

# PFAFF

# 3119

## Instruction manual

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

# 873221 →



This instruction manual applies to all versions and subclasses listed under "Specifications".

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## 1 Safety

### 1.01 Regulations

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

In addition to this instruction manual, please also observe all generally accepted, statutory and other legal requirements, including those of the user's country, and the applicable pollution control regulations!

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

### 1.02 General notes on safety

- The machine must only be operated by adequately trained operators and only when the instruction manual has been fully read and understood!
- All notices on safety and the instruction manual of the motor manufacturer are to be read before the machine is put into operation!
- All notes on the machine concerning danger and safety must be observed!
- The machine must be used for the purpose for which it is intended and must not be operated without its safety devices; all regulations relevant to safety must be adhered to.
- When part sets are changed (e.g. needle, presser foot, needle plate, feed dog or bob-bin), during threading, when the workplace is left unattended and during maintenance work, the machine must be isolated from the power supply by turning off the on/off switch or removing the plug from the mains!
- Daily maintenance work must only be carried out by appropriately trained persons!
- Repairs and special maintenance work must only be carried out by qualified technical staff or persons with appropriate training!
- During maintenance or repairs on the pneumatic system the machine must be isolated from the compressed air supply! The only exception to this is when adjustments or function checks are carried out by appropriately trained technical staff!
- Work on the electrical equipment must only be carried out by technical staff who are qualified to do so!
- Work on parts or equipment connected to the power supply is not permitted! The only exceptions to this are specified in regulations EN 50110.
- Conversion or modification of the machine must only be carried out under observation of all relevant safety regulations!
- Only spare parts which have been approved by us are to be used for repairs! We draw special attention to the fact that spare parts and accessories not supplied by us have not been subjected to testing nor approval by us. Fitting and/or use of any such parts may cause negative changes to the design characteristics of the machine. We shall not accept any liability for damage caused by the use of non-original parts.

1.03 Safety symbols



Danger!  
Special points to observe.



Danger of injury to operating or technical staff!



Electric voltage!  
Danger to operating or technical staff!



**Caution**

Do not operate without finger guard and safety devices. Before threading, changing bobbin and needle, cleaning etc. switch off main switch.

1.04 Important notes for the user

- This instruction manual belongs to the equipment of the machine and must be available to the operating staff at all times.  
This instruction manual must be read before the machine is operated for the first time.
- Both operating and technical staff must be instructed on the safety devices of the machine and on safe working methods.
- It is the duty of the user to operate the machine in perfect running order only.
- The user must ensure that none of the safety devices are removed nor put out of working order.
- The user must ensure that only authorized persons operate and work on the machine.

For further information please refer to your PFAFF agency.

## 1.05 Notes for operating and technical staff

### 1.05.01 Operating staff

Operating staff are the persons responsible for setting up, operating and cleaning the machine and for removing any disturbances in the sewing area.

The operating staff are obliged to observe the following points, and must:

- always observe the notes on safety in this instruction manual!
- avoid using any working methods which adversely effect the safety of the machine!
- avoid wearing loose-fitting clothing or jewelry such as necklaces or rings!
- also ensure that only authorized persons are allowed near the danger area of the machine!
- immediately report to the user any changes to the machine that may affect its safety!

### 1.05.02 Technical staff

Technical staff are persons who have been trained in electrical engineering, electronics, pneumatics and mechanical engineering. They are responsible for lubricating, servicing, repairing and adjusting the machine.

The technical staff are obliged to observe the following points, and must:

- always observe the notes on safety in this instruction manual!
- switch off the on/off switch before carrying out adjustment and repair work and ensure it cannot be switched on again unintentionally!
- never work on parts or equipment still connected to the power supply! Exceptions to this are only permissible according to regulations EN 50110;
- isolate the machine from the compressed air supply when carrying out maintenance or repair work on pneumatic equipment!  
Exceptions to this are only permissible for function checks;
- replace all safety covers after carrying out maintenance or repair work!



1.06 Danger warnings



A working area of 1 m must be kept free both in front of and behind the machine, so that easy access is possible at all times.



Never put your hands in the sewing area during sewing!  
Danger of injury by the needle!



During maintenance and adjustment work the knife must be secured with locking device 1. Danger of injury from the knife!

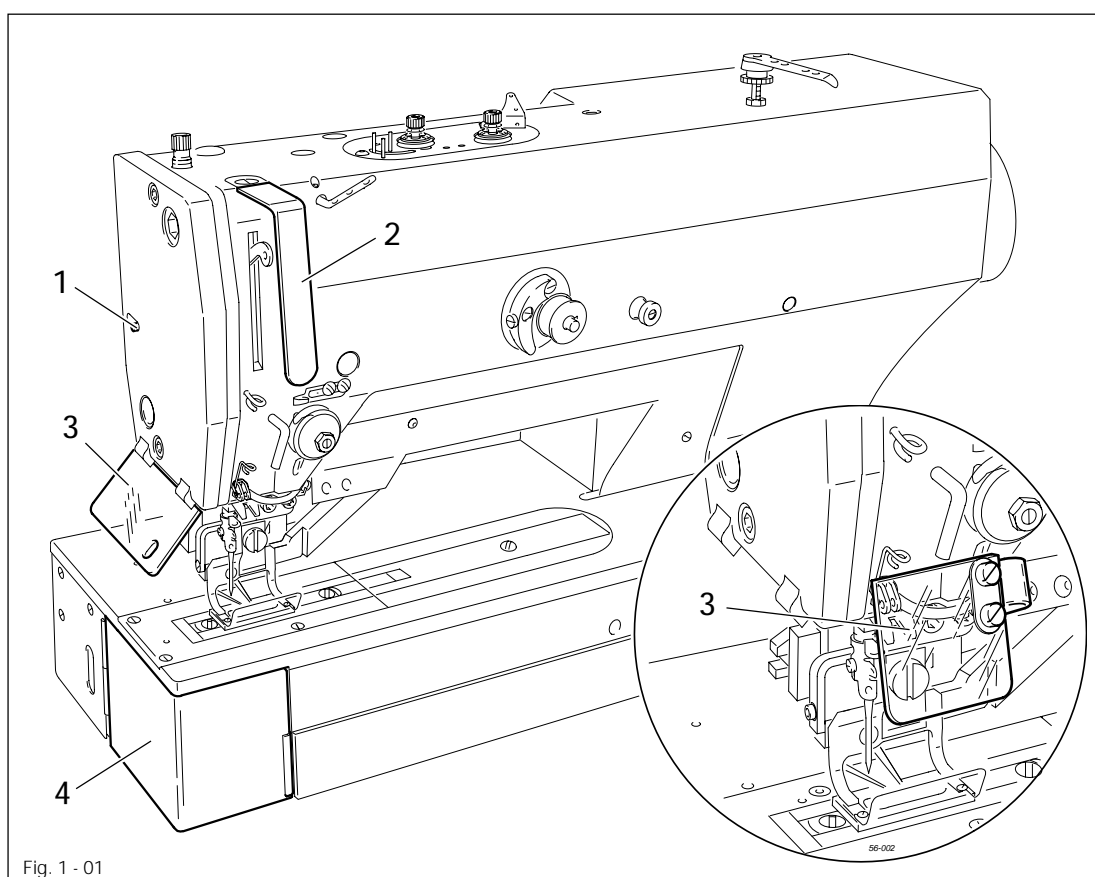


Fig. 1 - 01



Do not operate the machine without the take-up lever guard 2!  
Danger of injury from the movement of the take-up lever.



Do not operate the machine without eye shield 3!  
Danger of injury from needle splinters! The type of eye shield is dependent on the way the machine is installed.



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

2

### Proper use

The PFAFF 3119 is used for sewing purl or flat buttonholes with two flat or raised square bars on linen and clothing.



Any use of these machines which is not approved by the manufacturer shall be considered as improper use! The manufacturer shall not be liable for any damage arising out of improper use! Proper use shall also be considered to include compliance with the operation, adjustment, service and repair measures specified by the manufacturer!

3 Specifications ▲

3.01 General information

Model:

A: ..... for sewing fine materials

B: ..... for sewing medium weight materials

Max. sewing speed: ..... 4200 min<sup>-1</sup>

Stitch type: ..... 304

Needle bar stroke: ..... 34.5 mm

Max. thickness of workpiece: ..... max. 4 mm

Max. work clamp clearance: ..... max. 12.5 mm

Fabric clearance (crosswise to sewing arm): ..... 235 mm

Fabric clearance (lengthwise to sewing arm): ..... 30 mm

Stitch formation: ..... buttonhole, max. 48 mm x 5.5 mm

Length of buttonhole cut: ..... 6.4 mm – 38.1 mm

Zig-zag stitch: ..... max. 5.5 mm

Number of stitches: ..... freely programmable

Feed type: ..... intermittent

Power supply: ..... 190 – 240 V –20%, +10%, 50/60 Hz, single phase

Power consumption: ..... max. 0.6 KVA

Input power rating: ..... 0.7 kVA

Fuse protection: ..... 1 x 16A, inert

Working air pressure: ..... 6 bar

Air consumption ..... ~1.2 l / work cycle

Noise emission level at workplace with a sewing cycle of 4 sec.

On and 2 sec. Off: ..... L<sub>pA</sub> ≤ 81 dB(A)

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

Sewing head dimensions:

Length: ..... approx. 514 mm

Width: ..... approx. 200 mm

Height: ..... approx. 450 mm

Weight of sewing head: ..... approx. 65 kg

Dimensions of base:

Length: ..... approx. 1060 mm

Width: ..... approx. 600 mm

Height ..... approx. 820 mm

Weight of base incl. control box: ..... approx. 45 kg

Needle system: ..... 438

Needle size for fine materials: ..... 60 - 70

Needle size for medium-weight materials: ..... 80 - 100

▲ Subject to alteration

Sub-class (Parameter 202)	3119-1/51 3119-1/52	3119-2/51	3119-2/53	3119-3/51	3119-4/51
Cut-out size in work clamp [mm]	30.0 x 5.6	40.0 x 5.6	40.0 x 6.7	46.0 x 6.7	55.0 x 7.0
Buttonhole size [mm]	24.0 x 4.5	34.0 x 4.5	34.0 x 5.5	40.0 x 5.5	48.0 x 5.5
Length of buttonhole cut [mm]	6.4 9.5 11.0 12.7 14.0 16.0 17.5	12.7 14.0 16.0 17.5 19.0 22.2 25.4	12.7 14.0 16.0 17.5 19.0 22.2 25.4	12.7 14.0 16.0 17.5 19.0 22.2 25.4 28.6 31.7*	12.7 14.0 16.0 17.5 19.0 22.2 25.4 28.6 31.7* 33.7 35.0 36.5 38.1

\* When the multiple cutting operation is activated (parameter 207 on II), for a cutting length from 31.7 mm, the length of the knife must be at least 16.0 mm.



Each time that part sets are changed, parameter 202 must be adapted to the subclass. If the setting is incorrect, the knife or the needle may strike the work clamp.

### 4 Disposal of Machine

- Proper disposal of the machine is the responsibility of the customer.
- The materials used for the machine are steel, aluminium, brass and various plastic materials.  
The electrical equipment comprises plastic materials and copper.
- The machine is to be disposed of according to the locally valid pollution control regulations; if necessary, a specialist is to be commissioned.



Care must be taken that parts soiled with lubricants are disposed of separately according to the locally valid pollution control regulations!

## Transportation, packing and storage

### 5 Transportation, packing and storage

#### 5.01 Transportation to customer's premises

All machines are delivered completely packed.

#### 5.02 Transportation inside the customer's premises

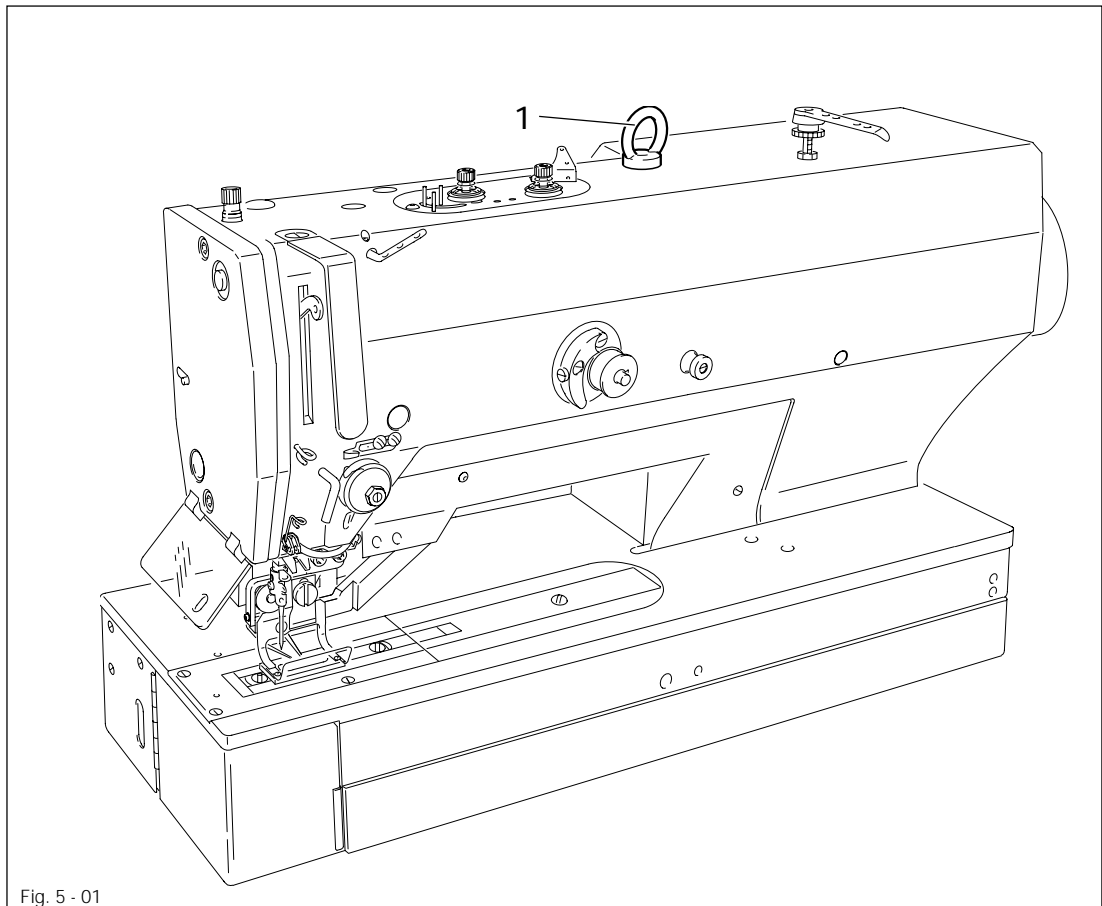


Fig. 5 - 01

The manufacturer cannot be made liable for transportation inside the customer's premises, nor to other operating locations. Care must be taken that the machine is transported in an upright position. To lift the machine with a suitable lifting appliance, lifting ring 1 delivered with the machine can be screwed into the threaded hole on the machine.

#### 5.03 Disposal of packing materials

The packing materials of these machines consist of paper, cardboard and VCE-fibre. Proper disposal of the packing material is the responsibility of the customer.

#### 5.04 Storage

If the machine is not in use, it can be stored as it is for a period of up to six months, but it should be protected against dust and moisture.

If the machine is stored for longer periods, the individual parts, especially the surfaces of moving parts, must be protected against corrosion, e.g. by a film of oil.

### 6 Explanation of symbols

In this instruction manual, work to be carried out or important information is accentuated by symbols. These symbols have the following meanings:



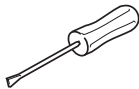
Note, information



Cleaning, care



Lubrication



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

## 7 Controls

### 7.01 On / off switch

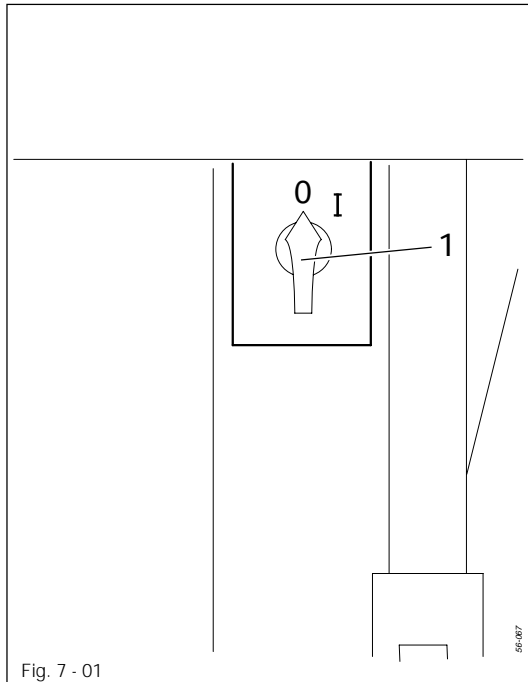


Fig. 7 - 01

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

### 7.02 Pedal

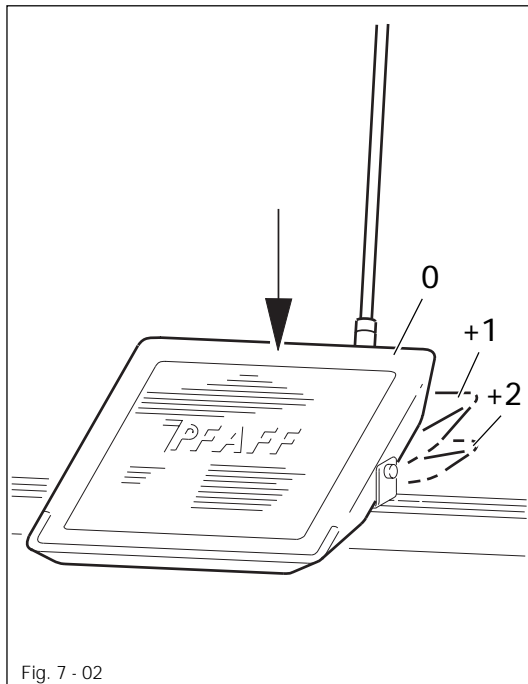
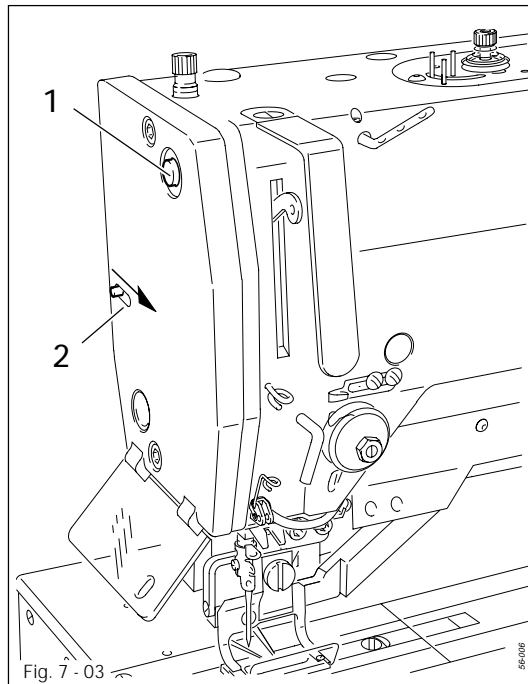


Fig. 7 - 02

- 0 = Neutral position
- +1 = Work clamp lowered
- +2 = Sewing



7.03 Preventing knife engagement



- By operating push button 1, knife engagement at the end of the current sewing cycle is prevented.
- By moving lever 2 in the direction of the arrow, the knife is mechanically locked. This prevents knife engagement during setting-up, maintenance and adjustment work.

## 7.04

### Control panel

The keys on control panel 1 are used for selecting machine functions for setting-up purposes, for sewing operations and for entering parameters.

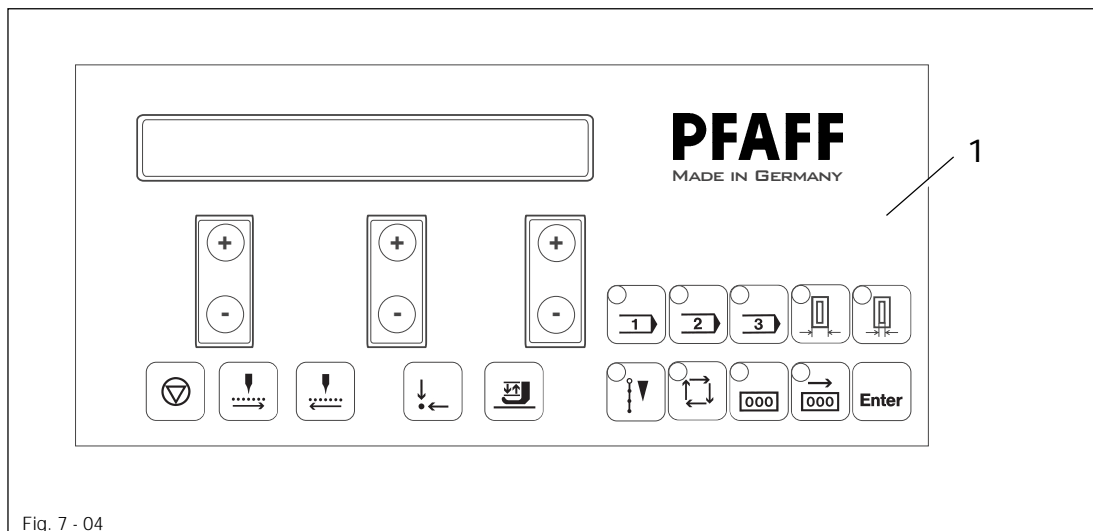
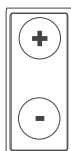


Fig. 7 - 04



#### Plus / minus key

- The values showed on the display can be increased or reduced on the respective key using these keys.



#### Stop

- When operated during a sewing cycle, the machine is stopped.
- If operated outside a sewing cycle, the winding operation is started/stopped.



#### Step-by-step forwards / step-by-step backwards

- Step-by-step movement through the entire sewing cycle forwards or backwards.



When moving step-by-step through the sewing cycle, all cutting procedures will be carried out! Danger of injury if the knife engages!



#### Basic position

- In sewing mode ( sewing activated ) the machines moves to its basic position.
- When entering parameters ( sewing deactivated ), the group level of the parameter list is selected ( 100, 200, ..., 800 ).



#### Work clamp raised / lowered

- In sewing mode ( sewing activated ), the work clamp is raised/lowered.
- When entering the code number, this key corresponds to number 6.



Further functions can be selected with the keys described below, which are each equipped with an LED. When the LED lights up the corresponding function is activated / switched on.



#### Coarse stitch density

- Switches to coarse stitch density.  
When this function is selected, the functions **Medium stitch density** and **Fine stitch density** are deactivated.
- When entering the code number, this key corresponds to number 1.



#### Medium stitch density

- Switches to medium stitch density.  
When this function is selected, the functions **Coarse stitch density** and **Fine stitch density** are deactivated.
- When entering the code number, this key corresponds to number 2.



#### Fine stitch density

- Switches to fine stitch density.  
When this function is selected, the functions **Coarse stitch density** and **Medium stitch density** are deactivated.
- When entering the code number, this key corresponds to number 3.



#### Buttonhole width

- After this function has been activated, the current buttonhole width value is displayed on the screen and can be altered with the corresponding **plus / minus key**.
- When entering the code number, this key corresponds to number 4.



#### Cutting width / cutting length adjustment

- After this function has been activated, the current values for cutting width ( left ) and cutting length adjustment ( right ) are displayed on the screen and can be altered with the corresponding **plus / minus key**.
- When entering the code number, this key corresponds to number 5.



#### Sewing mode

- With this key it is possible to switch between sewing mode ( LED on ) and parameter input ( LED off ).



#### Double sewing cycle

- After this function has been activated, the buttonholes are sewn twice.
- When entering the code number, this key corresponds to number 7.



#### Piece counter / reverse counter

- When one of these functions is selected, the other function is deactivated.  
When the function is selected, the current value appears on the right hand side of the screen, the set value appears on the screen after the key is pressed twice and can be altered with the corresponding **plus / minus key**.
- When entering the code number, this key corresponds to number 8 ( piece counter ) or number 9 ( reverse counter ).



#### Enter

- This key is used to confirm an input and to acknowledge error corrections.

## 8 Installation and commissioning



The machine must only be installed and commissioned by qualified personnel!  
All relevant safety regulations must be strictly adhered to!

If the machine is delivered without a table, be sure to use a stand and table top that can hold the weight of the machine with its motor.

It is very important to ensure that the stand of the machine is firm and steady, also during sewing.

### 8.01 Installation

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

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



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

#### 8.01.01 Adjusting the table height

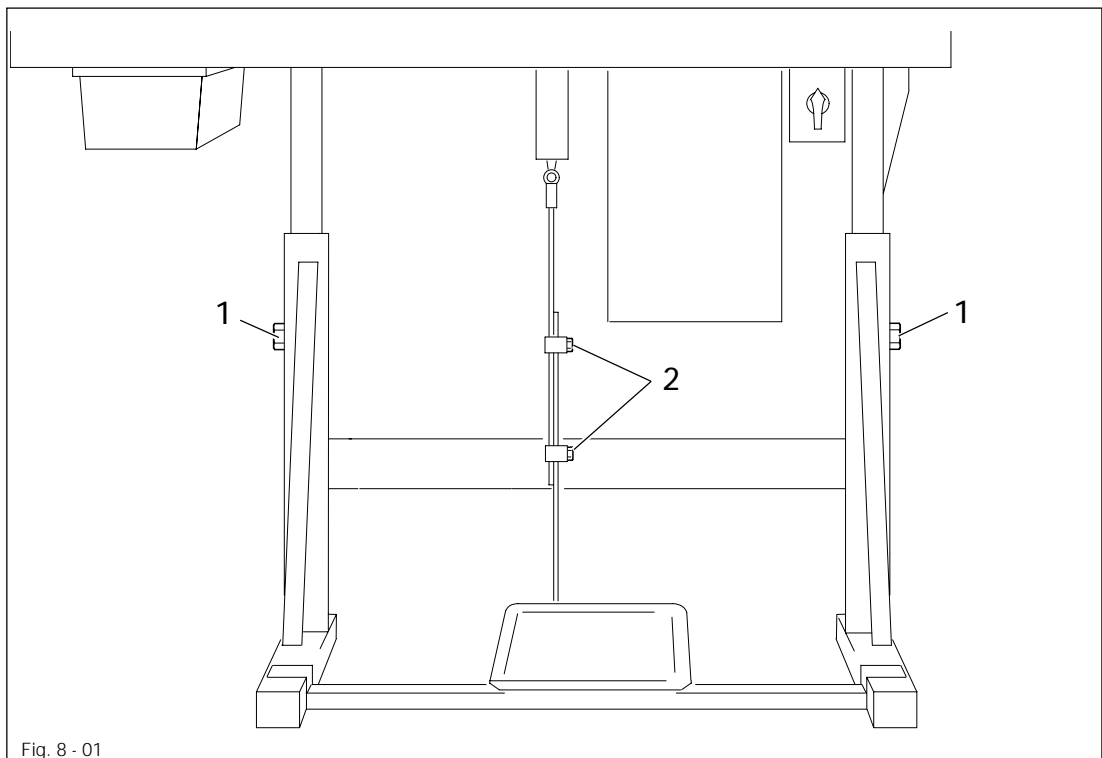


Fig. 8 - 01

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

## 8.01.02 Installation variants

The PFAFF 3119 can be installed in two different ways.

- Version A: Sewing crosswise to the table edge
- Version B: Sewing parallel to the table edge

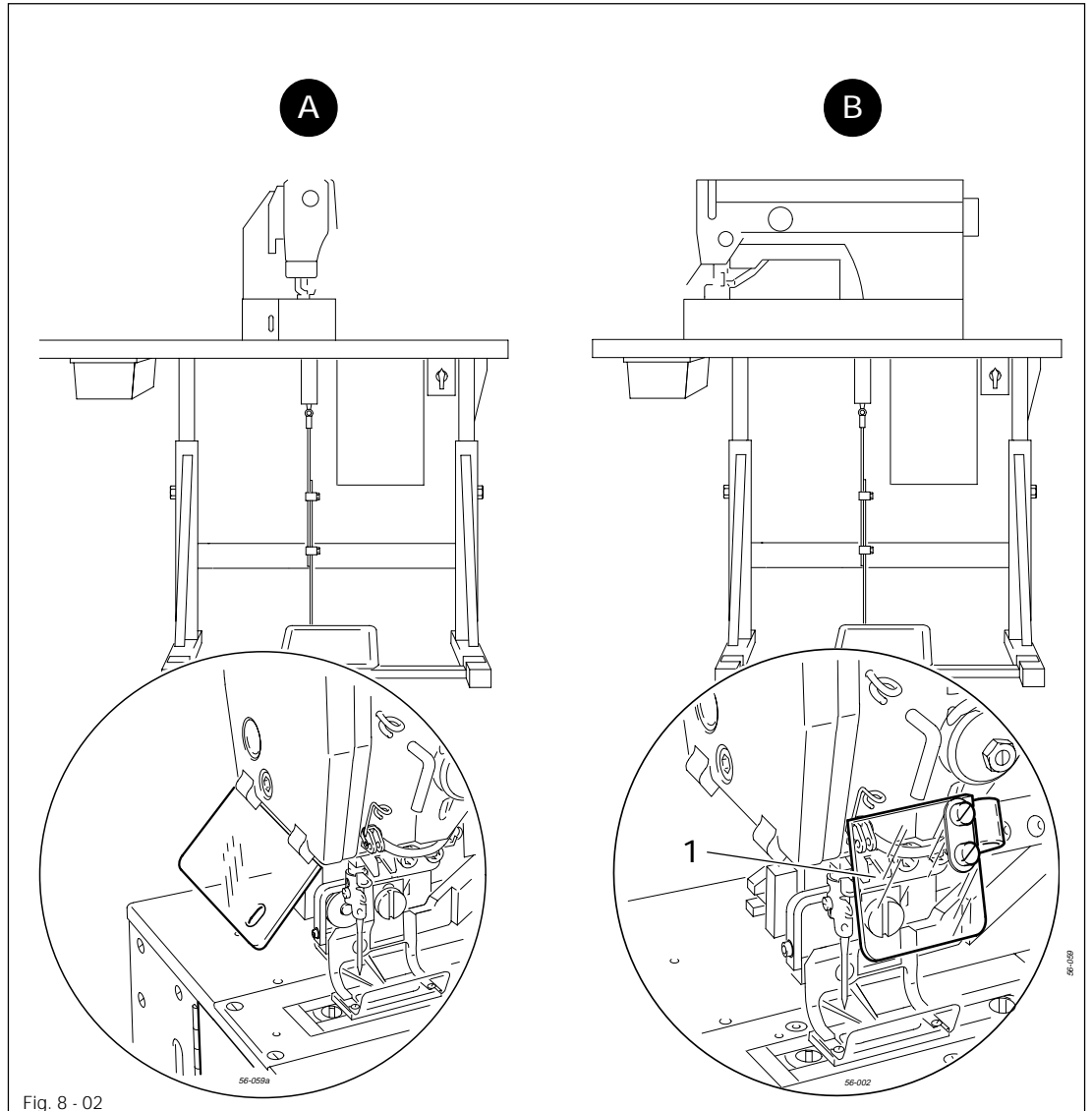
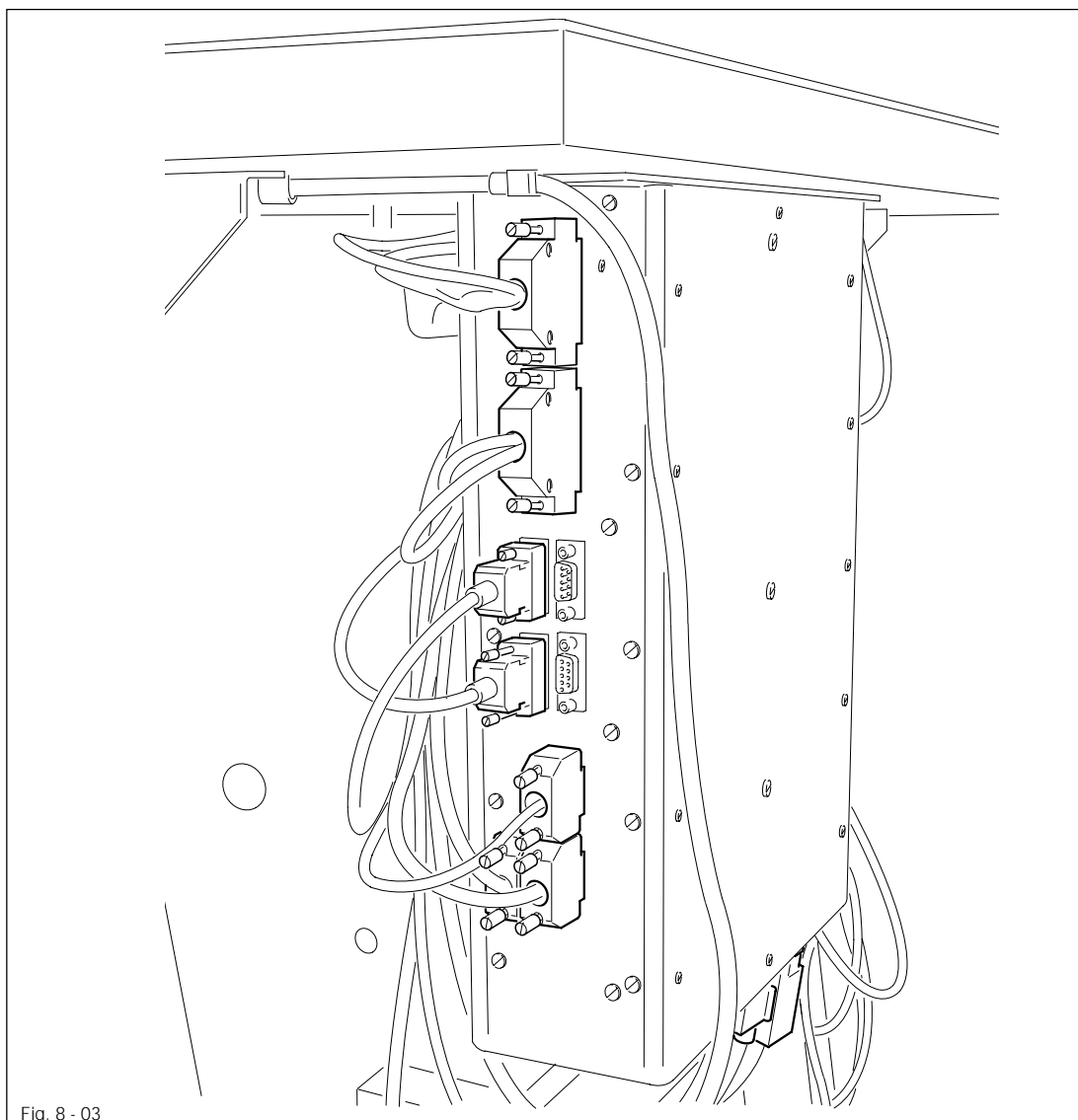


Fig. 8 - 02



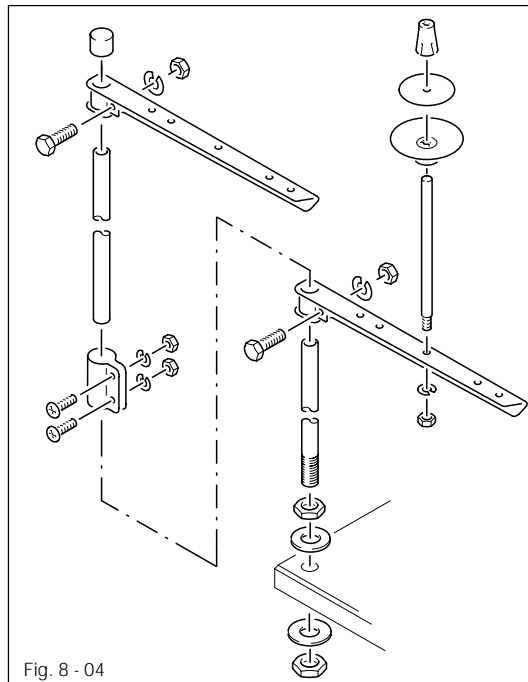
When the machine is installed for "Sewing parallel to the table edge", the eye shield 1, part no. 91-160 383-90, must be fitted.

### 8.01.03 Connecting the plug-type connections



- Connect all plugs as labelled in the control box.

## 8.01.04 Fitting the reel stand



- Fit the reel stand as shown in Fig. 8 - 04.
- Afterwards insert the stand in the hole in the table top and secure it with nuts provided.

## 8.02 Commissioning

- Clean the machine thoroughly and then check the oil level ( see Chapter 12 Care and Maintenance ).
- Check the machine, in particular the electric leads and pneumatic connection tubes, for any damage.
- Have mechanics ensure that the machine's motor can be operated with the available electricity supply.
- Connect the machine to the compressed air system. The manometer should show a pressure of **6 bar**.  
If necessary, set this value ( see Chapter 12.04 Checking / adjusting the air pressure ).

## 8.03 Switching the machine on / off

- Switch the machine on or off ( see Chapter 7.01 On/off switch ).
- Carry out a test run.

## 9

### Setting up



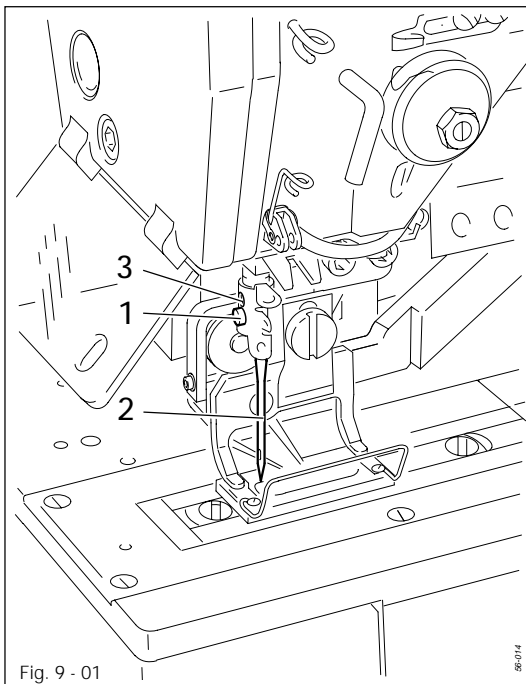
All instructions and regulations in this instruction manual must be observed. Special attention must be given to all safety regulations!



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

### 9.01

#### Inserting the needle



Switch off the machine!  
Mechanically lock the knife using the knife engagement prevention key! Danger of injury from the needle and the knife!

- Loosen screw 1.
- Insert needle 2 as far as possible and with the long needle groove pointing in the direction of the knife.
- Tighten screw 1.



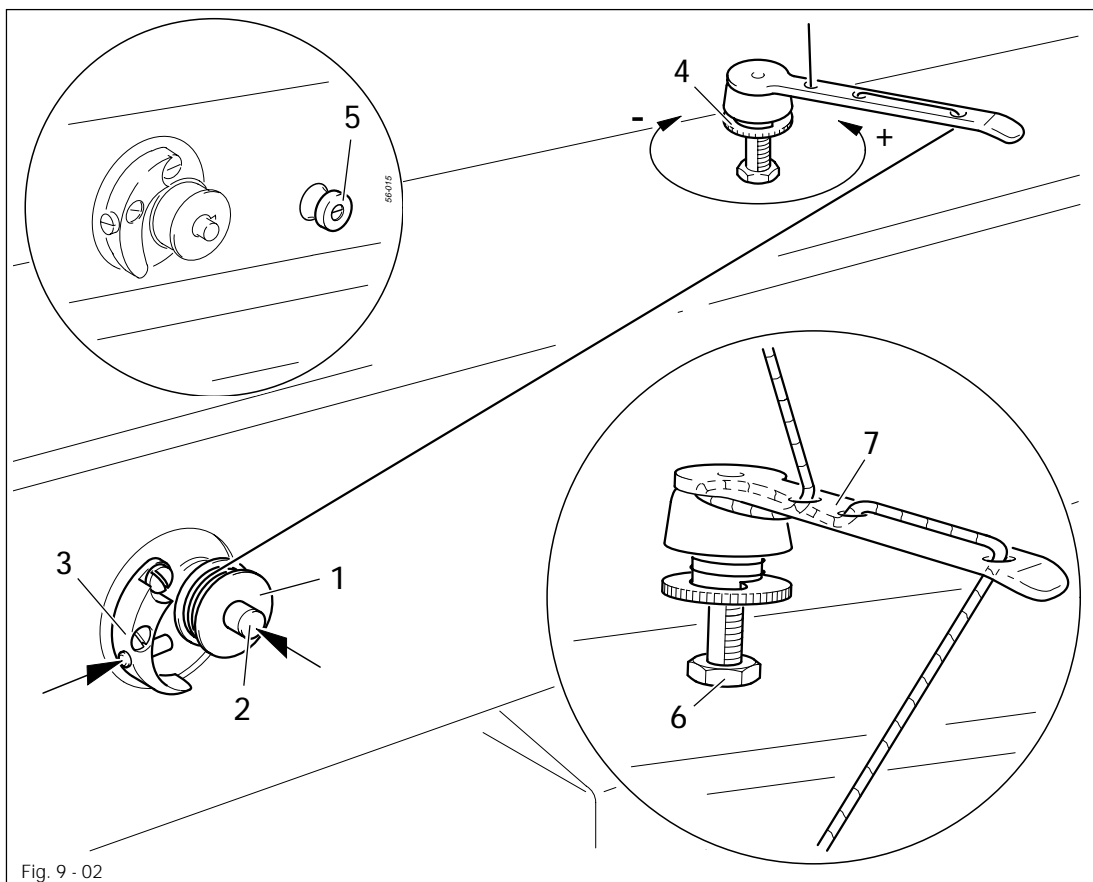
Through hole 3 it is possible to check, whether needle 2 has been inserted as far as possible.

By inserting suitable tools in hole 3, broken needles can be driven out.



9.02

Winding the bobbin thread / adjusting the preliminary thread tension



- Place an empty bobbin 1 on winder spindle 2.
- Thread up as shown in Fig. 9 - 02 and wind the thread a few times clockwise around bobbin 1.
- Engage the bobbin winder by pressing spindle 2 and lever 3 simultaneously.



The bobbin is wound during sewing.

- The tension of the thread wound onto bobbin 1 is set on milled screw 4.
- The bobbin winder will stop when sufficient thread is wound onto bobbin 1.
- After winding the needle thread can be cut with thread knife 5.

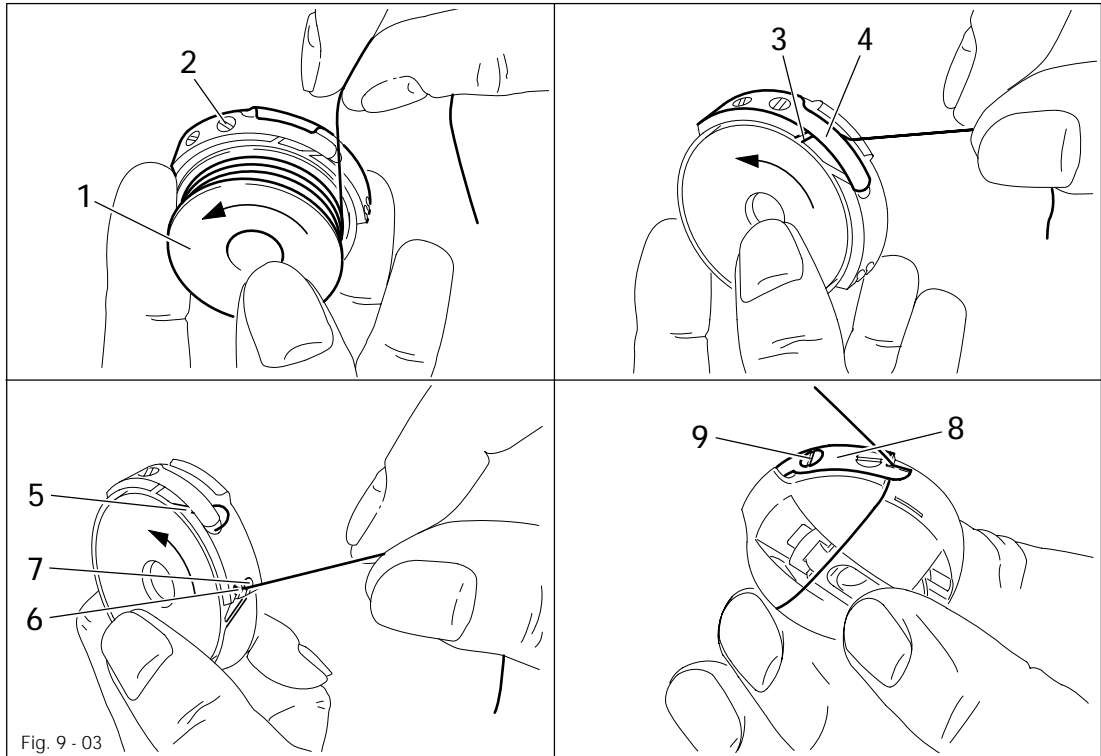
If the thread is wound on unevenly:

- Loosen nut 6.
- Turn thread guide 7 as required.
- Tighten nut 6 again.



Winding the bobbin outside the sewing cycle.

With the **Stop** key it is possible to switch off the drive of the feeding mechanism and the knife, so that bobbin winding only takes place with pedal operation. To wind the bobbin, the needle thread must be removed.



- Insert the bobbin 1 in the bobbin case.
- First guide the thread into slot 3 and under spring 4.
- Then guide the thread into slot 5.

For **purl** buttonholes:

- Push thread through opening 6.

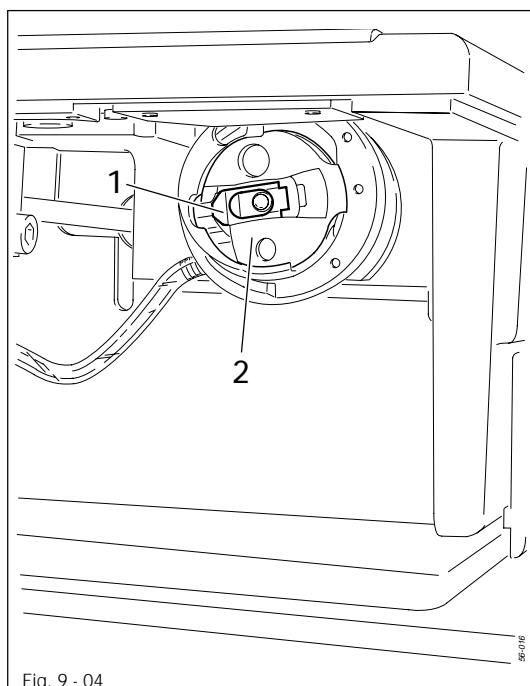
For **flat** buttonholes:

- Push thread through opening 7.
- Trim thread on thread knife 8.
- Adjust the thread tension by turning screw 9.
- To do so use the tools supplied.



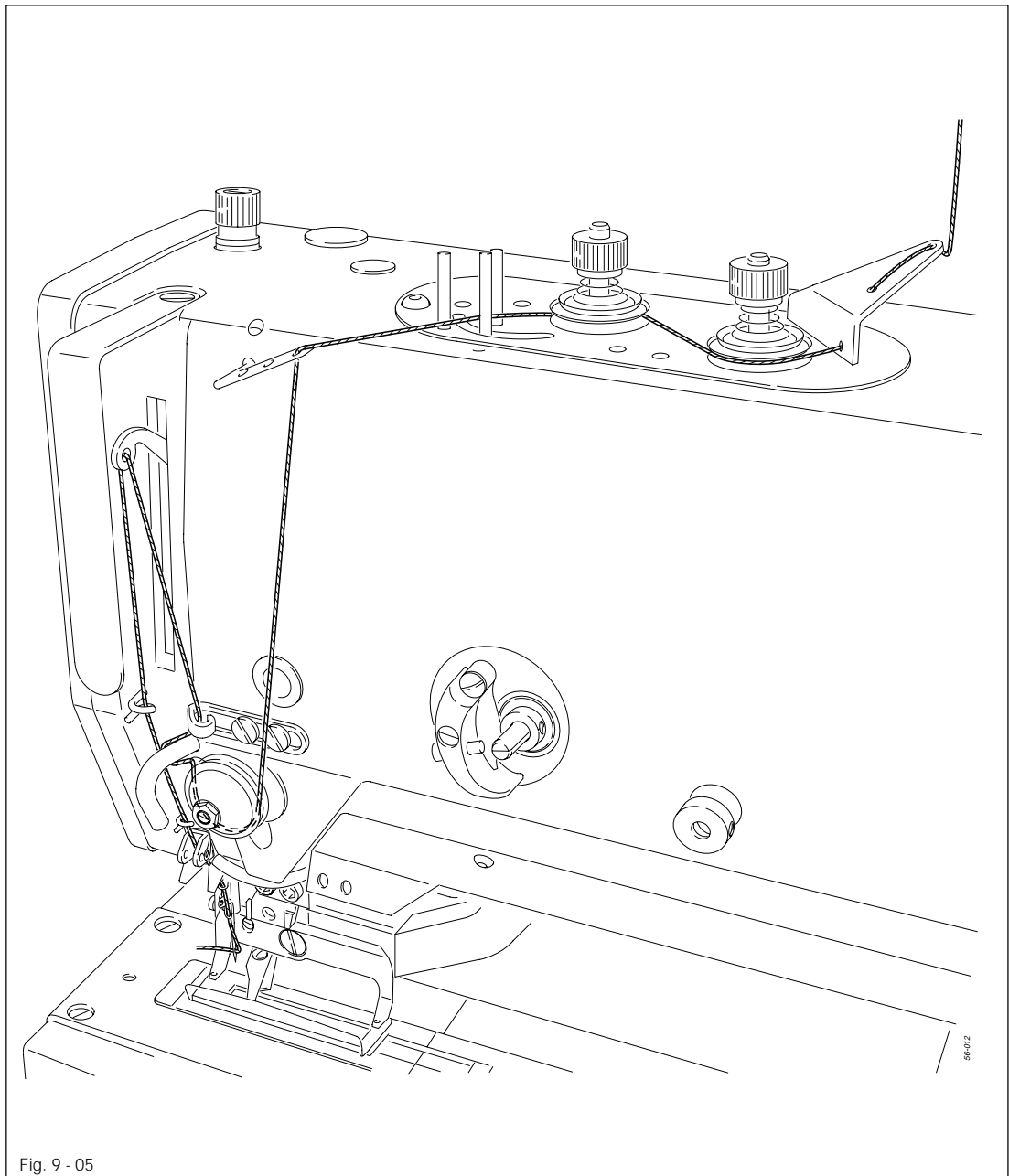
When sewing flat buttonholes, the tension of the bobbin thread must be so high, that the bobbin thread is interlooped on the bottom side of the material.

9.04 Changing the bobbin



Switch off the machine!  
Lock the knife mechanically with the knife engagement prevention device! Danger of injury from the needle and the knife!

- Open the cover of the hook compartment.
- Removing the bobbin:
- Raise latch 1 and remove bobbin case 2 together with the bobbin.
- Inserting the bobbin:
- Raise latch 1 and insert bobbin case 2 together with the bobbin on the hook
  - Release latch 1 and push the bobbin case onto the hook until you feel it snap into place.
  - Close the cover of the hook compartment.



Switch off the machine!

Lock the knife mechanically with the knife engagement prevention device!

Danger of injury from the needle and the knife!

- Thread the needle thread as shown in Fig. 9-05.

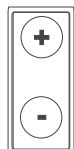
9.06 Selecting the buttonhole type

- Switch on the machine.



- Switch to parameter input ( LED in the **Operational mode sewing** key must be off ).

100

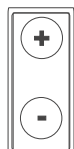


- Select the function group "100" with the appropriate **plus / minus** key.



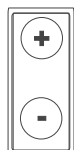
- Confirm with **Enter**.

101



- Select parameter "105" ( type of buttonhole ) with the appropriate **plus / minus** key.

105 2

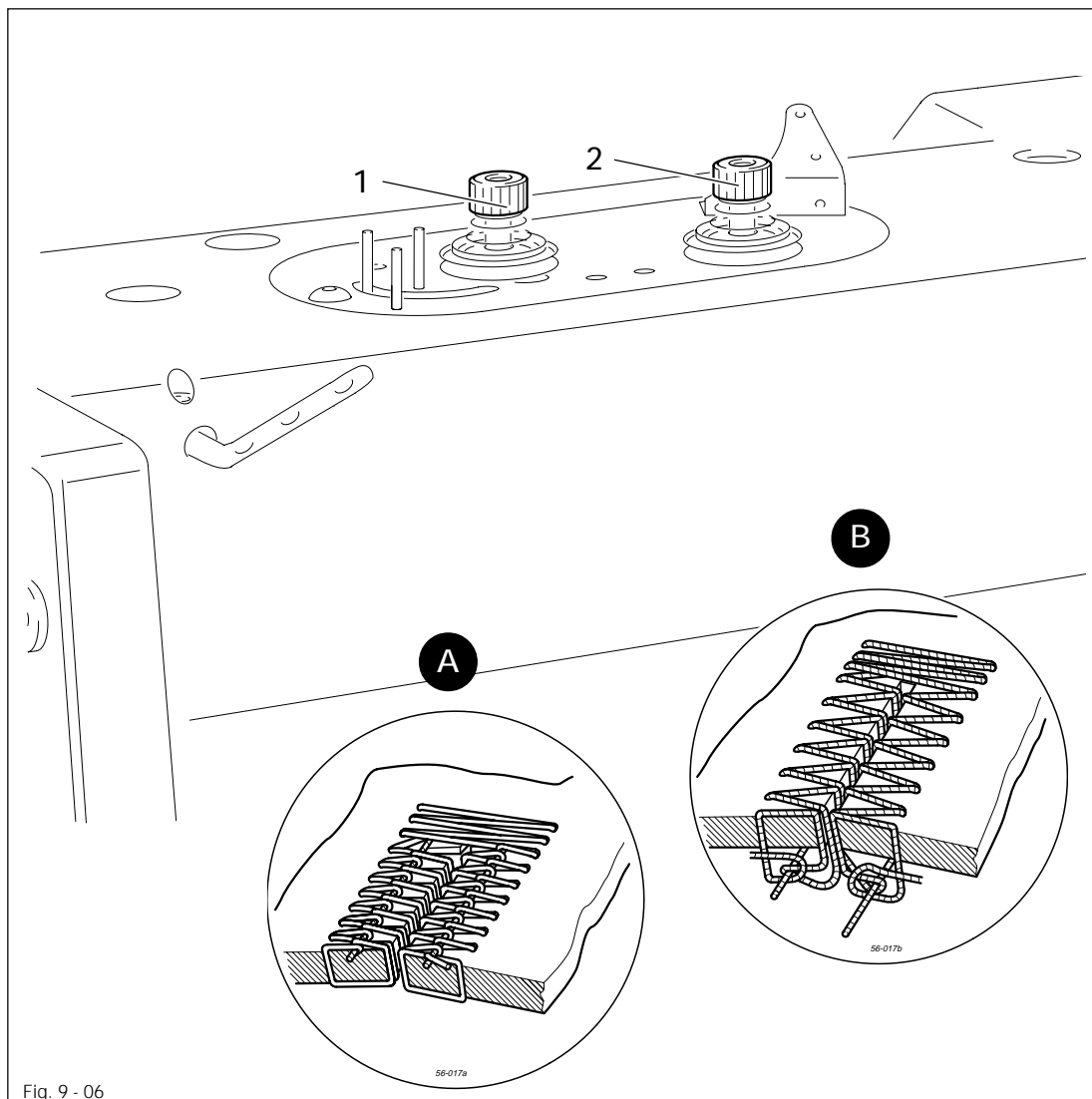


- Select appropriate buttonhole type ( 1-5 ) with the appropriate **plus / minus** key:
  - 1 - purl seam raised, bartack flat
  - 2 - completely flat
  - 3 - completely raised
  - 4 - first sewing cycle completely flat, second cycle completely raised ( double sewing cycle )
  - 5 - first sewing cycle completely flat, second cycle purl seam raised, bartack flat ( double sewing cycle )



- Switch to **Operational mode sewing** ( LED in key is on ).

## 9.07 Adjusting the needle thread tension



- Thread and insert the bobbin case according to the required type of buttonhole, see **Chapter 9.03 Inserting the bobbin case / adjusting the bobbin thread tension.**
- Switch on the machine and select the required type of buttonhole ( purl or flat buttonholes ) on the control panel, see **Chapter 9.06 Selecting the type of buttonhole.**

For **purl** buttonholes ( A ):

- Open tension unit 1 to the full extent and adjust tension unit 2 so that the stitches are interlooped in the centre of the material.
- Adjust tension unit 1 so that the interloops of the purl seam stitches are pulled upwards.

For **flat** buttonholes ( B ):

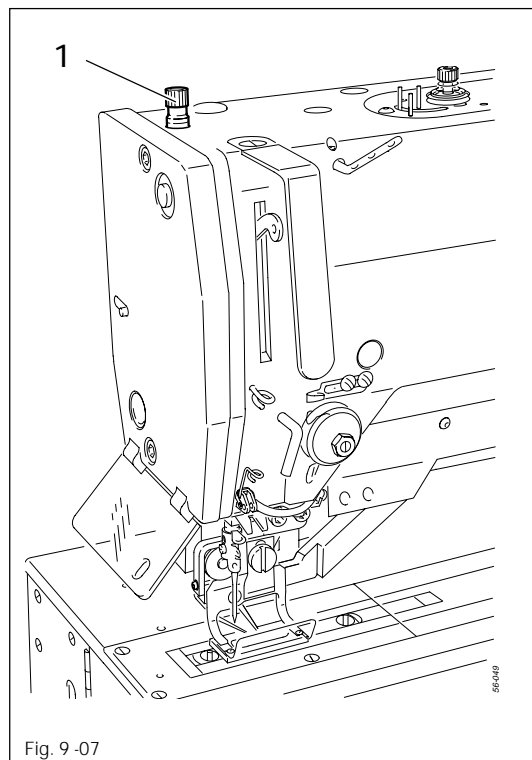
- Adjust tension unit 2 ( less tension ) so that the interloops of the stitches are pulled to the bottom side of the material.



Carry out the adjustment with different coloured needle and bobbin threads.

9.08

### Adjusting the work clamp pressure



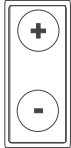
- Adjust the work clamp pressure by turning adjustment screw 1.



The sewing pressure depends on the material of the workpiece and must be adapted to this. It is set correctly when the workpiece is fed reliably and shows no feed signs.

The machine must be installed and connected in accordance with **Chapter 8 Installation and Commissioning**.

- Set-up the machine, see **Chapter 9 Setting-up**.
- Switch on the machine, see **Chapter 7.01 On / off switch**.  
The machine is automatically in the operational mode Sewing.

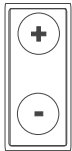


- Select the cutting length ( depends on the knife installed ).

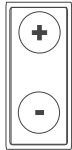
12.7



- Select the stitch density.



- If necessary adjust the buttonhole width.



- If necessary adjust the cutting width / length.

2x



- If necessary reset the piece counter.

- Start the sewing cycle with the pedal, see **Chapter 7.02 Pedal**.



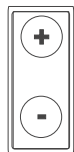
## 11 Input

### 11.01 Entering / altering the access code

- Switch on the machine.



- Switch to parameter input ( LED in the key is not on ).



- Select the function group "800" with the appropriate plus / minus key.

800

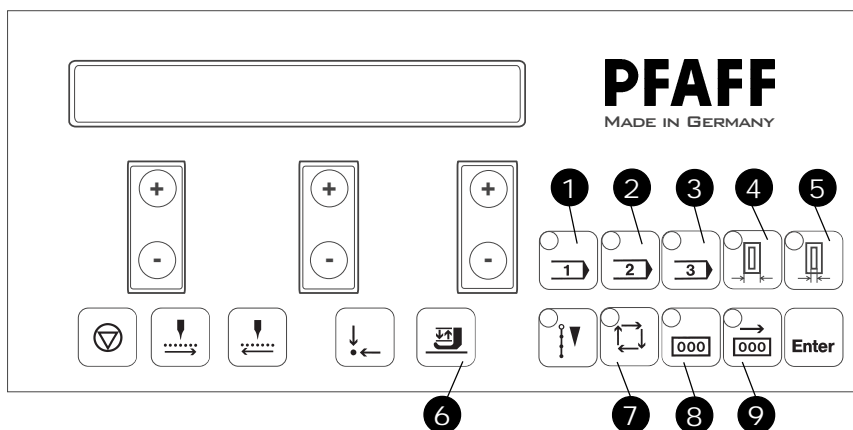


- Confirm with Enter.



- Enter code

The numbers are entered with the appropriate function keys as illustrated below. The factory code setting is "3119".

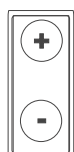


Code: 3119



- Confirm input with Enter.

801 0



- To change the access code, select parameter "819" ( enter access code ) with the appropriate plus / minus key.

819 3119



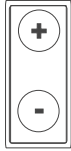
- Enter the new code number and take it over with Enter or by selecting Operational mode sewing.

## 11.02 Allocating access rights

- Switch on the machine.



- Switch to parameter input ( LED in the key is not on ).



- Select the function group "800" with the appropriate **plus / minus** key.

800



- Confirm input with **Enter**.

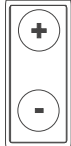
- Enter code ( e.g. 3119 )

Code: 3119



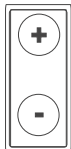
- Confirm input with **Enter**.

801 0



- Select the required parameter "801" to "818" with the appropriate **plus / minus** key, see **Chapter 13.44 Parameter settings**.

818 1



- Release or lock the selected parameter with the appropriate **plus / minus** key.  
0: Parameter function is freely accessible.  
1: Parameter function only available after access code has been entered.



If all parameters ( 801 to 818 ) are set at "0", no further enquiry for the access code ensues.



- Take over setting with **Enter** or by selecting **Operational mode Sewing**.

### 11.03 Fixed programs

Depending on the sub-class up to 48 fixed programs can be selected in the control unit as standard.

The required fixed program is selected by choosing the cutting length and stitch density ( see table ).

Legend:

A: Cutting length in [ mm ]




B: Program number

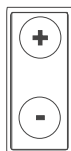
C: Number of stitches

Selection:

Cutting length = 17.5 mm

Medium stitch density

						
A	B	C	B	C	B	C
6.4	1	65	2	75	3	90
9.5	4	85	5	100	6	120
11	7	90	8	105	9	130
12.7	10	90	11	110	12	140
14	13	100	14	125	15	160
16	16	105	17	140	18	190
17.5	19	105	20	145	21	200
19	22	105	23	150	24	210
22.2	25	110	26	160	27	225
25.4	28	110	29	180	30	250
28.6	31	130	32	210	33	300
31.7	34	150	35	240	36	330
33.7	37	180	38	270	39	350
35	40	200	41	285	42	360
36.5	43	220	44	300	45	370
38.1	46	250	47	330	48	390



- Switch on the machine.
- Select the cutting length ( e.g. 17.5 )



- Select the stitch density ( e.g. medium )

The selection of program 20 ensues from the above selected combination of cutting length "17.5" and stitch density "medium".

## 11.04 Customer programs

Depending on the sub-class, 48 customer programs can be created and saved.

Customer programs can be created by copying and changing the required parameters of an existing program, or by entering all new parameters.

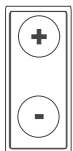
### 11.04.01 Copying customer programs

If there is a program in the machine memory which corresponds to some extent to the program required, this program can be copied and then modified. This is particularly useful, if e.g. only one parameter needs to be changed, to achieve the required result.

- Switch on the machine.



- Switch to parameter input ( LED in the key is **not on** ).



- Select the function group "200" with the appropriate **plus / minus** key.

200



- Confirm the input with **Enter**.

- Enter the code, see **Chapter 11.01 Entering / altering the access code**.

After the code has been entered, parameter "201" ( select customer program ) appears on the display screen.

201



- Press **Enter** for the selection of the cutting length.

6.4

- With the use of the appropriate **plus / minus** key select the cutting length which is to be copied, e.g. 17.5 mm.

17.5



- Confirm input with **Enter**.

The 3 program numbers allocated to the selected cutting length appear on the display screen.

19      20      21



The program numbers shown above correspond to the basic setting of the machine. If customer programs have been changed or news ones created and allocated to the corresponding cutting length, the altered program numbers appear.

**Selection:**

Cutting length = 17.5 mm ( **A** )  
with corresponding program numbers ( **B** )

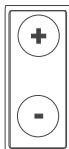
	1		2		3	
A	B	C	B	C	B	C
6.4	1		2		3	
...	...		...		...	
17.5	19		20		21	
19	22		23		24	

Program to be copied

- Take note, if required write down, the program number to be copied ( e.g. 19 ).

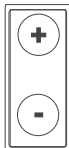


- Press the basic setting key.



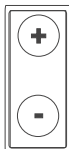
- Select the parameter "206" ( copy program ) with the appropriate **plus / minus** key and confirm with enter. On the display, the program to be copied and the 50 ( first customer program number ) program number appear next to the parameter.

206      1 ->      50



- Select the program to be copied with the appropriate **plus / minus** key.

206      19 ->      50



- Determine the new program number ( e.g. 60 ) with the appropriate **plus / minus** key.

206      19 ->      60



- Confirm input with **Enter**.

The further procedure for modifying the program is described in **Chapter 11.04.02 Creating / modifying customer programs**.

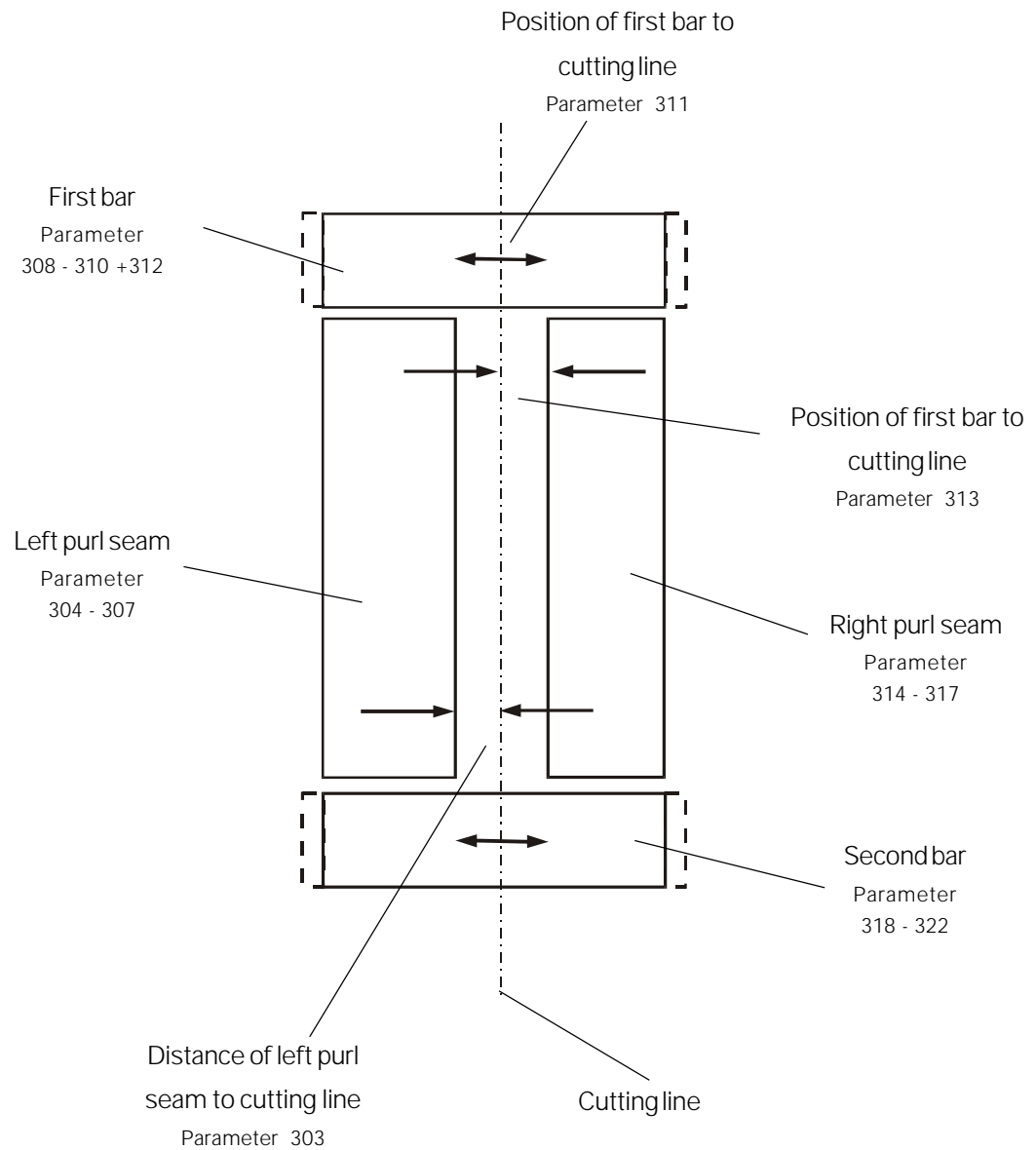
## 11.04.02 Creating / modifying customer programs.

How to create a new customer program or modify a previously copied program is described below with the aid of an example.

**Example:** Purl buttonhole with flat bar

### Buttonhole data:

- No. of stitches: 135 stitches
- Total width: 3.4 mm
- Total length: 21 mm
- Cutting width: 0.6 mm
- Knife length: 17.5 mm



## Program parameters

Parameter	Meaning	Setting	Remark
301	Program number	60	
302	Stitch formation	1	
303	Distance of left purl seam to cutting line ( needle penetration on right )	0.3 mm	
304	Width of left purl seam	1.4 mm	
305	Length of left purl seam	18.8 mm	17.5 mm knife length +1.3 mm cutting length allowance
306	No. of stitches of left purl seam	55	
307	Secondary tension left purl seam	I	
308	Width of 1 <sup>st</sup> bar	3.4 mm	
309	Length of 1 <sup>st</sup> bar	1.6 mm	
310	No. of stitches of 1 <sup>st</sup> bar	10	
311	Distance of 1 <sup>st</sup> bar to cutting line	0.0 mm	
312	Secondary tension of 1 <sup>st</sup> bar	II	
313	Distance of right purl seam to cutting line ( needle penetration on left )	0.3 mm	
314	Width of right purl seam	1.4 mm	
315	Length of right purl seam	18.8 mm	take over from P 305
316	No. of stitches of right purl seam	55	
317	Secondary tension right purl seam	I	
318	Width of 2 <sup>nd</sup> bar	3.4 mm	
319	Length of 2 <sup>nd</sup> bar	1.6 mm	
320	No. of stitches of 2 <sup>nd</sup> bar	10	
321	Distance of 2 <sup>nd</sup> bar to cutting line	0.0 mm	
322	Secondary tension of 2 <sup>nd</sup> bar	II	



If the steps in Chapter 11.04.01 Copying customer programs were carried out before hand, the next two steps are unnecessary.

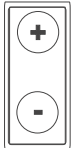
- Switch on the machine.



- Switch to parameter input ( LED in the key is not on ).



- Press the **Basic position** key, to enter the function group level.



- Select function group "300" with the appropriate **plus / minus** key.

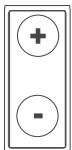
300



- Confirm with **Enter**.

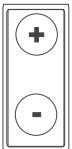
- If a code is requested, enter the code, see **Chapter 11.01 Entering / altering the access code**. After the code has been entered, parameter "301" ( program number ) appears on the display screen with the allocated program number.

301 50



- Select the program number ( e.g. 60 ) with the appropriate **plus / minus** key.

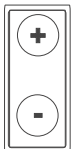
301 60



- After operating the appropriate **plus / minus** key, enter or alter the other parameters according to the table of the program parameters.



- Press the **Basic position** key, to enter the function group level.

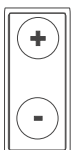


- Select function group "100" with the appropriate **plus / minus** key.

100



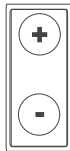
- Confirm with **Enter**.



- Select parameter 103 with the appropriate **plus / minus** key.

103





- Select customer program II with the appropriate **plus / minus** key.

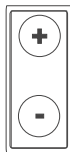
103 II



- Confirm with **Enter**.



- Press the **Basic position** key, to enter the function group level.

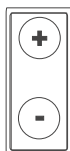


- Select function group "200" with the appropriate **plus / minus** key.

200



- Confirm with **Enter**.



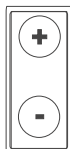
- Select parameter 201 with the appropriate **plus / minus** key.

201



- Confirm with **Enter**.

6.4



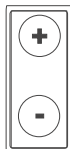
- Select cutting length 17.5 mm with the appropriate **plus / minus** key.

17.5



- Confirm with **Enter**.

3 program numbers, which are allocated to the selected cutting length, appear on the display screen.



- Select program number 60 with the appropriate **plus / minus** key.

60 20 21

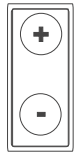


The cutting length 17.5 mm and the function key "coarse stitch density" were allocated to program number 60.

# Input



- Select operational mode "sewing" ( LED is on ).



- Select the cutting length with the appropriate plus / minus key.

17.5



- Activate the function key "coarse stitch density" ( LED is on ).



In all newly created or modified customer programs the **Buttonhole width and Cutting width / cutting length adjustment keys** have no function.

In the customer program table, program "19" has been replaced by program "60".  
The program can be called up by selecting the stitch length "17.5 mm" and activating the "coarse stitch density" key.

A	B	C	B	C	B	C
6.4	1		2		3	
...			...		...	
17.5	<b>60</b>		20		21	
19	22		23		24	

New program

Inherent program parameters

Parameter	Meaning	Setting	Setting	Setting	Setting
301	Program number				
302	Stitch formation				
303	Distance of left purl seam to cutting line ( needle penetration on right )				
304	Width of left purl seam				
305	Length of left purl seam				
306	No. of stitches of left purl seam				
307	Secondary tension left purl seam				
308	Width of 1 <sup>st</sup> bar				
309	Length of 1 <sup>st</sup> bar				
310	No. of stitches of 1 <sup>st</sup> bar				
311	Distance of 1 <sup>st</sup> bar to cutting line				
312	Secondary tension of 1 <sup>st</sup> bar				
313	Distance of right purl seam to cutting line ( needle penetration on left )				
314	Width of right purl seam				
315	Length of right purl seam				
316	No. of stitches of right purl seam				
317	Secondary tension right purl seam				
318	Width of 2 <sup>nd</sup> bar				
319	Length of 2 <sup>nd</sup> bar				
320	No. of stitches of 2 <sup>nd</sup> bar				
321	Distance of 2 <sup>nd</sup> bar to cutting line				
322	Secondary tension of 2 <sup>nd</sup> bar				
	Type of buttonhole →				

## 12 Care and maintenance

Clean the hook compartment .....	daily
Clean the entire machine .....	once a week
Clean air filter of air filter / lubricator .....	as required
Check the air pressure .....	daily, before use
Check the oil level .....	daily, before use



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

### 12.01 Cleaning the machine

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

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

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



For all cleaning work the machine must be disconnected from the mains by switching off the on/off switch or by removing the mains plug, and the knife must be mechanically locked to prevent knife engagement!

Danger of injury if the machine suddenly starts up or if the knife suddenly drops down.



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

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

12.02 Cleaning the hook compartment

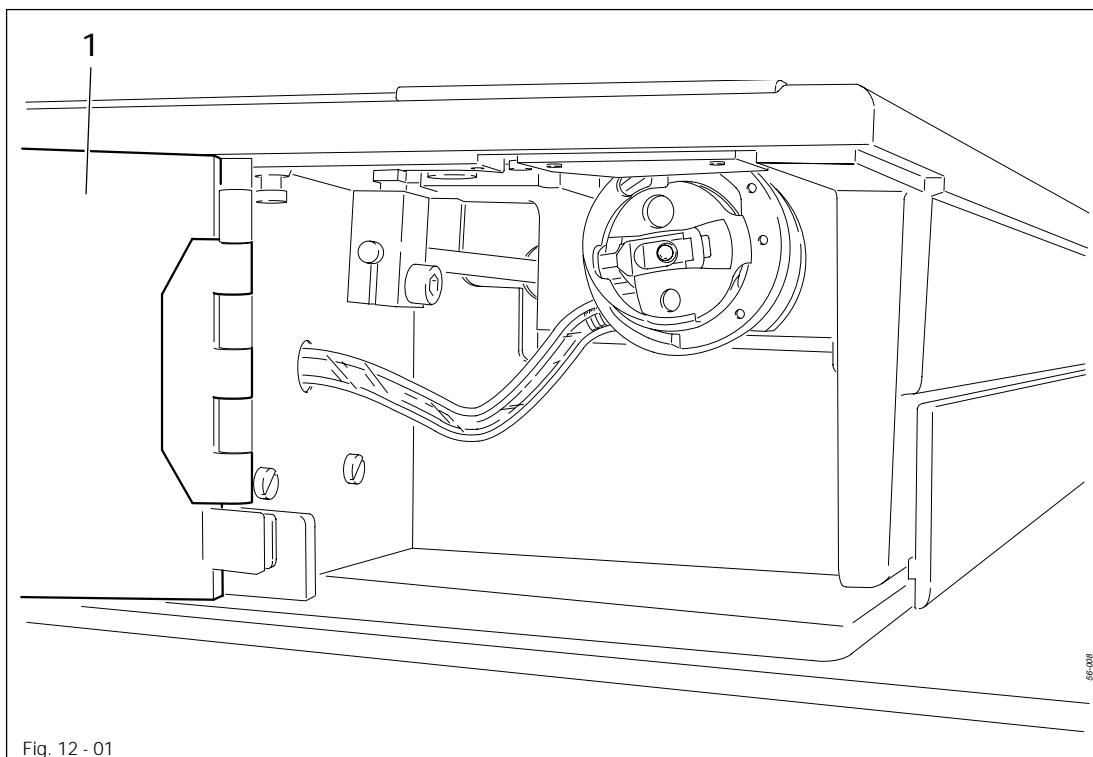


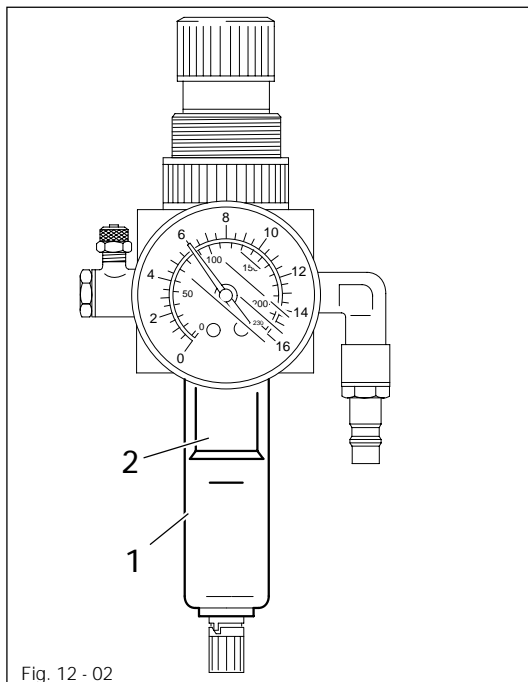
Fig. 12 - 01



Switch off the machine!  
Lock knife mechanically to prevent knife engagement!  
Danger of injury from the needle and knife!

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

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



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

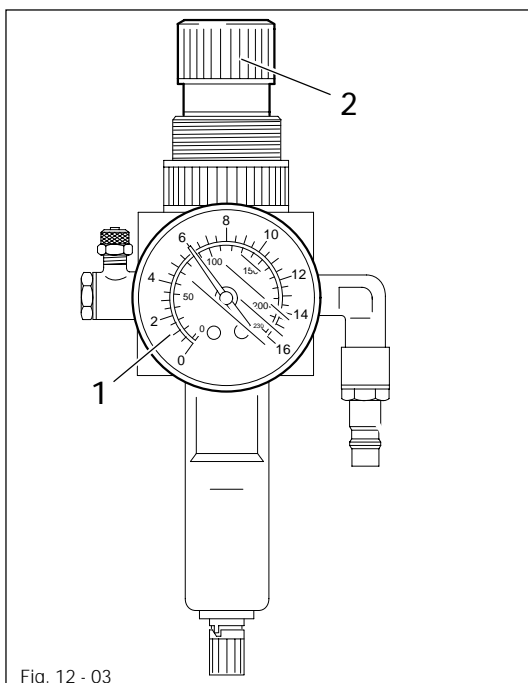
To drain water bowl 1:

- Water bowl 1 drains itself automatically when the compressed-air hose is disconnected from the air-filter / lubricator.

Cleaning filter 2:

- Unscrew water bowl 1.
- Take out filter 2.
- Clean filter 2 with compressed air or isopropyl alcohol (part No. 95-665 735-91).
- Screw in filter 2 and screw on water bowl 1.

### 12.04 Checking/adjusting the air pressure



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

12.05 Oil level for needle drive unit

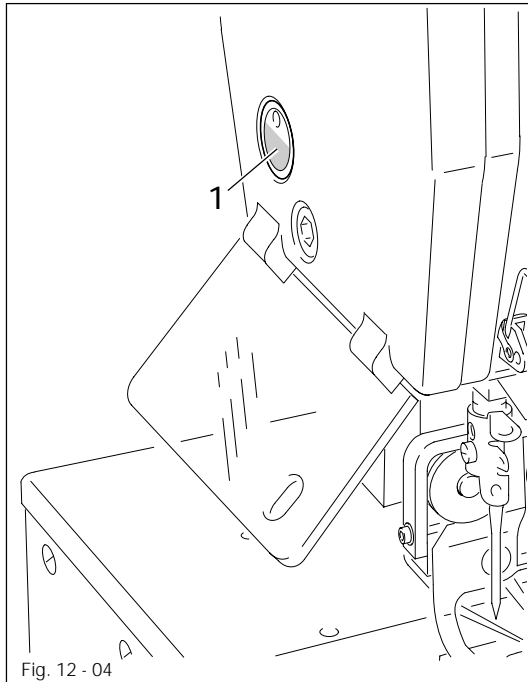


Fig. 12 - 04



There must always be oil in the storage tank.

- If necessary top up oil through hole 1 in the sight glass.



Only use oil with a medium viscosity of 10.00 mm<sup>2</sup>/s at 40°C and a density of 0.847 g/cm<sup>3</sup> at 15°C.



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

12.06 Oil level for the hook

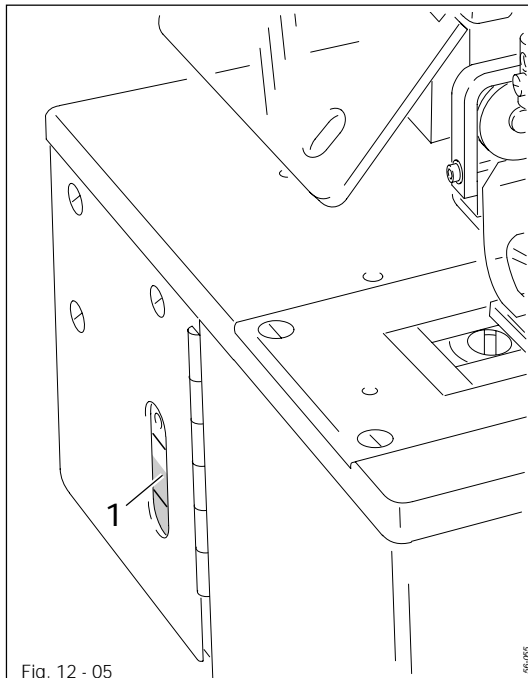


Fig. 12 - 05

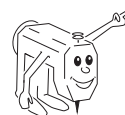


The oil level in sight glass 1 must always be between the two markings.

- If necessary top up oil through hole 1 in the sight glass.



Only use oil with a medium viscosity of 10.00 mm<sup>2</sup>/s at 40°C and a density of 0.847 g/cm<sup>3</sup> at 15°C.



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

## 13 Adjustment



Unless otherwise stipulated, the machine must be disconnected from the mains by switching it off at the on/off switch or by pulling out the mains plug, and the knife must be locked mechanically to prevent knife engagement.

### 13.01 Notes on adjustment

All following adjustments are based on a fully assembled machine and may only be carried out by expert staff trained for this purpose.

Machine covers, which have to be removed and replaced to carry out checks and adjustments, are not mentioned in the text.

The order of the following chapters corresponds to the most logical work sequence for machines which have to be completely adjusted. If only specific individual work steps are carried out, both the preceding and following chapters must be observed.

Screws, nuts indicated in brackets ( ) are fastenings for machine parts, which must be loosened before adjustment and tightened again afterwards.

### 13.02 Tools, gauges and other accessories

- 1 set of screwdrivers with blade widths from 2 to 10 mm
- 1 set of wrenches with jaw widths from 7 to 14 mm
- 1 set of Allan keys from 1.5 to 6 mm
- 1 offset screwdriver, Part no. 91-029 339-91
- 1 metal ruler, Part no. 08-880 218-00
- 1 screw clamp, Part no. 61-111 600-35/001
- 1 needle rise gauge 2.4 mm, Part No. 61-111 600-01
- 1 adjustment gauge, Part no. 61-111 635-86
- 1 adjustment gauge for lower knife stop, Part no. 61-111 635-85
- 1 adjustment gauge for upper knife stop, Part no. 61-111 635-93
- 1 adjustment pin, Part no. 61-111 641-46
- Needles (system 438), sewing thread and test materials

### 13.03 Abbreviations

t.d.c. = top dead centre

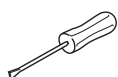
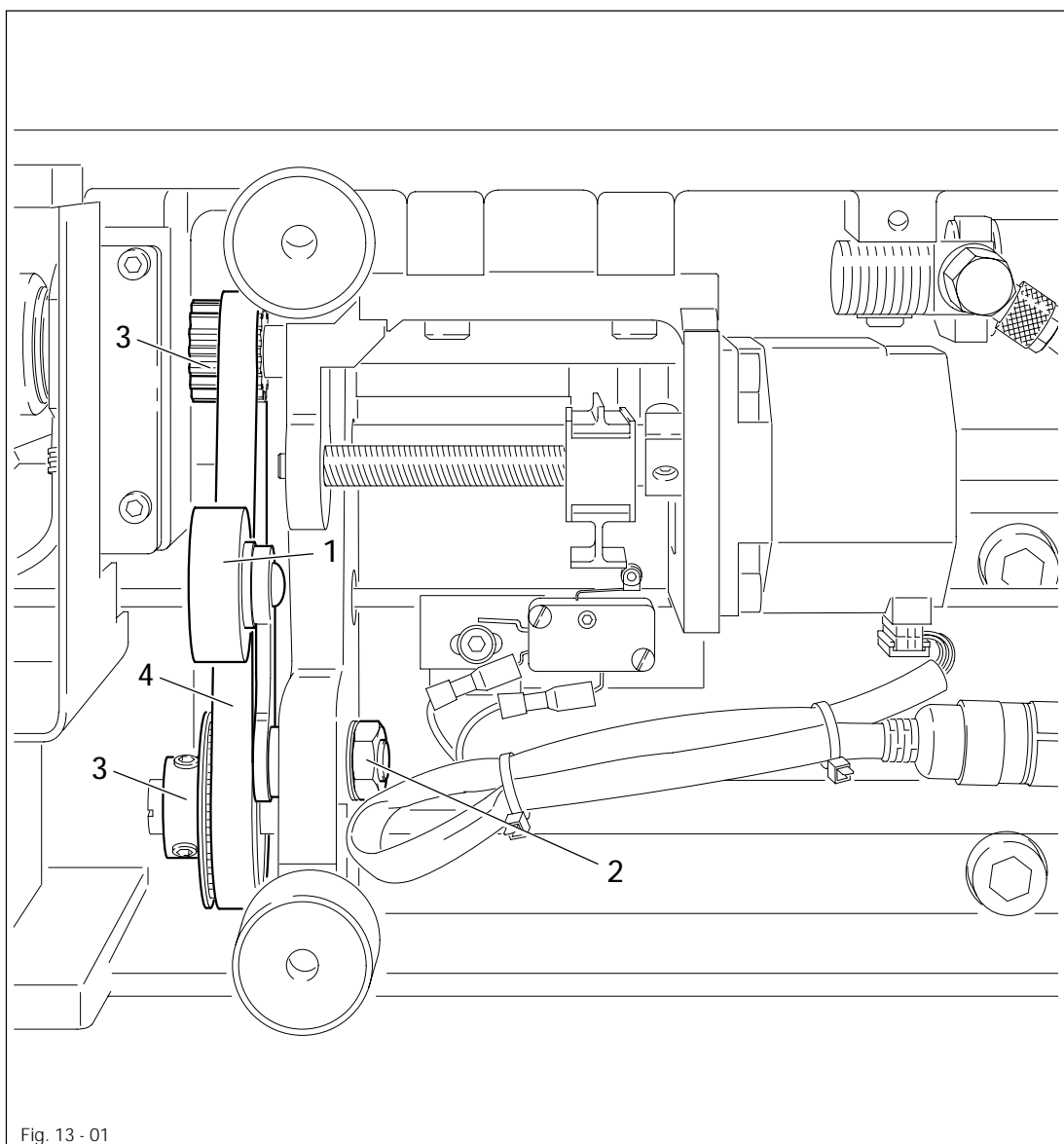
b.c.c. = bottom dead centre



## 13.04 Toothed belts of the hook drive unit

**Requirement**

There should be a hardly noticeable amount of play between the toothed belt wheels 3 and the toothed belt 4.



- Loosen the machine's screw connection to the table.
- Tilt the machine backwards and dismount the pan.
- Adjust tensioner 1 (nut 2) according to the **requirement**.

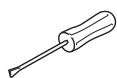
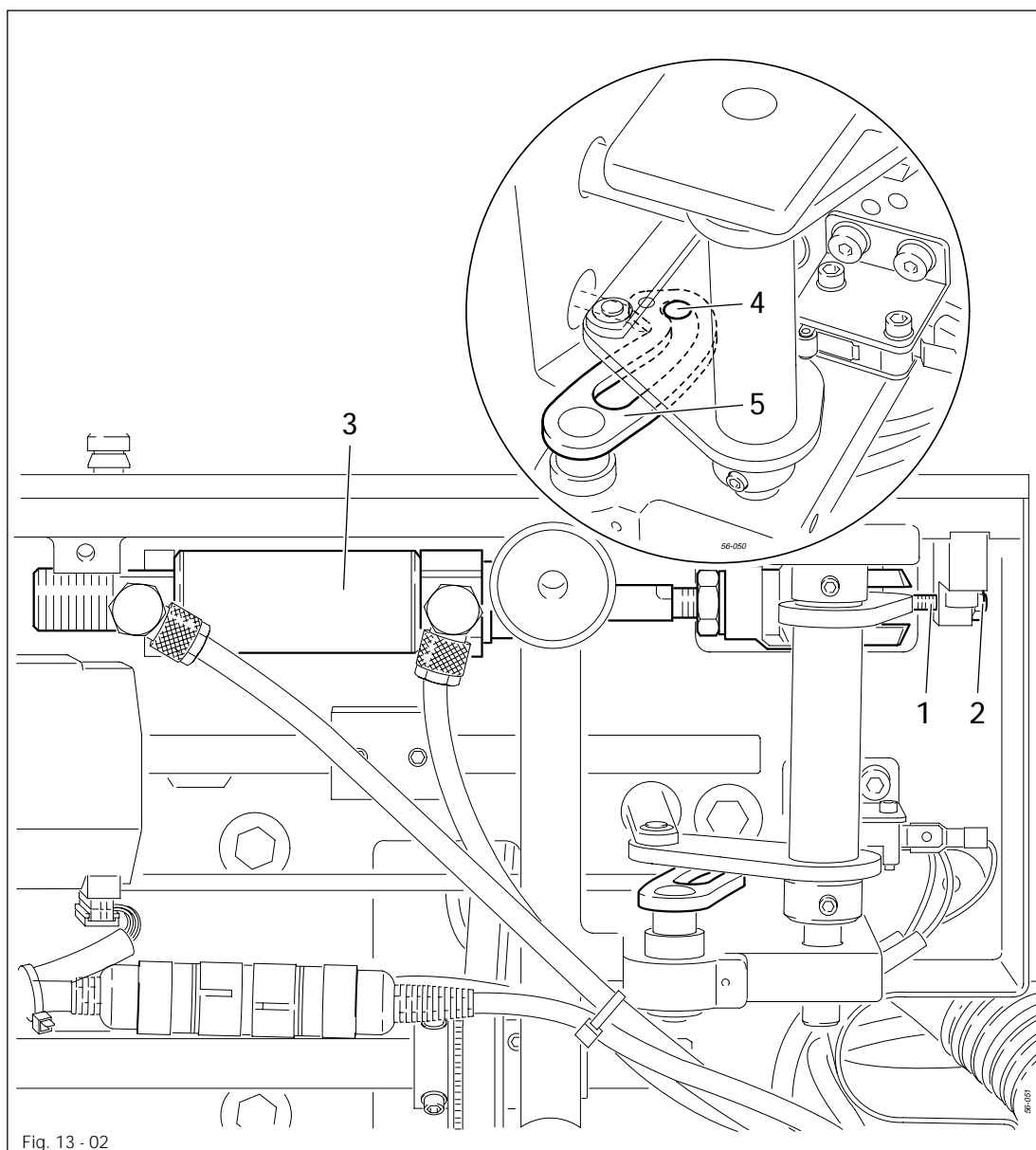


If there are operational noises, repeat the adjustment.

## 13.05 Drive rods of the bobbin thread trimming device

### Requirement

When cylinder 3 is fully extended, roller 4 should lightly touch the curve bottom of slotted lever 5.



- Adjust screw 1 ( nut 2 ) according to the requirement.

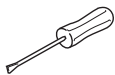
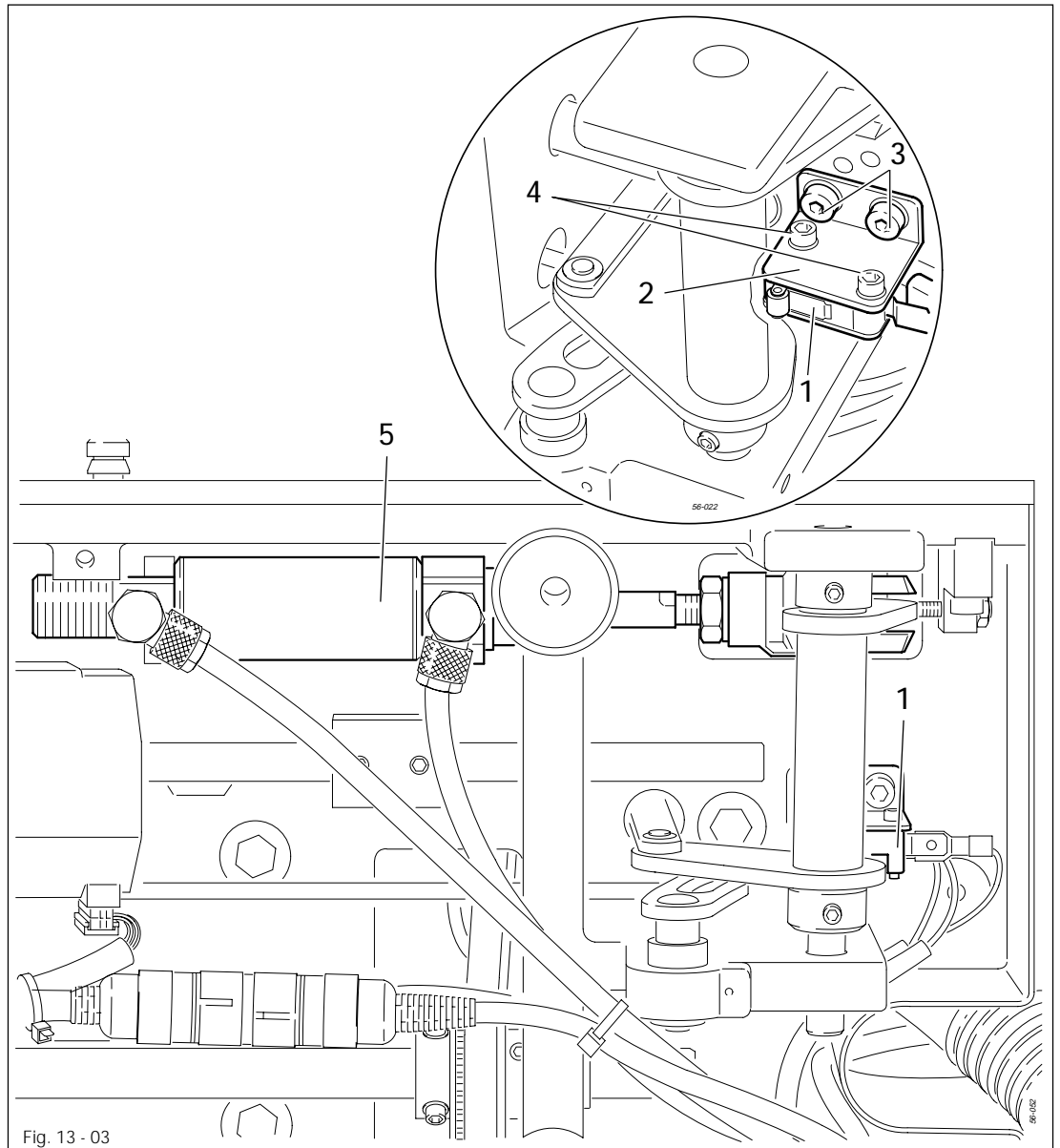


When the cylinder is extended, there should be a distance of 204.5 mm between the centre of the yoke head bore hole and the bore hole for the cylinder suspension.

## 13.06 Switch for sewing start

### Requirement

When cylinder 5 is fully extended, switch 1 should be operated.

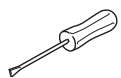
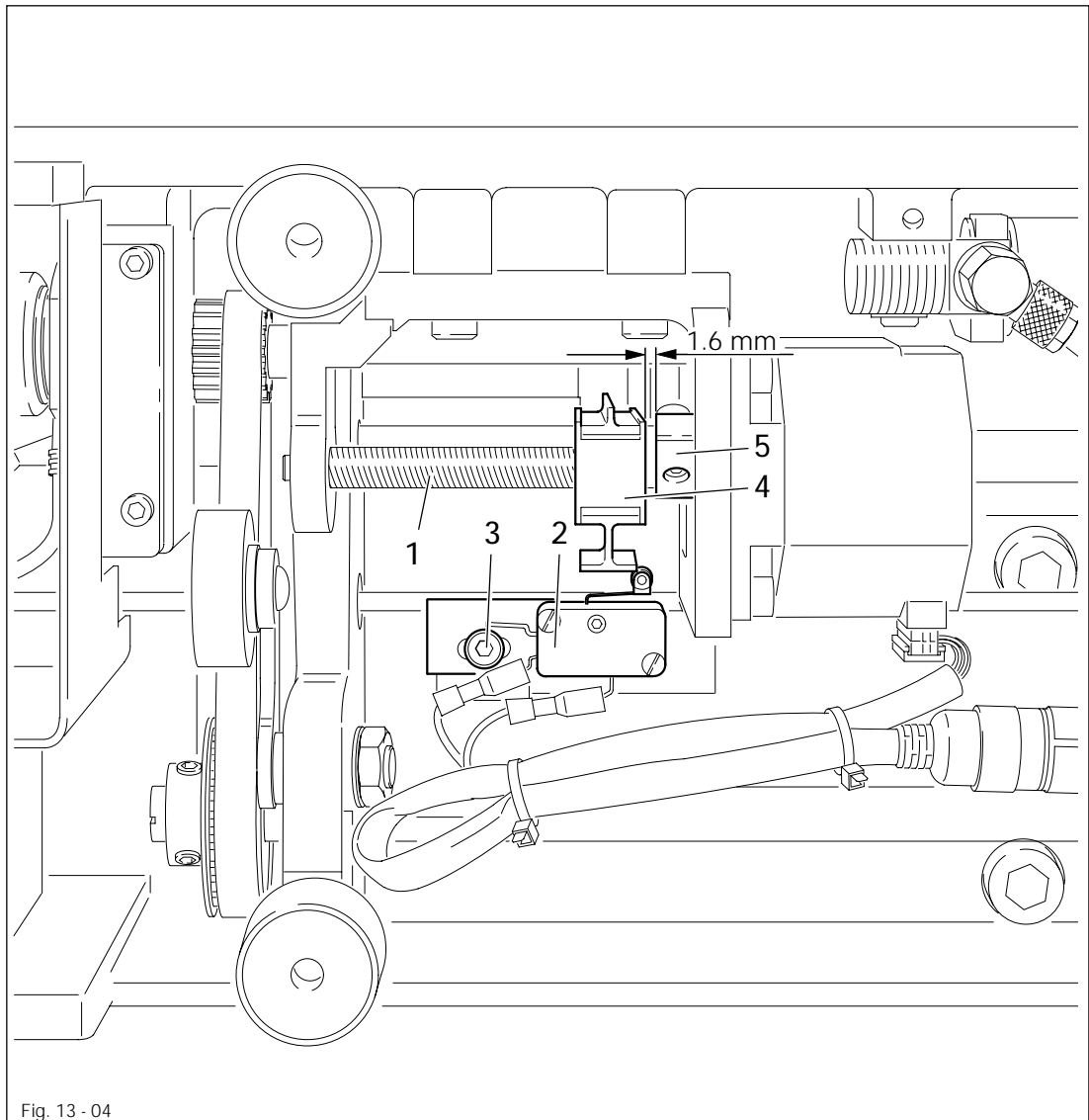


- Adjust switch 1 or bracket 2 ( screws 3 or 4 ) according to the requirement.

## 13.07 Basic position of the feed drive unit

### Requirement

Switch 2 should operate when slide block 4 is 1.6 mm away from clamp 5.



- Set the distance of 1.6 mm by turning spindle 1.
- Adjust switch 2 ( screw 3 ) according to the requirement.

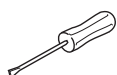
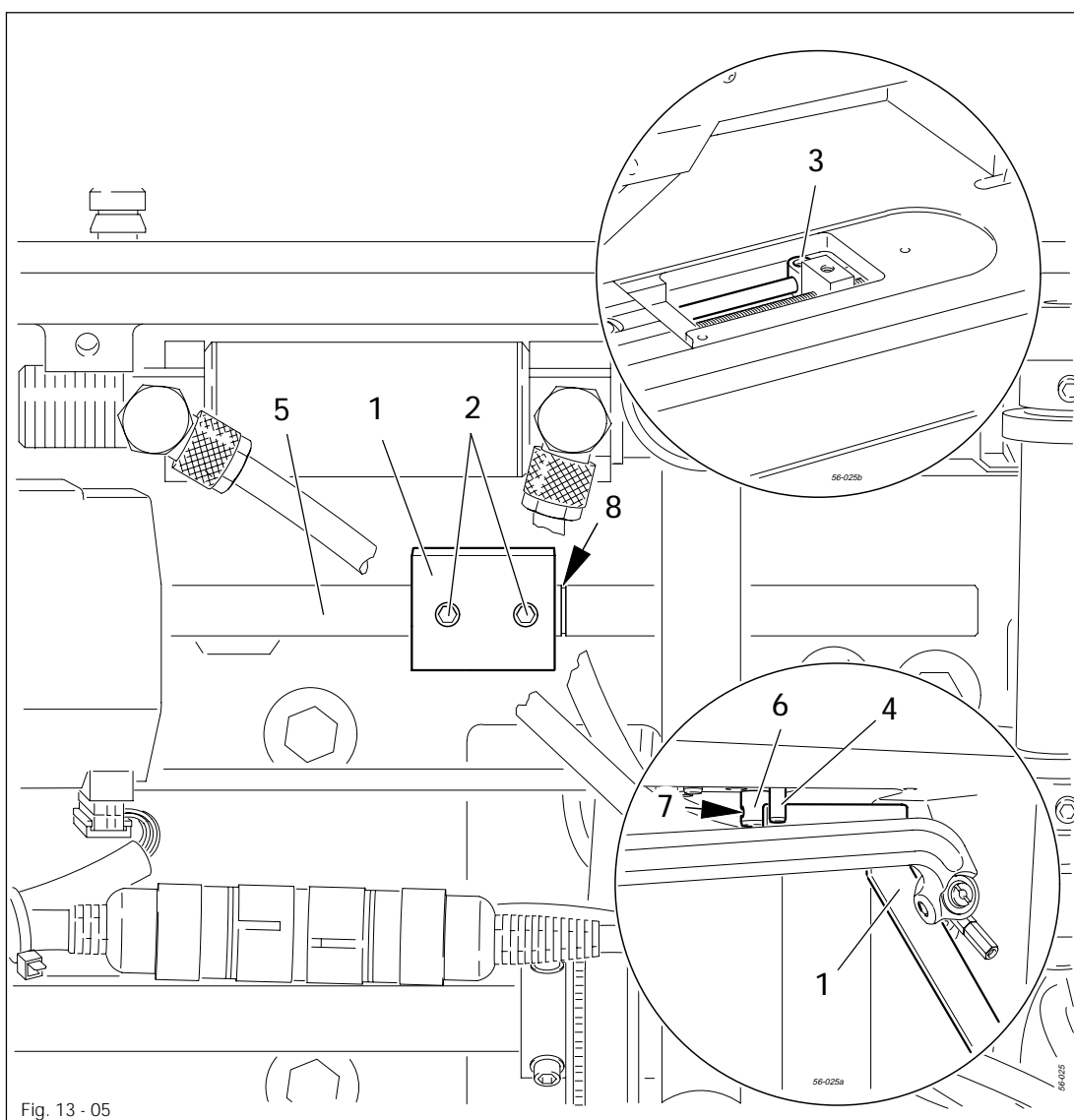
13.08

## Preliminary adjustment of the work clamp

## Requirement

When the feed unit is in its basic position

1. The drive lever 1 should be flush with marking 8 on shaft 5,
2. The front edge of drive lever 1 should be flush with guide pin 4 and
3. Eccentric 6 should touch drive lever 1 without play.

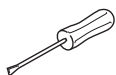
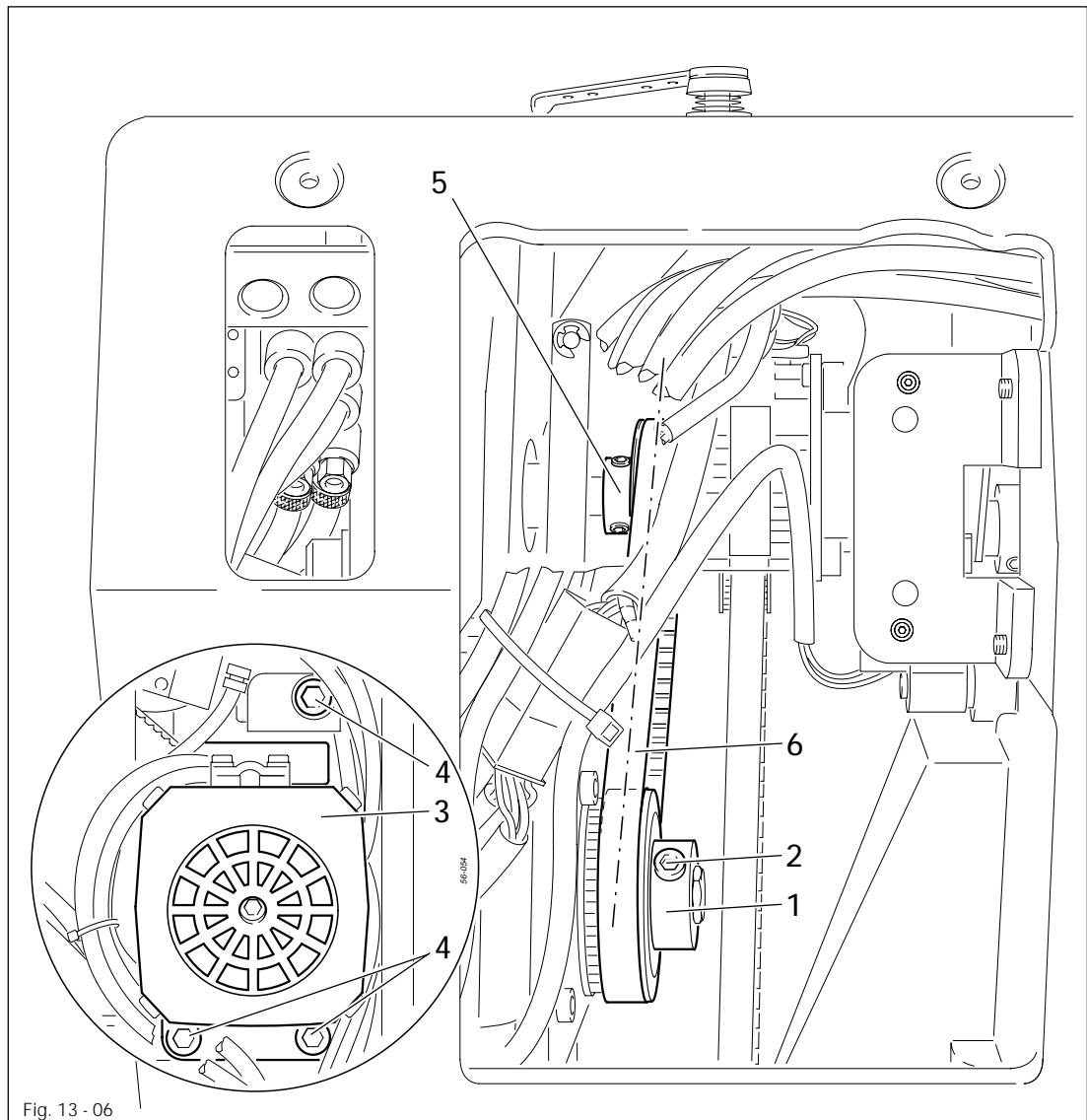


- Adjust drive lever 1 ( screws 2 ) according to requirement 1.
- Loosen screw 3.
- Bring drive lever 1 to stop on guide pin 4 and adjust shaft 5 according to requirement 2.
- Turn eccentric 6 ( screw 7 ) according to requirement 3.
- Tighten screw 3.

## 13.09 Toothed belts of the main drive unit

### Requirement

1. Toothed belt wheels **1** and **5** should be in alignment.
2. There should be a hardly noticeable amount of play between the toothed belt wheels **1** and **5** and the toothed belt **6**.



- Adjust toothed belt wheel **1** ( screws **2** ) according to requirement **1**.
- Swing motor **3** ( screws **4** ) according to requirement **2**.

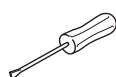
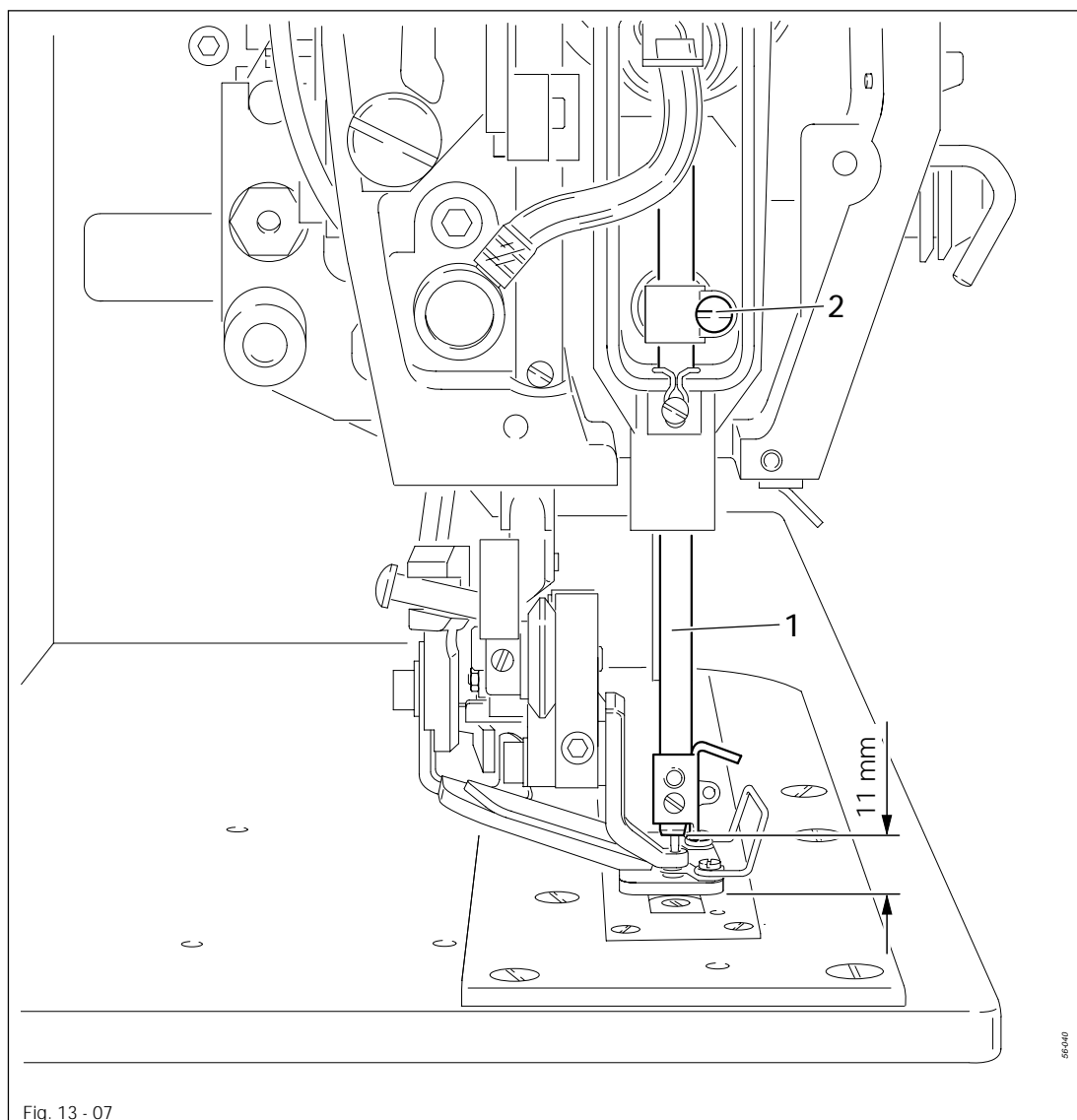


If there are operational noises, repeat the adjustments.

## 13.10 Preliminary adjustment of the needle height

**Requirement**

When the needle bar is at b.d.c. there should be a distance of **11 mm** between the lower edge of the needle bar **1** and the needle plate.



- Adjust needle bar **1** (screw **2**) according to the requirement.

## 13.11 Position of the needle plate in relation to the needle

### Requirement

Needle plate base 3 should rest on the edge of the bed-plate cutout ( see arrows ). Seen in the direction of sewing the needle should enter the needle hole in the centre.

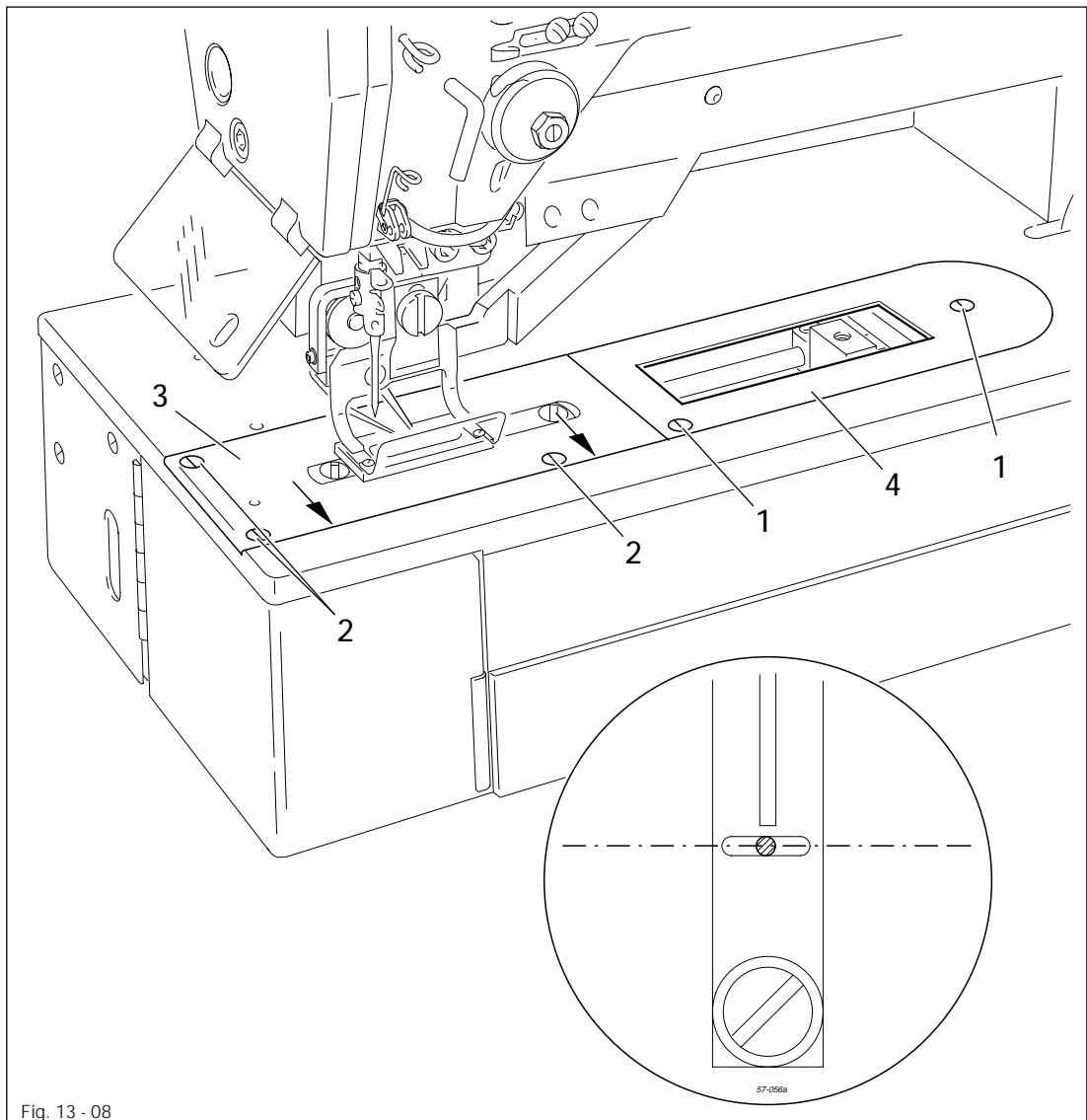
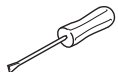


Fig. 13 - 08



- Dismount feeder and insert a new needle.
- Loosen screws 1 and 2.
- Adjust needle plate base 3 according to the requirements.
- Tighten screws 2.
- Bring stop plate 4 into contact with needle plate base 3 and tighten screws 1.



## 13.12 Sensor board of the needle drive ( in dismantled state )

**Requirement**

After the machine has been switched on, the drill hole in lug 1 must match the marked hole on the support stand.

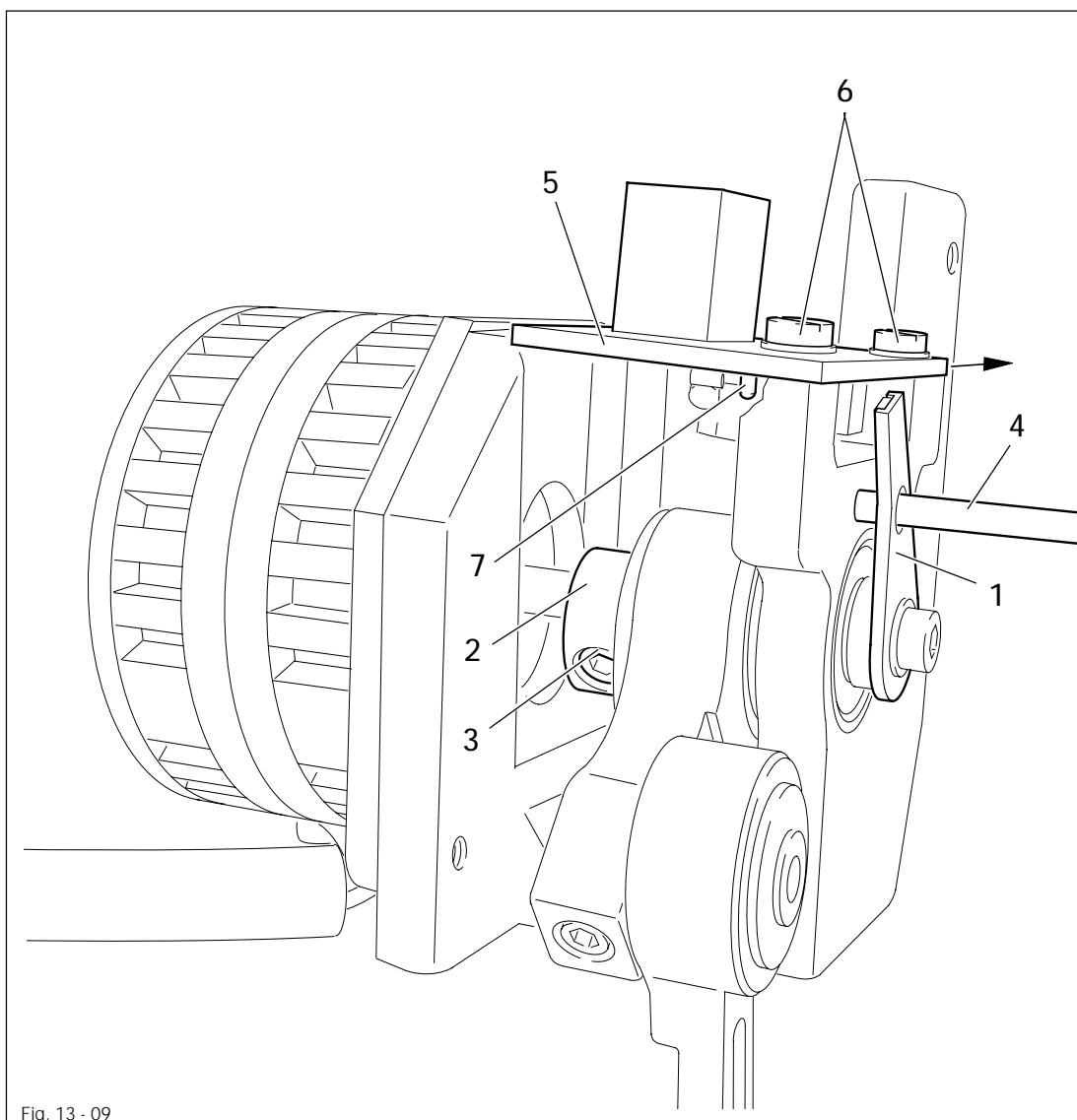
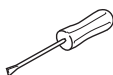


Fig. 13 - 09



To replace the sensor board, it is imperative to pay attention to the following work steps!



Electric voltage!

Danger of an electric shock if handled incorrectly!

- Completely remove the needle drive unit ( plugs remain connected ).
- Check whether lug 1 is opposite the marking on eccentric 2.
- Loosen screws 3.

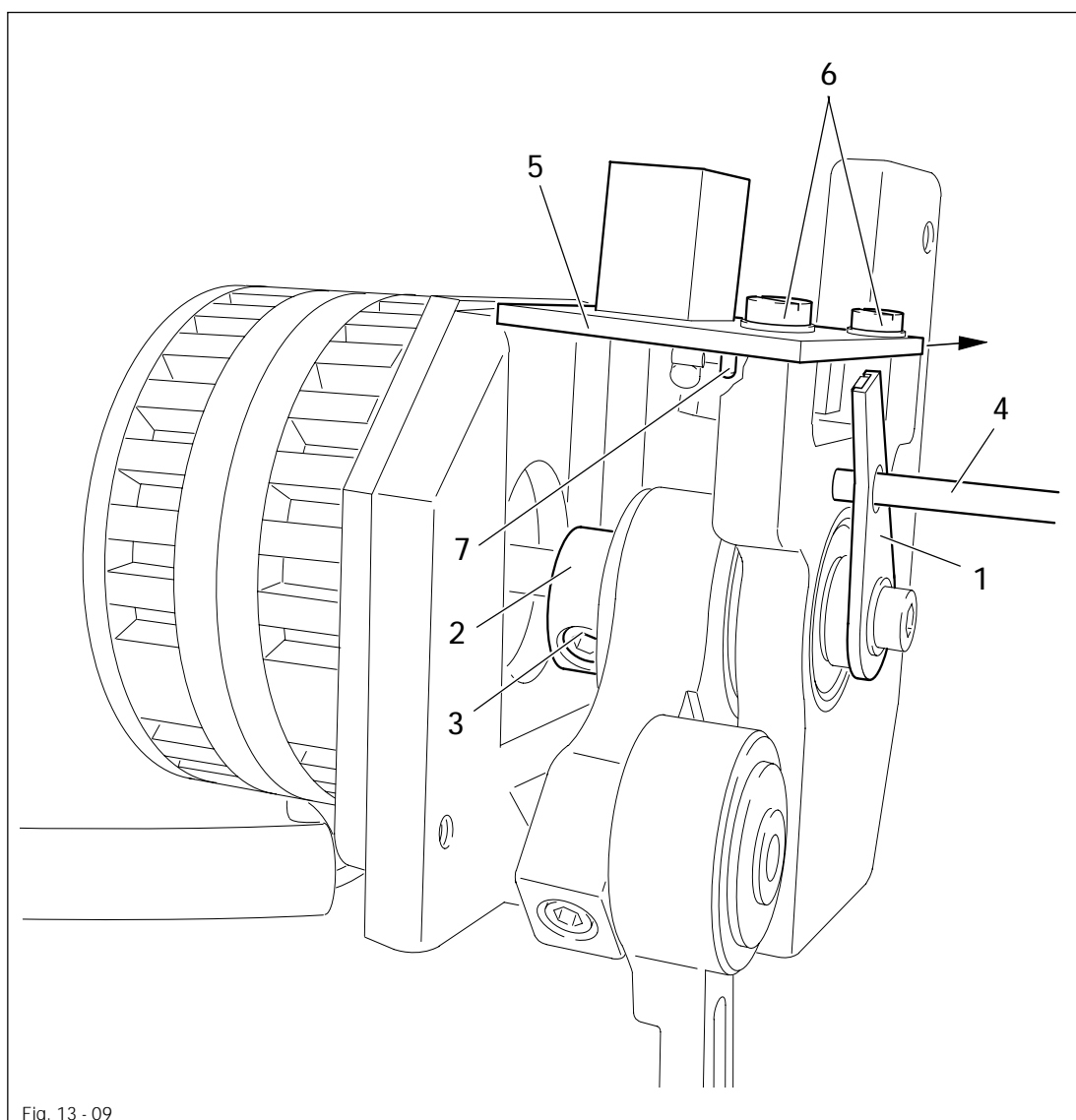
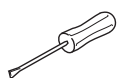


Fig. 13 - 09



- With adjustment pin 4 ( Order no. 61-111 641-46 ) insert lug 1 in the marked hole of the support stand.
- Switch on the machine and wait until the stepping motor stands still.  
( Ignore error message "Error 10" ).
- Move the sensor board 5 ( screws 6 ) in the direction of the arrow, until LED 7 lights up and push it back again until LED 7 has just extinguished.
- Switch off the machine.
- Tighten screws 3 and switch off the machine.
- Remove adjustment pin 4.
- Switch on the machine and check the needle drive unit according to the **requirement**.
- Switch off the machine.
- Install the needle drive unit and adjust it as described in **Chapter 13.13 Basic setting of the needle drive unit**.

## 13.13 Basic setting of the needle drive unit

**Requirement**

When the needle is at b.d.c. and lug 1 is blocked, the needle should be in the centre of the needle hole as seen crosswise to the direction of sewing.

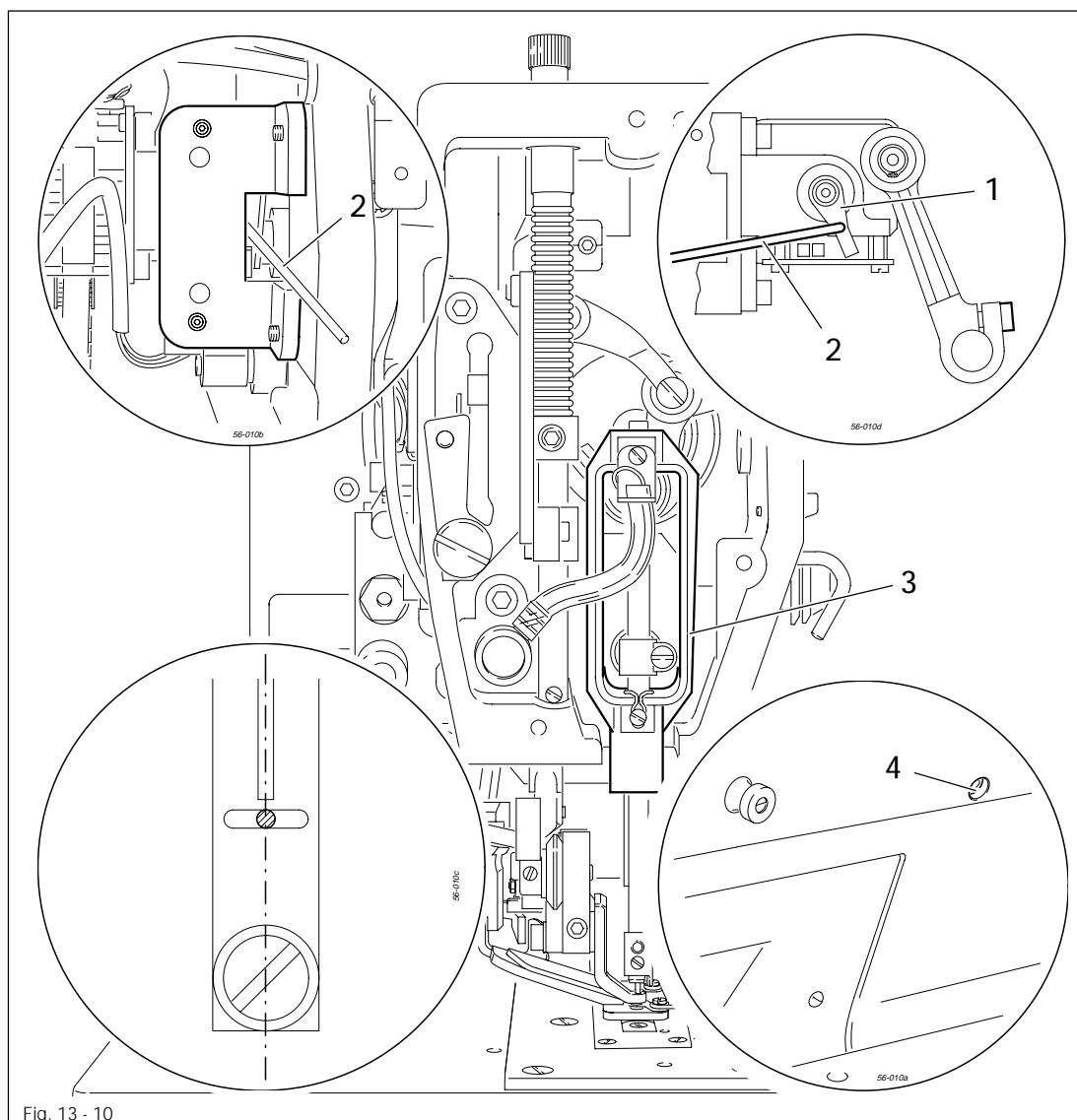
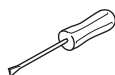


Fig. 13 - 10



- Bring the needle bar to b.d.c.
- Block lug 1 ( adjustment pin 2, part no. 61-111 641-46 ).
- Adjust the needle bar 3 ( screw 4 ) according to the requirement.
- Remove adjustment pin 2.

## 13.14 Basic position of the work clamp ( lengthwise to the arm )

### Requirement

When the clamp 1 is in its basic position, it should be a 5 mm away from the centre of the needle hole.

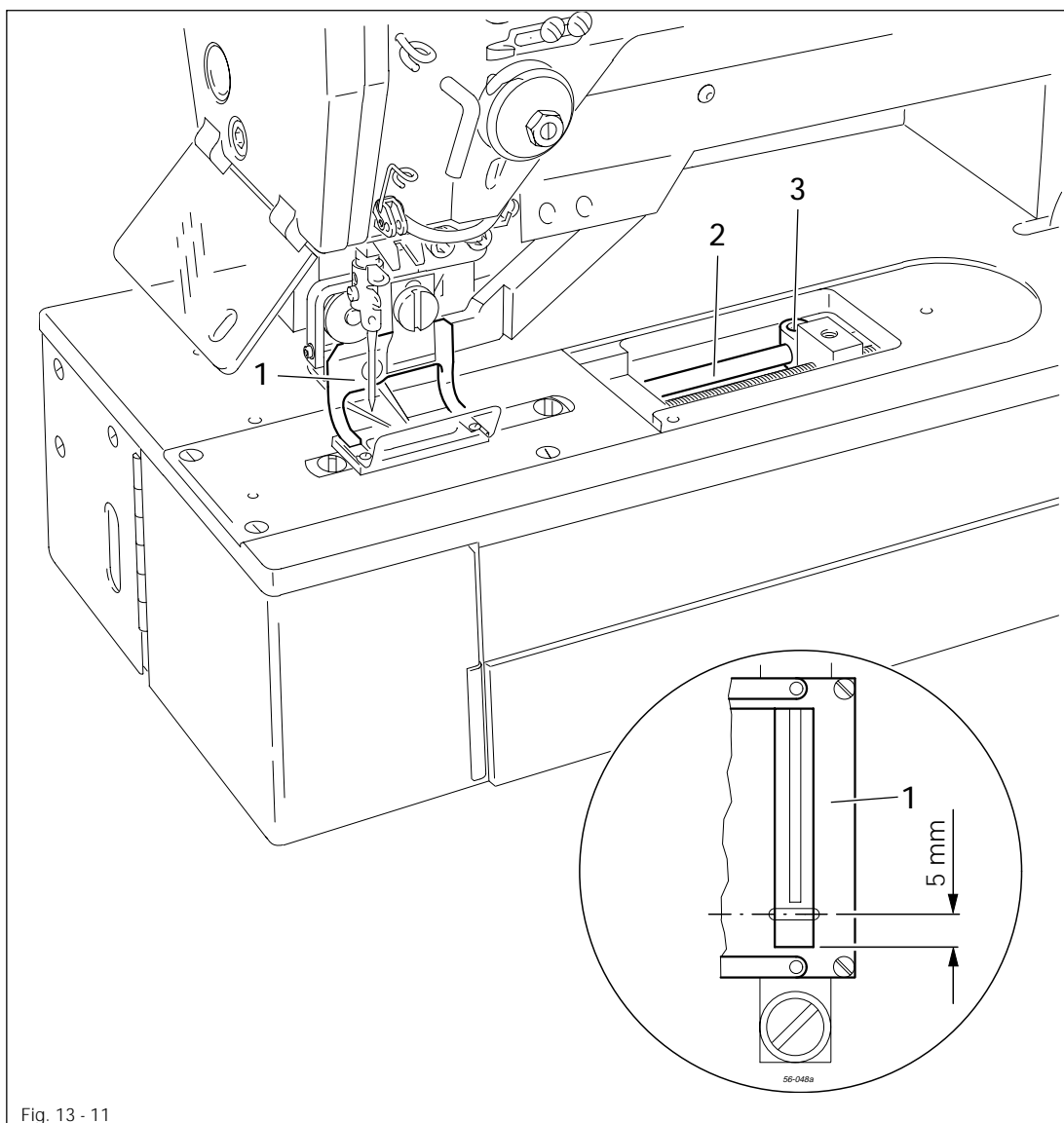


Fig. 13 - 11



- Connect the compressed air system and switch on the machine.
- Lower the work clamp 1 ( control panel ).
- Adjust bar 2 ( screw 3 ) according to the requirement.
- Switch off the machine and disconnect the compressed air.

## 13.15 Basic position of the work clamp ( crosswise to the arm )

## Requirement

1. When the pressure roller 1 is in guide unit 5, the cut-out of work clamp 6 should be in the centre of the needle hole.
2. When the work clamp 6 is in motion, it should always be parallel to the needle plate insert.

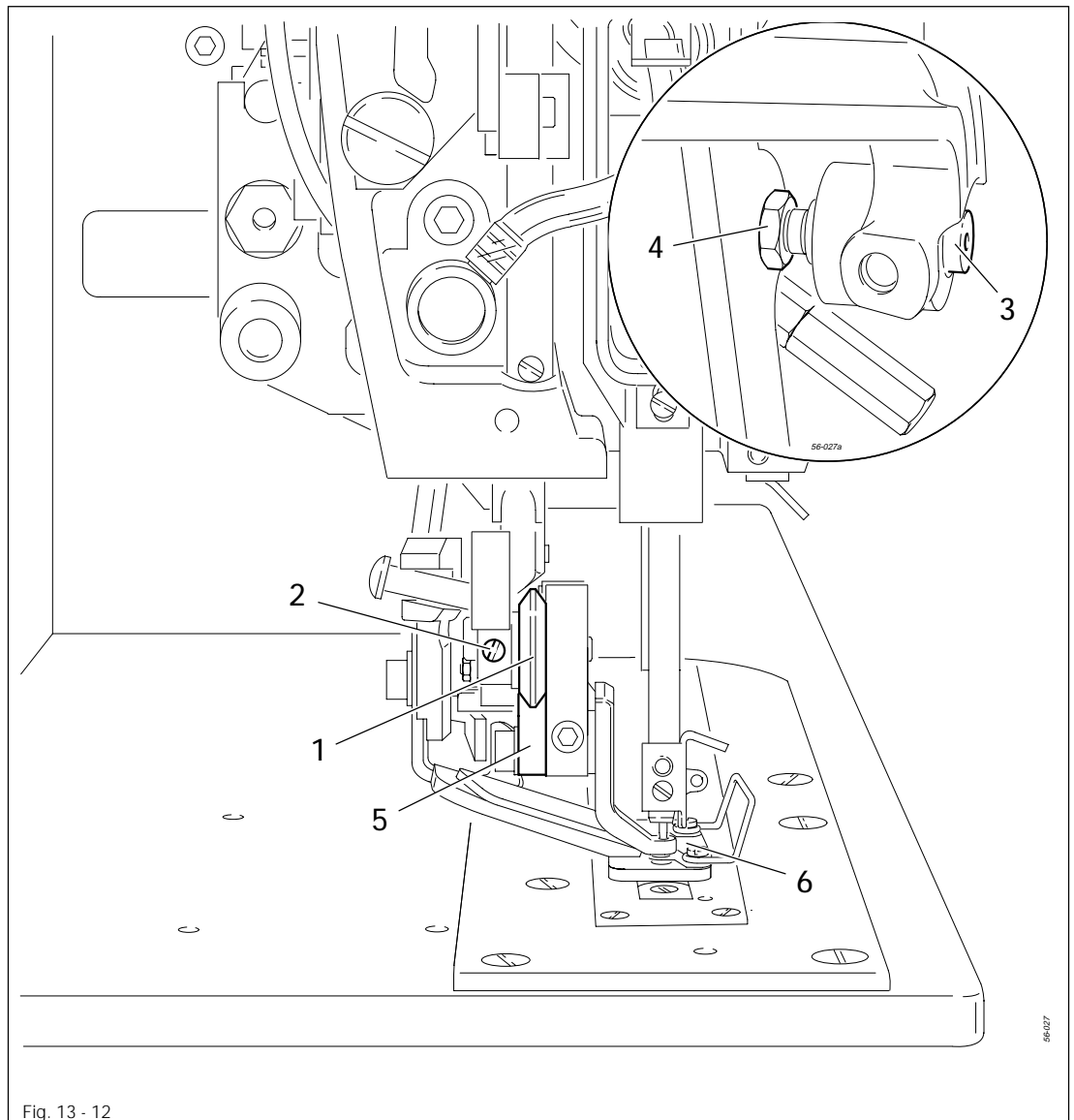
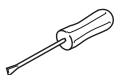


Fig. 13 - 12

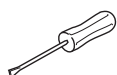
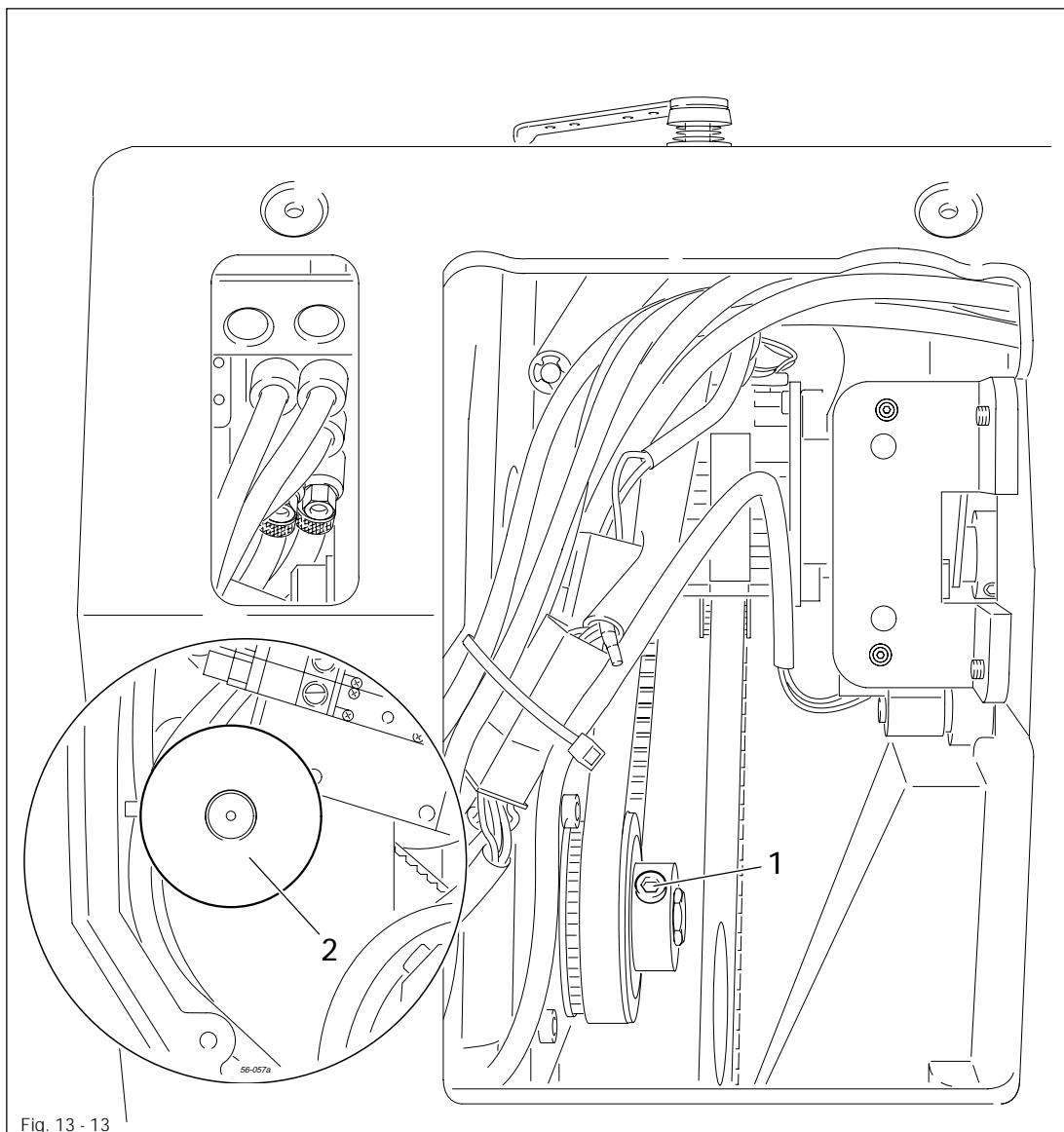


- Reduce the sewing pressure completely, see Chapter 9.08 Adjusting the work clamp pressure.
- Adjust pressure roller 1 ( screw 2 ) according to requirement 1.
- Adjust bolt 3 ( nut 4 ) according to requirement 2.

## 13.16 Upper take-up lever position (reference position)

### Requirement

The take-up lever should position 1.8 – 2.0 mm before its t.d.c. and one of the screws 1 should be accessible.



- Remove the needle and switch on the machine.
- Select parameter "609".

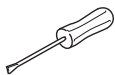
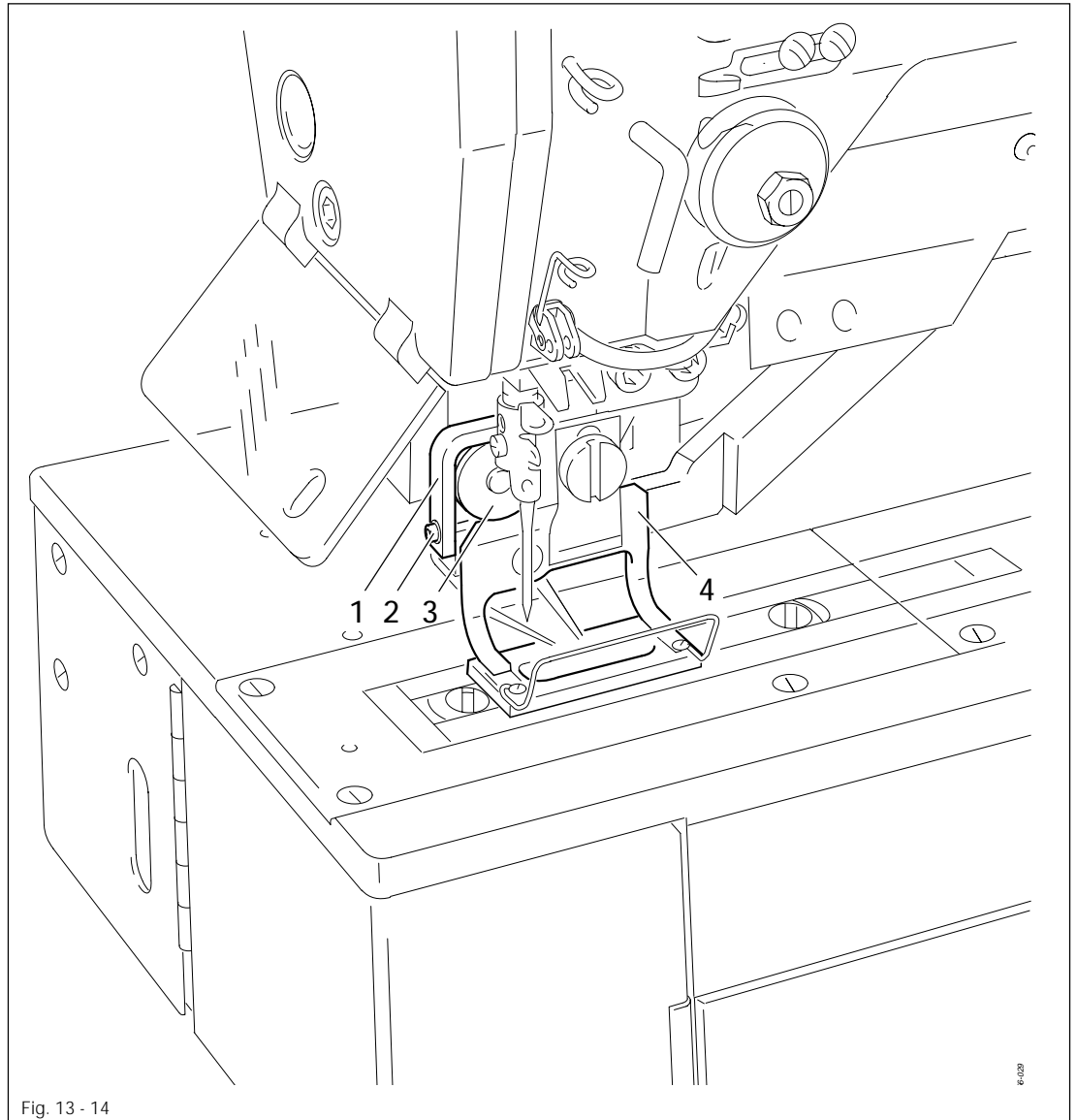


- Press **Enter**, the motor turns to the reference point.
- Loosen screw 1 and, by turning the balance wheel 2, bring the take-up lever into position according to the **requirement**.
- Tighten screws 1.
- Switch off the machine.

## 13.17 Lifting elbow on the work clamp

### Requirement

1. The lifting elbow 1 should be parallel to pressure roller 3.
2. When work clamp 4 is lifted, there should be a slight amount of play between pressure roller 3 and lifting elbow 1.



- Switch on the machine.



- Lower the work clamp.
- Adjust the lifting elbow 1 ( screw 2 ) according to the requirements.
- Switch off the machine.

## 13.18 Work clamp stroke

### Requirement

When the lifting cylinder is completely extended, there should be a space of 15 mm between lifting piece 4 and clamp 1.

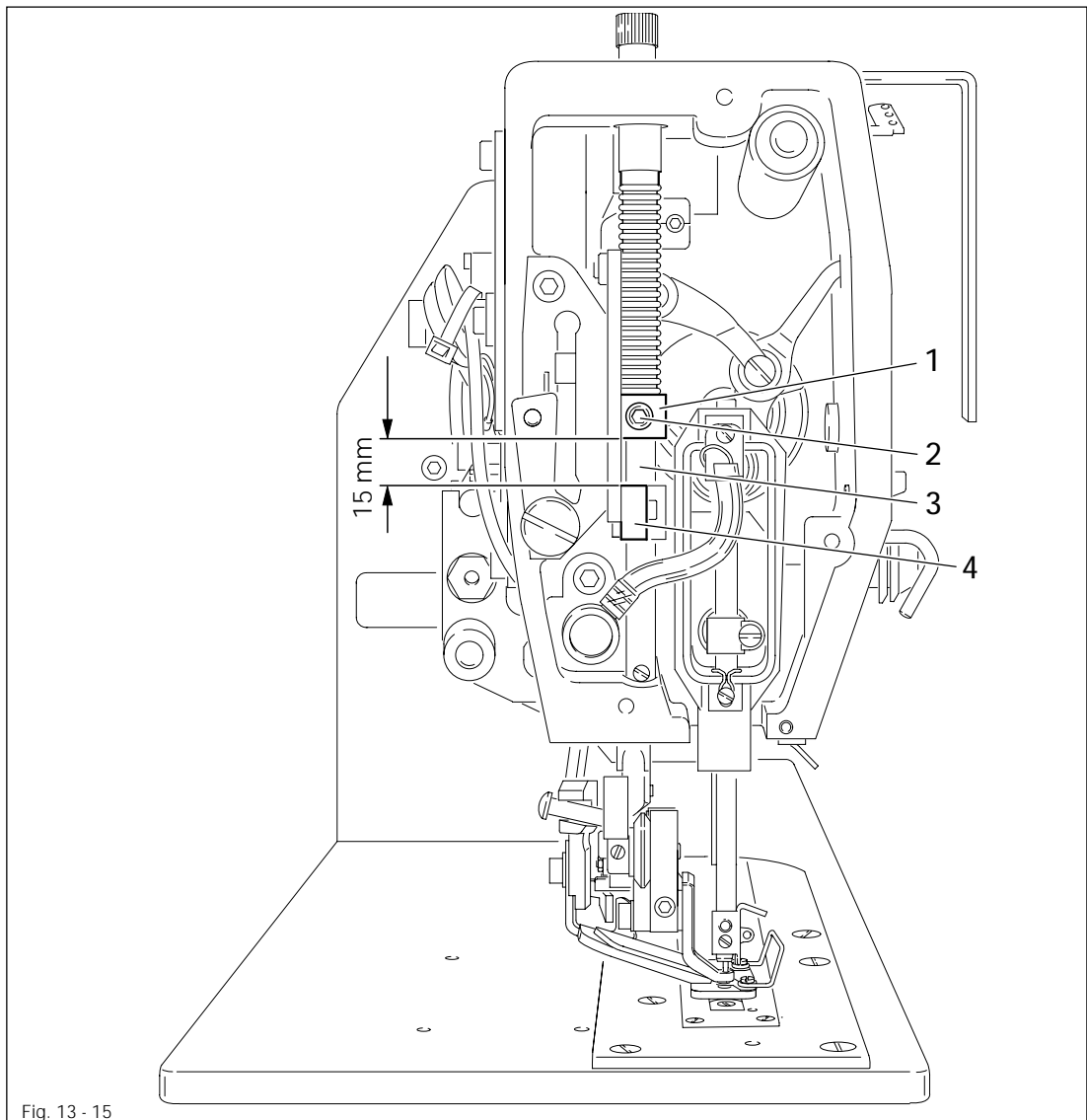
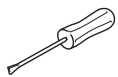


Fig. 13 - 15



- Reduce the work clamp pressure completely, see **Chapter 9.08 Adjusting the work clamp pressure**.
- Adjust clamp 1 ( screw 2 ) according to the requirement.



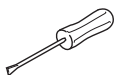
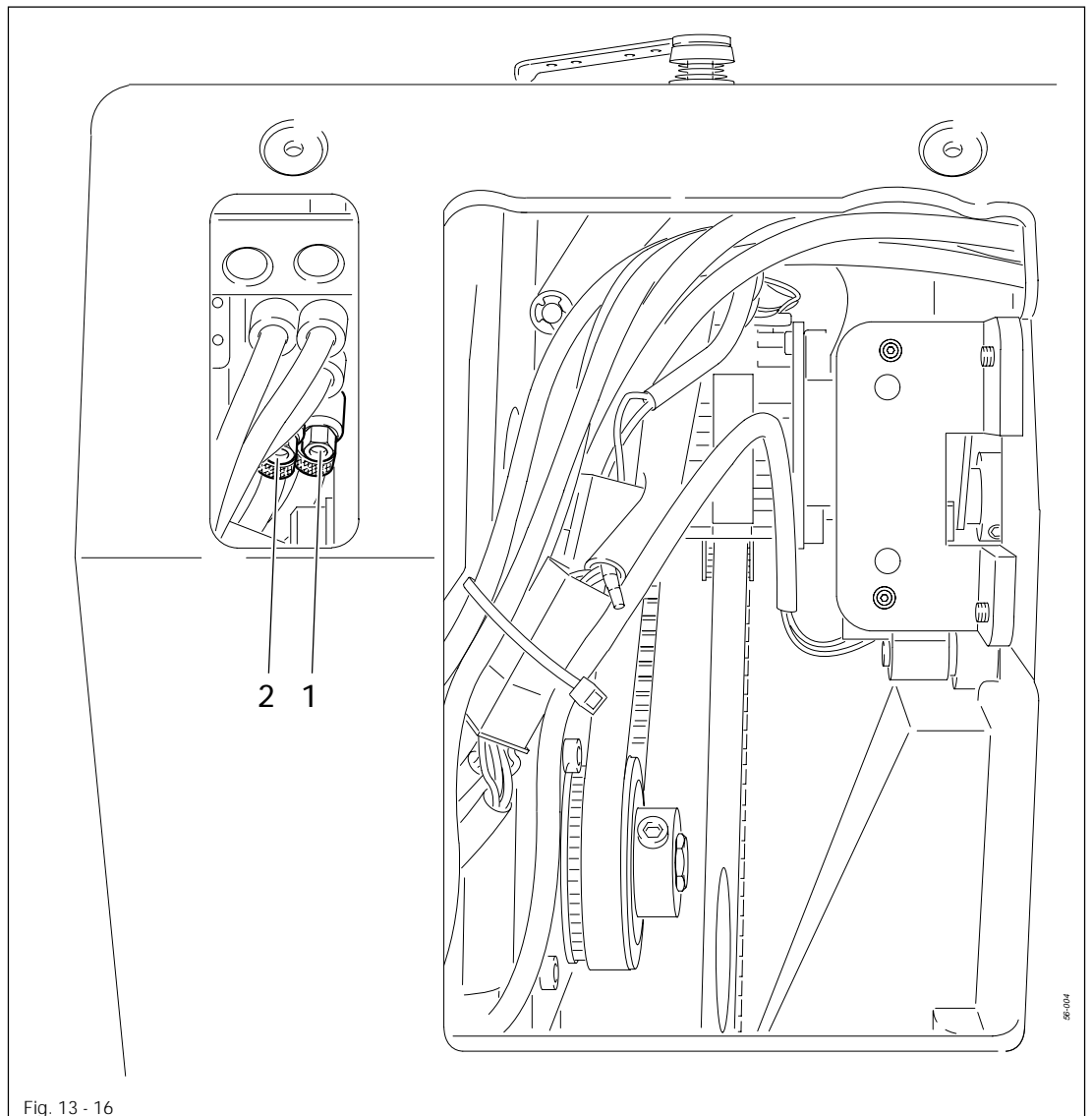
Take care not to twist bar 3 during the adjustment!



## 13.19 Lifting cylinder of the work clamp

### Requirement

The lifting and dropping motion of the work clamp should be carried out as quickly as possible.

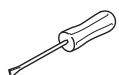
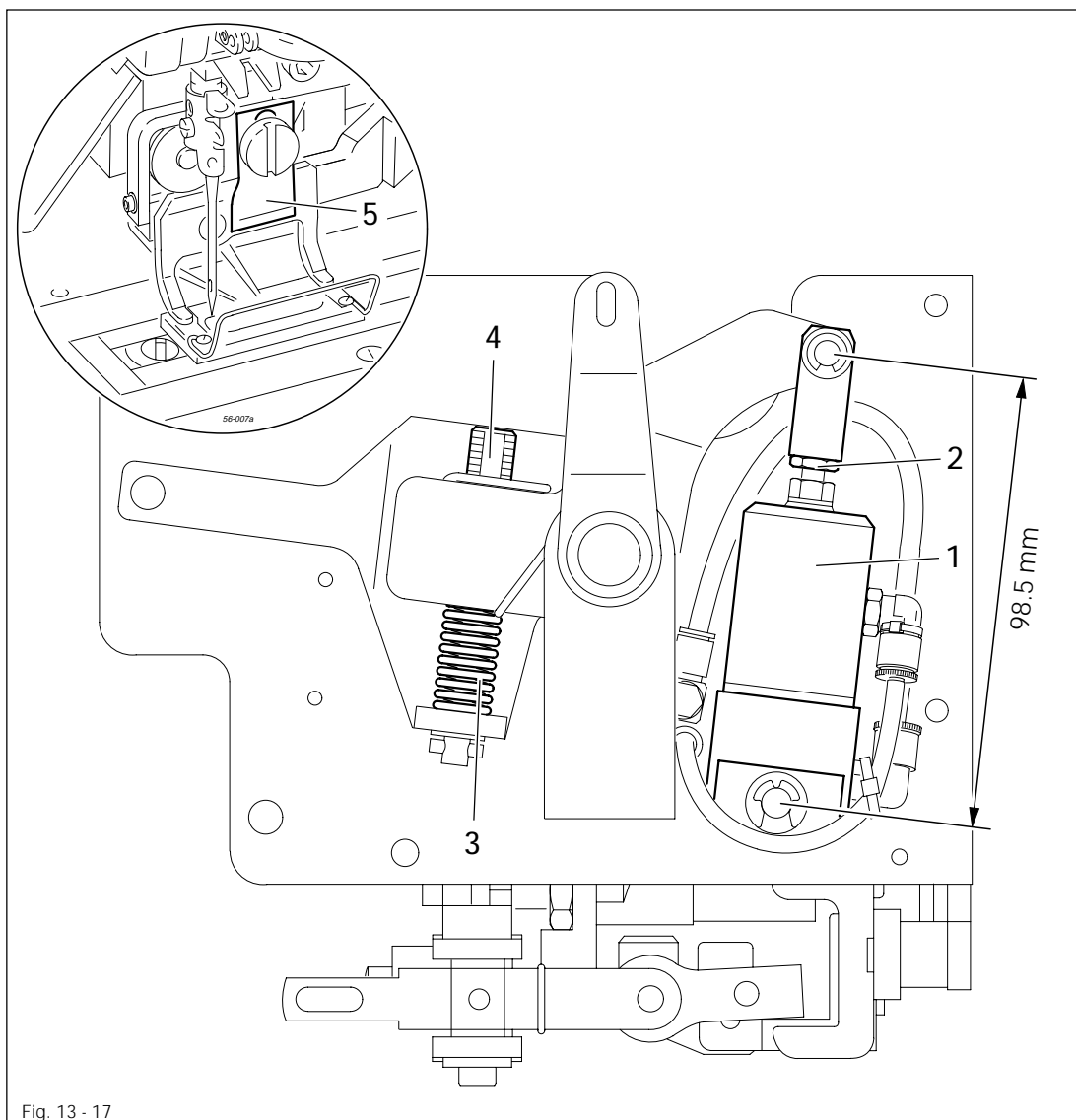


- Adjust the throttles 1 (dropping motion) and 2 (lifting motion) according to the requirement.

## 13.20 Cutting pressure of the knife unit ( in dismantled state )

### Requirement

1. In its basic position ( retracted ), the knife cylinder 1 should have a length of 98.5 mm.
2. The knife 5 should cut perfectly, but the pressure on knife 5 should be as low as possible.



- Adjust knife cylinder 1 ( nut 2 ) according to **requirement 1**.
- To begin with, by turning screw 4 completely compress spring assembly 3, and then wind screw 4 back by three turns ( **requirement 2** ).

13.21

## Position of the knife bracket and lower knife stop

## Requirement

1. Knife bracket 5 should be adjusted so that adjustment gauge 2 is **parallel to and**
2. **in the centre of** the knife slot in the needle plate insert.
3. When the knife cylinder is extended, screw 4 should be accessible through the hole in the machine case and adjustment gauge 2 should be touching the needle plate insert.

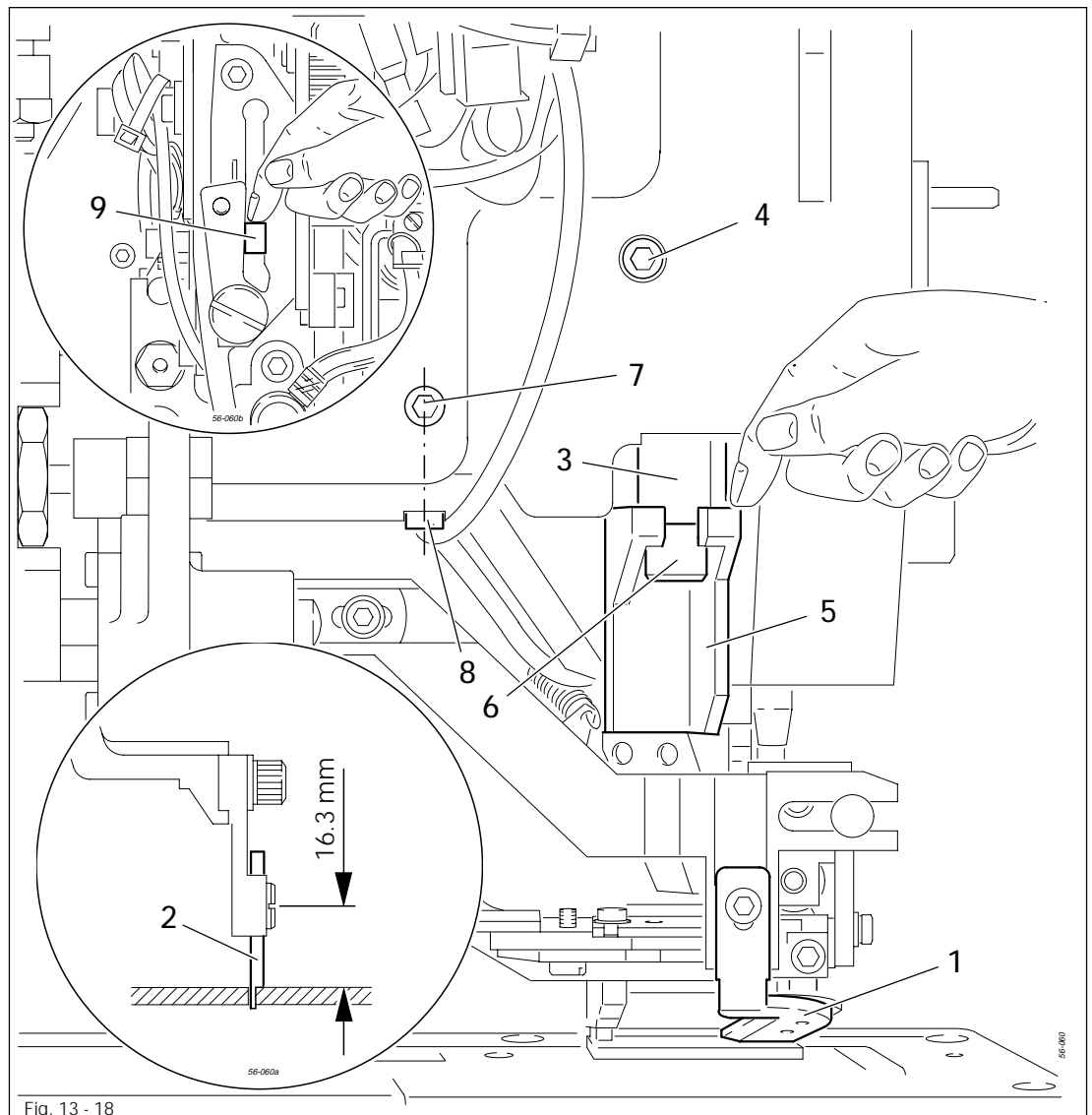
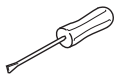
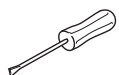
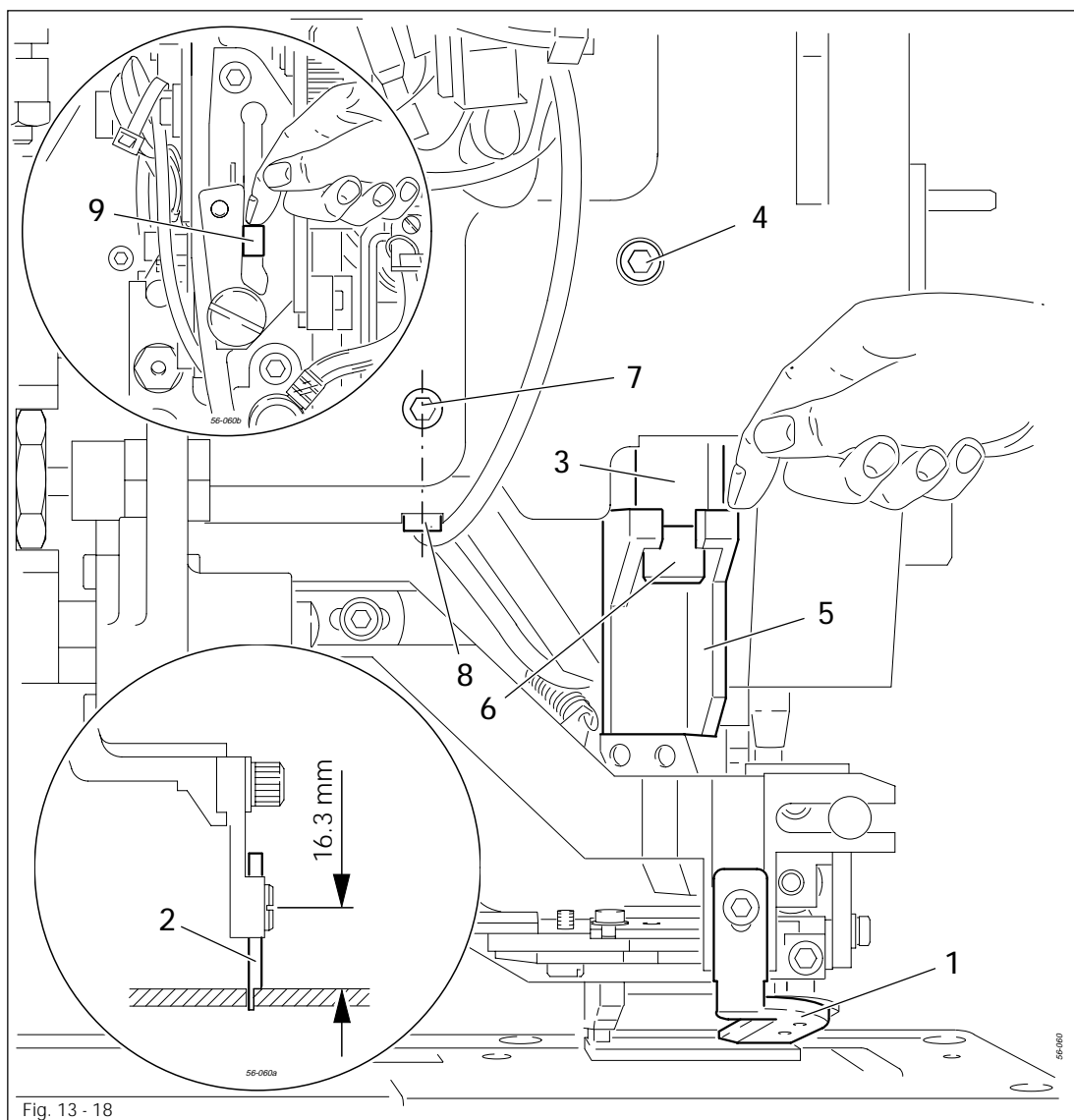


Fig. 13 - 18



- Bring the machine into its basic position and disengage needle thread cutter 1.
- Fit adjustment gauge 2 ( Part no. 61-11 635-85 ).
- Twist knife bar 3 ( screw 4 ) according to **requirement 1**.
- Adjust knife bracket 5 ( screw 6 ) according to **requirement 2**.
- Loosen screw 7 and turn stop screw 8 back a few turns.
- Push down guide unit 9 by hand, until screw 4 becomes accessible through the hole in the machine case, and adjust knife bar 3 ( screw 4 ) according to **requirement 3**.

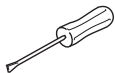
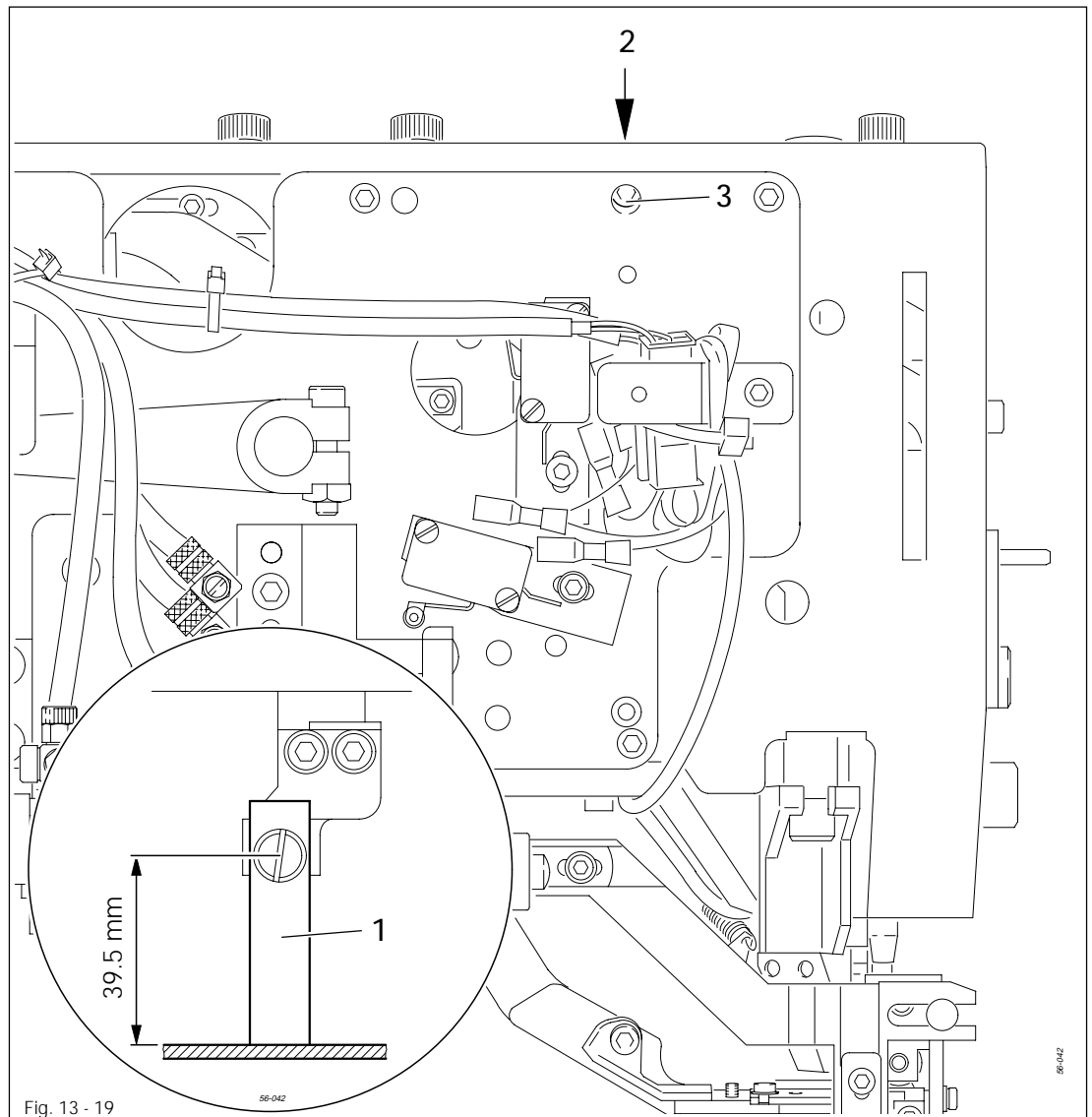


- Push down knife bar 3 by hand ( the adjustment gauge 2 must be touching the needle plate insert ) and turn stop screw 8 until it touches the knife arm.
- Tighten screw 7 and remove adjustment gauge 2.

## 13.22 Upper knife stop

**Requirement**

When the adjustment gauge 1 is resting on the needle plate insert, the arm of the knife should be touching the upper knife stop.

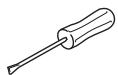
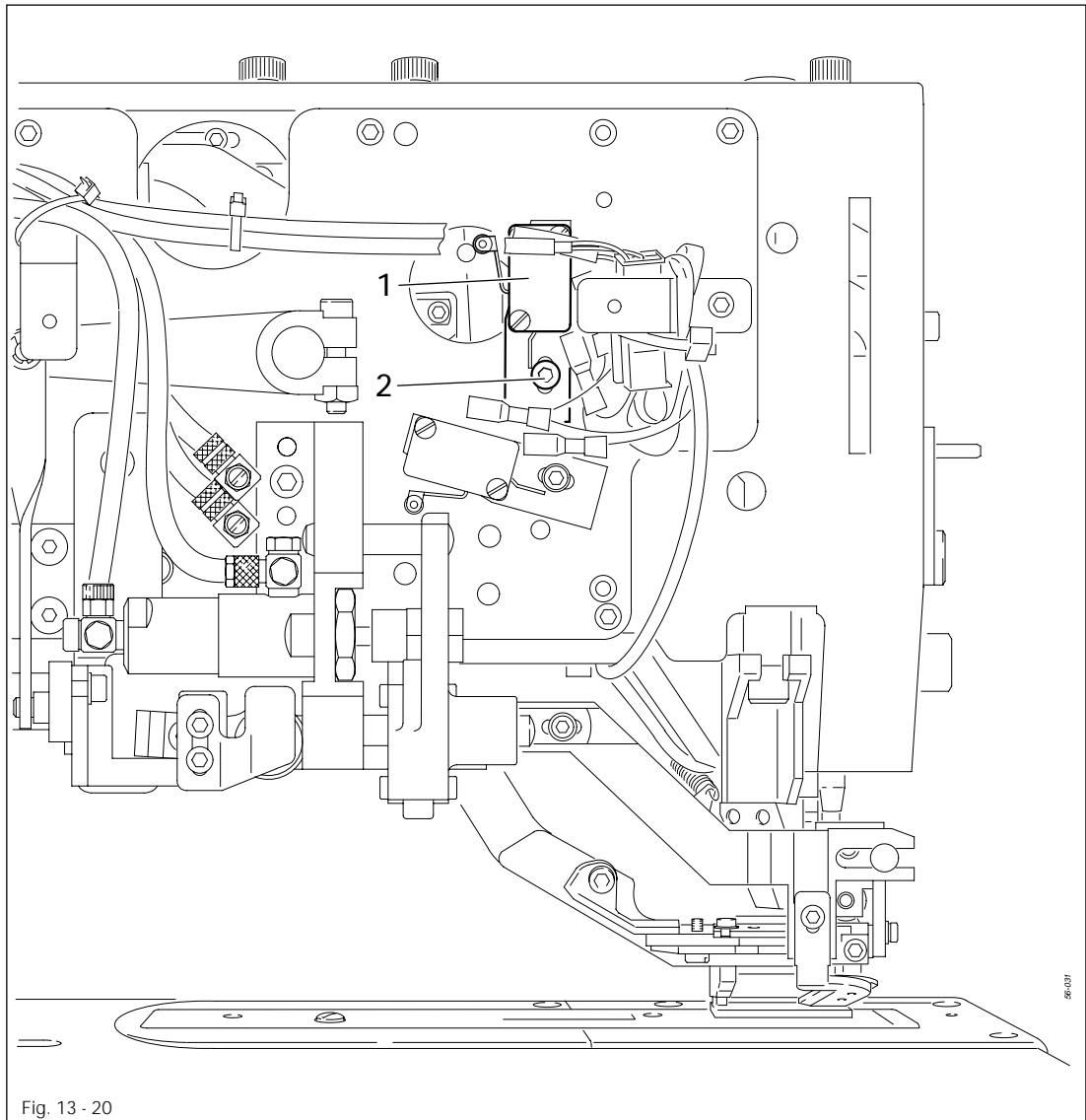


- Fit adjustment gauge 1 ( Part no. 61-11 635-93).
- Turn stop screw 2 ( screw 3 ) according to the **requirement**.
- Remove adjustment gauge 1.

## 13.23 Knife control switch

### Requirement

When the cutting device is in its neutral position, switch 1 should be reliably activated.

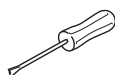
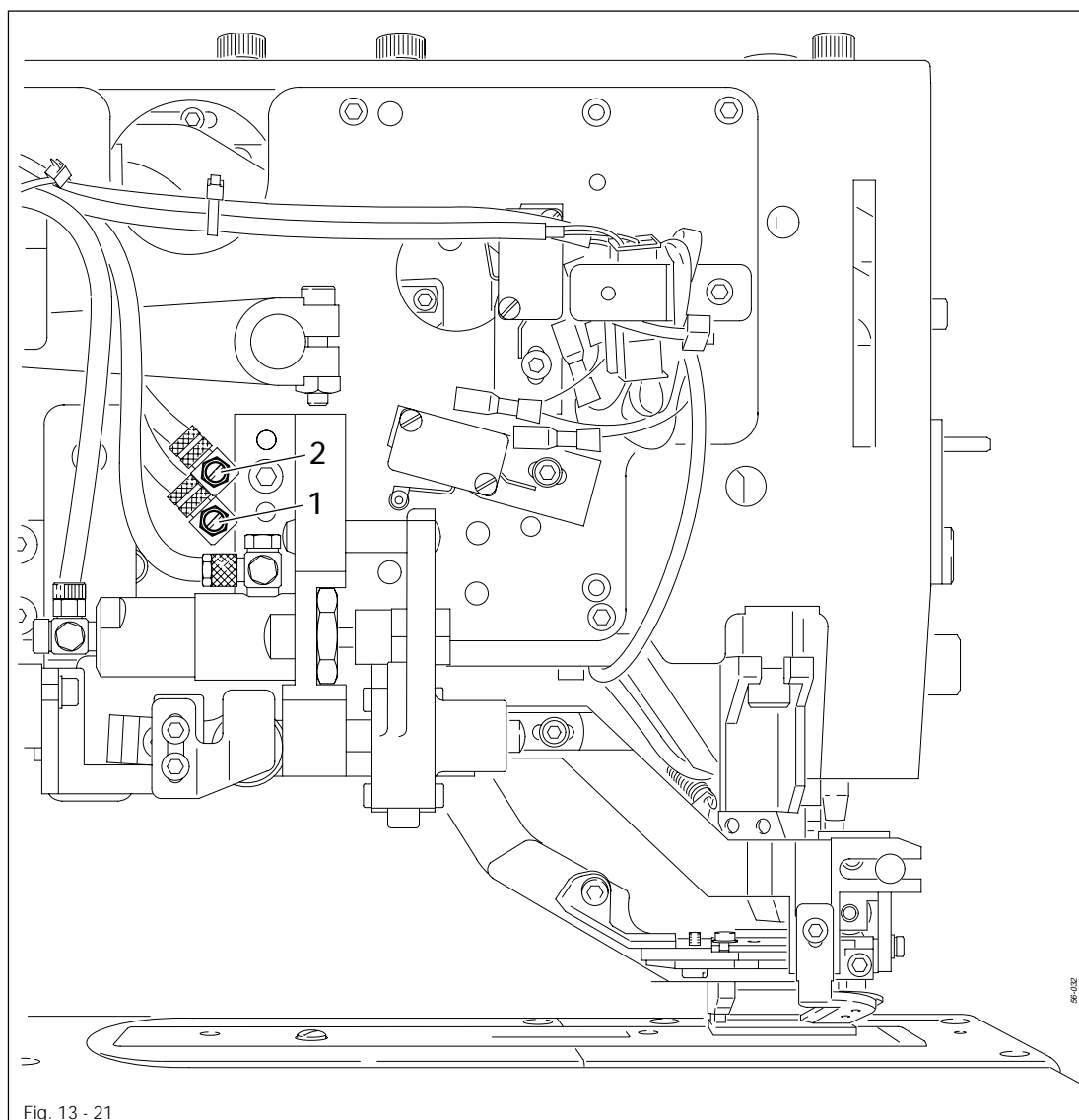


- Adjust switch 1 ( screw 2 ) according to the requirement.

## 13.24 Knife motion

## Requirement

1. The fabric must be cut perfectly.
2. The cutting motion should be carried out as quickly as possible.



- Adjust the throttles 1 (dropping motion) and 2 (lifting motion) according to the requirements.

## 13.25 Distance of the knife to the needle bar

### Requirement

There should be a distance of 0.2 – 0.5 mm between the knife 3 and the needle bar 4.

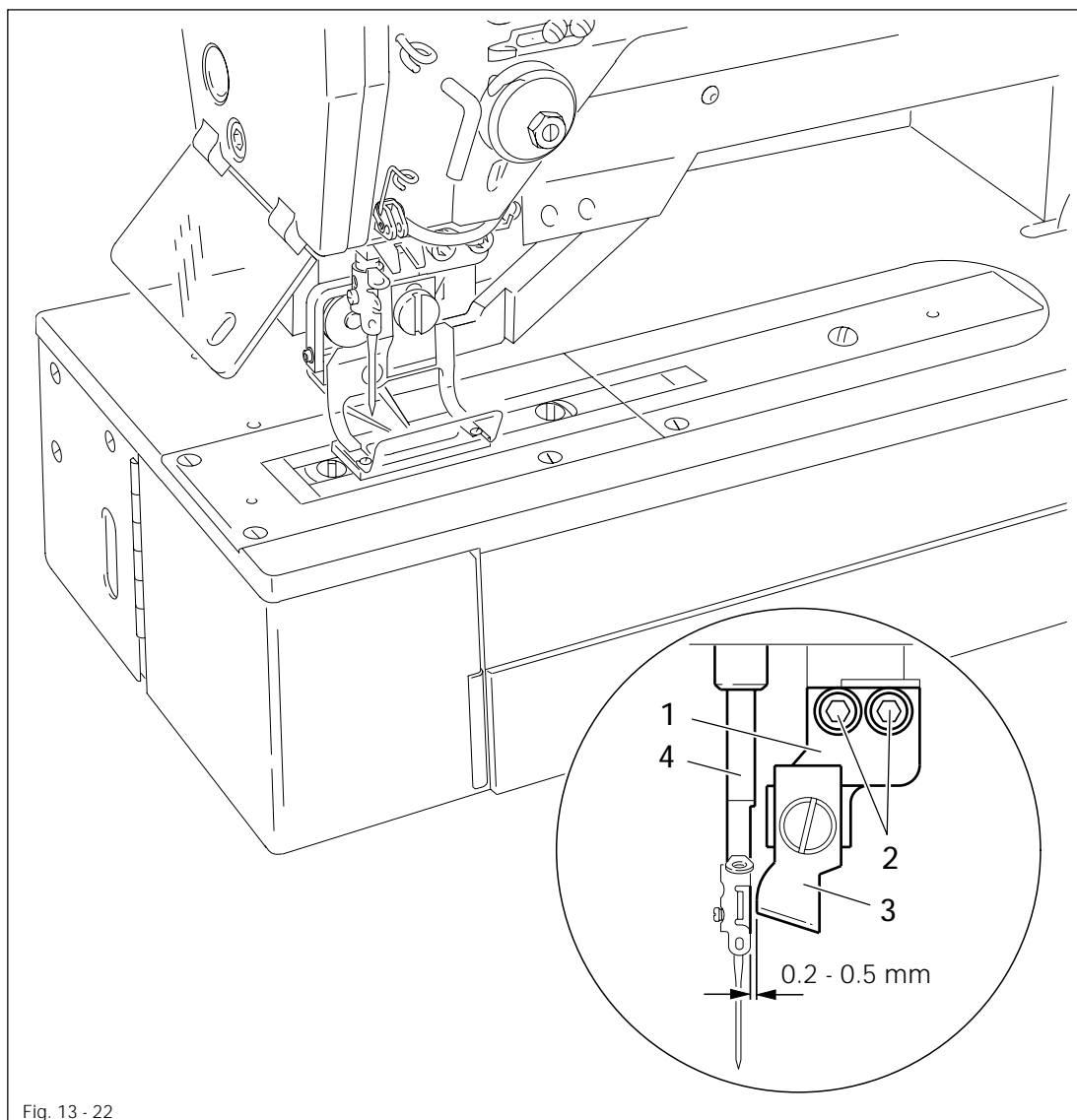
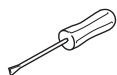


Fig. 13 - 22



- Adjust knife holder 1 ( screws 2 ) according to the requirement.
- Remove compressed air supply.
- Push the knife holder down by hand and check the distance of the knife from the needle plate cutout.



## 13.26 Knife height

**Requirement**

When the punching or cutting device is in its neutral position, knife 1 should be 23 mm (punching device) or 20 mm (cutting device) away from needle plate 5.

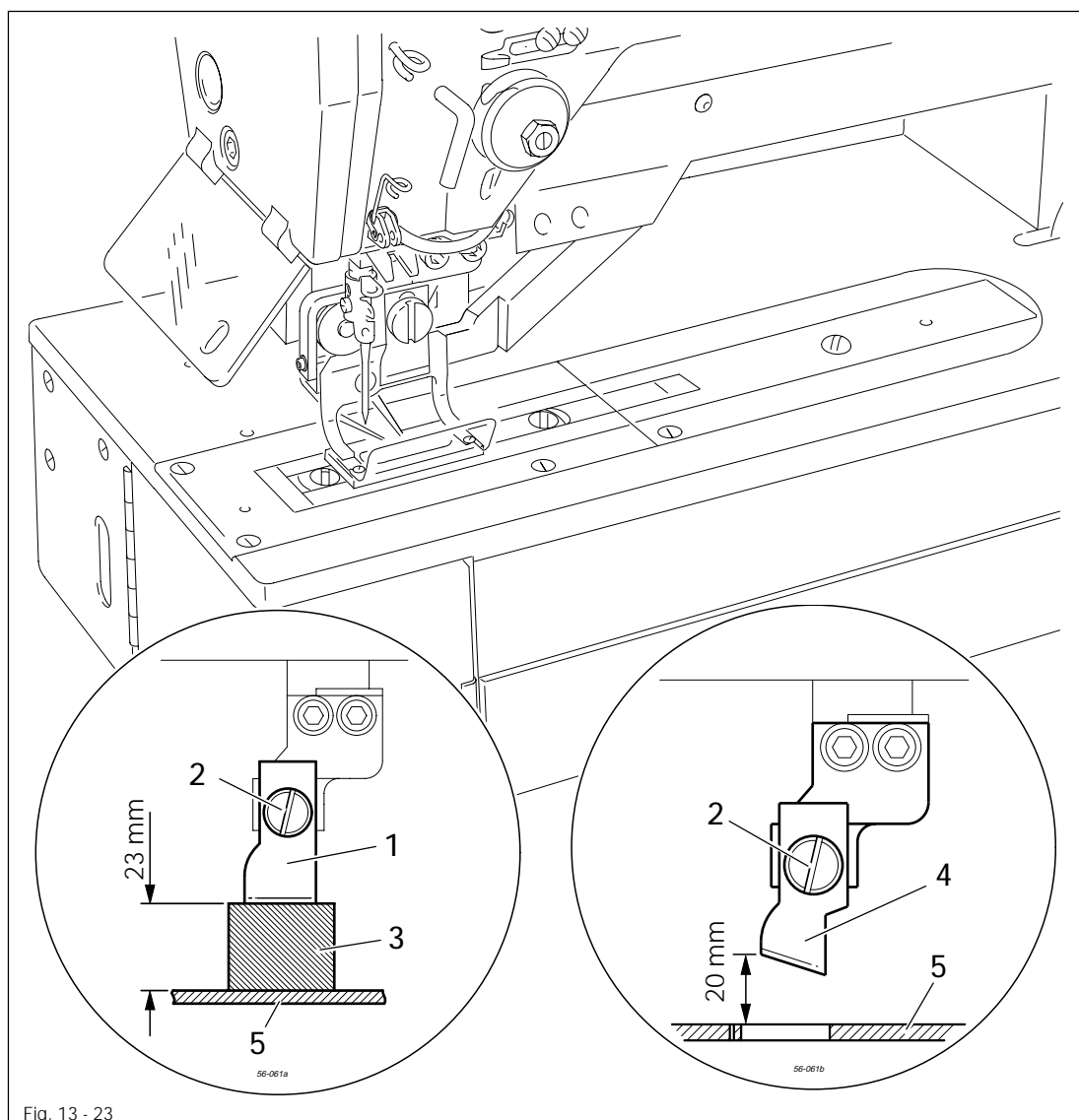


Fig. 13 - 23

**Machines with punching device:**

- Adjust knife 1 (screw 2) according to the requirement with the aid of adjustment gauge 3 (Part no. 61-111 635-86).

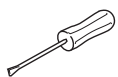
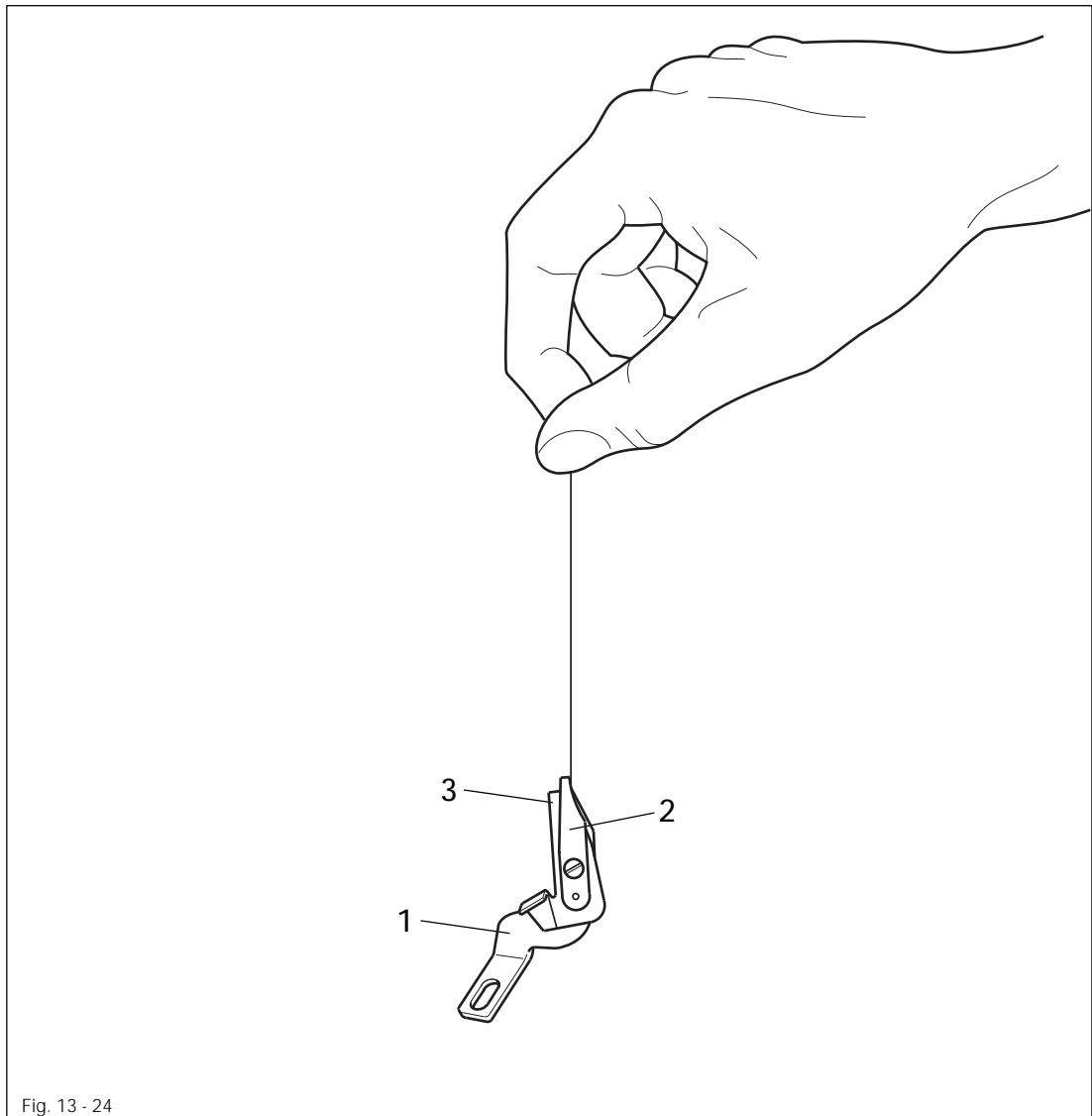
**Machines with cutting device:**

- Adjust knife 4 (screw 2) according to the requirement.

## 13.27 Functional test

### Requirement

1. An inserted thread should be cut cleanly by needle thread cutter 1.
2. After cutting, the thread end should be clamped in such a way that the needle thread cutter 1 is held on the thread.



- Dismount needle thread cutter 1.
- Carry out a functional test according to the requirements.
- If necessary, adjust clamp spring 2 or roughen the clamping surfaces.
- Fit the needle thread cutter 1.



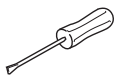
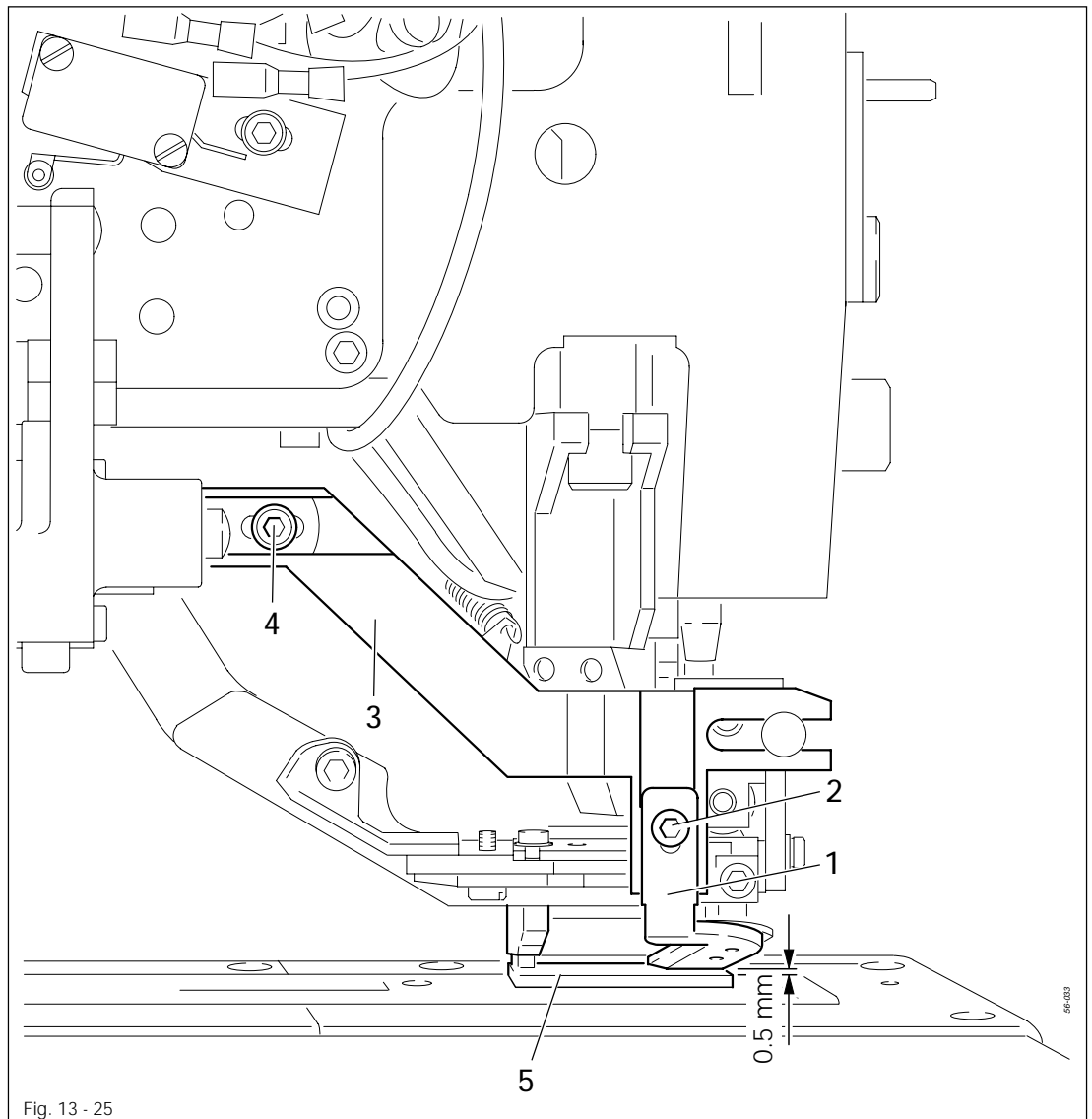
If the thread is damaged during clamping, the clamp hold is too tight. There should be no sharp edges on the clamping surfaces of the top cutter section 3, but this must have an adequate clamping surface.

Smooth clamping surfaces have a negative effect on the clamping action.

## 13.28 Needle thread cutter ( vertical and horizontal adjustment )

## Requirement

1. The distance between the lower edge of the needle thread cutter 1 and the work clamp 5 must be 0.5 mm.
2. The opened needle thread cutter 1 should reliably catch the needle thread.



- Adjust the needle thread cutter 1 ( screw 2 ) according to requirement 1.
- Adjust clamp 3 ( screw 4 ) according to requirement 2.

## 13.29 Cam guide unit

### Requirement

The starting thread should be sewn over with no problem.

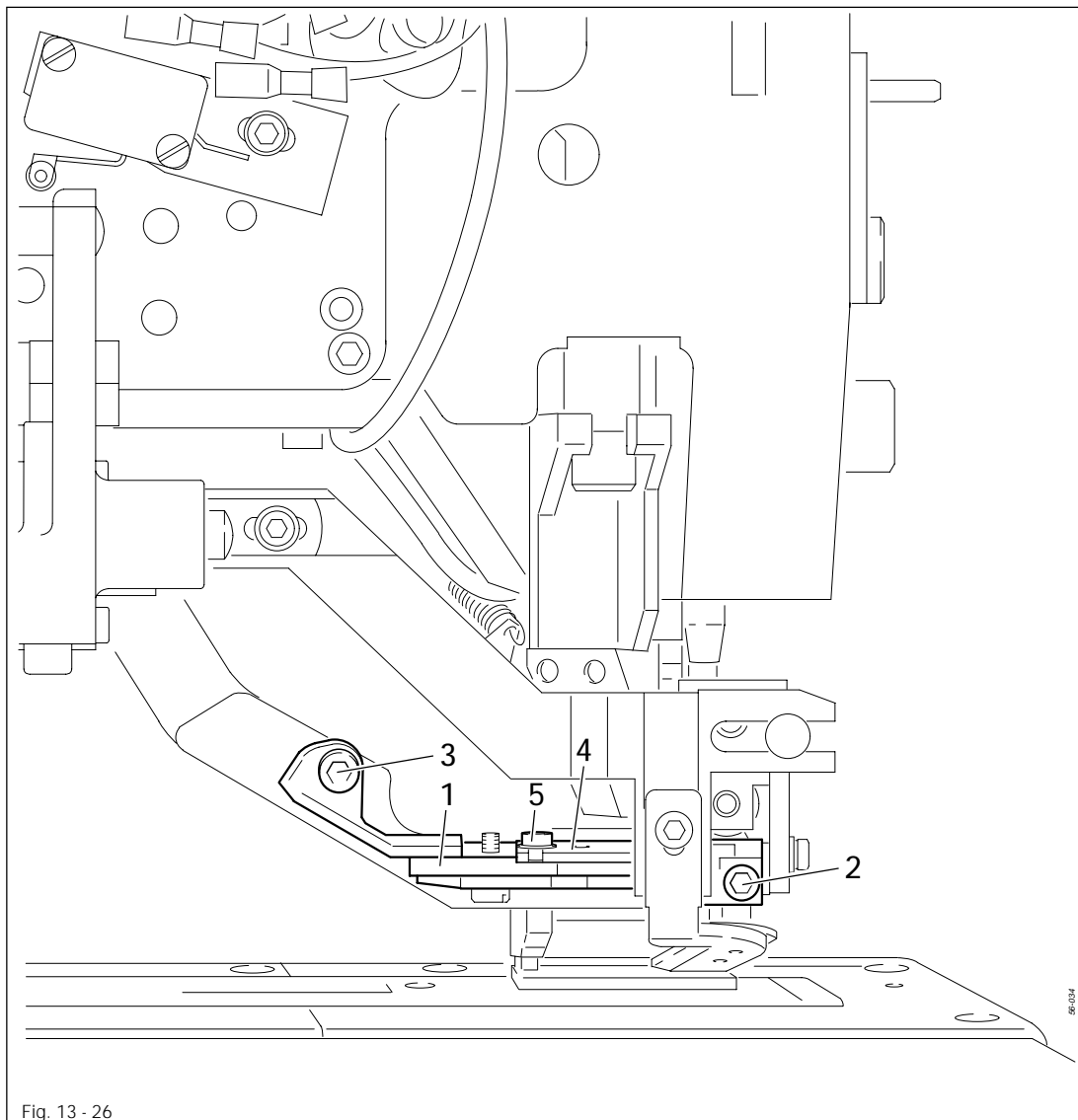
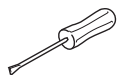


Fig. 13 - 26



- Bring the machine into its basic position and retract the cutter cylinder completely.
- Adjust the cam guide unit 1 ( screws 2 and 3 ) according to the **requirement**.
- Adjust drive plate 4 ( screw 5 ) according to the **requirement**.

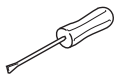
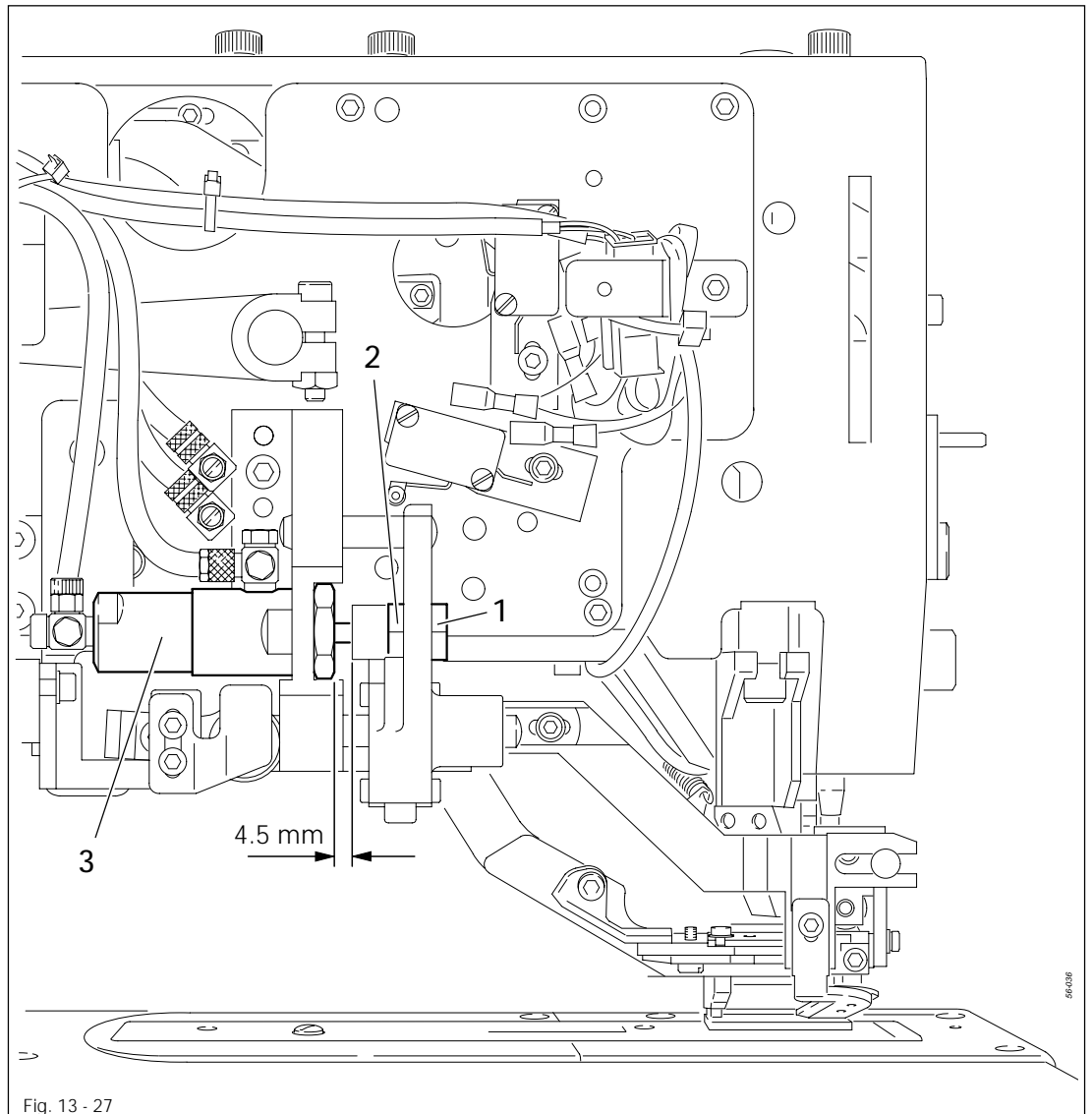


The opening and swinging out of the needle thread cutter must be corrected during sewing, if necessary.

## 13.30 Needle thread cutter stroke

### Requirement

The stroke length between the extended and retracted cutter cylinder 3 should be 4.5 mm.

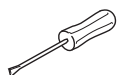
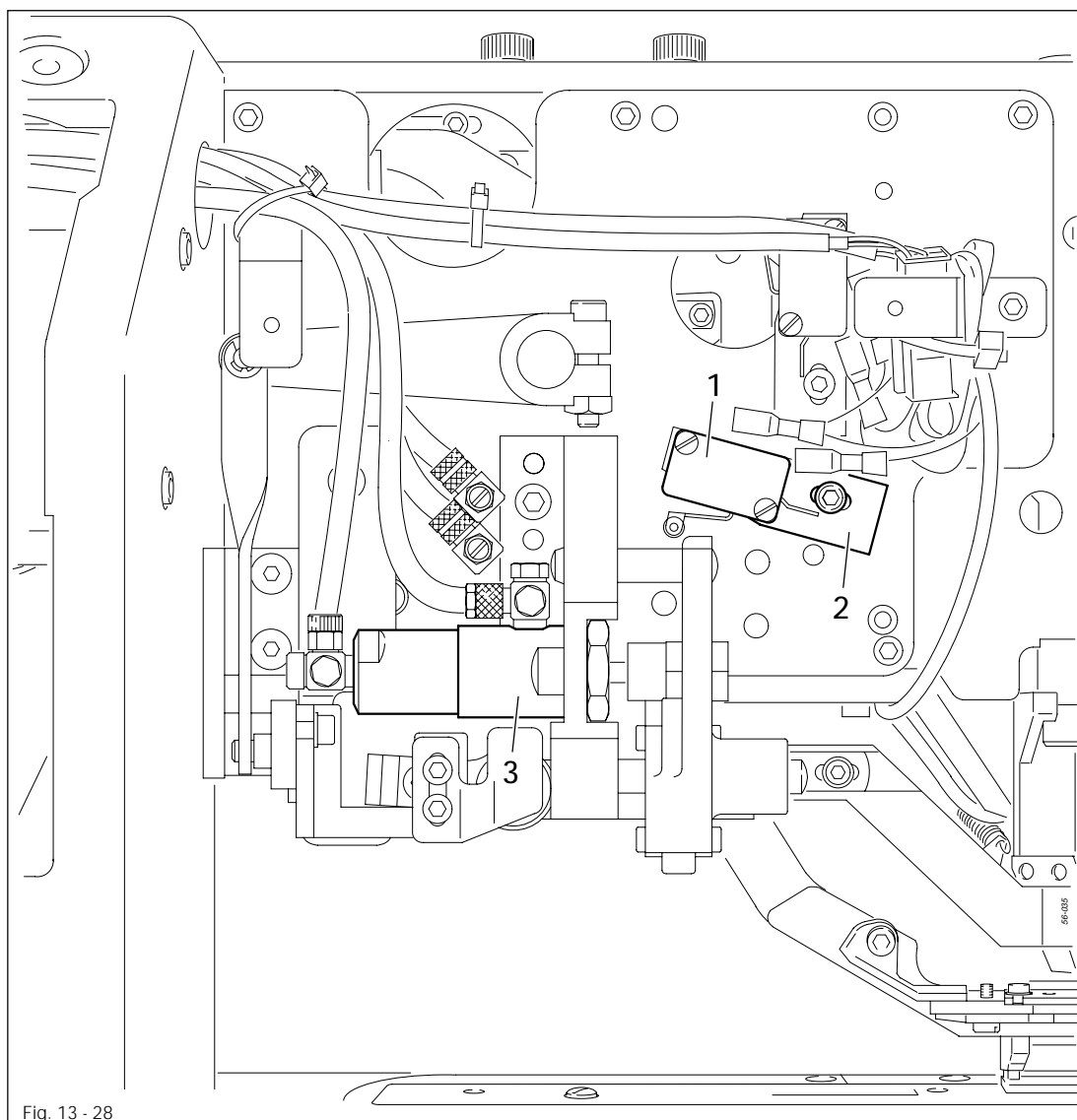


- Adjust nut 1 (locking nut 2) according to the requirement.

## 13.31 Needle thread cutter switch

### Requirement

When the cutter cylinder 3 is retracted, switch 1 should be reliably activated.



- Adjust switch 1 ( screw 2 ) according to the requirement.

## 13.32 Needle thread cutter release

## Requirement

1. Adjustment hole 6 must match the hole in the mounting plate 7.
2. There should be a space of **approximately 1 mm** between the lower edge of pawl 5 and the upper edge of catch 8. ( The thread should not be cut until the needle thread tension unit is open. )

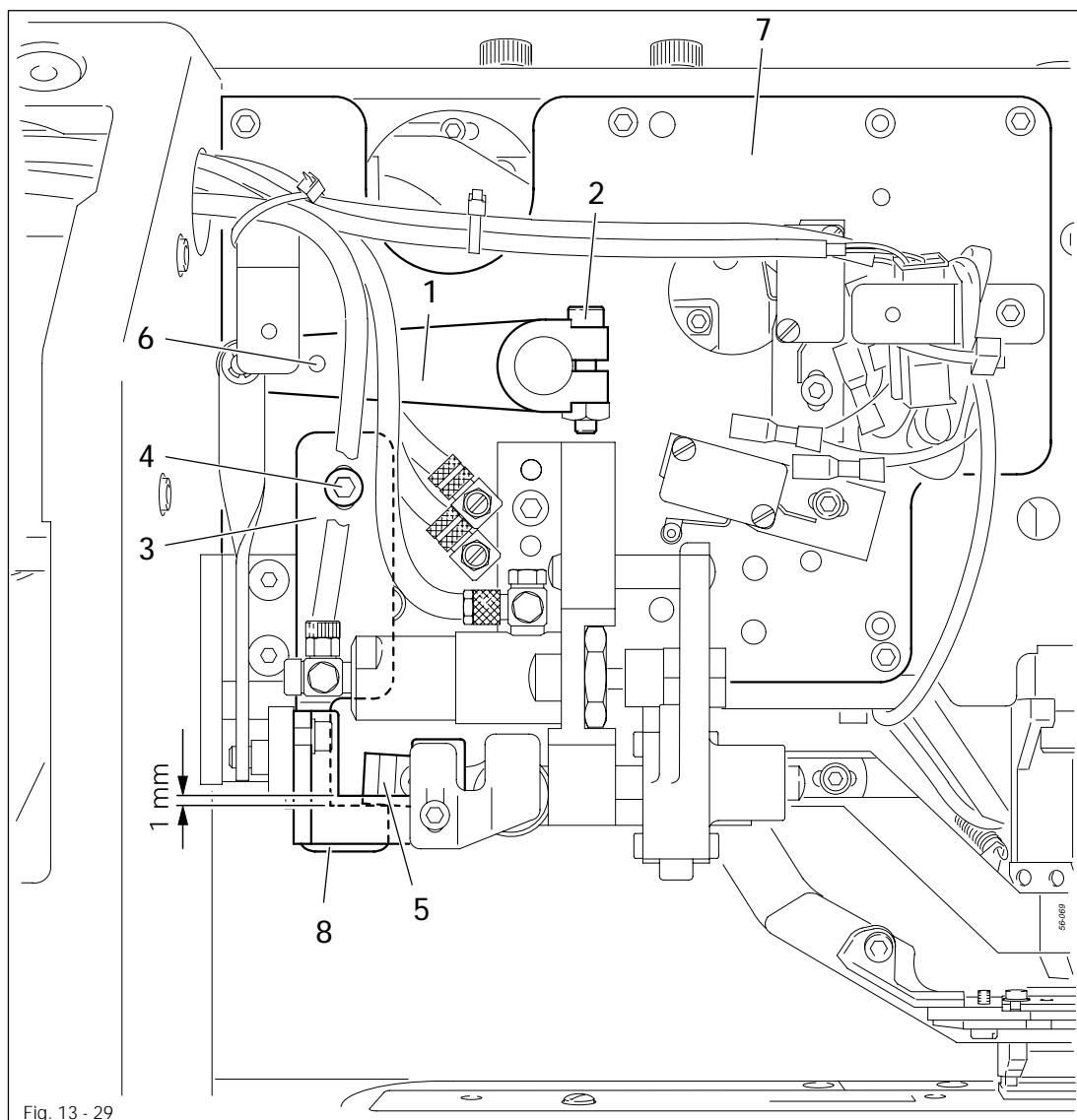
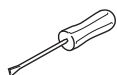


Fig. 13 - 29



- Adjust lever 1 ( screw 2 ) according to **requirement 1** with the aid of the adjustment pin ( Part no. 61-111 641-46 ).
- Disengage the needle thread cutter by hand.
- Adjust bar 3 ( screw 4 ) according to **requirement 2**.
- Raise pawl 5 and allow the needle thread cutter to engage.

## 13.33 Catch

### Requirement

When the cutter frame 1 is at the highest point of the cam guide unit 2, there should be a space of 0.2 mm between catch 3 and pawl 6.

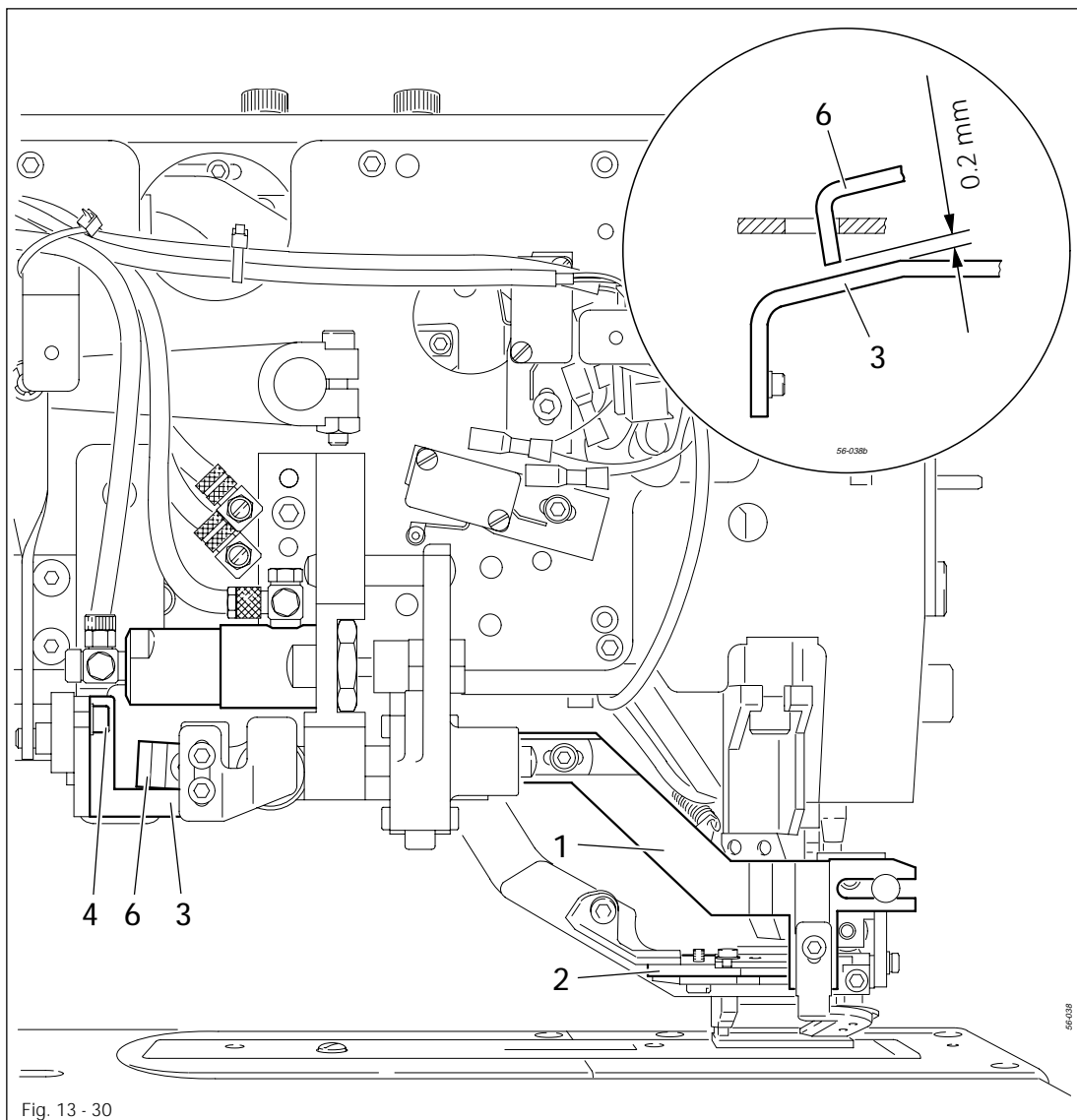
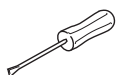


Fig. 13 - 30



- Connect the machine to the compressed air system and switch on the machine at the on / off switch.



- Move through the seam construction step by step until the cutter frame 1 is at the highest point of the cam guide unit 2.

- Adjust catch 3 ( screw 4 ) according to the **requirement**.



- Move the machine further until reaching the basic position.

- Switch off the on/off switch and disconnect the machine from the compressed air system.



## 13.34 Swing out motion of the needle thread cutter

## Requirement

1. Before the swing out motion begins, the needle thread cutter 4 should have clamped and cut the thread reliably.
2. When the needle thread cutter 4 swings out, it should not touch the needle point.

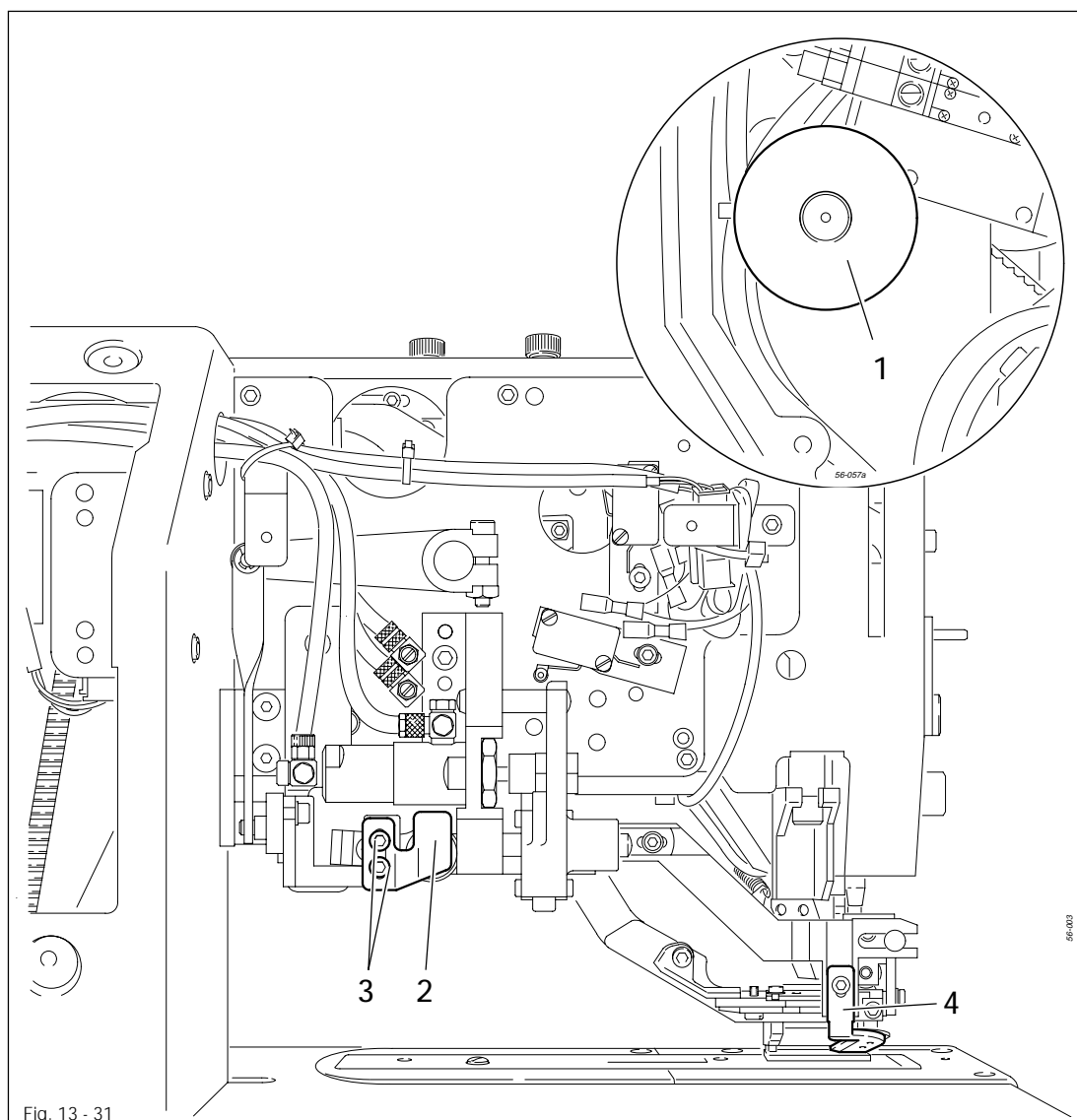
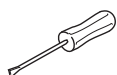


Fig. 13 - 31



- Bring the machine to t.d.c. take-up lever ( balance wheel 1 ).
- Adjust cam 2 ( screws 3 ) according to the requirements.

### Requirement

1. When the needle penetrates the right side of the left purl seam, the needle bar rise should be **2.4 mm**.

When this happens, the point of the hook **5** should point exactly to the centre of the needle **6** and there should be a clearance of **0.1 mm** between the needle **6** and the hook point **5**.

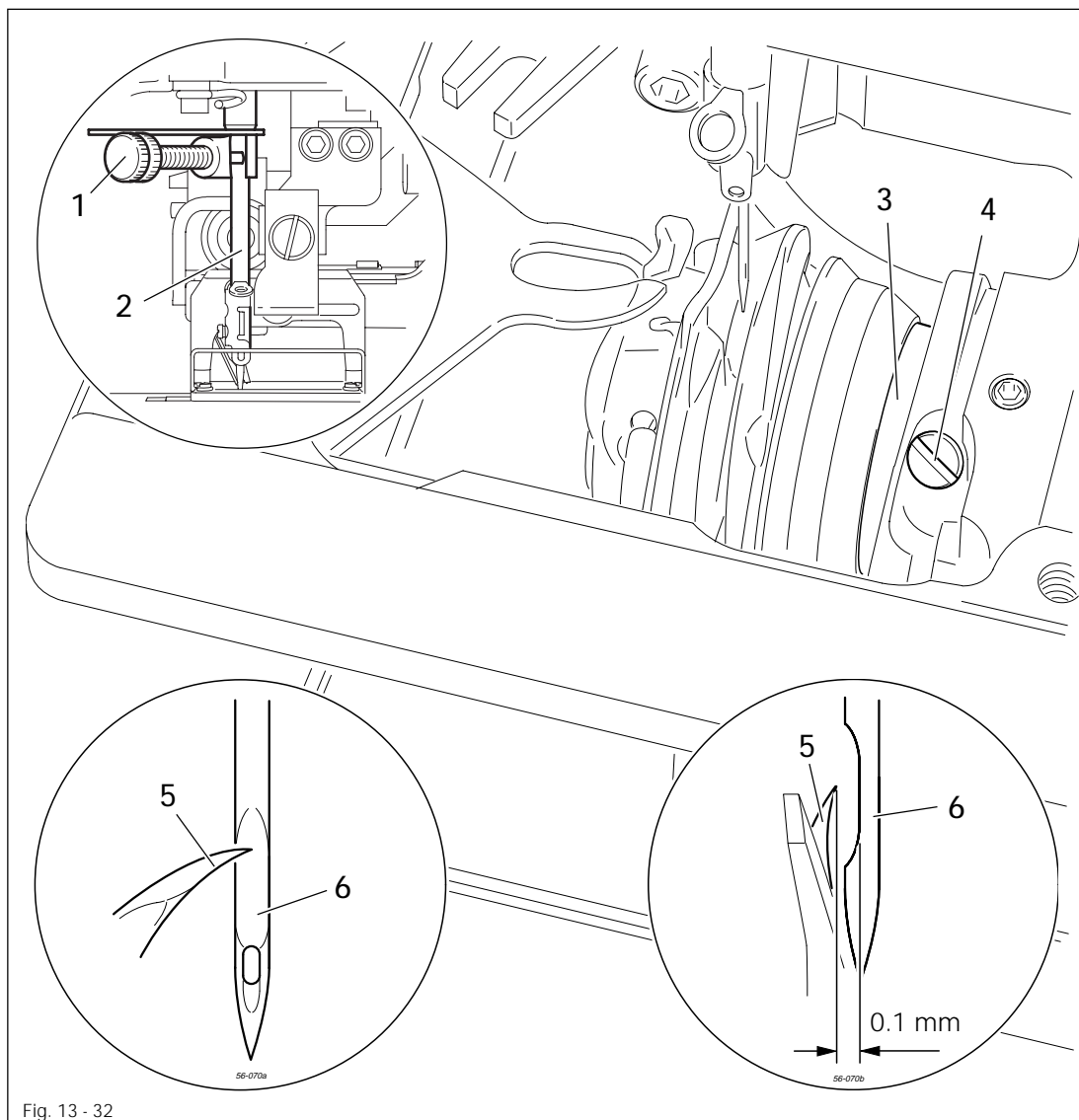
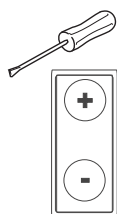
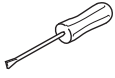


Fig. 13 - 32



- Dismantle the feeder, needle plate and knife.
- Switch on the machine.
- Select parameter "610".
- Disengage the needle thread cutter by hand.
- Select position "1" ( left purl seam, right penetration point ).



- Bring the needle to b.d.c.
- Fit screw clamp 1 ( Part no. 61-111 600-35/001 ) to needle bar 2.
- Bring 2.4 mm needle rise gauge ( Part no. 61-111 600-09 ) between the screw clamp 1 and the guide stop of the needle bar 2.
- Loosen the screw clamp 1, slide up as far as possible and tighten it again.
- Remove the needle rise gauge.
- Turn the balance wheel in the direction of sewing until screw clamp 1 has contact.
- Turn hook sleeve 3 ( screws 4 ) according to **requirement 1** and adjust it according to **requirement 2**.
- Loosen and remove screw clamp 1.



The machine remains switched on for the next adjustment.

## 13.36 Needle bar height and needle guard

### Requirement

1. When the needle penetrates the right side of the right purl seam, there should be a clearance of **0.5 mm** between the top edge of the needle eye **1** and the hook point **2** at the end of the needle rise.
2. When the needle penetrates the right side of the left purl seam, in needle rise position the needle should lightly touch needle guard **3**.

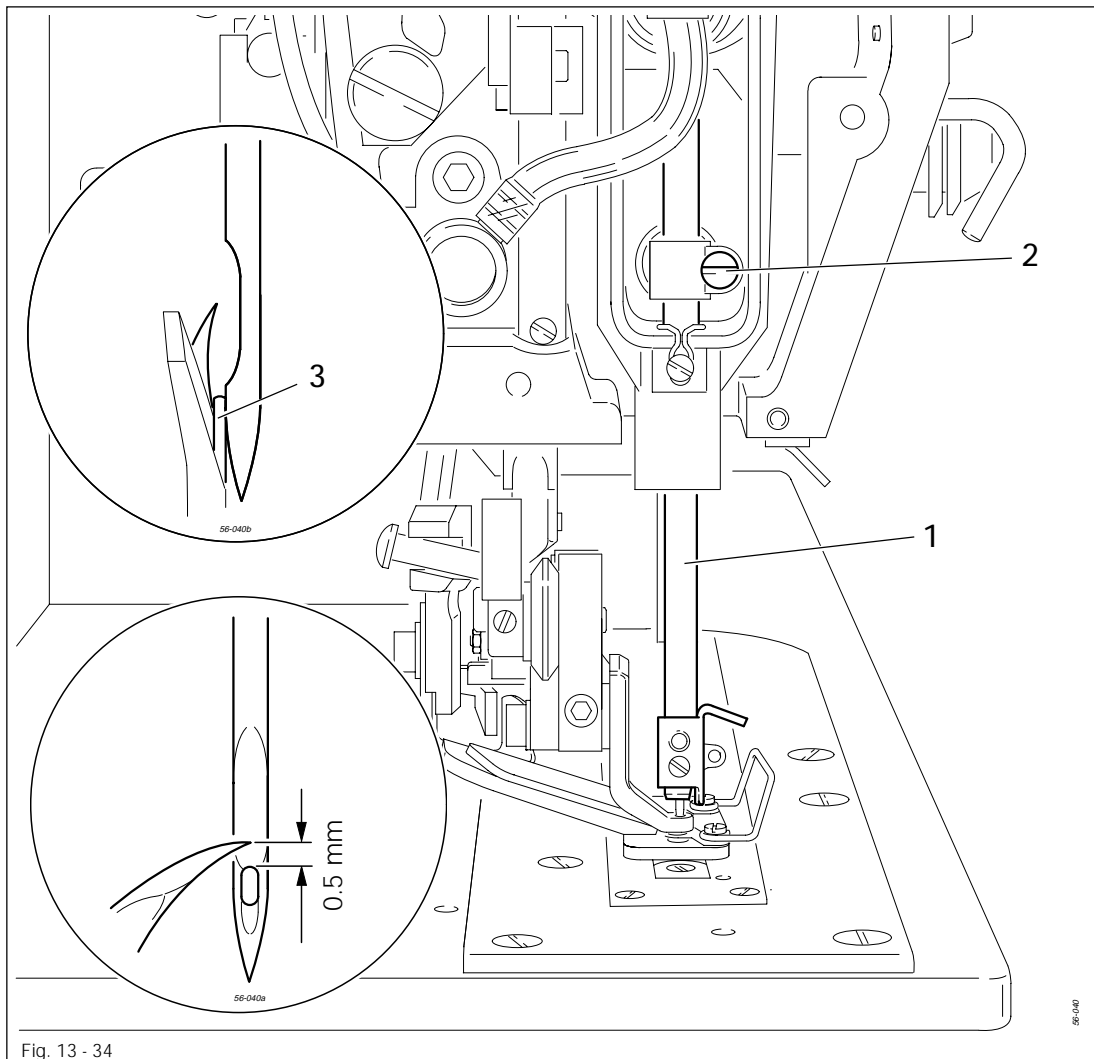
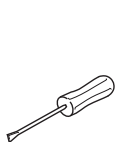


Fig. 13 - 34

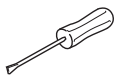
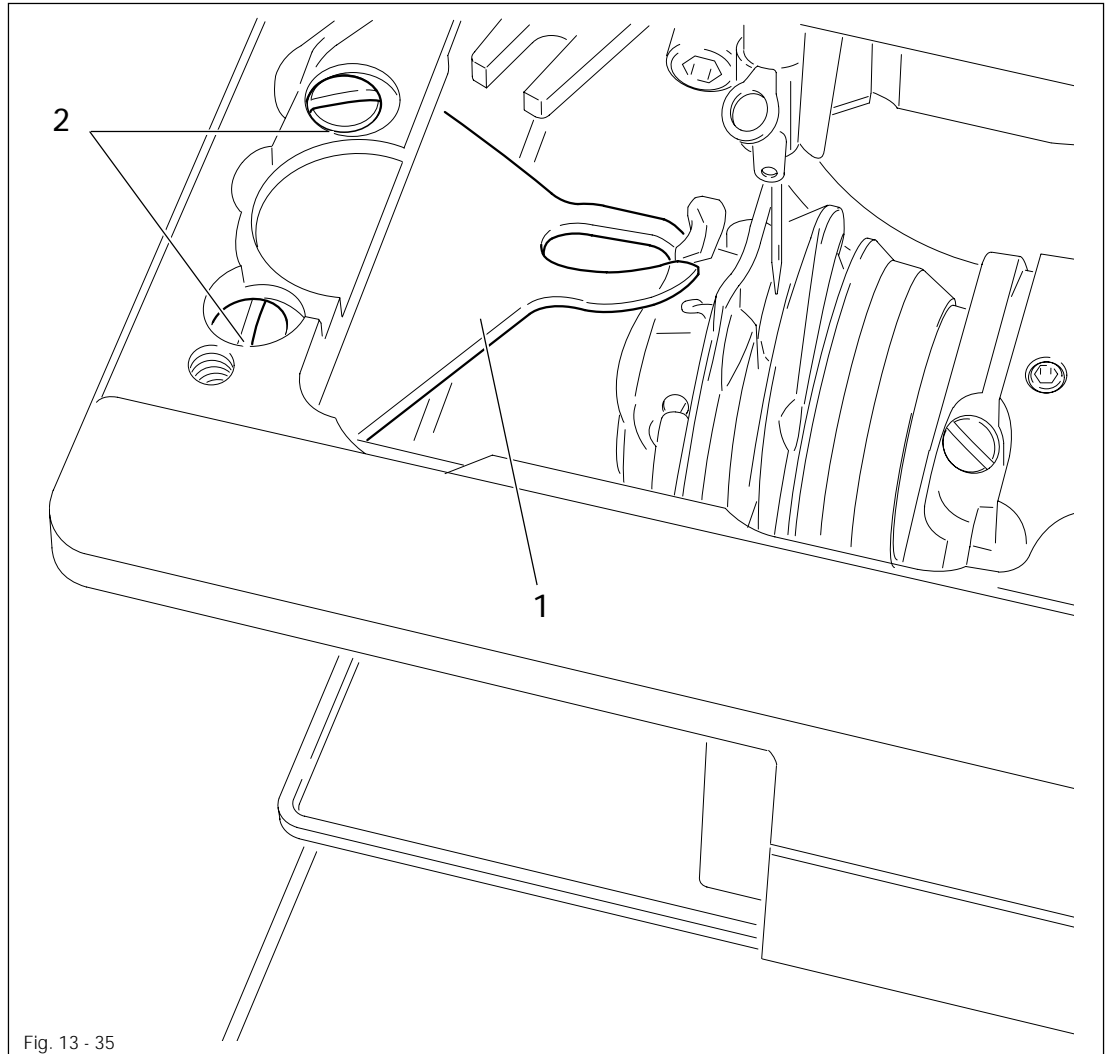


- Select position "2" ( right purl seam, right needle penetration ).
- Adjust the needle bar 1 ( screw 2 ) according to **requirement 1**.
- Select position "1" ( left purl seam, right needle penetration ).
- Align needle guard 3 according to **requirement 2**.
- Switch off the machine.

## 13.37 Bobbin case holder

### Requirement

The bobbin case holder should be scarcely but reliably held.



- Adjust bobbin case holder 1 ( screws 2 ) according to the requirement.
- Move the needle plate against the stop and screw tight.

13.38

## Hook lubrication

### Requirement

1. After approx. 10 sewing cycles, a fine oil streak should appear on a piece of paper held below the hook.
2. The felt ring should lightly touch the spring-loaded metal disc.

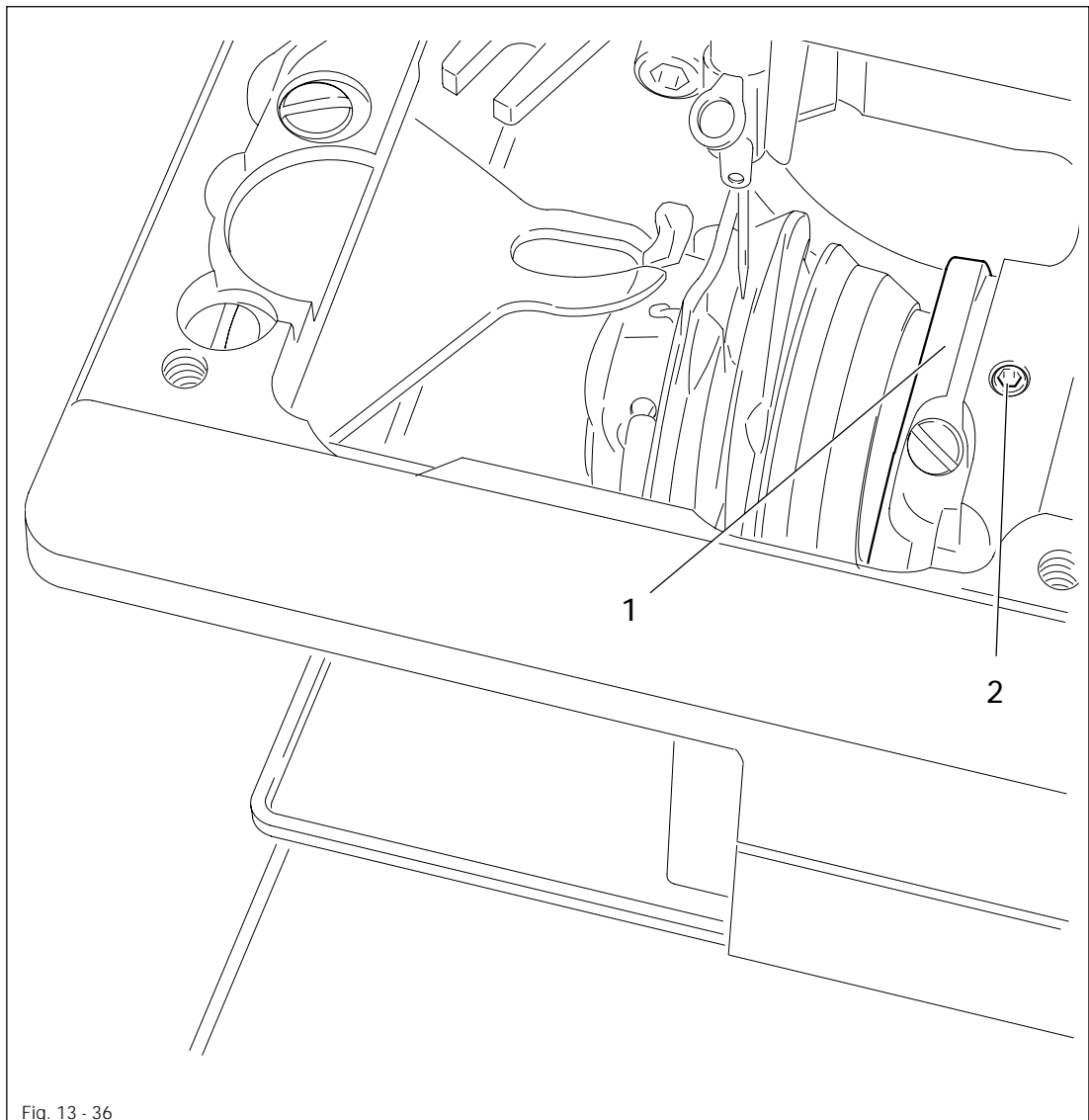
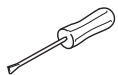


Fig. 13 - 36

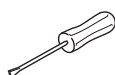
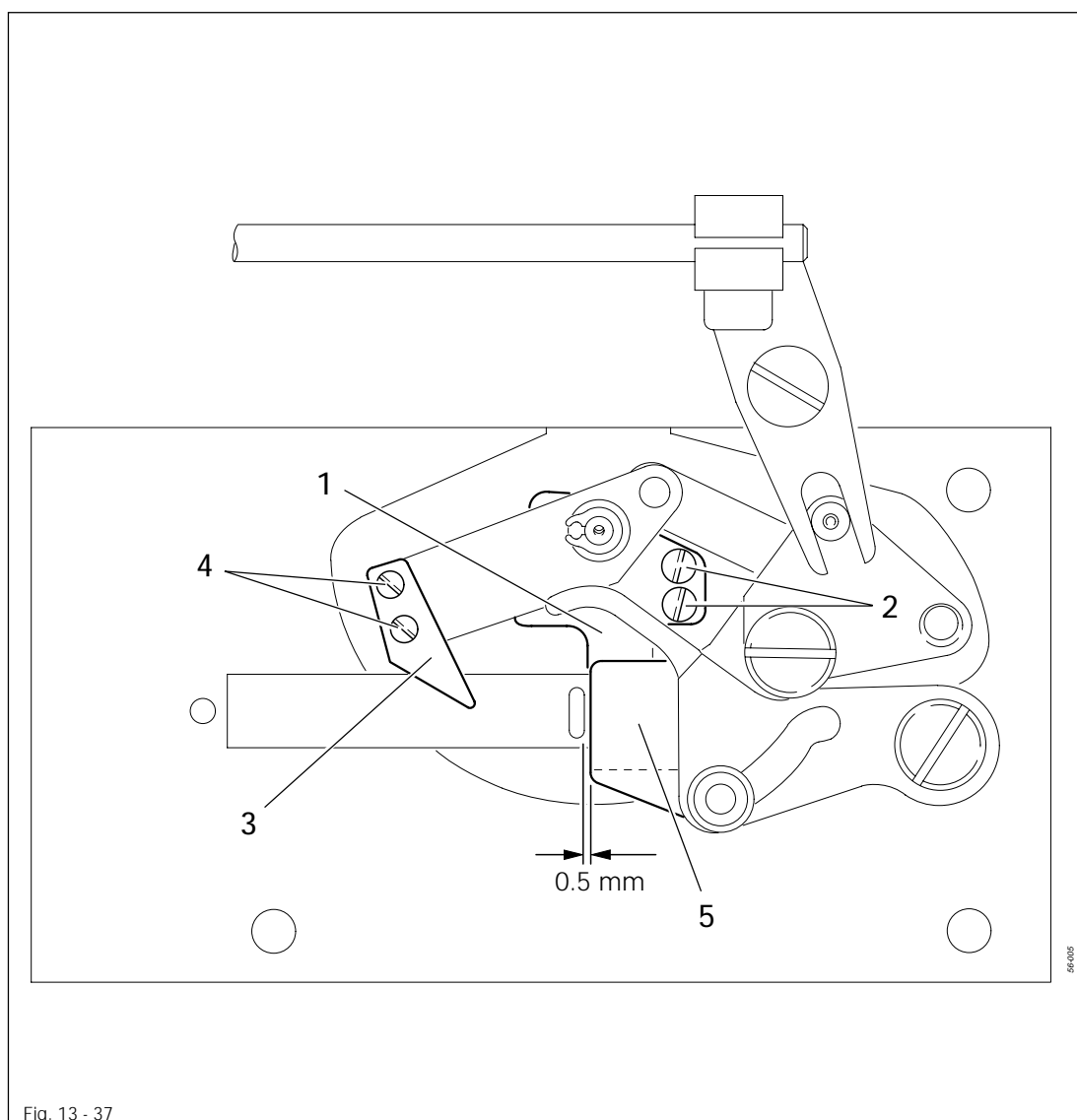


- Check the oil level according to **Chapter 12.06 Oil level for the hook.**
- Switch on the machine.
- Adjust oil guide ring 1 ( grub screw 2 ) according to the requirements.
- Switch off the machine.

## 13.39 Knife position

## Requirement

1. ( When the bobbin thread trimming device is in its neutral position ), knife 1 should be parallel to the edge of the needle hole with a clearance of 0.5 mm.
2. During the cutting motion, the catcher 3 should move as near as possible to knife guard 5 without touching it.

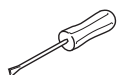
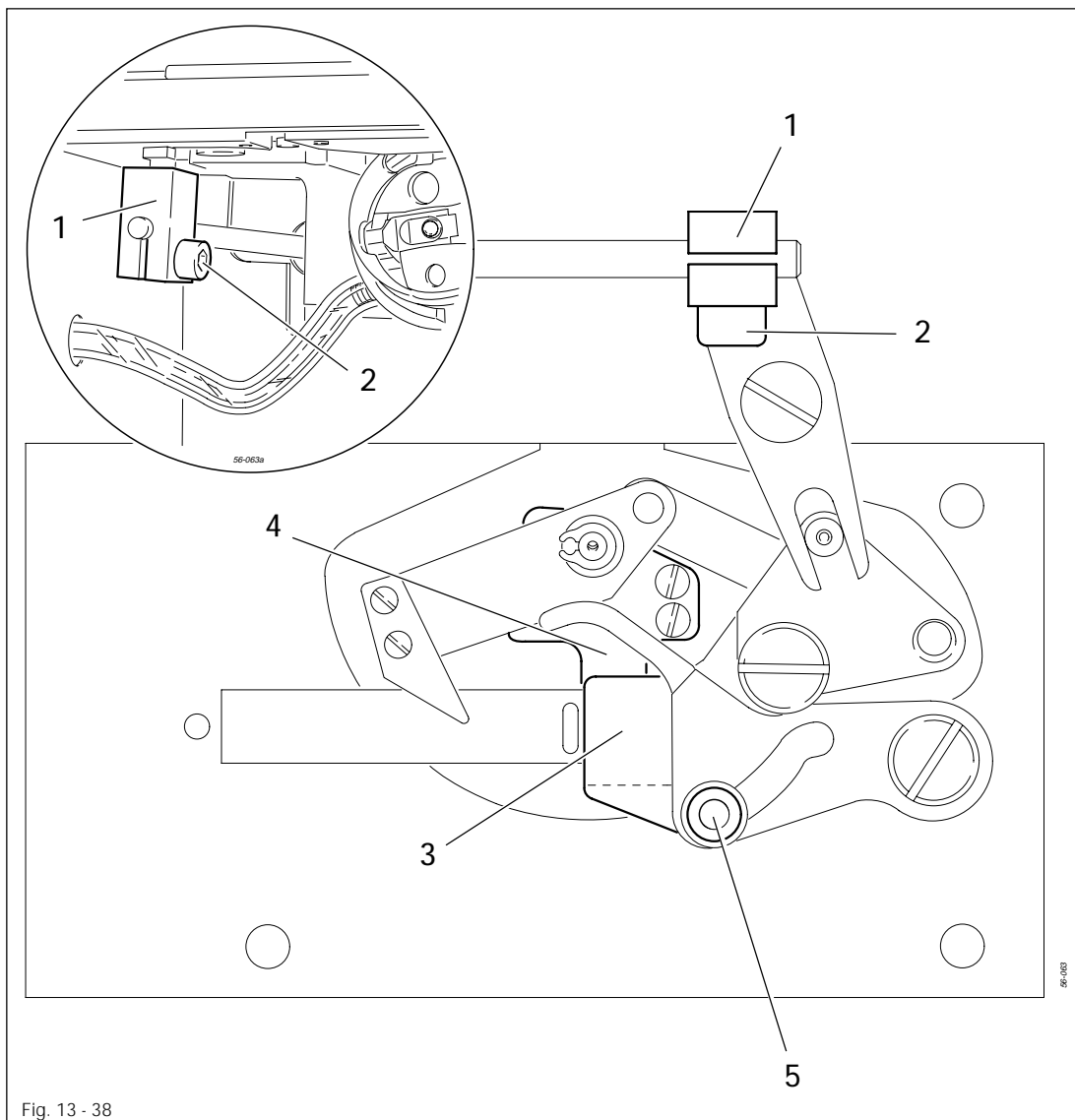


- Adjust knife 1 ( screws 2 ) according to requirement 1.
- Adjust catcher 3 ( screws 4 ) according to requirement 2.

## 13.40 Knife guard

### Requirement

1. When the bobbin thread trimming device is in its neutral position, knife guard 3 should be parallel to the edge of the knife 4.
2. The stud 5 should not touch the bottom of the cam ( set clamp 1 in a vertical position ).



- Switch on the machine.
- Dismantle feeder and needle plate insert.
- Switch off the machine and disconnect the compressed air supply.
- Adjust clamp 1 ( screw 2 ) according to the requirements.
- Lift work clamp and fit needle plate insert and feeder.



## 13.41 Needle thread tension release

## Requirement

1. When the thread tension unit 6 is in its neutral position, the release magnet 7 should be 3 mm away from case 8.
2. The thread tension unit 6 should open before the cutter cuts the thread.

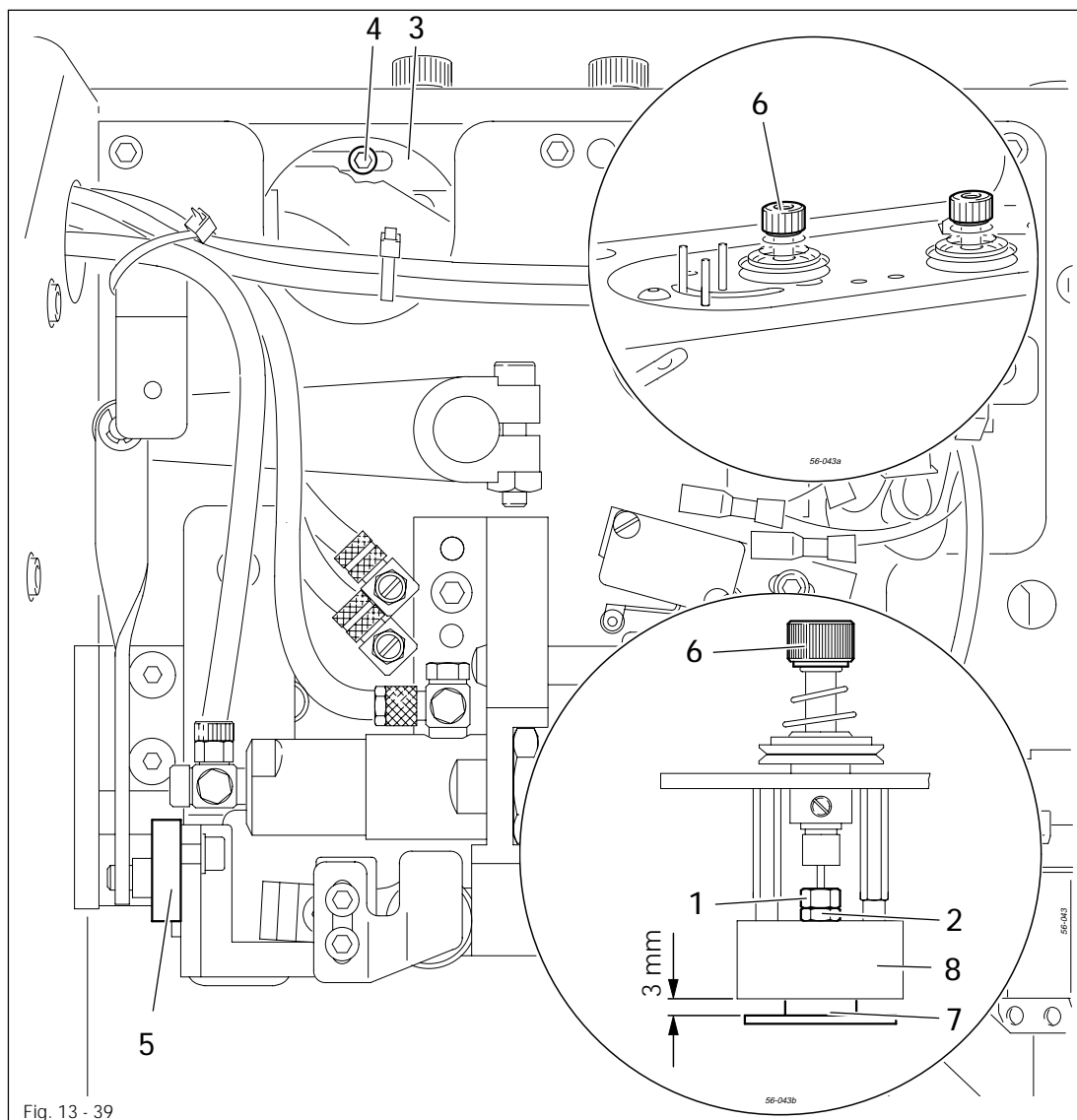
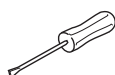


Fig. 13 - 39

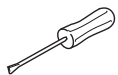
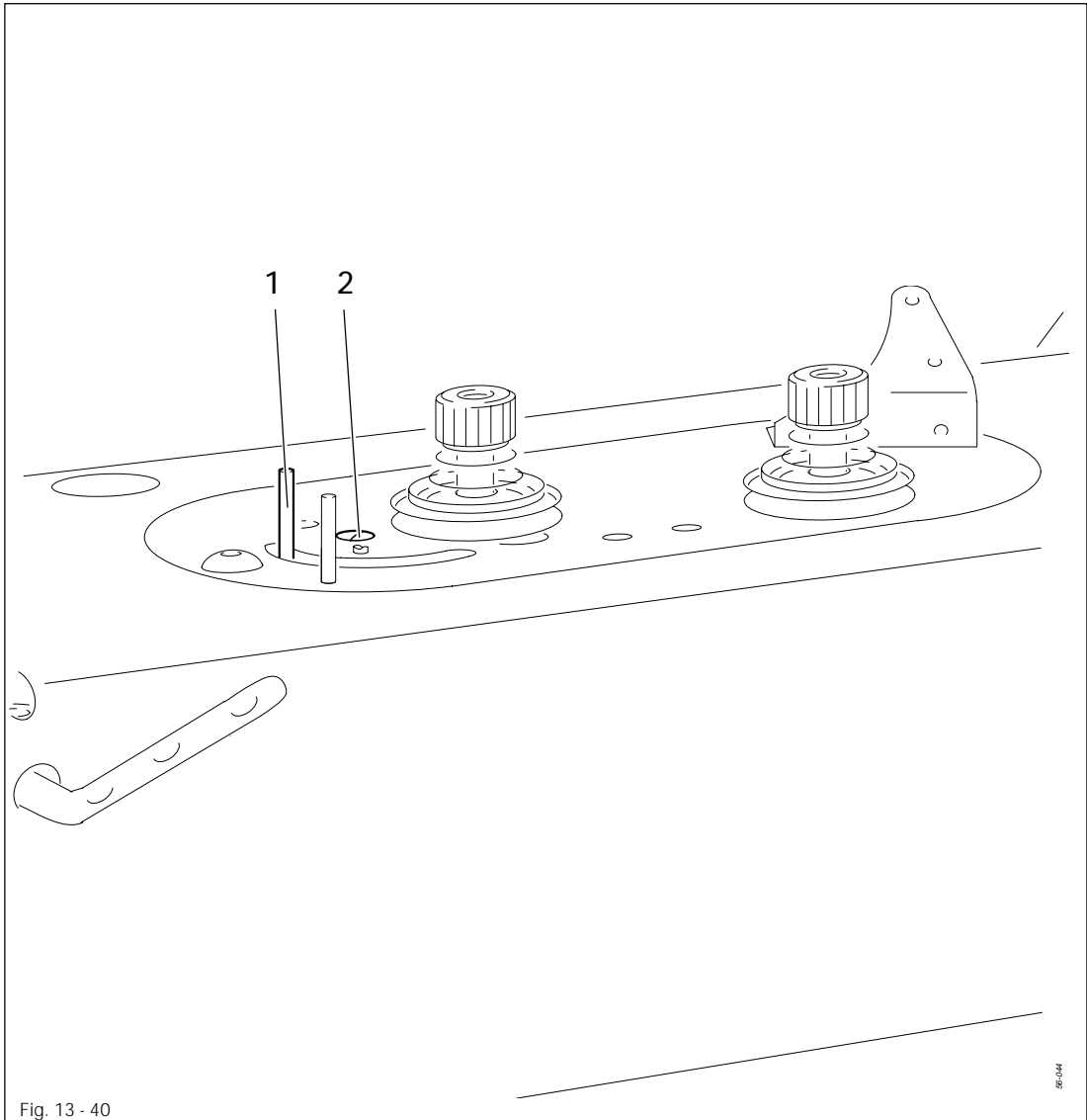


- Remove the tension plate.
- Adjust nut 1 (locking nut 2) according to requirement 1.
- Adjust release 3 (screw 4) according to requirement 2.
- Check the adjustment by operating lever 5.

## 13.42 Needle thread puller

### Requirement

1. When sewing starts, the needle thread should not be pulled out of the needle thread cutter.
2. The loose needle thread must be used up after the first stitch.



- Adjust needle thread puller 1 ( screw 2 ) according to the requirements.

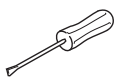
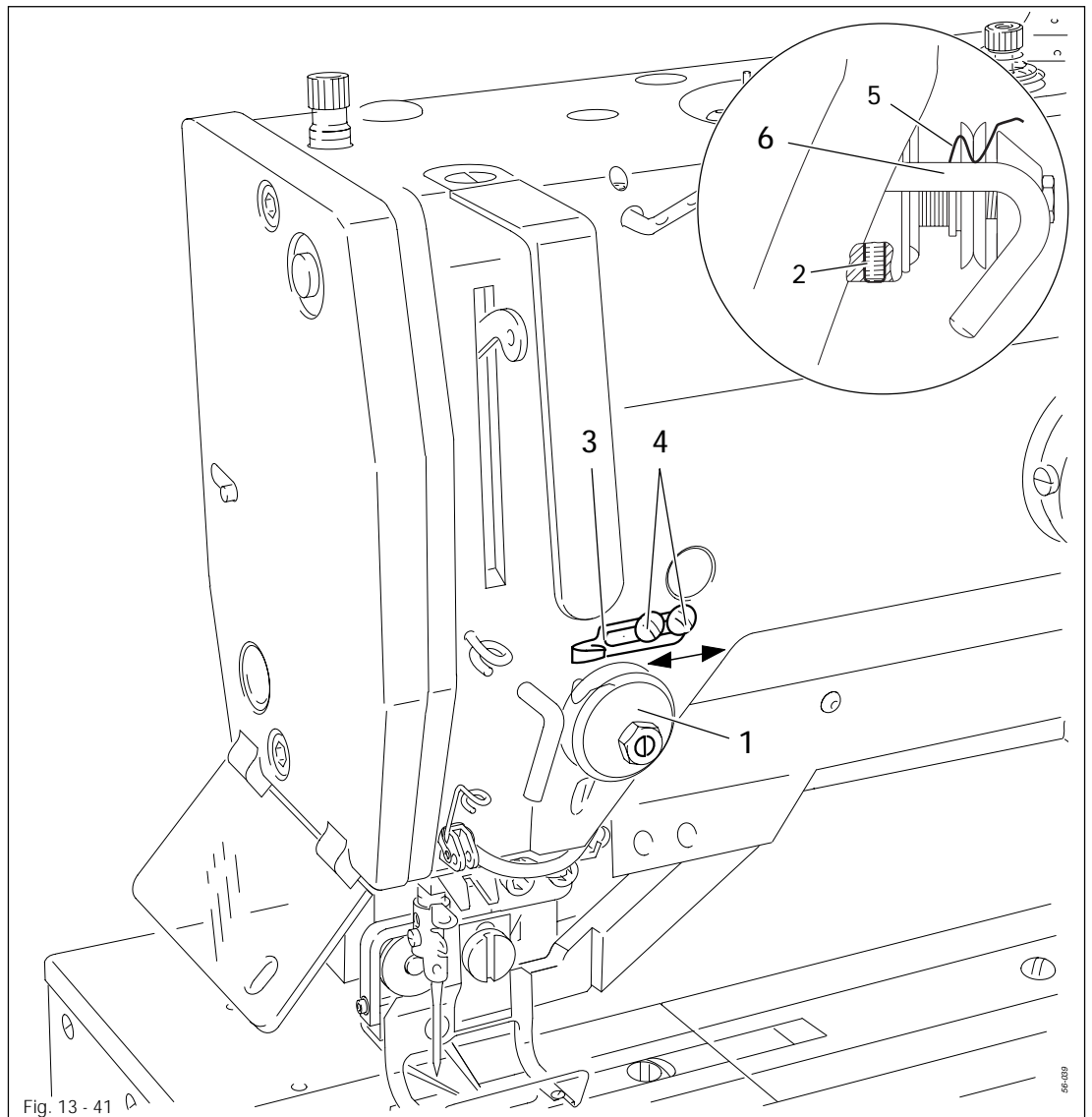
13.43

## Side thread tension and slack thread regulator

## Requirement

Thread check spring 5 should be

1. flush with the top edge of bar 6 and
2. rise slightly from its position rest when the thread loop through the hook is at its largest.



- Thread the needle thread.
- Adjust the thread tension unit 1 ( grub screw 2 ) according to requirement 1.
- Adjust the slack thread regulator 3 ( screws 4 ) according to requirement 2.

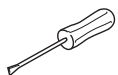
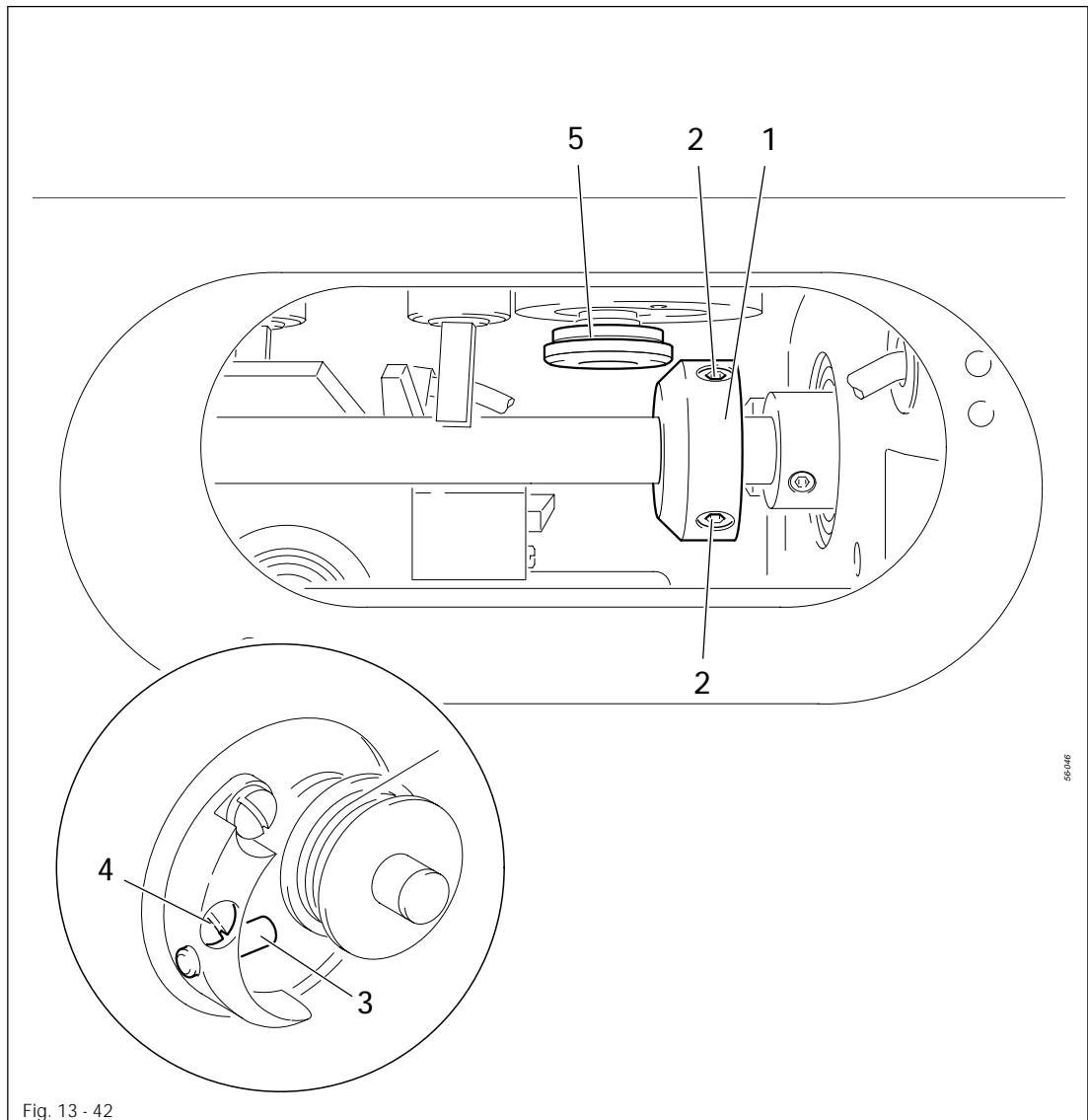


The stroke of thread check spring 5 and the position of slack thread regulator 3 are dependent on the material and must be adjusted in accordance with the sewing results.

## 13.44 Bobbin winder

### Requirement

1. When the bobbin winder is activated, the friction wheel 5 should be driven reliably.
2. When the bobbin winder is deactivated, the drive wheel 1 should not touch friction wheel 5.
3. When the bobbin is filled up to 1 mm from the edge, the bobbin winder should switch off automatically.



- Adjust drive wheel 1 ( screws 2 ) according to requirements 1 and 2.
- Adjust stud 3 ( screw 4 ) according to requirement 3.

## 13.45 Carrying out a cold start



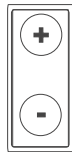
When a cold start is carried out, all newly created or modified programs, and all altered parameter settings are **deleted!**

The machine returns to its state at the time of delivery.

- Switch on the machine.



- Switch to parameter input ( LED in key is **not on** ).



- Select the function group "600" with the appropriate **plus / minus** key.

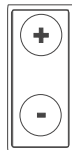
600



- Confirm input with **Enter**.

- Enter the code, see Chapter 11.01 Entering / altering the access code.

601



- Select parameter "608" ( carry out a cold start ) with the appropriate **plus / minus** key.

608      RESET



- Confirm input with **Enter**.

SWITCH OFF


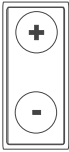
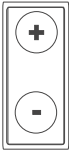

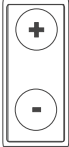
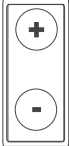
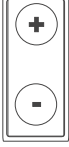
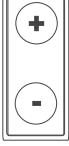
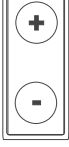

- Switch the machine off and then on again.

## 13.46 Parameter settings

In the list of parameters ( see **Chapter 13.46.02** ) all alterable machine functions can be found. The alteration method is described below.

### 13.46.01 Selecting and altering parameters

Example Setting multiple cutting function

- Switch on the machine.
- 
- Switch to parameter input ( LED in the key is **not on** ).
- 
- Select the function group, e.g. "200" with the appropriate **plus / minus** key.
- 
- 200
- Confirm input with **Enter**.
- 
- Enter the code, see **Chapter 11.01 Entering / altering the access code**.
- 201                      6.4
- Select e.g. parameter "207" (multiple cutting) with the appropriate **plus / minus** key.
- 
- 207                      |
- Switch on the multiple cutting function with the appropriate **plus / minus** key.
- 
- 207                      ||
- Select e.g. parameter "208" (knife length and cut overlapping) with the appropriate **plus/minus** key.
- 
- 208            6.4            0.0
- Select the knife length, e.g. 16.0 mm, with the appropriate **plus / minus** key.
- 
- 208            16.0            0.0
- Select cut overlapping length, e.g. 0.5 mm, with the appropriate **plus / minus** key.
- 
- 208            16.0            0.5
- End parameter input by switching to Sewing mode.
- 

## 13.46.02 List of parameters

Group	Parameter	Meaning	Setting	Standard value
1	101	Knife suppression permanent ( I =OFF, II = ON )		I
	102	Stop when needle thread error occurs ( I =OFF, II = ON )		I
	103	Fixed program ( I ) Customer program ( II )		I
	104	Display software version		
	105	Type of buttonhole  <b>Single sewing cycle</b> 1 - Purl seam raised, bartack flat 2 - Purl seam and bartack flat 3 - Purl seam and bartack raised  <b>Double sewing cycle</b> 1 - Purl seam raised bartack flat 2 - Purl seam and bartack flat 3 - Purl seam and bartack raised 4 - 1 <sup>st</sup> cycle purl seam and bartack flat 2 <sup>nd</sup> cycle purl seam and bartack raised 5 - 1 <sup>st</sup> cycle purl seam and bartack flat 2 <sup>nd</sup> cycle purl seam raised, bartack flat	1 - 5	1
2	201	Select customer programs	6.4 - 38.1	6.4
	202	Subclass 1: 3119-1/51 and 1/52 2: 3119-2/51 3: 3119-2/53 4: 3119-3/51 5: 3119-4/51	1 - 5	1
	203	Read in special buttonhole	1 - 99	1
	204	Bobbin thread monitor OFF = 1, ON = II		I
	205	Needle thread monitor OFF = 1, ON = II		II
	206	Copy programs	1 - 99 50 - 99	1 - > 50
	207	Multiple cutting OFF = 1, ON = II		I
	208	Enter knife and cut overlapping length of the fitted knife	6.4 - 38.1 0.0 - 4.0	6.4 0.0

## Adjustment

Group	Parameter	Meaning	Setting	Standard value
2	209	1 = double number of stitches 2 = single number of stitches		2
		Stitch displacement from 1 <sup>st</sup> to 2 <sup>nd</sup> cycle	0.0 - 2.0	0.3
	210	Cutting length adjustment on first bartack for multiple cutting	0.0 - 5.0	0.5
Knife release at end of right purl seam		0.0 - 5.0	1.6	
211	Number of securing stitches	1 - 3	1	
3	301	Program number	50 - 99	50
	302	Stitch formation		1
	303	Distance of left purlseam to cutting line ( needle penetration right )		0.2
	304	Width of left purl seam		1.5
	305	Length of left purl seam ( same length as right purl seam )		14.8
	306	Number of stitches in left purl seam		32
	307	Secondary thread tension left purl seam ( II = ON, I = OFF )		I
	308	Width of 1 <sup>st</sup> bartack		3.4
	309	Length of 1 <sup>st</sup> bartack		1.2
	310	Number of stitches for 1 <sup>st</sup> bartack		8
	311	Distance of 1 <sup>st</sup> bartack from cutting line ( centre )		0.0
	312	Secondary thread tension of 1 <sup>st</sup> bartack ( II = ON, I = OFF )		II
	313	Distance of right purl seam from cutting line ( left needle penetration )		0,2
	314	Width of right purl seam		1,5
	315	Length of right purl seam ( same length as left purl seam )		14,8
316	Number of stitches in right purl seam		32	
317	Secondary thread tension of the right purl seam ( II = ON, I = OFF )		I	



Group	Parameter	Meaning	Setting	Standard value
3	318	Width of 2 <sup>nd</sup> bartack		3.4
	319	Length of 2 <sup>nd</sup> bartack		1.2
	320	Number of stitches for 2 <sup>nd</sup> bartack		8
	321	Distance of 2 <sup>nd</sup> bartack to cutting line ( centre )		0,0
	322	Secondary thread tension of 2 <sup>nd</sup> bartack ( II = ON, I = OFF )		II
4	401	Delay time for raising clamp	0.00 - 2.00	0.10
	402	Start delay after lowering clamp	0.00 - 1.50	0.20
	403	Cutting time	0.00 - 1.50	0.10
5	501	Soft start stitches	0 - 15	2
	502	Soft start speed	500 - 4200	1500
	503	Reduced speed	500 - 4200	3500
	504	Suppressed stitches needle thread monitor	0 - 15	3
	505	Suppressed stitches bobbin thread monitor	0 - 15	3
6	601	Move stepping motor work clamp and needle		
	602	Display inputs (0123456789ABCDEF)  <b>Meaning of the display:</b> 0 = Error bobbin thread monitor 1 = Error needle thread monitor 2 = Needle in material ( NIS ) 3 = Reference needle ( needle centre ) 4 = not assigned ( E12 ) 5 = not assigned ( E11 ) 6 = not assigned ( E10 ) 7 = not assigned ( E9 ) 8 = not assigned ( E8 ) 9 = programmable input 1 ( E7 ) A = programmable input 2 ( E6 ) B = Key for knife suppression on sewing head ( E5 ) C = Basic position knife ( E4 ) D = Clamp lowered ( E3 ) E = Basic position cutter ( E2 ) F = Reference clamp ( E1 )		

## Adjustment

Group	Parameter	Meaning	Setting	Standard value
6	603	Switch outputs 1 = programmable output 1 2 = programmable output 2 3 = Secondary thread tension 4 = Knife 5 = Cutter 6 = Clamp (1 = ON; 0 = OFF)		
	604	Fine adjustment of position Take-up lever t.d.c.	0 - 127	0
	605	Time when needle is in the material	0 - 127	26
	606	Reference point – Needle to work clamp		X0 - Y0
	607	Turn sewing motor in direction of sewing		
	608	Carry out cold start		Reset
	609	Reference point – machine to motor		
	610	Reference point – machine to motor 1 = left purl seam, right needle penetration 2 = right purl seam, right needle penetration 3 = right purl seam, left needle penetration 4 = left purl seam, left needle penetration	1 - 4	
7	701	P-quota speed controller	1 - 50	10
	702	I-quota speed controller	0 - 100	50
	703	P-quota position controller	1 - 50	20
	704	D-quota position controller	1 - 100	30
	705	Time for position controller	0 - 100	25
	706	P-quota position controller for rest brake	1 - 50	25
	707	D-quota position controller for rest brake	1 - 50	15
	708	Maximum moment for rest brake	1 - 50	0
	709	Minimum machine speed	3 - 64	6
	710	Maximum machine speed	1 - 10	1
	711	Maximum motor speed	1 - 10	1
	712	Positioning speed	3 - 25	25

Group	Parameter	Meaning	Setting	Standard value
7	713	Acceleration ramp	1 - 50	35
	714	Brake ramp	1 - 50	30
	715	Reference position	0 - 127	26
	716	Time-out	0 - 255	40
	717	Starting current motor	3 - 10	5
	718	Anti-vibration filter	1 - 10	3
	719	Rotation direction allocation	0 - 1	1
	720	Reserved ( do not change! )	0 - 127	64
8	801	Right of access function group 100	0 - 1	0
	802	Right of access function group 200	0 - 1	1
	803	Right of access function group 300	0 - 1	1
	804	Right of access function group 400	0 - 1	1
	805	Right of access function group 500	0 - 1	1
	806	Right of access function group 600	0 - 1	1
	807	Right of access function group 700	0 - 1	1
	808	Right of access function group 800	0 - 1	1
	809	Right of access keys maximum speed	0 - 1	0
	810	Right of access key cutting length	0 - 1	0
	811	Right of access key piece counter	0 - 1	0
	812	Right of access key reverse counter	0 - 1	0
	813	Right of access program key	0 - 1	0
	814	Right of access program key 2	0 - 1	0
	815	Right of access program key 3	0 - 1	0
	816	Right of access key buttonhole width	0 - 1	0
	817	Right of access key cutting width	0 - 1	0
	818	Right of access key double sewing cycle	0 - 1	0
	819	Enter access code	1 to 9999	3119

### 13.47 Error messages

Error 1:	System fault in the control unit
Error 2:	Error on sewing motor (with error code)
Error 3:	Knife control (e.g. mechanically locked)
Error 4:	Cutter control
Error 5:	Lift control of work clamp
Error 6:	Time control when working through the sewing program
Error 7:	Ramp end of stepping motor
Error 8:	Stitch length too large
Error 9:	Sewing pattern outside area
Error 10:	Error when moving the machine into basic position (Home)
Error 11:	Stepping frequency of the stepping motor is too high
Error 12:	Error in sewing program
Error 13:	Sewing area larger than the work clamp cutout
Error 14:	Programmable output not activated
Error 15:	Programmable input did not arrive
Error 16:	Delay time when the sewing drive is running not permitted
Error 17:	Cutting before previous sewing
Error 18:	Incorrect command in data set
Error 19:	Wrong program number
Error 20:	Needle thread breakage or needle thread inserted incorrectly
Error 21:	Power unit overload (24 V)
Error 22:	Incorrect mains voltage
Error 23:	24V power unit too low
Error 24:	No stepping motor motion prepared
Error 25:	Stepping motor was not started
Error 26:	Incorrect knife length for multiple cutting

14.01 Wearing parts

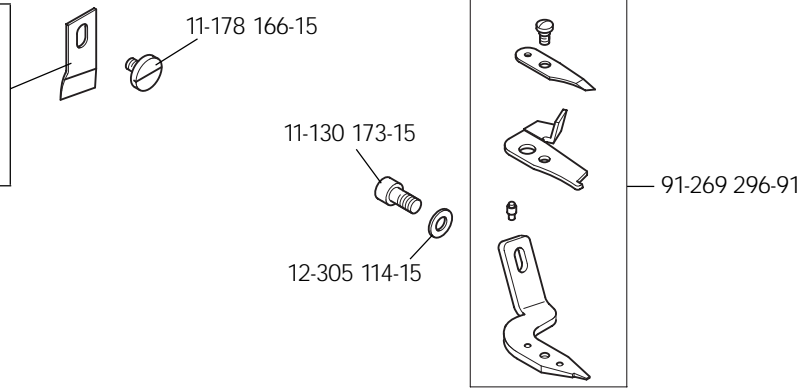


This list indicates the most important wearing parts.

You can request a detailed parts list for the complete machine under parts number 296-12-18 342.

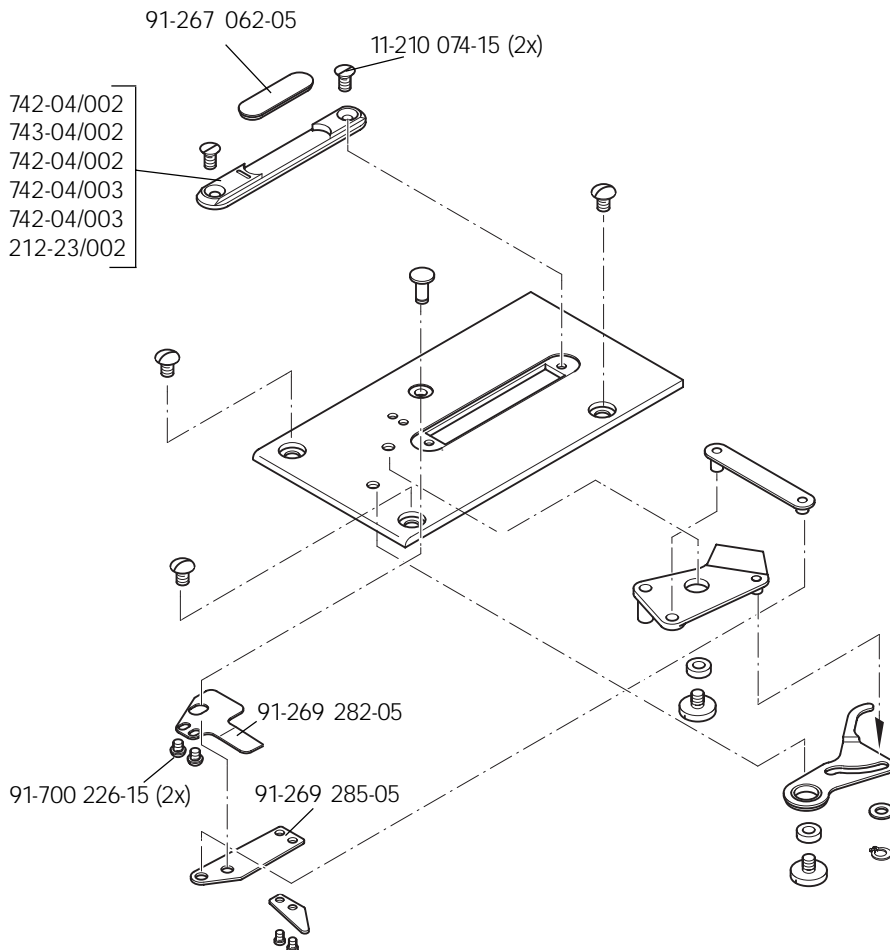
Subclass

- 1/51 91-120 241-04/004
- 1/52 91-120 748-04/001
- 2/51 91-020 241-04/006
- 2/53 91-020 241-04/006
- 3/51 91-020 241-04/012
- 4/51 91-020 241-04/017

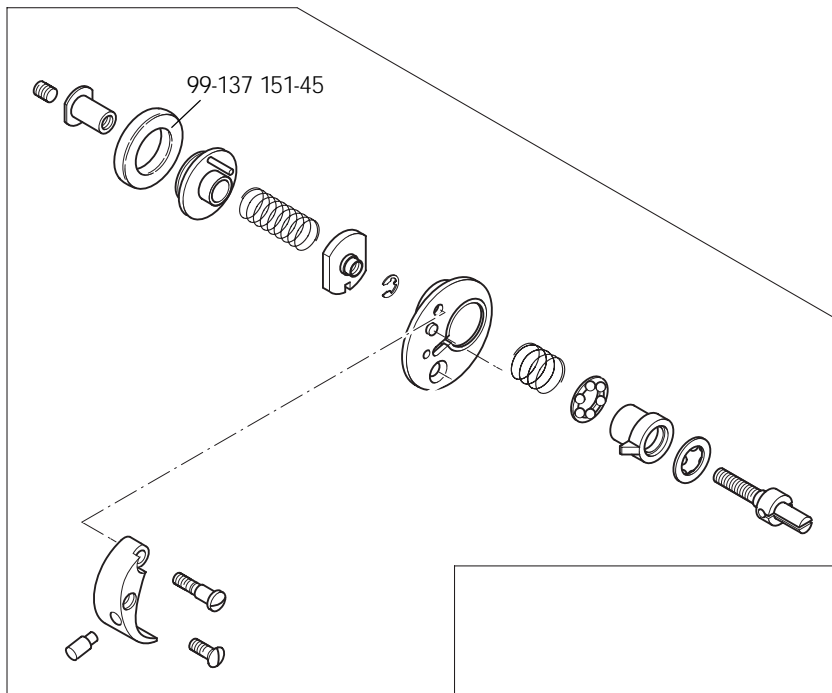
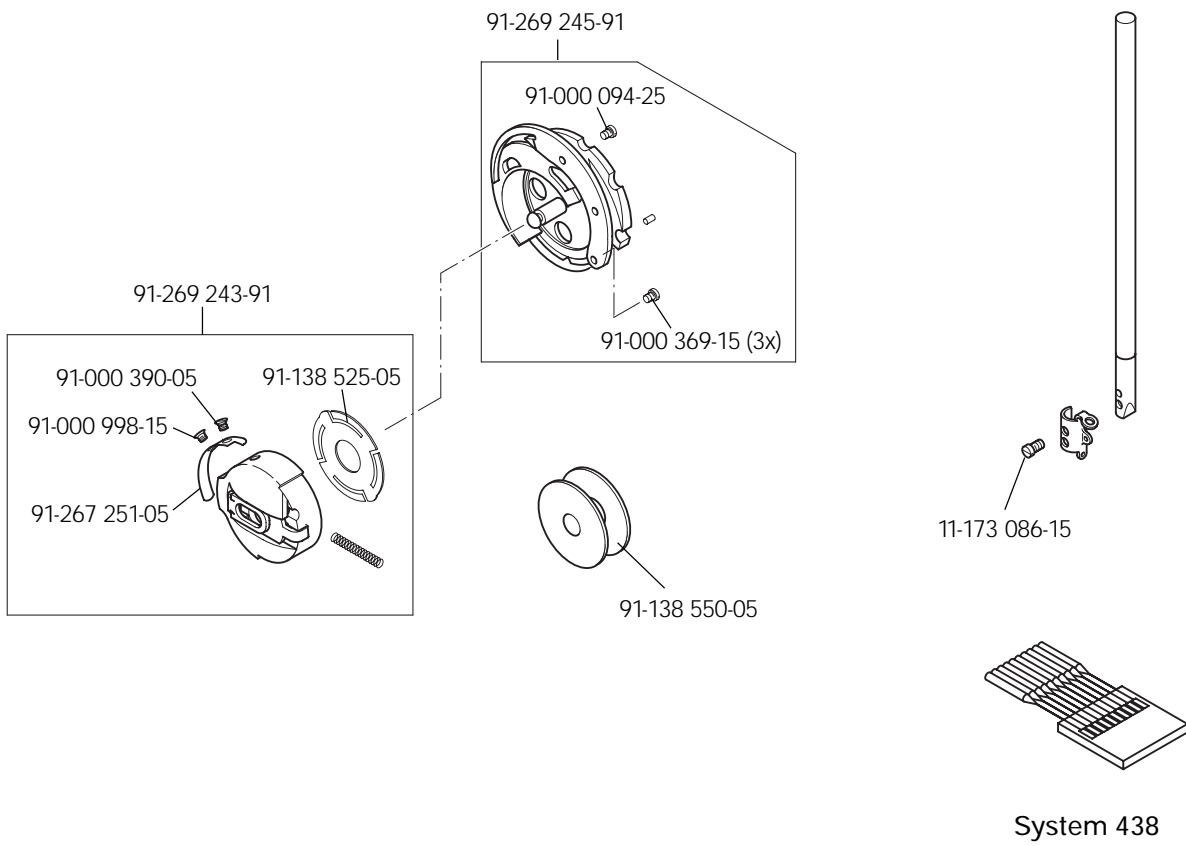


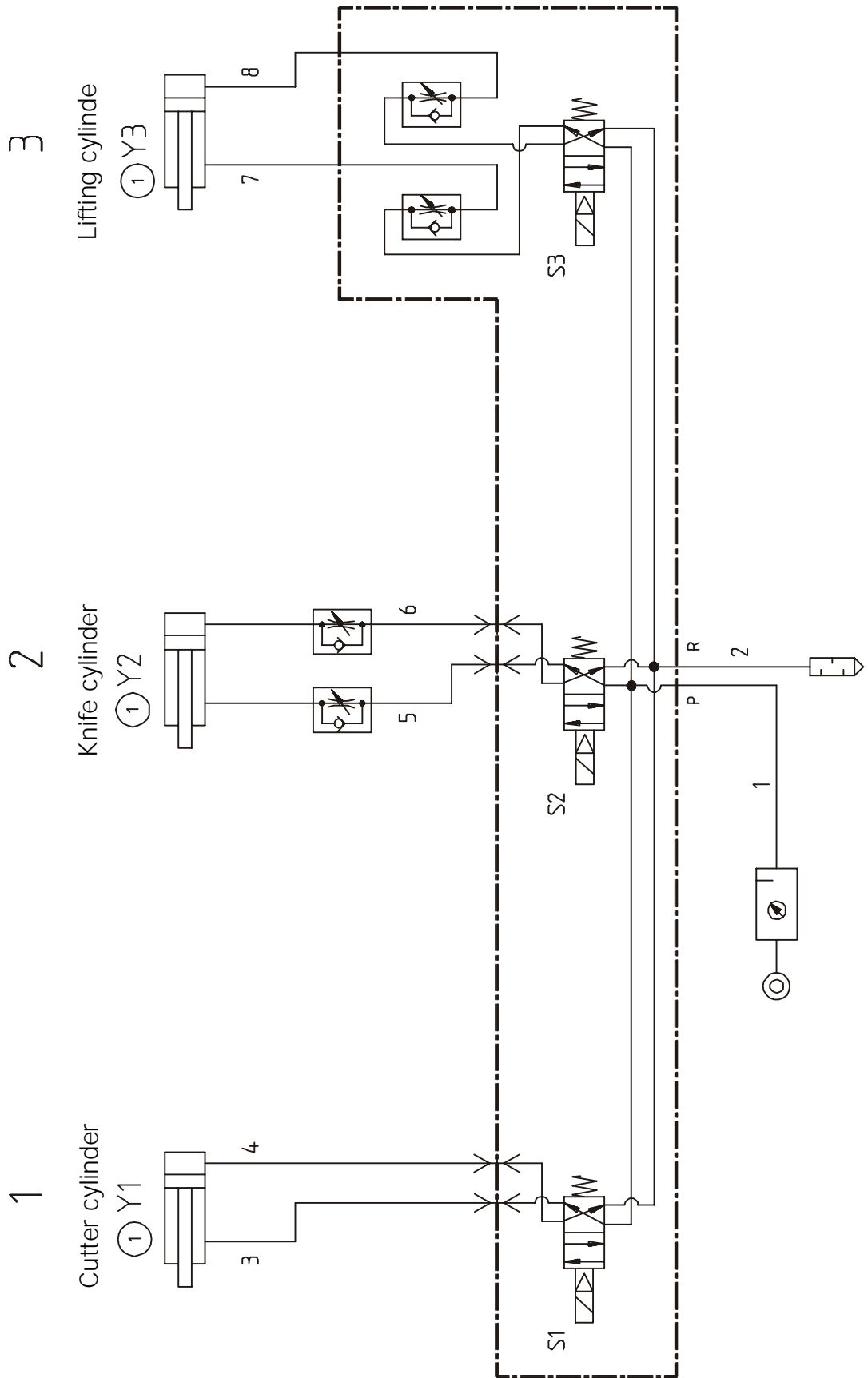
Subclass

- 1/51 91-267 742-04/002
- 1/52 91-267 743-04/002
- 2/51 91-267 742-04/002
- 2/53 91-267 742-04/003
- 3/51 91-267 742-04/003
- 4/51 91-267 212-23/002



# Wearing parts

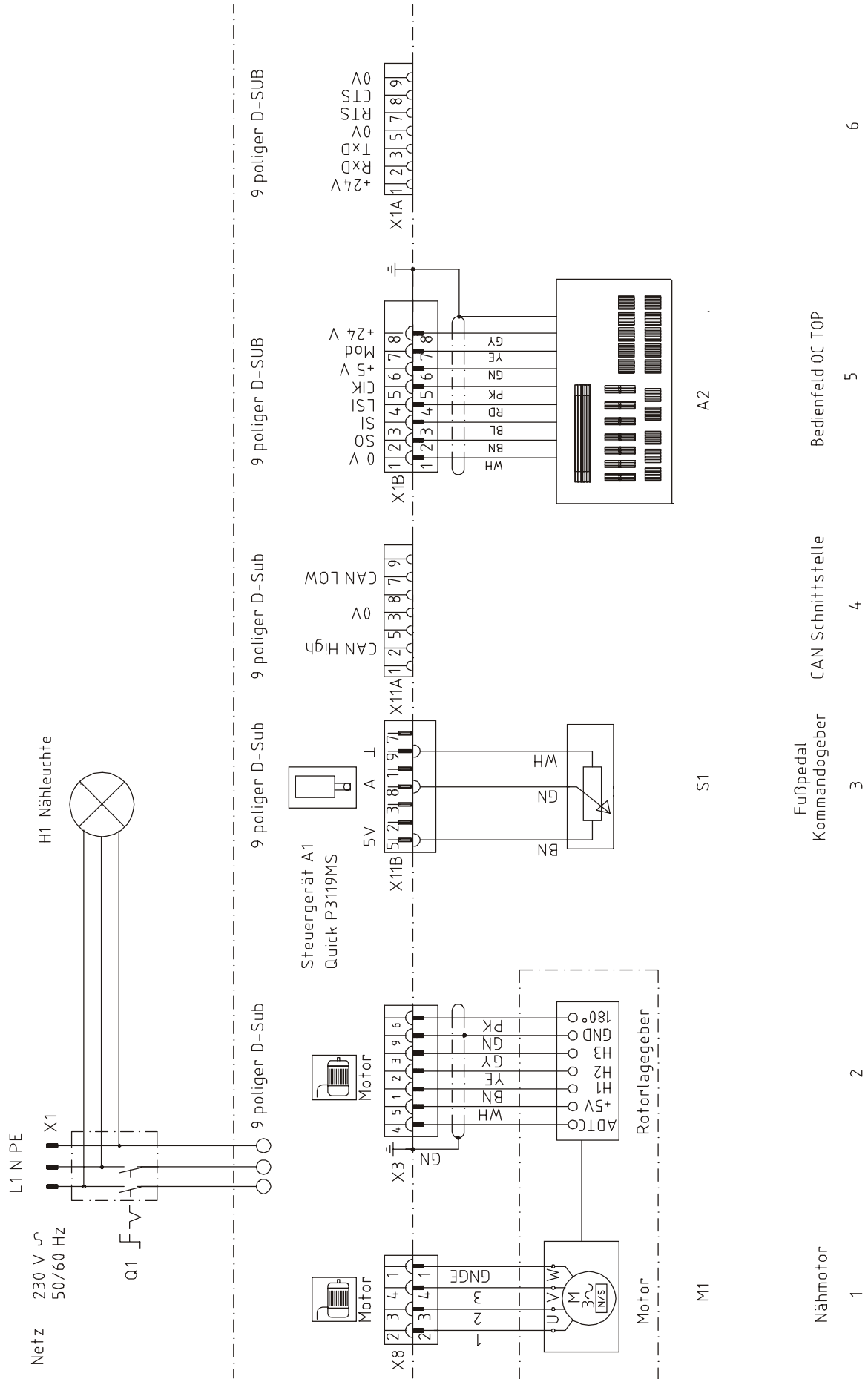




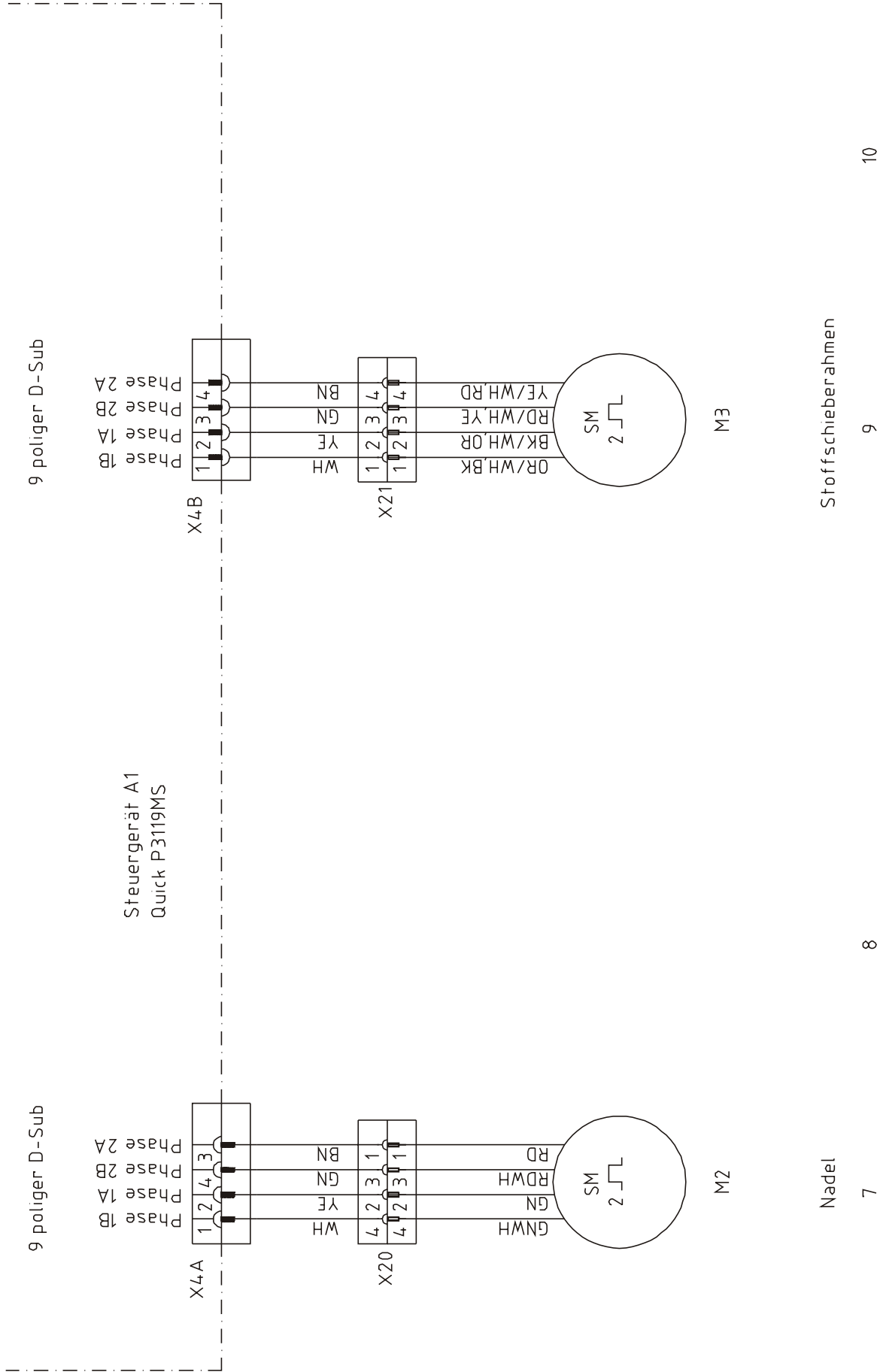
### Reference list for the circuit diagrams

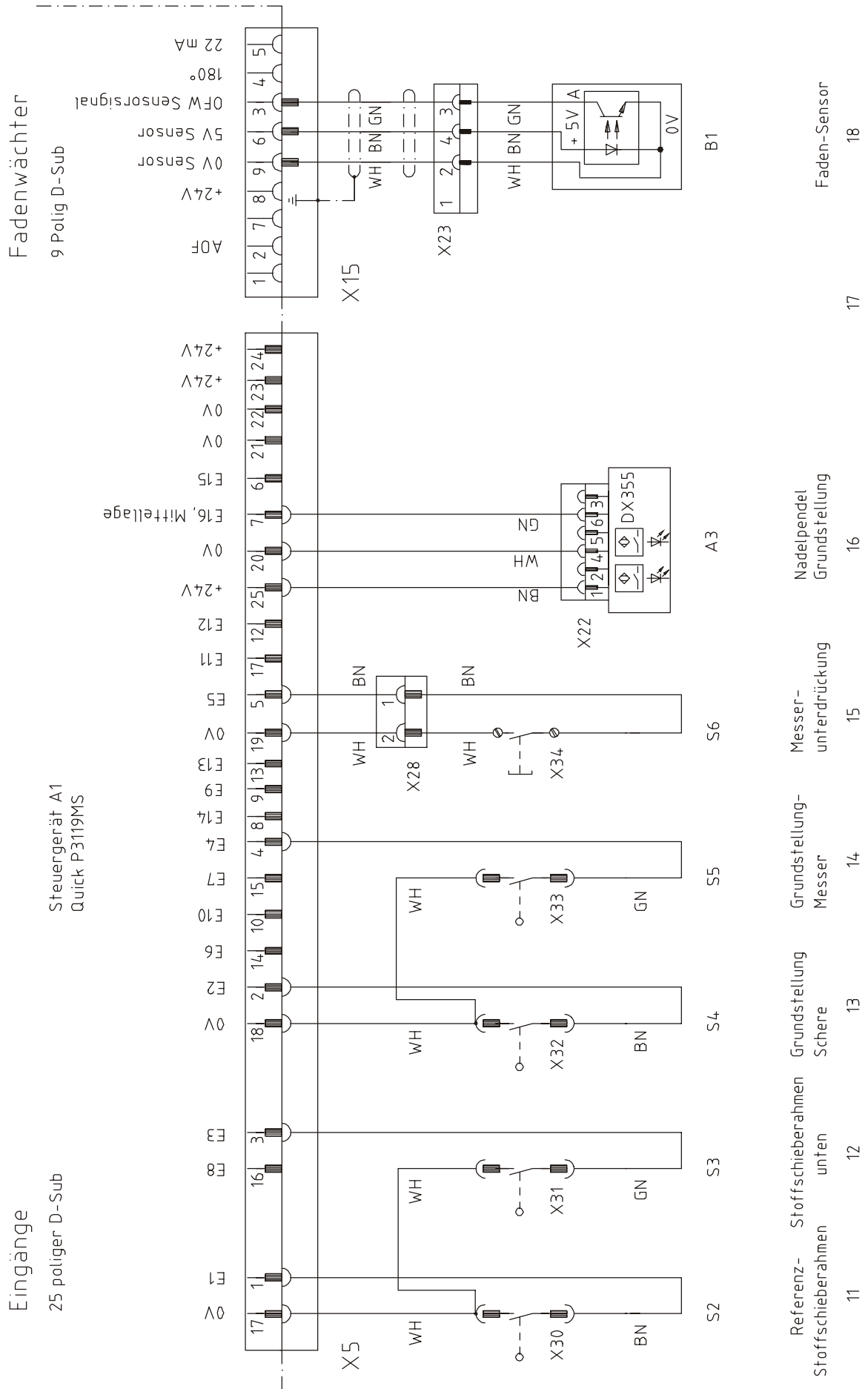
A1	Quick controller
A2	OC TOP control panel
A3	Basic position needle pendulum
B1	Thread sensor
H1	Sewing lamp
M1	Sewing motor
M2	Stepping motor needle
MS	Stepping motor work clamp
Q1	On/off switch
S1	Command sender foot pedal
S2	Reference work clamp
S3	Work clamp lowered
S4	Basic position cutter
S5	Basic position knife
S6	Knife suppression
Y1	Work clamp
Y2	Knife on
Y3	Cutter
Y4	Voltage

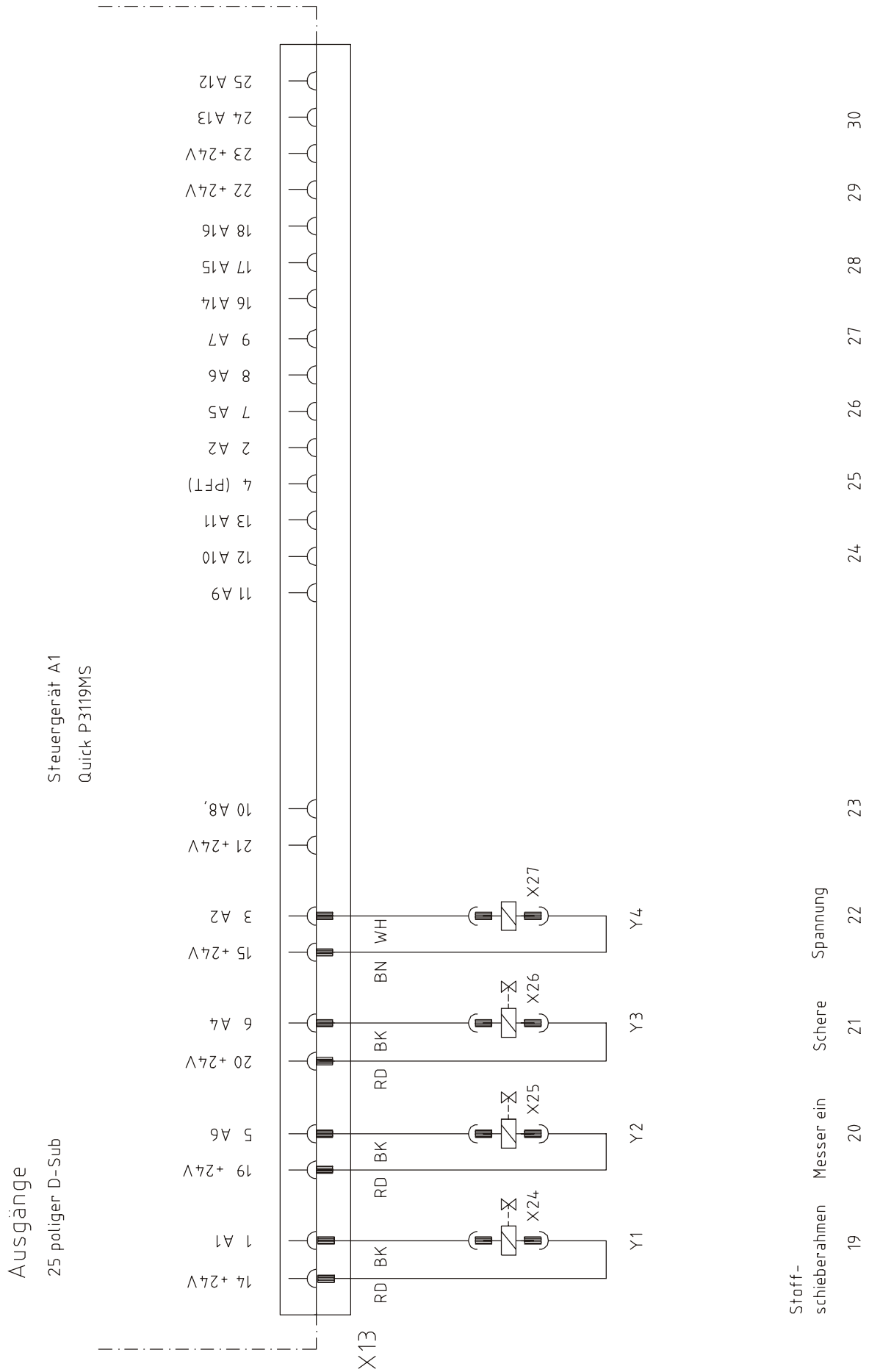




Schrittmotore









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