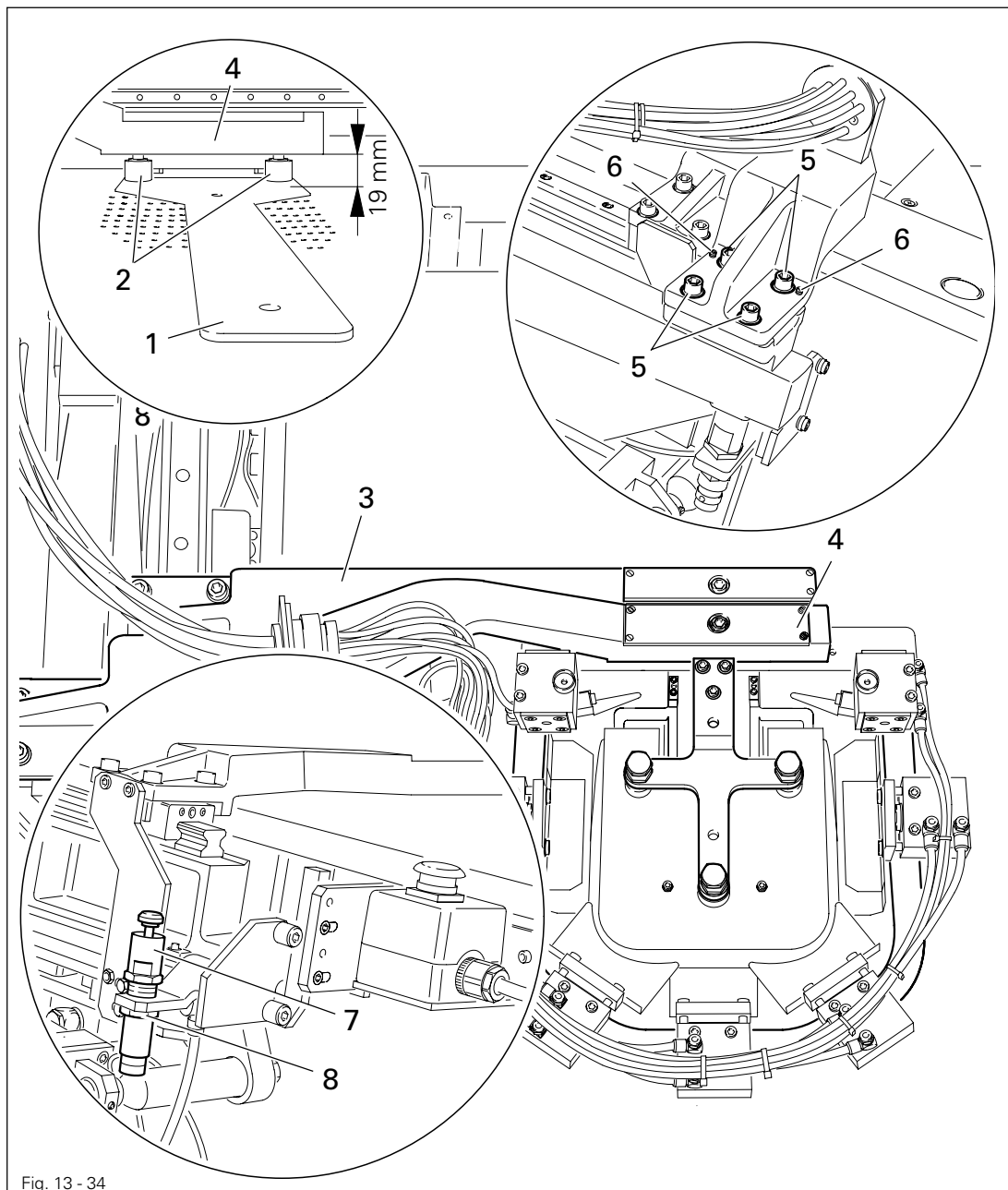
Fig. 13 - 34

- Loosen screws **5**.
- Position folder arm **4** by turning and pushing it and by turning screws **6** according to requirements **1** and **2**.
- Tighten screws **5** securely.
- Turn shock absorber **7** (nut **8**) according to **requirement 3**.
- Remove pocket plate gauge **1** and fit the folding unit.
- Apply Tesamoll (adhesive tape) to the edge folder frame to fulfil requirement **4**.

PFAFF

13.06.08   Aligning the die

Requirement
When the folder is lowered and the pocket plate is raised at the same time,
1.   the bottom edges of the die's **1** strips must be at a distance of approx. the thickness
      of the fabric under the underside of the pocket plate.
2.   and they must be positioned on all sides at the same distance of **0.3** to **1 mm**
      (depending on the fabric) to the pocket plate edges.
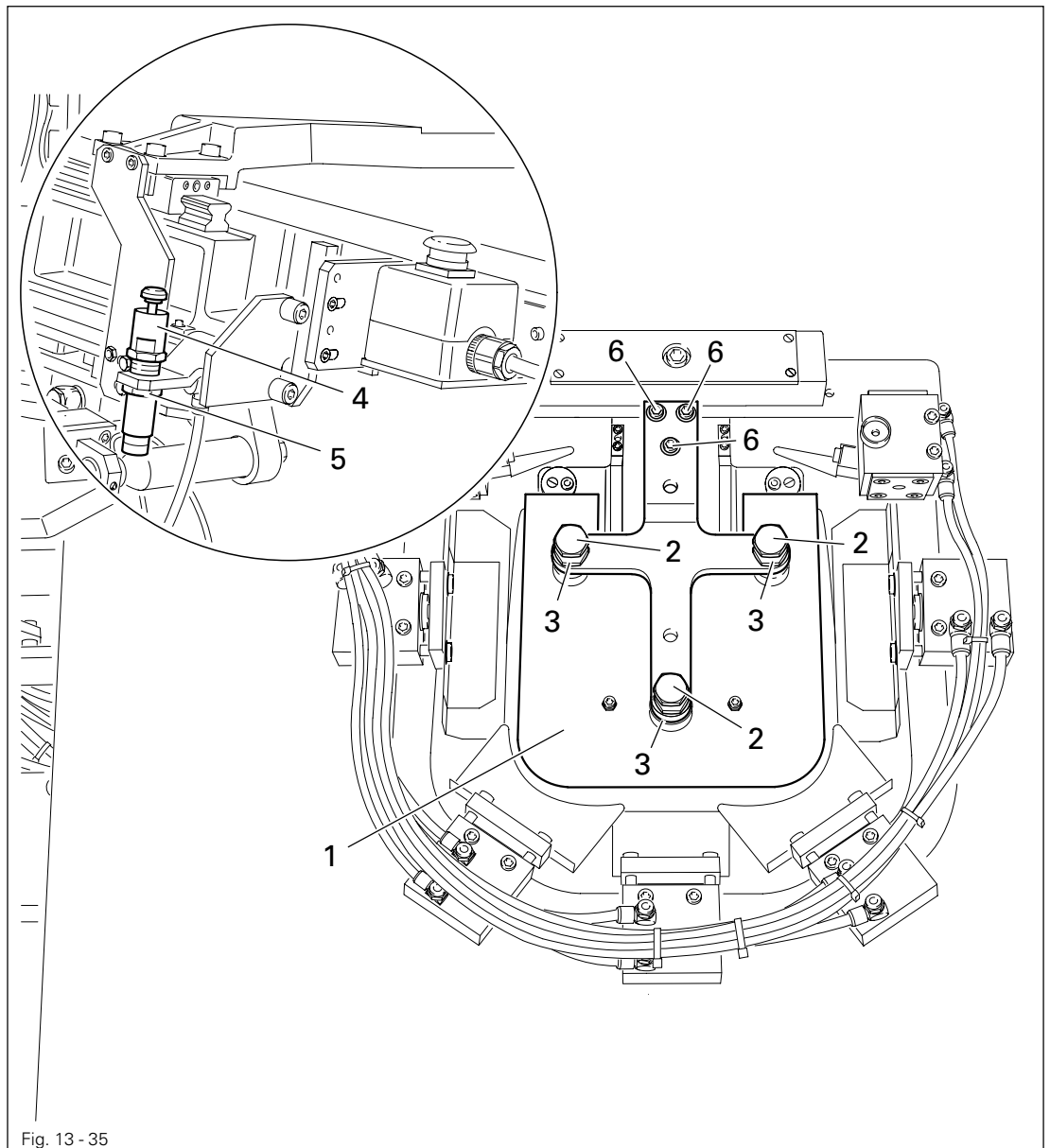
Fig. 13 - 35
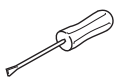
● Align the bottom edges of the die's **1** strips with the underside of the pocket plate via
   screws **2** (nuts **3**).
● Turn damper **4** (nut **5**) according to **requirement 1.**
● Align die **1** (screws **6**) according to **requirement 2**.

13.06.09   Control sequence of the folder plates

Pocket style	1	2	3	4	5
1. Switching position	a + b	a + b	a + b	a + b	a + b
2. Switching position	c + d	c + d + e	c + d	c + d + e	c + d
3. Switching position	e	f	e	f	e
4. Switching position	f + g	g + h	f	g	f + g
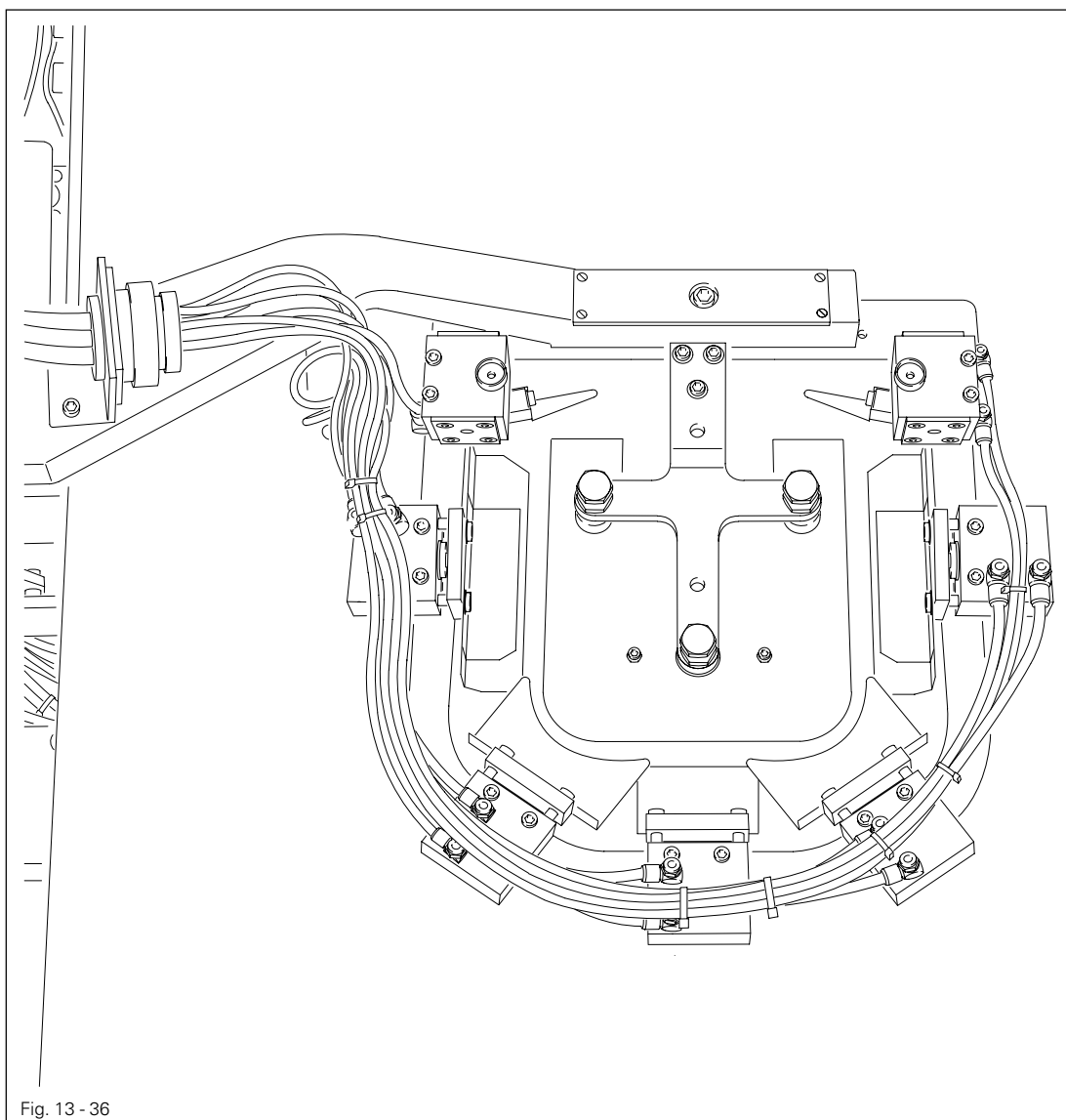
Fig. 13 - 36

The control sequence and the number of folder plates (and the number of switching positions) depends on the pocket style. The folder installation shown in **Fig. 13-36** is for the first pocket style.

For other pocket styles, refer to the above table for the cylinders corresponding to the relevant switching positions.

13.06.10   Position of folder plates

> **Requirement**
> 1. The front edges of the folder plates **1** must be parallel to the die **4**.
> 2. In the initial position, the folder plates **1** must be positioned on all sides approx. **0.1 mm** under the lower edges of the strips of the die **4**.
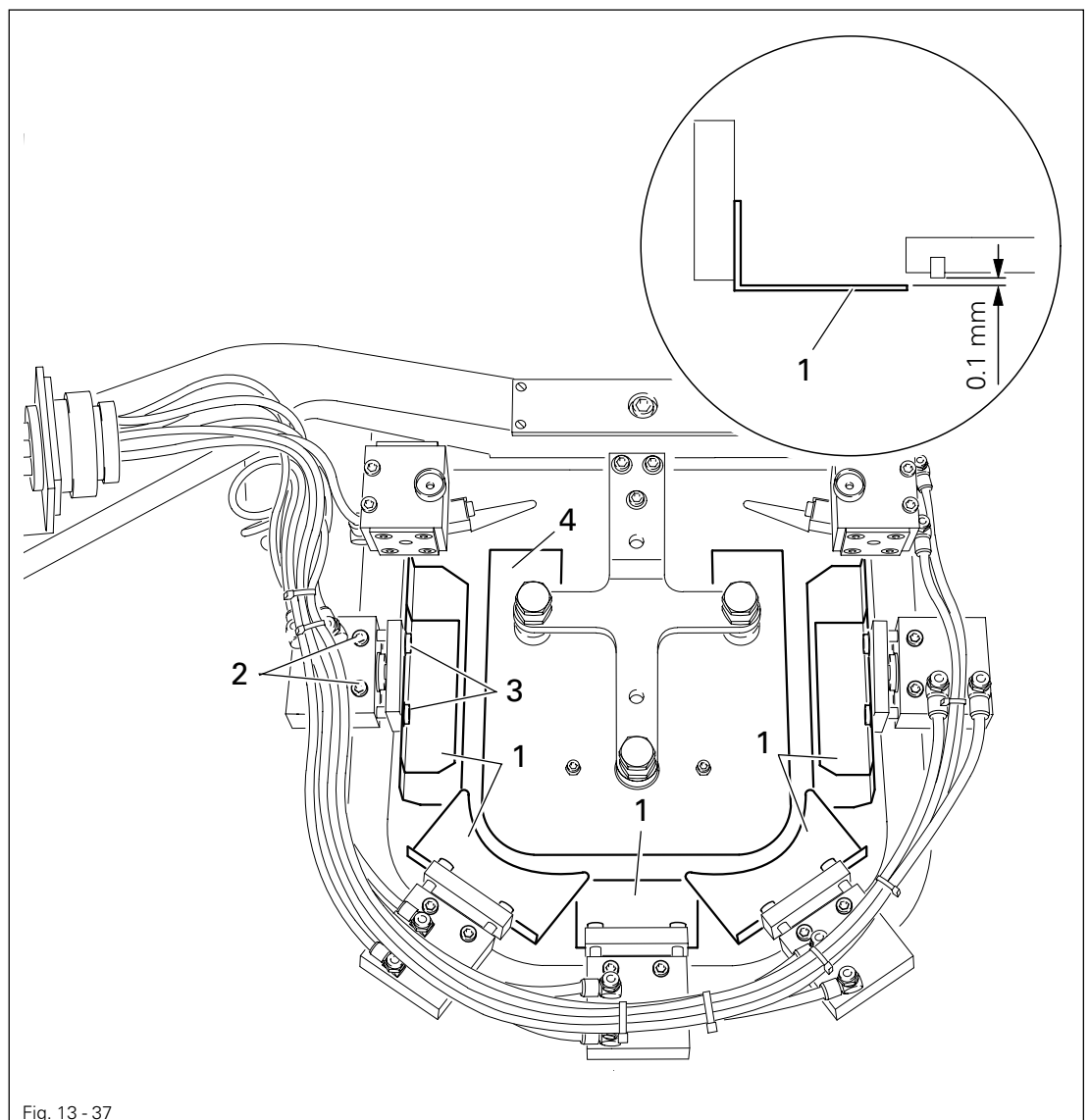
Fig. 13 - 37
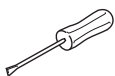
● Remove the folder.
● Align folder plate **1** (screws **2**) according to **requirement 1**.
● Insert the folder plates **1** one after another according to the control sequence (see **chapter 13.06.09 Control sequence of the folder plates**) and align according to **requirement 2** (screws **3**).
● Remount the folder.

Adjustment

Requirement

1. In folder position, the corner folders **4** must be parallel under the slanted side of the folder plate and overlap by **1** to **2 mm**.
2. The corner folders **4** must be positioned **1 to 2 mm** under the folder plates depending on the fabric thickness.

Fig. 13 - 38
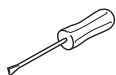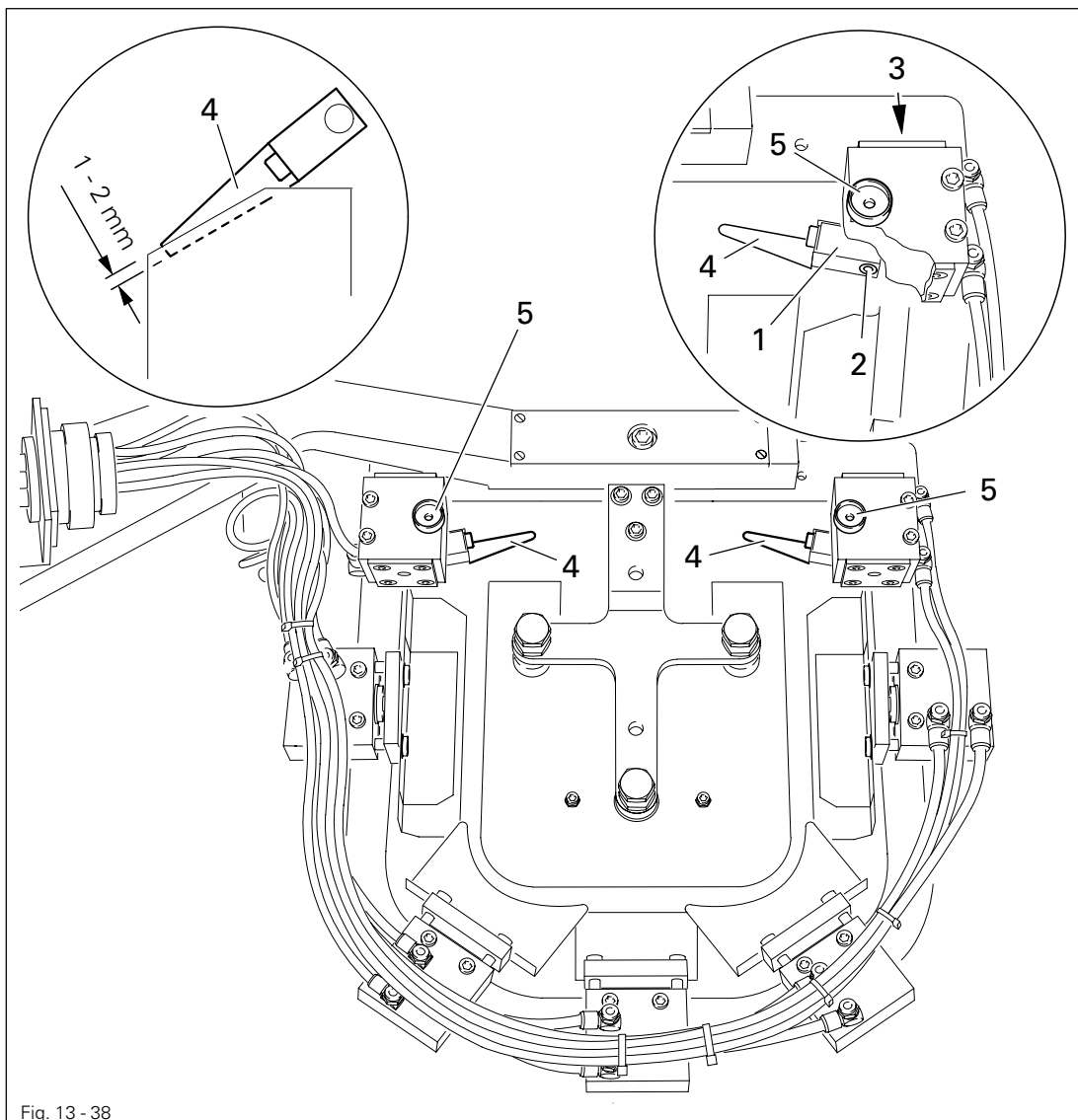
● Preadjust the clamps **1** (screws **2**) according to **requirement 1**.
● For the final adjustment, turn stop screws **3** according to **requirement 1**.
● Adjust the corner folders **4** (screws **5**) according to **requirement 2**.

13.06.12   Aligning the seam in relation to the pocket

Requirement
The seam is to be at the same distance on all sides to the pocket edge.
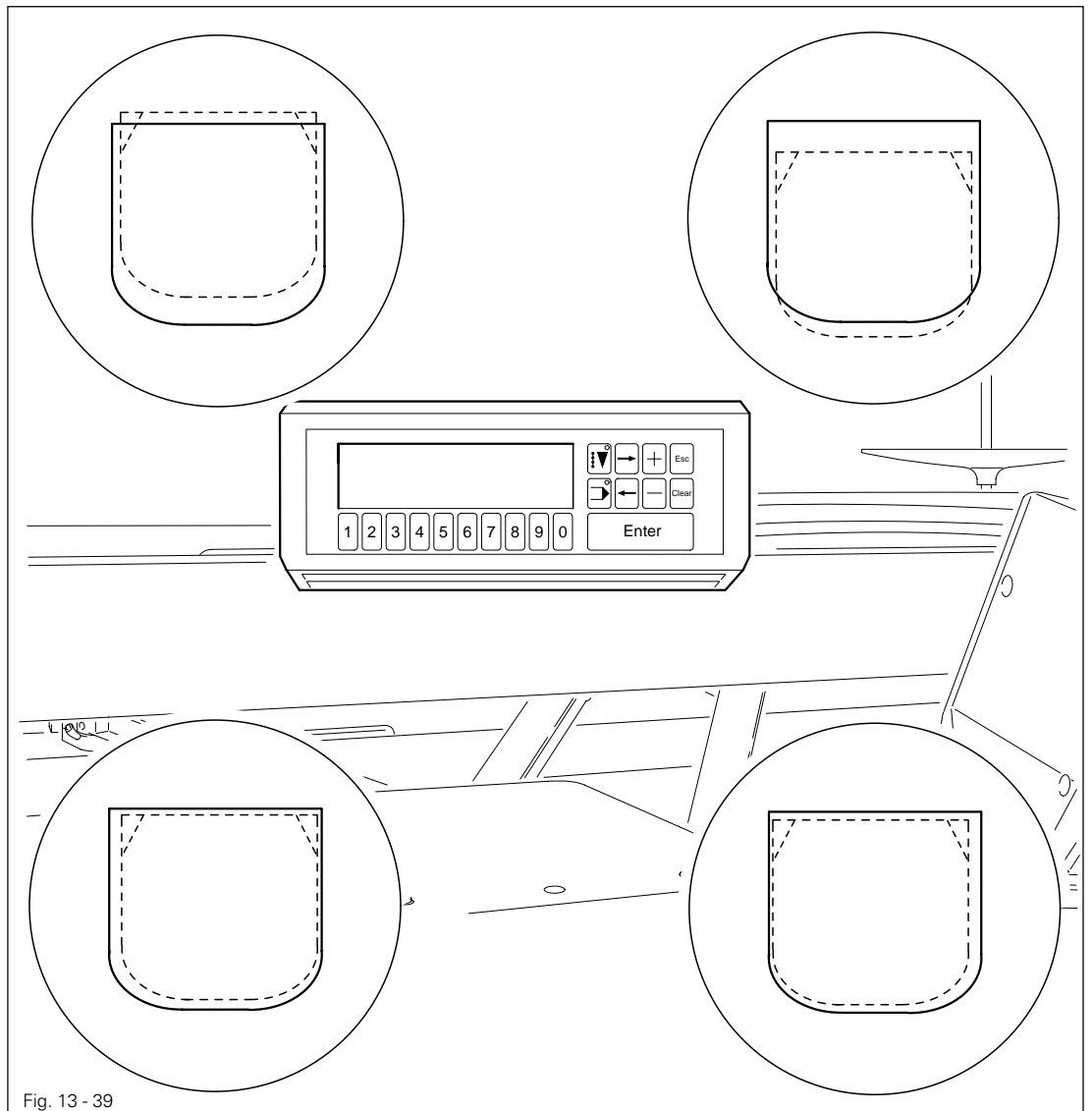
Fig. 13 - 39
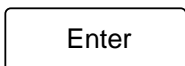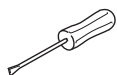
● Switch on the machine.

● Select the **INPUT** mode.

● Select **parts program functions** function (number key 9).

● Align the seam according to the **requirement** via the functions SEAM CORRECTION X (number key 7) and SEAM CORRECTION Y (number key 8).

Enter   ● Store the changes with the **Enter key.**

● Switch off the machine.

Adjustment

13.06.13   Seam backtack distance

Requirement
The distance between the seam backtack and the pocket opening is to be approx. **1 mm.**
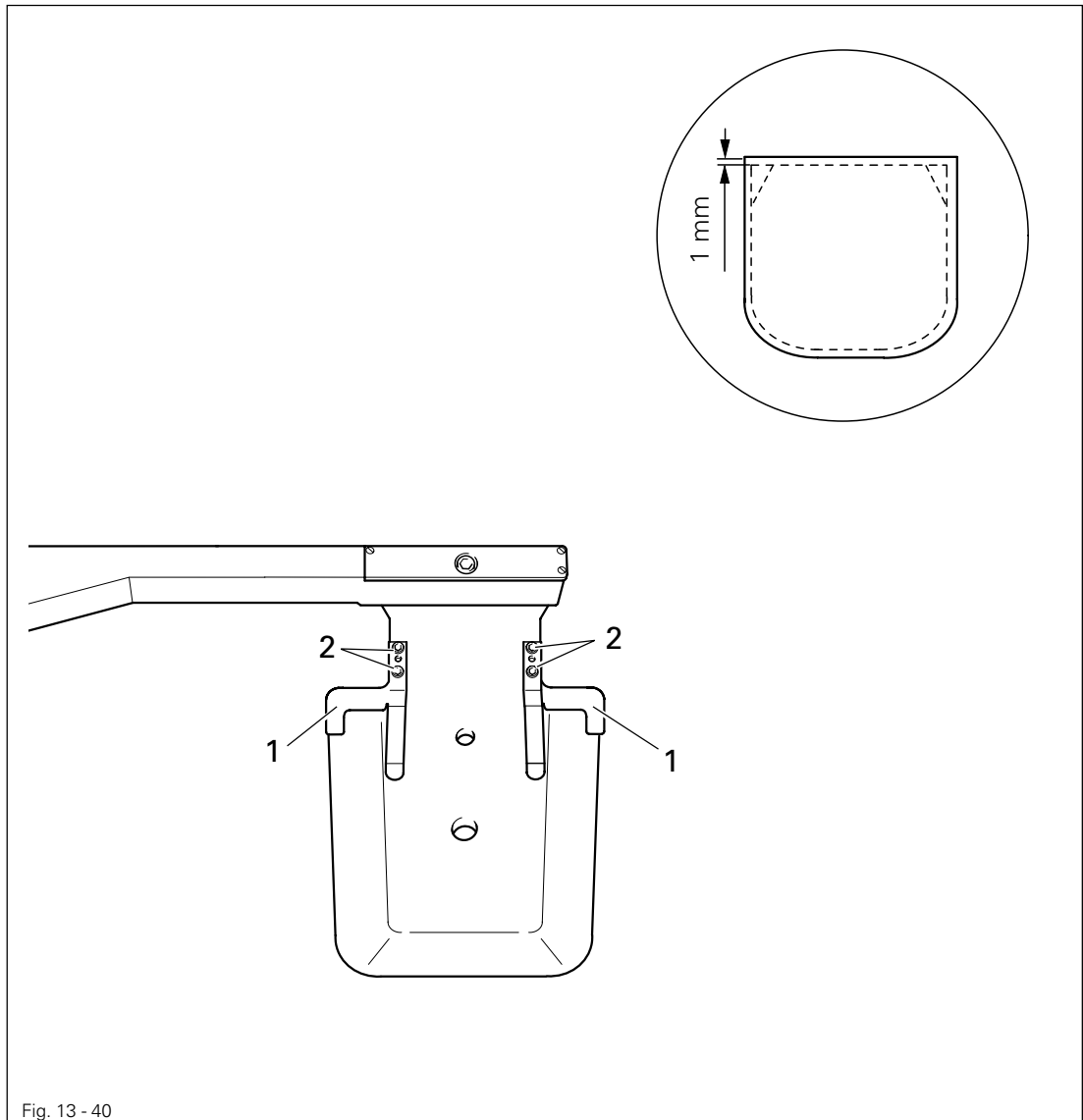
Fig. 13 - 40
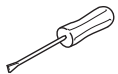
● Adjust stops **1** (screws **2**) on the pocket plate according to the **requirement.**

13.06.14   Stacking device

> **Requirement**
> When it is in operating position, the stacking device **2** must hold the workpiece with the least amount of pressure possible.

Fig. 13 - 41
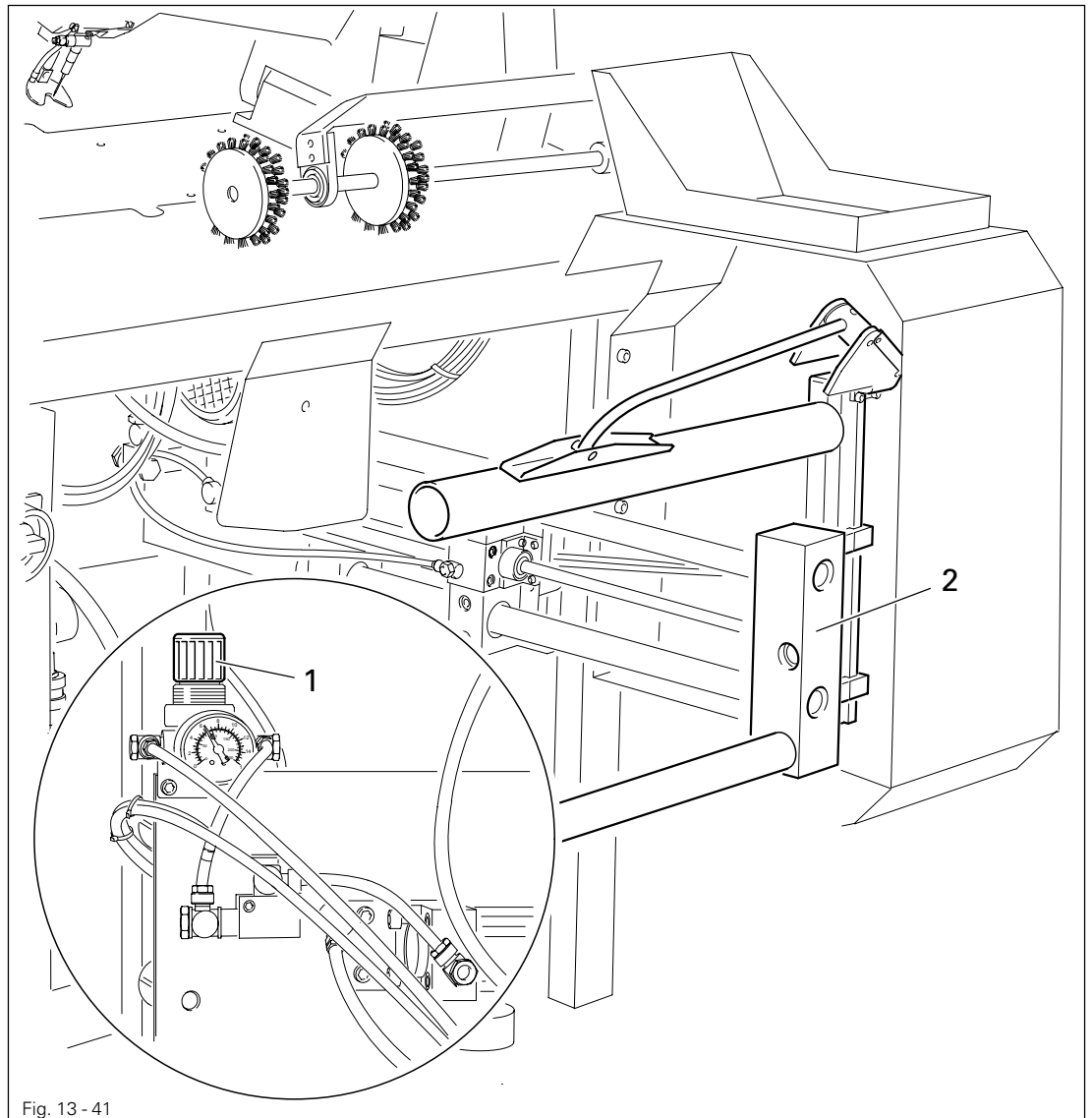
● Adjust the pressure at pressure reducing valve **1** according to the **requirement**.

> ℹ️ To carry out the adjustments, the outputs Y 52 and Y 51 must be switched.
> (See **chapter 11.05 Functions in the INPUT mode**, in particular pgs. 11-17).

Adjustment

Aligning the feed rollers

Requirement

The lowered feed follers **4** must rest lightly and evenly on the table top, and be positioned parallel to the front edge of the table.
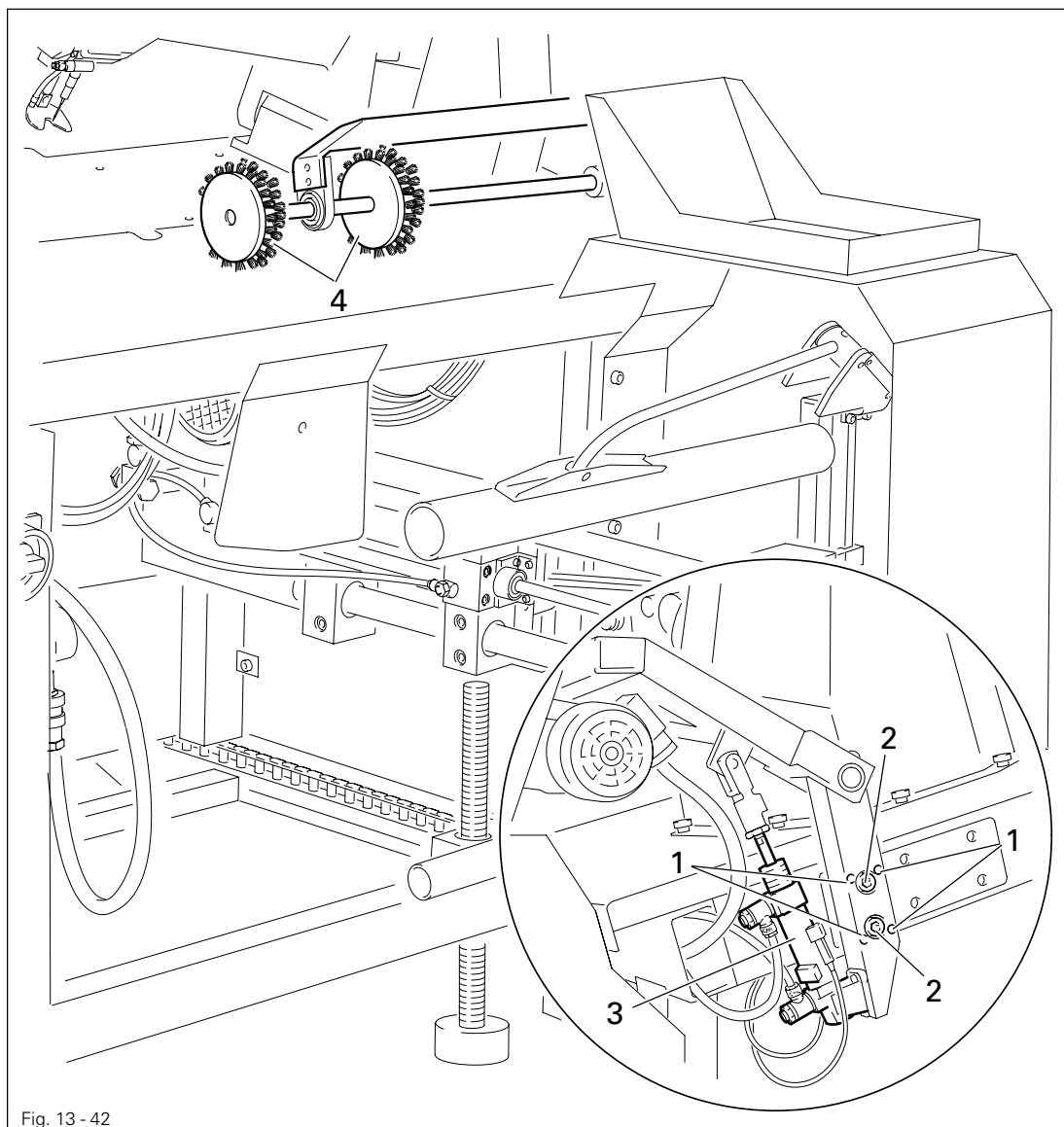
Fig. 13 - 42
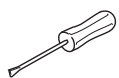
● Turn screws **1** (loosen screws **2** slightly) and the plunger (lock nut) of the cylinder **3** according to the **requirement.**

PFAFF

13.07 Shaping folder plates

13.07.01 New installation / self-manufacture of folder plates
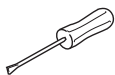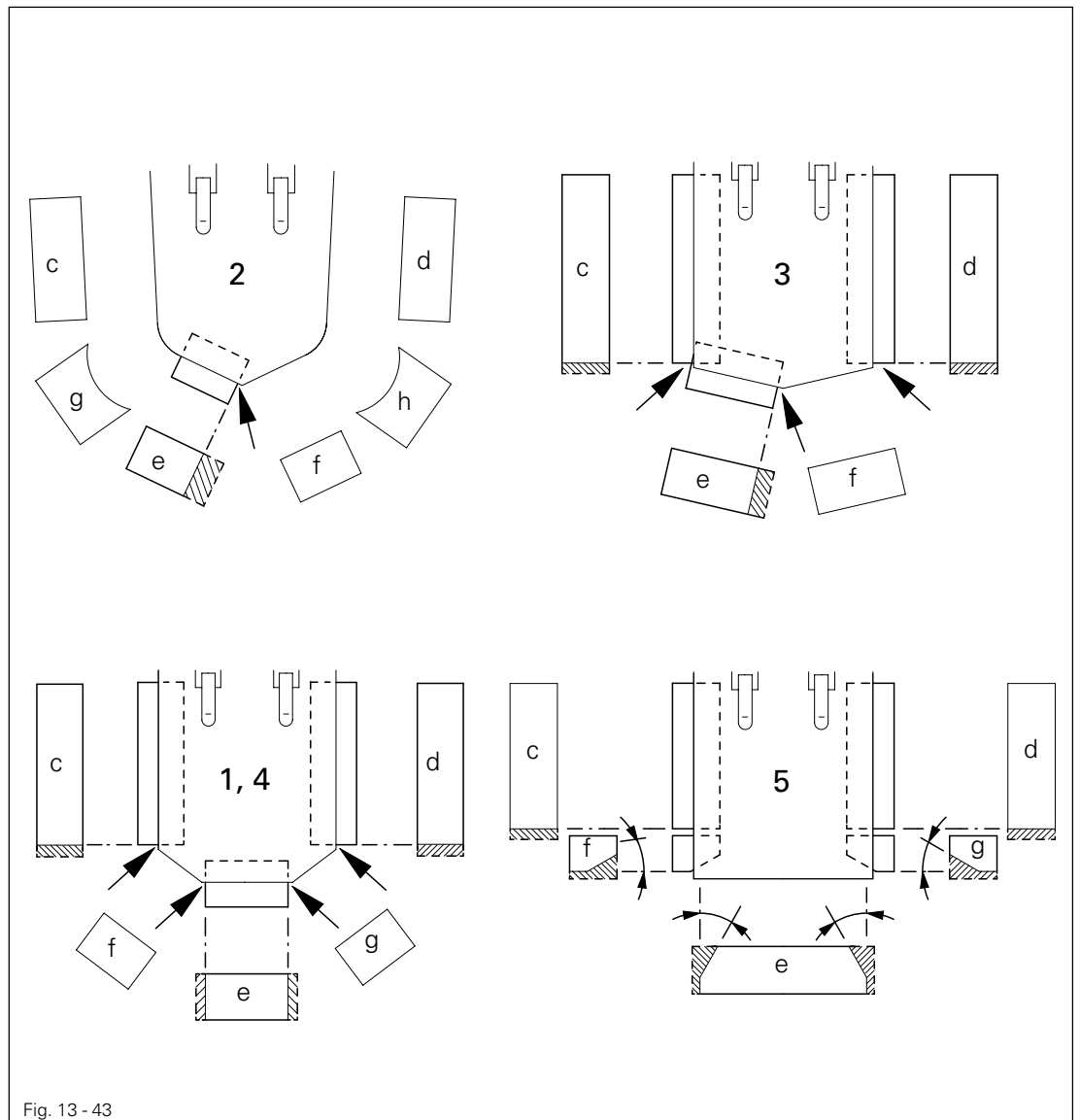
Fig. 13 - 43

● Make and/or install the folder plates according to **Fig. 13-43.**

When newly installing or making the folder plates, make sure that they lie behind the corners of the pocket plate by at least the amount of the fabric thickness on the marked spots.

For the fifth pocket style, the folder plates e, f and g must be additionally slanted by **30°**.

Adjustment

⚠ Do not begin with this work process until the adjustments in **chapters 13.06.12 Aligning the seam in relation to the pocket** and **13.06.13 Seam backtack distance** have been carried out!

Fig. 13 - 44
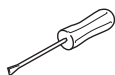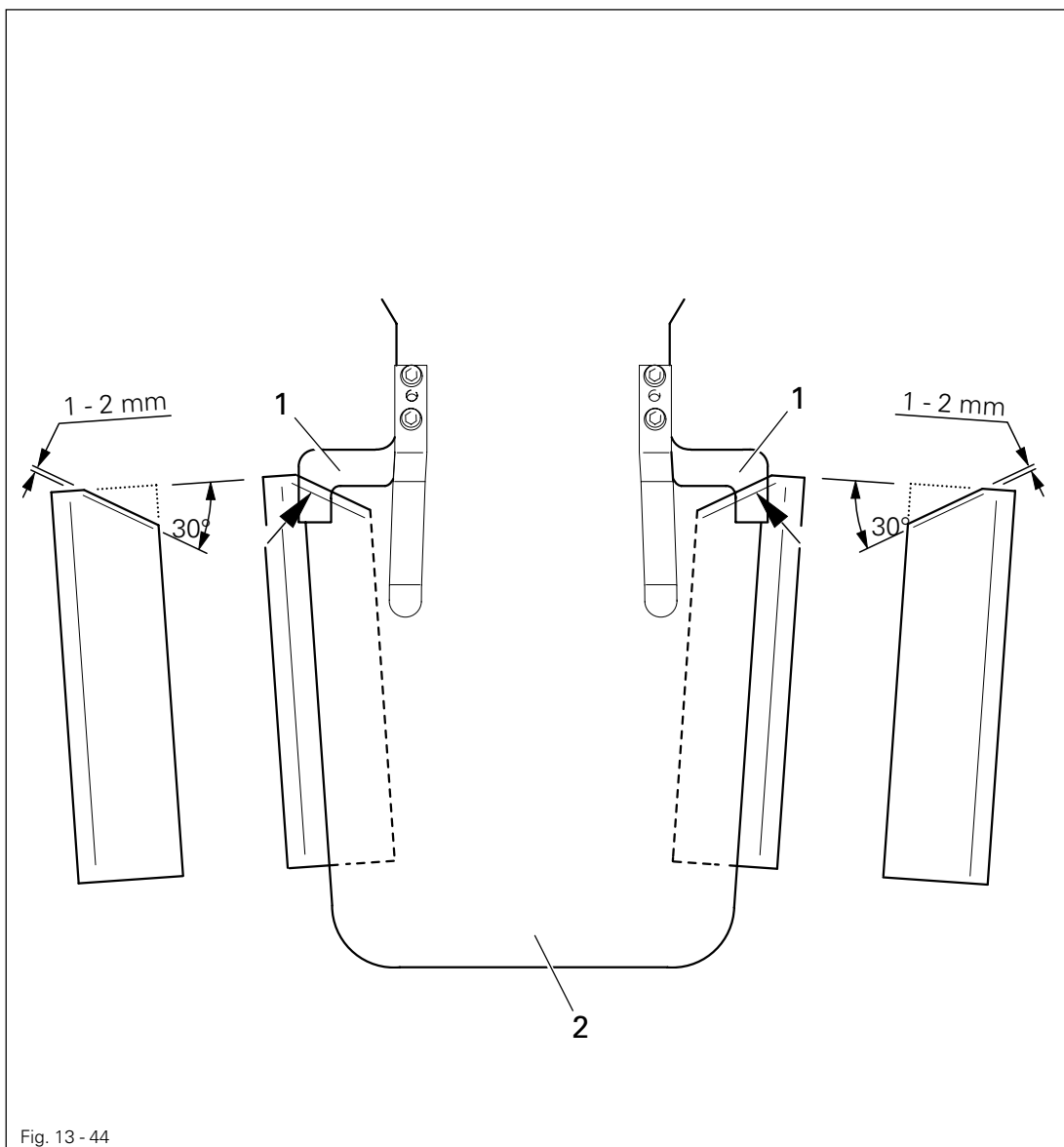
- With the folder plates fully extended, transfer the front edges of the stops **1** and the outer edge of the pocket plate **2** to the lateral folder plate.
- Trace slanted edge of **30°.**
- Work the folder plate up to **1 - 2 mm** before the trace.
- Round off the edges of the folder plate and polish.

Contents .... Chapter - Page

14 Control

14.01 Basic setting / Diagnosis / Pin assignment

14.01.01 Basic control unit A20

⚠️ In the factory, the basic control unit is equipped with the necessary operating and ramp software. This may only be replaced by appropriately trained personnel.

Pin locations

Key for booting the software

Disk drive

Mains connection

X4, Com2

X5, SM-axis 1

X6, SM-axis 2

X3, Com1

X7, SM-axis 3

X8 CAN-Bus

16V/AC, Si 0.5 A/T

X11, Main drive

Index

Network, Si 1.25 A/T

5 V CPU, Si 2A/T

Thread monitor

24 V, max. 5 A

Periphery, Si 6.3 A/T
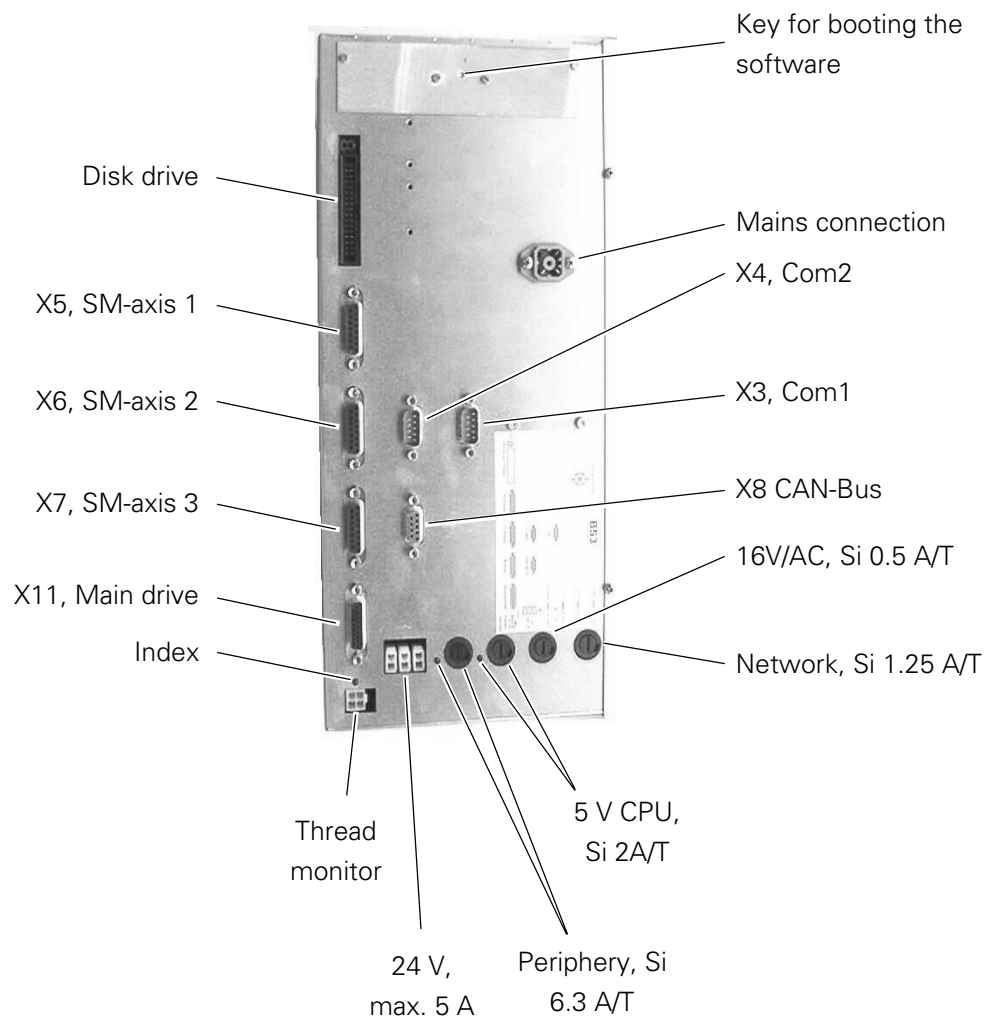
Operation indicators/Voltage supply

LEDs for various operating voltages are provided on top of the device (see sticker on the device).

These LEDs are for + 12V, + 15.1V and + 24V.

Fuses

2,0 AT / 5V / CPU

6,3 AT / 24V / Periphery

0,5 AT / 16V / Control panel

1,25 AT / 230V / Main

Pin assignment

X 3 (COM1) and X 4 (COM2)

PIN	Signal	PIN	Signal
1	Vterm1	6	bridged to PIN 4
2	RxD	7	RTS
3	TxD	8	CTS
4	bridged to PIN 6	9	Vterm2
5	GND		

X 5 (motor 1) and X 6 (motor 2)

PIN	Signal	PIN	Signal
1	pulse +	9	pulse -
2	direction +	10	direction -
3	Fkt1 +	11	Fkt1 -
4	Fkt2 +	12	Fkt2 -
5	Vex +	13	Vex -
6			
7	Inp2 +	14	Inp2 -
8	Inp1 +	15	Inp1 -

X 8 (CAN-Bus)

PIN	Signal	PIN	Signal
1		6	
2		7	
3	DoRi +	8	DoRi -
4	GND	9	GND
5			

X 11 (main drive)

PIN	Signal	PIN	Signal
1	screening	14	A_A
2	TxD_A	15	A_B
3	RxD_A	16	B_A
4	TxD_B	17	B_B
5	RxD_B	18	I_A
6		19	I_B
7	GND	20	GND
8		21	A_OC
9	R1_A	22	B_OC
10	R1_B	23	I_OC
11	R2_A	24	V2
12	R2_B	25	GND
13	GND	26	Vex

14.01.02   Sewing drive A22

Before leaving the factory, the sewing drive controller is equipped with the necessary operating software. This software may only be replaced by appropriate specialist personnel.

The LED Power on indicates if (the sewing drive) is ready to operate. There are no diagnostic functions and fuses available. If error messages occur in the machine display, please refer to **chapter 14.02.02 Errors - Sewing drive**.

Pin assignment

X 1 (synchronizer)

PIN	Signal	PIN	Signal
1	FA	6	
2	FB	7	
3	SM	8	
4	ADTC1	9	GND
5	+ 5V		

X 2 (commutating signal generator)

PIN	Signal	PIN	Signal
1		6	KA
2		7	KB
3		8	KC
4	ADTC2	9	GND
5	+ 5V		

X 3 (Interface)

PIN	Signal	PIN	Signal
1	GND	14	A
2	TxD	15	A\
3	RxD	16	B
4	TxD\	17	B\
5	RxD\	18	Index
6		19	Index\
7	GND	20	
8		21	
9	REF1	22	
10	REF1\	23	
11	REF2	24	
12	REF2\	25	
13	GND	26	

X 6 (mains)

PIN	Signal
1	PE
2	N
3	L1

X 14 (motor)

PIN	Signal
1	PE
2	U
3	V
4	W

14.01.03 List of parameters - Sewing drive

Parameter	Description	Range		Default	
		min.	max.	(Quick)	3588
(606) 0D$_H$	minimum speed (in 10 min^{-1})	3	64	(20)	3
(607) 0E$_H$	maximum speed (in 100 min^{-1})	1	100	(15)	45
(609) 10$_H$	positioning speed (in 10 min^{-1}))	3	25	(20)	20*
(718) 07$_H$	rest brake power	0	100	(0)	0
(722) 11$_H$	positive ramp (in ms^{-1})	1	50	(45)	45
(723) 12$_H$	negative ramp (in ms^{-1})	1	50	(30)	45
(804) 15$_H$	count position (in incr.)	0	239	(120)	0
(840) 1C$_H$	time-out (in 10 ms)	1	100	(10)	10
(841) 16$_H$	reference signal 1 (in incr.)	0	239	(0)	60*
(842) 17$_H$	reference signal 2 (in incr.)	0	239	(0)	187* / 147*
(843) 1F$_H$	machine code	0	255	(255)	1
(850) 0F$_H$	max. motor speed (in 100 min^{-1})	20	60	(50)	50
(851)	steep brake ramp for path monitoring	see Par. 08$_H$		(Bit7 = 1)	Bit7 = 1
(852) 18$_H$	altern. pos. ramp (in 0.1 min^{-1})	1	250	(10)	-
(853) 19$_H$	altern. neg. ramp (in 0.1 min^{-1})	1	250	(10)	-
(854)	braking when power off	see Par. 08$_H$		(Bit3 =1)	Bit3 = 1
(884) 00$_H$	P-quota speed controller	1	50	(12)	25
(885) 01$_H$	l-quota speed controller	0	100	(30)	30
(886) 02$_H$	P-quota position controller	1	50	(20)	20
(887) 03$_H$	D-quota position controller	1	100	(30)	30
(889) 04$_H$	time for position control (in 10 ms)	0	100	(40)	40
(890) 05$_H$	P-quota for rest brake	1	50	(25)	25
(891) 06$_H$	D-quota for rest brake	0	50	(20)	20
(894)	rotary direction synchronizer	see Par. 08$_H$		(Bit1 =1)	Bit1 = 1
(897)	commutating signal generator	see Par. 08$_H$		(Bit4 =0)	Bit4 = 0
(898)	pole number motor	see Par. 08$_H$		(Bit5 =0)	Bit5 = 0
(997) 0A$_H$	winding resistance motor (in 100 mOhm)	10	99	(50)	50
(998) 09$_H$	constant of e.m.f. of motor (in V/1000 rev.)	10	250	(60)	60
(999) 13$_H$	delay for path-optimized brakes (in ms^{-1})	20	50	(30)	30

* The parameters can be changed in the input and/or varies dependent on the machine type.

Special requirements for parameter 08$_H$

In the following byte, some parameters are encrypted. They can only be changed by manipulating the corresponding bits. The bits 0, 2 and 6 may not be changed.

Bit:	7	6	5	4	3	2	1	0	
	1	1	0	0	1	0	1	0	(bit pattern 3588 class)

(894) 0: rotary direction commutating signal generator

(854) 0: motor slows down until it comes to a halt, when power off

  1: motor is braked by means of e.m.f, when power off

(897) 0: Quick commutating signal generator

  1: other commutating signal generator

(898) 0: 6-pole motor

  1: 4-pole motor

(851) 0: set value for flat ramps on stitch-counted seams (parameter 12$_H$ < 20)

  1: set value for steep ramps on stitch-counted seams (parameter 12$_H$ > 20)

14.01.04 Stepping motor drive A21

The stepping motor controller has the following initial setting:

DIP switch

OFF	ON	
*		Step no.: 1000
*		Step no.:
*		Current reduction active
*		Enable

Rotary switch

B

Position B ==> phase current 5.4 A

For information on the status indications via LED please refer to **chapter 14.02.03 Errors - Stepping motor drive**.

Pin assignment

X 1 (motor 1 input) and X 2 (motor 2 input)

PIN	Signal	PIN	Signal
1	Pulse +	9	Pulse -
2	Direction +	10	Direction -
3	Gate/Enable +	11	Gate/Enable -
4	Current control +	12	Current control -
5		13	
6		14	
7		15	Ready -
8	Ready +		

14.01.05   Stacker motor drive

⚠ Before leaving the factory, the stacker motor drive has been set and/or programmed to meet the requirements of this machine. It may only be replaced by a programmed drive.

Operation controls

LED H1 (yellow)	LED H2 (green)	Meaning
off	off	Power off, no function
on	off	Power on, after approx. 0.5 s of self-test ready for operation
off	on	drive has been started
on	on	overload protection active
flashes	off	see chapter **14.02.04 Errors - Sewing drive**

14.01.06   AC-Line-Controller

⚠ The AC-Line-Controller is set in the factory to the requirements of this machine. An exchange is only permissible after prior adjustments.

Default setting

Potentiometer	Value
UL (upper limit)	260V
LL (lower limit)	195V
off delay	Min.

Operation displays

LED ((green)	LED (red)	Meaning
off	off	line off - no function
on	off	machine functional, voltage outside the set range
on	on	machine functional, voltage within the set range

14.02 Error description

If an error occurs at the machine, the current operation is interrupted and an error message is displayed. Depending on the gravity of the error displayed, an error-free operation can be achieved by adjusting, checking, different handling etc. If necessary, individual components must be replaced. For many of the error messages, the cause which led to the error is also displayed and will be helpful for error correction (see **chapter 14.02.01 Example of an error message**).

14.02.01 Example of an error message

In the following, an error when switching an output is displayed.

ERROR: Y1.1 (1)
CAUSE: E2.2 (0)
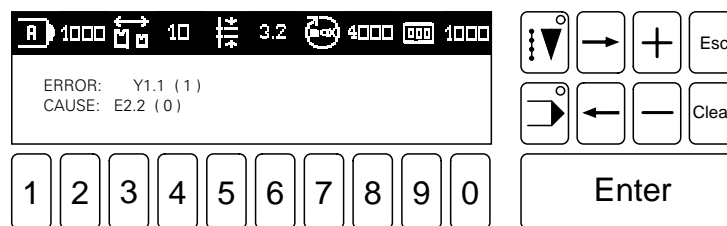
Fig. 14 - 01

If an error occurs when switching an output, the respective output is displayed with the desired switching state (0) or (1), (0) meaning that the output is to be switched off and (1) meaning that the output is to be switched on. The next line displays the cause which led to the mistake. In brackets the set condition for an error-free operation is displayed. In our example, the input E2.2 is thus not meant to be switched.

Control

14.02.02   Errors - Sewing drive

If an error occurs during an operation with the sewing motor, the operation is canceled and an error message is displayed.

The error message is generated by the motor controller and appears on the display of the control panel; the index number is hexadecimal.

Number	Error
1	Transfer error
2	Timeout serial interface
3	Check sum error in received data
4	Timeout command
30h	Timeout slave expired (command string incomplete)
31h	Incorrect command code
32h	Framing or parity error
33h	Check sum incorrect
34h	Incorrect date on requests
35h	No parameters programmable (motor is in operation)
36h	Parameter does not exist
37h	Incorrect parameter value
38h	EEPROM is being programmed
39h	Incorrect machine speed
3Ah	Incorrect position
3Bh	Path for guided positioning too short
3Ch	Reset of the position counter not possible (motor is in operation)
3Dh	Rotating in TDC after power-on not permissible
3Eh	Synchronization marker not detected
3Fh	Target position <3 incr. away from count position
40h - 4Fh	-
50h	Power monitoring (failure of 2 power half waves)
51h	Malfunction power electronics on initializing
52h	Short-circuit in the motor
53h	Power off detected
54h	Malfunction power electronics when in operation
55h	No increments
56h	Motor blocks
57h	Commutating signal generator plug missing
58h	Increment signal generator plug missing
59h	Motor not running properly (set speed not achieved)
5Ah	-
5Bh	Feedback control algorithm is inhibited
5Ch - 69h	-
6Ah	EEPROM not programmable
6Bh	EEPROM missing
6Ch	Master Reset carried out
6Dh	-
6Eh	Remaining path for path-monitored, guided delay ramp too small
6Fh	Slave has received 5 garbled messages in a row
70h	Time monitoring system expired
71h - FFh	-

14.02.03   Errors - Stepping motor drive

If problems occur with the stepping motor drive during the operation, an error might have occurred in the stepping motor controller.
The error message is indicated by LEDs on the stepping motor controller.

LED	Meaning
01 ROT. ERROR	goes out when - the motor blocks - the stepping motor amplifier is not ready - the Enable input is not activated - a breakage has occurred in the supply and/or blocking detection line
06 READY	is lit when - the amplifier is driven correctly - the supplied voltage is in the rated range
07 FAULT	lights up if a short-circuit occurs between two motor phases
08 TEMP	lights up if the temperature at the cooling device is too high (> 75 °C)
09 OVER-VOLT	lights up if there is an over-voltage (>400 V) during braking
10 LOW-VOLT	lights up if there is a low voltage (<200 V)
09 + 10	are lit if the Enable input is not activated

Additional problems

Problem	Cause	Correction
no LEDs are lit	- supply voltage missing	check supply voltage
	- supply voltage incorrect	connect properly
motor is not rotating and does not have a holding torque	- signal input current controller active	set input to inactive
	- signal input Enable not active	
	- motor connected incorrectly	connect properly
motor is not rotating but does have a holding torque	- signal input gate active	set input to inactive
	- signal input pulse	correct timing and voltage level
motor is rotating unevenly	- signal inputs pulse and direction	correct timing and voltage level
	- overload	check load conditions
	- motor defunct	replace motor
motor is rotating in the wrong direction	- motor phases connected the wrong way round	connect motor phases properly
	- signal input direction incorrectly set	correct rotary direction
motor has too little momentum	- motor phase current incorrectly set	choose the correct phase current

14.02.04   Errors - Stacker drive

If problems occur with the stacker drive during operation, an error might have occurred in the motor drive.

In this case, a flashing LED on the motor controller indicates the error.

H1(yellow) flashes	Condition/ cause	Correction/ Comment
once |_____|_____	processor error	switch the mains off and back on again (Reset)
twice ||_____||_____	power off low voltage	flashes until UZK <65V, automatic reset
three times |||_____|||_____	power off due to overcurrent I > 180% I_N short-circuit	check drive/motor cable
four times ||||_____||||_____	overcurrent or motor acts as generator	check mains, check drive
five times |||||_____|||||_____	I*t power off motor	motor overloaded, check drive
six times ||||||_____||||||_____	I*t power off frequency converter	frequency converter overloaded, check drive
seven times |||||||_____|||||||_____	motor temperature too high	check bridge X5/10-11 motor overloaded
eight times ||||||||_____||||||||_____	frequency converter temperature too high	frequency converter overloaded, check mounting conditions
nine times |||||||||_____|||||||||_____	Error in the EEPROM	switch mains off and on again (Reset)

14.02.05   Errors - Disk drive

If an error at the disk drive occurs during an operation, the operation is canceled and an error message is displayed. The error message is given out by the disk drive. Some errors are displayed in clear text, others are given in number form (decimal).

Number	Error
1	transfer error serial interface
2	incorrect command
3	syntax error
4	invalid character in the data field
5	invalid disk drive number
6	disk has no name
7	sector not found
8	file concatenation incorrect
9	sector with incorrect check sum
10	file not found
11	write error
12	disk or file write-protected
13	disk full
14	disk directory full
15	overwrite an existing file (warning)
16	drive not ready or no drive selected
17	read error from disk
18	wrong disk format
19	formatting error
20	disk change with format change
21	internal error

14.02.06   Errors - Stitch generation

If an error occurs during the calculation of the stitch data, the operation is canceled and an error message will be displayed. The error message appears in clear text and possibly with a number in brackets. This number indicates the section where the error occurred. Additionally, errors may occur which have not been assigned a special text. Please refer to the following table for the meaning of the error number.

Number	Error
0	No Error
1	Wrong machine code in geometrical data record
2	Section clamp or section obstacle is missing or at the wrong place
3	Increment too large
4	Program end without trimming
5	Stitch length inadmissible
6	Wrong element in the geometrical data record
7	Fast slew although machine is sewing
8	Stitch length inadmissible (line)
9	Stitch length inadmissible (circle)
10	Circle point = circle end point
11	Division by 0
12	Stitch length inadmissible (curve)
13	No coordinate section in front of the curve point
14	Sewing area exceeded
15	Curve without end point
16	Machine functions buffer full
17	Start sewing command in the loading position program
18	Wrong curve point
19	Wrong curve point
20	Wrong curve point
21	Wrong curve point
22	Stitch length not initialized
23	Loading position program not finished
24	Stitch width command in the loading position program
25	Value not permissible for section stitch direction
26	Trimming command although thread has been trimmed
27	Start sewing command, although machine is sewing
28	Trimming command in the Sewing-Off area
29	Sewing-Off command, although thread has been trimmed
30	Trimming command immediately after Start Sewing command

Control

14.03　Tables

14.03.01　Tables for lock/release functions

Ref. no.		Function
0	▣	Program station A
1	▣	Program station B
2	▣	Program number selection / Station keys programming
3	▣	Automatic change of program station
4	↕	Frame up / down
5	▣	Bobbin thread functions
6		RESET STITCH-COUNTER
7		BOBBIN-THREAD PRESELECT
8	▣	Head functions
9		STITCH LENGTH
10		MAXIMUM SPEED
11		REDUCED SPEED
12		DELAY ZIGZAG ON
13		DELAY ZIGZAG OFF
14		SEWING
15	▣	Folder functions
16		INTERMEDIATE STOP
17		UNI-MATERIAL
18		BASIC POSITION POCKET PLATE
19		ALTERNATING FOLDING
20		ALTERNATING LABELLING
113		EDGE FOLDER CONFIGURATION
21		CHANGE PART SET
22	▣	Parts program functions
23		ROLLING DIRECTION STACKER
24		SLOW ROLLING TIME STACKER
25		FAST ROLLING TIME STACKER
109		TIME FOR STACK TRESTLE BACK
26		TIME FOR EDGE FOLDERS BACK
27		TIME FOR POCKET PLATE UP
28		FEED SPEED
29		SEAM CORRECTION X
30		SEAM CORRECTION Y
115		STACKER

Ref.no.	Function
31	⬛ Input menu
32	PROGRAM MANAGEMENT
33	DIRECTORY
34	DIRECTORY OF MEMORY
35	DIRECTORY OF DISK
36	READ / WRITE PROGRAM
37	READ ONE PROGRAM FROM DISK
38	READ ALL PROGRAMS FROM DISK
39	WRITE ONE PROGRAM ON DISK
40	WRITE ALL PROGRAMS ON DISK
41	DELETE PROGRAM
42	DELETE ONE PROGRAM IN MEMORY
43	DELETE ALL PROGRAMS IN MEMORY
44	DELETE ONE PROGRAM ON DISK
45	DELETE ALL PROGRAMS ON DISK
46	FORMAT DISK
47	STATISTICAL PROGRAM DATA
48	DATA TRANSFER WITH PC
49	CREATE / MODIFY PROGRAM
50	COUNTER
51	RESET PIECE-COUNTER
52	THREAD MONITOR
53	SURPR.ST. NEEDLE THREAD MON.
54	SURPR.ST. BOBBIN THREAD MON.
55	STITCH REVERSAL
111	RESPONSE TIME, NEEDLE-THREAD MONITOR
56	SLOW START-STITCHES
57	CARRIAGE START (NIS)
58	START FOR THREAD TRIMMING
59	SWITCH FUNCTIONS
60	THREAD MONITOR
61	NEEDLE THREAD MONITOR
62	BOBBIN THREAD MONITOR
63	BOBBIN THREAD SENSOR

Index number	Function
64	LANGUAGE SELECTION
65	GERMAN
66	ENGLISH
67	FRENCH
68	SPANISH
69	ITALIAN
112	POLISH
114	TURKISH
70	OPTIONS
71	TILT HEAD (BEDPLATE)
72	JIG MONITOR
73	FOLDER VERSION
74	LABEL FEED
75	JIG VERSION
76	CONTINUOUS CARRIAGE MOVEMENT
77	LOCK / RELEASE FUNCTIONS
78	TIMES
110	TIME FOR LABEL CLAMP CLOSED
79	SERVICE
80	SEWING DRIVE FUNCTIONS
81	TURN SEWING MOTOR
82	THREAD TRIMMING PROCEDURE
83	CUTTING SPEED - PRE-SEL.
84	STEPPING MOTOR FUNCTIONS
85	STEPPING MOTOR 1
86	STEPPING MOTOR 2
87	MOVE CARRIAGE
88	TEST CARRIAGE
89	SWITCH OUTPUTS
90	DISPLAY INPUTS / OUTPUTS
91	ADJUST ZERO POINT
92	GAUGE POSITION
93	NEEDLE POSITION
94	FOLDER POSITION

Index number	Function
95	CONFIGURE MACHINE
96	TILTABLE HEAD
97	VERTICAL HOOK
98	JIG MONITOR
99	LABEL FEED
100	HEIGHT ADJUSTMENT
102	OTHER FUNCTIONS
103	WRITE MACHINE DATA ON DISK
104	READ MACHINE DATA FROM DISK
105	CARRY OUT COLD START
106	DISPLAY SOFTWARE STATUS
107	CONTRAST SETTING OF DISPLAY
108	CHANGE CODE NUMBER

14 - 18 appears right aligned in the table near index 95 row.

14.03.02   Table of machine data (MDAT)

The following input functions are stored:

	program station A
	program station B
	parts program number
	automatic program change
Bobbin thread functions:	bobbin thread pre-select
Head functions:	maximum speed
	reduced speed
	delay zigzag on
	delay zigzag off
	sewing
Folder functions:	intermediate stop
	uni-material
	basic position pocket plate
	alternating folding
	alternating labelling
	Edge folder configuration
Parts program functions:	rolling direction stacker
(all 20 parts programs)	slow rolling time stacker
	fast rolling time stacker
	Time for stack trestle back
	time for edge folders back
	time for pocket plate up
	feed speed
	seam correction X
	seam correction Y
	Stacker
Counter:	surpressed stitches needle thread monitor
	surpressed stitches bobbin thread monitor
	stitch reversal
	Response time, needle-thread monitor
	slow start-stitches
	carriage start (NIS)
	start for thread trimming
Switch functions:	needle thread monitor
	bobbin thread monitor
	bobbin thread sensor
	language selection
	tilt head (bedplate)
	jig monitor
	folder version
	label feed
	Jig version
	flap
	continuous carriage movement
	lock/release functions
Times:	Time for label clamp closed
Service:	cutting speed pre-select
	code number

14.03.03 Tables of outputs

Node A11/X300

Output	Denomination		Index number
OUT1	Y1.1	pocket plate forwards	0
OUT2	Y1.2	pocket plate backwards	1
OUT3	Y2.1	pocket plate up	2
OUT4	Y2.2	pocket plate down	3
OUT5	Y3	lift pocket plate on	4
OUT6	K4	Pocket-die solenoid on	5
OUT7		not assignet	6
OUT8	Y5.1	folder up	7
OUT9	Y5.2	folder down	8
OUT10	Y6	corner folder forwards	9
OUT11	Y7	folder plate 1 forwards	10
OUT12	Y8	folder plate 2 forwards	11
OUT13	Y9	folder plate 3 forwards	12
OUT14	Y10	air suction on	13
OUT15	Y35.1	jig up	14
OUT16	Y35.2	jig down	15

Node A12/X300

Output	Denomination		Index number
OUT1	Y30	presser foot down/ thread trapper up	16
OUT2	Y31.1	lift head	17
OUT3	Y31.2	lower head	18
OUT4	K32	thread tension is released	19
OUT5	Y34	air blast needle cooling system on	20
OUT6	Y36	zig-zag on (prog. output 3)	21
OUT7	Y37	secondary tension on (prog. output 5)	22
OUT8		not assignet	23
OUT9	Y50	roller down	24
OUT10	Y51	retaining clamp up	25
OUT11	Y52	stacker frame back	26
OUT12	Y33	thread trimming on	27
OUT13		progr. output 1	28
OUT14		progr. output 2	29
OUT15	Y39	On subclass -04/020: bobbin cover open	30
OUT15	Y39.2	On subclass -02/020: bedplate up	30
OUT16	Y39.1	On subclass -02/020: bedplate down	31

Node A13/X300

Ausgang	Bezeichnung		Index number
OUT1	ETSTART	start label feed	32
OUT2	Y11	no pressure on label retaining clamp or it is open (on edge folder version 4: swivel edge folders 3)	33
OUT3	Y12	flap positioning on / variable sewing slot narrow	34
OUT4	Y13	flap positioning off/ variable sewing slot wide	35
OUT5		not assigned	36
OUT6	BOBRES	reset for bobbin thread monitor	37
OUT7		not assigned	38
OUT8	Y40	hook lubrication on	39
OUT9	STR	start stacker motor clockwise	40 (S)
OUT10	STL	start stacker motor anti-clockwise	41 (S)
OUT11	S1IND	stacker motor frequency 1	42 (S)
OUT12	S2IND	stacker motor frequency 2	43 (S)
OUT13	K53	height adjustment for frame on	44
OUT14		not assigned	45
OUT15		not assigned	46
OUT16		not assigned	47

Special jobs

Node A13/X300

Output	Denomination		Index number
OUT9	STR	stacker motor slowly forwards	48
OUT10	STL		
OUT11	S1IND		
OUT12	S2IND		
OUT13	K53		
OUT9	STR	stacker motor slowly backwards	49
OUT10	STL		
OUT11	S1IND		
OUT12	S2IND		
OUT13	K53		
OUT9	STR	stacker motor fast forward	50
OUT10	STL		
OUT11	S1IND		
OUT12	S2IND		
OUT13	K53		
OUT9	STR	frame up	51
OUT10	STL		
OUT11	S1IND		
OUT12	S2IND		
OUT13	K53		
OUT9	STR	frame down	52
OUT10	STL		
OUT11	S1IND		
OUT12	S2IND		
OUT13	K53		

14.03.04   Tables of inputs

Node A11/X400

Input	Denomination	
IN1	E1.1	pocket plate at front
IN2	E1.2	pocket plate at rear
IN3	E2.2	pocket plate down
IN4		not assigned
IN5		not assigned
IN6	E5.1	folder up
IN7	E5.2	folder down
IN8	TSAUG	Suction key, inserting function switch
IN9	TDOPP1	double-start key 1
IN10	TDOPP2	double-start key 2
IN11	E35.1	jig up
IN12	E35.2	jig down
IN13	PRESS	air pressure o.k.
IN14	FKEY	key for secured functions
IN15	TSSTOP	separate stop key
IN16	AC_OK	Line voltage within set range

Node A12/X400

Input	Denomination	
IN1	E30	presser foot up
IN2	E31.1	head lifted
IN3	E31.2	head lowered
IN4	THERR	needle thread disturbance
IN5		programmable input 1
IN6		programmable input 2
IN7	E39.2	On subclass -02/020: bedplate up
IN7	E39.2	On subclass -04/020: free
IN8	E39.1	On subclass -02/020: bedplate down
IN8	E39.1	On subclass -04/020 - bobbin cover closed
IN10	E50.2	roller down
IN11		not assigned
IN12		not assigned
IN13	E52	stacker frame at rear
IN14	SM1LIMIT	zero position SM1
IN15	SM2LIMIT	zero position SM2
IN16		not assigned

Node A13/X400

Input	Denomination		
IN1	JIGCODE	Bit 0	
IN2	.	Bit 1	
IN3	.	Bit 2	
IN4	.	Bit 3	
IN5	.	Bit 4	
IN6	.	Bit 5	
IN7	.	Bit 6	
IN8	.	Bit 7	
IN9	BOBERR	bobbin thread disturbance	
IN10	ETERR	label feed error	
IN11	ETRDY	label feed completed	
IN12	ETINKL	label in clamp	
IN13	E14	Jig with obstacles	
IN14	E12.1	Flap position switched on (flap version 2)	
IN14	E12.2	flap positioning off / sewing slot wide (flap version 1)	
IN15	E54.1	frame up	
IN16	E54.2	frame down	

14.04   Updating the software

● Switch off the on/off switch.
● Insert the disk with the new software (bootdisk "**K3588Boot1**" – machine software) in the disk drive.
● Remove the switch cabinet cover.

⚠️ Only have this work carried out by properly trained personnel! Do not touch any live parts! Danger from electric voltage!

● Press key **1** (accessible through hole) and hold it in this position.
● Switch on the on/off switch..


```
┌─────────────────────────────────────────────┐   ┌──┐┌──┐┌──┐┌───┐
│              BOOTPROGRAM                      │   │▼ ││→ ││+ ││Esc│
│                KL3588                         │   └──┘└──┘└──┘└───┘
│ ALL DATA ON FLASHDISK WILL BE ERASED!!        │   ┌──┐┌──┐┌──┐┌─────┐
│ - START BOOTPROGRAM WITH ENTER                │   │⏎ ││← ││− ││Clear│
│ - SKIP WITH ANY OTHER                         │   └──┘└──┘└──┘└─────┘
└─────────────────────────────────────────────┘
┌─┐┌─┐┌─┐┌─┐┌─┐┌─┐┌─┐┌─┐┌─┐┌─┐        ┌──────────┐
│1││2││3││4││5││6││7││8││9││0│        │  Enter   │
└─┘└─┘└─┘└─┘└─┘└─┘└─┘└─┘└─┘└─┘        └──────────┘
```
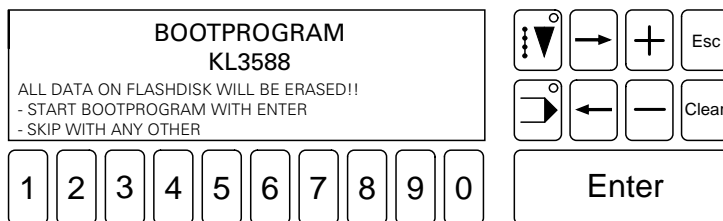
● With Enter all seam patterns are deleted and the boot program continued.
● To interrupt the boot program press another key.

```
- SAVE KONFIGURATION WITH ENTER
- SKIP WITH ANY OTHER
YOU SHOULD NOT SAVE KONFIGURATION
IF YOU ARE BOOTING THIS BS3-UNIT
ON THIS MACHINE FOR THE FIRST TIME!
```

[1][2][3][4][5][6][7][8][9][0]   [▼][→][+][Esc] [⬎][←][—][Clear]   Enter
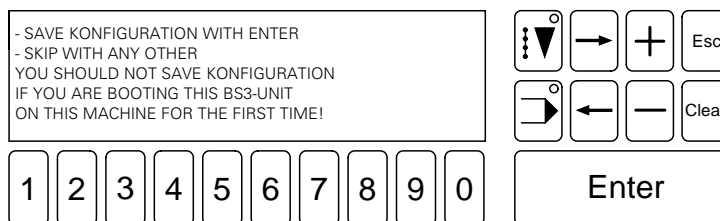
● Press **Enter** to save the configuration data and continue the booting procedure (e.g. for a software update).
   Press any other key on the control panel to delete the configuration data (e.g. when replacing a BS3).

```
BOOTPROGRAM

running...
PLEASE WAIT
```

[1][2][3][4][5][6][7][8][9][0]   Enter
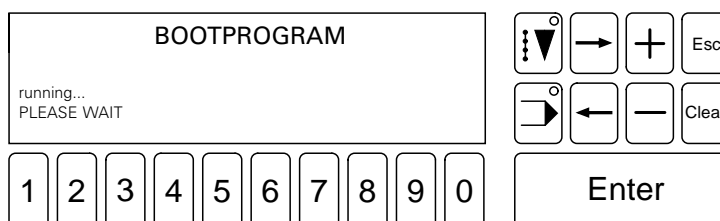
● Boot program is running..
   please wait.
● The boot data is displayed.

```
BOOTPROGRAM
PASSED

REMOVE THE DISK FROM DRIVE
AND RESTART THE MACHINE
```

[1][2][3][4][5][6][7][8][9][0]   Enter
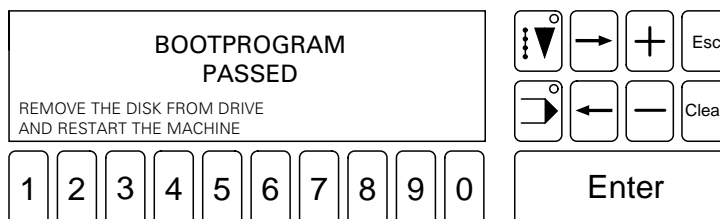
● Remove the disk from the disk drive and restart the machine.

```
INSERT BOOTDISK KL3588 BOOT2
CONTINUE WTH ENTER
```

[1][2][3][4][5][6][7][8][9][0]   Enter
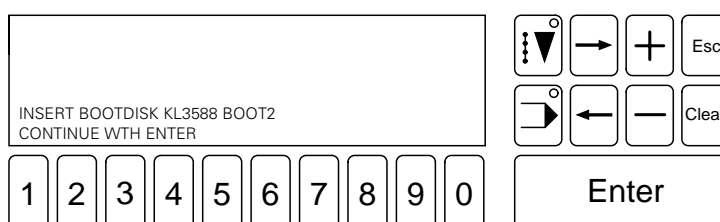
● If this display appears on the screen after the restart, insert BOOTDISK "K3588BOOT2"
   – BS3-firmware in the disk drive and confirm with Enter.

Reference list

M1	Stepping motor 1	71-5200-0517
M2	Stepping motor 2	71-5200-0517
M3	Sewing motor	71-5235-5534
M4	Stacker motor	71-5200-0519
M5	Height-adjustment motor	71-5200-0520
M6	Vacuum blower motor -2/01	71-9100-0051
M6	Vacuum blower motor -4/01	71-9100-0052
M7	Fan - control box	71-9100-0035
A11	CAN node 1	91-291 362-96
A12	CAN node 2	91-291 362-96
A13	CAN node 3	91-291 362-96
A20	Controller BS 3	71-7500-0247
A21	Stepping motors amplifier, BERGER	71-7500-0221
A22	Sewing motor amplifier, QUICK	71-5900-0711
A23	Synchronizer	71-1400-0041
A24	Needle thread monitor, monitoring results	71-7100-0079
A25	Needle thread monitor, sensor	71-7100-0080
A26	Control panel	71-7500-0219
A60	Frequency converter, LUST	71-7500-0209
K4	Pocket-die solenoid	95-745 527-05
K32	Thread tension is released	91-291 133-91
K53	Switching relay, height adjustment / stacker	71-1900-0060
K54	Voltage supervision relay	71-7100-0082
Z1	Line filter	71-4800-0012
E1	Sewing lamp	71-2500-0358
T1	Transformer for sewing lamp	71-5500-0231
C1	Capacitor for M6 (-4/01)	71-4100-0110
Q1	On/off switch	71-1100-0307

PFAFF

E1.1	Pocket plate at front
E1.2	Pocket plate at rear
E2.2	Pocket plate down
E5.1	Folder up
E5.2	Folder down
E12.2	Flap position off / sewing slot wide
E13	Linkage monitoring
E14	Jig with obstacles
E30	Presser foot up
E31.1	Sewing head lifted
E31.2	Sewing head lowered
E35.1	Jig up
E35.2	Jig down
E39	Bobbin cover closed
E39.1	Bedplate down
E39.2	Bedplate up
E50.1	Roller down
E50.2	Roller up
E52	Stacker frame at front
E54.1	Frame up
E54.2	Frame down
in1	Programmable input 1
in2	Programmable input 2
sm1limit	Neutral position SM1
sm2limit	Neutral position SM2
tdopp1	Double-start key 1
tdopp2	Double-start key 2
tsaug	Suction key (inserting function switch)
press	Air pressure OK
fkey	Key (for secured functions)
tsstop	Separate stop key
therr	Needle thread disturbance
boberr	Bobbin thread disturbance
eterr	Label feed error
etrdy	Label feed completed
etinkl	Label in clamp
jigcode	Jig code

Connections

X1	Distribution strip 230 V and 24 V
X10	Neutral position SM1
X11	Neutral position SM2
X12	Feed roller down (stacker)
X13	Feed roller up (stacker)
X15	Central electric plug sewing head
X16	E31.1 (sewing head lifted)
X17	E31.2 (sewing head lowered)
X18	K32 (Thread tension is released)
X19	tdopp1 and tdopp2 (double-start keys)
X20	E54.1 and E54.2 (frame up/down)
X21	tsaug (inserting function switch - suction key)
X22	M6 (vacuum blower motor)
X23	M5 (height adjustment)
X24	E1.1 (folder)
X25	E1.2 (folder)
X26	E2.2 (folder)
X27	E4.1 (folder)
X28	E4.2 (folder)
X29	E5.1 (folder)
X30	E5.2 (folder)
X31	E39 (bobbin cover opens)
X32	Rotor position
X33	Sewing motor
X34	press (air filter/lubricator unit)
X35	Linkage monitoring
X36	fkey (key for secured function)
X37	E13 (linkage monitoring)
X38	Separate stop key
X39	E35.2 jig down
X40	E35.1 jig up
X41	etinkl Label in clamp
X42	E12.2 Flap positioning / variable sewing slot
X43	E12.2 Flap positioning / variable sewing slot

PFAFF

Y1.1	Pocket plate at front
Y1.2	Pocket plate at back
Y2.1	Pocket plate on
Y2.2	Pocket plate off
Y3	Pocket plate airing on
Y5.1	Folder up
Y5.2	Folder down
Y6	Corner folder at front
Y7	Edge folder 1 at front
Y8	Edge folder 2 at front
Y9	Edge folder 3 at front
Y10	Suction on
Y11	No pressure on label retaining clamp, or it is open
Y12.1	Flap positioning on / var. sewing slot narrow
Y12.2	Flap positioning off / var. sewing slot wide
Y30	Presser foot up / Thread trapper up
Y31.1	Raise head (arm)
Y31.2	Lower head (arm)
K32	Thread tension release on (Thread tens. up)
K33	Thread cutting on (vertical hook system)
Y33	Thread cutting on (horizontal hook system)
Y34	Air blast / needle cooling on
Y36	Zigzag on (programmable output 3)
Y37	Additional thread tension (prog. output 4)
Y39	Bobbin cover open
Y39.1	Bedplate off
Y39.2	Bedplate on (tilt)
Y40	Oiling on
Y50	Roller off
Y51	Clamp strap on
Y52	Stacker stand at front
K53	Frame height adjustment on
A60.3	LUST-converter „STR"
A60.4	LUST-converter „STL"
A60.5	LUST-converter „S1 ind"
A60.6	LUST-converter „S2 ind"
A60.7	LUST-converter „GND"

E 13

1.1	
1.2	
2.1	
1.2	
2.1	

X35
X24
X25
X26
X27
X28
X29
X30
X38
X21
X41
X43
X22

(594)

tsstop

(650)

tsaug

(95-776 304-71)

M6

M5

54.1
54.2

A 60 ──gnge──	PE	⊘		⊘	PE	──gnge── M 4	
A 60 ──gnge──	PE	⊘		⊘	PE		
A 60 ◁──	13	15	⊘	15	⊘	13	◁── F 1
A 22 ◁──	13	15	⊘	15	⊘	13	──▷ A 21
M 7 ◁──	13	15	⊘	15	⊘	13	──▷ M 6
T 1 ◁──	13	15	⊘	15	⊘	13	──▷ X 2
C 1 ◁──	13	15	⊘	15	⊘	13	──▷ A 20
A 11 - L1 ◁──	22	21	⊘	21	⊘	22	◁── A 20 - 24V
A 12 - L3 ◁──	22	21	⊘	21	⊘	22	──▷ Y 00
A 13 - L5 ◁──	22	21	⊘	21	⊘	22	──▷ E 13
	22	21	⊘	21	⊘	22	
A 24 - 24V ◁──	22	21	⊘	21	⊘	22	──▷ A 21 - GND
A 24 - TAKT ◁──	29	26	○	24	○	28	◁── A 20 - TAKT
E 13 ──▷		27	○	25	○		──▷ A 21 - SENSE
Q 1 ──gnge──	PE	⊘		⊘	PE	──gnge── X 2	
A 22 ──gnge──	PE	⊘		⊘	PE	──gnge── A 20	
M 7 ──gnge──	PE	⊘		⊘	PE	──gnge── A 21	
Z 1 ──gnge──	PE	⊘		⊘	PE	──gnge── M 6	
M 5 ──gnge──	PE	⊘		⊘	PE		

13 = N (230V)

15 = L (230V)

21 = GND (24V)

22 = +24V

PFAFF

A11   L1

OUT	Pin	Component	Pin	GND
OUT 15	16	Y35.1	34	GND
OUT 16	15	Y35.2	33	GND
OUT 13	14	Y 9	32	GND
OUT 14	13	Y10	31	GND
OUT 11	12	Y 7	30	GND
OUT 12	11	Y 8	29	GND
OUT 9	10	Y5.2	28	GND
OUT 10	9	Y 6	27	GND
OUT 7	8		26	GND
OUT 8	7	Y5.1	25	GND
OUT 5	6	Y 3	24	GND
OUT 6	5	K 4	23	GND
OUT 3	4	Y2.1	22	GND
OUT 4	3	Y2.2	21	GND
OUT 1	2	Y1.1	20	GND
OUT 2	1	Y1.2	19	GND

A11   L1

A11 L2						A11 L2

IN 16 — 18 — ACOK — 54 24V / 36 GND

IN 15 — 17 — tsst — 53 24V / 35 GND

IN 14 — 16 — fkey — 52 24V / 34 GND

IN 13 — 15 — pres — 51 24V / 33 GND

IN 12 — 14 — E35.2 — 50 24V / 32 GND

IN 11 — 13 — E35.1 — 49 24V / 31 GND

IN 10 — 12 — X19 3 — tdo2 — X19 4 — 48 24V / 30 GND

IN 9 — 11 — X19 1 — tdo1 — X19 2 — 47 24V / 29 GND

IN 8 — 10 — X21 1 — tsau. — X21 2 — 46 24V / 28 GND

IN 7 — 9 — X30 2 — E5.2 — X30 1 — 45 24V / 27 GND

IN 6 — 8 — X29 2 — E5.1 — X29 1 — 44 24V / 26 GND

IN 5 — 7 — 43 24V / 25 GND

IN 4 — 6 — 42 24V / 24 GND

IN 3 — 5 — X26 2 — E2.2 — X26 1 — 41 24V / 23 GND

IN 2 — 4 — X25 2 — E1.2 — X25 1 — 40 24V / 22 GND

IN 1 — 3 — X24 2 — E1.1 — X24 1 — 39 24V / 21 GND

A12 L3				A12 L3
OUT 15 / 16	○——————○	Y39.2	○——————○	34 GND
OUT 16 / 15	○——————○	Y39.1	○——————○	33 GND
OUT 13 / 14	○			○ 32 GND
OUT 14 / 13	○			○ 31 GND
OUT 11 / 12	○——————○	Y52	○——————○	30 GND
OUT 12 / 11	○——————○	Y33	○——————○	29 GND
OUT 9 / 10	○——————○	Y50	○——————○	28 GND
OUT 10 / 9	○——————○	Y51	○——————○	27 GND
OUT 7 / 8	○——————○	Y37	○——————○	26 GND
OUT 8 / 7	○			○ 25 GND
OUT 5 / 6	○——————○	Y34	○——————○	24 GND
OUT 6 / 5	○——————○	Y36	○——————○	23 GND
OUT 3 / 4	○——————○	Y31.2	○——————○	22 GND
OUT 4 / 3	○—— X15/1 —— X18/1 ——	K32	—— X18/2 —— X15/2 ——○	21 GND
OUT 1 / 2	○——————○	Y30	○——————○	20 GND
OUT 2 / 1	○——————○	Y31.1	○——————○	19 GND

PFAFF