

PFAFF

3119

Instruction manual

This instruction manual applies to machines from software version 0312/003 and serial number 2633033 onwards



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

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PFAFF Industrie Maschinen AG

Postfach 3020

D-67653 Kaiserslautern

Königstr. 154

D-67655 Kaiserslautern

Redaktion / Illustration

HAAS-Publikationen GmbH

D-53840 Troisdorf

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1 Safety

1.01 Regulations

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

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

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

1.02 General notes on safety

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

1.03

Safety symbols



Danger!
Special points to observe.



Danger of injury to operating or technical staff!



Electric voltage!
Danger to operating or technical staff!



Caution

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

1.04

Important notes for the user

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

For further information please refer to your PFAFF agency.

1.05 Notes for operating and technical staff

1.05.01 Operating staff

Operating staff are the persons responsible for setting up, operating and cleaning the machine and for 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



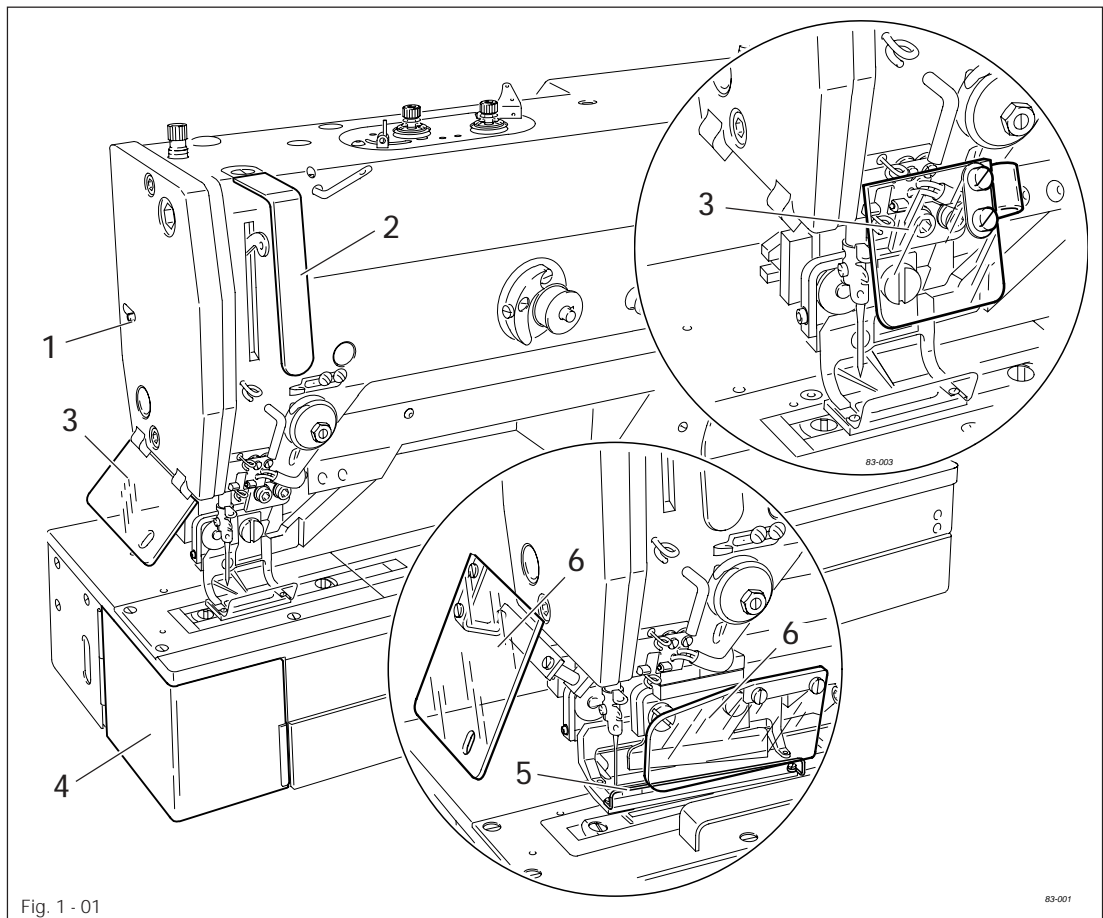
A working area of 1 m must be kept free both in front of and behind the machine, so that easy access is possible at all times.



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



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



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



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



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



Do not operate machines with sub-class -10/01 without guard 5 and eye-shield 6!
Danger of injury from the needle and needle splinters!

2

Proper use

The PFAFF 3119-1/51, PFAFF 3119-1/52 and PFAFF 3119-2/52 are used for sewing raised or flat buttonholes with two flat or raised square bars on fine materials in the linen and clothing industry.

The PFAFF 3119-2/53, PFAFF 3119-3/51 and PFAFF 3119-4/51 are used for sewing raised or flat buttonholes with two flat or raised square bars on medium materials in the linen and clothing industry.

The PFAFF 3119-2/6 and PFAFF 3119-2/63 are used for sewing raised or flat buttonholes with two flat or raised square bars on delicate knitted fabrics in the linen and clothing industry.

The PFAFF 3119-5/51 is used for producing openings for safety belts in the automobile industry.

The PFAFF 3119-10/01 is used for sewing hook-and-eye tapes in the underwear industry



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:	4200 min ⁻¹
Stitch type:	304
Needle bar stroke:	34.5 mm
Max. thickness of workpiece:	max. 4 mm
Max. work clamp clearance:	max. 12.5 mm
Fabric clearance (crosswise to sewing arm):	235 mm
Fabric clearance (lengthwise to sewing arm):	30 mm
Stitch formation	buttonhole, max. 70 mm x 6.0 mm
Length of buttonhole cut:	6.4 mm – 66.0 mm
Stitch formation:	buttonhole, max. 48 mm x 5.5 mm
Length of buttonhole cut:	6.4 mm – 38.1 mm
Zig-zag stitch:	max. 5.5 mm
Number of stitches:	freely programmable
Feed type:	intermittent
Power supply:	190 – 240 V –20%, +10%, 50/60 Hz, single phase
Power consumption:	max. 0.6 KVA
Input power rating:	0.7 kVA
Fuse protection:	1 x 16A, inert
Software status:	see parameter "104"
Working air pressure:	6 bar
Air consumption	~1.2 l / work cycle
Noise data:	
Emission sound level at workplace with a sewing cycle of 4 sec. On and 2 sec. Off:	$L_{pA} = 78 \text{ dB(A)} \blacksquare$
(Noise measurement in accordance with DIN 45 635-48-B-1, ISO 11204, ISO 3744, ISO 4871)	
Sewing head dimensions:	
Length:	approx. 514 mm
Width:	approx. 200 mm
Height:	approx. 450 mm
Weight of sewing head:	approx. 65 kg
Dimensions of base:	
Length:	approx. 1060 mm
Width:	approx. 600 mm
Height	approx. 820 mm
Weight of base incl. control box:	approx. 45 kg
Needle system:	438
Needle size for fine materials:	60 - 70
Needle size for medium-weight materials:	80 - 100

▲ Subject to alteration

■ $K_{pA} = 2,5 \text{ dB}$

3.02 Stitch formation of the various sub-classes

Sub-class	-1/51 -1/52	-2/51 -2/62	-2/53 -2/63	-3/51	-4/51	-5/51	-10/01
Cut-out size in work clamp [mm]	30,0 x 5,6	40,0 x 5,6 44,0 x 5,9	40,0 x 6,7 44,0 x 7,0	46,0 x 6,7	55,0 x 7,0	77,0 x 6,0	80,0 x 6,0
Buttonhole size [mm]	24,0 x 4,5	34,0 x 4,5	34,0 x 5,5	40,0 x 5,5	48,0 x 5,5	70,0 x 5,5	65,0 x 5,0
Length of buttonhole cut [mm]	6,4 9,5 11,0 12,7 14,0 16,0 17,5	6,4 9,5 11,0 12,7 14,0 16,0 17,5 19,0 22,2 25,4	6,4 9,5 11,0 12,7 14,0 16,0 17,5 19,0 22,2 25,4	6,4 9,5 11,0 12,7 14,0 16,0 17,5 19,0 22,2 25,4 28,6 31,7*	6,4 9,5 11,0 12,7 14,0 16,0 17,5 19,0 22,2 25,4 28,6 31,7* 33,7 35,0 36,5 38,1	6,4 9,5 11,0 12,7 14,0 16,0 17,5 19,0 22,2 25,4 28,6 31,7* 33,7 35,0 36,5 38,1	60,0

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



Each time parts are changed, the control unit must be adapted to the sub-class, see **Chapter 8.02 Setting the control unit**. An incorrect setting can cause the knife or needle to strike the work clamp.

4 Disposal of Machine

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



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

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

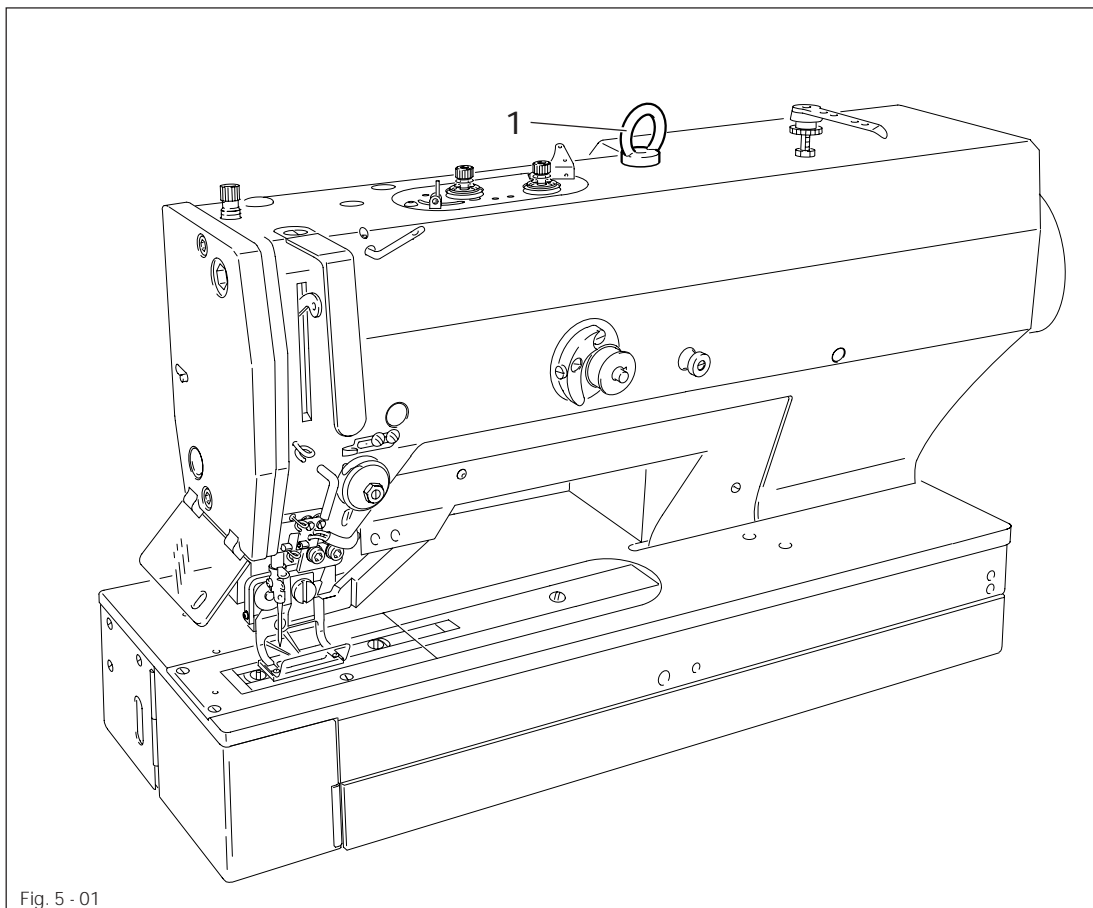


Fig. 5 - 01

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.

Explanation of symbols

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:



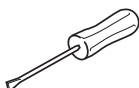
Note, information



Cleaning, care



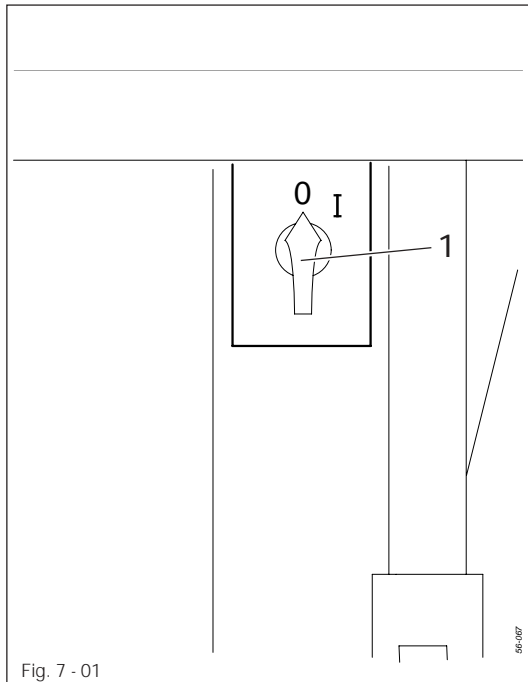
Lubrication



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

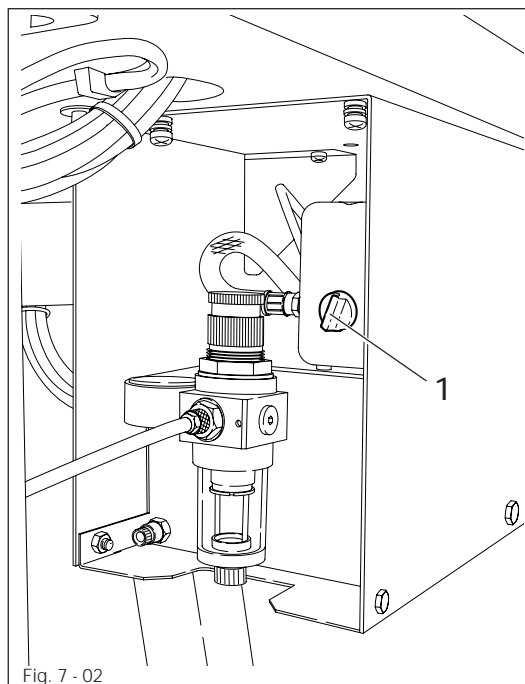
7 Controls

7.01 Main switch



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

7.02 Switch for separate compressor (optional)

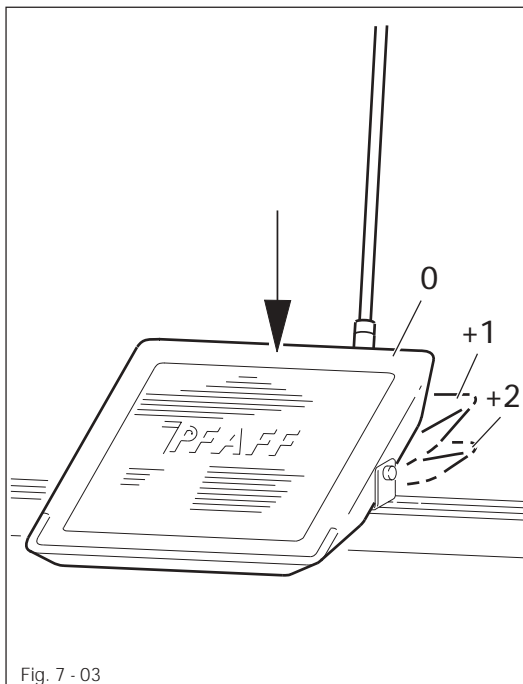


- Turn the compressor on or off by turning switch 1.



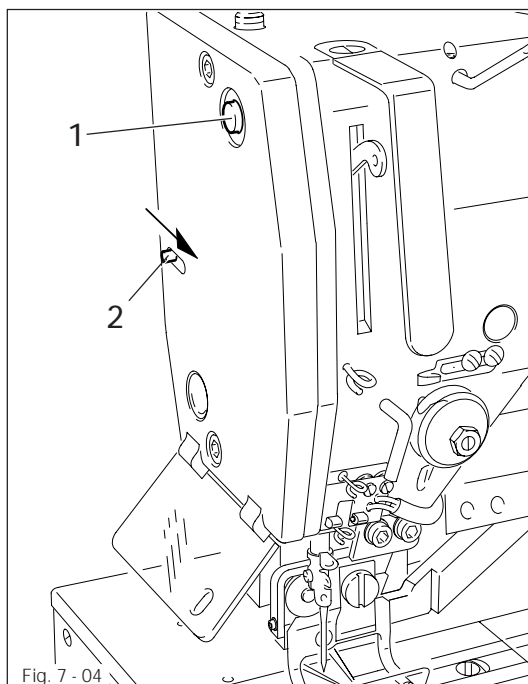
Before starting the machine, switch on the compressor and wait until the manometer displays a pressure of **6 bar**. If the pressure is too low, an error message will appear on the display.

7.03 Pedal



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

7.04 Preventing knife engagement



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

7.05 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.

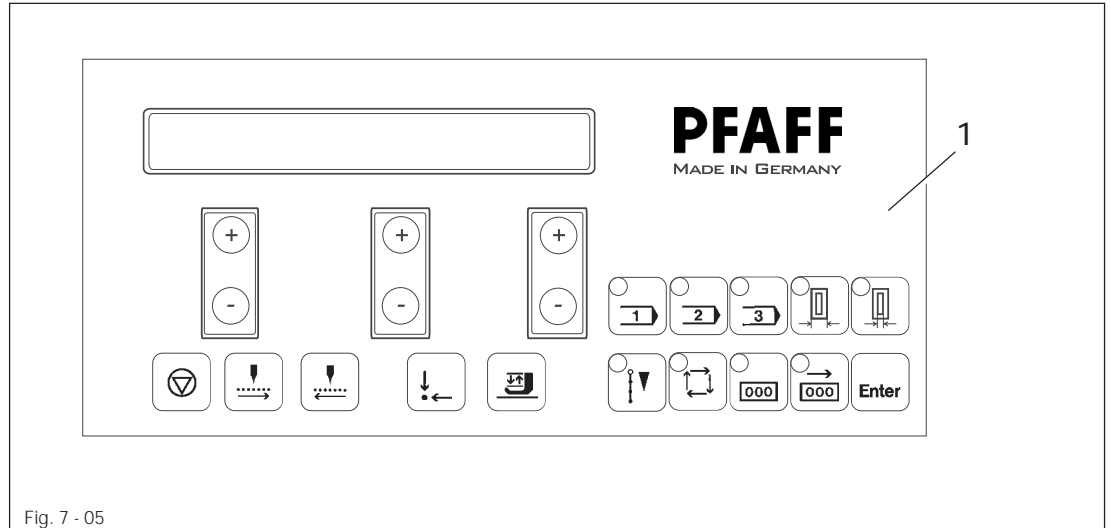
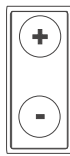


Fig. 7 - 05



Plus / minus key

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



Stop

- When operated during a sewing cycle, the machine is stopped.
- If operated outside a sewing cycle, the winding operation is started/stopped.
- When entering the code number this key corresponds to the figure 0.



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

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



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



Basic position

- In the operational mode Sewing the machine moves to the basic position.
- In the operational mode Input the parameter input is interrupted (without the values being saved) and the function group level of the parameter list is selected (100, 200, ..., 800).



Work clamp raised / lowered

- In the operational mode Sewing the work clamp is raised/lowered.
- When entering the code number, this key corresponds to number 6.



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

Program keys (stitch density)

The key function depends on what is displayed on the screen, see **Chapter 10 Sewing**. If the program number is displayed on the screen instead of the cut length, and on sub-class -10/01, the 3 following keys are used as call-up keys for variable and special programs.



- When the cut length is displayed, the machine switches to **coarse** using the stitch density.
- On sub-class -10/01 the stop position allocated with Parameter "212" is also selected, see **Chapter 13.48 Basic position of the stop**.
- When entering the code number, this key corresponds to number 1.



- When the cut length is displayed, the machine switches to **medium** using the stitch density.
- On sub-class -10/01 the stop position allocated with Parameter "213" is also selected, see **Chapter 13.48 Basic position of the stop**.
- When entering the code number, this key corresponds to number 2.



- When the cut length is displayed, the machine switches to **fine** using the stitch density.
- On sub-class -10/01 the stop position allocated with Parameter "214" is also selected, see **Chapter 13.48 Basic position of the stop**.
- When entering the code number, this key corresponds to number 3.



Buttonhole width

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



Cut width seam extension

- When this function is activated, the current values for the cut width (left) and the extension of the seam (right) are displayed on the screen and can be altered with the corresponding **plus/minus key**.
- When entering the code number, this key corresponds to number 5.



Sewing mode

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



Double sewing cycle

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



Piece counter / reverse counter

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



Enter

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

8 Installation and commissioning



The machine must only be installed and commissioned by qualified personnel!
All relevant safety regulations must be strictly adhered to!
If the machine is delivered without a table, be sure to use a stand and table top that can hold the weight of the machine with its motor.
It is very important to ensure that the stand of the machine is firm and steady, also during sewing.

8.01 Installation

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

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



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

8.01.01 Adjusting the table height

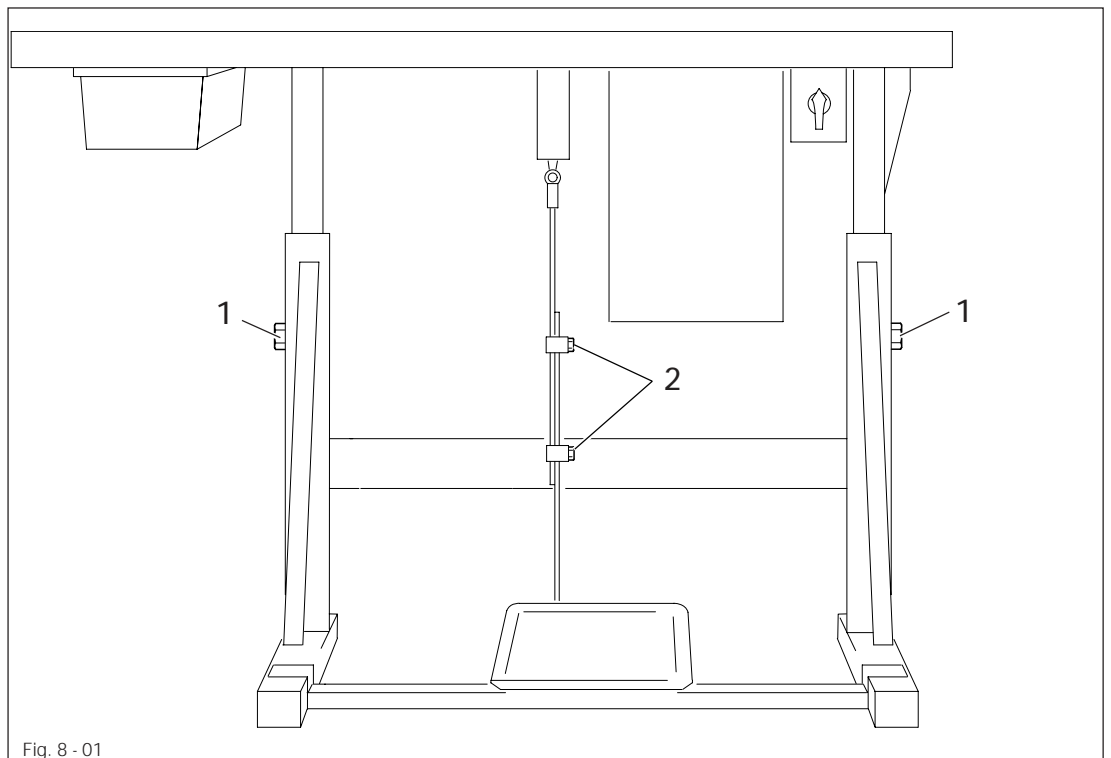


Fig. 8 - 01

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

Installation and commissioning

8.01.02 Installation variants

The PFAFF 3119 can be installed in two different ways.

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

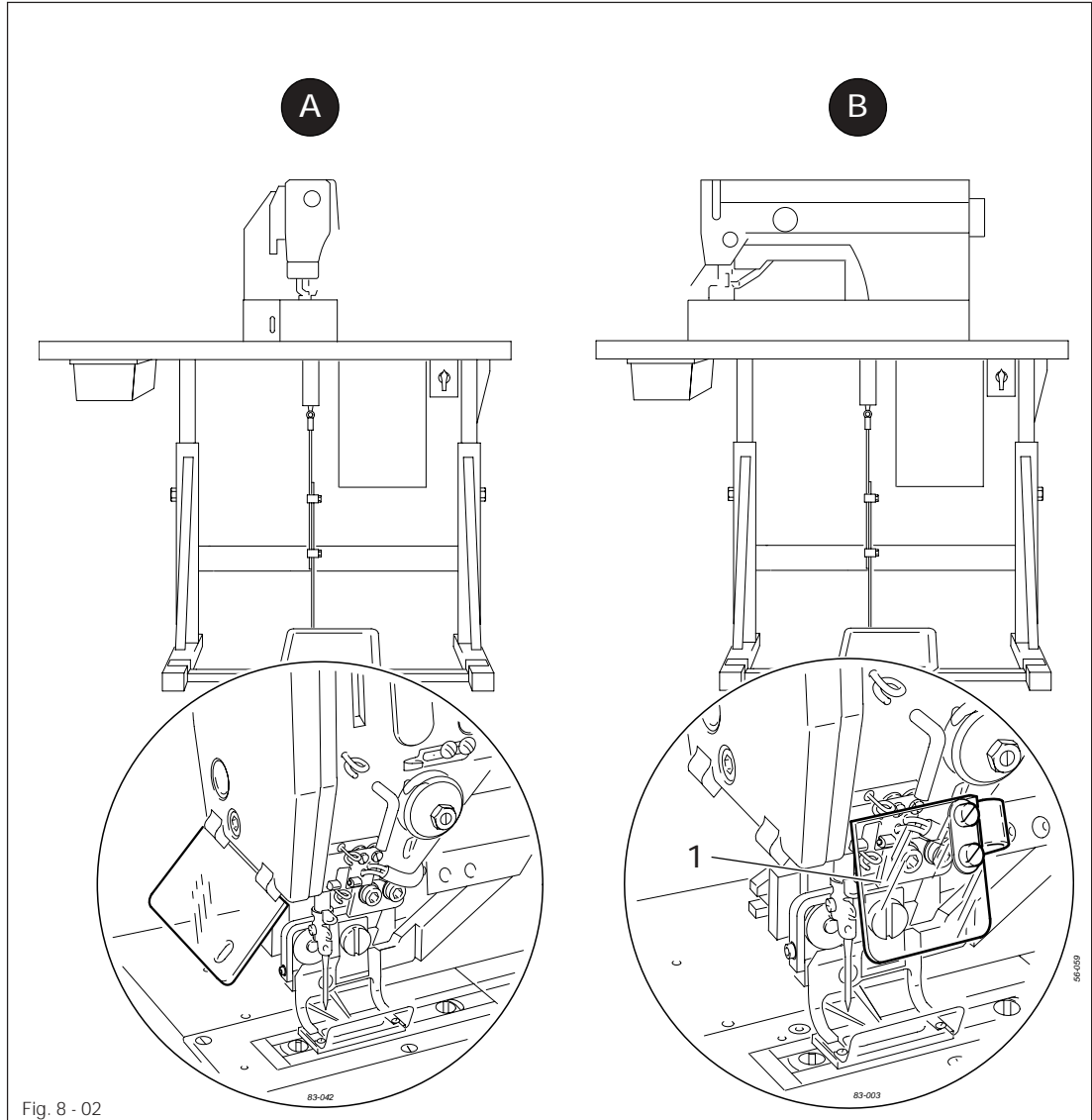


Fig. 8 - 02

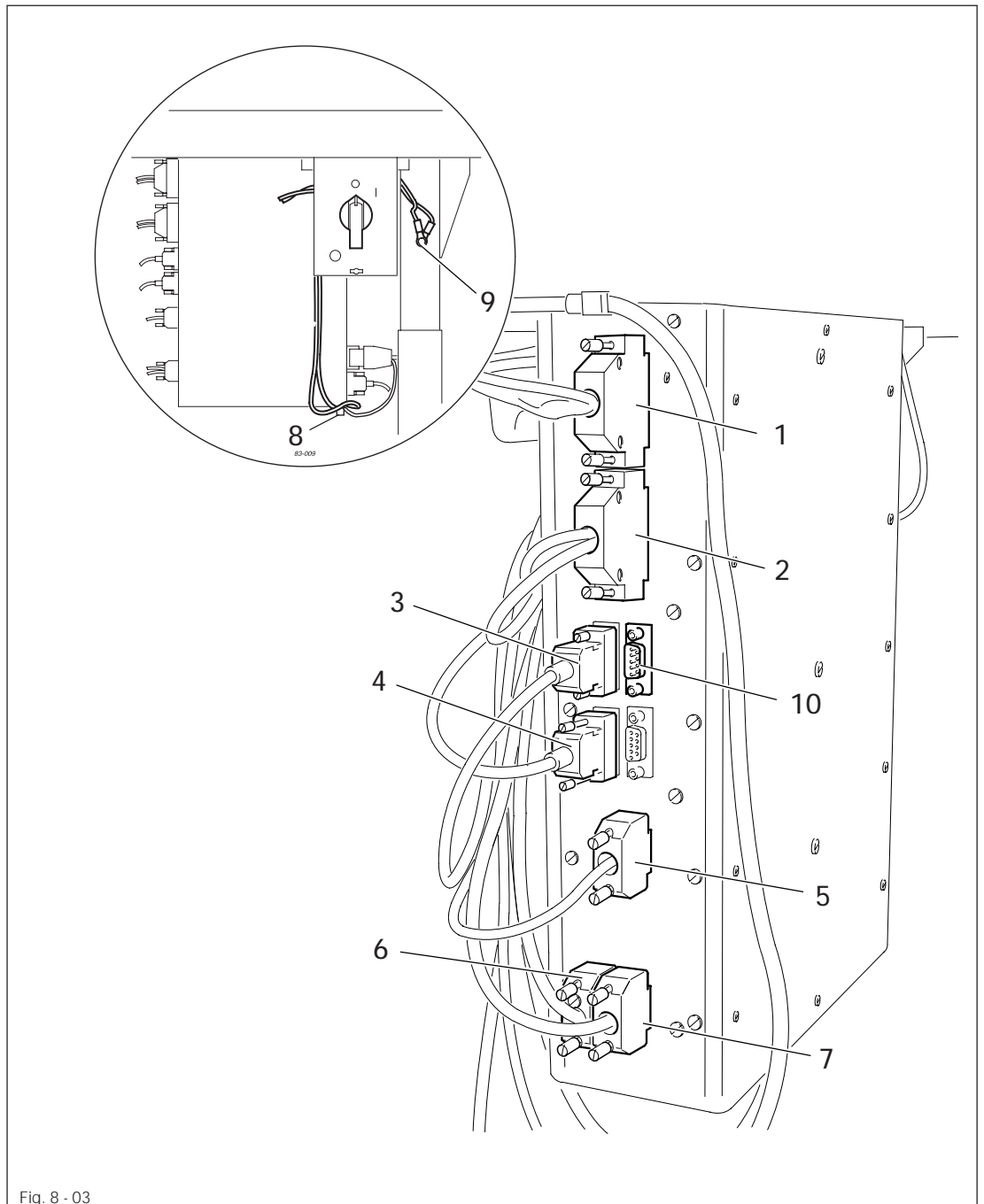


When the machine is installed for "Sewing parallel to the table edge", the eye shield 1, part no. 91-160 383-90, must be fitted.



When installing machines with **sub-class -10/01**, the safety covers must be attached irrespective of the installation variant. The safety covers must be fitted before the machine is set into operation and must not be removed, see also **Chapter 1.04 Danger warnings!**

8.01.03 Connecting the plug-type connections

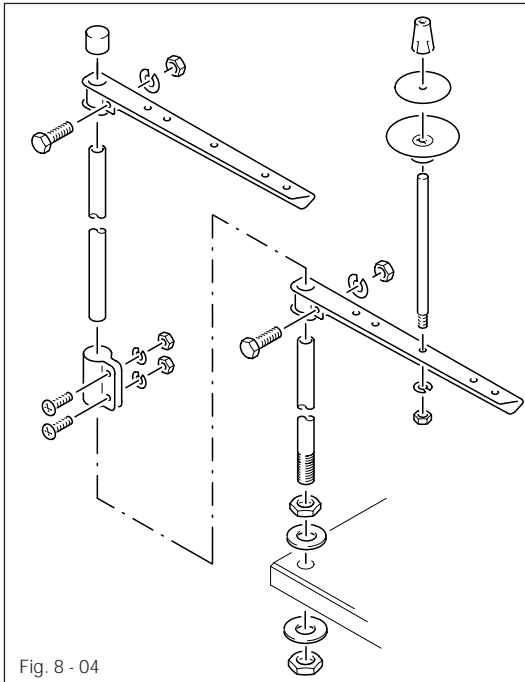


- Connect all plugs 1 - 7 as labelled in the control box.
- Screw earth cable from the machine and the motor to earth point 8.
- Connect earth point 8 and 9 with an earth cable.
- Screw earth cable of the main switch to earth point 9.



The serial interface 10 is used to transfer data between the PC and the machine control unit (e.g. for software updates, work with 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).

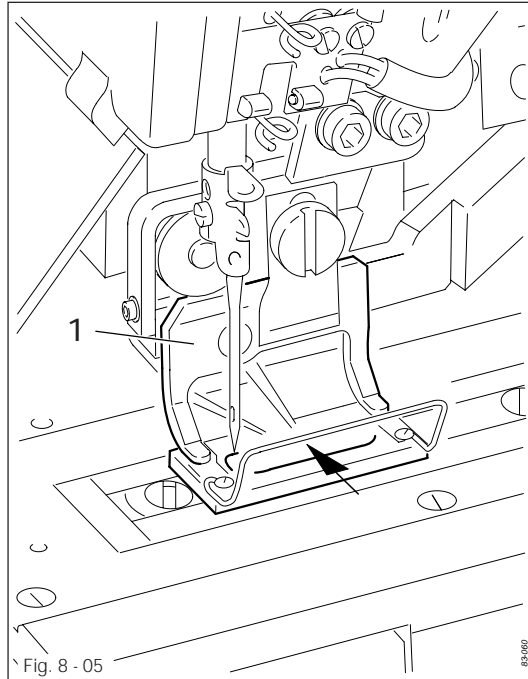
8.03 Switching the machine on / off

- Switch the machine on or off (see Chapter 7.01 Main switch).
- Setting up the machine control unit, see Chapter 8.04 Setting up the machine control unit.

8.04 Setting up the machine control unit

After the initial machine start up, first of all the allocation of the machine control unit to the machine sub-class being used must be checked and adjusted if necessary.

8.04.01 Establishing the sub-class



- Measure the size of the cut-out in the work clamp 1.
- With the cut-out size and the aid of the following table, the sub-class and the parameter value "202" can be established.
- How to set parameter "202" is described in Chapter 8.04 Setting parameter "202".

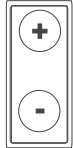
Work clamp cut-out	Sub-class	Value for parameter "202"
30,0 x 5,6	3119-1/51, -1/52	1
40,0 x 5,6	3119-2/51	2
44,0 x 5,9	3119-2/62	2
40,0 x 6,7	3119-2/53	3
44,0 x 7,0	3119-2/63	3
46,0 x 6,7	3119-3/51	4
55,0 x 7,0	3119-4/51	5
77,0 x 7,0	3119-5/51	6
80,0 x 6,0	3119-10/01	7

8.04.02 Setting parameter "202"

- Switch on the machine.



- Select operational mode Input (LED in the key is off).



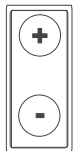
- Using the corresponding **plus/minus key** select the function group, e.g. "200".

200



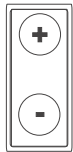
- Confirm input with **Enter**.
- Enter the code, see **Chapter 11.03 Entering/altering the access code**.

201



- Using the corresponding **plus/minus key** select e.g. parameter "202".

202 1



- Using the corresponding **plus/minus key** select the value for the established sub-class, e.g. "3" for sub-class 3119-2/53, see **Chapter 8.04.01 Establishing the sub-class**.

202 3



- Conclude parameter input by switching to operational mode Sewing.

9

Setting up



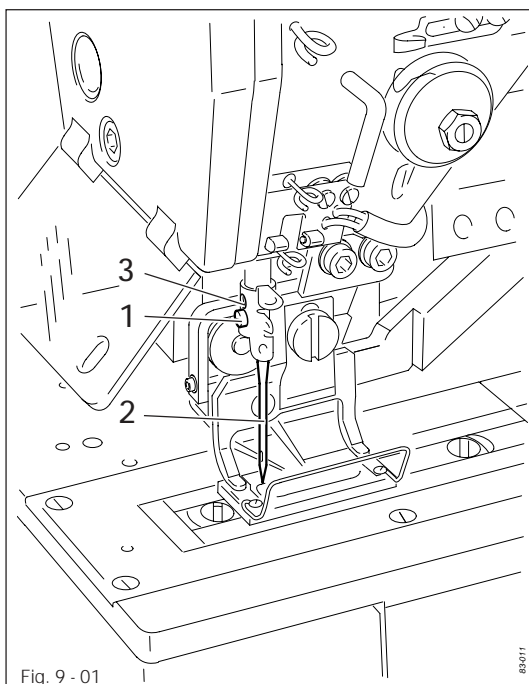
All instructions and regulations in this instruction manual must be observed. Special attention must be given to all safety regulations!



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

9.01

Inserting the needle



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

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



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

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

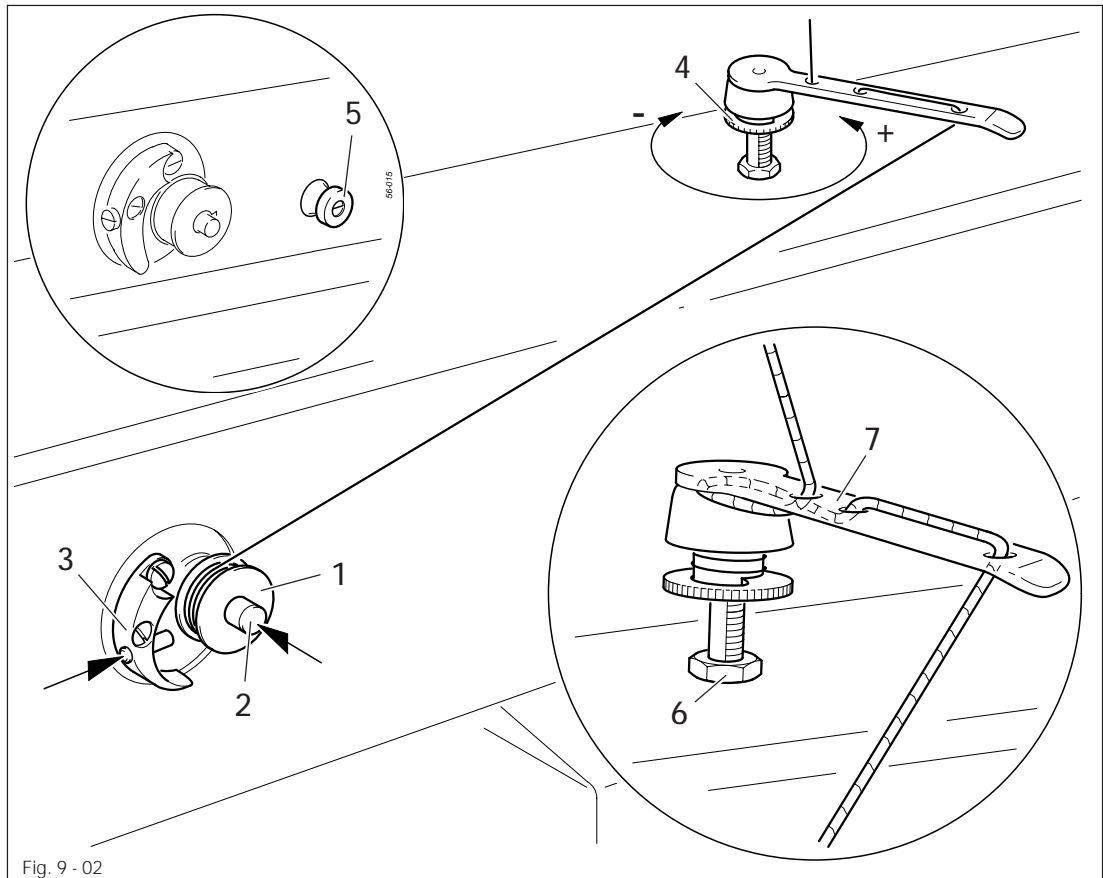


Fig. 9 - 02

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



The bobbin is wound during sewing.

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

If the thread is wound on unevenly:

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



Winding the bobbin outside the sewing cycle.

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

9.03 Threading the bobbin case / adjusting the bobbin thread tension

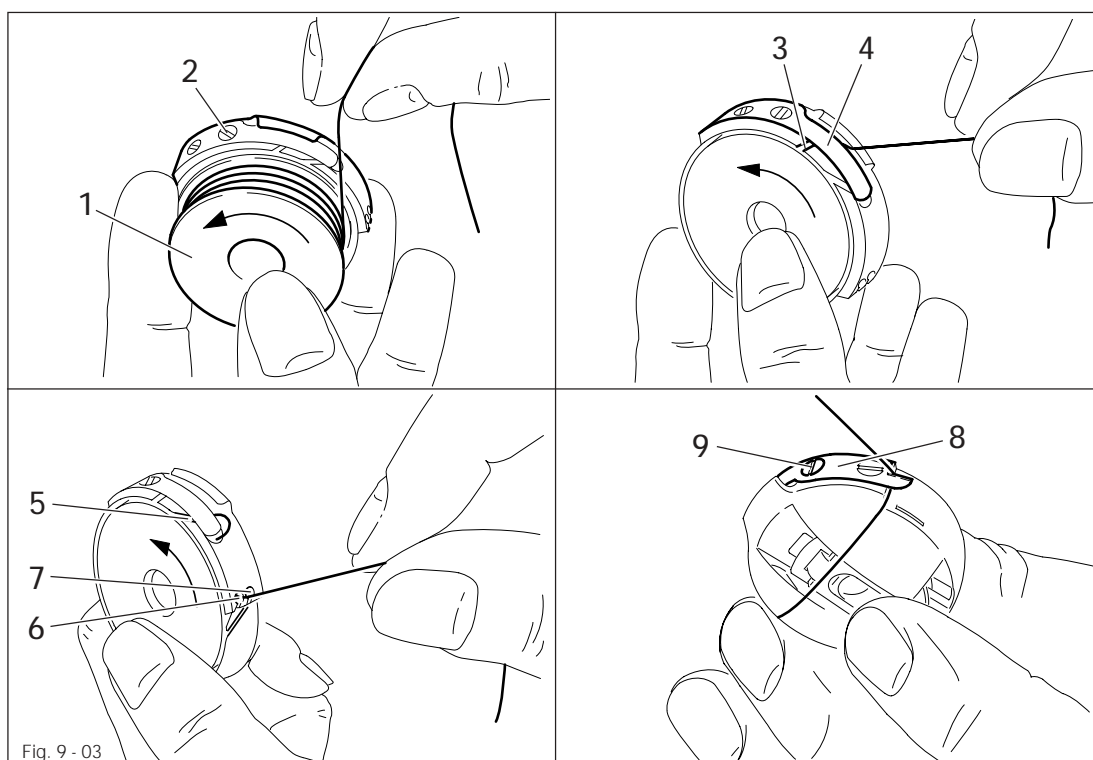


Fig. 9 - 03

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

For **purl** buttonholes:

- Push thread through opening 6.

For **flat** buttonholes:

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



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

9.04

Changing the bobbin

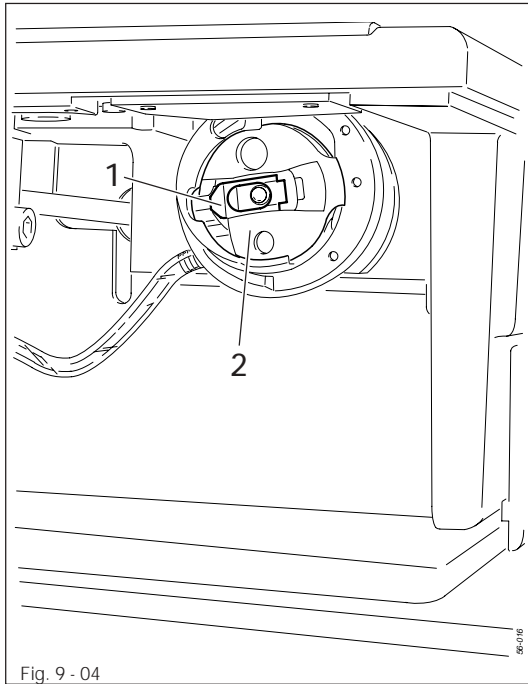


Fig. 9 - 04



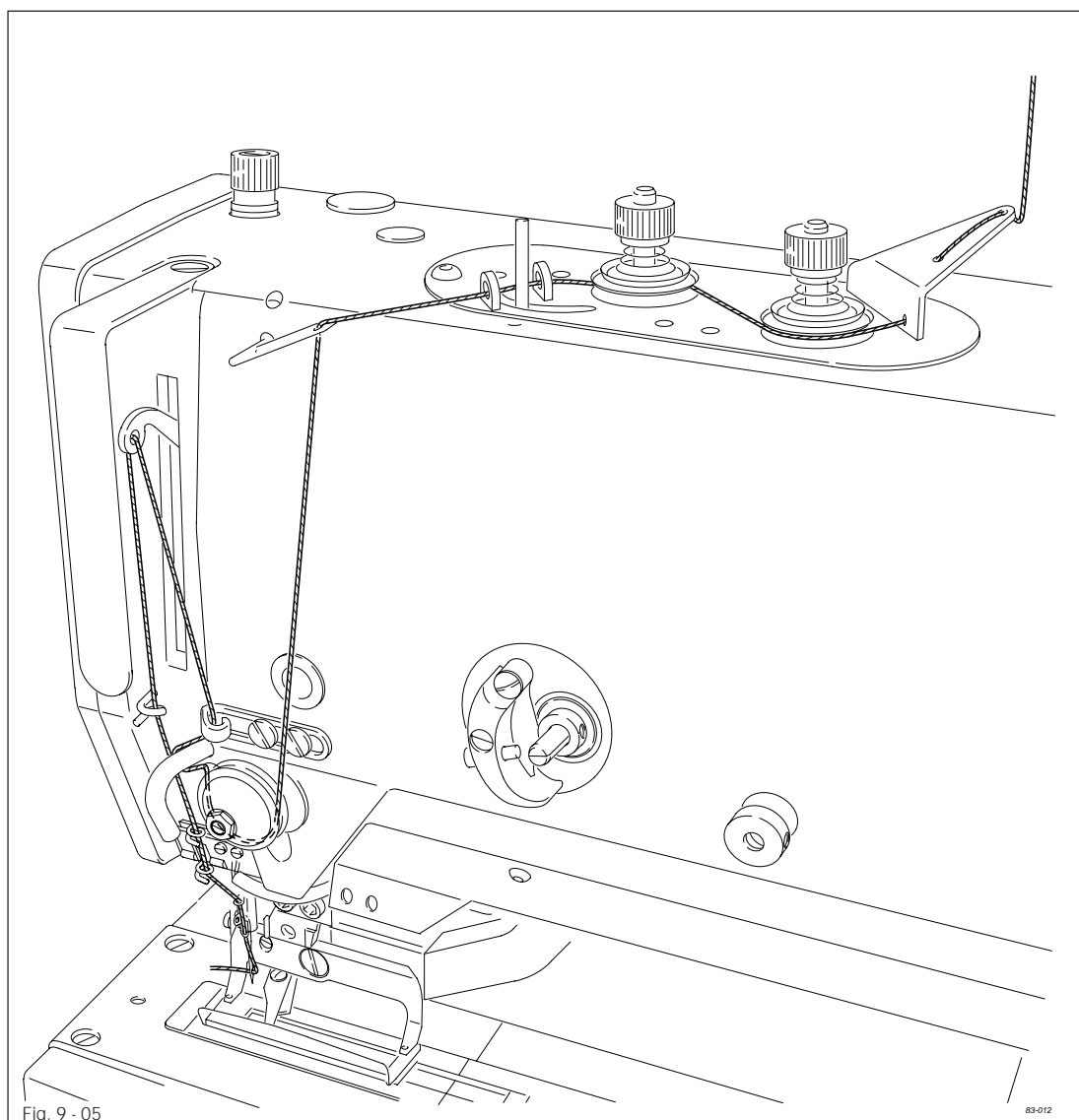
Switch off the machine!

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

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

9.05

Threading the needle thread



Switch off the machine!

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

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

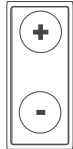
9.06 Selecting the buttonhole type (not on sub-class –10/01)

- Switch on the machine.



- Select operational mode Input (LED in the key **Operational mode Sewing** should not be on).

100

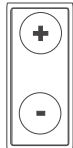


- Select the function group "100" with the appropriate **plus / minus** key.



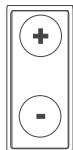
- Confirm with **Enter**.

101



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

105 2



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



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

9.07

Adjusting the needle thread tension

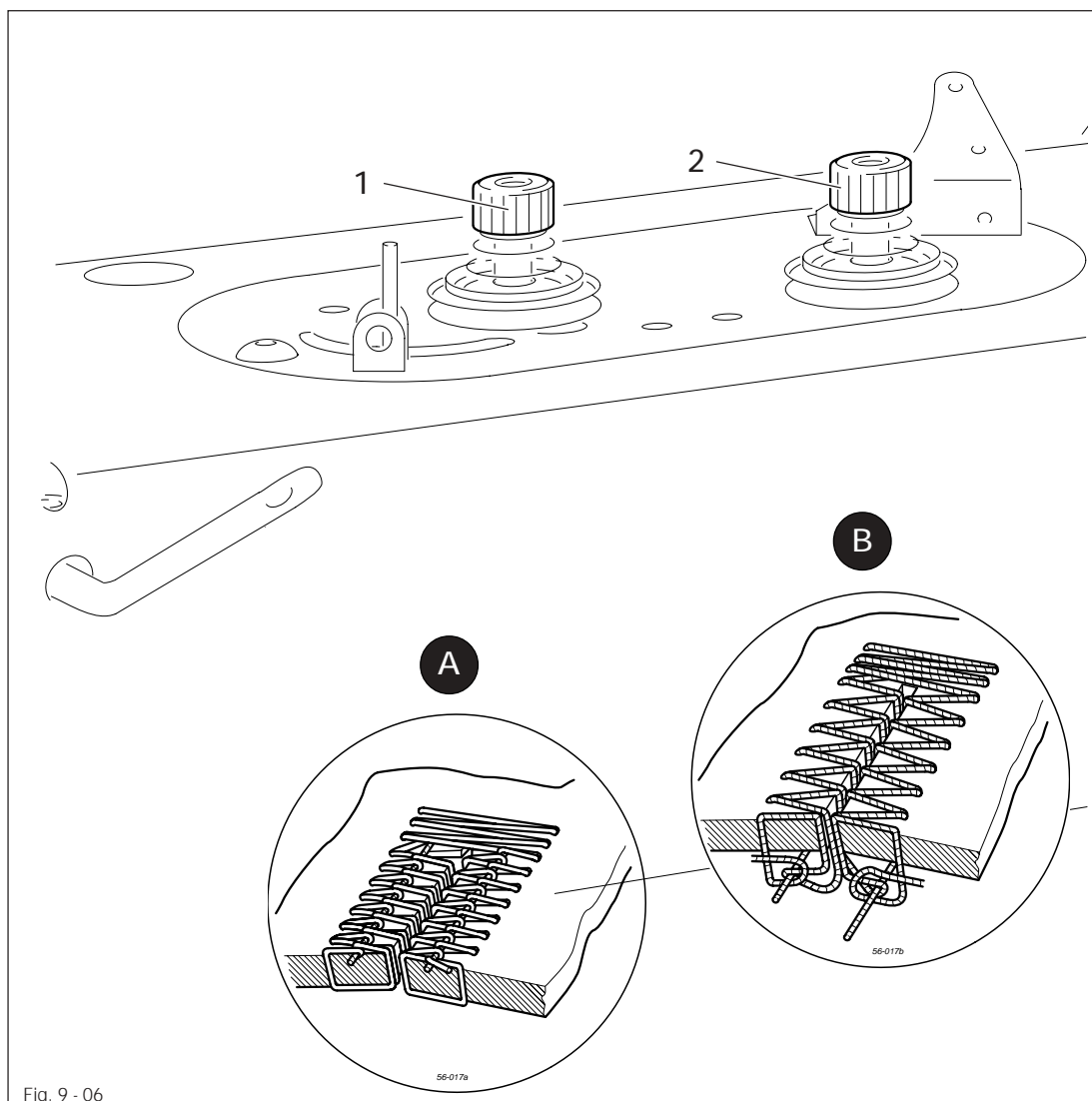


Fig. 9 - 06

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

For **purl** buttonholes (A):

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

For **flat** buttonholes (B):

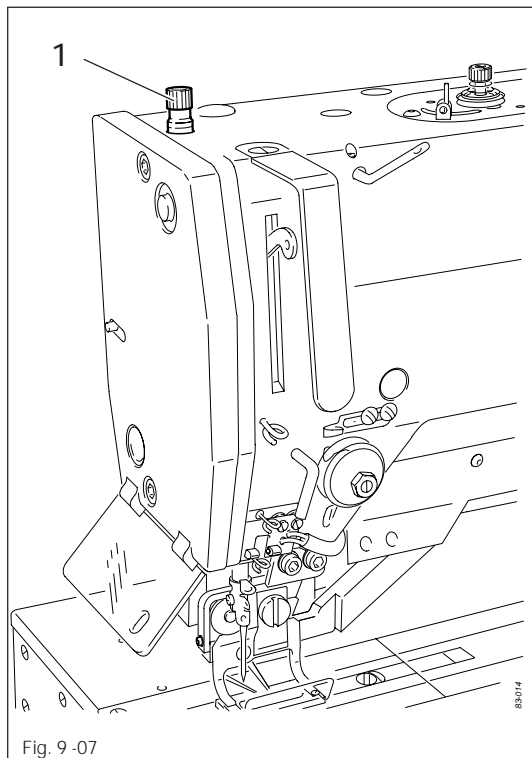
- Adjust tension unit 2 (less tension) so that the interloops of the stitches are pulled to the bottom side of the material.



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

9.08

Adjusting the work clamp pressure



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



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

9.09 Position of the needle to the workpiece

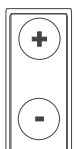
- Switch on the machine and sew one buttonhole.



- Insert the workpiece and lower the work clamp with this key.



- Call up operational mode Input (LED in the key is off).



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

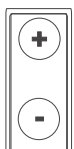
600



- Confirm input with the Enter key.

- Enter the code, see Chapter 11.03 Entering/altering the access code.

601



- Call up the parameter "605" (position of the needle to the workpiece) using the corresponding plus/minus key.

605 15

- Disengage the needle thread cutter by hand.
- By turning the balance wheel in the sewing direction set the needle point at a level with the workpiece surface (the preset value 15 is altered).



- Confirm the new value with the Enter key.



- Switch to operational mode Sewing (LED in the key is on).

10 Sewing

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

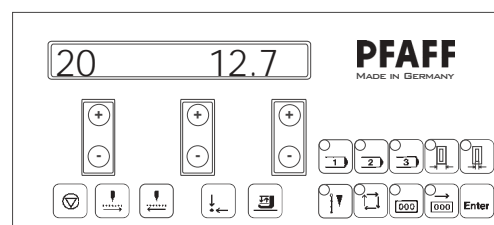
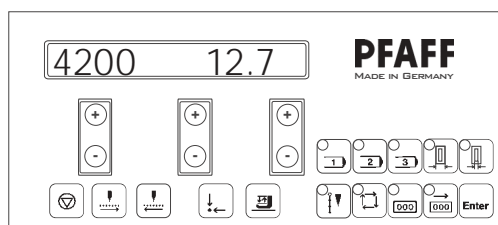
- Set-up the machine, see **Chapter 9 Setting-up**.
- Switch on the machine, see **Chapter 7.01 On/off switch**.
The machine is automatically in the operational mode Sewing.
- Start the sewing cycle with the pedal, see **Chapter 7.02 Pedal**.



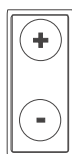
The display on the control panel and the operation of the machine is dependent on the sub-class and on the pre-setting of Parameter "103". Parameter "103" is used to choose between the display of the speed or the display of the buttonhole model. On sub-class -10/01 the program keys are used as call-up keys for variable and special programs.

10.01 Control panel with speed or buttonhole model display

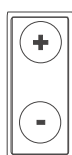
(not on sub-class -10/01)



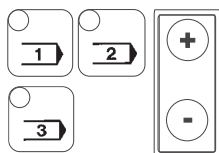
What is shown on the display screen:



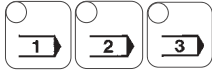
4200: Maximum speed
The value can be altered directly with the corresponding plus/minus key.



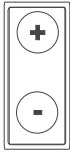
20: Buttonhole model
The buttonhole model can be altered with the corresponding plus/minus key. If variable programs are selected (see cut length) the number of the buttonhole model allocated to the variable program appears. No value is shown when special programs are selected.



12.7: Cut length
This value can be changed directly with the corresponding plus/minus key. The buttonhole is selected by selecting the cut length (from 6.4 mm to 64.7 mm, depending on the sub-class) in conjunction with the selected stitch density (program keys).
After tacting through the range of values for the cut lengths, the program numbers of the stored variable and special programs appear on the display. Only reserved program numbers are displayed, variable programs from 1 to 39, special programs from 40 to 49.
When selecting these programs, the program keys can be used as call-up keys.

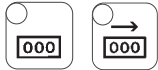


After selecting a variable or special program, a program key can be reserved by pressing one of the 3 program keys longer (about 2 seconds).



In addition, previously selected cut lengths, variable or special programs can be selected with the corresponding **plus/minus key** (also see **Chapter 11.06 Selecting programs**).

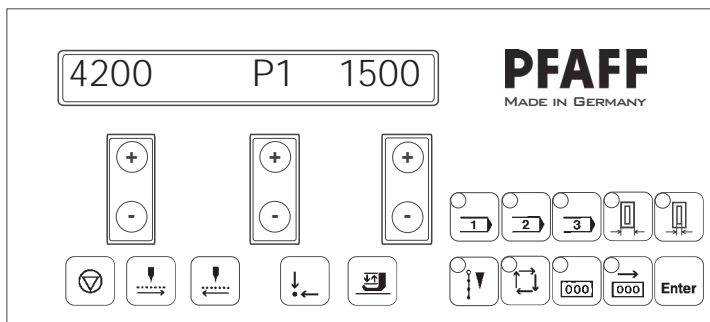
Selected programs are marked on the display with an " * ".



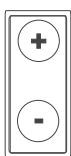
1500: Piece counter / reverse counter

Depending on the activated function (**piece counter** or **reverse counter**) the number of buttonholes already sewn or the number still to be sewn is displayed.

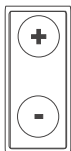
10.02 Control panel display for sub-class -10/01



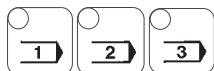
Displays on the screen:



3800: Maximum speed
The value can be changed directly with the corresponding plus/minus key.

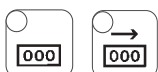


P1: Program number
The stored variable and special programs can be selected directly with the corresponding plus/minus key. Only reserved program numbers are displayed, variable programs from 1 to 39, special programs from 40 to 49.



When selecting these programs, the program keys are used as call-up keys. The current program number selected is stored on the corresponding program key, if the program keys are pressed for longer than 2 seconds.

In addition with the selected program key, the corresponding allocated stop position is selected, see **Chapter 13.48 Basic position of the stop**.

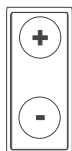
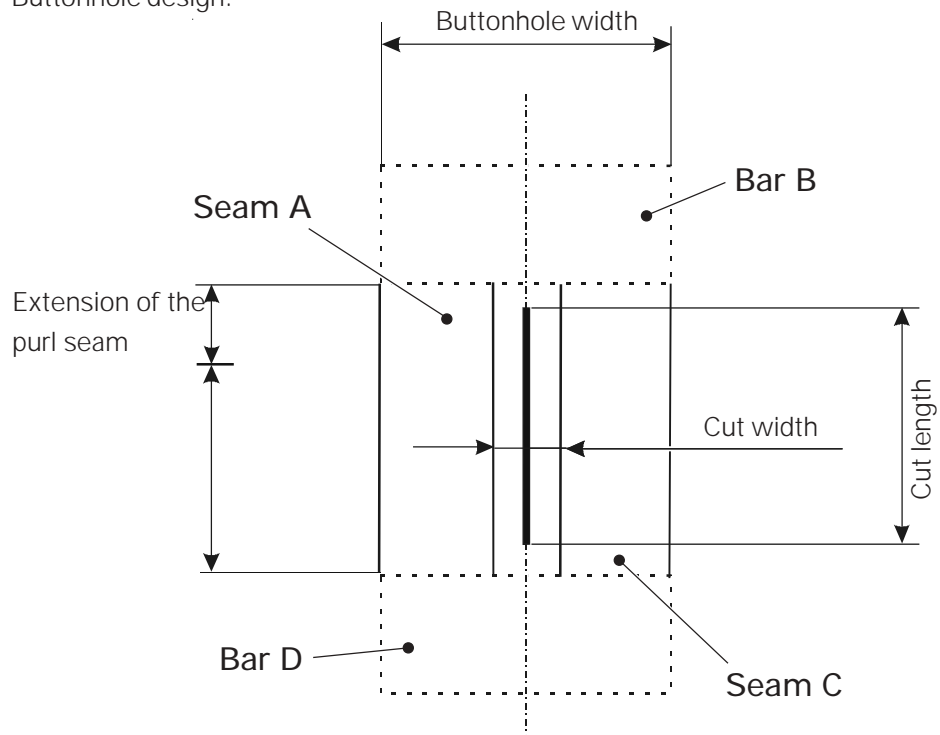


1500: Piece counter / reverse counter
Depending which function is activated (piece counter or reverse counter), the number of buttonholes already sewn, or the number of buttonholes still to be sewn is displayed.

10.03 Selecting the buttonhole (not on sub-class -10/01)

31 different buttonhole models can be selected. Depending on the sub-class up to 48 fixed programs are allocated to each model. The desired fixed program is selected by choosing the cut length and stitch density. With a maximum of 16 cut lengths and 3 stitch densities this gives a total of 48 fixed programs.

Buttonhole design:

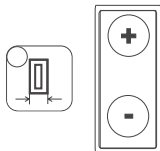


● Select the cut length (depends on the knife installed).

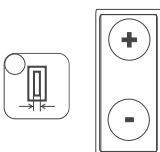
12,7



● Select the stitch density.



● If necessary adjust the buttonhole width.



● If necessary adjust the cut width (left)/seam extension (right).

10.04 Select buttonhole cut length (not on sub-class -10/01)

In general the cut length of the buttonhole is defined by the size of the knife installed. With the "multiple cut" function it is possible to make larger buttonhole cut lengths.

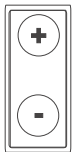


To avoid premature wear of the cutting equipment we recommend the use of a knife matching the buttonhole length.

- Switch on the machine.



- Select the operational mode Input (LED in the key is off).



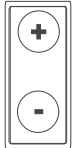
- Select function group "200" with the corresponding plus/minus key.

200



- Confirm the input with Enter.
- Enter the code, see Chapter 11.03 Entering/altering the access code.

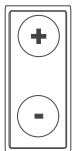
201



Activate multiple cutting function and enter knife size.

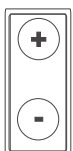
- Select parameter "207" with the corresponding plus/minus key.

207 I



- Switch on the multiple cutting function with the corresponding plus/minus keys (value set at "I") and enter the value for the knife size, e.g. 16 mm

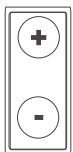
207 16,0 II



Enter cut overlap

- Select Parameter "208" with the corresponding plus/minus key.

208 0.0



- With the corresponding plus/minus key select the cut overlap, e.g. 0.5 mm.

208 0.5



- Conclude the parameter input by switching to operational mode Sewing (LED in the key is on).

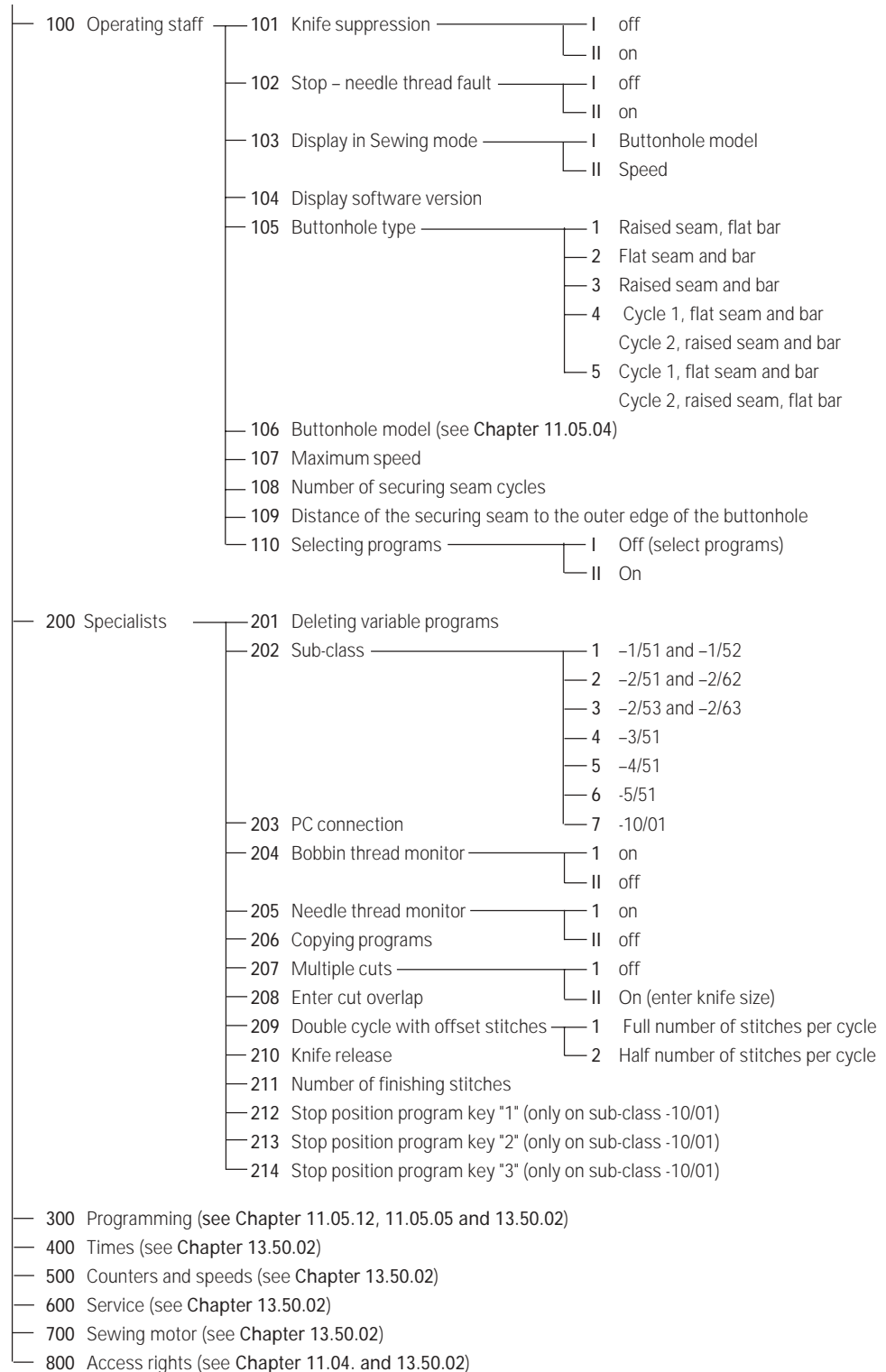
11 Input

In the operational mode Input the values of the machine parameters can be altered, e.g. for setting up the machine or for creating/modifying seam programs.

11.01 Summary of the function groups and parameters



Operational mode Input (LED is off)

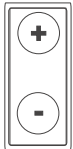


11.02 Selecting the function group and altering the parameters

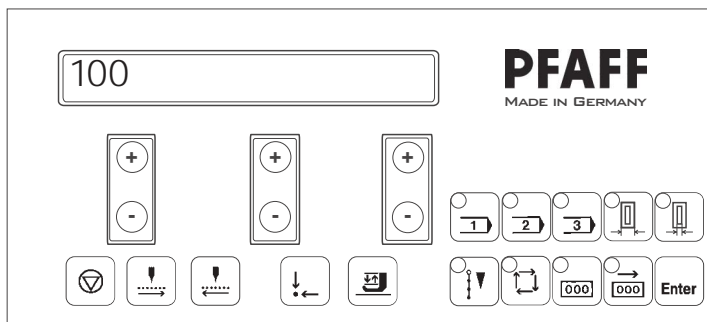
- Switch on the machine.
After the machine is switched on, the operational mode Sewing is activated automatically.



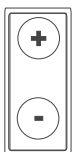
- By pressing the key activate **Operational mode Input** (LED in the key is off).



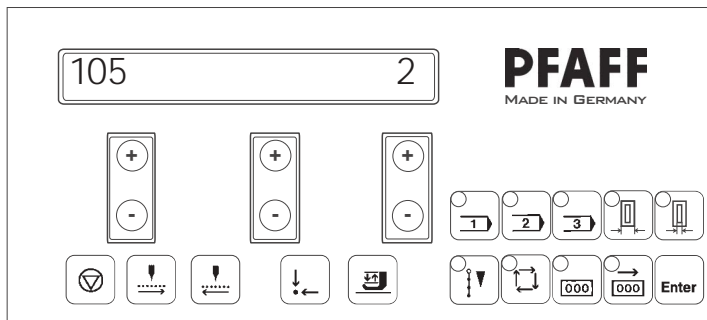
- Select the desired function group with the corresponding **plus/minus** key.
On delivery only the function group "100" has free access, the other function groups are protected from unauthorised access by a code.



- The function group is selected by pressing Enter.



- Select the desired parameters and alter the desired value using the corresponding **plus/minus** key.



- When the **Enter** key is pressed, the altered value is saved and the next parameter is selected.

or



- When **Operation mode Sewing** is selected the altered value is saved and the machine changes to the operational mode sewing (LED in the key is on).

or



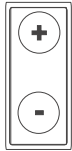
- when the **Reset** key is pressed the altered value is not saved and the function group selection is called up.

11.03 Entering / altering the access code

- Switch on the machine.



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

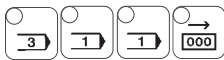


- Select the function group "800" with the appropriate plus / minus key.

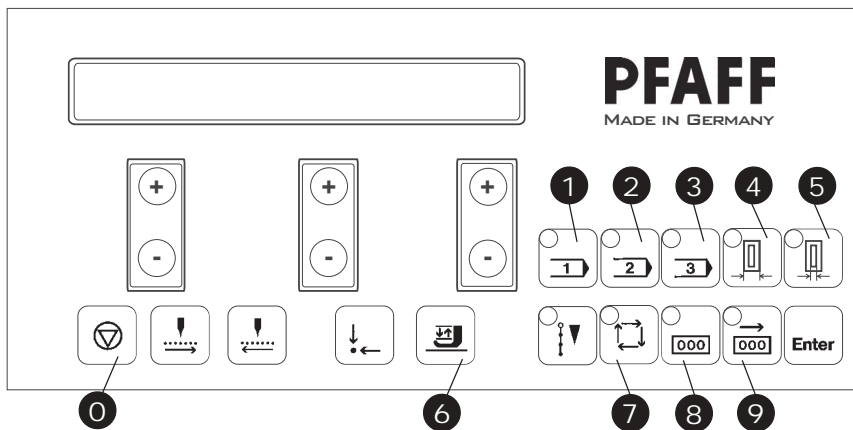
800



- Confirm with Enter.



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

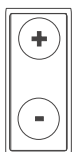


Code: 3119



- Confirm input with Enter.

801 0



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

819 3119



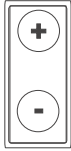
- Enter the new code number and take it over with Enter or by selecting Operational mode sewing.

11.04 Allocating access rights

- Switch on the machine.



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



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

800



- Confirm input with **Enter**.

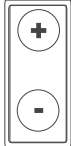
- Enter code (e.g. 3119)

Code: 3119



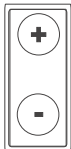
- Confirm input with **Enter**.

801 0



- Select the required parameter "801" to "818" with the appropriate **plus / minus** key, see **Chapter 13.50 Parameter settings**.

818 1



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



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



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

11.05 Variable programs

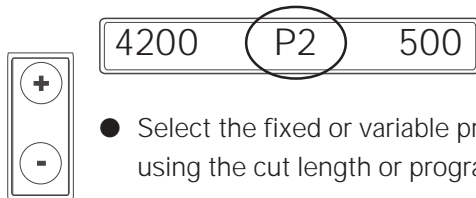
39 variable programs can be stored in the machine. A variable program can be selected with the program number 1 to 39.

Variable programs can be created by copying and altering the desired parameters of an existing program or by entering completely new parameters.

11.05.01 Copying programs

If there is a program in the machine which corresponds approximately to the required program, this can be copied and then altered. This method is particularly suitable if e.g. only one parameter has to be altered, to achieve the desired result.

- Switch on the machine.



- Select the fixed or variable program to be copied with the corresponding **plus/minus key** using the cut length or program number (e.g. P2).



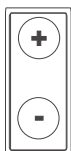
- Select the operational mode Input (LED in the key is off).
- Select function group "200" using the corresponding **plus/minus key**.

200



- Confirm the input with **Enter**.
- Enter the code, see [Chapter 11.03 Entering/altering the access code](#).

201



- Select parameter "206" (copying program) with the corresponding **plus/minus key** and confirm with **Enter**. On the display the next free program number appears after the parameter (variable programs from 1 – 39).

206 3



- Confirm the input with **Enter**.
The next steps for altering the program are described in [Chapter 11.05.02 Creating/modifying variable programs](#).

11.05.02 Creating/modifying variable programs

(all sub-classes except sub-class -10/01)

A variable program is written with the parameters of the function group "300".

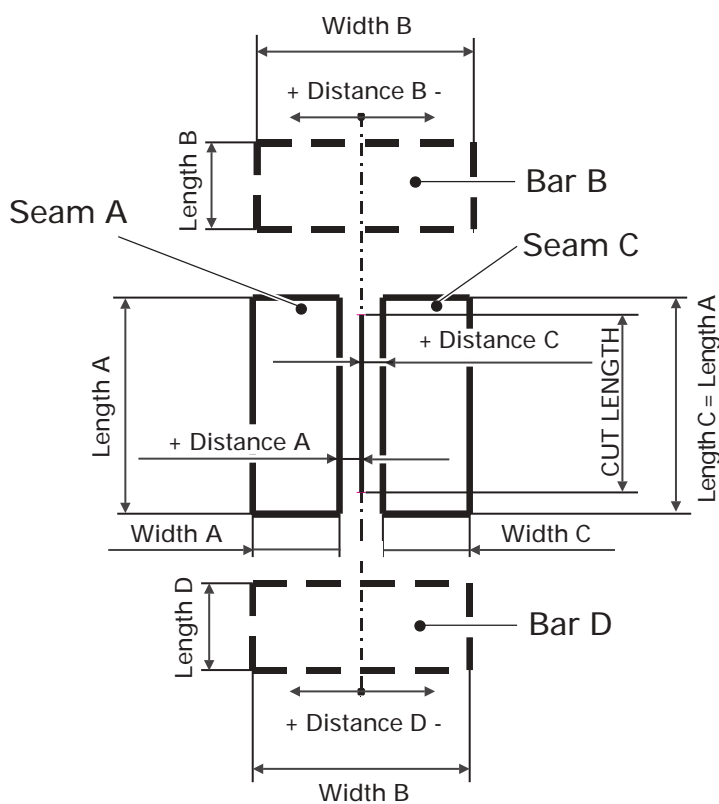
The variable program can be adapted to individual requirements by altering individual parameters.

As illustrated below variable programs consist of 4 sections:

- Seam A
- Seam C
- Bar B
- Bar D

In addition to the purely geometrical data a variable program is also defined by further parameters:

- Buttonhole models (1 to 31), see **Chapter 11.05.04 Buttonhole models**
- Number of stitches A, B, C, D
- Secondary thread tension A, B, C, D



Parameter	Description
301	Program number
302	Cut length (mm)
303	Buttonhole model
304	Distance A (mm)
305	Width A (mm)
306	Length A (mm)
307	Number of stitches A
308	Secondary thread tension A
309	Width B (mm)
310	Width B1 (mm)
311	Length B (mm)
312	Length B1 (mm)
313	Number of stitches B
314	Distance B (mm)
315	Secondary thread tension B
316	Distance C (mm)
317	Width C (mm)
318	Length C (mm)
319	Number of stitches C
320	Secondary thread tension C
321	Width D (mm)
322	Width D1 (mm)
323	Length D (mm)
324	Length D1 (mm)
325	Number of stitches D
326	Distance D (mm)
327	Secondary thread tension D

11.05.03 Creating/modifying variable programs (only on sub-class –10/01)

On sub-class -10/01 there are 3 pre-set variable programs.

The variable program is written with the parameters of function group "300".

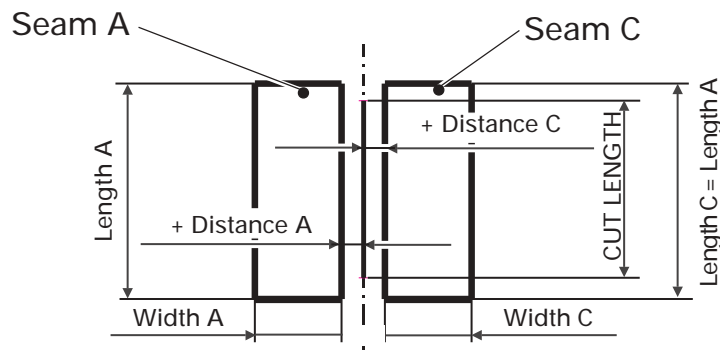
The variable program can be adapted to individual requirements by altering individual parameters.

As illustrated below, variable programs consist of 2 part sections:

- Seam A
- Seam C

In addition to the purely geometrical data, a variable program is also defined by further parameters:

- Buttonhole model (32 to 34) see Chapter 11.05.04 Buttonhole models.
- Number of stitches A and D
- Secondary thread tension A and D



Parameter settings for three variable programs for sewing hook-and-eye tapes for underwear.

Parameter	Description	Basic values		
		1	2	3
301	Program number	1	2	3
302	Cut length (mm)	14.0	41.0	53.0
303	Buttonhole model	32	32	32
304	Distance of left seam to centre of cutting line (mm)	0.8	0.8	0.8
305	Width of left seam (mm)	1.3	1.3	1.3
306	Length of left seam (mm)	14.0	41.0	53.0
307	No. of stitches on left seam	20	48	64
308	Secondary thread tension of left seam	I	I	I
315	Secondary thread tension of 1 st bar	I	I	I
316	Distance of right seam to centre of cutting line (mm)	0.8	0.8	0.8
317	Width of right seam (mm)	1.3	1.3	1.3
318	Length of right seam (mm)	14.0	41.0	53.0
319	No. of stitches on right seam	20	48	64
320	Secondary thread tension of right seam	I	I	I
327	Secondary thread tension of 1 st bar	II	II	II

11.05.04 Buttonhole models

The following table shows all buttonhole models with their relevant bars.

Number	Buttonhole model	Bar B	Bar D
1 [▲]			
2 [▲]			
3 [▲]			
4 [▲]			
5 [▲]			
6 [▲]			
7 [▲]			
8 [▲]			
9 [▲]			

▲ on all sub-classes except sub-class -10/01
 ■ on sub-class -10/01 only

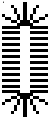
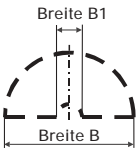
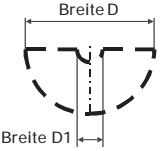

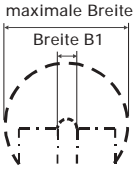
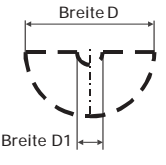



Number	Buttonhole model	Bar B	Bar D
10 [▲]			
11 [▲]			
12 [▲]			
13 [▲]			
14 [▲]			
15 [▲]			
16 [▲]			
17 [▲]			
18 [▲]			
19 [▲]			

▲ on all sub-classes except sub-class -10/01
 ■ on sub-class -10/01 only

Number	Buttonhole model	Bar B	Bar D
20 [▲]			
21 [▲]			
22 [▲]			
23 [▲]			
24 [▲]			
25 [▲]			
26 [▲]			
27 [▲]			
28 [▲]			
29 [▲]			

▲ on all sub-classes except sub-class -10/01

■ on sub-class -10/01 only

Number	Buttonhole model	Bar B	Bar D
30 [▲]			
31 [▲]			
32 [■]		-	-
33 [■]		-	-
34 [■]		-	-

- ▲ on all sub-classes except sub-class -10/01
- on sub-class -10/01 only

11.05.05 Table for recording personal variable programs

Parameter	Description	Value for Program No.: —	Value for Program No.: —	Value for Program No.: —	Value for Program No.: —
301	Program number				
302	Cut length (mm)				
303	Buttonhole model				
304	Distance of left seam from centre of cutting line (needle penetration right) = distance A (mm)				
305	Width of left seam = width A (mm)				
306	Length of left seam (same length as right purl seam) = length A (mm)				
307	Number of stitches in left seam = number of stitches A				
308	Secondary thread tension left seam				
309▲	Width of 1 st bar = width B (mm)				
310▲	Second width of 1 st bar = width B1 (mm)				
311▲	Length of 1 st bar = length B (mm)				
312▲	Second length of 1 st bar = length B1 (mm)				
313▲	Number of stitches in 1 st bar = number of stitches B				
314▲	Distance of 1 st bar to centre of cutting line = distance B (mm)				
315▲	Secondary thread tension of 1 st bar				

▲ not on sub-classe -10/01

Parameter	Description	Value for Program No.:	Value for Program No.:	Value for Program No.:	Value for Program No.:
316	Distance of right seam from centre of cutting line (needle penetration left) = distance C (mm)				
317	Width of right seam = width C (mm)				
318	Length of right seam (same length as left purl seam) = length C (mm)				
319	Number of stitches in right seam = number of stitches C				
320	Secondary thread tension right purl seam				
321 [▲]	Width of 2 nd bar = width D (mm)				
322 [▲]	Second width of 2 nd bar = width D1				
323 [▲]	Length of 2 nd bar = length D (mm)				
324 [▲]	Second length of 2 nd bar = length D1 (mm)				
325 [▲]	Number of stitches in second bar = number of stitches D				
326 [▲]	Distance of second bar to centre of cutting line = distance D (mm)				
327 [▲]	Secondary thread tension of 2 nd bar				

[▲] not on sub-classe -10/01

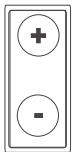
11.06 Selecting programs for the choice of the correct cut length or variable and special programs

By selecting currently required programs, the display of too many programs can be reduced to a minimum.

- Switch on the machine.



- Activate the **Input** mode by pressing key (LED in the key is **not** on).

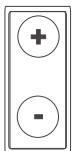


- Select the function group "100" with the corresponding **plus/minus** key.

100

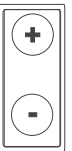


- Select the function group by pressing **Enter** .



- Select parameter "110" with the corresponding **plus/minus** key.

110 12,7 |



- Select the correct cut length or the variable and special programs with the corresponding **plus/minus** key.

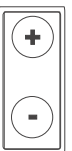


- By pressing **Enter** the correct cut length or the variable and special programs can be selected, or selected values can be deleted.

After selection has been made, "*" appears on the display next to the selected value.

Repeat selection for all desired values.

110 12,7* |



- Call up selection with the corresponding **plus/minus** key.

"|" = deactivate

"||" = activate

110 12,7* ||



- Activate **Input** mode by pressing key (LED in key is **on**).

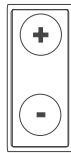


If the selected program values do not match the previous program value, error signal "ERROR 28" appears.



- Confirm error signal by pressing **Enter**.

4000 - - - - 20



- Select the required program value with the corresponding **plus/minus** key.

4000 16,0* 20



After this input, only the selected program values are activated.
Other programs can be selected or the selection deleted as required.

11.07 Special programs

The programs 40 to 49 are reserved for special programs. With the programming software OSCA the seam contours are freely programmed on a PC in the available sewing area, which depends on the sub-class. The images are then transferred by connecting the PC to the machine.

11.08 PC-programs (optional)

11.08.01 SAM (Sewing Application Manager)

SAM is an easy PC program for saving all machine data and for programming variable programs with the support of graphics. The details of the SAM functions are:

- Administration of all fixed, variable and special programs
- Visualisation of all programs (parameters, shape and stitch position)
- Creation of variable programs with the support of graphics by entering parameters
- Transfer of variable and special programs from and to the machine
- Saving and restoring of all variable programs, special programs, machine data, configuration data of the machine
- Flash programming (software update of the machine)

11.08.02 OSCA (On-/Offline Sewing Creativity Arrangement)

OSCA is a PC-program for programming free seams with the support of graphics. Depending on the sub-class it is possible to program any seam line in the available sewing area.

OSCA is also used to create the special programs 40 to 49. These programs can then no longer be altered in the machine. To transfer data to the machine the PC is connected to the machine with a serial cable.

11.08.03 Data transfer between PC (SAM) and PFAFF 3119

For the data transfer the PC and the machine are connected to each other with a serial cable.

- Switch off the machine and the PC
- Connect serial interface (RS232 s. Page 8-3) and serial PC-interface (COM 1-4) with cable provided.
- Switch on the PC, if necessary install SAM with the cable provided.
- Start SAM ("Start" – "Programs" – "SAM") and set up the corresponding COM-interface in the menu "settings".
- Switch on the machine.
- Select parameter "203" (PC-connection).
- Press Enter.
- "203 ONLINE" appears on the display and the machine is in slave mode, i.e. all further actions will be triggered by SAM.
- Produce a connection to the machine using the menu "set up machine connection".
- If the connection was successful, all transfer functions (e.g. saving data, sending programs, loading) are available in the corresponding menus.



- SAM can cut off the connection to the machine with the menu "terminate machine connection". The machine leaves its slave mode and changes to function group 200.



- Remove cable from the serial interface (RS232).
- Conclude the procedure with the **Enter** key, by selecting the **Operational mode Sewing** or with the **Reset** key.

12 Care and maintenance

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



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

12.01 Cleaning the machine

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

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

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



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

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



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

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

12.02 Cleaning the hook compartment

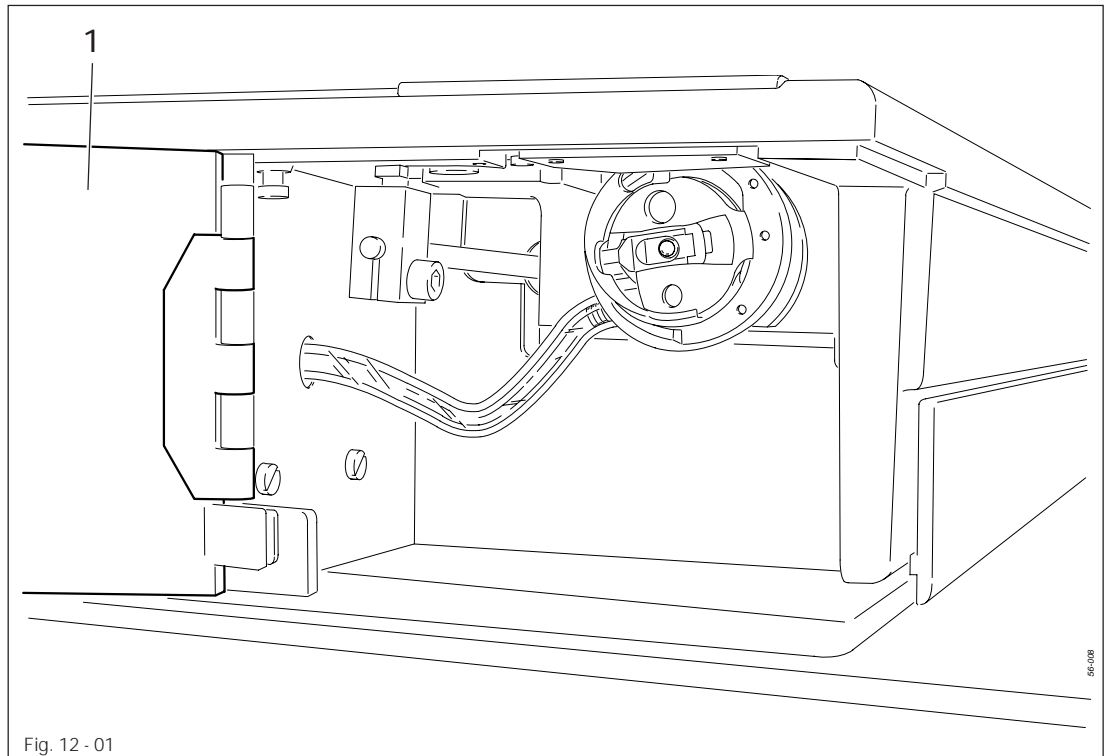


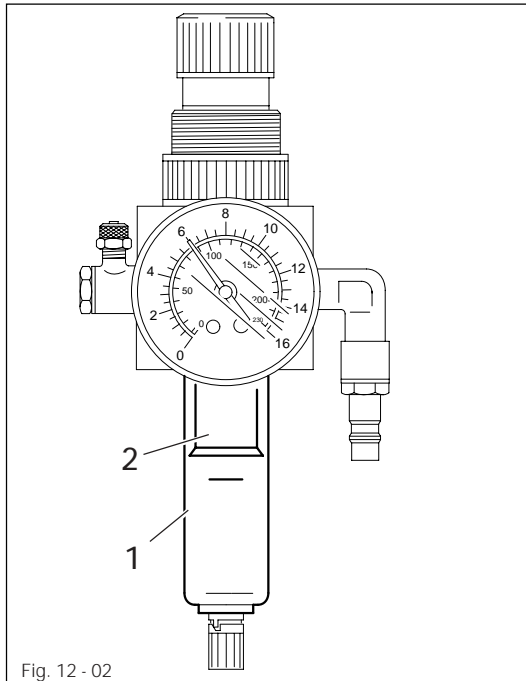
Fig. 12 - 01



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

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

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



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

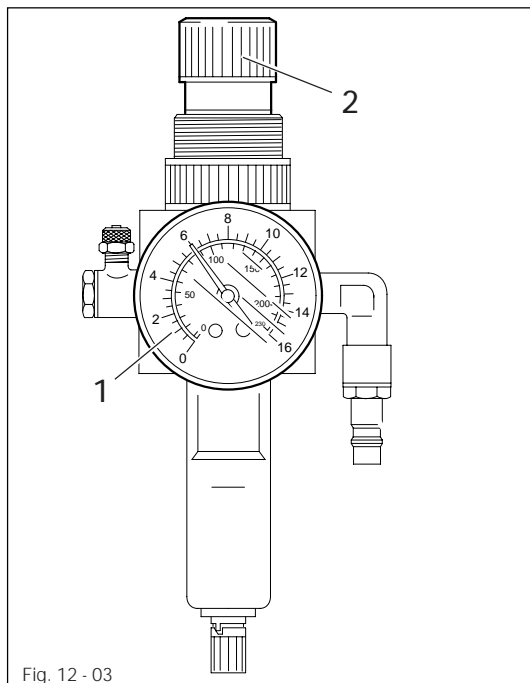
To drain water bowl 1:

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

Cleaning filter 2:

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

12.04 Checking/adjusting the air pressure



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

12.05 Check oil level for needle drive unit

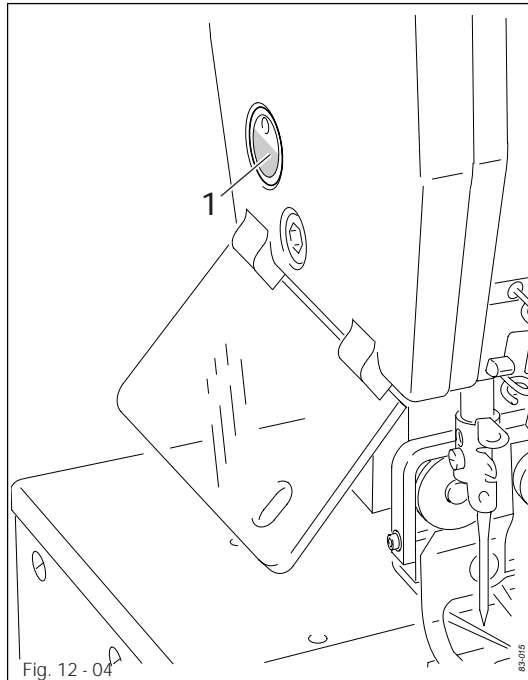


Fig. 12 - 04

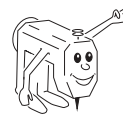


There must always be oil in the storage tank.

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



Only use oil with a medium viscosity of 10.00 mm²/s at 40°C and a density of 0.847 g/cm³ at 15°C.



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

12.06 Check oil level for the hook

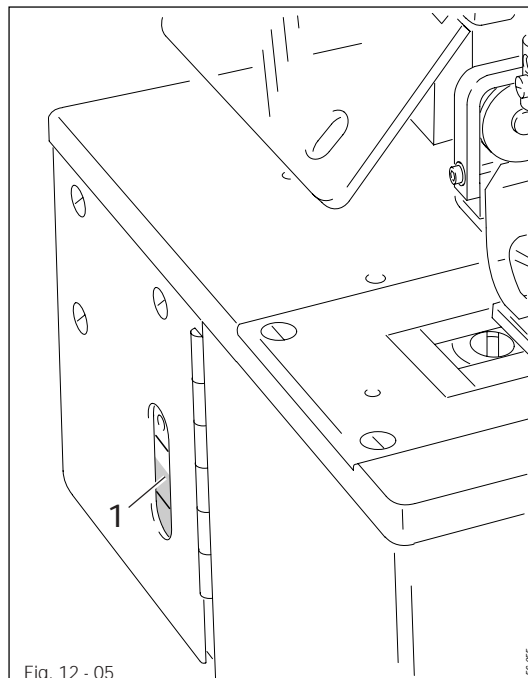


Fig. 12 - 05

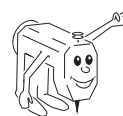


The oil level in sight glass 1 must always be between the two markings.

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



Only use oil with a medium viscosity of 10.00 mm²/s at 40°C and a density of 0.847 g/cm³ at 15°C.



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

12.07 Check oil level for the compressor



- Check the oil level of the compressor as described in the enclosed instruction manual of the manufacturer, and if necessary top up oil.

13 Adjustment



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

13.01 Notes on adjustment

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

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

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

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

13.02 Tools, gauges and other accessories

- 1 set of screwdrivers with blade widths from 2 to 10 mm
- 1 set of wrenches with jaw widths from 7 to 14 mm
- 1 set of Allan keys from 1.5 to 6 mm
- 1 offset screwdriver, Part no. 91-029 339-91
- 1 metal ruler, Part no. 08-880 218-00
- 1 screw clamp, Part no. 61-111 600-35/001
- 1 needle rise gauge 2.4 mm, Part No. 61-111 600-01
- 1 adjustment gauge, Part no. 61-111 635-86
- 1 adjustment gauge for lower knife stop, Part no. 61-111 635-85
- 1 adjustment gauge for upper knife stop, Part no. 61-111 635-93
- 1 Blocking pin, part no. 13-030 272-05
- 1 Knife adjustment gauge for 3119-10/01, part no. 13-030 272-05
- 1 adjustment pin, Part no. 61-111 641-46
- Needles (system 438), sewing thread and test materials

13.03 Abbreviations

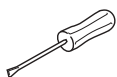
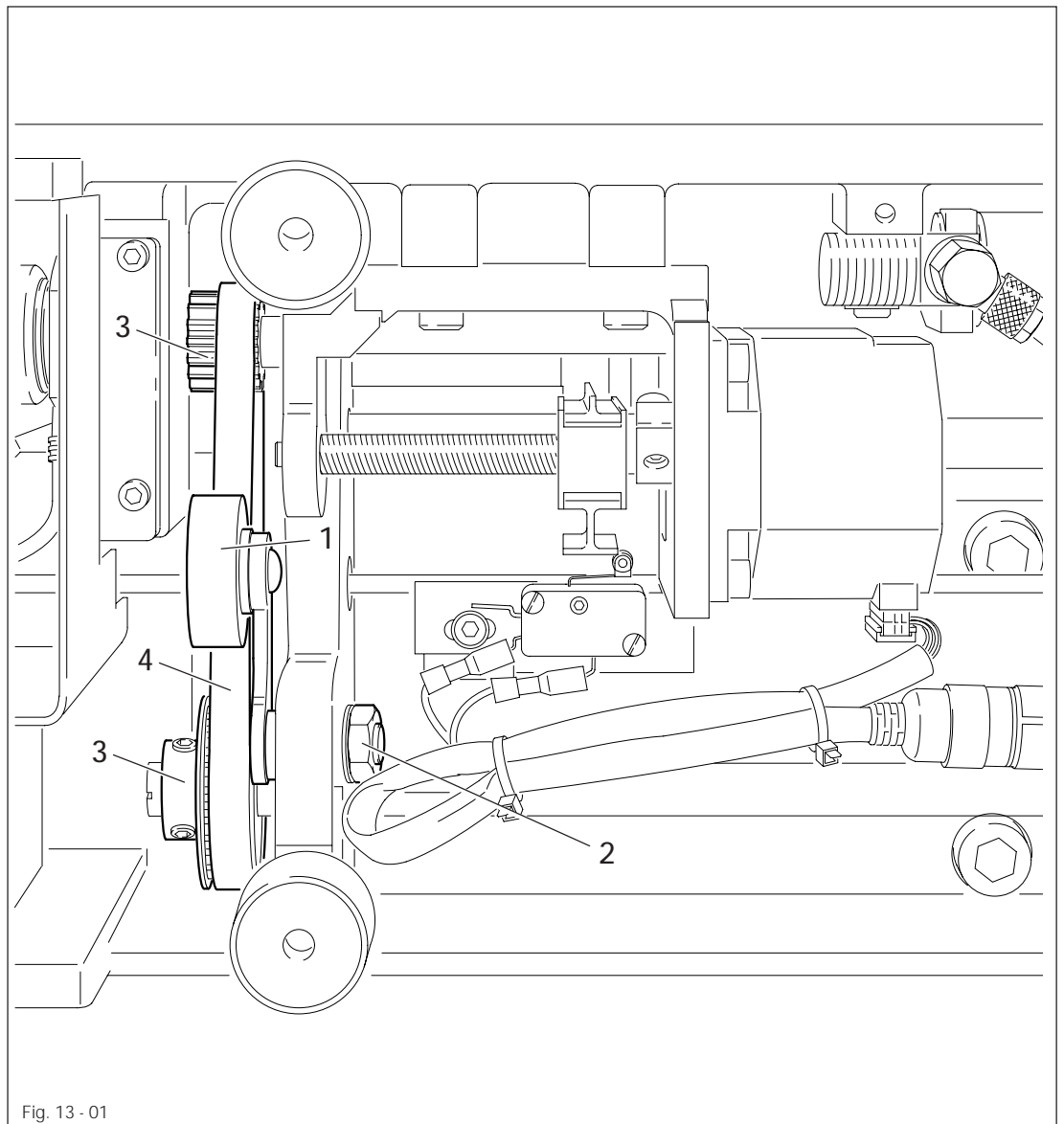
t.d.c. = top dead centre

b.c.c. = bottom dead centre

13.04 Toothed belts of the hook drive unit

Requirement

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



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

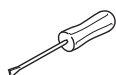
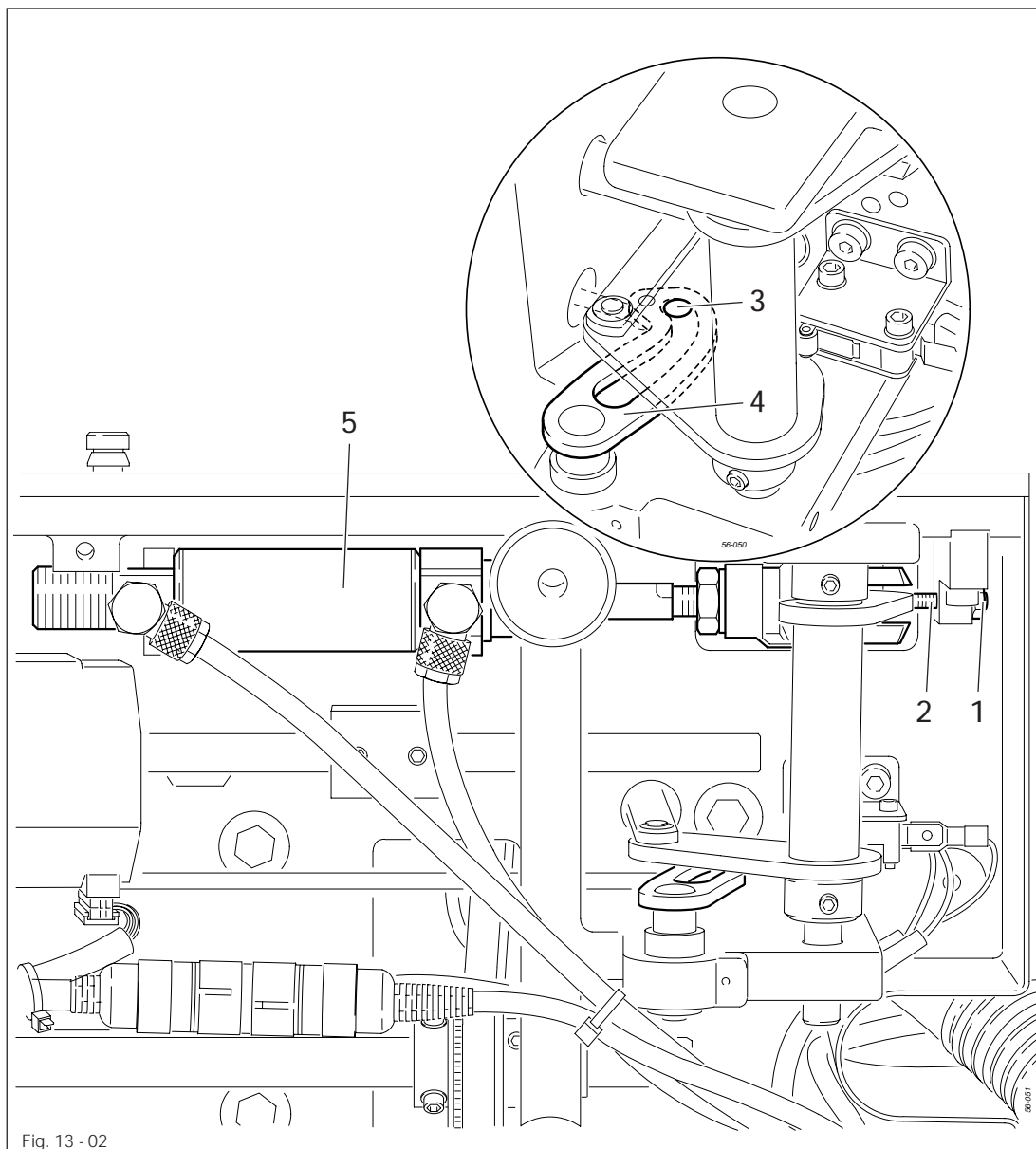


If there are operational noises, repeat the adjustment.

13.05 Drive rods of the bobbin thread trimming device

Requirement

When cylinder 5 is fully extended, roller 3 should be positioned at a small distance (approx. 0.3 mm) from the curve bottom of slotted lever 4.



- Loosen nut 1.
- Loosen screw 2 until roller 3 can be pushed into the curve bottom of slotted lever 4 by hand.
- Turn screw 2 to contact lever 4.
- To set the distance of roller 3 according to the **requirement**, turn screw 2 another $\frac{1}{2}$ turn and fix it with nut 1.

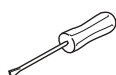
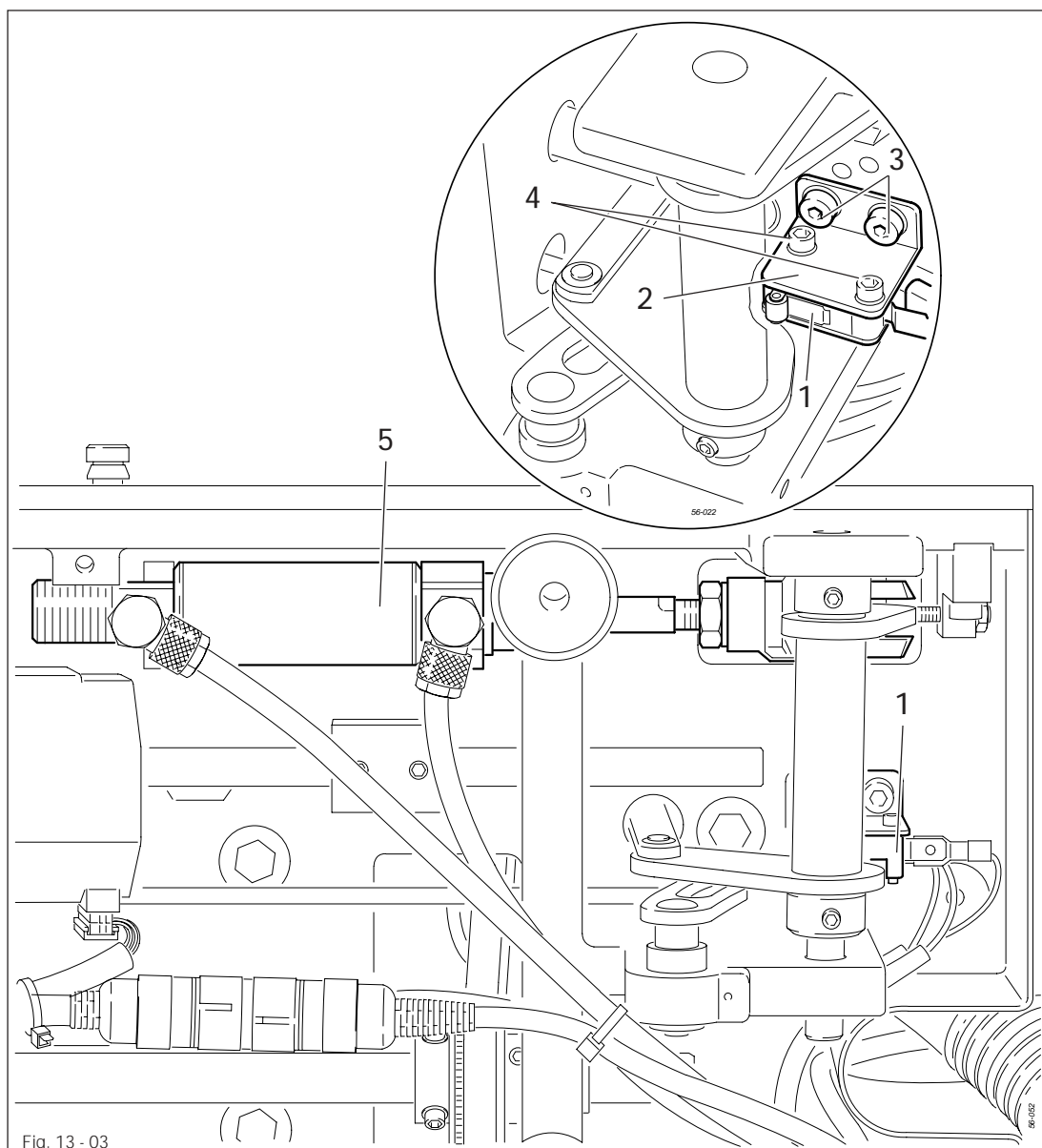


When the cylinder is extended, there should be a distance of 204.5 mm between the centre of the yoke head bore hole and the bore hole for the cylinder suspension.

13.06 Switch for sewing start

Requirement

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

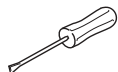
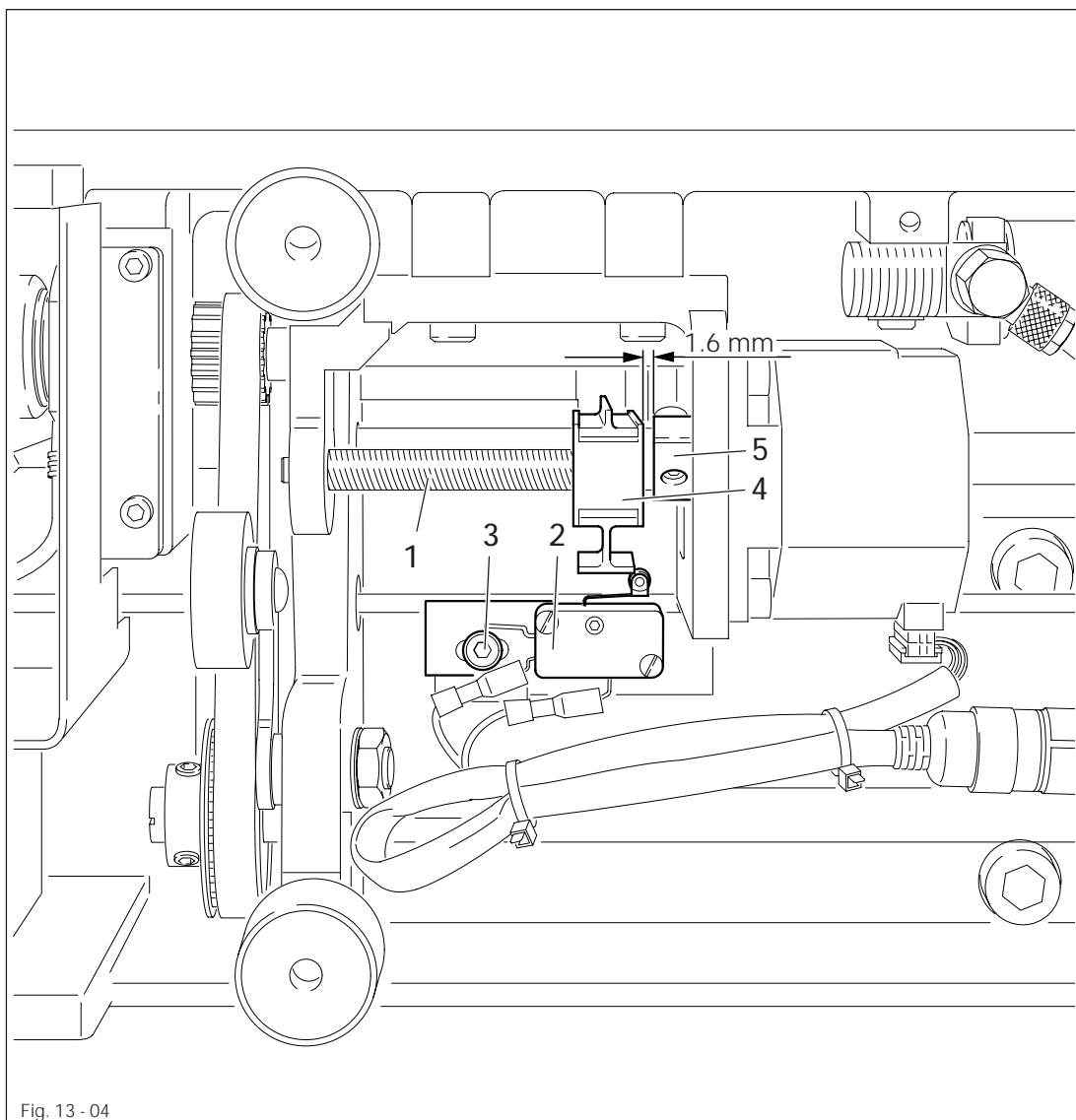


- Adjust switch 1 or bracket 2 (screws 3 or 4) according to the requirement.

13.07 Basic position of the feed drive unit

Requirement

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



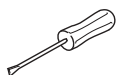
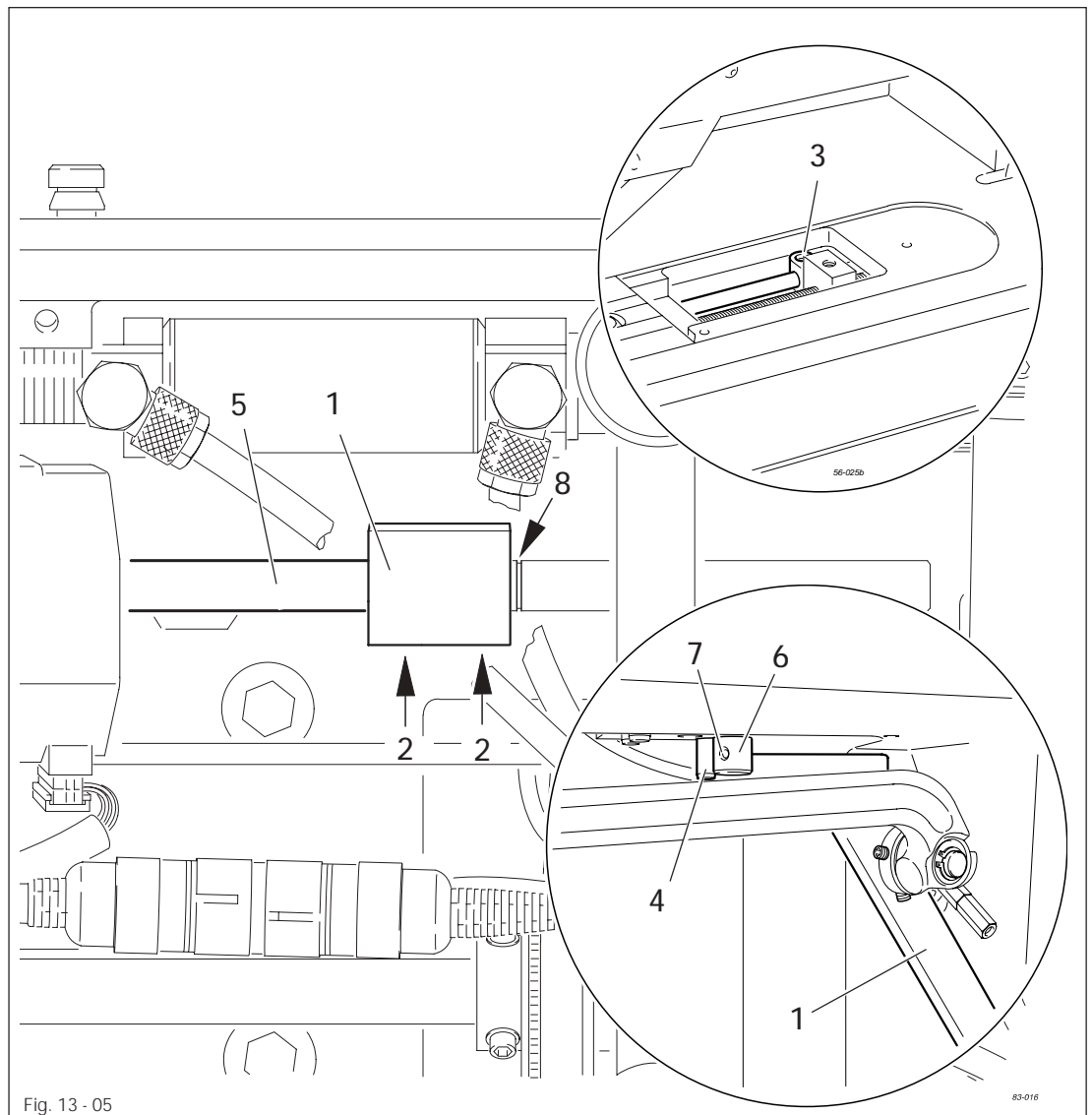
- Set the distance of 1.6 mm by turning spindle 1.
- Adjust switch 2 (screw 3) according to the requirement.

13.08 Preliminary adjustment of the work clamp

Requirement

When the feed unit is in its basic position

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

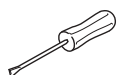
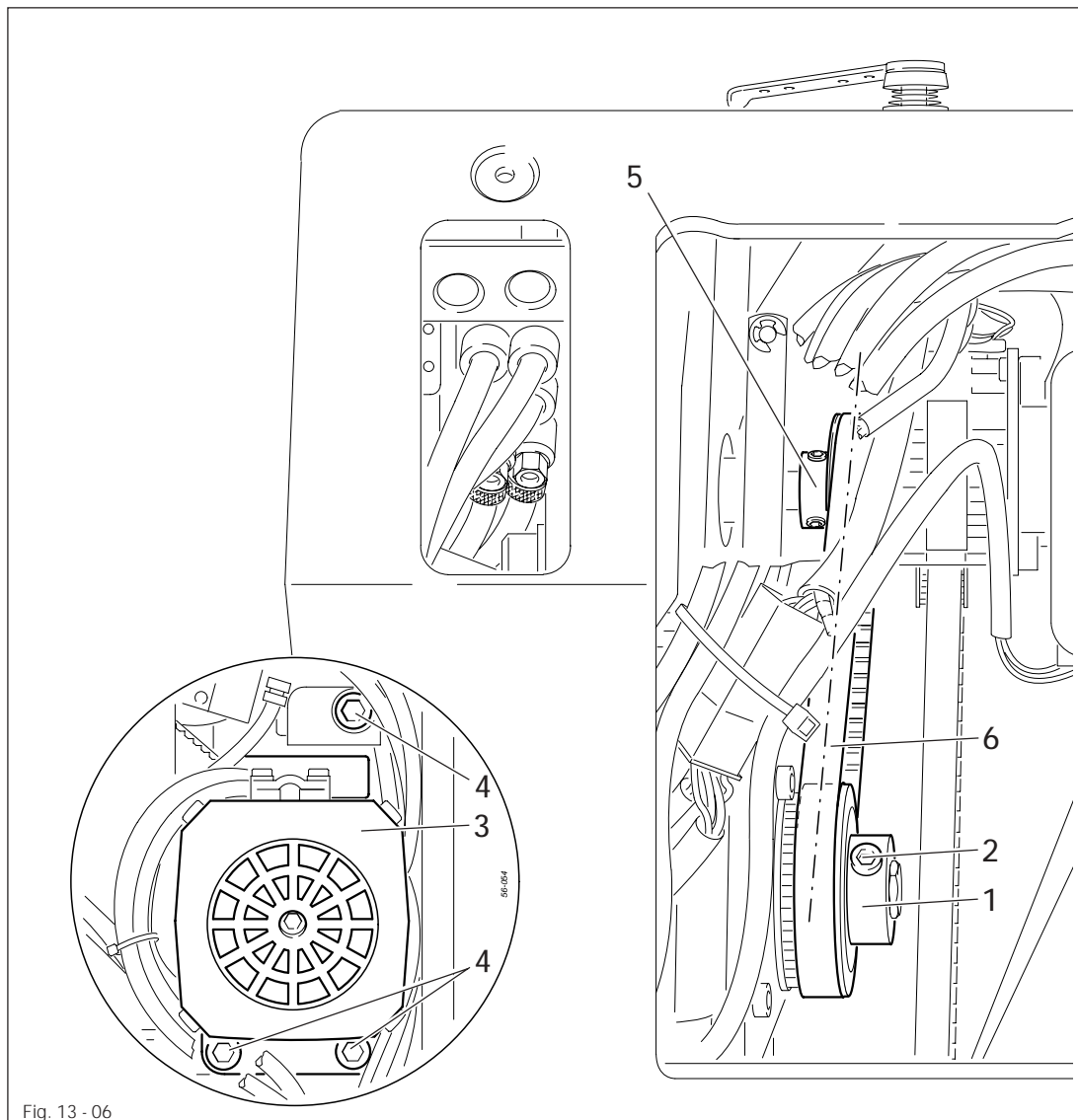


- Adjust drive lever 1 (screws 2) according to requirement 1.
- Loosen screw 3.
- Bring drive lever 1 to stop on guide pin 4 and adjust shaft 5 according to requirement 2.
- Turn eccentric 6 (screw 7) according to requirement 3.
- Tighten screw 3.

13.09 Toothed belts of the main drive unit

Requirement

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



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

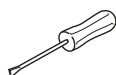
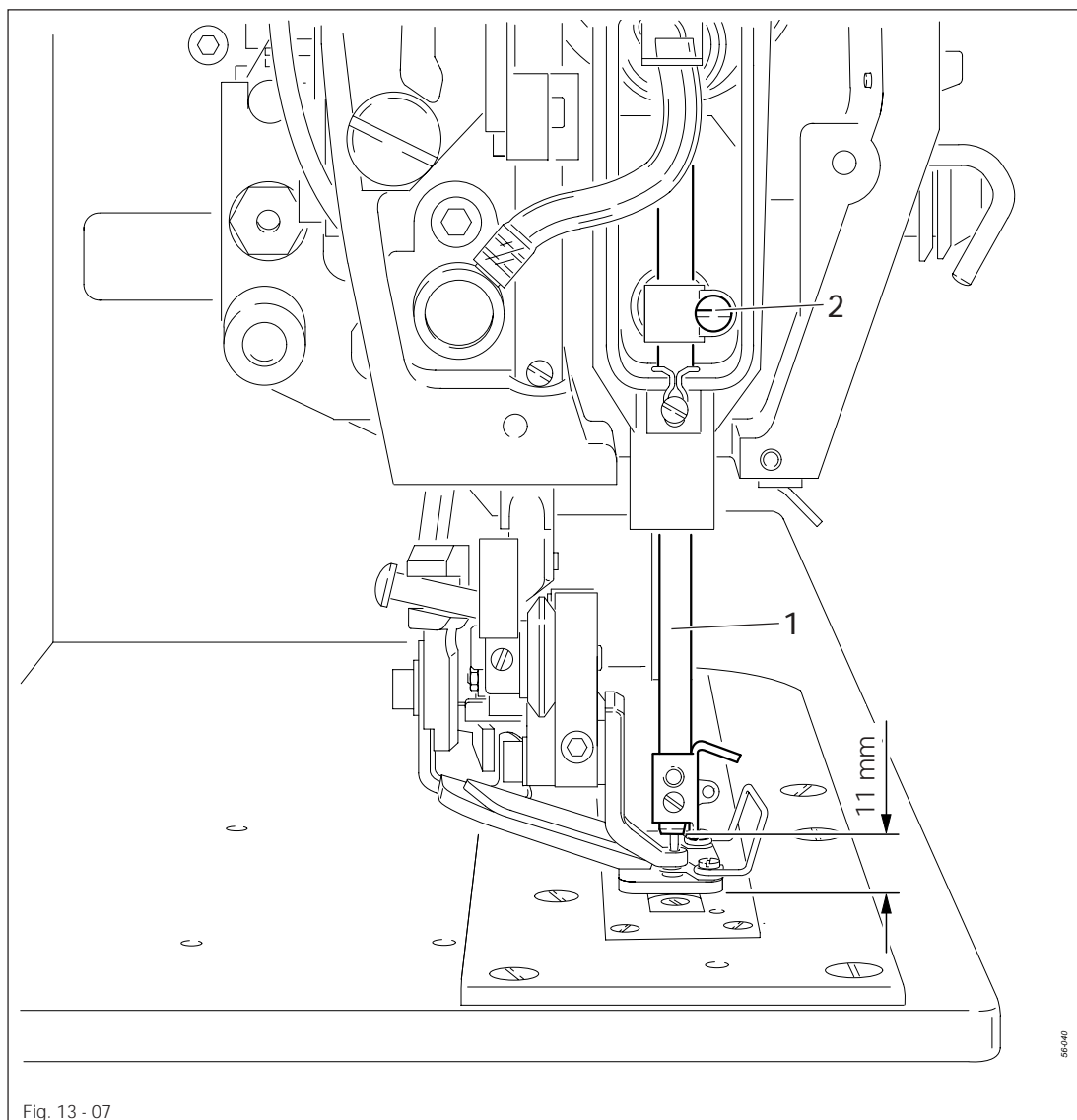


If there are operational noises, repeat the adjustments.

13.10 Preliminary adjustment of the needle height

Requirement

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



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

13.11 Position of the needle plate in relation to the needle

Requirement

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

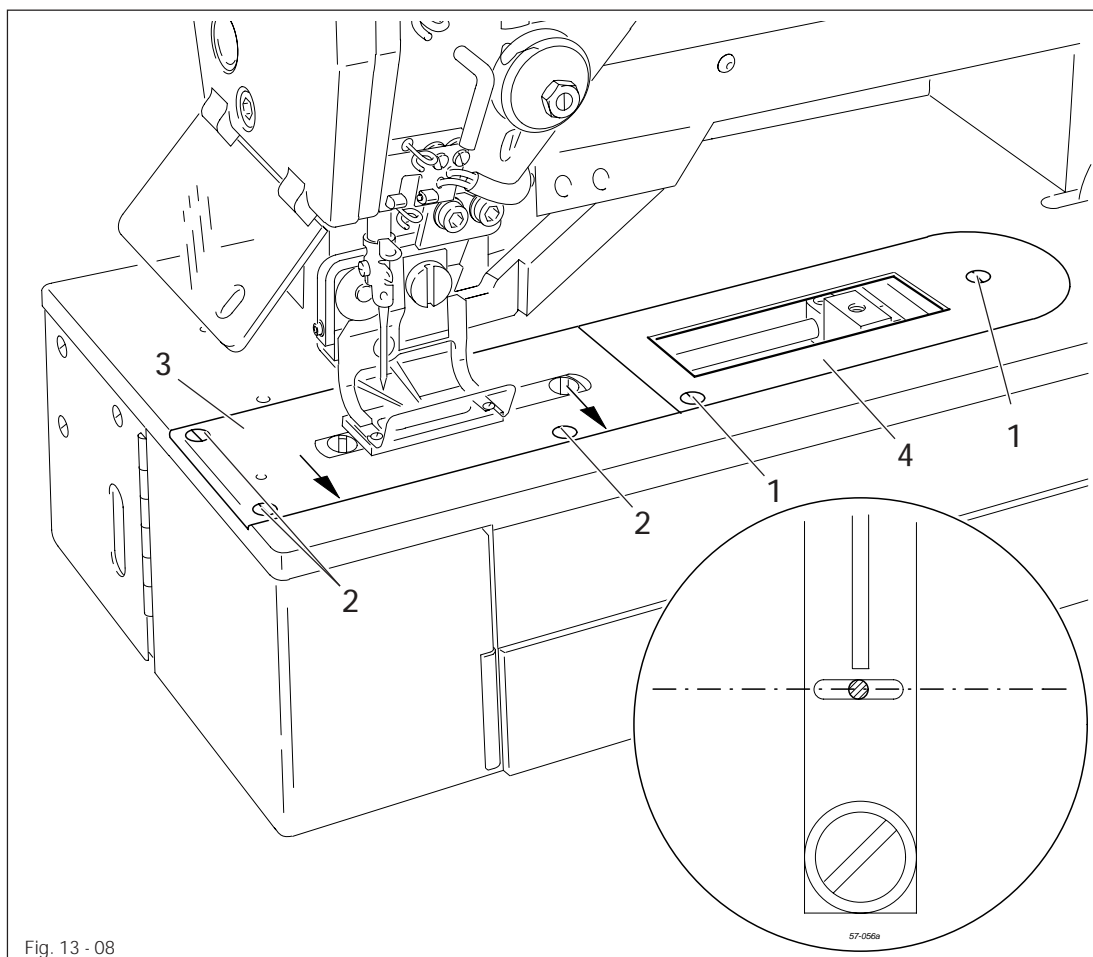
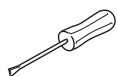


Fig. 13 - 08



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

13.12 Controlling the stitch symmetry

Requirement

Both the left and right point of penetration should be the same distance from the basic position of the needle (middle point of penetration).

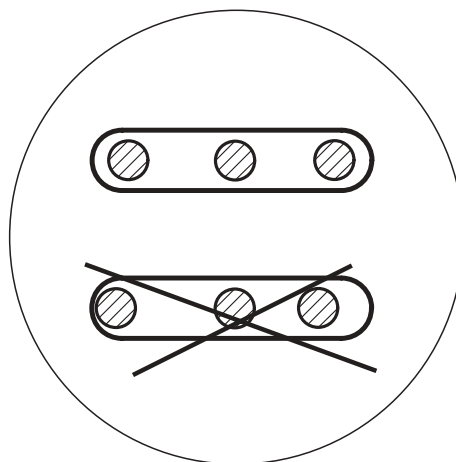
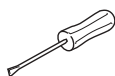


Fig. 13 - 08a



- Switch on the machine.
- Call up parameter 606.
- Place a thin piece of cardboard under the work clamp.
- Confirm input with the **Enter** key.
- Taking care to see that the X-coordinate is positioned at "0", penetrate the cardboard slightly by turning the balance wheel.
- Set the X-coordinate at -40 with the appropriate **plus/minus** key and penetrate the cardboard slightly by turning the balance wheel.
- Set the X-coordinate at 40 with the appropriate **plus/minus** key and penetrate the cardboard slightly by turning the balance wheel.



Set the X-coordinate back to "0" with the appropriate **plus/minus** key.

- Leave the operational mode **Input** and remove the cardboard.
- Control the symmetry of the penetration points.
- If the penetration points are not symmetrical, check the **Chapter 13.13 Sensor board** for the needle drive unit and **Chapter 13.14 Basic position** of the needle drive unit.

13.13 Sensor board of the needle drive (in dismantled state)

Requirement

1. The counter-sinking in eccentric 1 should match the locking hole in the supporting bracket.
2. The axis of the switch lug of eccentric 1 should be centred to the hybrid light barrier of the sensor board.

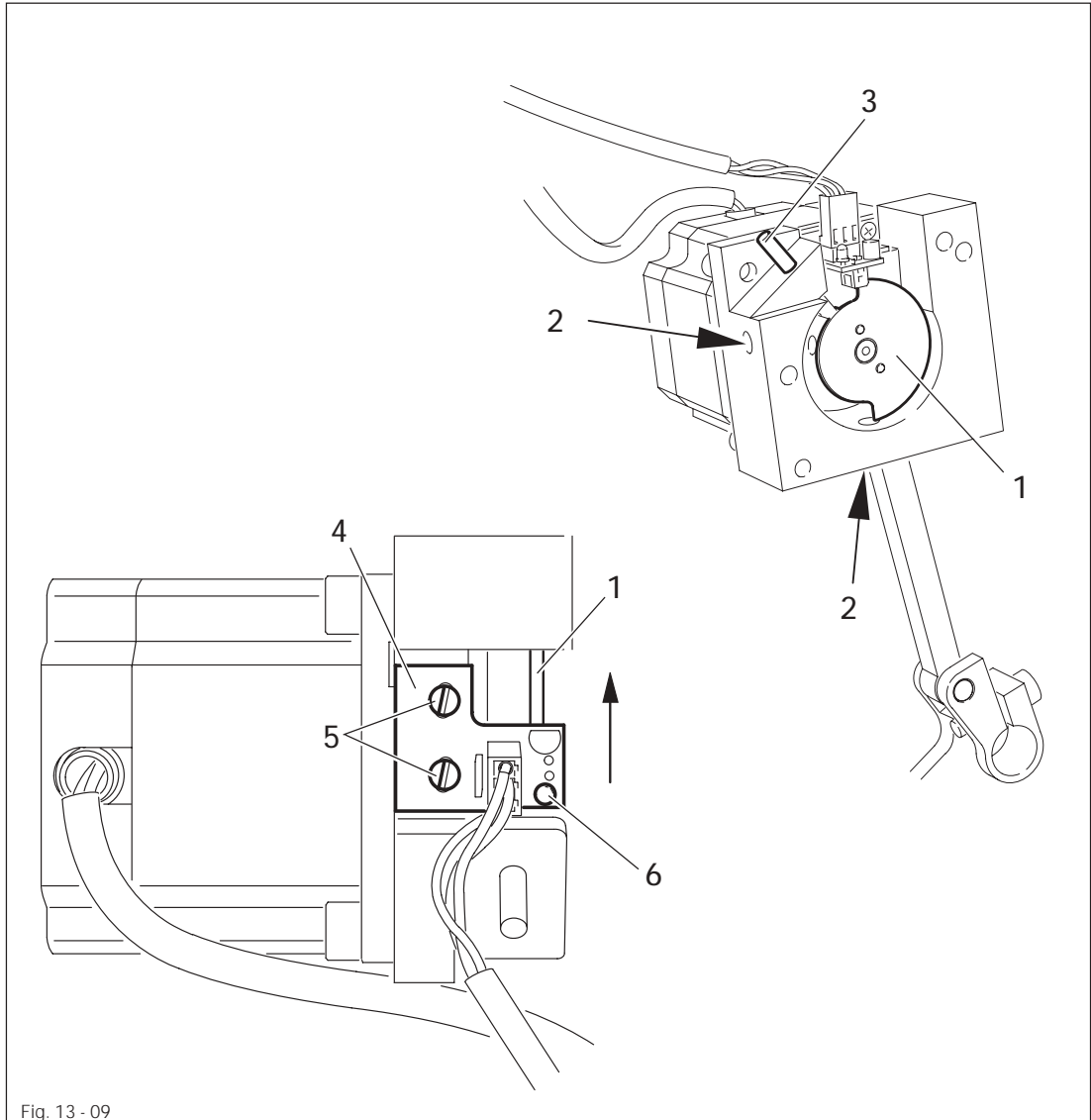


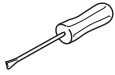
Fig. 13 - 09



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



Electric voltage!
Danger of electric shock if handled incorrectly!



- Completely remove the needle drive unit (plugs remain connected).
- Loosen screws 2.
- Block eccentric 1 with blocking pin 3 (part no. 13-030 272-05) in the blocking hole of the supporting bracket.
- Switch machine off, then on again and wait until the stepping motor has stopped (ignore error signal on the control panel).
- Making sure that it is touching the rear wall, slide board 4 (screws 5) in the direction of the arrow, until light diode 6 lights up, and then slide it back until the light in diode 6 just goes out.
- Switch off the machine.
- Adjust eccentric 1 in accordance with **requirement 2** and tighten screws 2.
- Remove blocking pin 3.
- Switch on the machine and check the needle drive unit in accordance with **requirement 1**.
- Switch off the machine.
- Install the needle drive unit and set it in accordance with **Chapter 13.14 Basic setting of the needle drive unit**.

13.14 Basic setting of the needle drive unit

Requirement

As seen crosswise to the direction of sewing, the needle should be positioned in b.d.c. needle bar, and when eccentric 1 is blocked, in the centre of the needle hole.

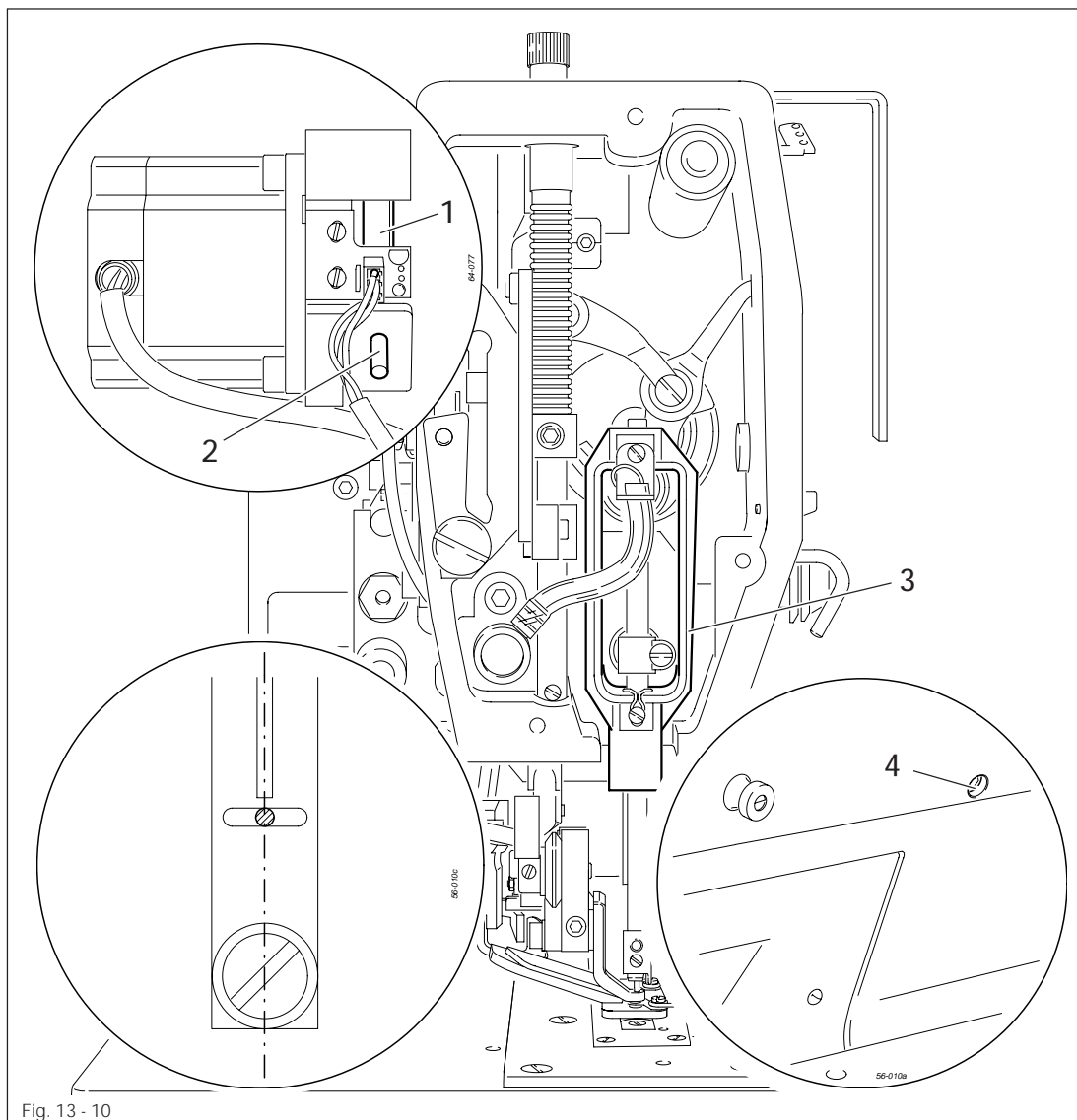
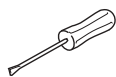


Fig. 13 - 10



- Switch on the machine and set parameter "611" to value "1".
- Using the balance wheel, bring the needle bar into b.d.c. and block eccentric 1 (blocking pin 2, part no. 13-030 272-05).
- Adjust the needle bar 3 (screw 4) in accordance with the requirement.
- Remove blocking pin 2.

13.15 Basic position of the work clamp (lengthwise to the arm)

Requirement

When the clamp 1 is in its basic position, there should be a distance of 5 mm, or 9 mm on machines with sub-class -2/62 and -2/63, from the centre of the needle hole to the work clamp.

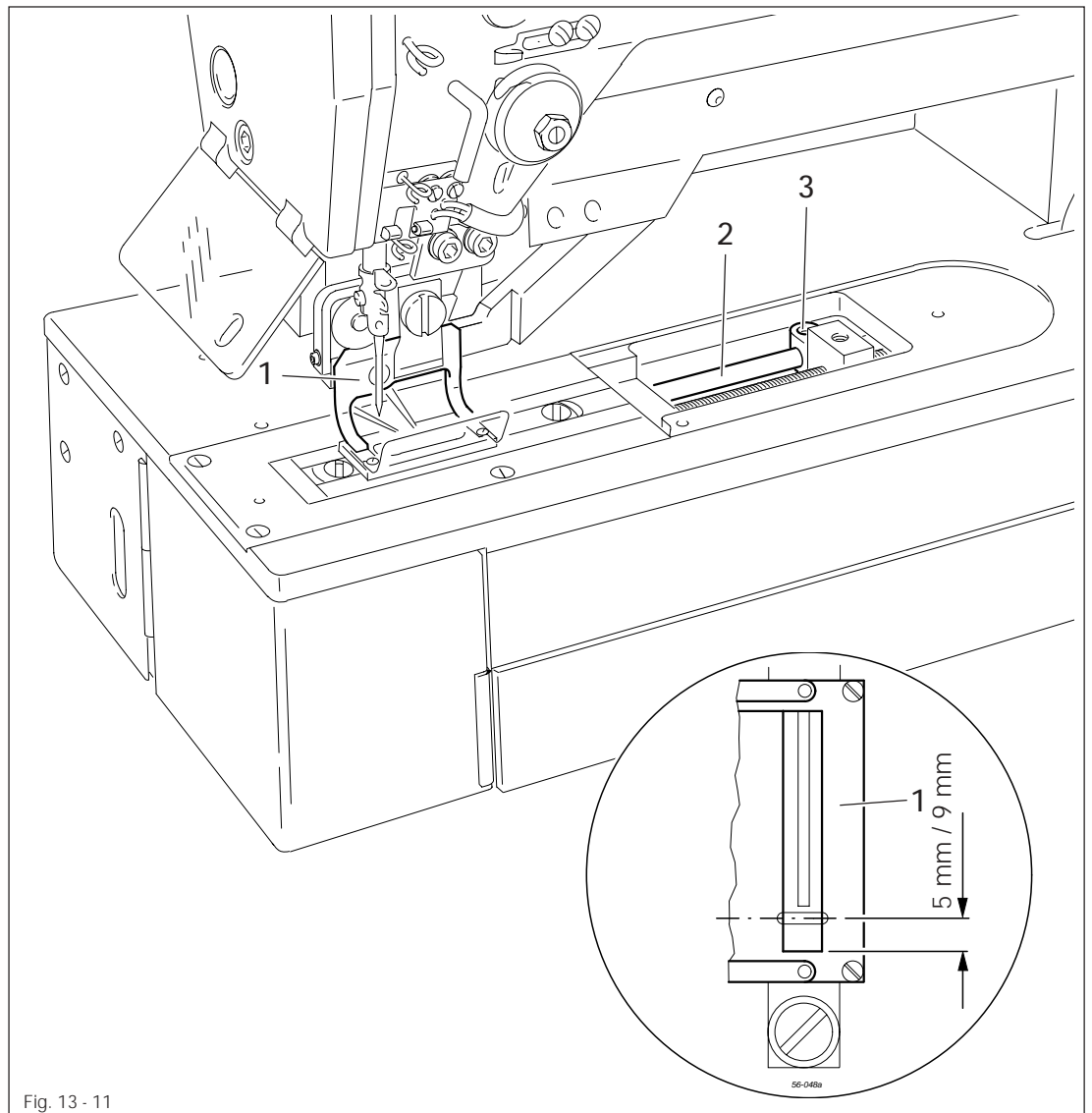
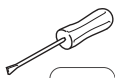


Fig. 13 - 11

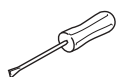
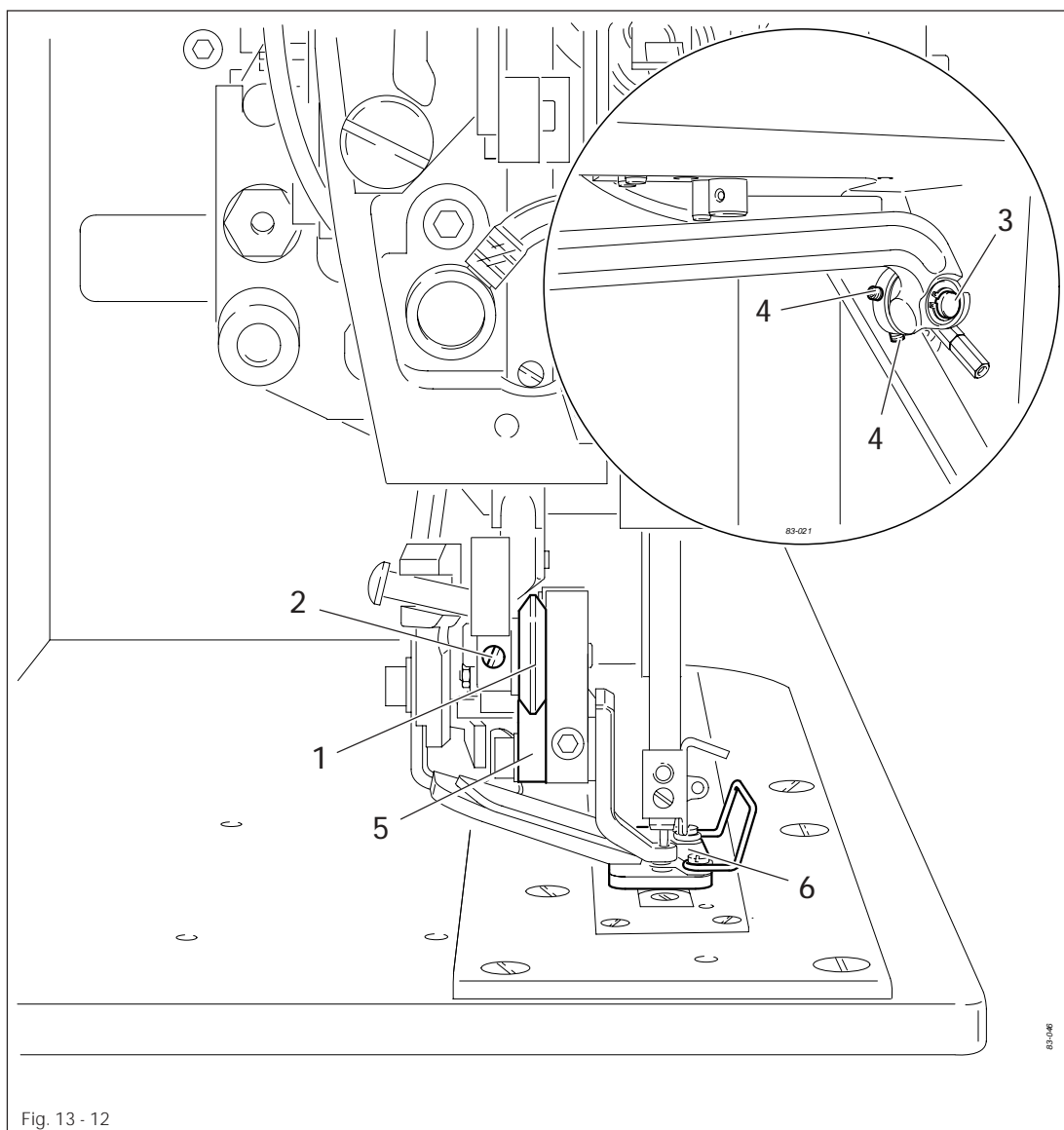


- Connect the compressed air system and switch on the machine.
- Lower the work clamp 1 (control panel).
- Adjust bar 2 (screw 3) according to the requirement.
- Switch off the machine and disconnect the compressed air.

13.16 Basic position of the work clamp (crosswise to the arm)

Requirement

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



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

13.17 Upper take-up lever position (reference position)

Requirement

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

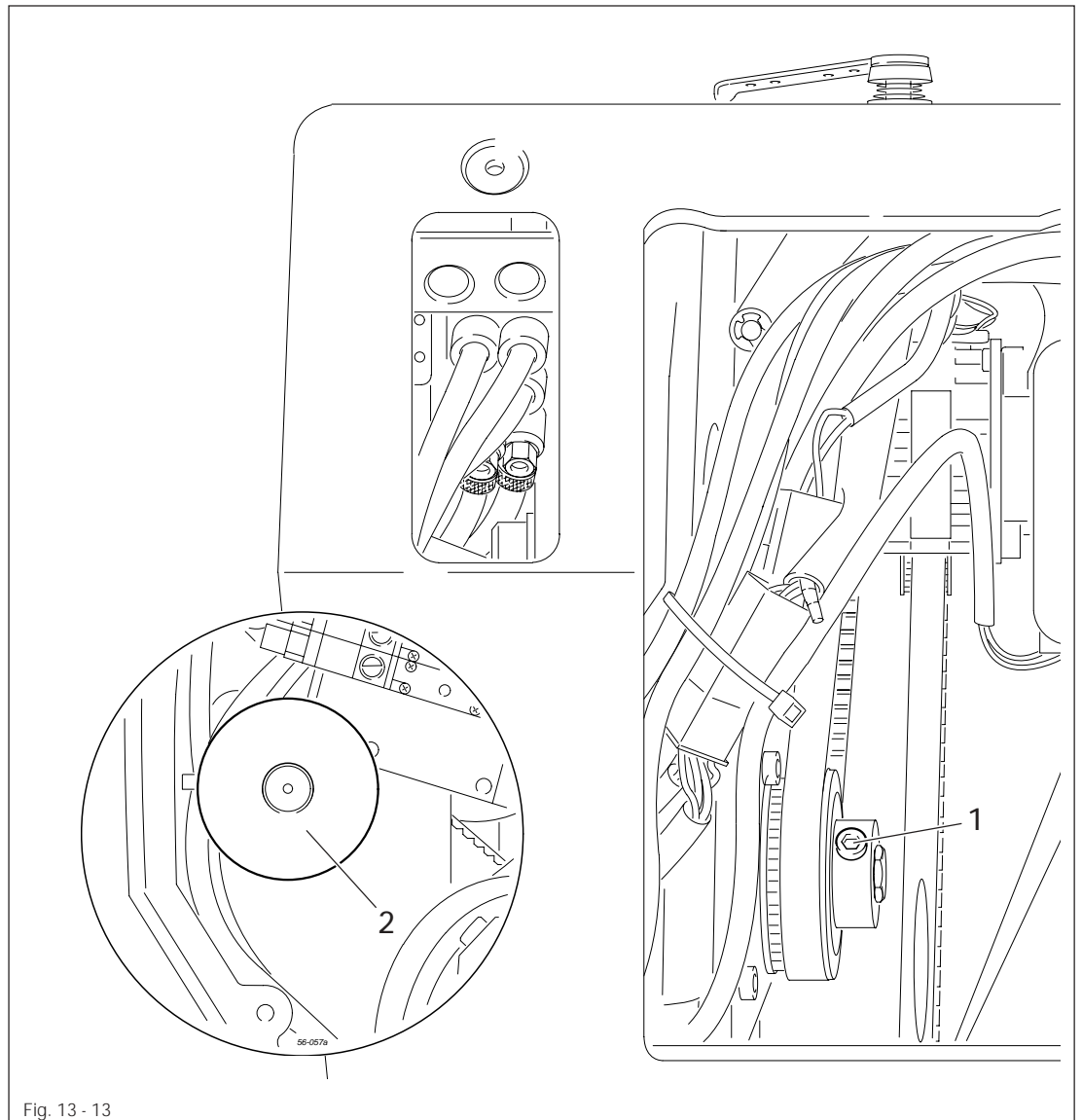
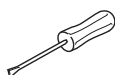


Fig. 13 - 13



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

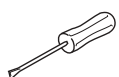
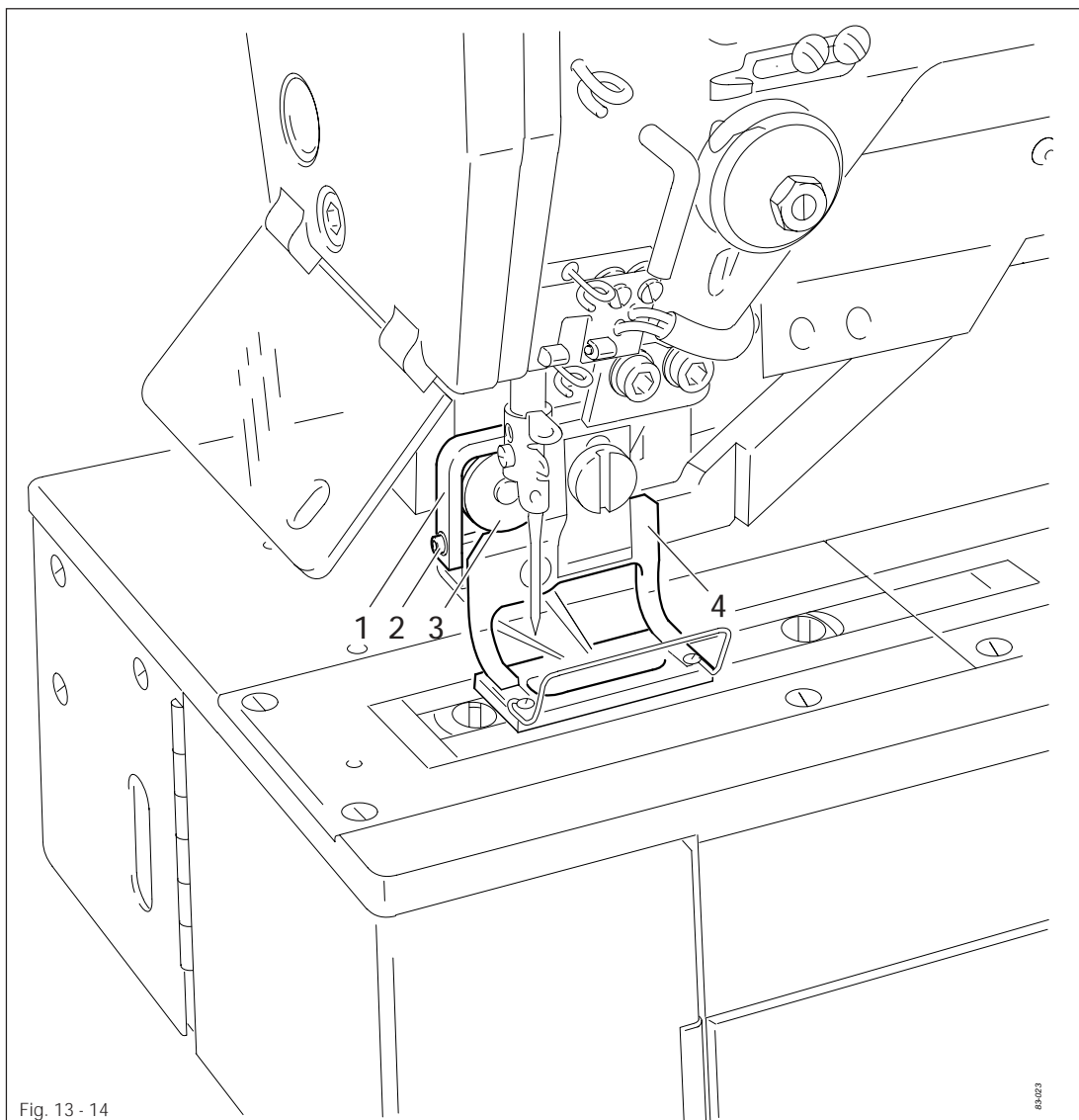


- Press **Enter**, the motor turns to the reference point.
- Loosen screw 1 and, by turning the balance wheel 2, bring the take-up lever into position according to the **requirement**.
- Tighten screws 1.
- Switch off the machine.

13.18 Lifting elbow on the work clamp

Requirement

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



- Switch on the machine.



- Lower the work clamp.

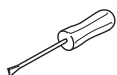
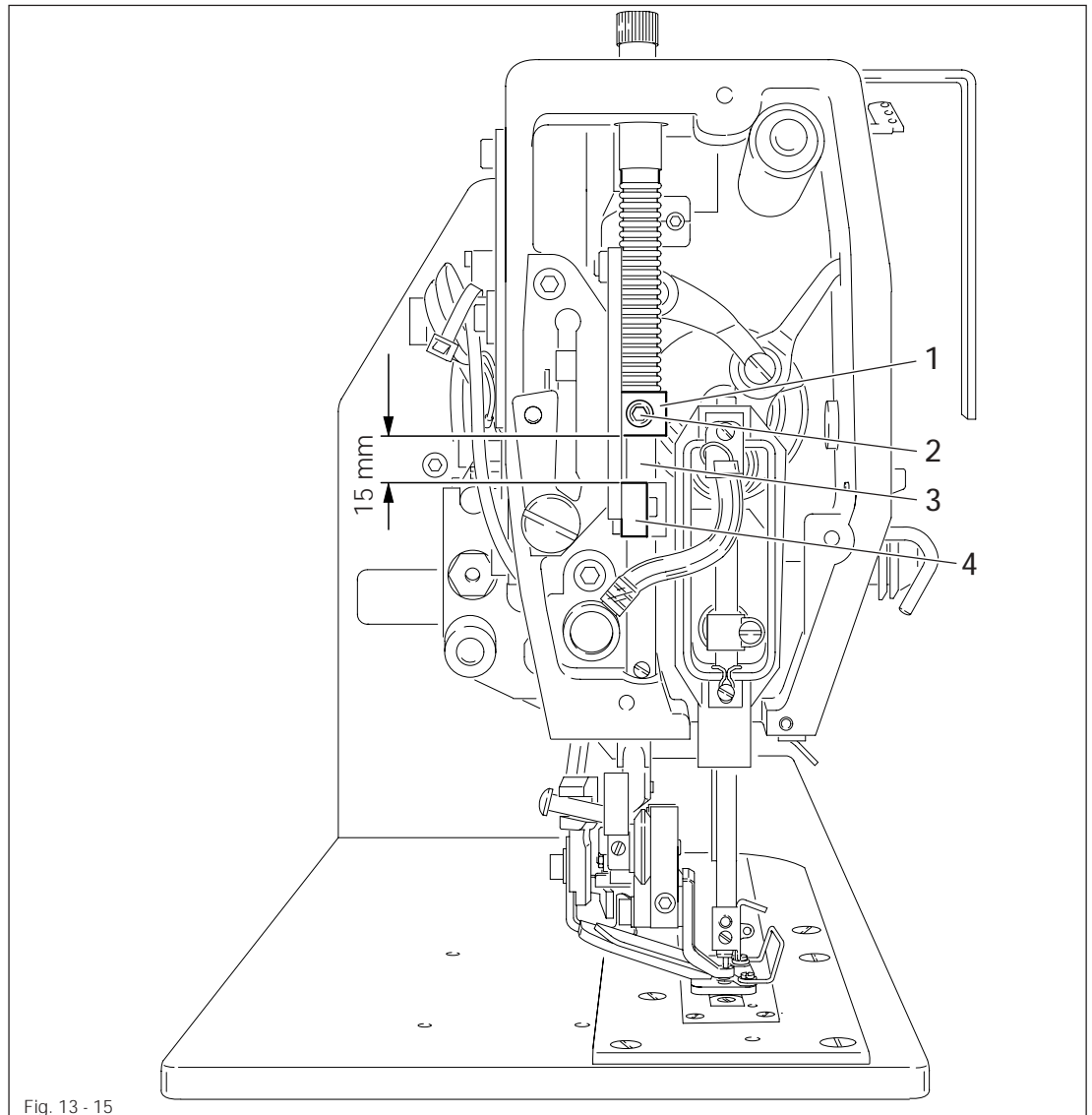
- Adjust the lifting elbow 1 (screw 2) according to the **requirements**.

- Switch off the machine.

13.19 Work clamp stroke

Requirement

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



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



Take care not to twist bar 3 during the adjustment!

13.20 Lifting cylinder of the work clamp

Requirement

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

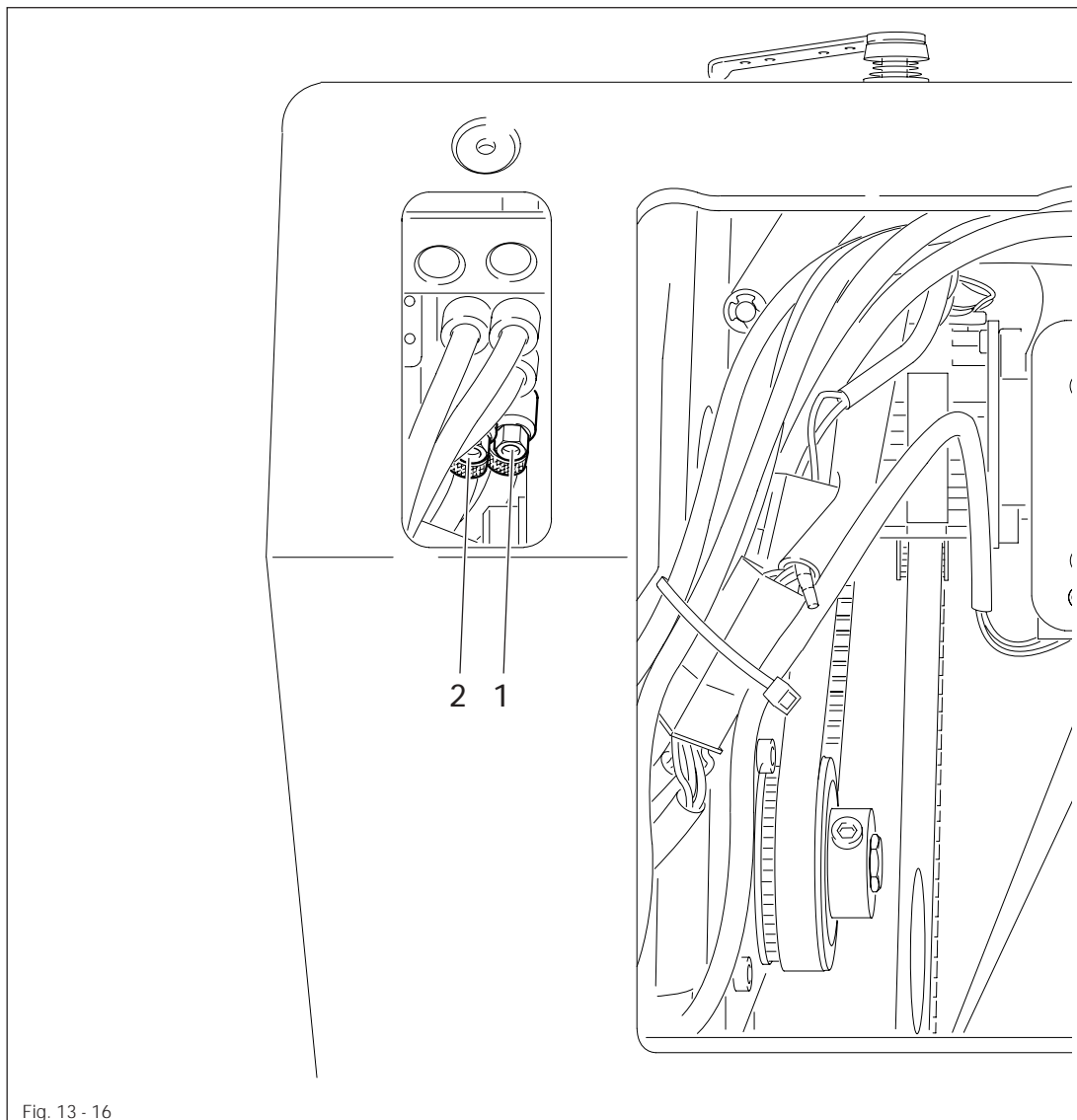
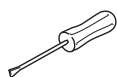


Fig. 13 - 16



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

13.21 Cutting pressure of the knife unit (in dismantled state)

Requirement

1. In its basic position (retracted), the knife cylinder 1 should have a length of 98.5 mm.
2. The knife 5 should cut perfectly, but the pressure on knife 5 should be as low as possible (not on 3119-10/01).

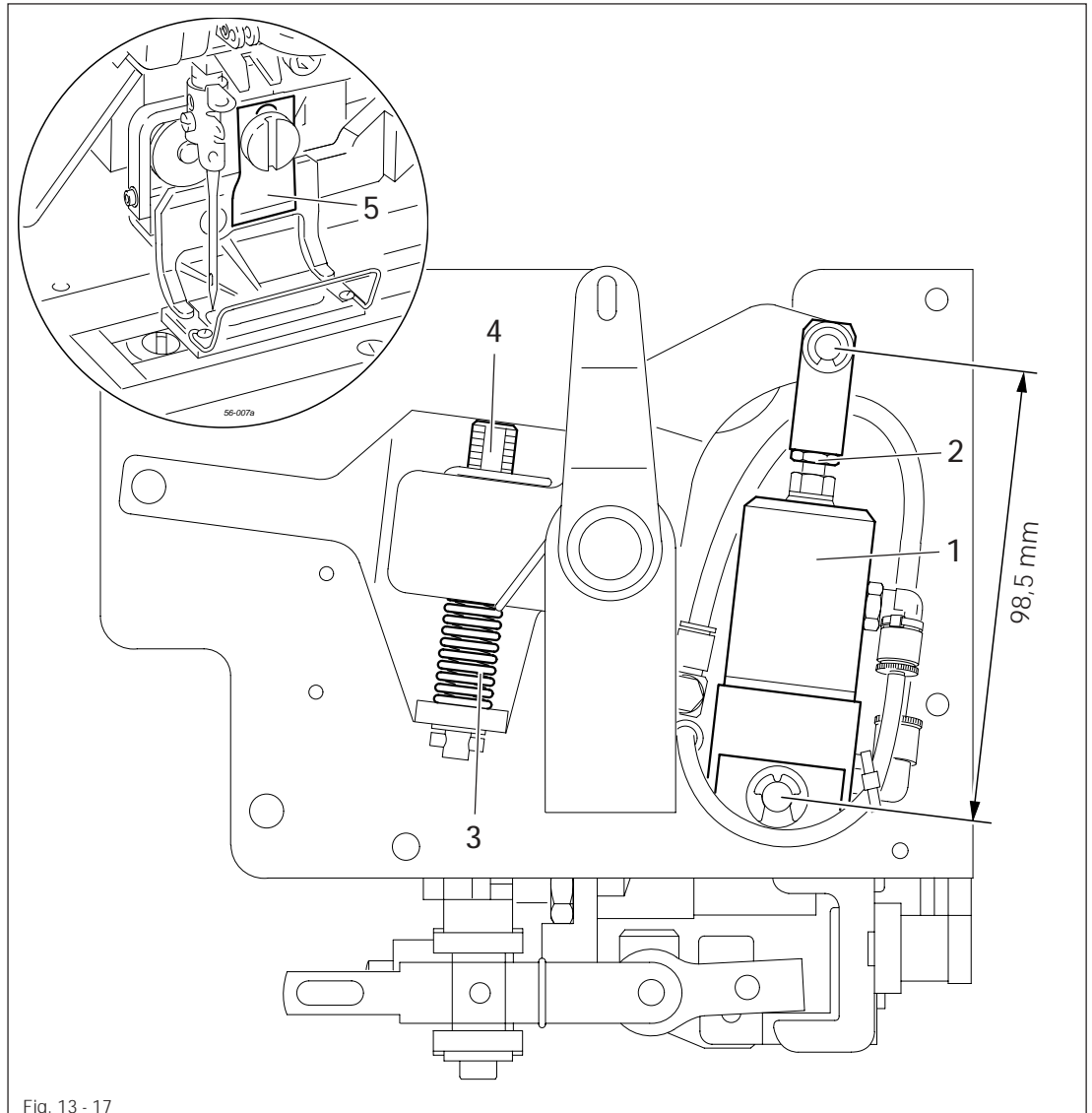
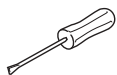


Fig. 13 - 17

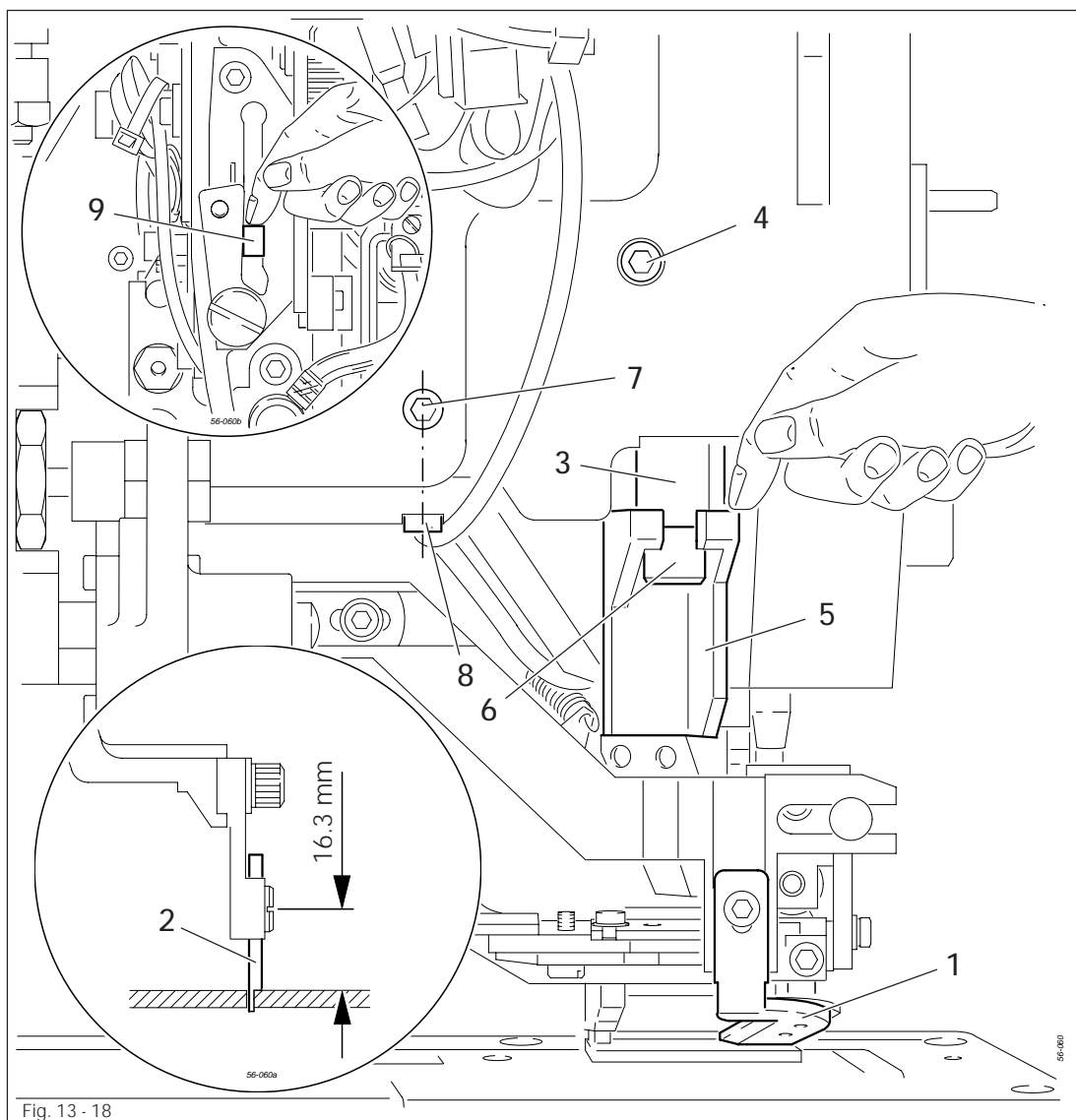


- Adjust knife cylinder 1 (nut 2) according to requirement 1.
- To begin with, by turning screw 4 completely compress spring assembly 3, and then wind screw 4 back by three turns (requirement 2).

13.22 Position of the knife bracket and lower knife stop (not on 3119-10/01)

Requirement

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



- Bring the machine into its basic position and disengage needle thread cutter 1.
- Fit adjustment gauge 2 (Part no. 61-111 635-85).
- Twist knife bar 3 (screw 4) according to **requirement 1**.
- Adjust knife bracket 5 (screw 6) according to **requirement 2**.
- Loosen screw 7 and turn stop screw 8 back a few turns.
- Push down guide unit 9 by hand, until screw 4 becomes accessible through the hole in the machine case, and adjust knife bar 3 (screw 4) according to **requirement 3**.

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

13.23 Upper knife stop (not on 3119-10/01)

Requirement

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

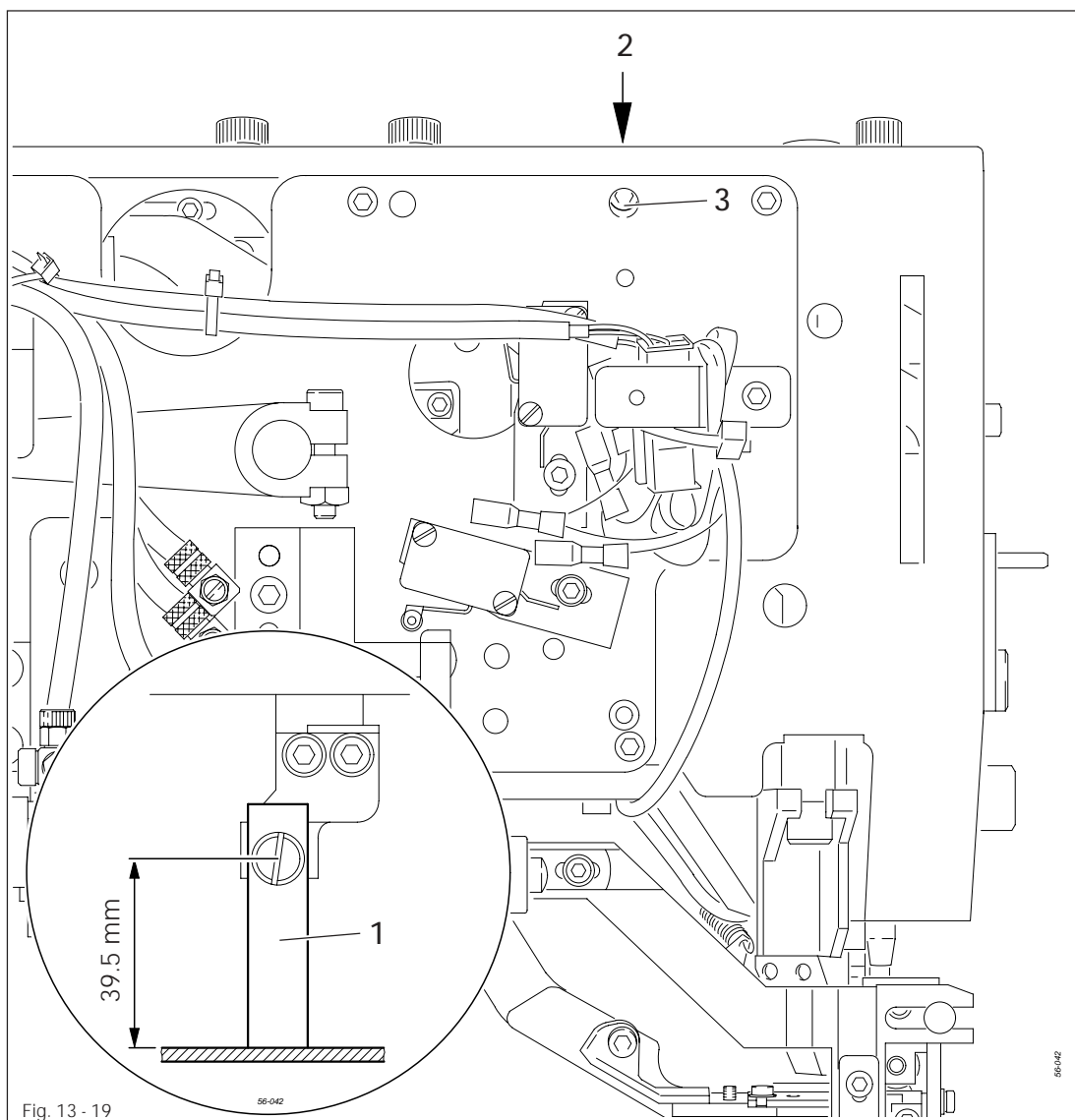
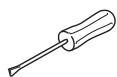


Fig. 13 - 19

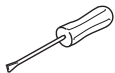
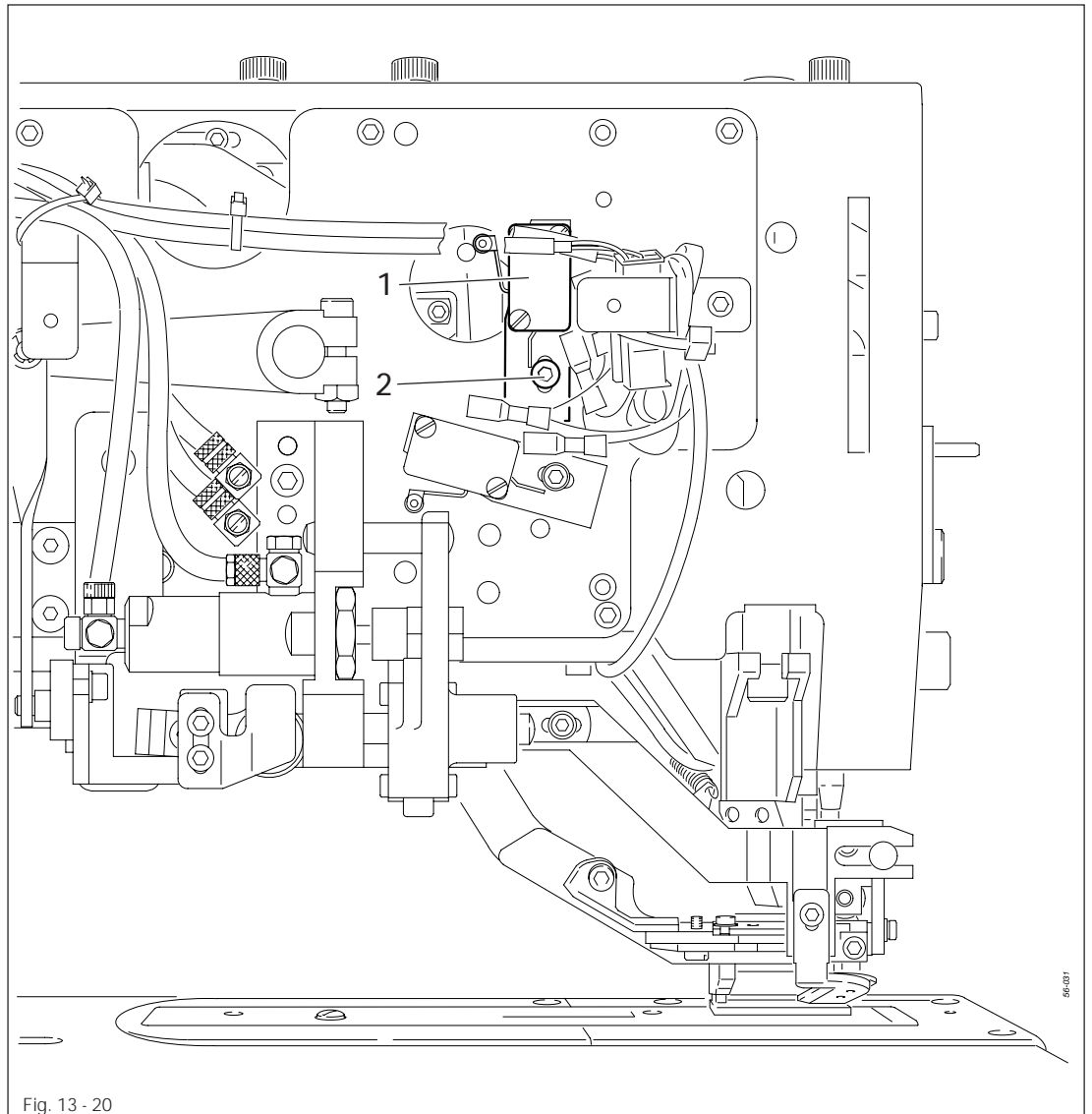


- Fit adjustment gauge 1 (Part no. 61-11 635-93).
- Turn stop screw 2 (screw 3) according to the **requirement**.
- Remove adjustment gauge 1.

13.24 Knife control switch

Requirement

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



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

13.25 Knife motion (not on 3119-10/01)

Requirement

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

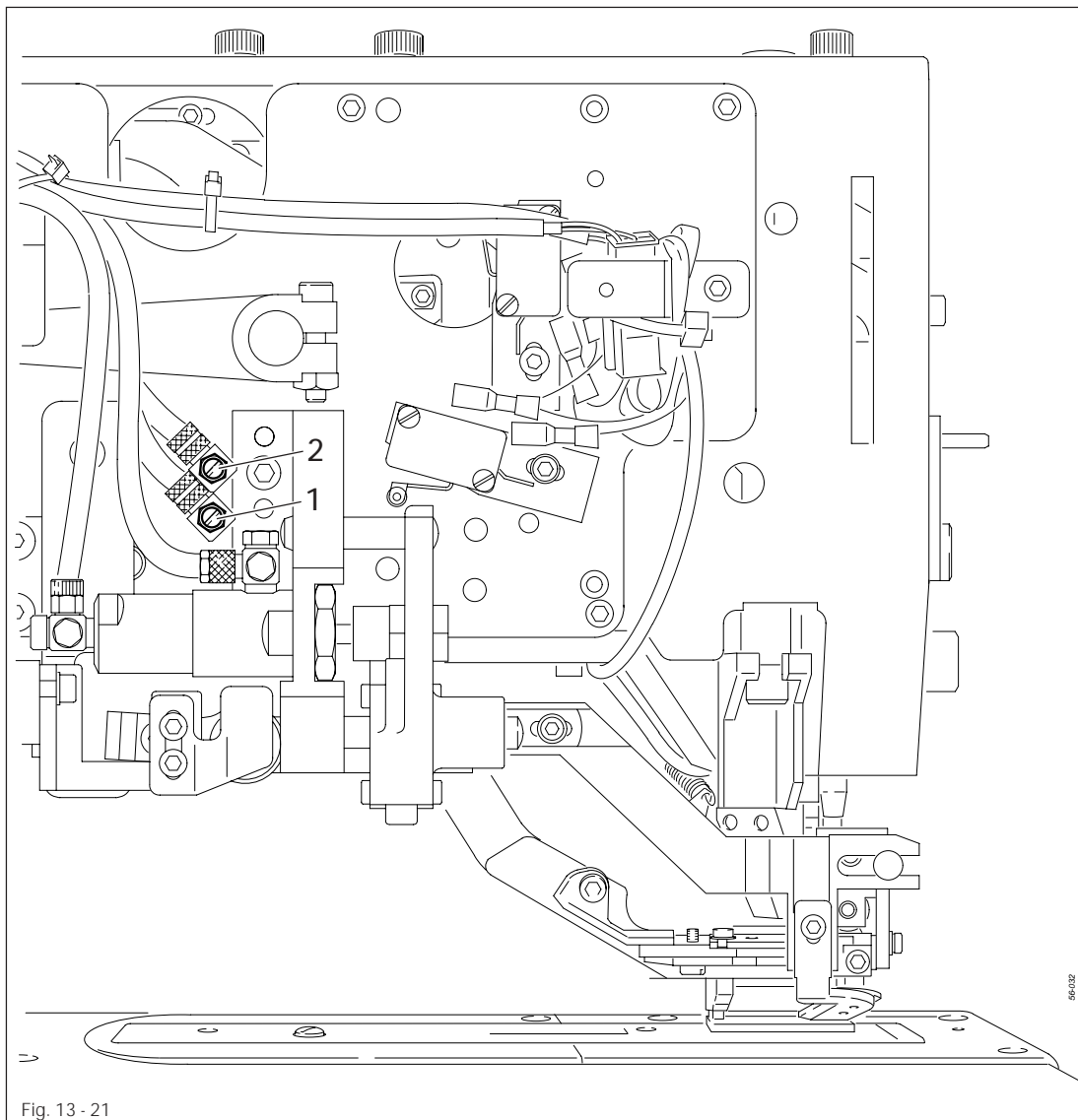
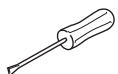


Fig. 13 - 21



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

13.26 Distance of the knife to the needle bar (not on 3119-10/01)

Requirement

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

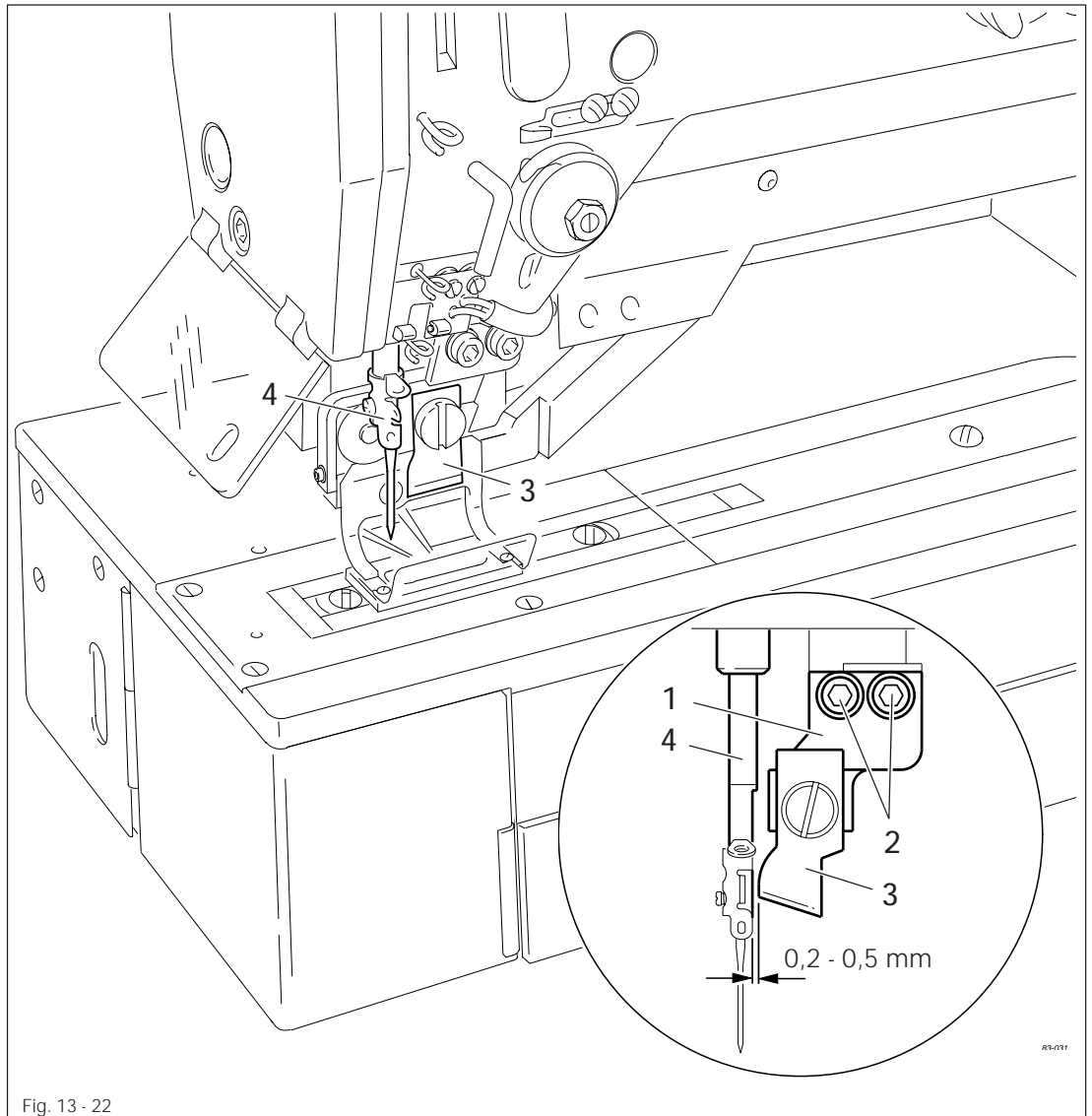
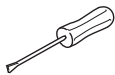


Fig. 13 - 22

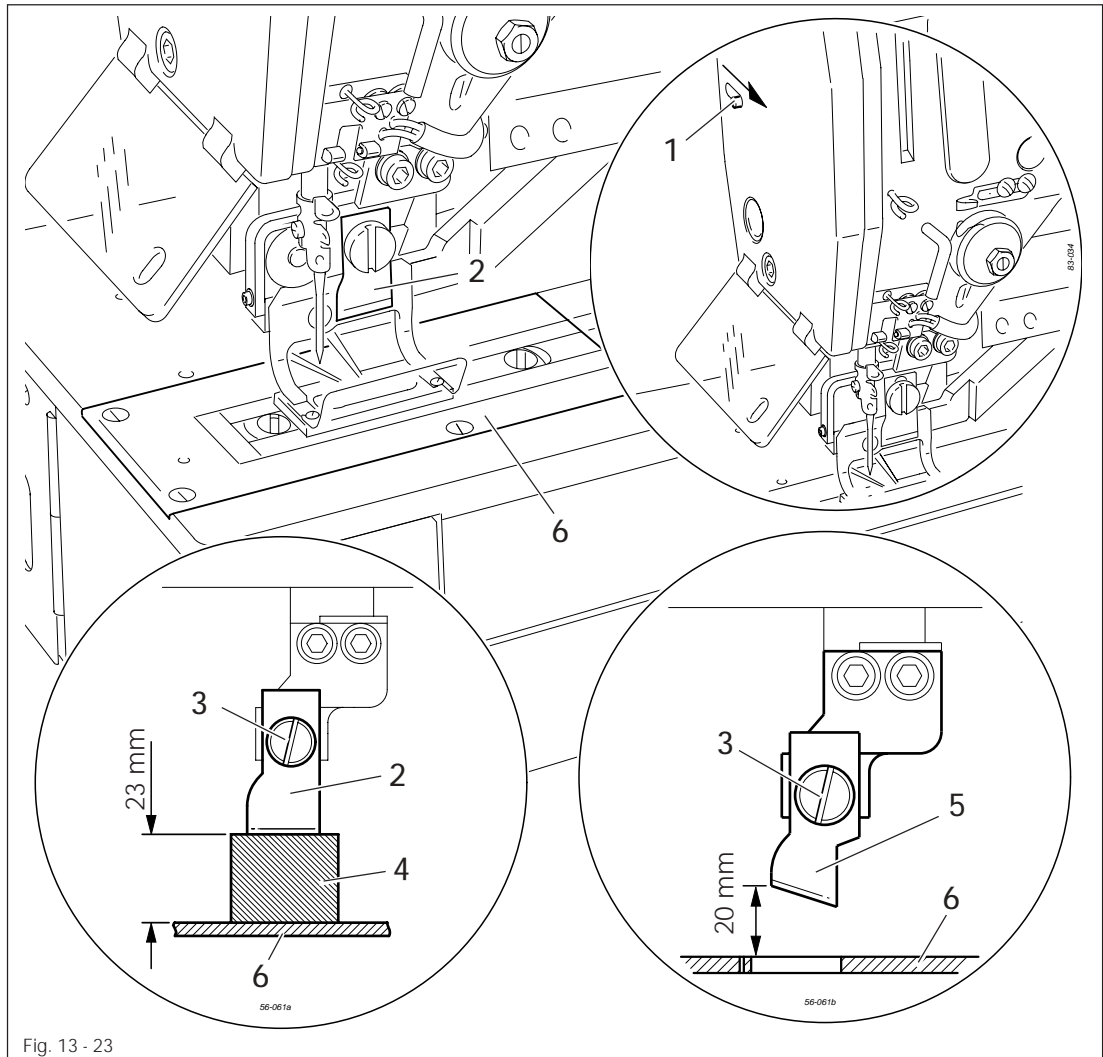


- Adjust knife holder 1 (screws 2) according to the **requirement**.
- Remove compressed air supply.
- Push the knife holder down by hand and check the distance of the knife from the needle plate cutout.

13.27 Changing the knife / knife height (not on 3119-10/01)

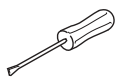
Requirement

When the punching or cutting device is in its neutral position, knife 2 should be 23 mm (punching device) or 20 mm (cutting device) away from needle plate 6.



Danger of injury from dropping knife!

Activate knife lock (move lever 1 in the direction of the arrow).



Changing the knife:

- Remove and replace knife 2 (screw 3).
- Set the knife height as described below.

Knife height on machines with punching device:

- Adjust knife 2 (screw 3) according to the requirement with the aid of adjustment gauge 4 (Part no. 61-111 635-86).

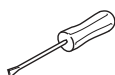
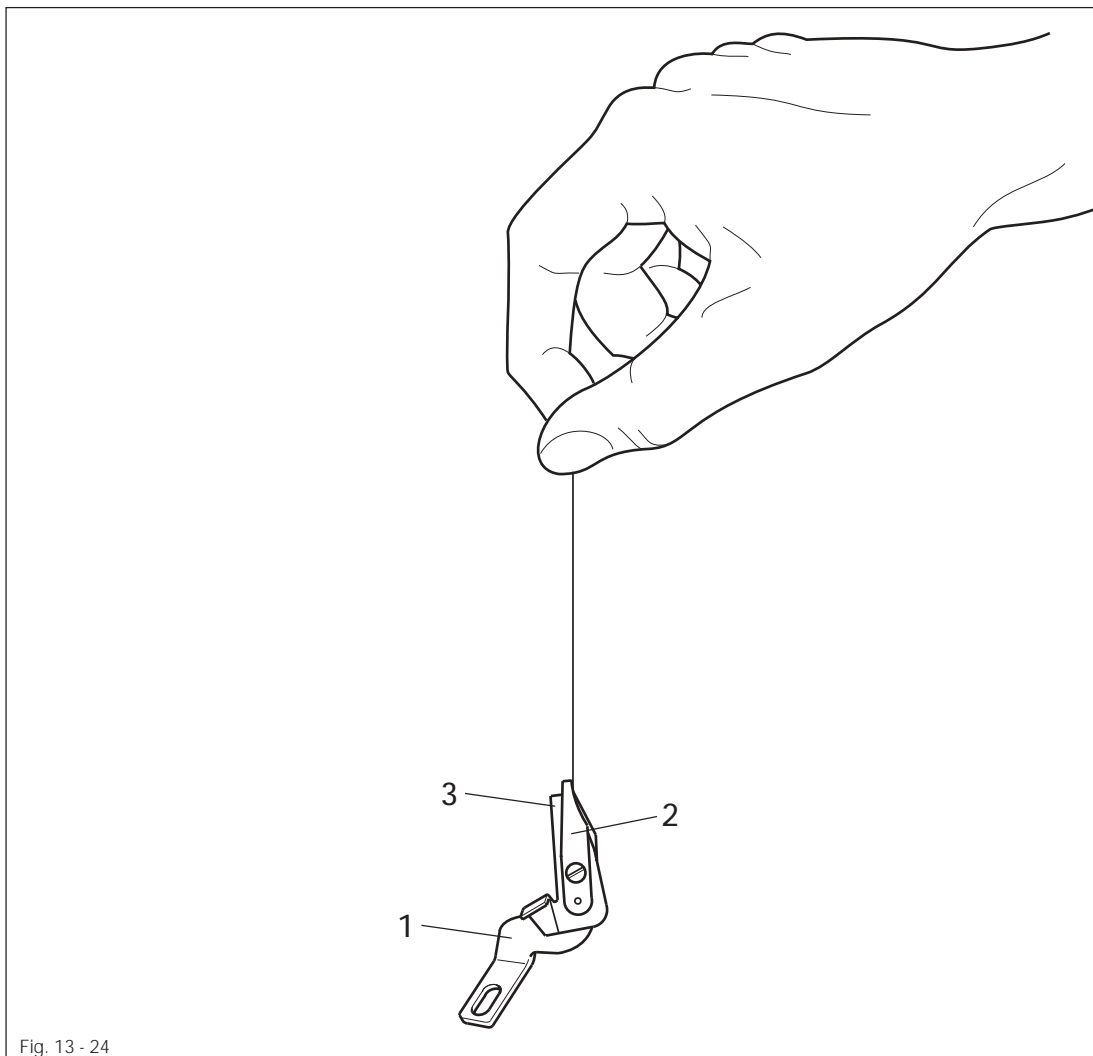
Knife height on machines with cutting device:

- Adjust knife 5 (screw 3) according to the requirement.

13.28 Functional test of needle thread cutter

Requirement

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



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



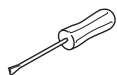
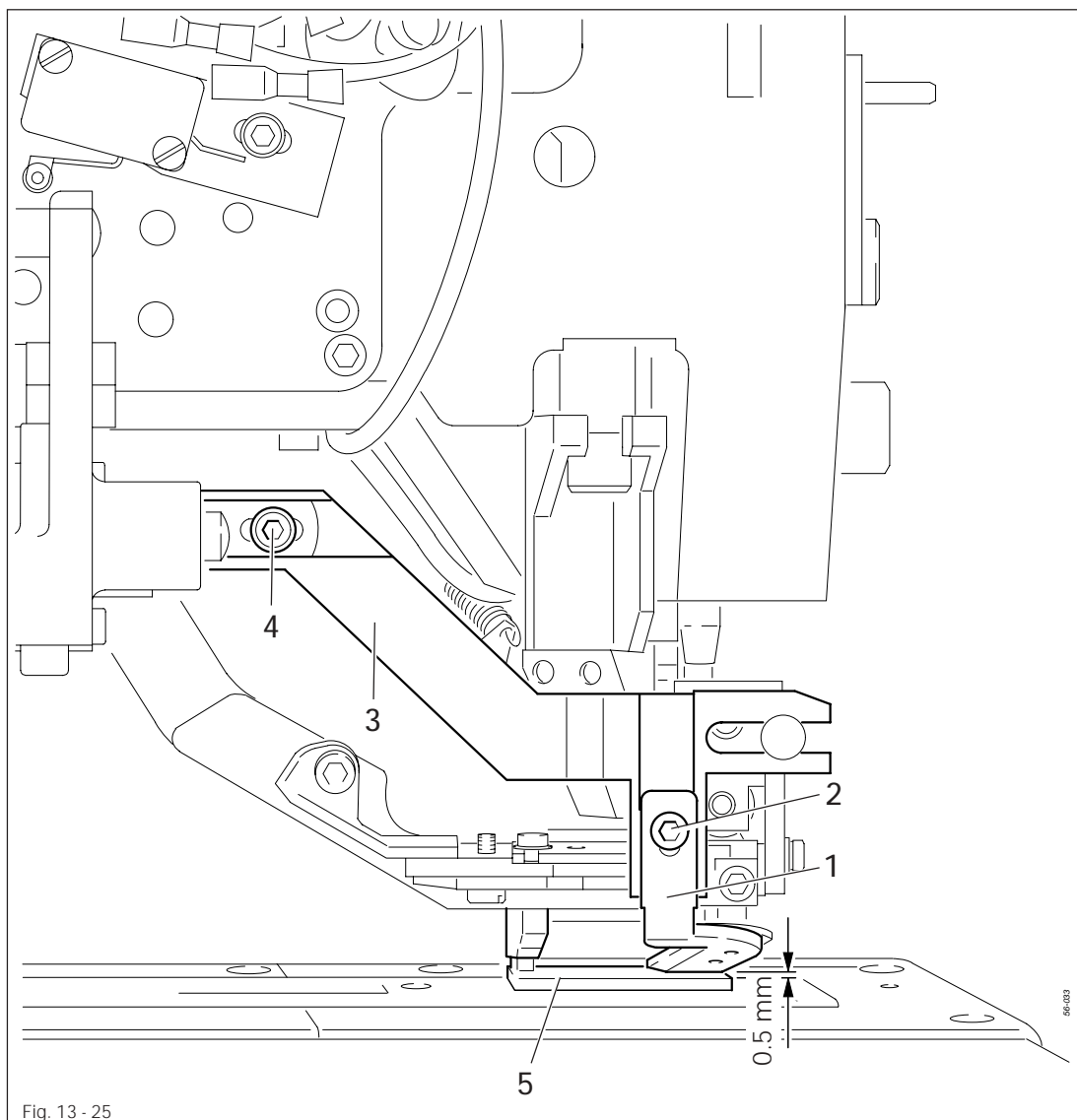
If the thread is damaged during clamping, the clamp hold is too tight. There should be no sharp edges on the clamping surfaces of the top cutter section 3, but this must have an adequate clamping surface.

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

13.29 Needle thread cutter (vertical and horizontal adjustment)

Requirement

1. The distance between the lower edge of the needle thread cutter 1 and the work clamp 5 must be **0.5 mm**.
2. The opened needle thread cutter 1 should catch the needle thread reliably. During sewing the opening cutter must not collide with the needle.



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



The adjustment described in requirement 2 cannot be carried out when sewing extremely thick materials, as this may cause needle breakage.

13.30 Cam guide unit

Requirement

The starting thread should be sewn over with no problem.

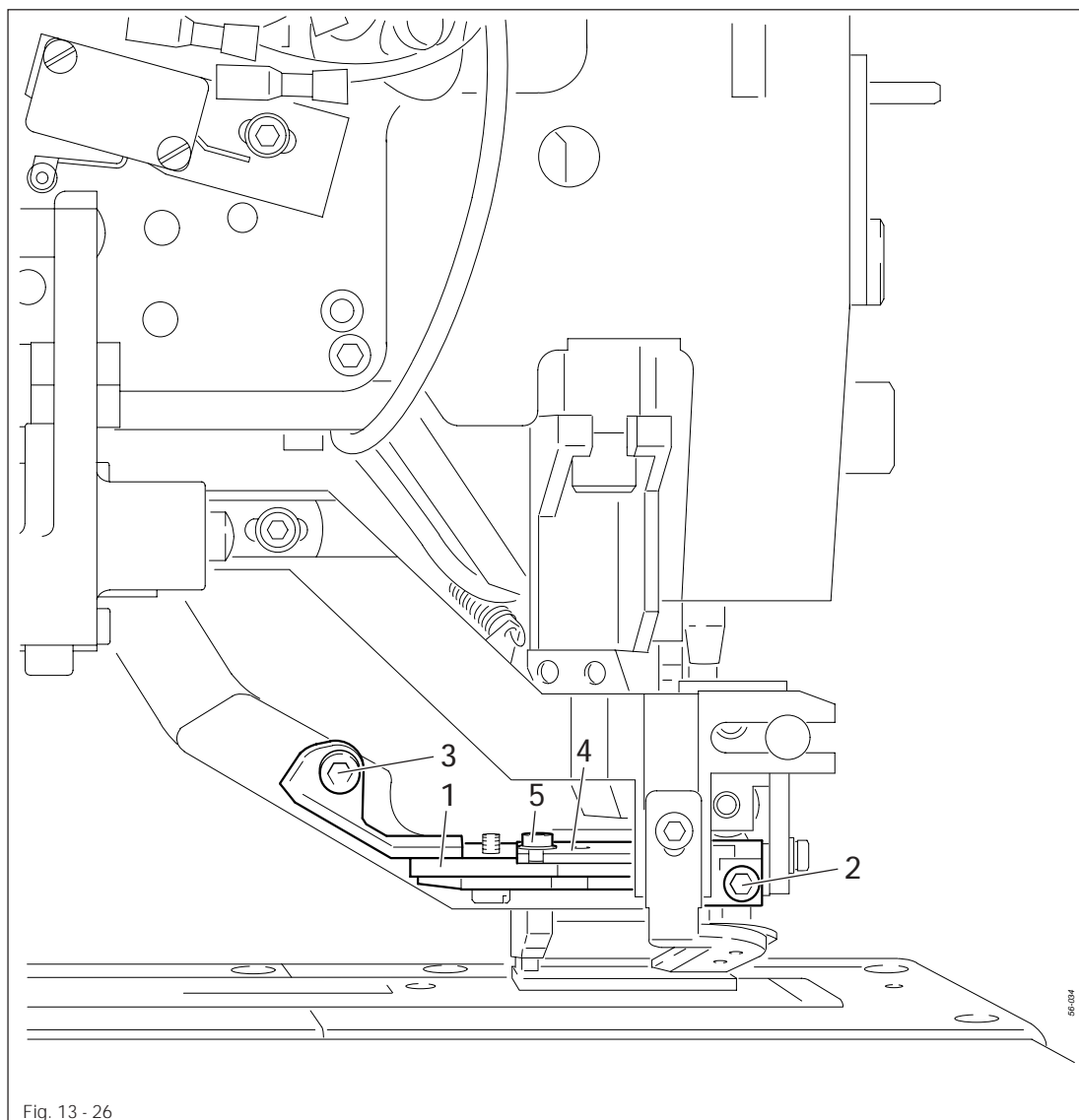
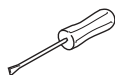


Fig. 13 - 26



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

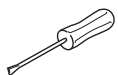
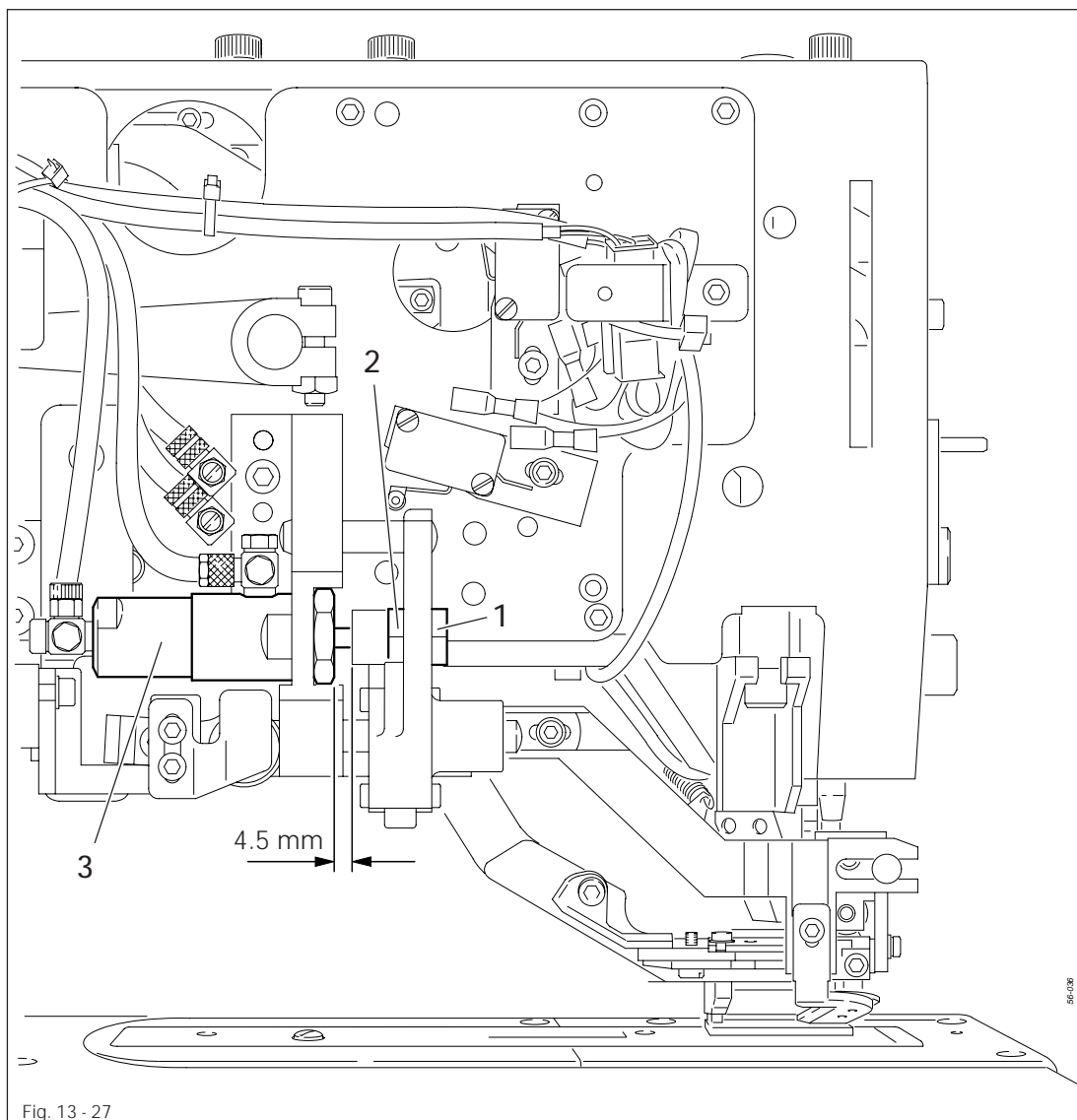


The opening and swinging out of the needle thread cutter must be corrected during sewing, if necessary.

13.31 Needle thread cutter stroke

Requirement

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



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

13.32 Needle thread cutter switch

Requirement

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

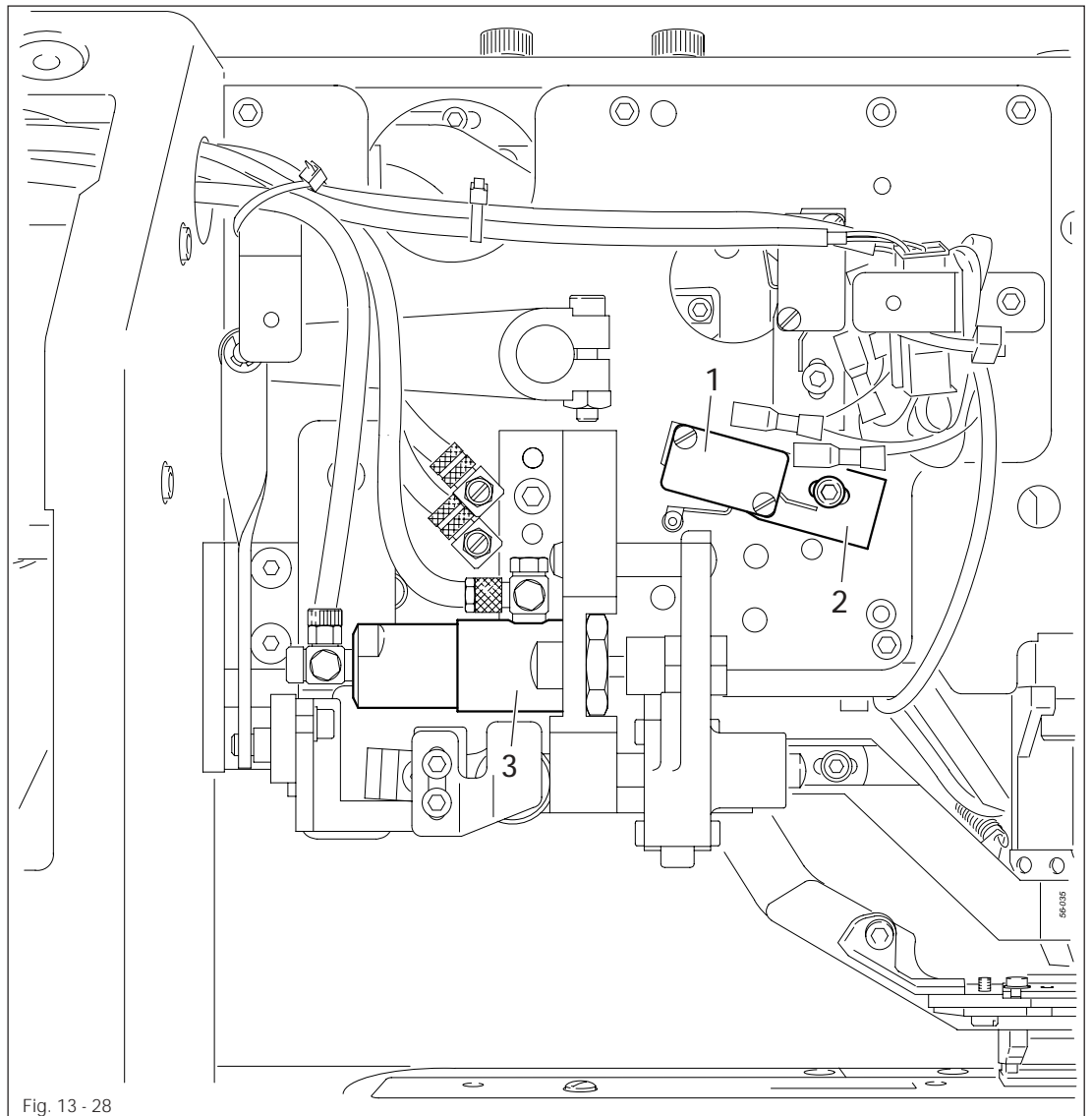
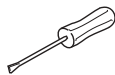


Fig. 13 - 28

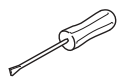
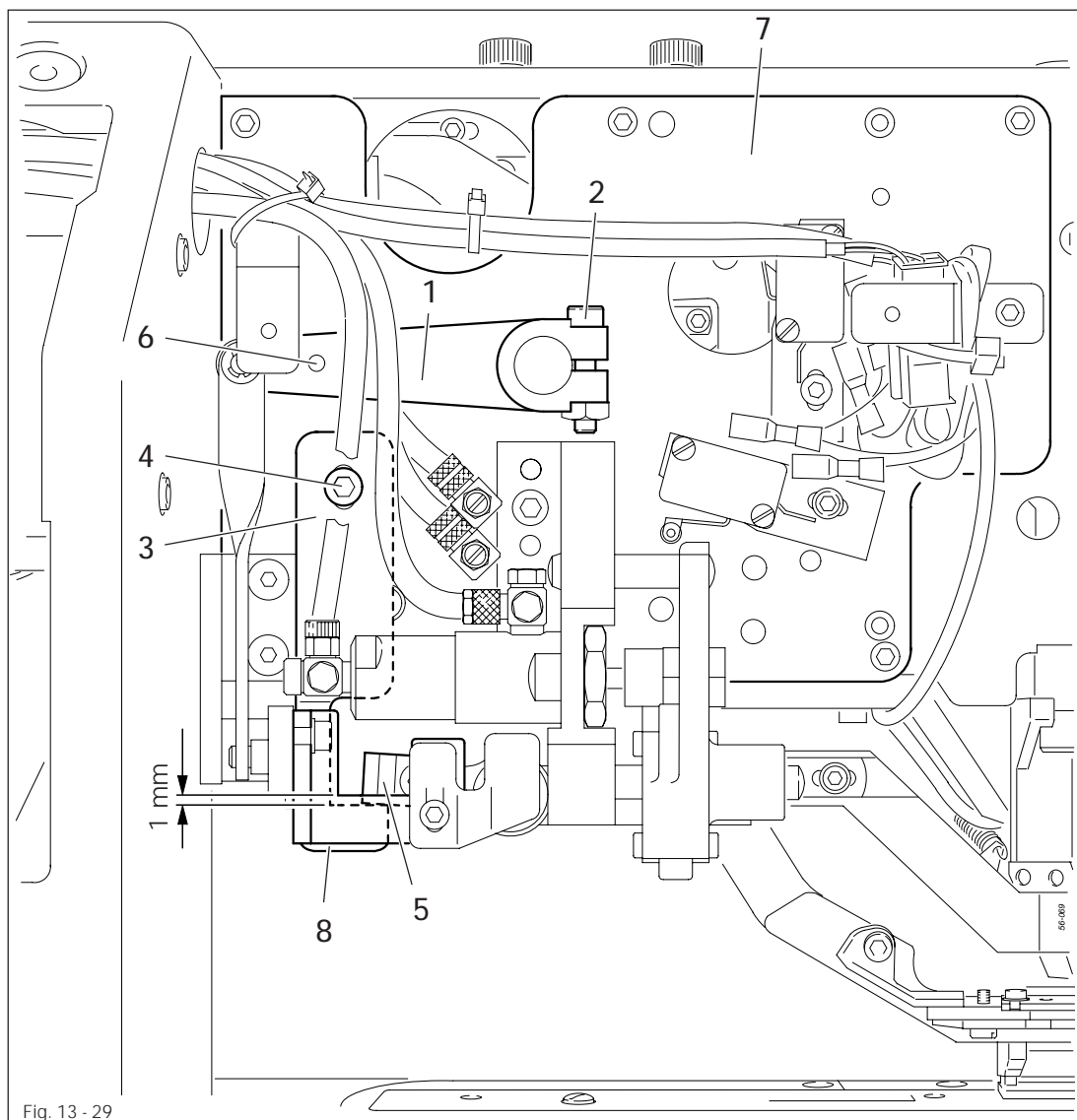


- Adjust switch 1 (screw 2) according to the requirement.

13.33 Needle thread cutter release

Requirement

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



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

13.34

Catch

Requirement

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

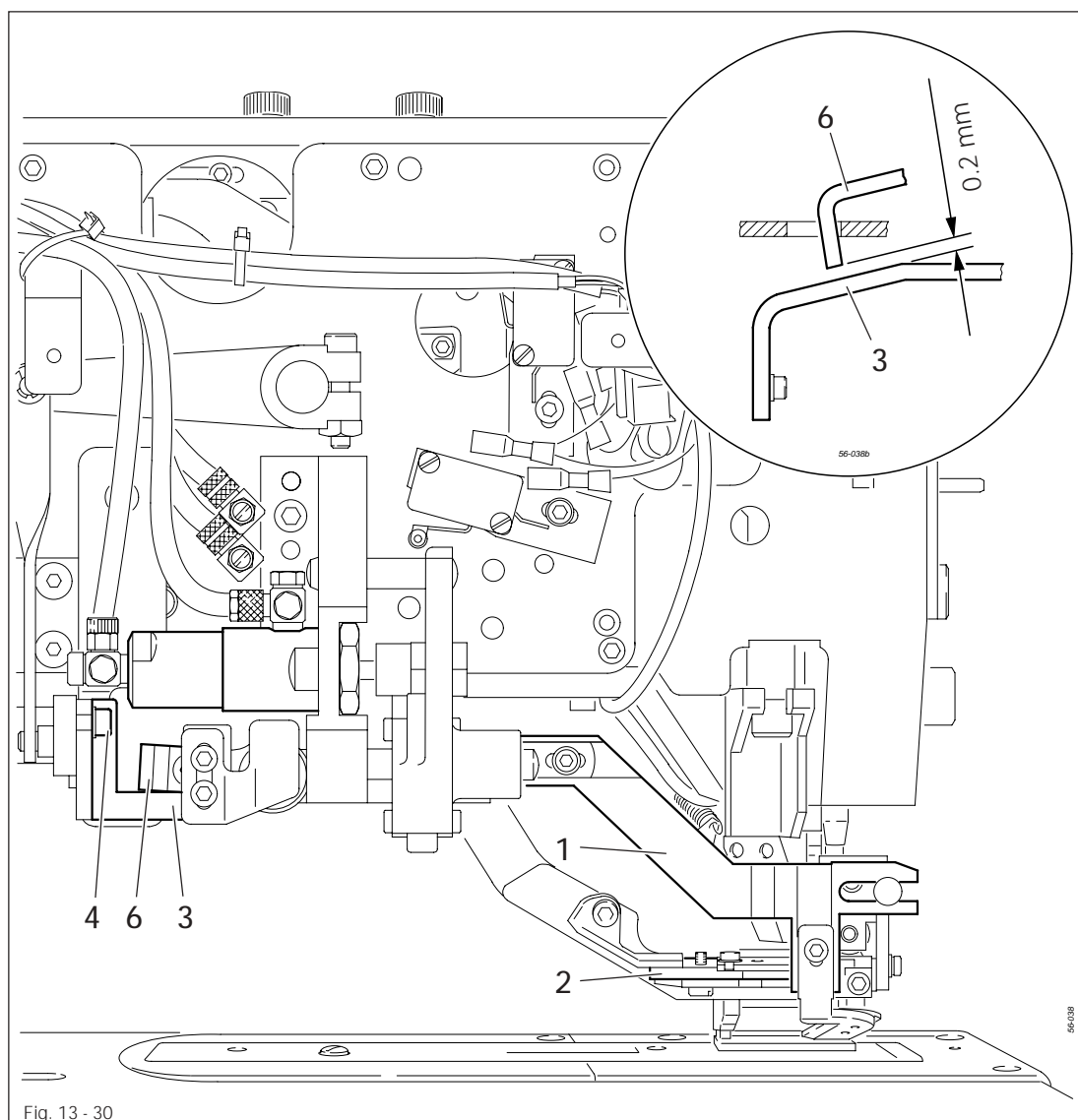
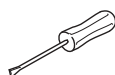


Fig. 13 - 30



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



- Tact through the seam until the cutter frame 1 is at the highest point of the cam guide unit 2.

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



- Move the machine further until reaching the basic position.

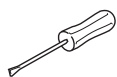
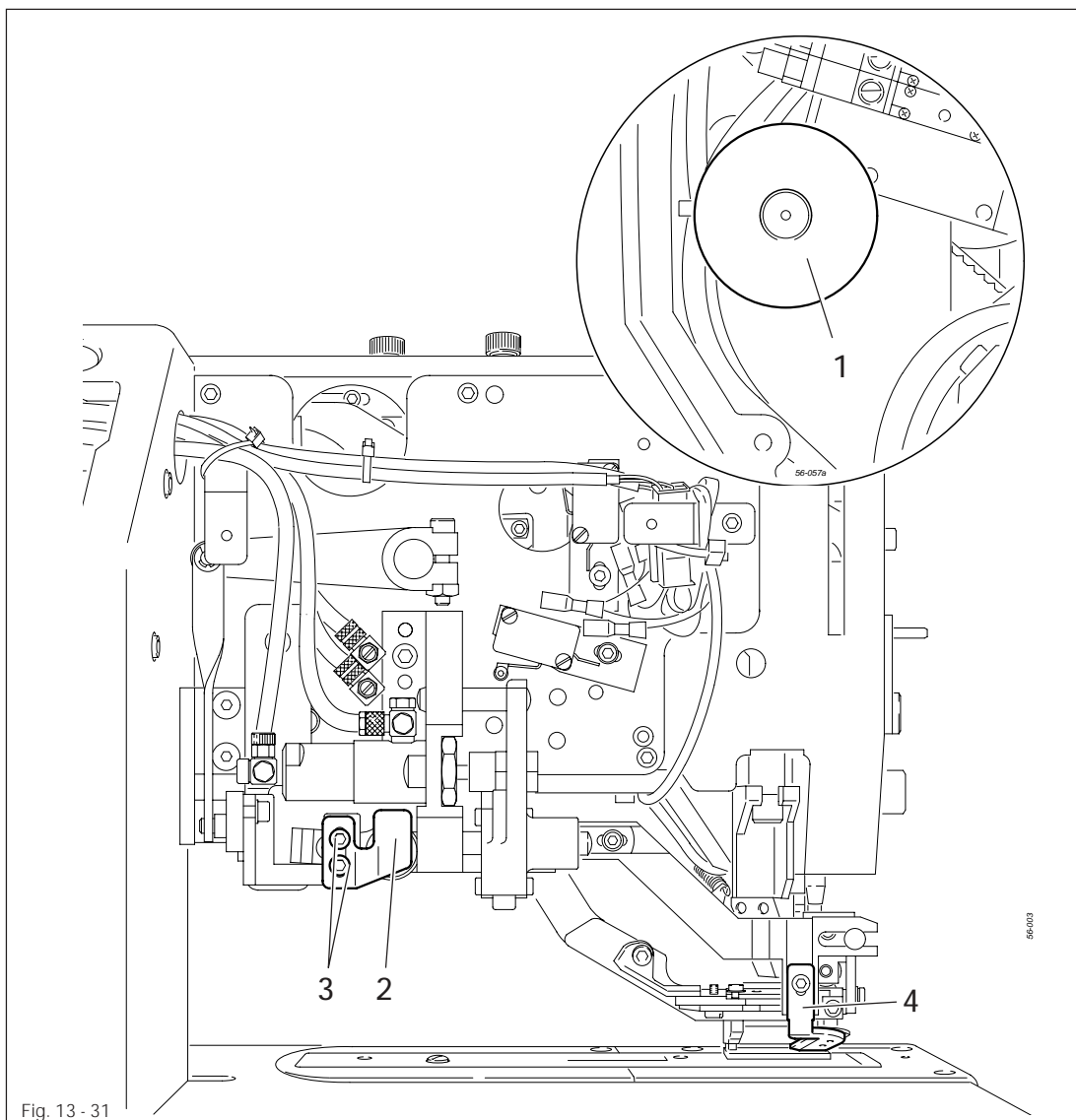
- Switch off the on/off switch and disconnect the machine from the compressed air system.

13.35

Swing out motion of the needle thread cutter

Requirement

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



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

13.36 Needle bar rise and hook-to-needle clearance

Requirement

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

In this position, the point 5 of the hook should be exactly in the centre of the needle 6 and there should be a clearance of 0.1 mm between the needle and the hook point.

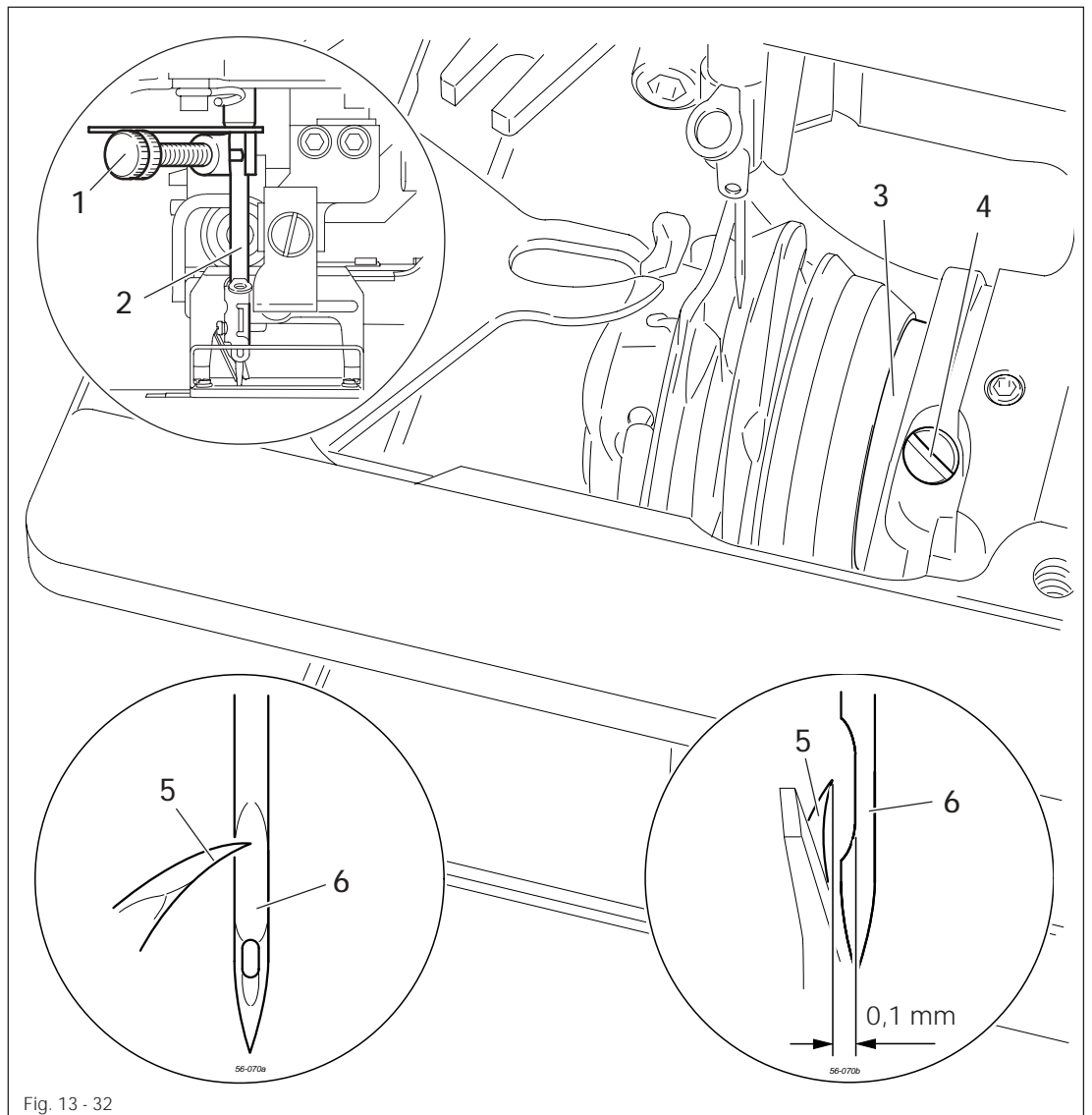
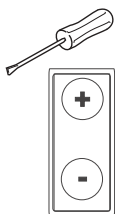


Fig. 13 - 32



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

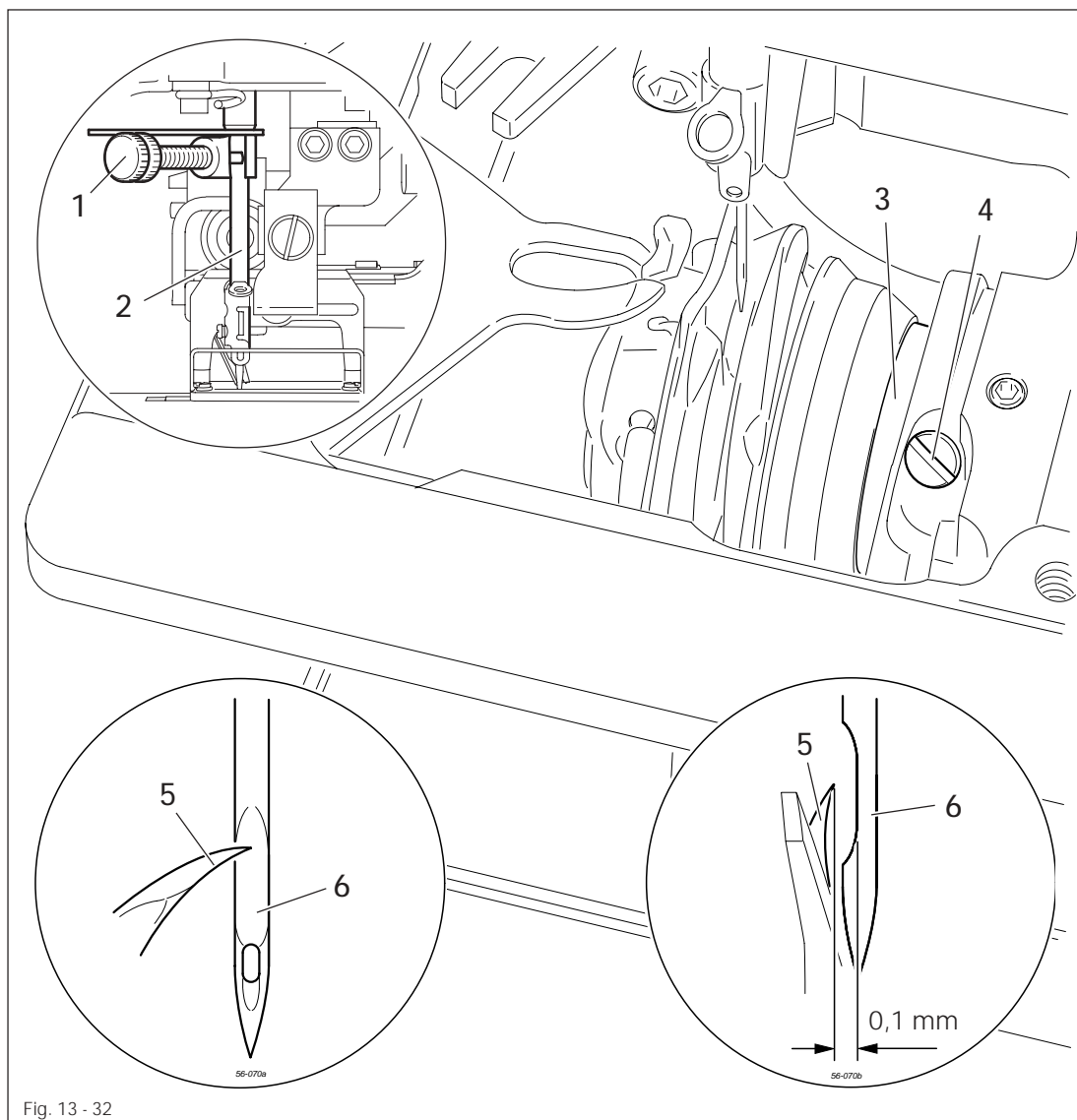
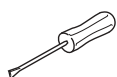


Fig. 13 - 32



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



The machine remains switched on for the next adjustment.

13.37

Needle bar height and needle guard

Requirement

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

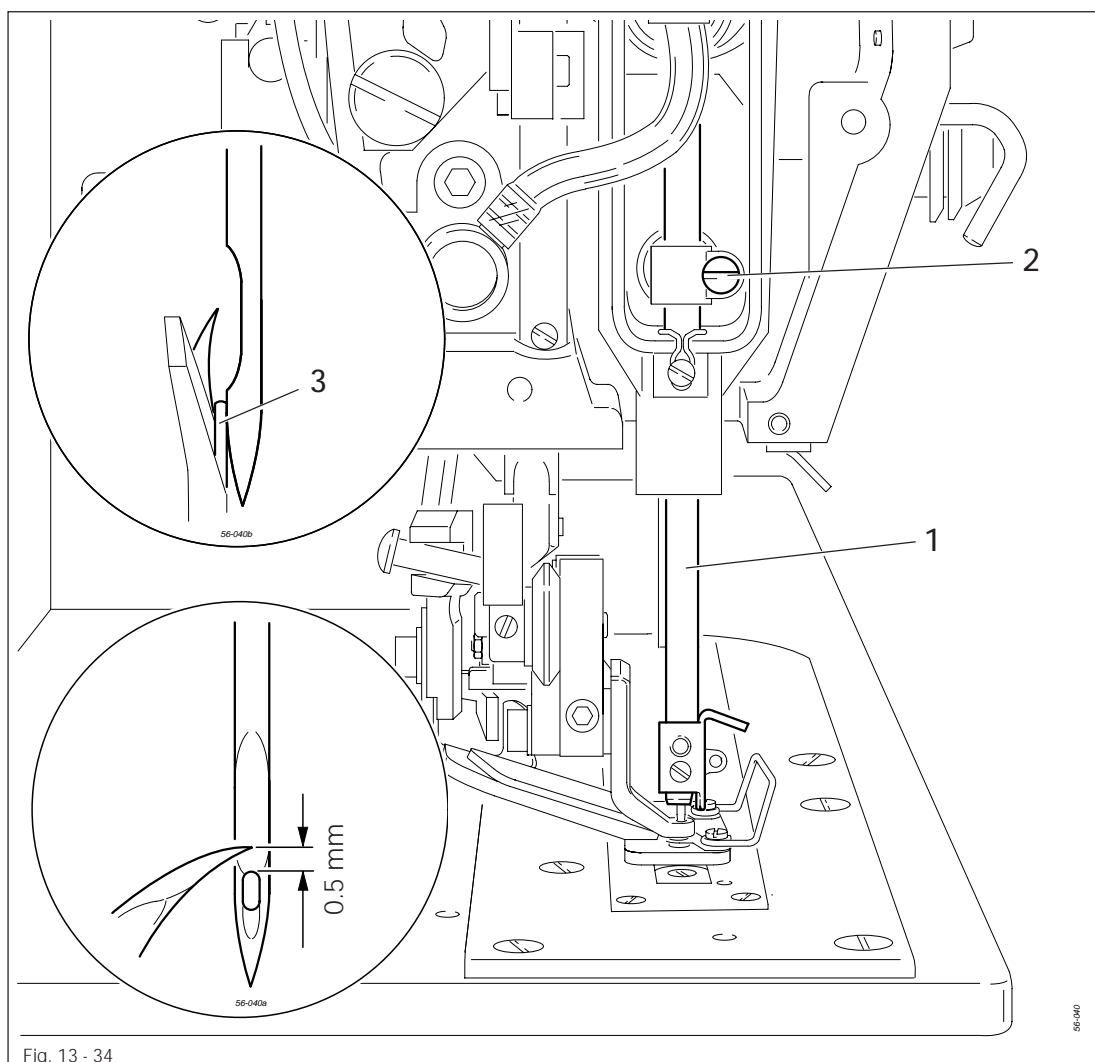
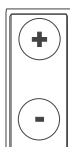
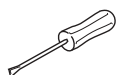
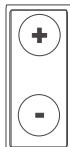


Fig. 13 - 34



- Select position "2" (right seam, right needle penetration).
- Adjust the needle bar 1 (screw 2) according to requirement 1.

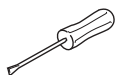
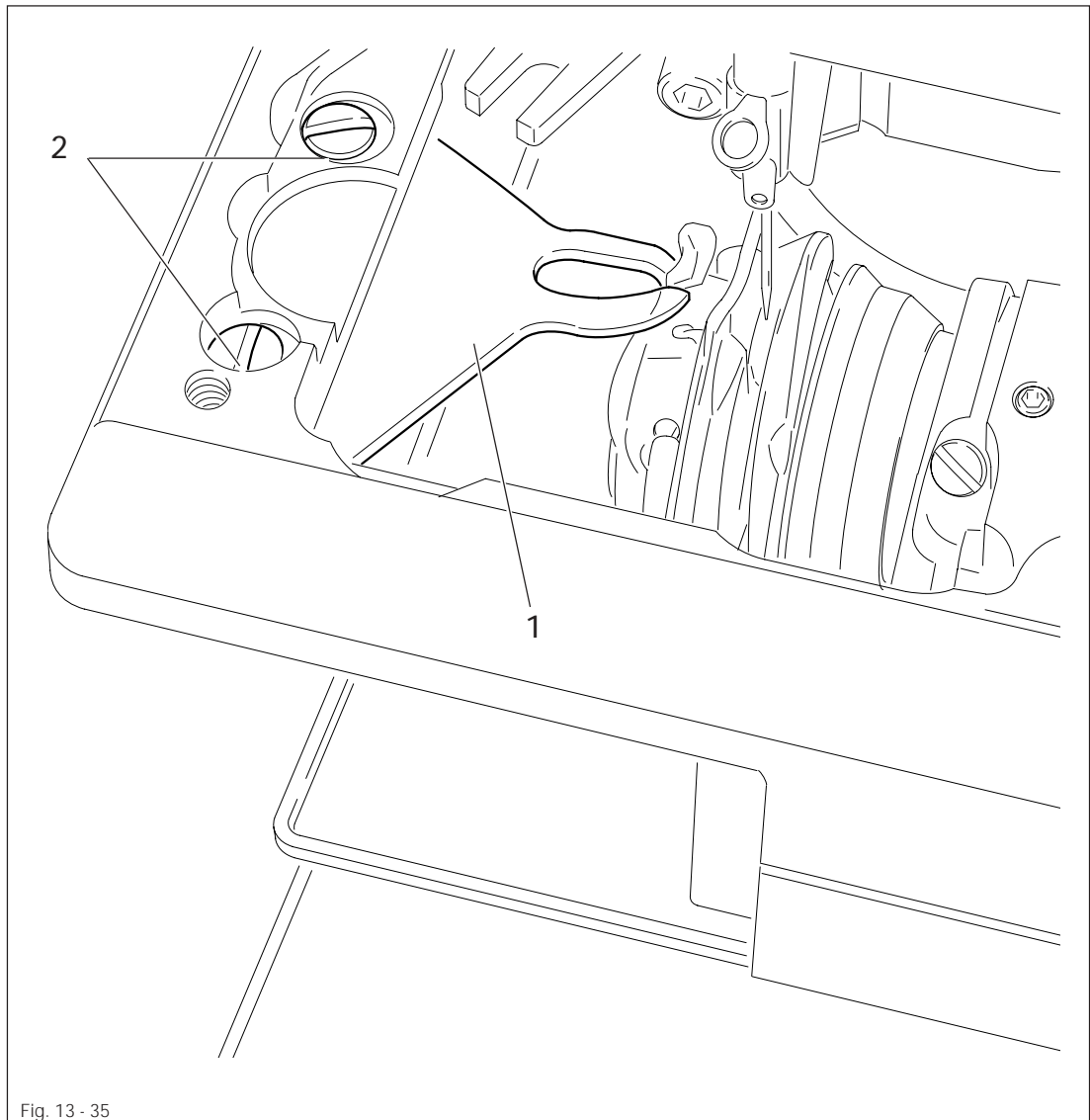


- Select position "1" (left seam, right needle penetration).
- Align needle guard 3 according to requirement 2.
- Switch off the machine.

13.38 Bobbin case holder

Requirement

The bobbin case holder should be scarcely but reliably held.



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

13.39 Hook lubrication

Requirement

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

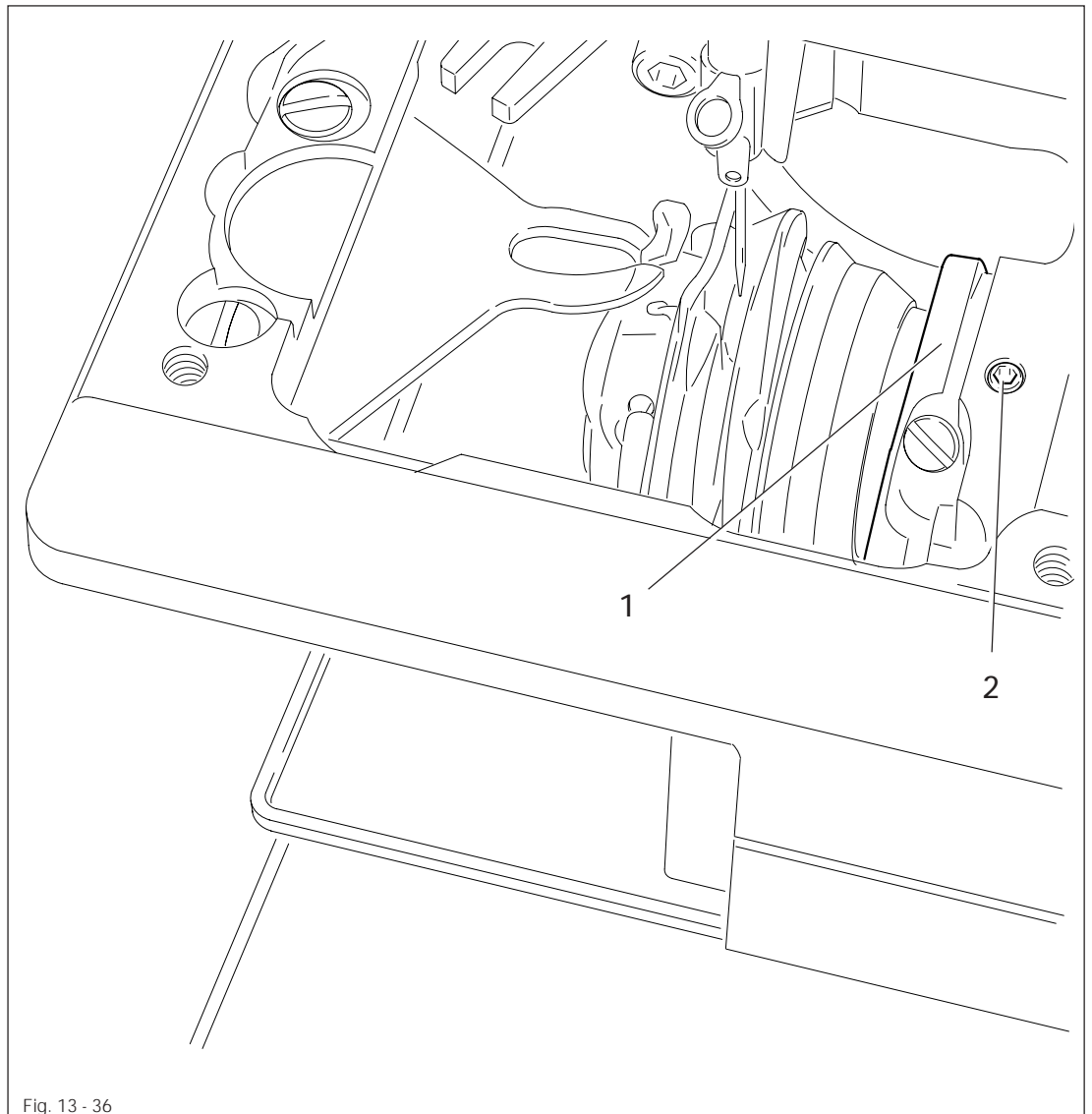
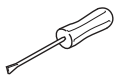


Fig. 13 - 36

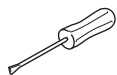
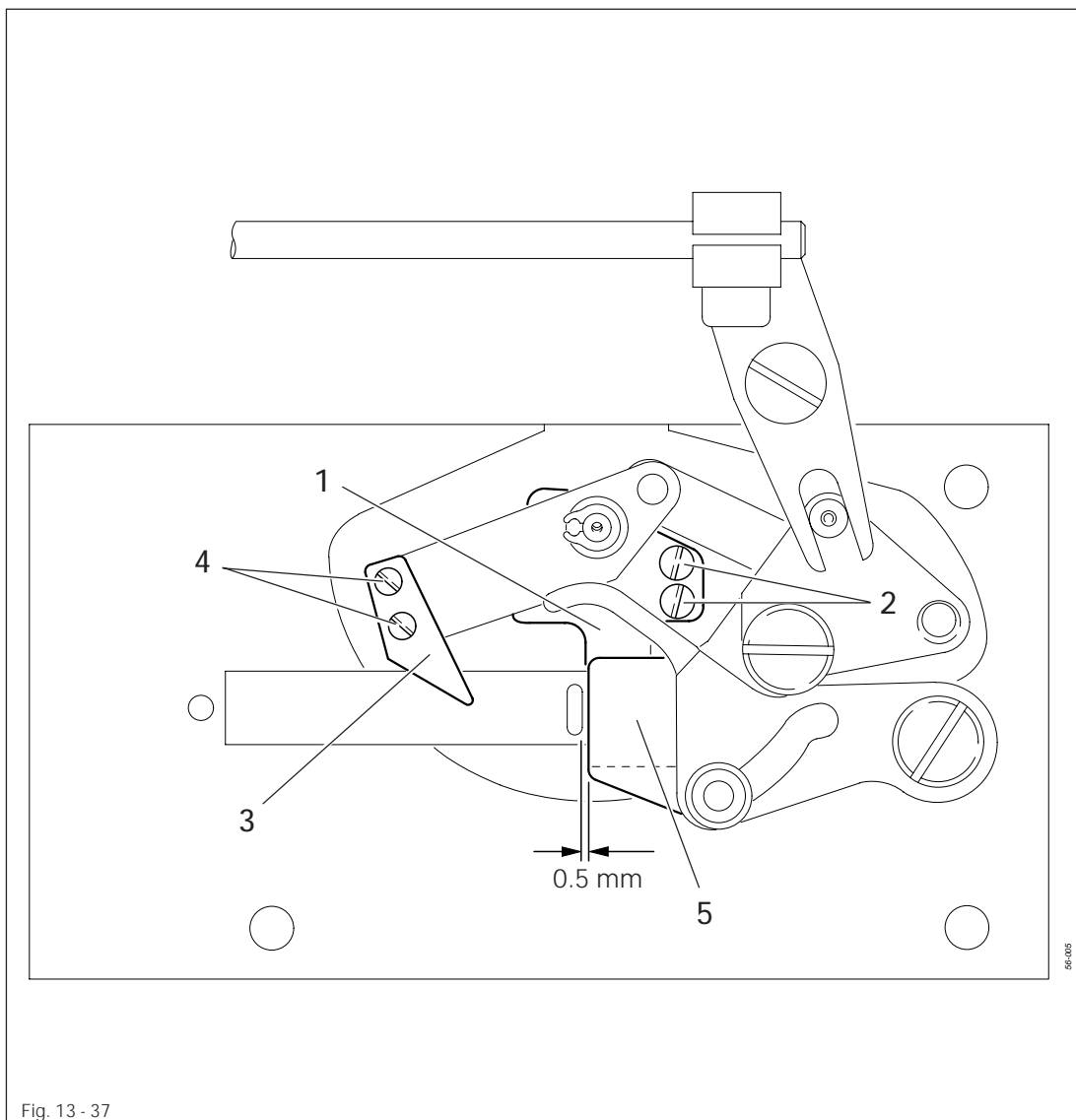


- Check the oil level, see **Chapter 12.06 Check the oil level for the hook.**
- Switch on the machine.
- Adjust oil guide ring 1 (grub screw 2) according to the **requirements.**
- Switch off the machine.

13.40 Knife position

Requirement

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



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

13.41 Knife guard

Requirement

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

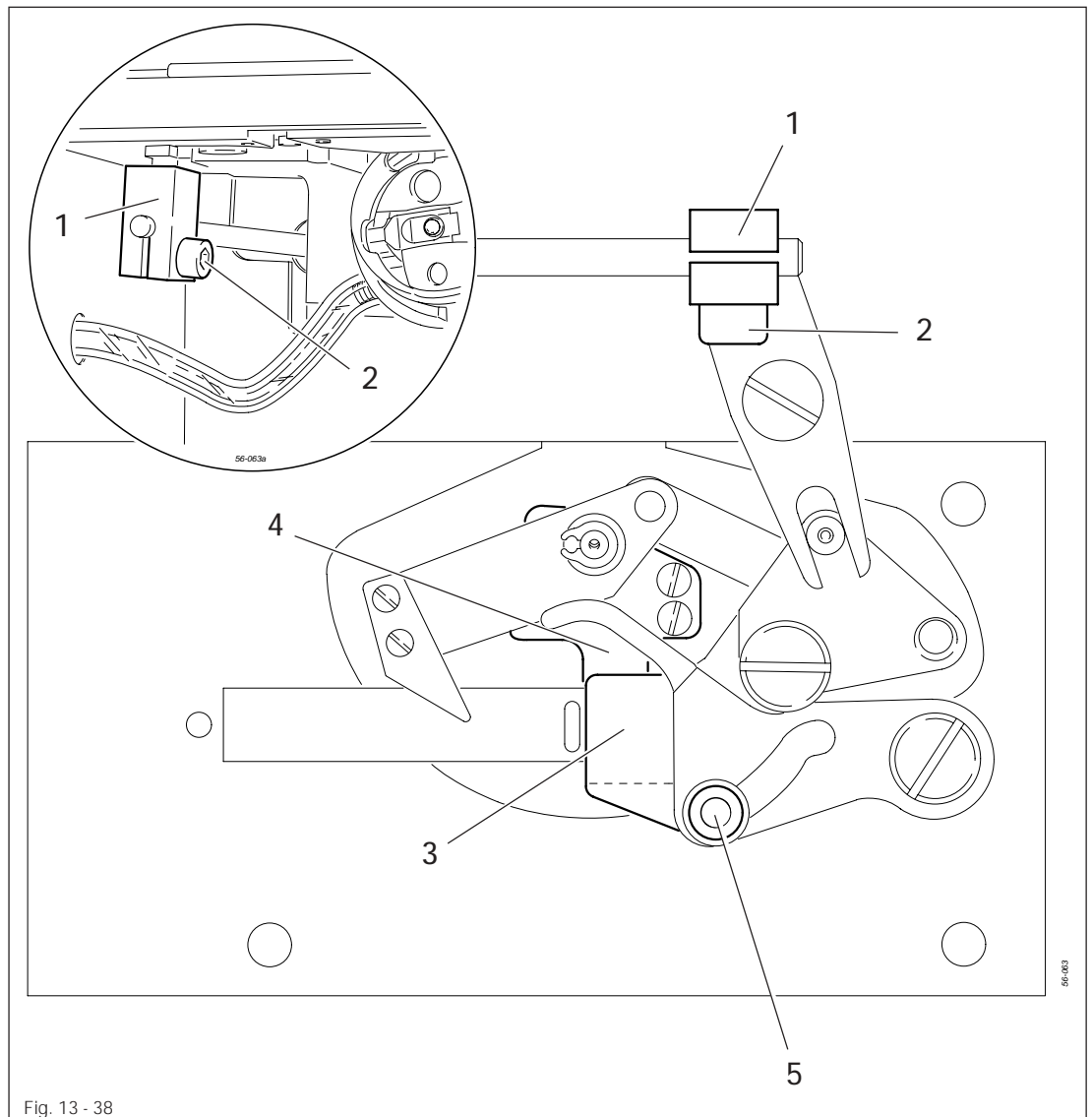
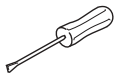


Fig. 13 - 38



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

13.42 Needle thread tension release

Requirement

1. When the thread tension unit 8 is in its neutral position, release magnet 9 should be at a distance of approx. 2- 3 from case 3.
2. When the thread tension unit 8 is open, the tensions disks 11 should be approx. 0.5 mm apart.
3. The thread tension unit 10 should open, before the knife cuts the thread.

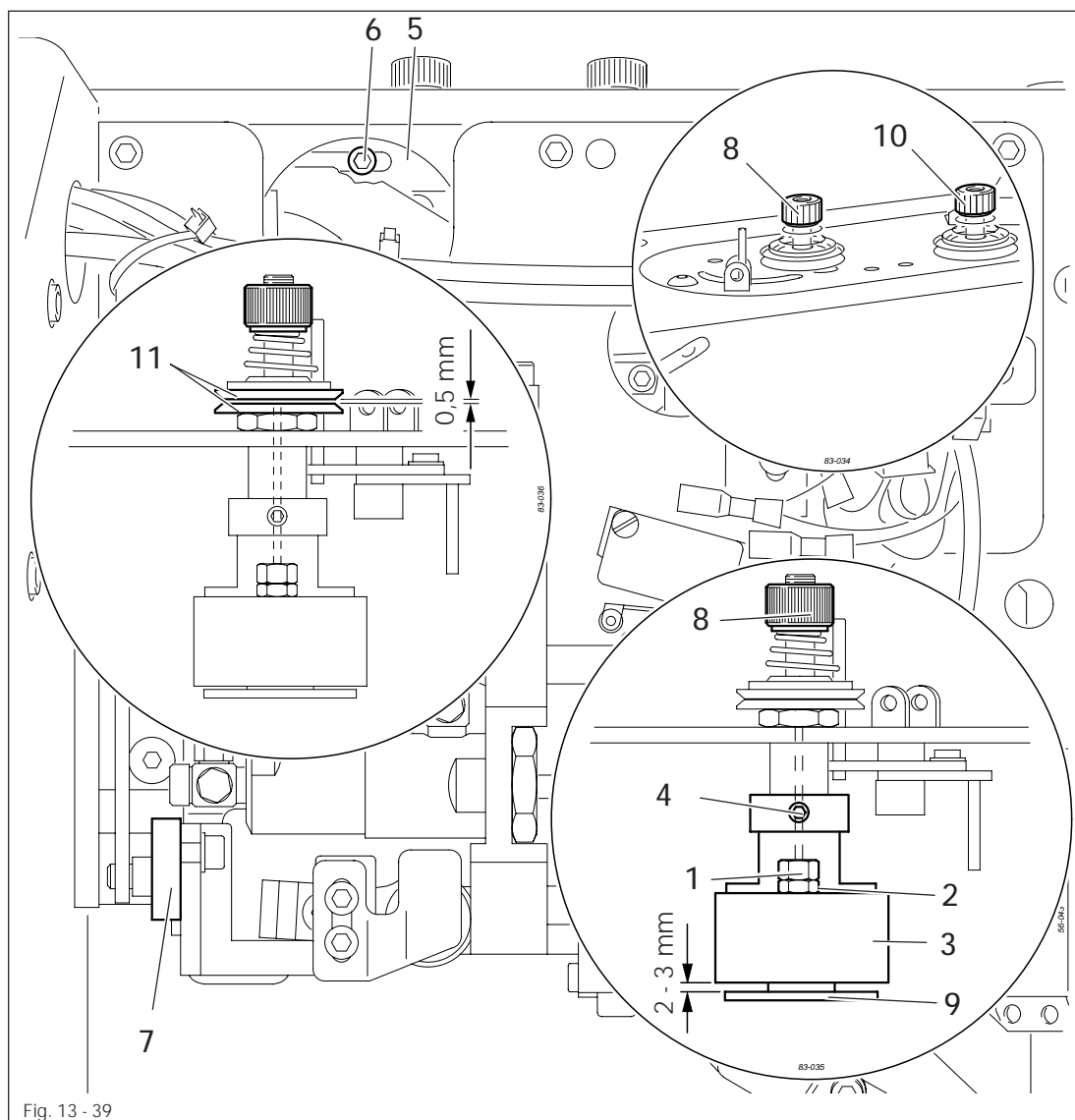
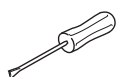


Fig. 13 - 39

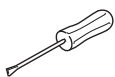
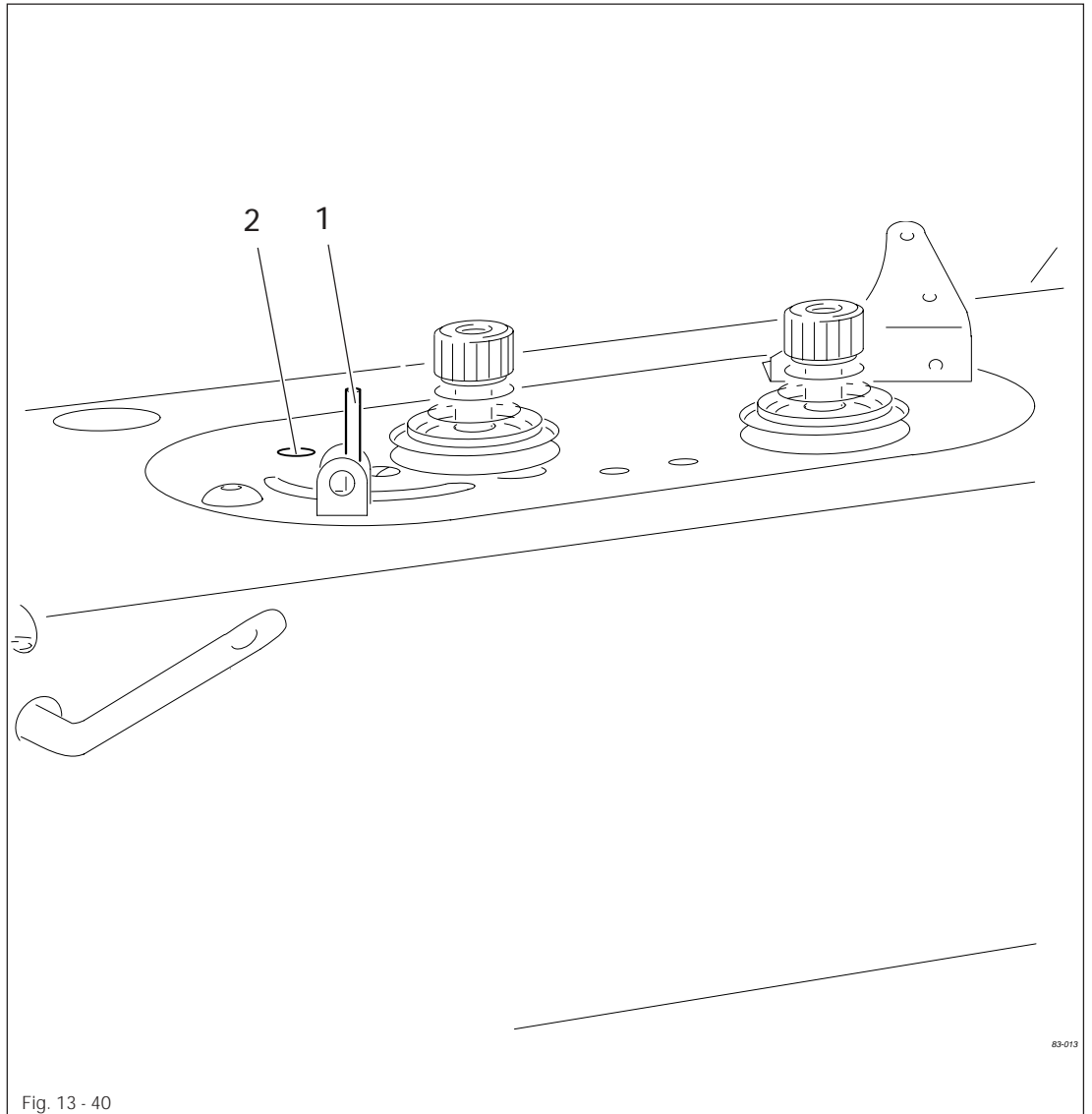


- Remove the tension plate.
- Set nut 1 (locknut 2) in accordance with requirement 1.
- Adjust case 3 (screws 4) in accordance with requirement 2.
- Attach the tension plate.
- Adjust release 5 (screw 6) in accordance with requirement 3.
- Check the setting by operating lever 7.

13.43 Needle thread puller

Requirement

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



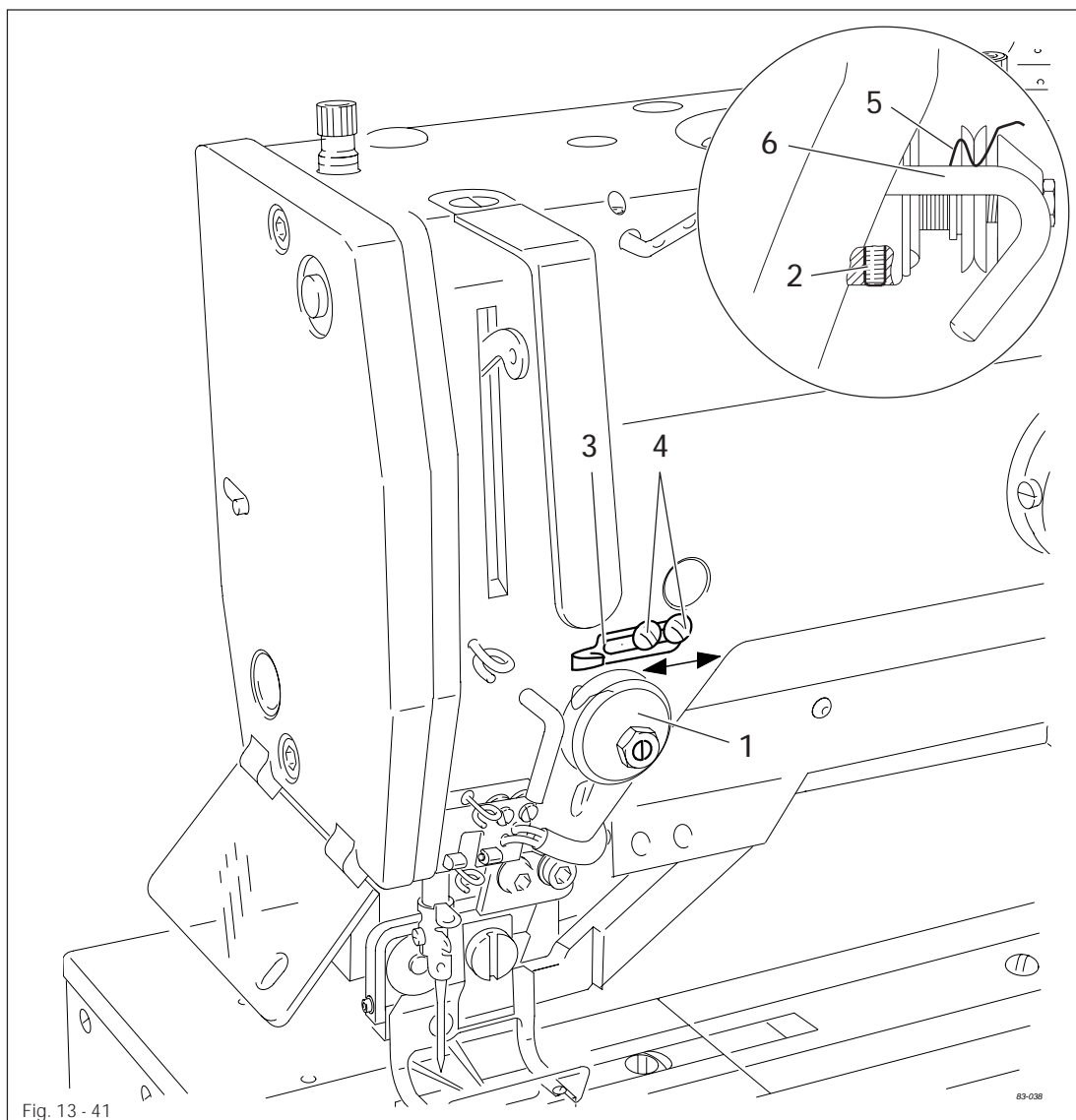
- Adjust needle thread puller 1 (screw 2) according to the requirements.

13.44 Side thread tension and slack thread regulator

Requirement

Thread check spring 5 should be

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



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

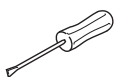
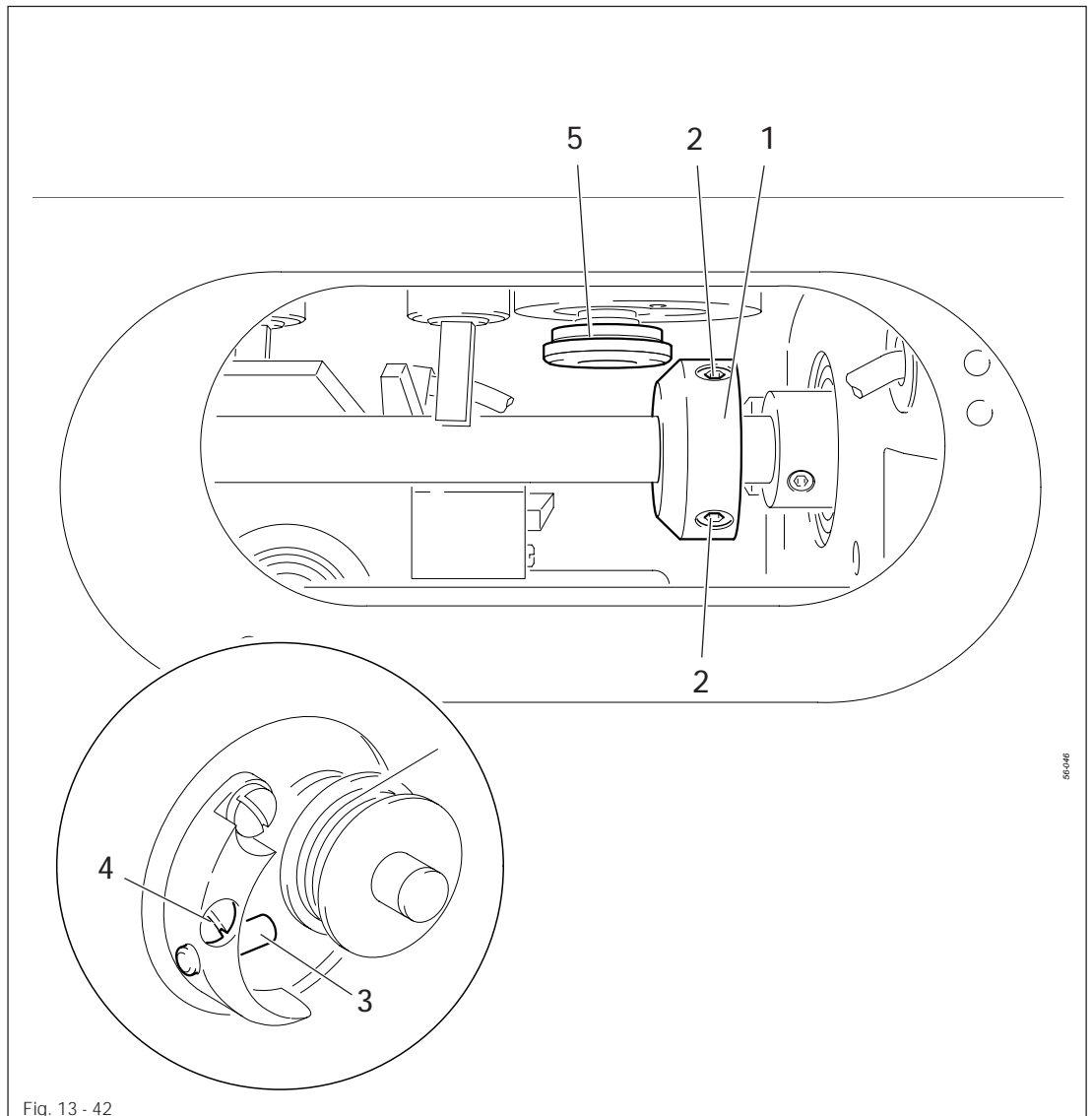


The stroke of thread check spring 5 and the position of slack thread regulator 3 are dependent on the material and must be adjusted in accordance with the sewing results.

13.45 Bobbin winder

Requirement

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



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

13.46 Retainer position (only for 3119-2/62 and -2/63)

Requirement

Retainer 1 should

1. be positioned parallel to the cutting slot with its front edge flush with the needle hole and
2. as near as possible over the workpiece without restricting it.

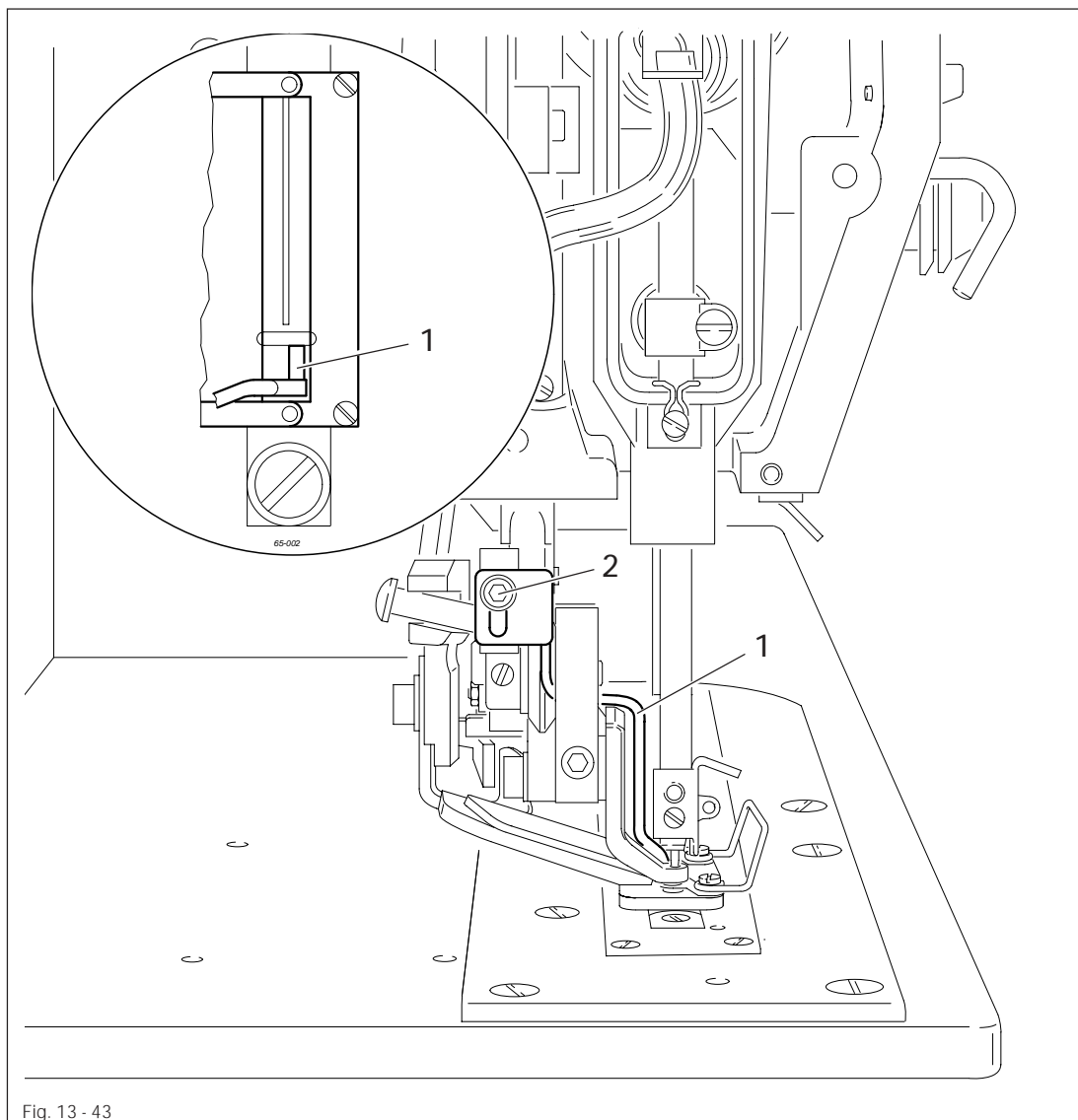
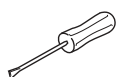


Fig. 13 - 43



- Adjust retainer 1 (screw 2) according to the requirements.

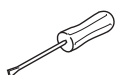
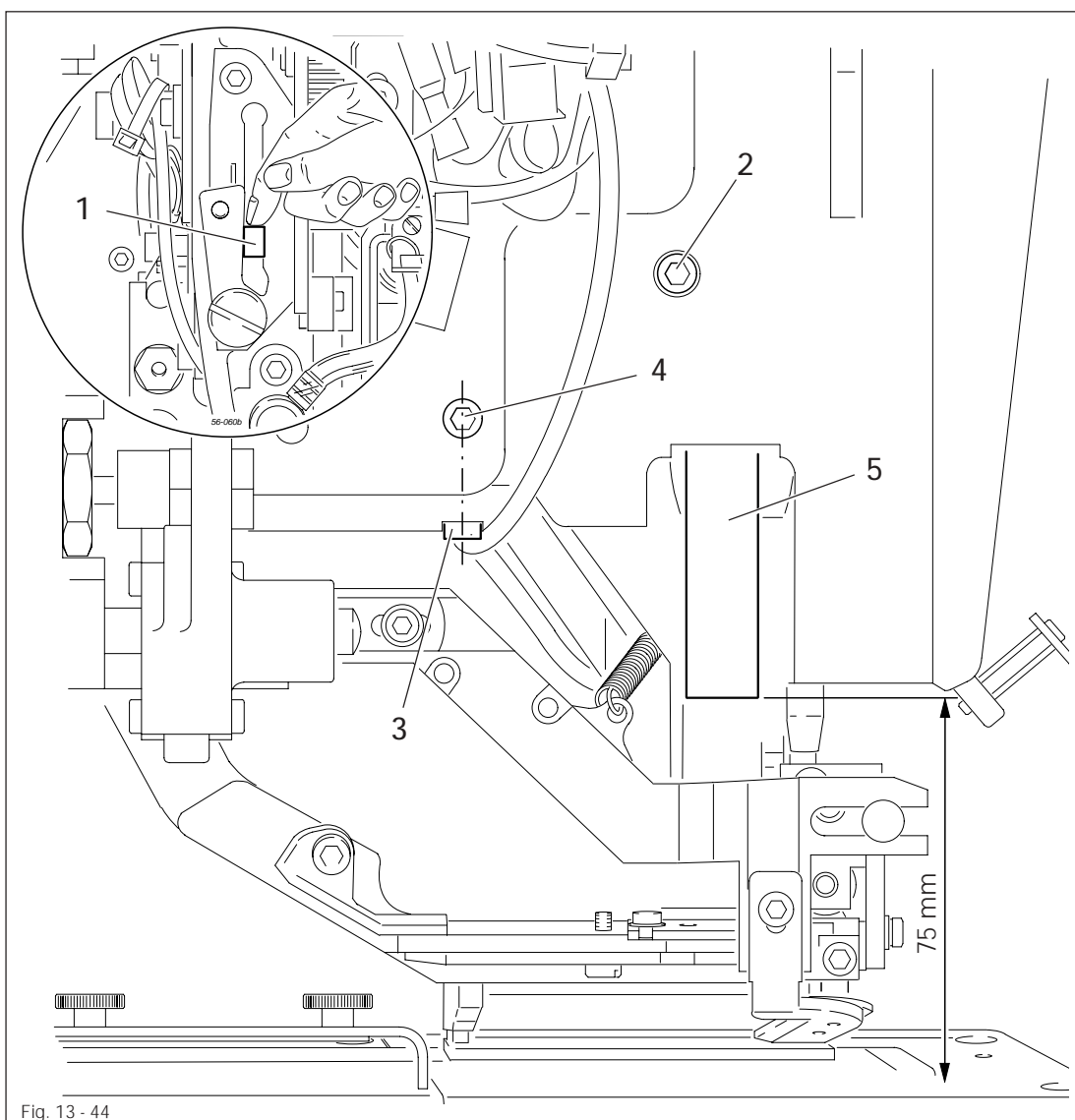
13.47 Adjusting the cutting unit on sub-class -10/01

13.47.01 Basic position of the knife bar and lower knife stop

Requirement

When the knife cylinder is extended

1. Screw 2 should be positioned in the centre of the hole in the machine case and
2. The bottom edge of knife bar 5 should be positioned at a distance of 75 mm above the bedplate.

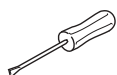
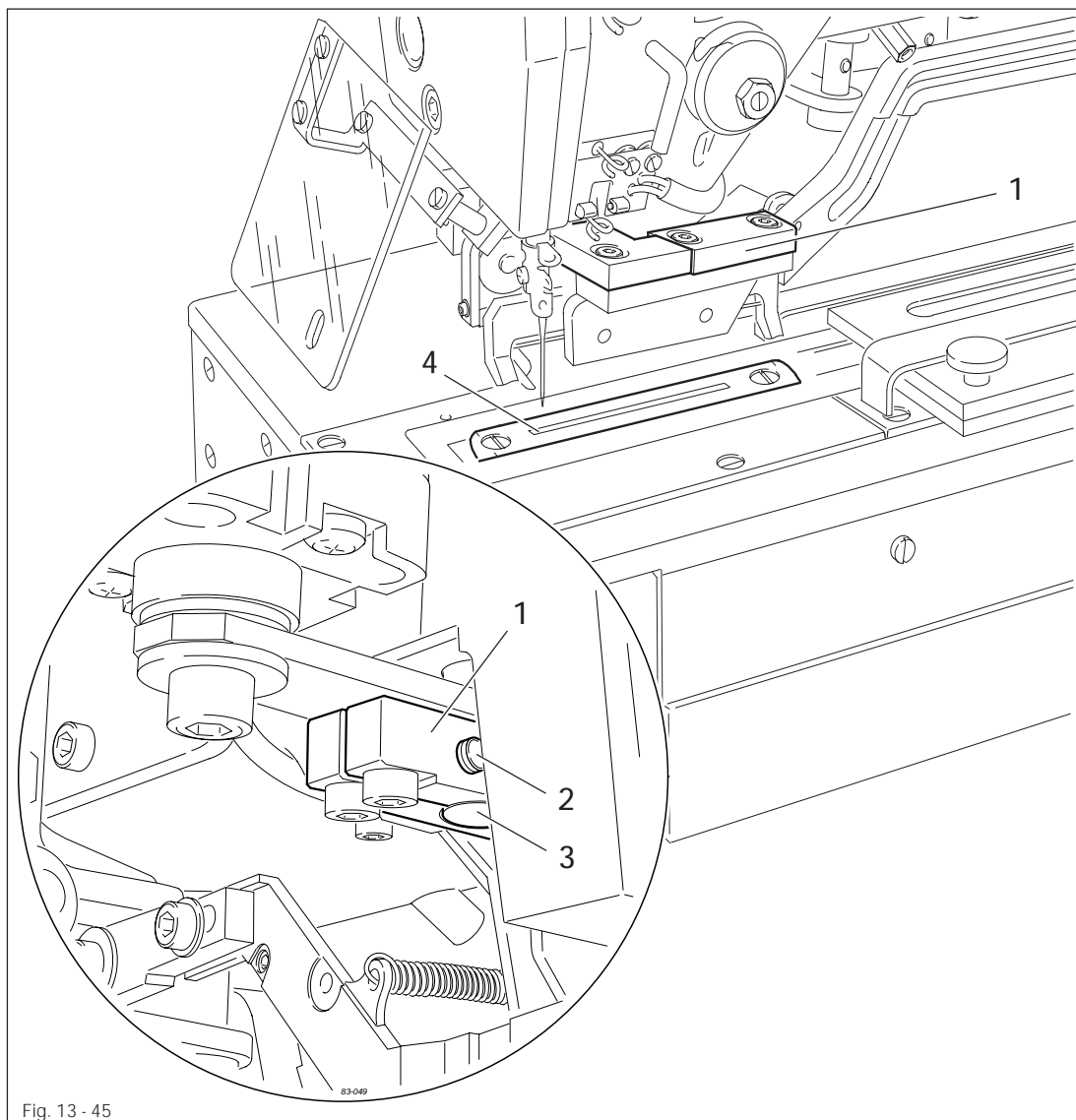


- Press down guide unit 1 by hand (extend knife cylinder) until screw 2 is positioned in the centre of the hole in the machine case.
- Adjust stop screw 3 (screw 4) in accordance with requirement 1.
- Adjust knife bar 5 (screw 2) in accordance with requirement 2.

13.47.02 Position of the knife bracket

Requirement

1. The bottom edges of knife bar 3 and the clamp of the knife bracket 1 should be flush.
2. In the direction of sewing knife bracket 1 should be parallel to the needle plate cutout 4.



- Slide or turn knife bracket 1 (screw 2) in accordance with the requirement.

13.47.03 Position of the knife holder

Requirement

Adjustment gauge 1 should

1. Be parallel to the stationary cutting edge and
2. Be positioned in the centre of the cutout in the needle plate insert.

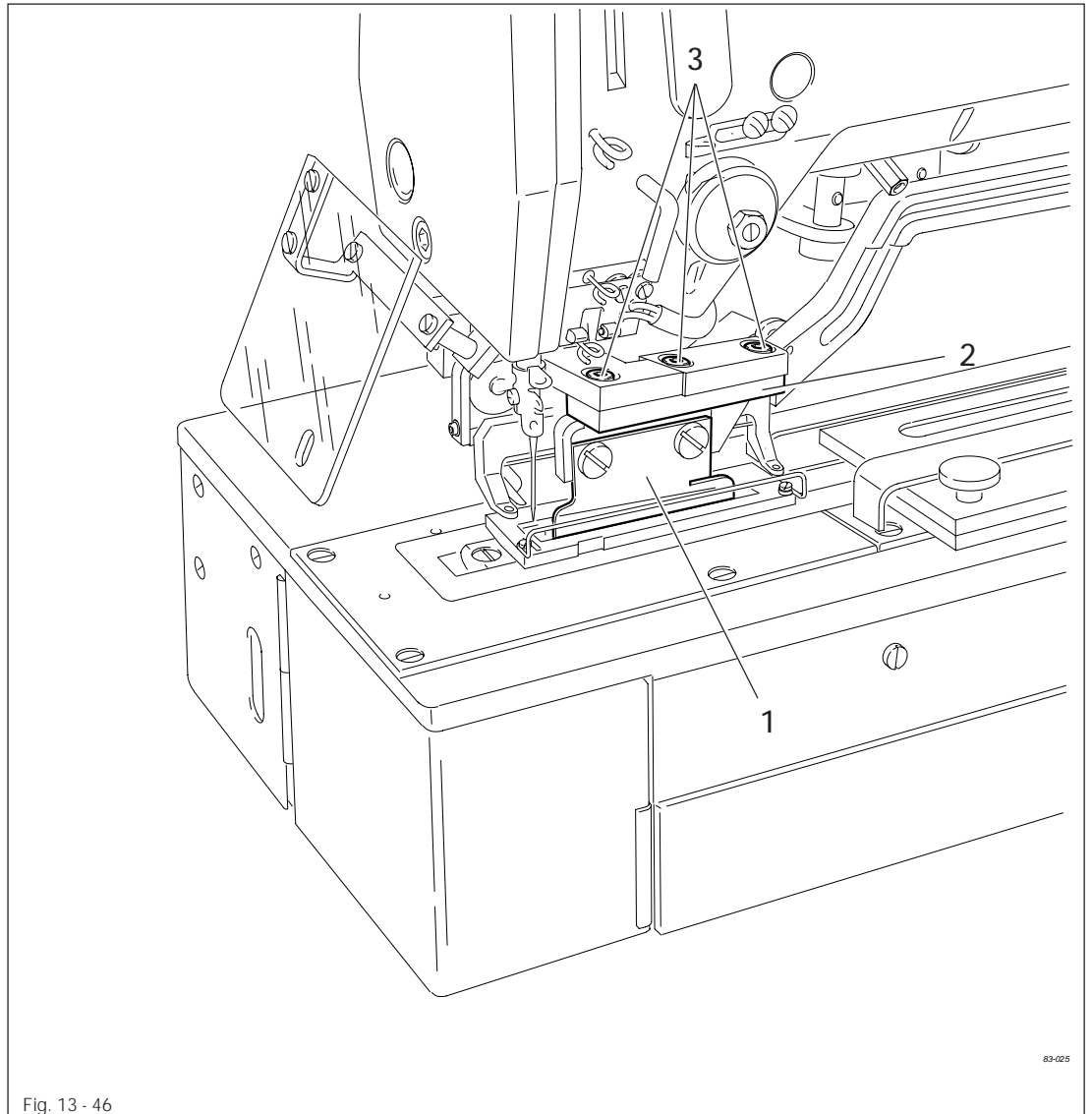
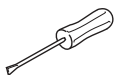


Fig. 13 - 46



- Remove the knife and fit adjustment gauge 1.
- Press down the knife bracket by hand and set knife holder 2 (screws 3) in accordance with the **requirements**.
- Remove adjustment gauge 1 and insert the knife.
- Carry out a manual cutting test, see **Chapter 13.47.06 Manual cutting test**.

13.47.04 Position of the knife cylinder an the top knife stop

Requirement

When the cylinder 3 is completely retracted

1. There should be a distance of 1 mm between guide unit 7 and engaged lever 8.
2. Stop screw 1 should be touching the knife arm and
3. Without being tilted, plate 5 should be screwed onto cylinder 3 parallel to the knife bracket.

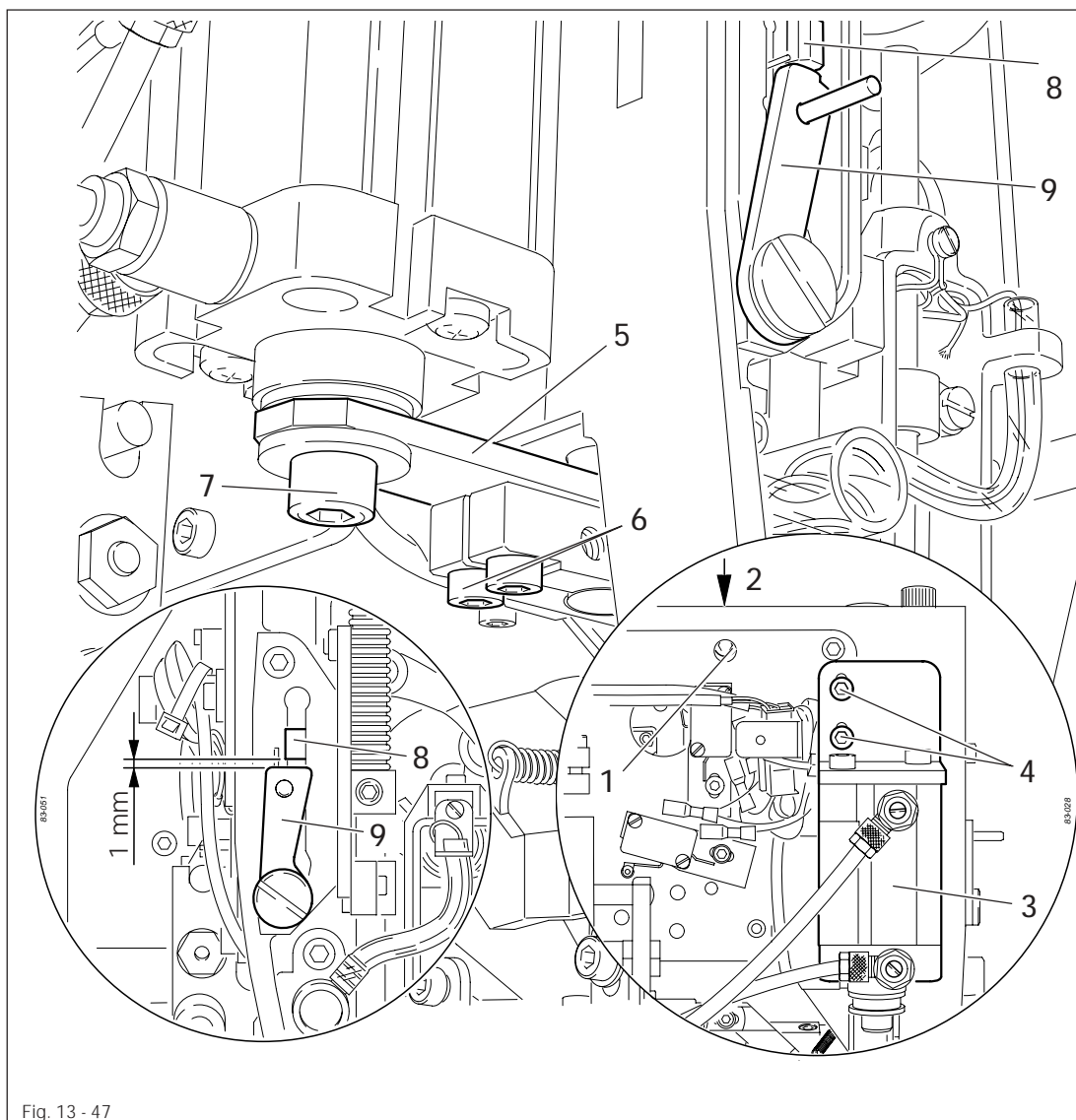
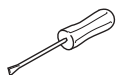


Fig. 13 - 47

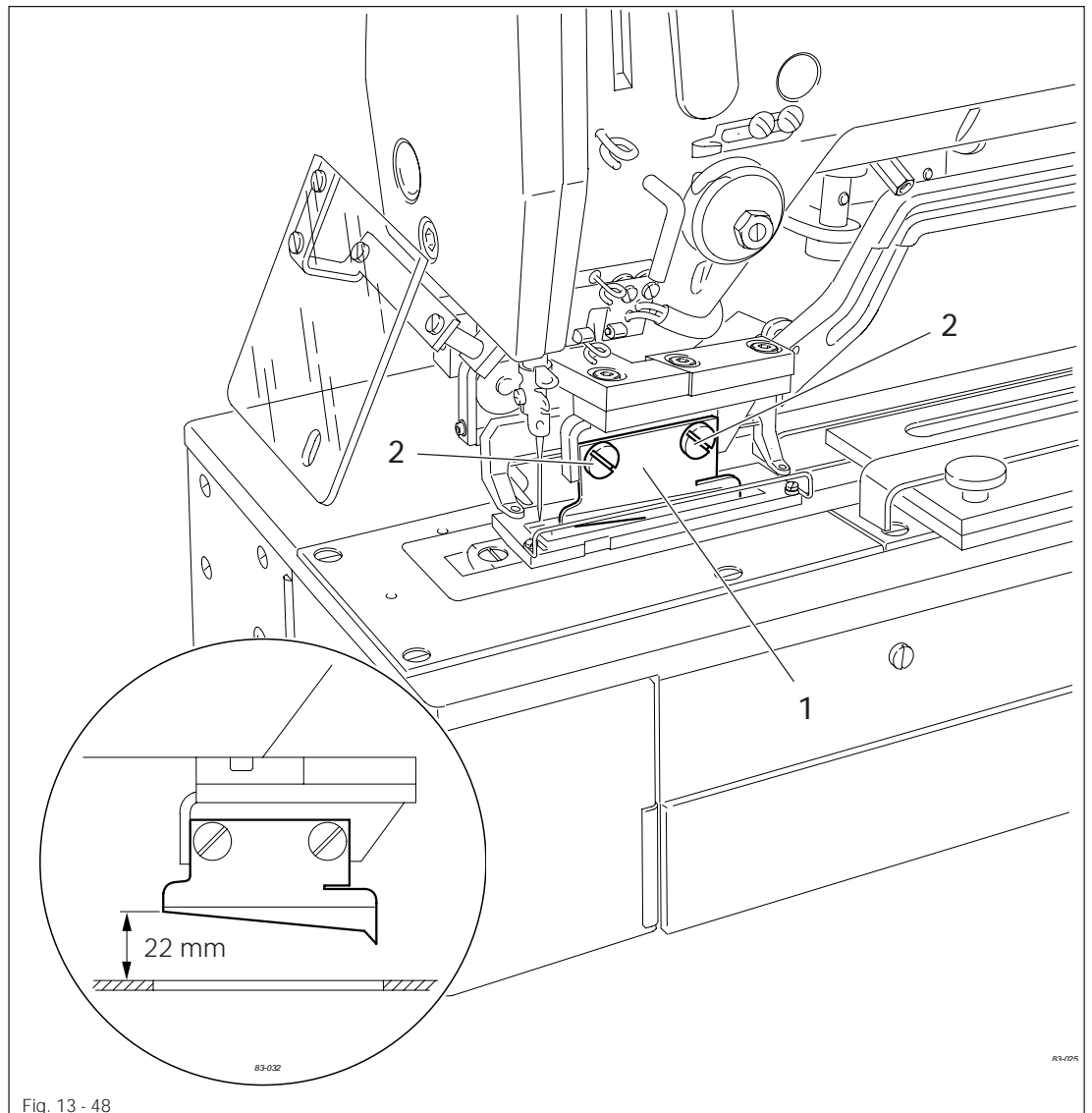


- Engage the knife lock unit.
- Turn back stop screw 1 (screw 2) a few times.
- Adjust cylinder 3 (screws 4) in accordance with requirement 1.
- Adjust stop screw 1 (screw 2) in accordance with requirement 2.
- Align plate 5 (screw 6) in accordance with requirement 3.

13.47.05 Changing the knife / knife height

Requirement

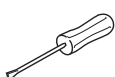
In its neutral position, knife 1 should be at a distance of 22 mm above the needle plate insert.



After changing the knife, the knife height must be checked and corrected if necessary.



Before changing the knife engage the knife lock unit!
Danger of injury from suddenly descending knife 1!



- Adjust knife 1 (screws 2) in accordance with the requirement.

13.47.06 Manual cutting test

Requirement

Over the entire cutting length, the knife 1 should be close to the stationary cutting edge of the needle plate insert without bending out of line or jamming (shearing effect).

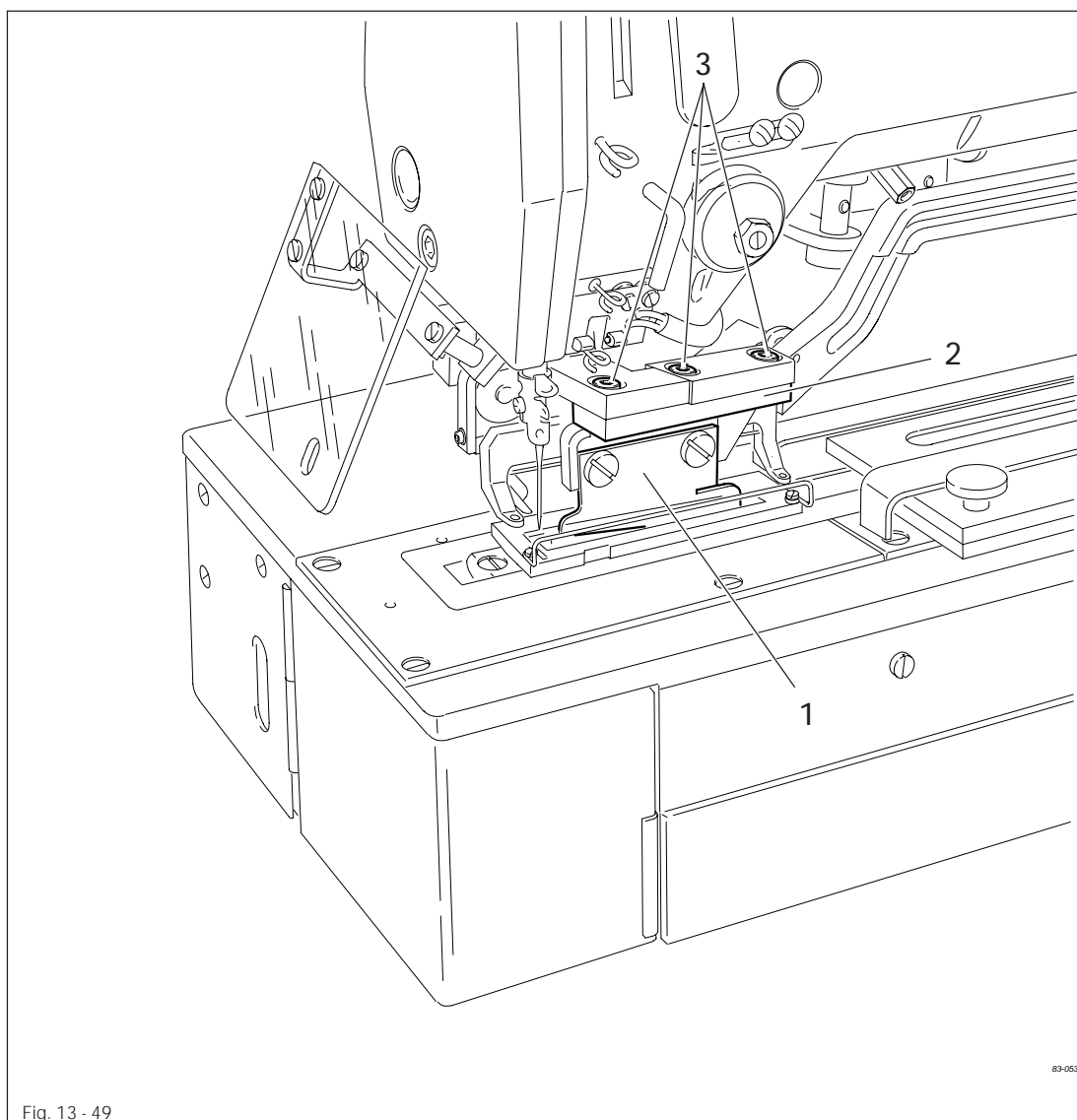
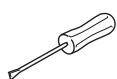


Fig. 13 - 49



- Place the material under the work clamp.
- Press knife 1 down to the bottom stop by hand and check the **requirement** while doing so.
- If necessary align the knife holder 2 (screws 3) in accordance with the **requirement**.



To keep wear on knife 1 low, the shearing force should be as small as possible.

13.48 Basic position of the stop (only on 3119-10/01)

Requirement

The stop 7 should

1. Be at a distance of 14 mm from the centre of the needle after program key "1" has been pressed.
2. Be at a distance of 44 mm from the centre of the needle after program key "2" has been pressed.
3. Be at a distance of 54 mm from the centre of the needle after program key "3" has been pressed.
4. Be set high enough so as not to touch the needle plate.

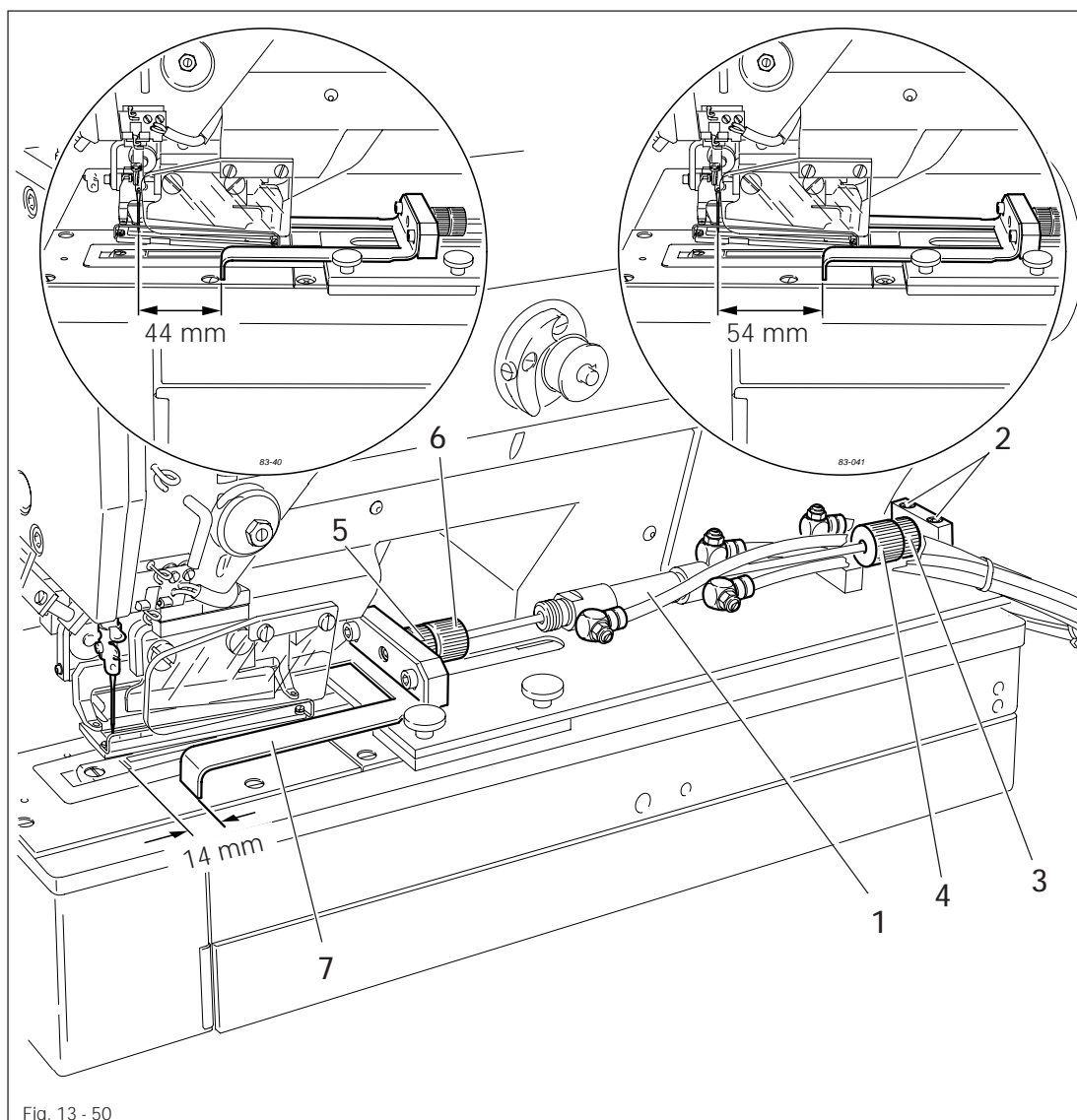
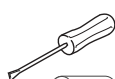


Fig. 13 - 50



- Switch on the machine.
- Set the value for parameter "212" at "3", see Chapter 13.50 Parameter settings.
- Press program key "1" and adjust cylinder 1 (screws 2) in accordance with requirement 1.
- Set the value for parameter "213" at "2", see Chapter 13.50 Parameter settings.
- Press program key "2" and turn nut 3 (nut 4) in accordance with requirement 2.
- Set the value for parameter "214" at "1", see Chapter 13.50 Parameter settings.

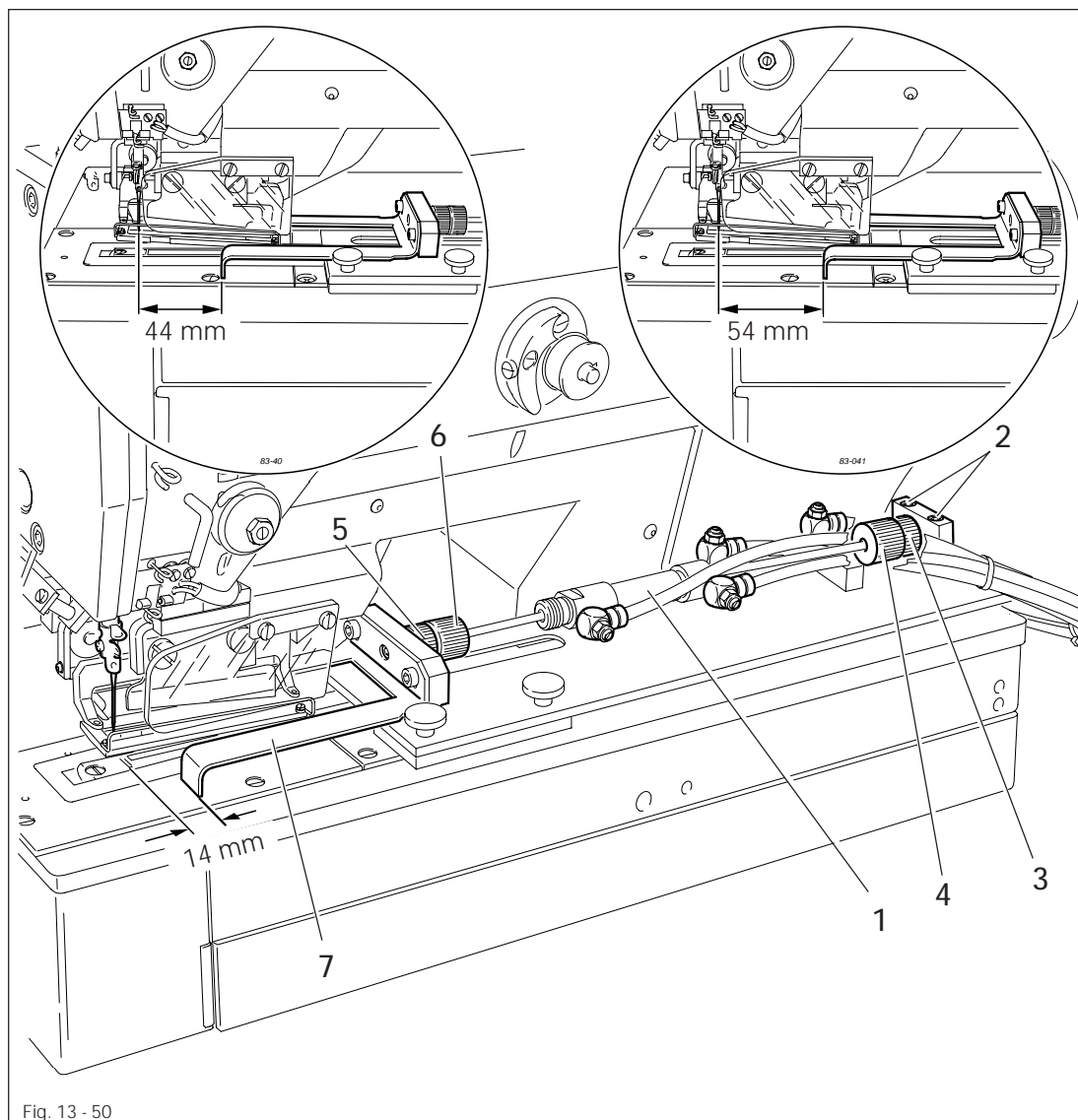
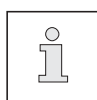


Fig. 13 - 50



- Press program key "3" and turn nut 5 (nut 6) in accordance with requirement 3.
- Switch off the machine.
- Adjust stop 7 (screws 8) in accordance with requirement 4.



The above allocation of parameters "212", "213" and "214" to program keys "1", "2" and "3" can be altered as desired.
The stop settings are dependent on tape width and seam length.



The value named in **requirement 1** is a basic value, on which the following settings are based. If the basic value named in **requirement 1** is altered, the values named in **requirement 2** and **3** must be adapted.

13.49 Carrying out a cold start



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

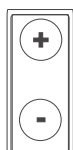
On machines with sub-class -10/01 the 3 variable programs, see Chapter 11.05.03 **Creating/modifying variable programs** are deleted.

The machine is reset to the condition at the time of delivery.

- Switch on the machine.



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



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

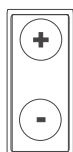
600



- Confirm input with Enter.

- Enter the code, see Chapter 11.03 **Entering / altering the access code**.

601



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

608

RESET



- Confirm input with Enter.

SWITCH OFF

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



On the 3119-10/01, the parameters "401", "403" and "501" must be altered as specified in the table before the machine is started.

Parameter	Description	Value
501	Number of soft start stitches	3
401	"Raise clamp" delay	0,0
403	Cutting time	0,12

13.50 Parameter settings

All variable machine functions are listed in the parameter list (Chapter 13.50.02). An example of how to select the parameters and how to alter the values is given below (Chapter 13.50.01).

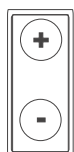
13.50.01 Selecting and altering parameters

Example: Switching on the needle thread monitor

- 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.

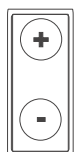
200



- Confirm the input with **Enter**.

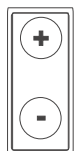
- Enter the code, see Chapter 11.03 Entering/altering the access code.

201



- With the corresponding **plus/minus** key enter e.g. parameter "205" (needle thread monitor).

205 |



- With the corresponding **plus/minus** key switch on the needle thread monitor.

205 ||



- End the input by switching to the sewing mode.

13.50.02 List of parameters

Group	Parameter	Meaning	Setting	Standard value
1	101	Knife suppression permanent (I =OFF, II = ON)	I, II	I
	102	Stop for needle thread fault (I =OFF, II = ON)	I, II	I
	103	Display during sewing: (I = buttonhole model, II = speed)	I, II	II
	104	Display software version	-	312/xxx
	105	Type of buttonhole Single sewing cycle 1 - seam raised, bartack flat 2 - Seam and bartack flat 3 - Seam and bartack raised Double sewing cycle 1 - Seam raised bartack flat 2 - Seam and bartack flat 3 - Seam and bartack raised 4 - 1 st cycle seam and bartack flat 2 nd cycle seam and bartack raised 5 - 1 st cycle seam and bartack flat 2 nd cycle seam raised, bartack flat	1 - 5	1
	106	Buttonhole model	1 - 31 [▲] 32 - 34 [■]	1
	107	Maximum speed	500 - 4200	4000
	108	Number of securing seam cycles Buttonhole model 1 Buttonhole model 2 Buttonhole model 3 - 31	- 1 - 9 0 - 9	0 0 0
	109	Distance of the securing seam to the outer edge of the buttonhole	0,1-1,0	0,6
	110	Selecting programs	I, II	I
2	201	Delete vario programs	-	-
	202	Subclass 1: 3119-1/51 and 1/52 2: 3119-2/51 and 2/62 3: 3119-2/53 and 2/63 4: 3119-3/51 5: 3119-4/51 6: 3119-5/51 7: 3119-10/01	1 - 7	1

▲ on all sub-classes except sub-class -10/01

■ only on sub-class -10/01

Adjustment

Group	Parameter	Meaning	Setting	Standard value
2	203	PC-connection	-	-
	205	Needle thread monitor OFF = I, ON = II	I, II	II
	206	Copy programs	-	-
	207	Multiple cutting OFF = I, ON = II (When multiple cutting function is switched on, the knife size must also be entered.)	I, II 6.4 - 38.1	I
	208	Cut overlap of the knife fitted	0.0 - 4.0	0.0
	209	Double cycle (stitch divisor) 1 = full no. of stitches per cycle 2 = half no. of stitches per cycle stitch offset from 1 st to 2 nd cycle	1.2	1
			0.0 - 2.0	0.3
	210	Knife release for multiple cut after "cut on" Knife release for single cut after "cut off"	0.0 - 5.0	0.5
			0.0 - 5.0	1.6
	211	Number of securing stitches	1 - 3	1
	212 [■]	Stop position program key "1"	0 - 3	0
213 [■]	Stop position program key "2"	0 - 3	0	
214 [■]	Stop position program key "3"	0 - 3	0	
3	301	Program number	1 - 39	1
	302	Cut length (mm)	6.4 - 38.1	12.7
	303	Buttonhole model	1 - 31 [▲]	1
			32 - 34 [■]	
	304	Distance of left seam from centre of cutting line (needle penetration right) = distance A (mm)	-2.0 to 2.0	0.2
	305	Width of left seam = width A (mm)	0.5 - 5.5	1.5
	306	Length of left seam (same length as right seam) = length A (mm)	1.0 - 48.0	14.8
	307	Number of stitches in left seam = number of stitches A	1 - 255	32
	308	Secondary thread tension left seam (II = on; I = off)	I, II	I
	309	Width of 1 st bar = width B (mm)	1.0 - 5.5	3.4
310	Second width of 1 st bar = width B1 (mm)	0.0 - 5.5	0.0	

▲ on all sub-classes except sub-class -10/01

■ only on sub-class -10/01

Group	Parameter	Meaning	Setting	Standard value
3	311▲	Length of 1 st bar = length B (mm)	1.0 - 6.0	1.2
	312▲	Second length of 1 st bar = length B1 (mm)	0.0 - 6.0	0.0
	313▲	Number of stitches in 1 st bar = number of stitches B	1 - 99	8
	314▲	Distance of 1 st bar to centre of cutting line = distance B (mm)	-2.0 to 2.0	0.0
	315▲	Secondary thread tension of 1 st bar (II = on; I = off)	I, II	II
	316	Distance of right seam from centre of cutting line (needle penetration left) = distance C (mm)	-2.0 to 2.0	0.2
	317	Width of right seam = width C (mm)	0.5 - 5.5	1.5
	318	Length of right seam (same length as left seam) = length C (mm)	1.0 - 48.0	14.8
	319	Number of stitches in right seam = number of stitches C	1 - 255	32
	320	Secondary thread tension right seam (II = on; I = off)	I, II	I
	321▲	Width of 2 nd bar = width D (mm)	1.0 - 5.5	3.4
	322▲	Second width of 2 nd bar = width D1 (mm)	0.0 - 5.5	0.0
	323▲	Length of 2 nd bar = length D (mm)	1.0 - 6.0	1.2
	324▲	Second length of 2 nd bar = length D1 (mm)	0.0 - 6.0	0.0
	325▲	Number of stitches in second bar = number of stitches D	1 - 99	8
	326▲	Distance of second bar to centre of cutting line = distance D (mm)	-2.0 to 2.0	0.0
327▲	Secondary thread tension of 2 nd bar (II = on; I = off)	I, II	II	
4	401	Delay time for raising clamp	0.00 - 1.50	0.10
	402	Start delay after lowering clamp	0.00 - 1.50	0.10
	403	Cutting time	0.00 - 2.00	0.10
5	501	Soft start stitches	0 - 15	2
	502	Soft start speed	500 - 1500	1500

▲ on all sub-classes except sub-class -10/01

■ only on sub-class -10/01

Adjustment

Group	Parameter	Meaning	Setting	Standard value
5	503	Reduced speed	500 - 4200	3500
	504	Suppressed stitches needle thread monitor	0 - 15	3
	505	Suppressed stitches bobbin thread monitor	0 - 15	3
	506	Secondary thread tension at sewing start (stitches)	0 - 3	0
6	601	Move stepping motor work clamp and needle		
	602	Display inputs (0123456789ABCDEF) Meaning of the display: 0 = Error bobbin thread monitor 1 = Error needle thread monitor 2 = Needle in material (NIS) 3 = Reference needle (needle centre) 4 = not assigned (E12) 5 = not assigned (E11) 6 = not assigned (E10) 7 = not assigned (E9) 8 = not assigned (E8) 9 = programmable input 1 (E7) A = programmable input 2 (E6) B = Key for knife suppression on sewing head (E5) C = Basic position knife (E4) D = Clamp lowered (E3) E = Basic position cutter (E2) F = Reference clamp (E1)		
	603	Switch outputs 1 = programmable output 1 2 = programmable output 2 3 = Cutter 4 = Knife 5 = Secondary thread tension 6 = Clamp 7 = programmable outlet 1 (07) 8 = programmable outlet 2 (08) (1 = ON; 0 = OFF)	1.0	
	605	Position of the needle to the workpiece	0 - 127	15
	606	Reference point -Needle to work clamp		
	607	Turn sewing motor in direction of sewing		
608	Carry out cold start		RESET	

- ▲ on all sub-classes except sub-class -10/01
- only on sub-class -10/01

Group	Parameter	Meaning	Setting	Standard value
6	609	Reference point - machine to motor		
	610	Needle position for hook adjustment 1 = left seam, right needle penetration 2 = right seam, right needle penetration 3 = right seam, left needle penetration 4 = left seam, left needle penetration	1 - 4	
7	701	P-quota speed controller	1 - 50	10
	702	I-quota speed controller	0 - 100	50
	703	P-quota position controller	1 - 50	20
	704	D-quota position controller	1 - 100	30
	705	Time for position controller	0 - 100	25
	706	P-quota position controller for rest brake	1 - 50	25
	707	D-quota position controller for rest brake	1 - 50	15
	708	Maximum moment for rest brake	1 - 50	0
	709	Minimum machine speed	3 - 64	6
	710	Maximum machine speed	1 - 100	45
	711	Maximum motor speed	500 - 4200	4200
	712	Positioning speed	3 - 25	25
	713	Acceleration ramp	1 - 50	35
	714	Brake ramp	1 - 50	40
	715	Reference position	0 - 127	15
	716	Time-out	0 - 255	40
	717	Starting current motor	3 - 10	7
	718	Anti-vibration filter	1 - 10	3
	719	Rotation direction allocation	0 - 1	1
	720	Reserved (do not change!)	0 - 127	64

- ▲ on all sub-classes except sub-class -10/01
- only on sub-class -10/01

Adjustment

Group	Parameter	Meaning	Setting	Standard value
8	801	Right of access function group 100	0 - 1	0
	802	Right of access function group 200	0 - 1	1
	803	Right of access function group 300	0 - 1	1
	804	Right of access function group 400	0 - 1	1
	805	Right of access function group 500	0 - 1	1
	806	Right of access function group 600	0 - 1	1
	807	Right of access function group 700	0 - 1	1
	808	Right of access function group 800	0 - 1	1
	809	Right of access keys maximum speed	0 - 1	0
	810	Right of access key cutting length	0 - 1	0
	811	Right of access key piece counter	0 - 1	0
	812	Right of access key reverse counter	0 - 1	0
	813	Right of access program key	0 - 1	0
	814	Right of access program key 2	0 - 1	0
	815	Right of access program key 3	0 - 1	0
	816	Right of access key buttonhole width	0 - 1	0
	817	Right of access key cutting width	0 - 1	0
	818	Right of access key double sewing cycle	0 - 1	0
	819	Enter access code	0 to 9999	3119

- ▲ on all sub-classes except sub-class -10/01
- only on sub-class -10/01

13.51 Malfunctions

13.51.01 Error messages

- Error 1: System fault in the control unit
- Error 2: Defect on 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: Knife control (e.g. mechanically locked)
- Error 4: Cutter control
- Error 5: Lift control of work clamp
- Error 6: Time control when working through the sewing program
- Error 7: Ramp end of stepping motor
 - 7-1: Ramp end of stepping motor
 - 7-1: Delay X not finished
 - 7-2: Delay Y not finished
 - 7-3: Delay X and Y not finished
 - 7-4: Ramp X not finished
 - 7-5: Ramp Y not finished
- Error 8: Stitch length too large
- Error 9: Sewing pattern outside area
- Error 10: Error when moving the machine into basic position (home)
 - 10-1: Outputs not finished
 - 10-2: Raise work clamp
 - 10-3: Start sewing position not reached
 - 10-6: Foot pedal operated
 - 10-7: X-centre not reached
 - 10-8: still at X-centre
 - 10-9: Y-centre not reached
 - 10-10: still at Y-centre
 - 10-11: time control home test
 - 10-12: Absolute position -0.3 not reached home test
 - 10-13: Absolute position +0.6 not reached home test
 - 10-14: Move to tdc take-up lever
- Error 11: Stepping frequency of the stepping motor is too high
- Error 12: Error in sewing program

Error 13:	Sewing area larger than the work clamp cutout Program does not fit into sewing area
Error 14:	Programmable output not activated
Error 15:	Programmable input did not arrive
Error 16:	Delay time when the sewing drive is running not permitted
Error 17:	Cutting before previous sewing
Error 18:	Incorrect command in data set
Error 19:	Wrong program number
Error 20:	Needle thread breakage or needle thread inserted incorrectly
Error 21:	Power unit overload (24 V)
Error 22:	Incorrect mains voltage
Error 23:	24V power unit too low / or too high
Error 24:	No stepping motor motion prepared (Nis)
Error 25:	Stepping motor was not started (Nis)
Error 26:	Incorrect knife length for multiple cutting
Error 27:	Error on PC-interface
27-1:	Receiver Timeout
27-2:	Transmitter Timeout
27-3:	Transmission error
27-4:	Incoming signal buffer overflow
27-5:	Data error
27-6:	Answer too long
27-7:	No ASCIIHEX
27-8:	Inadmissible program number
27-9:	Incorrect command syntax
27-10:	No number
27-11:	Unknown command
28:	Current sewing program not in program selection

13.51.02 Motor errors

Error No.	Description
1	Pedal not in rest position
9	Start lock at standstill
10	Incorrect machine class
62	Short circuit 24V
63	overload
64	Network monitoring
65	Extint low bei Init

Error No.	Description
66	Short circuit
67	Network off
68	Extint low im Betrieb
69	No increments
70	Motor blocking
71	No incremental connector
72	No set value connector
73	Motor running interrupted
75	Controller locked
90	No E2Prom
91	E2Prom error
93	E2Prom too small
100	NMI
101	Ext. interruption
102	Periphery interruption
103	Reserved Int12
104	Reserved Int11
105	Reserved Int10
106	COMPARE3
107	CAPCOMP3
108	Unimplemented opcode
109	Trap instruction
110	COMPARE2
111	CAPCOMP2
112	COMPARE1
113	CAPCOMP1
114	COMPARE0
115	CAPCOMP0
116	AD complete
117	T1 T2 over/underflow
120	Stack overflow
170	Invalid transmission
171	Zero mark invalid
172	Communication error
173	Start error
175	Interior start error
200	Brake path too short
201	Internal position error
222	Time-out monitoring

Wearing parts

14.01

Wearing parts



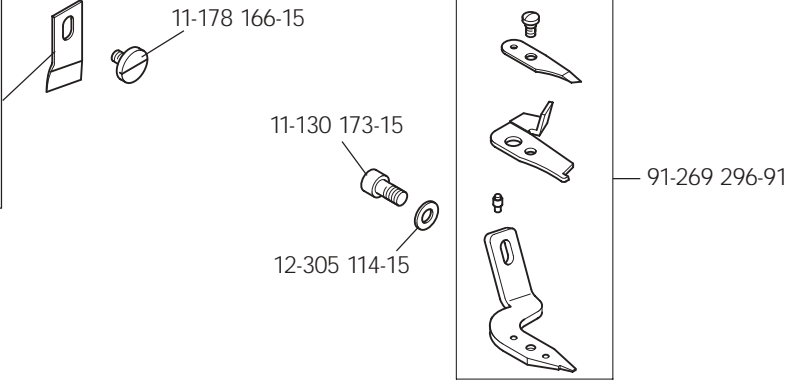
This list indicates the most important wearing parts.

You can request a detailed parts list for the complete machine under parts number 296-12-18 721.

Subclass

- 1/51
- 1/52
- 2/51, -2/53
- 2/62, -2/63
- 3/51
- 4/51
- 5/51
- 10/01

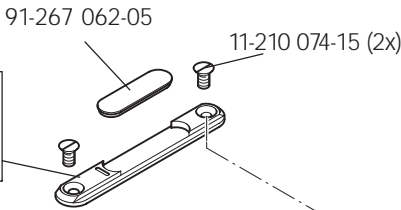
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- 91-269 442-05



Subclass

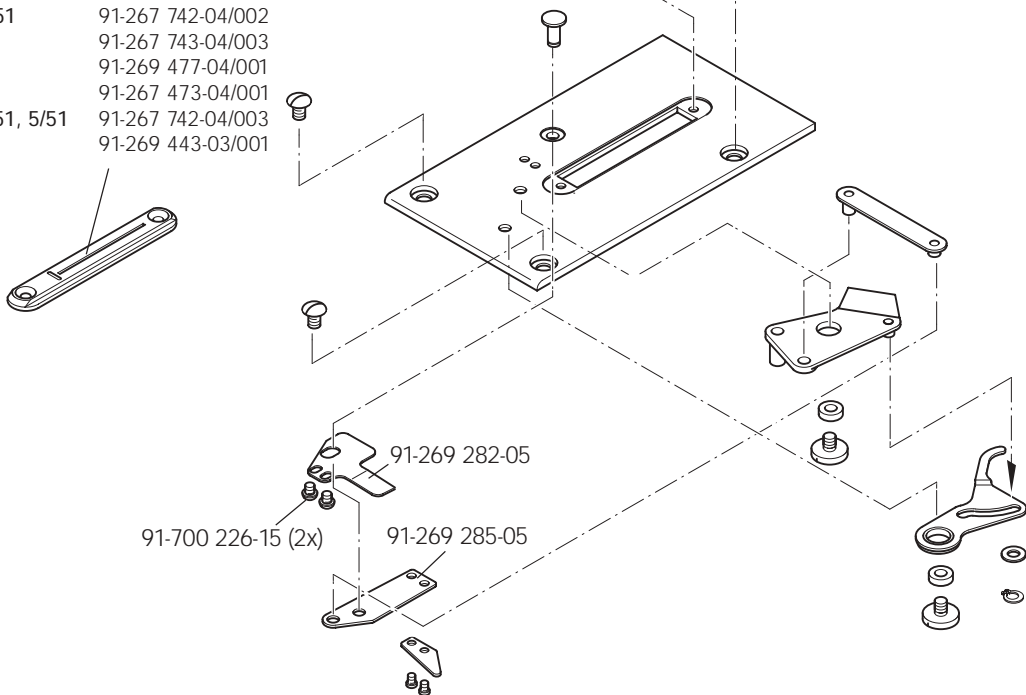
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- 2/62
- 2/63

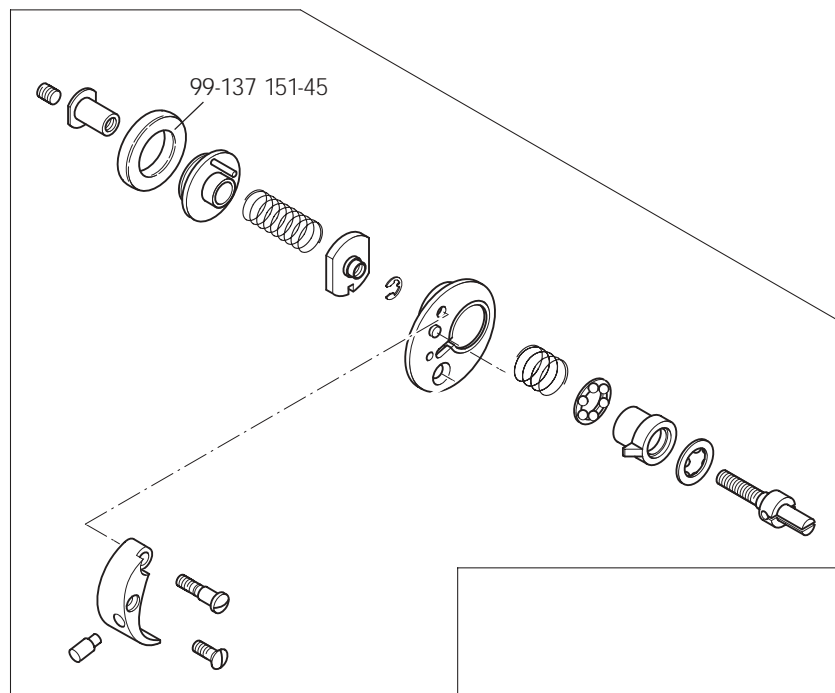
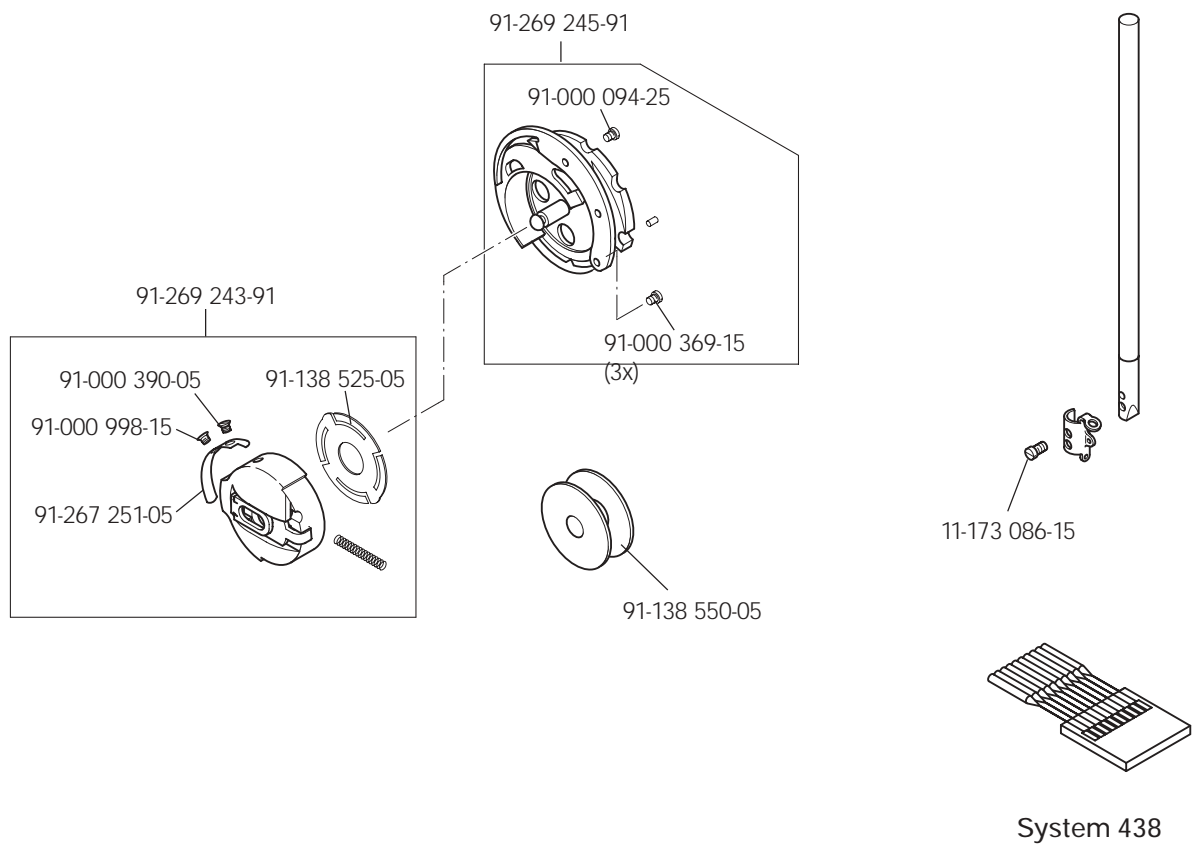
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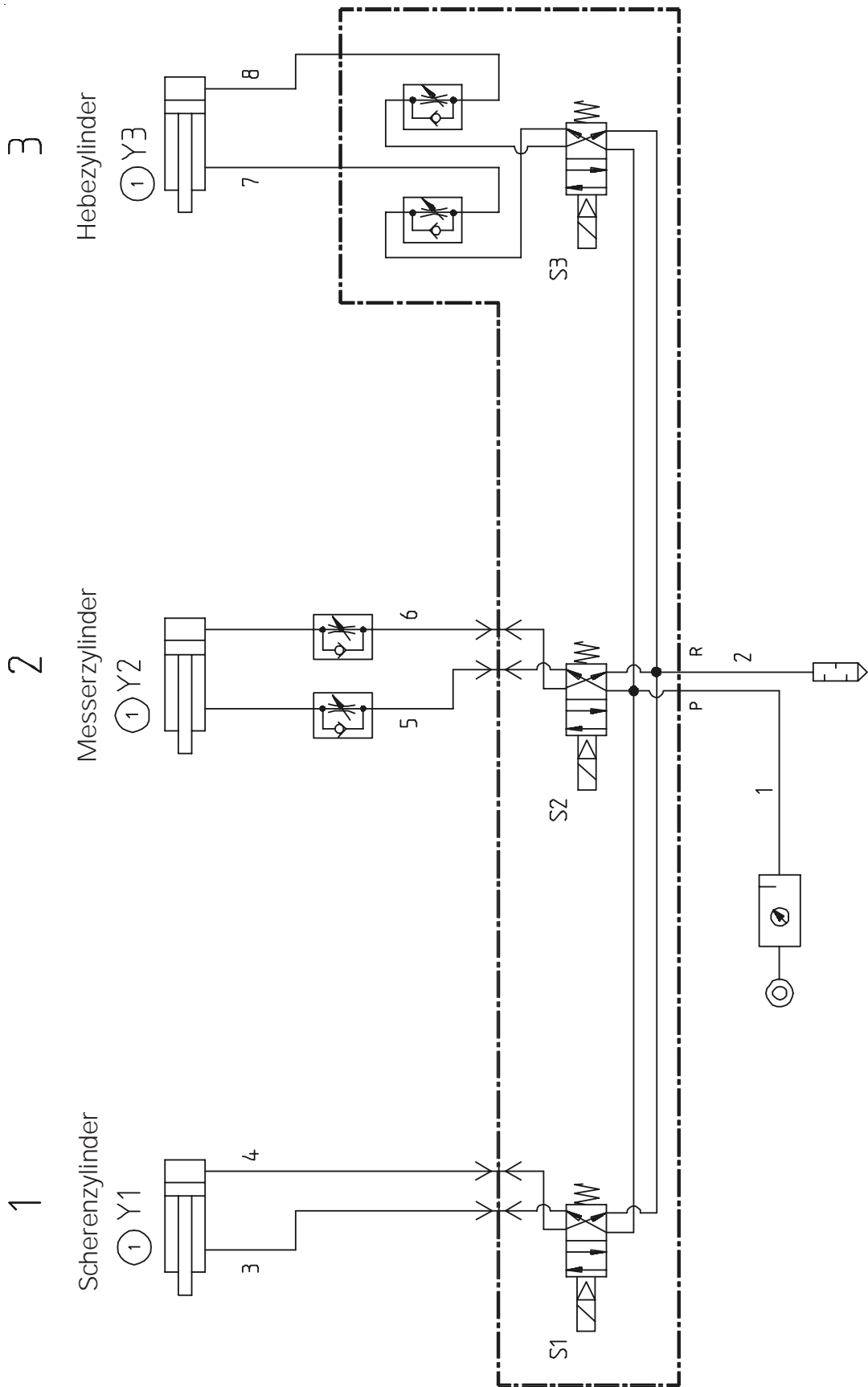


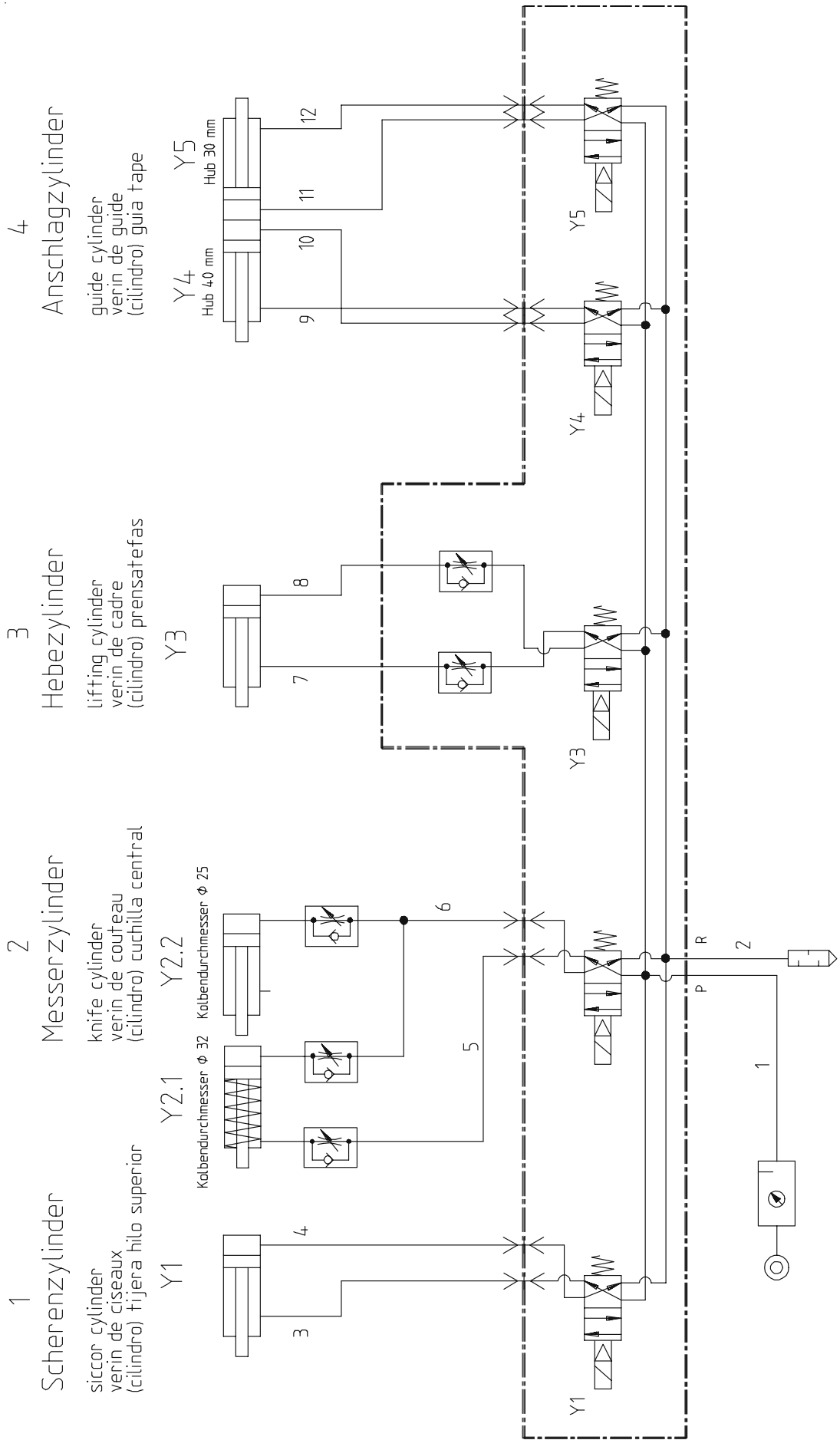
- 1/51, -2/51
- 2/53
- 2/62
- 2/63
- 3/51, -4/51, 5/51
- 10/01

- 91-267 742-04/002
- 91-267 743-04/003
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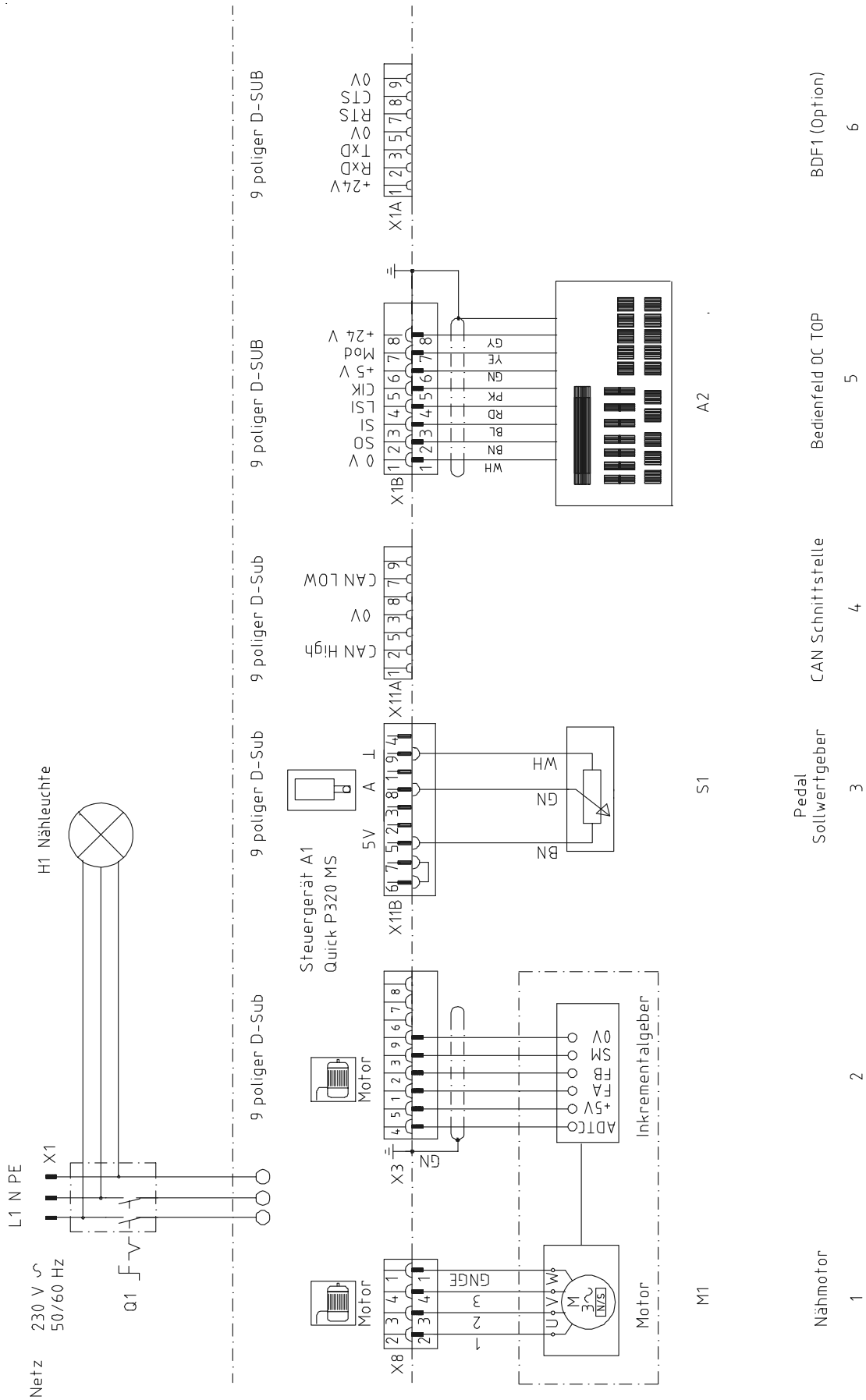


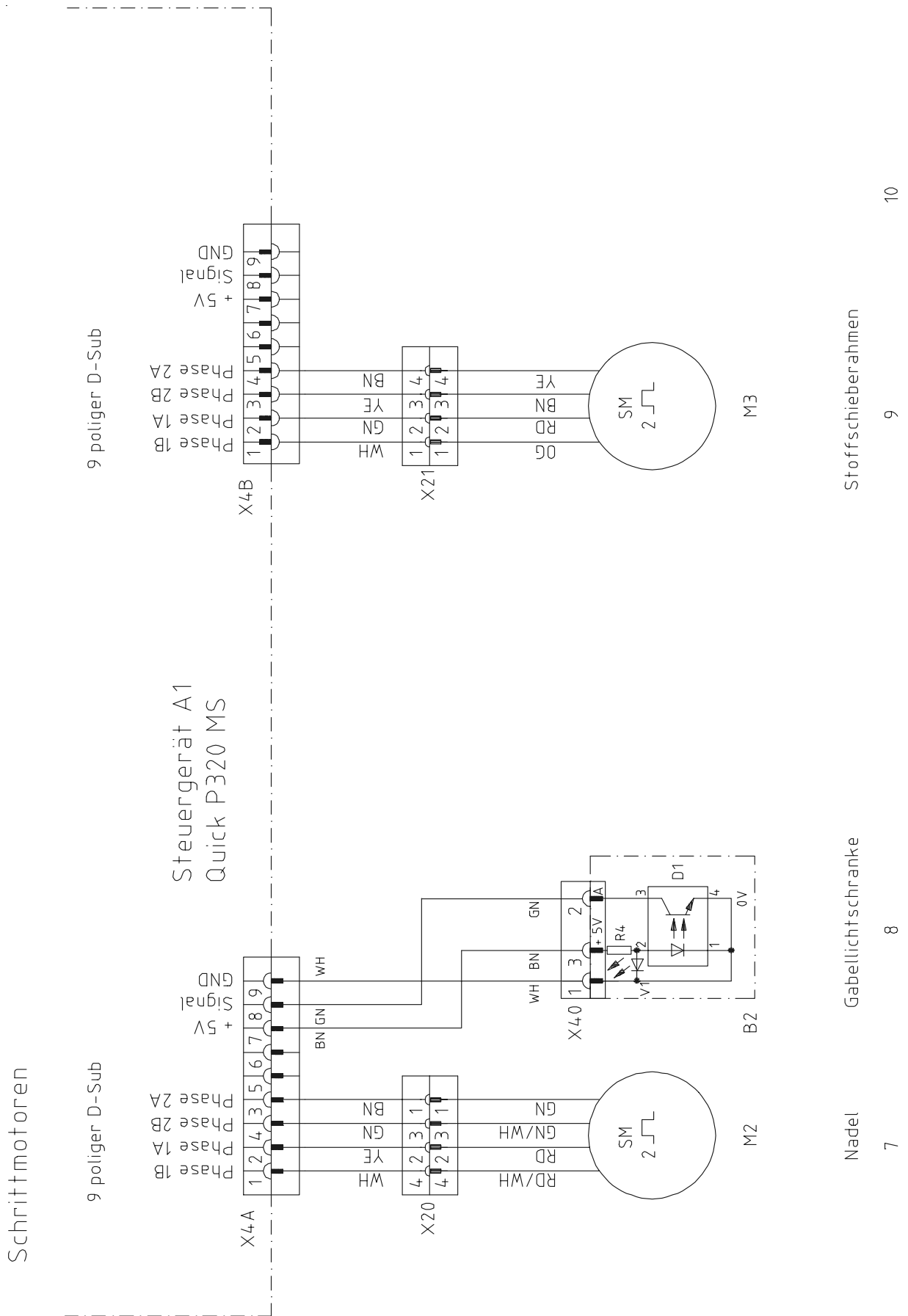


Reference list for the circuit diagrams

A1	Controller Quick P320MS
A2	Control panel OC TOP- 3119 automatic
B1	Thread sensor
B2	Hybrid light barrier needle reference
H1	Sewing lamp
M1	Sewing motor
M2	Stepping motor needle
M3	Stepping motor work clamp
Q1	Main switch
S1	Pedal set value transmitter
S21	Key reference work clamp
S22	Key basic position cutter
S23	Key work clamp lowered
S24	Key basic position knife
S25	Key knife suppression
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 work clamp
X5	Inputs
X8	Sewing motor
X11A	CAN interface
X11B	Pedal set value transmitter
X13	Outputs
X15	Thread monitor
X20	Stepping motor needle
X21	Stepping motor work clamp
X23	Thread monitor

X28	Key knife suppression
X31	Key reference work clamp
X32	Key basic position cutter
X33	Key work clamp lowered
X34	Key basic position knife
X35	Key knife suppression
X40	Hybrid light barrier
X51	Solenoid valve work clamp
X52	Solenoid valve thread tension
X53	Solenoid valve knife on
X54	Solenoid valve cutter
X55	Solenoid valve hook-&-eye stop 1
X56	Solenoid valve hook-&-eye stop 2
Y1	Solenoid valve work clamp
Y2	Solenoid valve thread tension
Y3	Solenoid valve knife on
Y4	Solenoid valve cutter
Y5	Solenoid valve hook-&-eye stop 1
Y6	Solenoid valve hook-&-eye stop 2





Schrittmotoren

9 poliger D-Sub

Steuergerät A1
Quick P320 MS

X4A

X4B

X20

X21

M2

M3

B2

Nadel

Gabellichtschranke

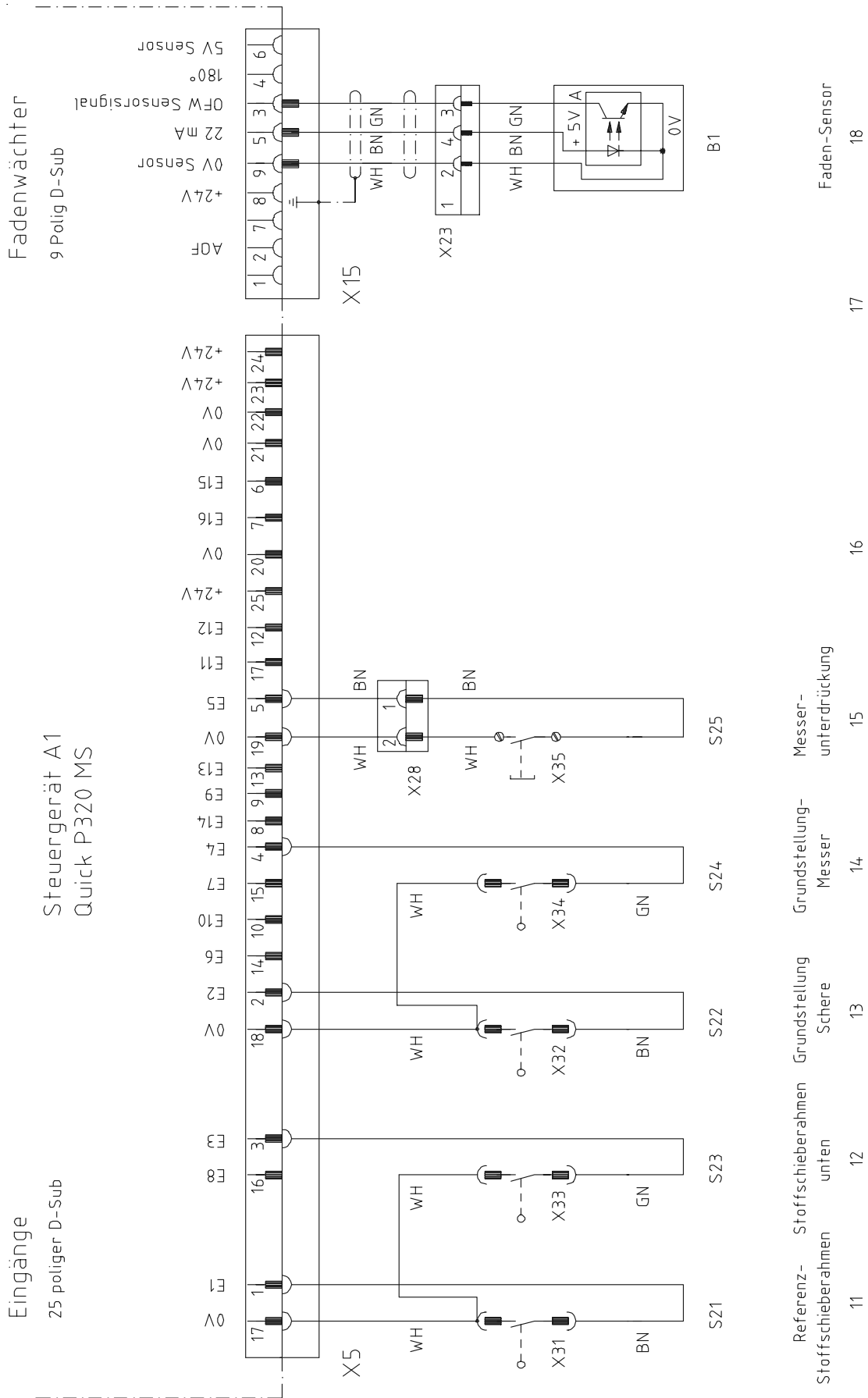
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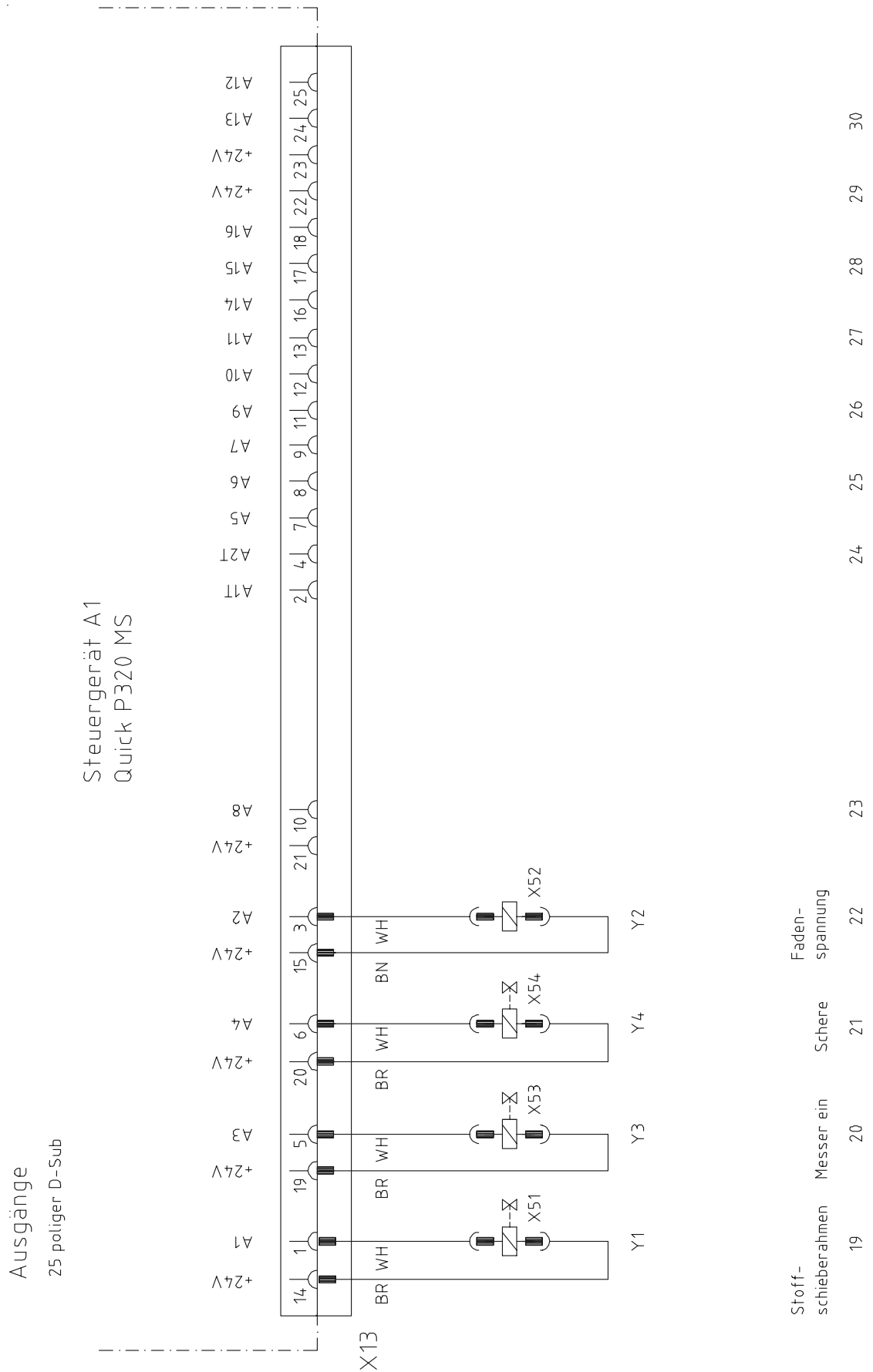
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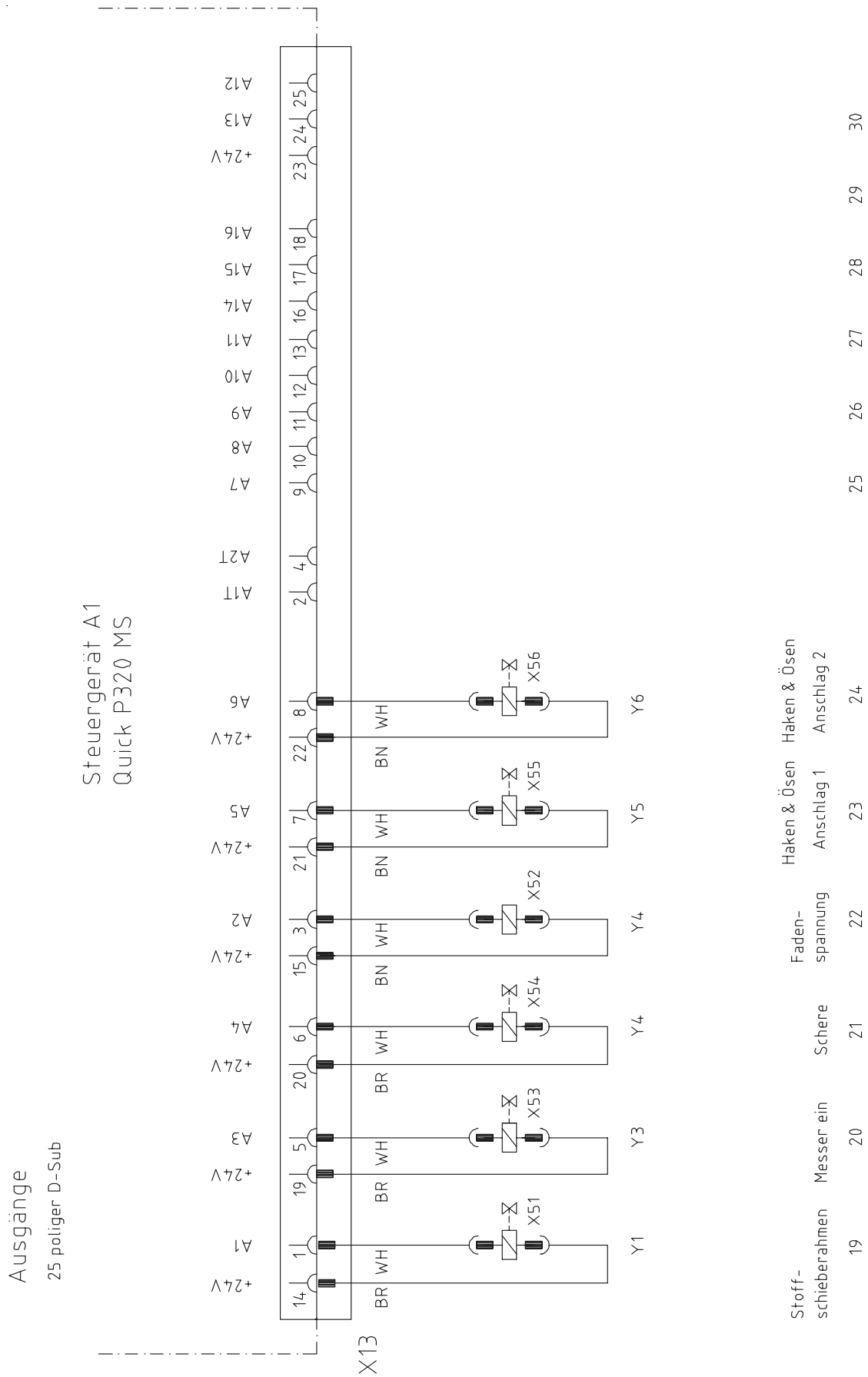
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PFAFF

PFAFF Industrie Maschinen AG

Postfach 3020
D-67653 Kaiserslautern

Königstr. 154
D-67655 Kaiserslautern

Telefon: (0631) 200-0
Telefax: (0631) 17202
E-Mail: info@pfaff-industrial.com

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