

PFAFF

421E1 1421E1

Instruction Manual

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

PFAFF	421 E1	# 2546845	→
PFAFF	1421 E1	# 2541850	→



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

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1 Safety

1.01 Directives

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

In addition to this Instruction Manual, observe also all generally accepted, statutory and other regulations and legal requirements and all valid environmental protection regulations! The regionally valid regulations of the social insurance society for occupational accidents or other supervisory organisations are to be strictly adhered to!

1.02 General notes on safety

- This machine may only be operated by adequately trained operators and only after having completely read and understood the Instruction Manual!
- All Notes on Safety and Instruction Manuals of the motor manufacturer are to be read before operating the machine!
- The danger and safety instructions on the machine itself are to be followed!
- This machine may only be used for the purpose for which it is intended and may not be operated without its safety devices. All safety regulations relevant to its operation are to be adhered to.
- When exchanging sewing tools (e.g. needle, roller presser, needle plate or bobbin), when threading the machine, when leaving the machine unattended and during maintenance work, the machine is to be separated from the power supply by switching off the On/Off switch or by removing the plug from the mains!
- Everyday maintenance work is only to be carried out by appropriately trained personnel!
- Repairs and special maintenance work may only be carried out by qualified service staff or appropriately trained personnel!
- Work on electrical equipment may only be carried out by appropriately trained personnel!
- Work is not permitted on parts and equipment which are connected to the power supply! Exceptions to this are only to be found in the regulations EN 50110.
- Modifications and alterations to the machine may only be carried out under observance of all the relevant safety regulations!
- Only spare parts which have been approved by us are to be used for repairs! We expressly point out that any replacement parts or accessories which are not supplied by us have not been tested and approved by us. The installation and/or use of any such products can lead to negative changes in the structural characteristics of the machine. We shall not be liable for any damage which may be caused by non-original parts.

1.03 Safety symbols



Danger!
Points to be observed.



Danger of injury for operating and specialist personnel!



Caution

Do not operate without finger 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 as to the safety equipment of the machine and regarding safe work methods.
- It is the duty of the user to only operate the machine in perfect running order.
- It is the obligation of the user to ensure that none of the safety mechanisms are removed or deactivated.
- It is the obligation of the user to ensure that only authorized persons operate and work on the machine.

Further information can be obtained at your PFAFF agent.

1.05 Operating and specialist personnel

1.05.01 Operating personnel

Operating personnel are persons responsible for the equipping, operating and cleaning of the machine as well as taking care of faults 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 limit the level of safety in using the machine!
- not wear loose-fitting clothing or jewellery such as chains or rings!
- also ensure that only authorized persons have access to the potentially dangerous area around the machine!
- always immediately report to the person responsible any changes in the machine which may limit its safety!

1.05.02 Specialist personnel

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

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

- always observe the Notes on Safety in the Instruction Manual!
- switch off the On/Off switch before carrying out adjustments or repairs and ensure that it cannot be switched on again unintentionally!
- never work on parts which are still connected to the power supply! Exceptions are contained only 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 or in the needle plate area while adjusting the machine settings! Objects can become trapped or be slung away! Danger of injury!

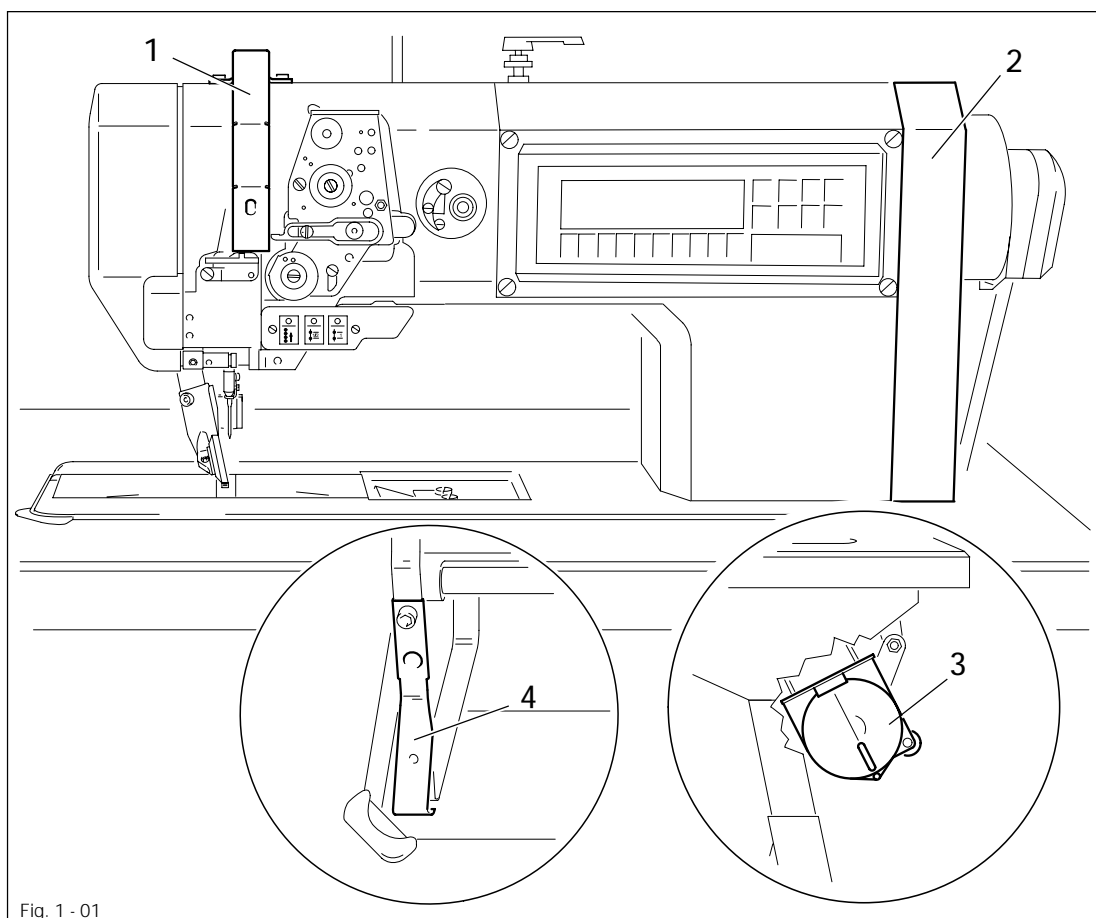


Fig. 1 - 01



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



Do not operate the machine without its belt guards **2** and **3**!
Danger of injury due to the rotating V-belt!



Do not operate the machine without tilt lock **4**!
Danger of crushing between sewing head and table top!

2 Proper use

The **PFAFF 421E1** is a high speed, single needle sewing machine with forwards and reverse feeding feed-wheel and roller presser as well as a feed-synchronized needle.

The **Pfaff 1421E1** is a single-needle high-speed seamer with compound feed, forward- and reverse-feeding wheel feed and roller presser, and large sewing hook.

These machines are used for sewing lockstitch seams in the leather and upholstery industries.



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

3 Specifications**3.01 PFAFF 421E1, 1421E1 ▲**

Stitch type: 301 (lockstitch)

Needle system PFAFF 421E1: 134

Needle system PFAFF 1421E1: 134-35

Handwheel eff. dia.: 65 mm

Clearance under the roller presser: 7 mm

Clearance width: 245 mm

Clearance height: 115 mm

Dimensions of sewing head:

Length: approx. 615 mm

Width: approx. 240 mm

Height (above table): approx. 320 mm

Bedplate: 518 x 177 mm

Max. speed: 4000 Sti/min ♦

Electrical data:

Operating voltage: 230 V ± 10%, 50/60 Hz

Max. output: 1.2 kVA

Fuse protection: 1 x 16 A, delayed action

Software: Version 79-0011 0200/010

Working noise level:

Emission at workplace at n = 2500 spm: 80 dB(A): 80 dB(A)

(Noise measurement in accordance with DIN 45 635-48-A-1)

Net weight of machine head: approx. 61 kg

Gross weight of machine head: approx. 71 kg

▲ Subject to alteration

♦Varies according to material, work process and stitch length

Specifications

3.02 Needle and thread PFAFF 421E1

Model	Thread thickness ▲ (Nm) max. synthetic	Needle thickness in 1/100 mm	needle system
A	60 - 60	70	134
B	40 - 40	100	134
B/C	20 - 30	120	134

▲ or comparable thicknesses of other thread types

3.03 Needle and thread PFAFF 1421E1

Model	Thread thickness ▲ (Nm) max. synthetic	Needle thickness in 1/100 mm	needle system
B	40 - 40	100	134 - 35
B/C	20 - 30	120	134 - 35

▲ or comparable thicknesses of other thread types

3.04 Possible models

Model A (only PFAFF 421E1) For processing fine materials
 Model B For processing medium materials
 Model B/C For processing medium to medium/heavy materials

4 Disposal of machines

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



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

5 Transport packaging and storage

5.01 Transport to the customer's premises

Within Germany, complete machines (with table and motor) are delivered without packaging. Machines without a table (sewing head with motor only) and 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. Always ensure that the machine is only transported upright.

5.03 Disposal of the packaging

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

5.04 Storage

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

For longer storage the individual parts of the machines, especially the moving parts, should be protected against corrosion, e.g. by a film of oil.

6 Explanation of the symbols

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

The symbols used have the following meanings:



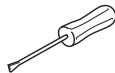
Note, information



Cleaning, care



Lubrication, greasing



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

7 Controls

7.01 On/off switch

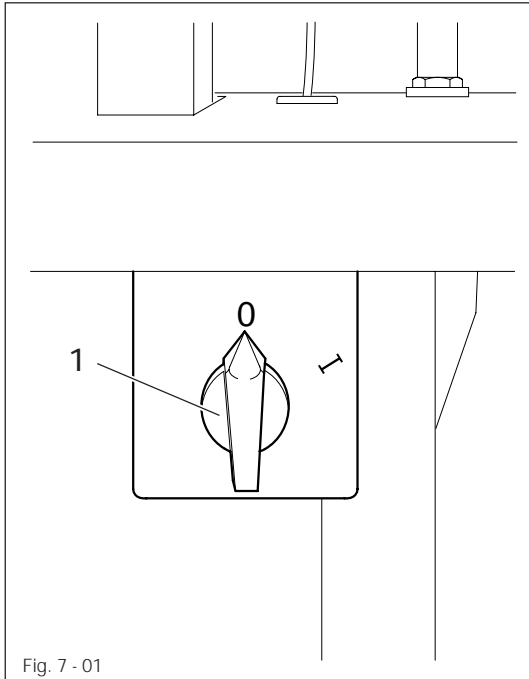


Fig. 7 - 01

- Turn the machine on/off by turning On/Off switch 1.

7.02 Keys on the machine head

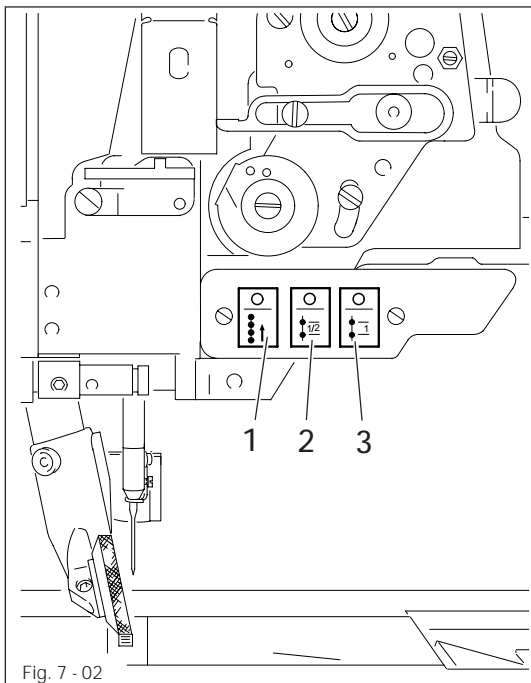


Fig. 7 - 02

- Different functions are triggered by pressing the different keys.

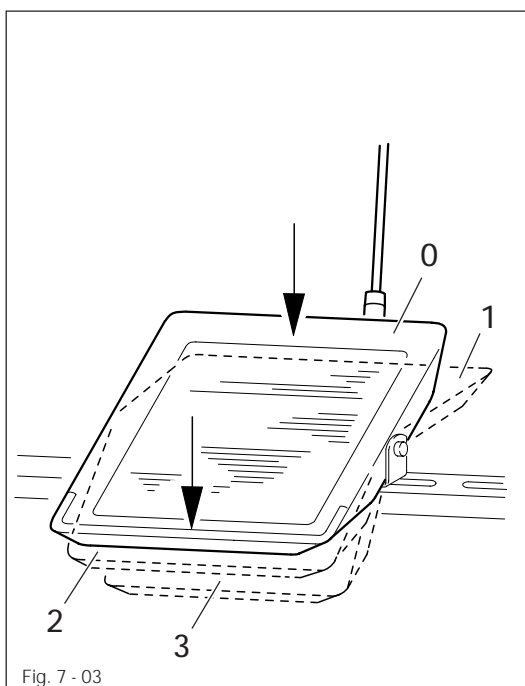
Key 1: reverse sewing

Key 2: sews one stitch with half stitch length.

Key 3: sews one stitch with full stitch length.

7.03

Pedal



● Different functions are triggered by different pedal positions.

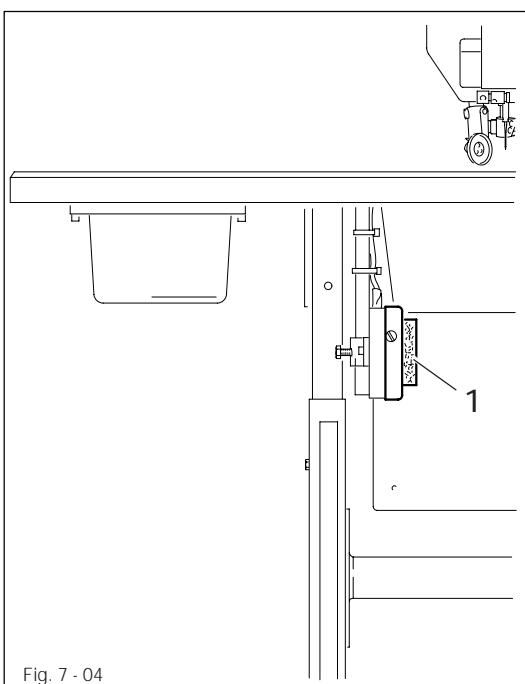
- 0 = Machine stop
- 1 = Sew
- 2 = Raise roller-presser
- 3 = Trim thread and raise roller presser



Other pedal functions can also be programmed (see chapter 11 Programming)

7.04

Knee switch



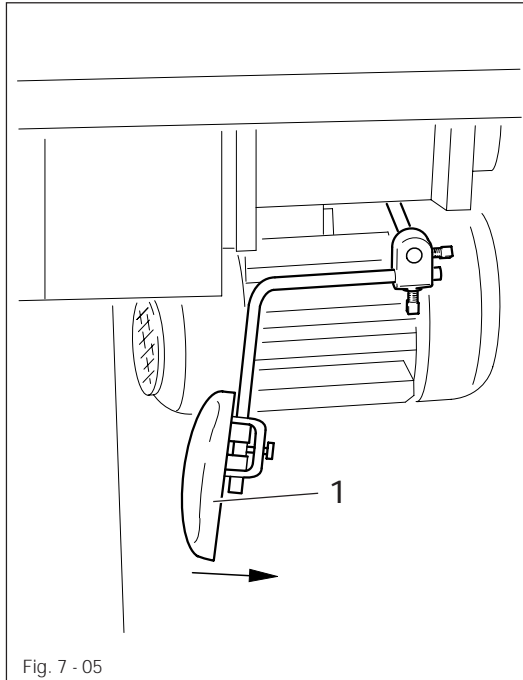
● By activating the knee switch 1 the end of the seam segment can be signaled during programmed sewing.



The function of the knee switch 1 must be switched on using the control panel (see chapter 11 Programming).

7.05

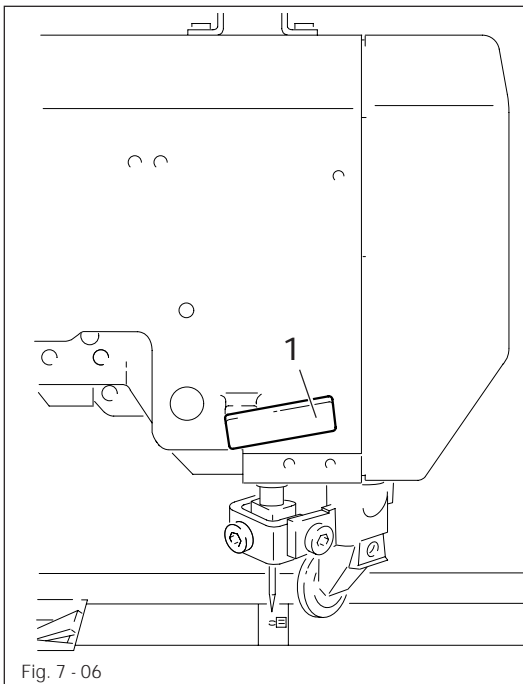
Knee lever



- The roller presser is raised by pressing the knee lever 1 in the direction of the arrow.

7.06

Lever for lifting the roller presser



- The roller presser is raised by turning lever 1.

7.07 Control panel

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

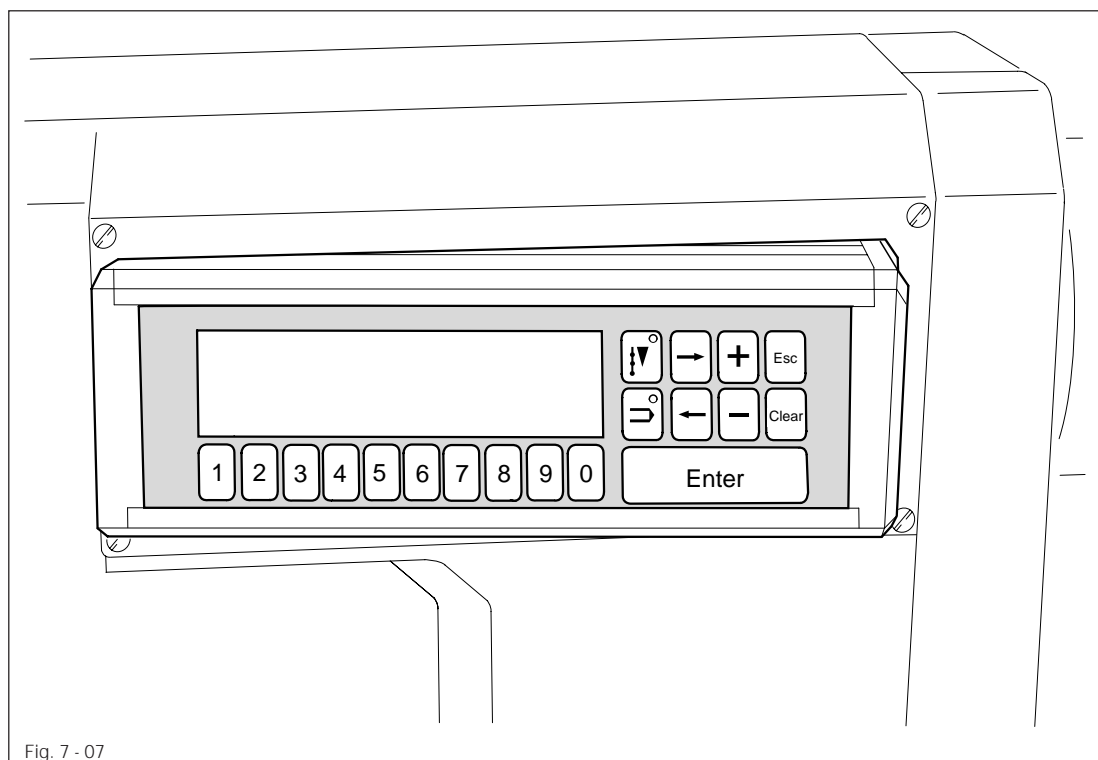


Fig. 7 - 07

7.07.01 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 (e.g. program number, number of seam section, stitch length etc.).

Text field

The text field is in the middle section of the screen, in which messages are displayed in 2 lines. Stylized seam sections can also be shown here with information about start and end bartacks, sewing direction and seam section end.

Pictogram bar

The pictogram bar can be 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.



Normal symbol (function not active)



Symbol on dark background (function active)

7.07.02 Operation-mode keys

There are two operation modes. The selected mode can be seen by the light emitting diode in the respective key.



SEWING mode



INPUT mode

7.07.03 Function keys



Arrow keys (right/left)

- Change menu bars.
- for positioning the cursor when entering several values in one line



Plus/Minus keys

- for raising and lowering input values



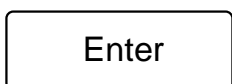
Esc key

- for interrupting functions without taking on the value inputted
- for returning to superordinate menu functions
- for error acknowledgement after an error message



Clear key

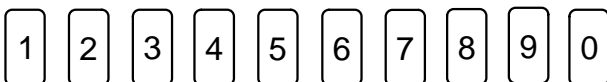
- for returning the input value to 0
- for error acknowledgement after an error message



Enter key

- for confirming an input value
- for error acknowledgement after an error message

7.07.04 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
- inputting a numerical value
- selecting functions or the next level of the menu



Double click = pressing a key twice in rapid succession

8 Mounting and commissioning the machine



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



If the machine is delivered without a table, it must be ensured that the frame and the table top which you intend to use can hold the weight of the machine and the motor, even while sewing.

8.01 Mounting

The necessary electricity supply must be available at the machine's location.
There must be a stable and horizontal surface and adequate lighting at the machine's location.



Due to reasons of packaging, the table top is lowered for transport. The following is a description of how to adjust the height of the table top.

8.01.01 Adjusting the table-top height

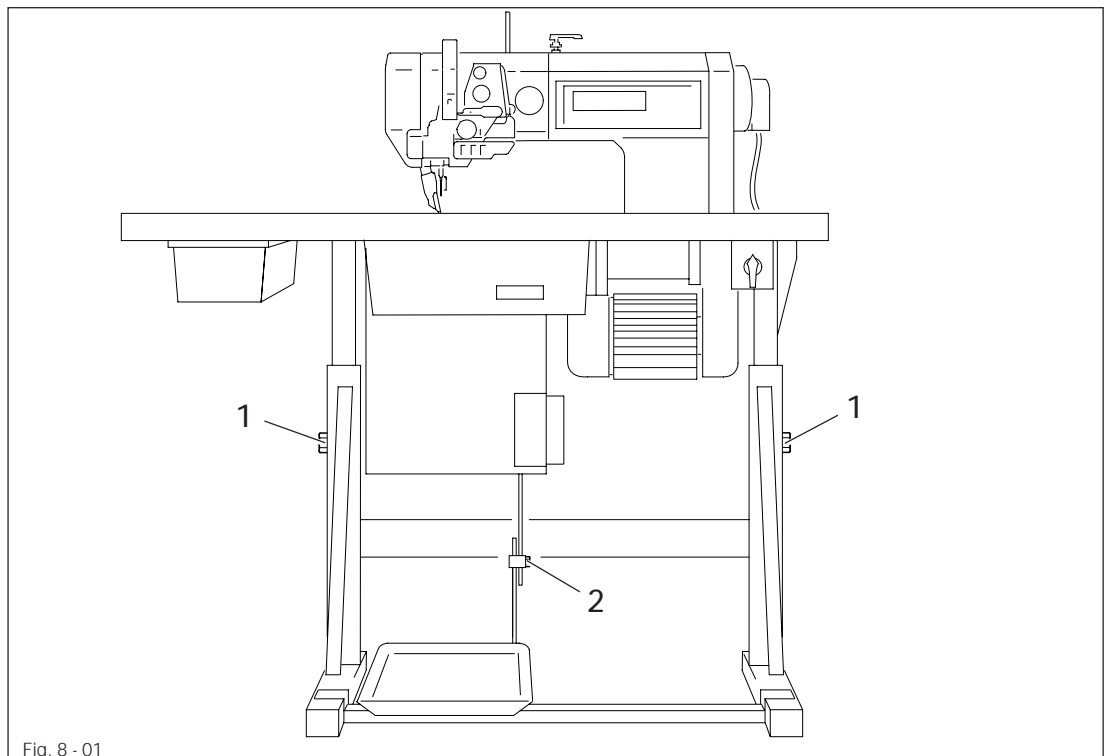
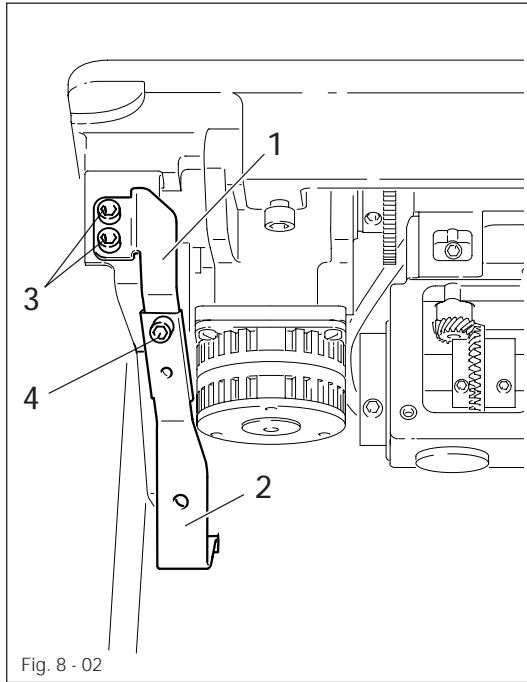


Fig. 8 - 01

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

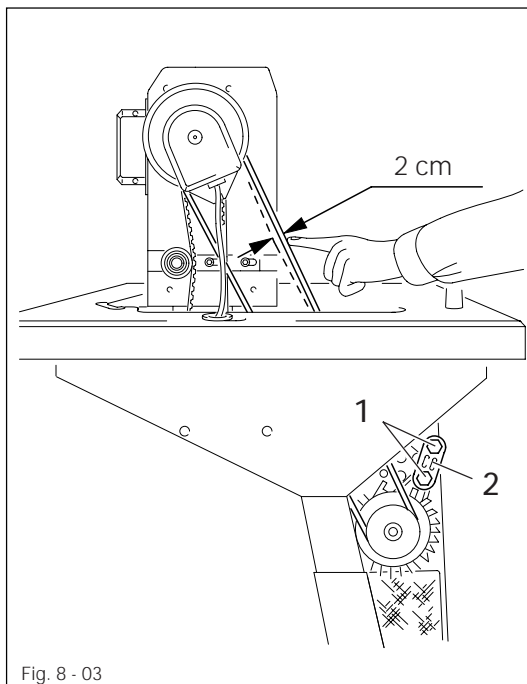
Mounting and commissioning the machine

8.01.02 Fitting the tilt lock



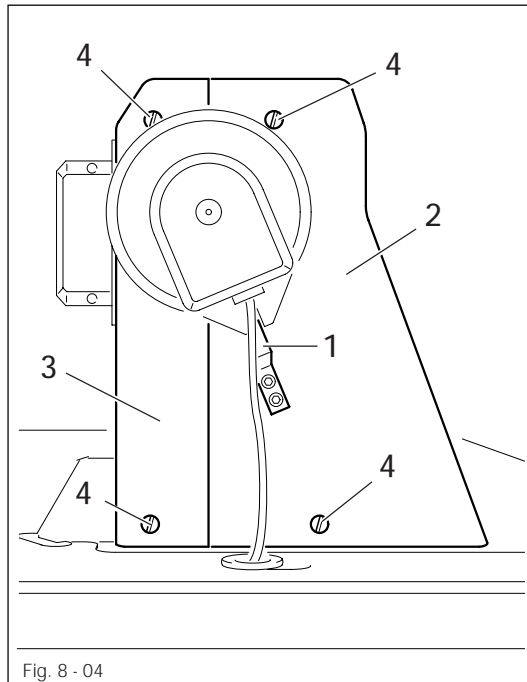
- Screw on tilt lock parts 1 and 2, provided in the accessories, using screws 3 and 4.

8.01.03 Adjusting the V-belt tension



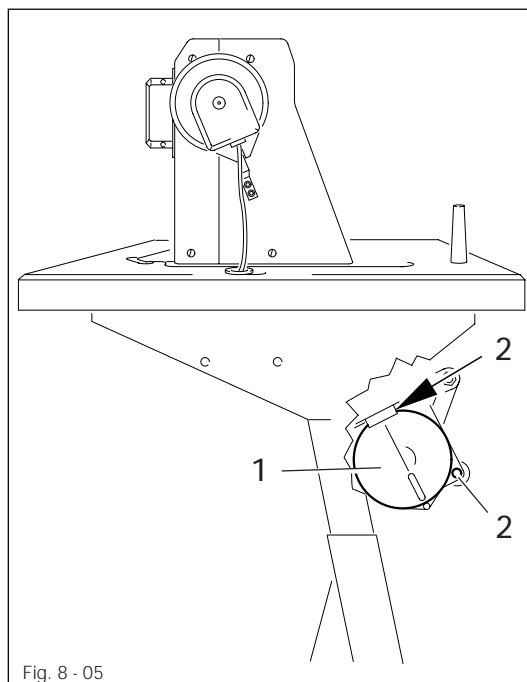
- Loosen nuts 1.
- Tighten the V-belt with belt take-up hanger 2.
- Tighten nuts 1.

8.01.04 Mounting the upper V-belt guard



- Screw position stop 1 onto the right half of V-belt guard 2.
- Attach both halves 2 and 3 of the belt-guard with screws 4.

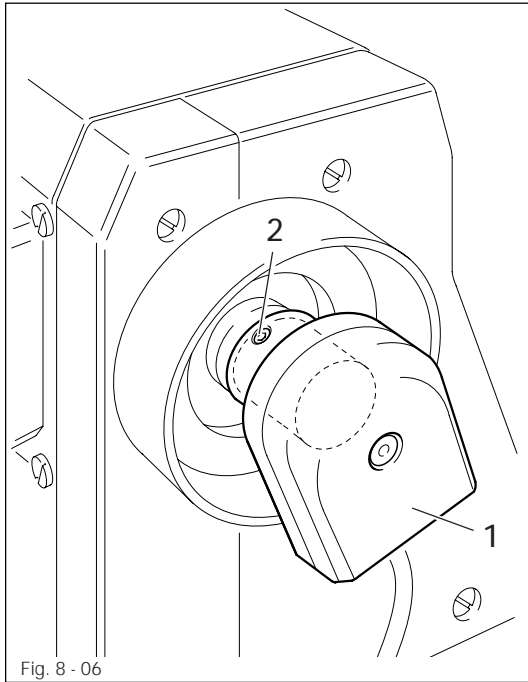
8.01.05 Mounting the lower V-belt guard



- Align belt-guard 1 in such a way that both the motor pulley and the V-belt run freely.
- Tighten screws 2.

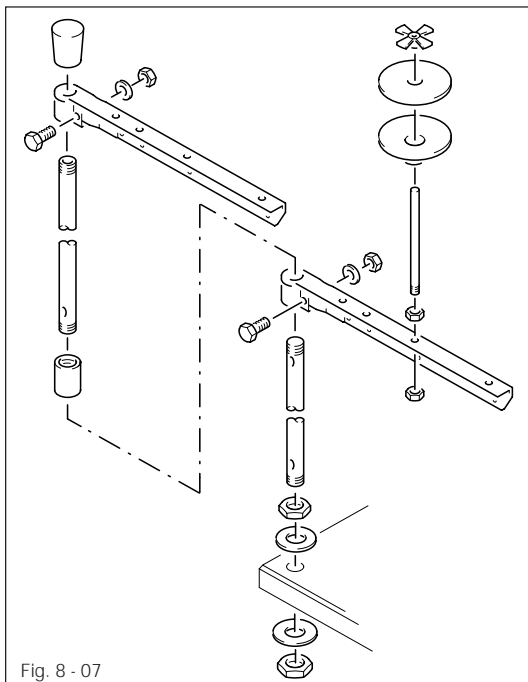
Mounting and commissioning the machine

8.01.06 Mounting the synchronizer



- Slide synchronizer 1 onto the shaft.
- Tighten screws 2 slightly.
- Plug the synchronizer plug into the electrical socket of the control box.
- Adjust the synchronizer (see **chapter 13.04.01 Adjusting the synchronizer**).

8.01.07 Mounting the spool holder



- Mount the spool holder as shown in **Fig. 8 - 07**.
- Insert the spool holder into the hole in the table top and affix it with the nuts enclosed.

8.02 Commissioning the machine

- Before commissioning the machine, check the electrical leads for any damage.
- Clean the machine thoroughly and oil it / fill with oil (see **chapter 12 Care and maintenance**).
- Have specialists ensure that the machine's motor can be operated with the available electricity supply and that it is connected correctly to the terminal box. If not, the machine must not be operated.

8.03 Turning the machine on/off

- Turn the machine on or off, respectively (see **chapter 7.01 On/Off switch**).

9

Preparation



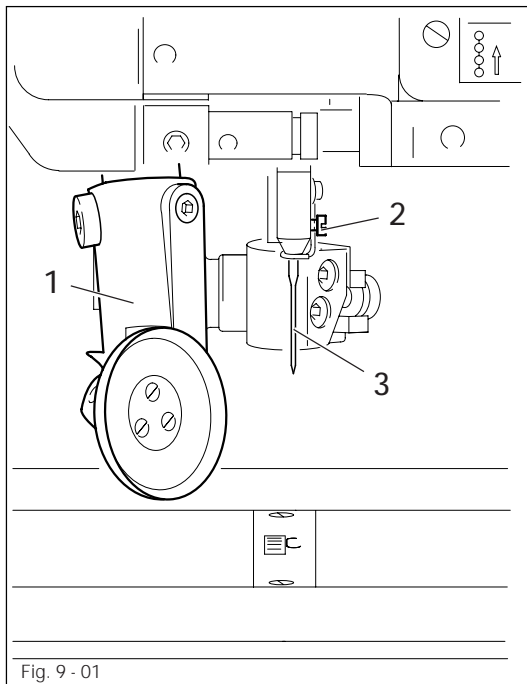
All regulations and instructions in this Instruction Manual are to be observed!
Special attention is to be paid to the safety regulations!



All preparation work is only to be carried out by appropriately trained personnel.
Before all preparation work, the machine is to be separated from the electricity supply by removing the plug from the mains or switching off the On/Off switch!

9.01

Inserting the needle



Turn the machine off!

PFAFF 421E1:

Only use needles of system 134.

PFAFF 1421E1:

Only use needles of system 134-35.

- Raise roller presser 1.
- Pull roller presser 1 downwards slightly and swing it out to the left.
- Loosen screw 2 and insert needle 3 until you feel it stop. The long groove must be facing the left.
- Tighten screw 2 and swing the roller presser back.



The selection of the correct needle depends on the model of the machine and the material and threads being sewn (see **Chapter 3.02 Needle and thread, 421E1** or **3.03 Needle and thread, 1421E1**).

9.02

Winding the bobbin thread, adjusting the thread tension

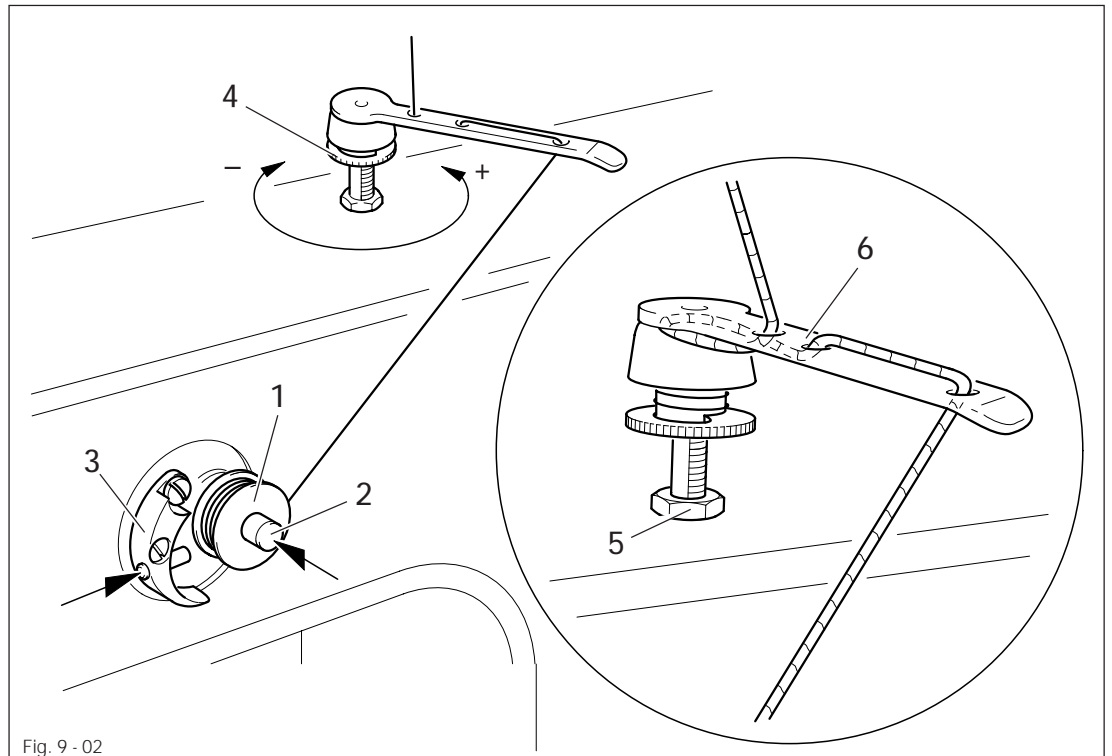


Fig. 9 - 02

- Place an empty bobbin 1 onto bobbin winder spindle 2.
- Thread the bobbin in accordance with Fig. 9 - 02 and wind it clockwise around bobbin 1 a few times.
- Switch on the bobbin winder by pressing the bobbin winder spindle 2 and lever 3 at the same time.



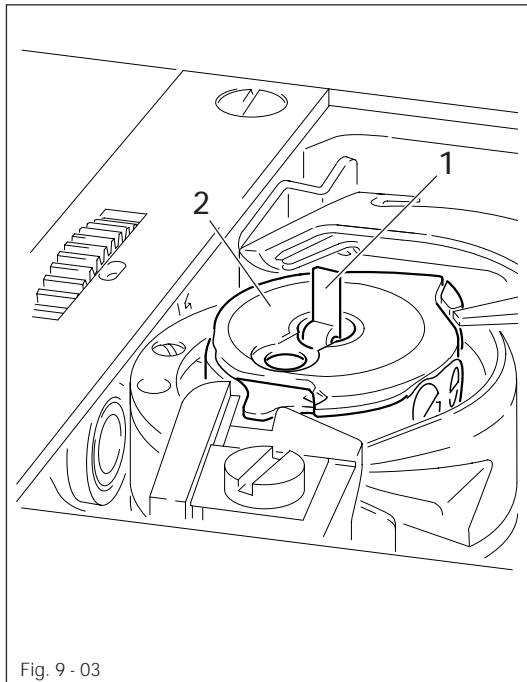
The bobbin fills up while you are sewing.

- The tension of the thread on bobbin 1 can be adjusted with knurled screw 4.
- The bobbin winder stops automatically when bobbin 1 is full.

If the thread is wound unevenly:

- Loosen nut 5.
- Turn thread guide 6 accordingly.
- Tighten nut 5.

9.03 Removing / Inserting the bobbin case



Turn the machine off!

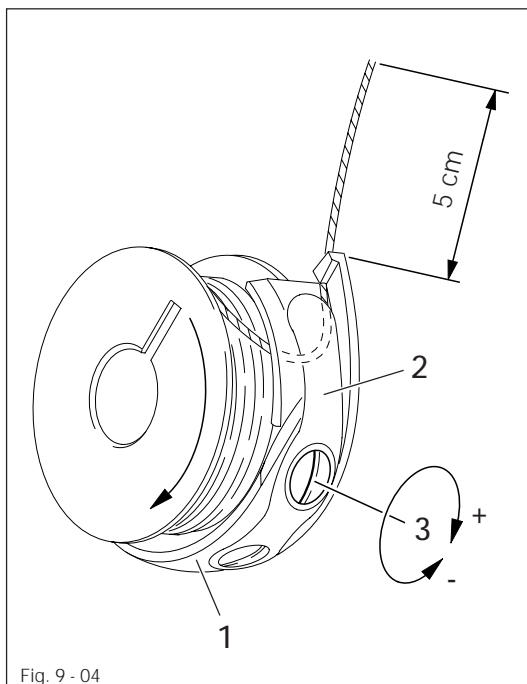
Removing the bobbin case:

- Open the bed plate slide.
- Raise latch 1 and remove bobbin case 2.

Inserting the bobbin case:

- Insert bobbin case 2.
- Close the latch 1 and close the bed plate slide.

9.04 Threading the bobbin case / Adjusting the bobbin thread tension



- Insert the bobbin into the case 1.
- Pass the thread through the slot under spring 2.
- Pass the thread through the notch.
- Adjust the thread tension by turning screw 3.



When the thread is pulled, the bobbin must rotate in the direction of the arrow.

9.05

Threading the needle thread / Adjusting the needle thread tension

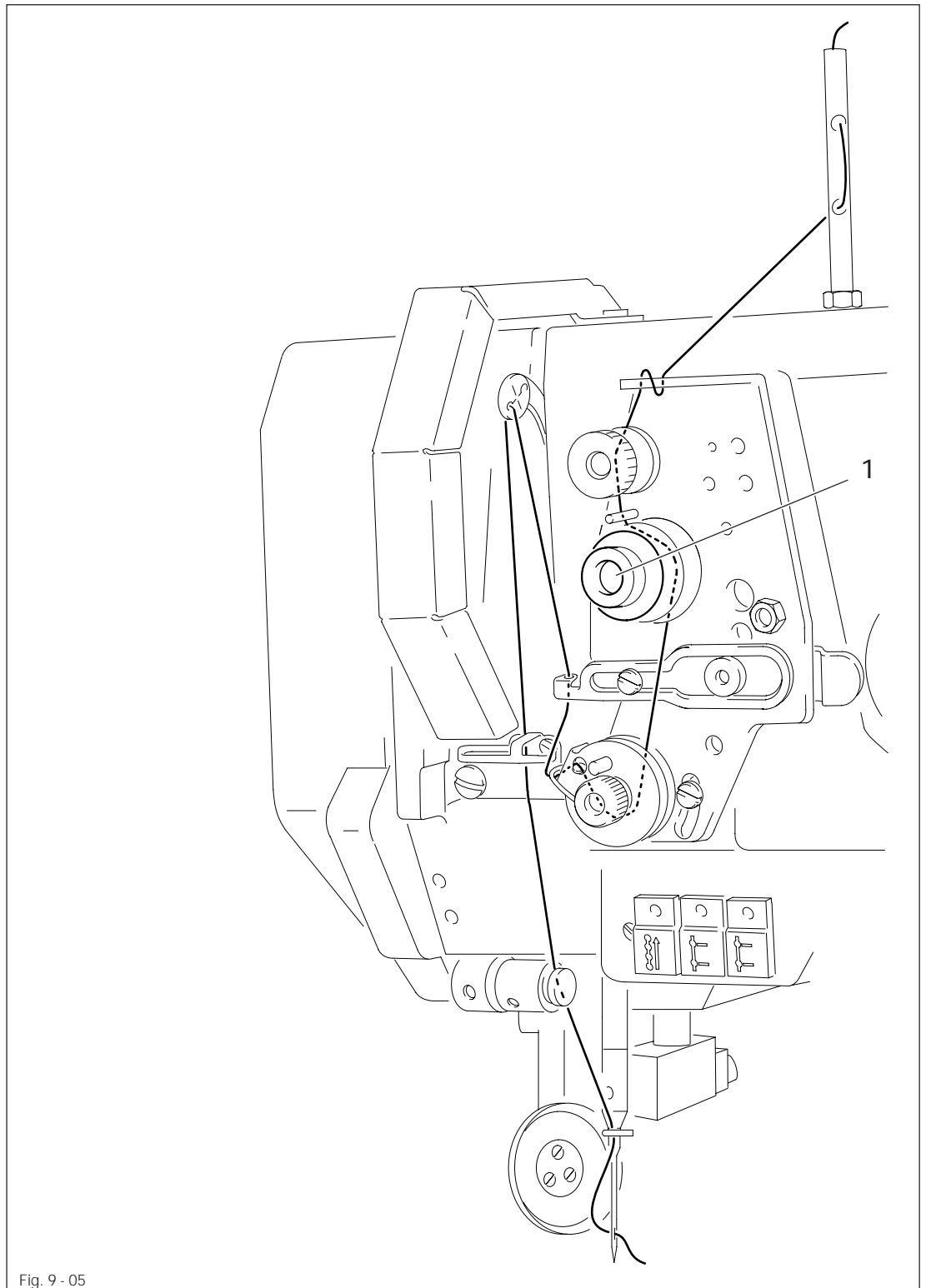


Fig. 9 - 05



Turn the machine off!

- Thread the machine as shown in Fig. 9 - 05.
- Adjust the needle thread tension by turning knurled screw 1.

9.06 Adjusting the stitch length

- Turn the machine on!

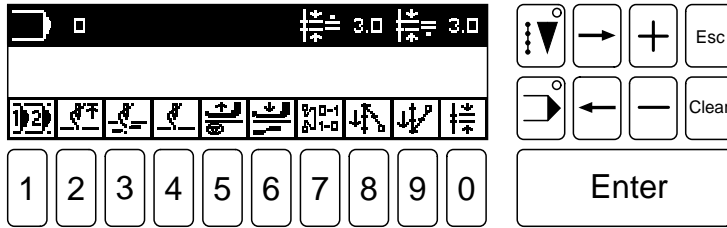


Fig. 9 - 06

If the display shown in Fig. 9-06 does not appear:



- Select the function select program.



- Enter program number 0.



- Confirm with the Enter key.



- Select the function stitch length with number key 0.

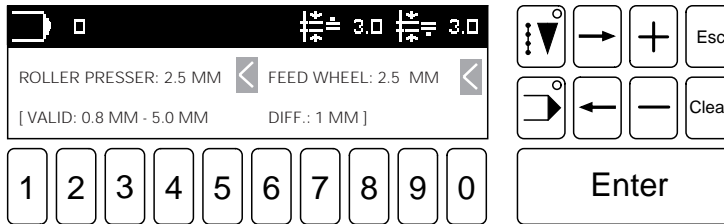


Fig. 9 - 07

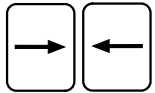
- Using the number keys, input the desired stitch lengths.



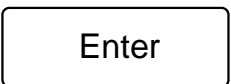
The value inputted will also be taken on by the feed wheel and the roller presser.

If the values for the feed wheel and the roller presser are to vary, the feed wheel and the roller presser must be selected individually.

When inputting varying feed lengths:



- Select the feed wheel or roller presser separately using the arrow keys (observe cursor).



- Input the required value and confirm with the Enter key.

9.07 Selecting a language

- Turn the machine on.



- Select INPUT mode.

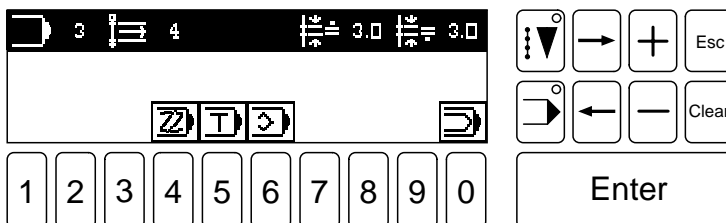


Fig. 9 - 08



- Select the function input menu with number key 0.

1

- Select the function SWITCH FUNCTIONS with number key 1.

3

- Select the function LANGUAGES with number key 3.

1

to

6

- Select the desired language with the number keys:

1 = (D)

2 = (GB)

3 = (F)

4 = (I)

5 = (E)

6 = (P)

- The language is taken on immediately once the corresponding number has been entered.

10 Sewing

10.01 Manual sewing

- Turn the machine on.

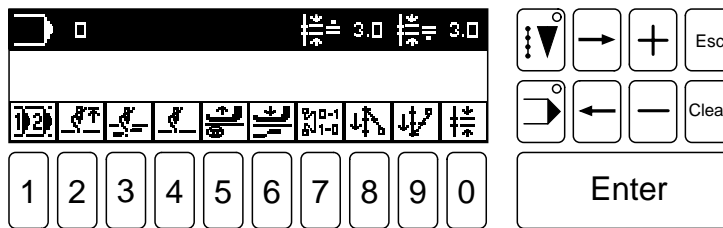


Fig. 10 - 01

If the display shown in Fig. 10-01 does not appear:



- Select the function select program.



- Enter program number 0.

Enter

- Confirm the input with the Enter key.

- After these inputs you can begin sewing.

Explanation of the symbols in the display:



Program selection

This function opens a direct menu for selecting the desired seam program.



Needle up

By activating this function, the machine runs until the needle is at its top position when stopping (without thread trimming).



Thread trimming

When this function is active, the thread is cut when the pedal is pressed backwards.



Needle position

When this function is active, the machine positions the needle at its top position when stopping. When this function is deactivated, the needle stops at its lowest position.



Roller presser up after stop

When this function is active, the roller presser is raised when the machine is stopped.



Roller presser down after trimming

When this function is active, the roller presser is lowered after the trimming process.



Bartack suppression

- When pressed once the next bartack is suppressed.
- When pressed twice the next two bartacks are suppressed.



Start bartack

- When pressed once the **single** start-bartack is switched on.
- When pressed again a **double** start-bartack is switched on.
- Activating a third time switches the start bartack back off again.



End bartack

- When pressed once the **single** end-bartack is switched on.
- When pressed again a **double** end-bartack is switched on.
- Activating a third time switches the end bartack back off again.



Stitch length

This function opens a direct menu for inputting the desired values for the stitch lengths.

10.02 Sewing with the fixed programs

Fixed programs are stored at program numbers 1 and 2.

The fixed programs are used for the fast and comfortable sewing of seams with varying stitch lengths and/or levels of fullness.

The programs have 2 or 3 seam sections which you can switch between with the knee switch. They are designed as rotary programs and are completed by activating the pedal (see chapter 10.04 Decorative seams).

- Turn the machine on.



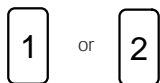
Fig. 10 - 02



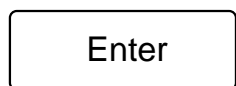
- Switch on the bartack functions start / end bartack if desired.



- Select the function select program.



- Input program number 1 or 2.



- Confirm the entry with the Enter key.

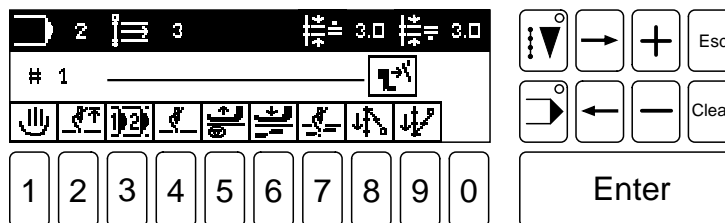


Fig. 10 - 03



In the text line you will see a stylized seam behind the number of the current seam section. Up-dating of the text line on a change of section is enabled or disabled in the input menu under **SERVICE/SEWING MOTOR/SEAM WITH MOTOR RUNNING** (see chapter 11.09 Summary of the service functions).

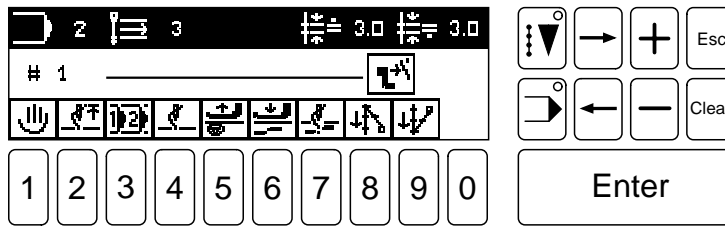


Fig. 10 - 03

Explanation of the functions in the display:



Program interruption

This function interrupts the sewing of the seam program.

See [chapter 10.05 Program interruption](#).



Needle up

By activating this function, the machine runs until the needle is at its top position when stopping (without thread trimming).



Program selection

This function opens a direct menu for selecting the desired seam program.



Needle position

When this function is active, the machine positions the needle at its top position when stopping. When this function is deactivated, the needle stops at its lowest position.



Roller presser up after stop

When this function is active, the roller presser is raised when the machine is stopped.



Roller presser down after trimming

When this function is active, the roller presser is lowered after the trimming process.



Thread trimming

When this function is active, the thread is cut when the pedal is pressed backwards.



Start bartack

- When pressed once the **single** start-bartack is switched on.
- When pressed again a **double** start-bartack is switched on.
- Activating a third time switches the start bartack back off again.



End bartack

- When pressed once the **single** end-bartack is switched on.
- When pressed again a **double** end-bartack is switched on.
- Activating a third time switches the end bartack back off again.



For information on altering fixed programs see [chapter 11.11.01 Altering fixed programs](#).

10.03 Programmed sewing

Pre-programmed seams can be selected with the program numbers 3 - 99.

- Turn the machine on.

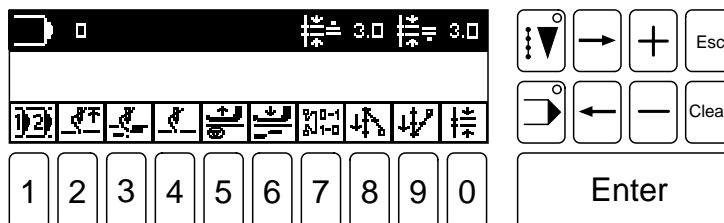
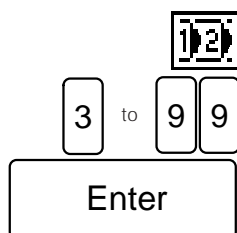


Fig. 10 - 04



- Select the function select program.
- Enter the desired program number from 3 to 99.
- Confirm this entry with the Enter key.

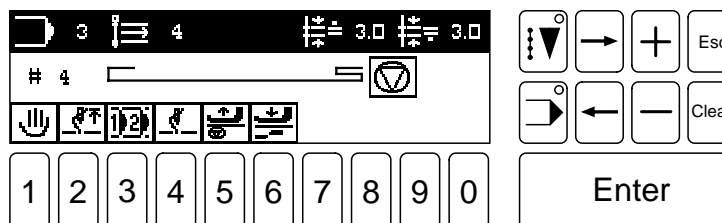


Fig. 10 - 05



In the text line you will see a stylized seam behind the number of the current seam section. Up-dating of the text line on a change of section is enabled or disabled in the input menu under **SERVICE/SEWING MOTOR/SEAM WITH MOTOR RUNNING** (see chapter 11.09 Summary of the service functions).



Program interruption

This function interrupts the sewing of the seam program (see chapter 10.05 Program interruption).



Needle up

By activating this function, the machine runs until the needle is at its top position when stopping (without thread trimming).



Program selection

This function opens a direct menu for selecting the desired seam program.



Needle position

When this function is active, the machine positions the needle at its top position when stopping. When this function is deactivated, the needle stops at its lowest position.



Roller presser up after stop

When this function is active, the roller presser is raised when the machine is stopped.



Roller presser down after trimming

When this function is active, the roller presser is lowered after the trimming process.

Only on the PFAFF 1421E1 with Doku-seam system:

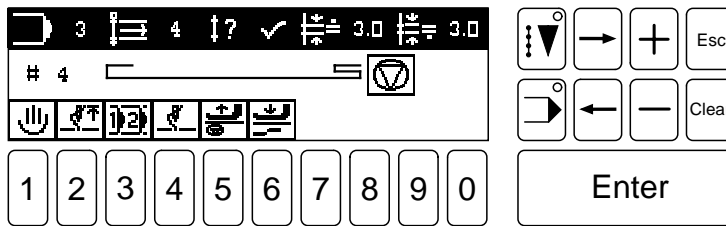


Fig. 10 - 06



Doku-seam section

If the selected program contains seam monitoring, indication of whether the seam complies with requirements is given at the end of the seam segment.



The Doku-seam system has detected a seam fault.



The Doku-seam system has not detected any seam fault.

10.04 Decorative seams

Decorative seams are designed as rotary programs. The program does not stop at the end of the program and the thread is not trimmed. The program is repeated until the pedal is brought backwards to the 2nd position (pedal position 3 in [chapter 7.03 Pedal](#)).



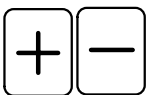
There is an example for programming decorative seams in [chapter 11.14.02 Example for programming a decorative seam](#).

10.05 Program interruption



If the sewing of a program has to be interrupted (e.g. in the case of a thread breakage), the function **program interruption** must be activated.

- When pressed once, the machine switches to **manual SEWING**.
- If you continue sewing manually the stitch length values will be taken from the seam program (symbol in display appears on a dark background).
- By using the **plus/minus keys** you can select the seam section in which the seam program is to be continued.
- When pressed a second time, you enter the selected seam section. **Programmed SEWING** is continued.



10.06 Error messages

In the case of an error message, the text and pictogram bars in the display are written over. An error message is triggered by false settings, false elements or seam programs or by overload.

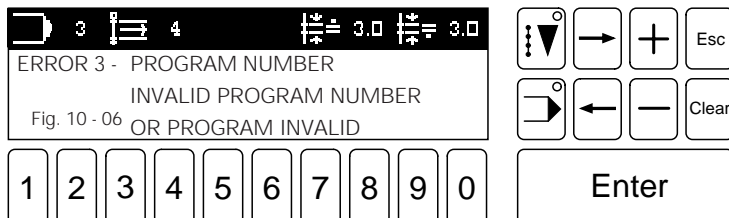


Fig. 10 - 07

- The error must be corrected before the machine can be operated.

Enter

To correct errors:

- By pressing the **Enter** key you skip back to the incorrect entry.
- Make the correct entry.



Information on correcting errors can be found in the corresponding service handbook. Errors may only be corrected by authorized specialists.

11 Programming

11.01 Symbols in the status bar

Information on the current seam section are displayed in the upper area of the display. Symbols with the corresponding values will also be displayed.

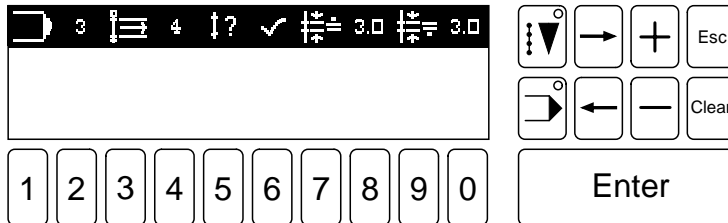


Fig. 11 - 01



Program number

The number of the selected seam program appears behind this symbol.



Number of seam sections

The total number of seam sections contained in the current seam program is displayed behind this symbol.

Only on the PFAFF 1421E1 with Doku-seam system:



Doku-seam section

The assesment of the seam is made after this symbol.



The Doku-seam system has not detected any seam fault.



The Doku-seam system has detected a seam fault.



Top feed stitch length

The stitch length for the roller presser in the current seam section is displayed behind this symbol.



Bottom feed stitch length

The stitch length for the feed wheel in the current seam section is displayed behind this symbol.

11.02 Symbols in the text and graphic fields

Corresponding to the input status, a stylized seam section with the functions of the seam section end is shown in the middle of the display.

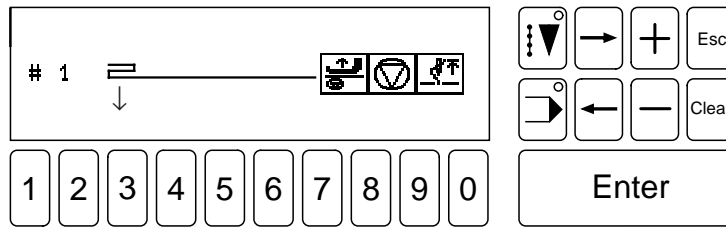


Fig. 11 - 02

Current seam section

The number of the current seam section is shown behind the symbol (e.g. 1).

— Single start-bartack

≡ Double start-bartack

— Seam

— Single end-bartack

— Double end-bartack

↓ Placed stitch



The symbols in the text line show the functions which are carried out at the end of the seam section (see **chapter 11.14 Seam section end**). If the symbols are in front of the stylized seam, this seam section is sewn in **reverse**.

11.03 Symbols in the pictogram bar

In this control concept, the functions are selected exclusively using the **number keys**. The selectable functions are displayed as symbols in the pictogram bar of the display. You select the function by pressing the **number key** which is underneath it.

Initial state INPUT mode:

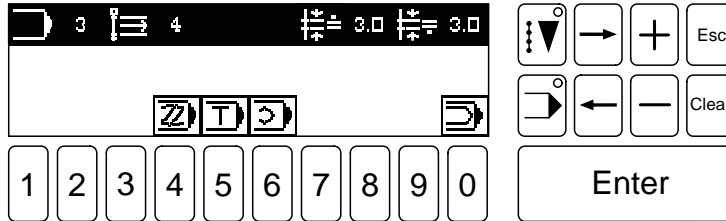


Fig. 11 - 03

Explanation of the symbols in the display:



Programming

This function opens a direct menu for programming seams. The program is inputted using the control panel.



Teach In

This function opens a direct menu for programming seams. Here, the system „learns“ the desired seam.



Program administration

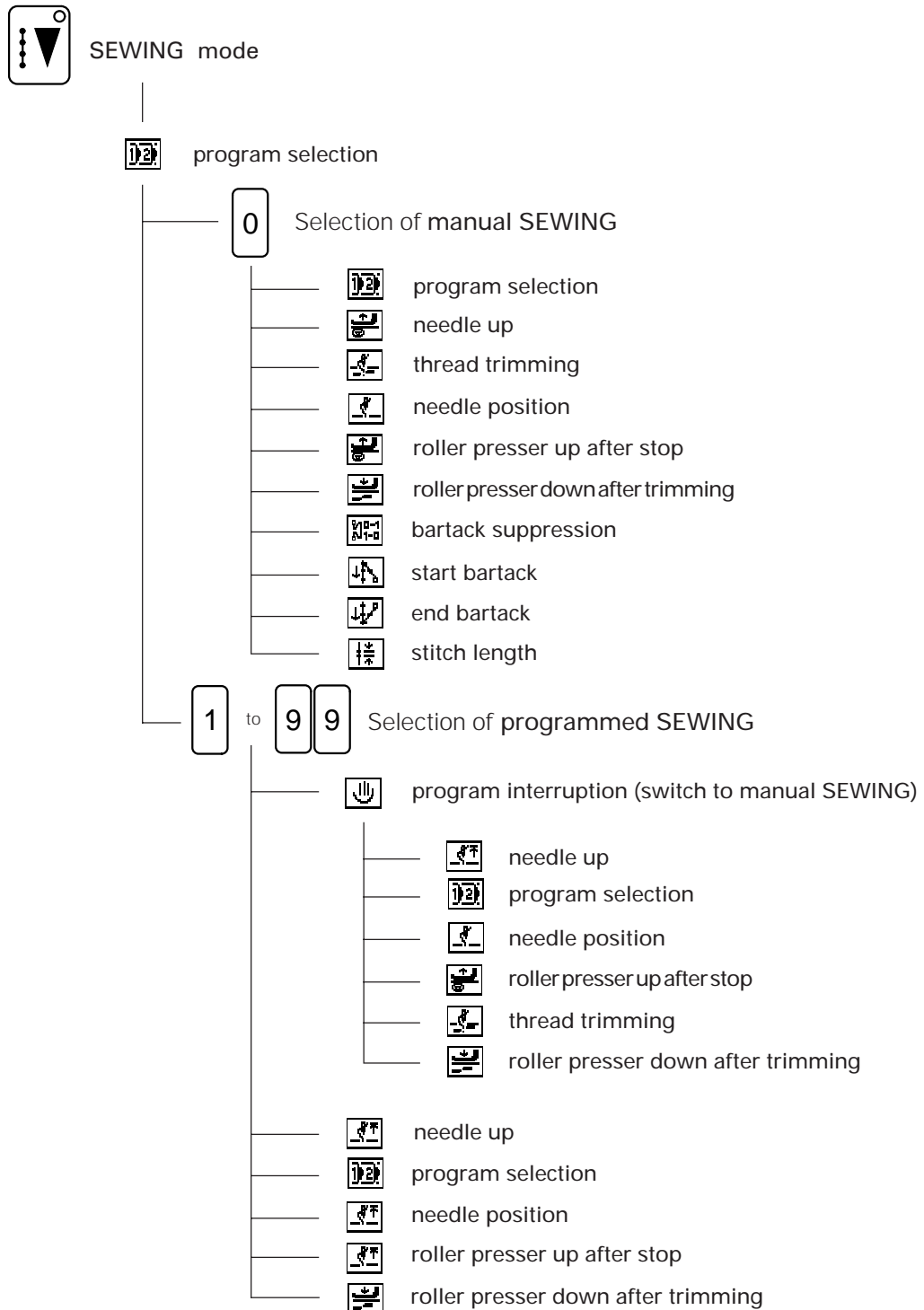
This function opens a menu with further functions which serve the administration of program data.



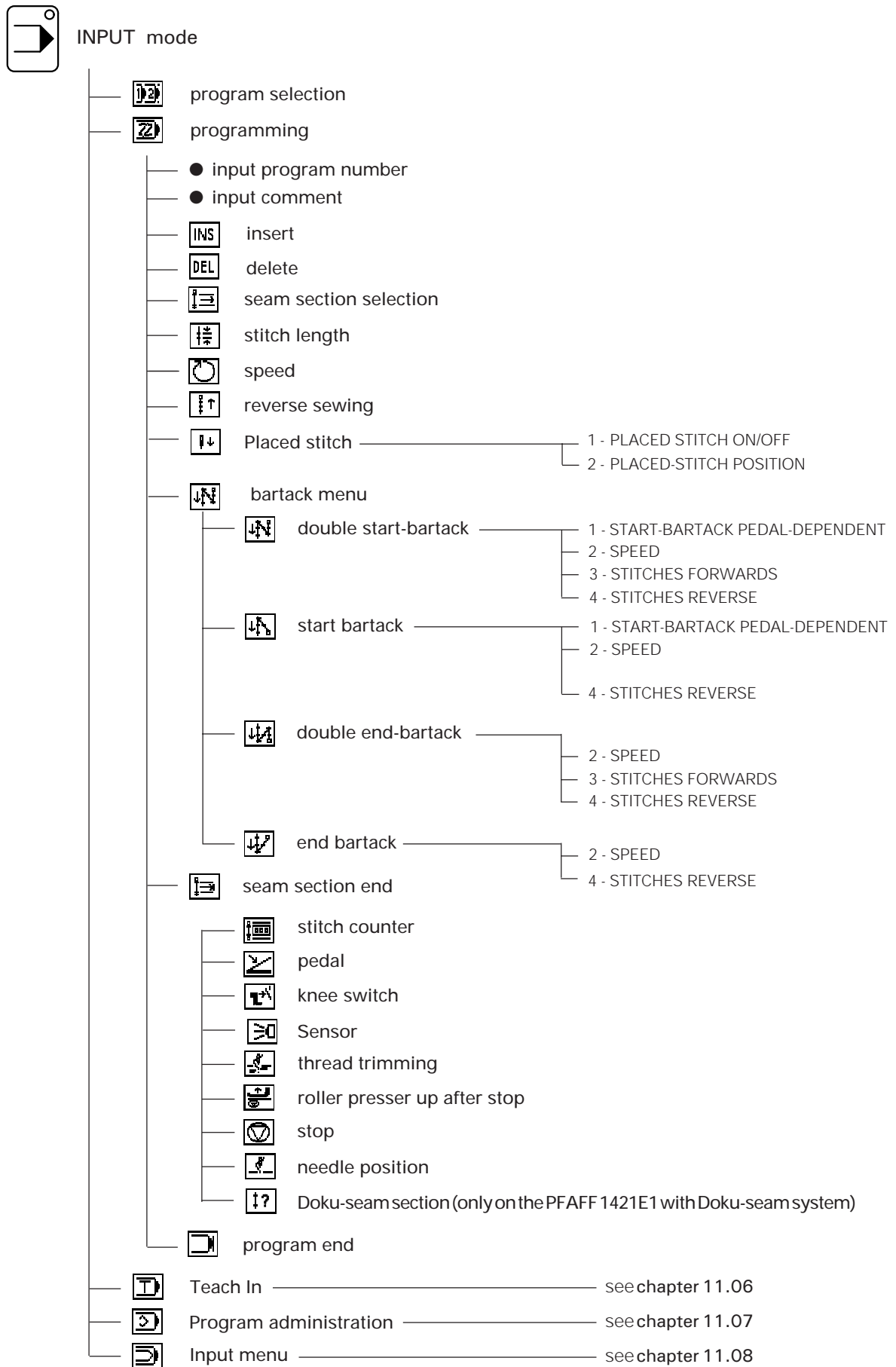
Input menu

This function opens a menu with special functions, selection of language, switch functions, parameter settings and service functions.

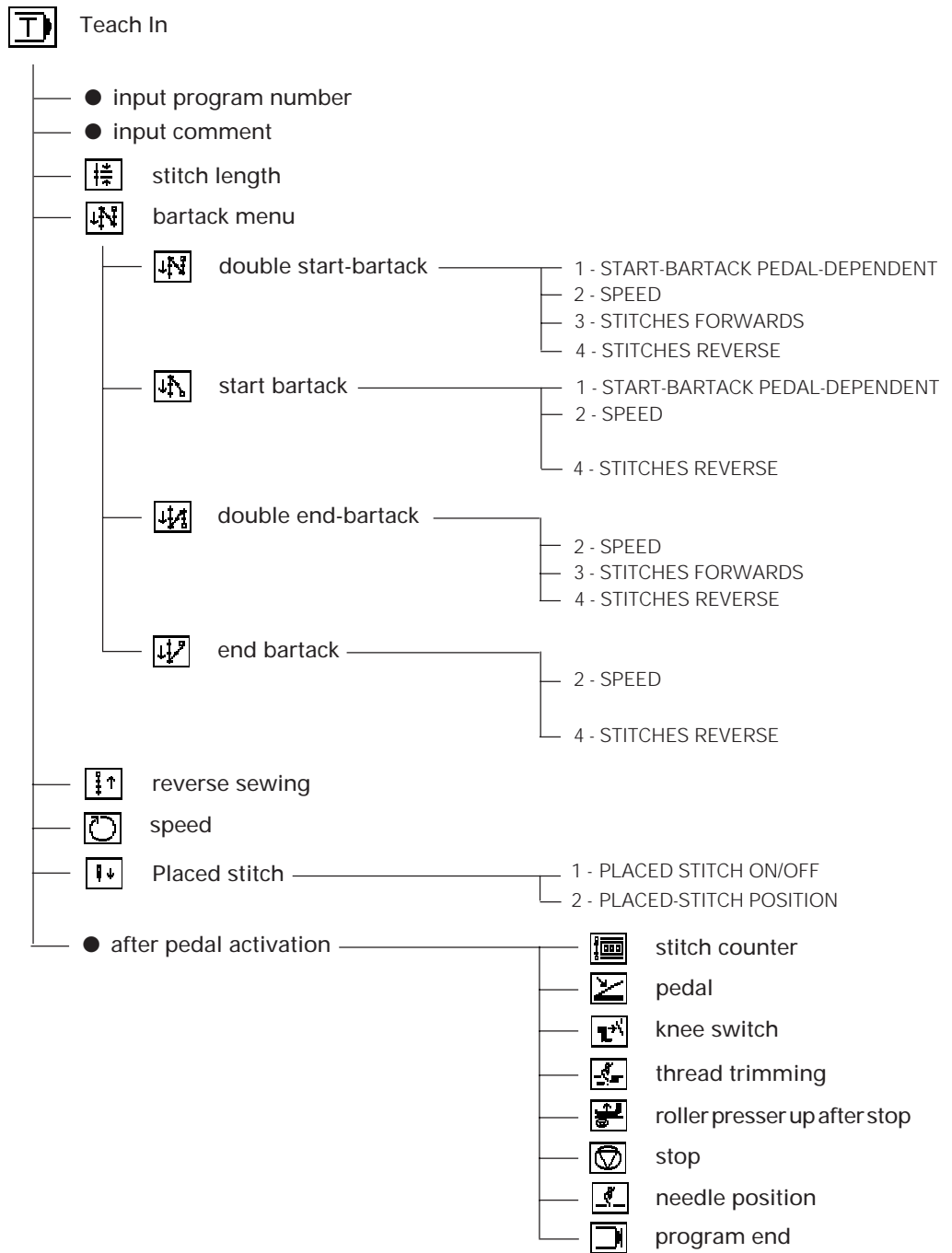
11.04 Summary of the functions in SEWING mode



11.05 Summary of the functions in INPUT mode



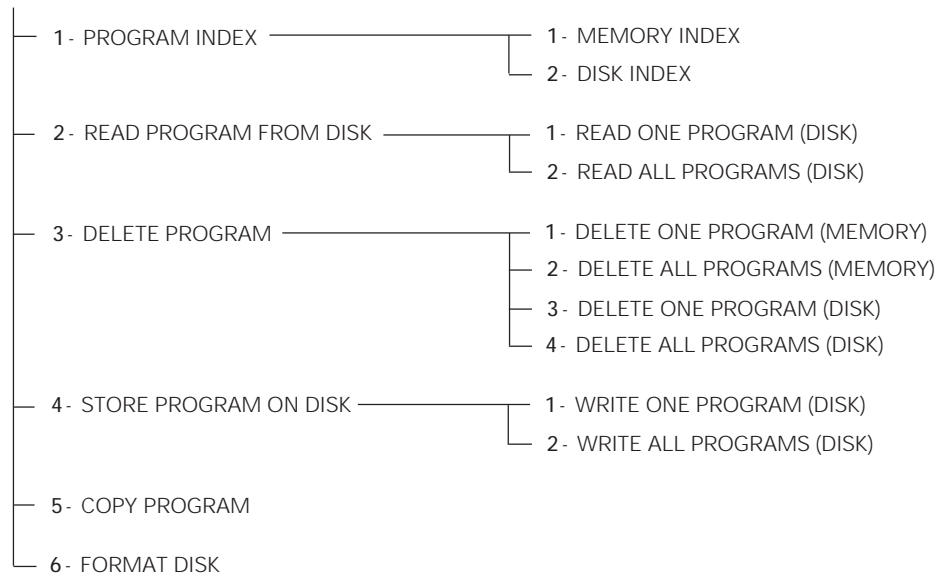
11.06 Summary of the functions in Teach In



11.07 Summary of the functions in program administration



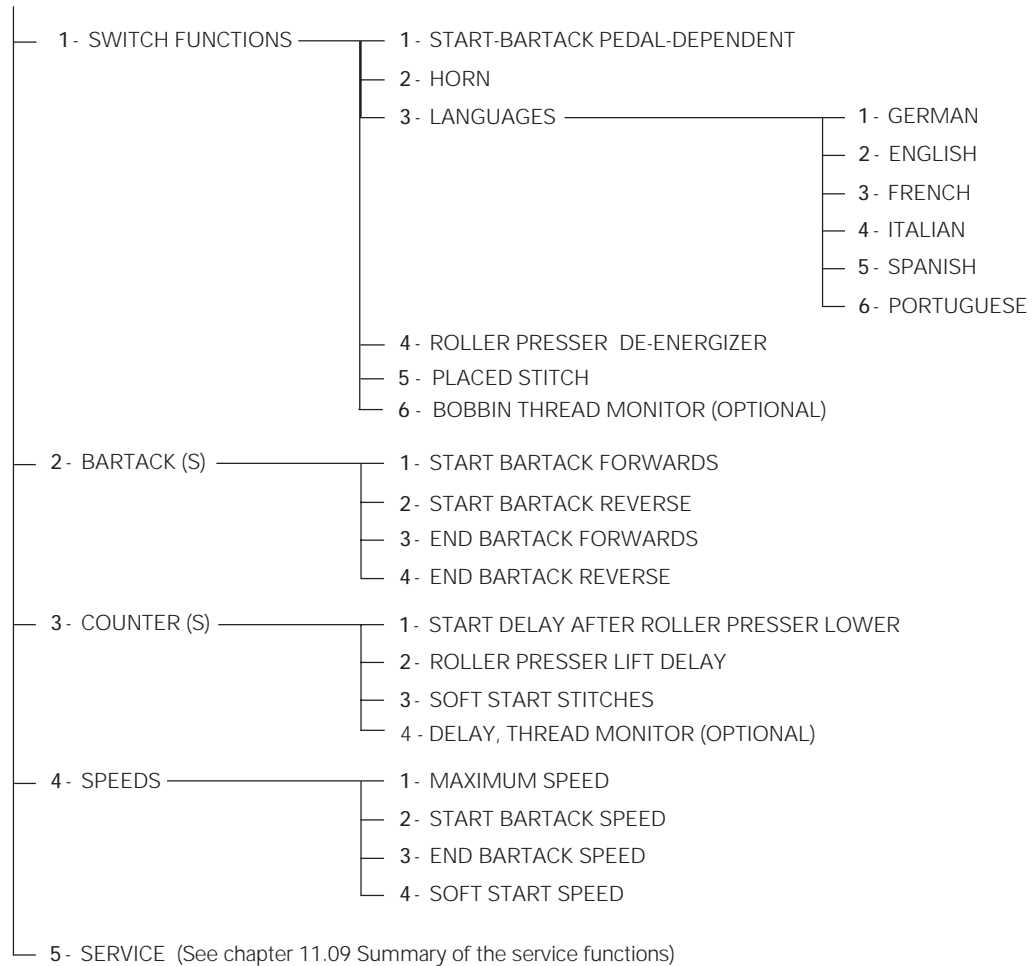
Program administration



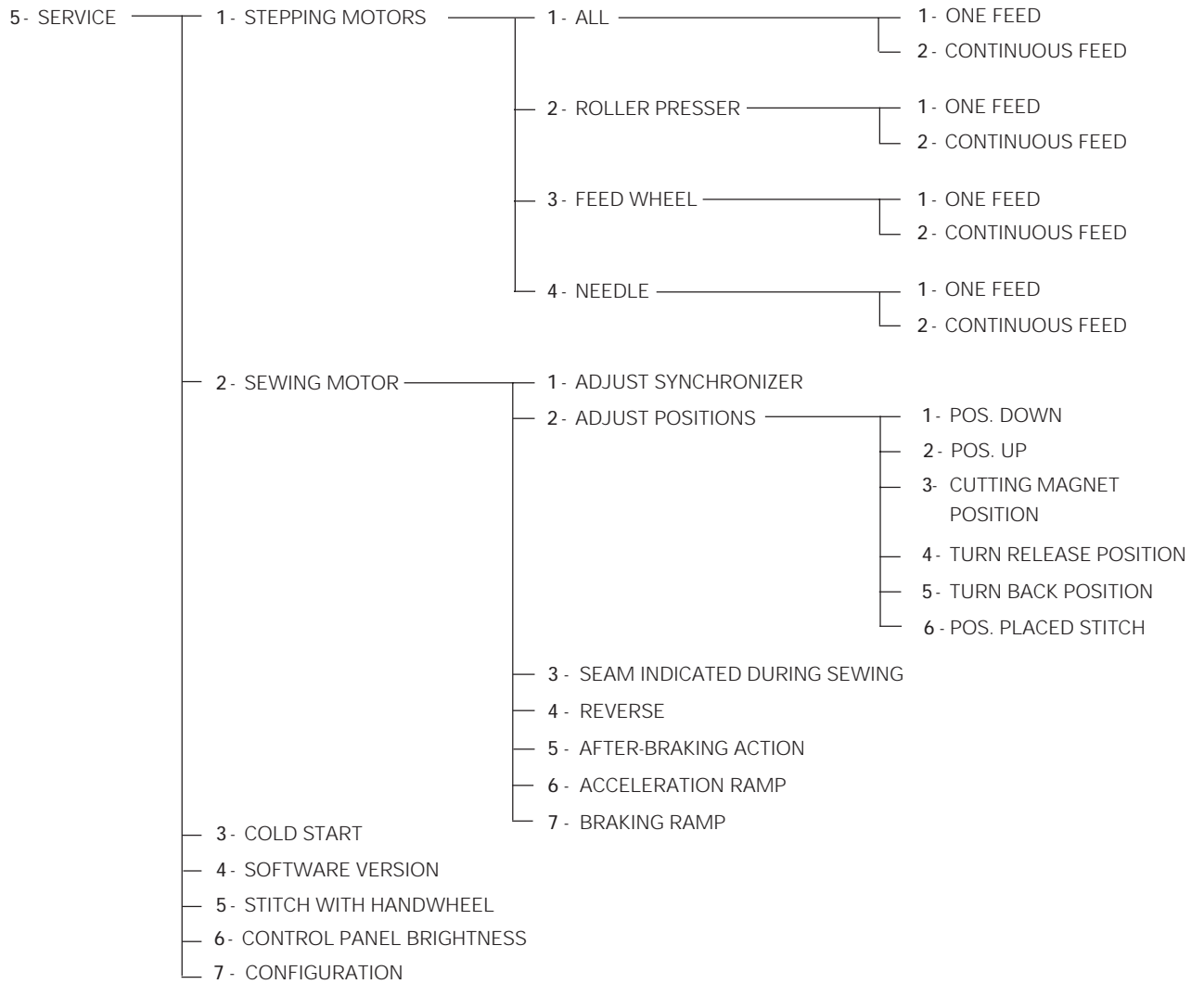
11.08 Summary of the functions in the input menu



Input menu



11.09 Summary of the service functions



11.10 Selection of functions from menu levels



- Select INPUT mode

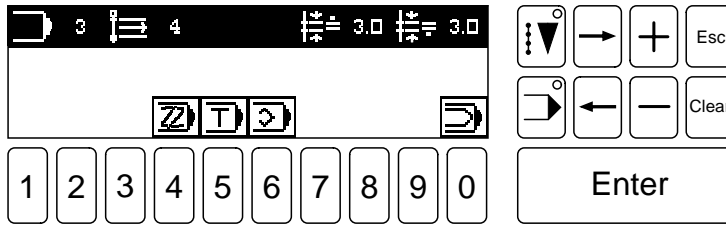


Fig. 11 - 04



- Select the input menu function (the first menu level appears in the display).

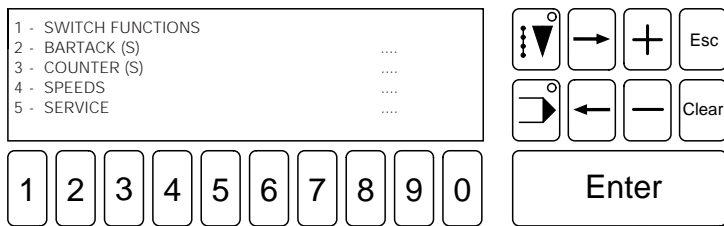


Fig. 11 - 05



- Select the function SERVICE with number key 5. The following display appears:

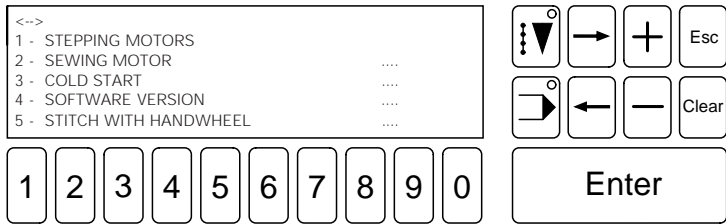


Fig. 11 - 06



- Select the function SEWING MOTOR with number key 2. The following display appears:

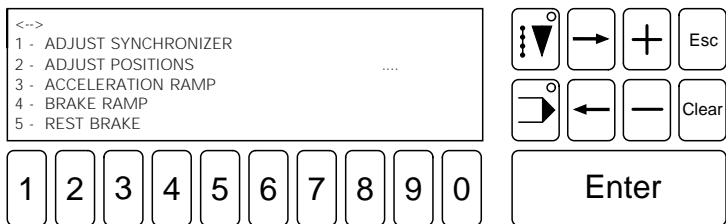


Fig. 11 - 07



- Select the function ADJUST SYNCHRONIZER with number key 1. The display for adjusting the synchronizer appears:

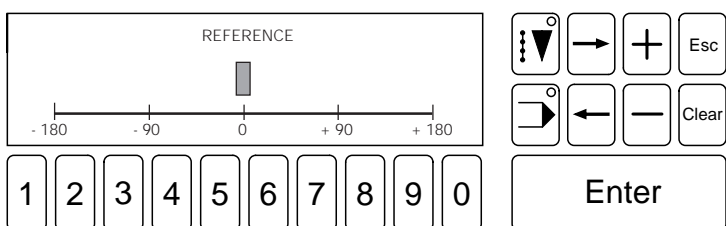


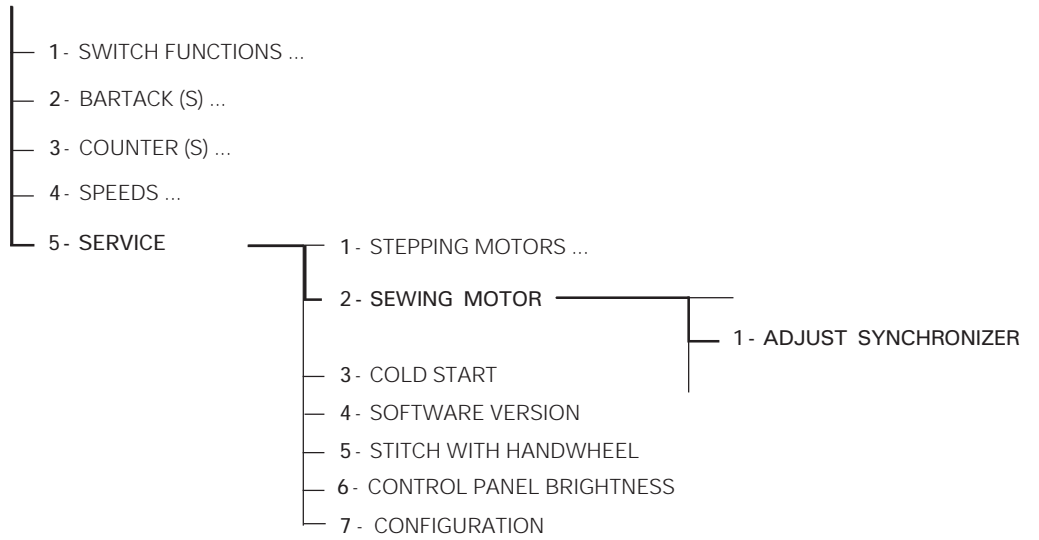
Fig. 11 - 08



INPUT mode



Function input menu



11.11 Creating seam programs

11.11.01 Altering fixed programs



- Select INPUT mode. The initial INPUT display appears:

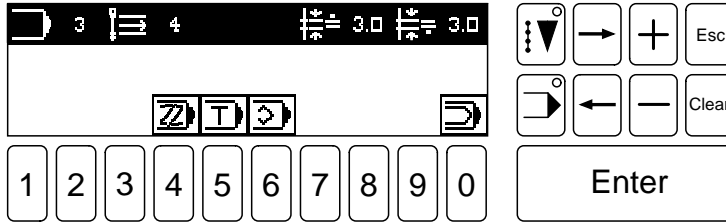


Fig. 11 - 09



- Select function Programming. The menu for inputting the program number appears:

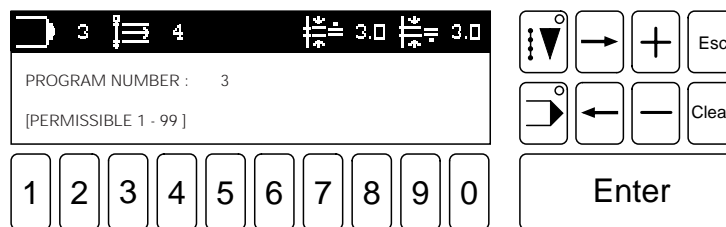


Fig. 11 - 10

1

or

2

- Enter program number 1 or 2.



- Confirm the entry with the Enter key.

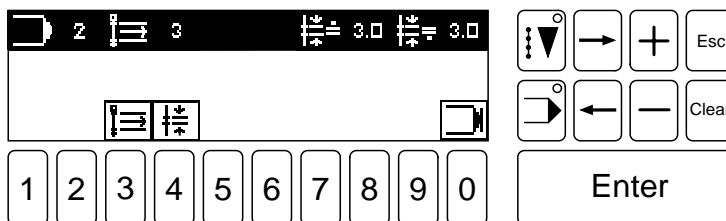


Fig. 11 - 11

Explanation of symbols in the display:



Seam section selection

This function opens a direct menu for selecting a desired seam section within the sewing program.



Stitch length

This function opens a direct menu for inputting the desired values for the stitch lengths.



Program end

Is only a display function with fixed programs.

- The fixed programs can be altered via the functions **stitch length** and **seam section selection**.

11.11.02 Programming



- Select INPUT mode. The initial INPUT display appears:

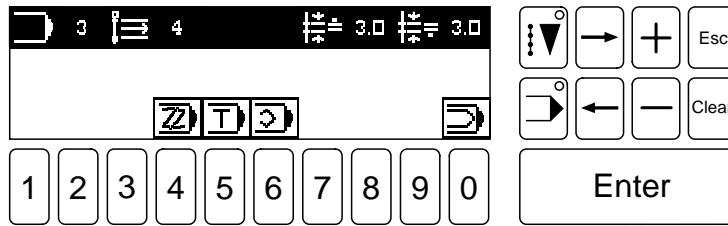


Fig. 11 - 12



- Select function Programming. The menu for inputting the program number appears:

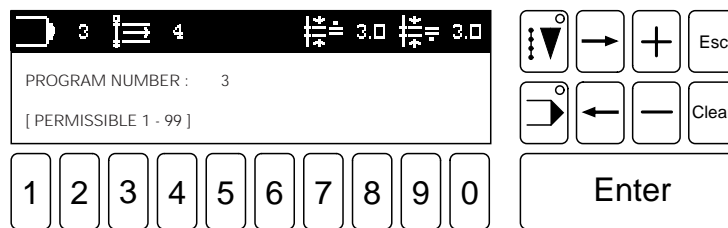


Fig. 11 - 13



- Enter a program number from 3 to 99.



- Confirm the entry with the Enter key. The menu for inputting a comment appears:

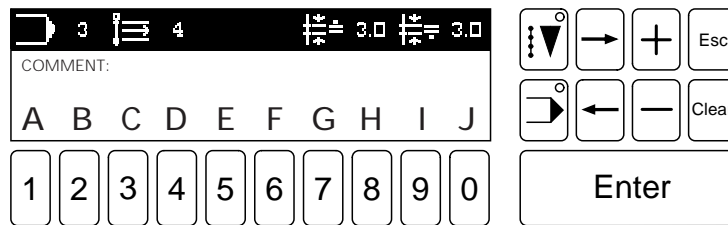
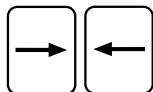


Fig. 11 - 14



- A comment of up to 14 characters can be entered.
- The characters in the display can be scrolled through with the arrow keys.
- Select a character by pressing the corresponding number key.
- Confirm the input with the Enter key.



The basic menu for programming appears:

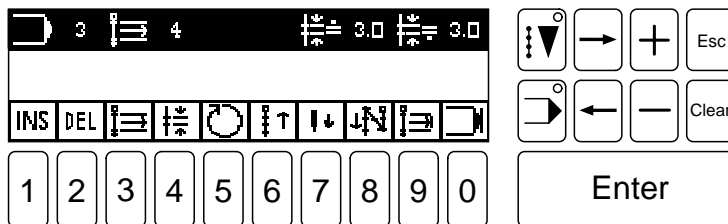


Fig. 11 - 15

- Individual seam programs can now be created using the functions.
- Incorrect combinations will not be accepted by the system.

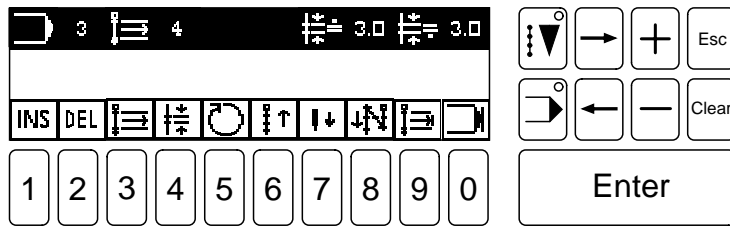












Fig. 11 - 15

Explanation of the symbols in the display:

- 
Insert
 This function inserts a seam section into the current seam program. The current seam section is pushed back one position.
- 
Delete
 This function deletes the current seam section.
- 
Seam section selection
 This function opens a direct menu for selecting the desired values for the stitch lengths.
- 
Stitch length
 This function opens a direct menu for inputting the desired values for the stitch lengths.
- 
Speed
 This function opens a direct menu for inputting the value of the speed dependent on the seam section.
- 
Reverse sewing
 When this function is activated the seam is sewn backwards in the current seam section.
- 
Bartack menu
 This function opens a direct menu for inputting bartack functions (see [chapter 11.12 Bartack menu](#)).
- 
Placed stitch
 This function opens a direct menu for enabling/disabling the placed-stitch function and inputting a value for the placed-stitch position (see [Chapter 11.13 Placed-stitch menu](#)).
- 
Seam section end
 This function opens a direct menu for determining the functions at the seam section end (see [chapter 11.14 Seam section end](#)).
- 
Program end
 This function finishes the seam program. The program data entered is checked.



The programming process is explained step by step using an example in [chapter 11.15.01 Example of seam programming](#).



Bartacks which are not logical are automatically deleted when the program is checked.

11.11.03 Teach In

In this function the machine can „learn“ a seam program while sewing.



- Select INPUT mode. The basic INPUT screen appears:

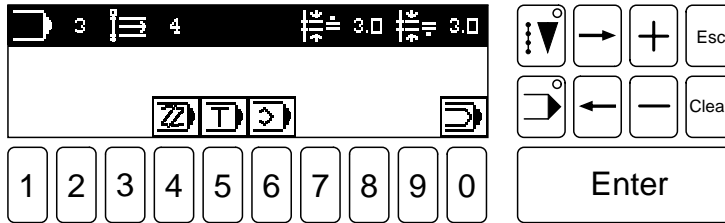


Fig. 11 - 16



- Select the Teach In function. The menu for inputting the program number appears.

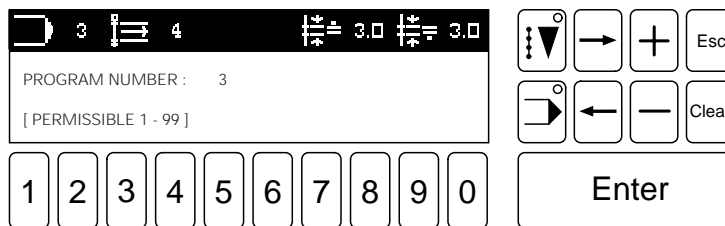


Fig. 11 - 17



- Enter a program number from 3 - 99.



- Confirm the entry with the Enter key.
The menu for inputting a comment appears:

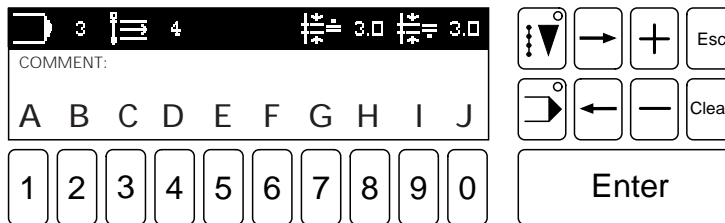
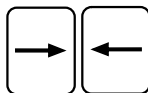
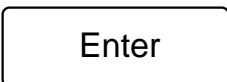


Fig. 11 - 18



- A comment of up to 14 characters can be entered.
- The characters in the display can be scrolled through with the arrow keys.
- Select a character by pressing the corresponding number key.



- Confirm the input with the Enter key.

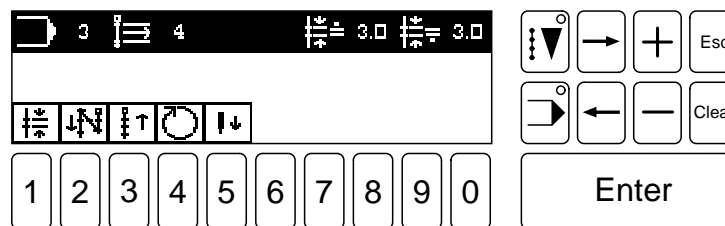


Fig. 11 - 19

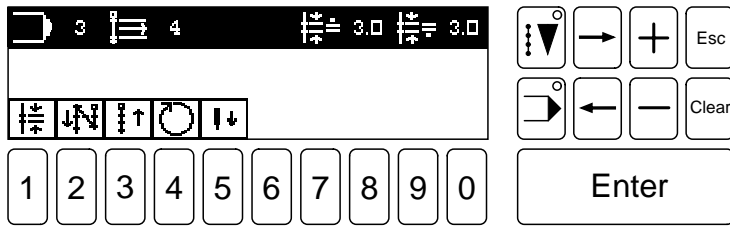


Fig. 11 - 19

Explanation of the symbols in the display:



Stitch length

This function opens a direct menu for inputting the desired values for the stitch length.



Bartack menu

This function opens a direct menu for inputting bartack functions.



Reverse sewing

When this function is activated the seam is sewn backwards in the current seam section.



Speed

This function opens a direct menu for inputting the value of the speed dependent on the seam section.



Placed stitch

This function opens a direct menu for enabling/disabling the placed-stitch function and inputting a value for the placed-stitch position (see Chapter 11.13 Placed-stitch menu).

- Press the pedal. The machine switches automatically to **manual SEWING**.
- Sew the seam manually.
- The end of the seam section can be determined after the first standstill of the machine.

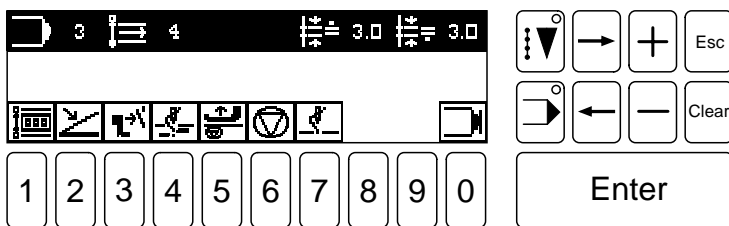
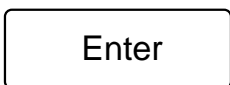


Fig. 11 - 20

- The corresponding functions at the end of the seam section can be entered using the control panel (see **chapter 11.14 Seam section end**) or they can be selected directly using the knee switch or pedal.



The symbol also appears on a dark background in the display when the function is activated using the knee switch or pedal. If a function is activated accidentally, it can be deactivated again using the corresponding **number key**.



- After pressing the **Enter** key, the seam section end is accepted and you switch over to the next seam section.



- Programming is finished with the **program end** function.

11.12 Bartack menu

In INPUT mode, values for start and end bartacks can be entered in this function after the programming function has been activated.

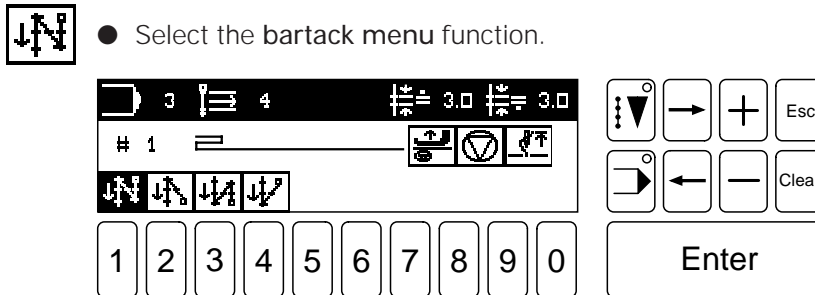


Fig. 11 - 21



Double start-bartack

- Pressing this key once turns the function on or off.
- A double click of this key opens the menu for inputting the bartack parameters.



Single start-bartack

- Pressing this key once turns the function on or off.
- A double click of this key opens the menu for inputting the bartack parameters.



Double end-bartack

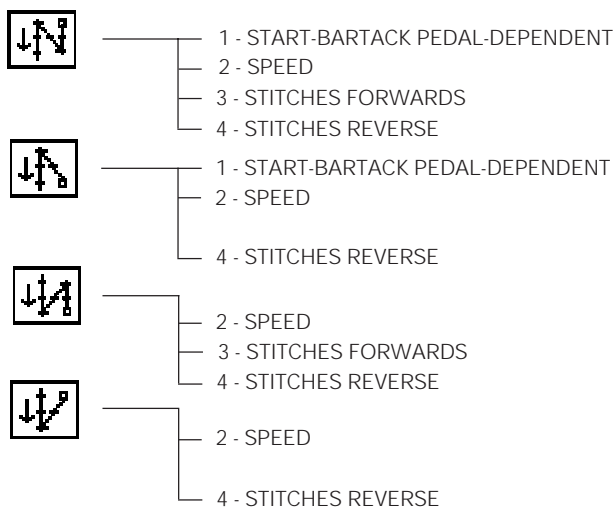
- Pressing this key once turns the function on or off.
- A double click of this key opens the menu for inputting the bartack parameters.



Single end-bartack

- Pressing this key once turns the function on or off.
- A double click of this key opens the menu for inputting the bartack parameters.

Summary of the input menus:



Start bartacks are only sewn in the seam program if the trimming has already been carried out. End bartacks are only sewn if the thread trimming function has been activated.

All other bartack functions entered are optimized after the end of the program.

11.13 Placed-stitch menu

In the INPUT mode the placed stitch can be set after the function Programming has been enabled.

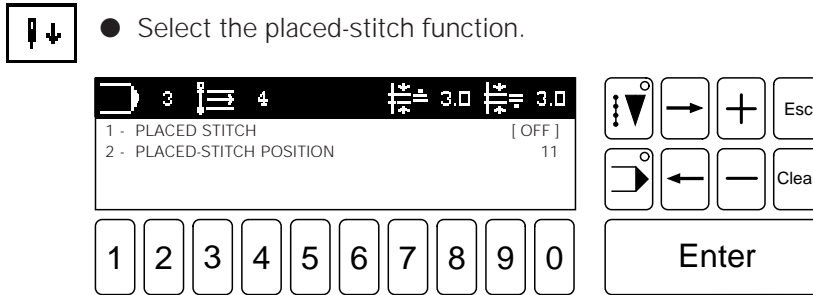


Fig. 11 - 22

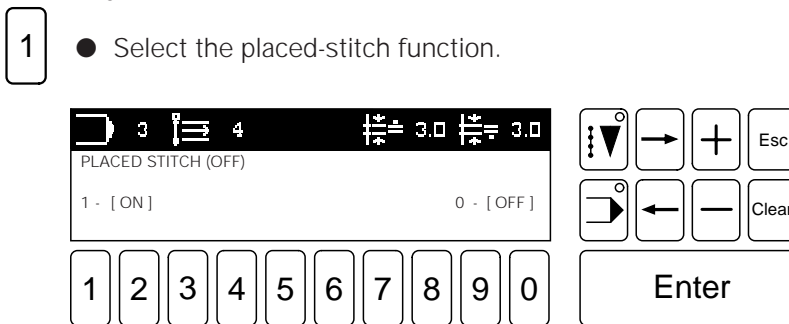


Fig. 11 - 23

- Enable (number key 1) or disable (number key 0) placed-stitch function.

1 or 0
Enter

- Confirm input with Enter key.

- Select placed-stitch function to set the position of the placed stitch.



Before the placed stitch can be set, a stitch must first be sewn. Placed stitches can only be sewn in a sewing program when the needle has been positioned at the top or the thread has been trimmed in the seam section before.

All other input placed stitches are cancelled after programming is concluded.

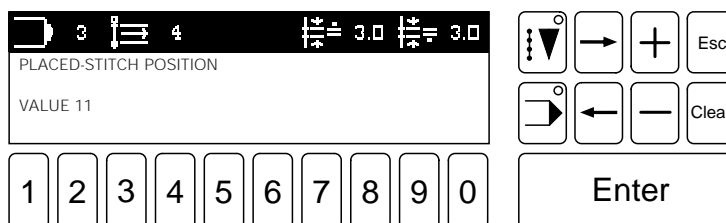


Fig. 11 - 24

Enter

- Set the required position by turning the balance wheel.
- Confirm input with Enter key.

11.14 Seam section end

If certain functions are to be carried out automatically at the end of a seam section, these functions can be entered into a menu.

In Teach In mode, the menu for inputting appears automatically after the first machine standstill.



In programming mode, the menu must be selected using the seam section end function.

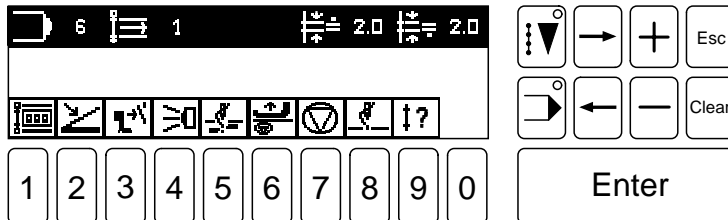


Fig. 11 - 25

- The functions can be switched on and off by pressing the corresponding **number key**.
- The pedal and knee switch functions can be switched on either by pressing the keys or by activating the pedal or knee switch directly.
- When pressing the **Enter key** the current seam section is brought to an end and the machine springs to a new seam section.



Explanation of the symbols in the display:



Stitch counter

- This function is activated by pressing the key once. I.e. the seam section end is determined by the number of stitches.
- Pressing the key once again opens the menu for inputting the number of stitches.
- Pressing the key a third time switches the function off again.



Pedal

When this function is active, the seam section end is signaled by pressing the pedal.



Knee switch

When this function is active, the seam section end is signaled by pressing the knee switch.



Thread trimming

When this function is active, the thread is cut automatically at the seam section end.



Roller presser up after stop

When this function is active, the roller presser is raised automatically at the seam section end.



Stop

When this function is active, the machine is stopped at the seam section end. The **stop** function only makes sense in combination with the **thread trimming** function when a seam correction is to be carried out at the seam section end. The seam correction is then carried out with the keys on the sewing head.



Sensor (optional)

When this function is enabled the end of seam is signalled by the sensor.



Doku-seam section, only on the PFAFF 1421E1 with Doku-seam system

When this function is enabled the current section is monitored/dokumented by the Doku-seam system.



Needle position

When this function is active, the needle travels to its top position at the seam section end. When this function is not active, the needle positions itself at its lowest point.



Program end

This function serves to end the seam program. The program data entered is checked.

11.15 Programming examples



The following display representations are only accurate if no program has been inputted previously.

11.15.01 Example of seam programming

The seam to be programmed is:

- to contain 5 seam sections
- and to be saved with the comment „seam 1“
- at program number 7.



- Select INPUT mode.

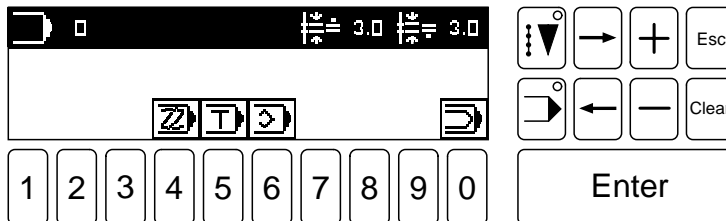


Fig. 11 - 26



- Select the programming function (number key 4).

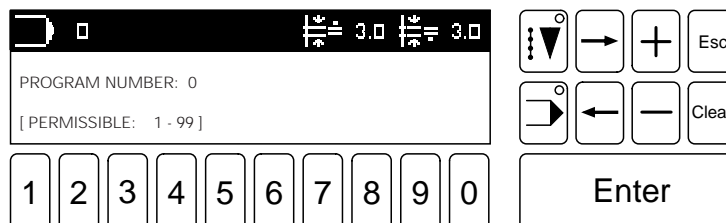


Fig. 11 - 27



- Input program number 7.
- Confirm this entry with the Enter key.
(Display for inputting comment Fig. 11 - 28 appears).



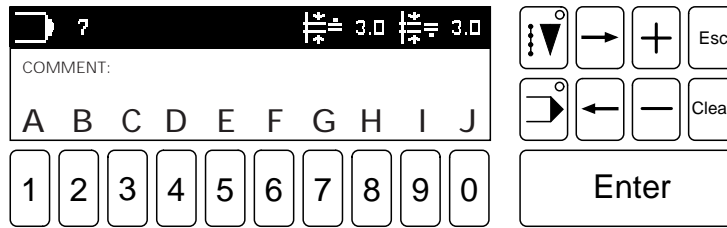


Fig. 11 - 28



- Press the arrow key pointing to the right.

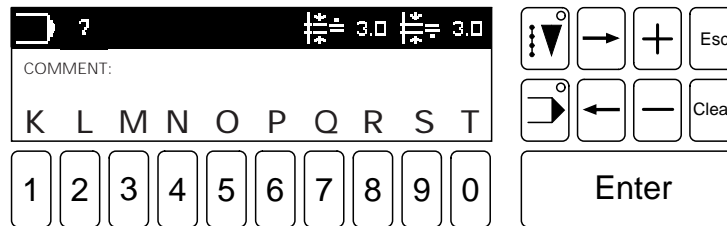


Fig. 11 - 29



- Select letter N.



- Press the arrow key pointing to the left (Display Fig. 11 - 28 appears again).



- Select letter A.
- Complete the comment in this way.
- Confirm the entry with the Enter key.

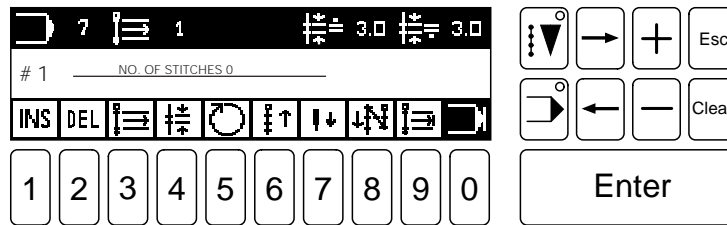


Fig. 11 - 30

- Program the first seam section:

This seam section is to contain

- a double start-bartack (2 stitches forwards and reverse),
- stitch counting (5 stitches)
- and a stitch length (for roller presser and feed wheel) of 3.5mm.



- Open the bartack menu (number key 8).

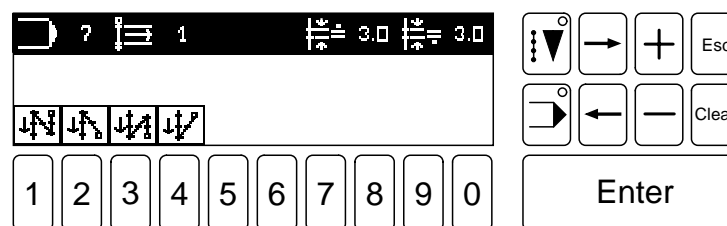


Fig. 11 - 31



- Double click (press twice in rapid succession) on the function double start-bartack to open the start bartack menu for double bartacks (number key 1).

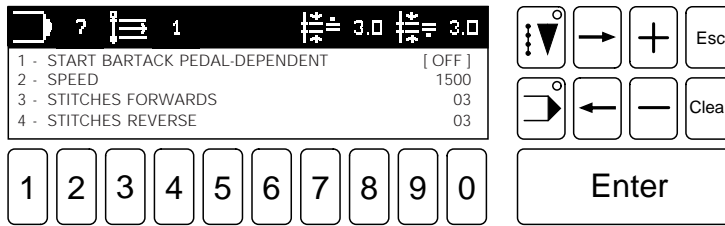


Fig. 11 - 32

3

- Select the function STITCHES FORWARDS.

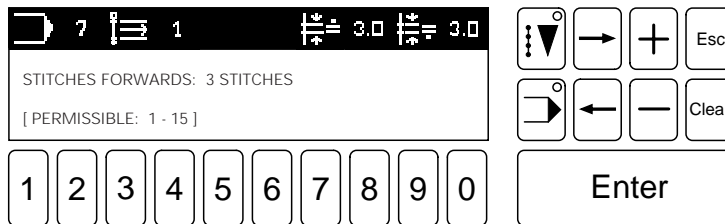


Fig. 11 - 33

2

- Enter the number of stitches.



Fig. 11 - 34

Enter

- Confirm this input with the Enter key.

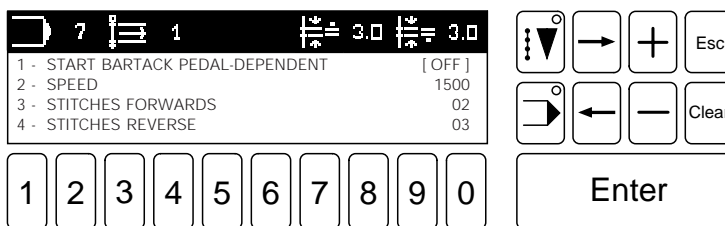


Fig. 11 - 32

4

- Select the function STITCHES REVERSE.

2

- Enter the number of stitches.

Enter

- Confirm this input with the Enter key (Display Fig. 11 - 32 appears).

Enter

- Close the input in the bartack menu with the Enter key (Display Fig. 11 - 31 appears).

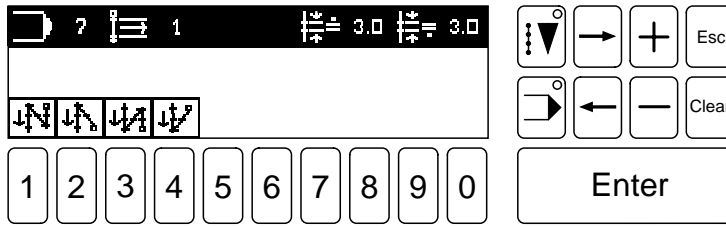


Fig. 11 - 31

- The double start-bartack function still has to be activated (number key 1). After the number key has been pressed, the symbol is displayed on a dark background.
- Close the bartack menu function with the Enter key.

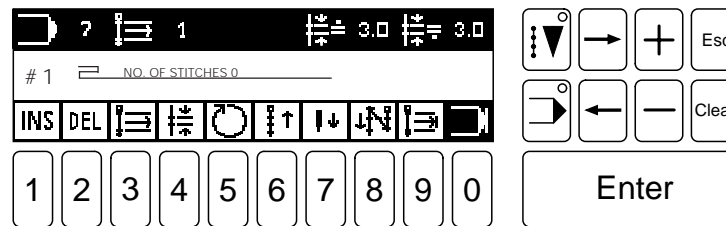
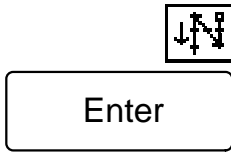


Fig. 11 - 30

- Select the stitch length function (number key 4).

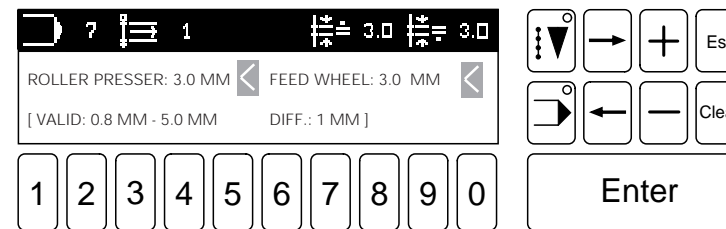

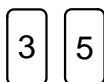


Fig. 11 - 35

 This is entered for both stitch lengths. If varying values are to be entered, the roller presser and the feed wheel must be selected individually using the arrow keys. Observe the cursor.



- Enter the desired stitch lengths.

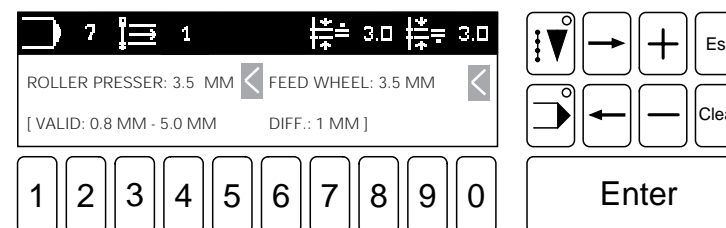
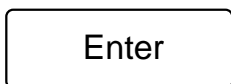


Fig. 11 - 36



- Confirm stitch length input with the Enter key.

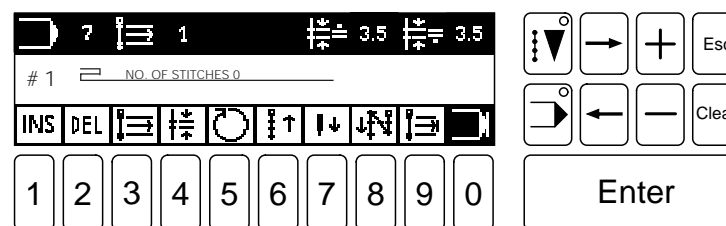


Fig. 11 - 37



- Select the seam section end function (number key 9).

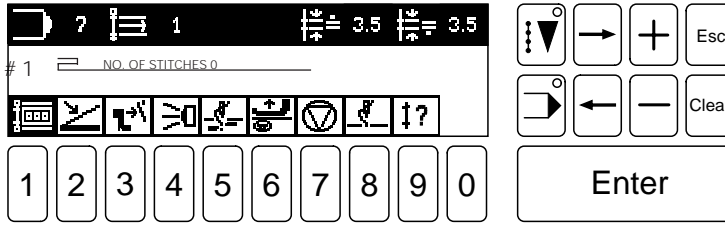


Fig. 11 - 38



- The stitch counter function is already on (dark background). By activating the function (number key 1) the menu for inputting the number of stitches is opened.

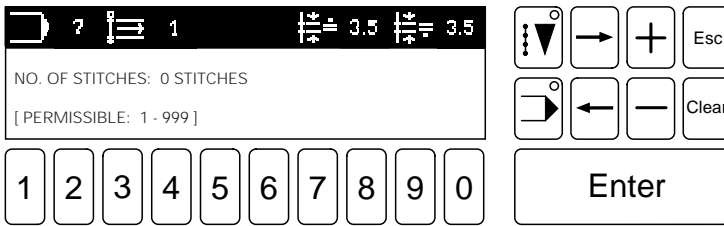


Fig. 11 - 39

5

- Enter the desired number of stitches.

Enter

- Confirm this entry with the Enter key.

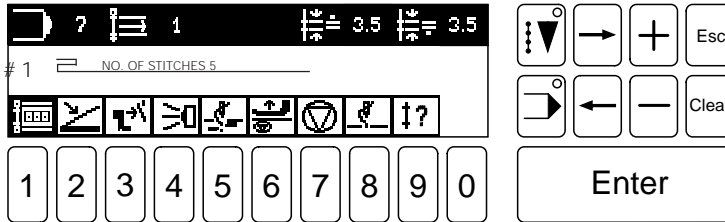


Fig. 11 - 40

Enter

- Close the seam section end menu with the Enter key.

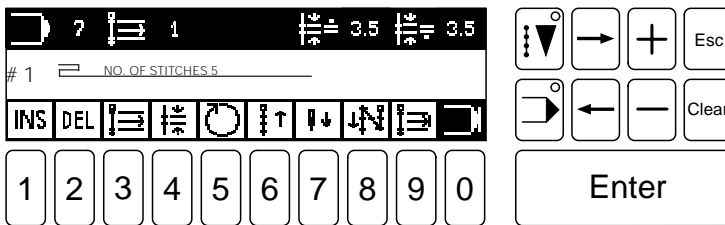


Fig. 11 - 37



- Switch off the program end function (number key 0) in order to be able to program the second seam section.
- Press the Enter key to confirm the first seam section.

Enter

- Program the second seam section:

In this seam section the

- stitch length should be 5.0 mm
- and a stitch count should be carried out (1 stitch).

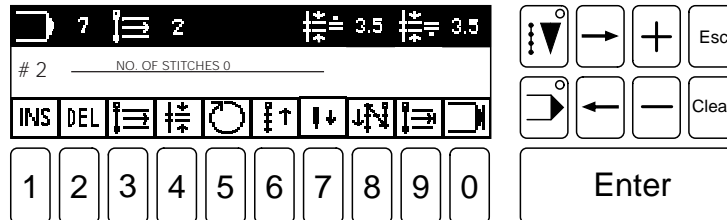


Fig. 11 - 41



- Select the stitch length function.

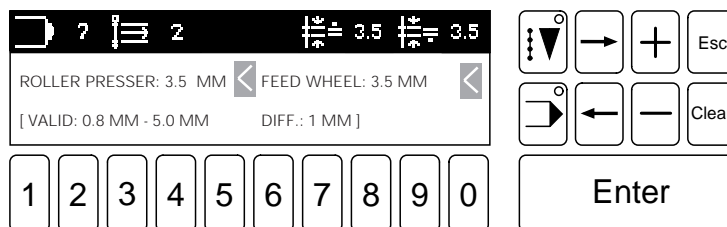
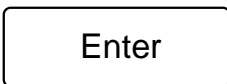


Fig. 11 - 42



- Input the value for the stitch lengths.



- Confirm the entry with the Enter key.

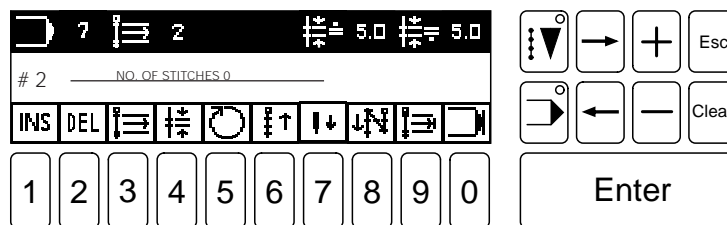


Fig. 11 - 43



- Select the seam section end function (number key 9).

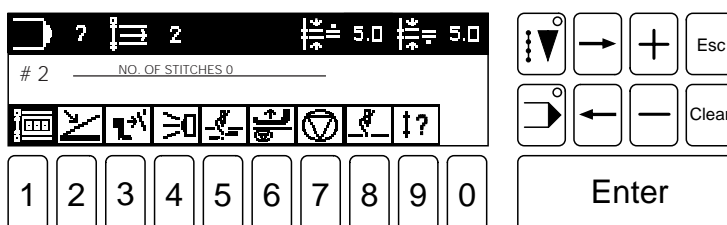


Fig. 11 - 44



- Select the menu for inputting the number of stitches (number key 1).
Display Fig. 11 - 45 appears.

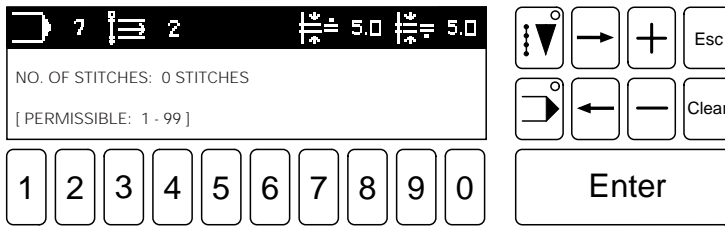


Fig. 11 - 45

- 1 ● Enter the desired number of stitches.



- Confirm this number of stitches with the Enter key.

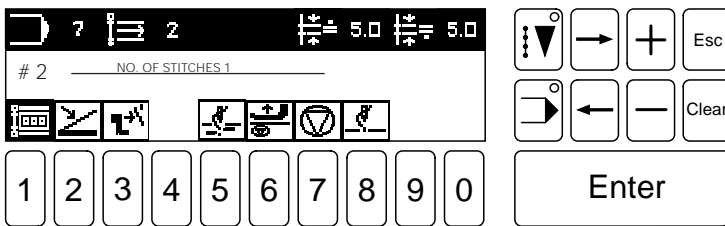


Fig. 11 - 46



- Press the Enter key to confirm the seam section end.



- Press the Enter key to confirm the second seam section end. The machine jumps to the third seam section.

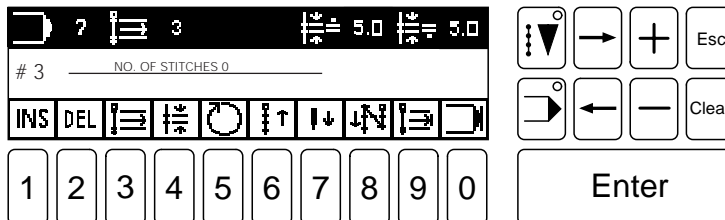


Fig. 11 - 47

- Program the third seam section so that:

- the stitch length is 5.0 mm,
- a stitch count is carried out (1 stitch)
- and the seam is sewn in reverse.



- Select the seam section end function (number key 9).

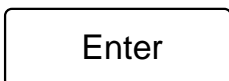


- Select the stitch counter function (number key 1).

- 1 ● Enter the desired number of stitches.



- Confirm the number of stitches with the Enter key.



- Confirm the seam section end with the Enter key. Display Fig. 11 - 48 appears.

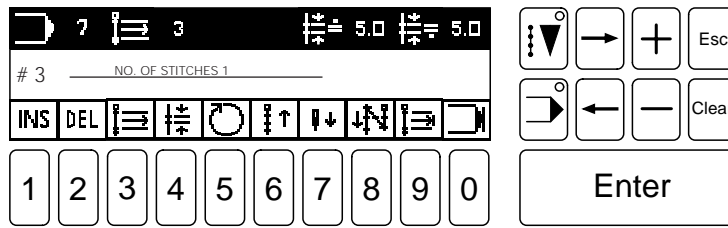


Fig. 11 - 48



- Switch on the reverse sewing function (number key 6).

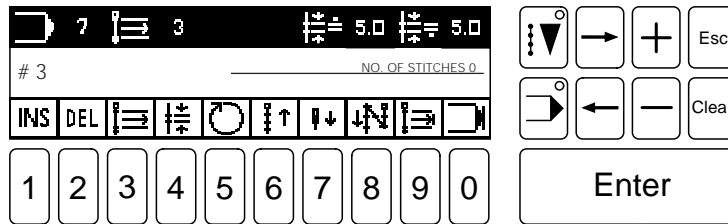


Fig. 11 - 49



- Confirm the third seam section with the Enter key.
The machine jumps to the inputting of the fourth seam section.

- Program the fourth seam section:

In this seam section

- the stitch length should be 5.0 mm and
- a stitch count should be carried out (1 stitch).



- Select the seam section end function (number key 9).



- Select the stitch counter function (number key 1).



- Enter the desired number of stitches.



- Confirm the number of stitches with the Enter key.



- Confirm the seam section end with the Enter key.

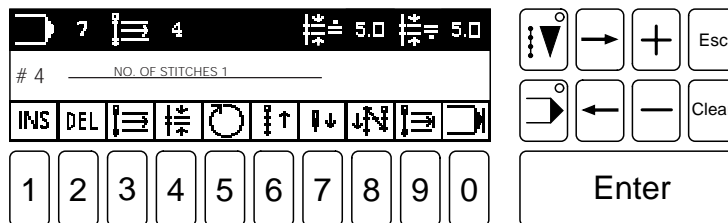


Fig. 11 - 50



- Confirm the fourth seam section with the Enter key.
The machine jumps to the inputting of the fifth seam section.

- Program the fifth (last) seam section:

The seam section should have

- a double end-bartack (1 stitch forwards and reverse),
- stitch counting (5 stitches),
- a stitch length (for roller presser and feed wheel) of 2.5 mm
- and trim the thread at the end of the seam section.

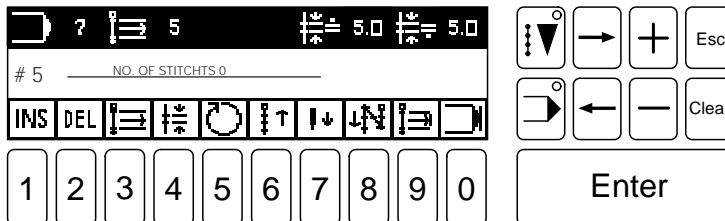


Fig. 11 - 51



- Select the bartack menu function (number key 8).



- Double click on the double end-bartack function (number key 3).

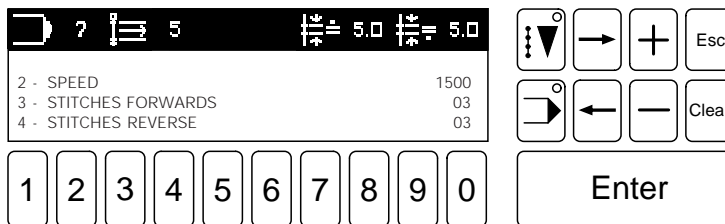


Fig. 11 - 52



- Select the STITCHES FORWARDS function.



- Enter the number of stitches.



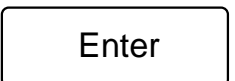
- Confirm the input by pressing the Enter key.



- Select the STITCHES REVERSE function.



- Enter the number of stitches.



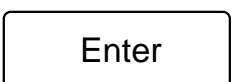
- Confirm this number by pressing the Enter key.



- Finish the inputting of the bartack values by pressing the Enter key.



- Switch on the double end-bartack function (number key 3).



- Confirm the bartack functions by pressing the Enter key.

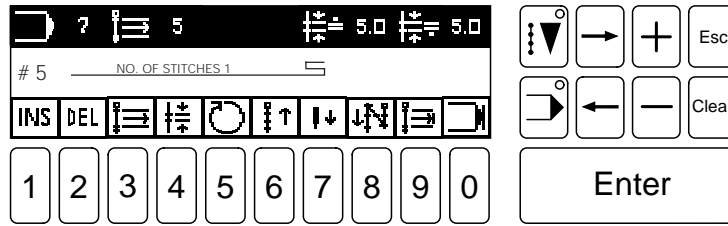
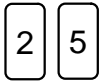


Fig. 11 - 53



- Select the **stitch length** function (number key 4).



- Enter the value for the stitch length.



- Confirm this entry by pressing the **Enter** key.



- Select the **seam section end** function (number key 9).



- If the **stitch counter** function is not active, switch it on (number key 1).



- Activate the **stitch counter** function once again to open the menu for inputting.



- Enter the number of stitches.



- Confirm this entry by pressing the **Enter** key.



- Switch on the **thread trimmer** function (number key 5).

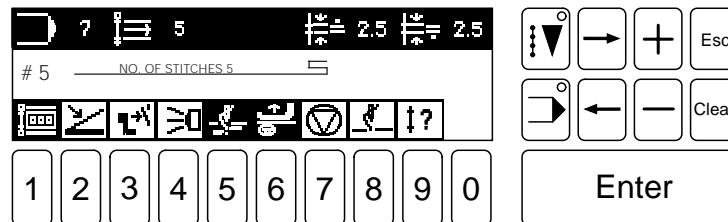
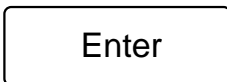


Fig. 11 - 54



- Confirm the seam section by pressing the **Enter** key.



- Select the **program end** function.

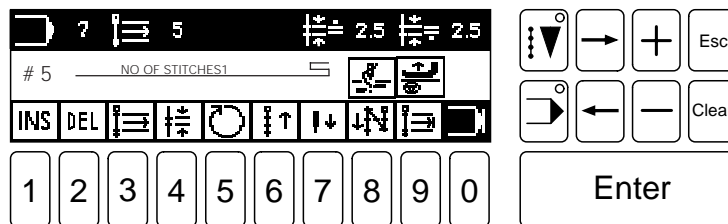
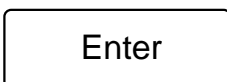


Fig. 11 - 55



- Save the seam program by pressing the **Enter** key.

11.15.02 Example for programming a decorative seam

The decorative seam to be sewn should have:

- four seam sections
- and be saved with the comment „Deco 1“
- at program number 6



- Select INPUT mode.



- Select the programming function.



- Enter the program number.

Enter

- Confirm this entry with the Enter key.

- Enter comment (see chapter 11.15.01 Example for programming a seam).

Enter

- Confirm with the Enter key.

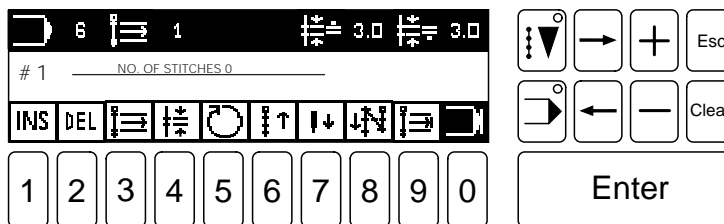


Fig. 11 - 56

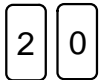
- Program the first seam section.

This seam section should have

- stitch counting (1 stitch)
- and a stitch length of 2 mm.



- Select the stitch length function (number key 4).



- Enter the stitch length (see chapter 11.15.01 Example of seam programming).

Enter

- Confirm with the Enter key.

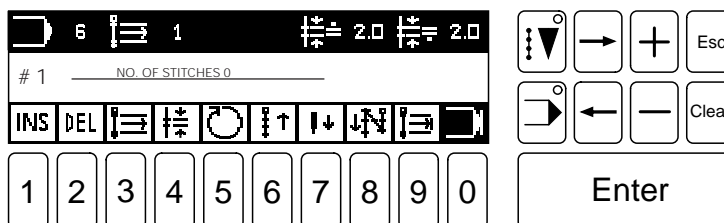


Fig. 11 - 57



- Select the seam section end function.

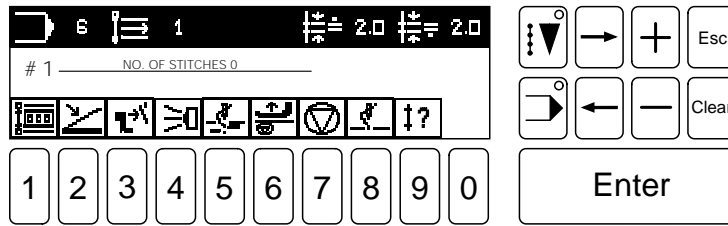


Fig. 11 - 58



- If this function is not active, switch on the stitch counter (number key 1).



- Select the stitch counter function again to open the input menu.

1

- Enter the number of stitches (e. g. 5).

Enter

- Confirm the entry with the Enter key.

Enter

- Confirm the seam section end by pressing the Enter key.

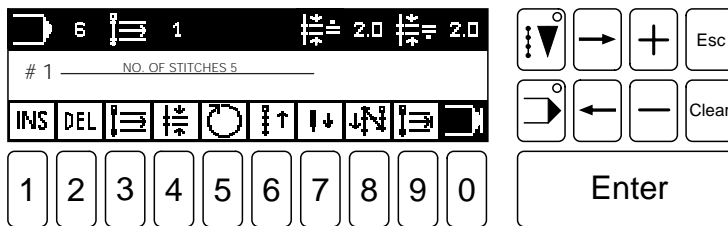


Fig. 11 - 59



- Switch off the program end function (number key 0).

Enter

- Confirm the first seam section by pressing the Enter key.

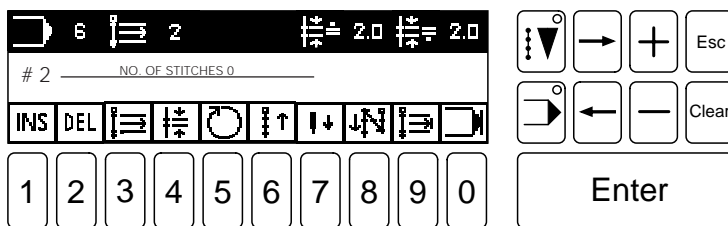


Fig. 11 - 60

- Program the second seam section:

This seam section should have
 - stitch counting (1 stitch)
 - and a stitch length of 3.5 mm.



- Select the stitch length function (number key 4).

3 5

- Enter the stitch length.

Enter

- Confirm the entry with the Enter key.



- Select the seam section end function (number key 9).



- If not active, switch the stitch counter on (number key 1).



- Select the stitch counter function again to open the input menu.

1

- Enter the number of stitches.

Enter

- Confirm the entry with the Enter key.

Enter

- Confirm the seam section end by pressing the Enter key.

Enter

- Confirm the second seam section by pressing the Enter key.

- Program the third seam section:

This seam section should have

- stitch counting (1 stitch)
- and a stitch length of 5 mm.



- Select the seam section end function (number key 9).



- Select the stitch counter function to open the input menu.

1

- Enter the number of stitches.

Enter

- Confirm the entry with the Enter key.

Enter

- Confirm the seam section end by pressing the Enter key.



- Select the stitch length function (number key 4).

5

- Enter the stitch length.

Enter

- Confirm with the Enter key.

Enter

- Confirm the third seam section by pressing the Enter key.

- Program the fourth (last) seam section:

This seam section should have

- stitch counting (1 stitch)
- and a stitch length of 3.5 mm.

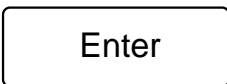


- Select the **seam section end** function (number key 9).



- Select the **stitch counter** function to open the input menu.

- Enter the number of stitches.



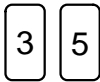
- Confirm the entry with the **Enter** key.



- Confirm the seam section end by pressing the **Enter** key.



- Select the **stitch length** function (number key 4).



- Enter the stitch length.



- Confirm with the **Enter** key.



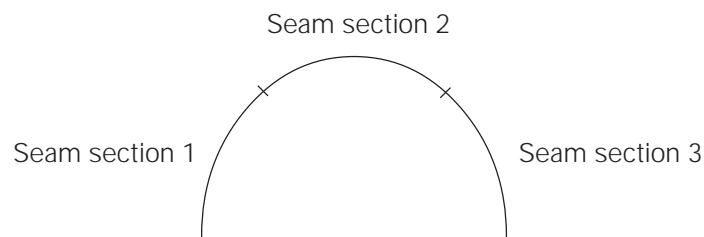
- Select the **program end** function (number key 0).



- Confirm the decorative seam by pressing the **Enter** key.

11.15.03 Example of Teach In programming

The following seam is to be created:



The seam to be programmed is:

- to contain 3 seam sections
- and to be saved with the comment „Learn“
- at program number 8.



- Select INPUT mode.



- Select the Teach In function (number key 5).

8

- Enter the program number.

Enter

- Confirm with the Enter key.

- Enter comment.

Enter

- Confirm with the Enter key.



Fig. 11 - 61

- Input the first seam section:

This seam section should have

- the knee switch function (seam section end)
- and a stitch length of 2.8 mm.



- Select the stitch length function (number key 1).

2 8

- Enter the stitch length.

Enter

- Confirm with the Enter key.

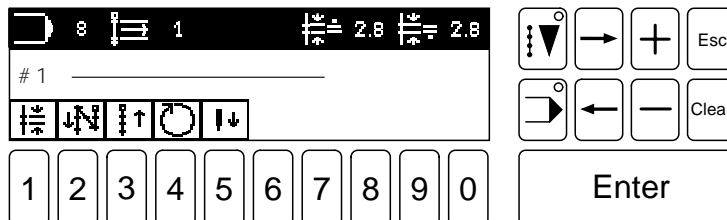


Fig. 11 - 62

- Sew the first seam section manually.

The number of stitches is counted and displayed in the status bar.

After stopping, the machine skips automatically to inputting the seam section end

(Fig. 11 - 63 in display).

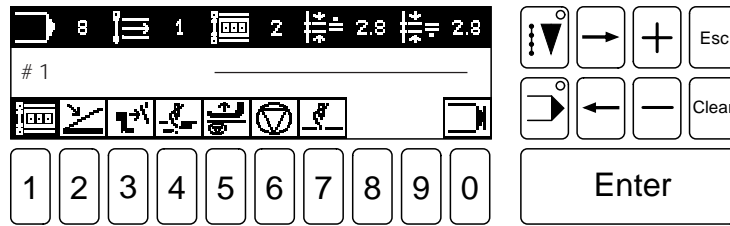


Fig. 11 - 63



- Switch on the knee switch function (number key 3).

or:

- Activate the knee switch.



- Confirm the seam section end by pressing the Enter key.

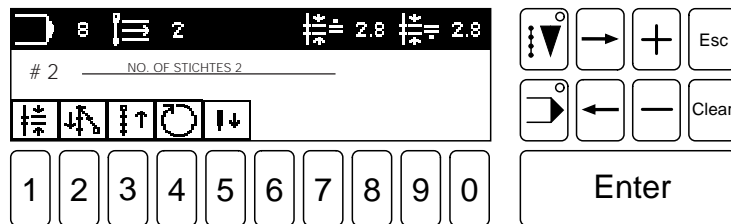


Fig. 11 - 64

- Input the second seam section:

This seam section should have

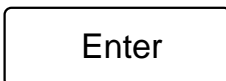
- the knee switch function (seam section end)
- and a stitch length of 2.4 mm.



- Select the stitch length function (number key 1).



- Enter the stitch length.



- Confirm with the Enter key.

- Sew the second seam section manually.

The number of stitches is counted and displayed in the status bar.

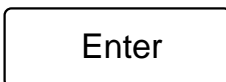
After stopping, the machine skips automatically to inputting the seam section end.



- Switch on the knee switch function (number key 3).

or:

- Activate the knee switch.



- Confirm the seam section end by pressing the Enter key.

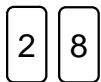
- Input the third seam section:

This seam section should have

- the pedal function (seam section end)
- and the thread trimmer (seam section end)
- and a stitch length of 2.8 mm.



- Select the **stitch length** function (number key 1).



- Enter the stitch length.

Enter

- Confirm with the Enter key.

- Sew the second seam section manually.



- Switch on the pedal function (number key 2).

or:

- Bring the pedal backwards into the 2nd position.

The roller presser up after stop function is activated automatically.



- Switch on the **thread trimmer** function (number key 4).



- Select the **program end** function (number key 0).

Enter

- Confirm the programm by pressing the Enter key.



The thread trimming and/or the end bartack are not carried out until **program end** function is activated (at the end of the program), or the **Enter key** (in every other sector).

12 Care and maintenance

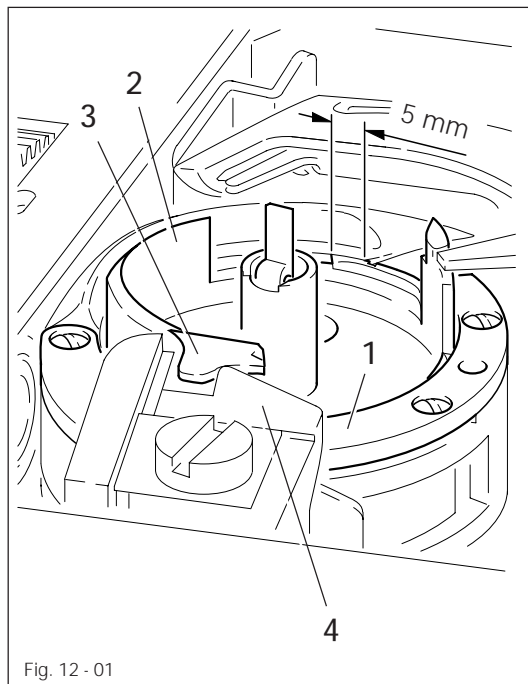
Clean	daily, more often if in continuous operation
Oil level (hook oil reservoir)	daily before use
Lubricate the bevel gears	annually
Clean the air filter	once a week



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

12.01 Cleaning

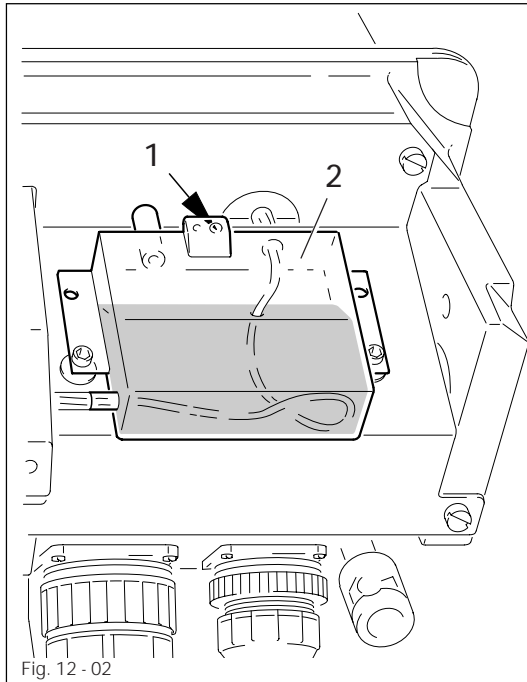
Clean the hook and hook compartment daily, more often if in continuous operation.



Turn the machine off!

- Bring the needle bar to its highest position.
- Open the bed plate slide and remove the bobbin case cap and the bobbin.
- Unscrew hook gib 1.
- Turn the handwheel until the point of bobbin case 2 penetrates into the groove of the hook race approx. 5 mm.
- Remove bobbin case 2.
- Clean the hook race with paraffin.
- When inserting the bobbin case 2, ensure that the horn 3 of the bobbin case 2 meshes in the recess of the retaining lug 4.
- Screw hook gib 1 back on.
- Insert the bobbin and bobbin case and close the bed plate slide.

12.02 Filling the oil reservoir



Check the oil level before every use.



There must always be oil in the oil reservoir 2.

- Fill oil through hole 1 into the reservoir 2 as required.

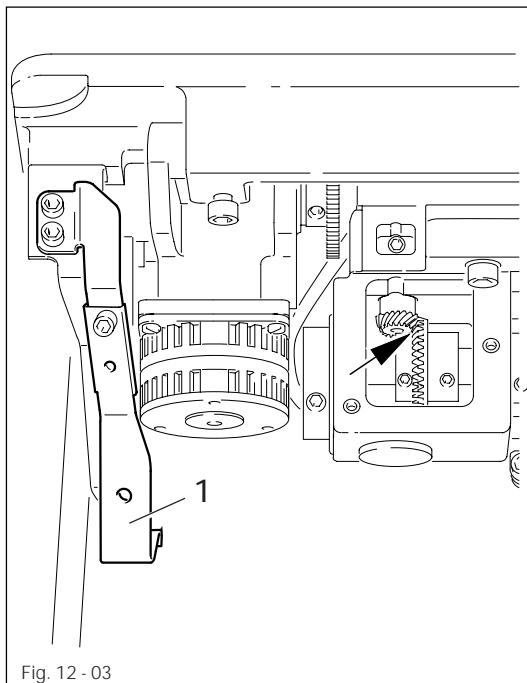


Use only oil with a mean viscosity of 22.0 mm²/s at 40°C and a density of 0.865 g/cm³ at 15°C.



We recommend PFAFF sewing machine oil.
Part no. 280-1-120 144.

12.03 Lubricating the bevel gears



Turn the machine off!

- The bevel gears of the hook drive are to be greased once a year.
- Lay the machine head backwards onto its support.
- Unscrew the cover of the bevel gear case.
- Brush a little grease onto all of the tooth flanks (see arrow).
- Screw on the lid.
- To stand the machine head up again, press safety plate 1 to the rear and stand the machine head up using both hands.

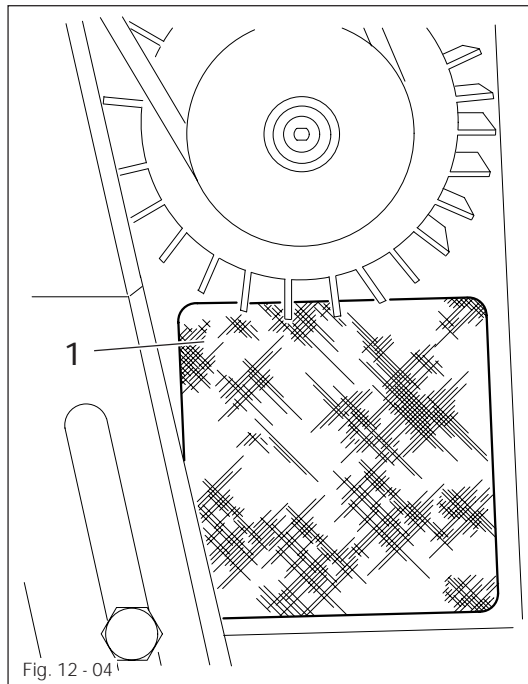


Use both hands to return the machine to an upright position.
Danger of crushing between machine head and table top.



We recommend PFAFF hard soap grease with a drop point of approx. 150°C
Part no. 280-1-120 243.

12.04 Cleaning the air filter on the control box



Turn the machine off!

- The filter grate 1 must be cleaned at least once a week, or more depending on the cleanliness of the air.
- Dust which collects on the filter grate 1 is to be removed with a brush.



Never blow the dust off the filter grate 1 into the machine housing!

13 Adjustment



On the PFAFF 421E1 and the PFAFF 1421E1 do not use a screw clamp on the needle bar, because this will damage the special coating of the needle bar.

13.01 Notes on adjusting

All adjustments in these adjustment instructions are based on a completely installed machine and must only be carried out by appropriately trained specialists. Covers on the machine which have to be removed and replaced for checks and adjustment work are not mentioned here. The screws and nuts in brackets () are attachments of machine parts which are to be loosened before making the adjustment and tightened again when the adjustment is complete.

13.02 Tools, gauges and other accessories for adjusting

- 1 set of screwdrivers with blade widths from 2 to 10 mm
- 1 set of wrenches with jaw widths from 7 to 14 mm
- 1 set of Allan keys from 1.5 to 6 mm
- 1 metal rule, (Part No. 08-880 218-00)
- 1 adjustment pin (needle position in sewing direction, Part no. 61-111 641-46)
- 1 adjustment pin for needle bar rise, (Part No. 61-111 641-39)
- Needles, PFAFF 421E1: System 134, PFAFF 1421E1: System 134-35
- Sewing thread and test material

13.03 Abbreviations

TDC = top dead center

BDC = bottom dead center

13.04 Adjusting the basic machine

13.04.01 Adjusting the synchronizer

Requirement

When the point of the needle descending in sewing direction is at the top edge of the needle plate the reference point must be at "0".

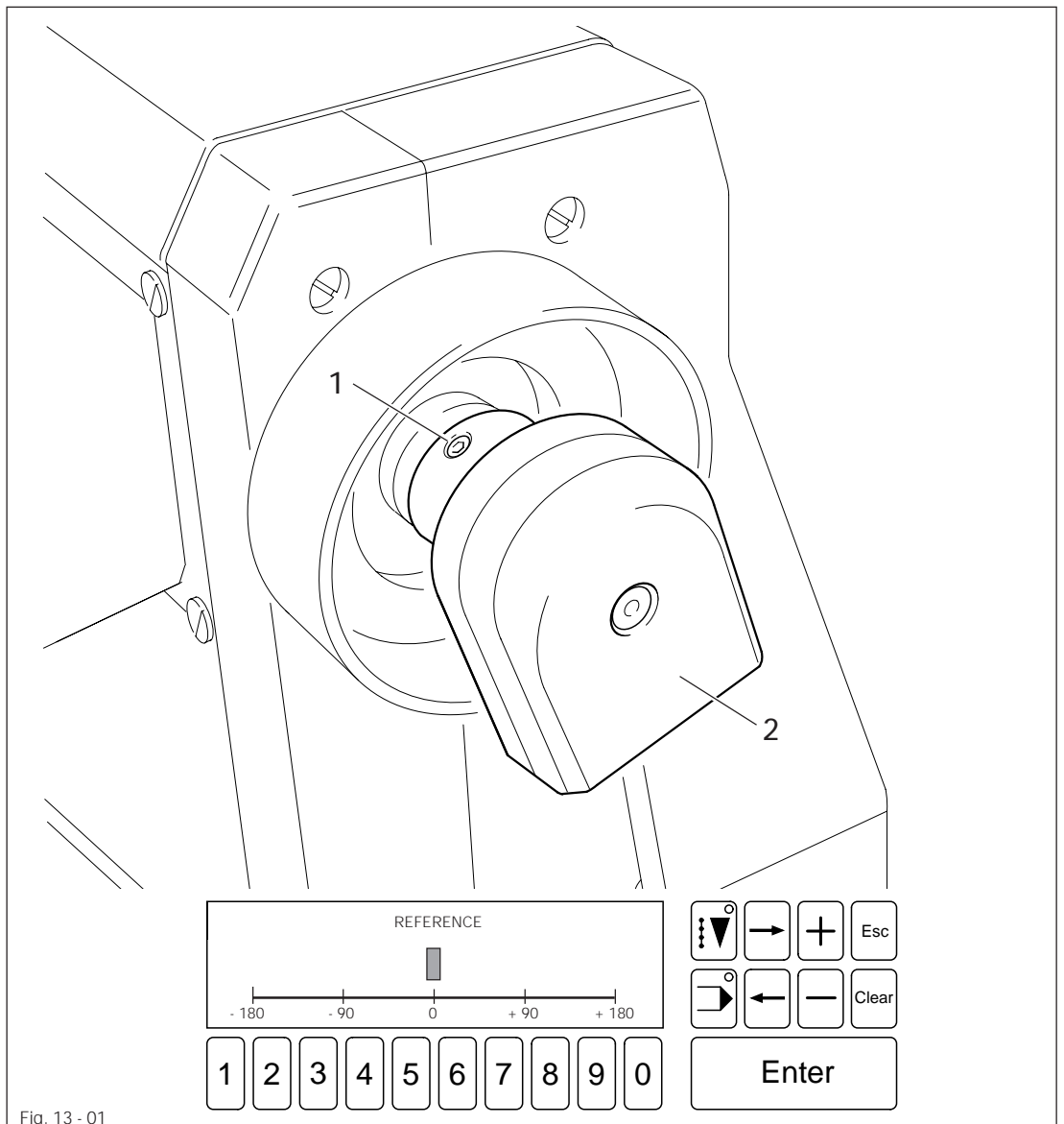
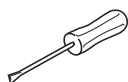


Fig. 13 - 01



- Switch the machine on and sew a few stitches.
- Loosen screws 1.



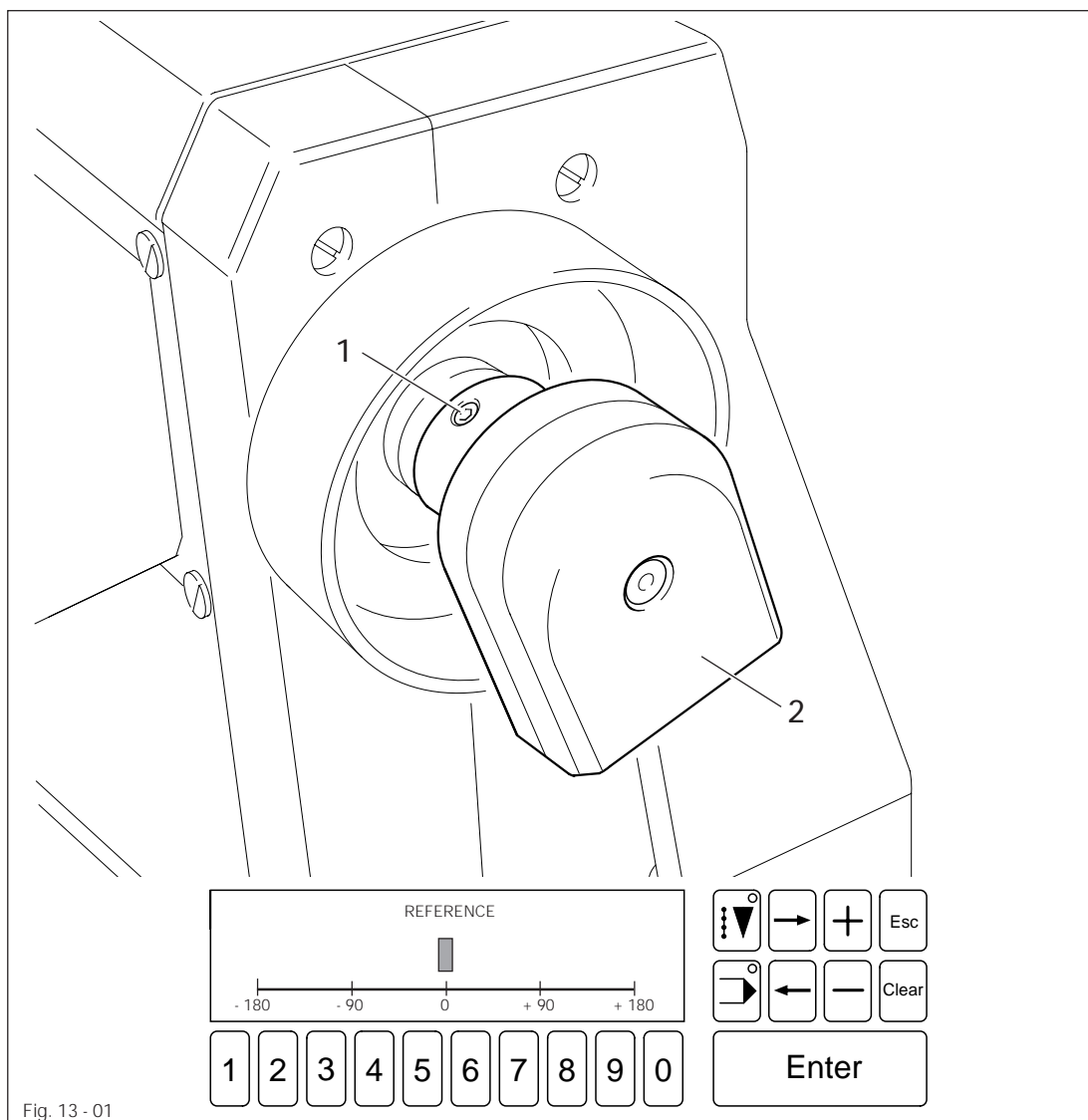
- Select INPUT mode.



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



- Select the SERVICE function.



- 2** ● Select the SEWING MOTOR function.
- 1** ● Select the ADJUST SYNCHRONIZER function.
 - Turn the balance wheel in sewing direction until the point of the descending needle is at the top edge of the needle plate.
 - With the needle in this position, turn synchronizer 2 until the cursor in the display is at " 0 ".
 - Tighten screws 1.

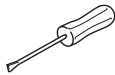


For other positioning options see the ADJUSTING POSITIONS function in chapter 11.09 Summary of the service functions.

13.04.02 Setting the machine configuration

Requirement

The configuration must correspond with the existing machine and its fitted work aids (see table).



- Switch on the machine.



- Select INPUT mode on the control panel by pressing the key accordingly.



- Select input menu (number key 0).



- Select SERVICE.



- Select CONFIGURATION

- Press **number keys** to set the configuration according to Requirement.

Number	Machine configuration
0	1471E1, 1474E1, 1491E1 and 1493E1
1	1471E1, 1474E1, 1491E1 and 1493E1 with sensor
2	421E1
3	reserved
4	421E1 with sensor
5	reserved
6	1421E1
7	1421E1 with bobbin thread supply monitor -926/04
8	1421E1 with sensor
9	1421E1 with sensor and bobbin thread supply monitor -926/04
10	1421E1 with sensor, bobbin thread supply monitor -926/04 and Doku Seam system

13.04.03 Positioning the needle in the direction of sewing

Requirement

With the stitch length set at " 5 ", the needle must be the same distance from the inner edges of the needle hole in both its front and rear points of reversal.

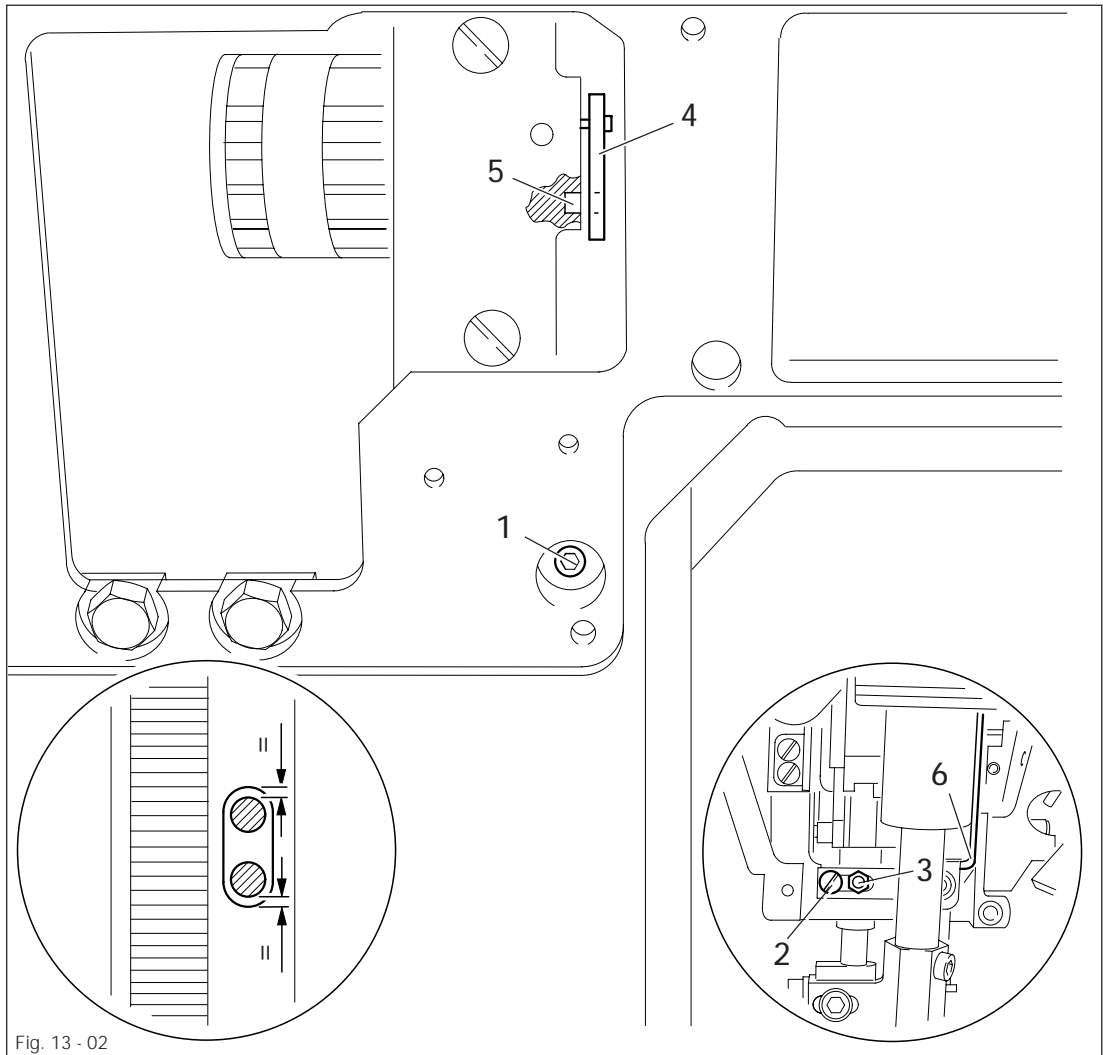
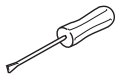


Fig. 13 - 02



- Turn the machine on and set the stitch length at " 5 ".
- Turn the machine off and back on again (synchronisation of the needle bar to the stitch length).
- Turn the handwheel in its direction of rotation until the needle is in the needle hole.
- Check the **requirement** by turning the single start bartack on and back off again.
- Turn the machine off.
- For the adjustment, loosen screw 1 through the hole in the back of the housing.
- Loosen screw 2 and nut 3.
- Pass the adjustment pin (part no. 61-111 641-46) through the longitudinal opening on the back of the housing and then through the hole in lever 4 and into hole 5.
- Move the needle bar frame 6 (screw 1) in accordance with the requirement.



Screw 2 and nut 3 remain loosened for the following adjustment.

- Carry out a check in accordance with the requirement.

13.04.04 Positioning the needle across the direction of sewing

Requirement

The needle must enter the middle of the needle hole as viewed across the direction of sewing.

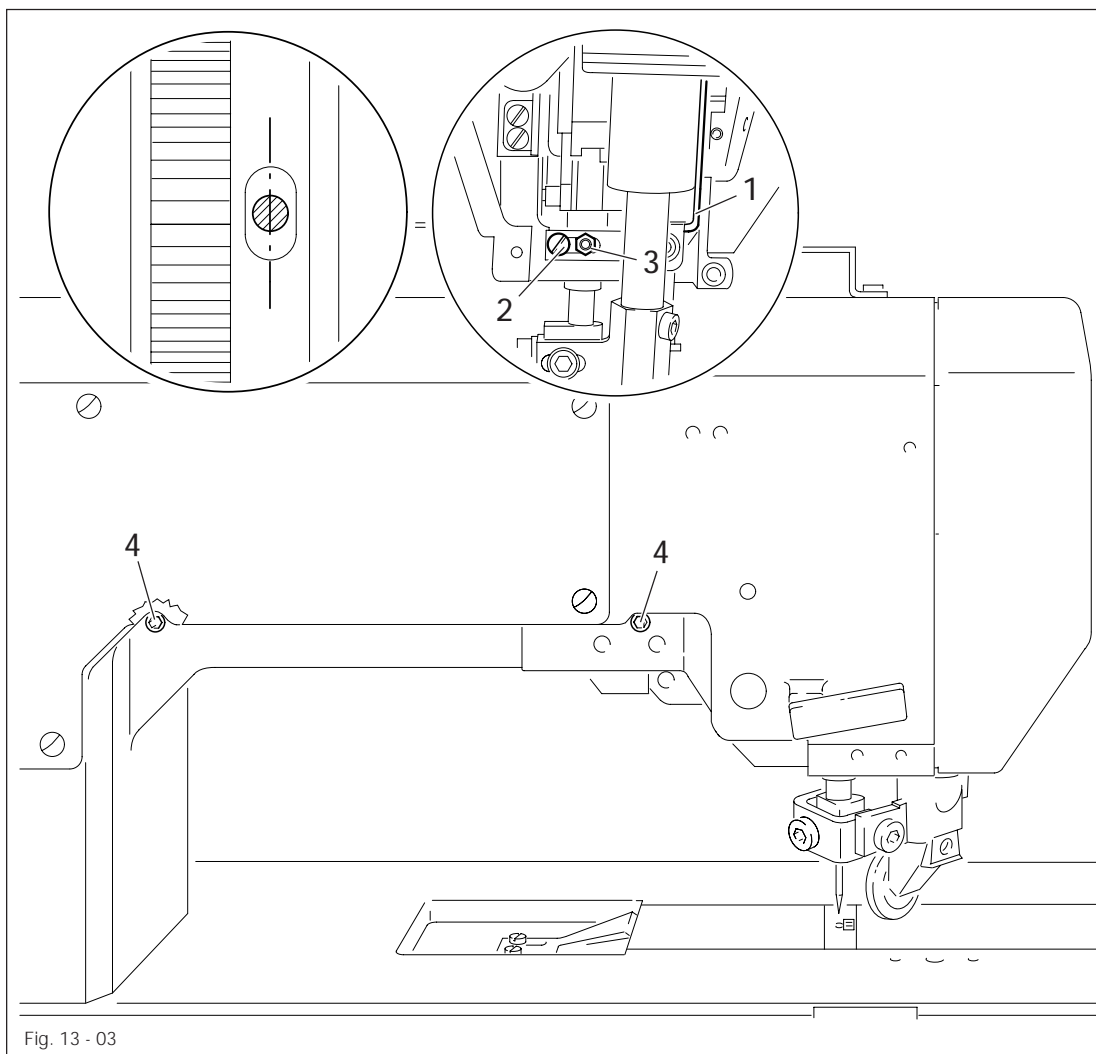
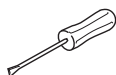


Fig. 13 - 03



- Move needle bar frame 1 (screws 2 and 4 and nut 3) in accordance with the requirement.



Screws 4 are accessible through the holes on the back of the housing. Screw 2 and nut 3 remain loosened for further adjustments.

13.04.05 Limiting the needle bar frame

Requirement

With the stitch length set at " 5 ", screw 4 must be the same distance from the inner edge of the mounting hole when the needle is at both the front and rear points of reversal.

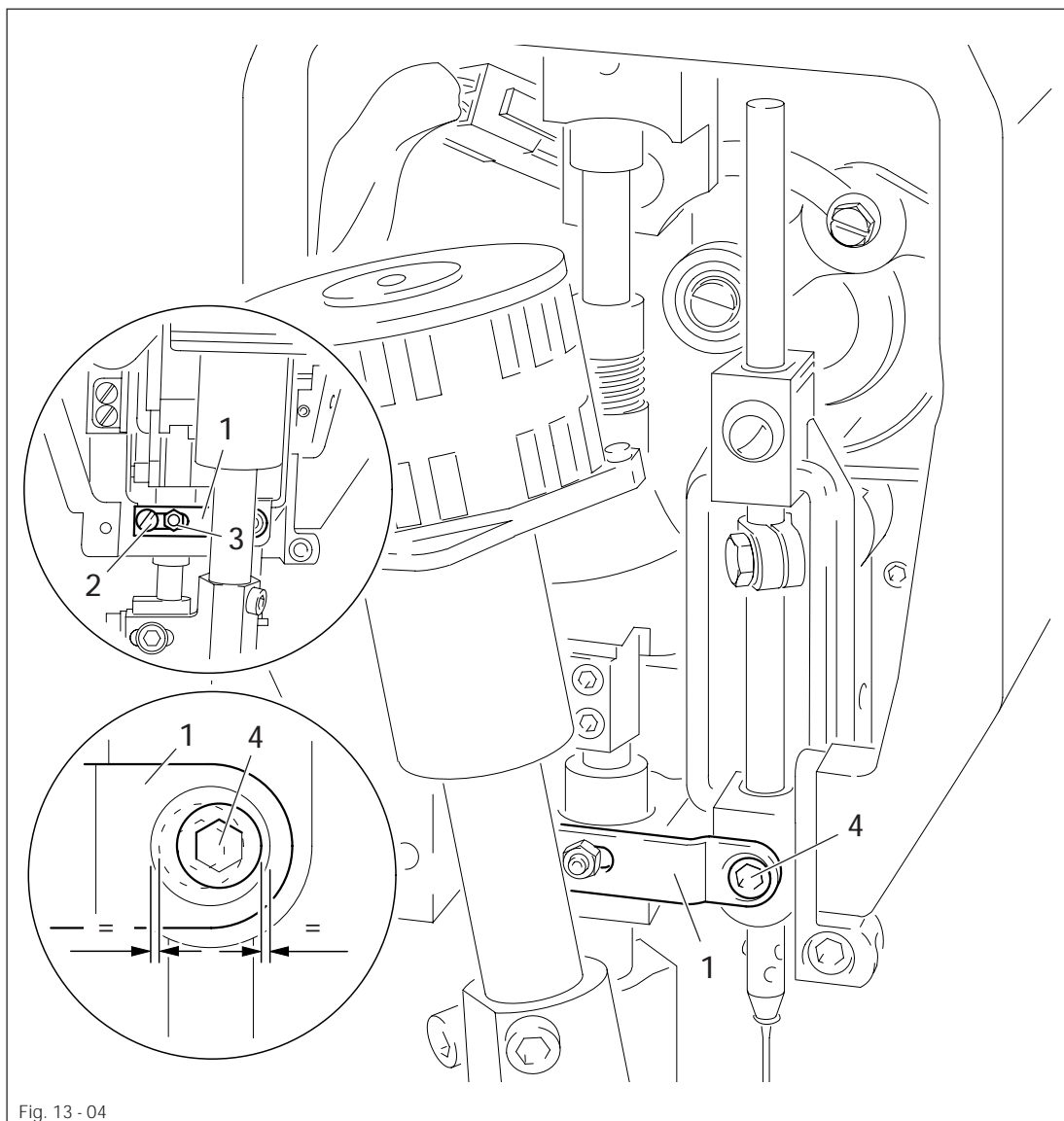
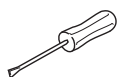


Fig. 13 - 04



- Turn the machine on and set the stitch length at " 5 ".
- Check the **requirement** by turning the single start bartack on and back off again.
- For the adjustment, move latch 1 in accordance with the **requirement**.
- Tighten screw 2 and nut 3.

13.04.06 Preadjusting the needle height

Requirement

With the needle bar at TDC there must be approx. **22 mm** between the point of the needle and the needle plate.

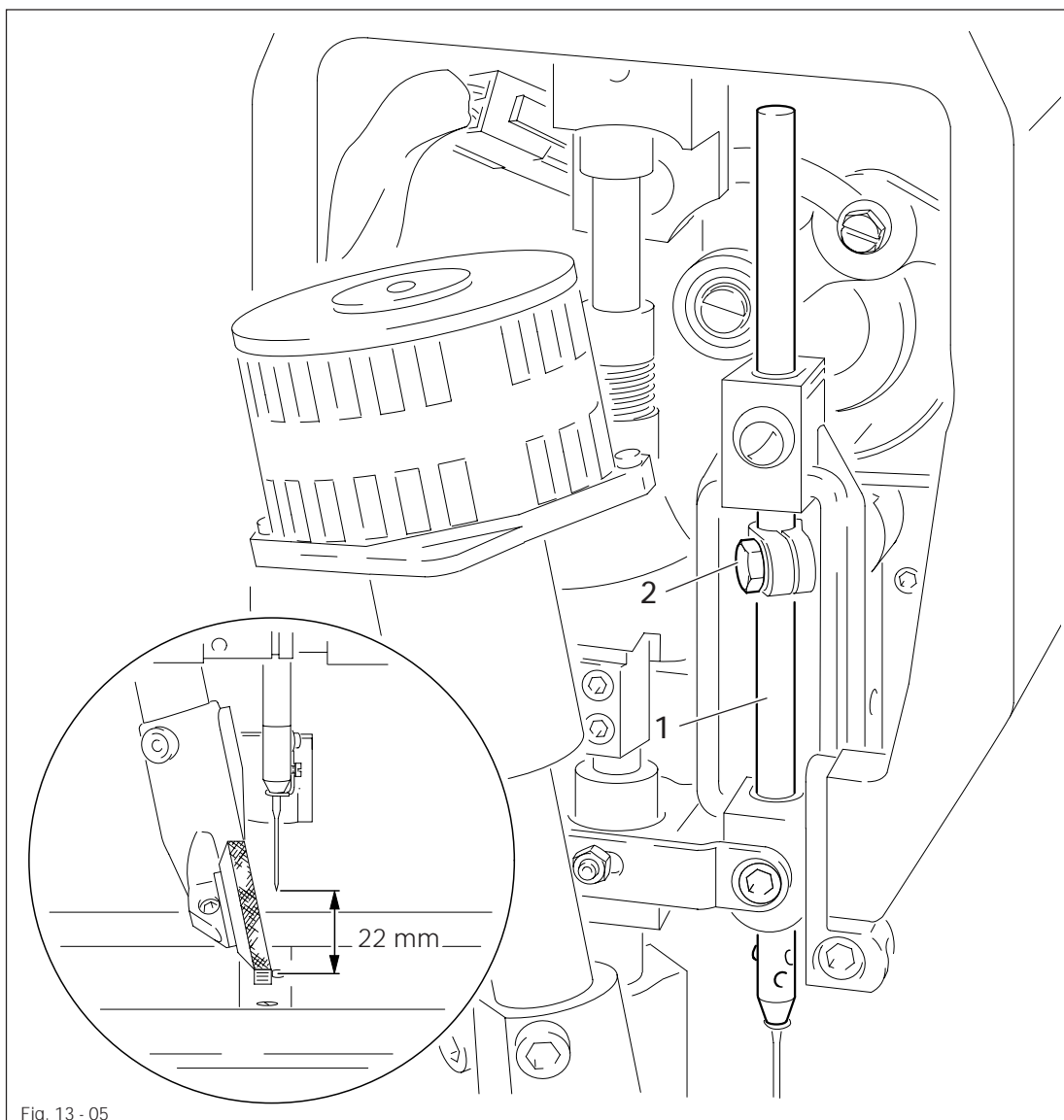
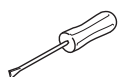


Fig. 13 - 05



- Move the needle bar 1 (screw 2) in accordance with the requirement without turning it.

13.04.07 Hook-to-needle clearance, needle rise, needle height and needle guard

Requirements

With the needle at 1.8 after BDC and with the stitch length at " 0.8 "

1. the hook point must point to the middle of the needle and be 0.05 to 0.1 mm from the needle,
2. the top edge of the needle eye must be 0.8 to 1.0 mm beneath the hook point and
3. the needle guard 4 must lightly touch the needle.

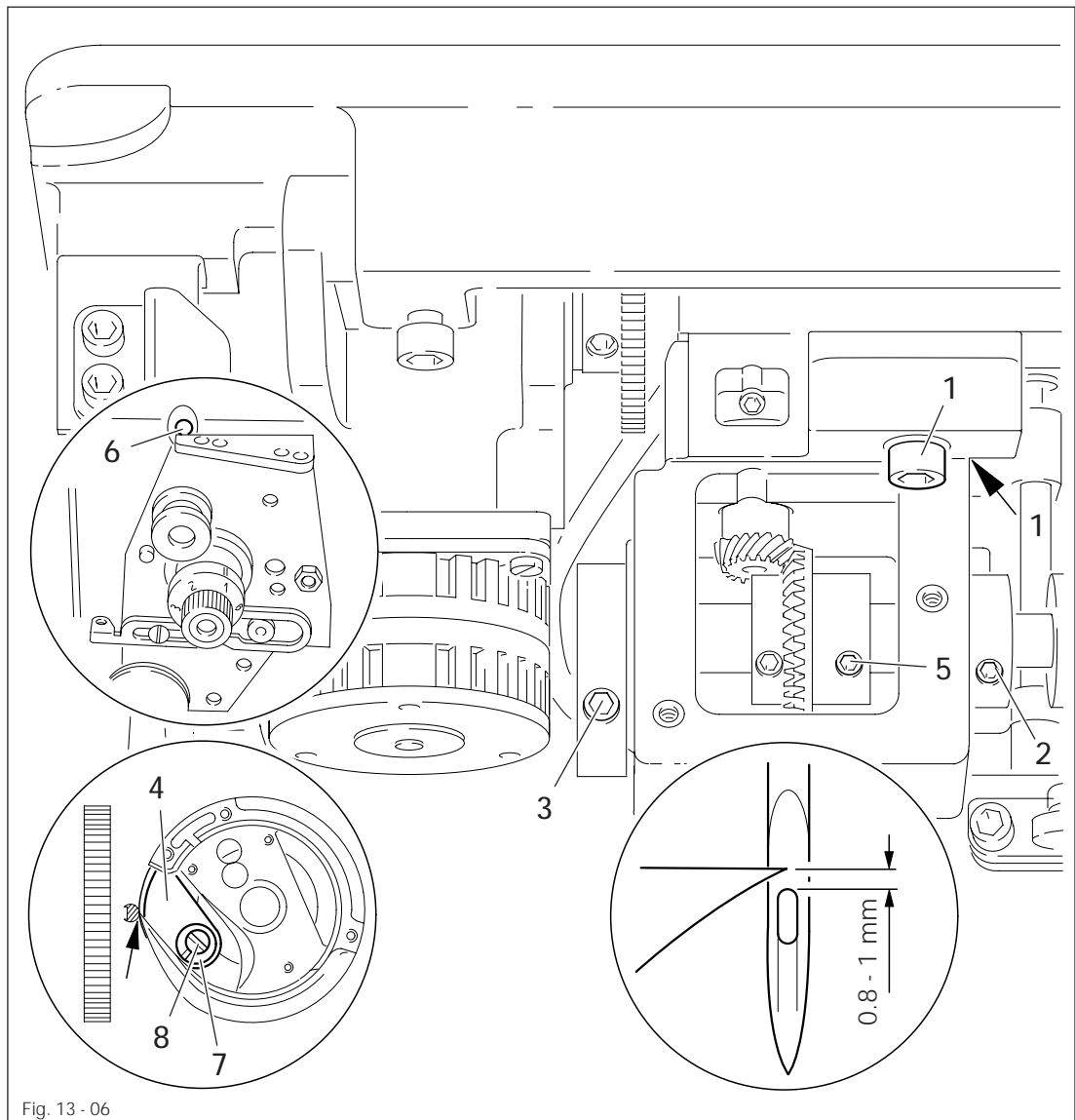
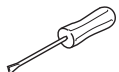


Fig. 13 - 06



- Turn the machine on.
- Set the stitch length to " 0.8 " and sew four to five stitches (without trimming).
- Turn the machine off.
- Loosen screws 1, 2 and 3.
- Move the hook bearing in accordance with **requirement 1** taking care to ensure that the needle is not pressed by the needle guard 4.
- Tighten screws 1 and 2 while positioning the second screw 2 on the recess of the shaft in the direction of rotation.

- Loosen screws 5.
- Bring the needle bar to 1.8 after BDC.
- Place the adjustment pin (Part no. 61-111 641-39) into hole 6 and place under pressure.
- Position the hook point at the middle of the needle and tighten screws 5.
- Set the needle height in accordance with **requirement 2**.
- Remove the adjustment pin from hole 6.
- Align needle guard 4 in accordance with **requirement 3** by turning the eccentric 7 (screw 8).



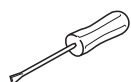
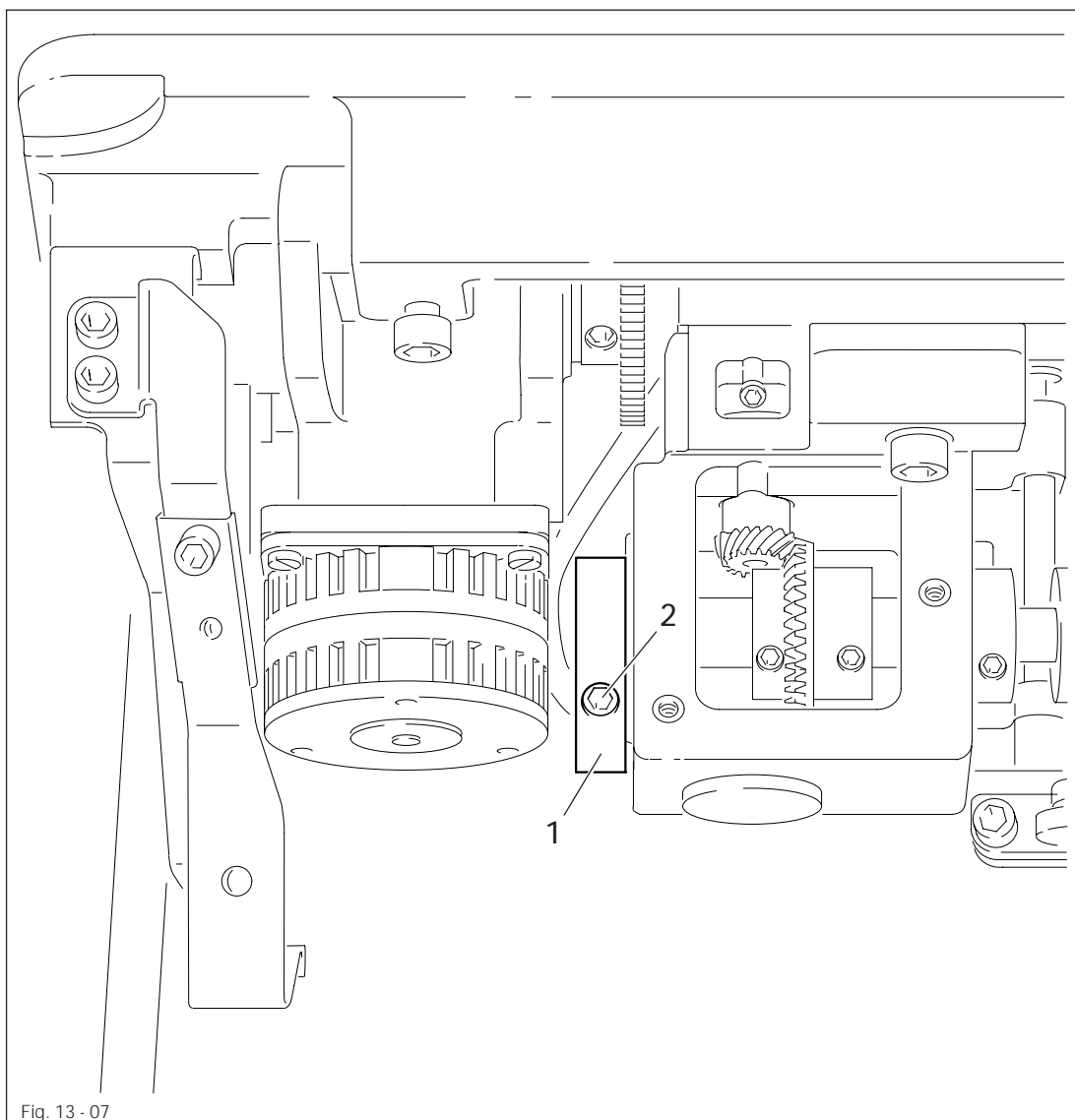
Screws 3 remain loosened for further adjustments.

Adjustment

13.04.08 Balancing weight

Requirement

With the needle bar at TDC, the largest eccentricity of the balancing weight 1 must be facing downwards.

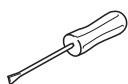
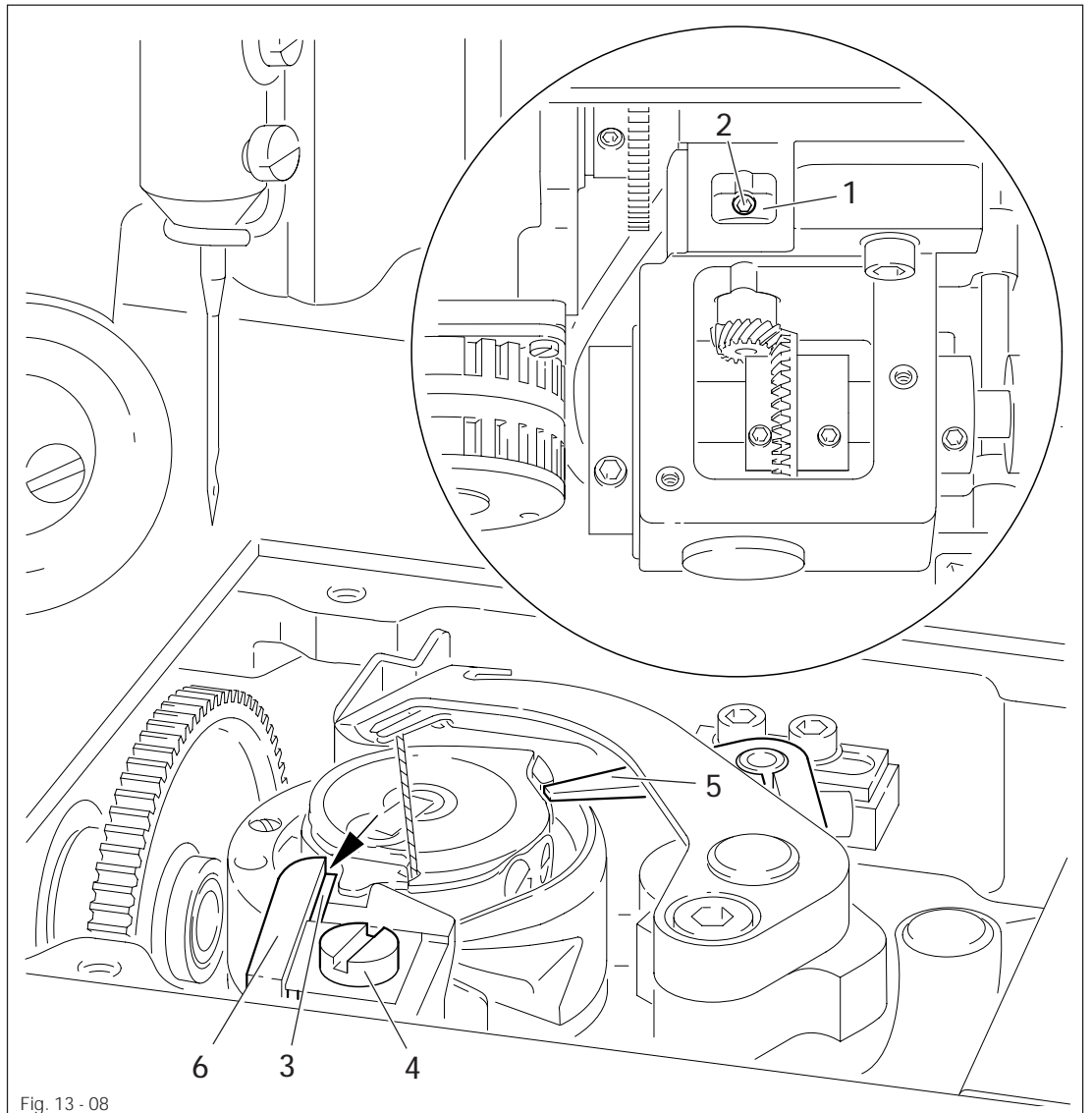


- Bring the needle bar to TDC.
- Turn the balancing weight 1 in accordance with the requirement.
- Tighten screws 2.

13.04.09 Bobbin-case-opener eccentric and retaining lug

Requirements

1. With the needle bar at BDC the bobbin case opener 5 must be at its rear point of reversal.
2. The front edges of retaining spring 3 and retaining lug 6 must be flush.



- Bring the needle bar to BDC.
- Turn eccentric 1 (screws 2) in accordance with **requirement 1**.
- Move retaining spring 3 (screw 4) in accordance with **requirement 2**.

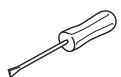
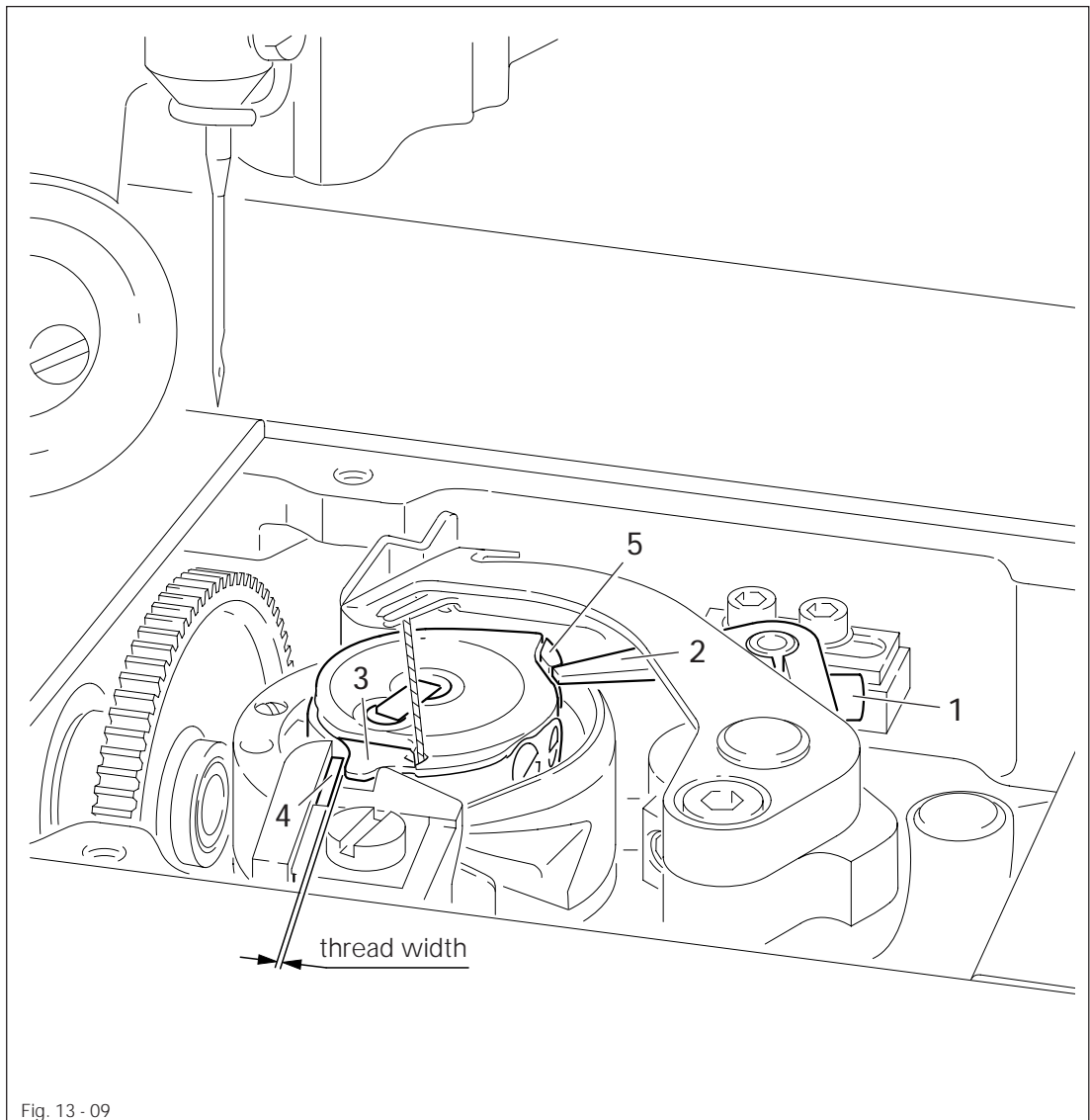


When tightening screws 2, press the hook downwards and eccentric 1 upwards so that the hook shaft does not exhibit any axial play.

13.04.10 Bobbin case opener position

Requirements

1. The top edges of bobbin case opener 2 and bobbin case lug 5 must be at the same height.
2. When the bobbin case 2 is at its rear point of reversal, the bobbin case carrier 3 and the stop spring 4 must be the width of one thread apart.



- Loosen screw 1.
- Adjust the bobbin case height in accordance with **requirement 1** by moving bobbin case opener 2.
- Bring the fixing collar to rest on bobbin case opener 2.
- Bring the bobbin case opener 2 to its rear point of reversal.
- Adjust the clearance between the bobbin case base 3 and stop spring 4 in accordance with **requirement 2** by turning the bobbin case opener 2.
- Tighten screw 1.

13.04.11 Feed wheel

Requirement

The feed wheel 1 must

1. protrude above the needle plate by the height of the teeth (approx. 0.8 mm) and
2. be in the middle of the needle plate cutout.

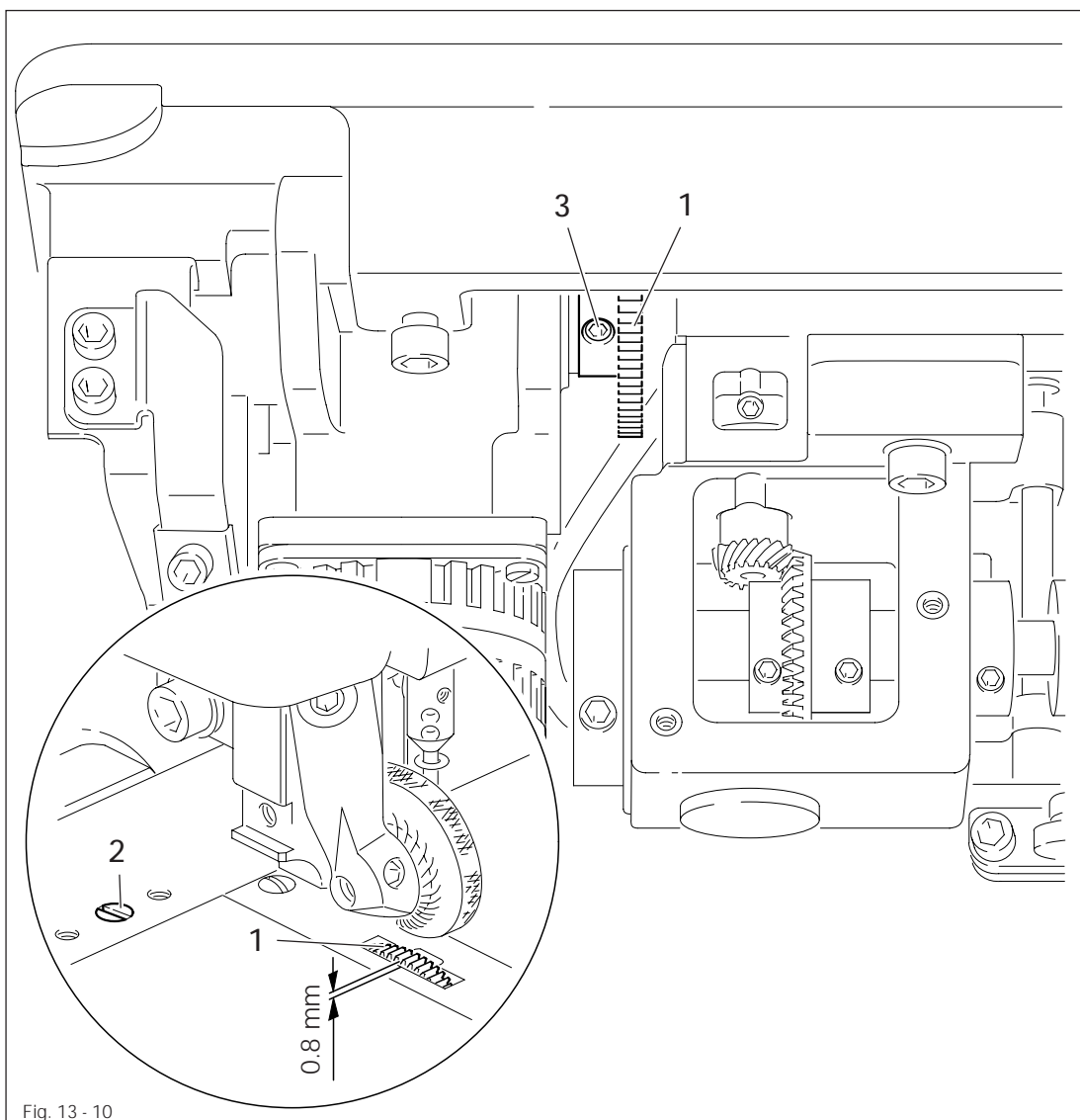
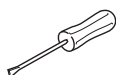


Fig. 13 - 10



- Adjust the height of the feed wheel 1 by turning screw 2 in accordance with requirement 1.
- Move feed wheel 1 (screws 3) in accordance with requirement 2.

13.04.12 Clearance between roller presser and feed wheel

Requirement

With lever 1 raised the clearance between the roller presser and the feed wheel must be 7 mm.

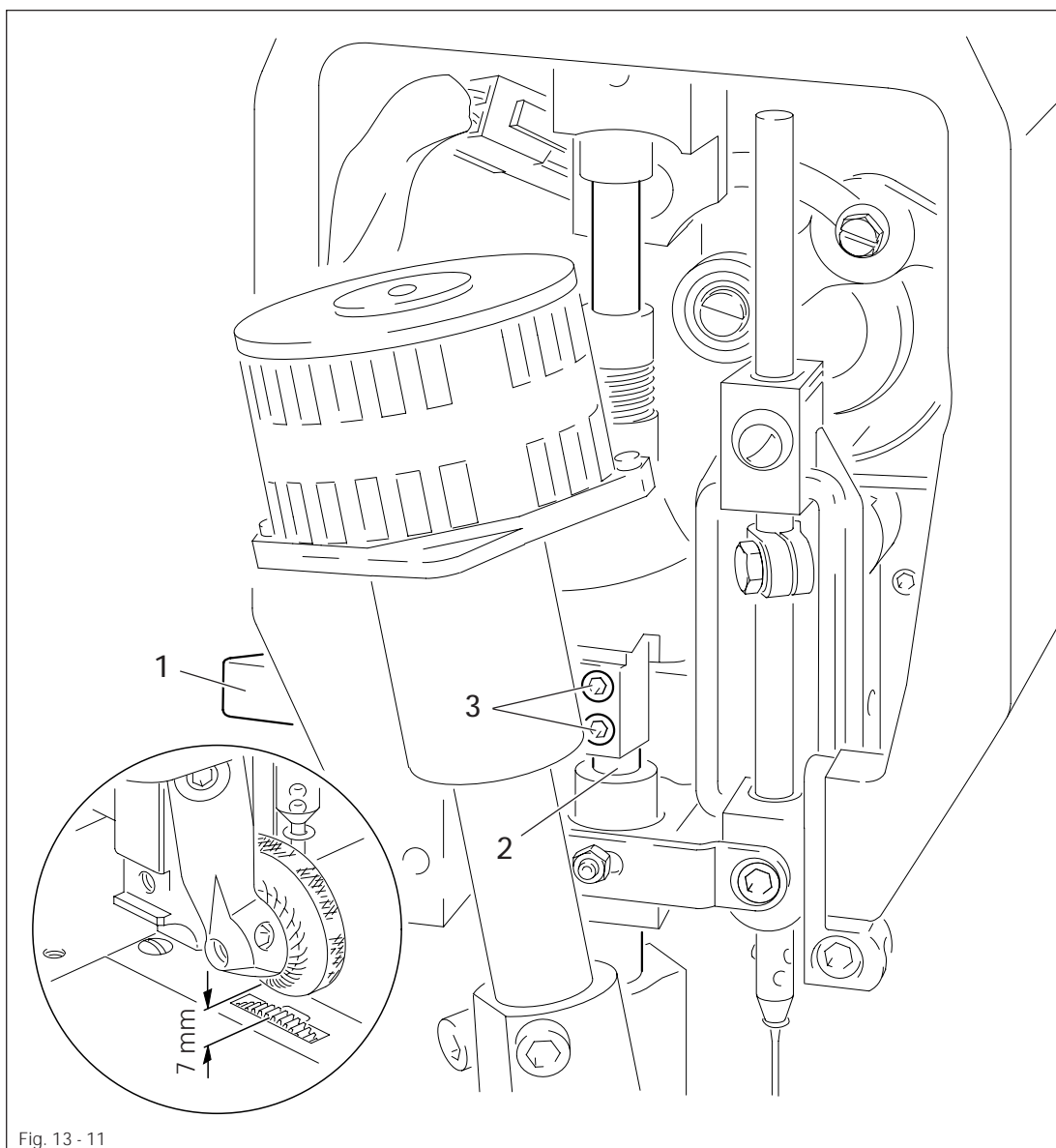
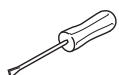


Fig. 13 - 11



- Raise lever 1.
- Move bar 2 (screws 3) in accordance with the **requirement**. Take care to ensure that the roller presser is parallel to the feed wheel.

13.04.13 Roller presser

Requirements

When the roller presser 1 is resting on the feed wheel 5 it must

1. be parallel to the feed wheel 5 when viewed in the direction of sewing,
2. be in the middle of the needle when viewed in the direction of sewing and
3. be as close as possible to the needle when viewed across the direction of sewing.

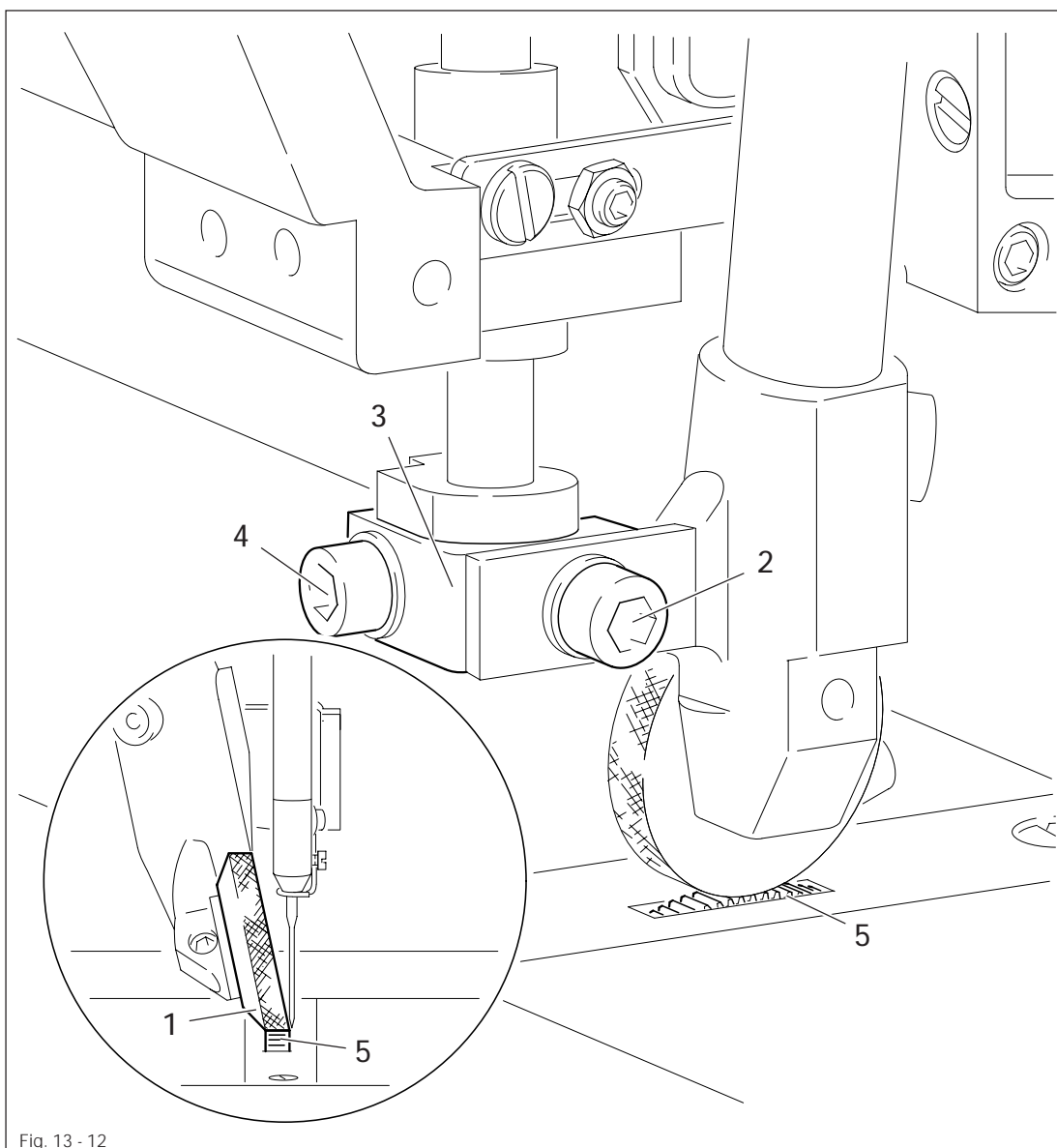
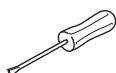


Fig. 13 - 12



- Raise the roller presser 1.
- Always observe **requirement 1** when carrying out the following adjustments.
- Move the roller presser 1 (screw 2) in accordance with **requirement 2**.
- Allow the roller presser 1 to come to rest on the feed wheel 5.
- Move the roller presser bracket 3 (screw 4) in accordance with **requirement 3**.



When sewing very tight curves the roller presser 1 should be moved toward the operator a little.

13.04.14 Automatic presser-foot lifter

Requirement

When solenoid 1 is activated, lever 3 for the roller presser must drop automatically.

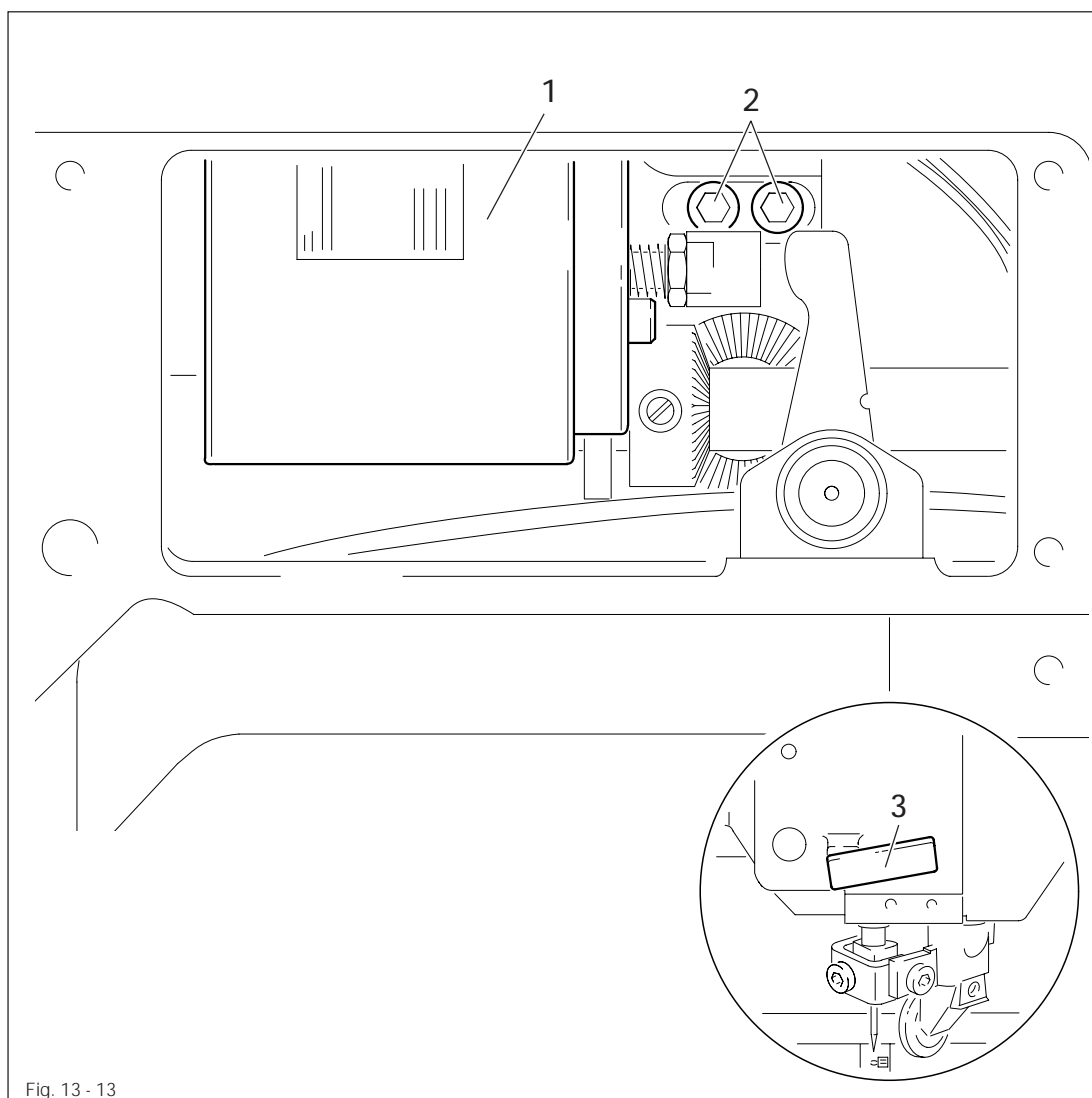
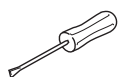


Fig. 13 - 13



- Move solenoid 1 (screws 2) in accordance with the **requirement**.
- Turn the machine on and check the **requirement**.
- Turn the machine off.



Depending on the thickness of the material, the clearance between the roller presser and the feed wheel can be increased to a maximum of 10 mm by moving the solenoid 1 to the right.

13.04.15 Knee lever

Requirements

1. The knee lever must exhibit a little play before the roller presser is raised.
2. The lever for the roller presser must drop automatically when the knee lever is pressed as far as it will go.
3. Bar 1 of the knee lever must be at an angle of approx. 75° to the bedplate.

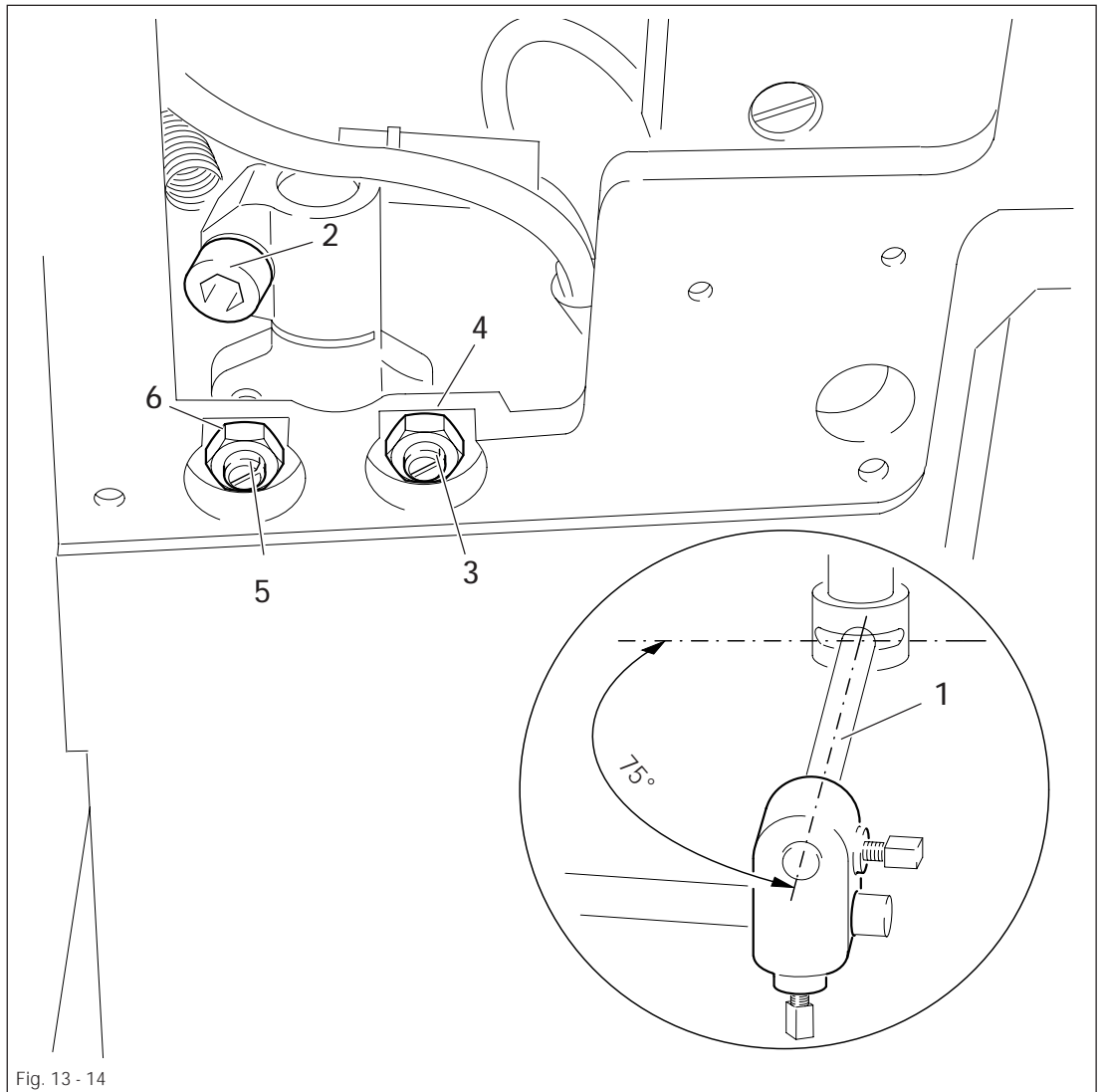
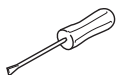


Fig. 13 - 14



- Turn screw 3 (nut 4) in accordance with requirement 3.
- Turn screw 5 (nut 6) in accordance with requirement 1.
- Adjust bar 1 (screw 2) in accordance with requirement 2.

Adjustment

13.04.16 Tension release

Requirement

With lever 1 raised or the automatic presser foot lifter activated, both tension discs 6 must be at least 0.5 mm apart.

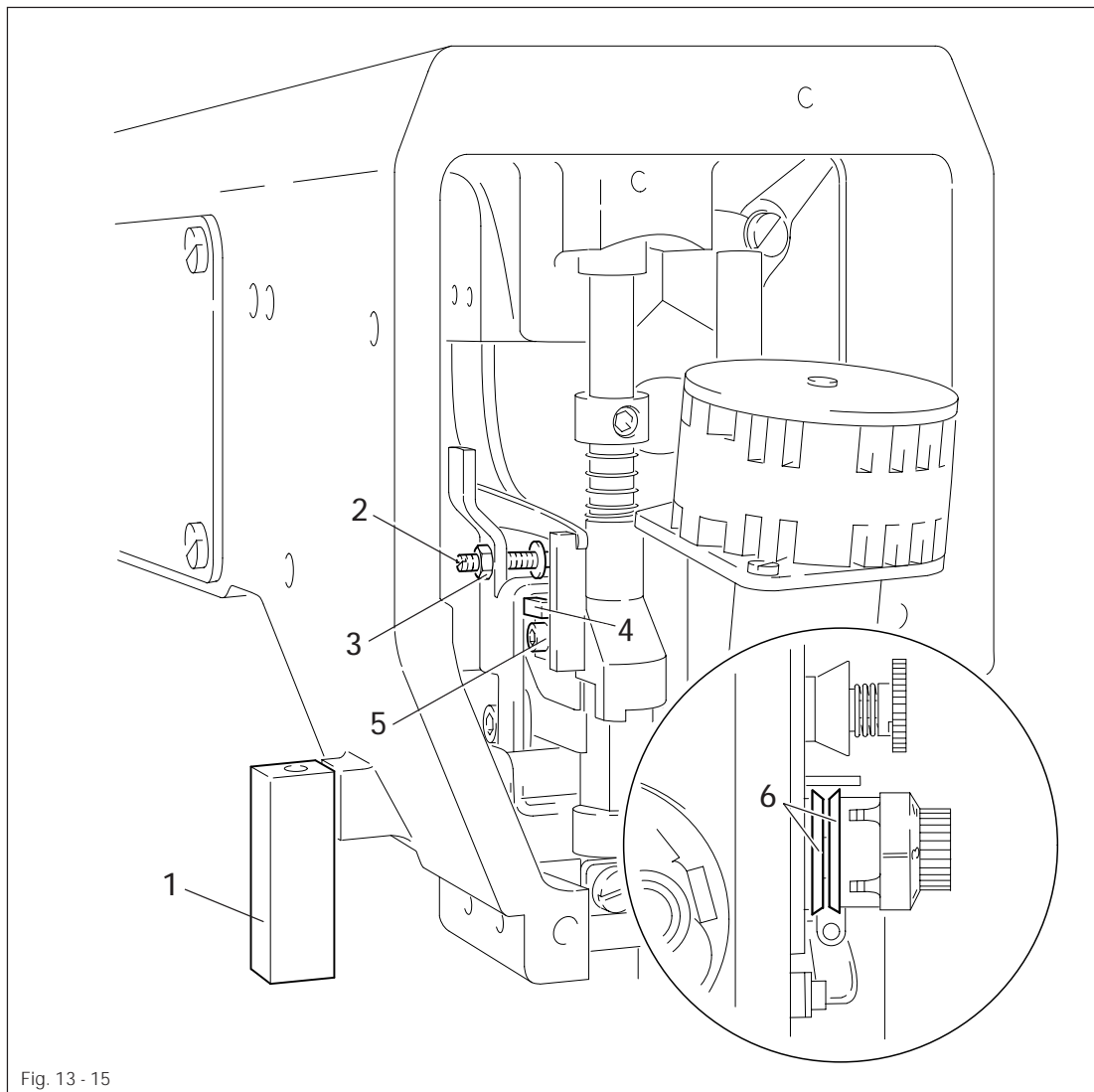
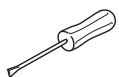


Fig. 13 - 15



- Raise the roller presser using lever 1.
- Adjust screw 2 (nut 3) in accordance with the **requirement**.
- Raise the roller presser using the automatic presser foot lifter or the knee lever.
- Move the drive dog 4 (screw 5) in accordance with the **requirement**.



The timing of the tension release can be adjusted using the service functions (see chapter 11.09 Summary of the service functions).

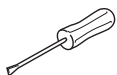
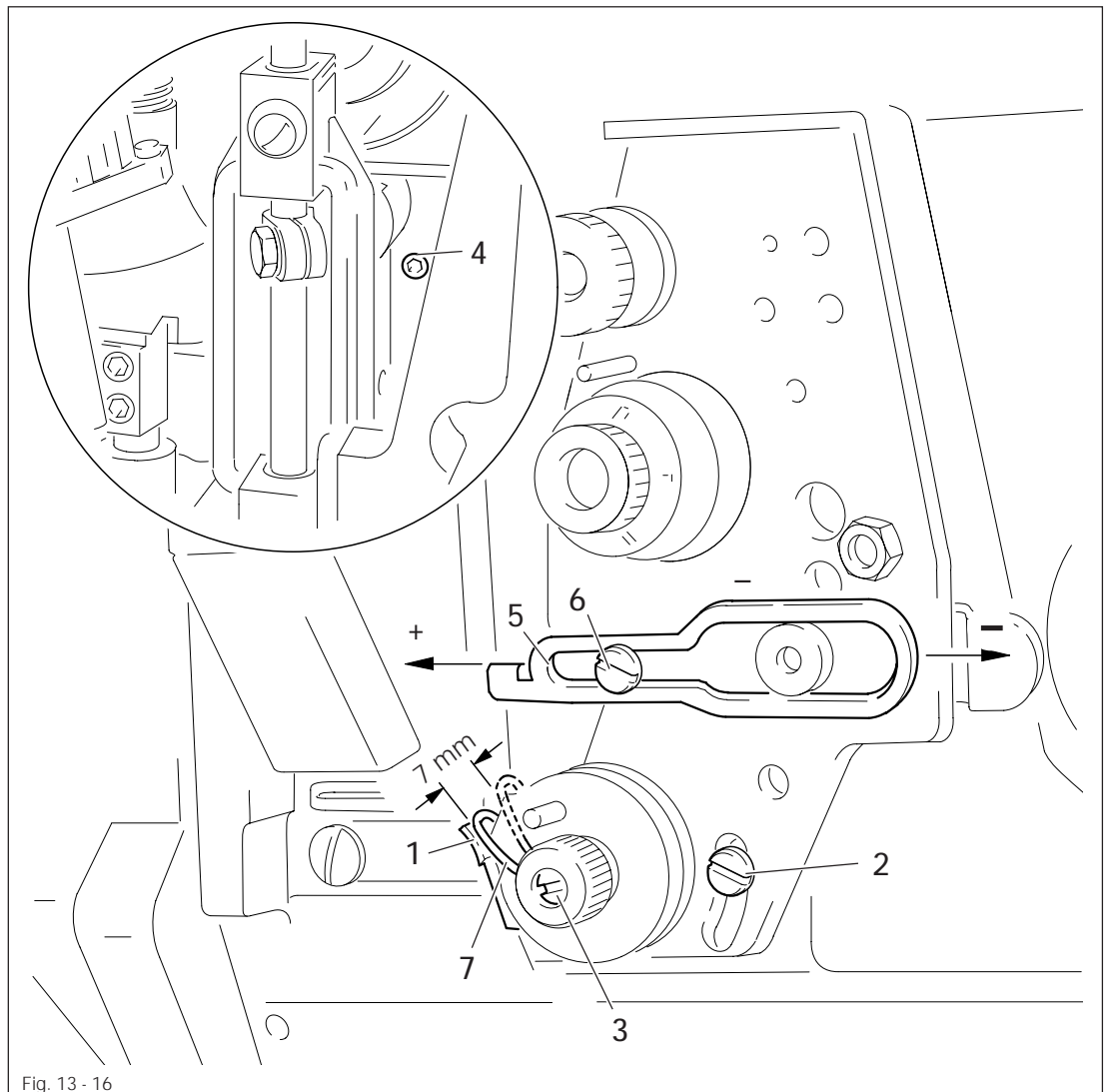


If a tension release is not desired when activating the automatic presser-foot lifter or the knee lever, adjust the drive dog 4 accordingly.

13.04.17 Thread check spring

Requirements

1. The motion of the thread check spring 7 must be finished when the needle point enters the material (spring stroke approx. 7 mm).
2. When the thread loop is at its largest when going around the hook, the thread check spring must raise slightly from the workpiece rack 1.



- Move workpiece rack 1 (screw 2) in accordance with requirement 1.
- Turn screw 3 (screw 4) to adjust the strength of the spring.
- Move the slack thread regulator 5 (screw 6) in accordance with requirement 2.

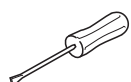
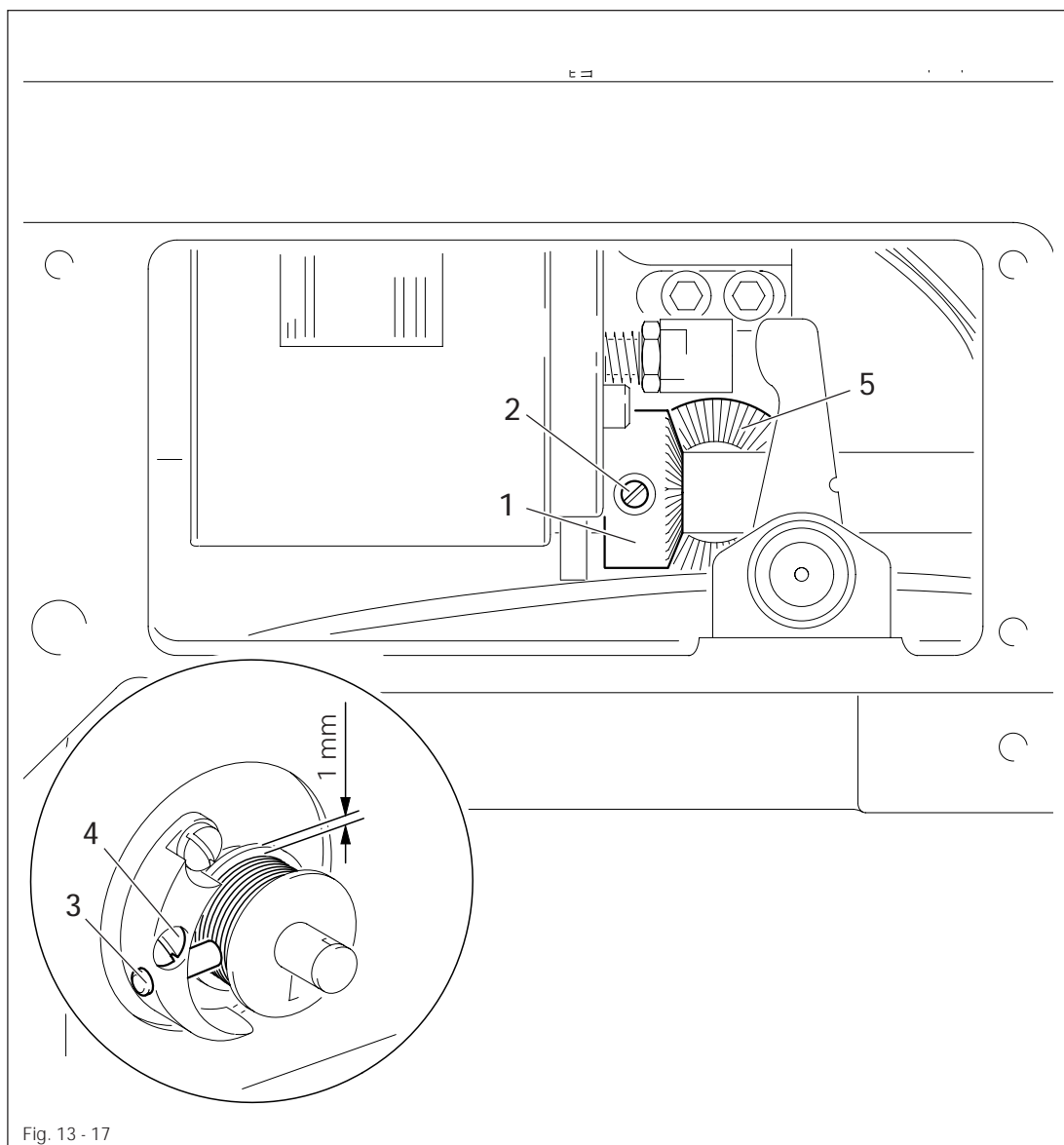


Due to technical sewing reasons it may be necessary to deviate from the spring stroke / spring strength mentioned here.

Move the slack thread regulator 5 (screw 6) toward the "+" (= more thread) or toward the "-" (= less thread).

Requirements

1. With the bobbin winder on, the bobbin winder spindle must engage reliably. With the bobbin winder off, the friction wheel 5 must not engage the drive wheel 1.
2. The bobbin winder must turn off automatically when the thread level is approx. 1 mm from the edge of the bobbin.



- Move drive wheel 1 (screws 2) in accordance with requirement 1.
- Move pin 3 (screw 4) in accordance with requirement 2.

13.04.19 Roller presser pressure

Requirements

1. The material must be fed reliably.
2. There must not be any pressure marks on the material.

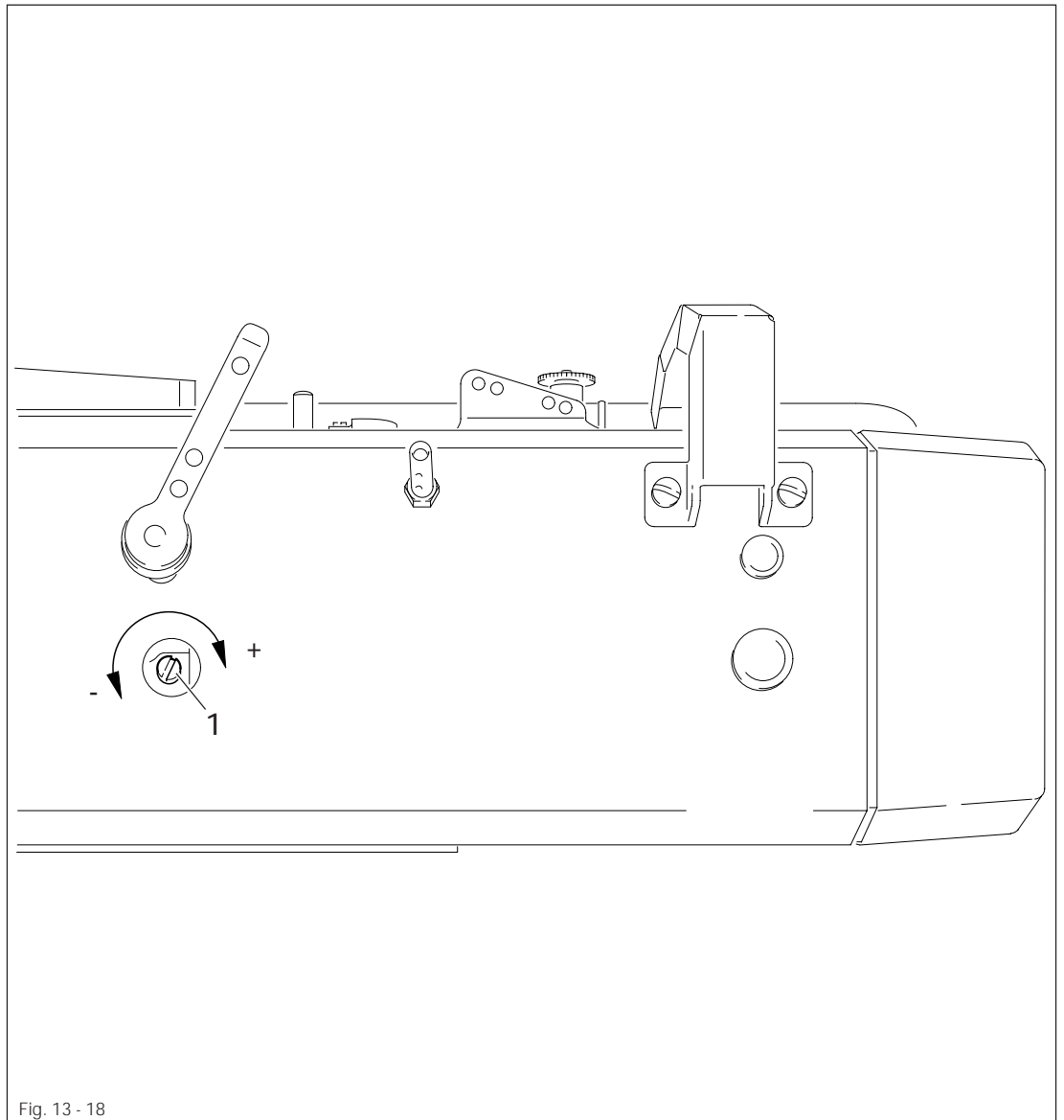
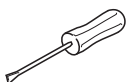


Fig. 13 - 18



- Adjust the roller presser pressure with screw 1 in accordance with the requirements.



Screw 1 is underneath a cover.



When the roller presser pressure is low, the lowering speed of the roller presser can be increased by turning on the function ROLLER PRESSER DE-ENERGIZER. See chapter 11.08 Summary of the functions in the input menu.

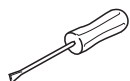
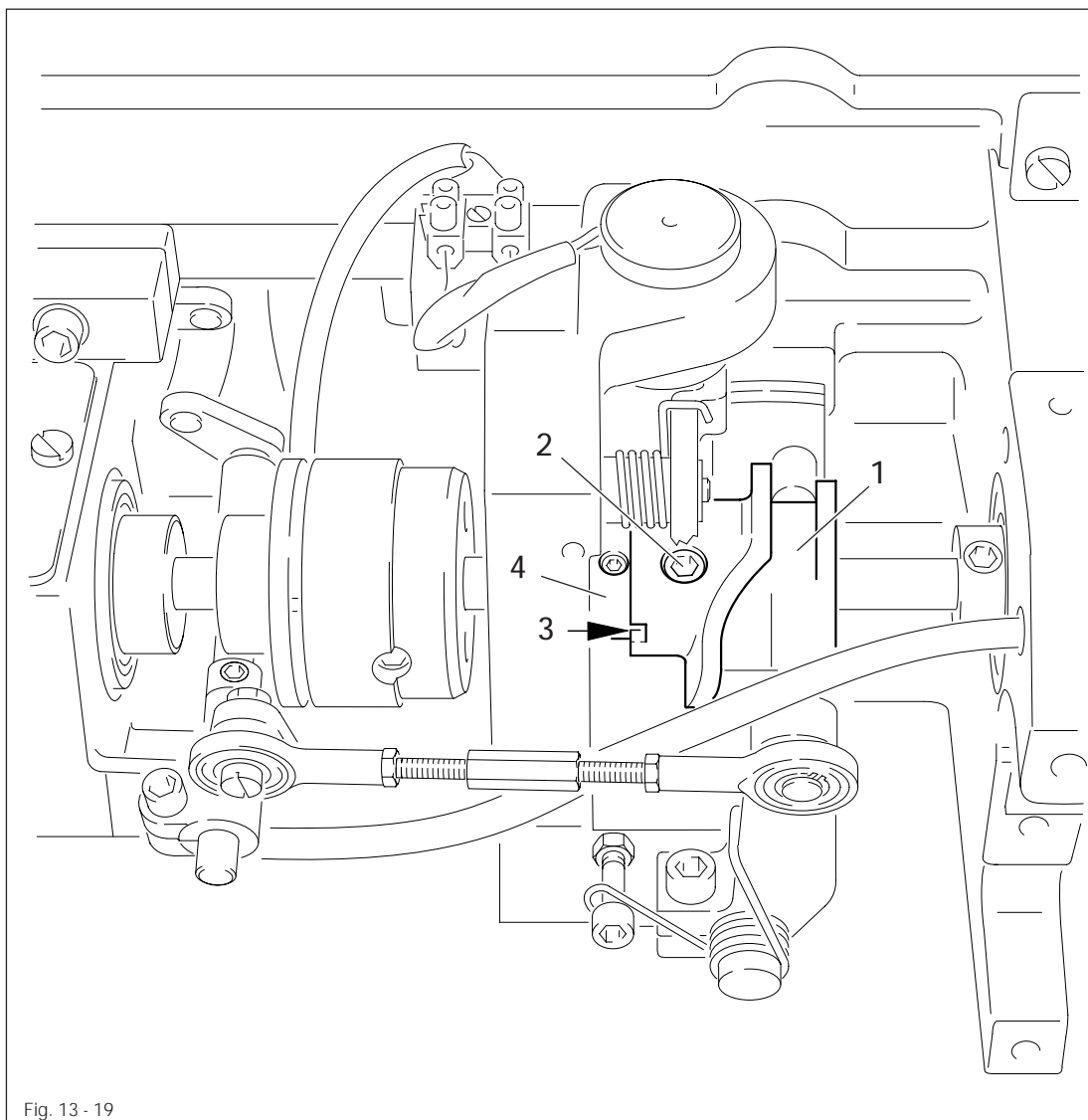
Adjustment

13.05 Adjusting the thread trimmer -900/61

13.05.01 Preadjusting the control cam

Requirements

1. With the needle bar at BDC, the recess 3 must be pointing downwards vertically.
2. The control cam 1 must be touching the retaining collar 4 on the left.

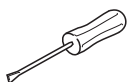
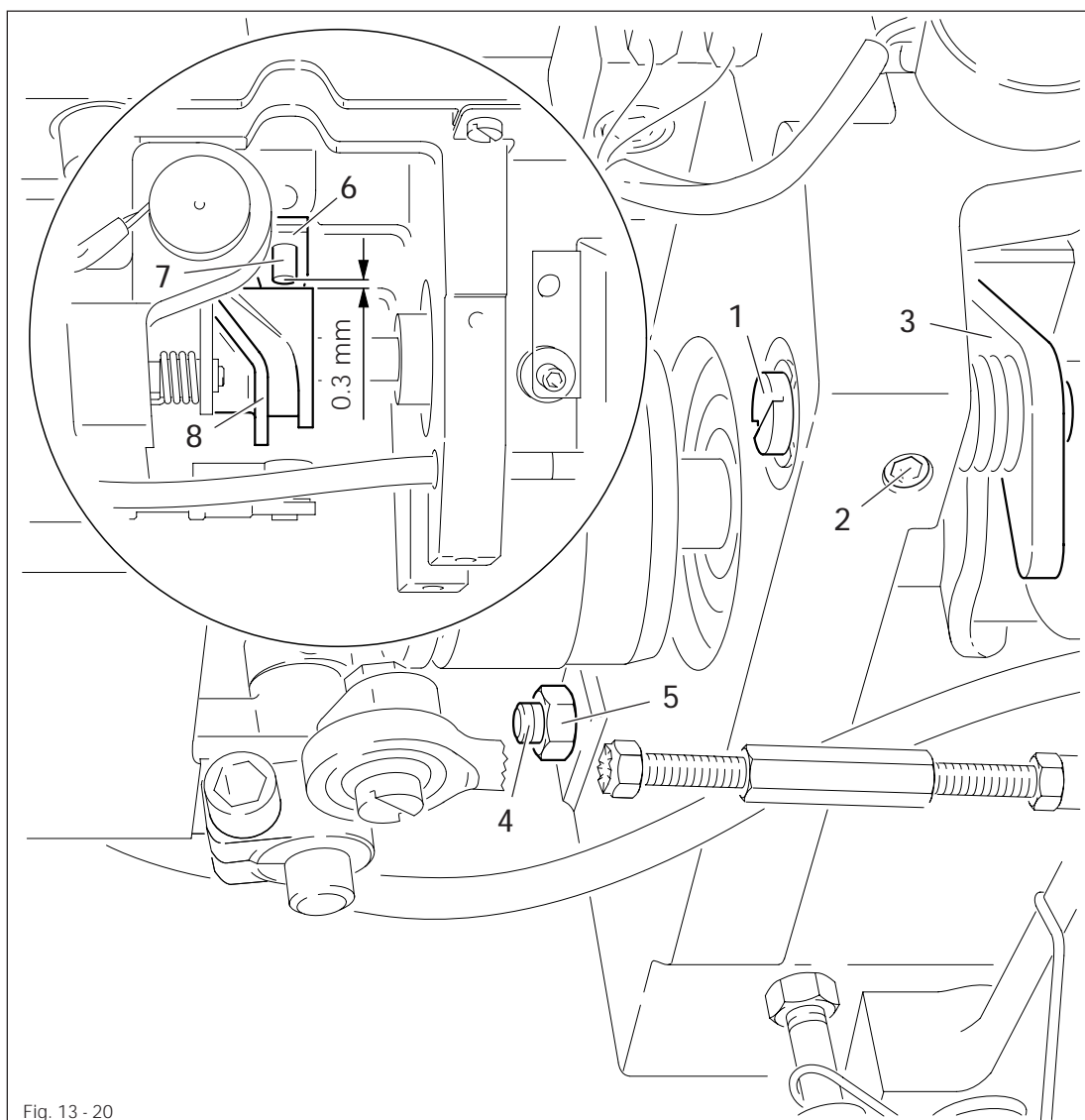


- Position the needle bar at BDC.
- Turn or move the control cam 1 (screws 2) in accordance with the requirements.

13.05.02 Roller lever

Requirements

1. With the roller lever 6 in resting position and the needle bar at TDC, there must be a clearance of 0.3 mm between roller 7 and control cam 8.
2. When the thread trimmer is on and the needle bar is at BDC, roller 7 must be in the middle of the recess in control cam 8.



- Position the needle bar at TDC.
- Bring the thread trimmer to resting position.
- Move eccentric 1 (screw 2) in accordance with requirement 1.
- Position the needle bar at BDC and disengage latch 3.
- Turn screw 4 (nut 5) in accordance with requirement 2.

Adjustment

13.05.03 Engaging solenoid

Requirement

With the roller lever 4 engaged and the engaging solenoid activated, there must be a clearance of approx. 1 mm between latch 1 and roller lever 4.

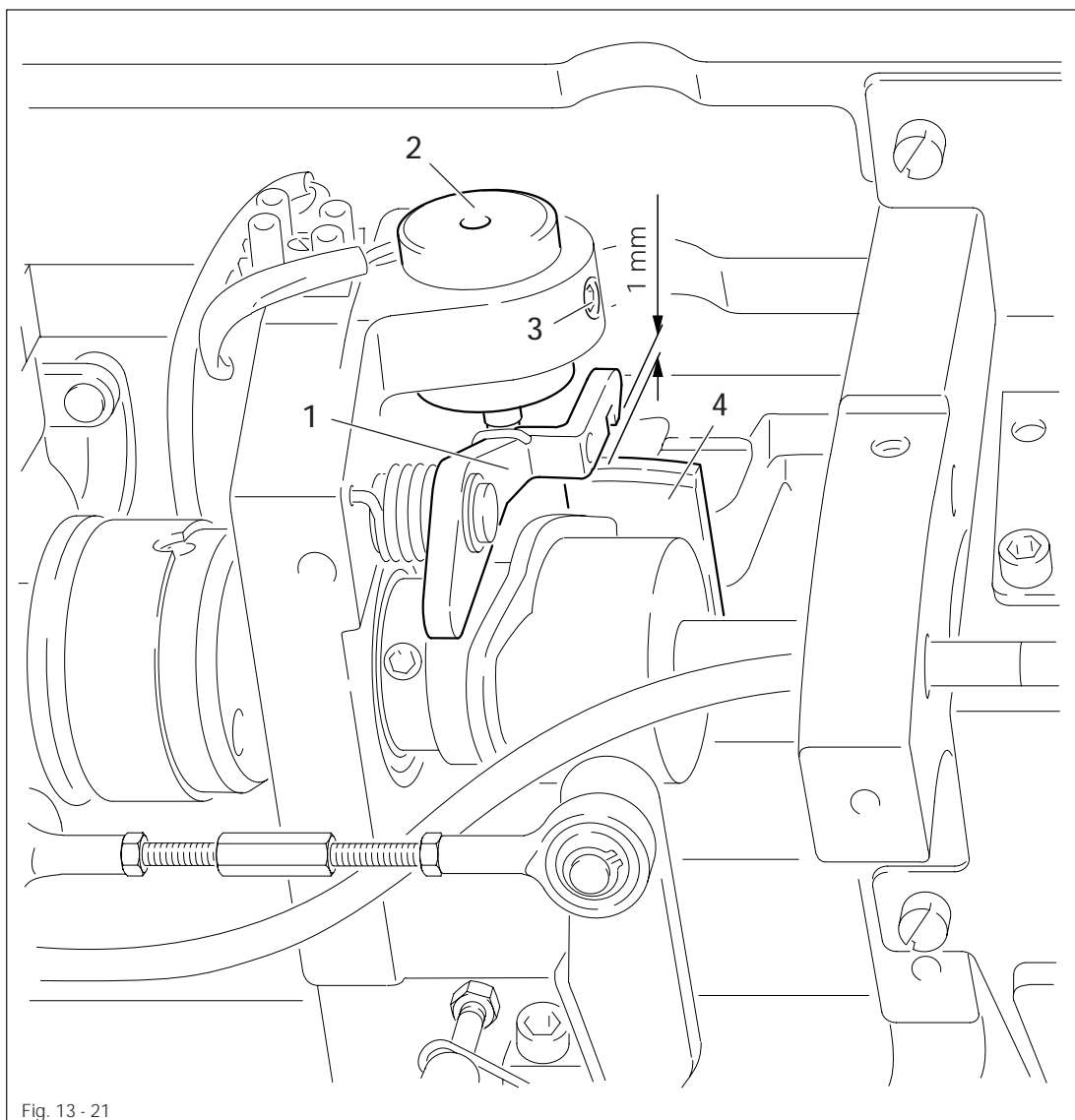
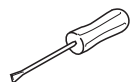


Fig. 13 - 21



- Disengage latch 1 and push the engaging solenoid up as far as possible.
- Move the solenoid housing 2 (screw 3) in accordance with the requirement.

13.05.04 Actuating lever

Requirement

With the thread trimmer in resting position, the right hand side of the actuating lever 3 must be flush with the right side of control cam 4.

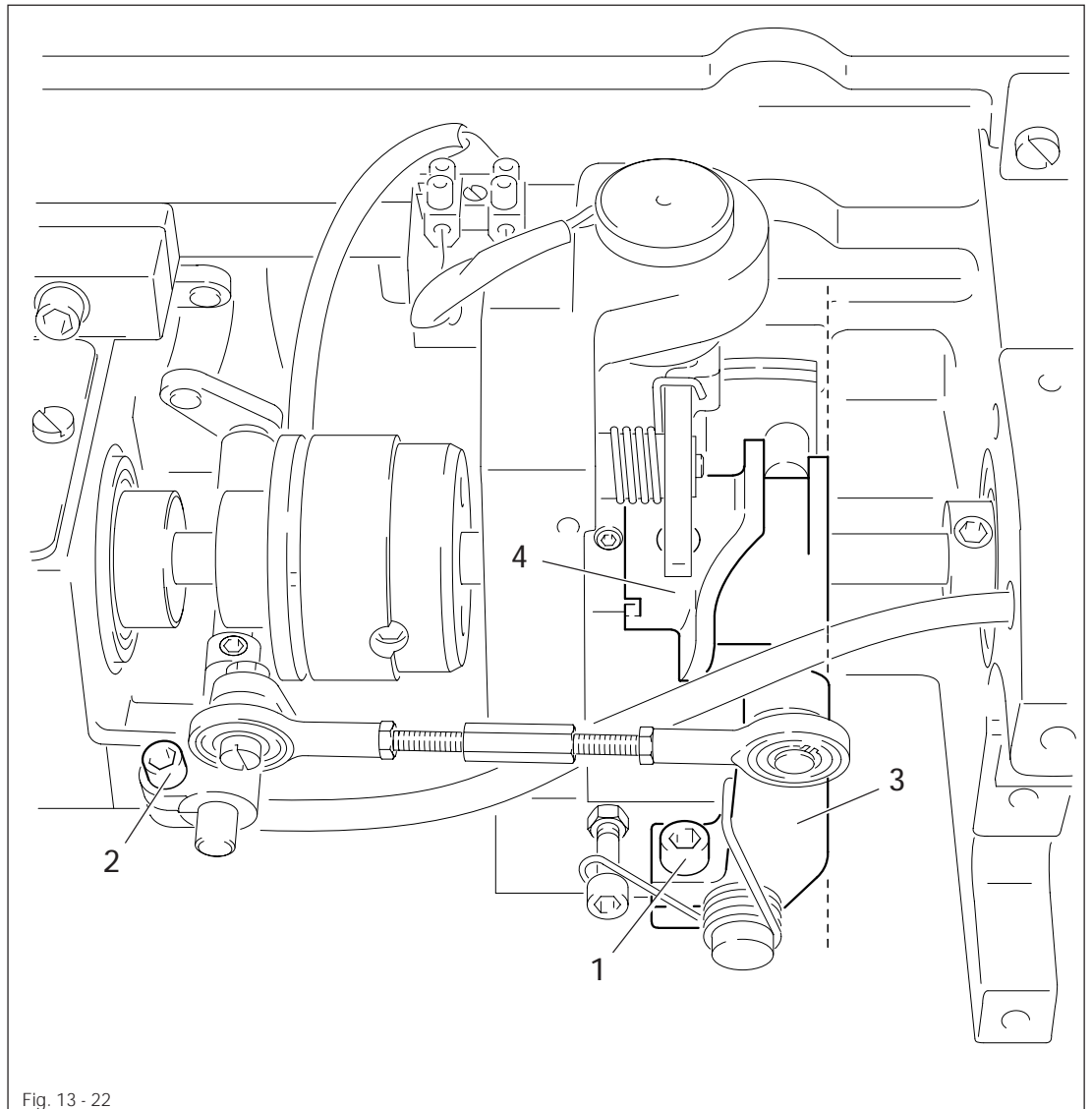
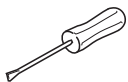


Fig. 13 - 22



- Loosen screws 1 and 2.
- Move the actuating lever 3 in accordance with the requirement.
- Tighten screw 1.
- Slightly tighten screw 2.



Screw 2 remains slightly tightened for further adjustments.

Adjustment

13.05.05 Connecting rod

Requirement

The distance between the centers of the two ball joints of the connecting rod 1 must be 100 mm.

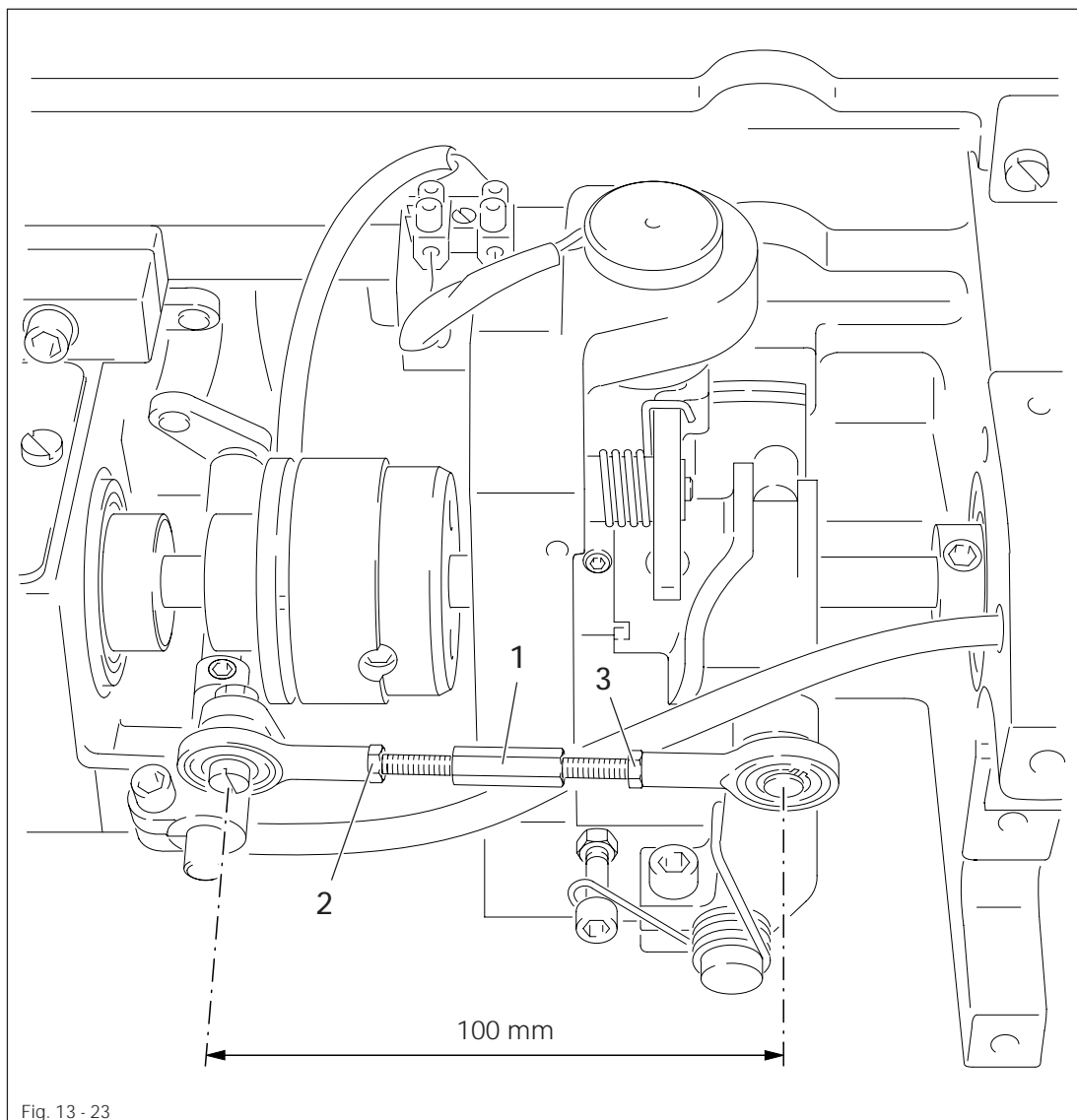
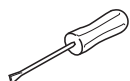


Fig. 13 - 23



- Turn connecting rod 1 (nuts 2 and 3, right and left handed threads) in accordance with the requirement.

13.05.06 Thread-catcher height

Requirement

The bottom edge of the thread catcher 3 must be 0.8 mm above the bobbin case 4.

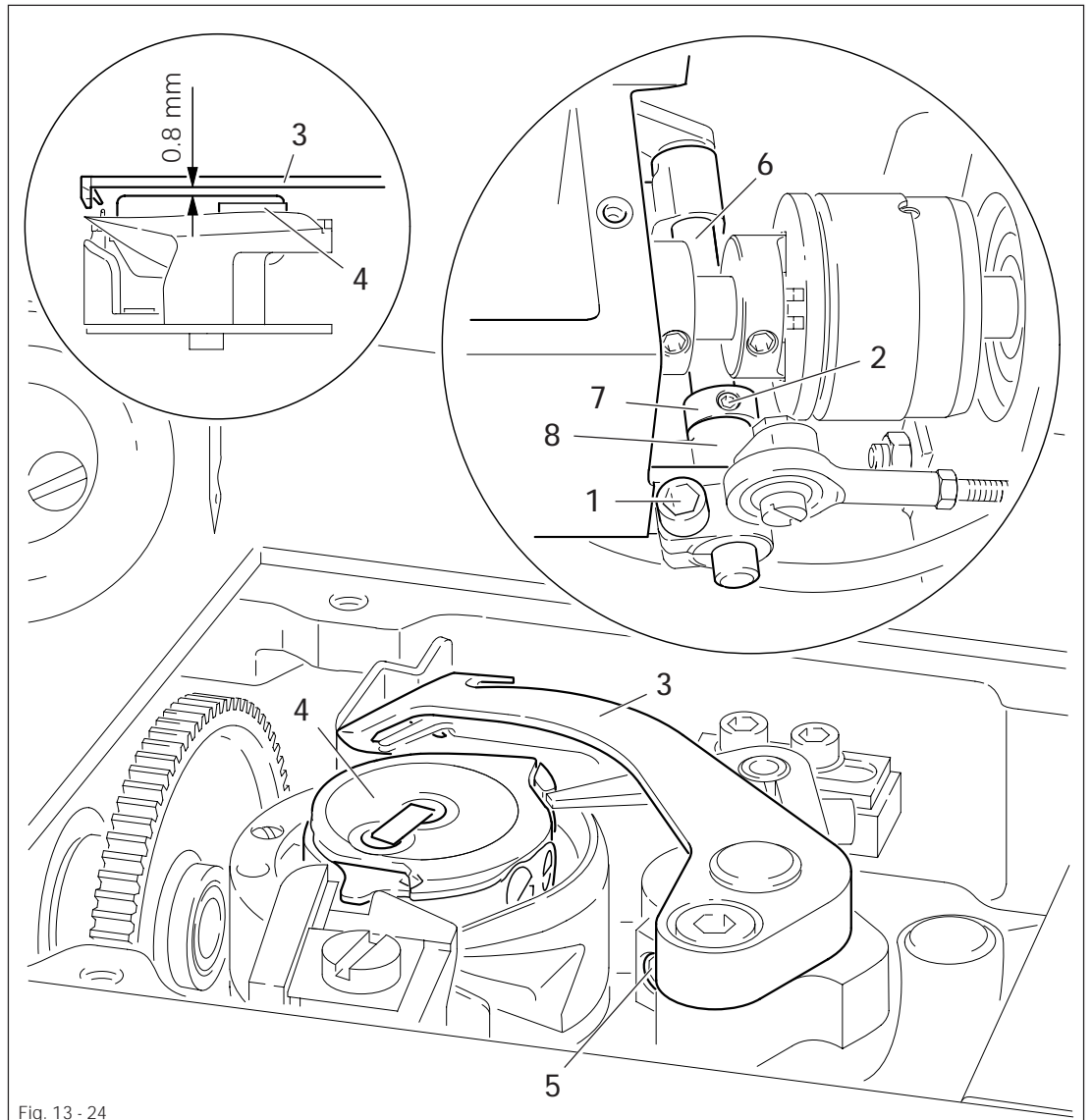
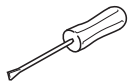


Fig. 13 - 24



- Loosen screws 1 and 2.
- Position thread catcher 3 over the middle of the bobbin case 4.
- Move the thread catcher 3 (screw 5) in accordance with the **requirement**.
- Find the vertical play of shaft 6, bring retaining collar 7 to rest against bearing 8 and tighten screw 2.

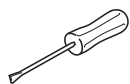
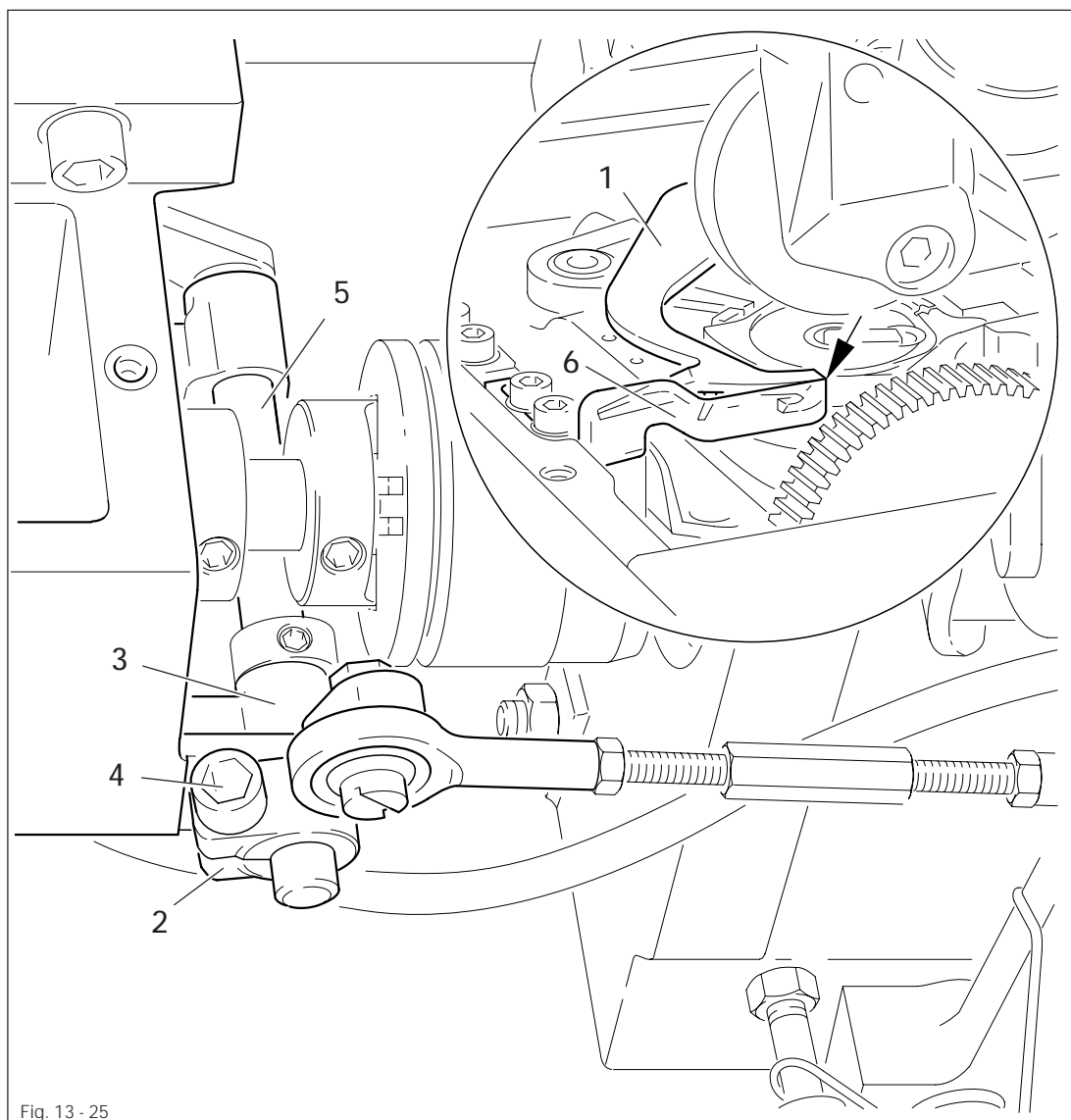


Screw 1 remains loosened for further adjustments.

13.05.07 Thread-catcher position

Requirement

With the thread trimmer in resting position, the edges of the thread catcher 1 and knife 6 must be flush (see arrow).

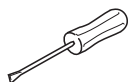
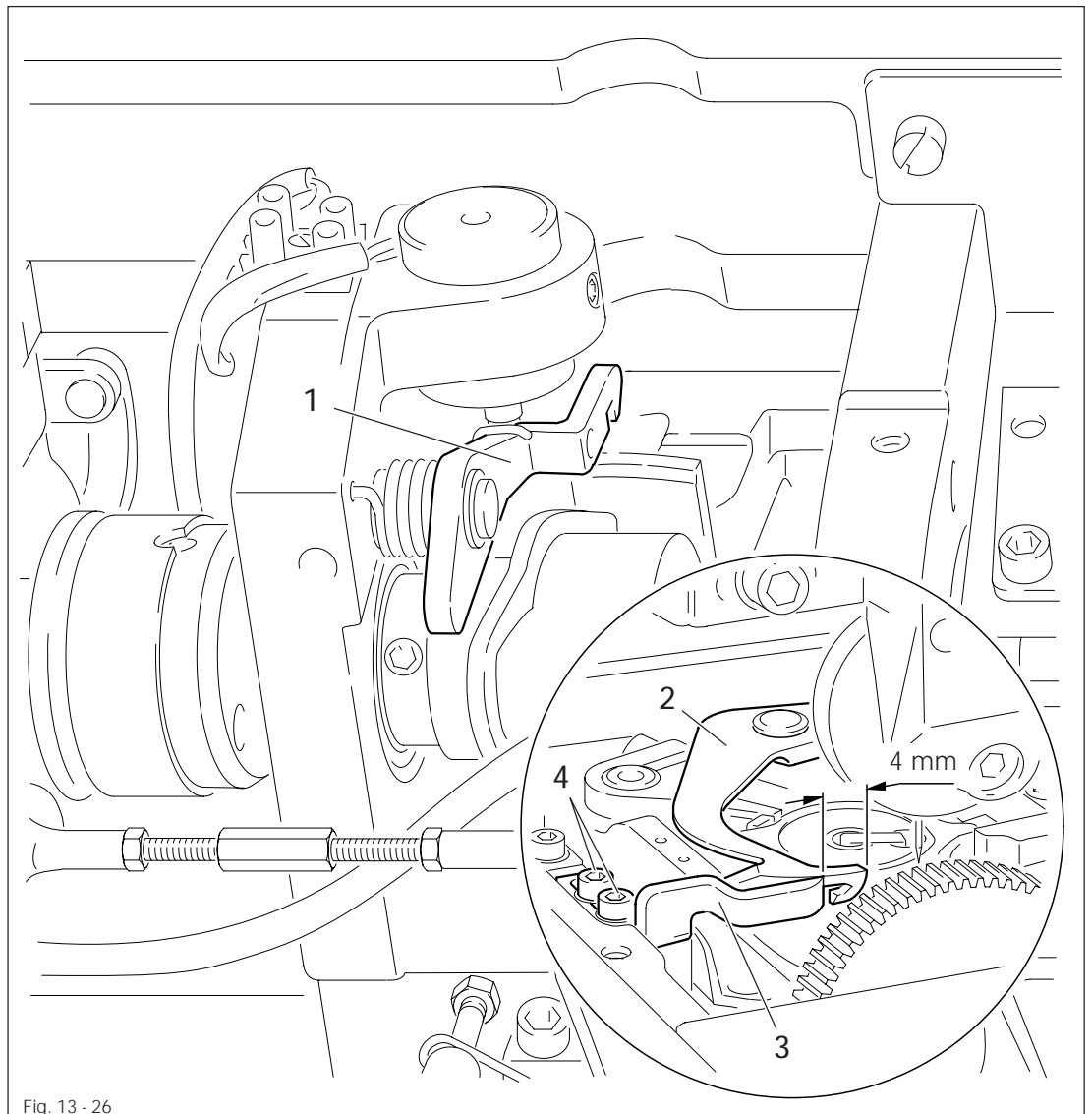


- Position the thread trimmer in resting position.
- Turn the thread catcher 1 in accordance with the **requirement**.
- Bring crank 2 to rest against the bearing case 3 and tighten screw 4, taking care to ensure that the shaft 5 exhibits neither vertical play nor binding.

13.05.08 Knife pressure

Requirement

When the point of the thread catcher 2 is 4 mm from the front edge of the knife 3, the knife 3 must be lightly touching the thread catcher 2.



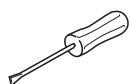
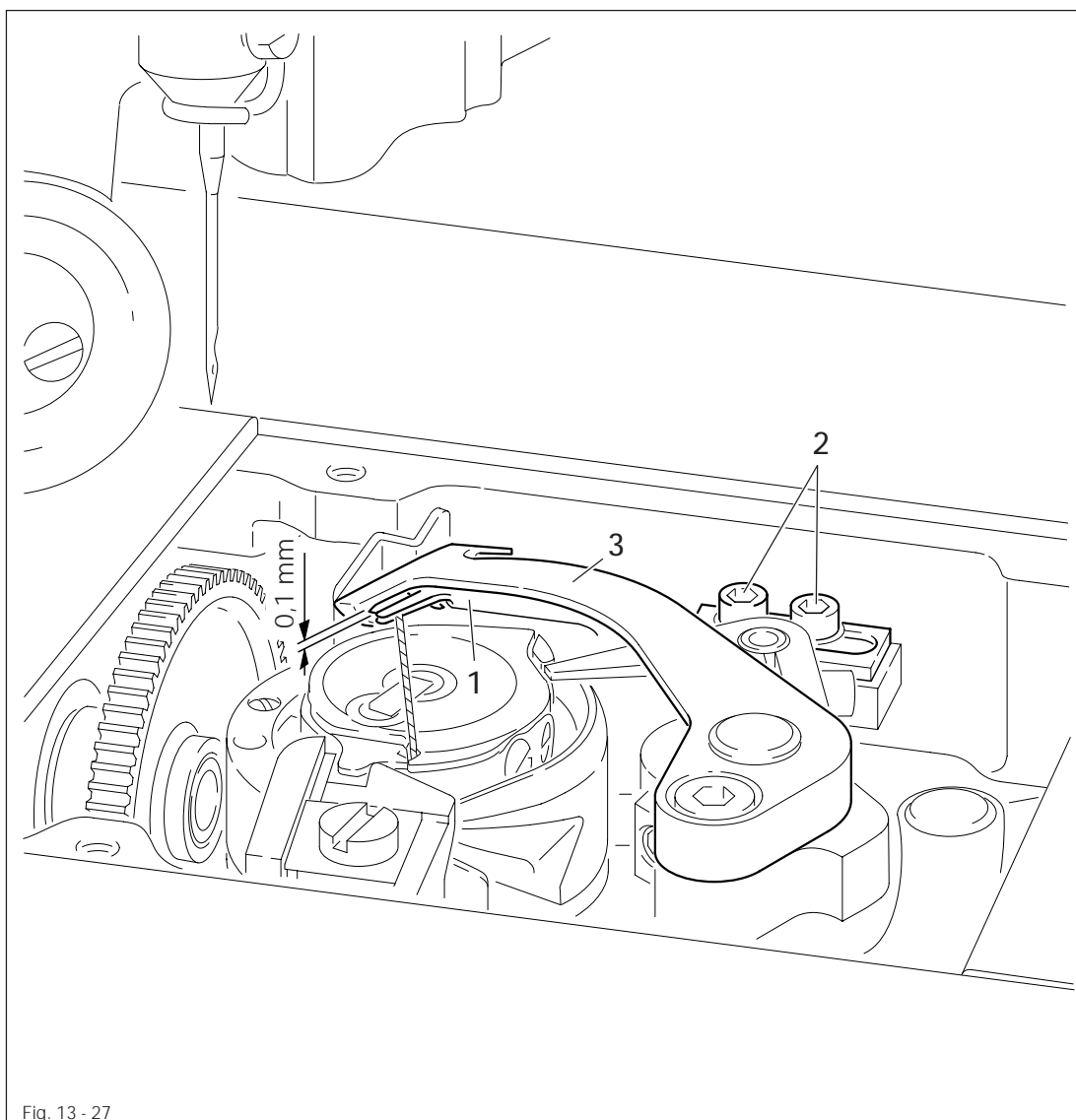
- Disengage latch 1.
- Position the thread catcher 2 in front of the front edge of the knife by turning the handwheel 4 mm.
- Move the knife 3 (screws 4) in accordance with the requirement.

13.05.09 Bobbin-thread clamp spring

Requirements

The clamp spring 1 must

1. not be pressed back during the thread catcher motion,
2. reliably clamp the bobbin thread after trimming and
3. not hinder the removal and insertion of the bobbin case.



- Bring the thread trimmer to resting position.
- Move the clamp spring 1 (screws 2) in such a way that the clamp lips are as close to the inner wall and the front edge of the thread catcher 3 as possible.
- By bending the clamp spring 1, adjust its height so that it is approx. 0.1 mm from the bottom of the thread catcher 3 and the bobbin thread is held reliably.

13.05.10 Control cam final adjustment

Requirement

The cutting process must be just completed when the take-up lever is at TDC.

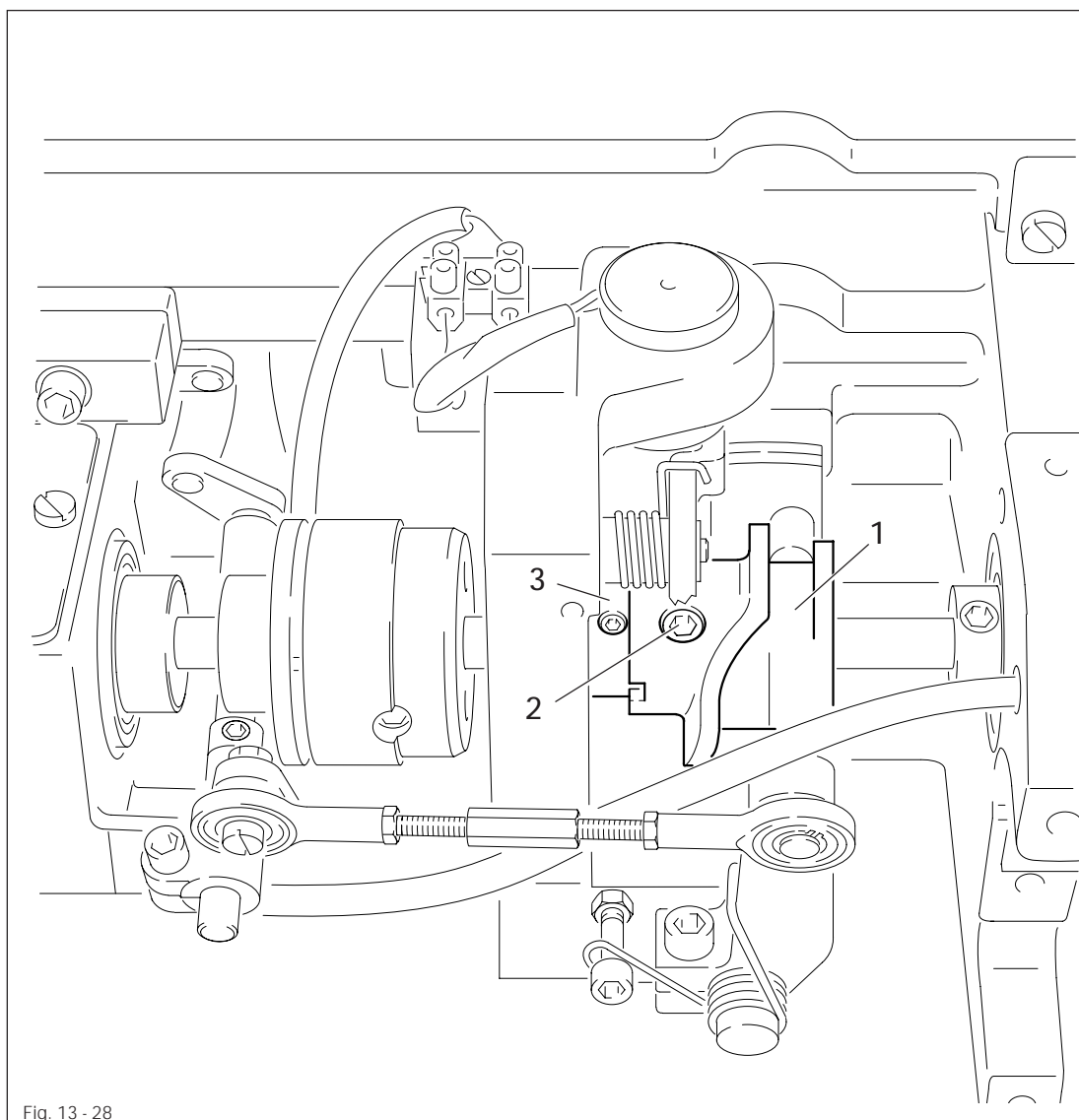
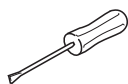


Fig. 13 - 28



- Disengage the latch and bring the take-up lever to TDC.
- Turn the control cam 1 (screws 2) in accordance with the requirement while ensuring that the control cam 1 is touching the retaining collar 3.

13.05.11 Manual cutting test

Requirements

1. The thread catcher 2 must not push the bobbin thread in front of it during its forwards movement.
2. At the front point of reversal of the thread catcher 2, the bobbin thread must be approx. 2 mm behind the lug of the thread catcher.
3. After completion of the cutting process, the needle and bobbin threads must be cut reliably and the bobbin thread must be clamped.

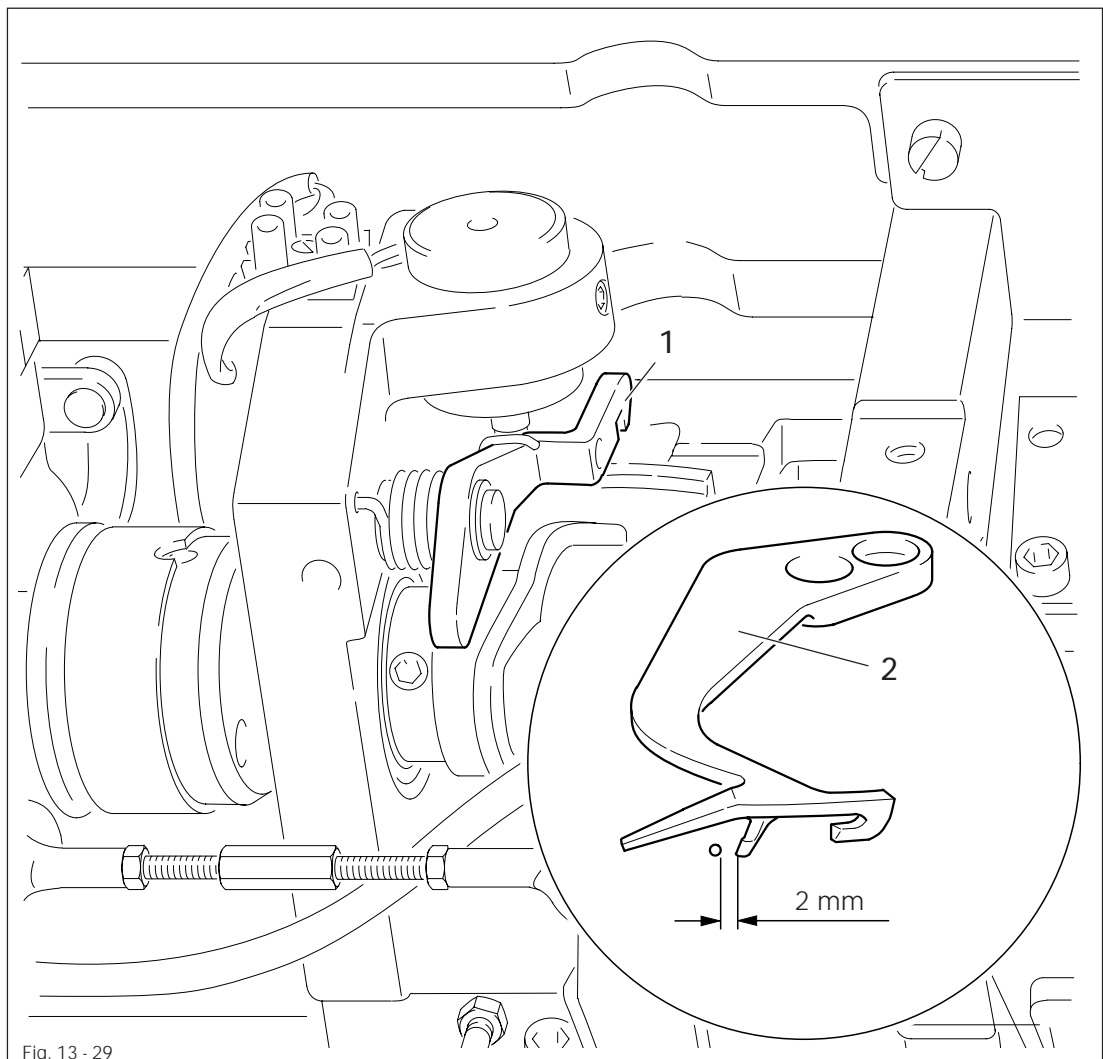
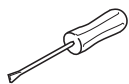


Fig. 13 - 29

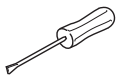
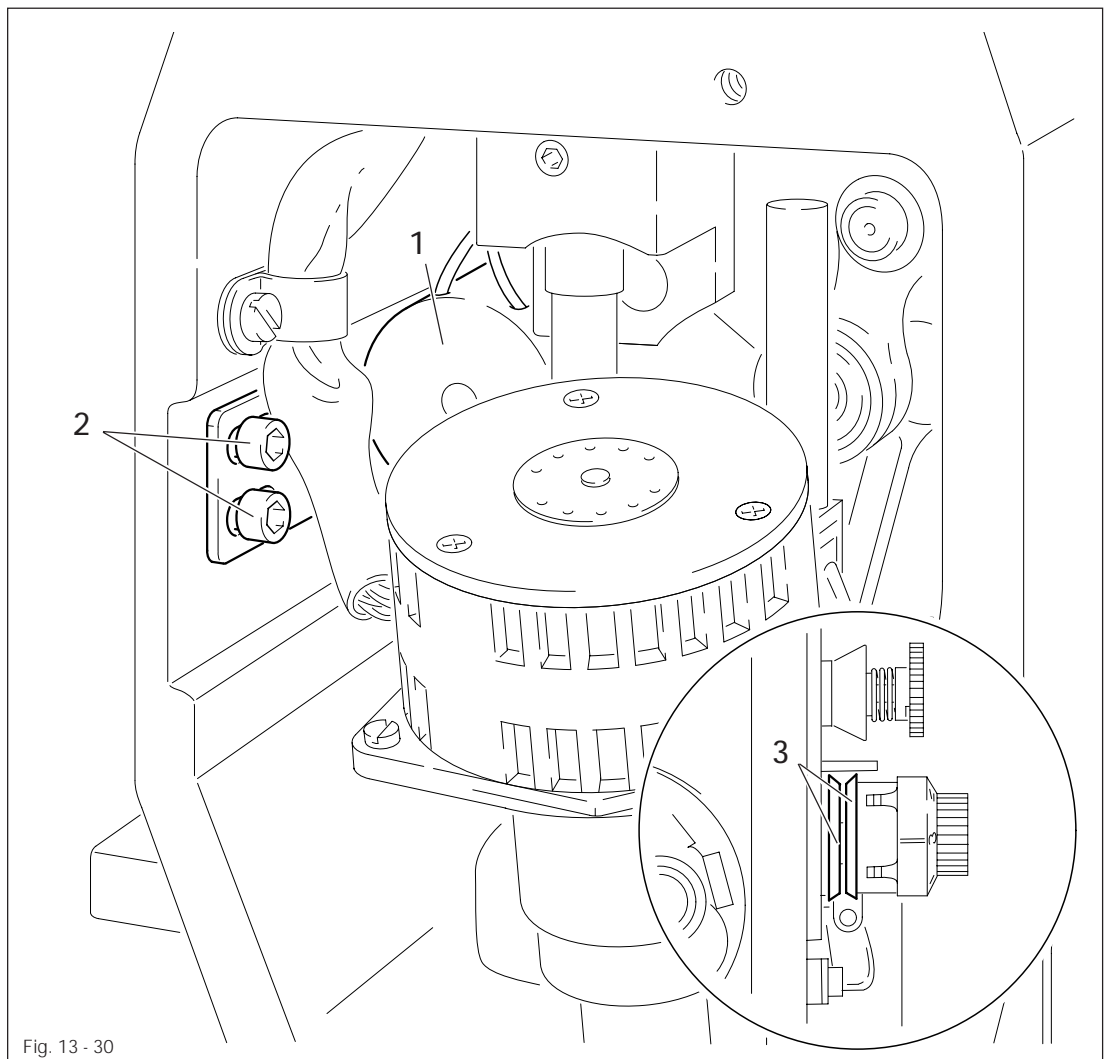


- Sew a few stitches.
- Turn off the on/off switch.
- Disengage latch 1.
- Carry out the cutting process by turning the handwheel.
- Check requirement 1. If necessary, readjust the thread catcher in accordance with chapter 13.05.06 Thread-catcher height.
- Check requirement 2. If necessary, readjust the thread catcher in accordance with chapter 13.05.07 Thread-catcher position.
- Check requirement 3. If necessary, readjust the bobbin-thread clamp spring in accordance with chapter 13.05.09 Bobbin-thread clamp spring.

13.05.12 Tension release (during trimming process)

Requirement

With the solenoid 1 activated, the tension disks 3 must be at least 0.5 mm apart.



- Activate solenoid 1.
- Move solenoid 1 (screws 2) in accordance with the requirement.



The timing of the tension release can be adjusted via the service functions (see chapter 11.09 Summary of the service functions) and chapter 13.06 Parameter adjustments).

13.05.13 Stop positions

Requirement

The machine must

1. be 4 mm before the BDC of the needle bar when sewing is interrupted and
2. position itself at the TDC of the needle bar after thread trimming.

- Turn the machine off.



- Select INPUT mode.



- Select the input menu function (number key 5).



- Select the SERVICE function.



- Select the SEWING MOTOR function.



- Select the ADJUST POSITIONS function.



or



- Select the function BOTTOM POSITION or TOP POSITION.

- Input the values which correspond to the requirements.

13.06 Parameter adjustments

13.06.01 Adjusting positions

- Turn the machine on and sew one stitch.



- Select INPUT mode.



- Select the input menu function (number key 0).

5

- Select the SERVICE function.

3

- Select the SEWING MOTOR function.

2

- Select the ADJUST POSITIONS function.
(the current parameter settings are shown in the display.)

1 - POSITION DOWN	36									
2 - POSITION UP	227									
3 - CUTTING MAGNET POSITION	36									
4 - TENSION RELEASE POSITION	190									
5 - TURN BACK POSITION	190									
6 - PLACED-STITCH POSITION	5									
1	2	3	4	5	6	7	8	9	0	Enter

Fig. 13 - 31



The positions shown in Fig. 13 - 31 comply with the standard settings. If these parameter settings are altered, an optimum sewing result cannot be guaranteed.

Adjusting the parameters:

1 to 5

- Select the parameter to be altered with the corresponding number key.
- Change the position by turning the handwheel.

Enter

- Confirm the alteration with the **Enter** key.

13.06.02 Adjusting the counter

- Turn the machine on.



- Select INPUT mode.



- Select the input menu function (number key 0).



- Select the COUNTER function.

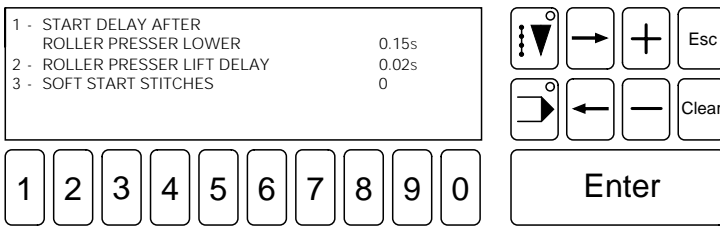
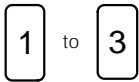


Fig. 13 - 32

Adjusting the parameters:



- Select the parameter to be altered with the corresponding number key.

- Enter the new value via the number keys (observe permissible values).



- Confirm the alteration with the Enter key.

13.06.03 Adjusting speeds

- Turn the machine on.



- Select INPUT mode.



- Select the input menu function (number key 0).



- Select the SPEED function.

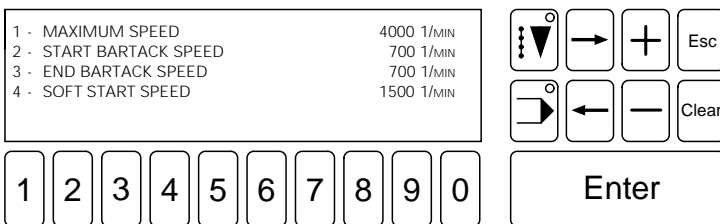


Fig. 13 - 33

- The speeds are adjustable as described in 13.06.02 Adjusting the counter.

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