

# PFAFF

1471 E1

1474 E1

Instruction manual



This Instruction manual is valid for all models and subclasses listed in the chapter „Specifications“.

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**Verlag - TD**  
D - 77901 Lahr

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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!

## 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!

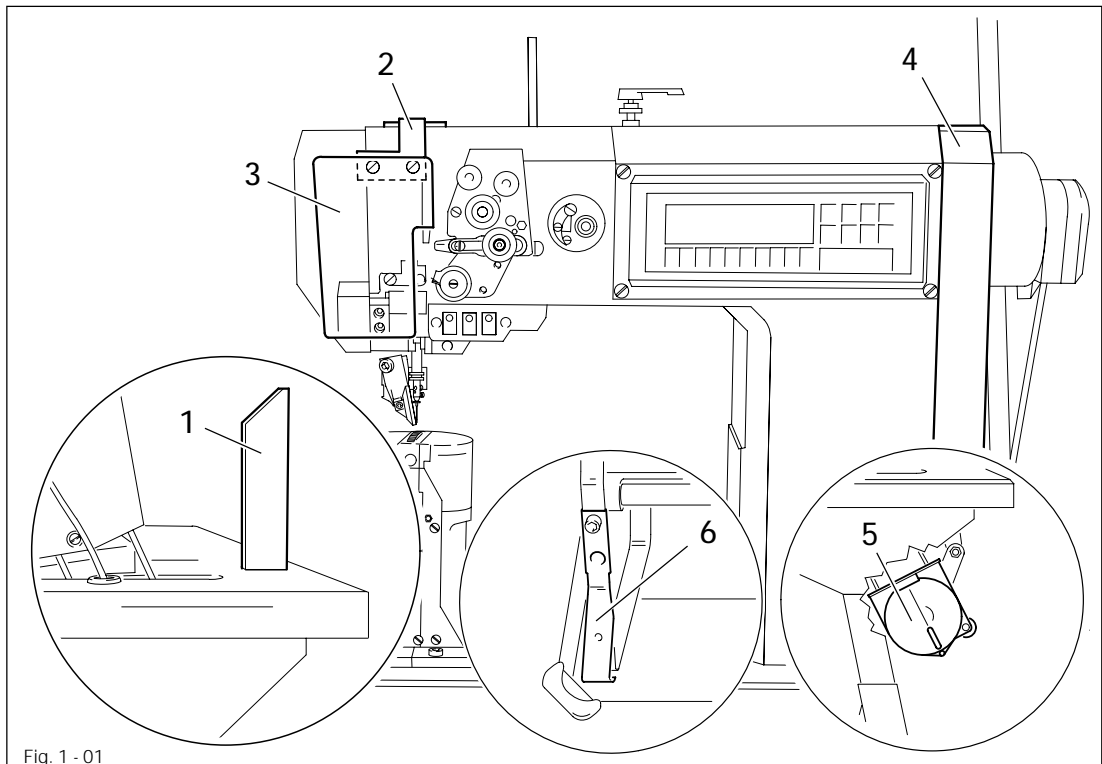


Fig. 1 - 01



Do not operate the machine without support 1!  
Danger due to top-heavy sewing head!  
Machine can tip over backwards when tilted!



Do not operate the machine without its take-up-lever guard 2!  
Danger of injury due to the motion of the take-up lever!



Only operate the machine with the eye guard 3 lowered!  
The eye guard 3 protects the eyes from oil particles from the thread lubrication.



Do not operate the machine without belt guards 4 and 5!  
Danger of injury by the moving V-belt!



Do not operate the machine without tilt lock 6!  
Danger of crushing between sewing head and table top!

2

Proper use

The PFAFF 1471 E1 is a high speed, single needle, postbed sewing machine (post to the left of the needle) with a forward and reverse feeding feed-wheel and roller-presser as well as a feed-synchronized needle.

The PFAFF 1474 E1 is a high speed, two-needle, postbed sewing machine with a forward and reverse feeding feed-wheel and roller-presser.

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 by the manufacturer are improper and against regulations! The manufacturer is not liable for any damage caused by improper use of the machine! Proper use of the machine also requires observance of all operational, adjustment, maintenance and repair measures required by the manufacturer!

## 3 Specifications

### 3.01 PFAFF 1471 E1; 1474 E1 ▲

Stitch type: ..... 301 (lockstitch)

Handwheel eff. dia.: ..... 65 mm

Clearance under the roller-presser: ..... 7 mm

Clearance width: ..... 245 mm

Clearance height: ..... 115 mm

Post height: ..... 180 mm

Dimensions of sewing head:

Length: approx. .... 615 mm

Width: approx. .... 240 mm

Height (above table): approx. .... 500 mm

Bedplate: ..... 518 x 177 mm

Max. speed: ..... 4000 spm♦

Max. stitch length: ..... 5,0 mm

Cutting clearance ( on -725/.. ): ..... 0.9 - 2.5 mm

Cutting speed ( on -725/.. ): ..... 2800 cuts/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 min<sup>-1</sup>: ..... 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

### 3.02 Needle and thread

Model	Use	Thread thickness (Nm) max. synthetic▲	Needle thickness in 1/100 mm	Needle system 1471E1	Needle system 1474E1
A	For fine materials	60 - 60	70	134	134-35
B	For medium-thick materials	40 - 40	100	134	134-35

▲or comparable thicknesses of other thread types

3.03      **Models and subclasses**

-725/04 for the 1471E1 ..... Edge trimmer  
-725/04 for the 1474E1 ..... Edge trimmer  
-900/53 ..... Thread trimmer  
-906/10 ..... Thread tension control

### 4 Disposal of machine waste

- The proper disposal of machine waste is the responsibility of the customer.
- The materials used on the machines are steel, aluminium, brass and various plastics. The electrical equipment consists of plastics and copper.
- The machine waste 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 and to the individual locations of use. Always ensure that the machine is only transported upright.

#### 5.03 Disposal of the packaging

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

#### 5.04 Storage

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

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

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## Explanation of the symbols

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### 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:



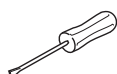
Note, information



Cleaning, care



Lubrication, greasing



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



7 Controls

7.01 On/off switch

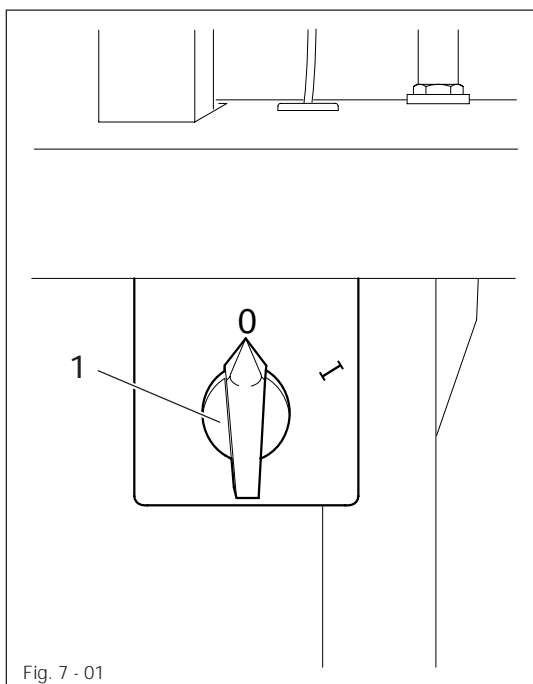


Fig. 7 - 01

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

7.02 Keys on the machine head

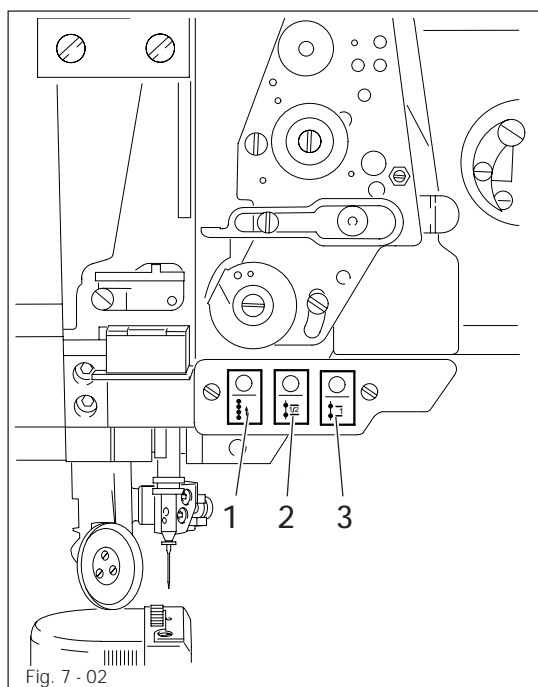


Fig. 7 - 02

- Different functions are carried out by pressing the different keys.

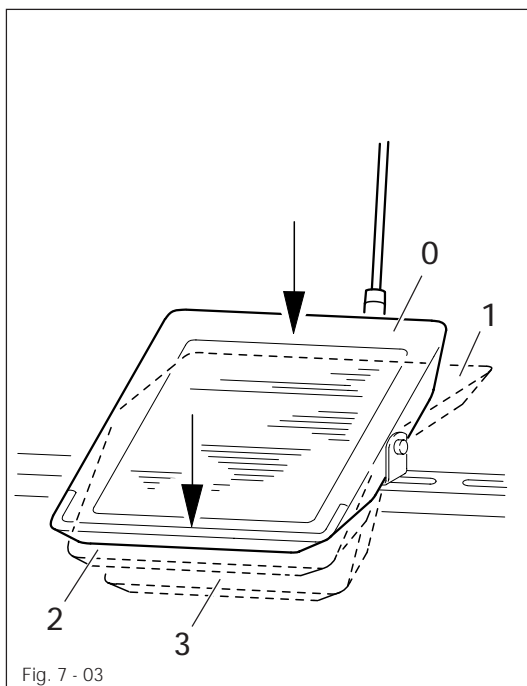
- Key 1: reverse sewing
- Key 2: sews one stitch with half-stitch length.
- Key 3: sews one stitch with full-stitch length.



1471E1 is shown in Fig. 7 - 02

## 7.03

### Pedal



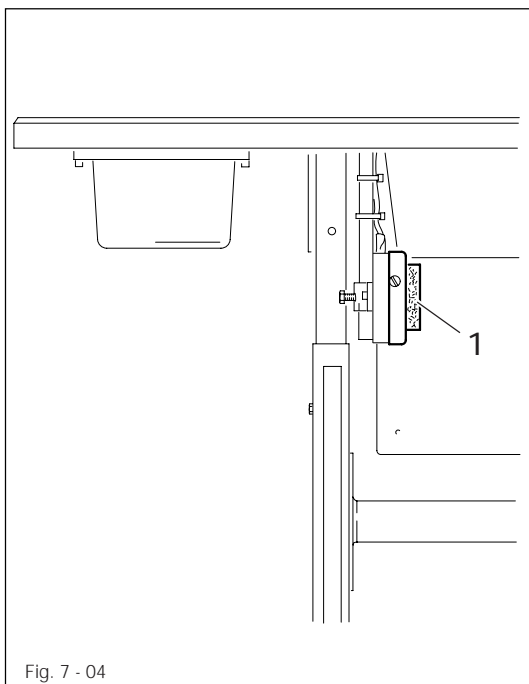
- 0 = Machine stop
- 1 = Sew
- 2 = Raise roller-presser
- 3 = Trim thread and raise roller-presser



Other pedal functions can also be programmed (see **chapter 10 Sewing**).

## 7.04

### Knee switch

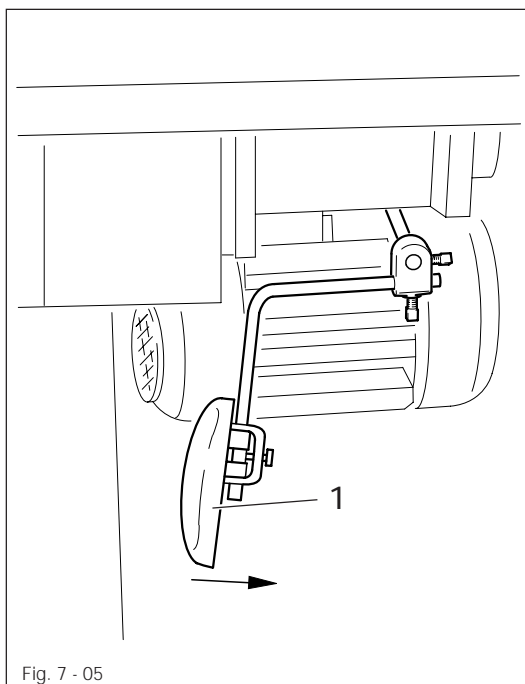


- By activating the knee switch 1 the end of the seam section can be signaled during programmed sewing.



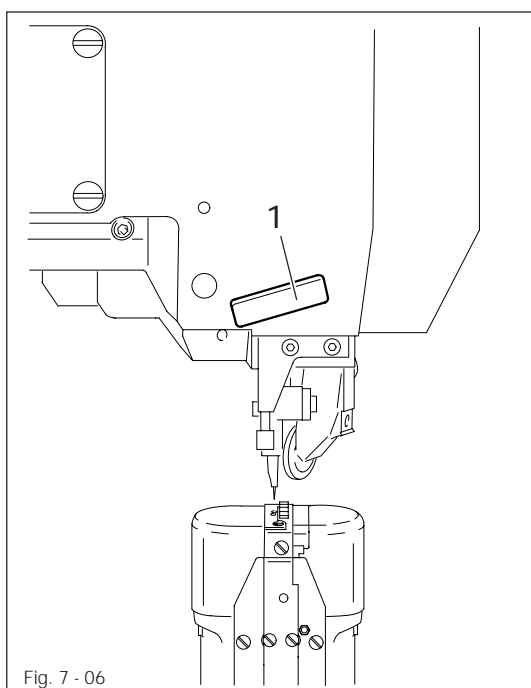
The function of the knee switch 1 must be switched on using the control panel (see **chapter 11 Programming**).

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

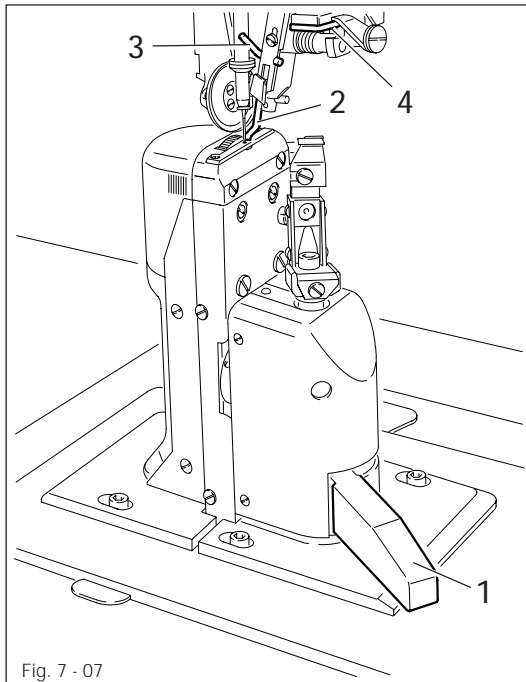


- The roller-presser is raised by turning lever 1.



1474E1 is shown in Fig. 7 - 06

## 7.07 Edge trimmer -725/04 for the 1471E1



Do not reach into the area of the knife when it is running.  
Danger of injury!

Switching on the knife drive:

- Bring the knife into start position by pushing lever 1 to the rear.

Switching off the knife drive:

- Press lever 1. The knife swings to the rear.

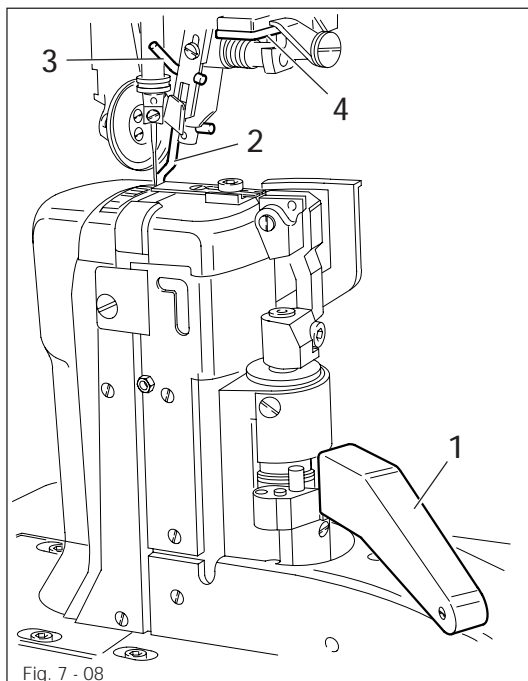
Switching on the edge guide:

- The edge guide 2 is brought into start position by swinging in the edge guide 2 manually and pressing lever 3.

Switching off the edge guide:

- Raise the edge guide 2 and allow it to engage. Now the edge guide 2 can no longer operate.
- Raise lever 4. The edge guide swings to the rear.

## 7.08 Edge trimmer -725/04 for the 1474E1



Do not reach into the area of the knife when it is running.  
Danger of injury!

Switching on the knife drive:

- Bring the knife into start position by pushing lever 1 to the rear.

Switching off the knife drive:

- Press lever 1. The knife swings to the rear.

Switching on the edge guide:

- The edge guide 2 is brought into start position by swinging in the edge guide 2 manually and pressing lever 3.

Switching off the edge guide:

- Raise the edge guide 2 and allow it to engage. Now the edge guide 2 can no longer operate.
- Raise lever 4. The edge guide swings to the rear.

7.09 Control panel

The control panel comprises the display and two key panels.

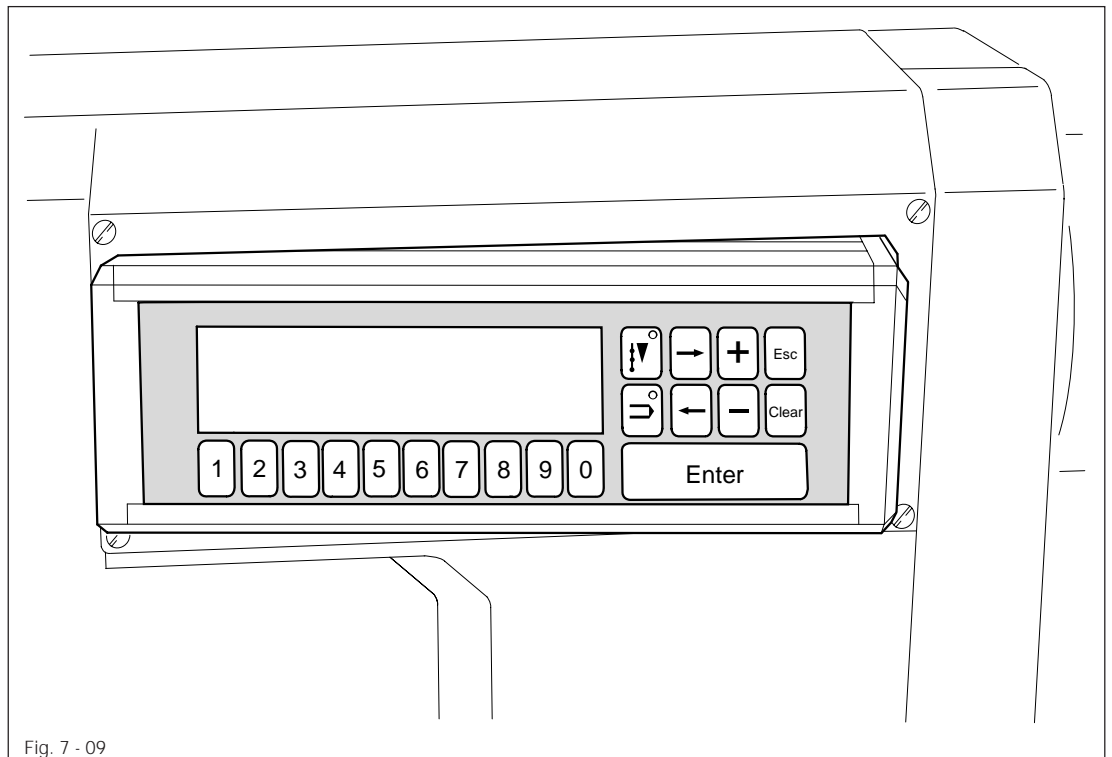


Fig. 7 - 09

7.09.01 Display

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

**Status line**

The status line is found at the top 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 is found at the bottom of the display. Here, symbols are displayed whose corresponding functions 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)

## 7.09.02 Operation-mode keys

There are two operation modes. The selected mode is indicated by the luminous diode of the respective key.



SEWING mode



ENTER mode

## 7.09.03 Function keys



Arrow keys ( right / left )

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



Plus / Minus keys

- for increasing or decreasing input values



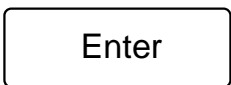
Esc key

- for interrupting functions without assuming the value entered
- for returning to superordinate menu functions
- for error acknowledgement following an error message



Clear key

- set the input value to 0
- for error acknowledgement following an error message



Enter key

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

## 7.09.04 Number keys

Below the display there is a bar with number keys ( 1 - 0 ).

Depending on the current operating mode, these keys have the following functions:

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



**Double click** = press the 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, you must ensure that the frame and the table top which you intend to use can hold the weight of the machine and the motor. Be sure that the base is sufficiently sturdy at all times - including during operation of the machine.

### 8.01 Mounting

The required electricity supply must be available at the machine's location.  
There must be a level, firm floor and adequate lighting at the machine's location.



Due to package-related requirements, the table top has been lowered for transport. A description of how to adjust the height of the table top follows.

#### 8.01.01 Adjusting the table-top height

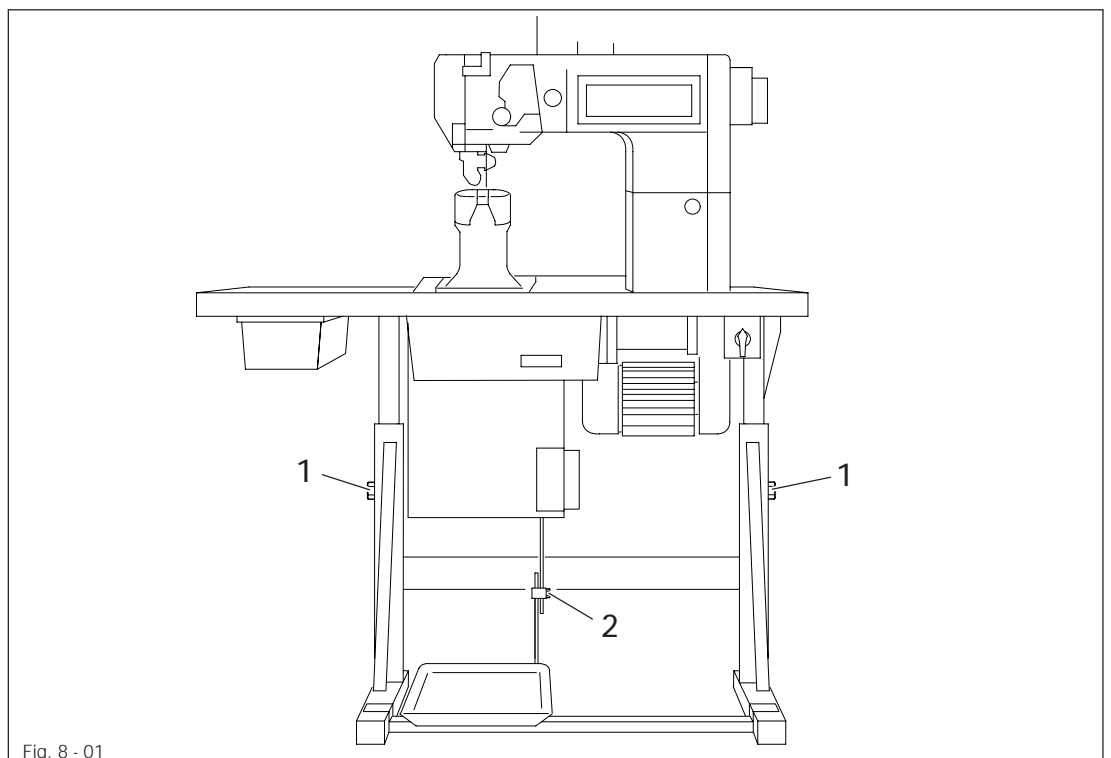
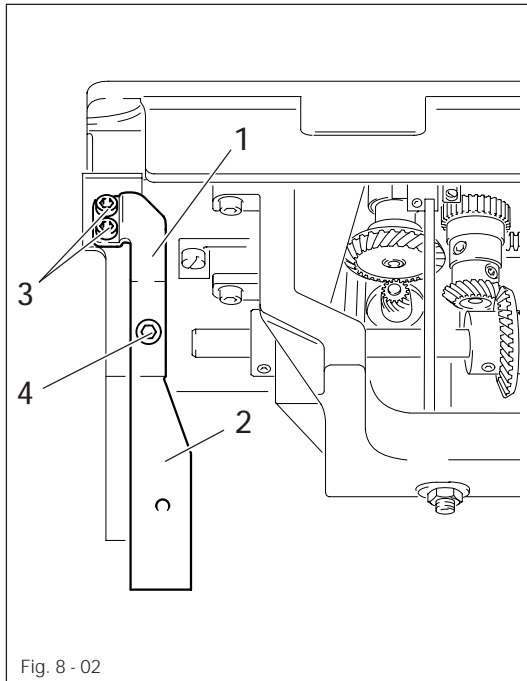


Fig. 8 - 01

- Loosen screws 1 and 2 and set the desired table-top height.
- Tighten screw 1 well.
- Adjust the pedal to the desired position and tighten screw 2.

# Mounting and commissioning the machine

## 8.01.02 Fitting the tilt lock

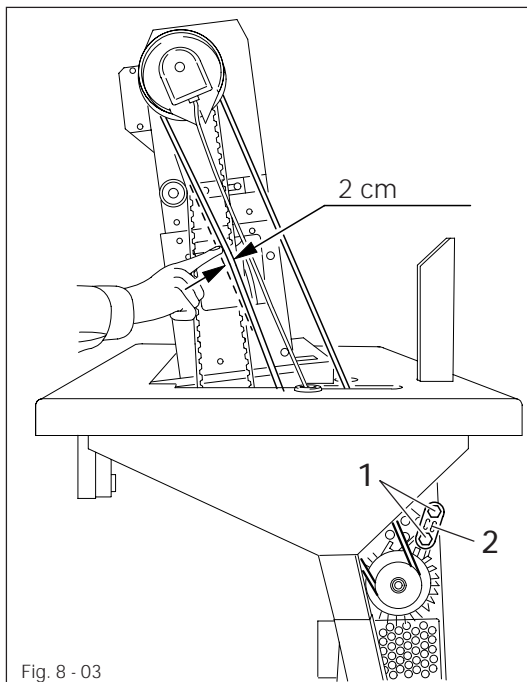


- Screw on tilt lock parts 1 and 2, provided in the accessories, using screws 3 and 4.



Do not operate the machine without tilt lock 1!  
Danger of crushing between sewing head and table top!

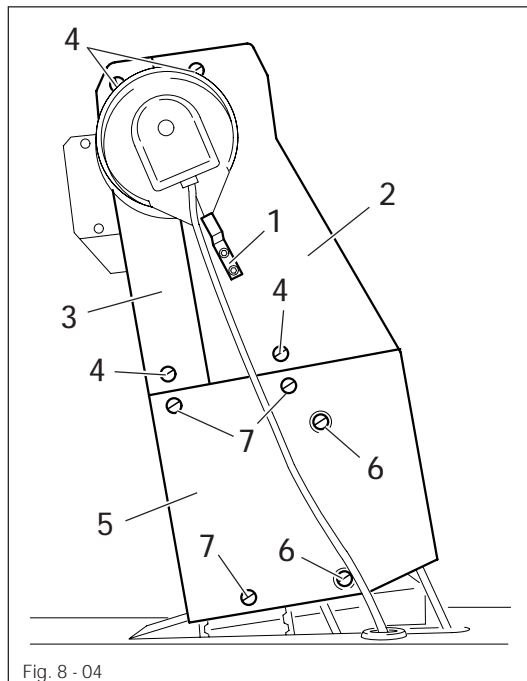
## 8.01.03 Adjusting the V-belt tension



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

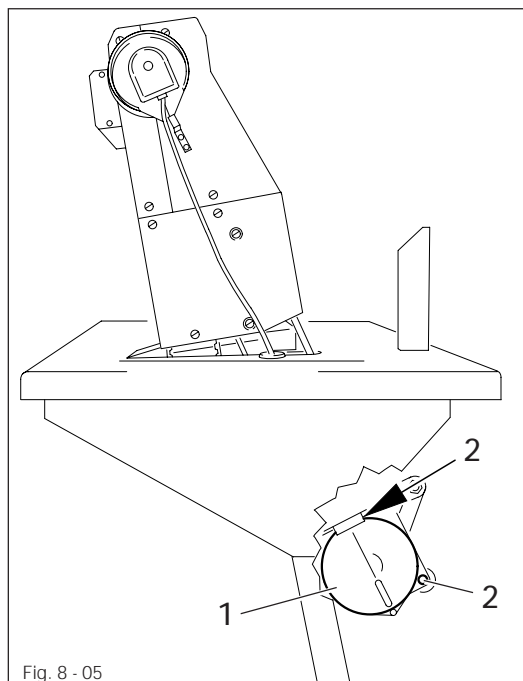


## 8.01.04 Mounting the upper V-belt guard



- 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.
- Slide the lower section 5 of the V-belt guard with its slots over the heads of retaining screws 6. Screw it on with screws 7. Finally, tighten screws 6 through the holes.

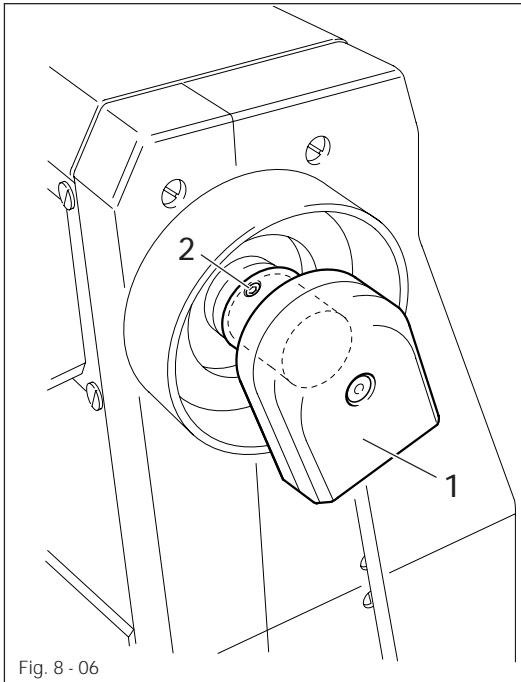
## 8.01.05 Mounting the lower V-belt guard



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

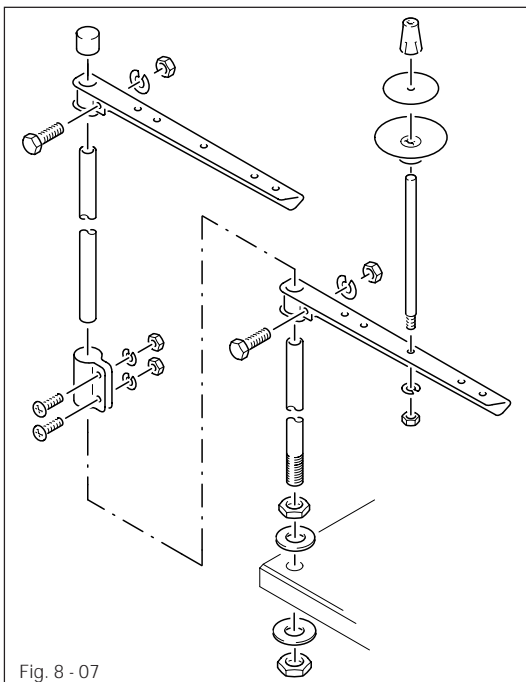
# Mounting and commissioning the machine

## 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 ( see **chapter 7.01 On/Off switch** ).

9

## Preparation



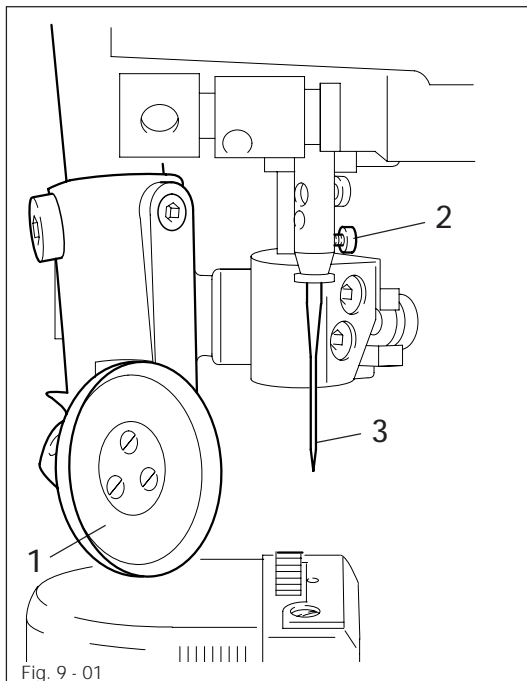
All regulations and instructions in this Instruction Manual are to be observed!  
Special attention is to be paid to the safety regulations!



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

9.01

### Inserting the needle in the 1471E1



Turn the machine off!

Use only system 134 needles.

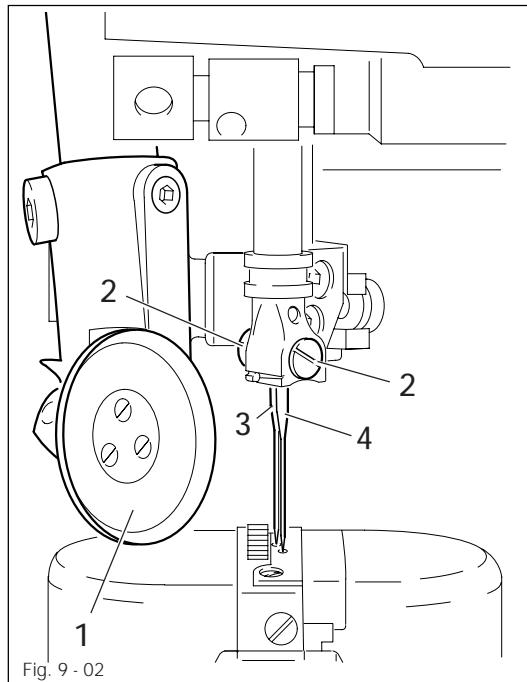
- Raise roller-presser 1.
- Swing the eye guard up.
- Pull roller-presser 1 down slightly and swing it out to the left.
- Loosen screw 2 and insert needle 3 fully until you feel it stop. The long groove must be facing to the right.
- Tighten screw 2 and swing the roller-presser back into position.



Selection of the correct needle depends on the model of the machine as well as the material and threads being sewn (see chapter 3.02 Needle and thread).

## 9.02

## Inserting the needle in the 1474E1



Turn the machine off!

Use only system 134-35 needles.

- Raise roller-presser 1.
- Swing the eye guard up.
- Pull roller-presser 1 down slightly and swing it out to the left.
- Loosen screw 2 and insert needles 3 and 4 so that the long groove of the left needle 3 is facing to the right, and that of the right needle 4 is facing to the left.
- Tighten screw 2 and swing the roller-presser back into position.



Selection of the correct needle depends on the model of the machine as well as the material and threads being sewn (see **chapter 3.02 Needle and thread**).

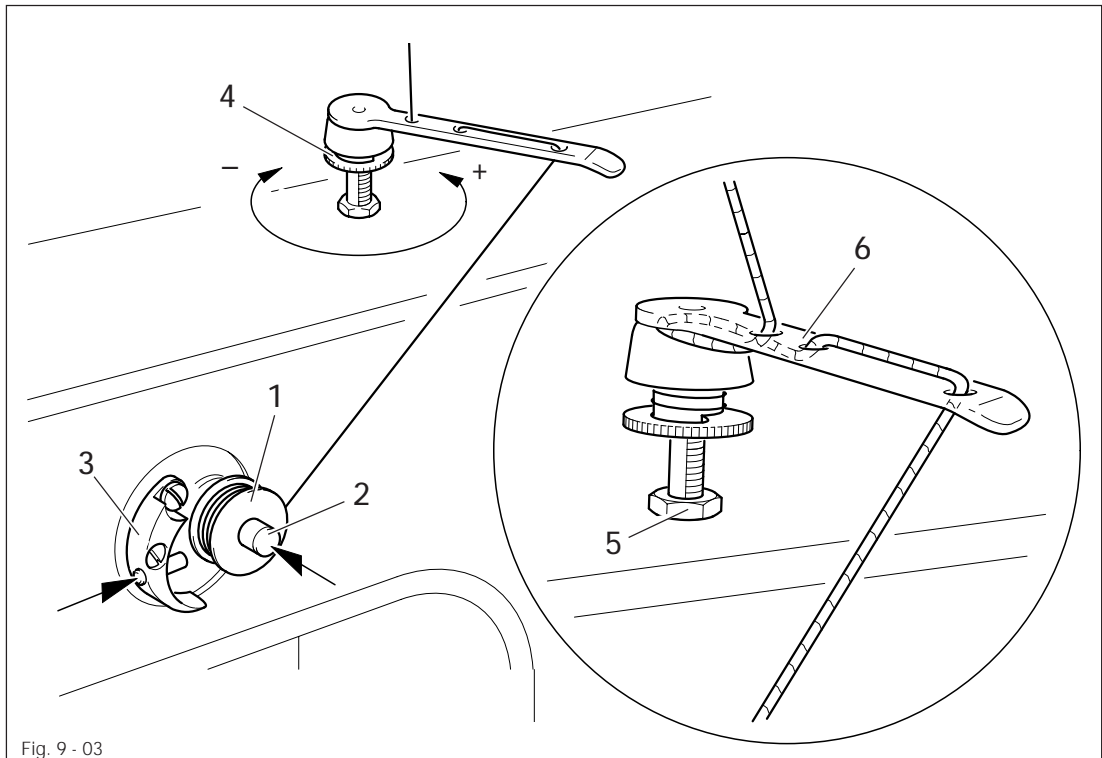


Fig. 9 - 03

- Place an empty bobbin 1 onto bobbin winder spindle 2.
- Thread the bobbin as shown in Fig. 9 - 03 and wind it clockwise around bobbin 1 a few times.
- Switch on the bobbin winder while at the same time pressing bobbin winder spindle 2 and lever 3.



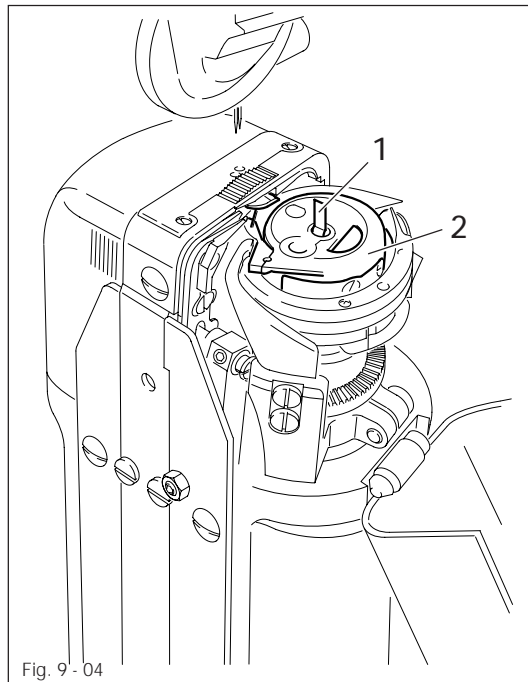
The bobbin is filled up during sewing.

- The thread tension on bobbin 1 can be adjusted using 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.

9.04 Removing/Inserting the bobbin case



Turn the machine off!

Removing the bobbin case:

- Open the post cap.
- Raise latch 1 and remove bobbin case 2.

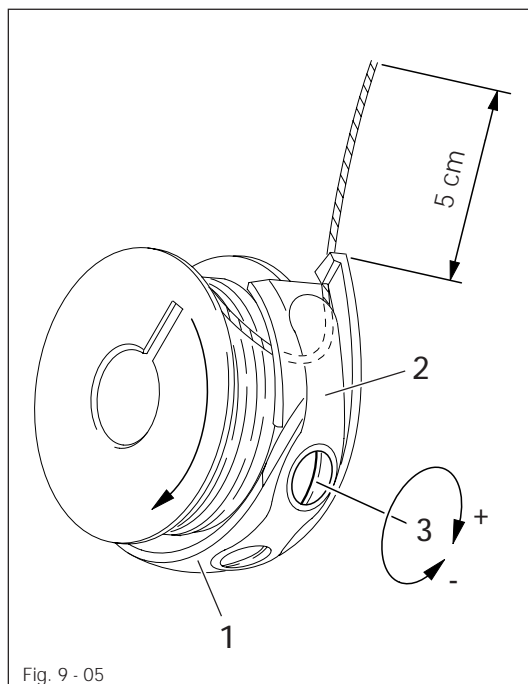
Inserting the bobbin case:

- Insert bobbin case 2.
- Close the latch and close the post cap.



1474E1 is shown in Fig. 9 - 04.

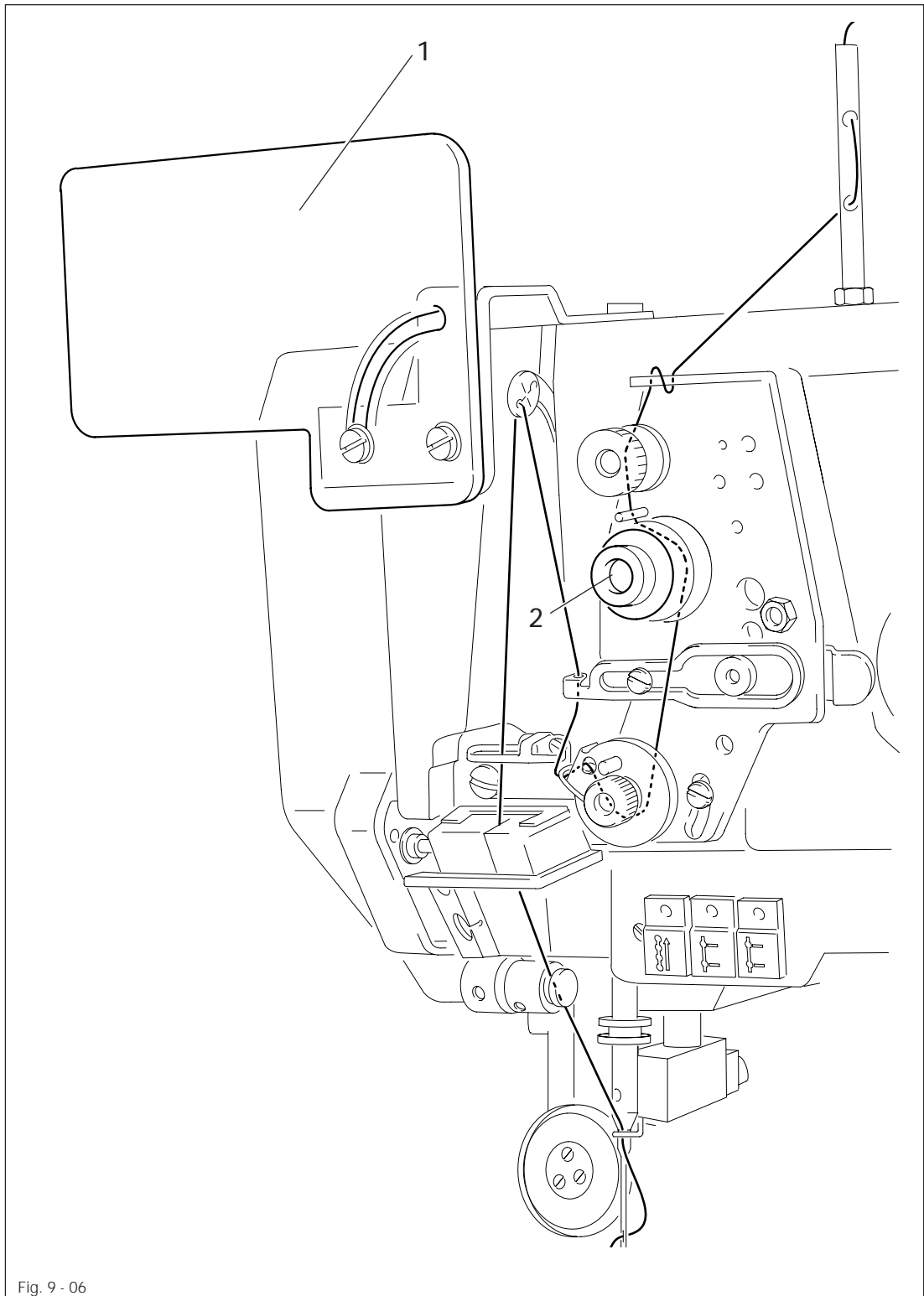
9.05 Threading the bobbin case/Adjusting the bobbin thread tension



- Insert the bobbin into the bobbin 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.



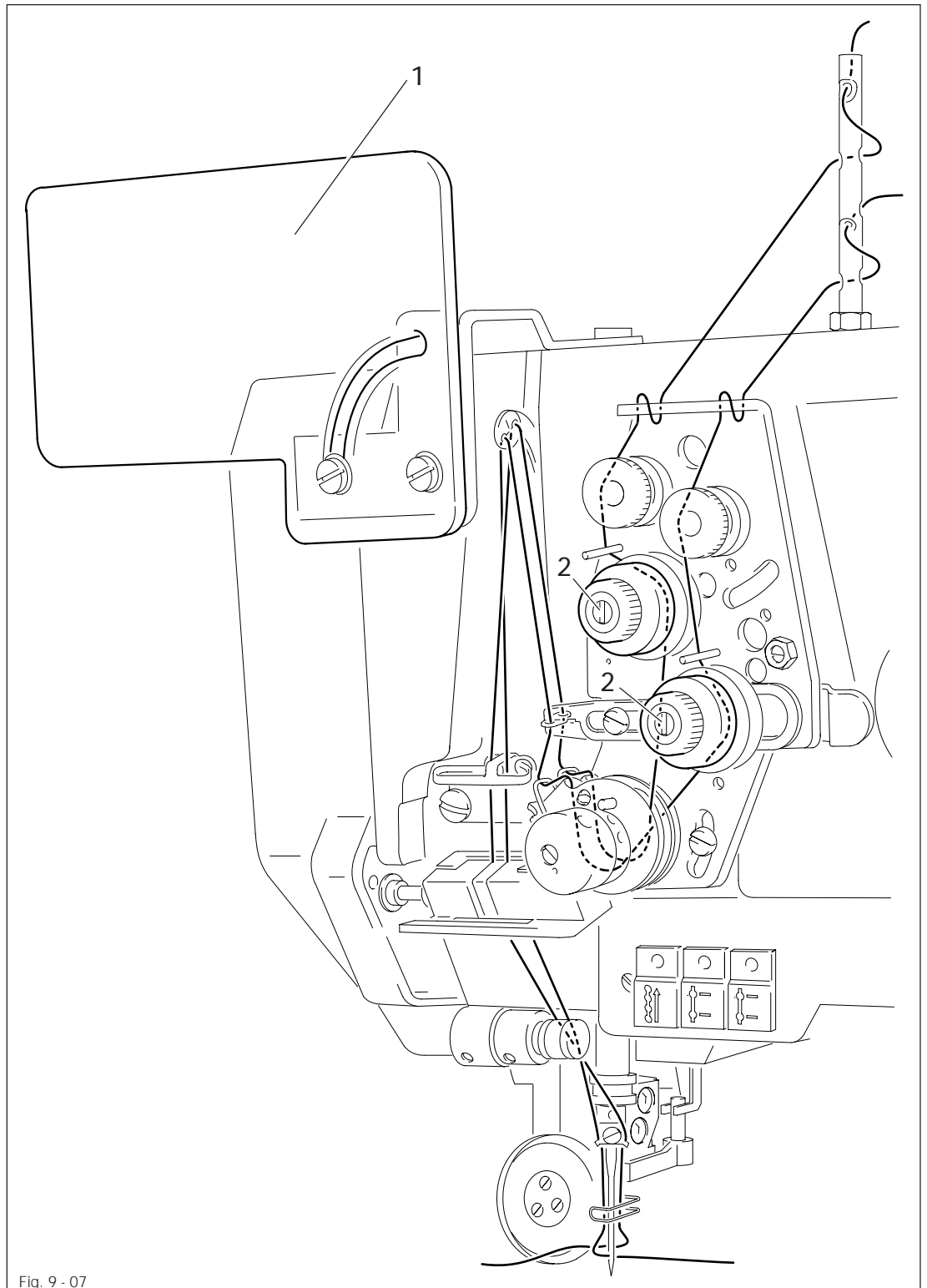
Turn the machine off!

- Swing eye guard 1 up.
- Thread the machine as shown in Fig. 9 - 06.
- Adjust the needle thread tension by turning knurled screws 2.



9.07

Threading the needle/Adjusting the needle thread tension in the 1474E1



Turn the machine off!

- Swing eye guard 1 up.
- Thread both needle threads as shown in Fig. 9 - 07.
- Adjust the needle thread tension by turning knurled screw 2.

## 9.08 Selecting the stitch length

- Turn the machine on.

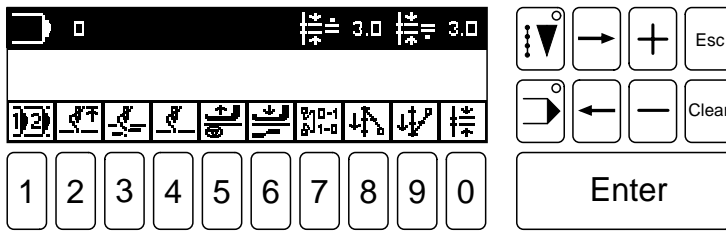


Fig. 9 - 08

If the display shown in Fig. 9-08 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.

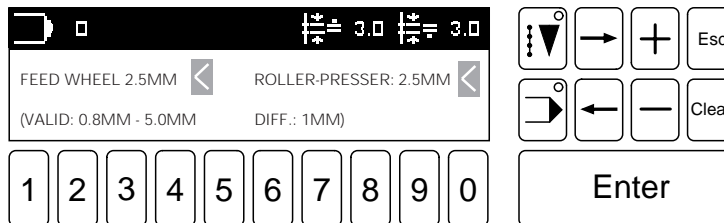


Fig. 9 - 09

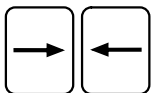
- Using the number keys, enter the desired stitch lengths.



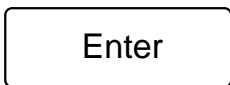
The value entered will be assumed for both the feed wheel and the roller-presser.

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 entering varying feeds:



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



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

9.09 Selecting the desired language

- Turn the machine on.



- Select INPUT mode.

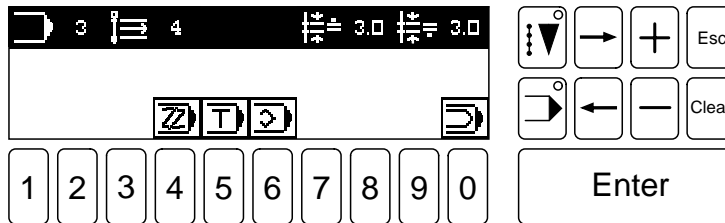


Fig. 9 - 10



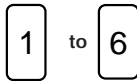
- Select the function input menu with number key 0.



- Select the function SWITCH FUNCTIONS with number key 1.



- Select the function LANGUAGES with number key 3.



- Select the desired language with the number keys:

- 1 = (D)
- 2 = (GB)
- 3 = (F)
- 4 = (I)
- 5 = (E)
- 6 = (P)

- The language is immediately changed to the desired language after the corresponding number has been entered.

## 10 Sewing

### 10.01 Manual sewing

- Turn the machine on.

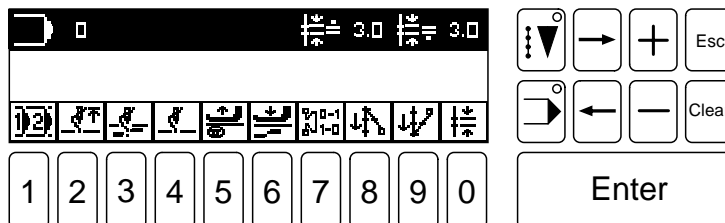


Fig. 10 - 01

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.

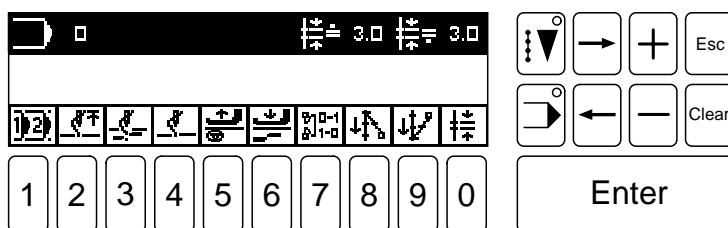


Fig. 10 - 02



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



- Select the function **select program**.

1

or

2

- Input program number 1 or 2.

Enter

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

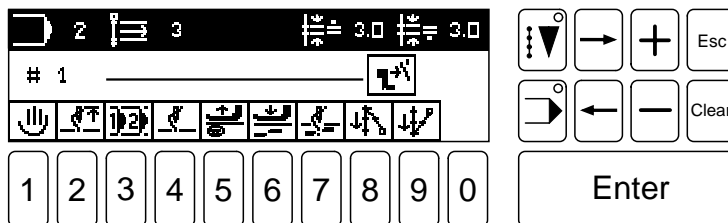


Fig. 10 - 03



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 ).

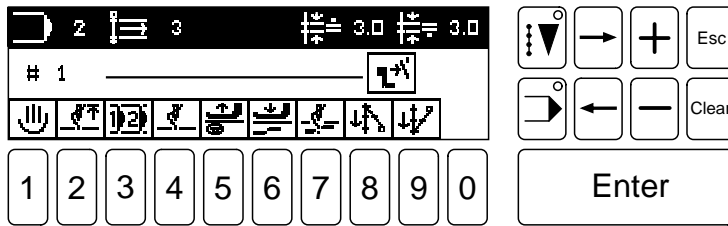


Fig. 10 - 03

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.

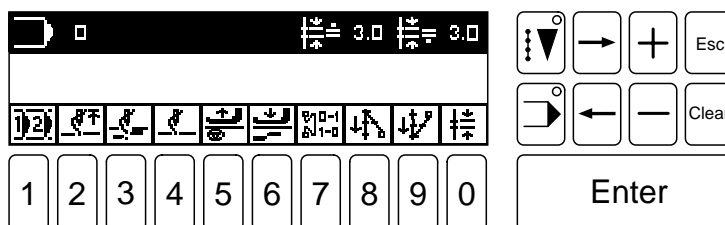
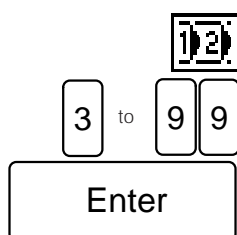


Fig. 10 - 04



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

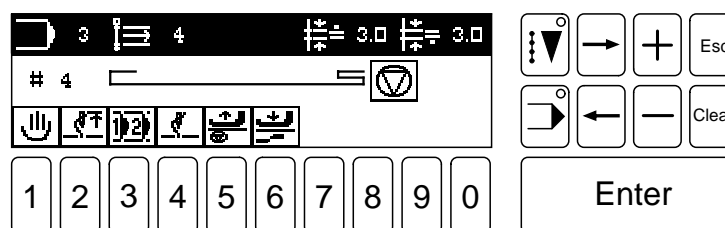


Fig. 10 - 05



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** ).

Explanation of the symbols:



### 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.

## 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** ).



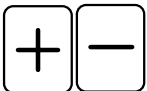
There is an example for programming decorative seams in **chapter 11.14.02 Example for programming a decorative seam**.

## 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.

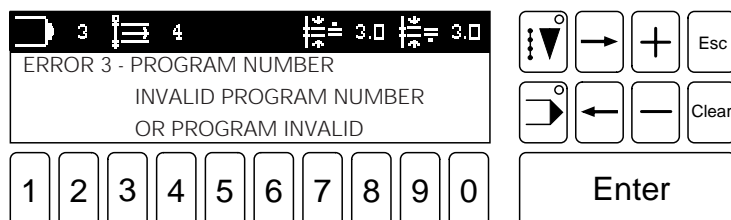
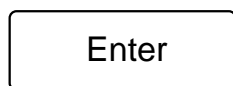


Fig. 10 - 06

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

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.

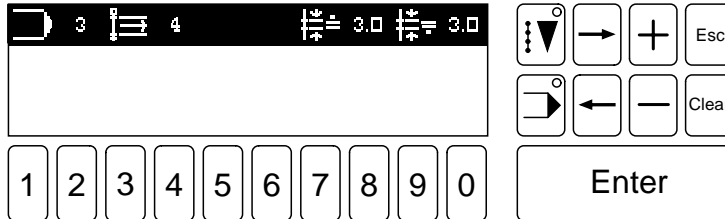


Fig. 11 - 01



#### 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.



#### 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.

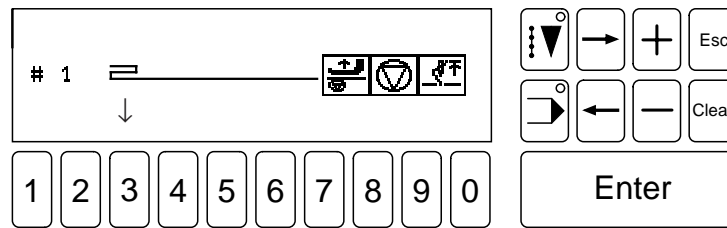



Fig. 11 - 02

### # 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 bar 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:

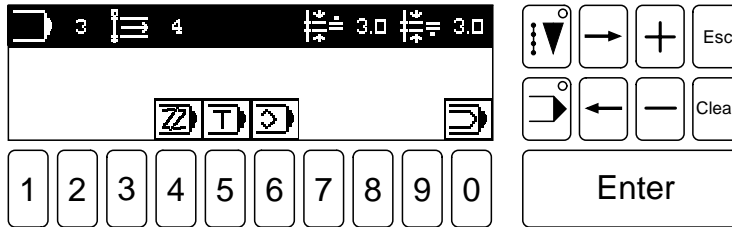


Fig. 11 - 03

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

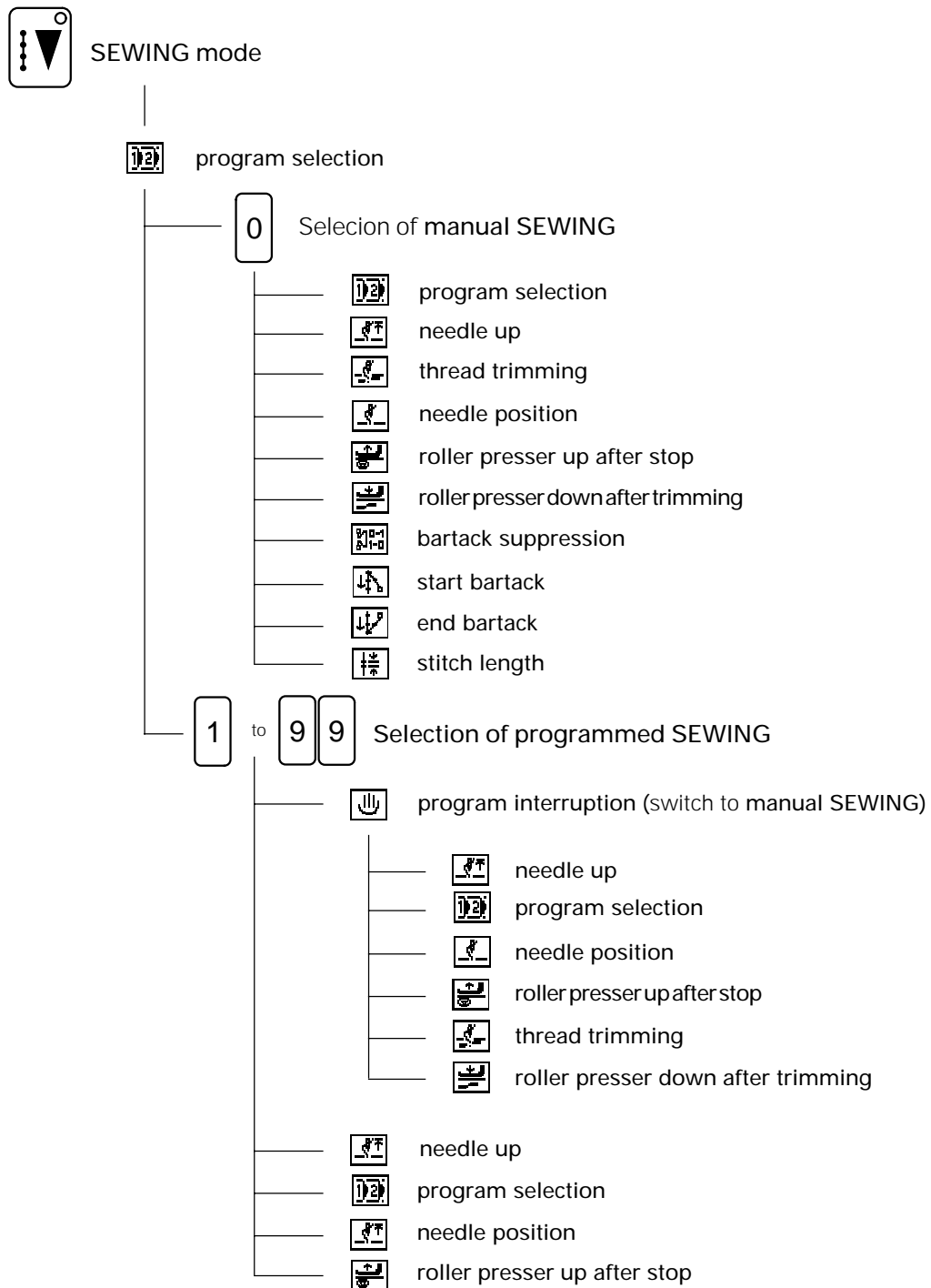
This function opens a menu with further functions which serve the administration of program data.



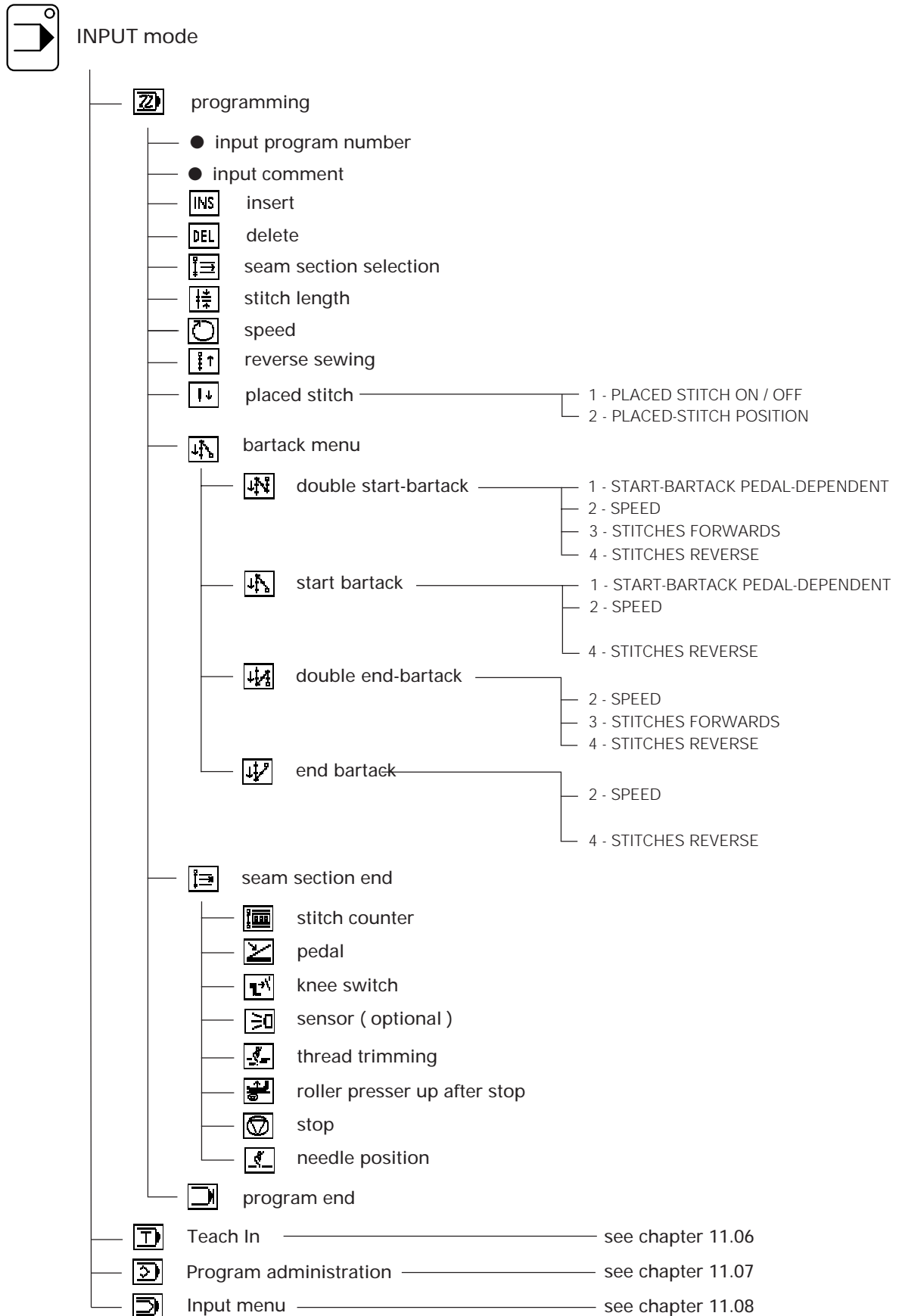
### Input menu

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

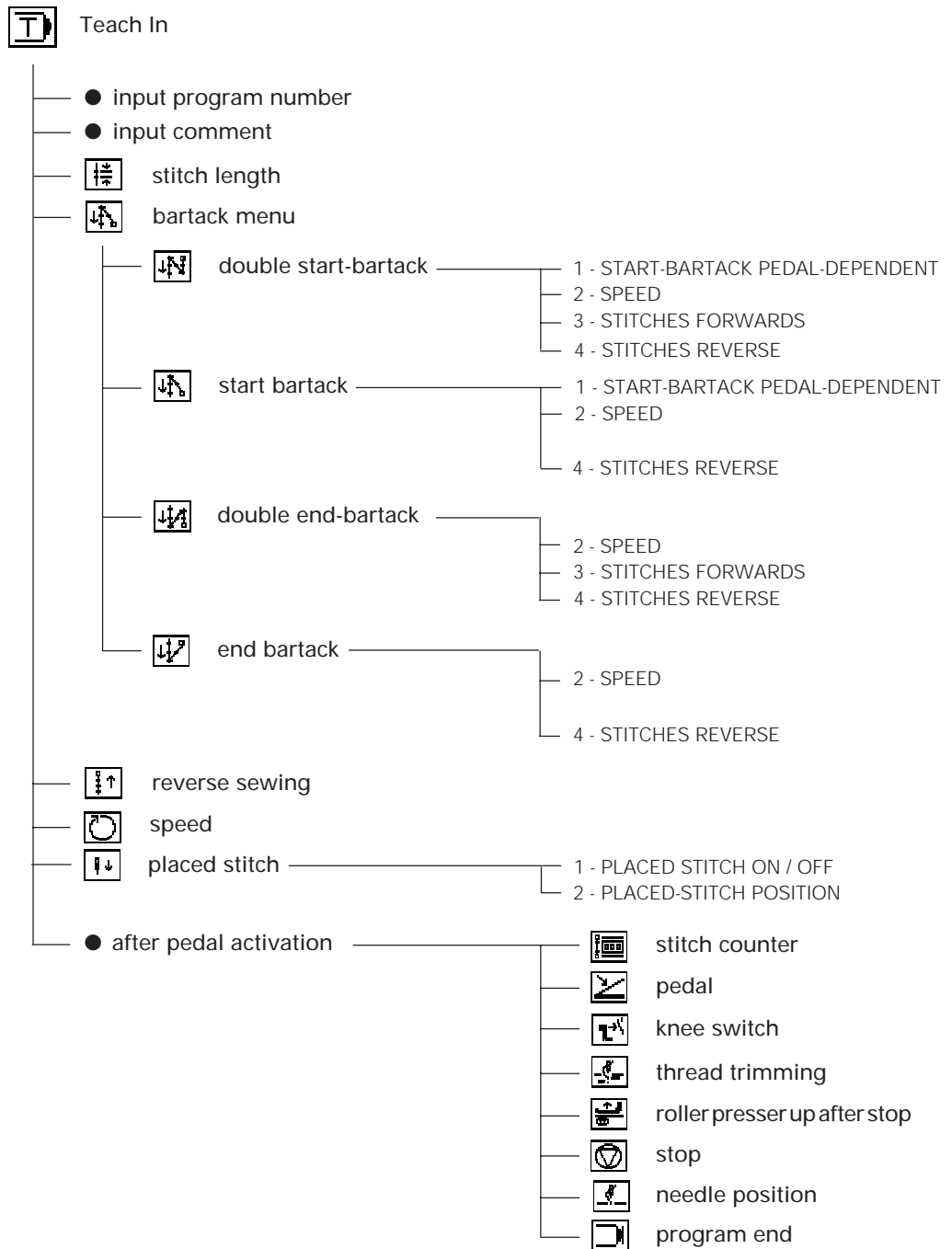
11.04 Summary of the functions in SEWING mode



## 11.05 Summary of the functions in INPUT mode



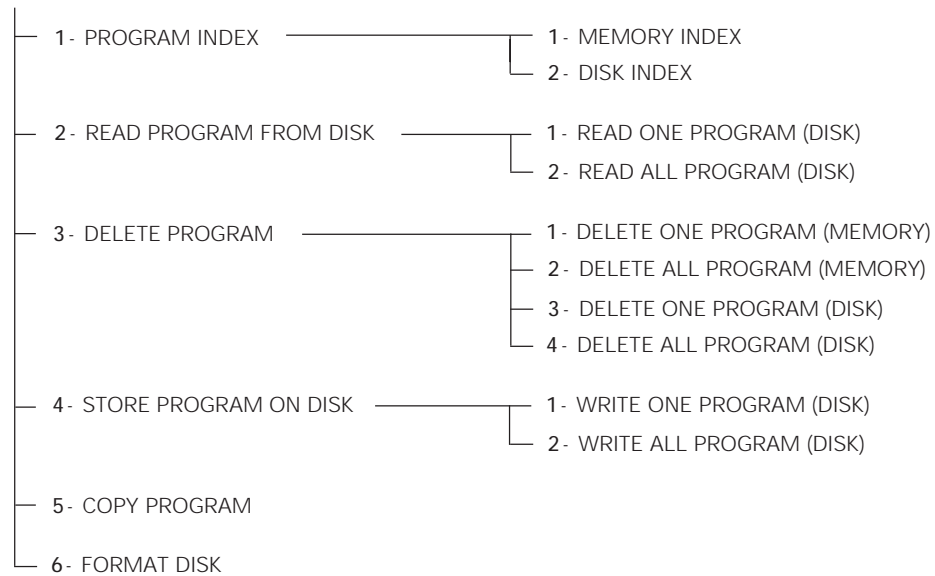
11.06 Summary of the functions in Teach In



## 11.07 Summary of the functions in program administration



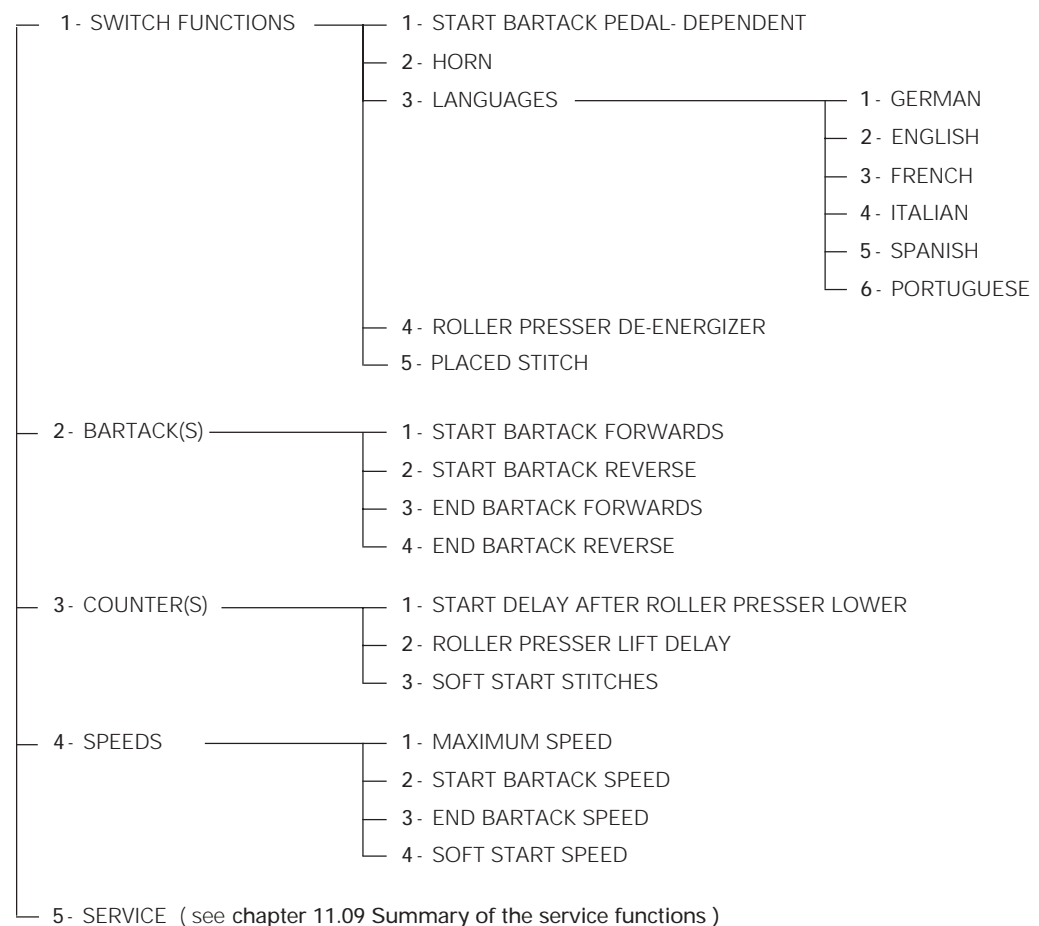
### Program administration



## 11.08 Summary of the functions in the input menu

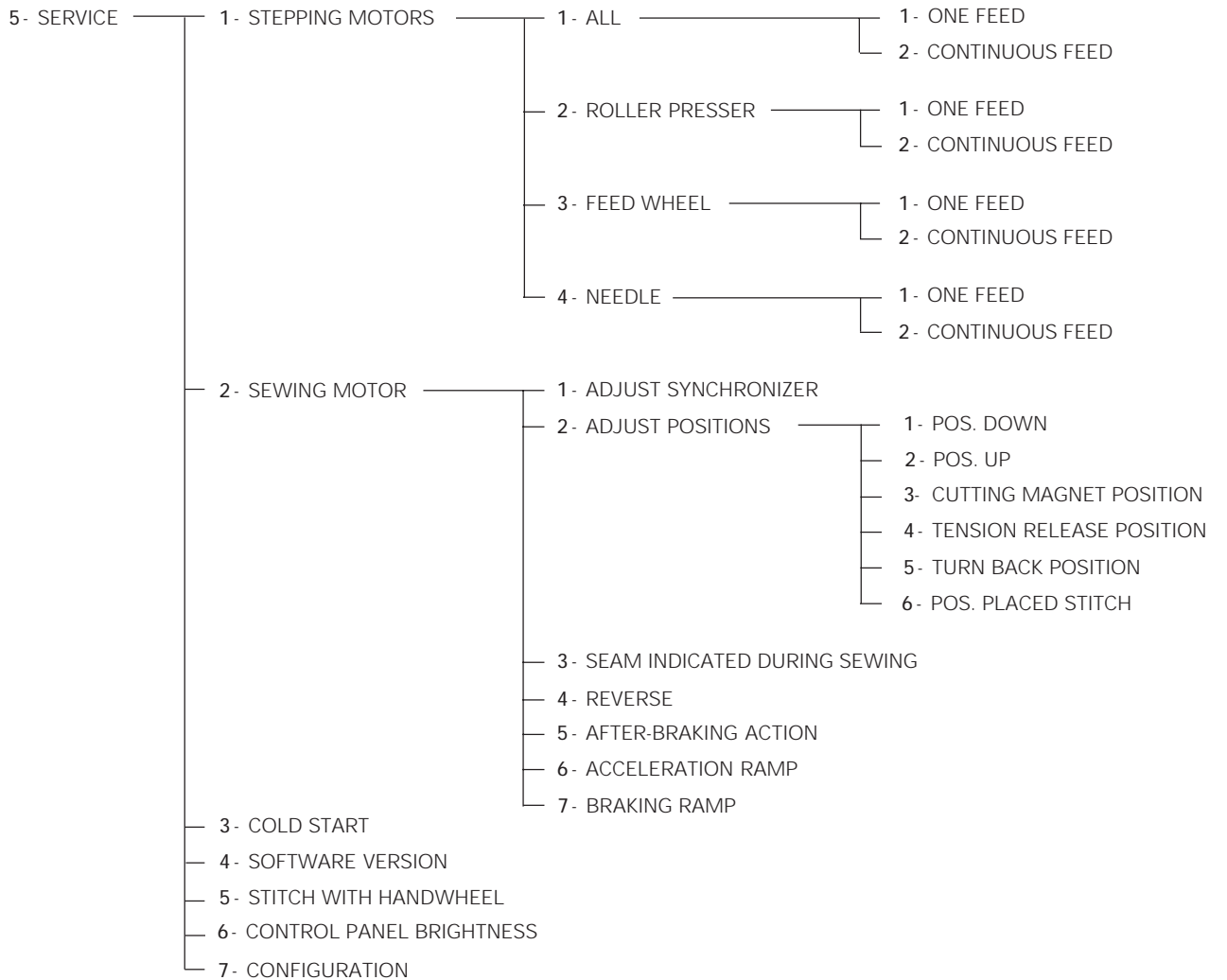


### Input menu





### 11.09 Summary of the service functions



### 11.10 Selection of functions from menu levels



- Select **INPUT** mode

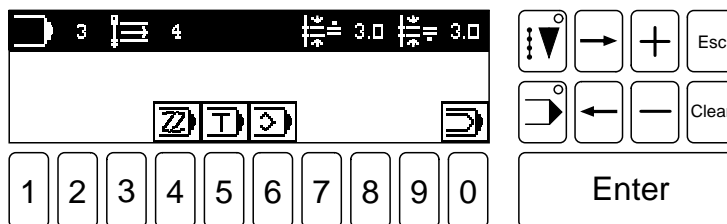


Fig. 11 - 04



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

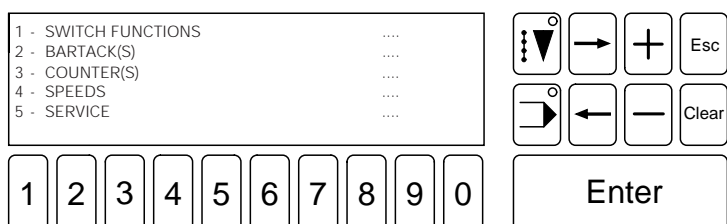


Fig. 11 - 05

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

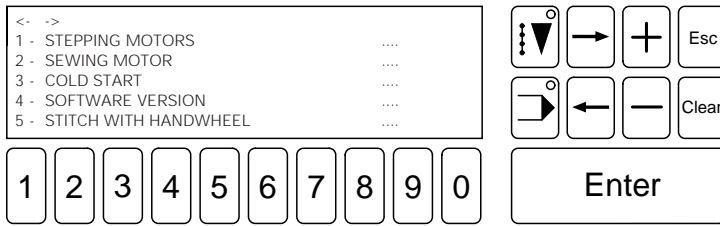


Fig. 11 - 06

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

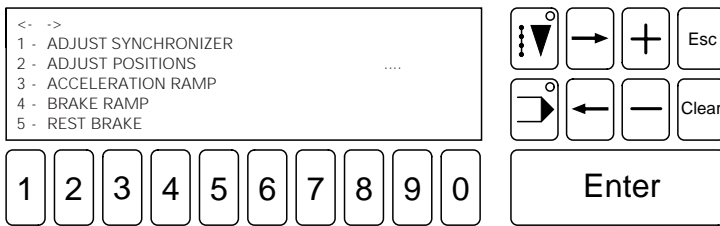


Fig. 11 - 07

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

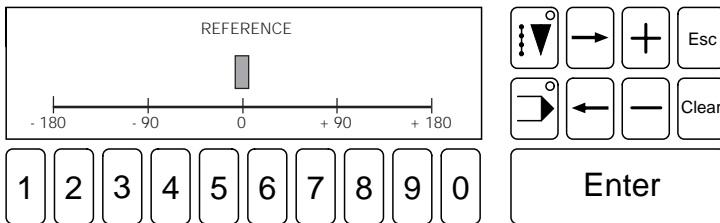


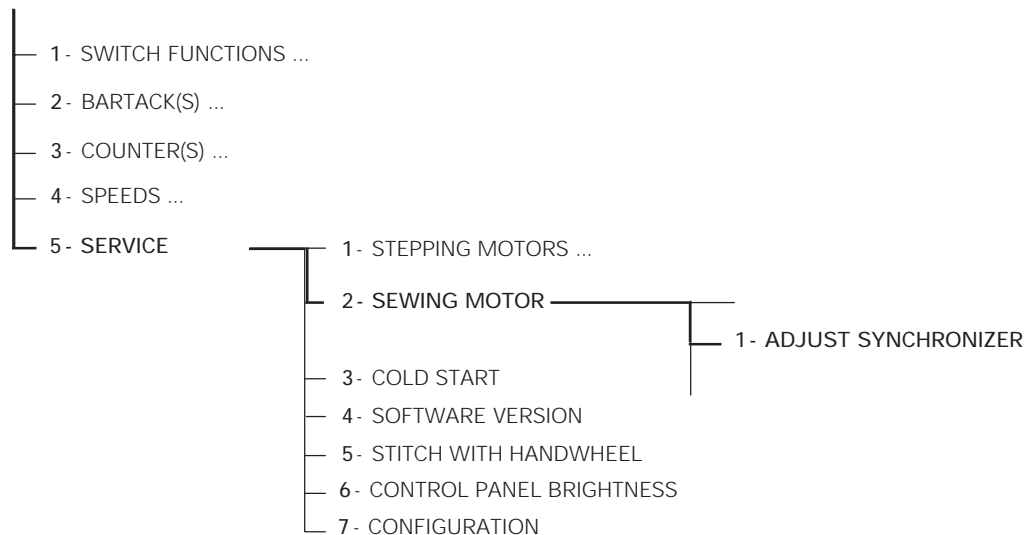
Fig. 11 - 08



INPUT mode



Function input menu



## 11.11 Creating seam programs

### 11.11.01 Altering fixed programs



- Select INPUT mode. The initial INPUT display appears:

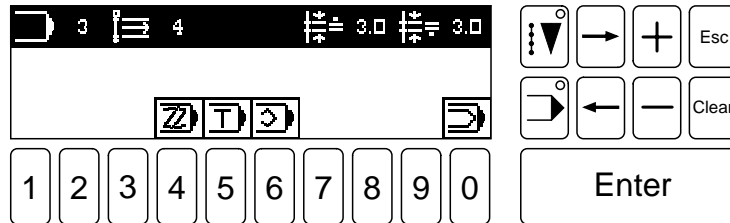


Fig. 11 - 09



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

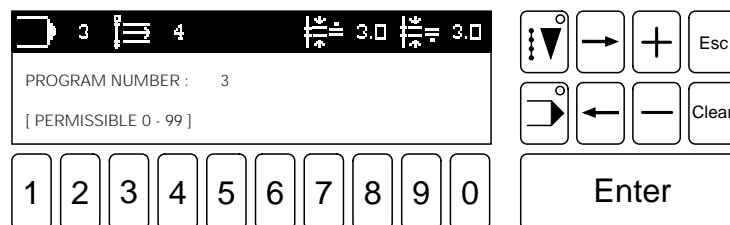
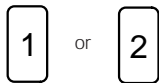


Fig. 11 - 10



- Enter program number 1 or 2.



- Confirm the entry with the Enter key.

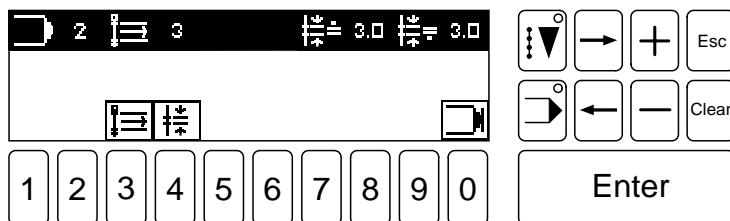


Fig. 11 - 11

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:

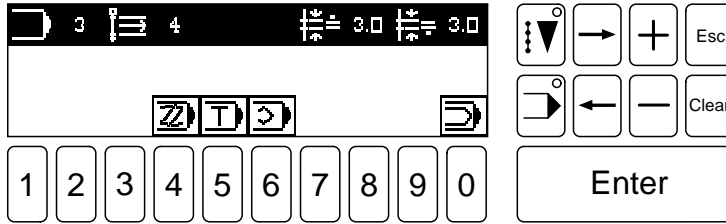


Fig. 11 - 12



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

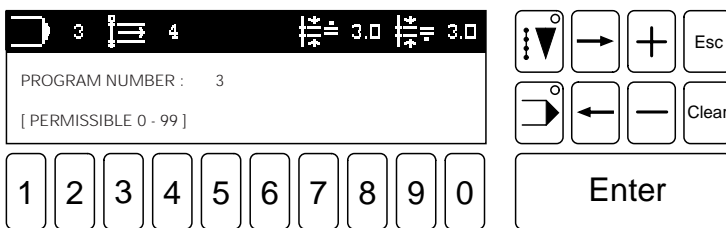


Fig. 11 - 13



- Enter a program number from 3 to 99.



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

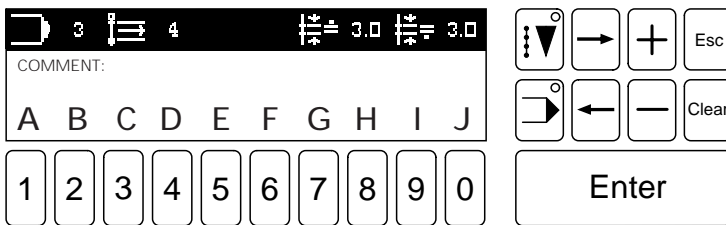
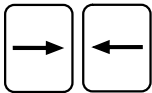


Fig. 11 - 14



- 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:

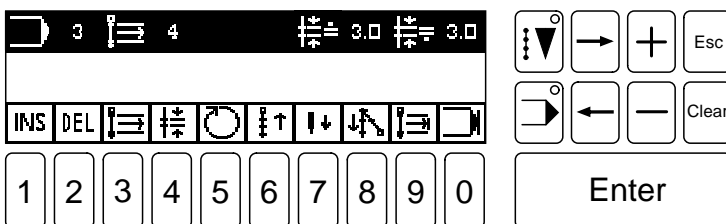


Fig. 11 - 15

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

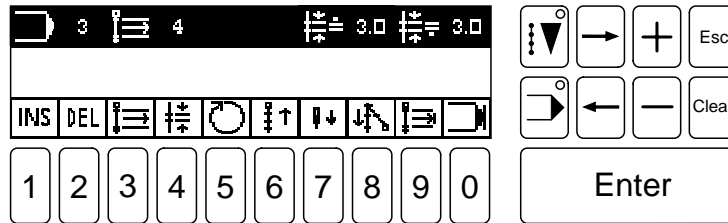












Fig. 11 - 15

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:

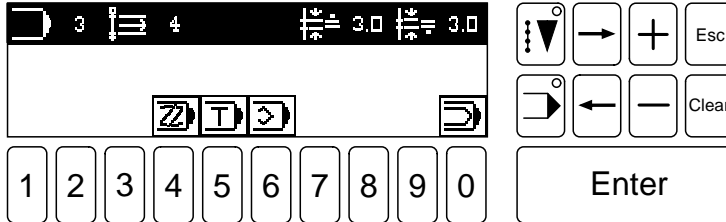


Fig. 11 - 16



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

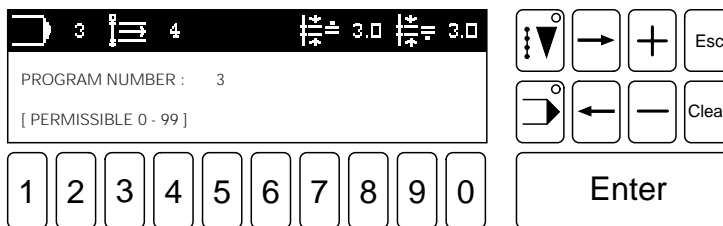


Fig. 11 - 17



- Enter a program number from 3-99.



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

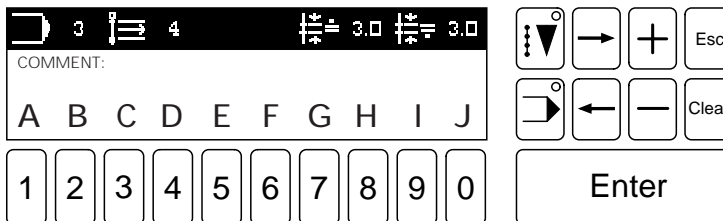
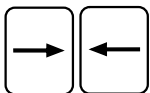


Fig. 11 - 18



- 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.

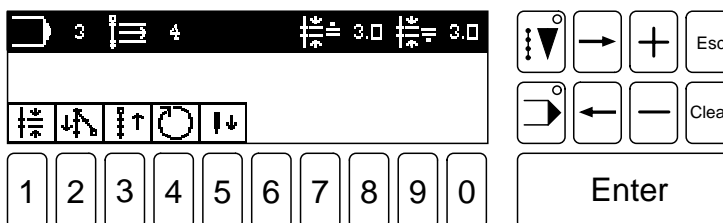


Fig. 11 - 19

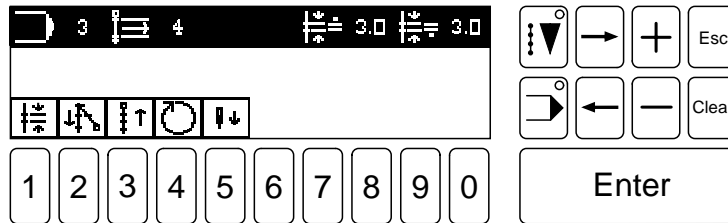







Fig. 11 - 19

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.

- 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.

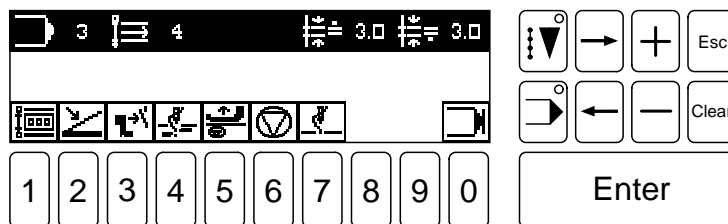


Fig. 11 - 20

- 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.

Enter

- 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.

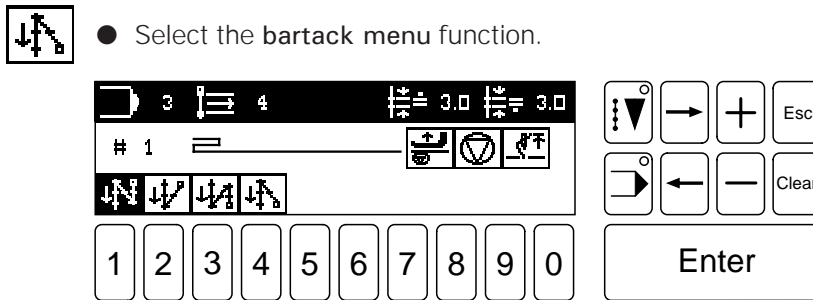


Fig. 11 - 21



### 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

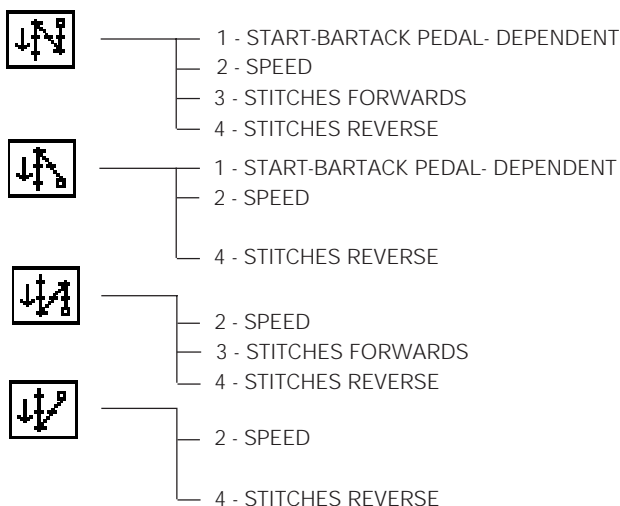
- Pressing this key once turns the function on or off.
- A double click of this key opens the menu for inputting the bartack parameters.



### 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.

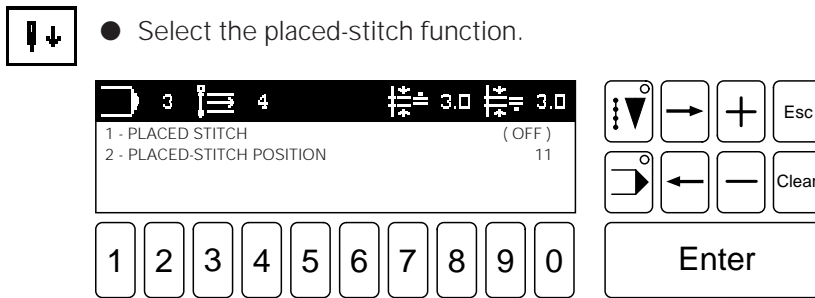


Fig. 11 - 22

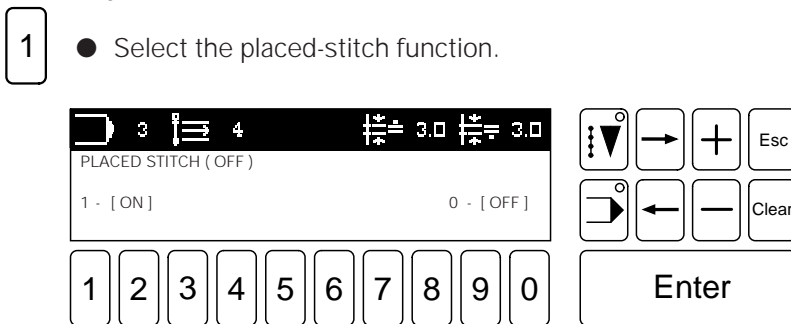


Fig. 11 - 23

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

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

**2** ● 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.

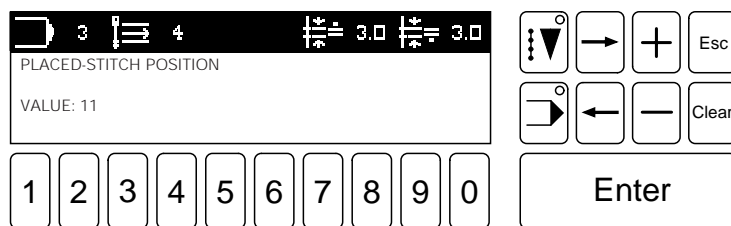


Fig. 11 - 24

**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.

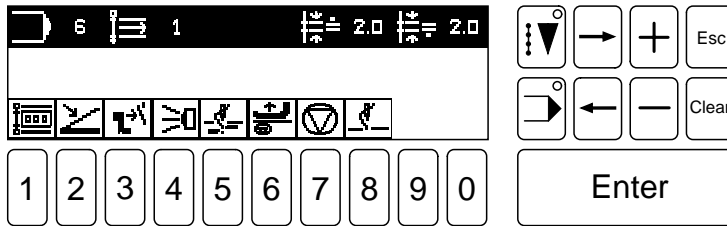


Fig. 11 - 25

- 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.

Enter

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.



## 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.

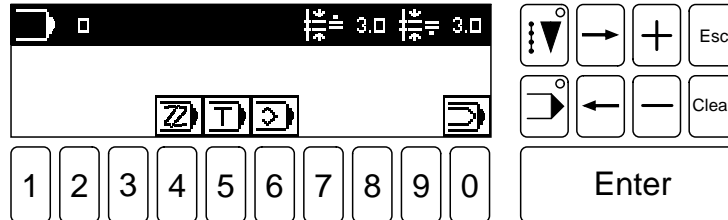


Fig. 11 - 26



- Select the programming function ( number key 4 ).

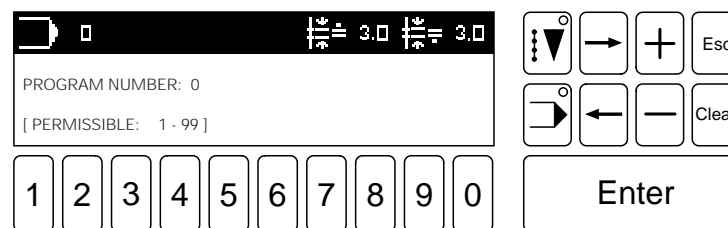
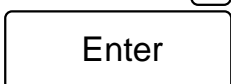


Fig. 11 - 27



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



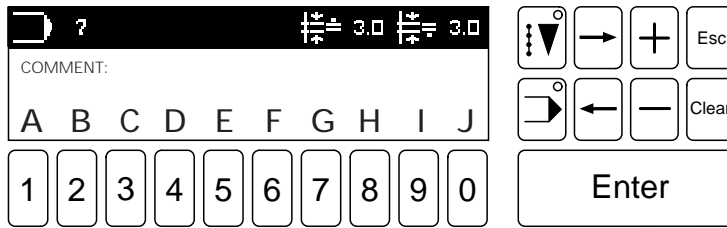


Fig. 11 - 28



- 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.

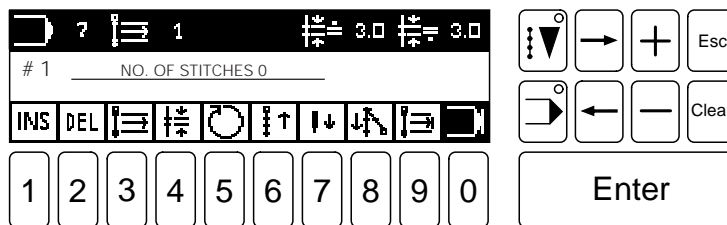


Fig. 11 - 30

- 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 3.5 mm.



- Open the bartack menu (number key 8).

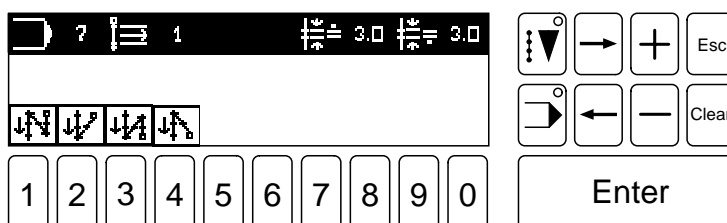


Fig. 11 - 31



- 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 ).

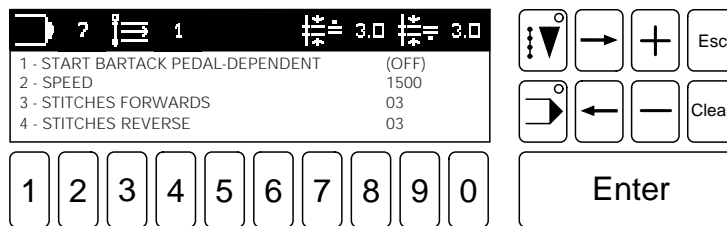


Fig. 11 - 32

3

- Select the function STITCHES FORWARDS.

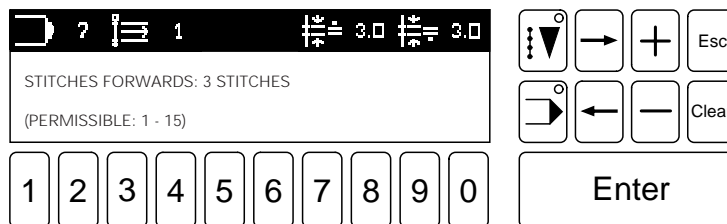


Fig. 11 - 33

2

- Enter the number of stitches.



Fig. 11 - 34

Enter

- Confirm this input with the Enter key.

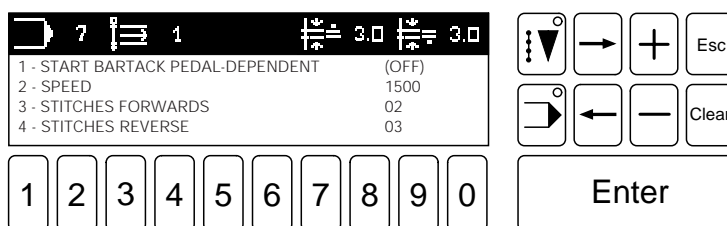


Fig. 11 - 32

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 ).

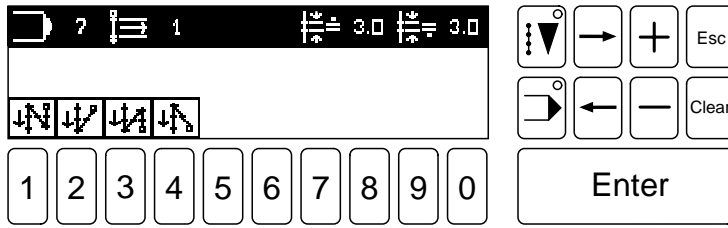


Fig. 11 - 31

- 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.

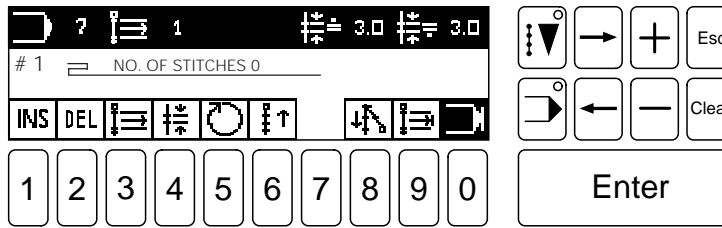
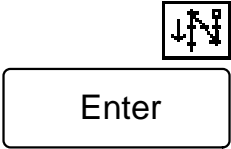


Fig. 11 - 30

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

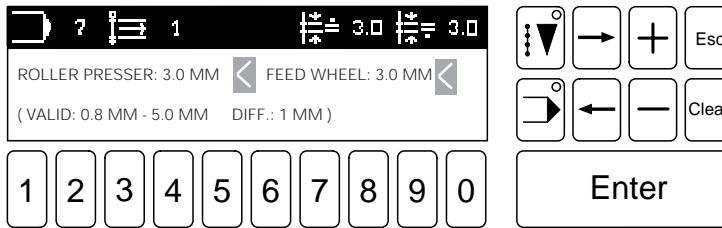


Fig. 11 - 35

- 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.

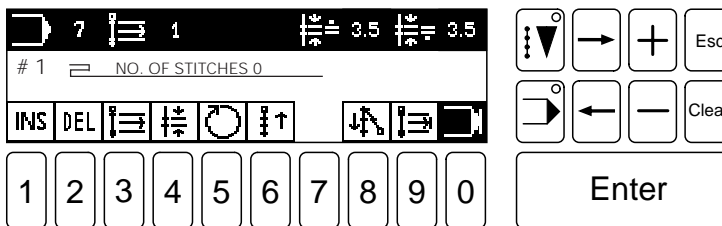


Fig. 11 - 37



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

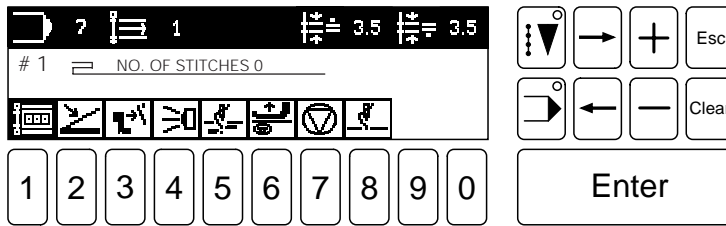


Fig. 11 - 38



- 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.

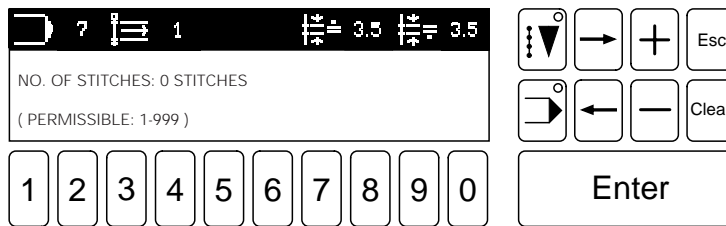


Fig. 11 - 39

5

- Enter the desired number of stitches.

Enter

- Confirm this entry with the Enter key.

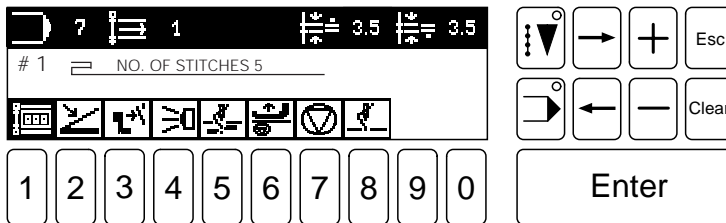


Fig. 11 - 40

Enter

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

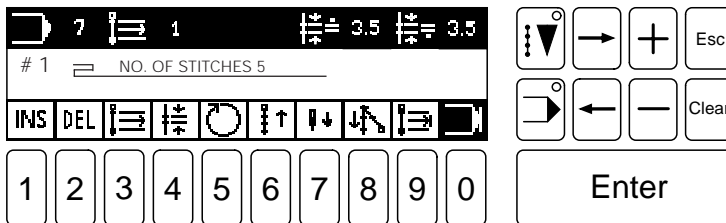


Fig. 11 - 37



- 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 ).

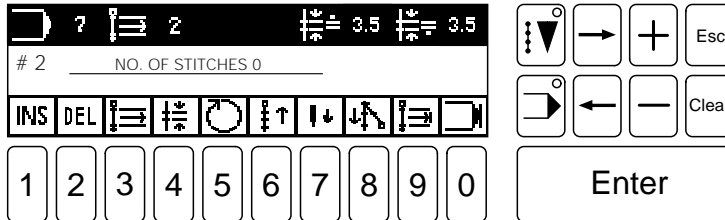


Fig. 11 - 41



- Select the stitch length function.

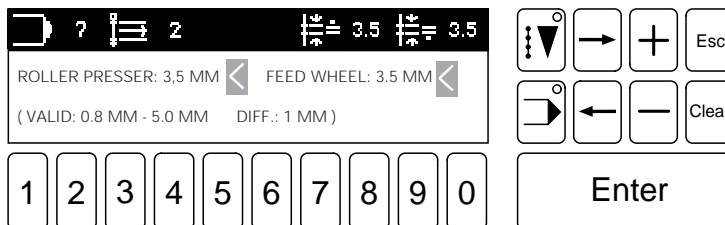


Fig. 11 - 42



- Input the value for the stitch lengths.



- Confirm the entry with the Enter key.

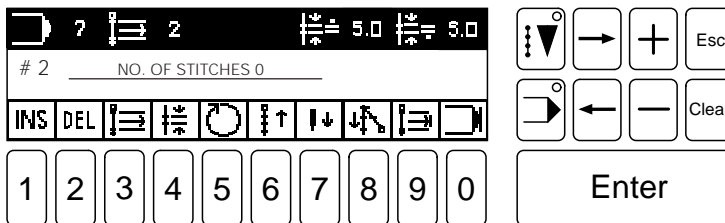


Fig. 11 - 43



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

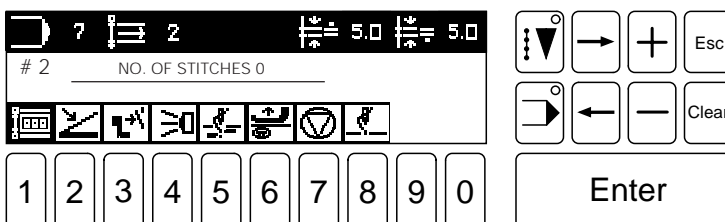


Fig. 11 - 44



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



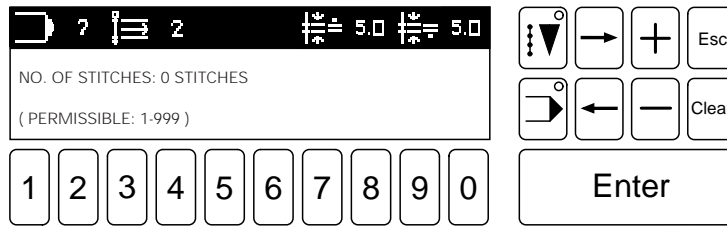


Fig. 11 - 45

1

- Enter the desired number of stitches.

Enter

- Confirm this number of stitches with the Enter key.

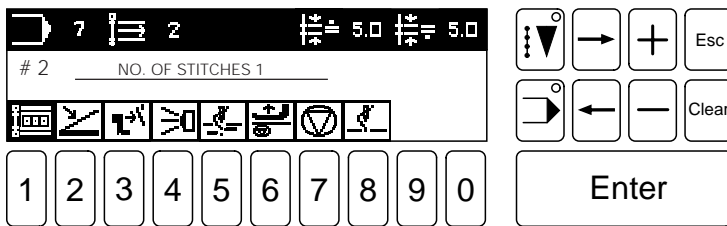


Fig. 11 - 46

Enter

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

Enter

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

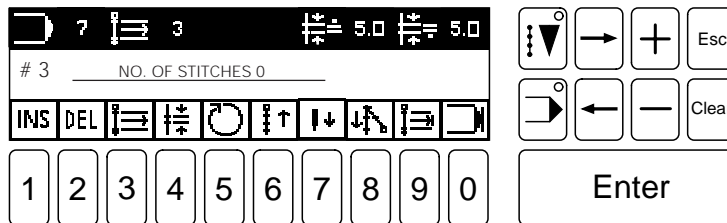


Fig. 11 - 47

- 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.

Enter

- Confirm the number of stitches with the Enter key.

Enter

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

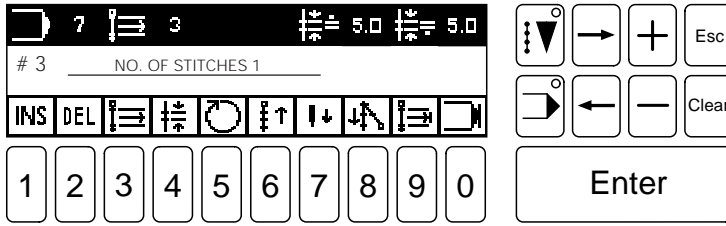


Fig. 11 - 48



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

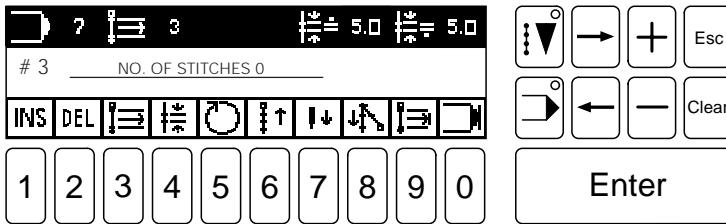


Fig. 11 - 49



- 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.

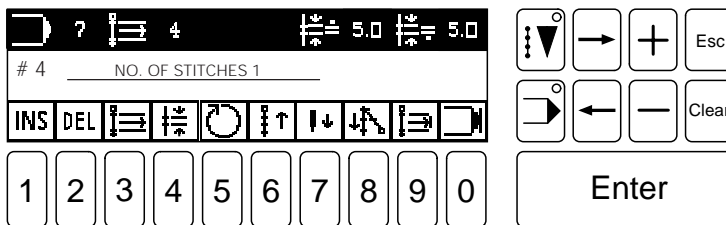
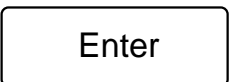


Fig. 11 - 50



- 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.

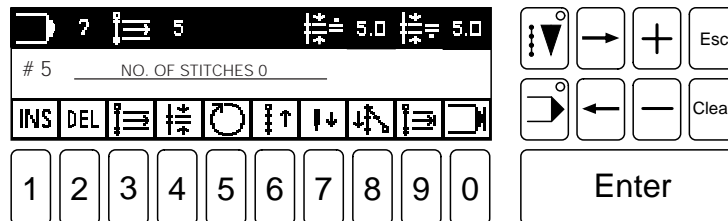


Fig. 11 - 51



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



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

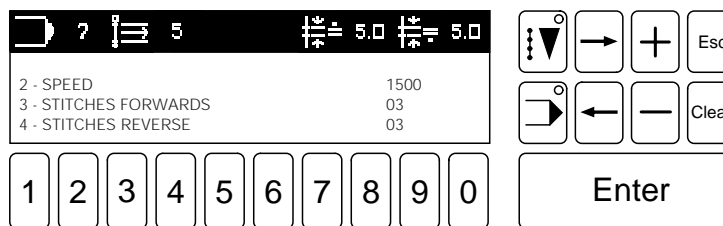


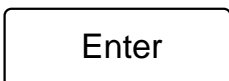
Fig. 11 - 52



- Select the **STITCHES FORWARDS** function.



- Enter the number of stitches.



- Confirm the input by pressing the **Enter** key.



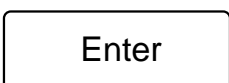
- Select the **STITCHES REVERSE** function.



- Enter the number of stitches.



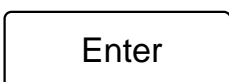
- Confirm this number by pressing the **Enter** key.



- 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.

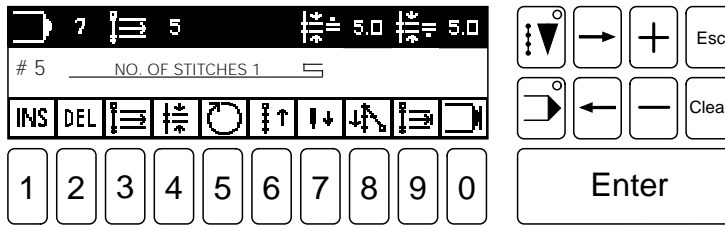
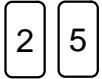


Fig. 11 - 53



- 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 ).

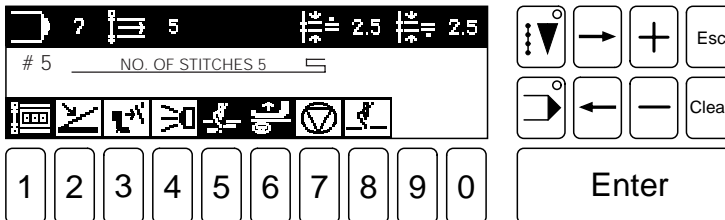


Fig. 11 - 54



- Confirm the seam section by pressing the Enter key.



- Select the program end function.

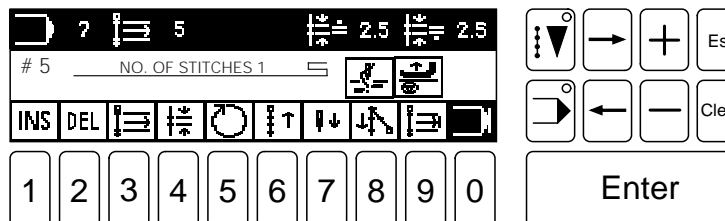


Fig. 11 - 55








- 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.
- 
  - Confirm this entry with the Enter key.
- Enter comment ( see chapter 11.15.01 Example for programming a seam ).
- 
  - Confirm with the Enter key.

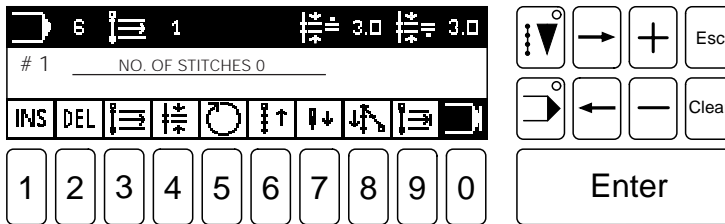





Fig. 11 - 56

- 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 ).
- 
  - Confirm with the Enter key.

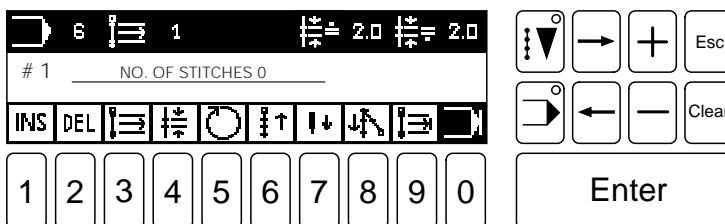



Fig. 11 - 57

- 
  - Select the seam section end function.

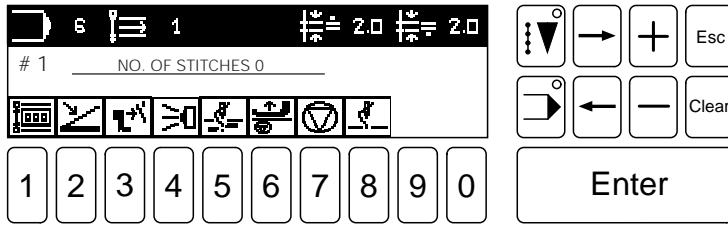


Fig. 11 - 58



- 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.



- Enter the number of stitches.



- Confirm the entry with the Enter key.



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

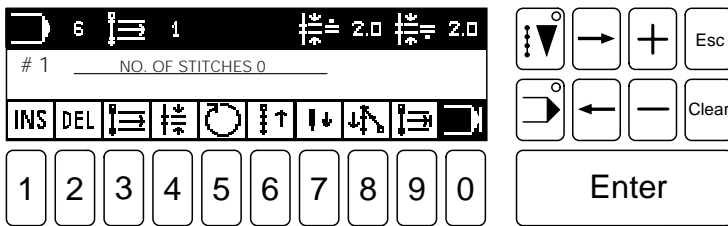
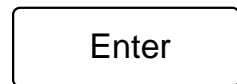


Fig. 11 - 59



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



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

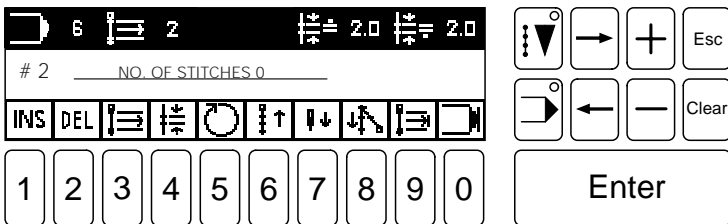


Fig. 11 - 60

- 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 ).



- 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.

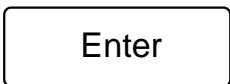


- Select the **seam section end** function ( **number key 9** ).

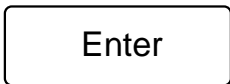


- Select the **stitch counter** function to open the input menu.

- Enter the number of stitches.



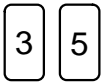
- Confirm the entry with the **Enter** key.



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



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



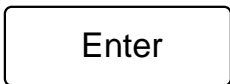
- Enter the stitch length.



- Confirm with the **Enter** key.



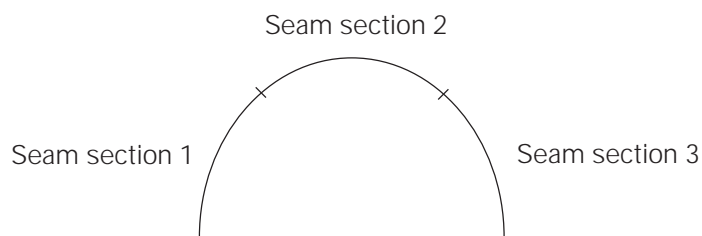
- Select the **program end** function ( **number key 0** ).



- 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 the program number 8.





- Select INPUT mode.



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

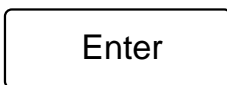


- Enter the program number.



- Confirm with the Enter key.

- Enter comment.



- Confirm with the Enter key.

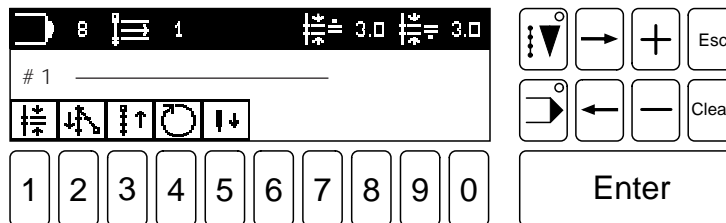


Fig. 11 - 61

- Input the first seam section:

This seam section should have

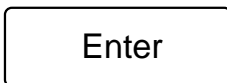
- the knee switch function (seam section end)
- and a stitch length of 2.8 mm.



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



- Enter the stitch length.



- Confirm with the Enter key.

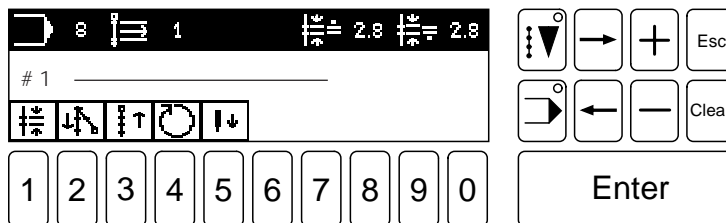


Fig. 11 - 62

- 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 ).

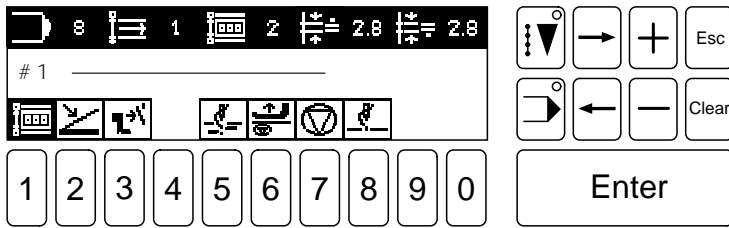


Fig. 11 - 63



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

or:

- Activate the knee switch.
- Confirm the seam section end by pressing the Enter key.

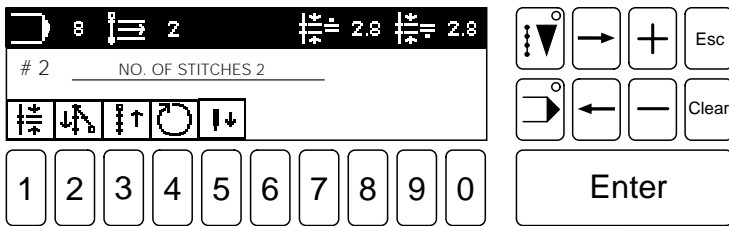


Fig. 11 - 64

- Input the second seam section:

This seam section should have

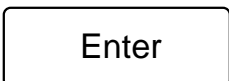
- the knee switch function ( seam section end )
- and a stitch length of 2.4 mm.



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



- Enter the stitch length.



- Confirm with the Enter key.

- Sew the second seam section manually.

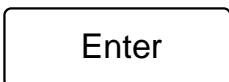
The number of stitches is counted and displayed in the status line. After stopping, the machine skips automatically to inputting the seam section end.



- 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** ).



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 (lubricating the front parts) .....	daily before use
Oil level (thread lubrication) .....	daily before use
Lubricate the hook .....	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.

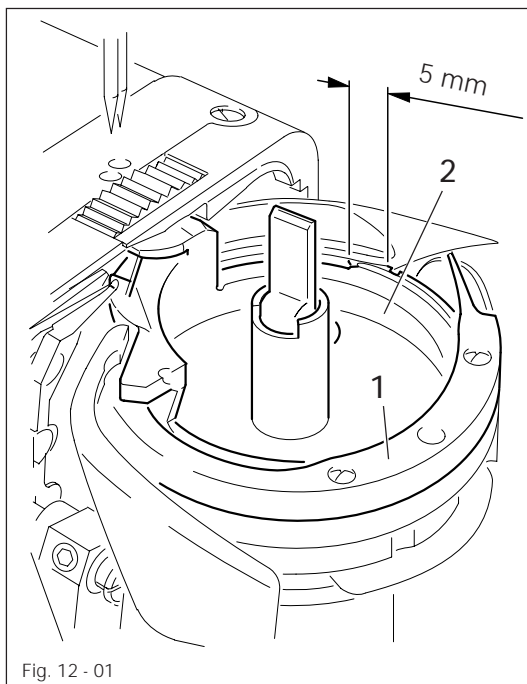


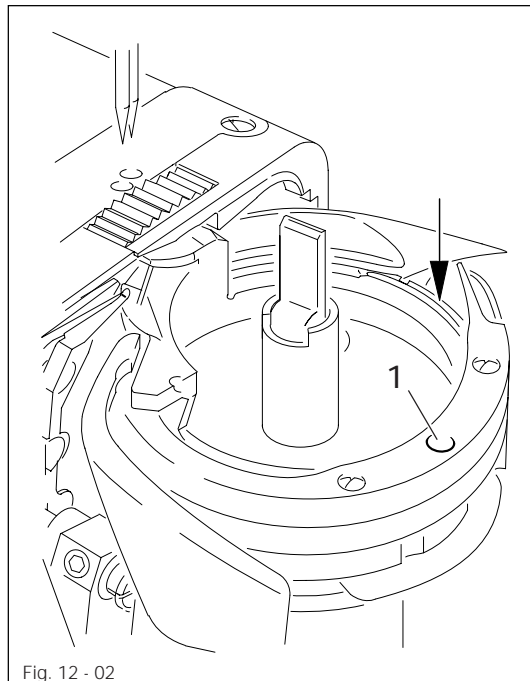
Fig. 12 - 01



Turn the machine off!

- Bring the needle bar to its highest position.
- Open the post cap 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 of the bobbin case 2 engages in the groove of the needle plate.
- Screw hook gib 1 back on and close the post cap.

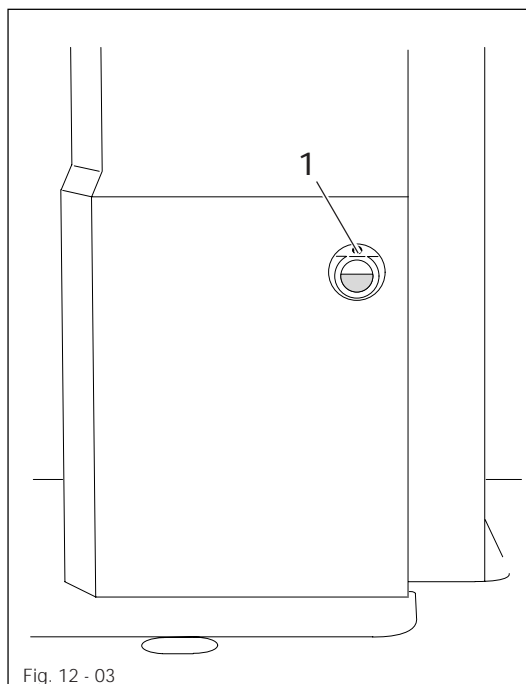
12.02 Lubricating the hook



Turn the machine off!

- Apply 1-2 drops of oil into hole 1 of the hook gib every day.
- Before commissioning and after longer standstill periods, also apply a few drops of oil into the hook race (see arrow).

12.03 Filling the oil reservoir



Check the oil level before every use.

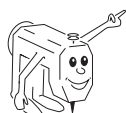
- Fill oil through hole 1 into the reservoir as required.



There must always be oil in the oil reservoir.



Use only oil with a mean viscosity of 22.0 mm<sup>2</sup>/s at 40°C and a density of 0.865 g/cm<sup>3</sup> at 15°C.



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

## 12.04 Lubricating the bevel gears

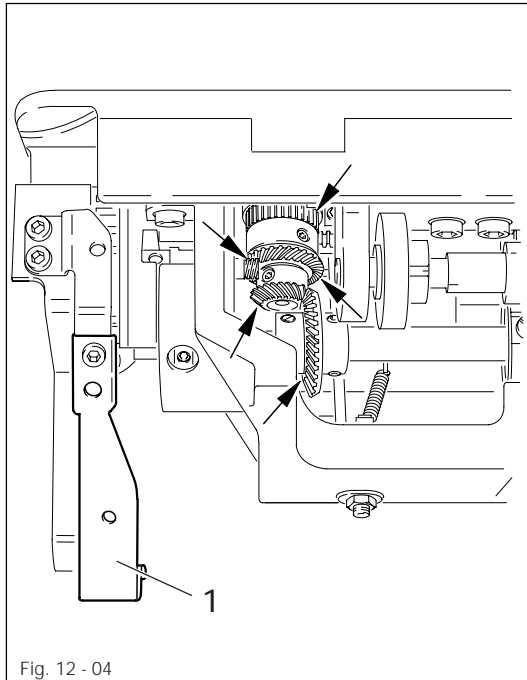


Fig. 12 - 04

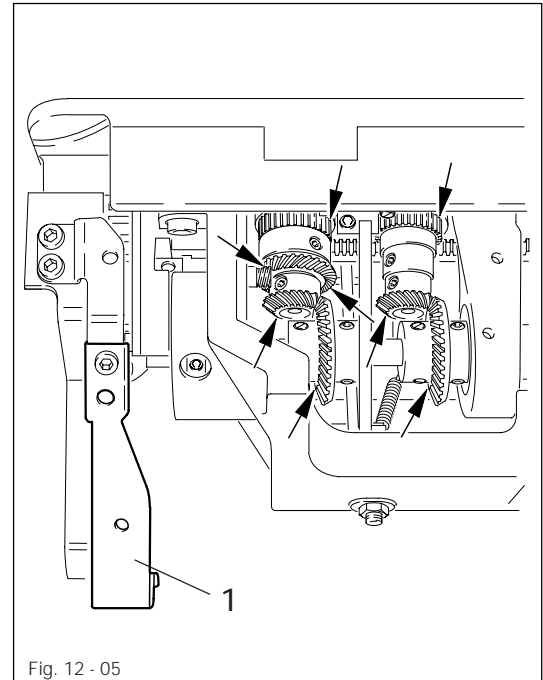


Fig. 12 - 05



Turn the machine off!

- The bevel gears for driving the hook and the rack are to be lubricated with fresh grease once a year.
- Move the machine head backwards and lay it on its support.

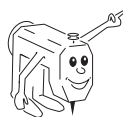


Fig. 12-04 shows the bevel gears of the 1471E1 model.  
Fig. 12-05 shows the bevel gears of the 1474E1 model.

- Brush a little grease onto all of the tooth flanks and the rack (see arrows).
- To bring the machine head back to its upright position, press safety plate 1 to the rear and pull 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 dripping point of approx. 150°C  
Part no. 280-1-120 243.

12.05 Filling the oil reservoir of the thread lubricator

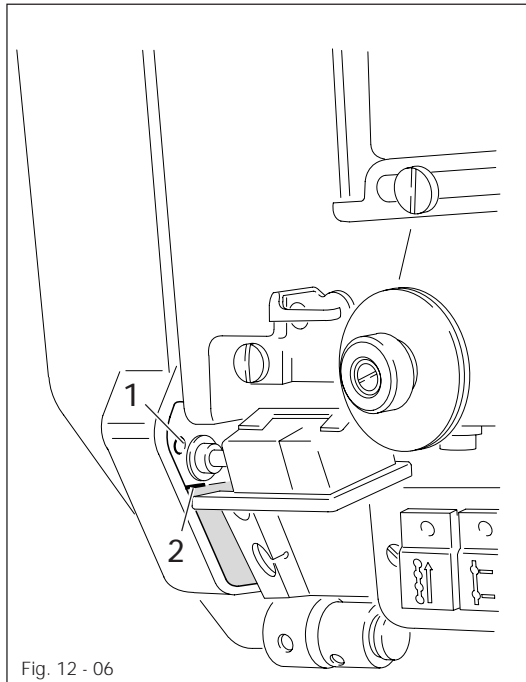


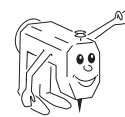
Fig. 12 - 06



Check the oil level before every use.

There must always be oil in the oil reservoir.

- Fill oil through hole 1 up to marking 2 as required.



We recommend PFAFF thread lubrication oil Part no. 280-1-120 217.

12.06 Cleaning the air filter on the control box

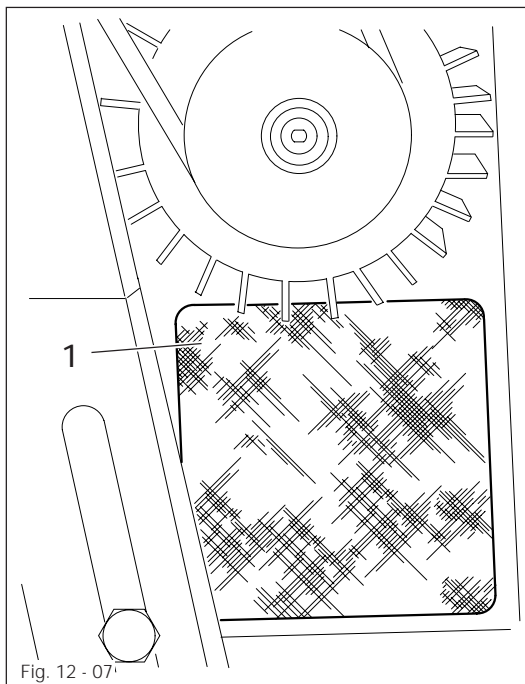


Fig. 12 - 07



Turn the machine off!

- The filter 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 into the machine housing!

## 13 Adjustment

### 13.01 Notes on adjusting

All adjustments in this manual refer to 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 adjustment aids

- 1 set of screwdrivers with blade widths from 2 to 10 mm
- 1 set of wrenches with jaw widths from 7 to 13 mm
- 1 set of Allan keys from 1.5 to 6 mm
- 1 adjustable clamp, ( Part No. 08-880 137-00 )
- 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 gauge, ( Part No. 08-880 136-01 )
- 1 adjustment gauge, ( Part No. 61-111 643-33 )
- 1 adjustment pin for needle bar rise, ( Part No. 61-111 641-39 )
- 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".

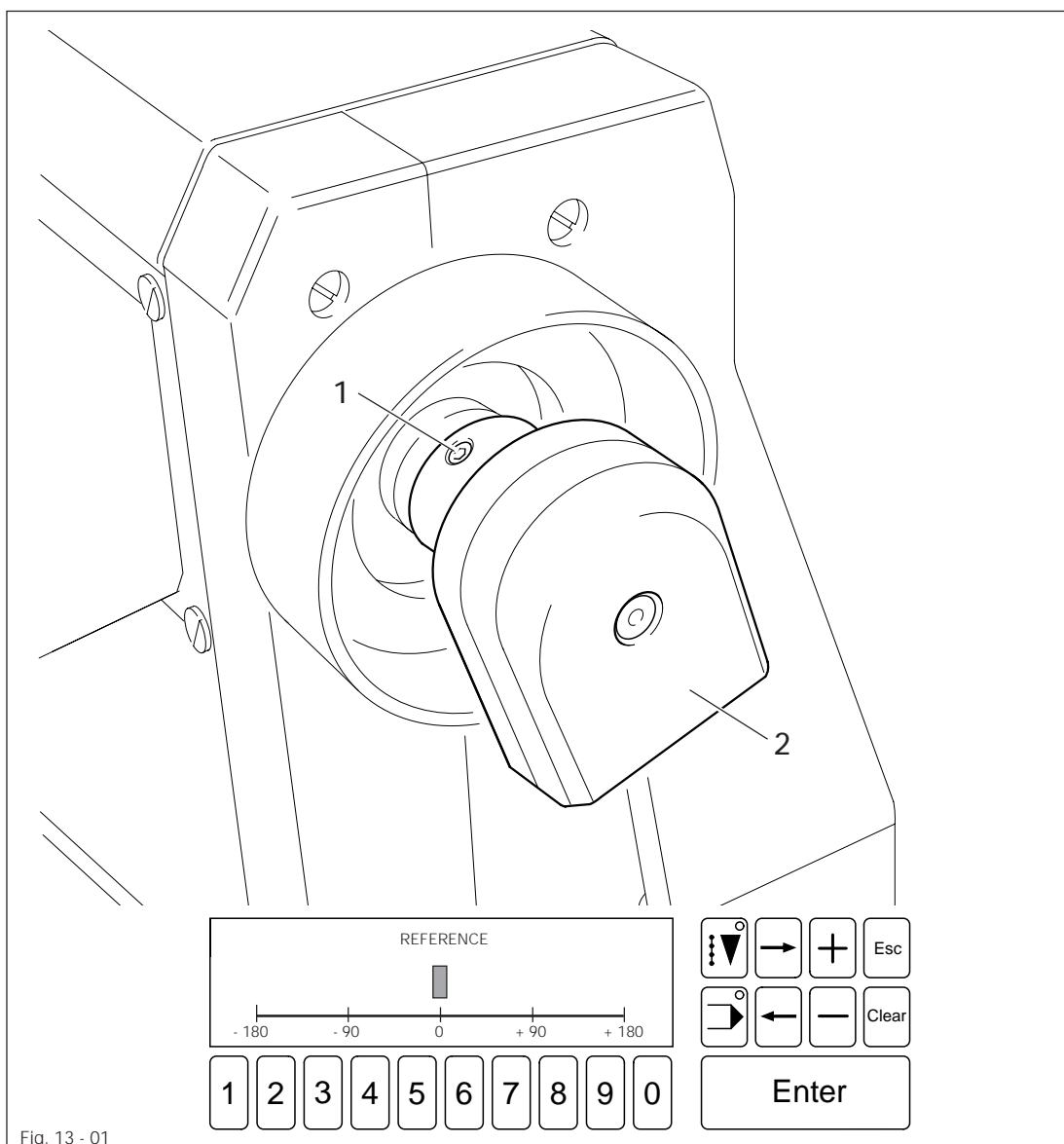
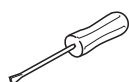


Fig. 13 - 01



- 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.

---

## Adjustment

---

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.

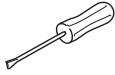


For other positioning options see the ADJUST POSITIONS function in **chapter 11.09 Summary of the service functions.**

## 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 ( 1471 E1 )

### Requirement

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

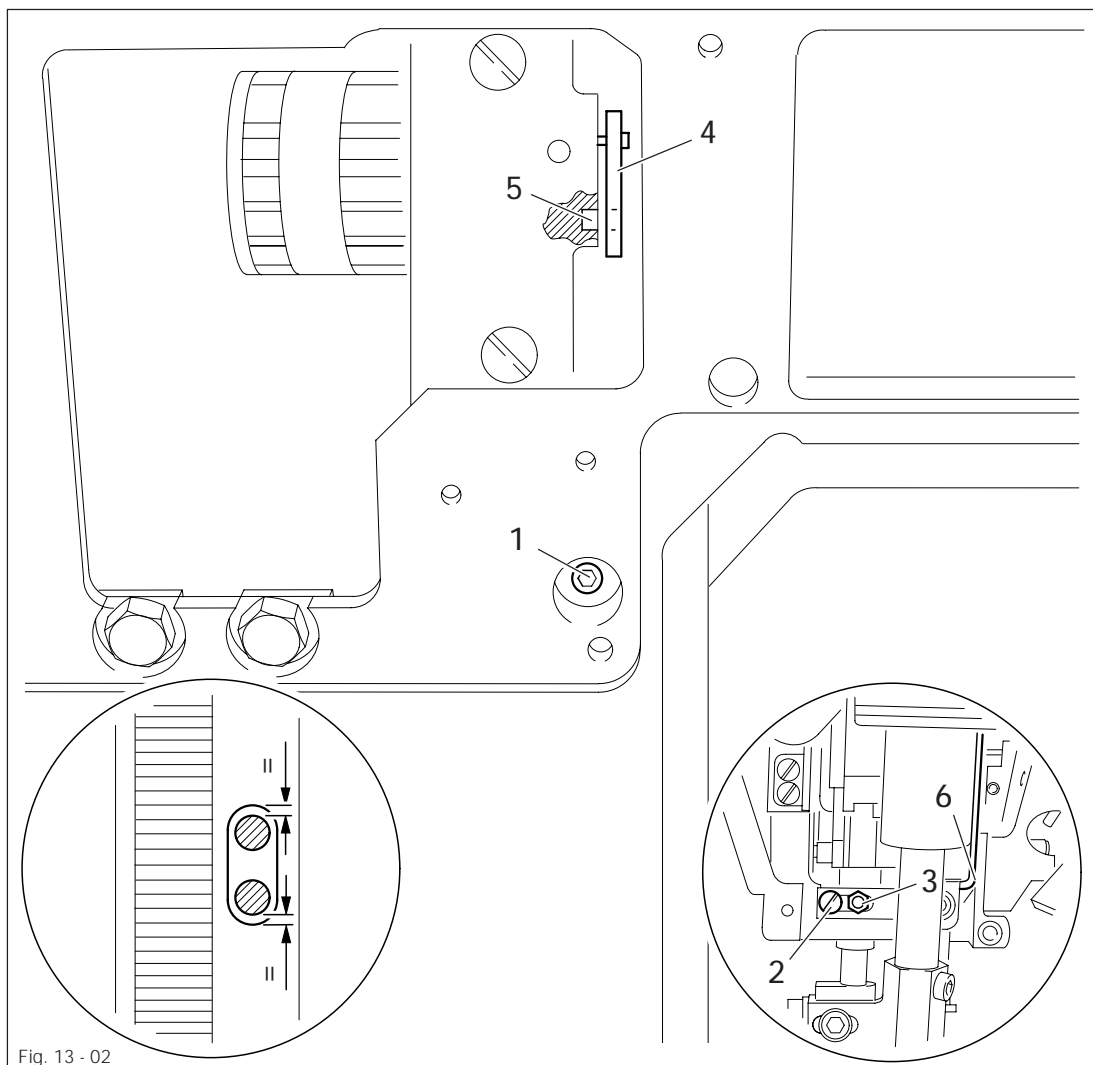
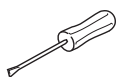


Fig. 13 - 02



- Turn the machine on and set the stitch length at „5“.
- Turn the machine off and then 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 then off again.
- Switch 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 bent part of the adjustment pin through the horizontal 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 so that the needle is at the same distance to the inner edges of the needle hole on both sides and tighten screw 1.



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

## 13.04.04 Needle bar frame limitation ( 1471E1 only )

**Requirement**

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

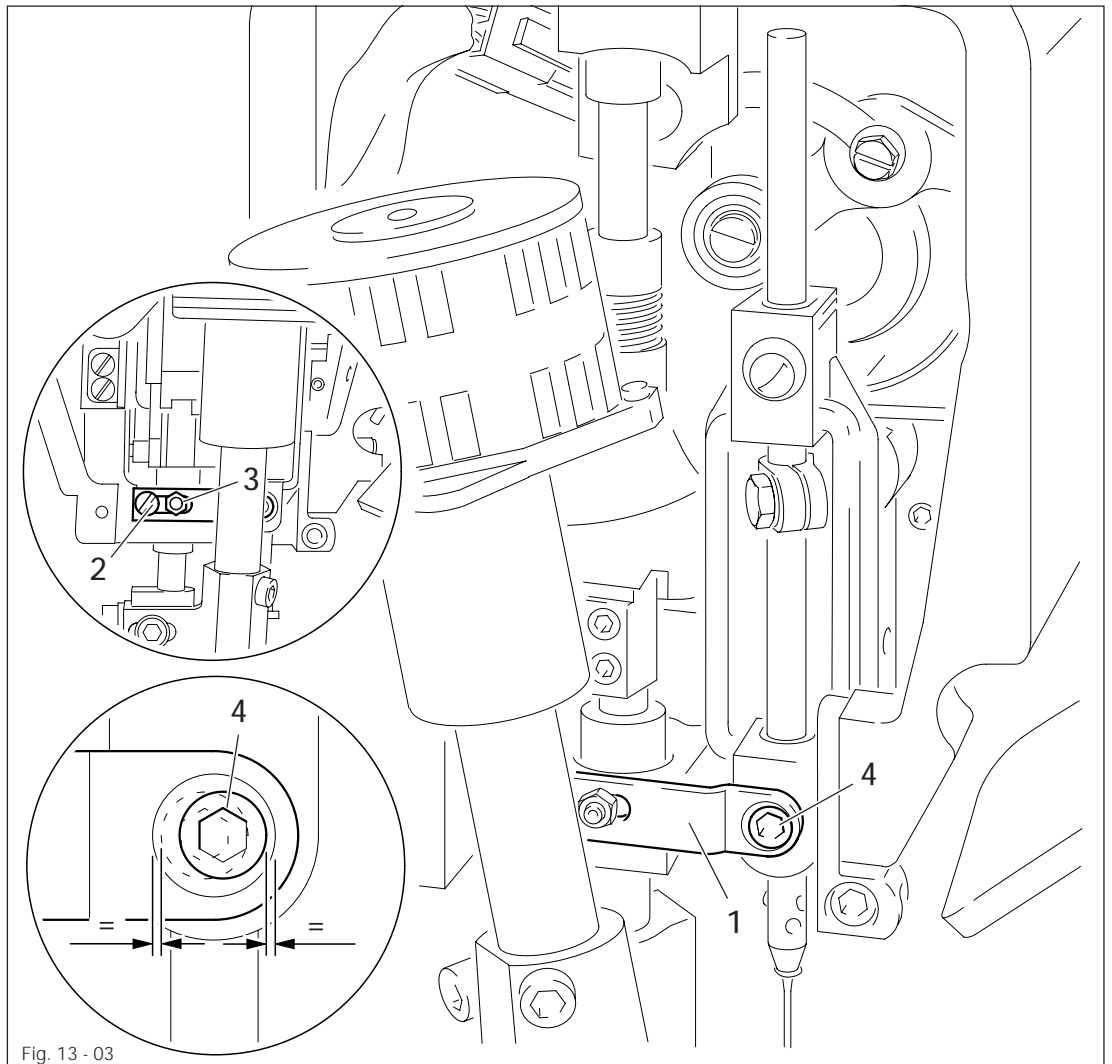
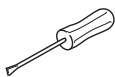


Fig. 13 - 03



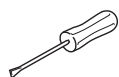
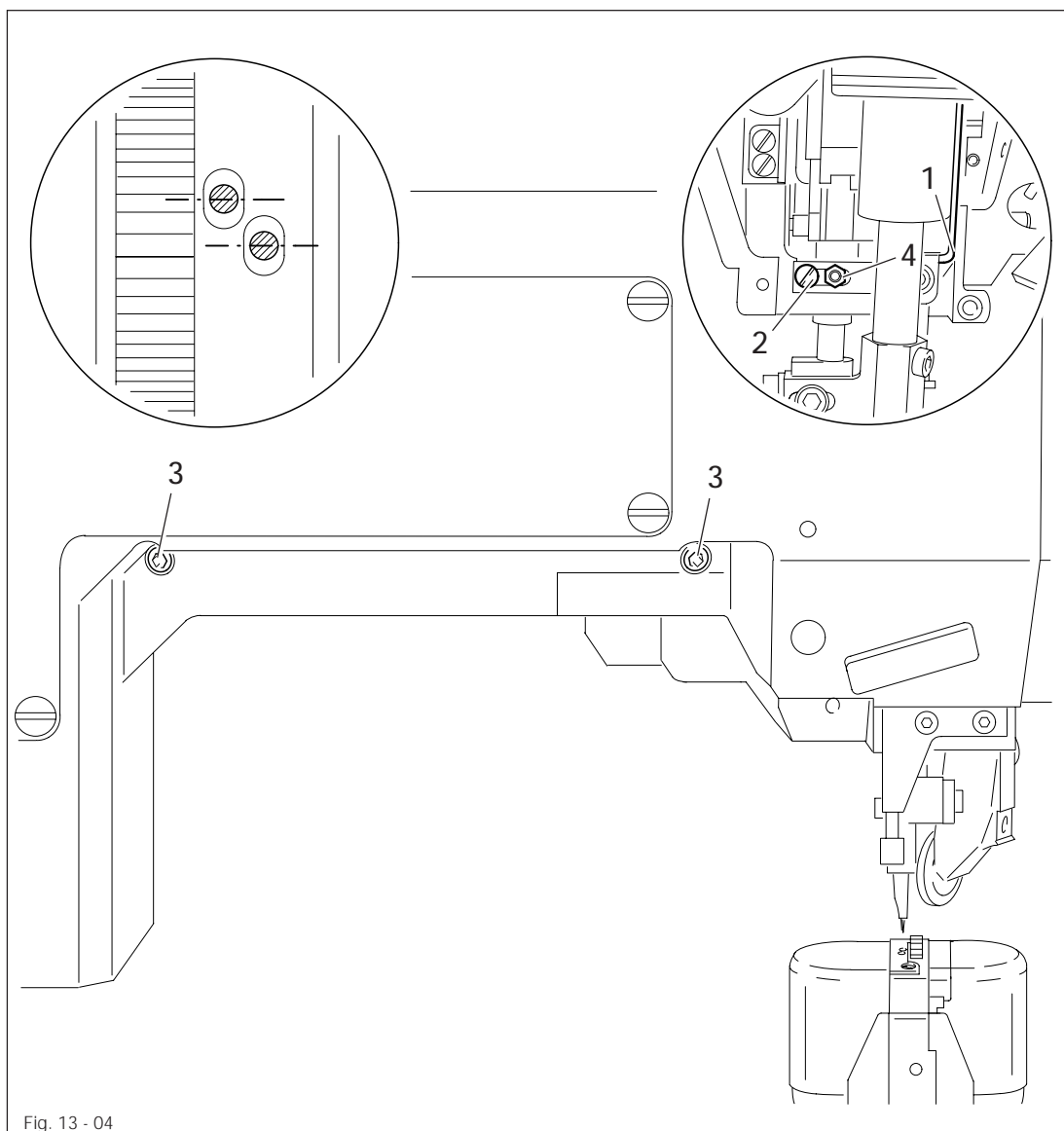
- Turn the machine on and set the stitch length at „5“.
- Check the **requirement** by turning the single start bartack on and then off again.
- For the adjustment, move latch 1 in accordance with the **requirement**.
- Tighten screw 2 and nut 3.

## Adjustment

### 13.04.05 Positioning the needle in the direction of sewing ( 1474E1 )

#### Requirement

The needles must penetrate the middle of the needle holes as viewed in the direction of sewing.



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

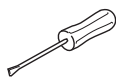
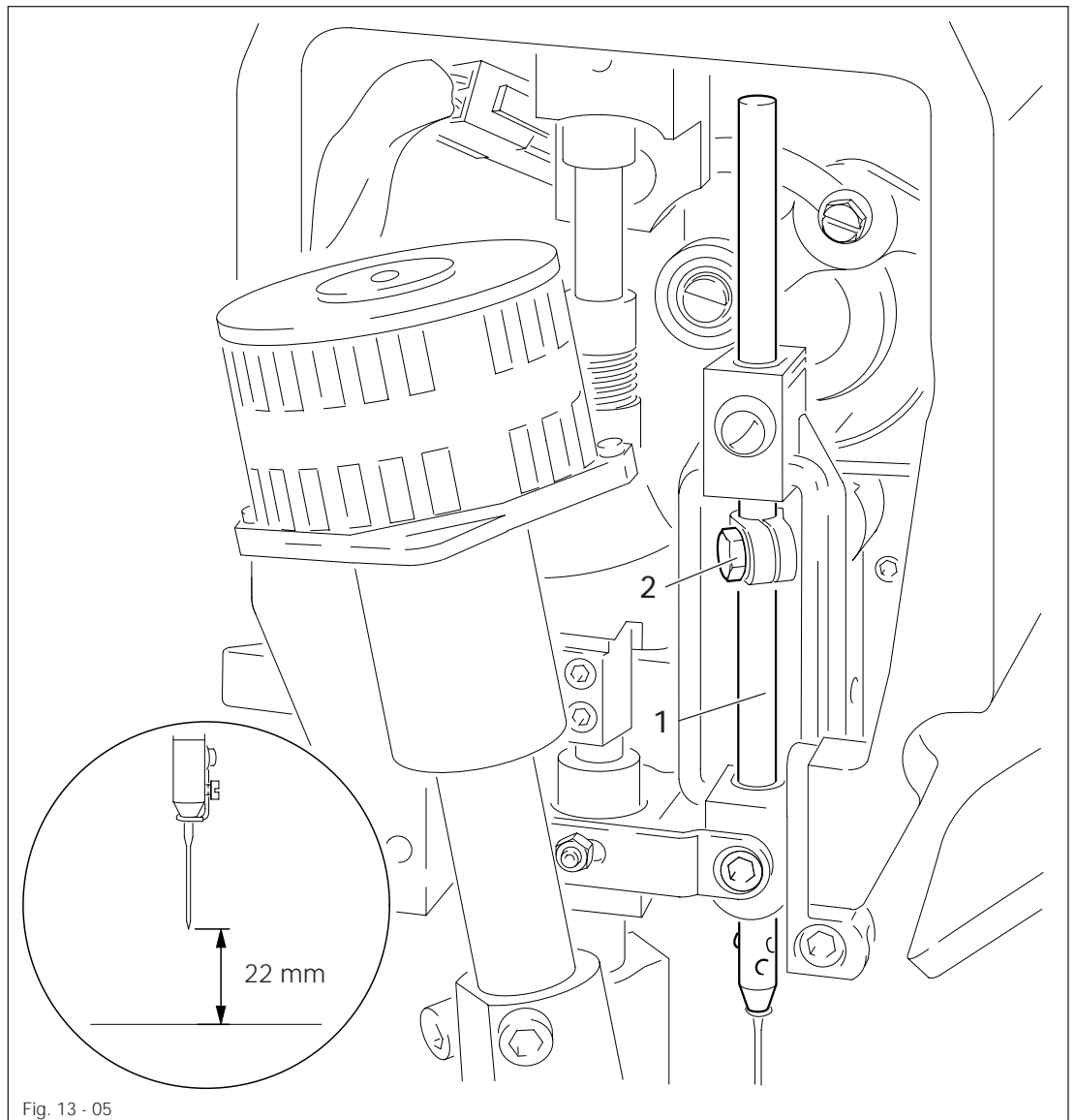


Screws 3 are accessible through the holes on the back of the housing.

## 13.04.06 Pre-adjusting the needle height

### Requirement

With the needle bar in its TDC, there should be a clearance of approx. 22 mm between the point of the needle and the needle plate.



- Move needle bar 1 ( screw 2 ) according to the requirement without twisting it.

## 13.04.07 Needle rise, hook-to-needle clearance, needle height and needle guard ( 1471E1 )

### Requirement

With the stitch set at „0.8“ and the needle bar positioned at 1.8 mm after the BDC, the following must apply:

1. The hook point must be pointing to the middle of the needle and be at a distance of 0.05 - 0.1 mm to the needle.
2. The top edge of the eye of the needle must be 0.8 - 1 mm below the hook point.
3. The needle guard 6 must lightly touch the needle.

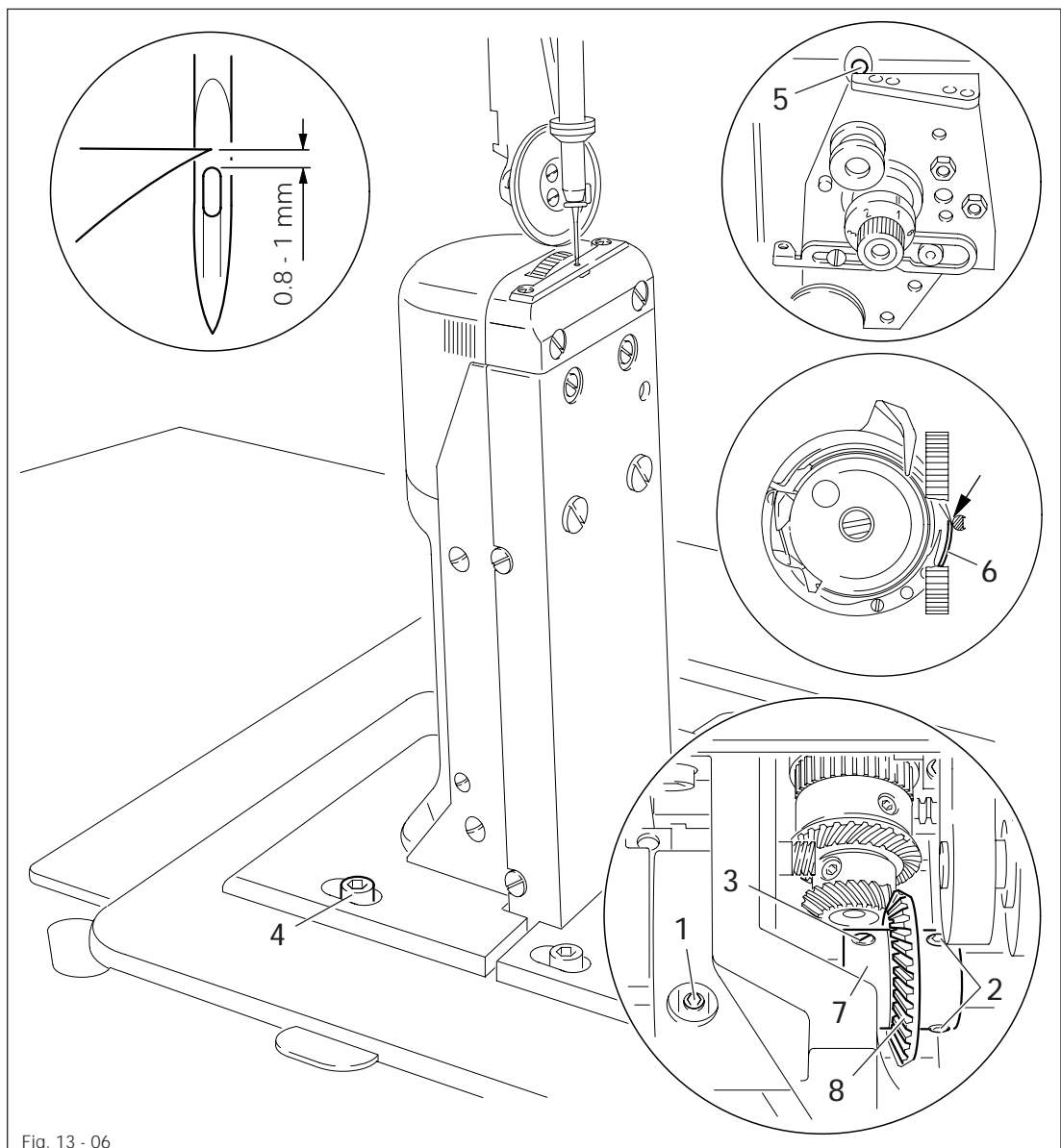
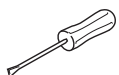


Fig. 13 - 06



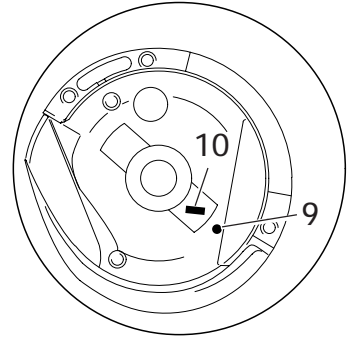
- Switch the machine on.
- Set the stitch length to „0.8“ and sew four or five stitches ( without trimming ).
- Switch the machine off.
- Loosen screws 1, 2, 3 and 4.
- Position needle bar 1.8 mm after its BDC.



- Insert the adjustment pin in hole 5 and apply pressure.
- Position the hook point at the middle of the needle, taking care to ensure that the needle does not shear off because of the needle guard 6.
- Adjust the needle height according to **requirement 2**.
- Move the hook post according to **requirement 1** and tighten screws 4.
- Remove the adjustment pin from the hole 5.
- Observing the play of the bevel pinion 8, tighten screws 2.
- Bring retaining collar 7 to rest on bevel pinion 8, and tighten screws 1 and 3.
- Position needle guard 6 according to **requirement 3**.



When changing the hook, ensure that markings 9 and 10 are both on the same side.



## 13.04.08 Needle rise, hook-to-needle clearance, needle height and needle guard (1474E1)

### Requirement

With the needle bar positioned at 1.8 mm after the BDC, the following must apply:

1. Both hooks must be pointing to the middle of the needle and be spaced at a distance of **0.05 - 0.1 mm** from needles.
2. The top edges of the eyes of the needles must be **0.8 - 1 mm** below the hook points.
3. The needle guards **10** must lightly touch the needles on the left and right hand side.

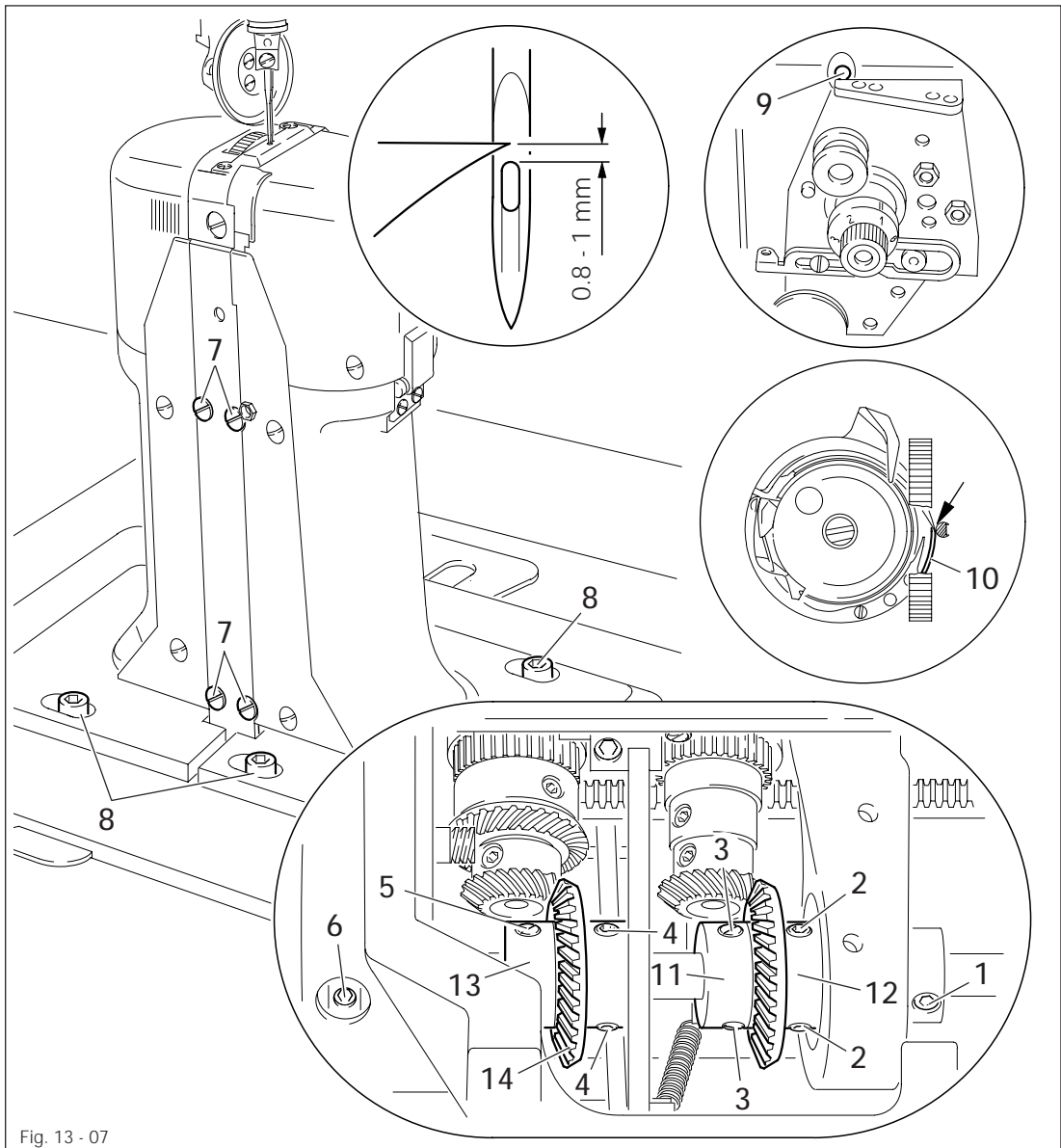
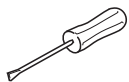


Fig. 13 - 07

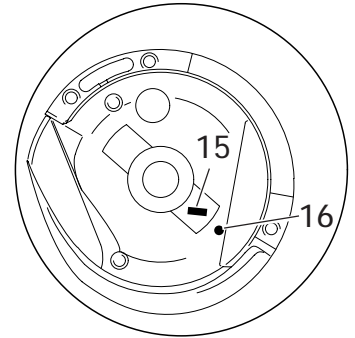


- Loosen screws 1, 2, 3, 4, 5, 6 and 7.
- Slightly loosen screws 8.
- Position the needle bar 1.8 after its BDC.
- Insert the adjustment pin in hole 9 and apply pressure.
- Position the hook points at the middle of the needles, taking care to ensure that the needles do not shear off because of the needle guards 10.

- Adjust the needle height according to **requirement 2**.
- Move both hook posts according to **requirement 1** and tighten screws 8.
- Remove the adjustment pin from the hole 9.
- Observing the play of the bevel pinion, tighten screws 2 and 4.
- Bring retaining collar 11 to rest on bevel pinion 12, and tighten screws 3.
- Bring retaining collar 13 to rest on bevel pinion 14, and tighten screws 5.
- Tighten screws 7 to both sides of the post.
- Position needle guards 10 according to **requirement 3**.



When changing the hook, ensure that markings 15 and 16 are both on the same side.



### 13.04.09 Needle setting in transverse direction to sewing ( 1471E1 )

#### Requirement

At maximum stitch length the needle must be positioned in the center of the needle hole when penetrating and retracting from the needle plate.

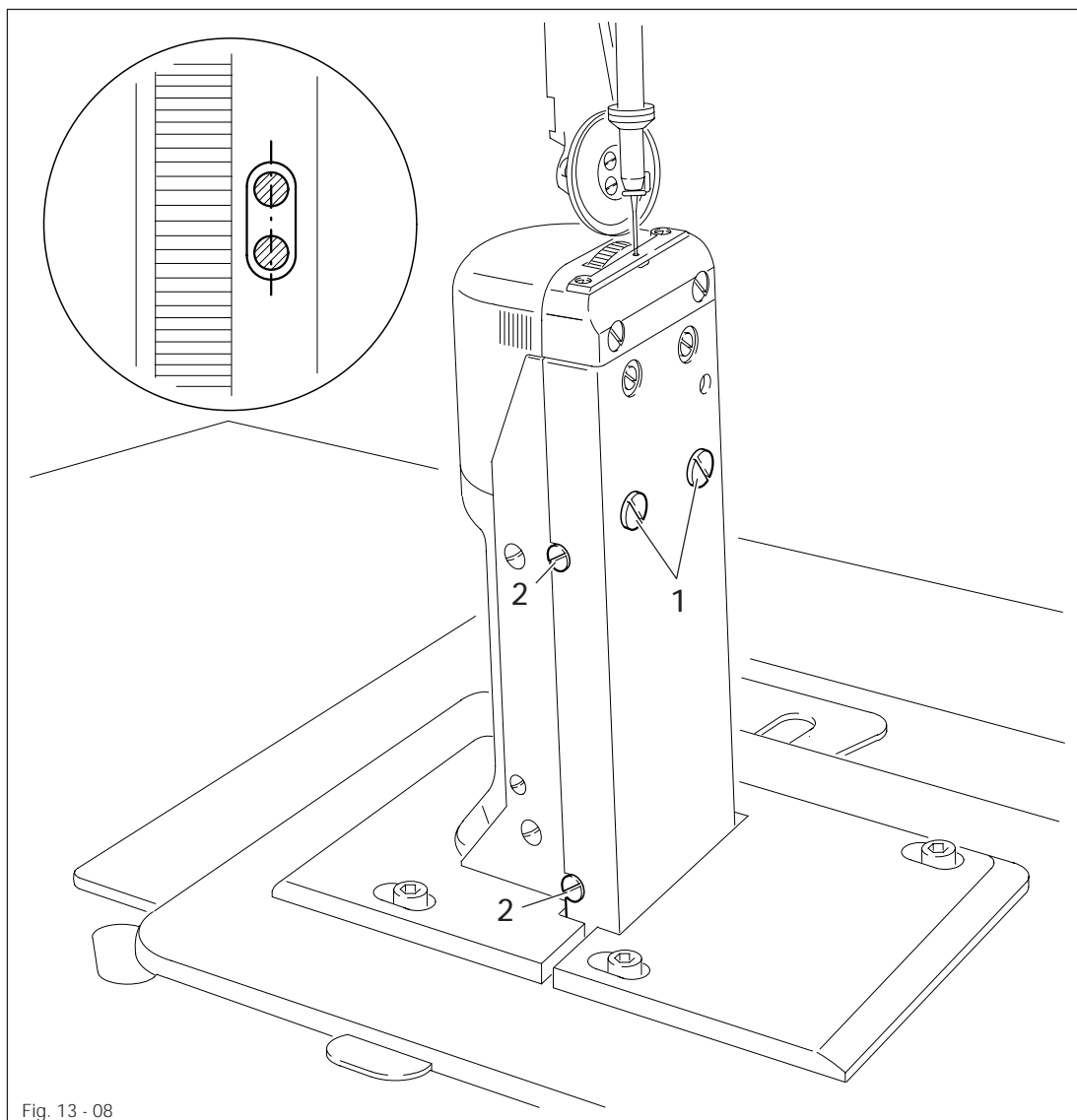
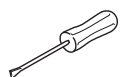


Fig. 13 - 08



- Turn the machine on.
- Set stitch at maximum length and sew four or five stitches ( without trimming ).
- Turn the machine off.
- Turn screws 1 ( screws 2 to both sides of the post ) according to the **requirement**.

## 13.04.10 Needle setting in transverse direction to sewing ( 1474E1 )

### Requirement

The needles must penetrate the center of their respective needle holes as viewed in transverse direction of sewing.

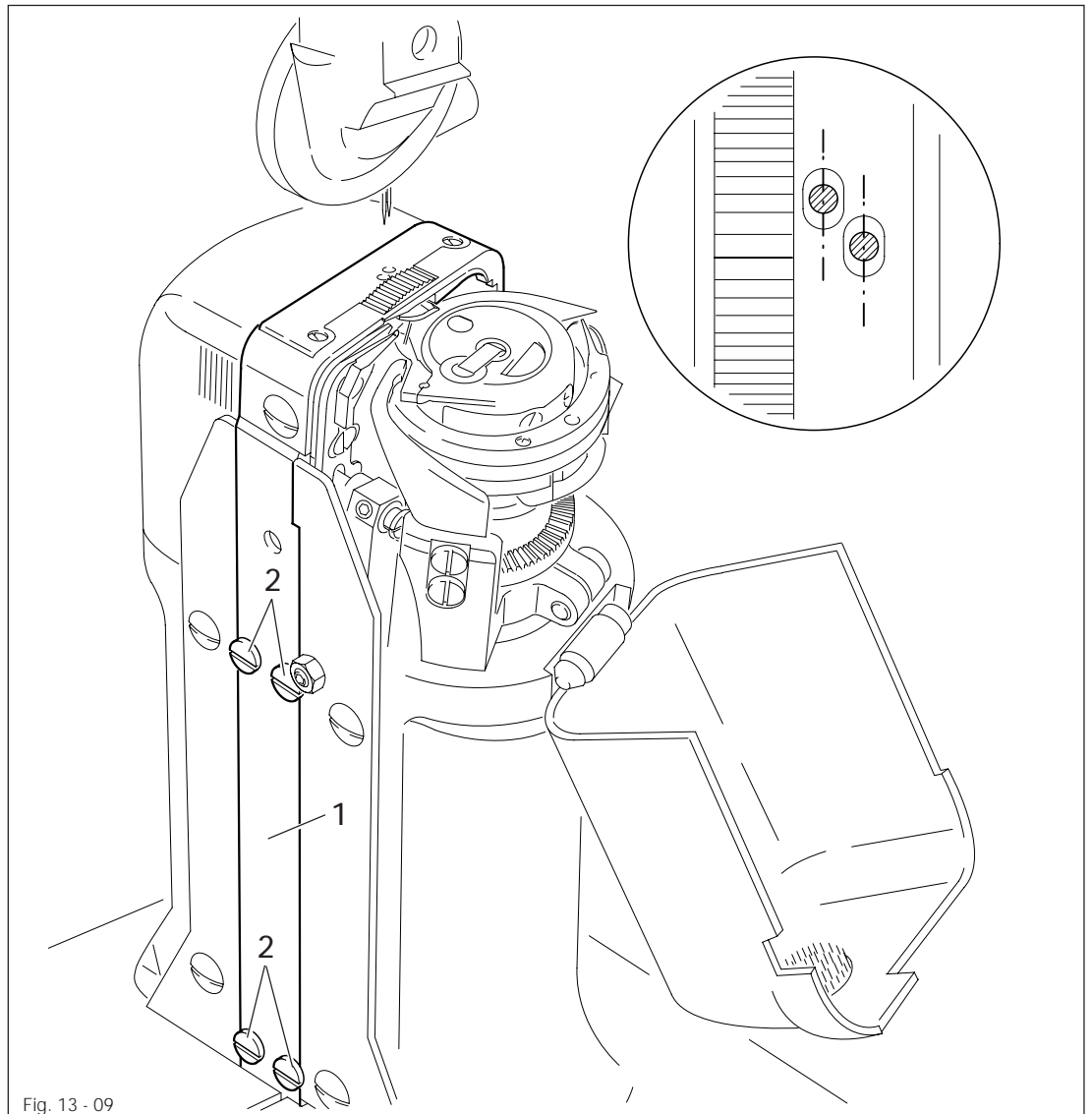


Fig. 13 - 09

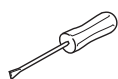
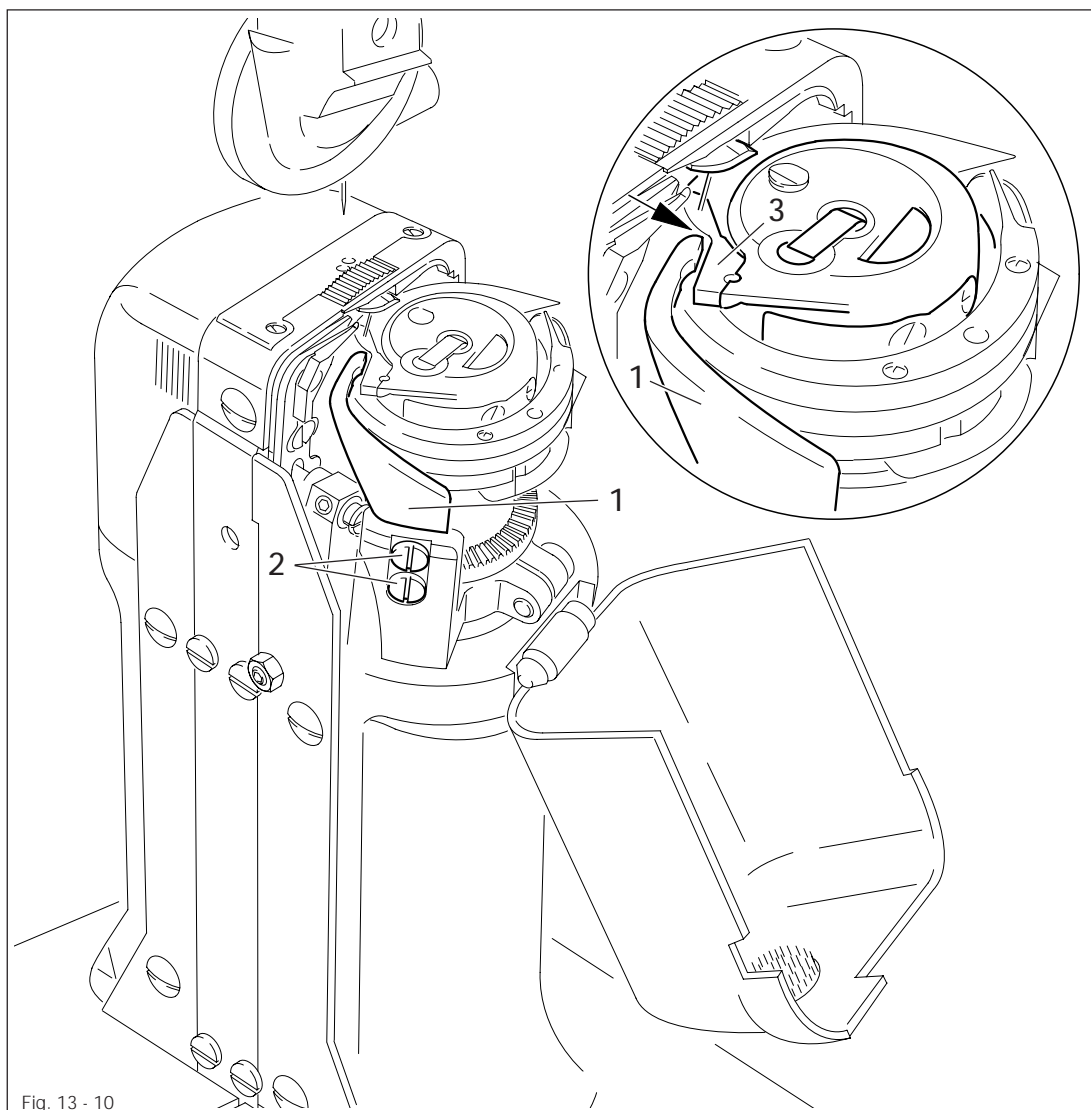
- Move feed wheel post 1 ( screws 2 to both sides of the post ) according to the requirement.

## Adjustment

### 13.04.11 Bobbin case opener height

#### Requirement

The top edges of the bobbin case opener 1 and the bobbin case base 3 must be at the same height.



- Move the bobbin case base 1 ( screws 2 ) in accordance with the **requirement**.

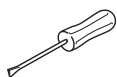
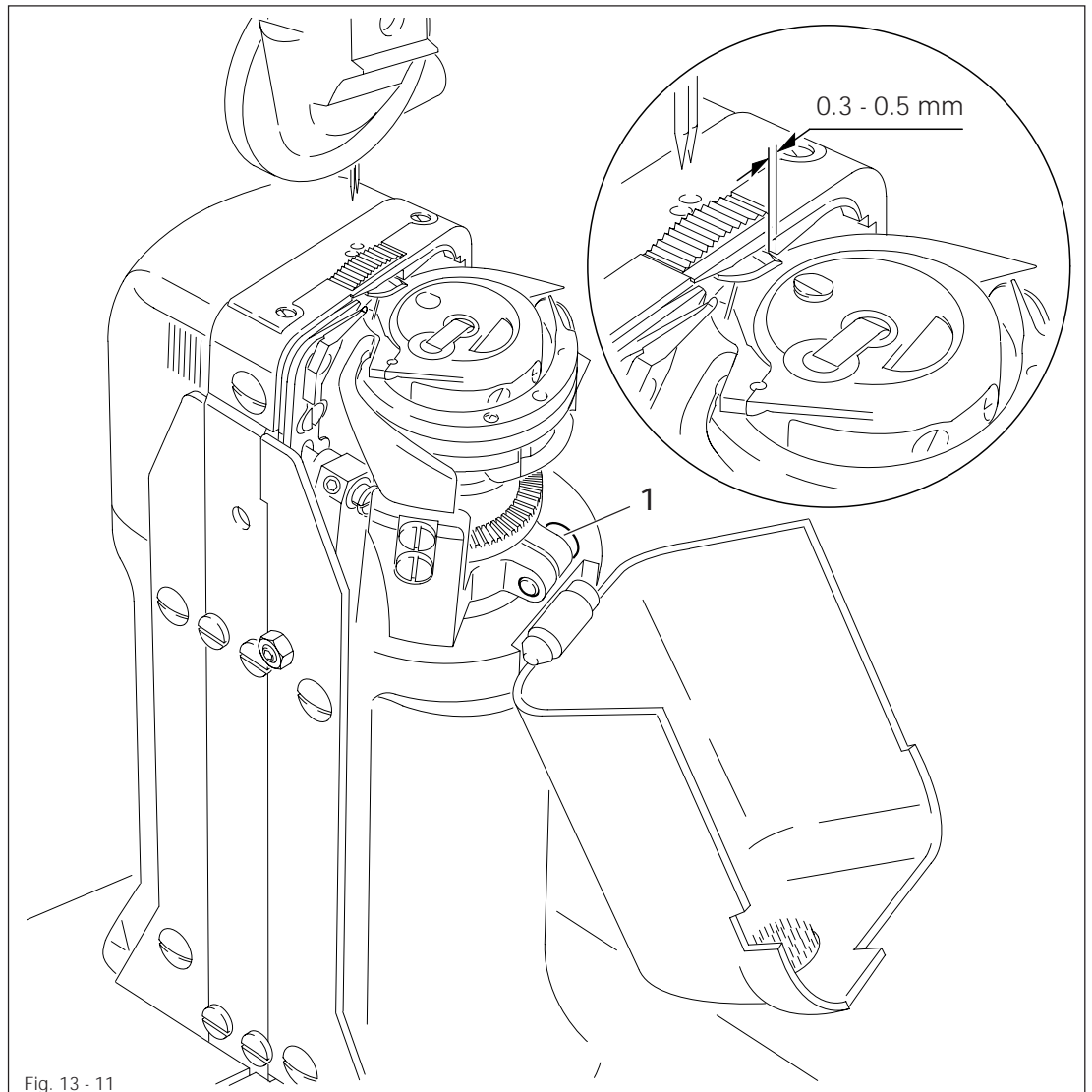


Carry out the same adjustment on the right post if using the 1474E1 model.

## 13.04.12 Bobbin case opener stroke

### Requirement

With bobbin case being pushed away as far as possible by the bobbin case opener, the projection of the bobbin case must protrude 0.3 - 0.5 mm from the rear edge of the needle plate recess.



- Turn the handwheel until the bobbin case opener pushes the bobbin case away as far as possible.
- Move the bobbin case base ( screw 1 ) in accordance with the **requirement**.



Carry out the same adjustment on the right post if using the 1474E1 model.



This setting can vary according to the thickness of the thread.

## 13.04.13 Feed wheel height ( 1471E1 )

### Requirement

1. With the roller-presser lowered, the feed wheel 4 must protrude above the needle plate at a distance equal to the height of the teeth ( approx. **0.8 mm** ).
2. With the roller-presser raised, feed wheel 4 must have a play in height of approx. **0.3 mm**.

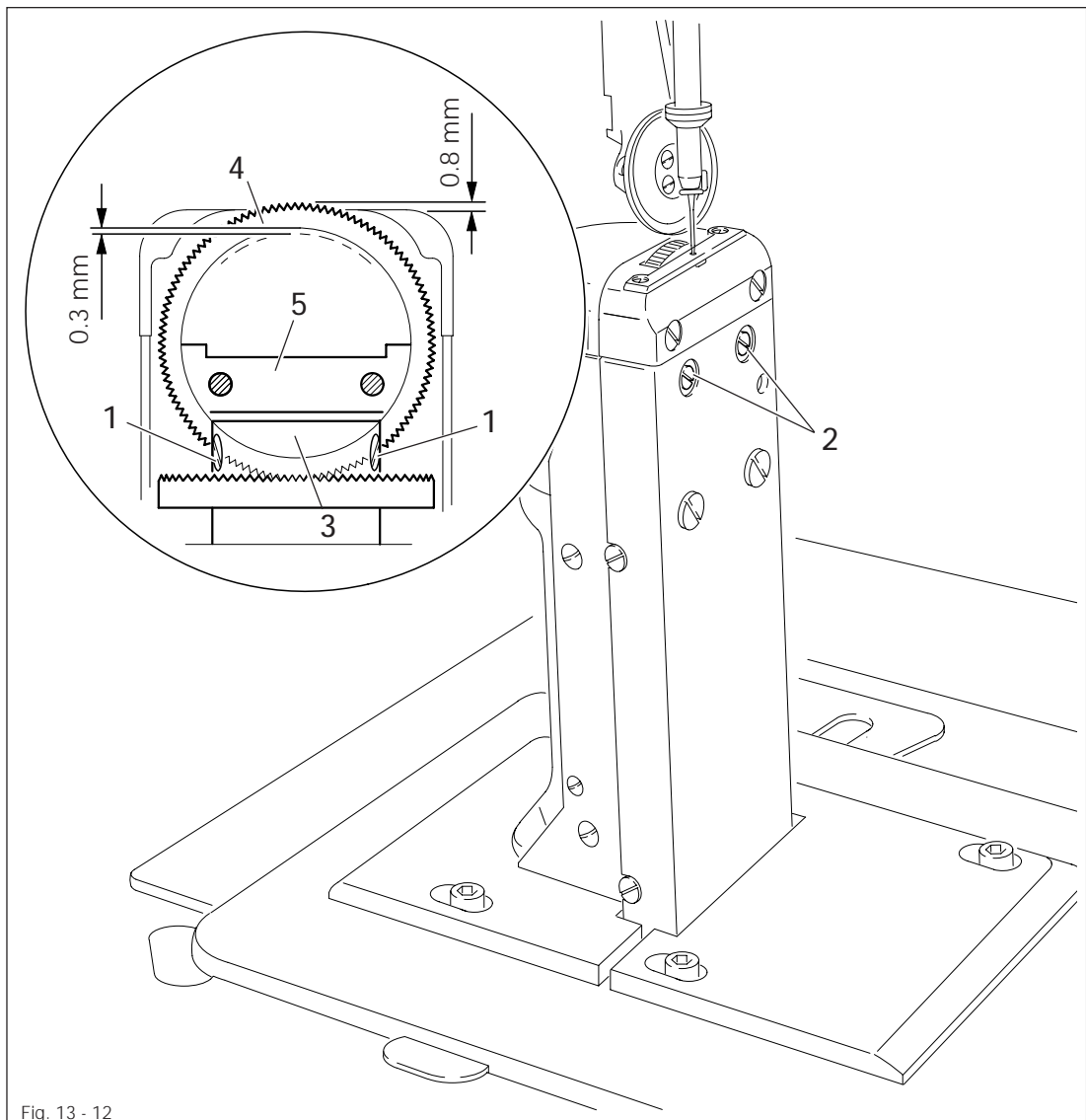
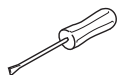


Fig. 13 - 12



- Swing out the roller-presser.
- Loosen screws 1 and 2.
- Turn the driving gear 3 according to **requirement 1**, ensuring that the teeth of driving gear 3 and feed wheel 4 are engaging properly.
- Tighten screws 1.
- Move guide 5 according to **requirement 2** and tighten screws 2.



## 13.04.14 Feed wheel height ( 1474E1 )

**Requirement**

1. With the roller-presser lowered, the feed wheel 4 must protrude above the needle plate at a distance equal to the height of the teeth ( approx. 0.8 mm ).
2. With the roller-presser raised, the feed wheel 4 must have a play in height of approx. 0.3 mm.

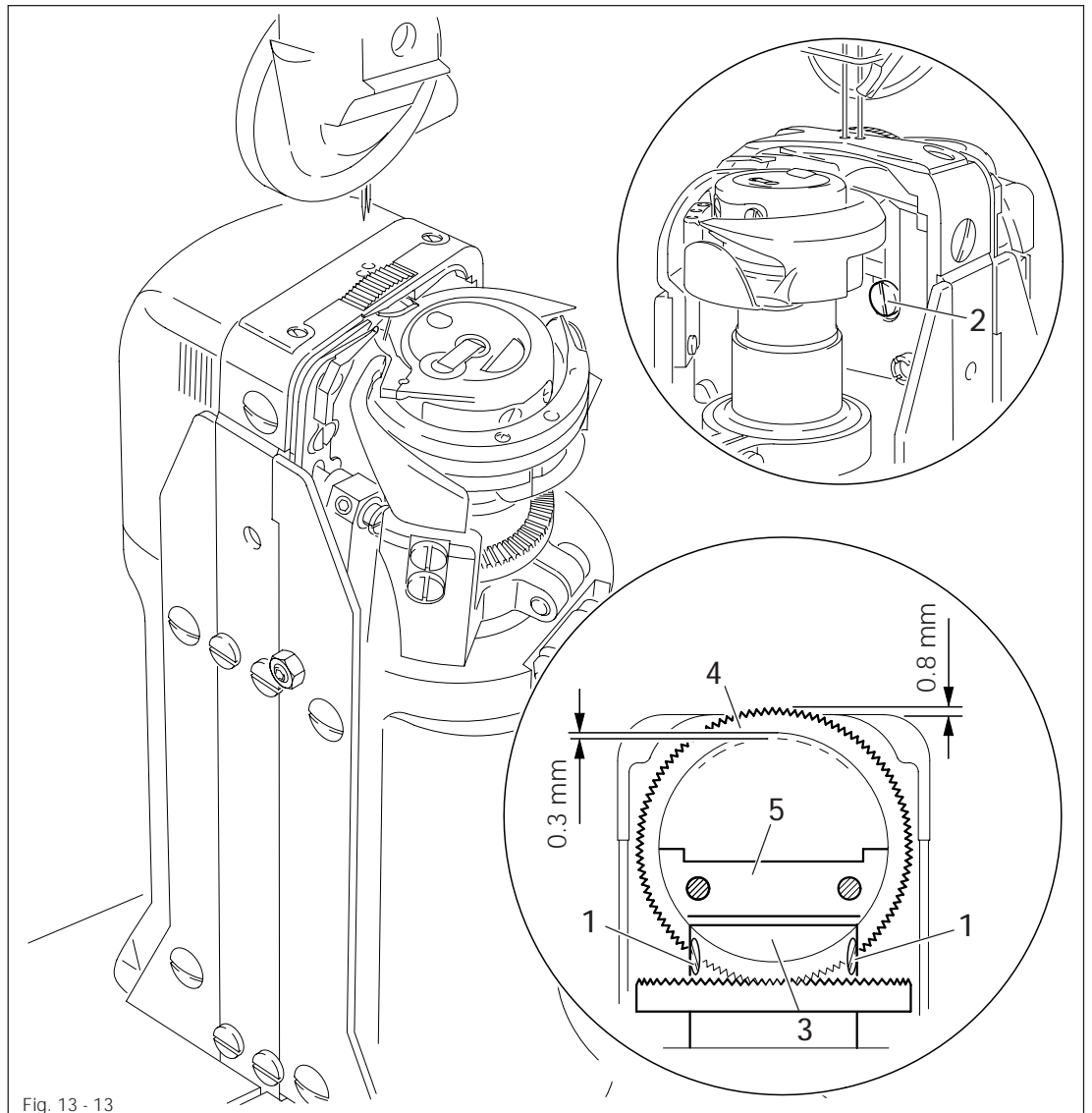
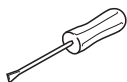


Fig. 13 - 13



- Swing out the roller-presser.
- Loosen screws 1 and 2 ( two screws ).
- Turn the driving gear 3 according to requirement 1, ensuring that the teeth of driving gear 3 and feed wheel 4 are engaging properly.
- Tighten screws 1.
- Move guide 5 according to requirement 2 and tighten screws 2.

## Adjustment

### 13.04.15 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.

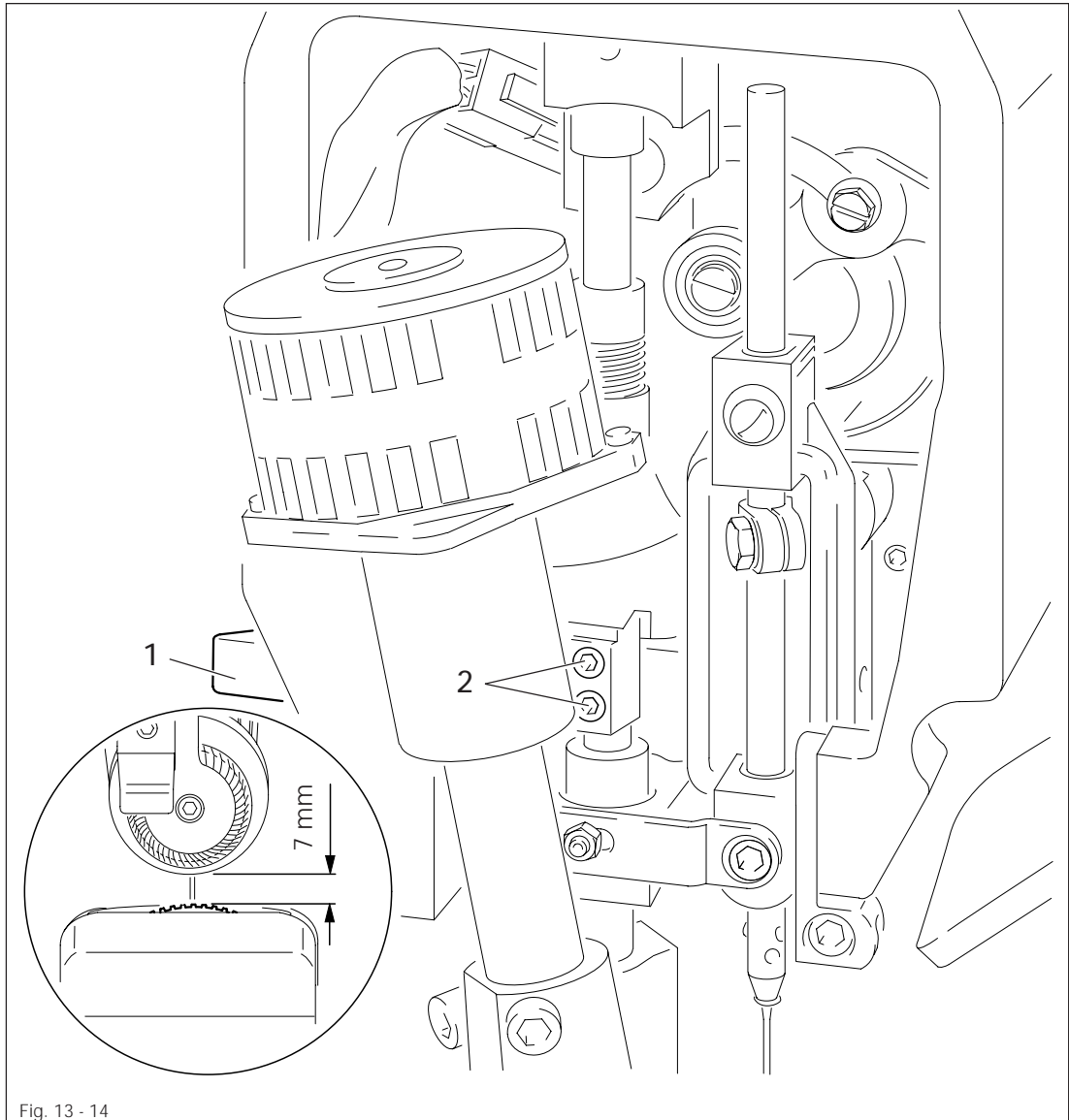
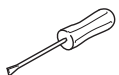


Fig. 13 - 14



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

## 13.04.16 Roller-presser

**Requirement**

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 ( left ) needle when viewed in the direction of sewing and
3. be as close as possible to the ( left ) needle when viewed in transverse direction of sewing.

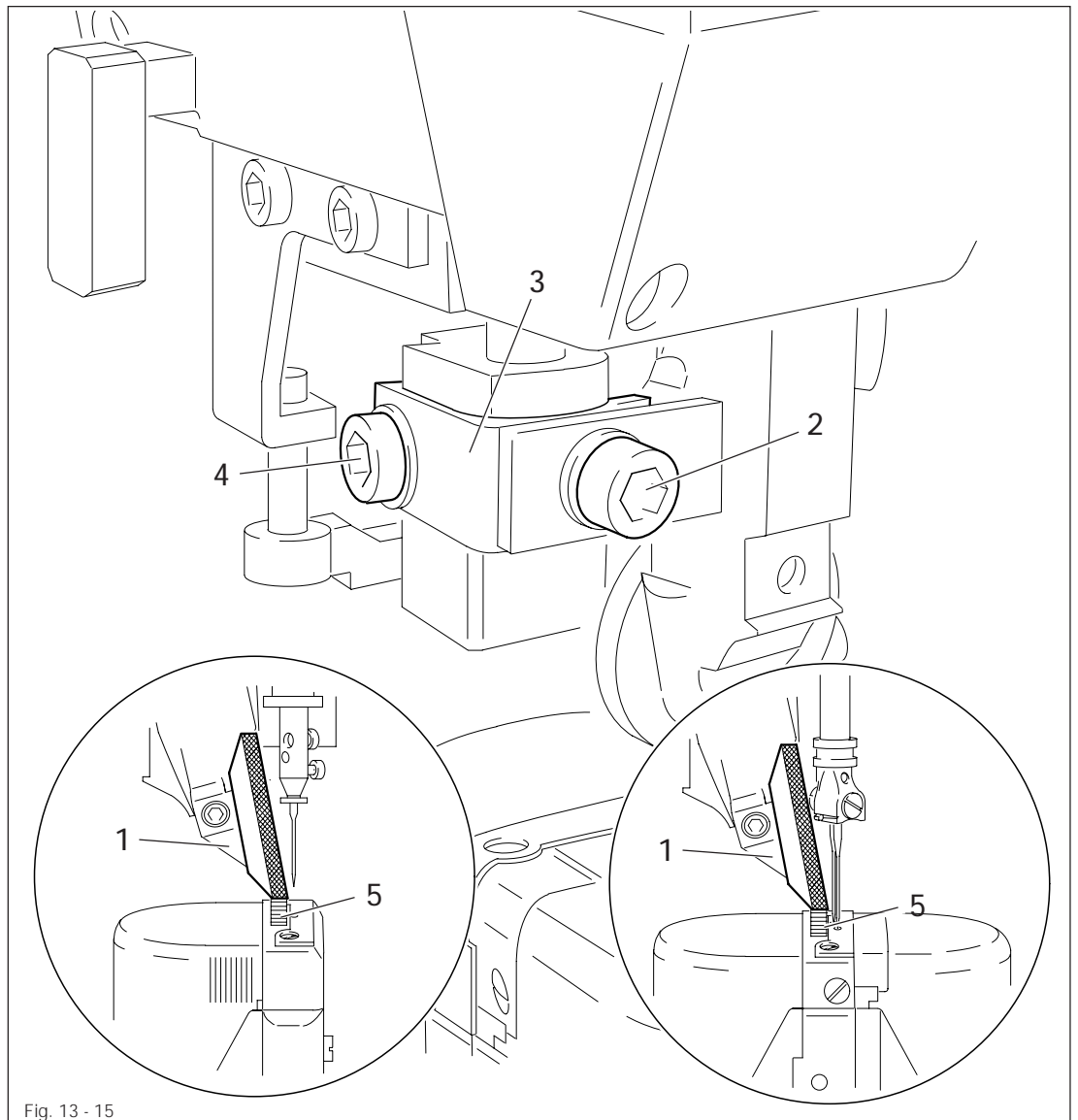
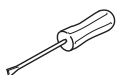


Fig. 13 - 15



- 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**.



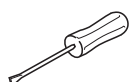
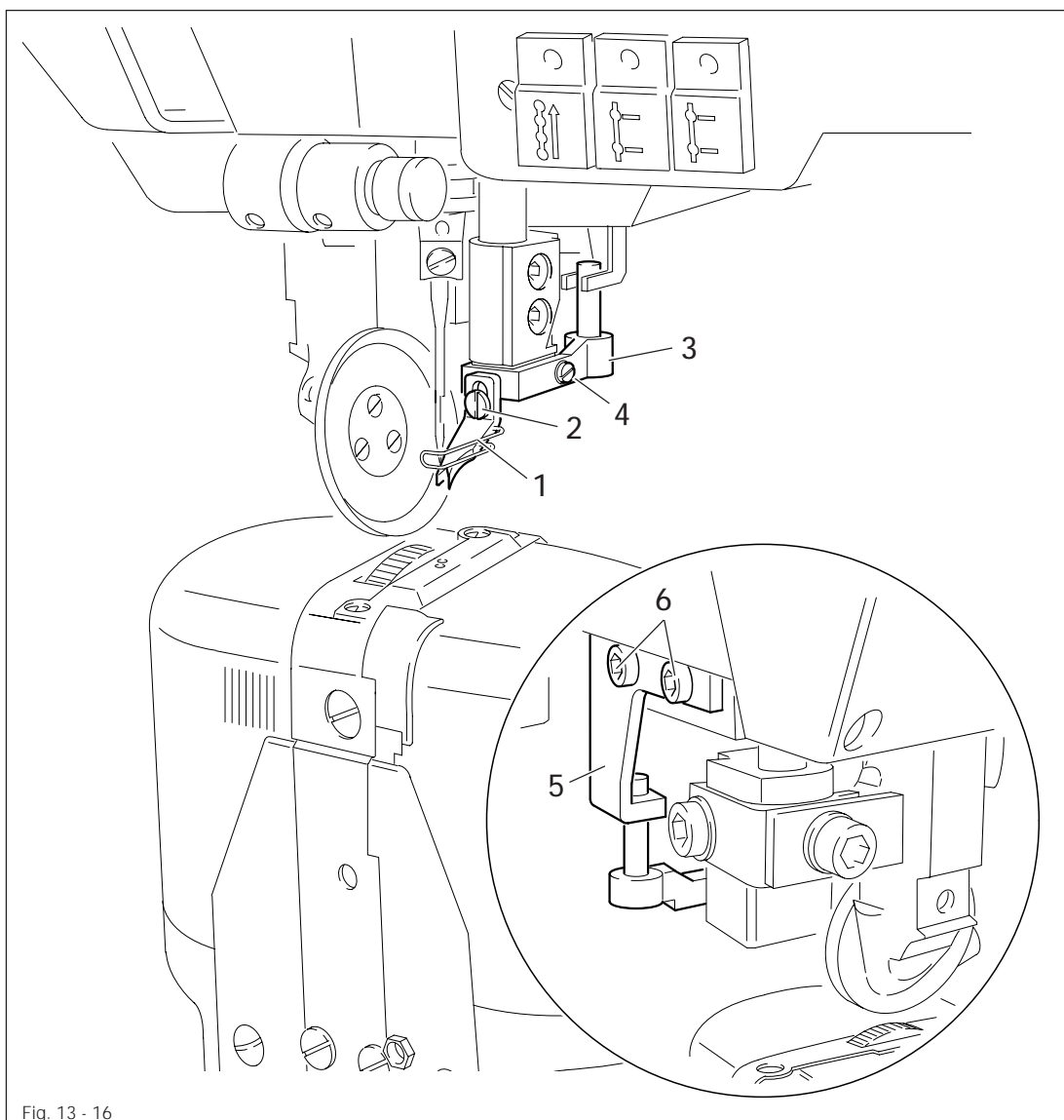
When sewing very tight curves the roller-presser 1 should be moved toward the operator slightly.

## 13.04.17 Holding-down clamp ( 1474E1 only )

### Requirement

The holding-down clamp 1 must

1. be positioned as close as possible to needle when viewed in direction of sewing, and
2. be centered in respect to the needle when viewed in transverse direction of sewing.
3. With the roller-presser resting on the fabric, the clearance between the holding-down clamp 1 and the fabric should be 0.2 - 0.3 mm.



- Move holding-down clamp 1 ( screw 2 ) according to requirement 3.
- Move bracket 3 ( screw 4 ) according to requirement 1.
- Move bracket 5 ( screws 6 ) according to requirement 2.

## 13.04.18 Automatic presser-foot lifter

### Requirement

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

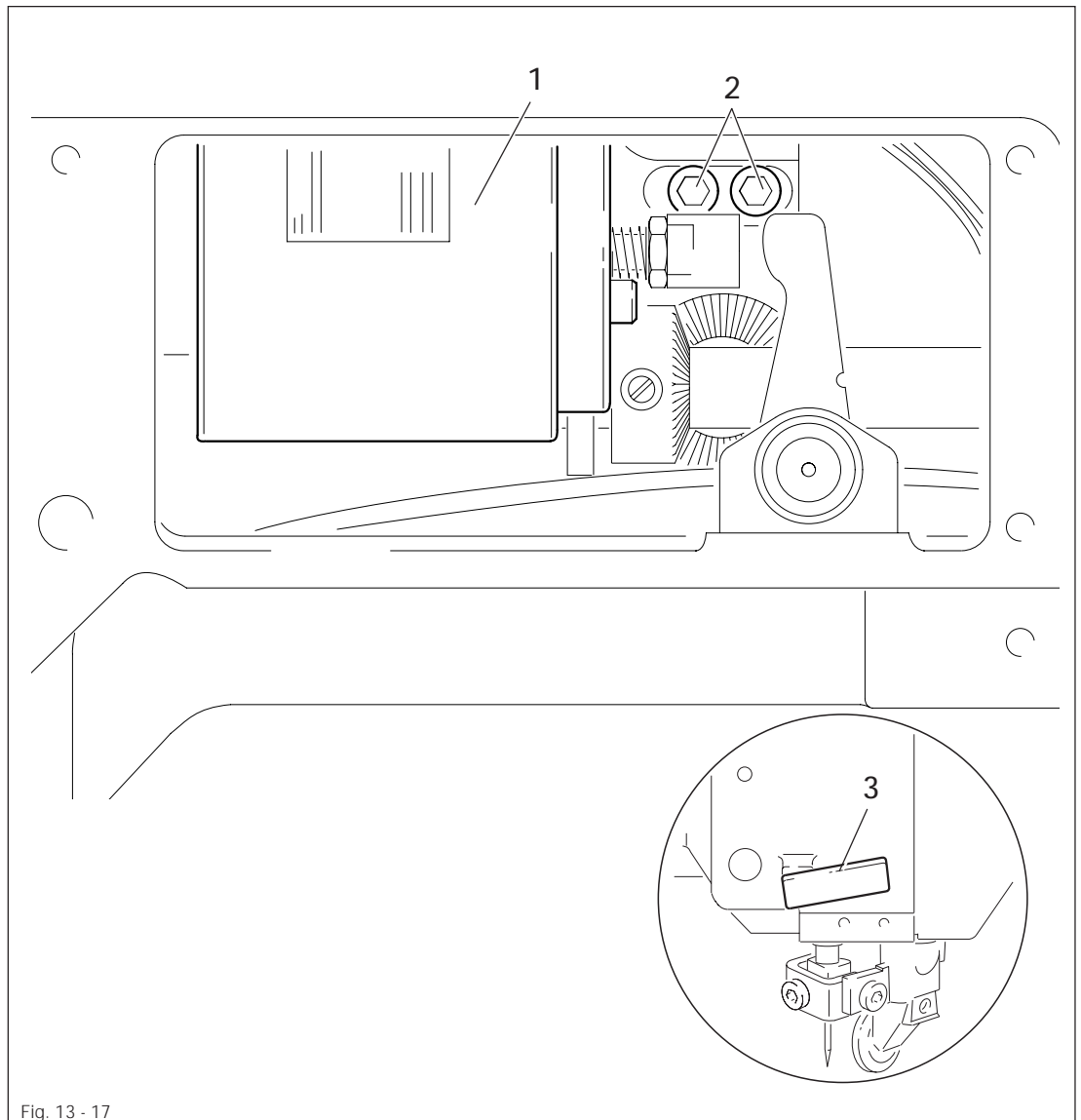
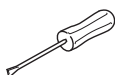


Fig. 13 - 17



- 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.

## 13.04.19 Knee lever

### Requirement

1. The knee lever must have 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 5 of the knee lever must be at an angle of approx.  $75^\circ$  to the bedplate.

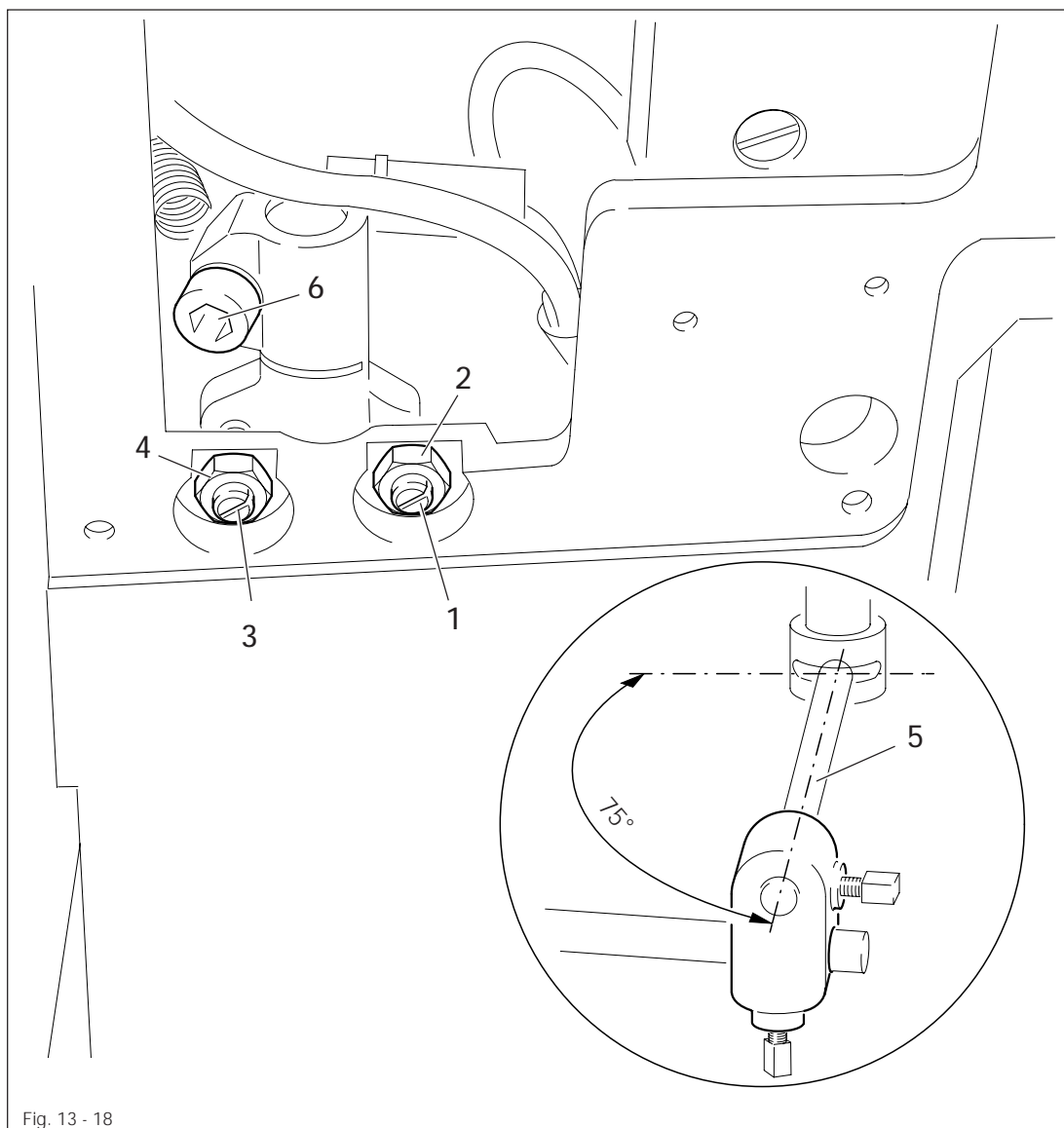
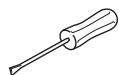


Fig. 13 - 18



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

## 13.04.20 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.

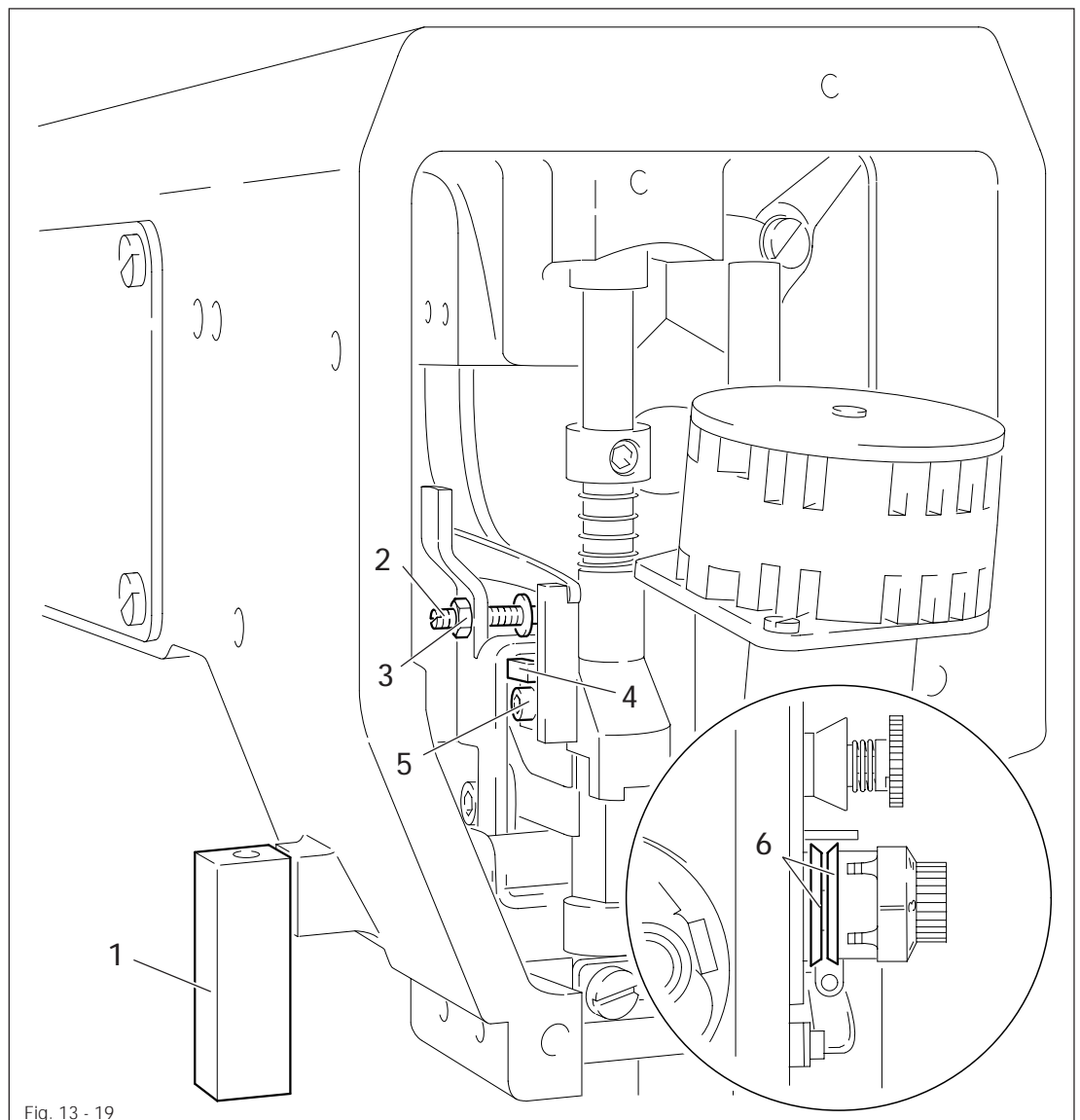
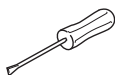


Fig. 13 - 19



- 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**.

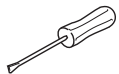
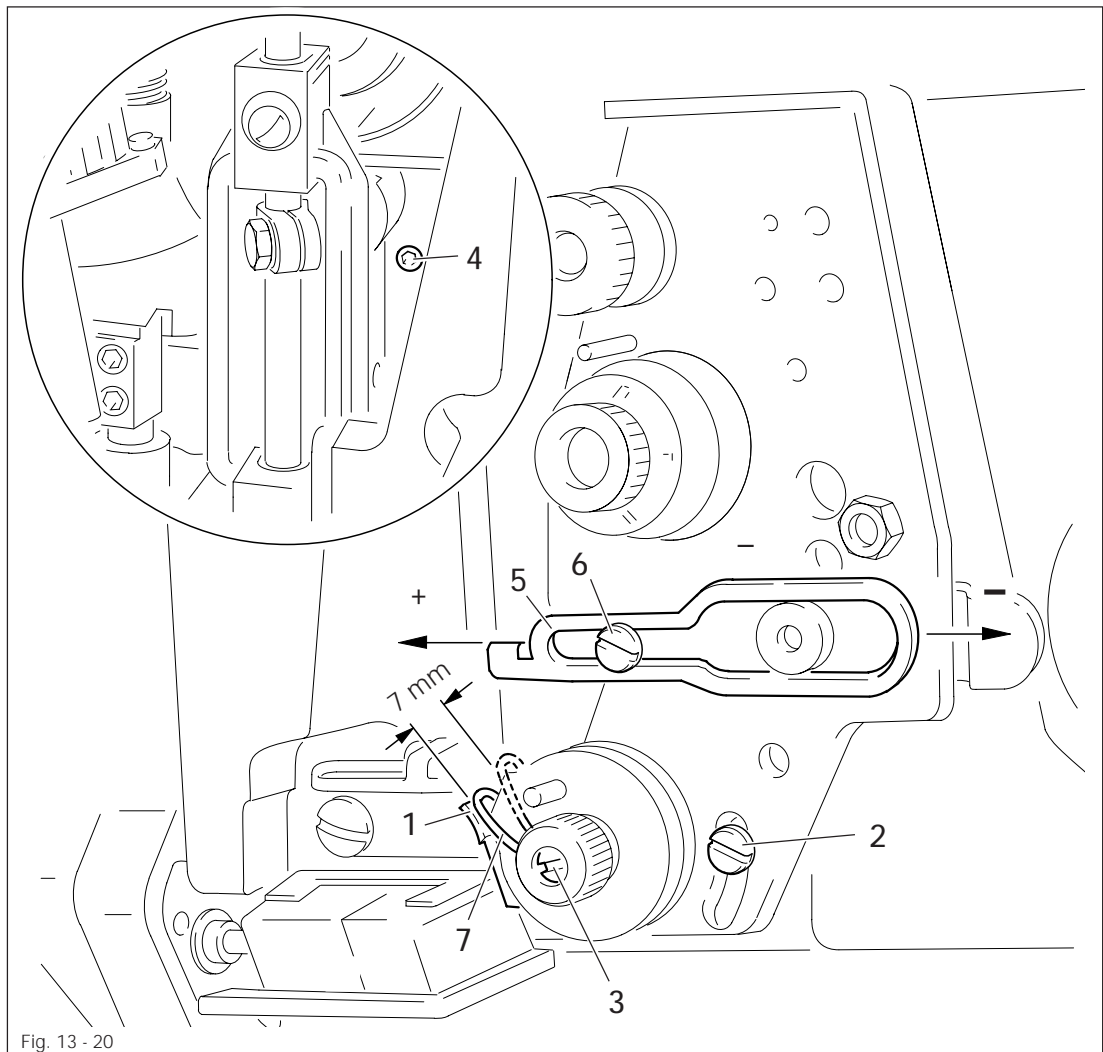


On machines with thread tension control ( -906/10 ) the timing of the tension release can be adjusted using the service functions ( see chapter 11.09 Summary of the service functions ).

## 13.04.21 Thread check spring ( 1471E1 )

### Requirement

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



- Move support 1 ( screw 2 ) in accordance with **requirement 1**.
- Turn screw 3 ( screw 4 ) to adjust the spring power.
- Move the slack thread regulator 5 ( screw 6 ) in accordance with **requirement 2**.



Due to technical reasons related to sewing, it may be necessary to deviate from the spring travel or the spring power described here.

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



## 13.04.22 Thread check springs ( 1474E1 )

**Requirement**

1. The motion of the thread check springs **3** and **6** must be finished when the needle points enter the material ( spring travel approx. **7 mm** ).
2. When the thread loops are at their largest when going around the hook, the thread check springs **3** and **6** must be slightly raised above the supports **1** and **9**.

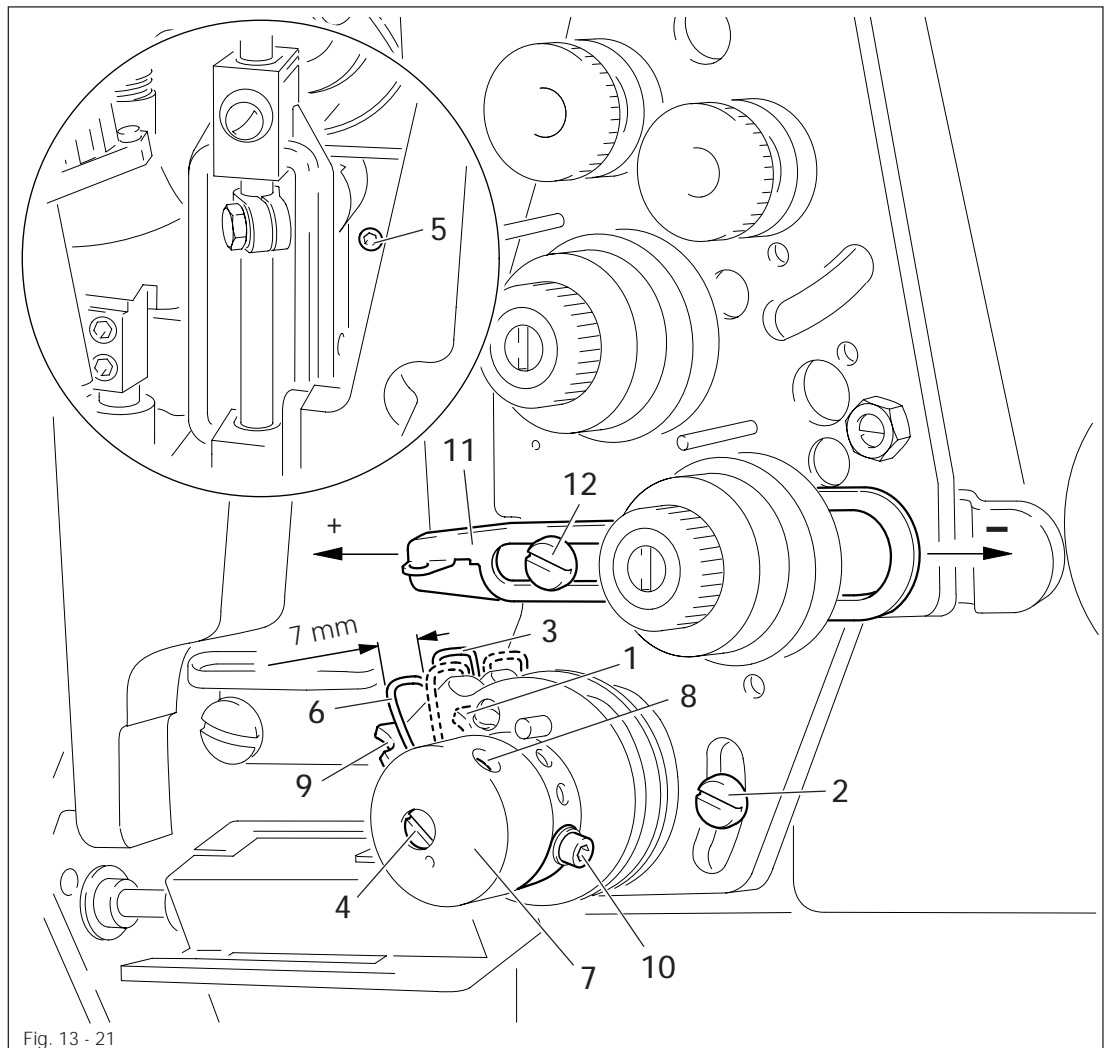
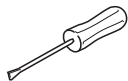


Fig. 13 - 21



- Move support **1** ( screw **2** ) in accordance with **requirement 1**.
- Turn screw **4** ( screw **5** ) to adjust the tension of the thread check spring **3**.
- Turn sleeve **7** ( screw **8** ) to adjust the tension of the thread check spring **6**.
- Move support **9** ( screw **10** ) in accordance with **requirement 1**. ( If the adjustment range is too small, the support **9** may be screwed into another hole. )
- Move the slack thread regulator **11** ( screw **12** ) in accordance with **requirement 2**.



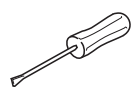
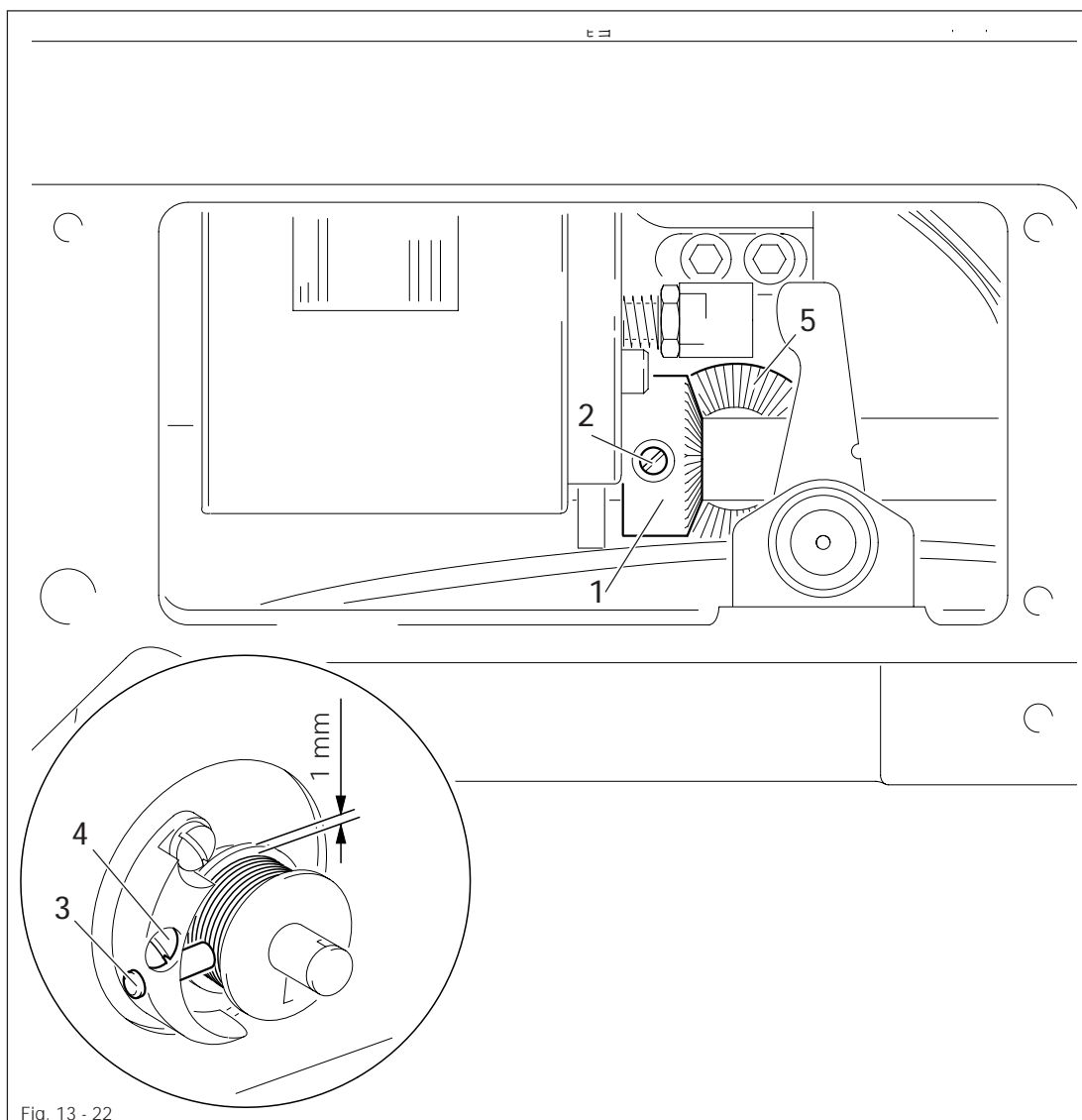
Due to technical reasons related to sewing, it may be necessary to deviate from the spring travel or the spring power mentioned here.

Move the slack thread regulator **11** ( screw **12** ) toward the „+“ ( = more thread ) or toward the „-“ ( = less thread ).

## 13.04.23 Bobbin winder

### Requirement

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.

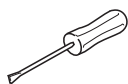
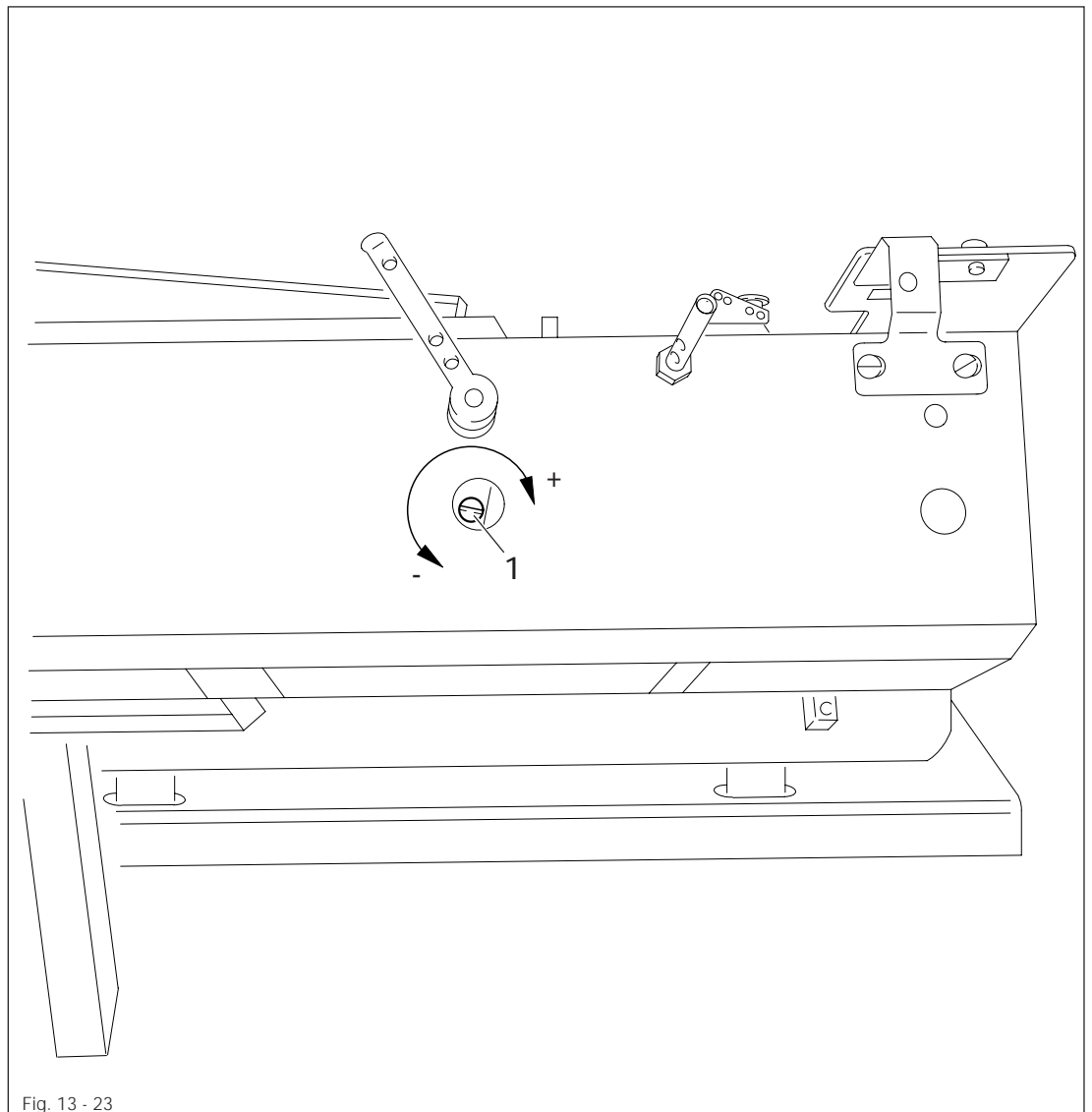


- Move drive wheel 1 ( screws 2 ) in accordance with requirement 1.
- Move pin 3 ( screw 4 ) in accordance with requirement 2.

## 13.04.24 Roller-presser pressure

### Requirement

The material must be fed reliably. No pressure marks may be made on the material.



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



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**.

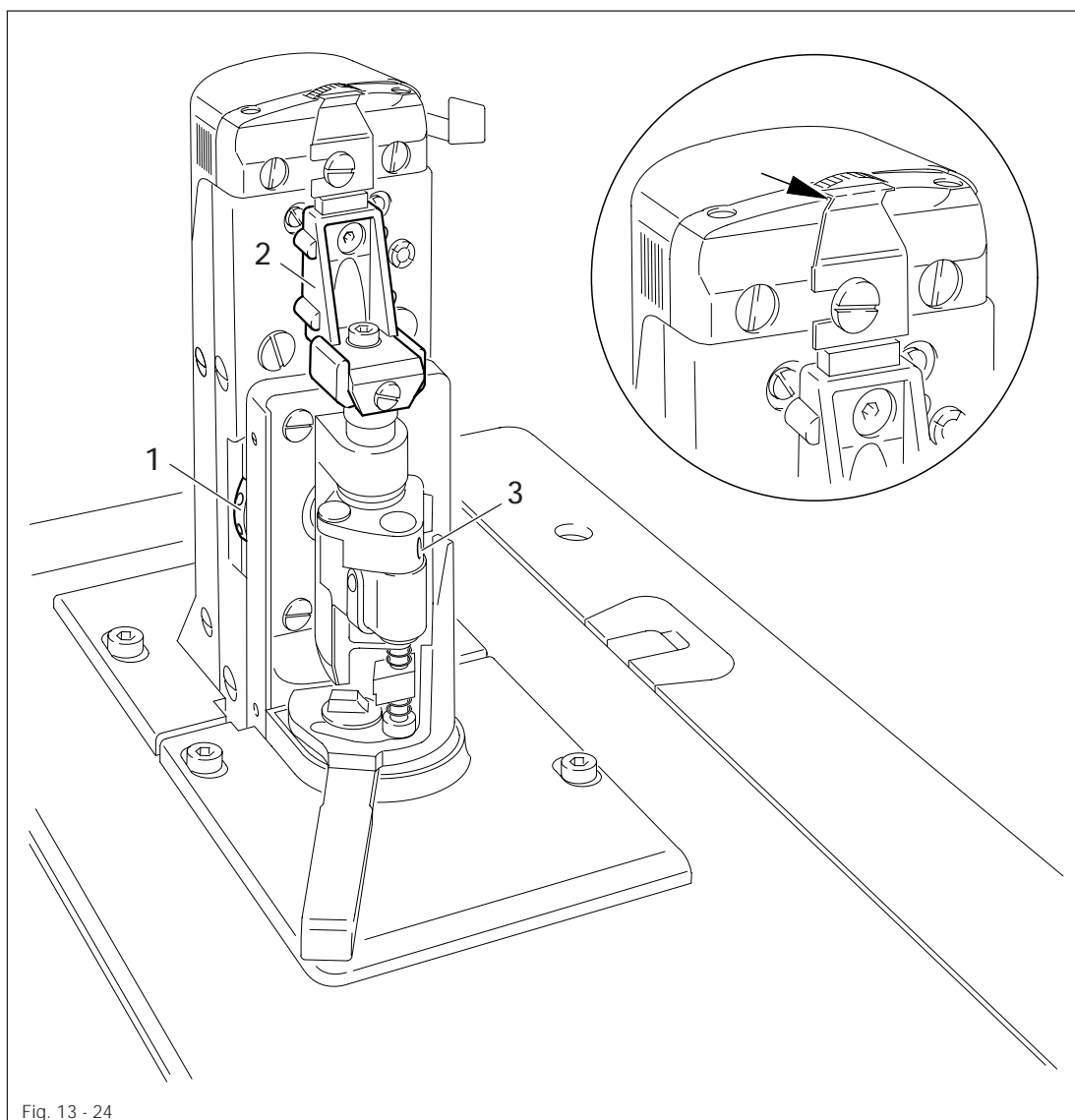
### 13.05 Adjusting the edge trimmer -725/04 for the 1471E1

#### 13.05.01 Position of the knife carrier

##### Requirement

With the edge trimmer switched on and the adjusting wheel turned upwards as far as it will go,

1. the knife carrier 2 must be parallel to the post and
2. the upper edge of the needle plate must be centered with respect to the knife bracket.



- Turn the adjusting wheel 1 upwards as far as it will go and switch on the edge trimmer.
- Adjust the knife carrier 2 ( screw 3 ) according to the requirements.

## 13.05.02 Knife stroke

### Requirement

The knife stroke can be set within a range of 1.0 to 3.5 mm for the ideal adaptation to all materials used.

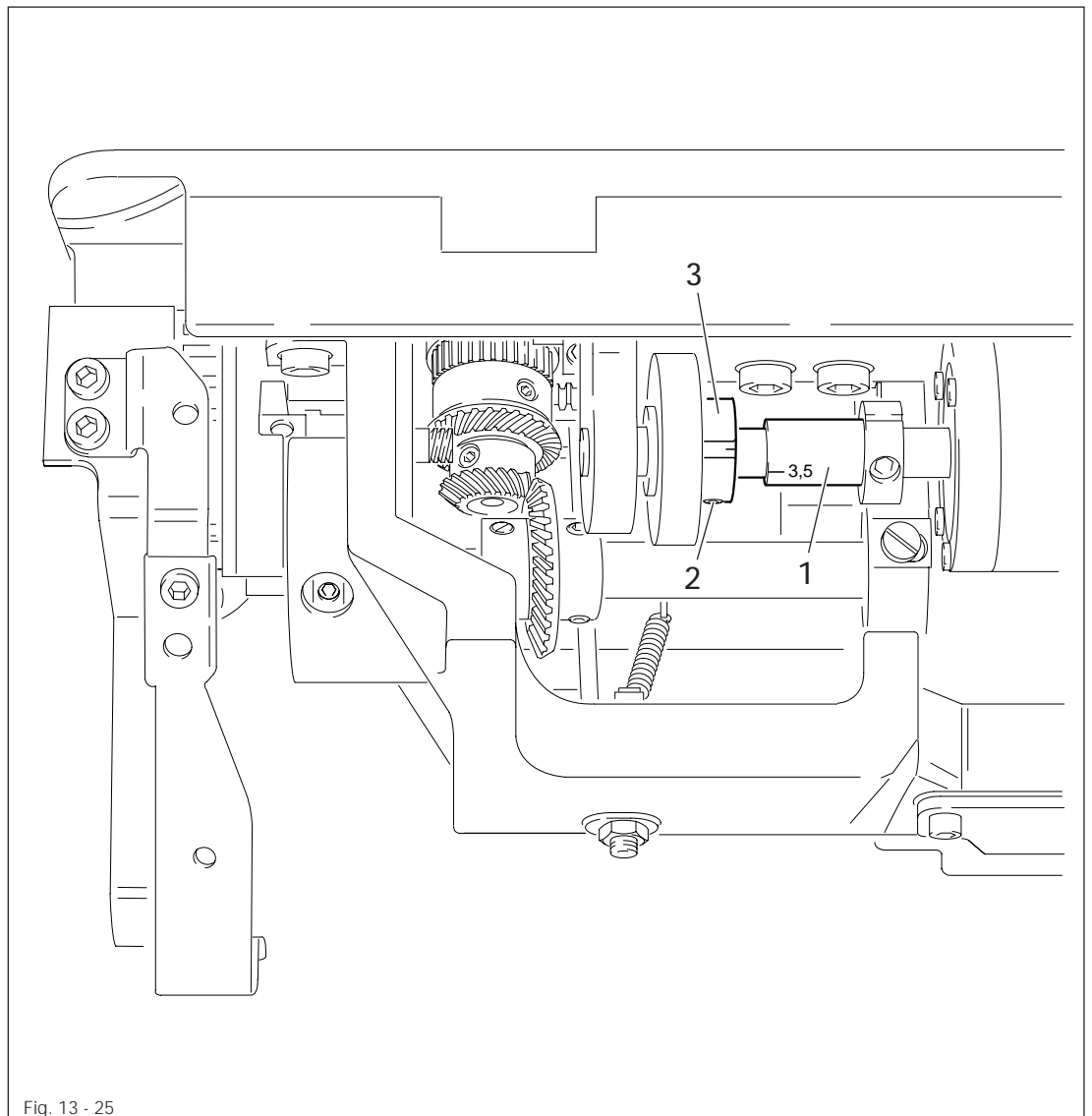
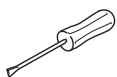


Fig. 13 - 25



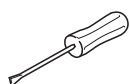
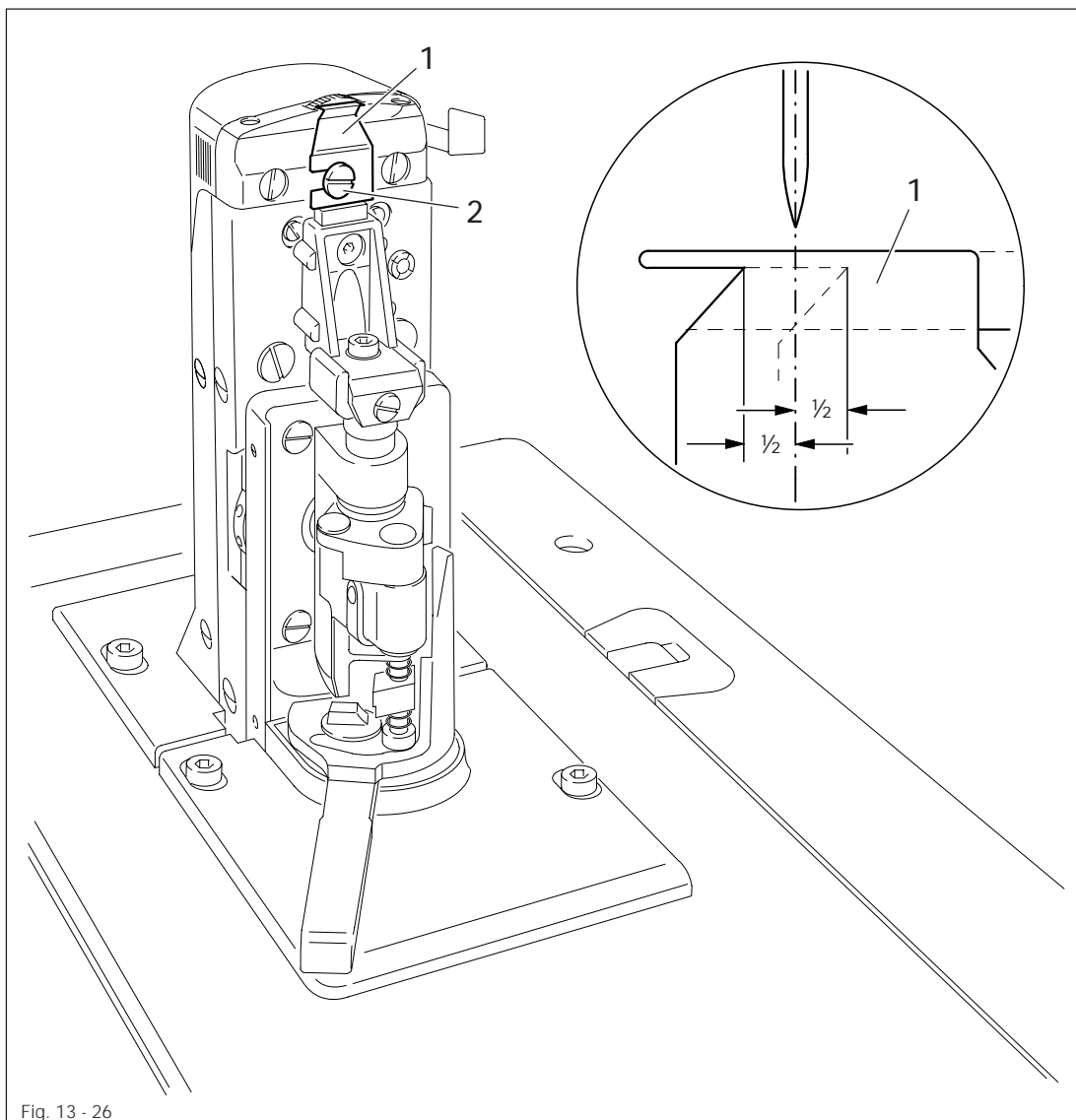
- Turn the eccentric 1 ( screws 2 ) so that the mark of the desired cutting stroke is opposite the mark on the clamp collar 3.

## Adjustment

### 13.05.03 Knife motion

#### Requirement

With the edge trimmer swung in and the needle in the needle hole, half of the motion of the knife 1 must take place in front of the needle, and half behind it, when the motor shaft is turned by hand.



- Turn the machine off and swing in the edge trimmer.
- Move the knife 1 (screw 2) in accordance with the requirement.

## 13.05.04 Knife position

### Requirement

With the edge trimmer swung in, the knife must lightly touch the needle plate insert. Make sure there is no whistling sound produced during the cutting process.

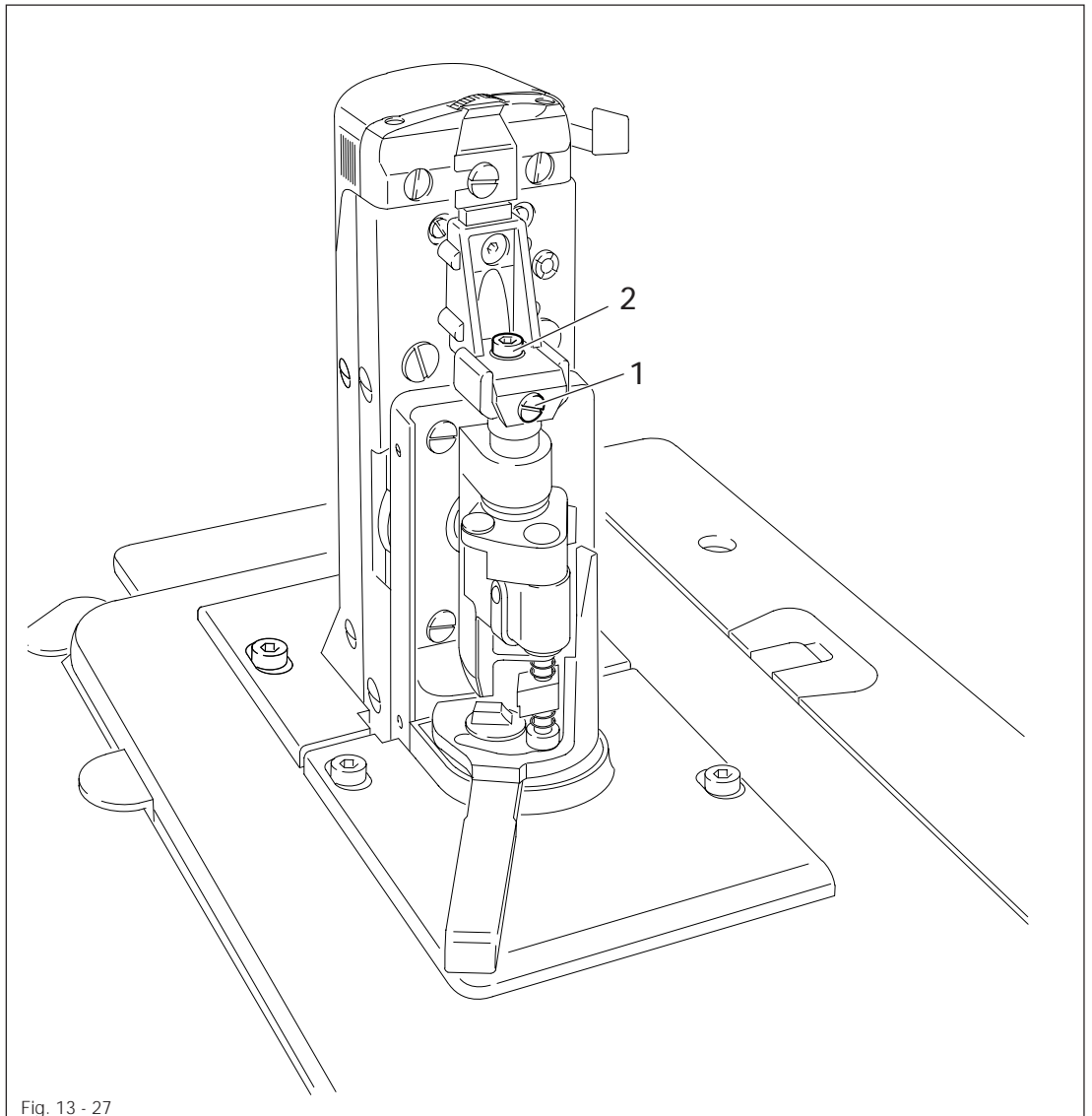
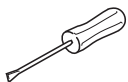


Fig. 13 - 27



- Turn screw 1 (screw 2) according to the requirement.
- Carry out a test cut, and adjust anew if necessary.

## Adjustment

### 13.06 Adjusting the edge trimmer -725/04 for the 1474E1

#### 13.06.01 Replacing the knife

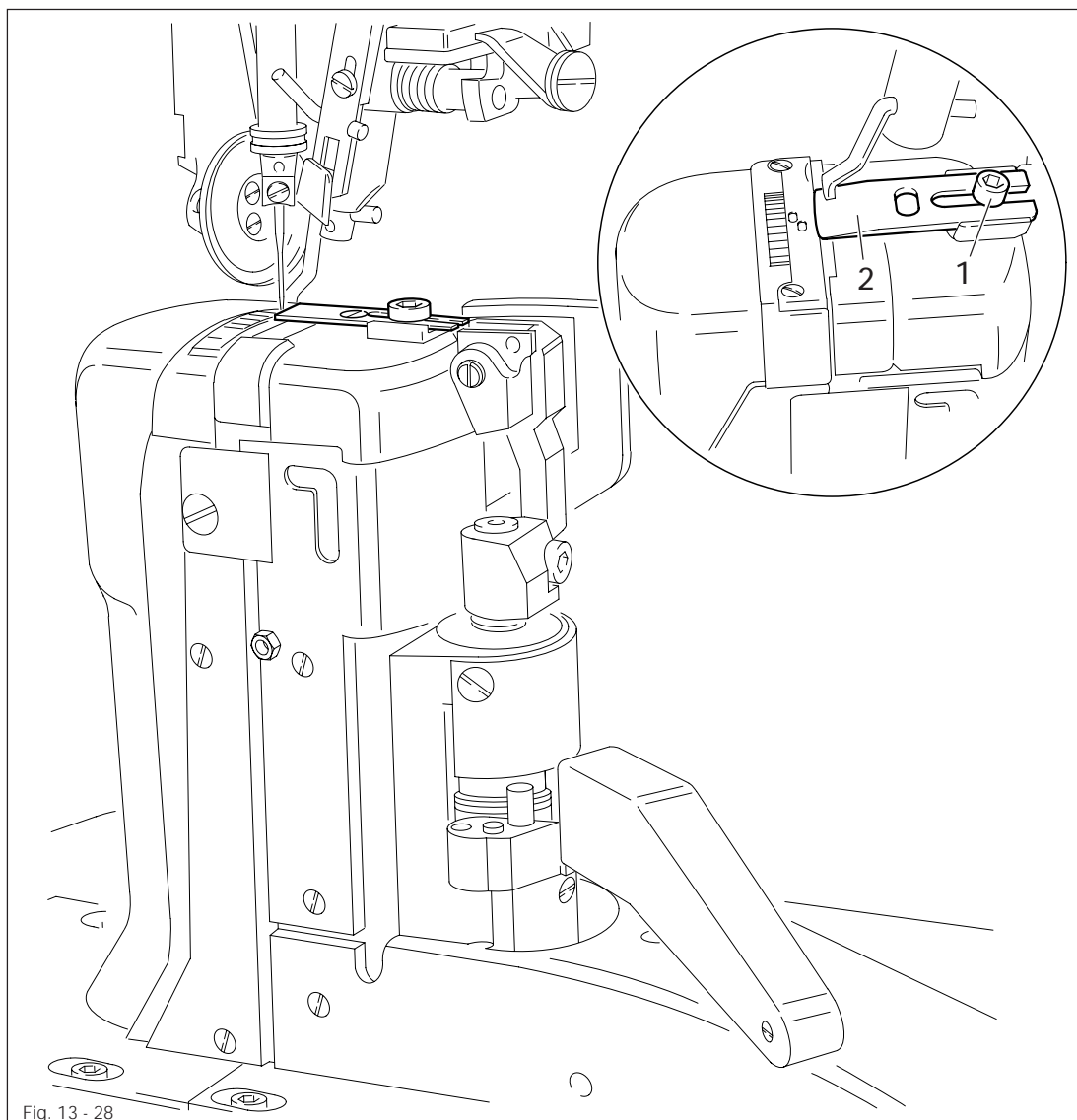
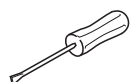


Fig. 13 - 28



- Turn the machine off.
- Loosen screw 1 and remove knife 2.
- Insert a new knife 2 and slide it flush against the needle plate insert.
- Tighten screw 1.



Check chapter 13.06.05 Knife position.



## 13.06.02 Knife height

**Requirement**

With the edge trimmer swung in, the middle of the knife bracket must be at the same height as the upper edge of the needle plate.

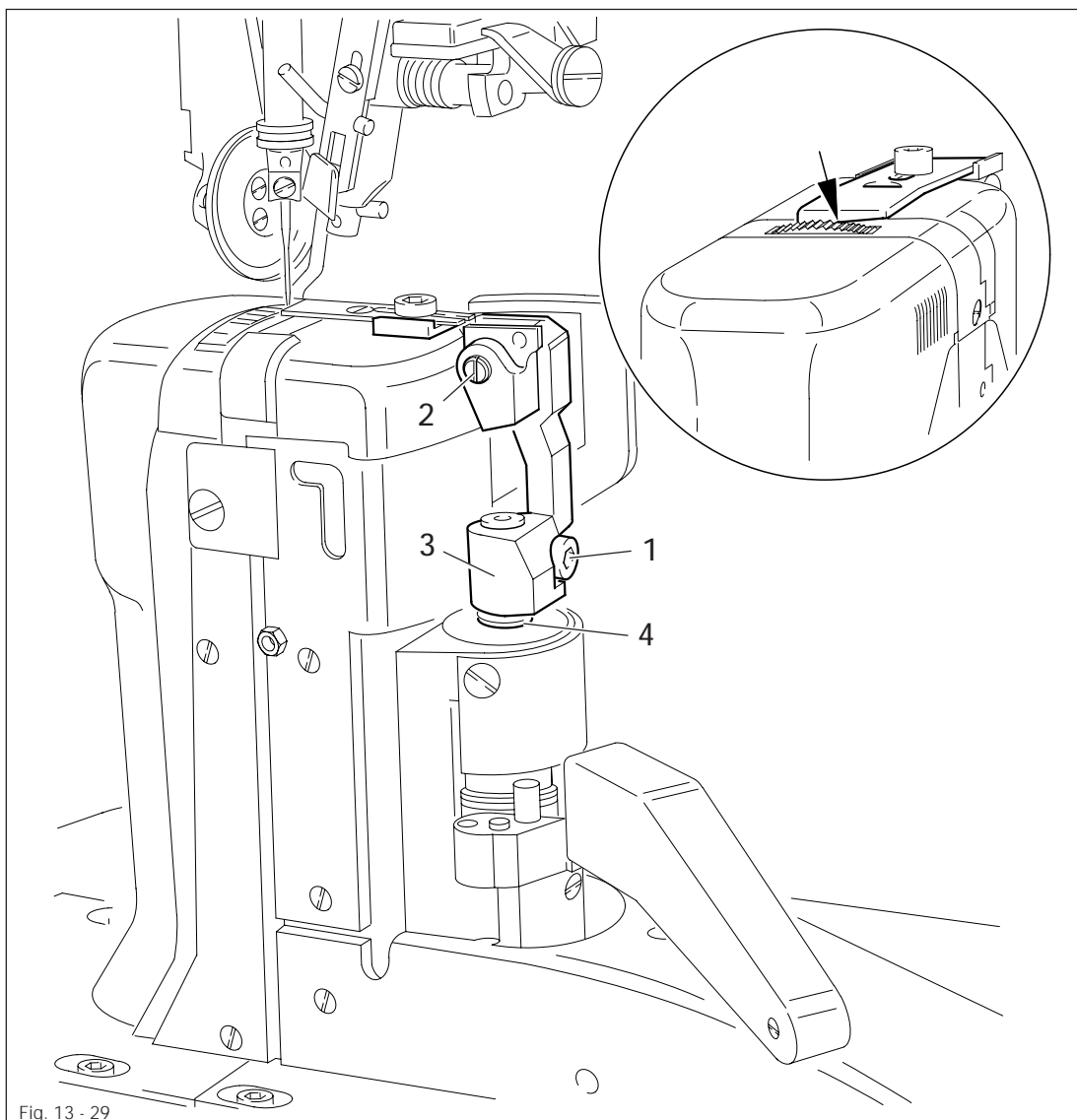
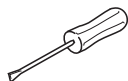


Fig. 13 - 29



- Turn the machine off and swing in the edge trimmer.
- Loosen screw 1.
- Position the knife in the middle of its setting range by turning eccentric 2.
- Move knife carrier 3 in accordance with the **requirement** and tighten screw 1.
- Bring the circlip 4 to rest against the knife carrier 3.



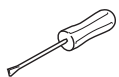
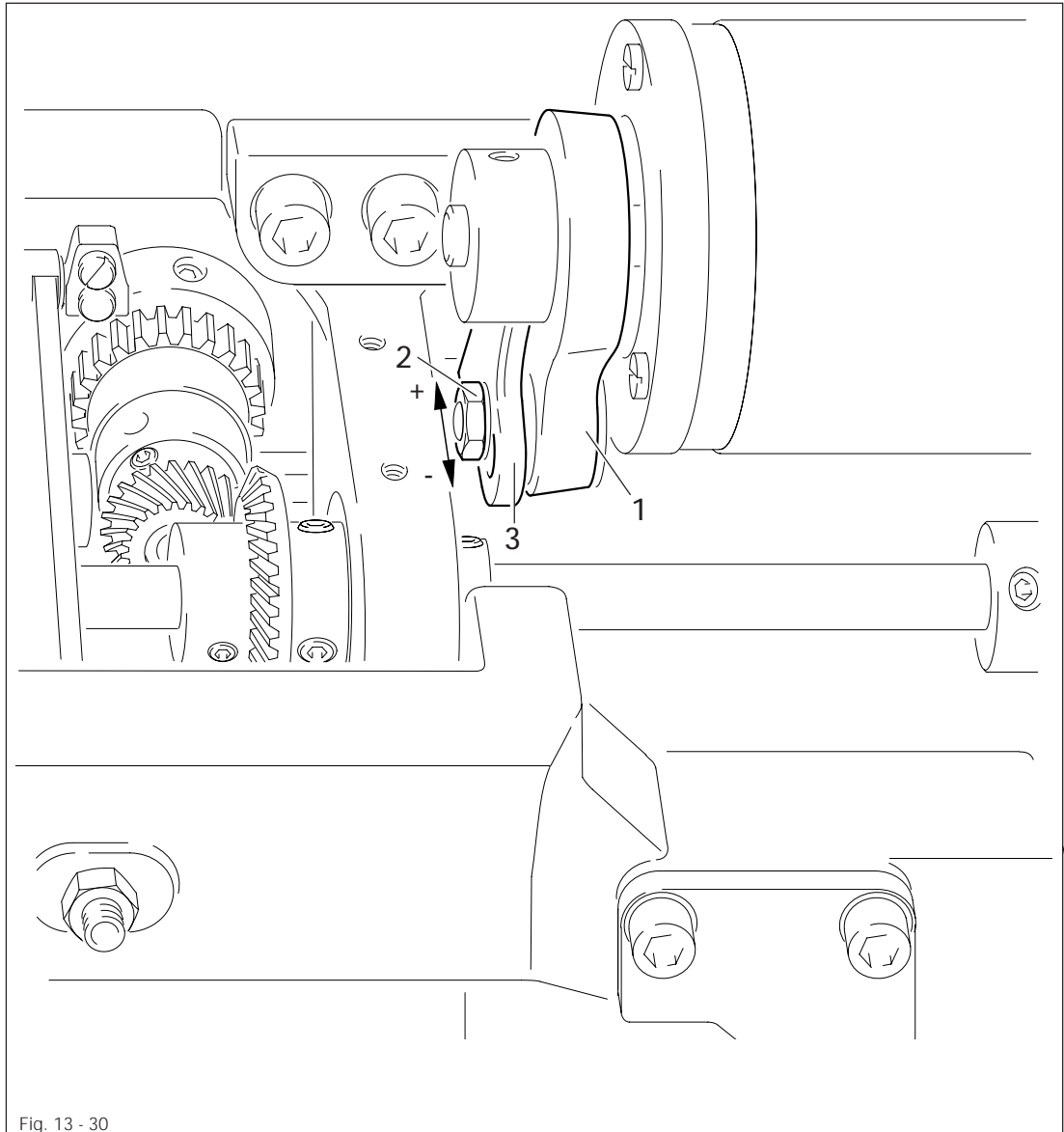
Depending on the material thickness used, it is possible to deviate from the basic setting by turning the eccentric 2.

# Adjustment

## 13.06.03 Knife stroke

### Requirement

The knife stroke can be set within a range of 2.0 to 3.5 mm for ideal adaptation to any material used.

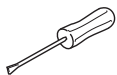
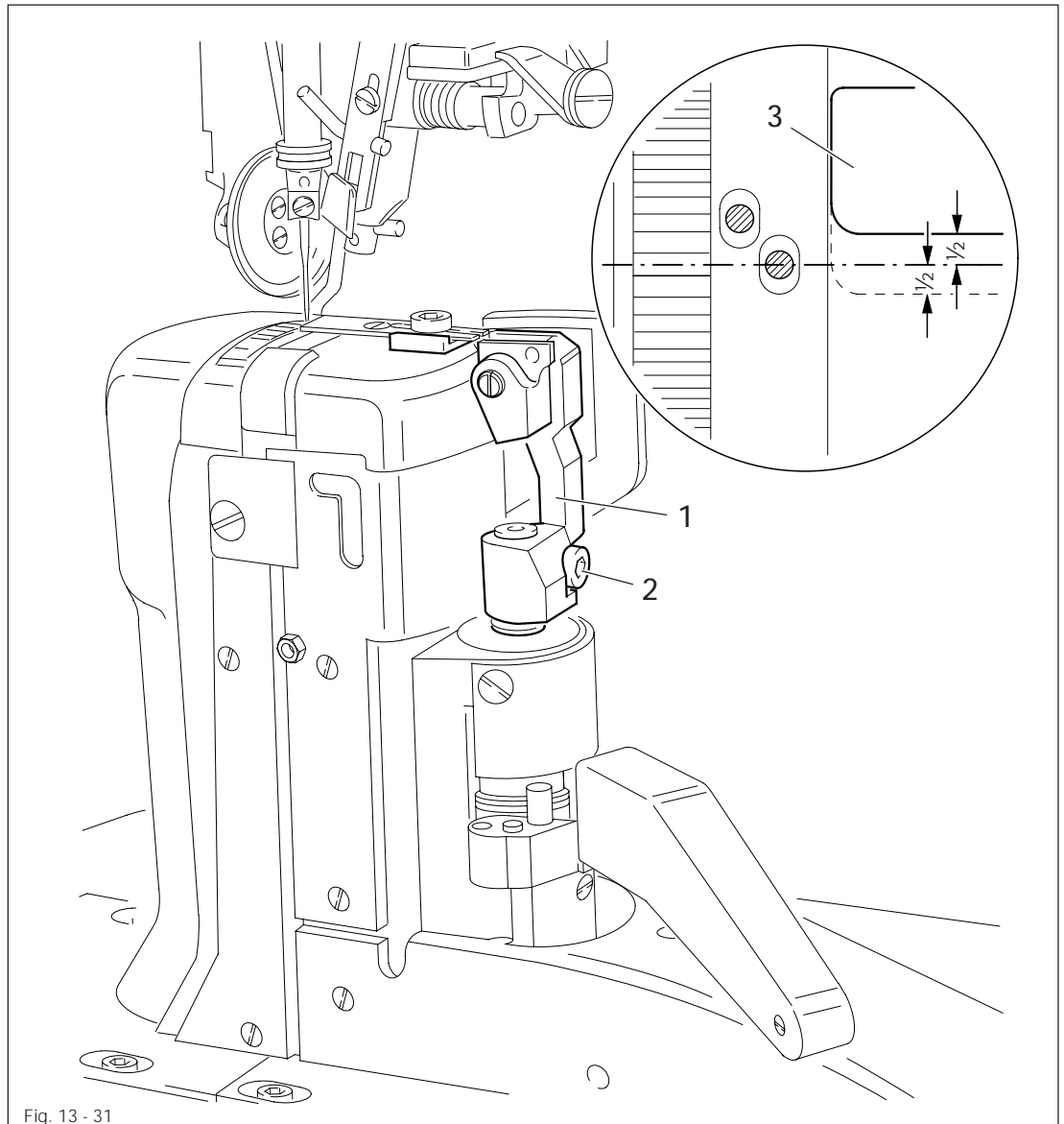


- Turn crank 1 ( nut 2 ) in the connecting link 3 in accordance with the requirement.

## 13.06.04 Knife motion

**Requirement**

With the edge trimmer swung in and the needles in the needle holes, half of the motion of the knife 3 must be in front of the needle, and half behind it, when the motor shaft is turned by hand.



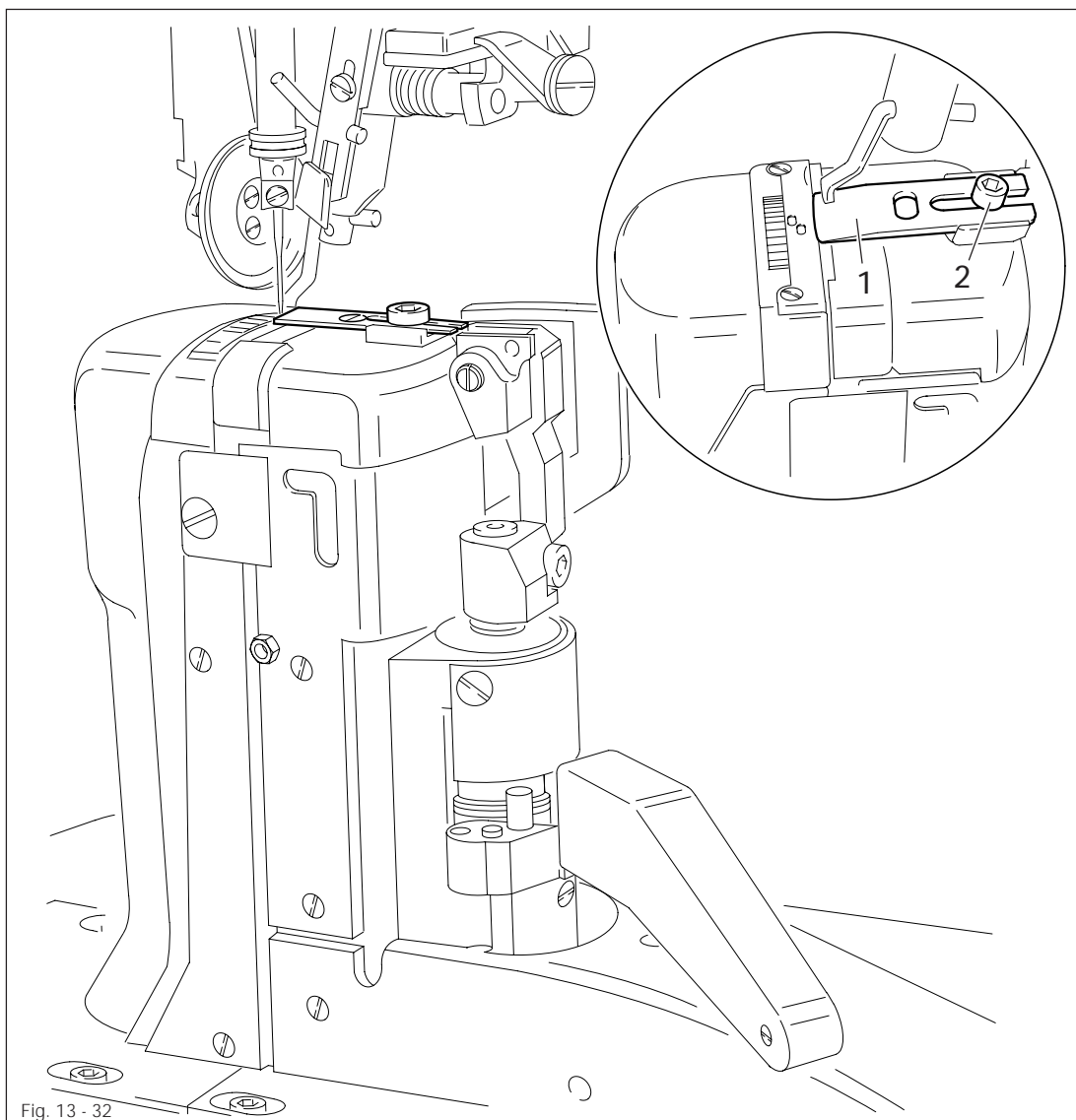
- Turn the machine off and swing in the edge trimmer.
- Move knife carrier 1 ( screw 2 ) in accordance with the requirement.

## Adjustment

### 13.06.05 Knife position

#### Requirement

With the edge trimmer swung in, the knife 1 must lightly touch the needle plate insert. Make sure there is no whistling sound during the cutting process.



- Switch off the machine and swing in edge trimmer.
- Move knife 1 ( screw 2 ) in accordance with the requirement.

## 13.07 Adjusting the thread trimmer -900/53

### 13.07.01 Removing the scissor

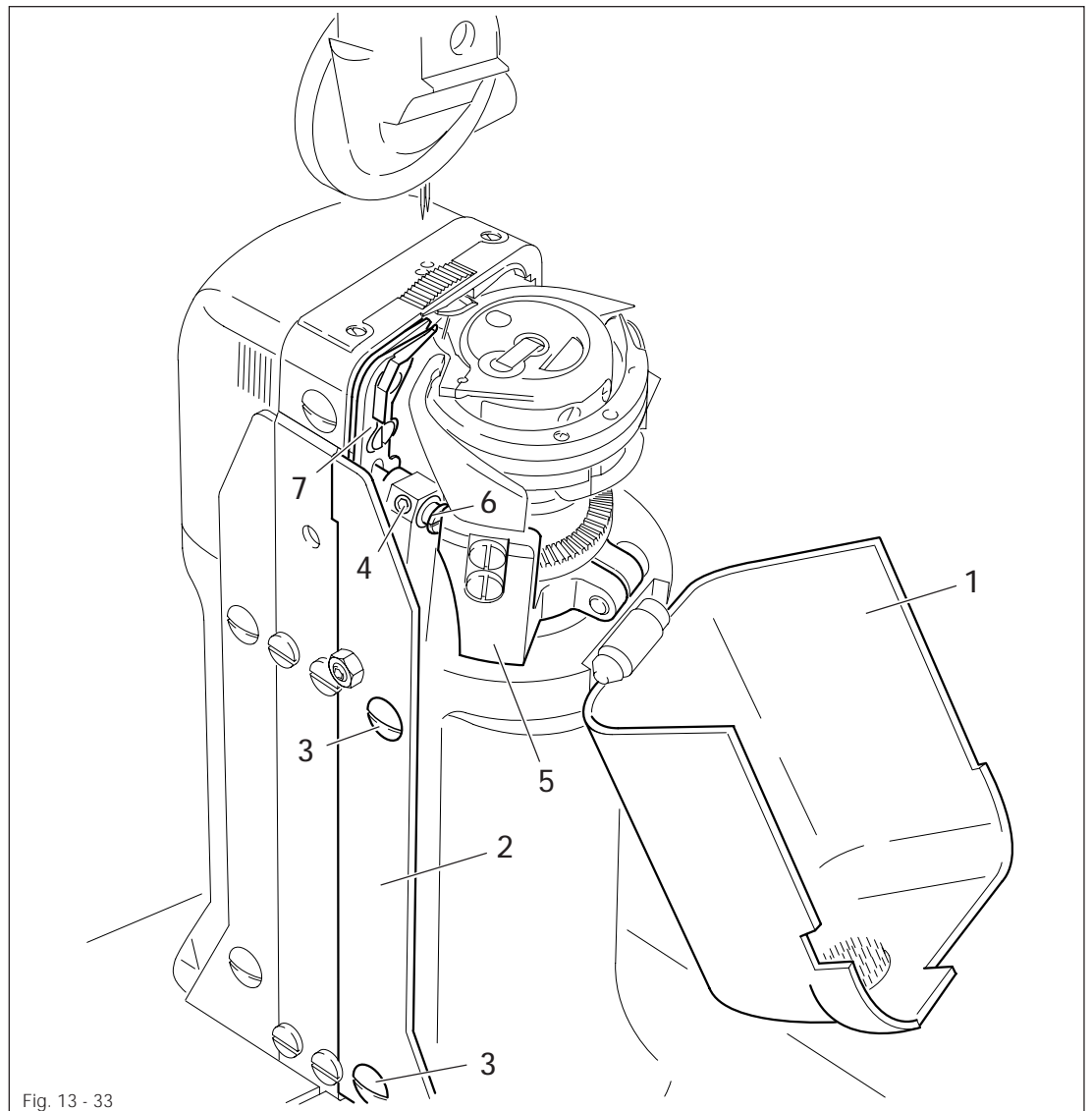
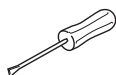


Fig. 13 - 33



- Open post cover 1 and unscrew post cover plate 2 ( screws 3 ).
- Loosen screw 4.
- Swing out bobbin case base 5 by hand and hold it in this position.
- Remove bolt 6.
- Swing out the scissor driving rod and remove scissor 7.
- Allow bobbin case base 5 to swing in and swing in the driving rod of the scissor .



Post cover plate 2 remains dismounted for further adjustments.

## 13.07.02 Control cam with respect to bobbin opener and tripping lever

### Requirement

1. Control cam 2 must be touching bearing collar 3.
2. The roller of tripping lever 6 must fall slightly into the path of control cam 2.

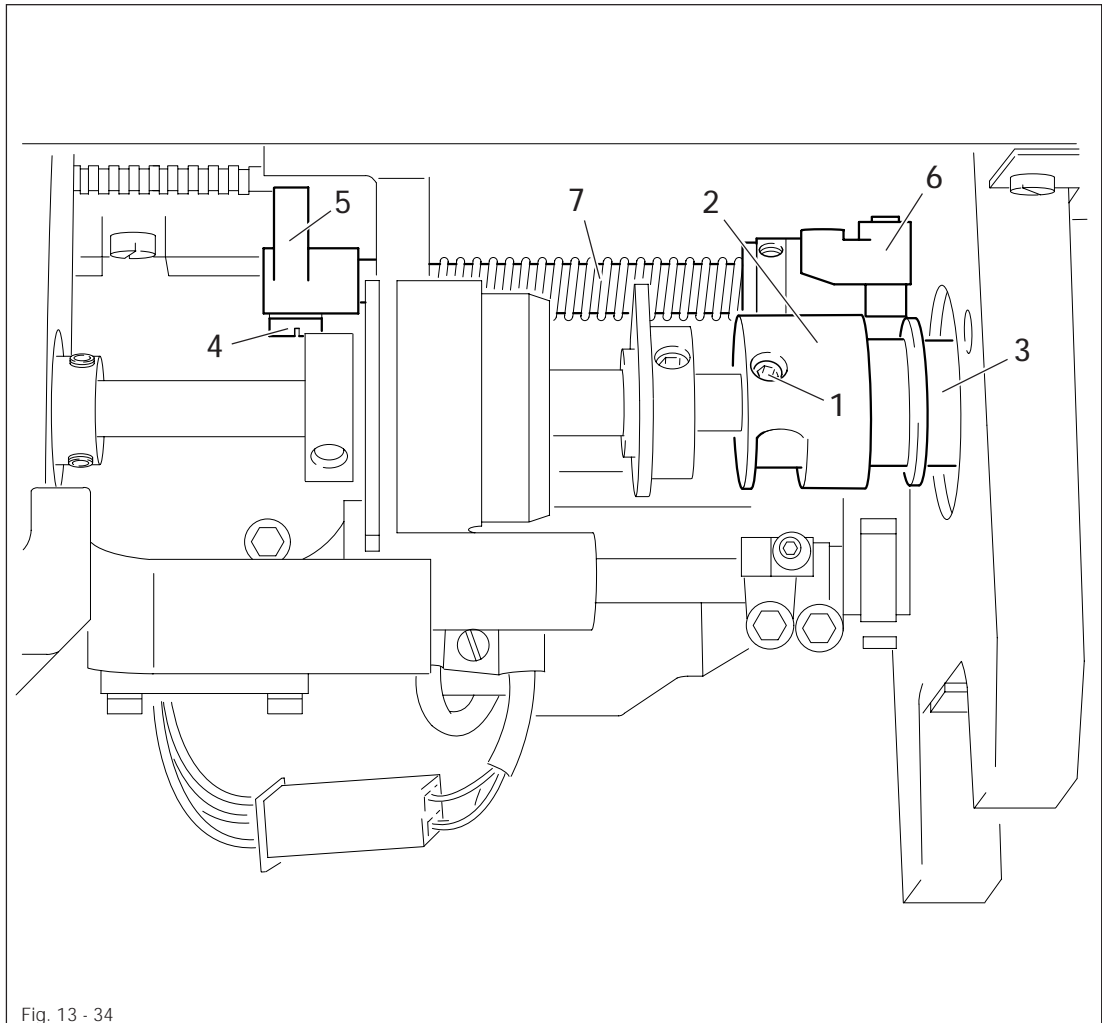
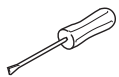


Fig. 13 - 34



- Loosen screws 1 and bring control cam 2 to rest against bearing collar 3.
- In this position tighten one of the screws 1 slightly so that control cam 2 can still be turned.
- Loosen screw 4.
- Position the straight section of the control cam underneath the roller of the tripping lever 6.
- Move tripping lever 6 together with shaft 7 in accordance with requirement 2.
- Taking care to ensure that connecting link 5 engages completely in the groove of the rack, bring connecting link 5 to rest on the right and tighten screw 4.

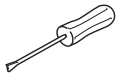
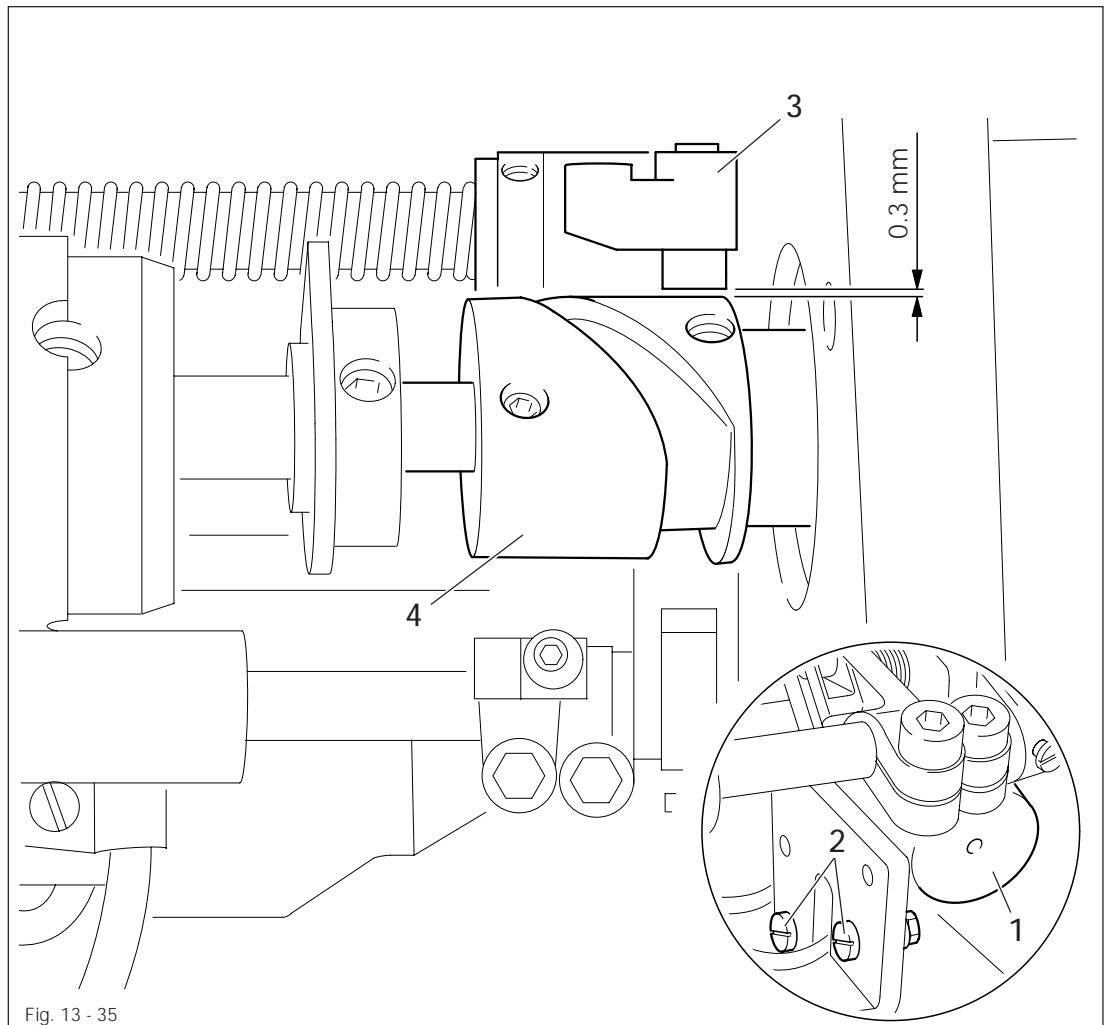


Only tighten screws 1 slightly for the following adjustment.

## 13.07.03 Radial position of the tripping lever

**Requirement**

With the tripping lever 3 in resting position, there must be a clearance of 0.3 mm between its roller and the circumference of the control cam 4.



- Bring the needle bar to BDC.
- Move solenoid carrier 1 ( nuts of screws 2 ) in accordance with the requirement.

## Adjustment

### 13.07.04 Engaging solenoid

#### Requirement

With the thread trimmer switched on, the magnet core must still be positioned at a distance of 1 mm before its lower stop.

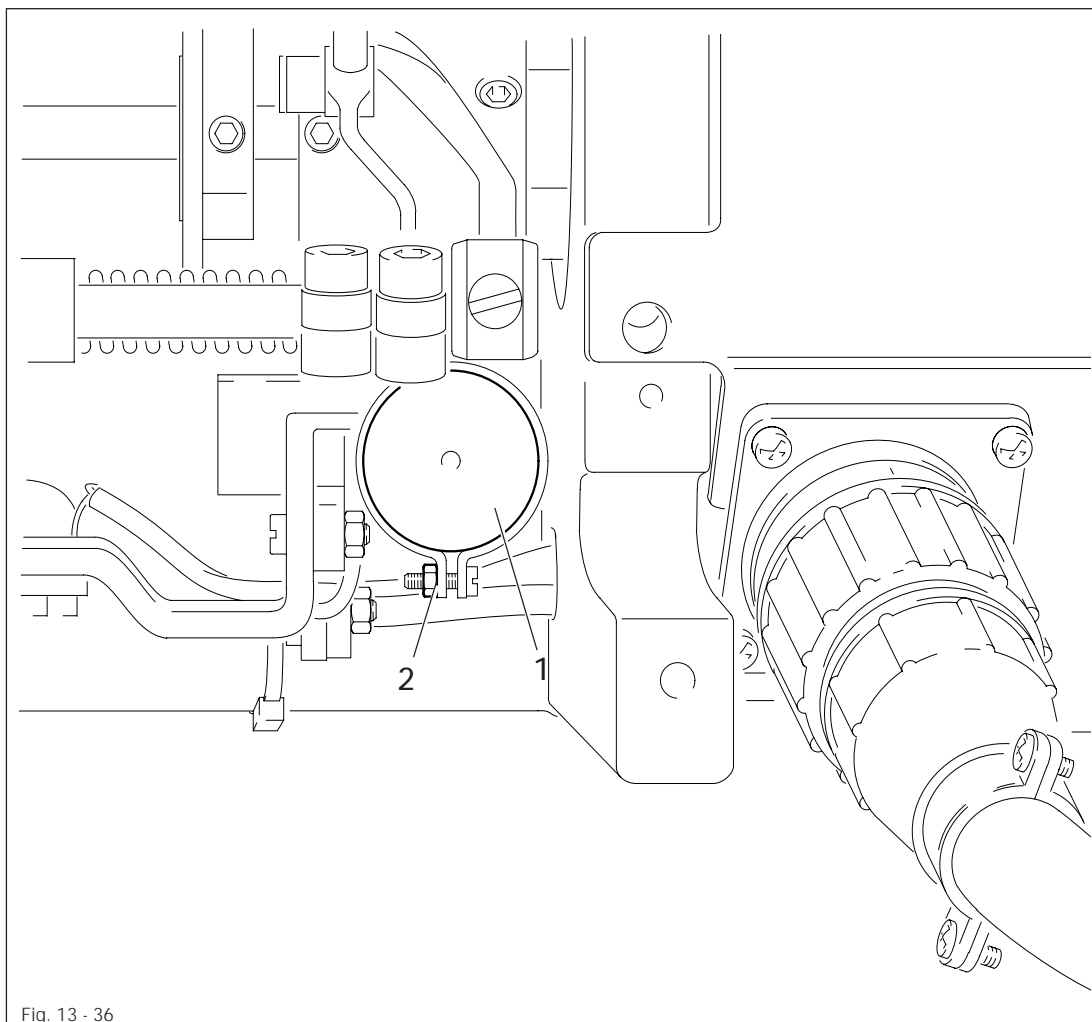
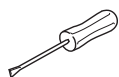


Fig. 13 - 36



- Bring the needle bar to BDC and activate the tripping lever by hand.
- Push solenoid housing 1 ( screw 2) up as far as possible and then move it in accordance with the requirement.
- Lift the tripping lever out of the control cam by hand.



## 13.07.05 Scissor drive lever

### Requirement

With the thread trimmer in resting position, there must be a clearance of approx. 0.5 mm between the scissor drive lever 4 and the bearing collar of the lever 5.

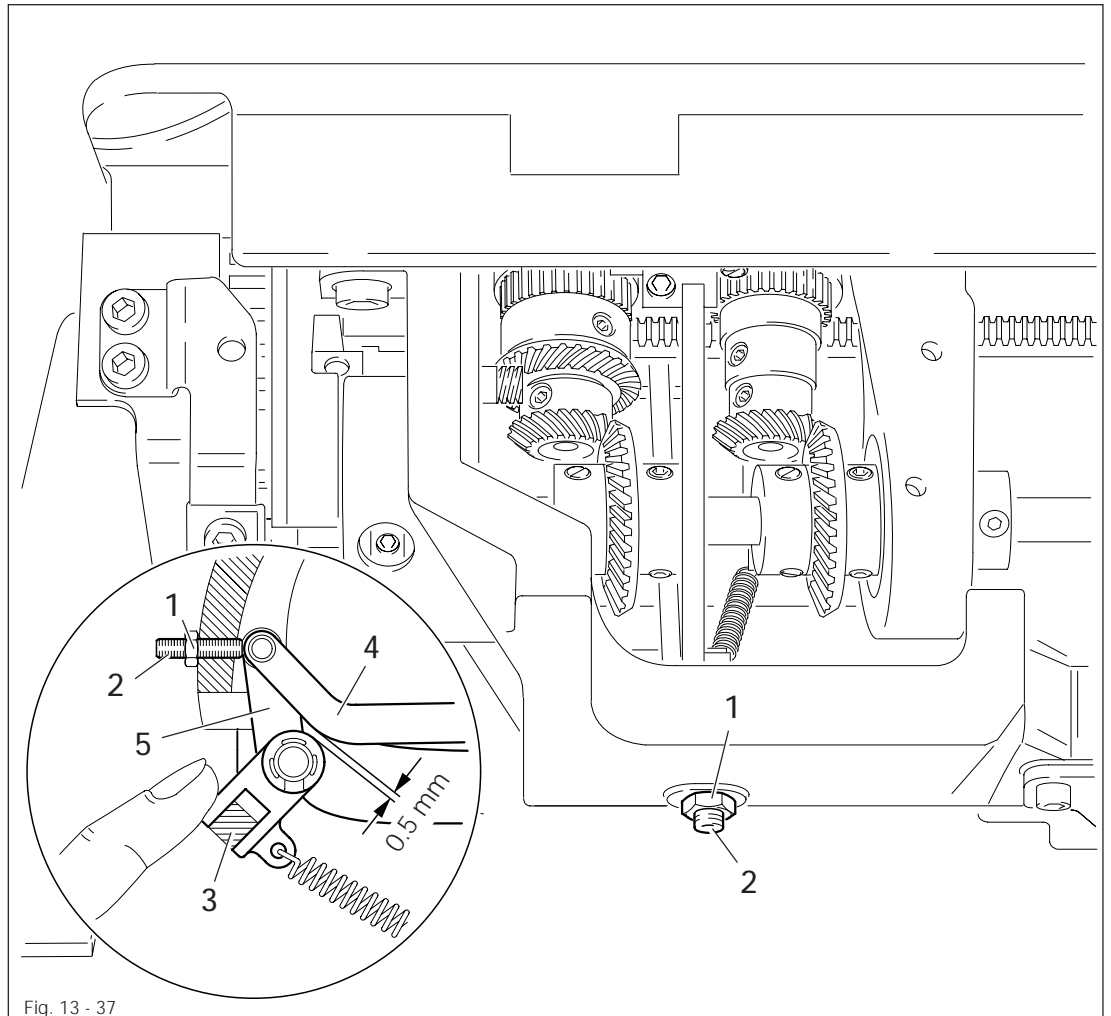
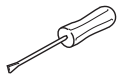


Fig. 13 - 37



- Loosen nut 1, and unscrew screw 2 a couple of turns.
- Press on lever 3 and screw screw 2 back in by hand until you feel some resistance while making sure that the lever 3 is not moved upwards.
- Continue screwing screw 2 back in by another half turn and tighten nut 1.

### 13.07.06 Adjusting the control cam with the adjustment gauge in relation to the bobbin opener and the scissor

#### Requirement

With the needle bar at BDC, both control cams must be positioned in such a way that

1. adjustment gauge 5 can be slid into the grooves of both control cams,
2. both cams are on the rests of adjustment gauge 5 and
3. the bent section of adjustment gauge 5 is touching roller 3.

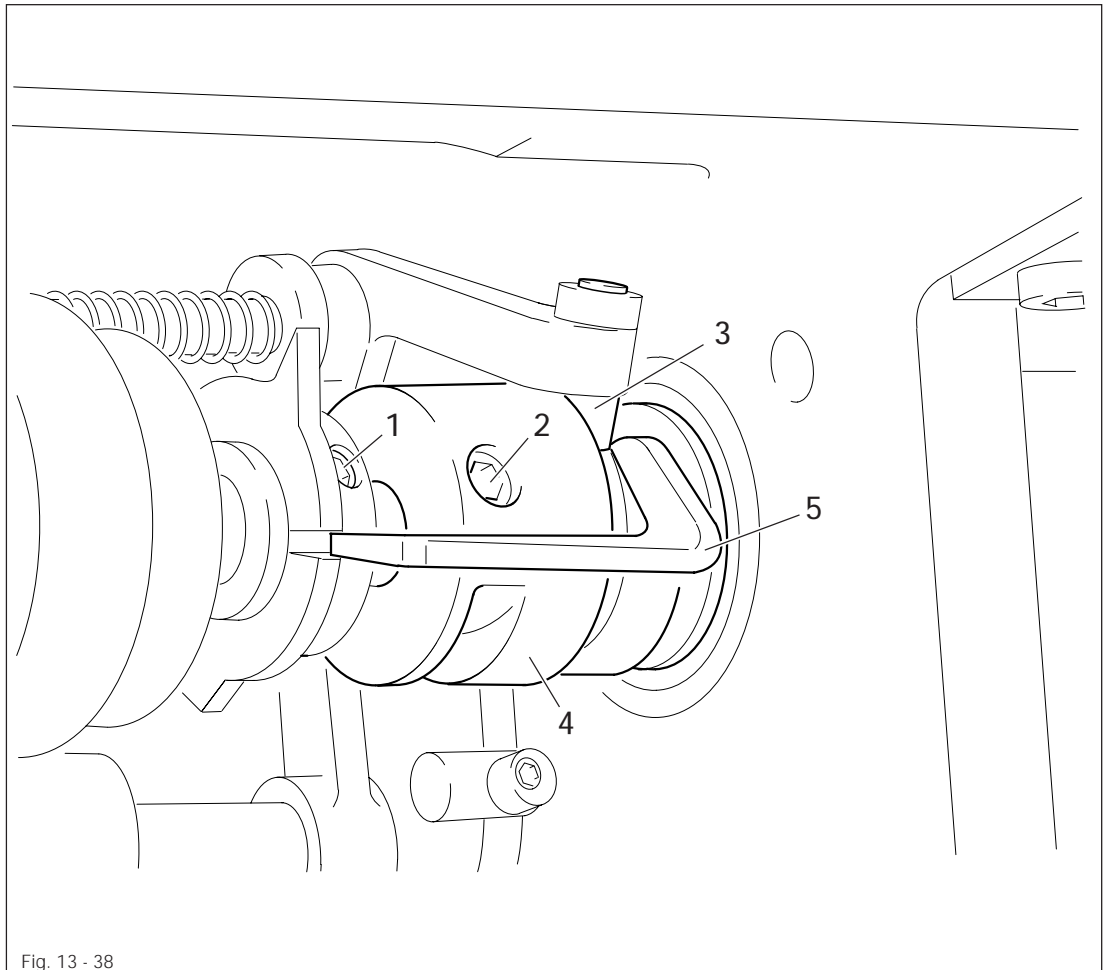
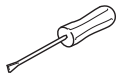


Fig. 13 - 38



- Loosen screws 1 and 2.
- Bring the needle bar to BDC and activate the tripping lever by hand ( roller 3 engaged ).
- Adjust the control cams in accordance with the **requirement** and insert adjustment gauge 5.
- Turn control cam 4 in accordance with the **requirement**.
- Taking care to ensure that control cam 4 is touching the bearing collar, tighten the accessible screws 1 and 2.
- Remove adjustment gauge 5 and tighten the remaining screws 1 and 2.

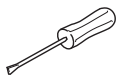
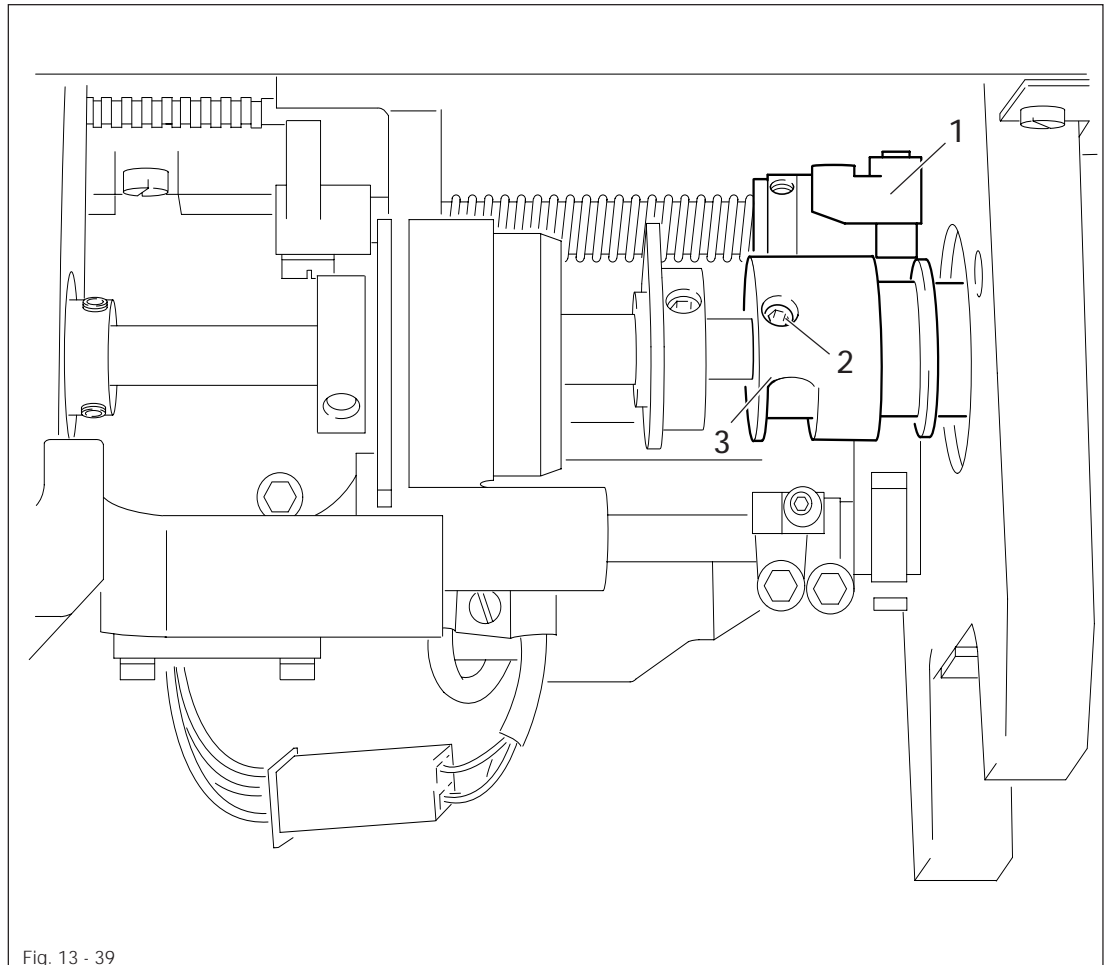


For adjustment without the gauge see chapter 13.07.07 Radial position of the control cam in relation to the bobbin opener and chapter 13.07.09 Control cam in relation to scissor.

## 13.07.07 Radial position of the control cam in relation to the bobbin opener

### Requirement

The retracting motion of the bobbin opener must begin when the needle bar is 4 mm after BDC.



- Activate the tripping lever by hand. The roller of the tripping lever 1 must fall in easily and unobstructedly in the cam track.
- Bring the needle bar to 4 mm after BDC ( use adjustment gauge and C-clamp ).
- Loosen screws 2.
- Turn control cam 3 in the direction of rotation until you feel resistance ( start of the retracting motion ).
- In this position tighten the accessible screw 2.
- Remove tripping lever 1 out of the control cam 3 by hand.
- Remove the C-clamp and tighten the remaining screw 2.

## 13.07.08 Tripping lever of scissor in relation to the control cam of the scissor

### Requirement

At the left point of reversal of the rock shaft 3

1. the roller of tripping lever 4 and the roller of return lever 5 must be in the middle of control cam 6 and
2. there must be a distance of 0.3 mm between the roller of tripping lever 4 and the external diameter of control cam 6.

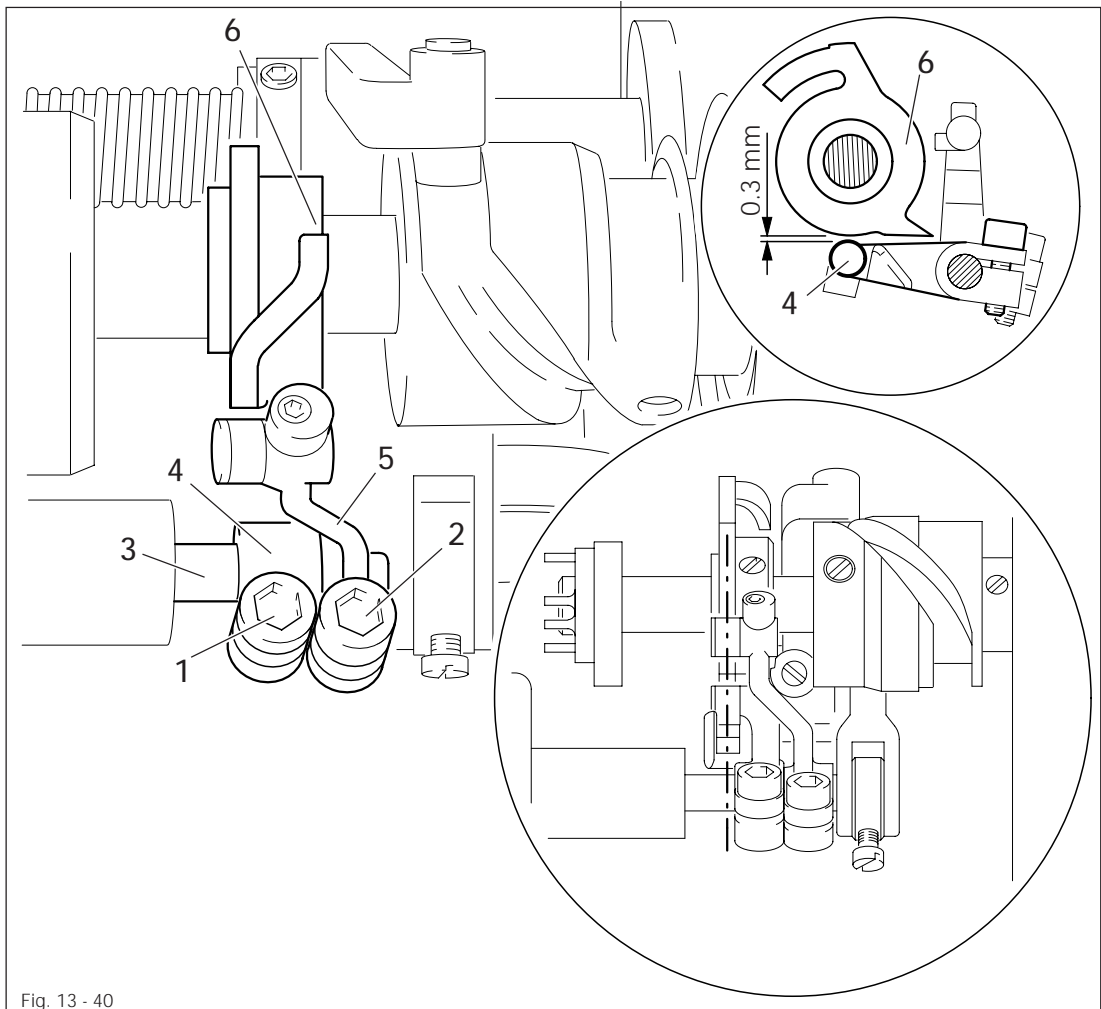
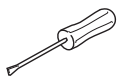


Fig. 13 - 40



- Bring the needle bar to BDC and activate the tripping lever by hand.
- Loosen screws 1 and 2.
- Turn the handwheel in the direction of rotation until rock shaft 3 is at its left point of reversal.
- Move tripping lever 4 and return lever 5 in accordance with **requirement 1**.
- Turn tripping lever 4 in accordance with **requirement 2**.
- In this position and observing **requirement 1**, tighten screw 1.



Screw 2 remains loosened for the following adjustment.

## 13.07.09 Control cam in relation to the scissor

**Requirement**

1. The cutting motion must begin when the needle bar is 0.6 mm after TDC.
2. There must be a clearance of **9 mm** between control cams 2 and 4.

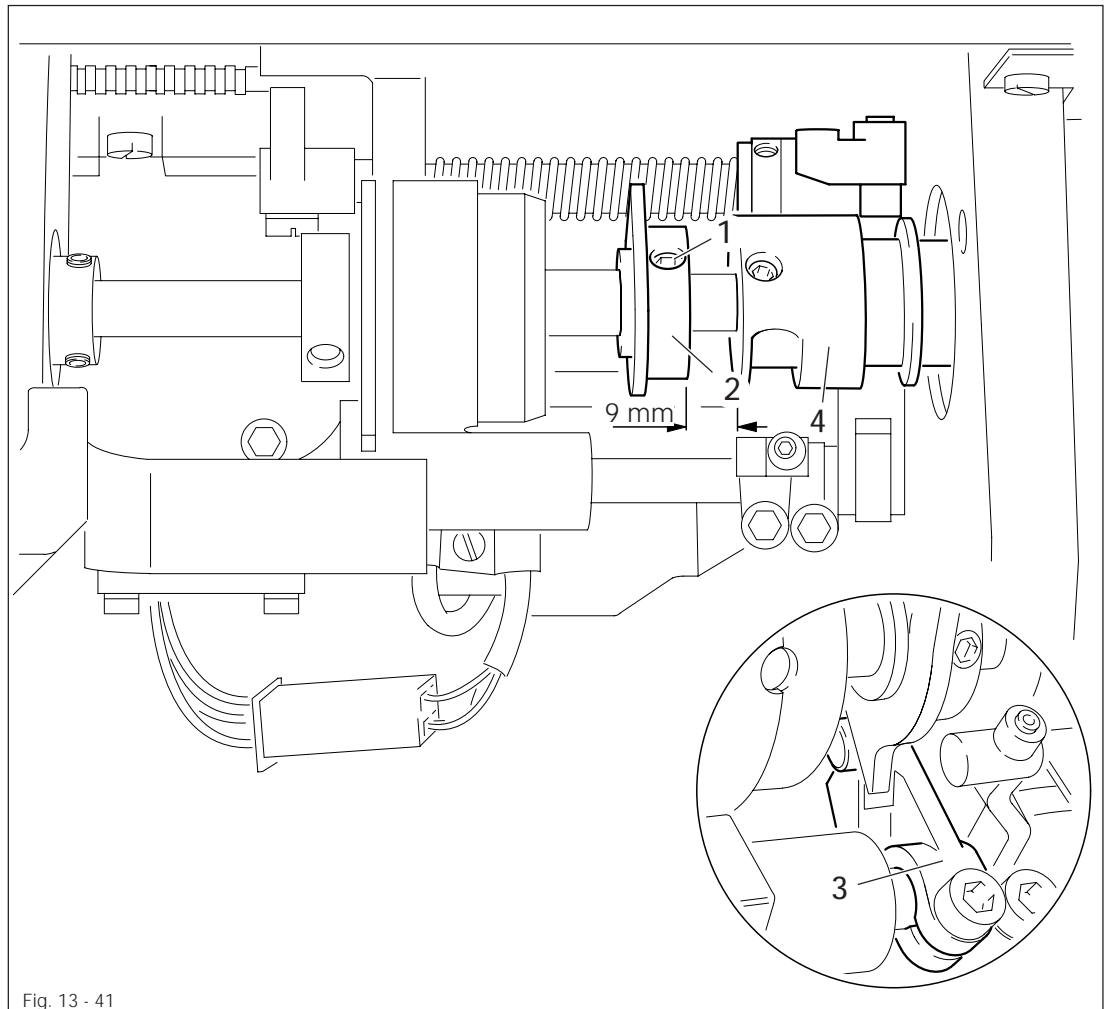
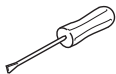


Fig. 13 - 41



- Loosen screws 1.
- Bring the needle bar to BDC and activate the engaging lever by hand.
- Bring the needle bar to 0.6 mm after TDC ( use adjustment gauge and C-clamp ).
- Turn control cam 2 until the trip is touching the roller of the tripping lever 3.
- Taking care that control cam 2 is **9 mm** from retractor cam 4, tighten one of the screws 1.
- Remove the C-clamp, make the second screw 1 accessible and tighten it.



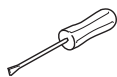
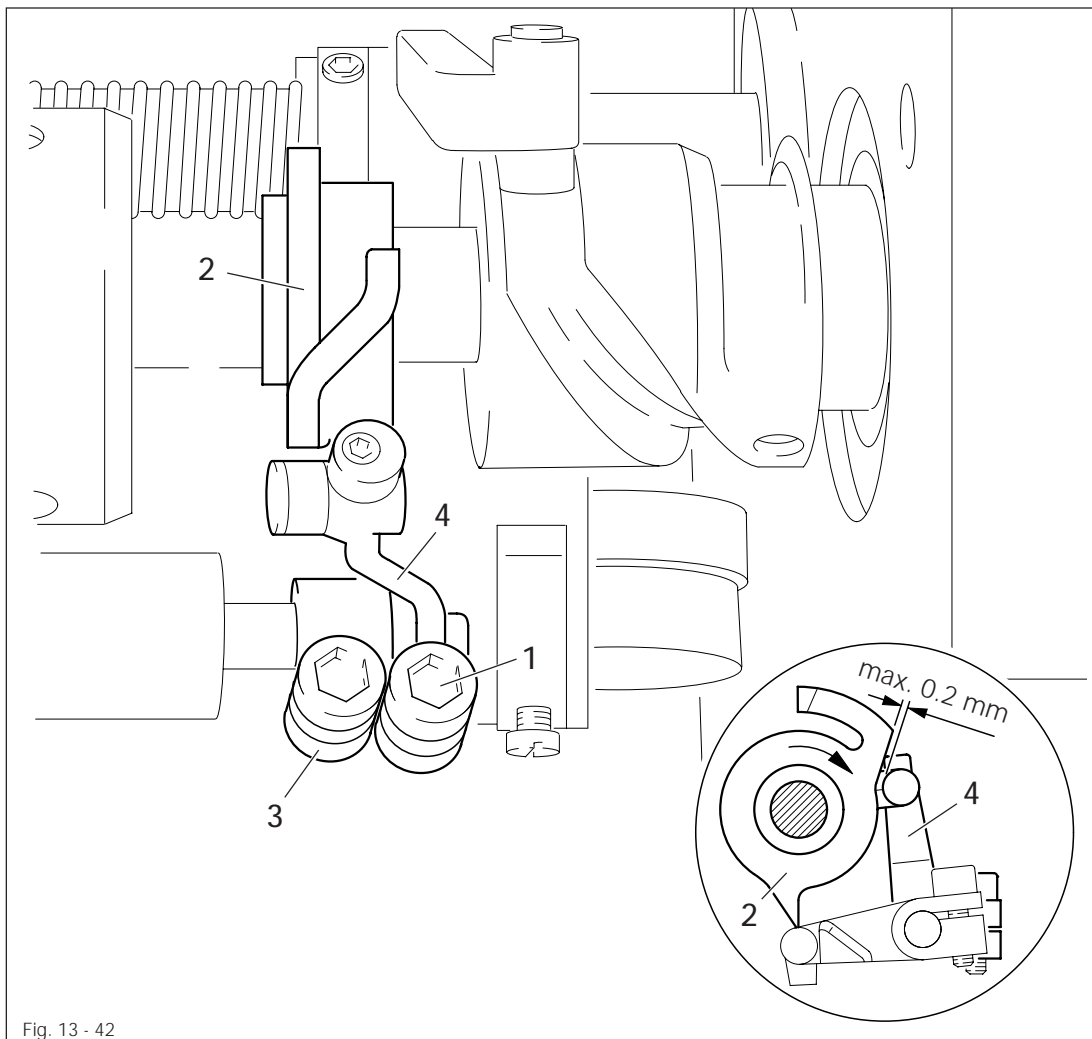
When using elastic sewing threads it may be necessary to set the the control cams in relation to the bobbin opener and the scissor at a „later“ point in time. A thread tension control ( subclass 906/10 ) is available for automatic tension-release with highly elastic sewing threads.

# Adjustment

## 13.07.10 Scissor return lever

### Requirement

When the roller of tripping lever 3 is exactly at the point of the trip of control cam 2 the maximum distance between the roller of return lever 4 and control cam 2 must be 0.2 mm.



- Bring the needle bar to BDC and activate the engaging lever by hand.
- Position the point of the trip of control cam 2 exactly at the middle of the roller of tripping lever 3 by turning the handwheel in the direction of sewing.
- Maintaining this position, bring the return lever 4 to rest against the side of tripping lever 3 and turn it radially in accordance with the **requirement**.
- Tighten screw 1.

## 13.07.11 Scissor return control

**Requirement**

1. When the point of the trip of control cam 1 is exactly at the roller of tripping lever 2 and trip 3 is touching the beginning of the angular edge of guide plate 5 (see arrow), there must be a clearance of approx. **0.6 mm** between trip 3 and guide plate 5.
2. When the rock shaft has sprung back to its starting position the maximum clearance between trip 3 and guide plate 5 must be **0.3 mm**.

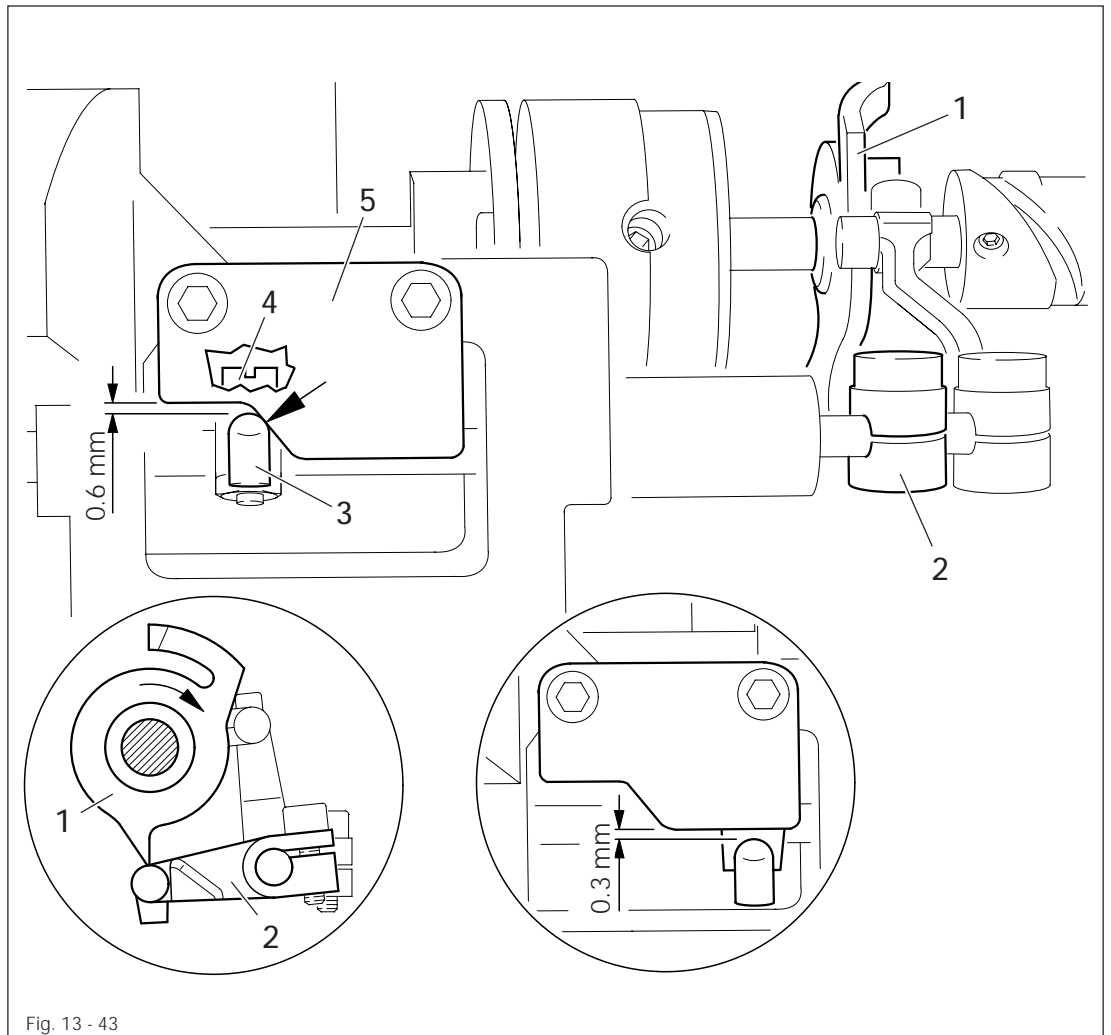
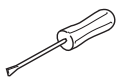


Fig. 13 - 43



- Position the point of the trip of control cam 1 exactly at the roller of tripping lever 2 by turning the handwheel.
- Move trip 3 (screw 4) in accordance with requirement 1.
- Bring rock shaft back to its starting position.
- Check requirement 2. If necessary, position guide plate 5 appropriately.

## 13.07.12 Fitting the scissor

### Requirement

1. The pin of bolt 4 must protrude into the cam tracks of the scissor halves.
2. The scissor must work with as little lateral play as possible.

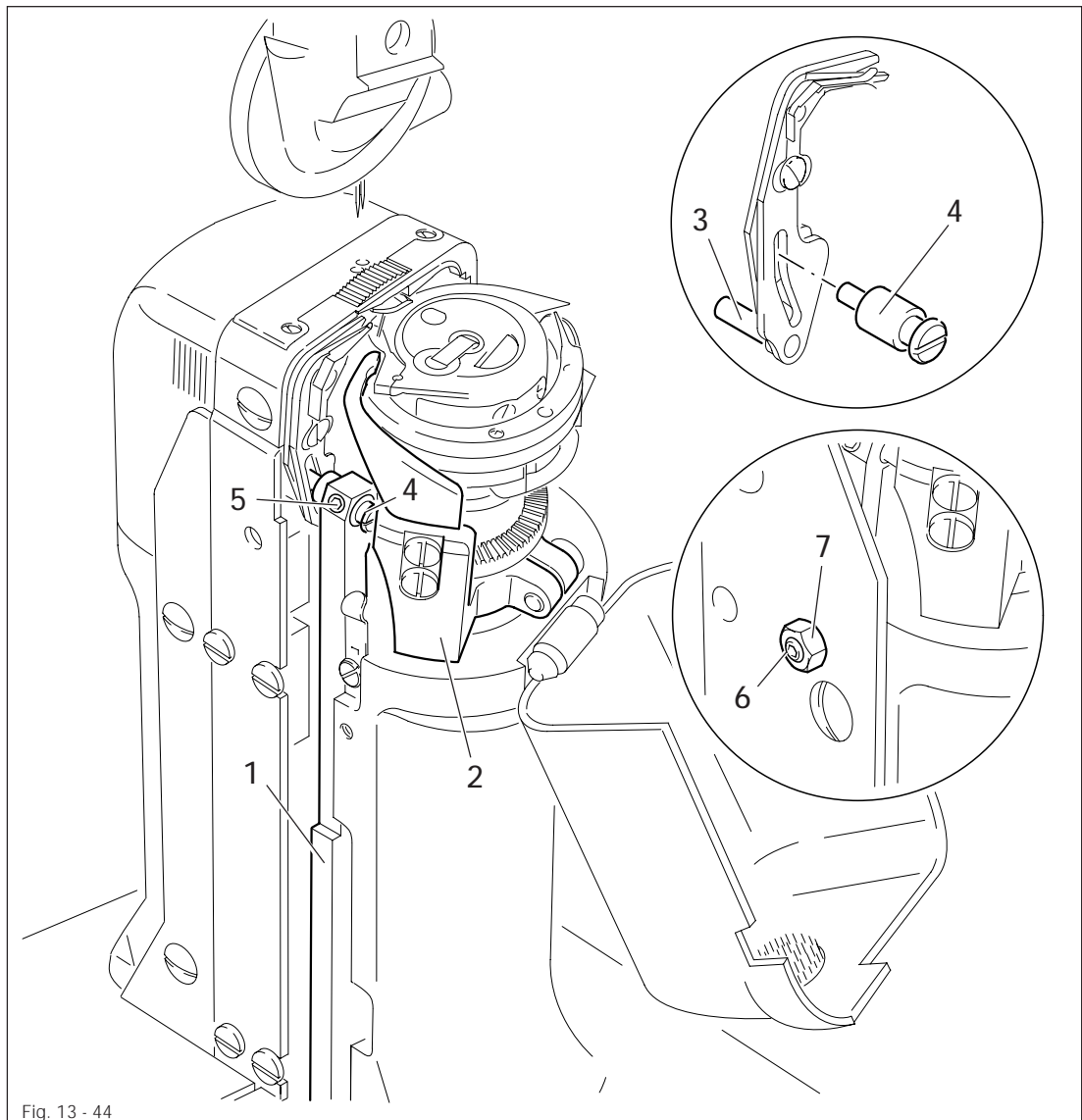
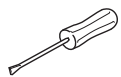


Fig. 13 - 44



- Swing out driving rod 1.
- Swing out bobbin opener 2 by hand and hold it.
- Insert the scissor with its bearing pin 3 into the bearing bushing of the feed wheel post.
- Swing in driving rod 1 and insert pin 4 in accordance with requirement 1.
- Position the eccentricity of pin 4 so that it faces upwards.
- Tighten screw 5 and screw on the post cover plate.
- Check driving rod 1 for play and friction-free running. If necessary, adjust with screw 6 (nut 7).



## 13.07.13 Eccentric sleeve

**Requirement**

1. In its starting position the scissor must be flush with the contour of the needle plate.
2. The scissor must lightly touch the needle plate and the eccentric sleeve 2.

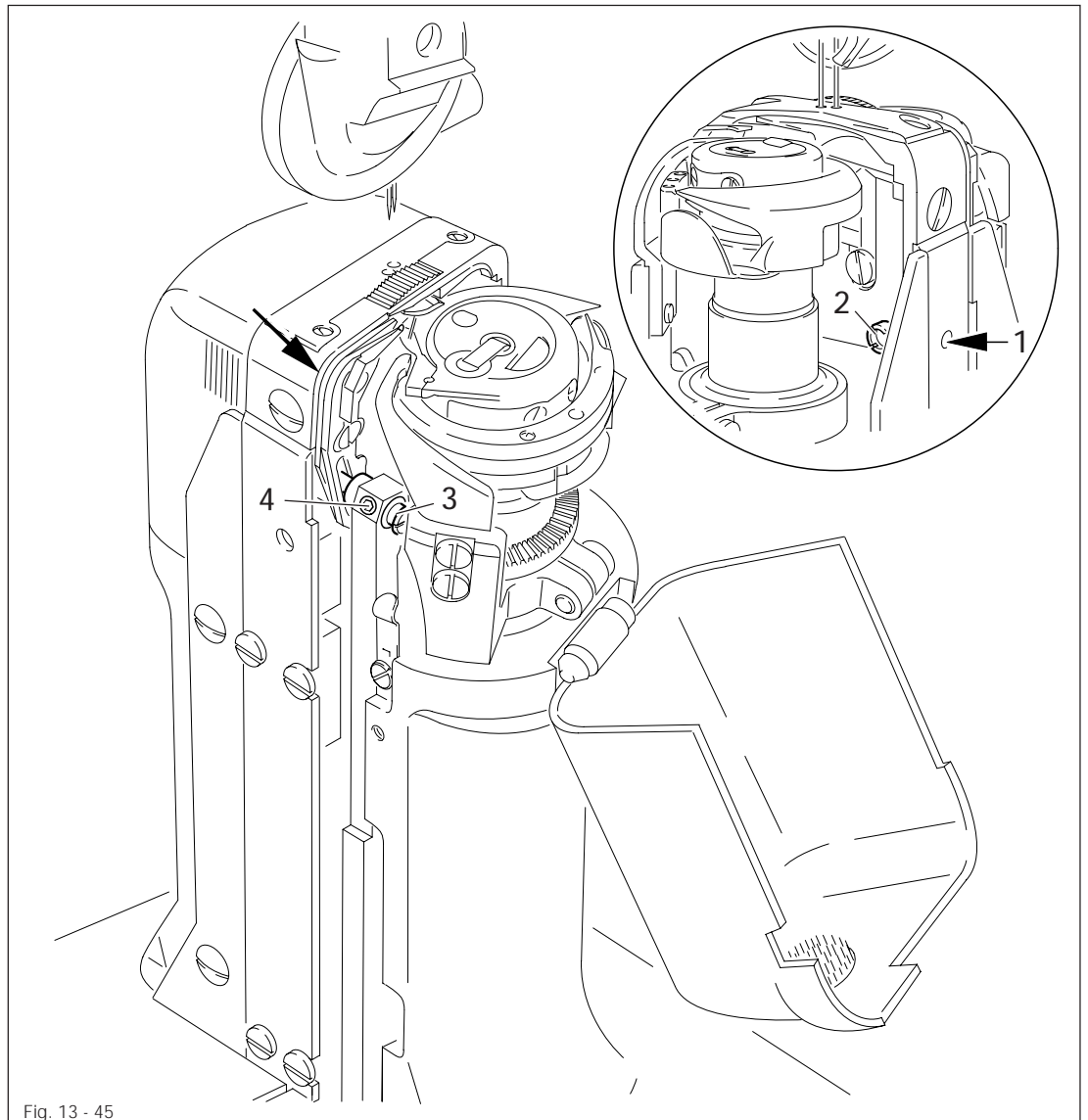
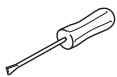


Fig. 13 - 45



- Loosen screw 1 enough so that eccentric sleeve 2 can still be turned.
- Turn eccentric sleeve 2 until the scissor is flush with the needle plate.
- Maintaining this position, move eccentric sleeve 2 laterally in accordance with the requirement.
- Tighten screw 1.
- Press pin 3 ( screw 4 ) lightly against the scissor.



If using the 1474E1 model, carry out the same adjustment on the second post.

## 13.07.14 Scissor driving rod

### Requirement

1. In its starting position the scissor must be flush with the needle plate contour.
2. At the TDC of the driving rod 2 there must be a safety clearance of at least 0.3 mm between pin 4 and the top end of the cam guide.

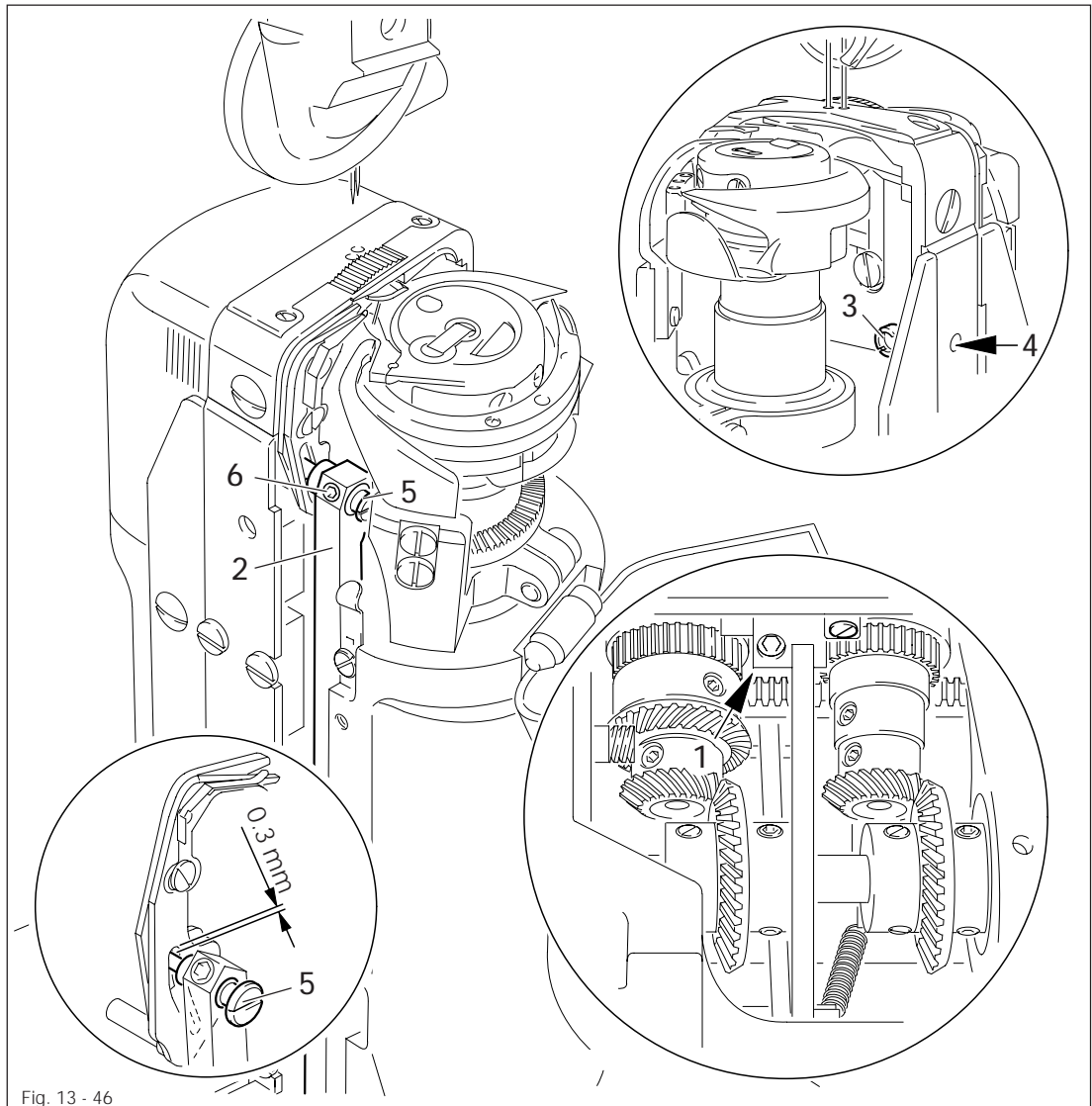
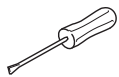


Fig. 13 - 46



- Bring the needle bar to BDC and activate the engaging lever by hand.
- Bring driving rod 2 to its top point of reversal by turning the handwheel.
- Carry out the alteration on the driving rod 2 ( screw 1 ), the eccentric sleeve 3 ( screw 4 ) and/or the eccentric pin 5 ( screw 6 ) in accordance with the **requirement**.
- Check the **requirement** from chapter 13.07.13 Eccentric sleeve.
- Bring the thread trimmer to its starting position using the handwheel.



If using the 1474E1 model, carry out the same adjustment on the second post.

## 13.07.15 Scissor function test

### Requirement

1. The threads must be cut neatly.
2. After being trimmed, the bobbin thread must be held securely by the thread trapper.

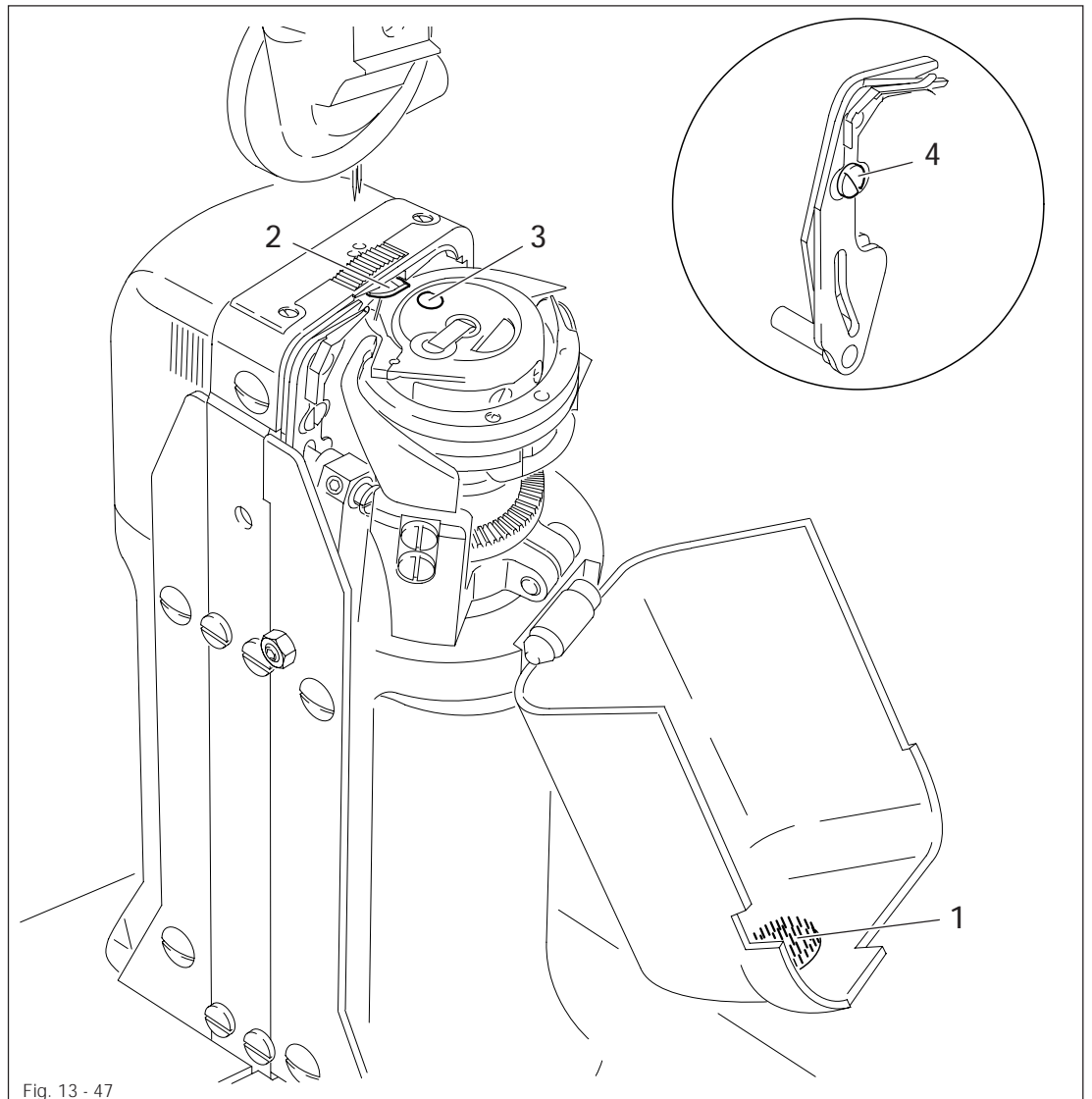
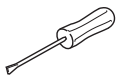


Fig. 13 - 47



- Turn the machine on.
- Sew a few stitches and turn the on/off switch off.
- Activate the engaging lever by hand and close the post cover while ensuring that pressure disk 1 is inserted into the post cap.
- Bring the needle bar to TDC by turning the handwheel and open the post cover.
- In this position the needle and bobbin threads must be held by the catching lug 2 of bobbin case and the needle thread must be held by the catching lug 3 of bobbin.
- If the needle thread is not held, insert a new pressure disk 1 ( part no. 91-119 492-91 ).
- Turn the handwheel and observe the cutting process.
- When the scissor is moving forward, the thread trapper must first trap and hold the

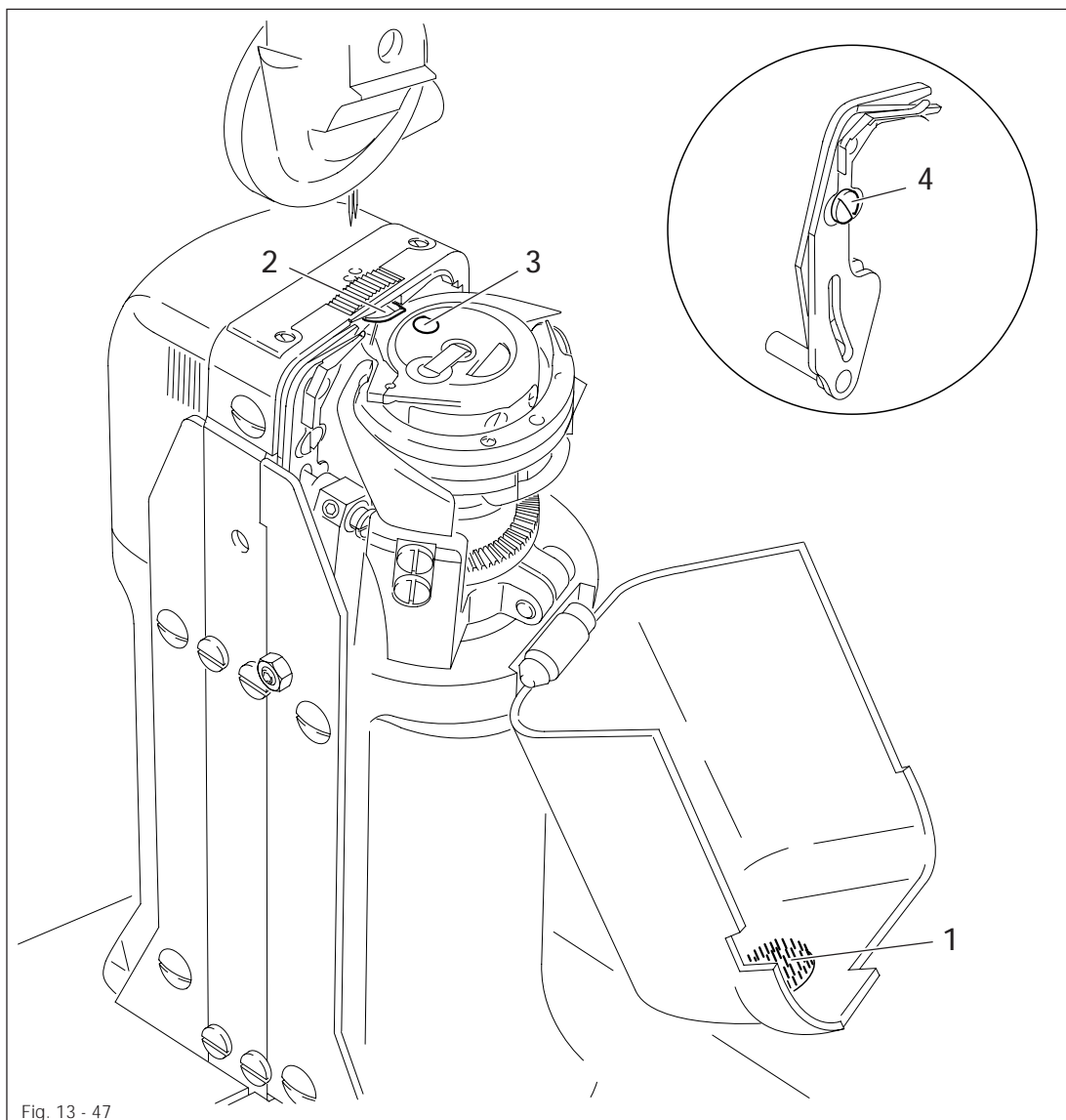


Fig. 13 - 47

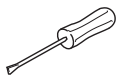
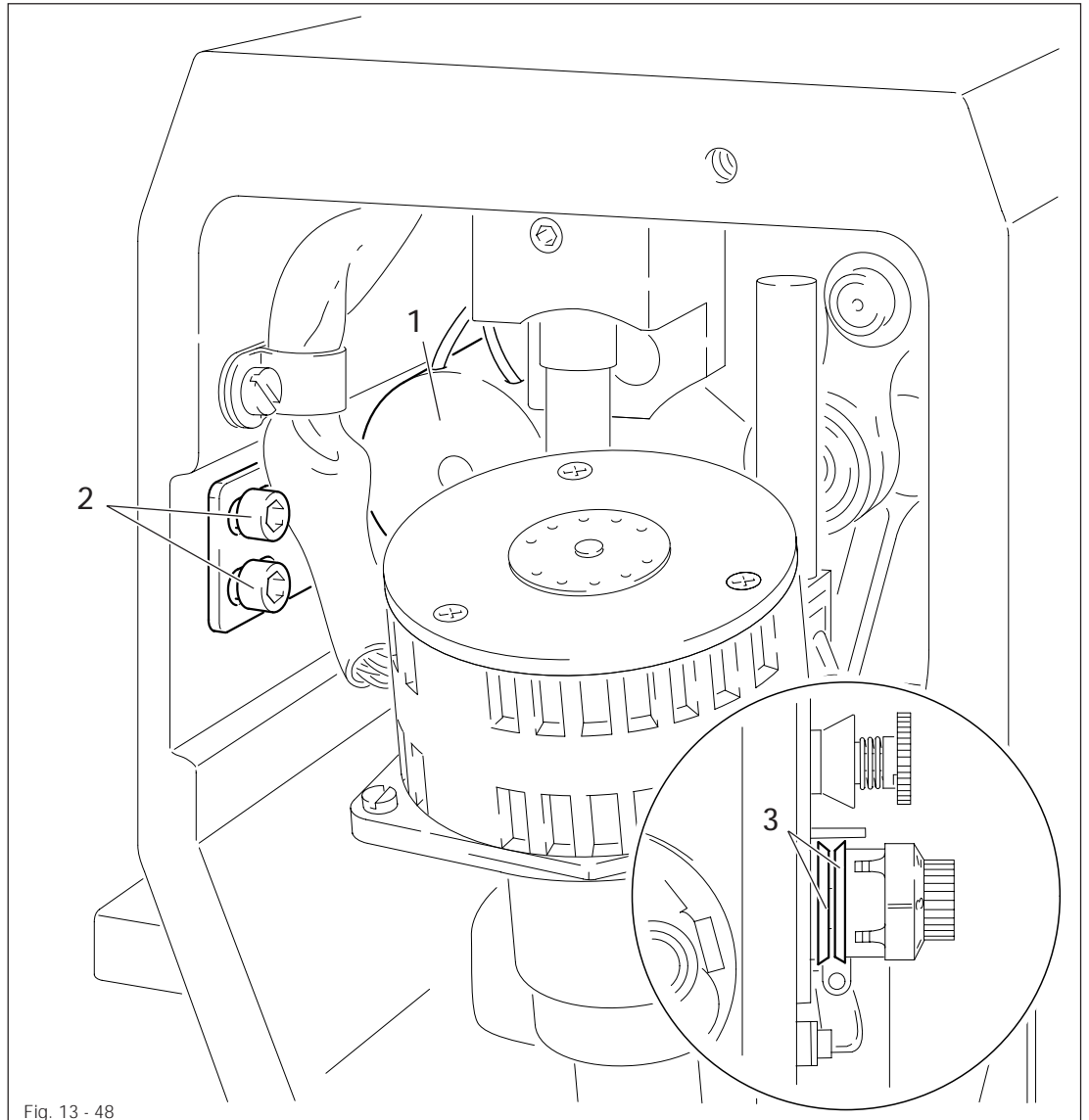
threads on the scissor ( if necessary adjust the thread trapper as required after loosening retaining screw 4 ).

- As the process continues, both the bobbin thread and the part of the thread loop closest to the scissor which is held by the catching lug must be cut perfectly.
- If the threads are not cut at all or not cut fully, check the **chapter 13.07.14 Scissor driving rod** again.
- Carry out a check according to the **requirement**.

## 13.08 Tension release ( only on machines with thread tension control -906/10 )

### Requirement

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



- Actuate 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 ).

## 13.09 Parameter settings

### 13.09.01 Adjusting positions

- Turn the machine on and sew one stitch.



- Select INPUT mode.



- Select the Input Menu function ( number key 0 ).



- Select the SERVICE function.



- Select the SEWING MOTOR function.



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

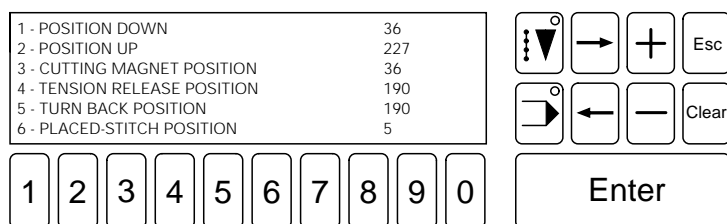


Fig. 13 - 49



The positions shown in Fig. 13 - 49 comply with the standard settings. If these parameter settings are altered, an optimum sewing operation cannot be guaranteed.

Setting the parameters:



to



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

- Change the position by turning the handwheel.

Enter

- Confirm the alteration by pressing **Enter**.

## 13.09.02 Setting the counter

- Turn the machine on.



- Select INPUT mode.



- Select the Input Menu function ( number key 0 ).



- Select the COUNTER function.

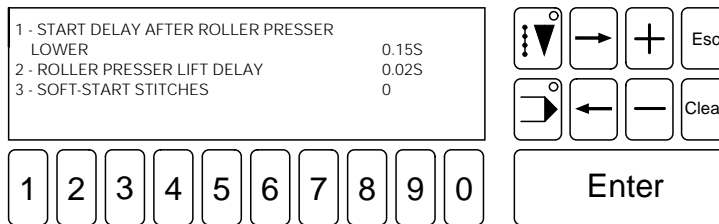
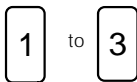


Fig. 13 - 50

Setting the parameters:

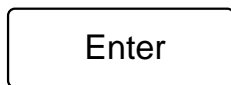


to



- 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 by pressing Enter.

## 13.09.03 Setting the speed

- Turn the machine on.



- Select INPUT mode.



- Select the Input Menu function ( number key 0 ).



- Select the SPEED function.

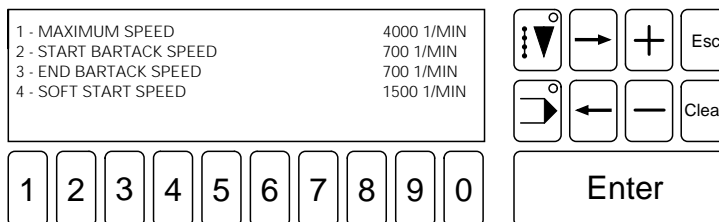


Fig. 13 - 51

- For setting the various speeds see 13.09.02 Setting the counter.

# PFAFF

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Gedruckt in der BRD  
Printed in Germany  
Imprimé en R.F.A.  
Impreso en la R.F.A.