

PFAFF

3307-1/11

Instruction manual

This instruction manual applies to machines from serial number **2716260** and software version **0344/001** onwards, and to machines with software version **0298/013**.



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 (such as e.g. the needle, sewing foot and needle plate), during threading, when the workplace is left unattended and during maintenance work, the machine must be disconnected from the mains by operating the main switch or pulling out the plug.
- 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 the needle, cleaning etc.,
switch off the 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 eliminating any malfunctioning in the sewing area.

The operating staff is obliged to observe the following points:

- The notes on safety in this instruction manual must always be observed!
- Any working methods, which adversely affect the safety of the machine, must be avoided.!
- Loose-fitting clothing should be avoided. No jewellery, such as chains and rings, should be worn!
- Ensure that only authorised persons enter the danger area of the machine!
- Any changes occurring on the machine, which may affect its safety, must be reported to the user immediately.

1.05.02 Technical staff

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

The technical staff is obliged to observe the following points:

- The notes on safety in this instruction manual must always be observed!
- Before carrying out any adjustment or repair work the main switch must be switched off and measures taken to prevent it from being switched on again!
- Never work on parts or equipment still connected to the power supply! Exceptions are only permissible in accordance with the regulations EN 50110.
- All safety covers must be replaced after the completion of 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!

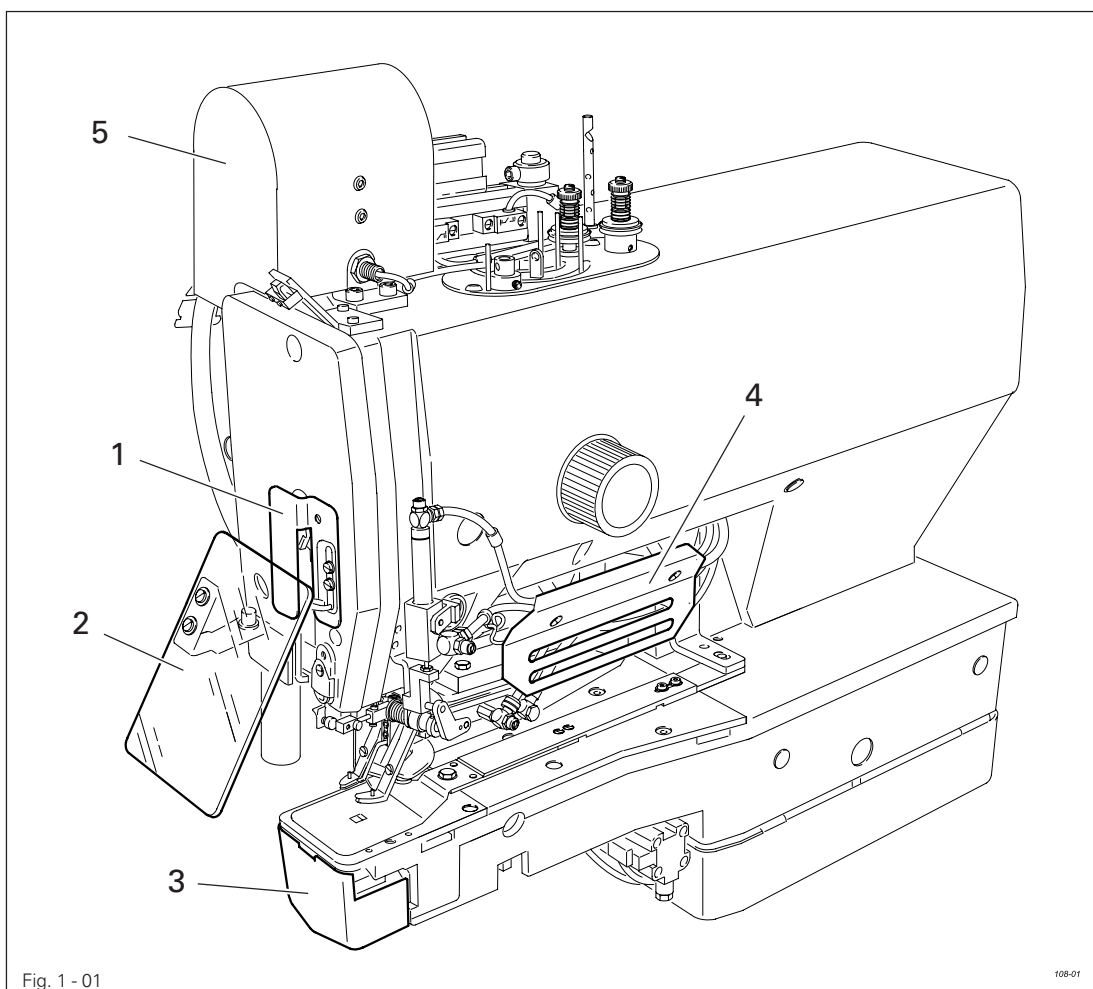


Fig. 1 - 01

108-01



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



Do not operate the machine without eye shield **2!**
Danger of injury from flying needle or button fragments!



Only operate the machine with cover **3** closed!
Danger of injury from rotating hook!



Do not operate the machine without protective covers **4** and **5!**
Danger of injury from clamp drive!

2

Proper use

The PFAFF 3307-1/11 is an automatic button sewer with automatic button feed and is used to sew buttons on articles of 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

Max. sewing speed:	2000 spm
Stitch type:	107
Needle bar stroke:	46 mm
Max. thickness of workpiece:	4 mm
Max. work clamp clearance:	17 mm
Fabric clearance (crosswise to sewing arm):	235 mm
Fabric clearance (lengthwise to sewing arm):	30 mm
Max. size of sewing area:	8 x 12 mm*
Number of stitches:	freely programmable
Feed type:	intermittent
Power supply:	230 V +10%, 50 / 60 Hz
Power consumption:	max. 0.6 kVA
Input power rating:	0.7 kVA
Fuse protection:	1 x 16 A, inert
Working air pressure:	6 bar
Air consumption:	~1,5 l / work cycle
Noise data:	
Noise emission level at workplace with a sewing speed of 1800 spm	
Sewing cycle - 1/3 sewing time:	$L_{pA} = 70,0 \text{ dB(A)}^{\blacksquare}$
(Noise measurement in accordance with DIN 45 635-48-A-1, ISO 11204, ISO 3744, ISO 4871)	
Sewing head dimensions:	
Length:	approx. 514 mm
Width:	approx. 200 mm
Height:	approx. 550 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. 55 kg
Needle system:	134 - 35
Needle size for fine materials:	70 - 100
Needle size for medium-weight materials:	100 - 120

* Depending on cut-out size of bed plate

▲ Subject to alterations

■ $K_{pA} = 2.5 \text{ dB}$

3.02 Seam pattern sizes



When changing part sets parameter "204" must be adapted to the cut-out size of the bed plate, see **Chapter 8.04 Setting the seam pattern size**.

If this instruction is not observed there is a risk of severe **damage to the machine!**

Value for parameter "204"	Cut-out size of the bed plate	Size of seam pattern
1	7 mm x 7 mm	5 mm x 5 mm
2	8 mm x 8 mm	6 mm x 6 mm
3	9 mm x 9 mm	7 mm x 7 mm
4	10 mm x 10 mm	8 mm x 8 mm
5	11 mm x 11 mm	8 mm x 9 mm
6	10 mm x 14 mm	8 mm x 12 mm

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!

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

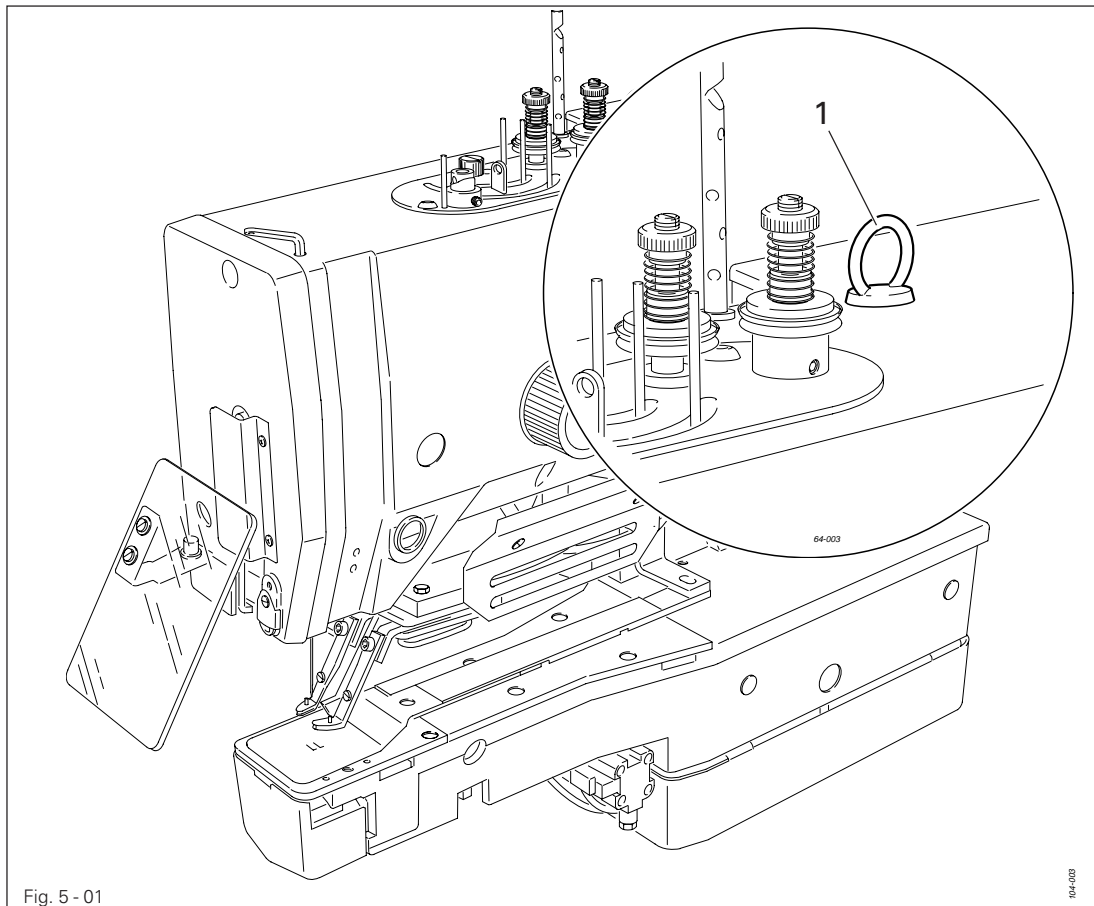


Fig. 5 - 01

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:



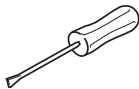
Note, information



Cleaning, care



Lubrication



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

7 Controls

7.01 Main switch

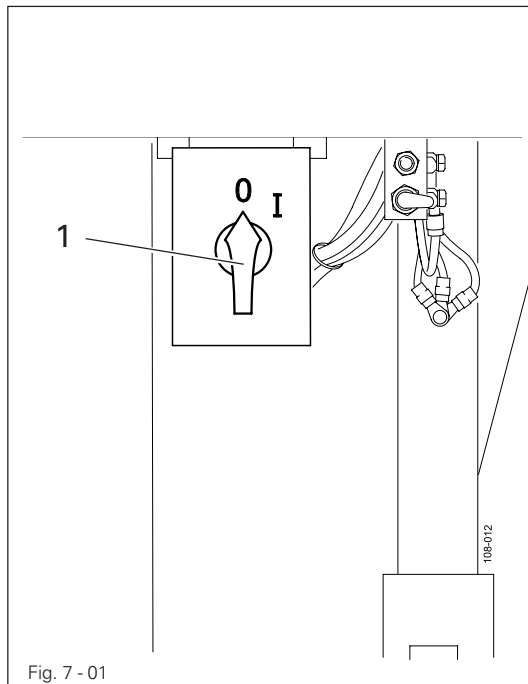


Fig. 7 - 01

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

7.02 Switch for the button sorting unit

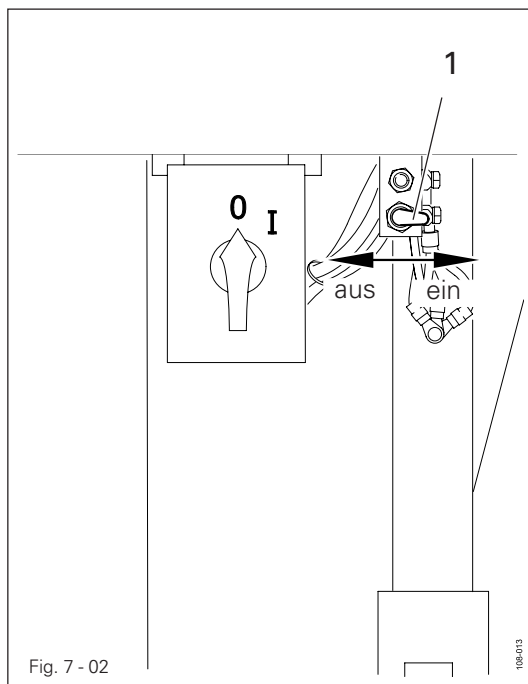


Fig. 7 - 02

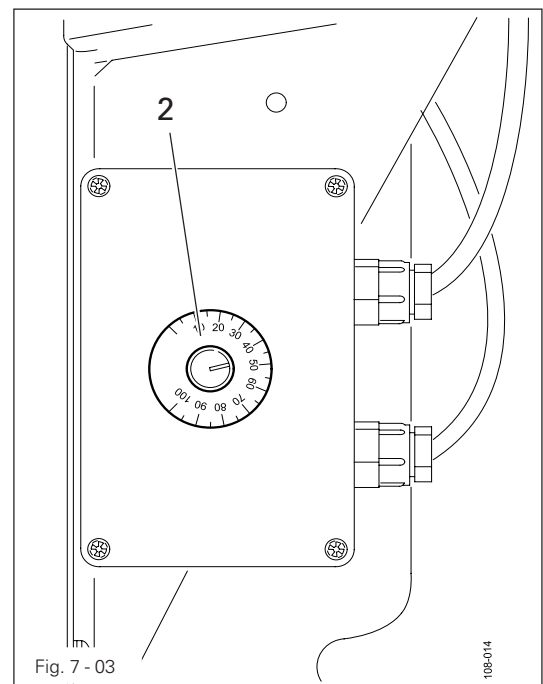


Fig. 7 - 03

- By turning switch 1, the air supply for the button sorting unit is switched on or off.
- By pressing or turning regulator 2, the button sorting unit is switched on and the button feed speed set.

7.03 Pedal

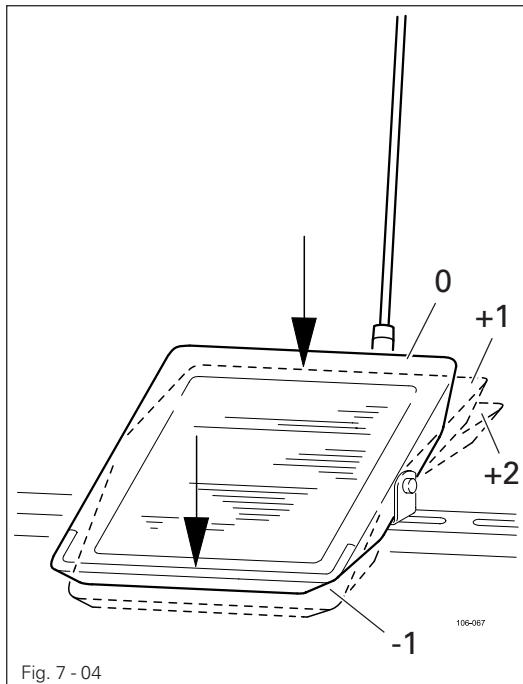


Fig. 7 - 04

- 0 = Neutral position
- +1 = Lower button clamp
- +2 = Sewing
- 1 = Feed button manually, e.g. after a breakdown (At the end of the sewing process, the next button is fed automatically.)

7.04 Balance wheel

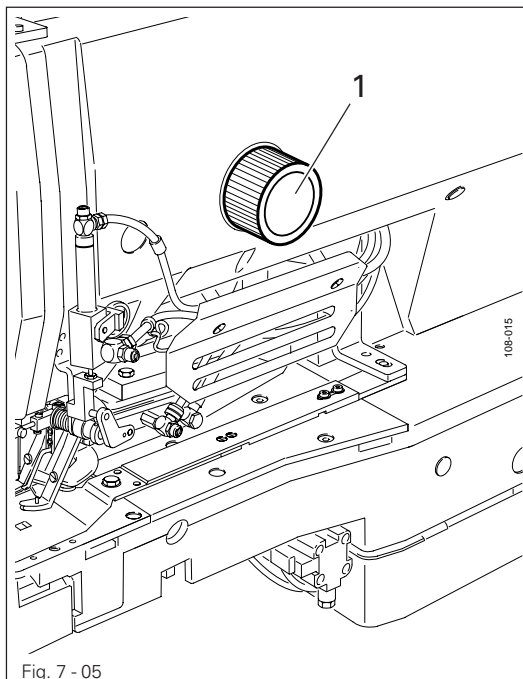


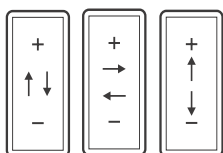
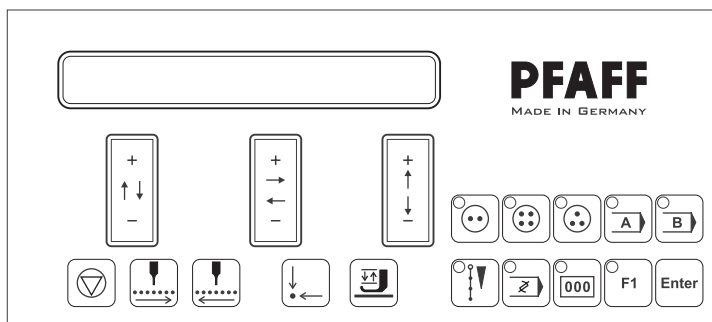
Fig. 7 - 05

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

7.05

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.



Plus/minus keys

- The values shown on the display can be increased or reduced on the respective key with the use of these keys.



Stop

- When operated during a sewing cycle, the machine is stopped.
- When entering the code number this key corresponds to the figure 0.



Tacting forwards/tacting backwards

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



Danger of needle breakage!

Before tacting move the needle to its t.d.c. using the balance wheel.



Basic position

- In the sewing mode the machine moves to the basic position.
- When entering the parameter (sewing mode switched off), the group level of the parameter list is selected (100, 200, ..., 800).



Button clamp raised/lowered

- In the sewing mode the button clamp is raised/lowered.
- When entering the code number this key corresponds to the figure 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.



Button type

- With these keys the type of button required (two-, four- or three-hole button) can be selected.
- When entering the code number these keys correspond to the figures 1, 2 or 3.



Program group A

- By pressing this key, the emptying of the button feed unit is started. (The buttons in the feed spiral are blown out).
- If the key is pressed again, the blowing function stops.
- When entering the code number this key corresponds to the figure 4.



Program group B

- When entering the code number this key corresponds to the figure 5.



Sewing mode/parameter input

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



Entering the seam pattern

- If this key is pressed the seam pattern function is switched on or off, see **Chapter 11.01 Entering the seam pattern.**
- When entering the code number this key corresponds to the figure 7.



Piece counter

- If this key is pressed the piece counter is reset (LED has no function).
- When entering the code number this key corresponds to the figure 8.



F1 key

- By pressing this key, a button is fed. (Same function as pedal position "-1")
- When entering the code number this key corresponds to the figure 9.

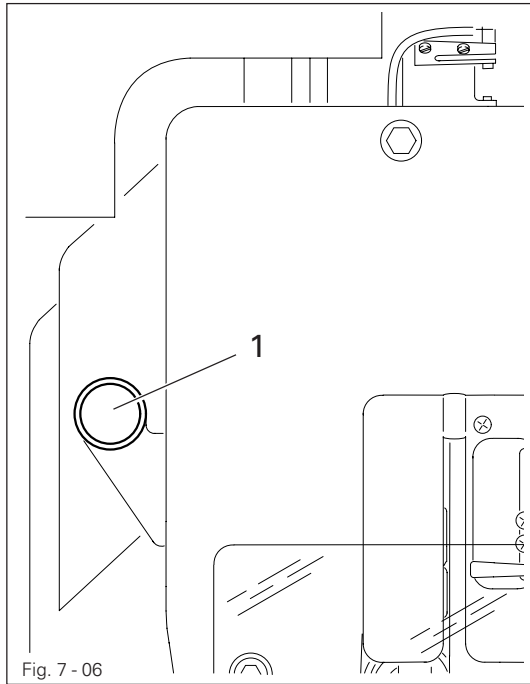


Enter

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

7.06

Missed stitch detection key



- Key 1 lights up, when an error is detected in the sewing process.
- Acknowledge the error signal by pressing key 1.

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

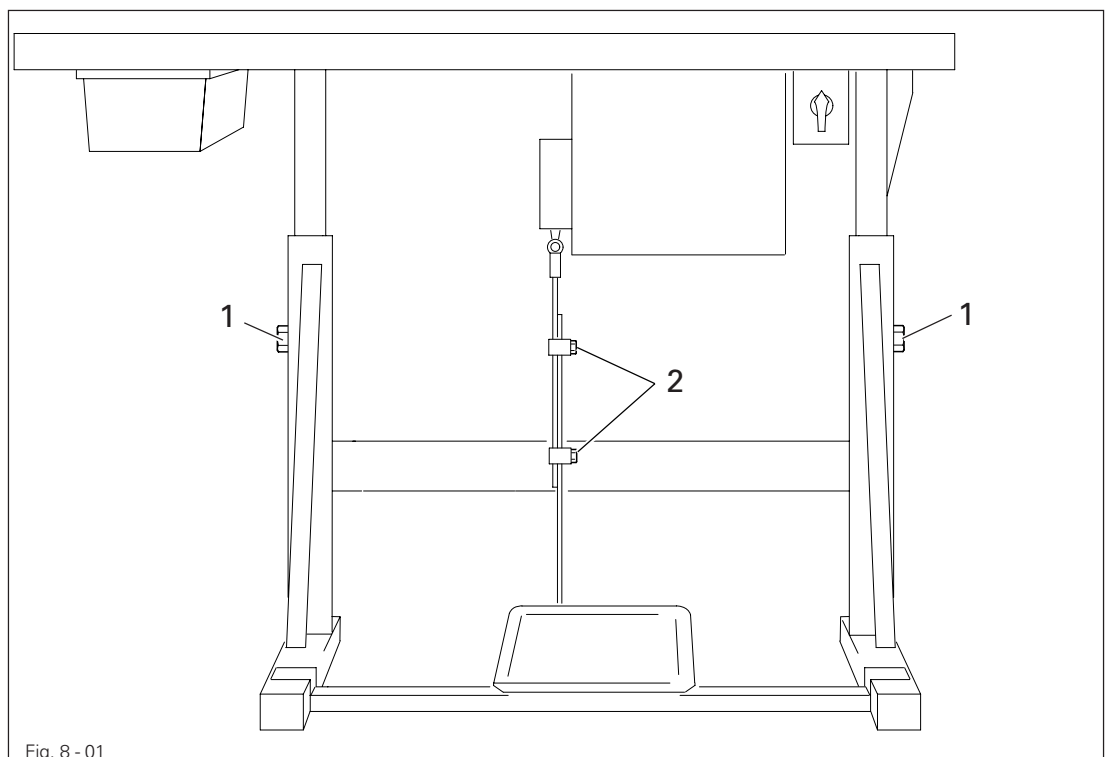


Fig. 8 - 01

- 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.

8.01.03 Connecting the plug-in connections and earth cable

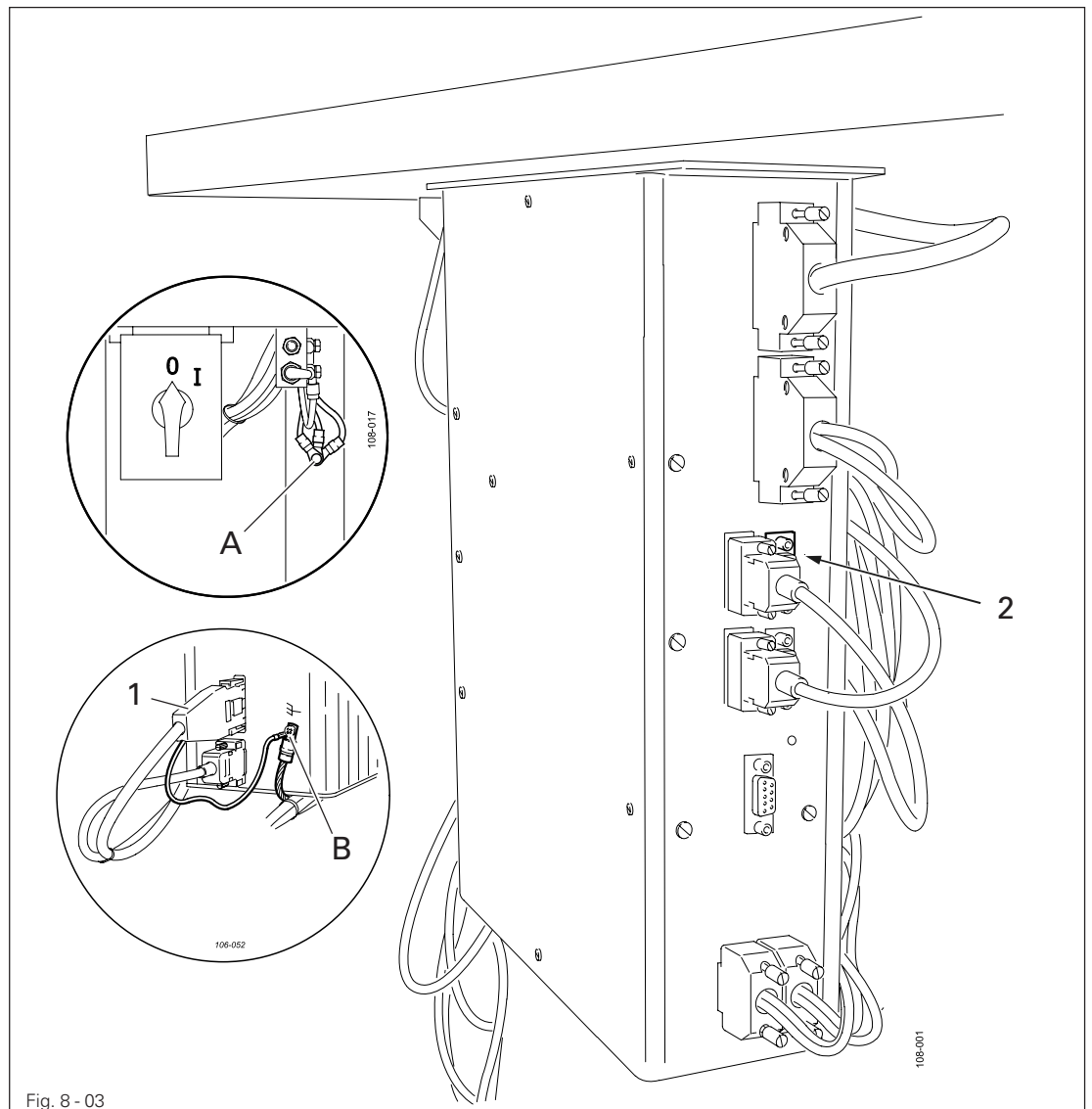


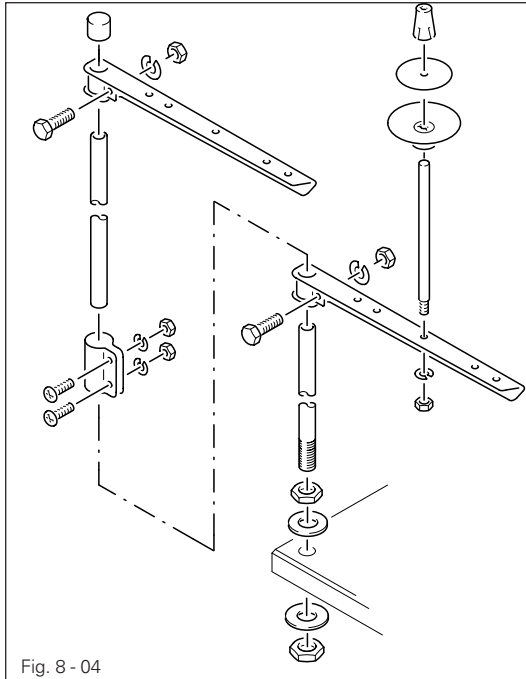
Fig. 8 - 03

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



The serial interface **2** is used to transfer data between the PC and the machine control unit (e.g. for software updates, work with the SAM and OSCA programs).

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**).
- Before the machine is commissioned, the seam pattern sizes set in the machine control unit must be checked, see **Chapter 8.04 Setting the seam pattern size**.

8.03 Switching the machine on / off

- Switch on the air supply for the button sorting unit, see **Chapter 7.02 Switch for the button sorting unit**.
- Switch on the main switch, see **Chapter 7.01 Main switch**.
- Switch on the button sorting unit and set the button feed speed, see **Chapter 7.02 Switch for the button sorting unit**.



To switch off the machine, the above sequence must be carried out in the reverse order.

8.04 Setting the seam pattern size



After the machine has been switched on for the first time, first of all the seam pattern sizes set in the machine control unit must be checked and corrected if necessary. The seam pattern size depends on the cut-out size of the bed plate and is set with parameter "204". If these instructions are not observed there is a risk of severe **damage to the machine!**

8.04.01 Establishing the value for parameter "204"

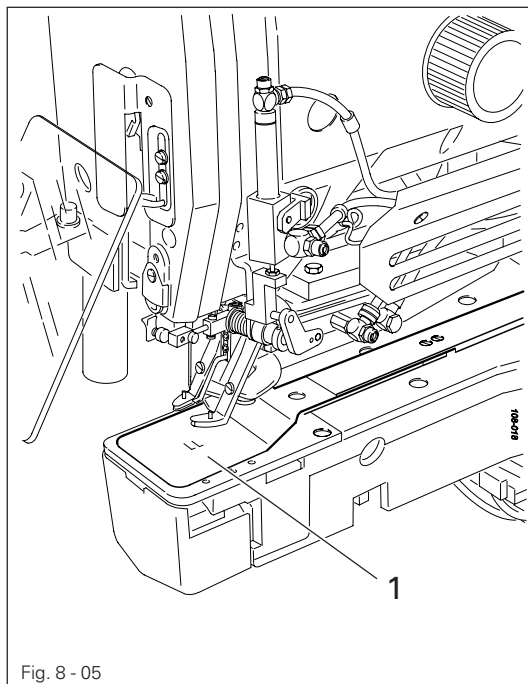


Fig. 8 - 05

- Measure the size of the cut-out in bed plate 1.
- With the use of the table below determine the value for parameter "204".
- Set „parameter "204", which is the seam pattern size, in accordance with **Chapter 8.04.02 Changing parameter "204"**.

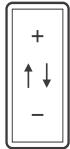
Value for parameter "204"	Bed plate cut-out size	Seam pattern size
1	7 mm x 7 mm	5 mm x 5 mm
2	8 mm x 8 mm	6 mm x 6 mm
3	9 mm x 9 mm	7 mm x 7 mm
4	10 mm x 10 mm	8 mm x 8 mm
5	11 mm x 11 mm	8 mm x 9 mm
6	10 mm x 14 mm	8 mm x 12 mm

8.04.02 Changing parameter "204"

- Switch on the machine.



- Select the parameter input mode (LED in the key is off).



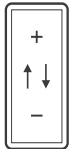
- Using the corresponding **plus/minus key** select the function group "200".

200



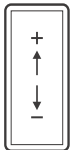
- Confirm selection with **Enter**.

- Enter the code, see **Chapter 11.03.02 Entering/altering the access code**.



- Using the corresponding **plus/minus key** select the parameter "204".

204 1



- Using the corresponding **plus/minus key** select the value established for the seam pattern size, see **Chapter 8.04.01 Establishing the value for parameter "204"**.

204 2



- Conclude parameter input by switching to the sewing mode.

9 Setting up

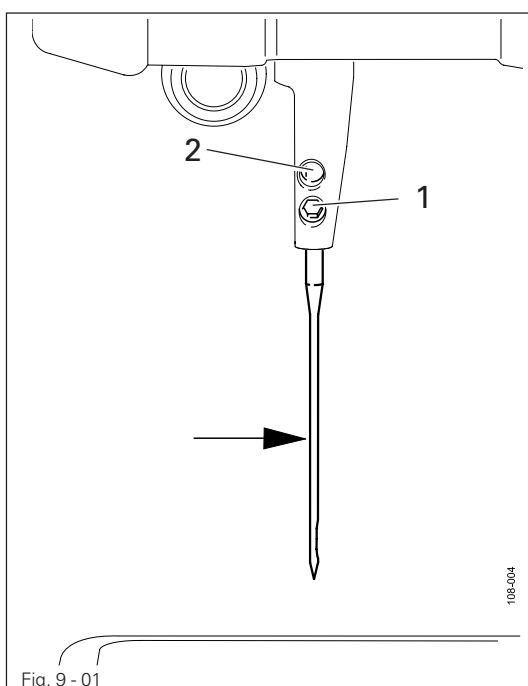


All instructions and regulations in this instruction manual must be observed. Special attention must be given to all safety regulations!



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

9.01 Inserting the needle



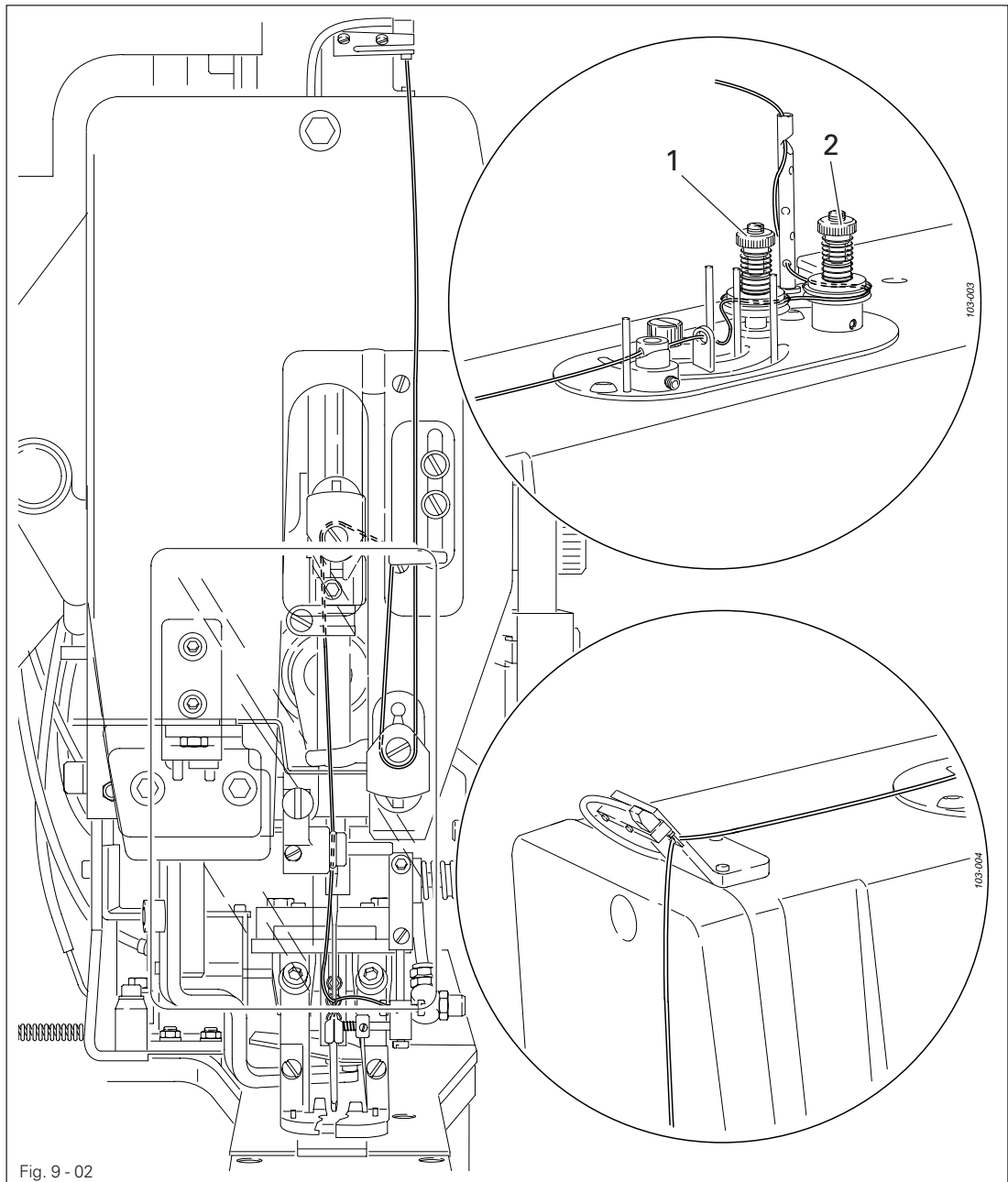
Switch off the machine!
Danger of injury if the machine is started accidentally!

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

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



Through hole 2 it is possible to check whether the needle has been inserting as far as possible. Broken needles can be removed by inserted suitable tools in hole 2.



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

- Thread needle thread as shown in Fig. 9-02.
- By turning milled screws 1 and 2 adjust the tension of the needle thread to avoid material puckering or thread breakage.



For thin, soft materials a lower thread tension is required, for thicker fabrics a higher thread tension.



Thread the needle from the front!

9.03 Selecting the button type and program number



To select a button type and program number, a program for the corresponding button must already have been entered with the seam pattern input, see **Chapter 11.01 Seam pattern input**.

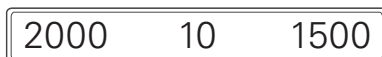
- Switch on the machine.
The sewing mode is activated automatically.



- On machines from subclass -1/... select the desired button type with the corresponding key.
or

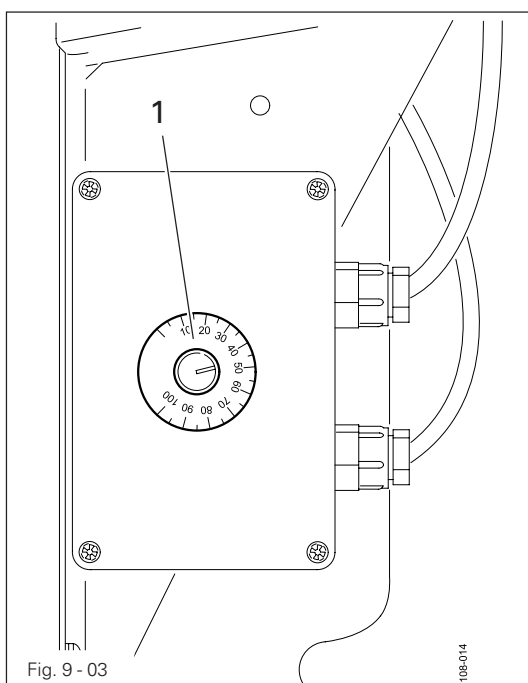


- On machines from subclass -4/... the three-hole button must be selected to activate the basting function.



- Select the required program number (1-99) with the corresponding plus/minus key.

9.04 Setting the button feed speed of the button sorting unit

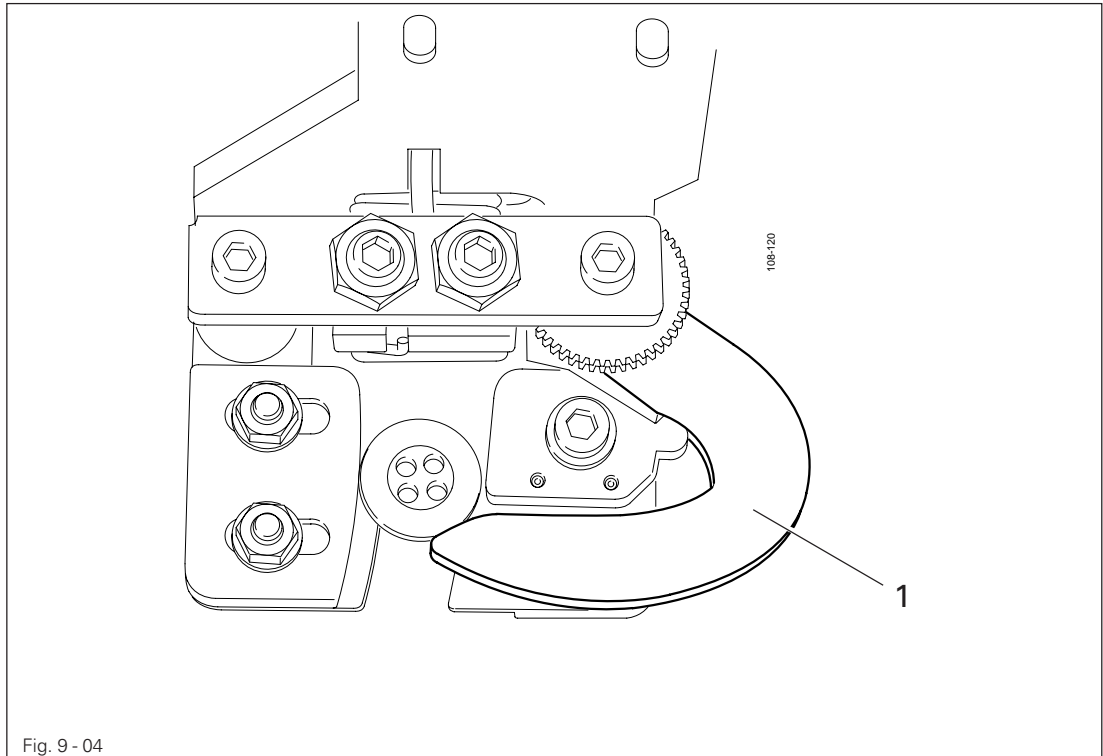




- Adjust regulator 1 in accordance with the required feed speed.



There must always be an adequate number of buttons in the button feed unit.

9.05 Emptying the button feed spiral



- Switch on the machine.
-  ● Start the emptying function of the button feed spiral.
- Disengage lever 1 by hand.
The button feed spiral empties automatically.
-  ● End the emptying function of the button feed spiral.

9.06 Calling up the sequence mode

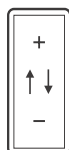


To call up the sequence mode, the sequence must have been entered beforehand, see **Chapter 11.02 Sequence Input**.

- Switch on the machine.

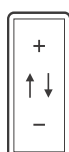


- Call up the parameter input function again (LED in the key is off).



- With the corresponding **plus/minus key** call up parameter "114" (sequence mode).

114 |



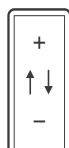
- With the corresponding **plus/minus key** enter the value "II" to switch on the sequence mode.

114 ||



- Conclude the parameter input by switching to the sewing mode.

2000 12/1 SEQ1



Sequence 1 (SEQ1) with 12 seam patterns is displayed. The first seam pattern is currently being sewn. With the middle **plus/minus key** it is also possible to switch to the individual seam patterns manually.

The right **plus/minus key** is used to switch from one sequence to another (SEQ 1-9).



The machine must be installed, connected and set up in accordance with **Chapter 8 Installation and commissioning.**

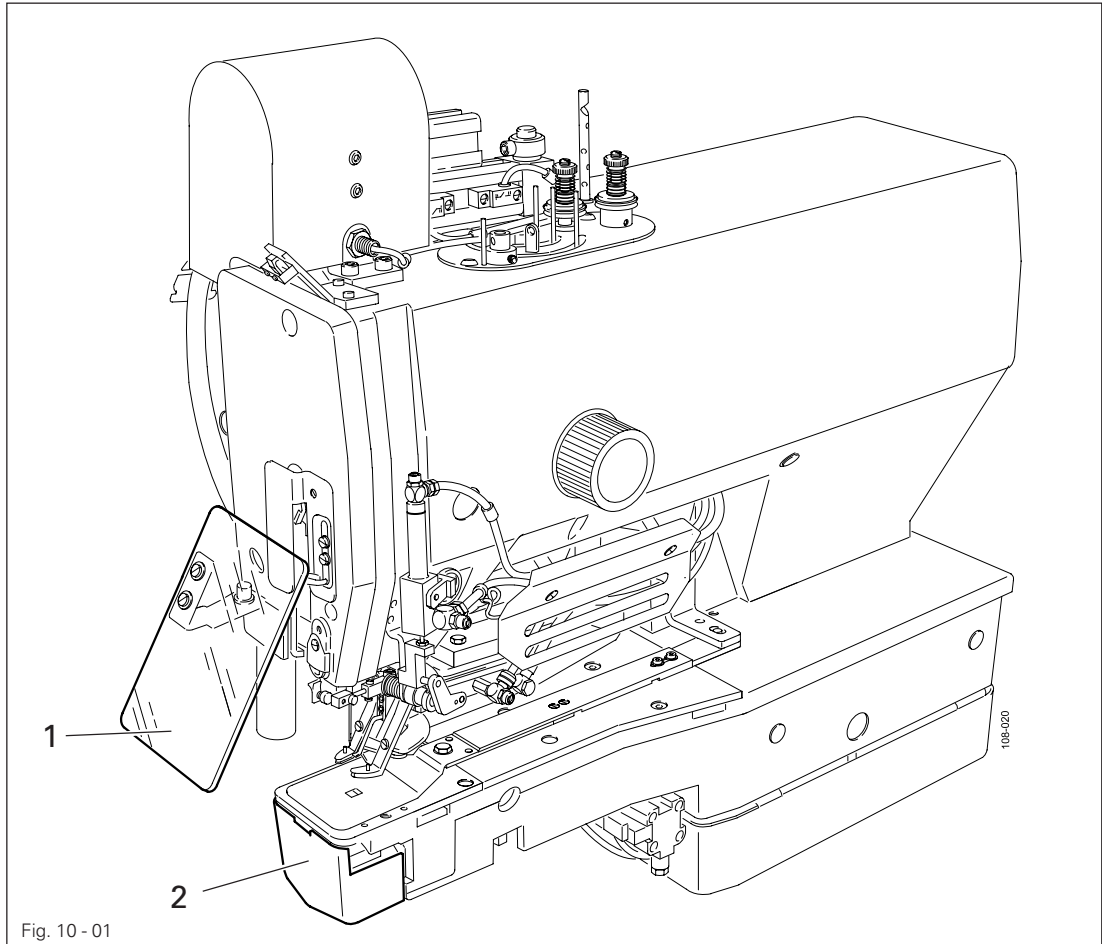


Fig. 10 - 01



Do not operate the machine without eye shield 1!
 Danger of injury from flying needle or button fragments!



Only operate the machine with cover 2 closed!
 Danger of injury from rotating hook!

- Insert the needle, see **Chapter 9.01 Inserting the needle.**
- Thread the needle, see **Chapter 9.02 Threading the needle thread.**
- Switch on the machine, see **Chapter 8.03 Switching the machine on/off.**
- Select the button type and corresponding program number, see **Chapter 9.03 Selecting the button type and program number.**
- Place an adequate supply of buttons in the button feed unit.
- Place the material under the button.
- Lower the button clamp with the pedal and start the sewing operation, see **Chapter 7.02 Pedal.**

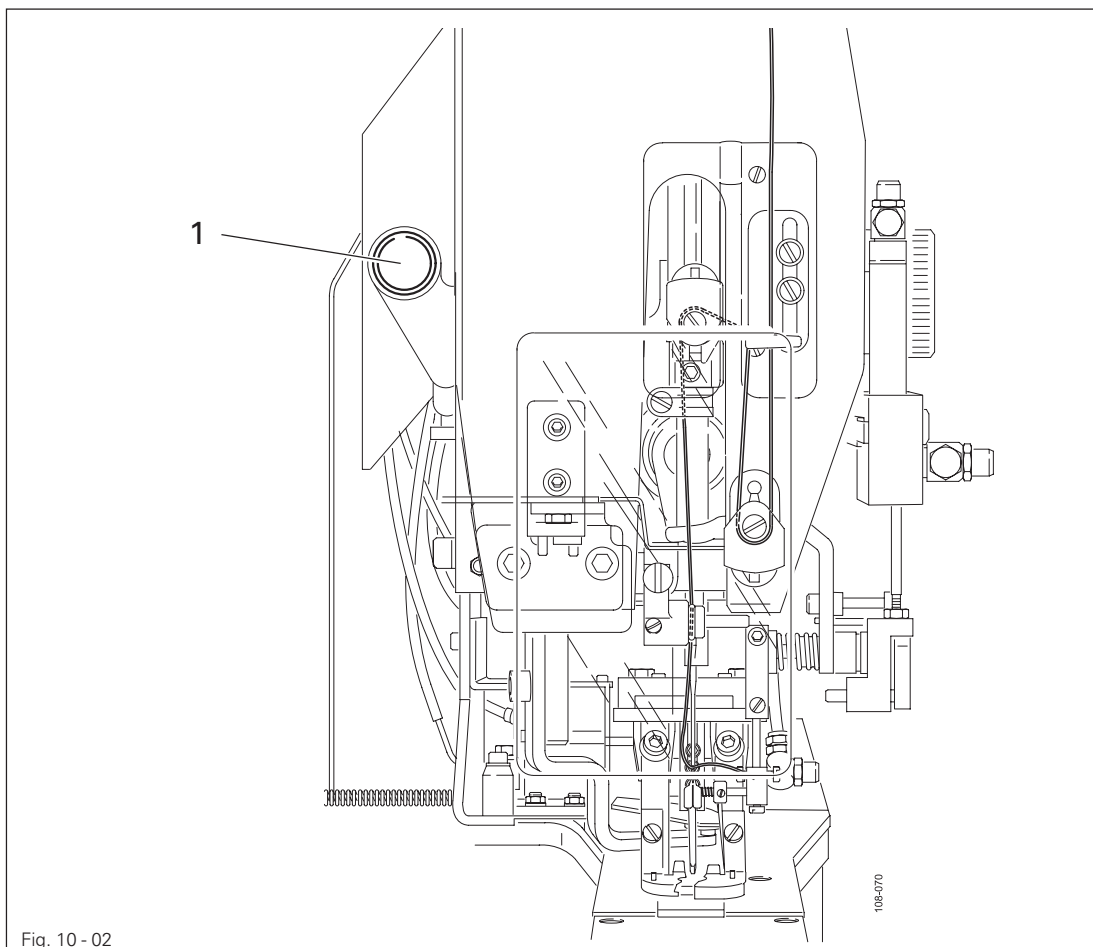


Fig. 10 - 02

The machine has a missed stitch sensor and a button loading control unit, with the aid of which the sewing process can be monitored. If a fault occurs, key 1 lights up. The machine start is blocked. Following steps must be carried out:

- Remove the workpiece.
 - Press key 1 (lamp goes off).
 - Cut off the button.
- F1**
- Feed a button (using the "F1" key or pedal position "-1")
 - Reinsert the workpiece and restart the sewing process.



The error signal may be caused by e.g. no button being fed (error 28) or by a button inserted at the wrong angle (error 4). If key 1 lights up again and again, have specialists check the machine adjustment.

11 Input

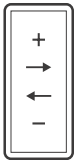
11.01 Seam pattern input

For each button type (two-hole, four-hole or three-hole button) 99 programs (seam patterns) can be entered and stored. The seam pattern input is carried out by calling up or entering certain seam parameters. The seam pattern input is described below for each button type.

11.01.01 Seam pattern input for two-hole buttons



- Activate the sewing mode .
(The LED in the key must be on).



- Select the desired button type and program number, see **Chapter 9.03 Selecting the button type and program number.**

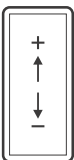


- Activate the seam pattern input function.
The first parameter (P01) with the corresponding values is shown on the display.

P01 0 0

Parameter input two-hole button

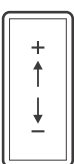
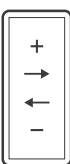
	P01	First needle entry position
	P02	Second needle entry position
	P07	Total number of stitches (1-99).
	P10	End knotting function: I = off, II = on



- Start the first needle entry position (P01) with the corresponding **plus/minus keys.**



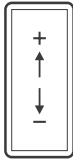
- Confirm input with **Enter.**
Machine moves automatically to input of the next parameter.



- Start the second needle entry position (P02) with the corresponding **plus/minus keys.**



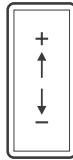
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



- Select the total number of stitches "P07" with the corresponding **plus/minus key**.



- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



- Switch the end knotting function "P10" on/off with the corresponding **plus/minus key**.



- By pressing the **seam pattern input** key the values entered are stored and the machine is in the basic position of the sewing mode.



By pressing the **sewing mode/parameter input** key the values are also stored, and the machine is then in the parameter input mode.



By pressing the **basic position** key the seam pattern input is interrupted, the old values are kept and the machine changes to the sewing mode.

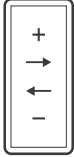


To achieve the best results, cutting should take place at the left needle entry position. This is achieved through the number of stitches and the location of the needle entry positions.

11.01.02 Seam pattern input for three-hole buttons



- Activate the sewing mode .
(The LED in the key must be on).



- Select the desired button type and program number, see **Chapter 9.03 Selecting the button type and program number.**



- Activate the seam pattern input function.
The first parameter (P01) with the corresponding values is shown on the display.

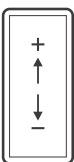
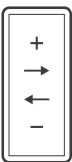
P01 0 0

Parameter input three-hole button

	P01	First needle entry position
	P02	Second needle entry position
	P03	Third needle entry position
	P07	Total number of stitches (2-99)
	P09	Seam pattern: 1 = seam cycle, 2 = point , 3 = basting
	P10	End knotting function: I = off, II = on

Seam pattern for the three-hole button

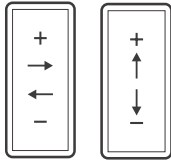
	Seam cycle (P09 = 1)
	Point (P09 = 2)
	Basting (P09 = 3)



- Start the first needle entry position (P01) with the corresponding plus/minus keys.



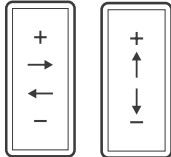
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



- Start the second needle entry position (P02) with the corresponding **plus/minus keys**.



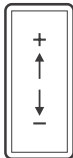
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



- Start the third needle entry position (P03) with the corresponding **plus/minus keys**.



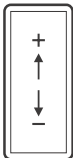
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



- Select the total number of stitches "P07" with the corresponding **plus/minus key**.



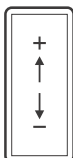
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



- Select the seam pattern "P09" with the corresponding **plus/minus key**



- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



- Switch the end knotting function "P10" on/off with the corresponding **plus/minus key**.



- By pressing the **seam pattern input** key the values entered are stored and the machine is in the basic position of the sewing mode.



By pressing the **sewing mode/parameter input** key the values are also stored, and the machine is then in the parameter input mode.



By pressing the **basic position** key the seam pattern input is interrupted, the old values are kept and the machine changes to the sewing mode.

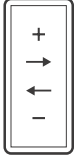


To achieve the best results, cutting should take place at the left needle entry position. This is achieved through the number of stitches and the location of the needle entry positions.

11.01.03 Seam pattern input for four-hole buttons



- Activate the sewing mode .
(The LED in the key must be on).



- Select the desired button type and program number, see **Chapter 9.03 Selecting the button type and program number.**



- Activate the seam pattern input function.
The first parameter (P01) with the corresponding values is shown on the display.

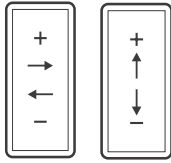
P01 0 0

Parameter input four-hole button

	P01	First needle entry position
	P02	Second needle entry position
	P03	Third needle entry position
	P04	Fourth needle entry position
	P07	Total number of stitches (2-99)
	P08	Intermediate trimming I = off, II = on
	P09	Seam pattern: 1 normal, 2 cycle, 3 arrow, 4 = Z
	P10	End knotting function: I = off, II = on

Seam pattern examples for the four-hole button

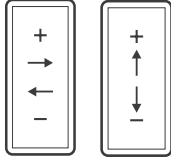
	Seam patterns with intermediate cutting (P06 = II), without seam cycle (P09 = 1).
	Seam patterns without intermediate cutting (P06 = I), and without seam cycle (P09 = 1).
	Seam patterns with seam cycle (P09 = 2), the intermediate cutting function is switched off automatically.
	Seam pattern "arrow" (P09 = 3) the intermediate cutting function is switched off automatically.
	Seam pattern "Z" (P09 = 4) The intermediate trimming function is switched off automatically.



- Start the first needle entry position (P01) with the corresponding plus/minus keys.



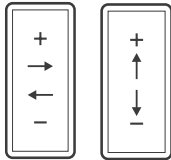
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



- Start the second needle entry position (P02) with the corresponding plus/minus keys.



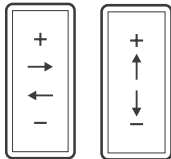
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



- Start the third needle entry position (P03) with the corresponding plus/minus keys.



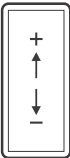
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



- Start the fourth needle entry position (P04) with the corresponding plus/minus keys.



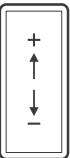
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



- Select the total number of stitches "P07" with the corresponding plus/minus key.



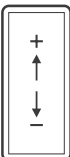
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



- Switch off the intermediate cutting function (P08) with the corresponding plus/minus keys.



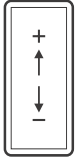
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



- Select the seam pattern "P09" with the corresponding plus/minus key



- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



- Switch the end knotting function "P10" on/off with the corresponding **plus/minus key**.



- By pressing the **seam pattern input** key the values entered are stored and the machine is in the basic position of the sewing mode.



By pressing the **sewing mode/parameter input** key the values are also stored, and the machine is then in the parameter input mode.



By pressing the **basic position** key the seam pattern input is interrupted, the old values are kept and the machine changes to the sewing mode.

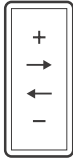


To achieve the best results, cutting should take place at the left needle entry position. This is achieved through the number of stitches and the location of the needle entry positions.

11.01.04 Seam pattern input for six-hole buttons



- Activate the sewing mode.
(The LED in the key must be on.)



- Select the desired button type and program number, see **Chapter 9.03 Selecting the button type and program number.**



- Activate the seam pattern input function.
The first parameter (P01) with the corresponding values is shown on the display.

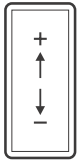
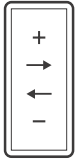
P01 0 0

Parameter input six-hole button

	P01	First needle entry position
	P02	Second needle entry position
	P03	Third needle entry position
	P04	Fourth needle entry position
	P05	Fifth penetration position
	P06	Sixth penetration position
	P07	Total number of stitches (2-99)
	P08	Intermediate trimming: I = off, II = on
	P09	Seam pattern: 1, 2 (see seam example)
	P10	End knotting function: I = off, II = on

Seam pattern examples for the six-hole buttons

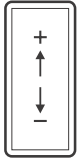
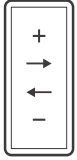
	Seam patterns with intermediate trimming (P08 = II), Stitch formation 1 (P09 = 1)
	Seam pattern without intermediate trimming (P08 = I), Stitch formation 1 (P09 = 1)
	Seam patterns with intermediate trimming (P08 = II), Stitch formation 2 (P09 = 2)



- Start the first needle entry position (P01) with the corresponding **plus/minus keys**.



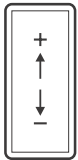
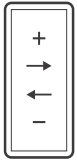
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



- Start the second needle entry position (P02) with the corresponding **plus/minus keys**.



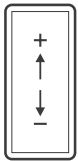
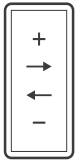
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



- Start the third needle entry position (P03) with the corresponding **plus/minus keys**.



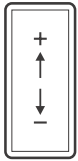
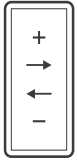
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



- Start the fourth needle entry position (P04) with the corresponding **plus/minus keys**.



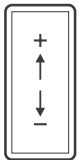
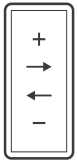
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



- Move to the fifth penetration position (P05) using the corresponding **plus/minus keys**.



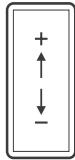
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



- Move to the sixth penetration position (P06) using the corresponding **plus/minus keys**.



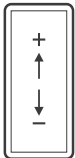
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



- Select the total number of stitches "P07" using the corresponding **plus/minus key**.



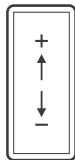
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



- Switch the intermediate trimming function "P08" on or off using the corresponding **plus/minus key**.



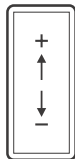
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



- Select the stitch formation "P09" using the corresponding **plus/minus key**.



- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



- Confirm the input with the **Enter** key.
The program moves automatically to the input of the next parameter.



- Switch the end knotting function "P10" on/off with the corresponding **plus/minus key**.

- By pressing the **seam pattern input** key the values entered are stored and the machine is in the basic position of the sewing mode.



By pressing the **sewing mode/parameter input** key the values are also stored, and the machine is then in the parameter input mode.



By pressing the **basic position** key the seam pattern input is interrupted, the old values are kept and the machine changes to the sewing mode.



To achieve the best results, cutting should take place at the left needle entry position. This is achieved through the number of stitches and the location of the needle entry positions.

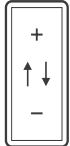
11.02 Sequence input

In one sequence up to 99 seam patterns can be stored in any order. When working with the sequence (sequence mode) the seam patterns are processed one after the other in the order specified. After the last seam pattern in the sequence, the first seam pattern follows again. Below is an example of a sequence input with two seam patterns.

- Switch on the machine



- Switch to parameter input (LED in the key is off).



- Call up parameter "113" (sequence input) using the corresponding **plus/minus key**.

113



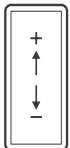
- Confirm the input with the **Enter key**.

113 SEQ1

- Select sequence number (1-9) using the corresponding **plus/minus key**.

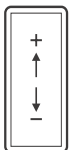


- Confirm the input with the **Enter key**.



- Select the button type and enter the program number, e.g. "5" using the corresponding **plus/minus key**.

1 5 1



- If necessary, alter the stem length, e.g. to "2" using the corresponding **plus/minus key**.

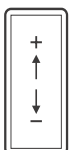
1 5 2



Provided that the parameter 112 is set at value "II", the stem finger can be allocated to the seam pattern by entering the value 2 or 3 on the right **plus/minus key**.

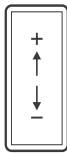


- If necessary, allocate the appropriate seam type, e.g. "sew-through button attachment".



- Select the next seam pattern in the sequence (e.g. "2" using the corresponding **plus/minus key**.

2 5 2

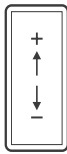


- Select the button type required and enter the seam pattern using the corresponding plus/minus key.

2 5 2



- If necessary, allocate the appropriate seam type, e.g. "sew-through button attachment".



- Select the next sequence position using the corresponding plus/minus key.

3 5 2



- To end the sequence, select the next seam position and set the seam pattern at "0".

3 0 1



- Conclude the parameter input by switching to the sewing mode.



To be able to work with the sequence, the sequence mode parameter "114" must be activated, see **Chapter 9.05 Calling up the sequence mode.**

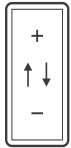
11.03 Parameter input

11.03.01 Selecting and changing parameters

- Switch on the machine.



- Switch to parameter input (LED on the key is off).



- Select the function group, e.g. "200" with the corresponding plus/minus key.

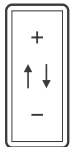
200



- Confirm with **Enter**.

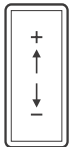
- Enter the code, see **Chapter 11.03.02 Entering/changing the access code**.

201 1



- Select parameter "204" (seam pattern size) with the corresponding plus/minus key.

204 1



- Select the parameter value with the corresponding plus/minus key.

204 2



- By pressing the **sewing mode/parameter input** key the values are stored, and the machine is then in the sewing mode.



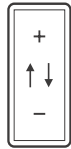
By pressing the **basic position** key the parameter input is interrupted, the old values are kept and the machine changes to the basic position of the parameter input mode.

11.03.02 Entering/changing the access code

- Switch on the machine.



- Switch to parameter input (LED on the key is off).



- Select the function group, e.g. "800" with the corresponding plus/minus key.

800

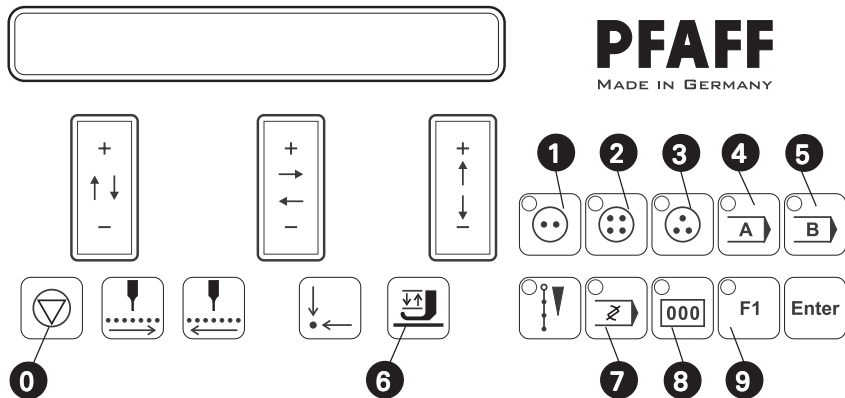


- Confirm with Enter.



- Enter the code

As shown below, the figures are entered with the corresponding function keys. The factory code setting is "3307".

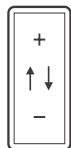


Code: 3307



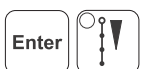
- Confirm with Enter.

801 0



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

819 3307



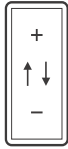
- Enter a new code number and save it by pressing Enter or by selecting the sewing mode.

11.03.03 Assigning access rights

- Switch on the machine.



- Switch to parameter input (LED on the key is off).



- Select the function group, e.g. "800" with the corresponding **plus/minus key**.

800



- Confirm with **Enter**.

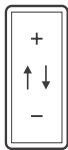
- Enter the code (e.g. : 3307).

Code: 3307



- Confirm with **Enter**.

801

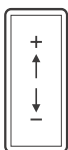


- Select the desired parameter "801 to 818" with the corresponding **plus/minus key**, see **Chapter 13.49 Parameter settings**.

818 1

- Use the corresponding **plus/minus key** to release or block the selected parameter.

- 0: Free access to parameter function.
- 1: Access to parameter function only after entering access code.



If all the parameters (801 to 818) are set at "0", the access code will no longer be demanded.



- Take over the setting with **Enter** or by selecting the **sewing mode**.

12 Care and maintenance

Cleaning the hook compartment	daily
Cleaning the entire machine	once a week
Cleaning the air filter/lubricator (air filter)	as required
Topping up oil (gears and sewing head)	once a month
Checking the air pressure	daily, before operation



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

12.01 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!
Danger of injury if the machine suddenly starts up .



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

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



If the button sorting unit is charged statically it can be treated with an anti-static spray.

12.02 Cleaning the hook compartment

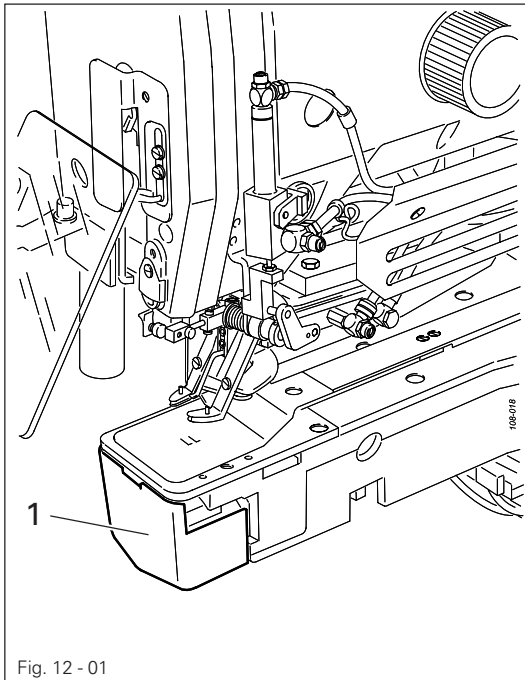


Fig. 12 - 01



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

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

12.03 Cleaning the air filter/lubricator

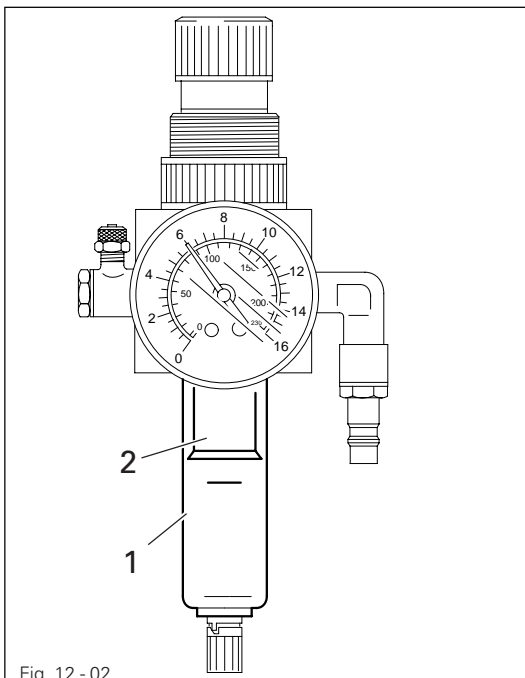


Fig. 12 - 02



Switch off the machine!
Remove the compressed air tube from the air filter.

Empty the water tank 1:

- The water tank 1 empties automatically after the removal of the compressed air tube of the air filter.

Clean filter 2:

- Unscrew water tank 1.
- Remove filter 2.
- Clean filter 2 with compressed air or with isopropyl alcohol (part no. 95-665 735-91).
- Replace filter 2 and screw water tank 1 back into place.

12.04 Checking/adjusting the air pressure

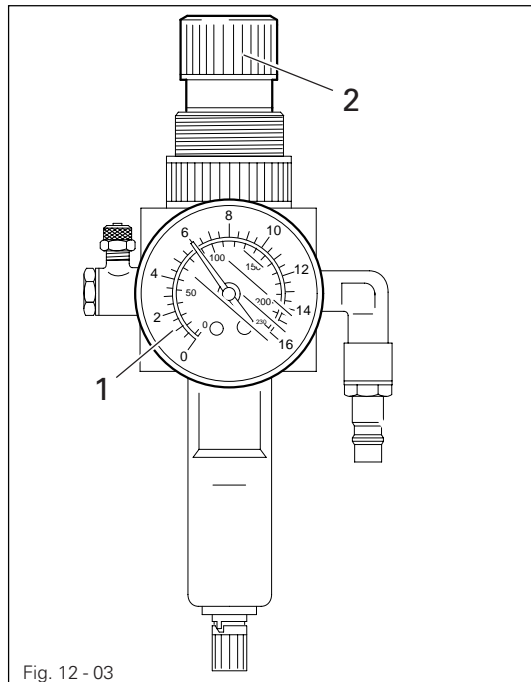


Fig. 12 - 03

- 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 the needle drive unit

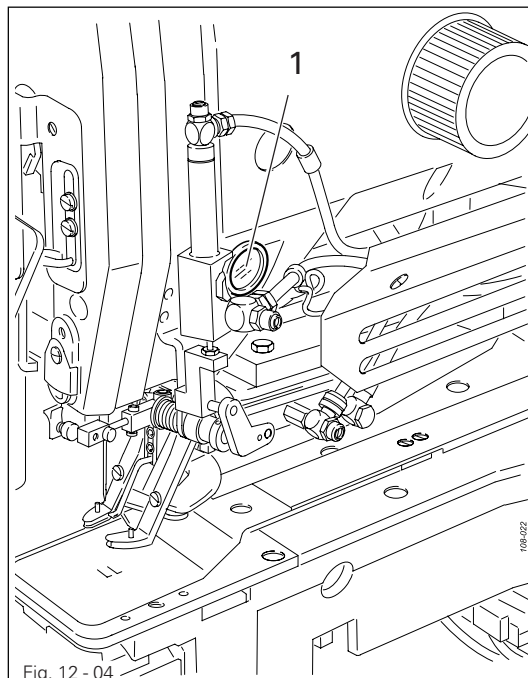


Fig. 12 - 04

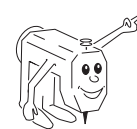


Top up oil once a month.

- Pour in oil through the hole in inspection glass 1 up to the bottom edge of the hole.

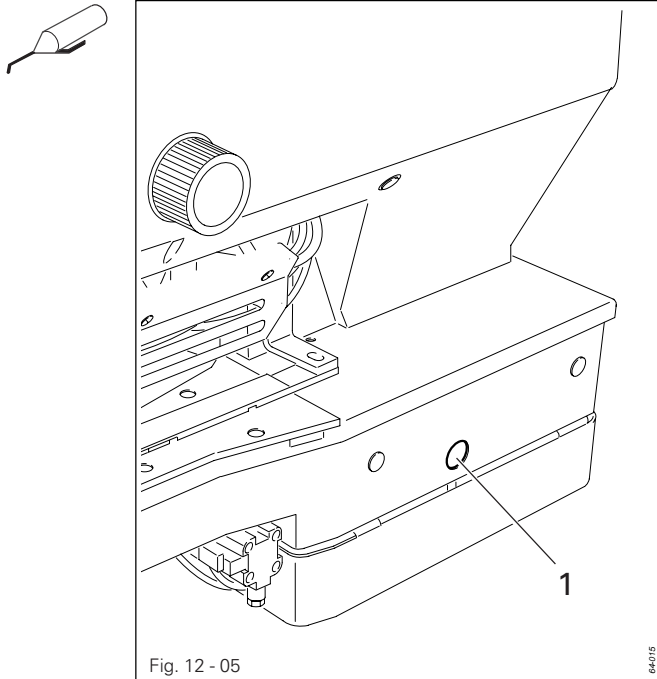


Only use oil with a mean viscosity of 31.0 mm²/s at 40° C and a density of 0.870 g/cm³ at 15° C.



We recommend PFAFF sewing machine oil, part no. 280-1-120 145

12.06 Oil level for the gears

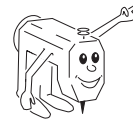


Top up oil once a month.

- Pour in oil through the hole in inspection glass 1.



Only use oil with a mean viscosity of 31.0 mm²/s at 40° C and a density of 0.870 g/cm³ at 15° C.



We recommend
PFAFF sewing machine oil, part
no. 280-1-120 145

13 Adjustment



Unless stated otherwise, the machine must be disconnected from the electric and pneumatic power supply!

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 Allen 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 C-clamp, part no. 62-111 600-35/001
- 1 needle rise gauge 2.4 mm, part no. 61-111 600-01
- 1 adjustment gauge "hook centre", part no. 08-880 138-00
- 1 "needle centre" adjustment gauge (button specific)
will be delivered with the machine in accordance with the button selected
- 1 locking pin "t.d.c. needle", part no. 61-111 635-92
- 1 locking pin "needle drive", part no. 13-030 272-05
- Needles, threads and test material

13.03 Abbreviations

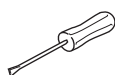
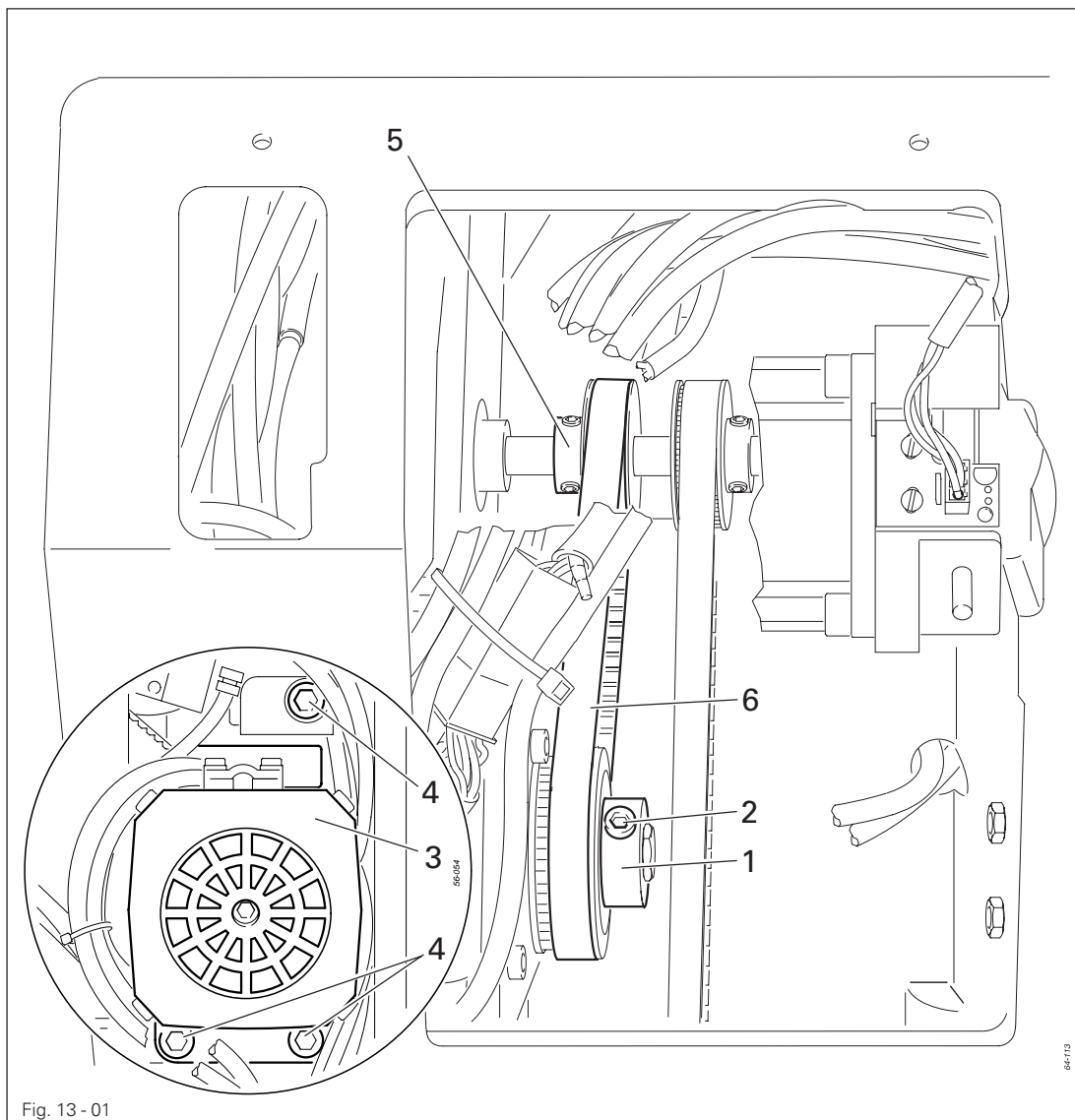
t.d.c. = top dead centre

b.d.c. = bottom dead centre

13.04 Toothed belts of the main drive

Requirement

1. Toothed belt wheels **1** and **5** should be in alignment.
2. Hardly any play should be noticeable between toothed belt wheels **1** and **5** and the toothed belt **6**.



- Adjust toothed belt wheel **1** (screws **2**) in accordance with **requirement 1**.
- Move motor **3** (screws **4**) in accordance with **requirement 2**.



If there are operational noises, the adjustments must be repeated.

13.05 Top needle bar position (reference position)

Requirement

Needle bar 4 should be positioned at its t.d.c. with access to one of the screws 1.

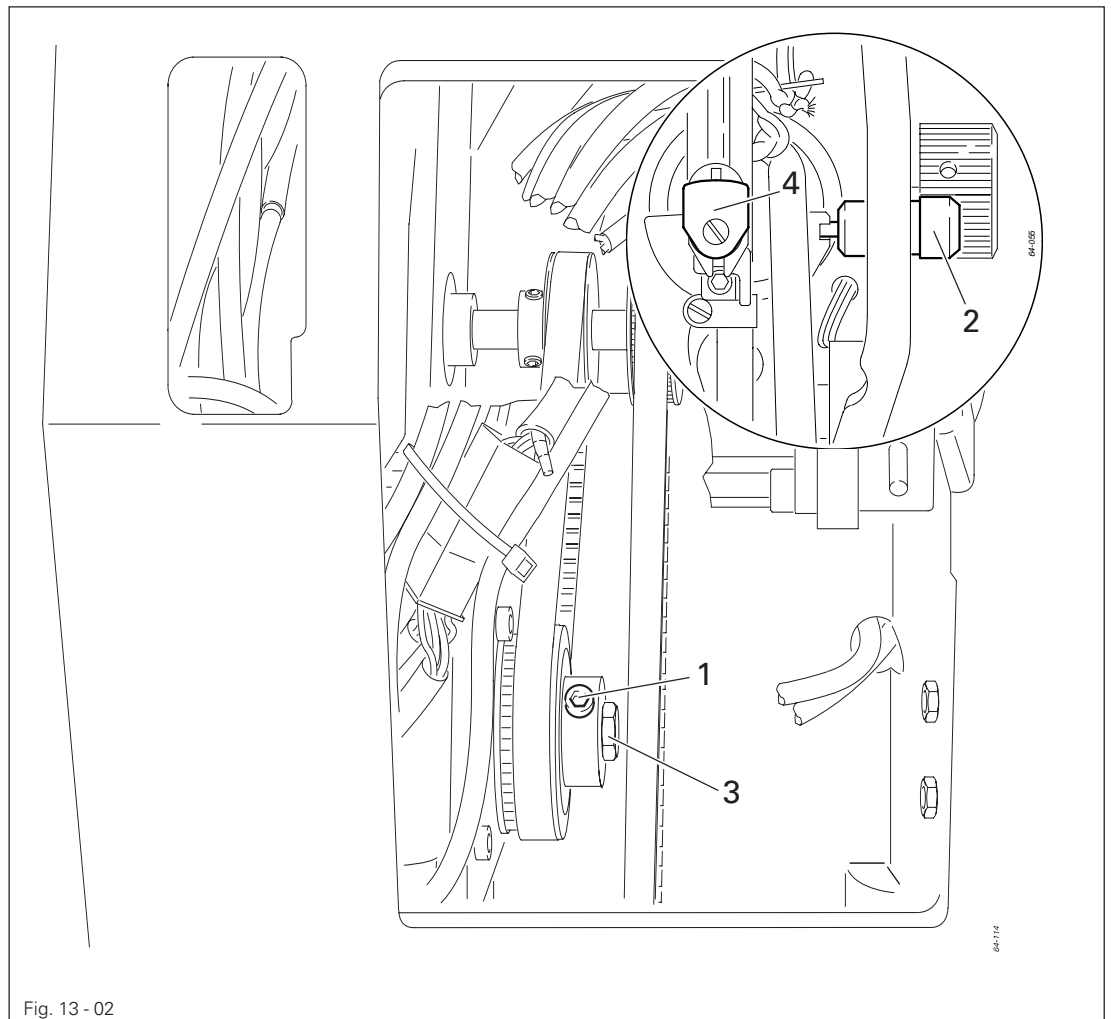
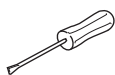


Fig. 13 - 02



- Remove the needle.
- Loosen screws 1.
- Using the balance wheel, position the needle bar at its t.d.c. and lock it with locking pin 2 (part no. 61-111 635-92).
- Switch on the machine, select parameter 612.
- With screw 3 turn the motor shaft so that the value for parameter 612 is at "0".
- Confirm the value.
- Confirm the value with the enter key.
- Tighten screws 1 (to begin with only one screw is accessible).
- Switch off the machine and remove locking pin 2.

Enter

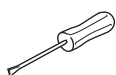
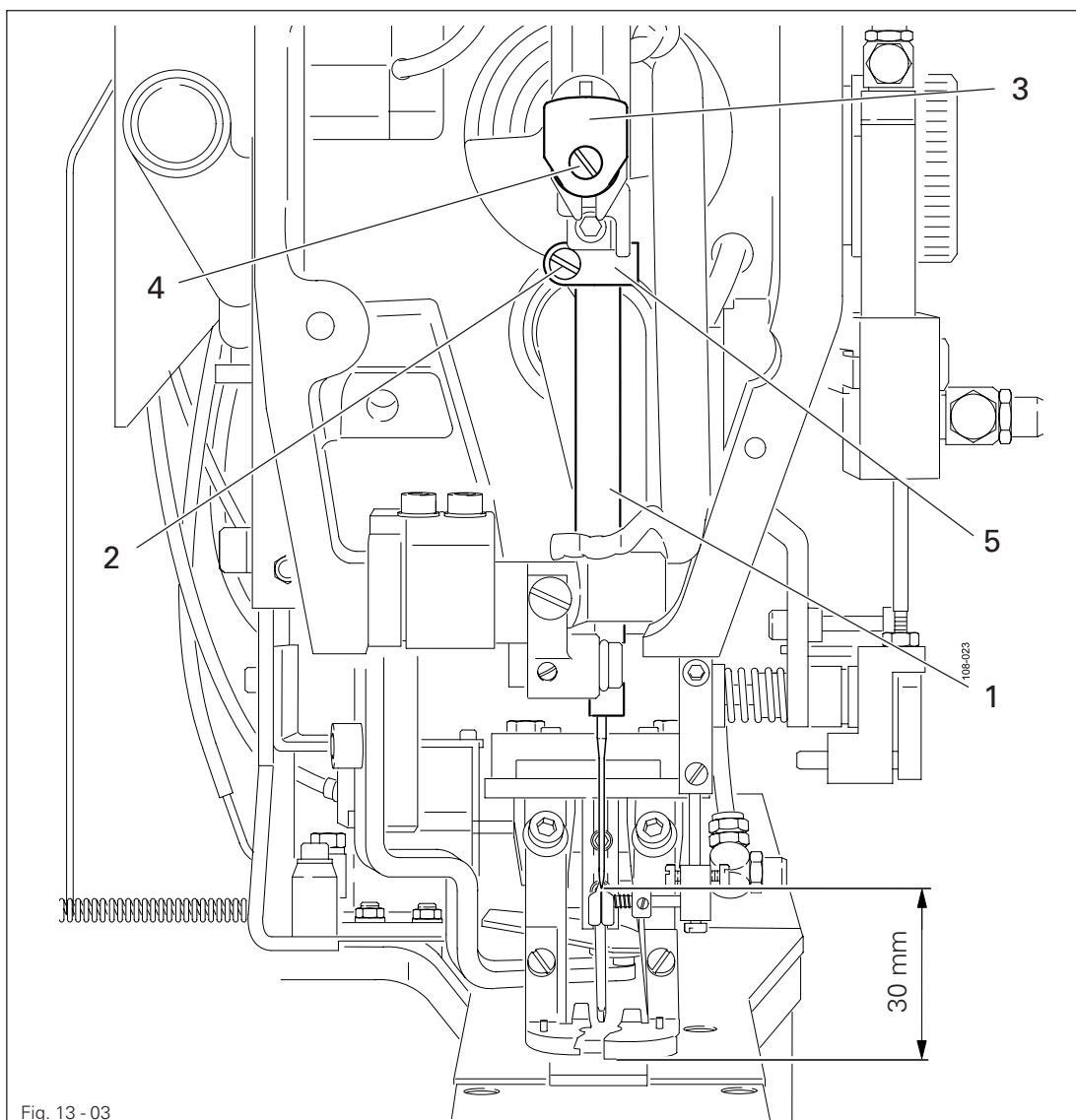


This setting can change again by ± 3 increments after checking.

13.06 Pre-adjusting the needle height

Requirement

1. When the needle bar is at its t.d.c., there should be a distance of **30 mm** between the needle point and the needle plate.
2. The thread puller **3** should be touching clamp **5** and be positioned in the centre of the face plate cutout.



- Adjust needle bar **1** (screw **2**) and thread puller **3** (screw **4**) in accordance with the requirements.

13.07 Position of the needle to the needle hole

Requirement

When the needle bar is at its b.d.c., in the lengthwise direction of the arm the needle should be positioned in the centre of the needle hole.

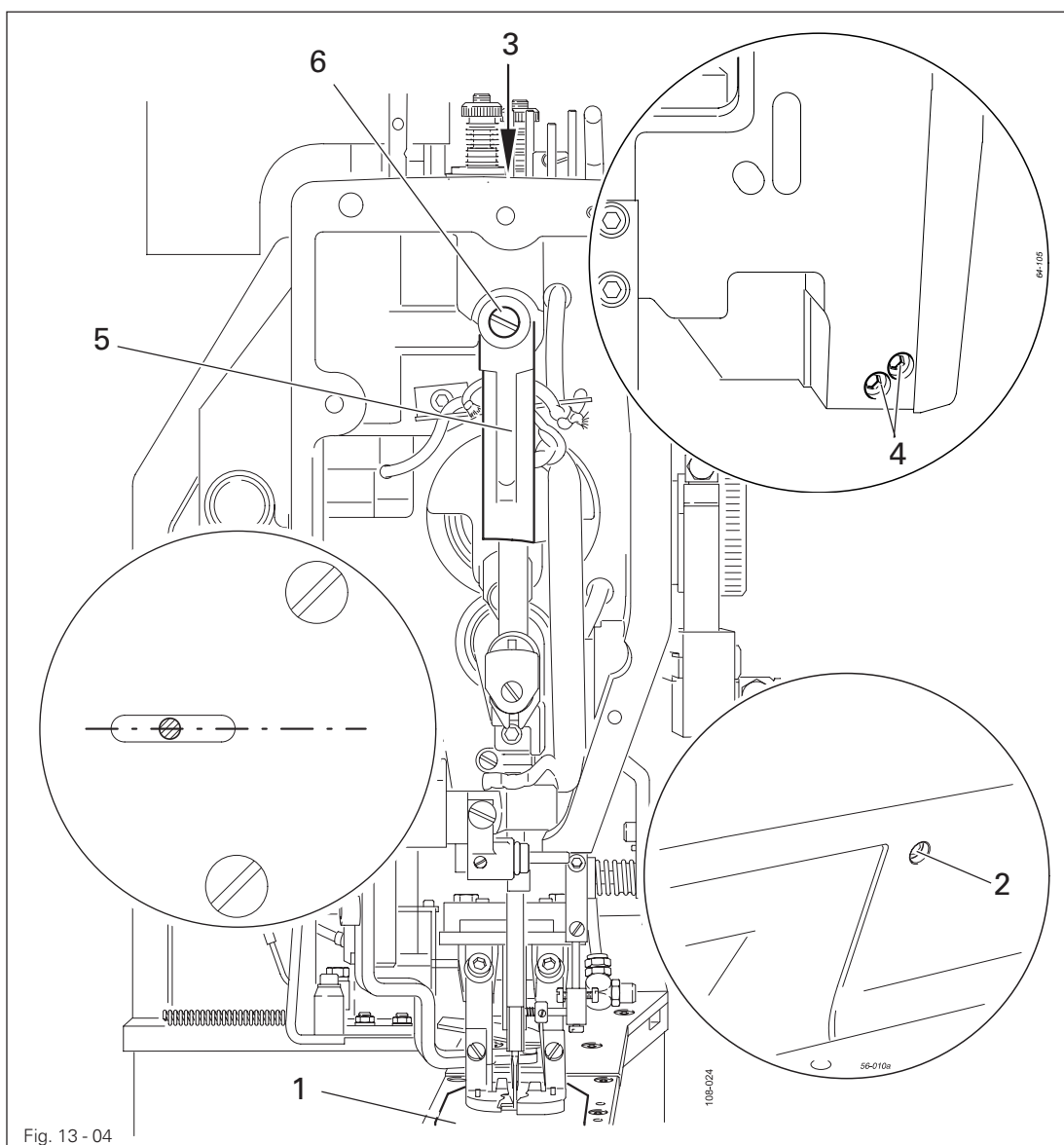
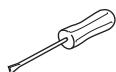


Fig. 13 - 04



- Switch on the machine and set parameter "610" at value "1".
- Unscrew cloth plate 1.
- Loosen screws 2, 3 and 4.
- With the balance wheel set the needle bar at its b.d.c.
- Align pendulum 5 in accordance with the **requirement**.
- Tighten screws 4.
- By moving the needle bar, make sure that pin 6 is not jammed and tighten screw 3.
- Switch off the machine.

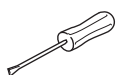
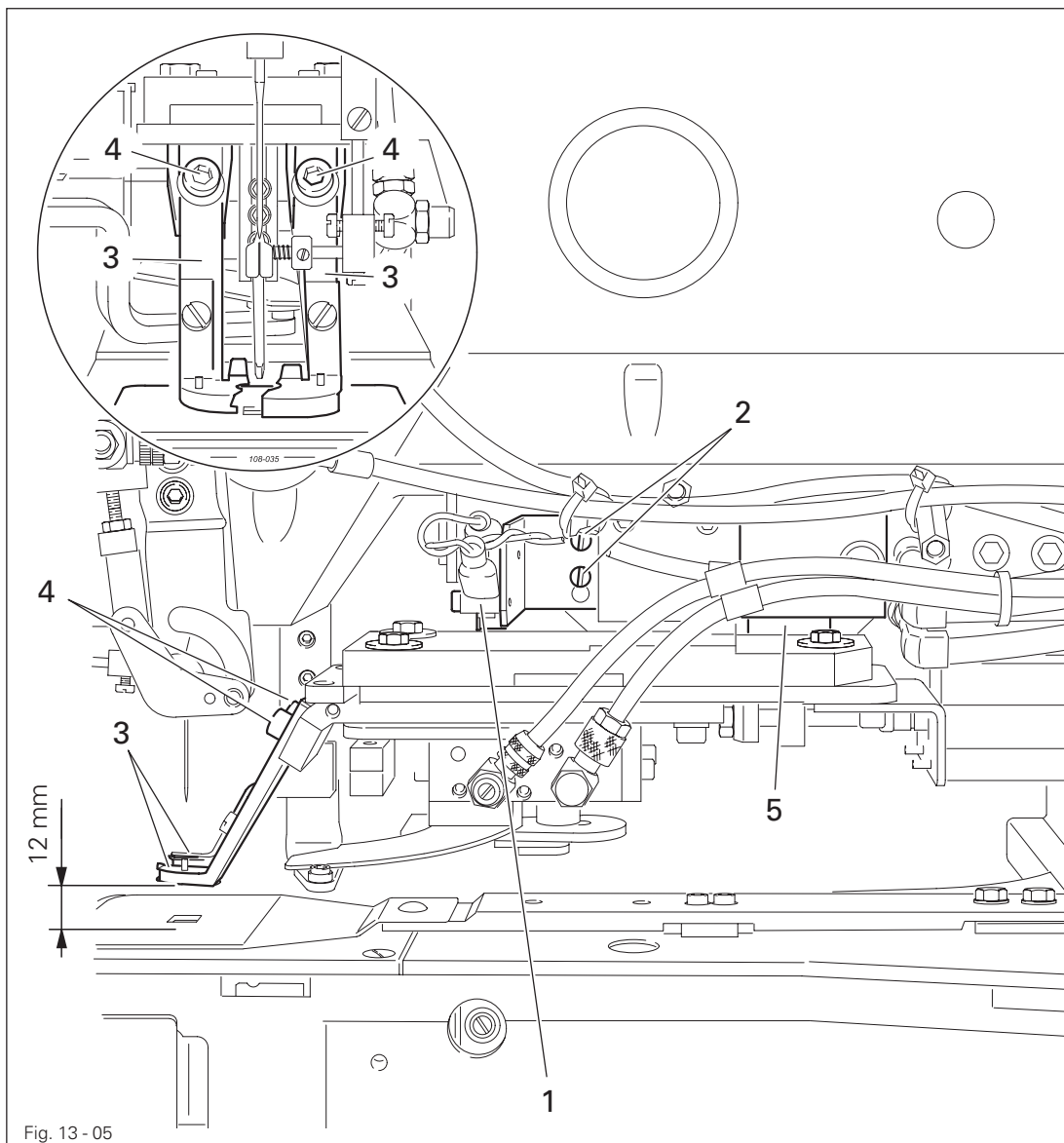


Screw 2 remains loosened for further adjustments.

13.08 Basic setting of the button clamp

Requirement

1. When the button clamp is raised, switch 1 should be operated reliably and the distance of the clamp jaws 3 to the needle plate should be 12 mm.
2. When the button clamp is lowered, the clamp jaws 3 should be resting parallel on the needle plate.



- Adjust switch 1 (screws 2) and clamp jaws 3 (screws 4) in accordance with **requirement 1**.
- Connect the machine to the pneumatic system.
- Switch on the machine and lower the button clamp.
- Align clamp jaws 3 (screws 4) in accordance with **requirement 2**.
- Switch off the machine and disconnect it from the pneumatic system.



Ring 5 is used to limit the clamp stroke and must not be removed!

13.09

Sensor board of the needle drive (in dismantled condition)

Requirement

1. When parameter "610" is set at "1", the recess in eccentric 1 should match the locking hole in the mounting bracket.
2. The switch lug of eccentric 1 should be axially centred to the hybrid light barrier of the sensor board.

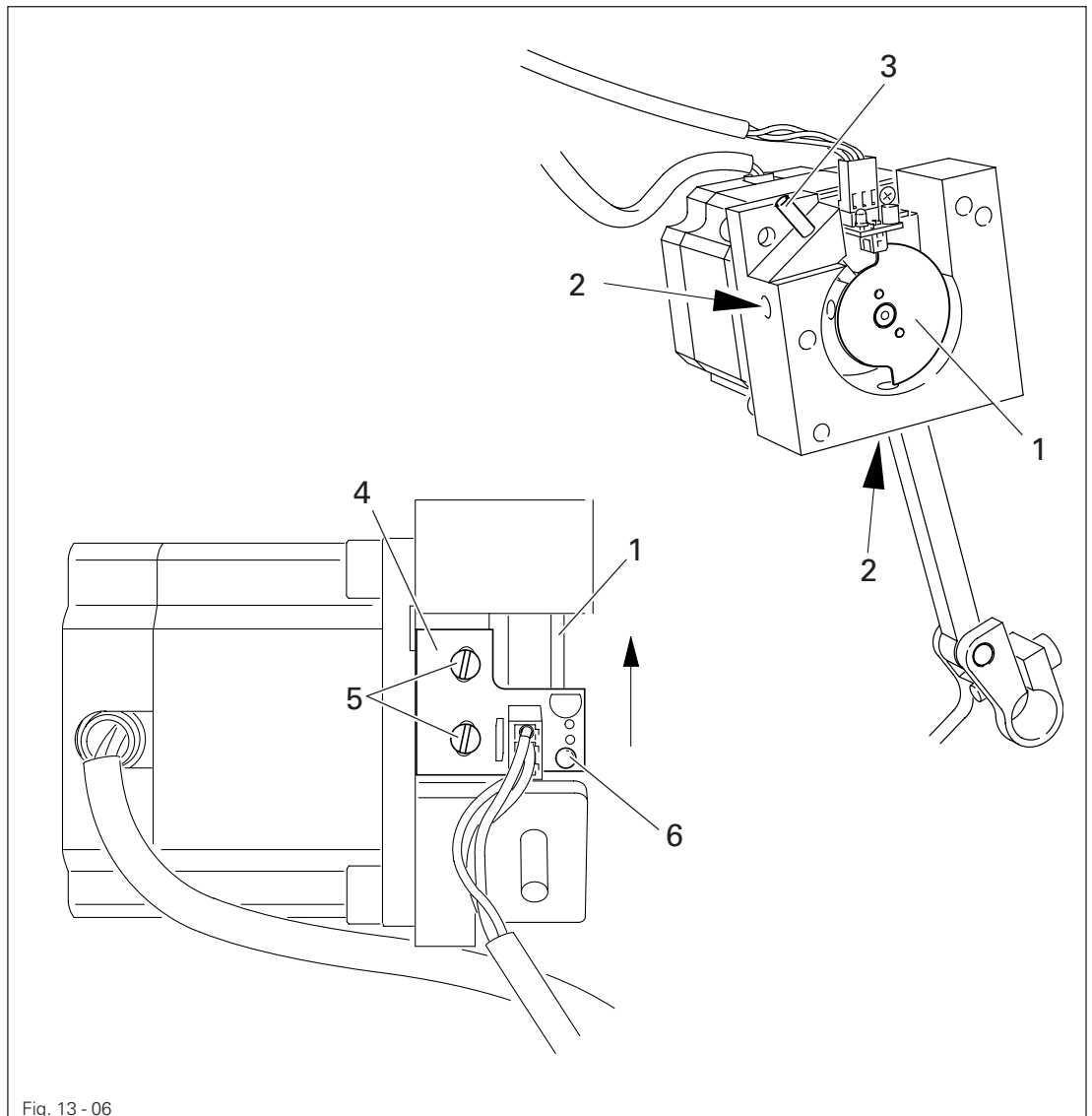


Fig. 13 - 06



To change the sensor board, it is imperative to observe the following work steps!



Electric voltage!
Danger of an electric shock if handled incorrectly!

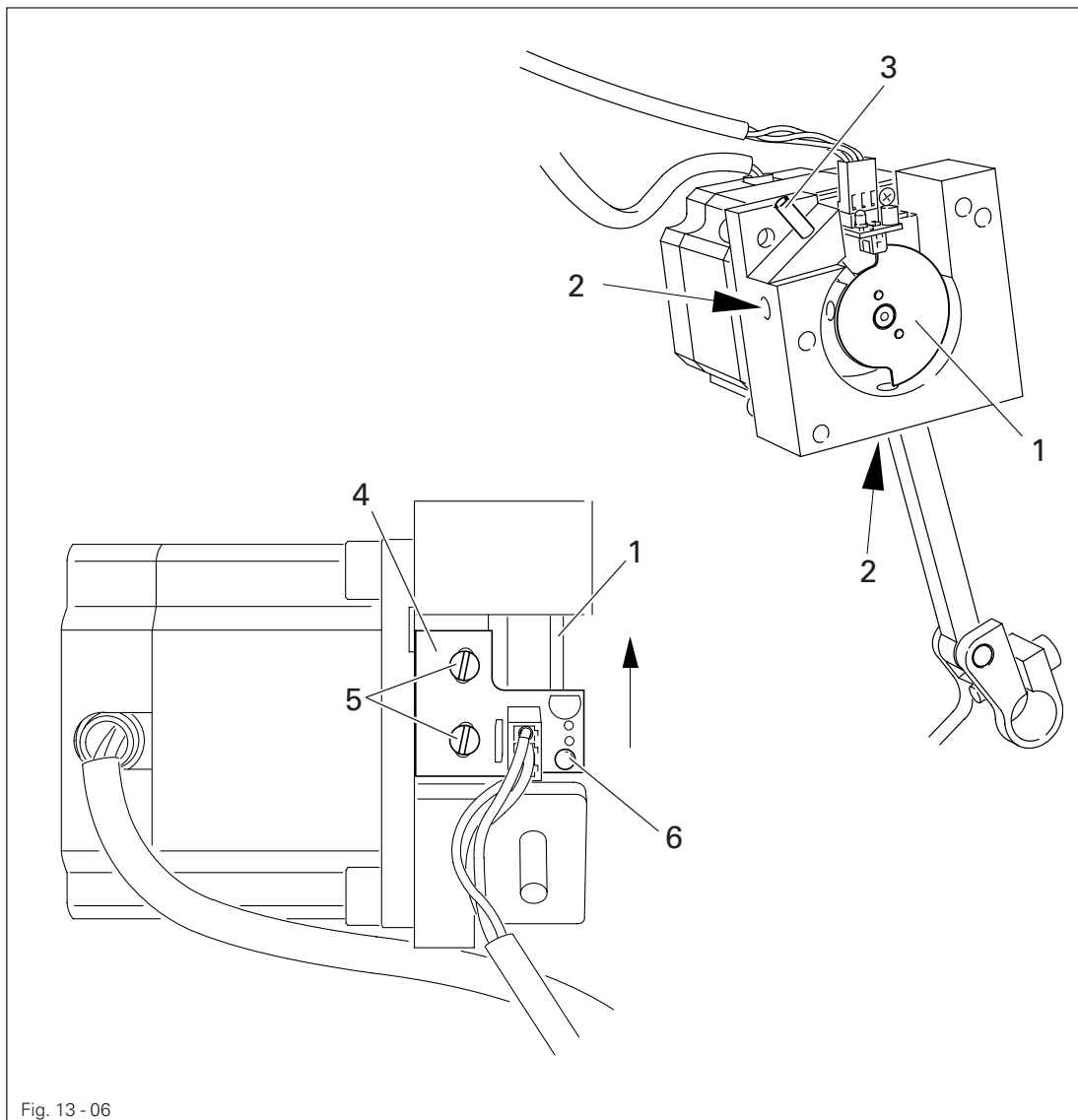
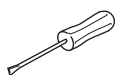


Fig. 13 - 06



- Completely remove the needle drive unit (plugs remain connected).
- Loosen screws 2.
- Lock eccentric 1 by placing the locking pin 3 (part no. 13-030 272-05) in the locking hole of the mounting bracket.
- Switch on the machine and wait until the stepping motor has stopped running (ignore error message on the control panel).
- Set parameter "610" at "1" (see **Chapter 13.36.01 Selecting and changing parameters**).
- Making sure that it is touching the rear wall, move board 4 (screw 5) in the direction of the arrow, until LED 6 lights up and move it back until LED 6 has just extinguished.
- Move eccentric 1 in accordance with **requirement 2** and tighten screws 2.
- Switch off the machine.
- Remove locking pin 3.
- Switch on the machine and check the needle drive unit in accordance with **requirement 1**.
- Switch off the machine.
- Install needle drive unit and adjust it in accordance with **Chapter 13.10 Basic setting of the needle drive**.

13.10 Basic setting of the needle drive

Requirement

With the needle bar at its b.d.c. and with eccentric **2** locked, in the crosswise direction of the arm the needle should be in the centre of the needle hole.

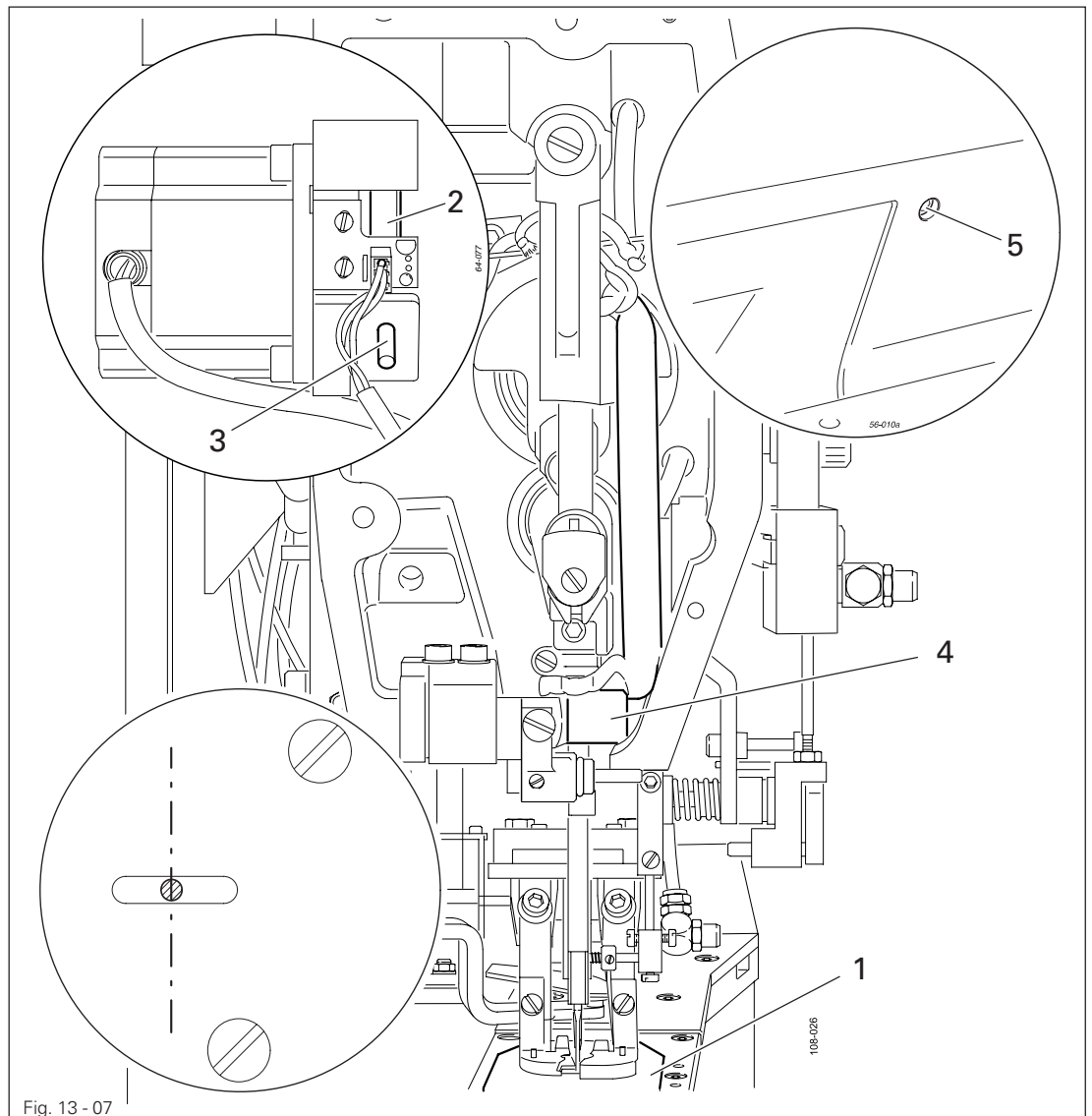
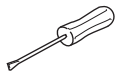


Fig. 13 - 07



- Switch on the machine and set parameter "610" at "1".
- Unscrew cloth plate **1**.
- Using the balance wheel, set the needle bar at its b.d.c. and lock eccentric **2** (locking pin **3**, part no. 13-030 272-05).
- Adjust the needle bar frame **4** (screw **5**) in accordance with the **requirement**.
- Remove locking pin **3**.

13.11 Position of the hook shaft to the needle

Requirement

When parameter "610" is set at "1", the hook shaft should be centred to the needle.

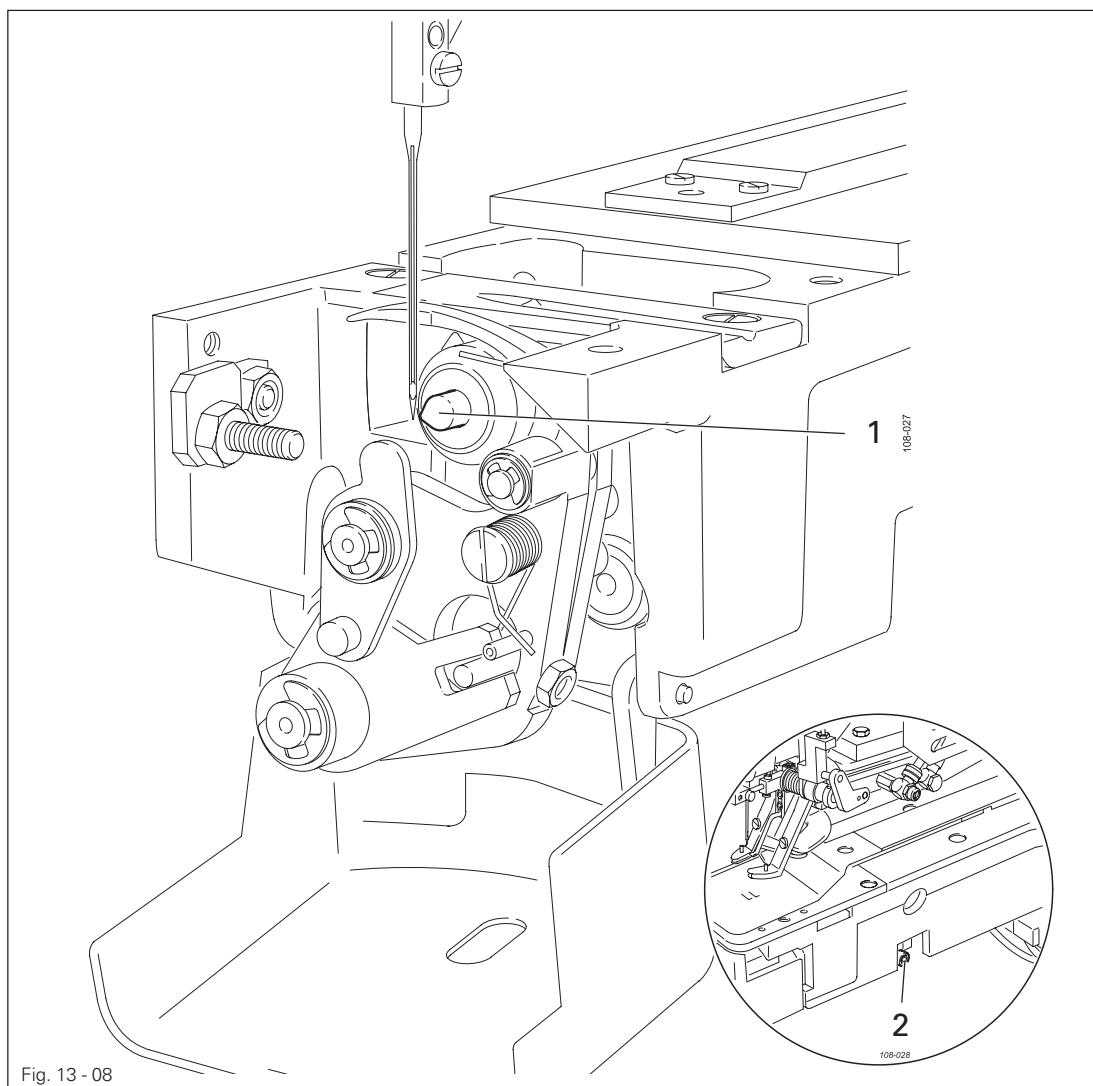
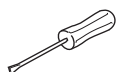


Fig. 13 - 08



- Remove needle plate and cloth plate.
- Remove hook and fit hook gauge 1 (part no. 61-111 637-03).
- Loosen screw 2.
- Switch on the machine and set the parameter "610" at "1".
- Using the balance wheel, set the needle bar at its b.d.c. and set the hook gauge 1 at the centre of the needle.
- Tighten screw 2.
- Switch off the machine and remove hook gauge 1.



The needle plate and cloth plate as well as the hook remain dismantled for further adjustments.

13.12 Adjusting the drag link mechanism

Requirement

When the needle bar is at t.d.c.

1. The milled slot in shaft **3** should be in alignment with the milled slot of the cast iron bracket **7**.
2. The milled slot of crank **4** should be in alignment with the front edge of driving crank **6**.

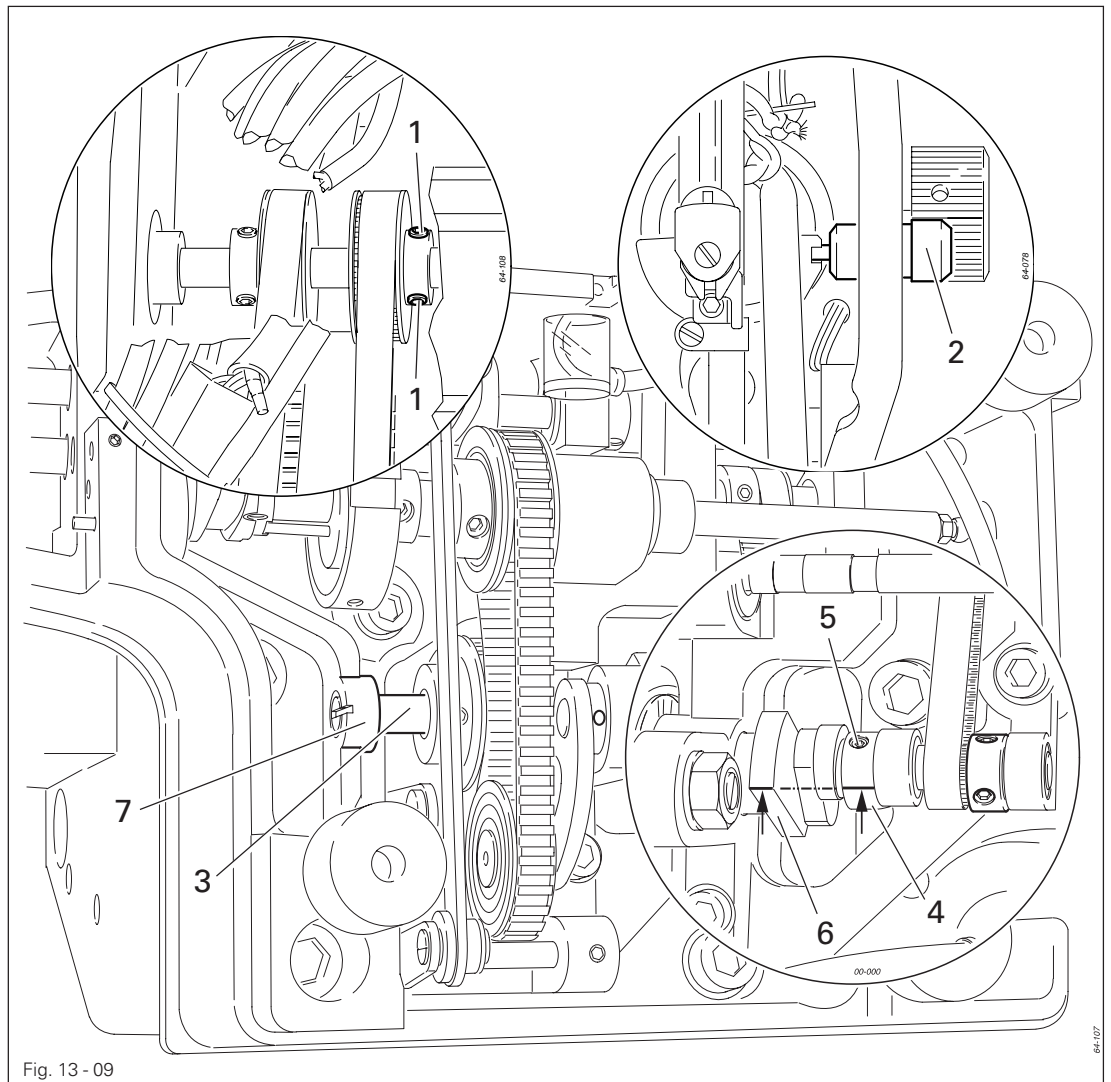
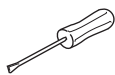


Fig. 13 - 09



- Loosen screw **1** on the arm shaft.
- Using the balance wheel, set the needle bar at t.d.c. and lock it with locking pin **2**.
- Adjust shaft **3** in accordance with **requirement 1** with the aid of the needle rise gauge (2.4 mm).
- Tighten screws **1**.
- Turn crank **4** (screws **5**) in accordance with **requirement 2**.
- Remove locking pin **1**.



If the position described in **requirement 2** is not reached, driving crank **6** must be installed accordingly.

13.13 Needle rise and hook clearance

Requirement

When the needle bar is positioned 2.4 after b.d.c. and parameter "610" is set at "1", the point of hook 1 should be positioned at "needle centre" and be at a distance of 0.1 mm from the needle.

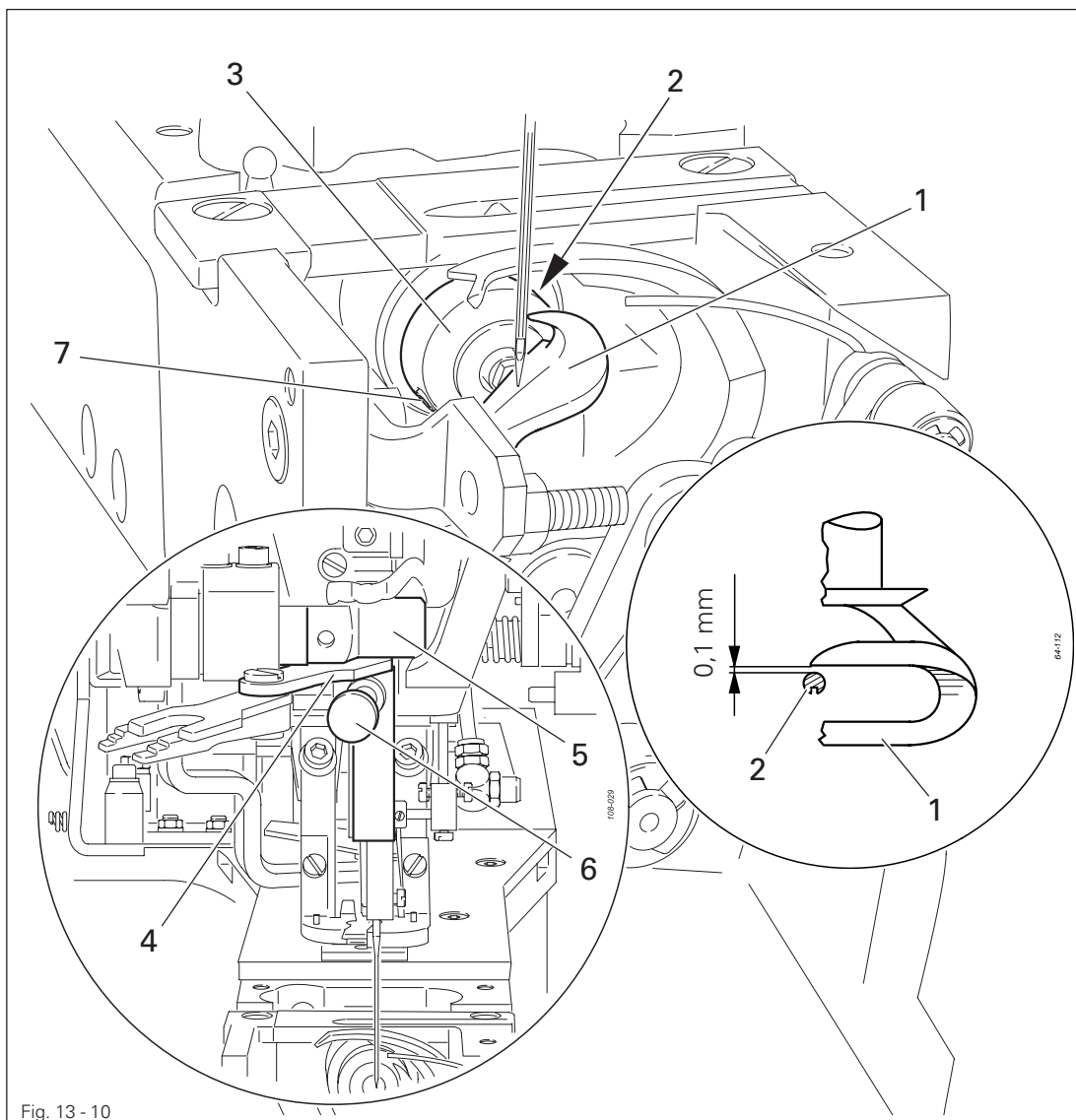
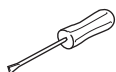


Fig. 13 - 10



- Dismount thread brake.
- Insert hook 1 so that screw 2 of collar 3 is on the surface of the hook shaft.
- Slightly tighten screw 2.
- Switch on the machine and set parameter "610" at "1".
- Turn the balance wheel in the direction of sewing until the needle bar is in its bottom stroke.
- Fit needle rise gauge 4 (2.4 mm) to needle bar frame 5 and fasten with C-clamp 6.
- Remove the needle rise gauge 4.
- Turn the balance wheel in the direction of sewing until C-clamp 6 is touching the needle bar bearing 5.

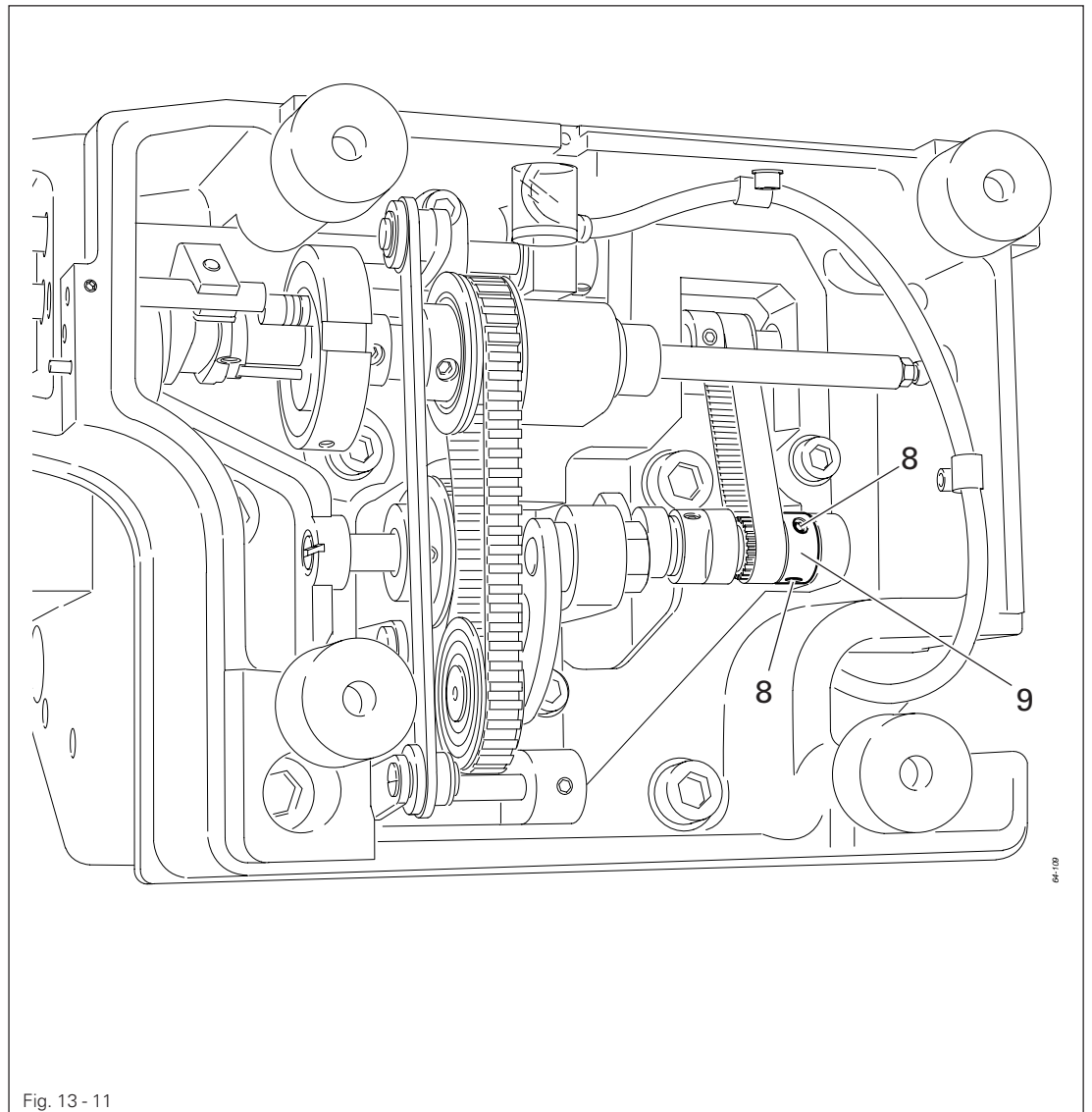
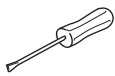


Fig. 13 - 11



- Adjust hook 1 (screws 2 and 7) in accordance with the requirement.
- Remove C-clamp 6.
- Fit thread brake.



If the adjustment possibilities on the hook are insufficient, a greater correction can be made with the hook shaft mechanism.

Loosen screws 8 and turn toothed belt wheel 9 or the hook shaft accordingly.

13.14 Readjusting the needle height

Requirement

1. When parameter "610" is set at "2" and the hook point is centred to the needle, the top edge of the needle eye should be **0.5 mm** below the bottom edge of the hook point.
2. Thread puller **3** should be touching clamp **5** and be positioned in the centre of the face plate recess.

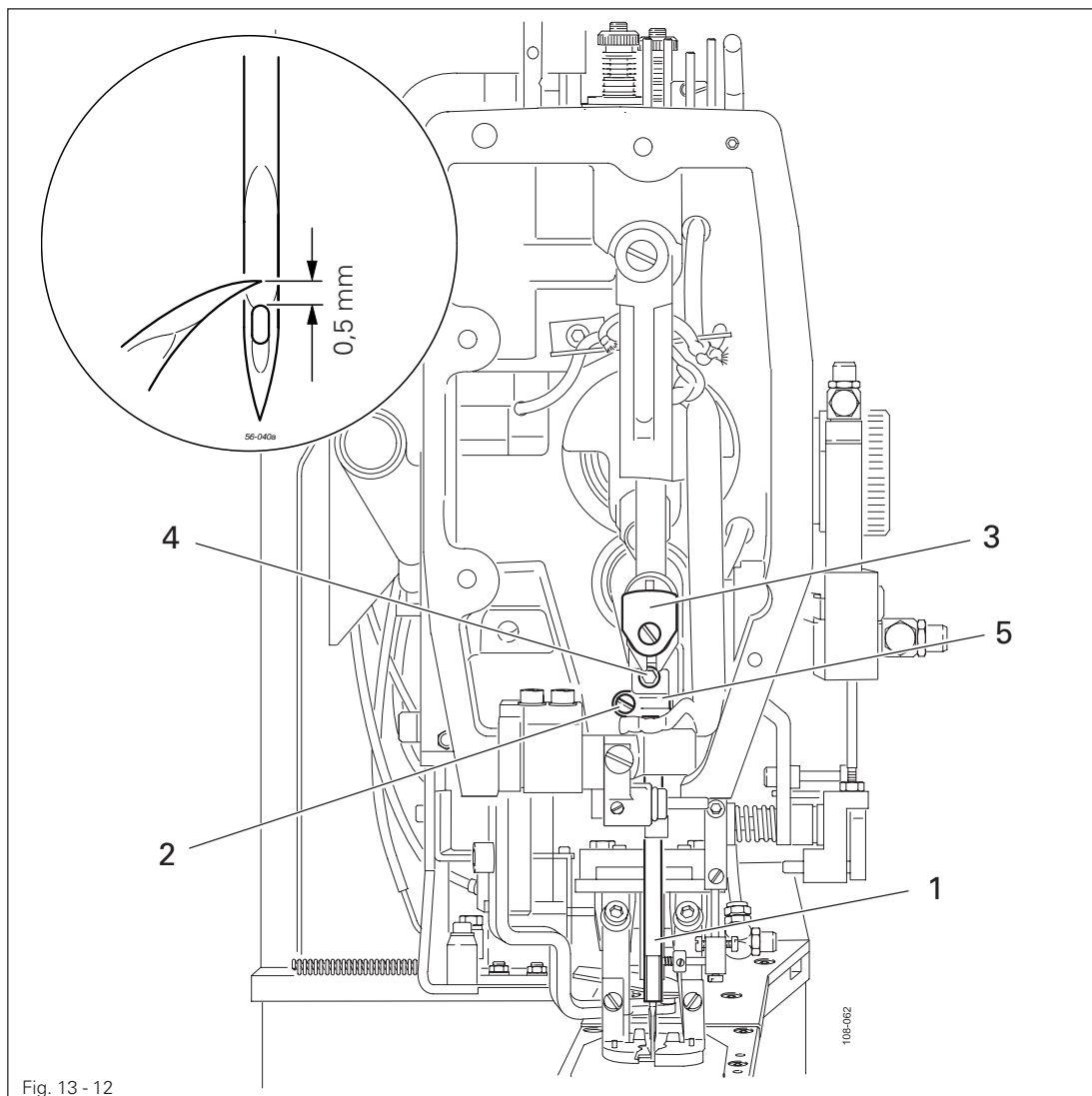
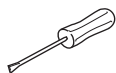


Fig. 13 - 12



- Switch on the machine and set parameter "610" at "2".
- Turn the balance wheel in the direction of sewing until the needle bar is at its bottom stroke.
- Set the hook point to the centre of the needle by continuing to turn the balance wheel.
- Adjust needle bar **1** (screw **2**) and thread puller **3** (screw **4**) in accordance with the requirements.
- Switch off the machine.



When checking the left needle entry position (parameter "610" at value "3"), the distance between the top edge of the needle eye and the lower edge of the hook point is greater.

13.15 Adjusting the loop spreader

Requirement

1. When the needle bar is positioned at t.d.c., the milled slot in control cam 4 should be at the bottom.
2. In the needle rise position, loop spreader 7 should begin its reverse movement.
3. When the needle is descending (in the direction of sewing) loop spreader 7 should be at its bottom left stroke, when the needle has reached the top edge of the needle plate.

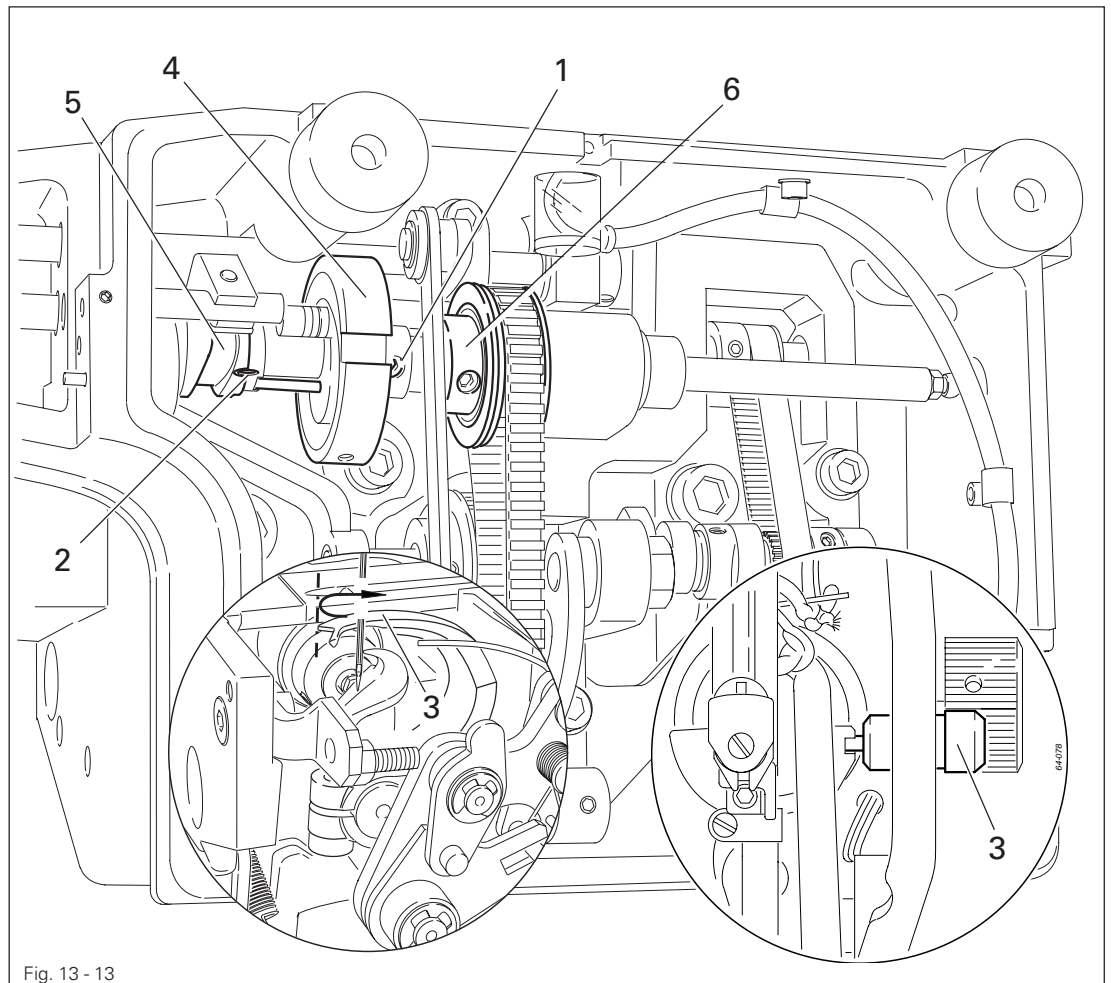
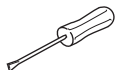


Fig. 13 - 13



- Loosen screws 1 and 2.
- With the balance wheel set the needle bar at its t.d.c. and lock it with locking pin 3.
- Adjust control cam 4 together with control cam 5 in accordance with **requirement 1**.
- Move control cam 4 together with control cam 5 to touch drive wheel 6 and tighten screws 1 and 2.
- Remove locking pin 3.
- Carry out a check in accordance with **requirements 2 and 3**.

13.16 Position of the loop spreader to the needle

Requirement

When the needle bar is positioned at b.d.c. and parameter "610" is set at "3"

1. There should be a distance of **2.4 mm** between the front edge of the loop spreader **1** and the needle.
2. There should be a distance of approx. **1.6 mm** between loop spreader **1** and the needle.

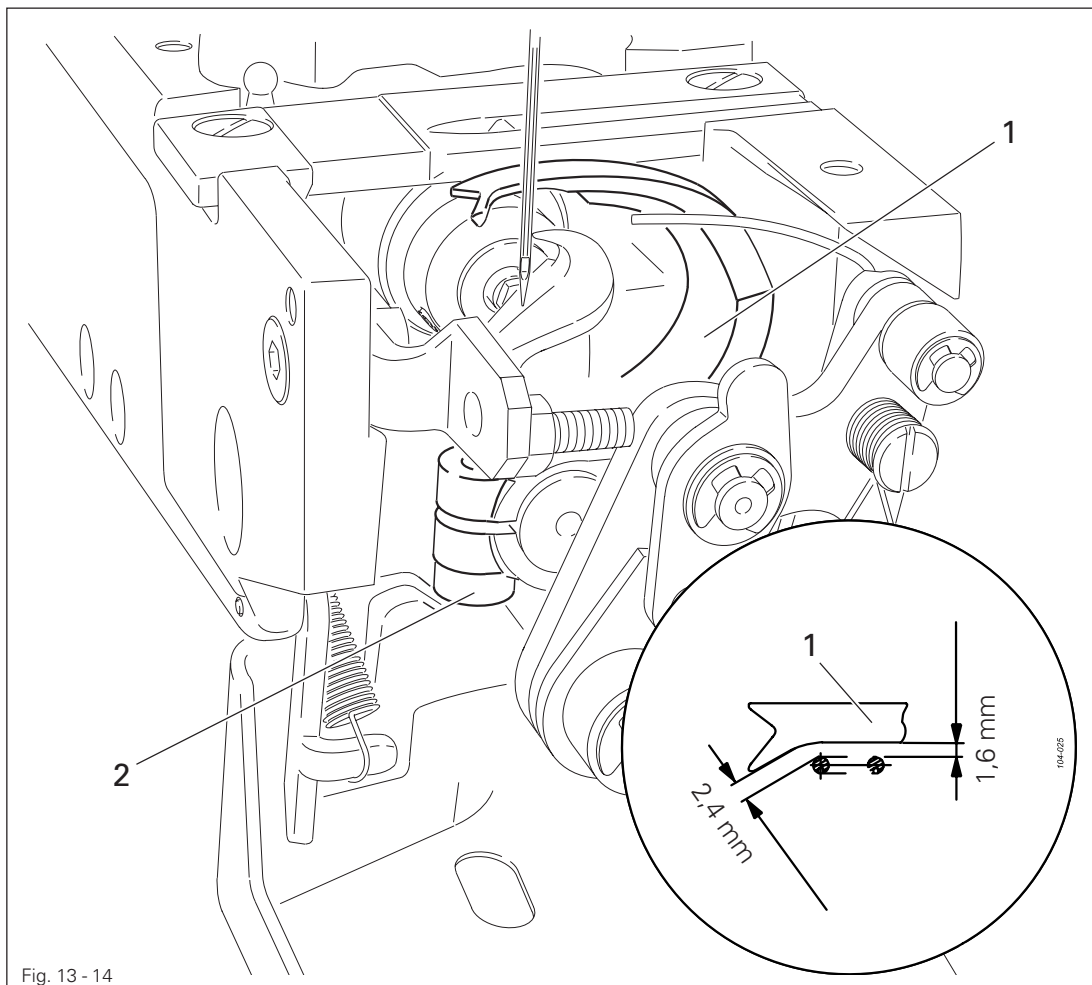
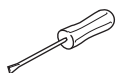


Fig. 13 - 14



- Switch on the machine and set parameter "610" at "3".
- Position the needle at its b.d.c. by turning the balance wheel.
- Adjust loop spreader **1** (screw **2**) in accordance with requirements **1** and **2**.
- Switch off the machine.

13.17 Adjusting the thread trimmer

Requirement

1. When extended the outer edges of pins 5 and 6 should be at a distance of 103 mm from each other.
2. When the thread trimmer is in its neutral position, the stationary knife 7 should be parallel to the edge of thread puller 8.
3. When the thread trimmer is in its cutting position, knife 9 should cut approx. 1 mm.

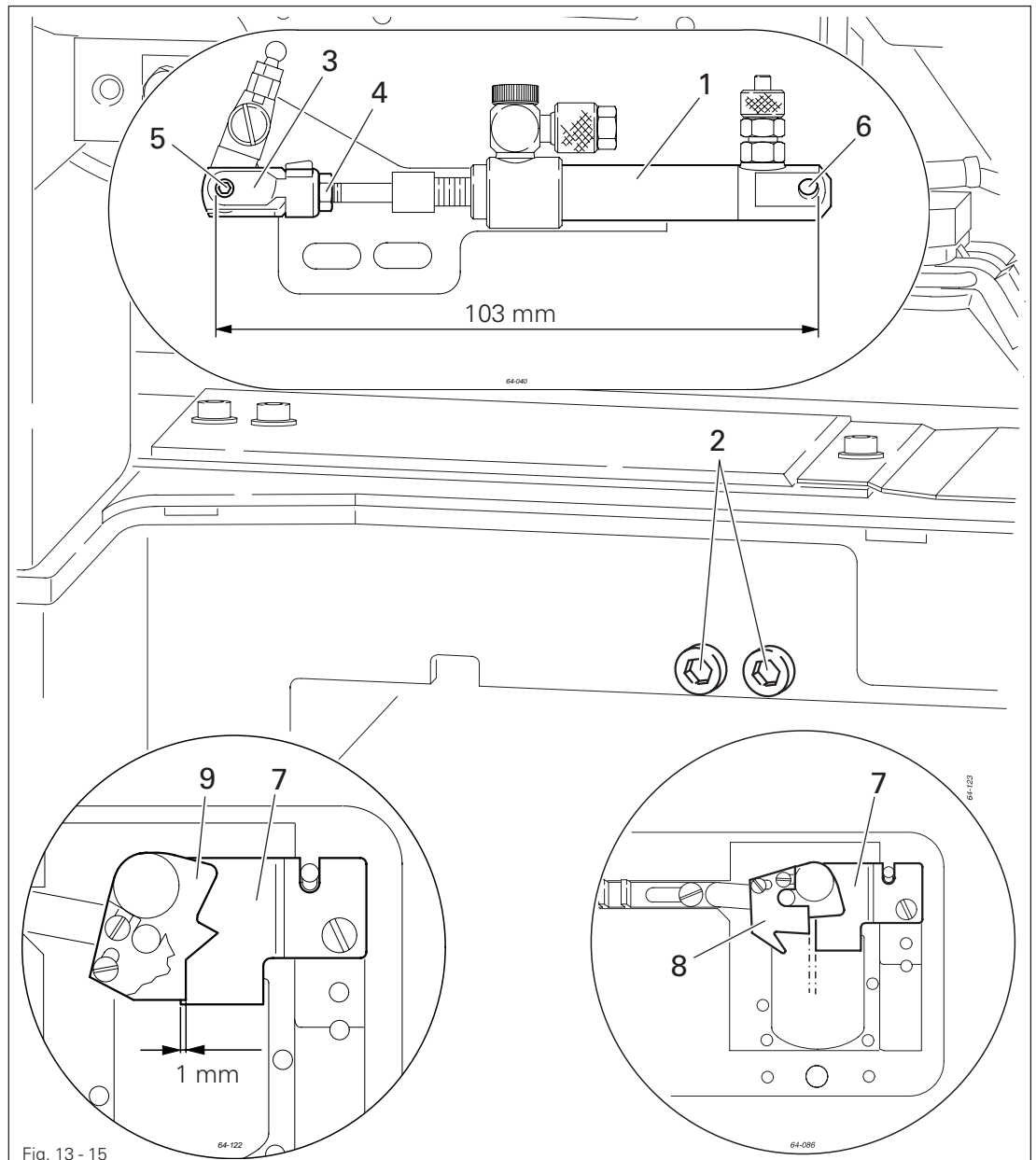
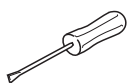


Fig. 13 - 15



- Remove cylinder 1 (screws 2).
- Adjust hinged section 3 (nut 4) in accordance with requirement 1.
- Install cylinder 1 (screws 2) and adjust in accordance with requirement 2 and 3.
- Carry out a functional test of the thread trimmer with parameter "603" (output 4).

13.18 Manual cutting test

Requirement

In a manual cutting operation the thread should be cut reliably.

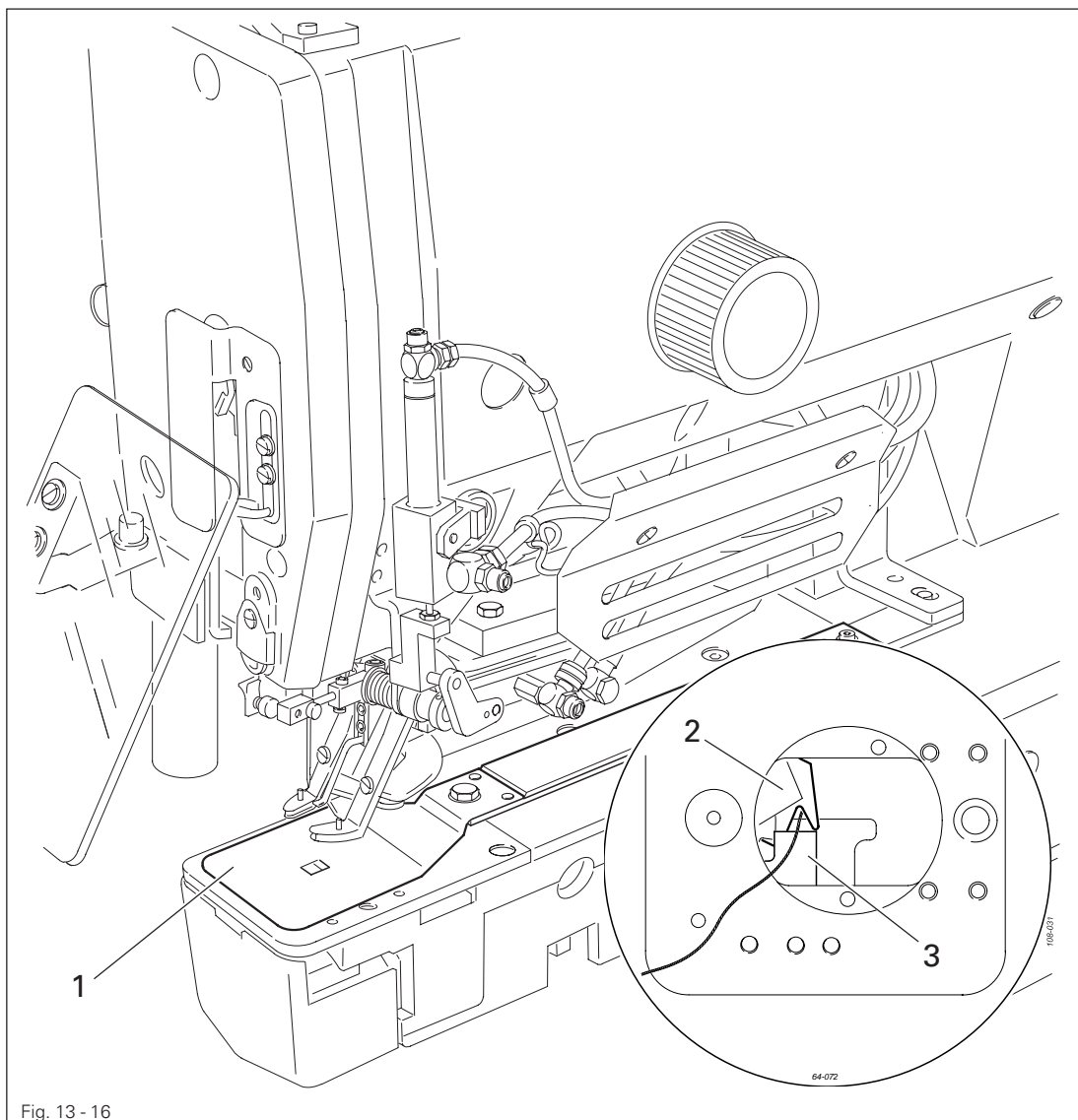
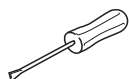


Fig. 13 - 16



- Dismount cloth plate 1 and needle plate insert.
- Place the thread between thread catcher 2 and knife 3.
- Disconnect the machine from the pneumatic power supply.
- Check the **requirement** by carrying out a manual cutting operation.
- Mount the needle plate, taking care to see that the spherical head of the cutting cylinder grips into the corresponding guide section of the needle plate.

13.19 Adjusting the thread catcher

Requirement

In the cutting position the hook **3** should be vertical and the thread catcher **1** should grip reliably in the stitch triangle.

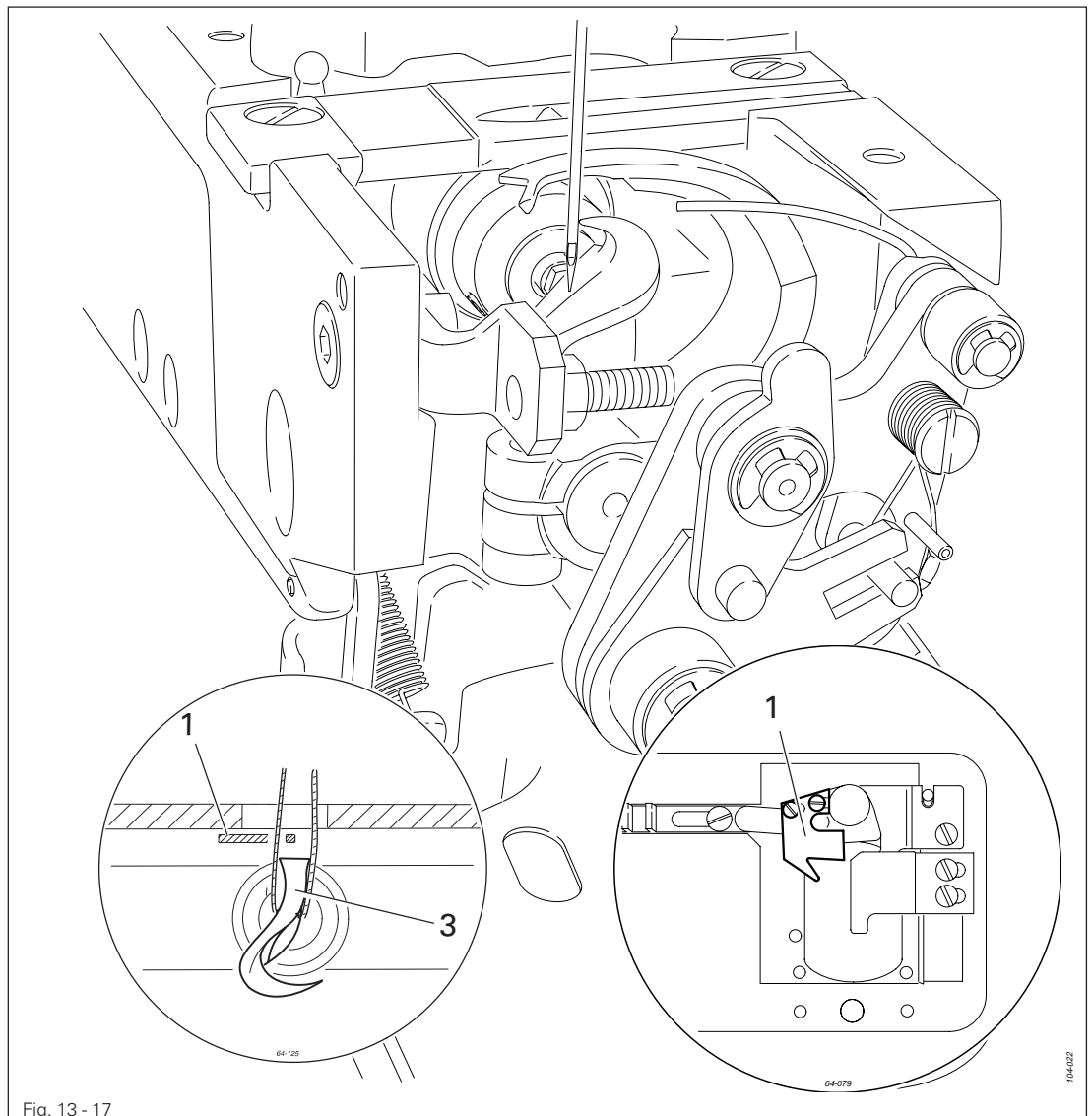
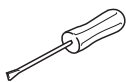


Fig. 13 - 17

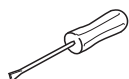
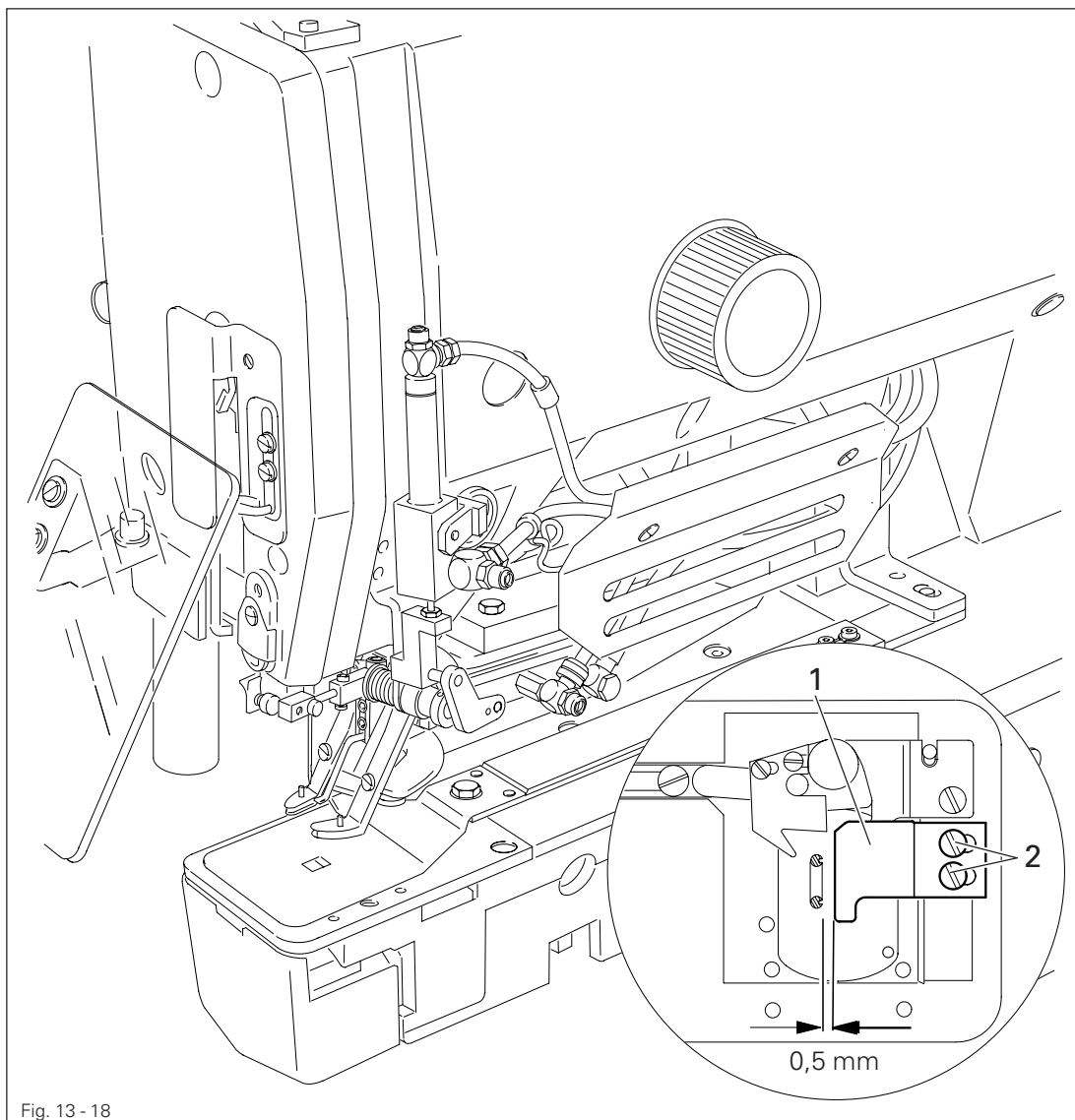


- Switch on the machine and set parameter "403" at the maximum value.
- Select the sewing mode and carry out a sewing operation.
- Switch the machine off in the cutting position at the on/off switch and disconnect it from the pneumatic power supply.
- Carry out the cutting operation manually, checking the **requirement** while doing so.
- If necessary, switch on the machine and with the parameters "614" and "615" set the thread catcher **1** in accordance with the **requirement**.
- If the hook **3** is not vertical in the cutting position, check the setting in accordance with **Chapter 13.05 Top needle bar position (reference position)**.
- Switch off the machine and check the cutting operation.
- Switch on the machine, reset parameter "402" to its initial value and switch off the machine.

13.20 Adjusting the thread loop support

Requirement

Both at the extreme right point of penetration and at the extreme left point of penetration the needle should be at a distance of **approx. 0.5 mm** from the thread loop support **1**.



- Switch on the machine and bring the needle into the relevant position (value "1, 2 or 3") with parameter "610".
- Adjust thread loop support **1** (screws **2**) in accordance with the **requirement**.
- Switch off the machine.



The thread loop support **1** is also used as a knife guard.

13.21 Basic position of the button clamp drive

Requirement

1. After the machine has been switched on, it should be possible to lock lever 2 with the needle rise gauge (2.4 mm).
2. Switch lug 5 should be positioned in the centre of the recess of the light barrier 3.

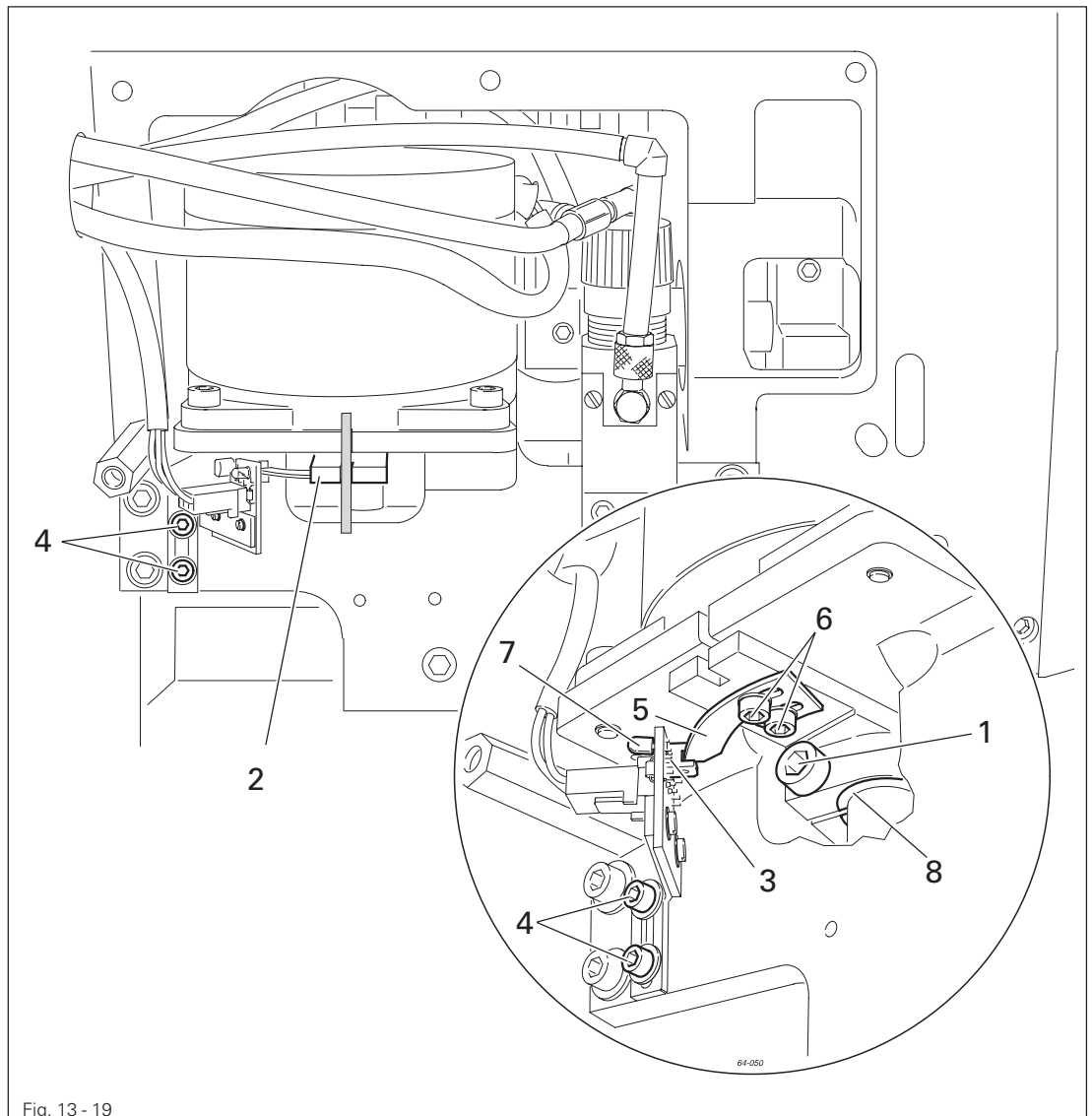
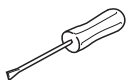


Fig. 13 - 19



- Loosen screw 1.
- Switch on the machine.
- Adjust lever 2 in accordance with **requirement 1** (lock with needle rise gauge).
- Tighten screw 1.
- Adjust light barrier 3 (screws 4) in accordance with **requirement 2**.
- With lever 2 locked, move the switch lug 5 (screws 6), until LED 7 lights up and then move it back again until LED 7 has just extinguished.
- Switch off the machine and remove the needle rise gauge.

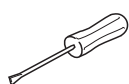
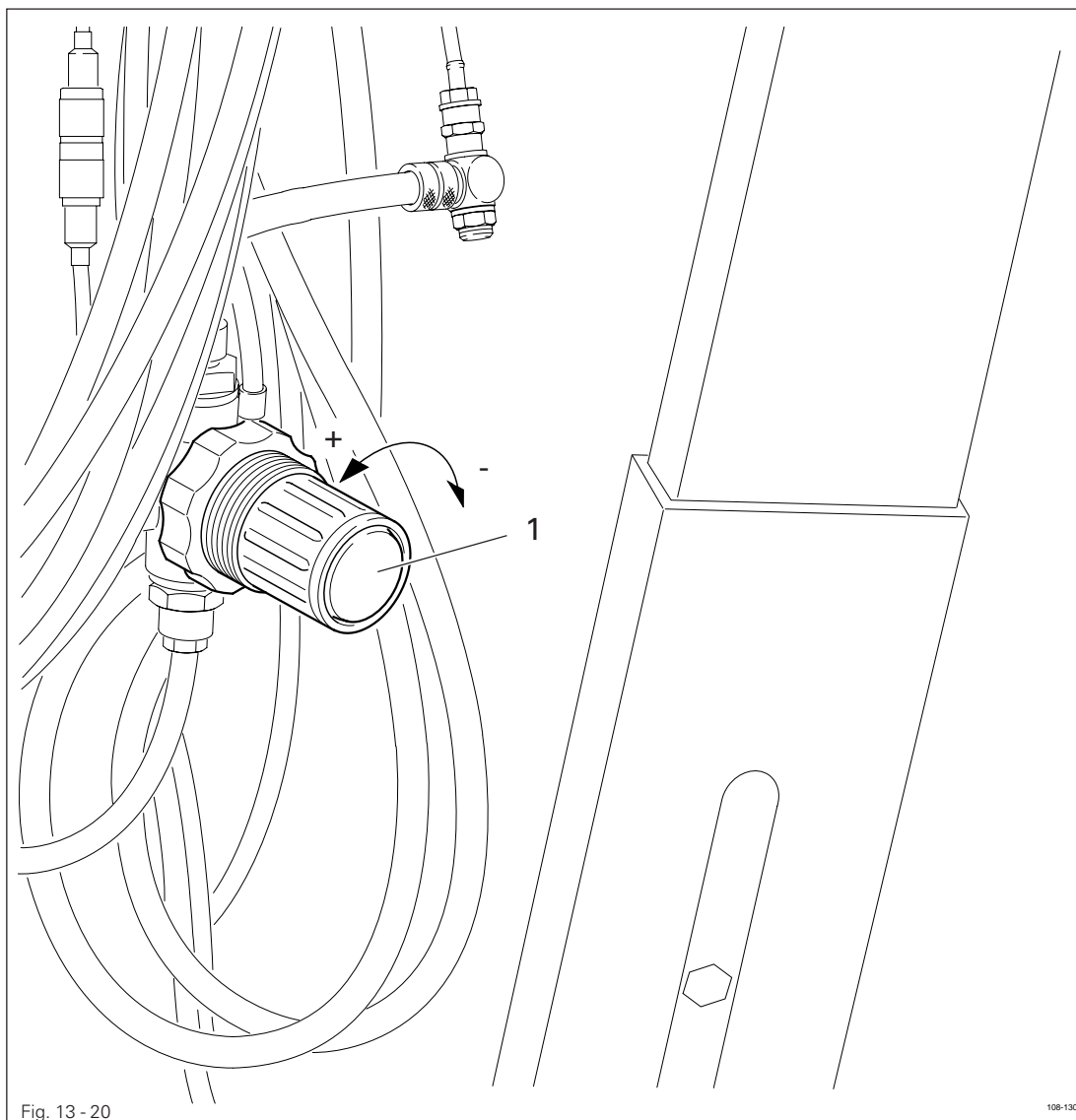


Spring clip 8 serves as an adjustment aid and should be touching lever 2. The open side of the spring clip 8 should be in alignment with the clamp groove of lever 2.

13.22 Adjusting the clamp pressure

Requirement

The clamp pressure is pre-set at 3 bar and may have to be adapted to the requirements.



- Connect the machine to the pneumatic system.
- Turn regulator 1 in accordance with the requirement.
- Disconnect the machine from the pneumatic system.



After adjusting the clamp pressure, the alignment of the button clamp must be checked and adjusted, if necessary, see Chapter 13.23 Aligning the button clamp.

13.23 Aligning the button clamp

Requirement

After selecting parameter "610", at the value "6" the needle should penetrate in the centre of the opening in adjustment gauge 1.

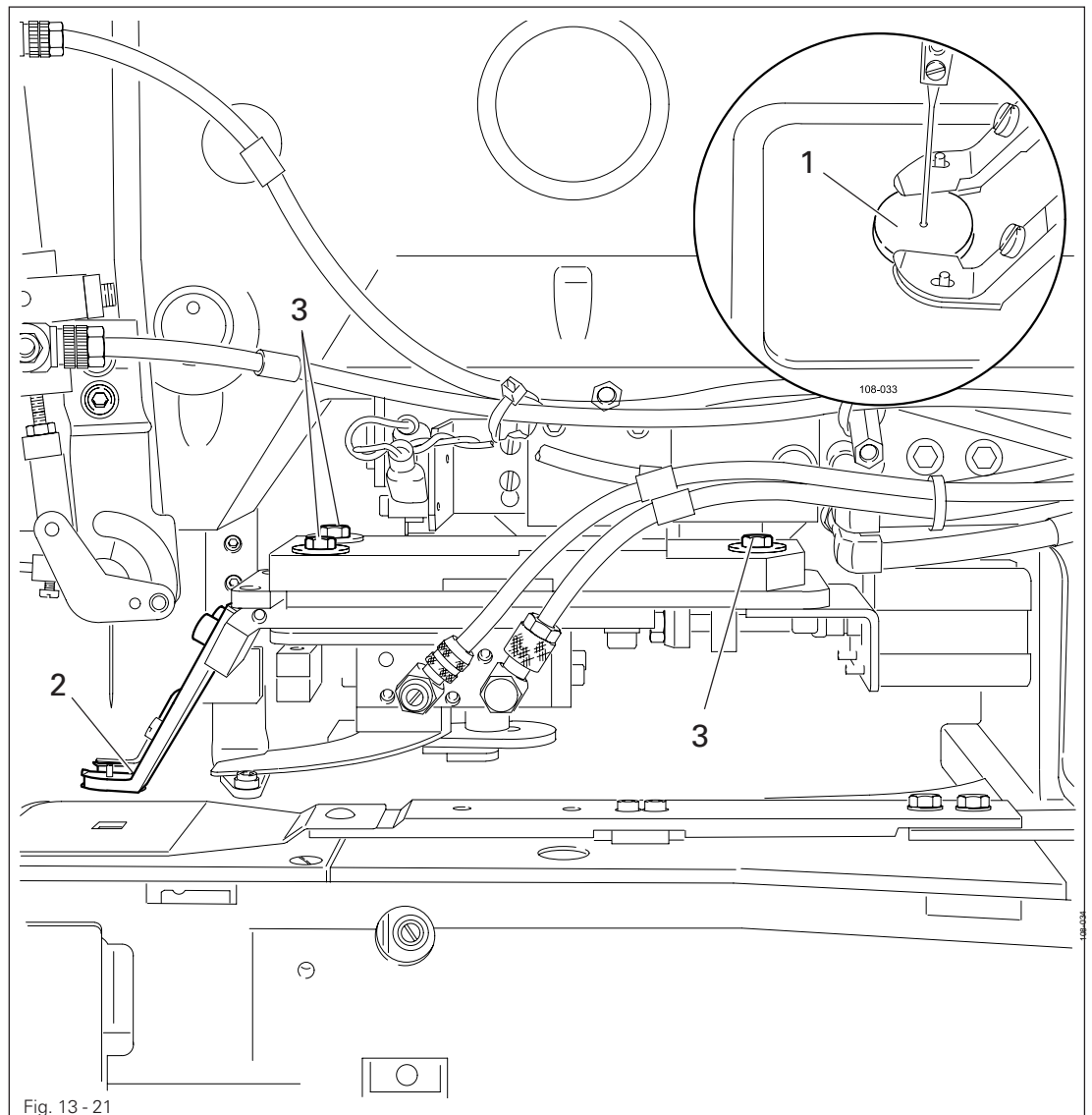
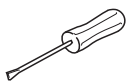


Fig. 13 - 21



- Switch on the machine and set parameter "112" at "off" (switch off stem finger).
- Set parameter "610" at value "4" (open button clamp).
- Using tweezers, insert adjustment gauge 1 (needle centre) and set parameter "610" at value "5" (close button clamp).
- Set parameter "610" at value "6" (lower button clamp).
- Adjust button clamp 2 (screws 3) in accordance with the **requirement**.
- Connect the machine to the pneumatic system and check the setting again.
- If necessary, correct the setting of button clamp 2 (screws 3).
- Set parameter "610" at value "1" and remove adjustment gauge 1.
- Switch off the machine and disconnect it from the pneumatic system.

13.24 Aligning the cloth plate

Requirement

When the machine is in its basic position, the cut-out of cloth plate 1 should be in the centre of the needle hole.

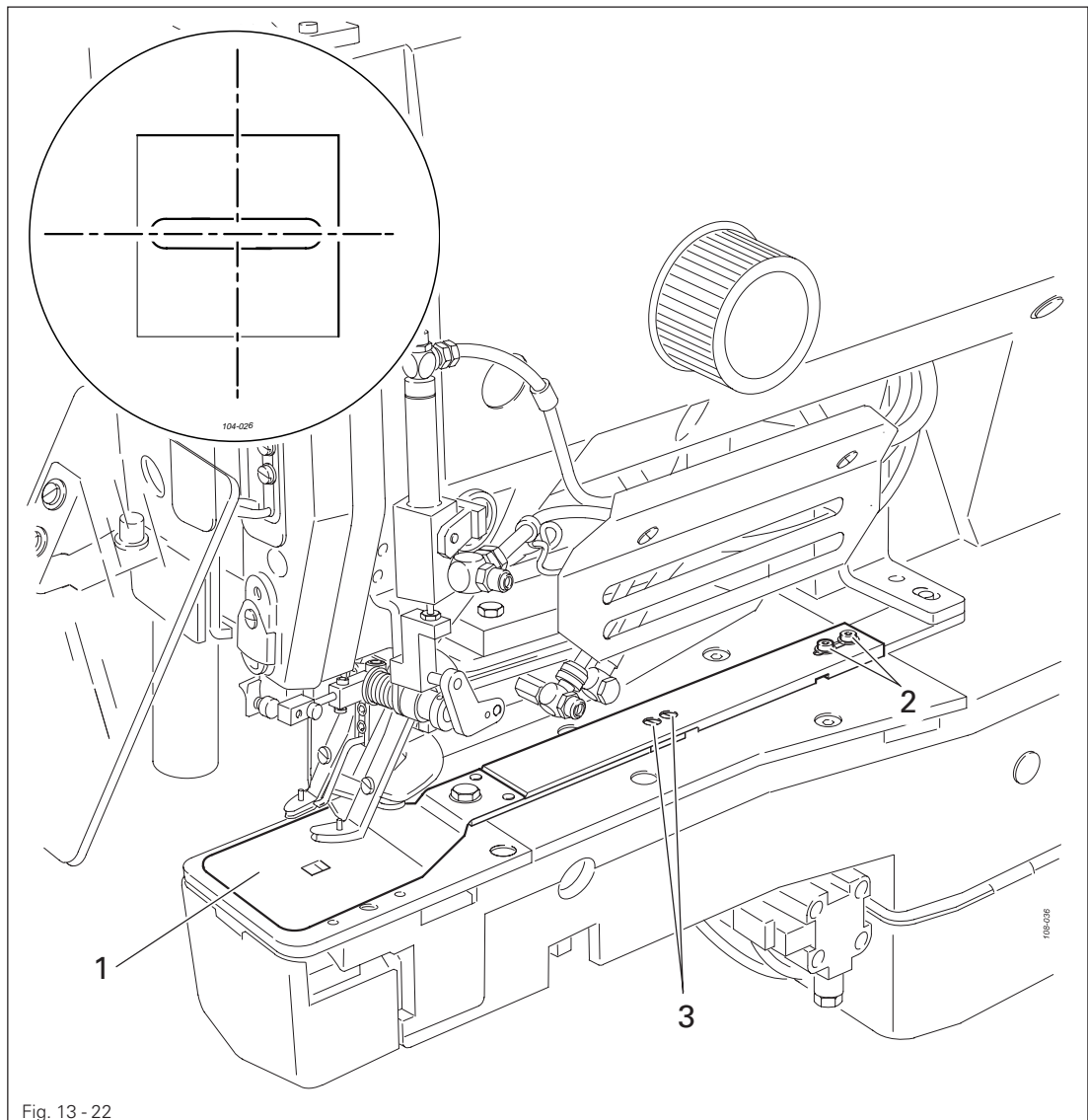
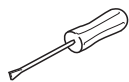


Fig. 13 - 22



- Switch on the machine.
- Align cloth plate 1 (screws 2) in accordance with the **requirement**.
- Switch off the machine.

13.25 Basic setting of the end knotting equipment

Requirement

Retaining finger 5 should be parallel to loop spreader 7.

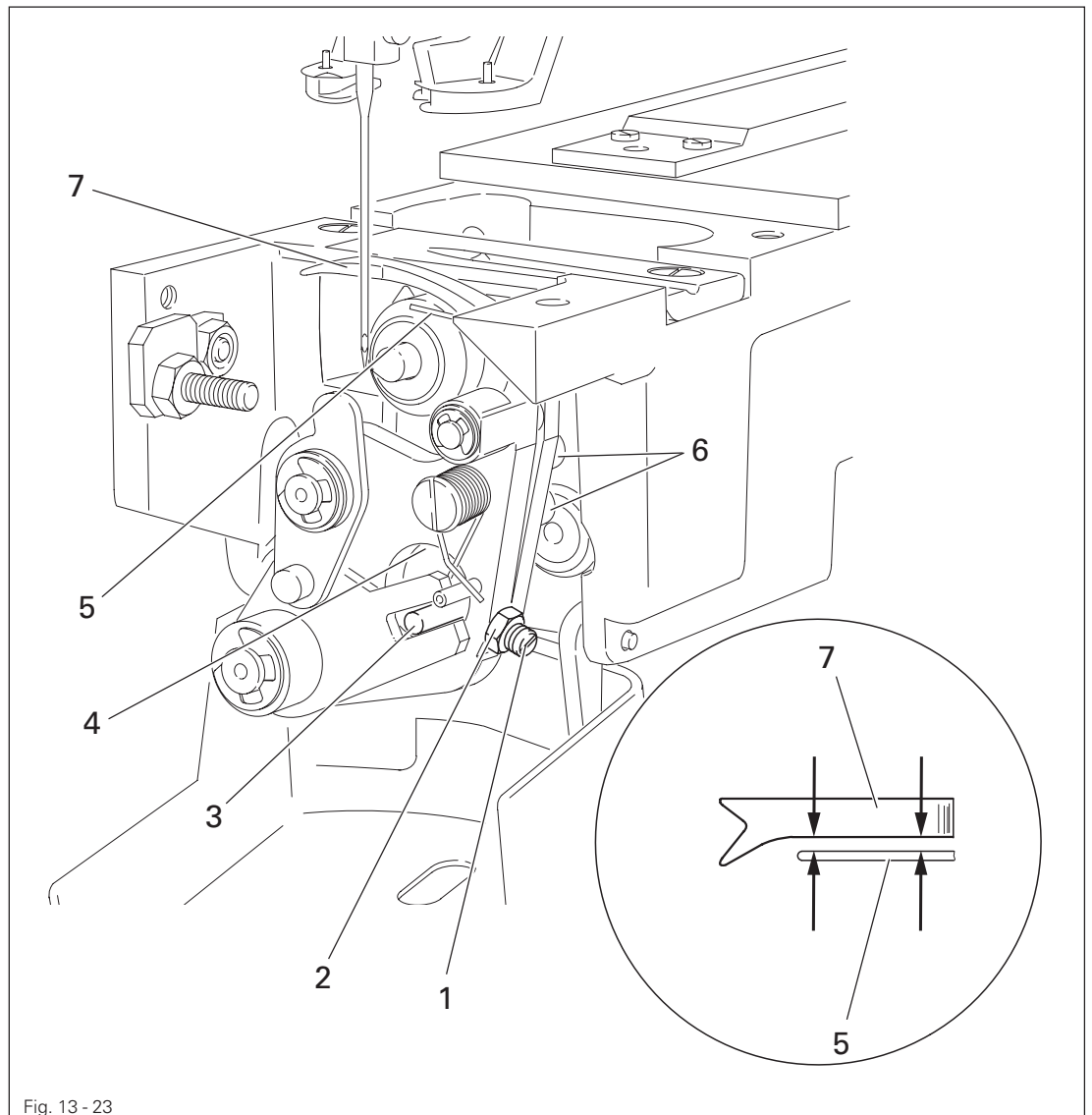
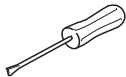


Fig. 13 - 23



- Dismount cloth plate and needle plate.
- First of all remove screw 1 (nut 2), until pin 3 is touching the wall of hole 4.
- Then turn screw 1 round once and fix with nut 2.
- Align retaining finger 5 (screws 6) in accordance with the **requirement**.

Requirement

When parameter "610" is set at "1" and the machine is in the needle rise position

1. The bottom edge of retaining finger 2 should be 0.5 mm above the hook point.
2. There should be a distance of 0.5 mm between retaining finger 2 and the needle.
3. There should be a distance of 6 mm between retaining finger 2 and the centre of the needle.

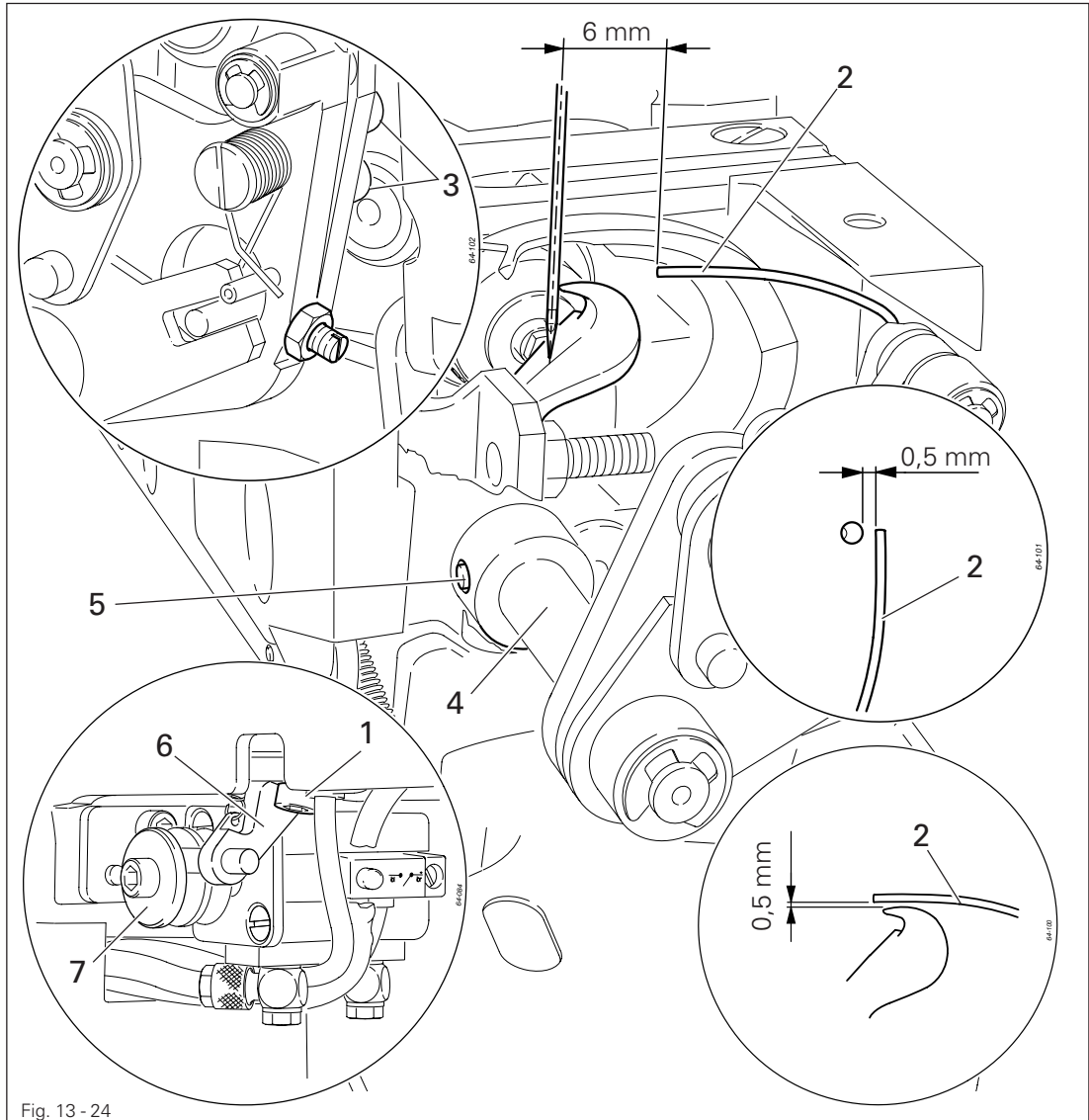
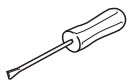


Fig. 13 - 24



- Switch on the machine and connect it to the pneumatic system.
- Set parameter "610" at value "1" and set needle rise position.
- Loosen screw 1.
- Adjust retaining finger 2 (screw 3) in accordance with requirement 1.
- Adjust shaft 4 (screw 5) in accordance with requirement 2.
- Switch off the machine.
- Adjust retaining finger 2 (screw 1) in accordance with requirement 3.



When tightening screw 1 take care to see that lever 6 engages reliably in part 7 and does not block the cylinder.

13.27

Adjusting the lifting lever of the end knotting equipment

Requirement

When parameter "610" is set at "1" and the machine is in the needle rise position, the retaining finger 1 should be positioned 5 mm behind the centre of the needle and the lifting lever 4 should be touching screw 2.

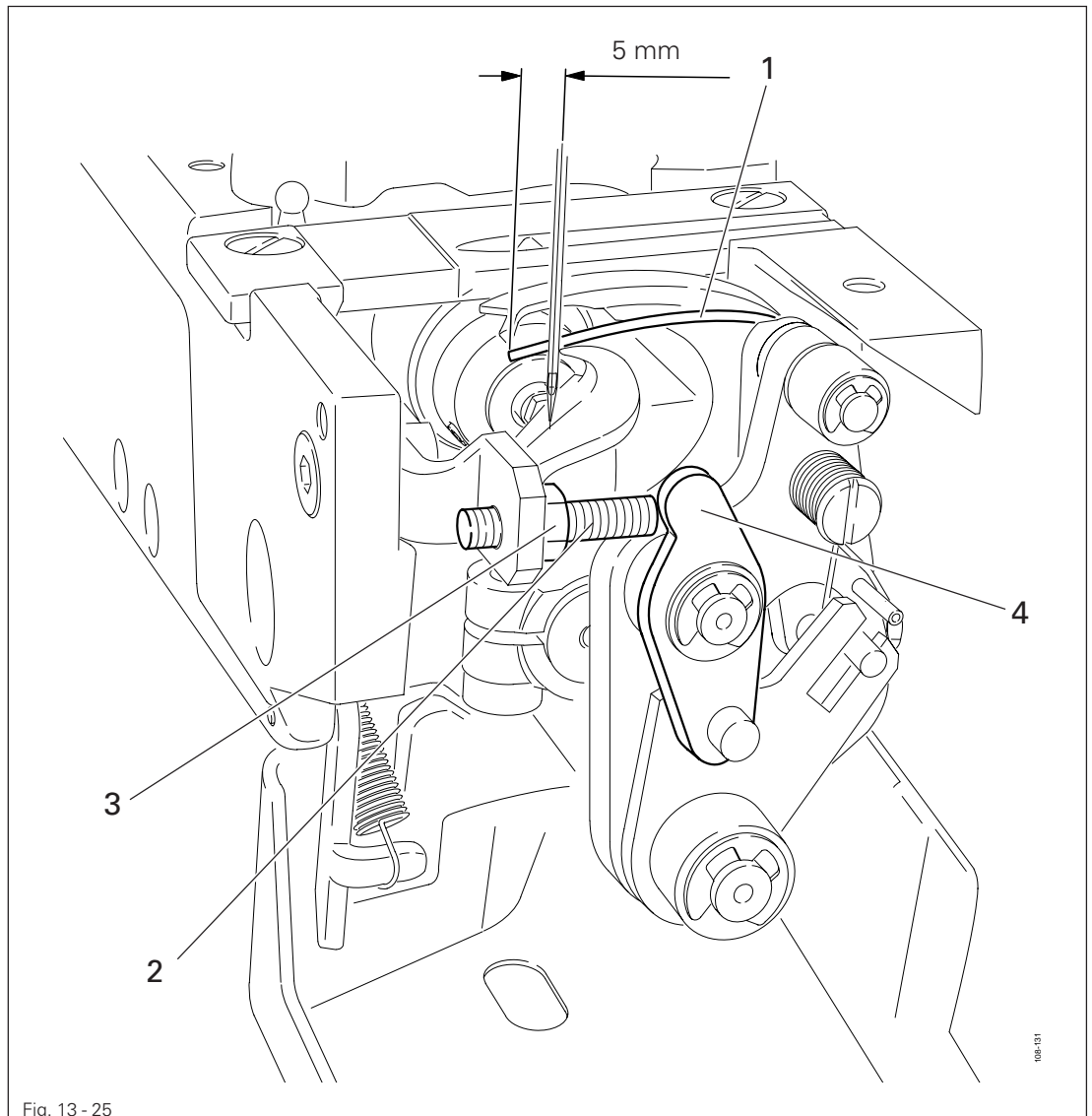
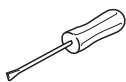


Fig. 13 - 25



- Switch on the machine, set parameter "610" at "1" and bring the needle bar into the needle rise position.
- Disconnect the machine from the pneumatic power supply.
- Position the retaining finger 1 by hand.
- Turn screw 2 (nut 3) in accordance with the requirement.



Make sure that the retaining finger 1 does not touch the loop spreader.

13.28 Adjusting the reed switch

Requirement

When parameter "610" is set at "1" and the machine is in the needle rise position, the reed switch 1 should operate exactly at the moment when the tip of the retaining finger 3 is positioned at the centre of the needle.

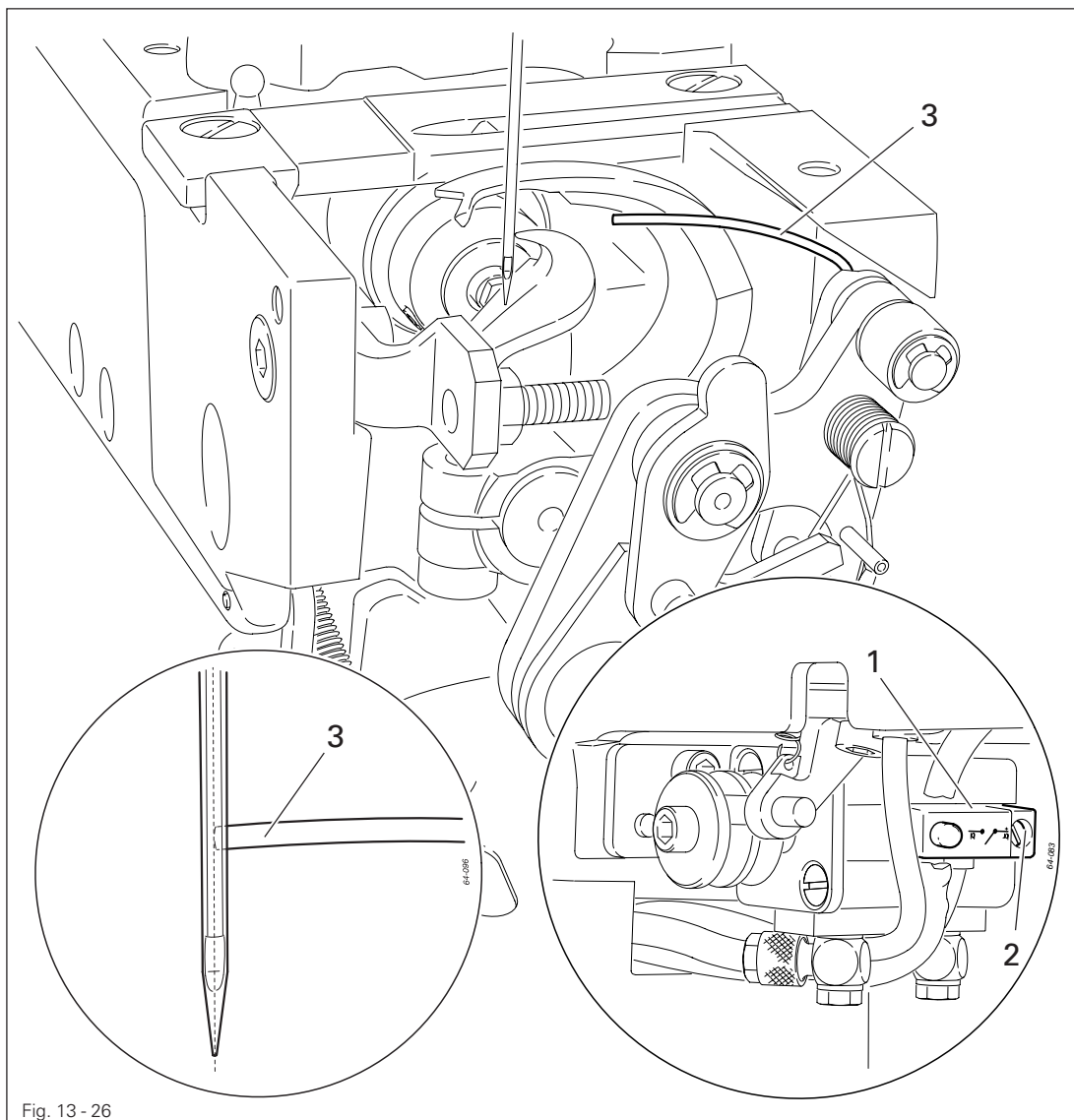
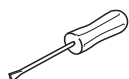
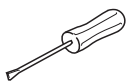
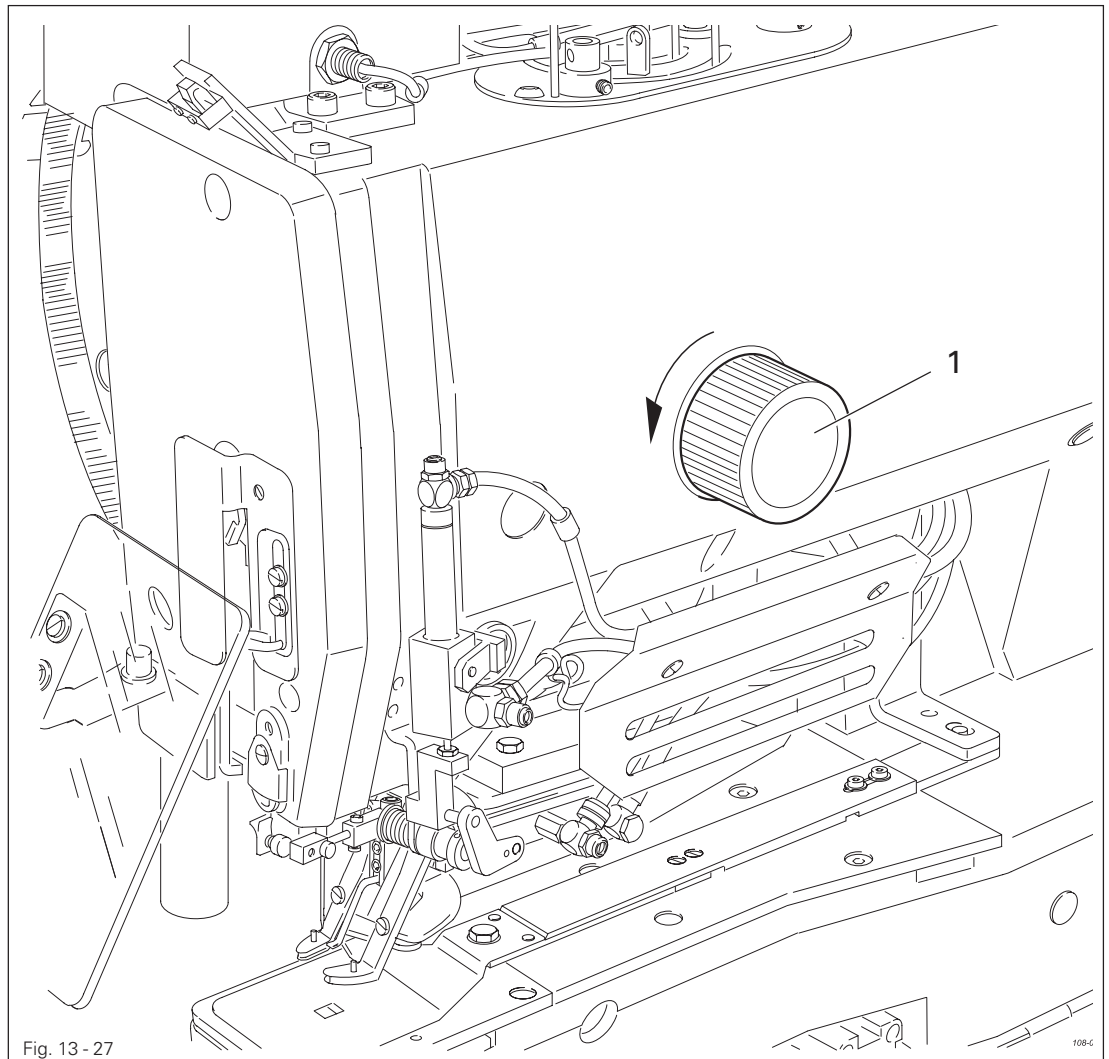


Fig. 13 - 26



- Switch on the machine, set parameter "610" at "1" and bring the needle bar into the needle rise position.
- Loosen screw 1 and move the reed switch 2 completely to the right.
- Place the point of the retaining finger at the centre of the needle and hold it in this position.
- Move reed switch 2 to the left, until reaching the switch point.
- Fasten screw 1.
- Check the switch status of reed switch 2 with parameter "602" (position 4).
- Switch off the machine.

13.29 Setting the angle for the end knotting

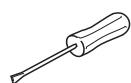
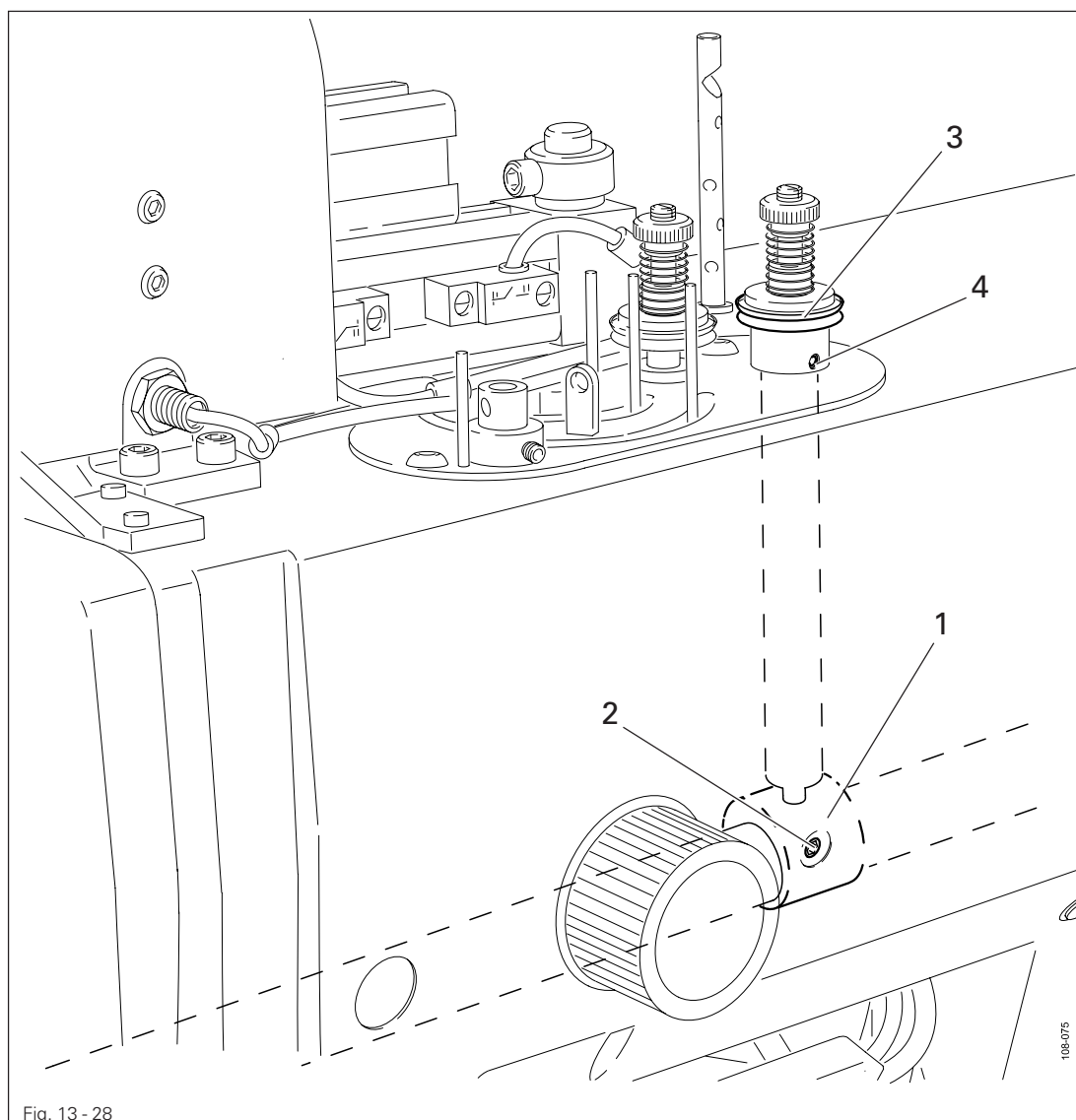


- Switch on the machine.
- Set parameter "505" at "II" (end knotting function on).
- By turning the balance wheel 1 to "36" set parameter "506" (engaging position).
- By turning the balance wheel 1 to "52" set parameter "507" (disengaging position).
- Carry out ten sewing operations. Select parameter "604" and interpret the values for the engaging and disengaging position of the last ten sewing operations.
For uneven values (engaging position) the value should be "70".
For even values (disengaging position) the value should be "90".
- Change parameters "506" and "507" accordingly, a deviation of +/- 1 is permitted.
- Switch off the machine.

13.30 Adjusting the moment tension

Requirement

1. When the needle bar is at its t.d.c. eccentric **1** should be positioned with its largest eccentricity towards the top.
2. Tension disks **3** should open **approx. 10 mm** before t.d.c. needle bar and close again **approx. 10 mm** after t.d.c. needle bar.



- Turn eccentric **1** (screws **2**) in accordance with **requirement 1**.
- Adjust tension disks **3** (screw **4**) in accordance with **requirement 2**.

13.31 Adjusting the thread puller

Requirement

1. When cylinder **6** is retracted, screw **4** should be at a distance of approx. **1 mm** from the inside edge of the slot.
2. When thread puller **3** is in its basic position, it should be resting lightly on the thread and should not touch the edge of the slot when cylinder **6** is extended.
3. The thread should be pulled evenly without any jerks.
4. Thread puller **3** should be set so that a reliable sewing start is guaranteed, but no start thread is standing out.

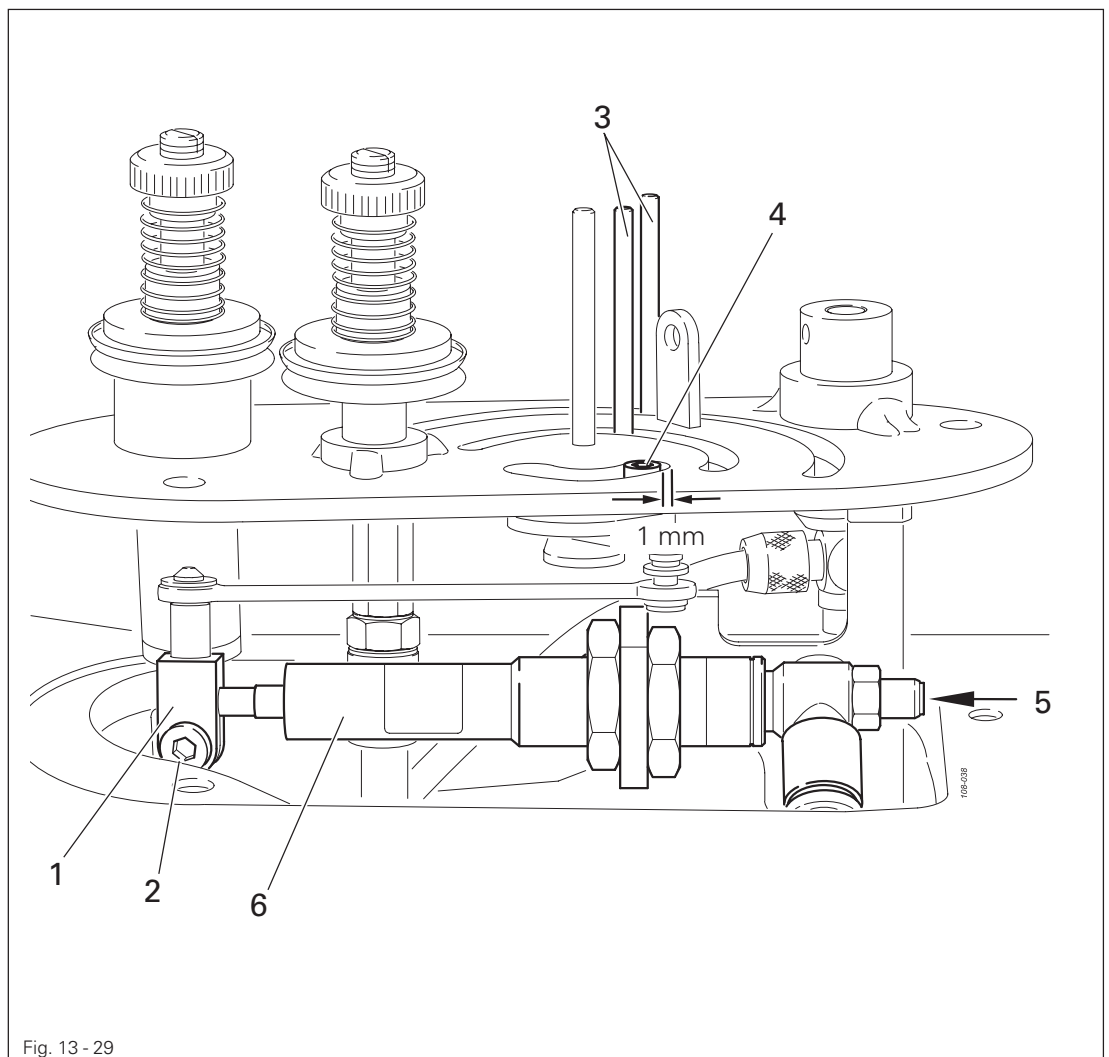
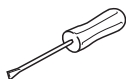


Fig. 13 - 29



- Adjust clamp **1** (screw **2**) in accordance with **requirement 1**.
- Adjust thread puller **3** (screw **4**) in accordance with **requirement 2**.
- First of all, close throttle **5** completely and then adjust it in accordance with **requirement 3**.
- Adjust thread puller with screw **4** in accordance with **requirement 4**.



If required deviations from this basic setting of thread puller **3** are possible.

13.32 Adjusting the thread clamp

Requirement

When thread clamp 1 is closed, the thread should be clamped reliably without being cut.

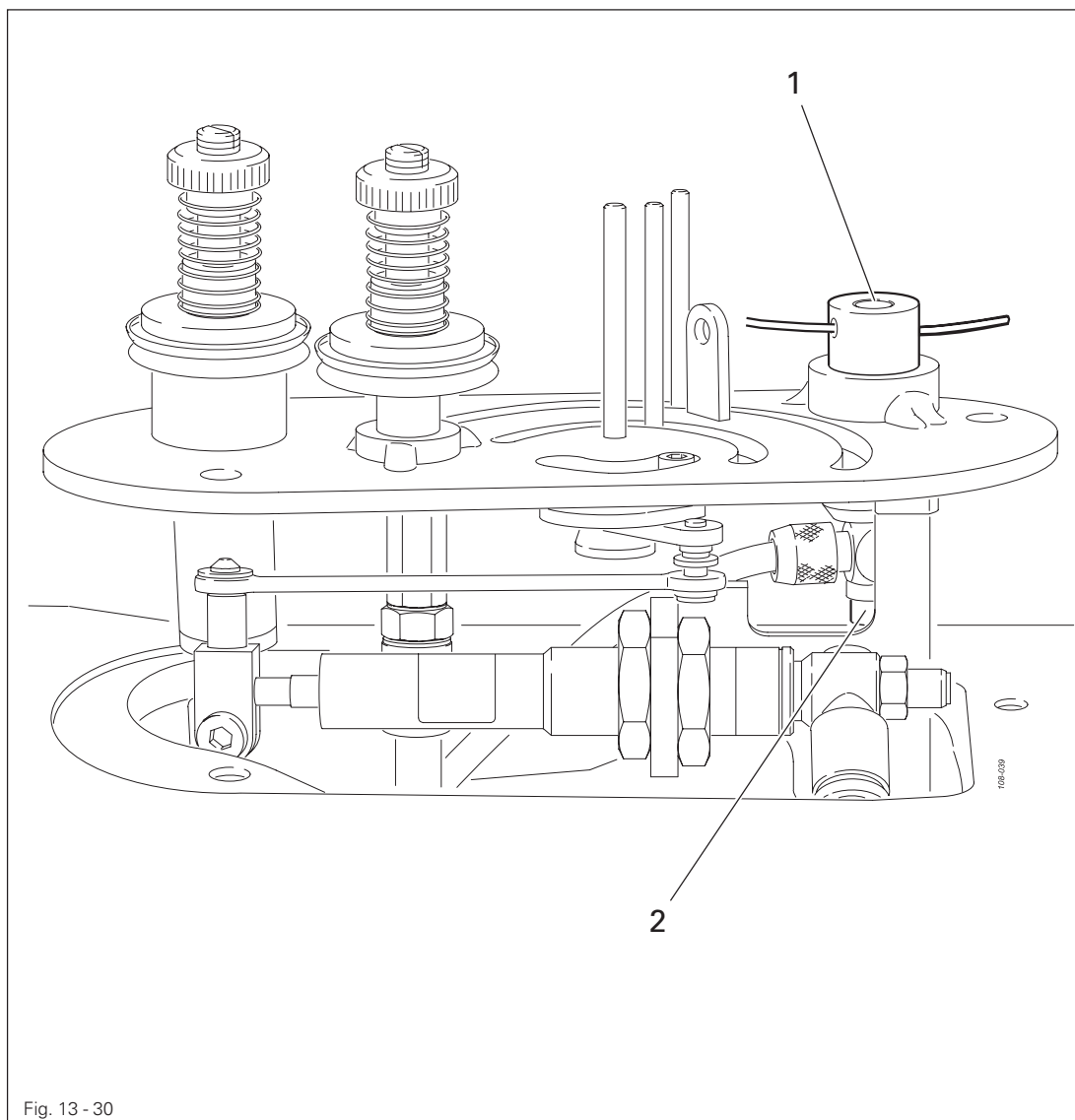
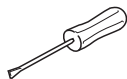


Fig. 13 - 30



- Insert thread in thread clamp 1.
- Carry out a functional test for the thread clamp with parameter "603" (output 3).
- First of all, close throttle 2 completely and then adjust it in accordance with **requirement**.



Following the adjustment, parameters "504", "508" and "510" must be checked, and adapted if necessary.

13.33 Adjusting the thread regulator

Requirement

When the needle bar is at its b.d.c., the slack needle thread should have been used.

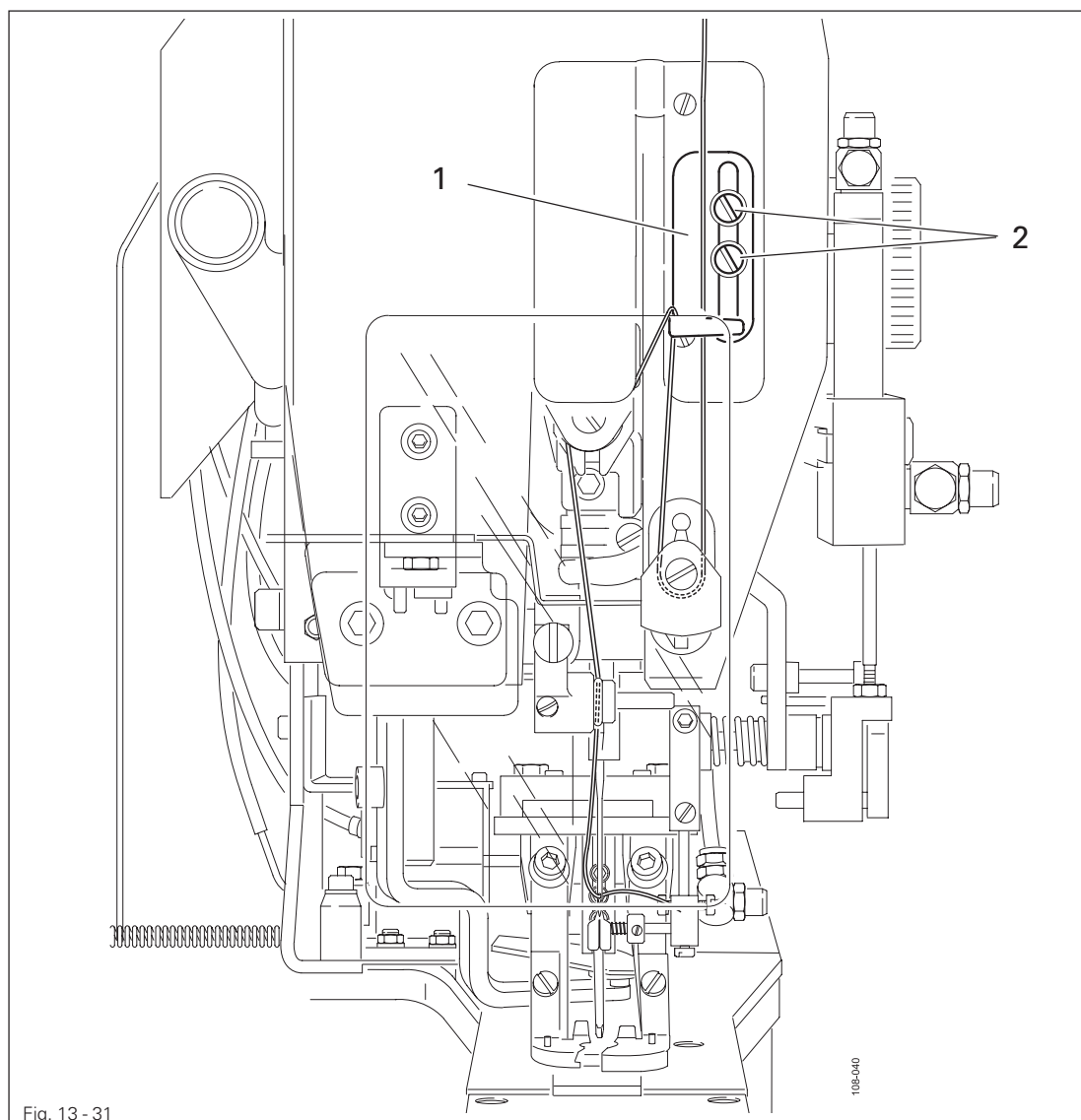
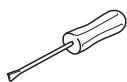


Fig. 13 - 31



- Switch on the machine and connect it to the pneumatic power supply.
- Place the workpiece in position and start the sewing operation.



- Interrupt the sewing operation and bring the needle bar to its b.d.c. by turning the balance wheel.
- Adjust the thread regulator 1 (screws 2) in accordance with the requirement.
- Switch off the machine and disconnect it from the pneumatic power supply.

13.34 Adjusting the thread wiper

Requirement

1. In cutting position, the thread wiper 1 should be centred to the needle, and with the needle bar at t.d.c. it should swing through under the needle without contact.
2. When the cylinder 6 is extended, bearing block 7 should not collide with adjusting ring 8, and thread wiper 1 should be **approx. 3 mm** behind the needle.

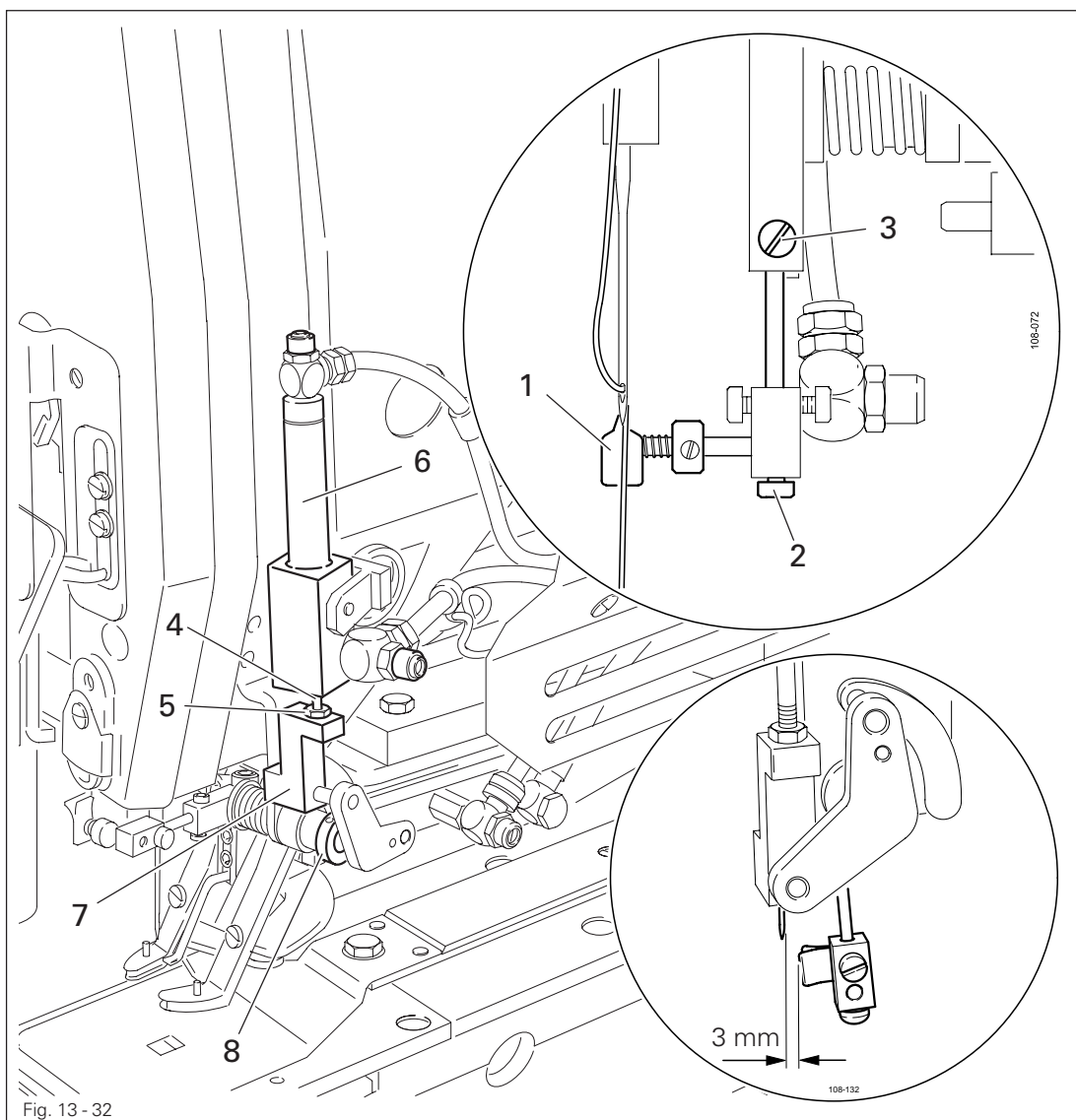
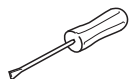


Fig. 13 - 32



- Switch on the machine and connect it to the pneumatic system.
- Set parameter "610" at value "6" (set the needle in the centre and lower the button clamp).
- Engage thread wiper 1 using parameter "603".
- Adjust thread wiper 1 (screws 2 and 3) in accordance with **requirement 1**.
- Adjust piston rod 4 (nut 5) in accordance with **requirement 2**.
- Check the setting during the sewing process and correct it if necessary.
- Switch off the machine and disconnect it from the pneumatic system.

13.35 Adjusting the stem finger

Requirement

The stem finger should be located in the centre of the buttonholes and jut out beyond them.

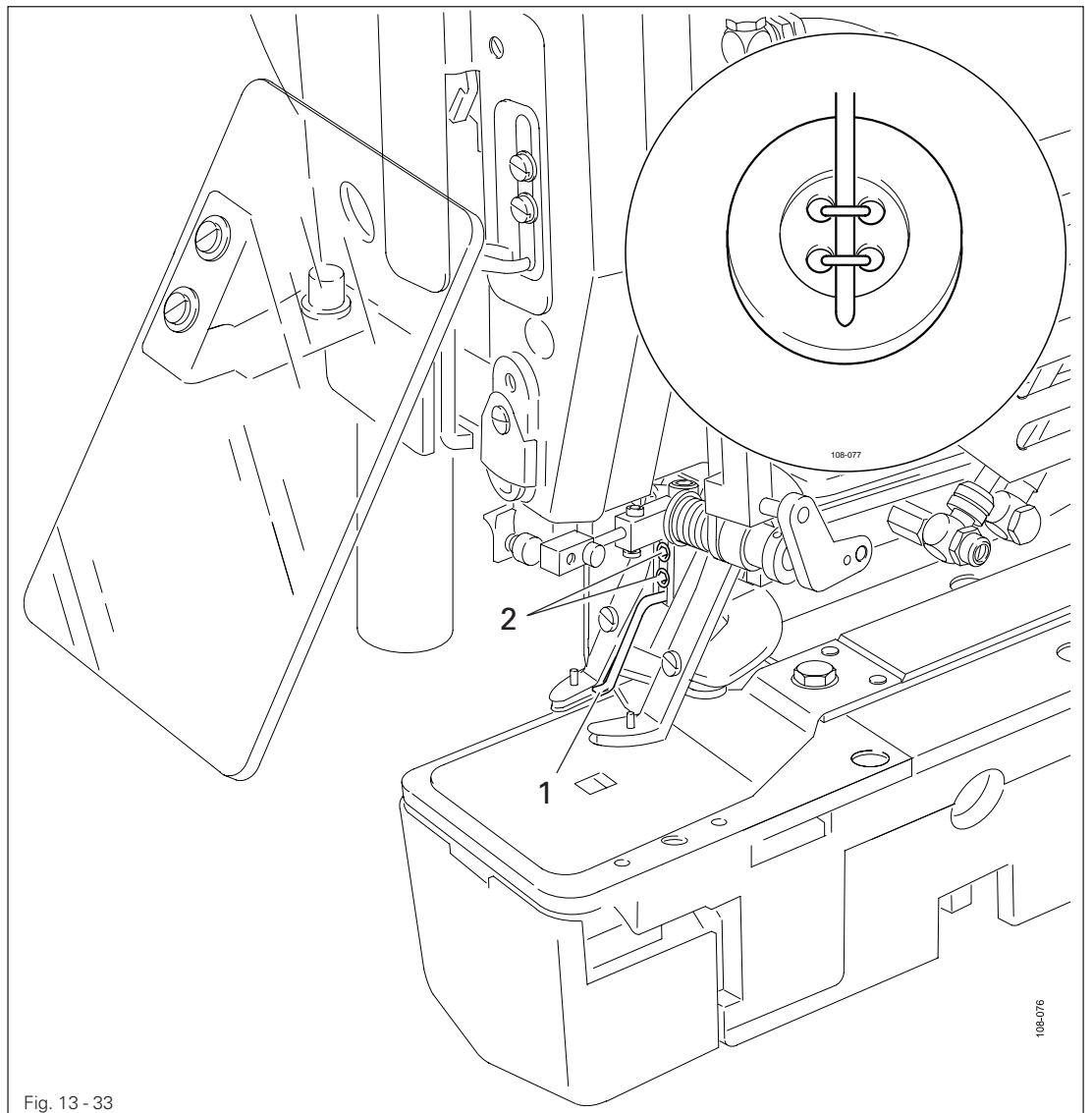
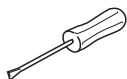


Fig. 13 - 33



- Adjust stem finger 1 (screws 2) in accordance with the **requirement** and with the required stem height.

13.36

Closing and opening angle of the button clamp

Requirement

1. Without a button inserted, the button clamp should close approx. 1 mm more than with a button inserted.
2. The button clamp should open wide enough for the button to be positioned securely.

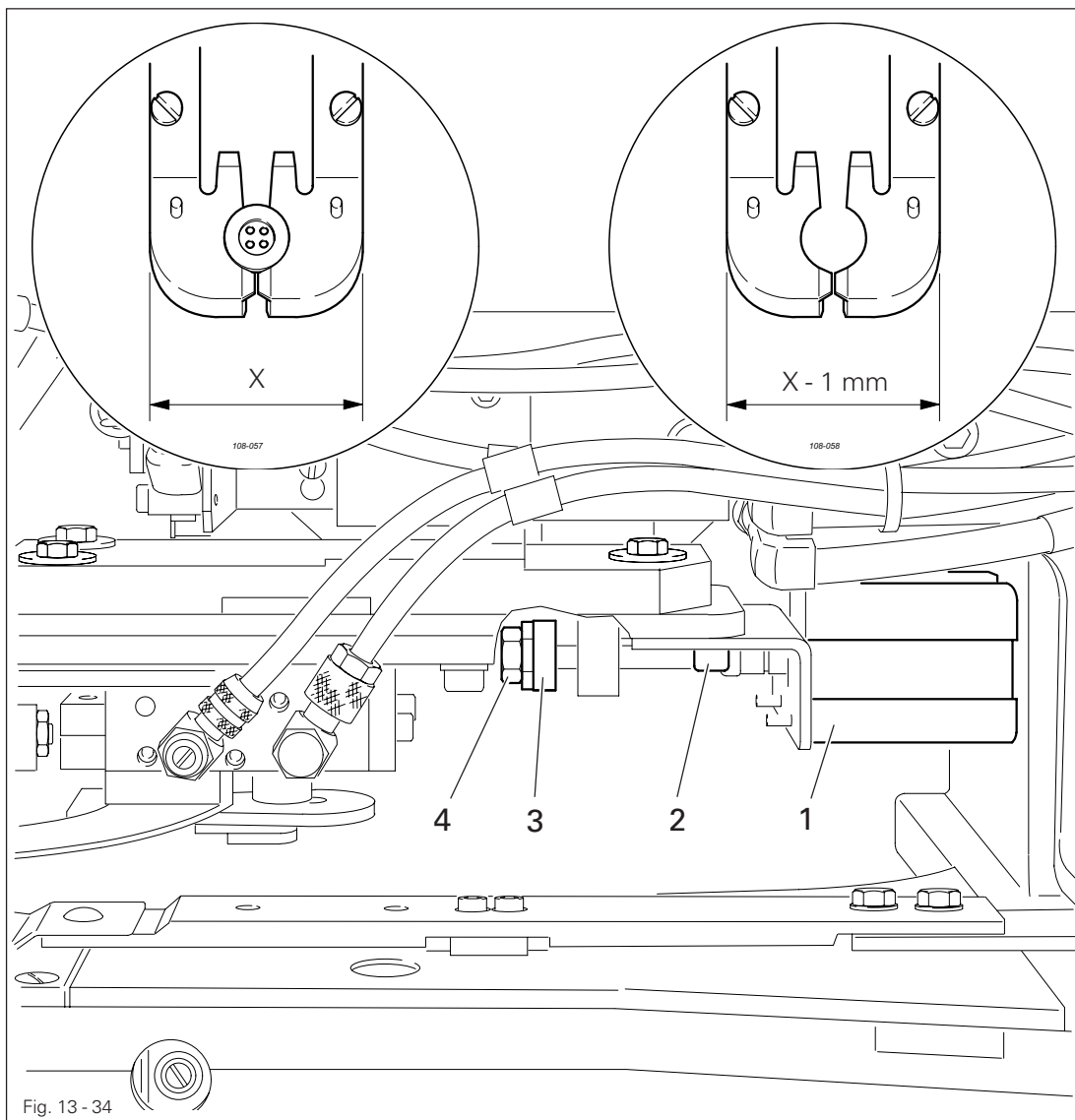
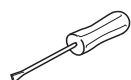


Fig. 13 - 34

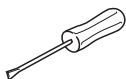
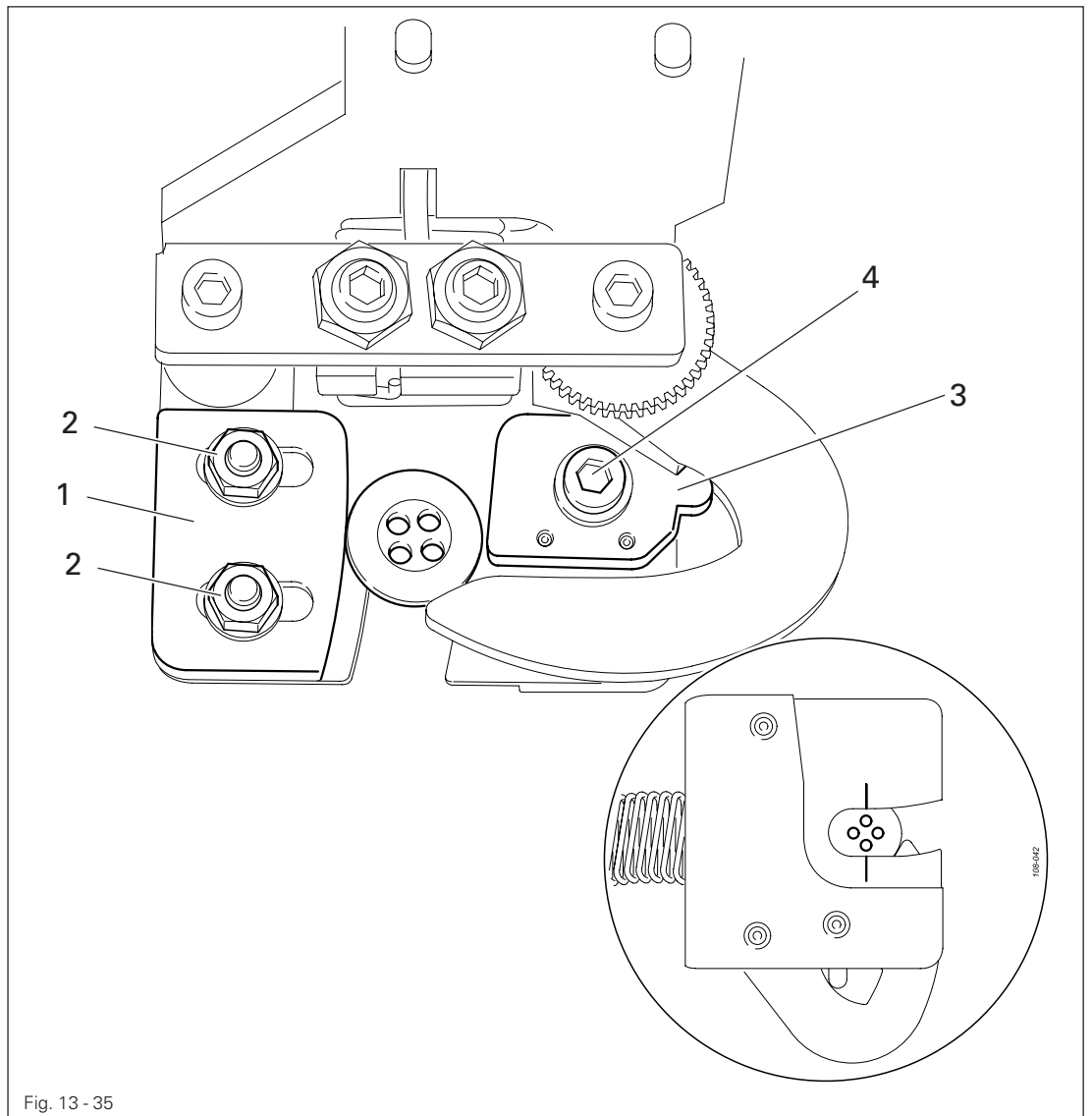


- Adjust cylinder 1 (screws 2) in accordance with requirement 1.
- Adjust nut 3 (nut 4) in accordance with requirement 2.

13.37 Basic setting of the button loading station

Requirement

The button should be positioned in the centre of the cut-out of the button loading station, without jamming (take account of the tolerances in the outside diameter of the buttons).



- Adjust guide plates **1** (screws **2**) and **3** (screw **4**) in accordance with the **requirement**.



For following adjustments it is necessary to mark the centre of the button after adjustment on the lower side of the loading station.

Requirement

When the button clamp opens or closes, there should be no displacement

1. of the height or
2. the lateral position of the button.

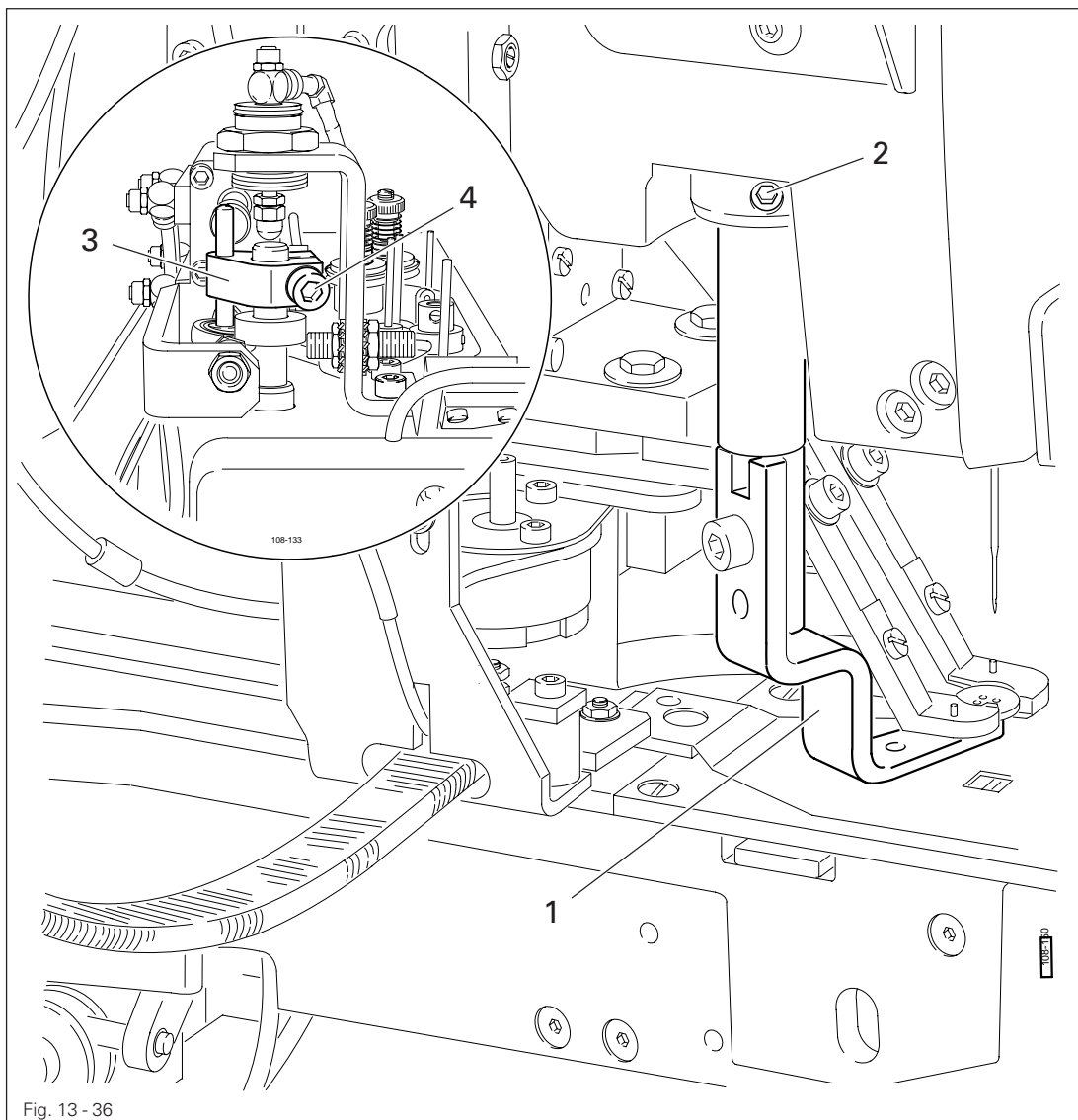
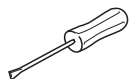


Fig. 13 - 36



- Switch on the machine and connect it to the pneumatic system.
- Set parameter "112" at value "1" (switch off stem finger).
- Using parameter "616" (value "2"), engage button holder 1 and insert the button.
- Using parameter "616" (value "3"), close the button clamp
- Adjust button holder 1 (screws 2) in accordance with **requirement 1**.
- Adjust drive unit 3 (screw 4) in accordance with **requirement 2**.

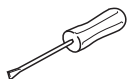
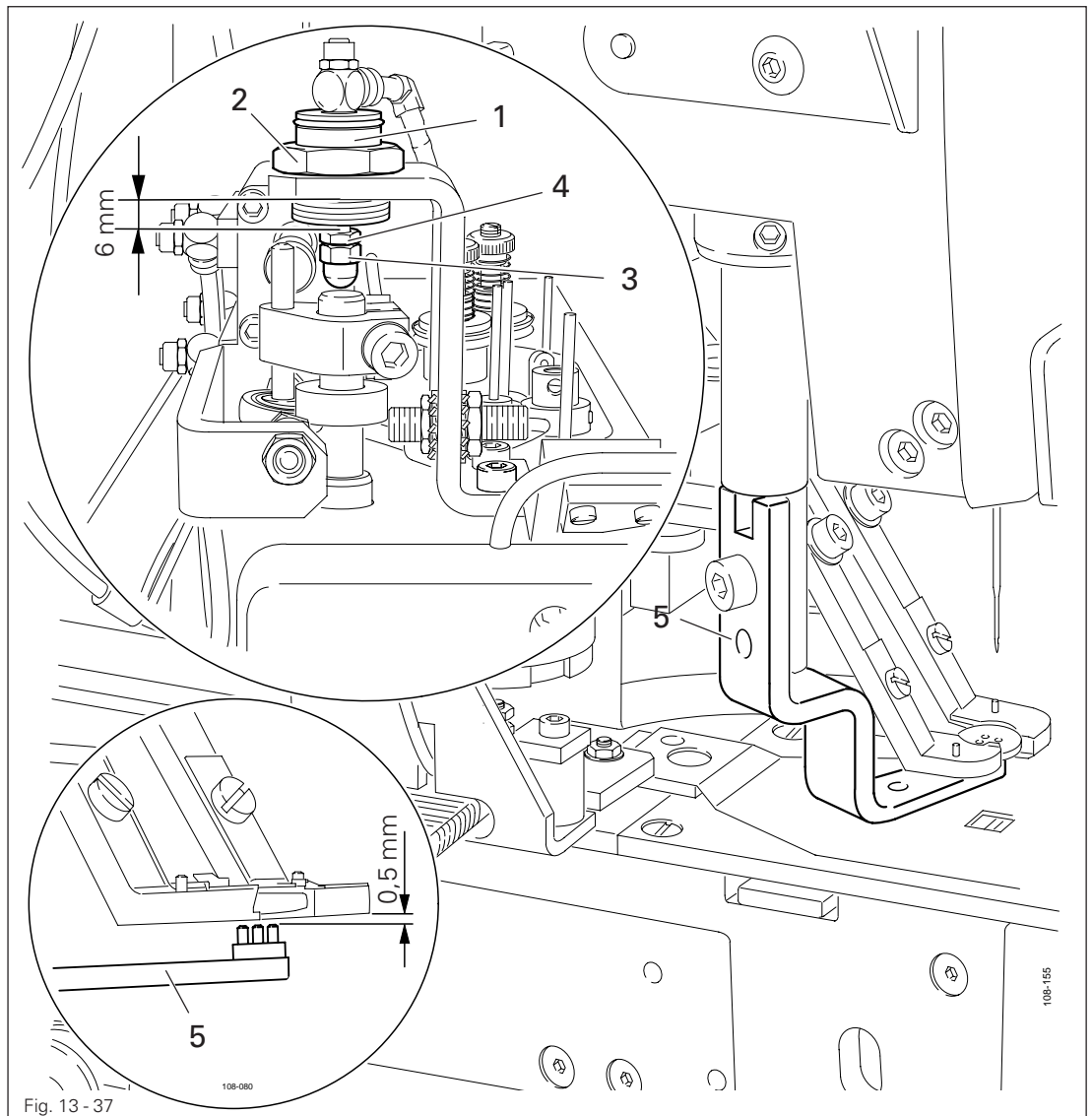


Following this adjustment, without switching off the machine or disconnecting it from the pneumatic system, the adjustment as described in **Chapter 13.37 Basic setting of the button loading station** must be carried out with the same parameters.

13.39 Adjusting the loading cylinder

Requirement

1. The bottom edge of the case of loading cylinder 1 should be positioned **6 mm** below the bracket.
2. When the loading cylinder 1 is lowered, the upper edge of the button holder 5 should be positioned **0.5 mm** below the button clamp.



- Adjust loading cylinder 1 (nut 2) in accordance with **requirement 1**.
- Lower the loading cylinder 1 using parameter "616" (value "4").
- Turn nut 3 (nut 4) in accordance with **requirement 2**.



Following this adjustment, without switching off the machine or disconnecting it from the pneumatic system, the adjustment as described in **Chapter 13.38 Setting the discharge position on the button clamp** must be carried out with the same parameters.

Requirement

1. When at the same height, the bearing surface of the loading station should be parallel to the button bearing surface of the button holder, whereby the button holder should position in the centre of the cutout of the loading station.
2. When the button is touching hook **8**, the pins of the button holder should lock into in the button, without moving its height or side position.

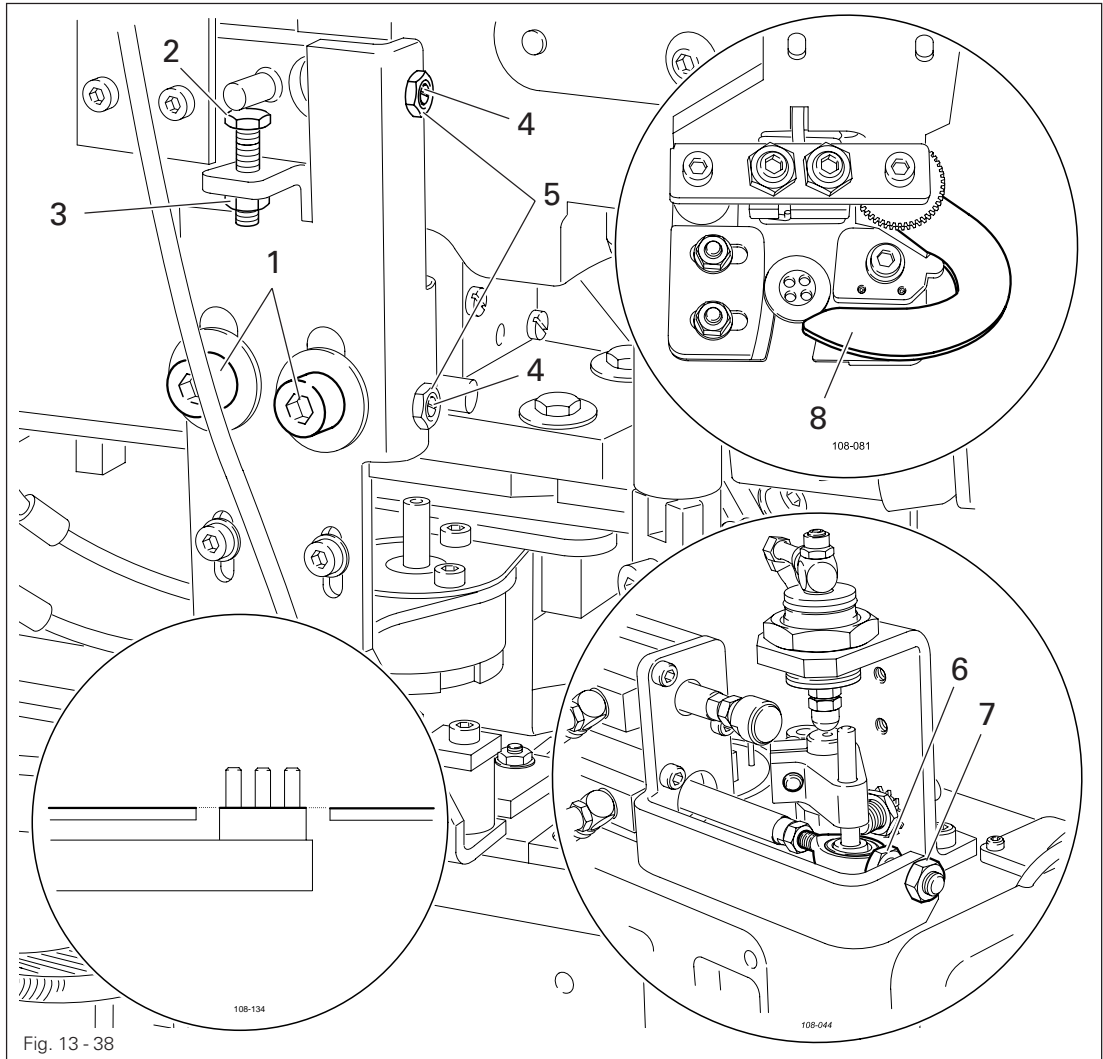
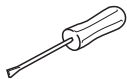


Fig. 13 - 38



- With parameter "616" (value "6") move the button holder to the loading station.
- Slightly loosen screws **1**.
- Adjust screw **2** (nut **3**) and screws **4** (nuts **5**) in accordance with **requirement 1**.
- Tighten screws **1**.
- Adjust screw **6** (nut **7**) in accordance with **requirement 2**.

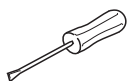
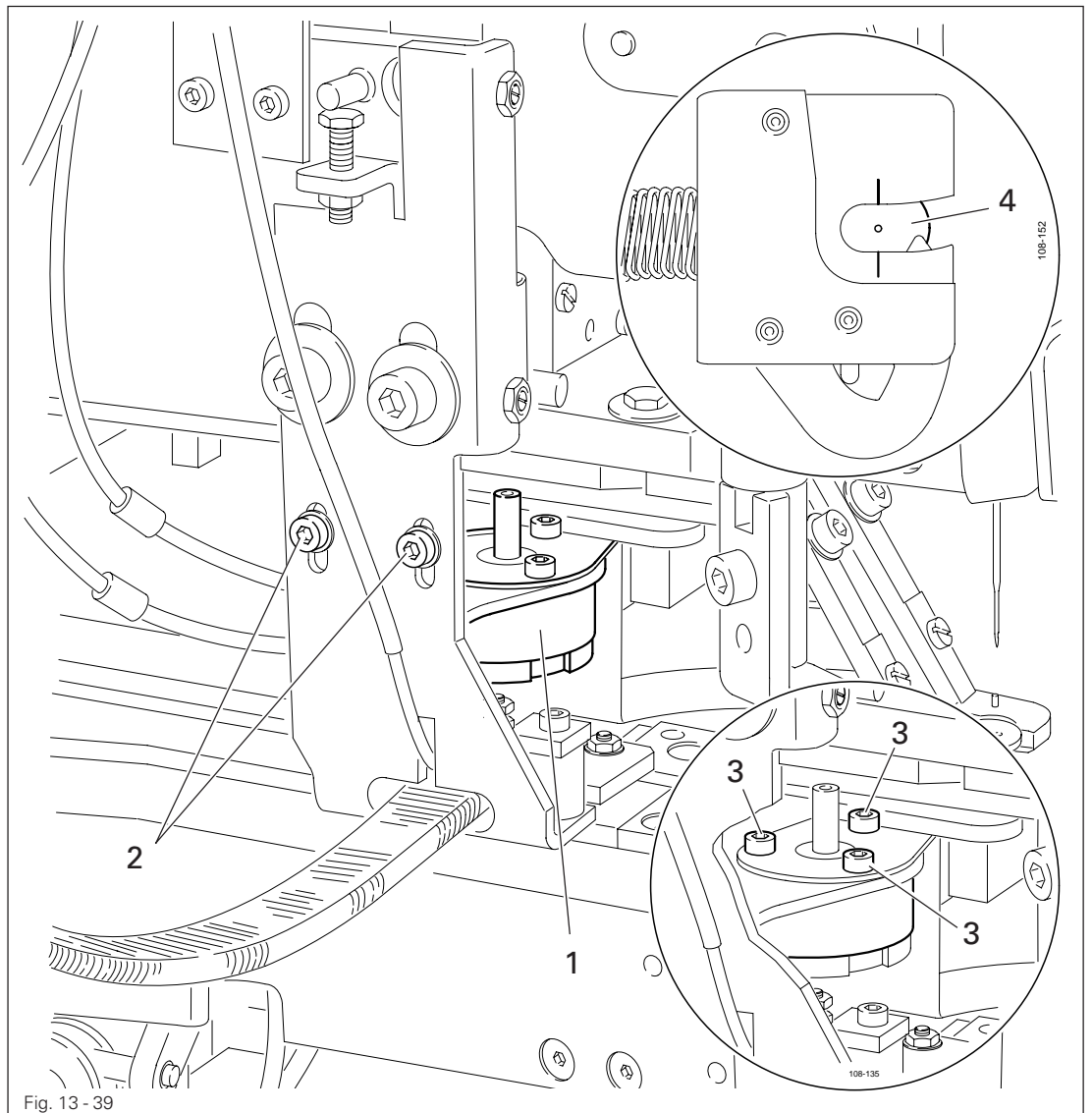


Following this adjustment, without switching off the machine or disconnecting it from the pneumatic system, the adjustment as described in **Chapter 13.39 Adjusting the loading cylinder** must be carried out with the same parameters.

13.41 Adjusting the rotary cylinder

Requirement

1. The turntable of rotary cylinder 1 should be positioned over the loading station, centred and parallel to the button, with a small space between button and guide plates.
2. The opening in turntable 4 should coincide with the line marked beforehand on the bottom side of the button discharge station.

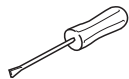
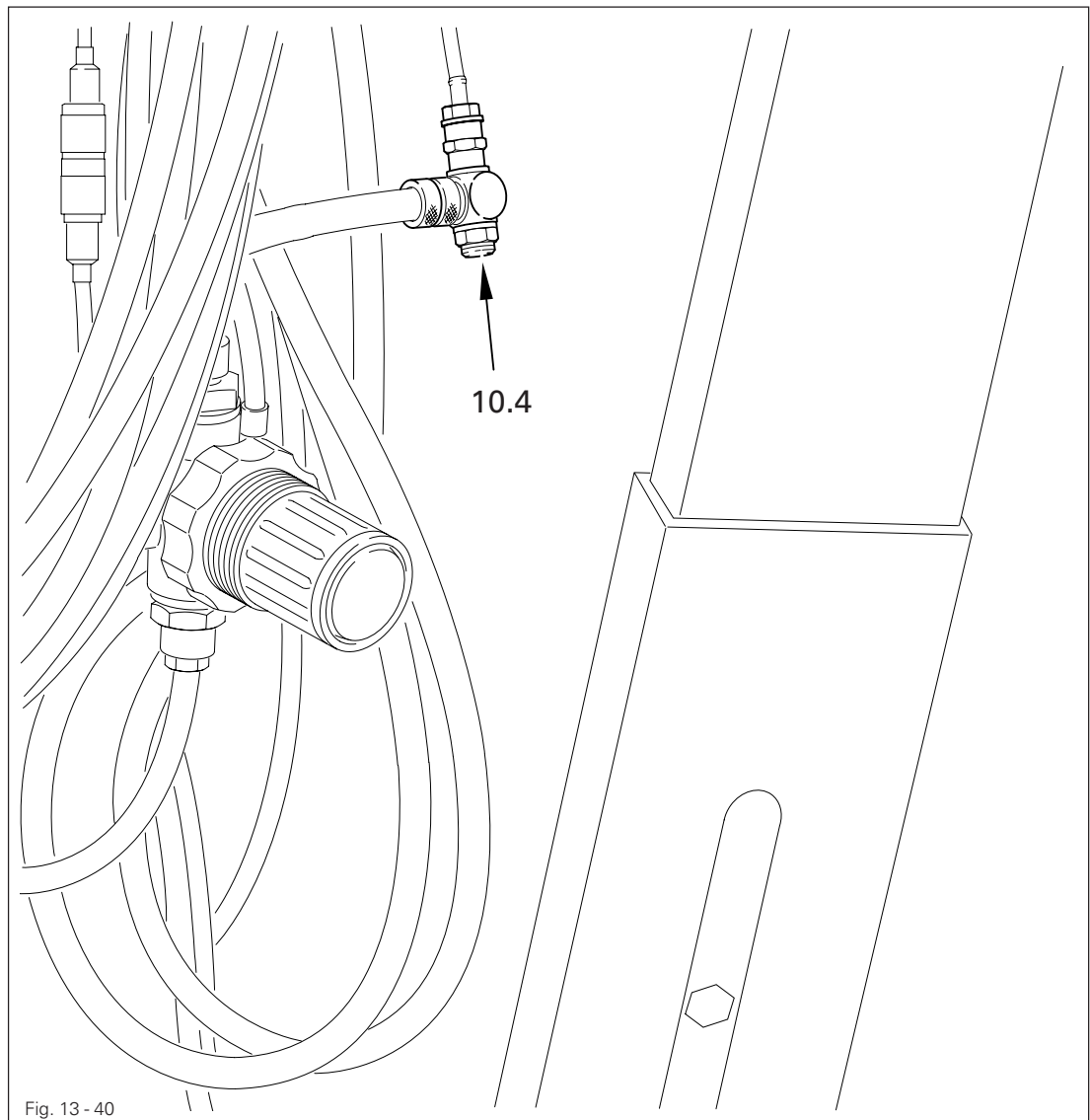


- With parameter "616" (value "8") move the button holder into the stop position.
- Align rotary cylinder 1 (screws 2) in accordance with **requirement 1**.
- Align rotary cylinder 1 (screws 3) in accordance with **requirement 2**.

13.42 Adjusting the air blast nozzle

Requirement

The button must be moved to the holding hook with the air current of the air blast nozzle.



- Position the button holder with parameter "616" (value "5").
- Adjust throttle 10.4 in accordance with the **requirement**.

13.43 Adjusting the guiding plate

Requirement

In the entire swivelling range of the button holder there should be a clearance of approx. 1 mm between the guiding plate 1 and button 2.

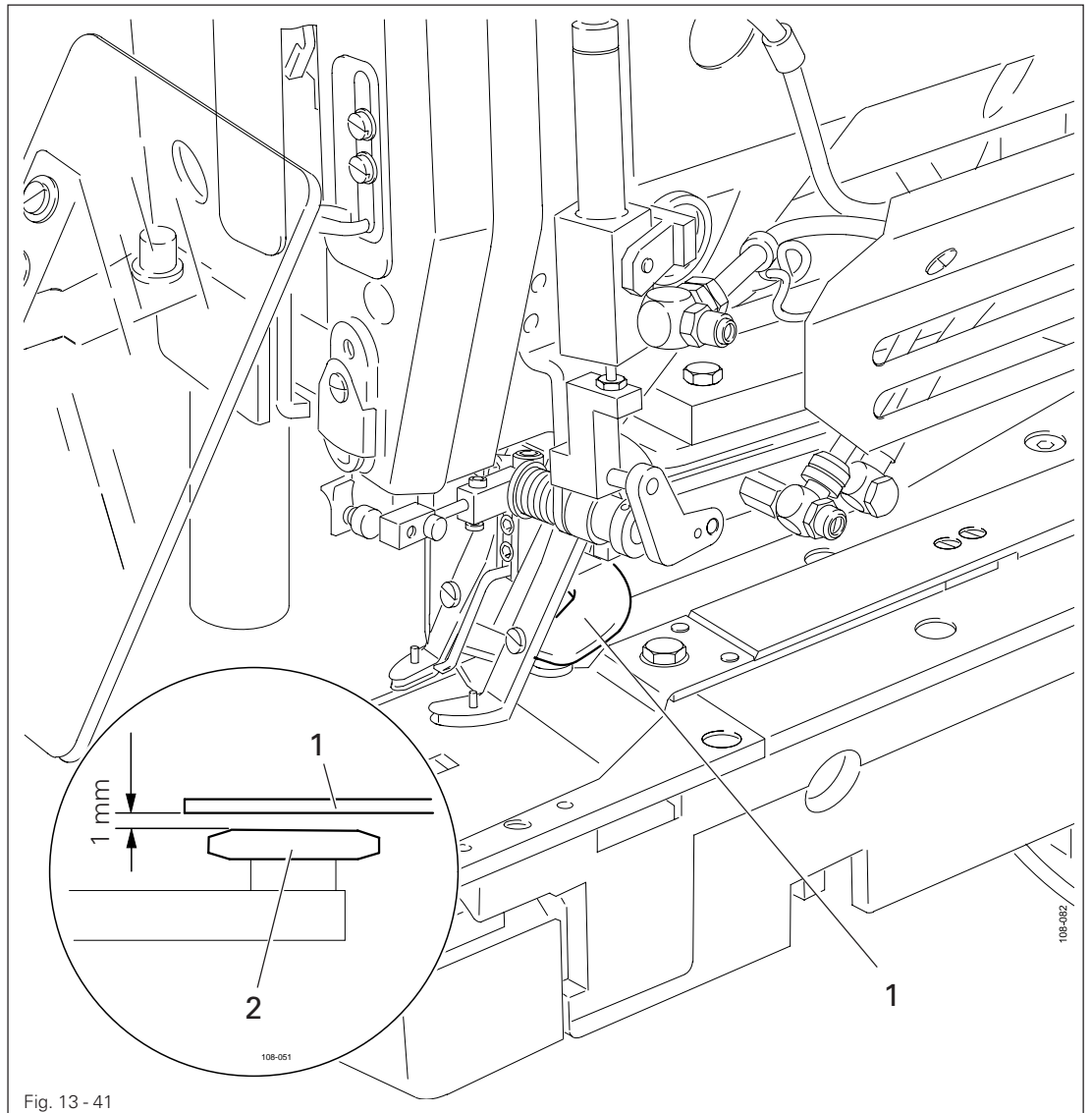


Fig. 13 - 41



- With parameter "616" (value "8") move the button holder into the stop position.
- Align guiding plate 1 in accordance with the **requirement**.

13.44 Adjusting the button loading control unit

Requirement

1. Initiator 1 should be positioned **1 mm** from the adjusting ring.
2. When the button holder is in the loading position, the LED of the initiator 1 should not be on.

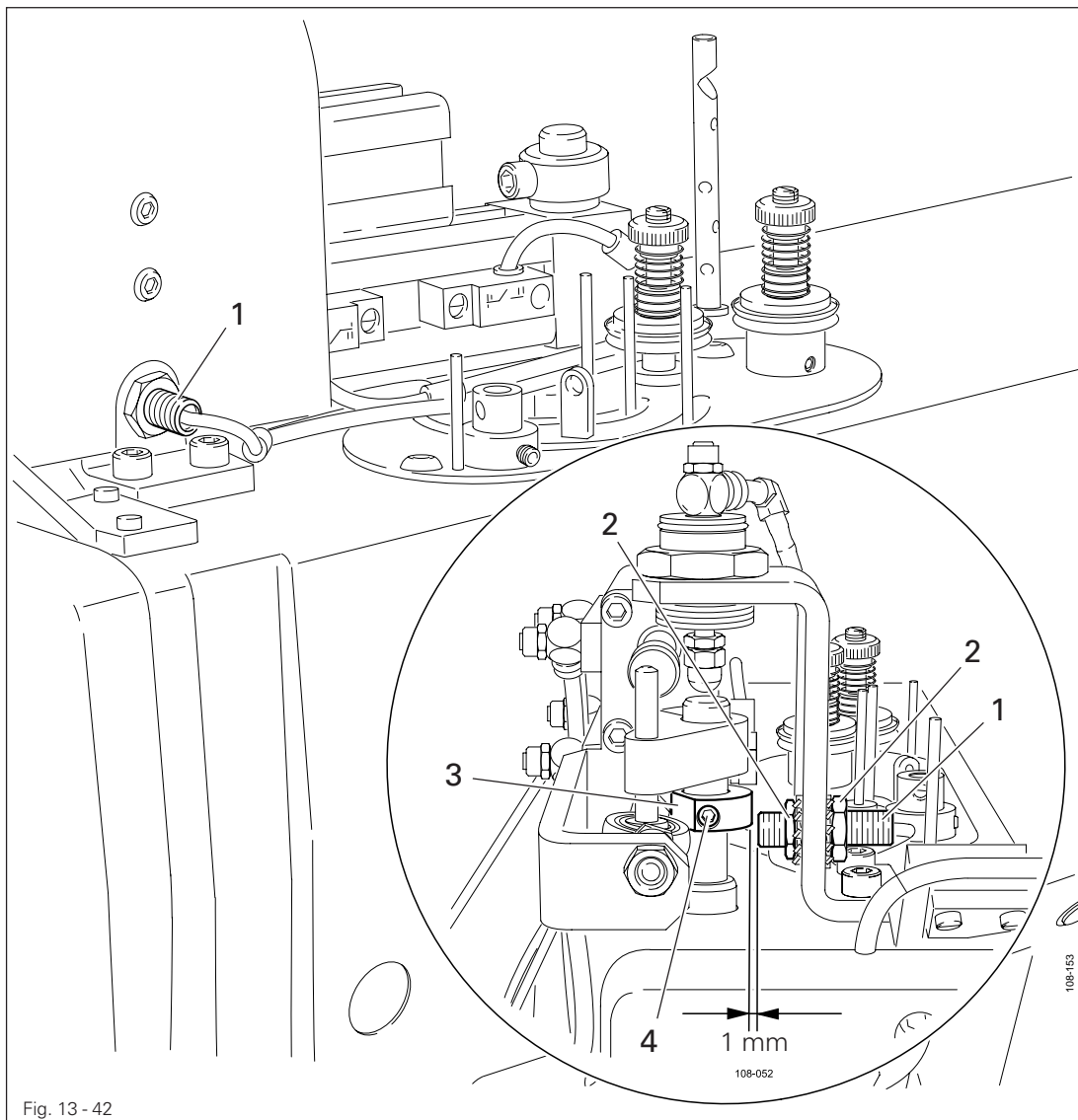
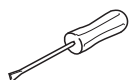


Fig. 13 - 42



- With parameter "616" (value "7") bring the button holder into the loading position.
- Adjust initiator 1 (nuts 2) in accordance with **requirement 1**.
- Without twisting it, slide adjustment ring 3 upwards until the LED of initiator 1 has just extinguished (**requirement 2**).
- Set parameter "616" at value "1", to be able to quit the parameter.



The machine remains switched on and connected to the pneumatic system for further adjustments.

13.45 Adjusting the synchronizer of the engaging cylinder

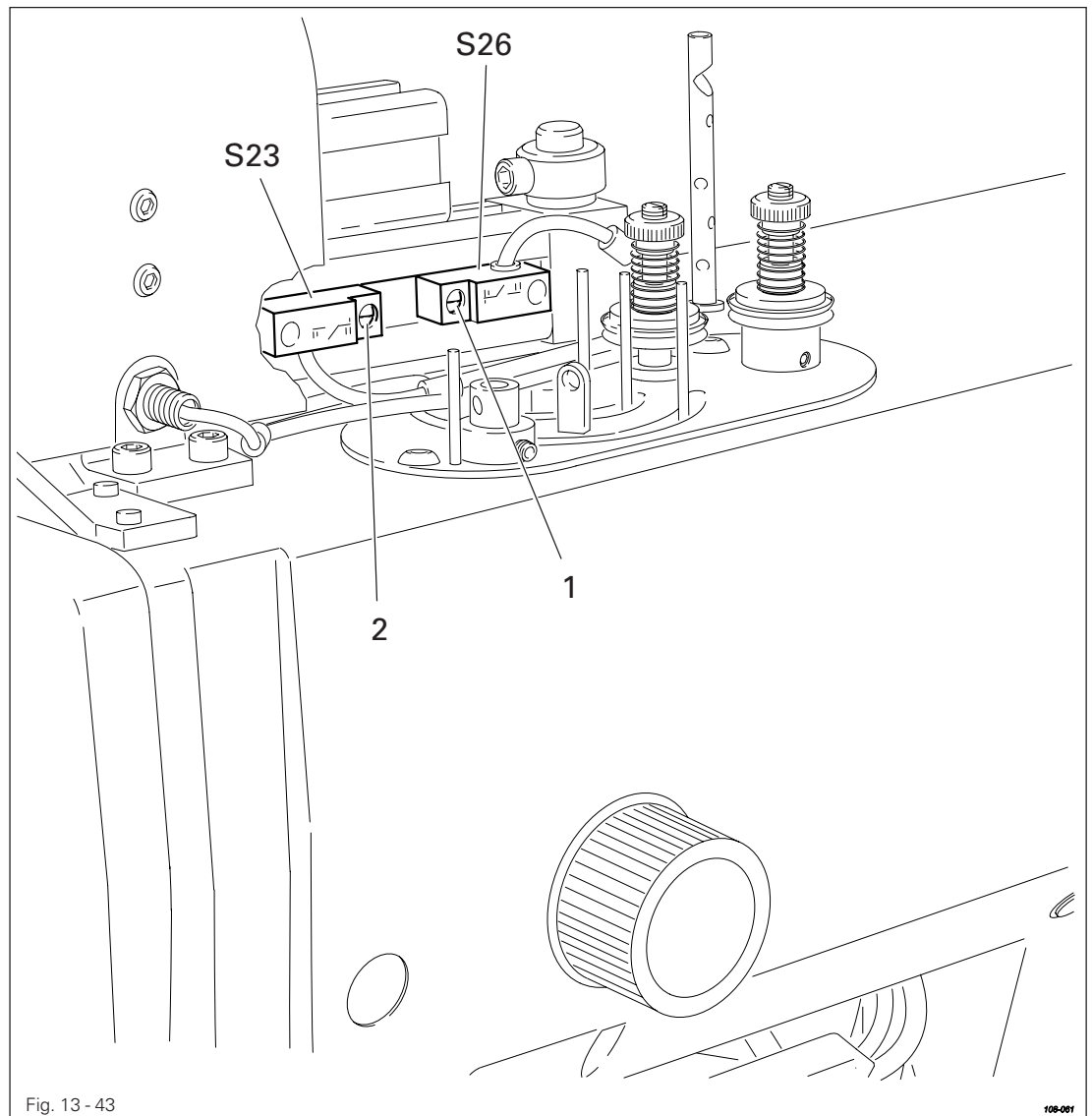
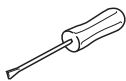


Fig. 13 - 43

108-061



- Open the button clamp with parameter "603" (Pos. "12" at value "1").
- Move the stop cylinder back with parameter "603" (Pos. "11" at value "1").
- Close the button clamp with parameter "603" (Pos. "12" at value "0").
- Select parameter "602".
- Move switch S26 (screw 1) from the right until the sixth figure from the right changes from "0" to "1".
- Extend the loading cylinder with parameter "603" (Pos. "9" at value "1").
- Move the button holder to the loading station with parameter "603" (Pos. "10" at value "1").
- Select parameter "602".
- Move switch S23 (screw 2) from the left until the third figure from the right changes from "0" to "1".

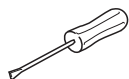
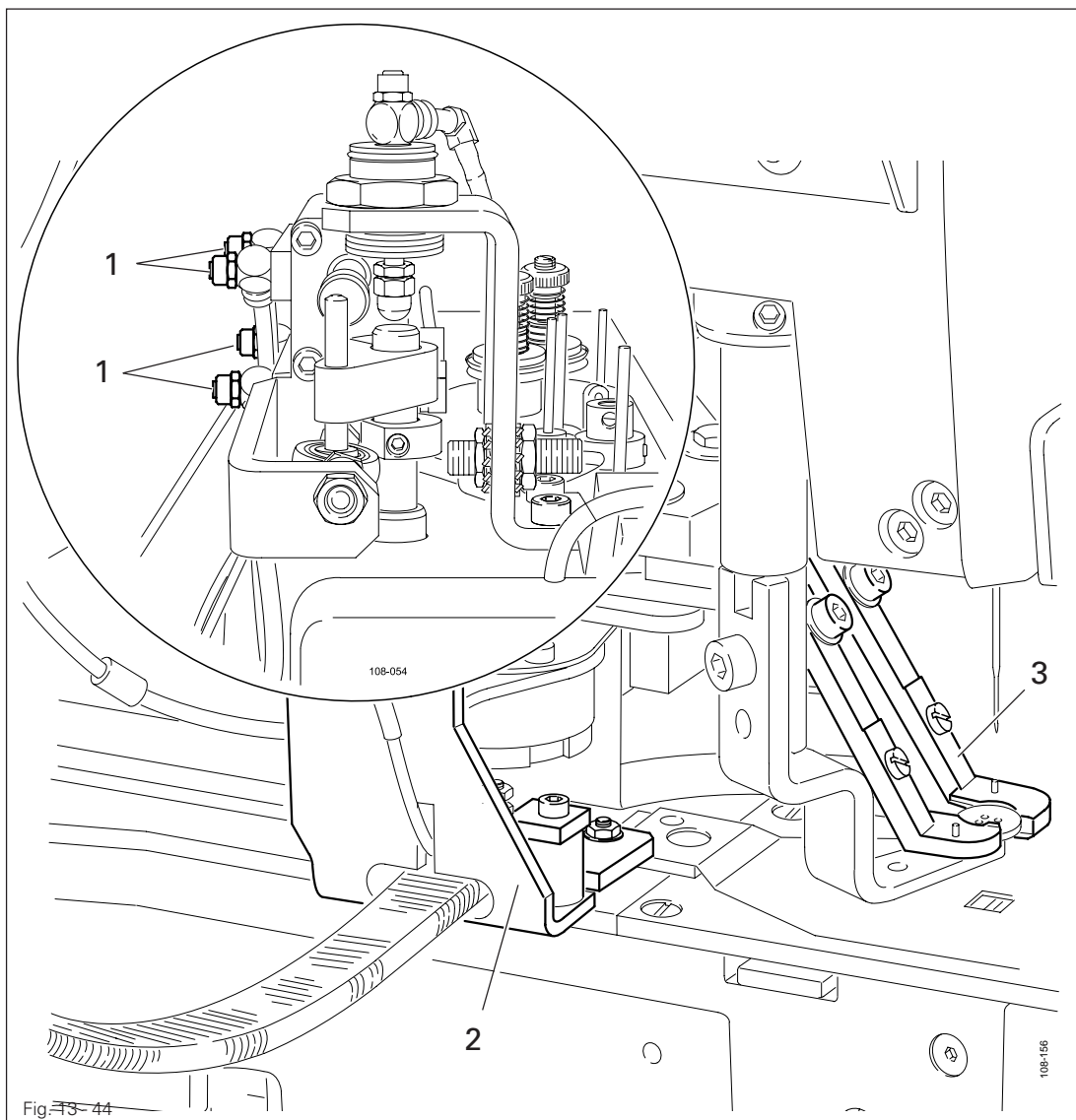


The machine remains switched on and connected to the pneumatic system for further adjustments.

13.46 Adjusting the throttles of the engaging cylinder

Requirement

The button should be taken over reliably at loading station 2 and be given reliably to button clamp 3 without falling.



- Adjust throttles 1 in accordance with the requirement.

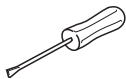
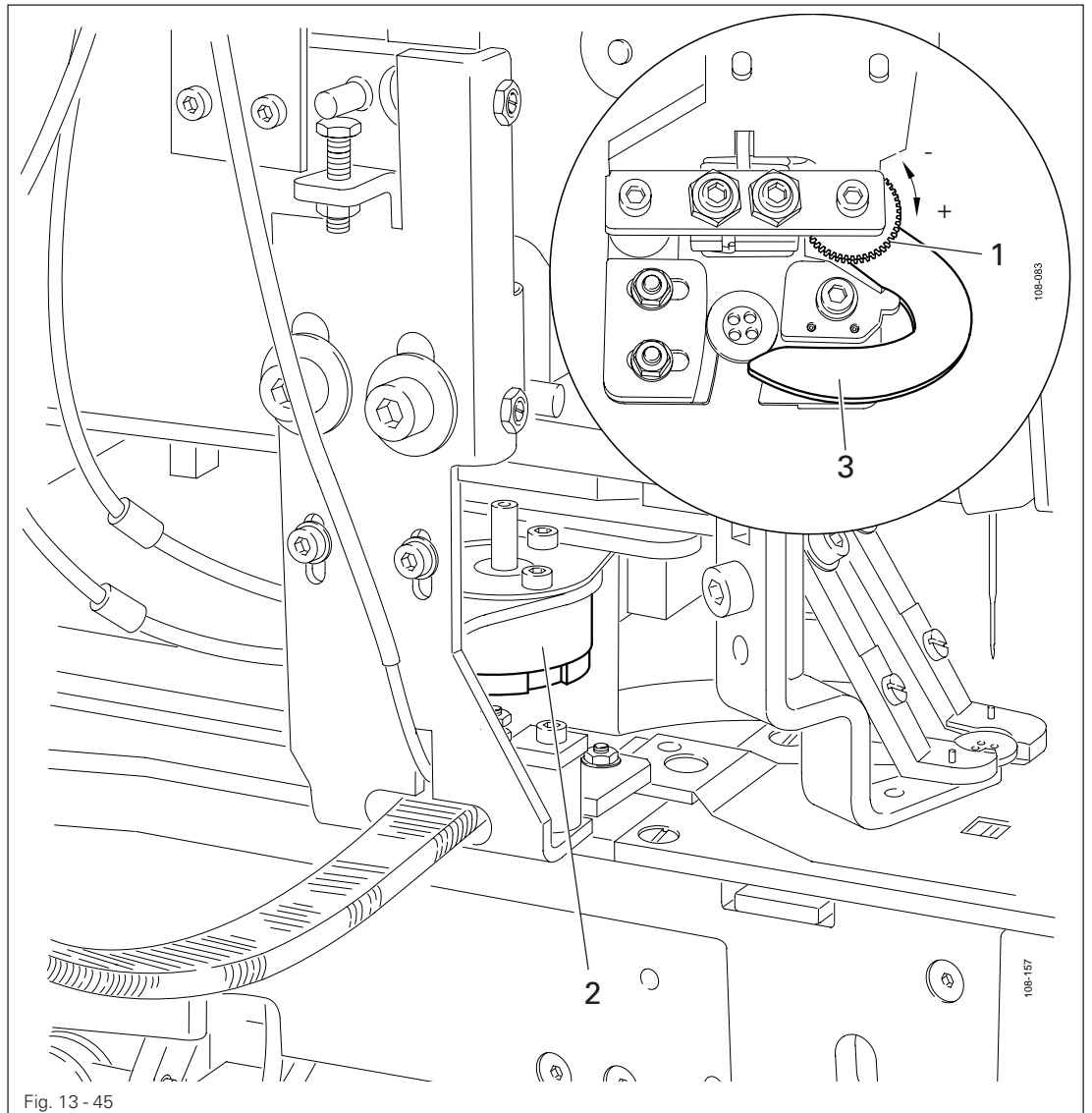


The machine remains switched on and connected to the pneumatic system for further adjustments.

13.47 Spring adjustment of the retention hook

Requirement

When the button is being positioned with rotary cylinder 2, the retention hook 3 should not move.



- Adjust knurled nut 1 in accordance with the **requirement**.
- Switch off the machine and disconnect it from the pneumatic system.

13.48 Cold start



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

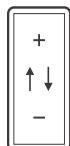
The machine is set back to its condition at the time of delivery.

The altered programs or parameter settings can be stored separately with the PC-program SAM, see **Chapter 13.52 Data backup and protection with PC-program SAM.**

- Switch on the machine.



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



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

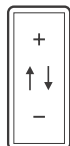
600



- Confirm input with **Enter**.

- Enter the code, see **Chapter 11.02.02 Entering/altering the access code.**

601



- With the corresponding plus/minus key select e.g. parameter "608" (carry out cold start).

608 RESET



- Confirm input with **Enter**.

SWITCH OFF

- Switch off the machine twice and on again after about 3 seconds.

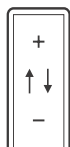
13.49 Parameter settings

13.49.01 Selecting and altering parameters

- Switch on the machine.



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

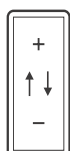


- Select the function group, e.g. "200" with the corresponding **plus/minus** key.

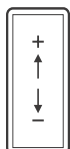


- Confirm the input with **Enter**.

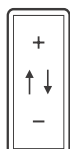
- Enter the code, see **Chapter 11.02.02 Entering/altering the access code**.



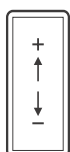
- With the corresponding **plus/minus** key enter e.g. parameter "102" (button height).

 1


- With the corresponding **plus/minus** key select "medium button height".

 2


- With the corresponding **plus/minus** key select e.g. parameter "301" (sensor clamp).

 I


- With the corresponding **plus/minus** key select "sensor clamp off".

 II


- End the input by switching to the sewing mode.

13.49.02 Parameter list

Group	Parameter	Description	Setting range	Set value
100	101	Display software version		0298/x; 0344/x
	102	Button height (with material) 1 = 0 – 6 mm 2 = 6 – 12 mm 3 = 12 mm and above	1 – 3	1
	103	Show display during sewing (I = stem height, II = speed)	I, II	II
	104	Stem height (incl. button thickness and material) 1 = 0 – 6 mm, 2 = 6 – 12 mm 3 = 12 mm and above	1 – 3	1
	105	Maximum speed	(500 - 2000)	2000
	107	Button feed with pedal position "-1" I = off, II = on	I, II	II
	108	Time delay during continuous operation	0 – 2s	0,3s
	109	Continuous operation I = off, II = on	I, II	II
	110	Software version for motor control		
	111	Software version for thread strength module		
	112	Stem finger I = off, II = on	I, II	II
	113	Sequence input (see Chap. 11.02)		
	114	Sequence (I = off, II = on)	I, II	I
	115	Automatic sequence run in continuous operation (I = off, II = on)	I, II	I
200	201	Delete program		
	202	Machine version 1 = standard/self-shank button 2 = with blind stitching 3 = with stem wrapping 4 = with button feed 5 = with outer clamp 6 = tacking	1 – 6	4
	203	PC connection		
	204	Cloth plate cut-out size see Ch. 3.02 Seam pattern size	1 - 6	1
	205	Missed stitch detection I = off, II = on	I, II	I

Group	Parameter	Description	Setting range	Set value
200	206	Missed stitch detection threshold	0 - 999	120
	207	Fade-out stitches of the misses stitch detection function	0 - 9	6
	208	1 – 120 = Display thread size of last program (max. 120 stitches) 0 = Display calculated optimum threshold (for input in para. "206")	0 – 120	xxx
	209	Air jet I = off, II = on When the thread wiper is attached, the air jet must be switched off!	I, II	I
	210	Turn-on time air jet [s]	0 - 10	1
	400	401	Raise clamp delay	0.0 - 1.5 s
402		Start delay after clamp lowered	0.0 - 1.5 s	0.0 s
403		Delay before thread trimming	0.0 - 2.0 s	0.06 s
404		Thread cutting time	0.0 - 2.0 s	0.06 s
405		Waiting time for thread clamp (s)	0.00 – 2.00	0.10
406		Waiting time for thread puller (s)	0.00 – 2.00	0.30
407		Waiting time until thread wiper in basic position	0.00 – 4.00	0.00
408		Waiting time for pressure release added feature clamp / insert plate (s)	0.00 – 1.50	1.00
409		Delay after rotary cylinder on/off (s)	0.00 – 2.00	0.10
410		Delay after loading cylinder up/down (s)	0.00 – 2.00	0.10
411		Delay after stop cylinder on/off (s)	0.00 – 2.00	0.10
412		Delay after clamp open (s)	0.00 – 2.00	0.10
500	501	Soft start stitches Soft start speed	0 - 15 500 - 2000	0 500
	503	Extra stitches when sewing in same hole	0 - 3	0
	504	Delay time thread clamp open at beginning of seam	0 – 2s	0,02s
	506	Angle position for "end knotting on" Software version 0298/xxx Software version 0344/xxx	0 - 127 0 - 127	36 40

Adjustment


Group	Parameter	Description	Setting range	Set value
500	507	Angel position for "end knotting off"	0 - 127	52
		Software version 0298/xxx Software version 0344/xxx	0 - 127	70
	508	Number of stitches for "thread clamp closed" at end of seam (calculated backwards from the last stitch)	0 – 3	0
		Angle position for "thread clamp closed" at end of seam	0 – 127	80
	510	Angle position for "thread clamp open" at last needle penetration before thread trimming	0 – 127	120
	511	Securing stitches before cutting	0 – 2	1
512	Measuring point of missed stitch detection function with display of the thread strength	0 - 127	115 incr.	
600	601	Move stepping motor clamp and needle		
	602	Display inputs 0123456789ABCDEF Display position 0: Not assigned 1: Not assigned 2: Needle in material (NIS) 3: End knotting engaged (E16 - X5:7) 4: Error reset key S101 (E12 – X5:12) 5: Not assigned (E11 - X5:11) 6: Loading control station B30 Button inserted / not inserted (E10 - X5:10) 7: Not assigned (E9 - X5:9) 8: Programmable input 1 (E8 - X5:16) 9: Programmable input 2 (E7 - X5:15) A: Position clamp S26 (E6 - X5:14) B: Not assigned (E5 - X5:5) C: Clamp lowered (E4 - X5:3) D: Position station S23 (E3 - X5:3) E: Reference needle (photoelectric barrier) F: Reference clamp (photoelectric barrier)	Meaning of the value displayed 0 - - - off [▲] off [▲] - inserted - - - - - - - off [▲] - raised [▲] off [▲] switched switched	I - - - on on - not inserted - - - - - - on - lowered on not assigned not assigned

▲ = basic position

Group	Parameter	Description	Setting range	Set value
600	603	Switch outputs Display position	Meaning of the value displayed	
		1: Clamp up/down (X13:1)	0 up [▲]	I down
		2: Not assigned (X13:3)	-	-
		3: Thread clamp (X13:5)	open	closed [▲]
		4: Thread trimming (X13:6)	off [▲]	on
		5: End knotting (X13:7)	off [▲]	on
		6: Thread puller (X13:8)	off [▲]	on
		7: Thread wiper (X13:9)	off [▲]	on
		8: Rotary cylinder (X13:10)	off [▲]	turned
		9: Loading cylinder (X13:11)	retracted [▲]	extended
10:Swivel cylinder (X13:12)	clamp	station [▲]		
11:Stop cylinder (X13:13)	extended [▲]	retracted		
12: Clamp open/closed (X13:25)	closed [▲]	open		
13:Stem finger (X13:24)	forwards	backwards [▲]		
14:Not assigned (X13:16)	off [▲]	on		
15:Not assigned (X13:17)	-	-		
16:Missed stitch lamp (X5:24)	off [▲]	on		
	604	Last engaging and disengaging positions for end knotting		
	605	Needle penetration point in fabric	0 - 127	43
	607	Turn sewing motor in sewing direction		
	608	Carry out cold start		
	610	Needle penetration points for adjustment 1: Centre 2: Max. penetration point right 3: Max. penetration point left 4: Button gauge: centre 5: Clamp closed 6: Lower clamp		
	611	Suppression thread trimming (I = OFF, II = ON)	I, II	I
	612	Adjusting aid for zero position of stepping motor using synchronisation mark		0
	614	Set cutting position X on right	± 25	5
	615	Set cutting position X on left	± 25	8

▲ = basic position

Adjustment

Group	Parameter	Description	Setting range	Set value
600	616	Button feed position 1: Clamp open / stem finger back 2: Retract stop cylinder / stem finger forwards 3: Close clamp 4: Lower loading cylinder 5: Swivel cylinder in station 6: Stop cylinder in stop position/raise loading cylinder 7: Turn rotary cylinder 8: Swivel cylinder in stop position  Only leave parameter in position "1"!		
700	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	1 - 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	0 - 100	0
	709	Minimum machine speed	3 - 64	6
	710	Maximum machine speed	0 - 2000	2000
	711	Maximum motor speed	0 - 100	45
	712	Positioning speed	3 - 35	25
	713	Acceleration ramp	1 - 50	35
	714	Brake ramp	1 - 50	30
	715	Reference position	1 - 127	43
	716	Time-out	0 - 255	40
	717	Starting current motor	3 - 10	6
	718	Anti vibration filter	1 - 10	3
	719	Rotation direction allocation	0 - 1	1
	720	Reference position correction	0 - 127	64

Group	Parameter	Description	Setting range	Set value
800	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 key max. speed	0 - 1 [■]	0
	810	Right of access key program number selection	0 - 1 [■]	0
	811	Right of access key piece counter	0 - 1 [■]	0
	812	Right of access F1 key	0 - 1 [■]	0
	813	Right of access key two-hole button	0 - 1 [■]	0
	814	Right of access key four-hole button	0 - 1 [■]	0
	815	Right of access key three-hole button	0 - 1 [■]	0
	816	Right of access key program group A	0 - 1 [■]	0
	817	Right of access key program group B	0 - 1 [■]	0
	818	Right of access programming key	0 - 1 [■]	0
	819	Enter access code (status on delivery: 3307)	0 - 9999	3307

■ 0 = free access, 1 = access only with code input

13.50 Error messages

- Error 1 System error
- Error 2 Sewing motor
- 30: Time out + motor defect
 - 20: Time out + motor defect
 - 10: Speed + motor defect
 - 0B: StopX + motor defect
 - 0A: Reset stitch counter + motor defect
 - 9: Write parameter + motor defect
 - 5: Position tdc shortest path + motor defect
 - 3: Position tdc backwards + motor defect
 - 2: Position tdc forwards + motor defect
- Error 3 Input feed plate in (E6 - X5:14)
- Error 4 Missed stitch with needle penetration number or end knotting error with needle penetration number
- Error 5 Clamp entrance at bottom (E4 – X5:4) switch clamp locked as main drive not in t.d.c. position
- Error 6 Time monitoring when going through the sewing program
- Error 7
- 1 Delay X not finished
 - 2 Delay Y not finished
 - 3 Delay X and Y not finished
 - 4 Ramp X not finished
 - 5 Ramp Y not finished
- Error 8 Stitch length
- Error 9 Seam outside area
- Error 10
- 1 Error when moving the machine into home position, outputs not finished
 - 2 Raise clamp – no reaction/sub-class may be incorrect
 - 3 Insert position not reached
 - 6 Foot pedal operated
 - 7 X-centre not reached
 - 8 still at X-centre
 - 9 Y-centre not reached
 - 10 still at Y-centre
 - 11 time control home test
 - 12 Absolute position –0.3 not reached home test
 - 13 Absolute position +0.6 not reached home test
 - 14: Main drive unit has not reached t.d.c. position

Error	11	Stepping motor step frequency too high
Error	12	Error in sewing program
Error	13	Set position of stepping motor outside sewing area
Error	14	Time control outputs 3: Thread clamp 6: Thread wiper 15: Programmable output 1
Error	15	Input signal not received
Error	16	Delay time with running sewing drive not permitted
Error	17	Cutting without sewing
Error	18	Incorrect command in data set
Error	19	Incorrect program number
Error	20	not assigned
Error	21	Power supply unit overload (24 V)
Error	22	Mains voltage
Error	23	Power supply unit 24 V too strong / too weak
Error	24	No stepping motor movement prepared (needle in material)
Error	25	Stepping motor not started yet (needle in material)
Error	27	1 Error on PC-interface Receiver Timeout 2 Transmitter Timeout 3 Transmission error 4 Receiving buffer overflow 5 Data error 6 Answer too long 7 No ASCII HEX 8 Inadmissible program number 9 Incorrect command syntax 10 No number 11 Unknown command
Error	28	Button loading 1 Clamp not raised 2 Loading position S1 not reached 3 Stop position S2 or basic position S3 not reached 4 Button not locked into place when loaded
Error	29	CAN-ERROR 1 Timeout 2 Incorrect answer 4 Data lost
Error	30	End knotting error with stitch entry number

13.51

Motor errors

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

13.52 Data backup and protection with PC-program SAM

For the data transfer the PC and the machine are connected to each other with a null modem cable (part-no. 91-291 998-91).

- Switch off the machine and the PC.
- Connect the serial interface (RS232 see Page 8-3) and serial PC-interface (COM 1-4) with the cable provided.
- Switch on the PC. If necessary install SAM with the installation CD provided.
- Start SAM ("Start" "Programme" – "SAM") and set the corresponding COM-interface in the
- "settings" menu. In the "Machine" menu 3307 must be selected.
- Switch on the machine.
- Select parameter "203" on the machine.

Enter

- Press **Enter**.
- "203 ONLINE" appears on the display and the machine is in the slave mode, i.e. all other operations will be started by SAM.
- Set up a connection to the machine using the SAM-menu "Setting up a machine connection".
- If the connection was set up successfully, the data backup item of the SAM menu is activated.



Either a complete (all data and programs) or selective data backup or protection can be carried out. For this purpose the name of a backup database must be entered, or a previously created backup database selected. The name of the backup database can be chosen freely, but the character string "3307" must be part of it.

- After the data has been transferred successfully, the connection to the machine can be disconnected with the SAM menu "Machine – terminate the connection". The machine leaves the slave mode and changes to the function group 200.
- Switch off the machine.
- Remove the cable from the serial interface (RS232).

13.53 Internet update of the machine software

The machine software can be updated with PFAFF flash programming. For this purpose the PFP boot program and the appropriate control software for the machine type must be installed on a PC. To transfer the data to the machine, the PC and the machine control unit must be connected with an appropriate null modem cable (part no. 91-291 998-91).



The PFP boot program and the control software of the machine type can be downloaded from the PFAFF-homepage using the following path:
www.pfaff-industrial.com/de/service/download/steuerungssoftware.html

To update the machine software carry out the following steps:



While the machine software is being updated, no setting up, maintenance or adjustment work may be carried out on the machine!

- Switch off the machine.
- Connect PC (serial interface or corresponding USB adapter) to machine control unit (X1A).

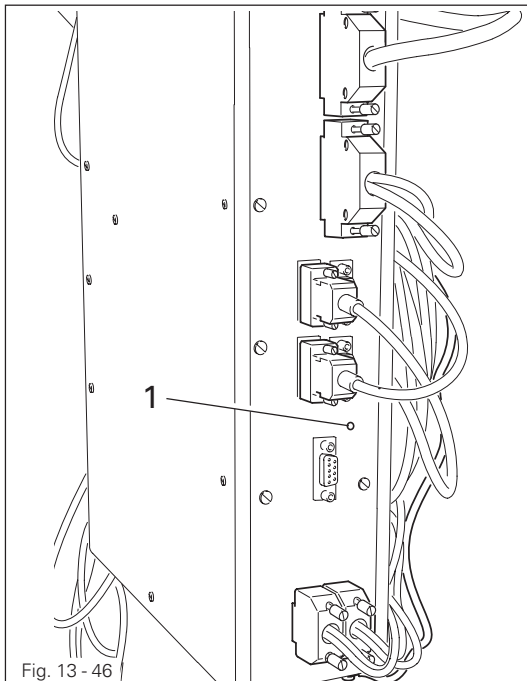


Fig. 13 - 46

- Switch on the PC and start the PFP boot program.
- Select the machine type.
- Press the "programming" button.
- Switch on the machine, keeping the boot key 1 pressed.
- Press the "OK" button.
- The software update is carried out, the update progress is shown on the bar display of the PFP boot program.
- When the update has been completed, switch off the machine and end the PFP boot program.
- Disconnect plug connection between PC and machine control unit.
- Switch on the machine.
A plausibility control is carried out and, if necessary, a cold start.



More information and assistance is at your disposal in the file "PFPHILFE.TXT", which can be called up from the PFP boot program by pressing the "help" button.

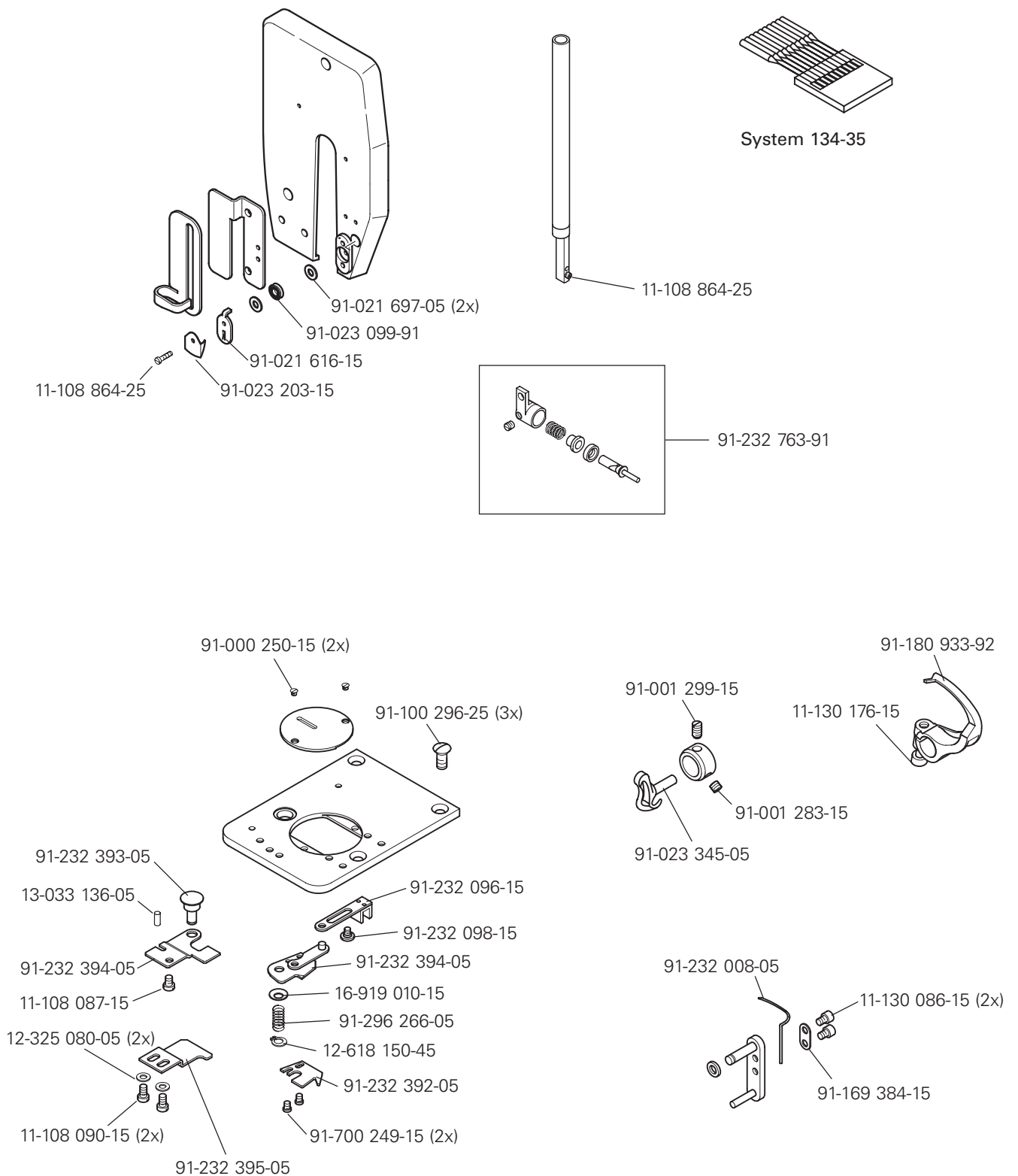
14

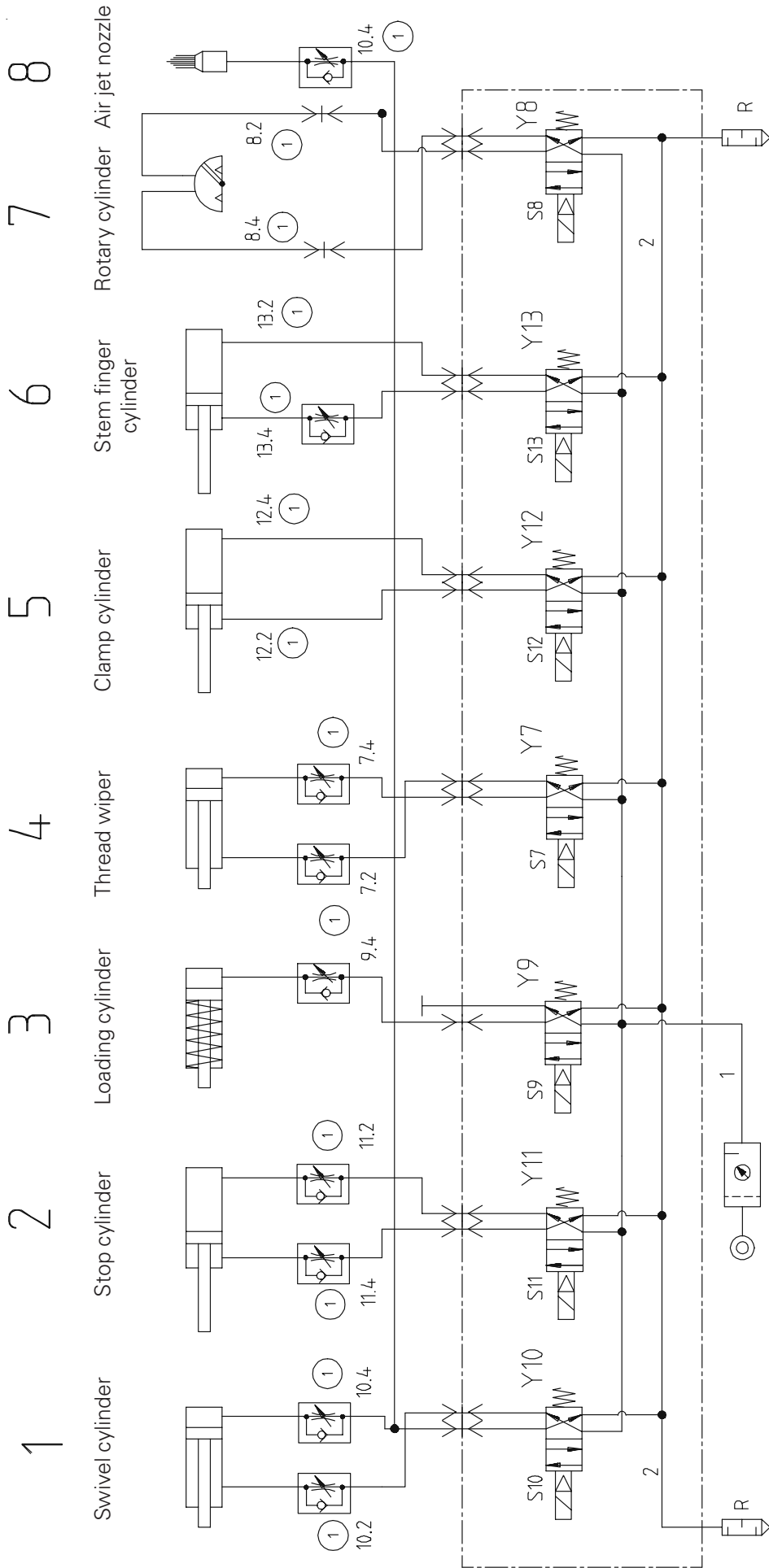
Wearing parts



This is a list of the most important wearing parts.

You can order a detailed spare parts list for the complete machine under part no. 296-12-18 893.





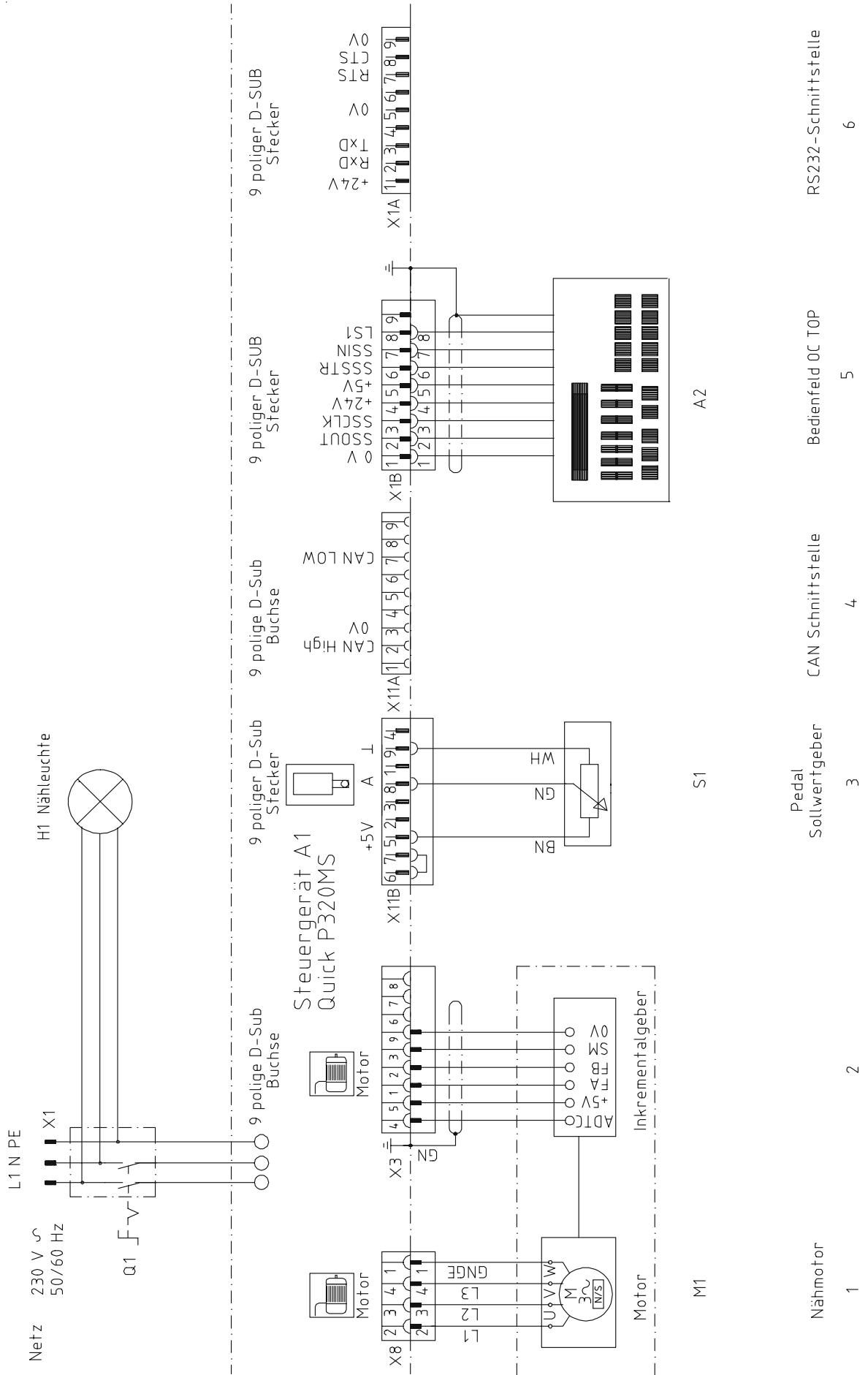
The control elements and valves are in the machine's basic position.
Main switch -ON, compressed air -ON

Reference list for circuit diagrams

A1	Controller Quick P320MS
A2	Control panel OC TOP-automatic 3307
A100	Thread strength- module
A110	Thread strength – alarm + reset
B2	Hybrid light barrier needle reference
B3	Hybrid light barrier clamp reference
B100	Thread strength sensor
H1	Sewing lamp
H101	Lamp – alarm
M1	Sewing motor
M2	Stepping motor needle
M3	Stepping motor button clamp
Q1	Main switch
S1	Pedal speed control unit
S24	Key button clamp lowered
S25	Blind stitching off
S26	Feed plate in
S36	Solenoid switch secure stitch
S101	Key – reset
X1	Mains plug
X1A	RS232 – interface 1
X1B	Control panel OC TOP
X3	Incremental transmitter (sewing motor)
X4A	Stepping motor needle and hybrid light barrier
X4B	Stepping motor button clamp and hybrid light barrier
X5	Inputs
X8	Sewing motor
X11A	CAN interface
X11B	Pedal speed control unit
X13	Outputs
X20	Stepping motor needle
X21	Stepping motor button clamp
X34	Key button clamp lowered
X40	Hybrid light barrier needle reference
X41	Hybrid light barrier button clamp reference
X51	Clamp open
X53	Thread clamp
X54	Thread trimming
X55	End knotting

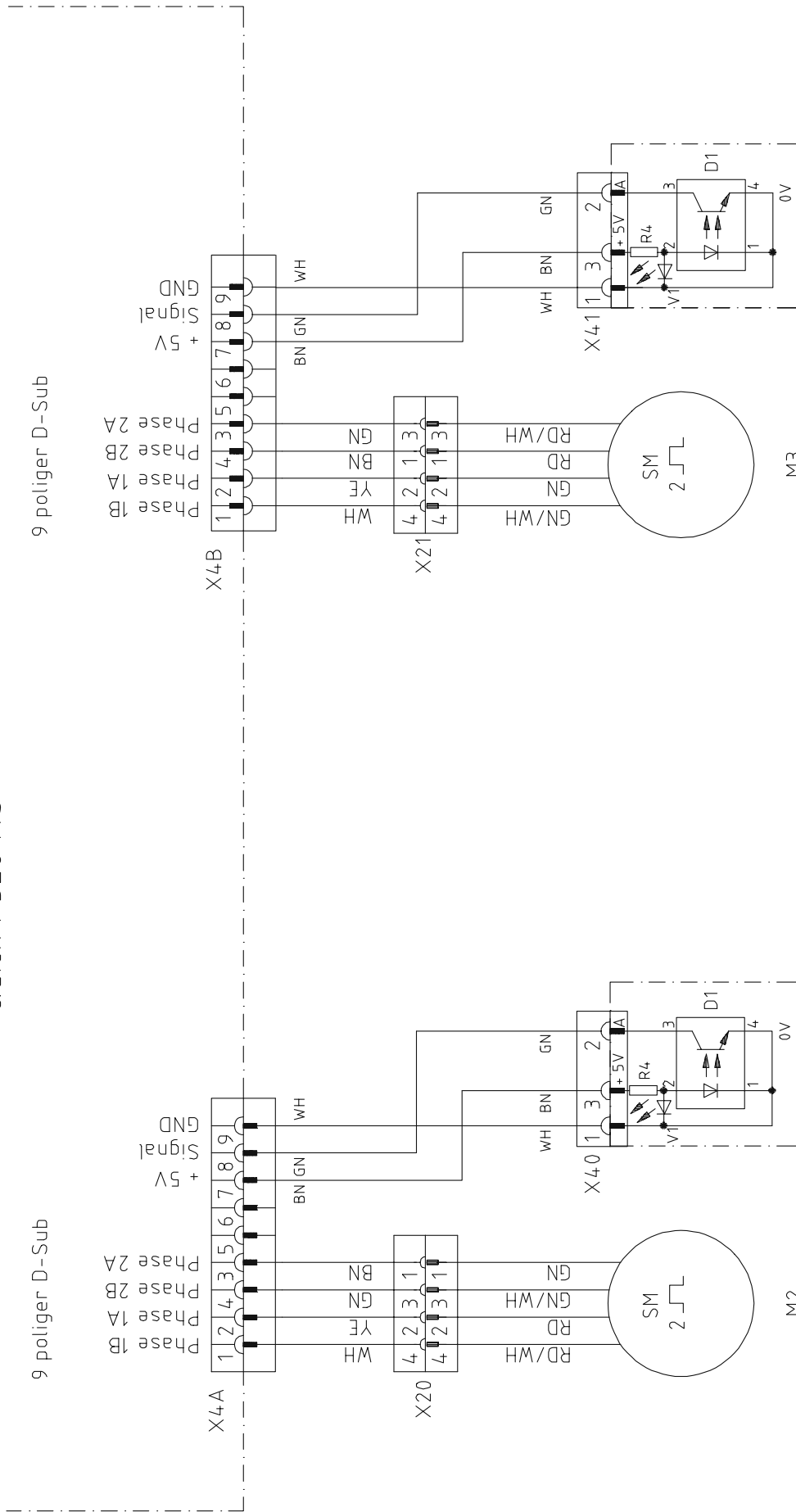
Circuit diagrams

X56	Thread puller
X57	Thread wiper
X58	Feed plate in
X59	Feed plate out
X60	Material shift
X61	Blind stitching
X62	Stem finger
X63	Stem long
X101	Thread strength – module sensor + supply
X102	Thread strength – module CAN interface
X103	Thread strength – module RS232
X110	Thread strength – alarm + reset
X111	Thread strength – sensor
X112	Thread strength – tension supply
Y1	Clamp open
Y3	Thread clamp
Y4	Thread trimming
Y5	End knotting
Y6	Thread puller
Y7	Thread wiper
Y8	Feed plate in
Y9	Feed plate out
Y10	Material shift
Y11	Blind stitching
Y12	Stem finger
Y13	Stem long



Steuergerät A1
Quick P320 MS

Schrittmotoren



9 poliger D-Sub

9 poliger D-Sub

Klammerreferenz
Gabellichtschränke

10

Knopfklammer

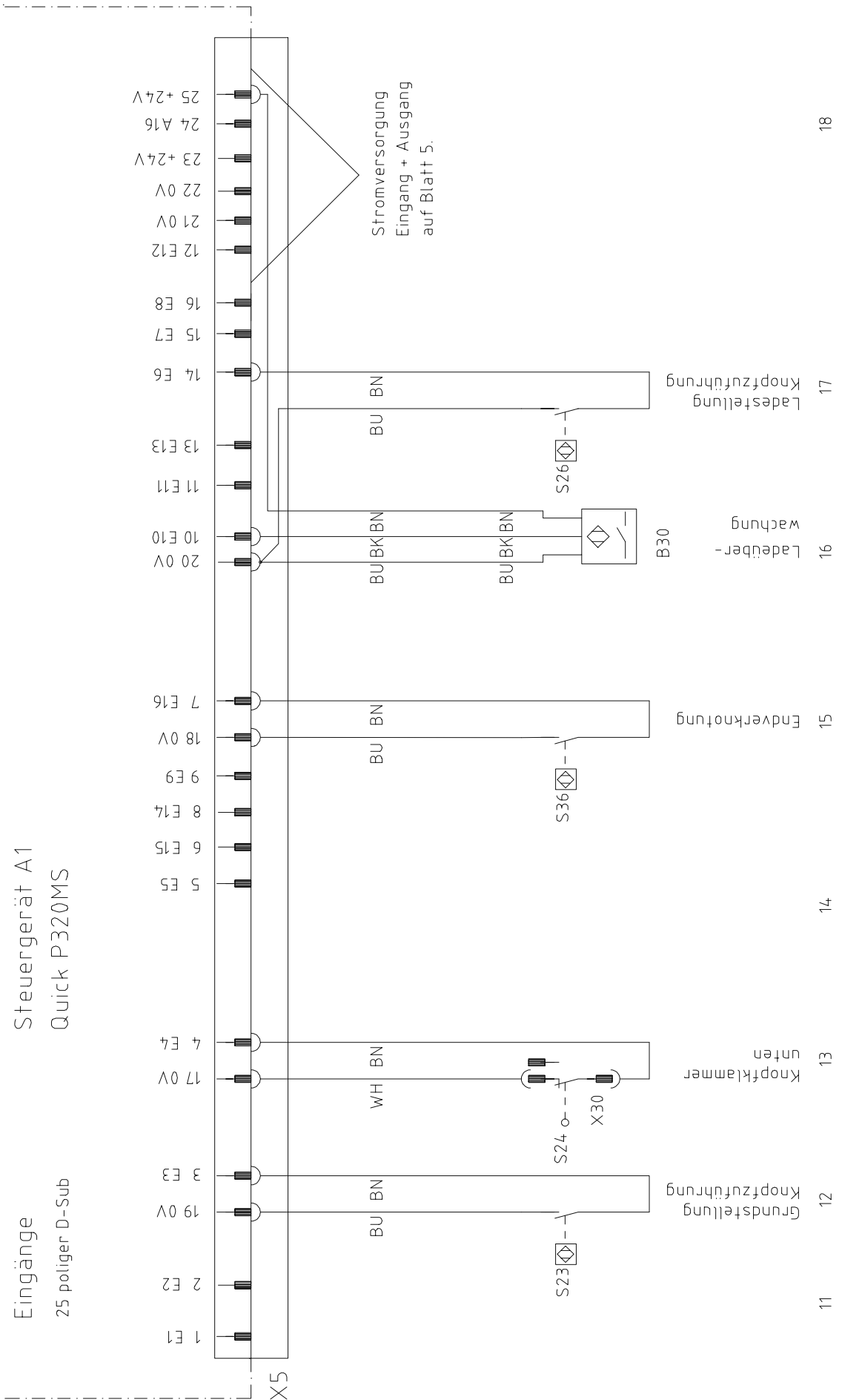
9

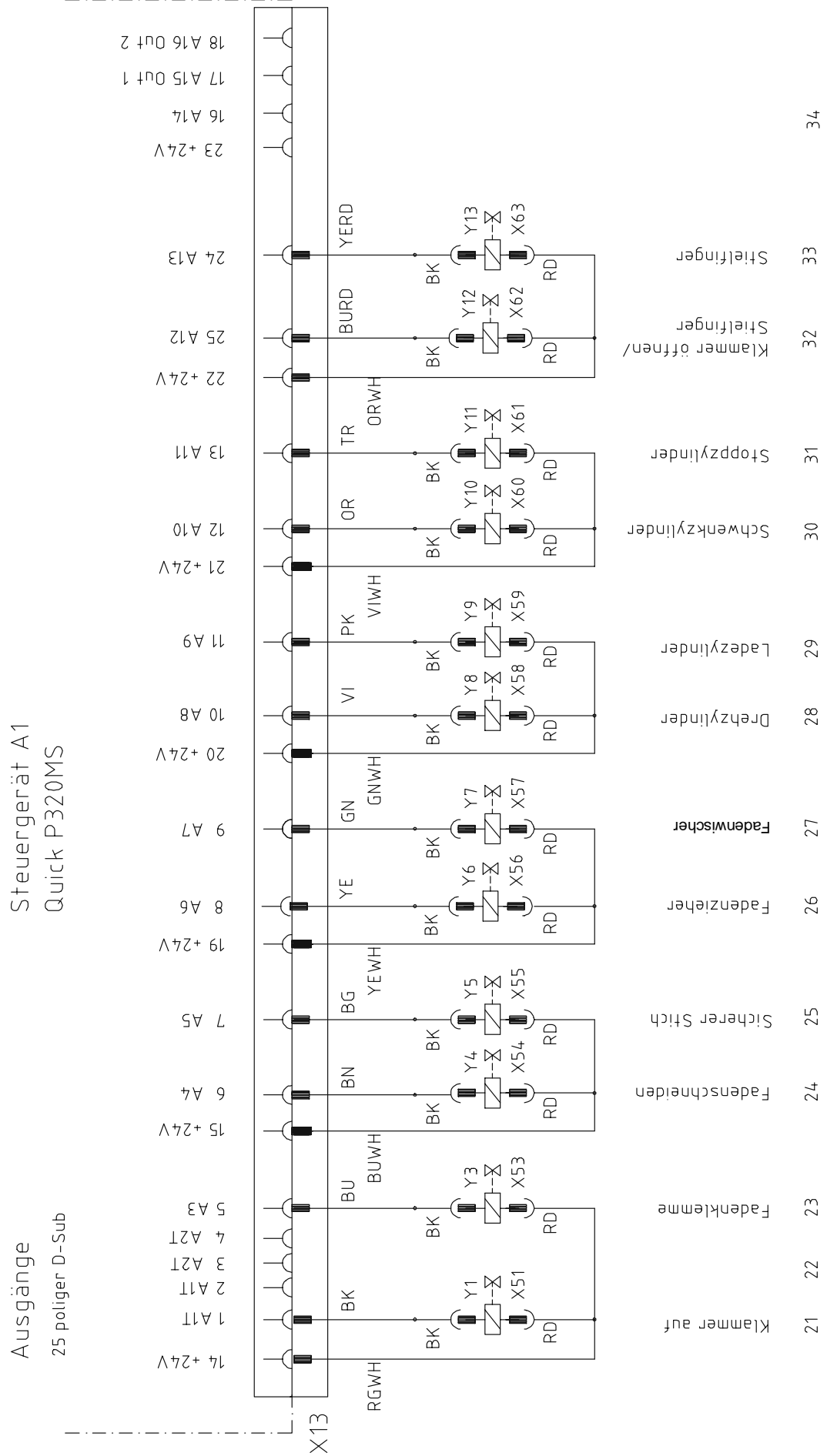
Nadelreferenz
Gabellichtschränke

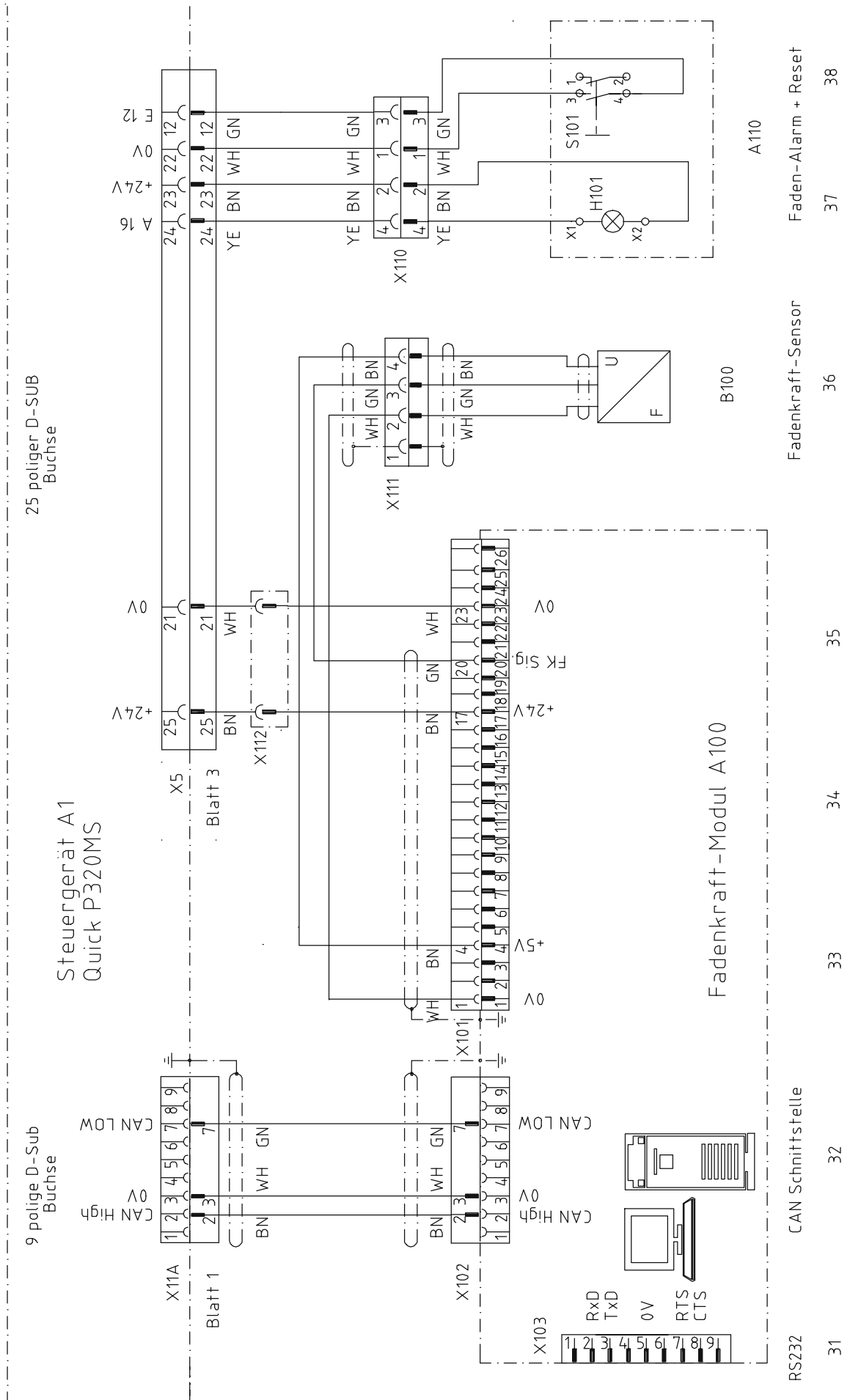
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Nadel

7







PFAFF

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