

PFAFF

3307-1/..

3307-4/..

Instruction manual

3307-5/..

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



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

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Contents		Chapter – Page
1	Safety	1 - 1
1.01	Regulations	1 - 1
1.02	General notes on safety	1 - 1
1.03	Safety symbols	1 - 2
1.04	Important notes for the user	1 - 2
1.05	Notes for operating and technical staff	1 - 3
1.05.01	Operating staff	1 - 3
1.05.02	Technical staff	1 - 3
1.06	Danger warnings	1 - 4
2	Proper use.....	2 - 1
3	Specifications	3 - 1
3.01	General information.....	3 - 1
3.02	Seam pattern sizes	3 - 2
4	Disposal of Machine	4 - 1
5	Transportation, packing and storage	5 - 1
5.01	Transportation to customer’s premises	5 - 1
5.02	Transportation inside the customer’s premises	5 - 1
5.03	Disposal of packing materials.....	5 - 1
5.04	Storage	5 - 1
6	Explanation of symbols	6 - 1
7	Controls	7 - 1
7.01	Main switch	7 - 1
7.02	Pedal	7 - 1
7.03	Balance wheel.....	7 - 2
7.04	Adjusting the button clamp (only on subclass -1/.)	7 - 2
7.05	Control panel	7 - 3
7.06	Missed stitch detection key	7 - 5
8	Installation and commissioning	8 - 1
8.01	Installation	8 - 1
8.01.01	Adjusting the table height	8 - 1
8.01.02	Drilling template for the table-top.....	8 - 2
8.01.03	Connecting the plug-in connections and earth cable	8 - 3
8.01.04	Fitting the reel stand	8 - 4
8.02	Commissioning	8 - 4
8.03	Switching the machine on / off	8 - 4
8.04	Setting the seam pattern size	8 - 5
8.04.01	Establishing the value for parameter "204"	8 - 5
8.04.02	Changing parameter "204"	8 - 6

Contents		Chapter – Page
9	Setting up	9 - 1
9.01	Inserting the needle	9 - 1
9.02	Threading the sewing threads on the subclass -1/.. and -5/..	9 - 2
9.03	Threading the needle thread (Sub-class -4/..)	9 - 3
9.04	Selecting the button type and program number	9 - 4
9.05	Adjusting the button clamp to the button size (only for sub-class -1/...)	9 - 4
9.06	Calling up the sequence mode	9 - 5
10	Sewing	10 - 1
10.01	Sewing with sub-class -1/..	10 - 1
10.02	Sewing with sub-class -4/..	10 - 3
10.03	Sewing with sub-class -5/..	10 - 4
11	Input	11 - 11
11.01	Seam pattern input on machines from subclasses -1/.. and -5/..	11 - 11
11.01.01	Seam pattern input for two-hole and self-shank buttons	11 - 11
11.01.02	Seam pattern input for three-hole buttons	11 - 13
11.01.03	Seam pattern input for four-hole buttons	11 - 15
11.01.04	Seam pattern input for six-hole buttons	11 - 18
11.02	Seam pattern input on sub-class -4/.. machines	11 - 11
11.03	Sequence input	11 - 13
11.04	Parameter input	11 - 15
11.04.01	Selecting and changing parameters	11 - 15
11.04.02	Entering/changing the access code	11 - 16
11.04.03	Assigning access rights	11 - 17
12	Care and maintenance	12 - 1
12.01	Cleaning the machine	12 - 1
12.02	Cleaning the hook compartment	12 - 2
12.03	Cleaning the air filter/lubricator	12 - 2
12.04	Checking/adjusting the air pressure	12 - 3
12.05	Oil level for the needle drive unit	12 - 3
12.06	Oil level for the gears	12 - 4
13	Adjustment	13 - 1
13.01	Notes on adjustment	13 - 1
13.02	Tools, gauges and other accessories	13 - 1
13.03	Abbreviations	13 - 1
13.04	Toothed belts of the main drive	13 - 2
13.05	Top needle bar position (reference position)	13 - 3
13.06	Pre-adjusting the needle height	13 - 4
13.07	Position of the needle to the needle hole	13 - 5
13.08	Basic position "button clamp raised"	13 - 6
13.09	Sensor board of the needle drive (in dismantled condition)	13 - 7
13.10	Basic setting of the needle drive	13 - 9

	Chapter – Page
Contents	Chapter – Page
13.11 Position of the hook shaft to the needle	13 - 10
13.12 Adjusting the drag link mechanism	13 - 11
13.13 Needle rise and hook clearance	13 - 12
13.14 Readjusting the needle height	13 - 14
13.15 Adjusting the loop spreader	13 - 15
13.16 Position of the loop spreader to the needle	13 - 16
13.17 Adjusting the thread trimmer	13 - 17
13.18 Manual cutting test	13 - 18
13.19 Adjusting the thread catcher	13 - 19
13.20 Adjusting the thread loop support	13 - 20
13.21 Basic position of the button clamp drive	13 - 21
13.22 Aligning the button clamp (only on subclass -1/..)	13 - 22
13.23 Aligning the work clamp (only on subclass -4/..)	13 - 23
13.24 Aligning the button holder and button support (only on sub-class -5/..)	13 - 24
13.25 Adjusting the clamp pressure (only on subclass -1/..)	13 - 25
13.26 Aligning the cloth plate (only on subclass -1/.. and -4/..)	13 - 26
13.27 Basic setting of the end knotting equipment	13 - 27
13.28 Adjusting the retaining finger of the end knotting equipment	13 - 28
13.29 Adjusting the lifting lever of the end knotting equipment	13 - 29
13.30 Adjusting the reed switch	13 - 30
13.31 Setting the angle for the end knotting (only on subclasses -1/.. and -4/..)	13 - 31
13.32 Adjusting the moment tension	13 - 32
13.33 Adjusting the thread puller	13 - 33
13.34 Adjusting the thread clamp	13 - 34
13.35 Adjusting the thread regulator	13 - 35
13.36 Adjusting the button holding cylinder (only on subclass -5/..)	13 - 36
13.37 Adjusting the thread wiper (only on subclass -5/..)	13 - 37
13.38 Cold start	13 - 38
13.39 Parameter settings	13 - 39
13.39.01 Selecting and altering parameters	13 - 39
13.39.02 Parameter list	13 - 40
13.40 Error messages on the display	13 - 45
13.41 Motor errors	13 - 47
13.42 Data backup and protection with PC-program SAM	13 - 48
13.43 Internet update of the machine software	13 - 49
14 Wearing parts	14 - 1
15 Circuit diagrams	15 - 1

1 Safety

1.01 Regulations

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

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

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

1.02 General notes on safety

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

1.03 Safety symbols



Danger!
Special points to observe.



Danger of injury to operating or technical staff!



Electric voltage!
Danger to operating or technical staff!



Caution

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

1.04 Important notes for the user

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

1.05 Notes for operating and technical staff

1.05.01 Operating staff

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

The operating staff is obliged to observe the following points:

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

1.05.02 Technical staff

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

The technical staff is obliged to observe the following points:

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

1.06

Danger warnings



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



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

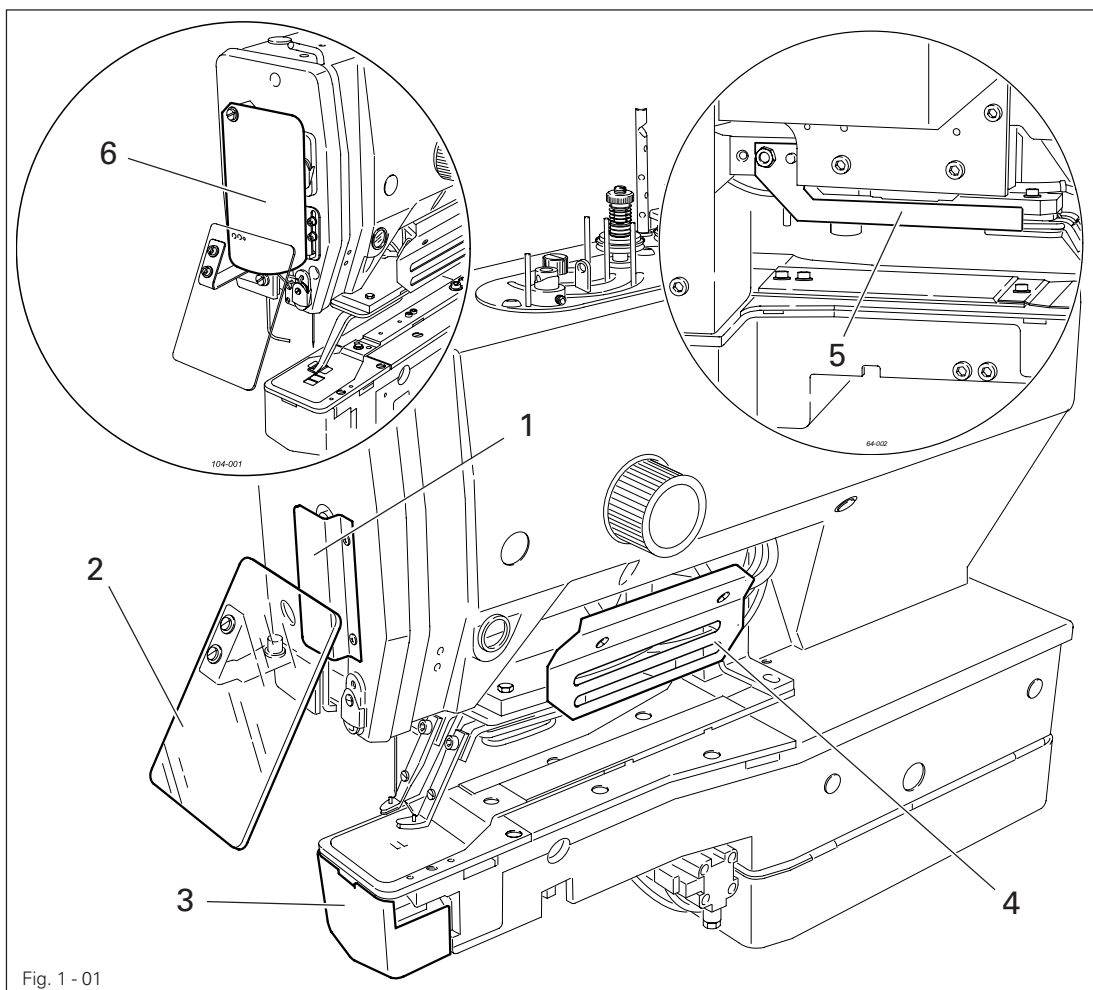


Fig. 1 - 01



Do not use the machine without take-up lever guard 1 (subclasses -1/.. and -5/..), or only with cover 6 closed (subclass -4/..)!
Danger of injury through the movement of the take-up lever.



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



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



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

2

Proper use

The PFAFF 3307-1/.. is used for attaching buttons to articles of clothing automatically.

The PFAFF 3307-4/.. is used for automatic basting stitch work on articles of clothing.

The PFAFF 3307-5/.. is used for the automatic attachment of self-shank buttons.



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

3 Specifications ▲

3.01 General information

Max. sewing speed:	2000 spm
Stitch type:	107
Needle bar stroke:	46 mm
Max. thickness of workpiece:	4 mm
Max. work clamp clearance:	17 mm
Fabric clearance (crosswise to sewing arm):	235 mm
Fabric clearance (lengthwise to sewing arm):	30 mm
Max. size of sewing area:	8 x 12 mm*
Number of stitches:	freely programmable
Feed type:	intermittent
Power supply:	230 V +10%, 50 / 60 Hz
Power consumption:	max. 0.6 kVA
Input power rating:	0.7 kVA
Fuse protection:	1 x 16 A, inert
Working air pressure:	6 bar
Air consumption:	~1,2 l / work cycle
Noise data:	
Noise emission level at workplace with a sewing speed of 1800 spm	
Sewing cycle 2.5 sec. on and 2.5 sec. Off:	$L_{pA} = 68,5 \text{ dB(A)}^{\blacksquare}$
(Noise measurement in accordance with DIN 45 635-48-A-1, ISO 11204, ISO 3744, ISO 4871)	
Sewing head dimensions:	
Length:	approx. 514 mm
Width:	approx. 200 mm
Height:	approx. 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:	
Sub-class -1/01	134 - 35
Sub-class -1/02, -1/03, -4/. and -5/.....	190
Needle size for fine materials:	70 - 100
Needle size for medium-weight materials:	100 - 120

* Depending on cut-out size of bed plate

▲ Subject to alterations

■ $K_{pA} = 2.5 \text{ dB}$

3.02 Seam pattern sizes



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

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

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

4 Disposal of Machine

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



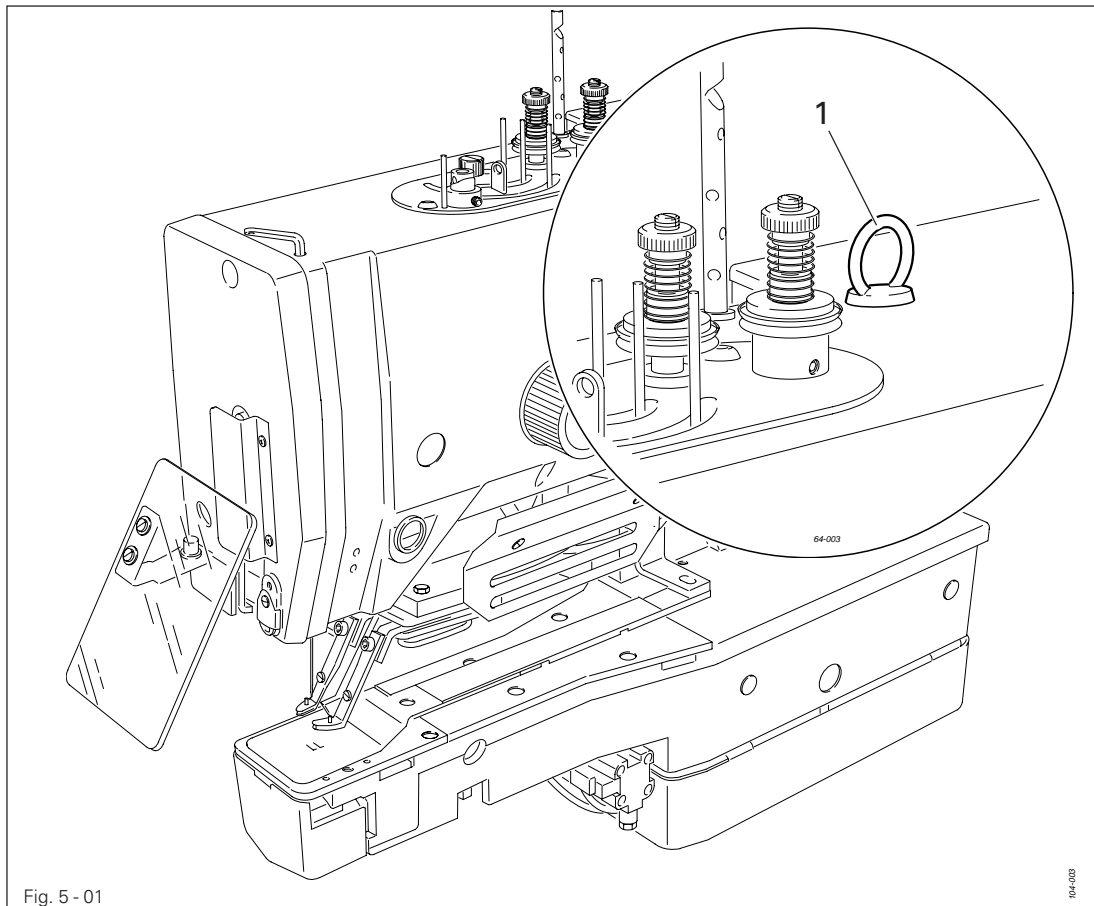
Care must be taken that parts soiled with lubricants are disposed of separately according to the locally valid pollution control regulations!

5 Transportation, packing and storage

5.01 Transportation to customer's premises

All machines are delivered completely packed.

5.02 Transportation inside the customer's premises



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

5.03 Disposal of packing materials

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

5.04 Storage

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

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

6 Explanation of symbols

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



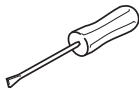
Note, information



Cleaning, care



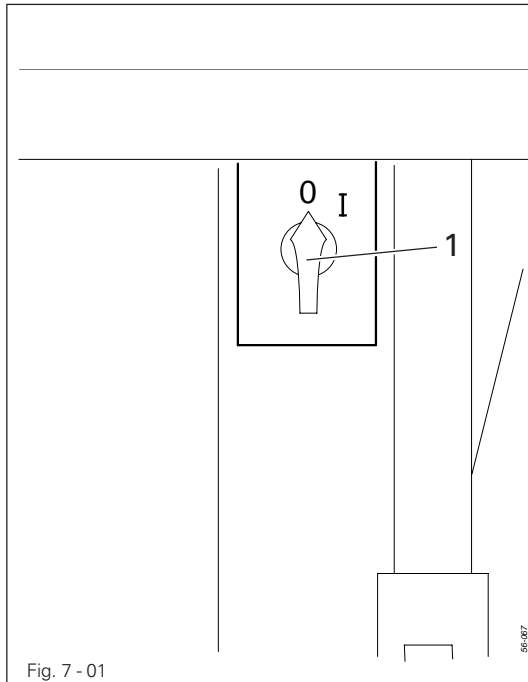
Lubrication



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

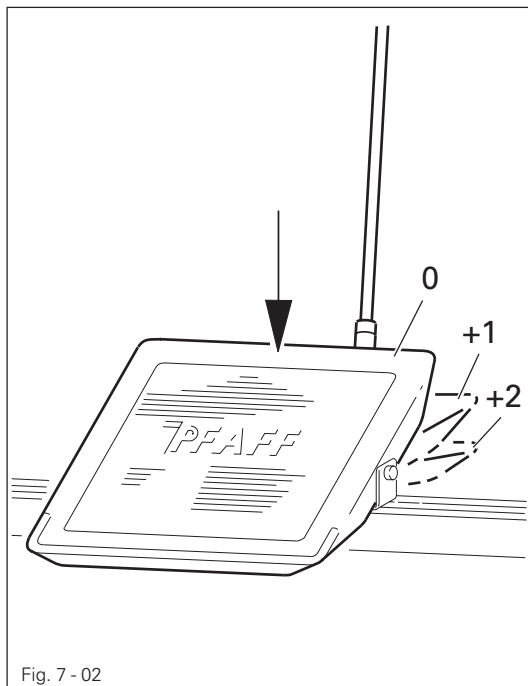
7 Controls

7.01 Main switch



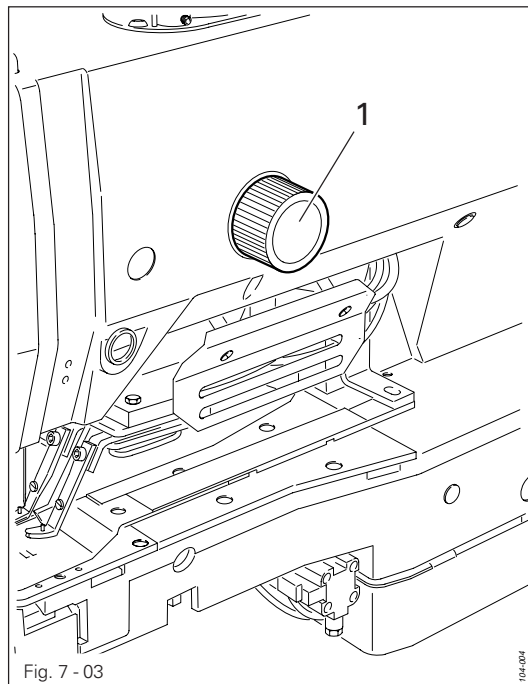
- The machine is switched on or off by turning the main switch 1.

7.02 Pedal



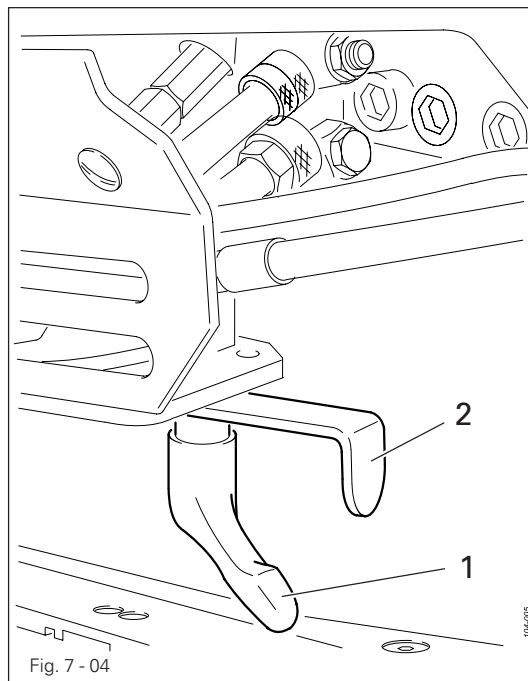
- 1 = Close/open button holding cylinder (only on subclass -5/..)
- 0 = Neutral position
- +1 = Lower button clamp (or work clamp or button holder)
- +2 = Sewing

7.03 Balance wheel



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

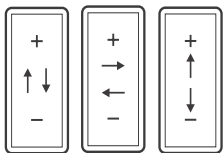
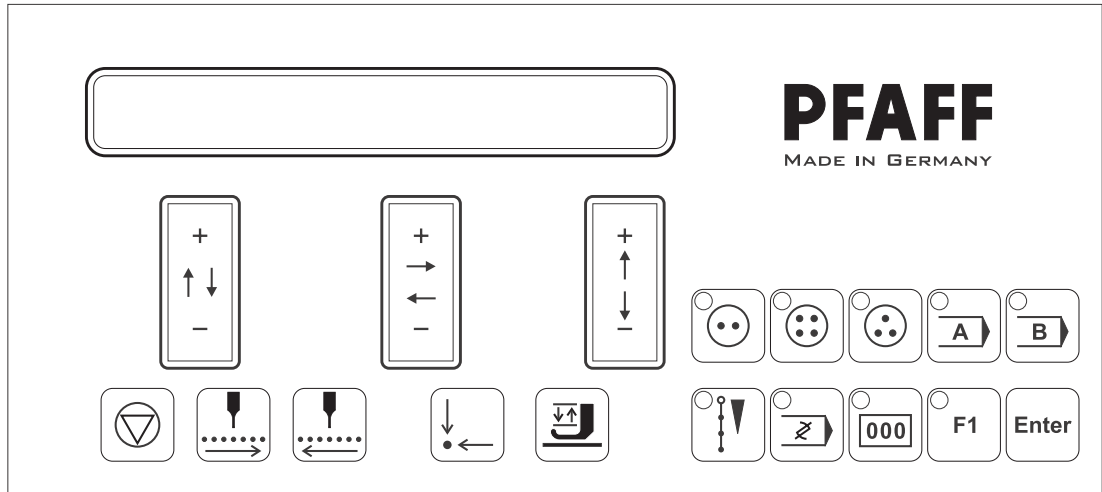
7.04 Adjusting the button clamp (only on subclass -1/.).



- After loosening T-screw **1**, with sliding bar **2** the button clamp is adjusted to match the button size, see **Chapter 9.05 Adjusting the button clamp to the button size.**

Control panel

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



Plus/minus keys

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



Stop

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



Tacting forwards/tacting backwards

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



Danger of needle breakage!

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



Basic position

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



Button clamp raised/lowered

- In the sewing mode the button clamp (or work clamp or button holder) is raised/lowered.
- When entering the code number this key corresponds to the figure 6.



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



Button type

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



Program group A

- When entering the code number this key corresponds to the figure 4.



Program group B

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



Sewing mode/parameter input

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



Entering the seam pattern

- If this key is pressed the seam pattern function is switched on or off, see Chapter 11.01 or 11.02 Entering the seam pattern.
- When entering the code number this key corresponds to the figure 7.



Piece counter

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



F1 key

- This key is reserved for special functions.
- When entering the code number this key corresponds to the figure 9.

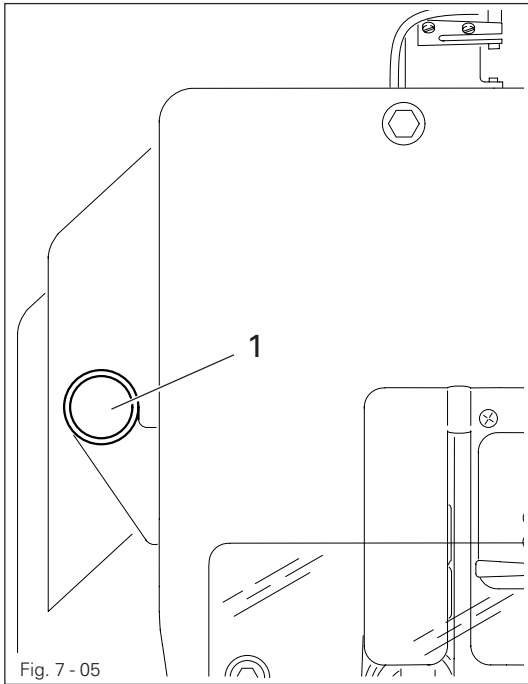


Enter

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

7.06

Missed stitch detection key



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

8 Installation and commissioning



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

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

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

8.01 Installation

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

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



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

8.01.01 Adjusting the table height

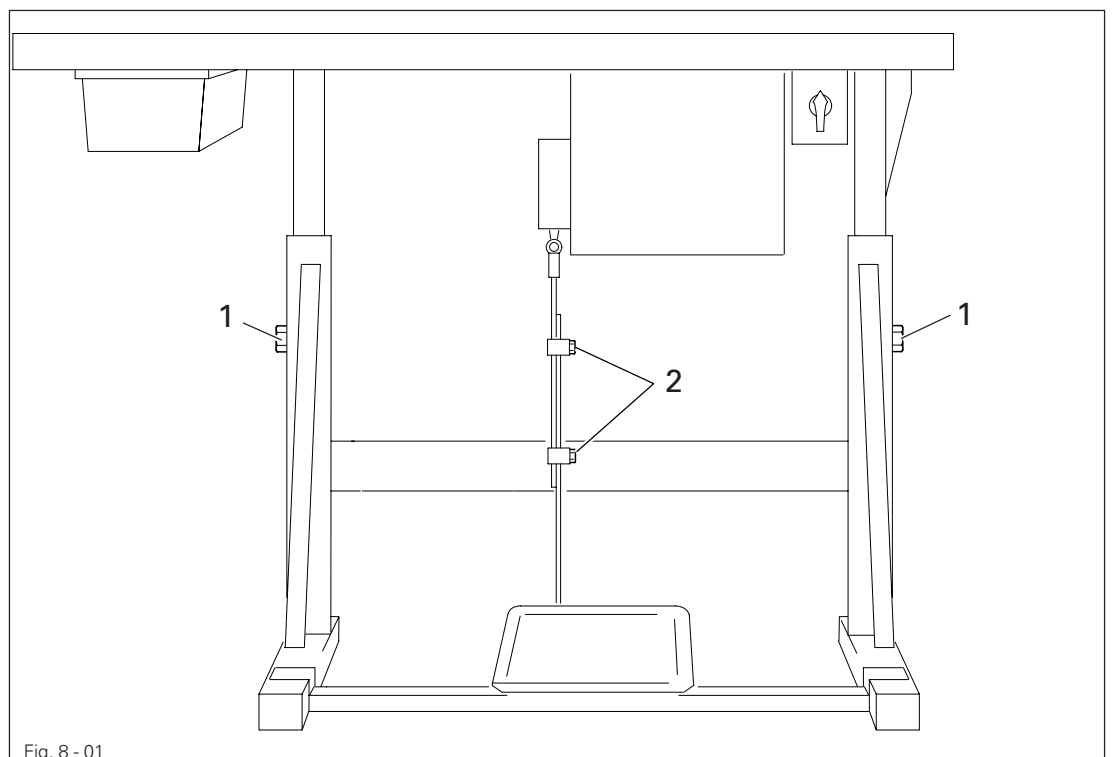


Fig. 8 - 01

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

Installation and commissioning

8.01.02 Drilling template for the table-top

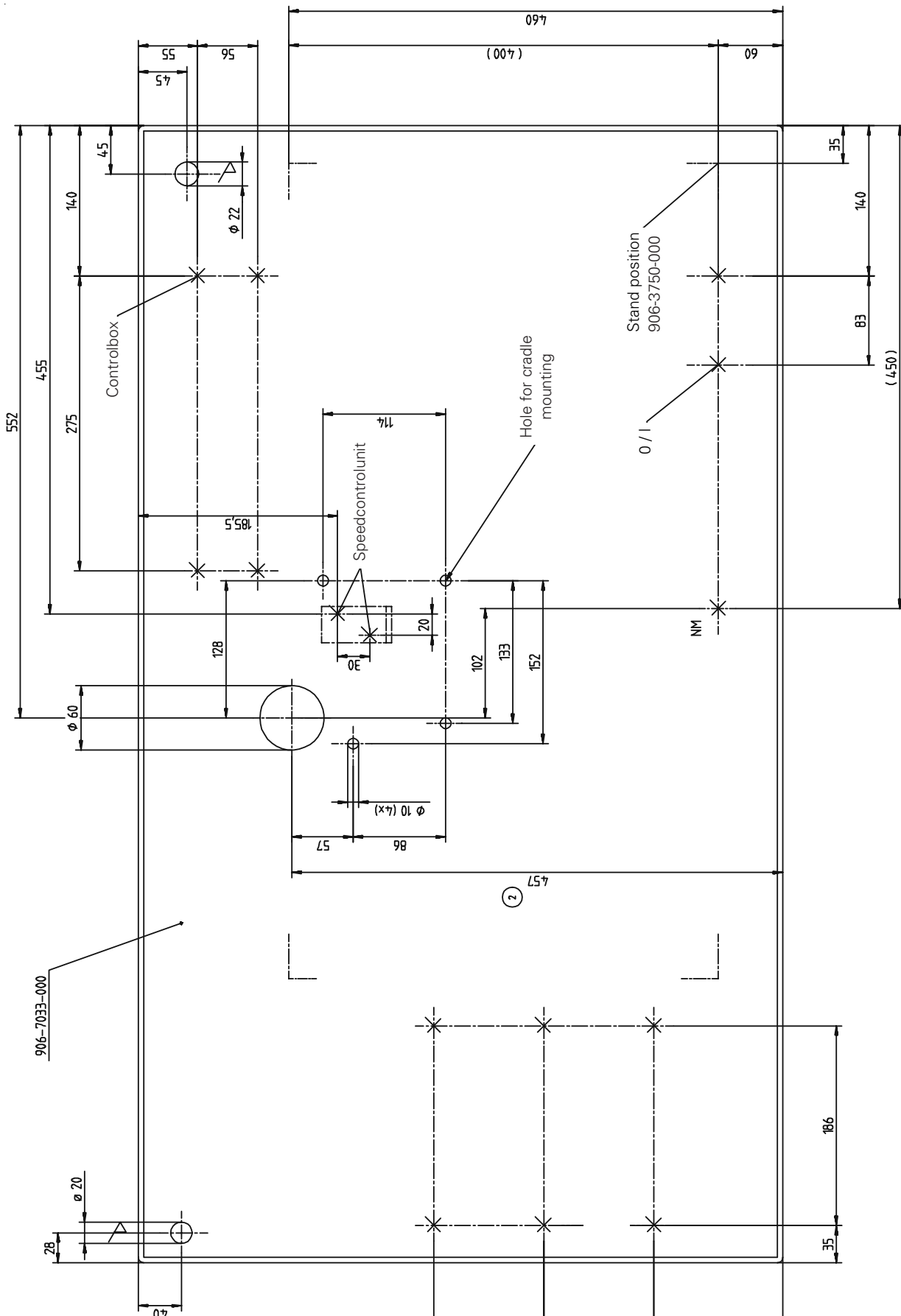
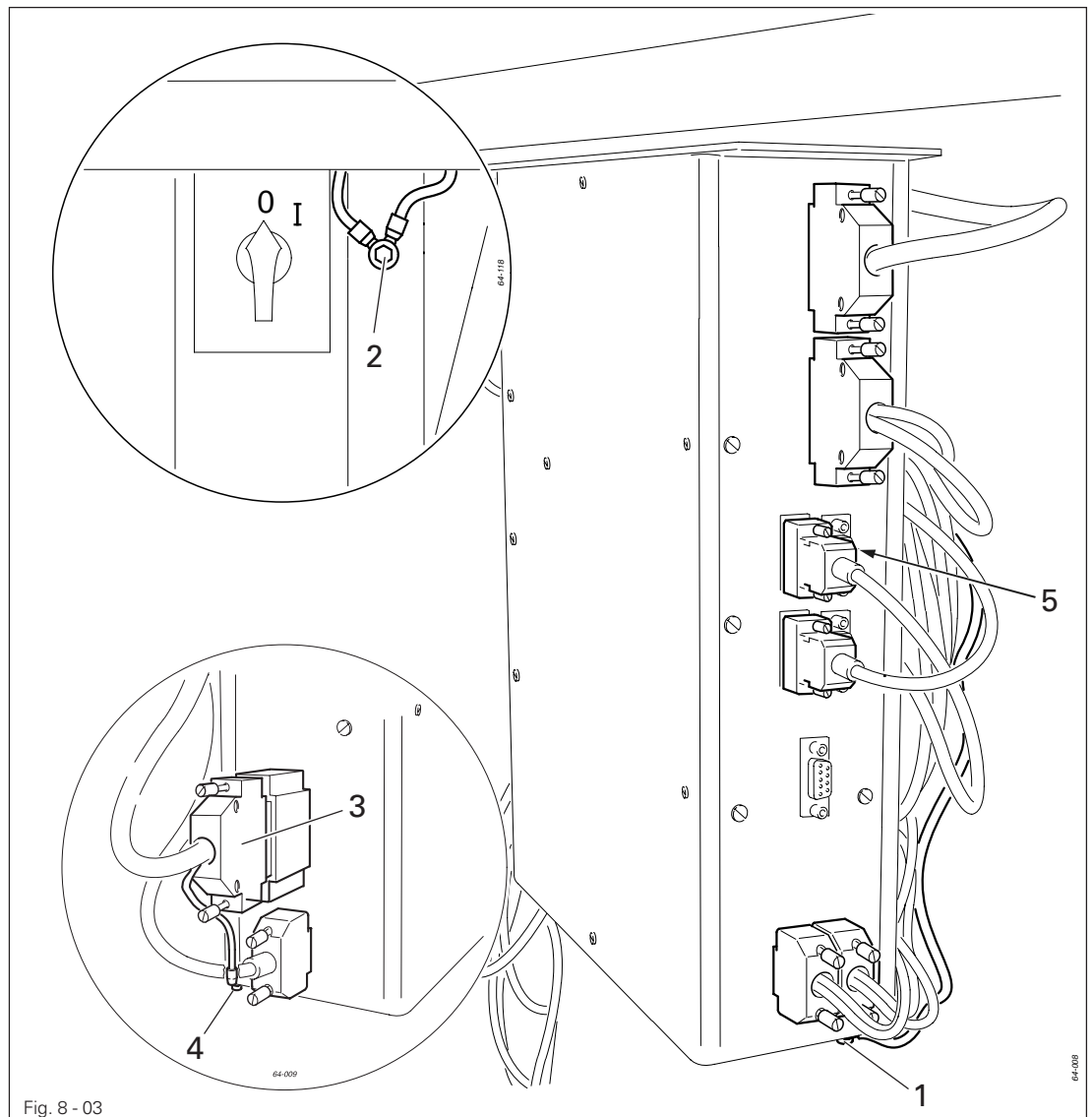


Fig. 8-02

8.01.03 Connecting the plug-in connections and earth cable

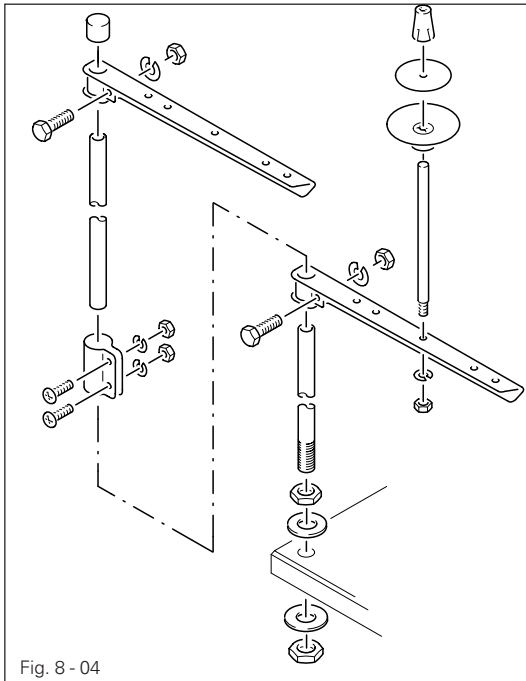


- Connect all plugs as labelled in the control box.
- Screw the earth cable from the machine and from the main switch to earth point **A**.
- Connect earth points **A** and **B** with an earth cable.
- Screw the earth cable of plug **1** to earth point **B**.



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

8.01.04 Fitting the reel stand



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

8.02 Commissioning

- Clean the machine thoroughly and then check the oil level (see Chapter 12 Care and Maintenance).
- Check the machine, in particular the electric leads and pneumatic connection tubes, for any damage.
- Have mechanics ensure that the machine's motor can be operated with the available electricity supply.
- Connect the machine to the compressed air system. The manometer should show a pressure of **6 bar**.
If necessary, set this value (see Chapter 12.04 Checking / adjusting the air pressure).
- Before the machine is commissioned, the seam pattern sizes set in the machine control unit must be checked, see Chapter 8.04 Setting the seam pattern size.

8.03 Switching the machine on / off

- Switch the machine on or off (see Chapter 7.01 Main switch).

8.04 Setting the seam pattern size



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

8.04.01 Establishing the value for parameter "204"

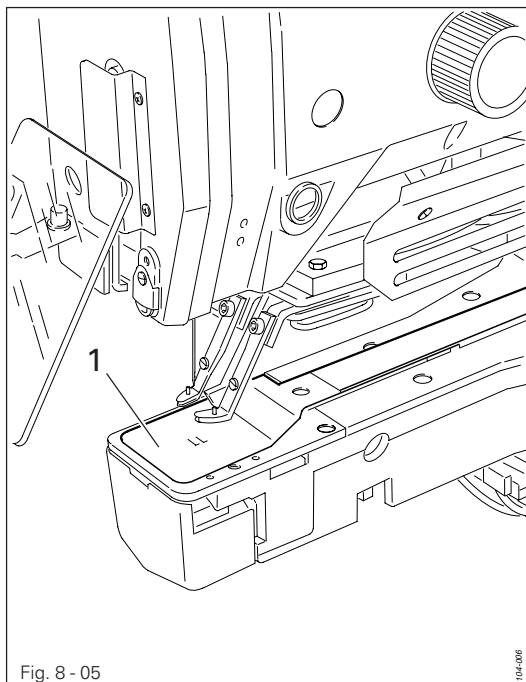


Fig. 8 - 05

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

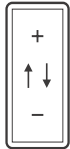
Value for parameter "204"	Bed plate cut-out size	Seam pattern size
1	7 mm x 7 mm	5 mm x 5 mm
2	8 mm x 8 mm	6 mm x 6 mm
3	9 mm x 9 mm	7 mm x 7 mm
4	10 mm x 10 mm	8 mm x 8 mm
5	11 mm x 11 mm	8 mm x 9 mm
6	10 mm x 14 mm	8 mm x 12 mm

8.04.02 Changing parameter "204"

- Switch on the machine.



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



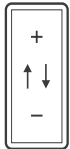
- Using the corresponding **plus/minus key** select the function group "200".

200



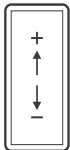
- Confirm selection with **Enter**.

- Enter the code, see **Chapter 11.04.02 Entering/altering the access code**.



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

204 1



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

204 2



- Conclude parameter input by switching to the sewing mode.

9

Setting up



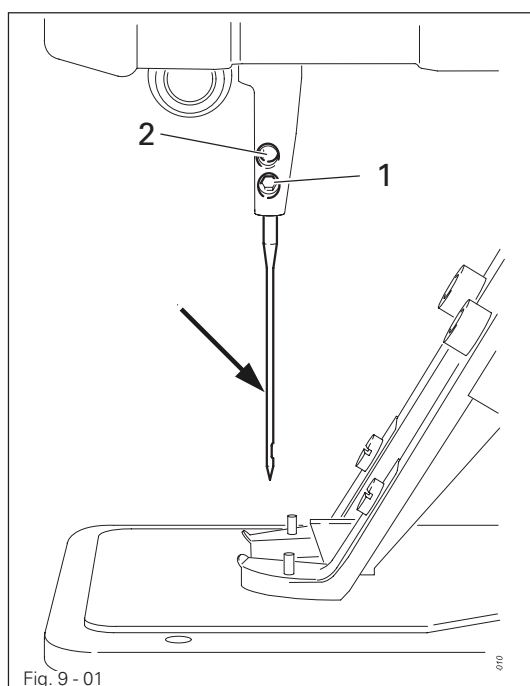
All instructions and regulations in this instruction manual must be observed. Special attention must be given to all safety regulations!



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

9.01

Inserting the needle



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

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

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



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

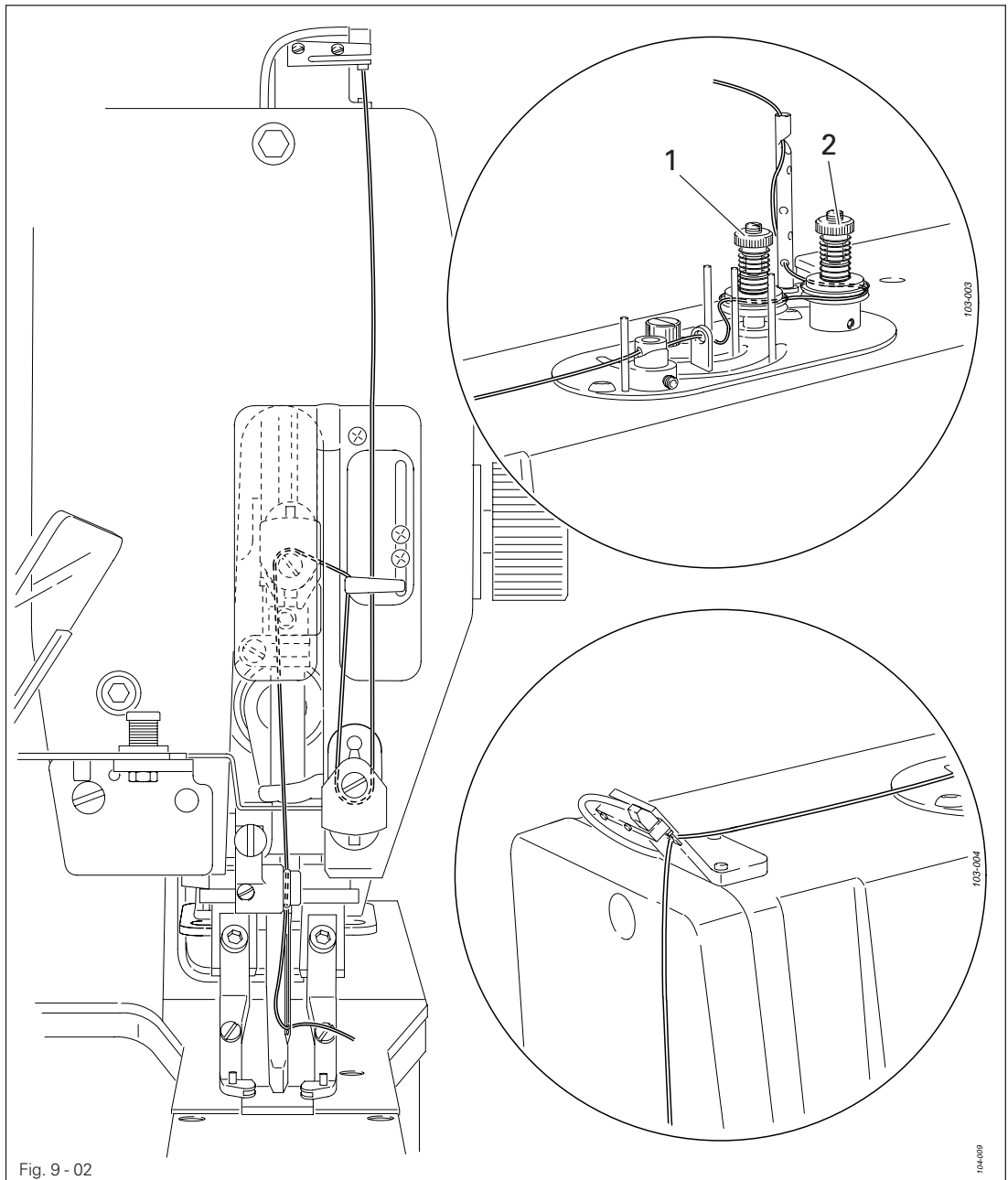


Fig. 9 - 02



Switch off the machine!

Danger of injury if the machine is started accidentally!

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

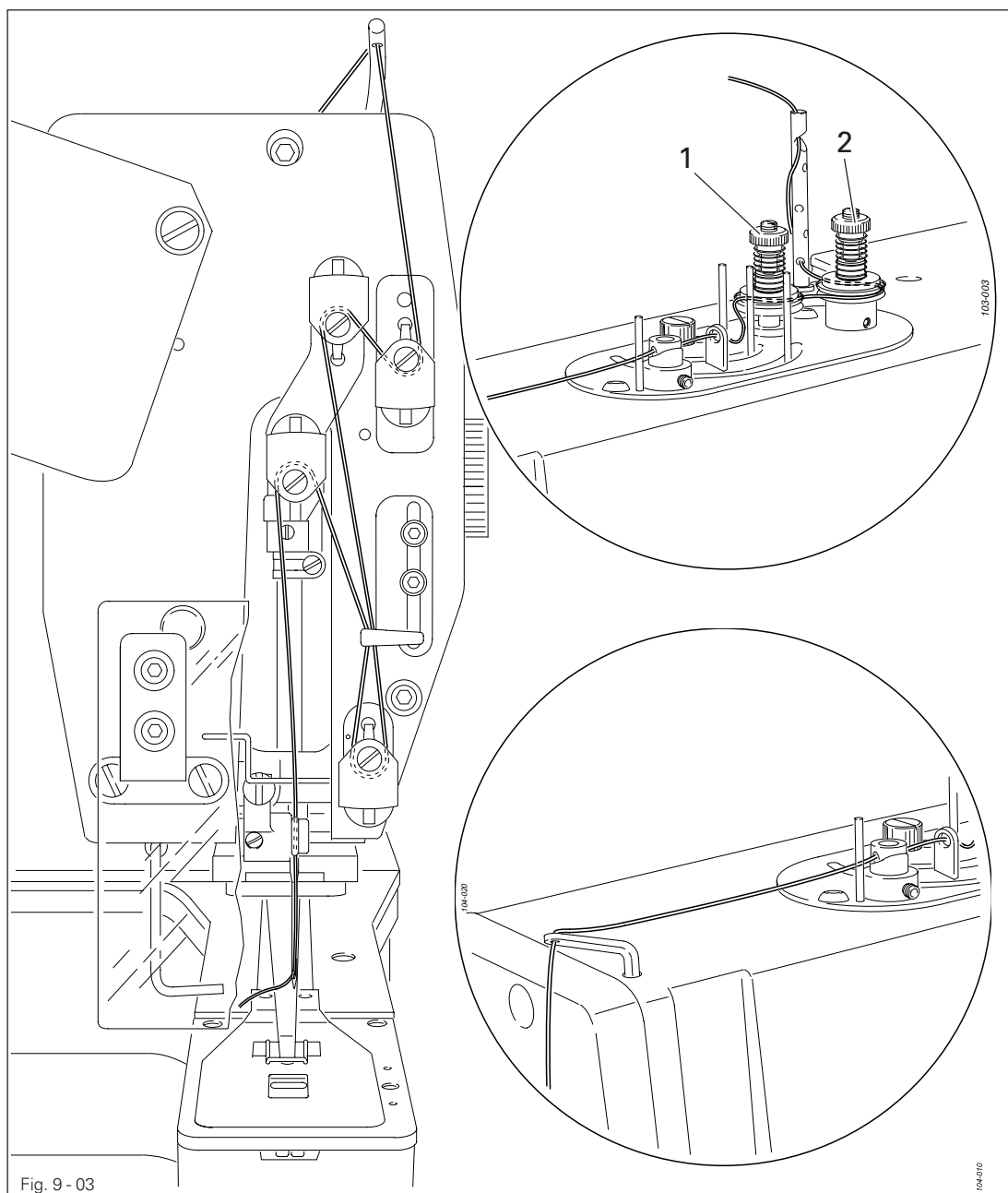


For thin, soft materials a lower thread tension is required, for thicker fabrics a higher thread tension.



Thread the needle from the front!

9.03 Threading the needle thread (Sub-class -4/..)



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

- Thread needle thread as shown in **Fig. 9-03**.
- By turning milled screws **1** and **2** adjust the tension of the needle thread to avoid material puckering or thread breakage.



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



Thread the needle from the front!

9.04 Selecting the button type and program number



To select a button type and program number, a program for the corresponding button must already have been entered with the seam pattern input, see **Chapter 11.01 or 11.02 Seam pattern input**.

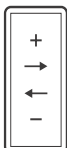
- Switch on the machine.
The sewing mode is activated automatically.



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

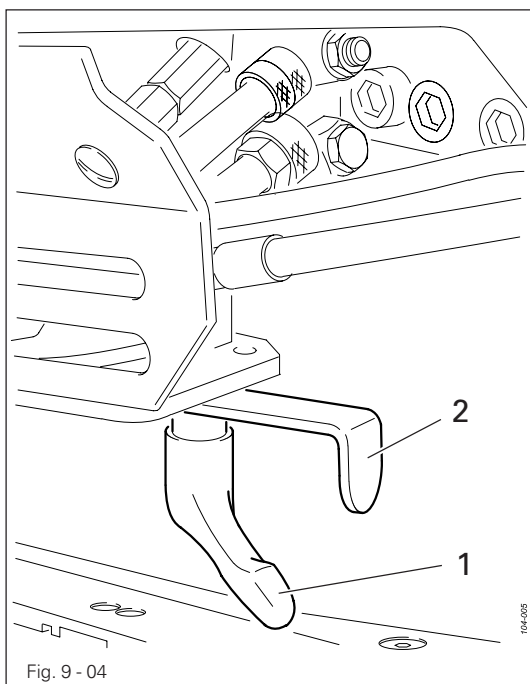


- On machines from subclass -4/... the three-hole button must be selected to activate the basting function.



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

9.05 Adjusting the button clamp to the button size (only for sub-class -1/...)



- Loosen T-screw 1.
- Open the button clamp with sliding bar 2 and insert the button.
- Move sliding bar 2 to the right and tighten T-screw 1.



The button must fit easily into the button clamp, but without play.

9.06 Calling up the sequence mode

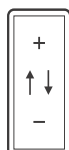


To call up the sequence mode, the sequence must have been entered beforehand, see **Chapter 11.03 Sequence Input**.

- Switch on the machine.

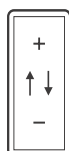


- Call up the parameter input function again (LED in the key is off).



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

114



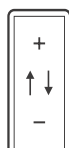
- With the corresponding **plus/minus key** enter the value "II" to switch on the sequence mode.

114 II



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

2000 12/1 SEQ1



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

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

10

Sewing



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

10.01

Sewing with sub-class -1/..

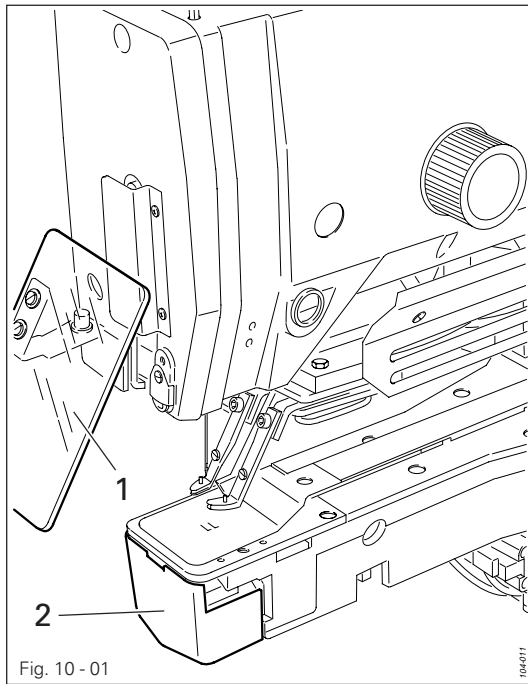


Fig. 10 - 01



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



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

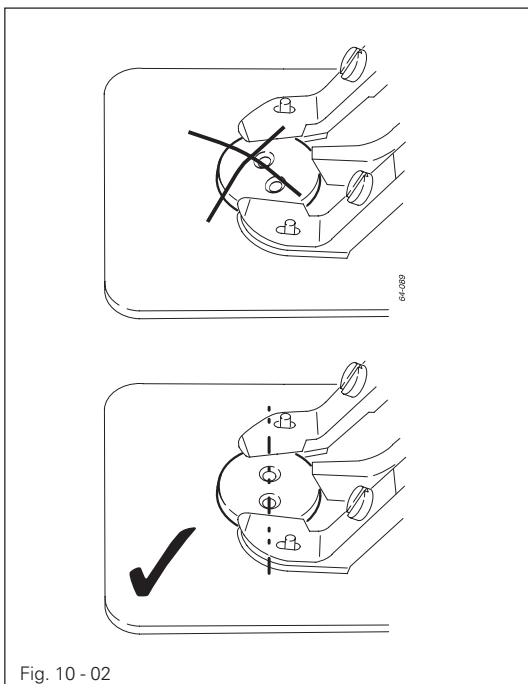


Fig. 10 - 02

- Insert the needle, see **Chapter 9.01 Inserting the needle.**
- Thread the needle, see **Chapter 9.02 Threading the needle thread.**
- Switch on the machine, see **Chapter 8.03 Switching the machine on/off.**
- Select the button type and corresponding program number, see **Chapter 9.04 Selecting the button type and program number.**
- Insert the button in the button clamp as shown in the illustration.
- Place the material under the button.
- Lower the button clamp with the pedal and start the sewing operation, see **Chapter 7.02 Pedal.**

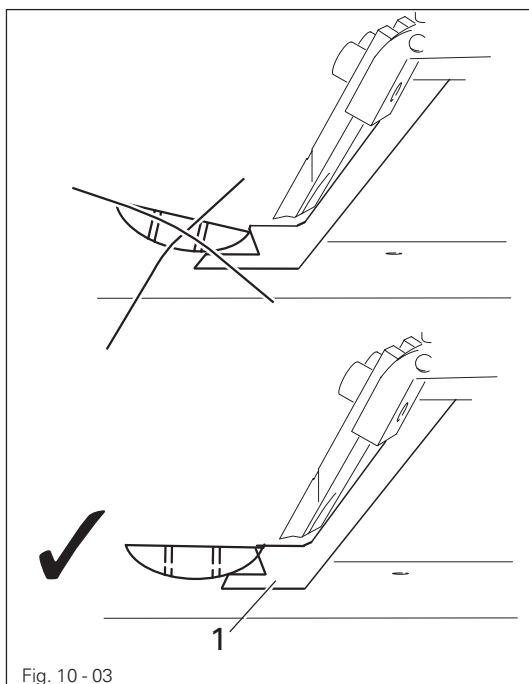


Fig. 10 - 03



Danger of needle breakage!
Make sure that the button is placed in a level position in the button clamp!

- If the button cannot be placed in a level position, the button guide **1** must be appropriately re-machined.

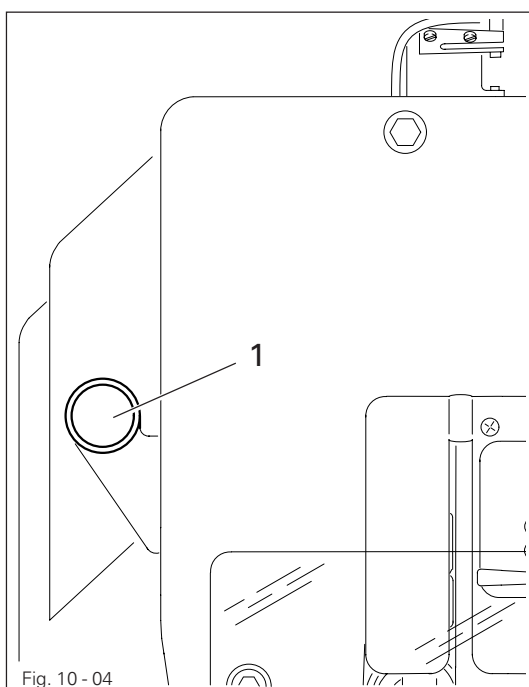


Fig. 10 - 04

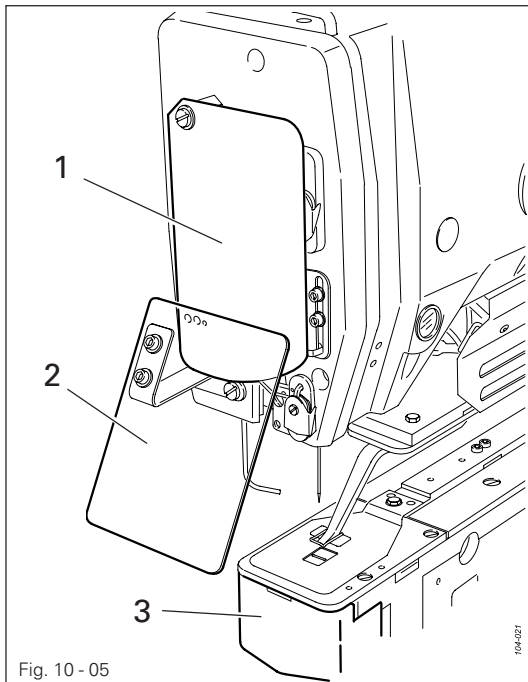
The machine is equipped with a missed stitch detection function, which helps to control the sewing process. If an error occurs, key **1** lights up. The machine start function is blocked.

Following work steps must be carried out:

- Remove the workpiece.
- Press key **1** (lamp goes off).
- Remove the button, place button and material in position again and restart the sewing process.



An error signal can be caused e.g. by an incorrectly positioned button or by an incorrectly set needle. If key **1** still lights up, the machine adjustment must be checked by qualified staff.



Only operate the machine with cover **1** closed!

Danger of injury due to the motion of the take-up lever!



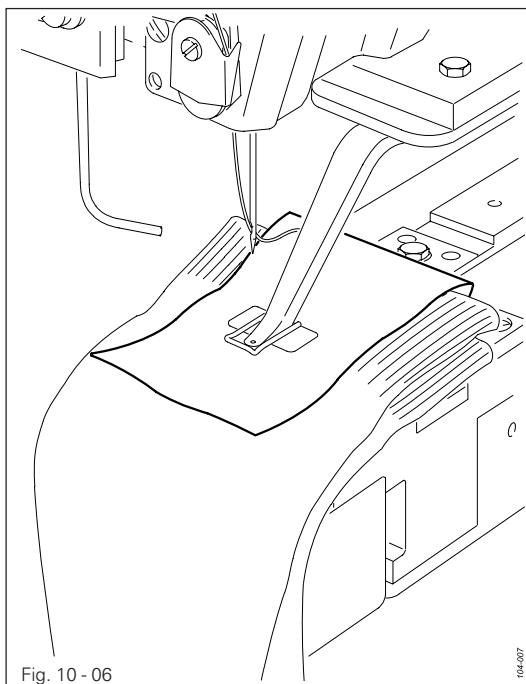
Do not operate the machine without eye shield **2**!

Danger of injury from flying needle or button fragments!



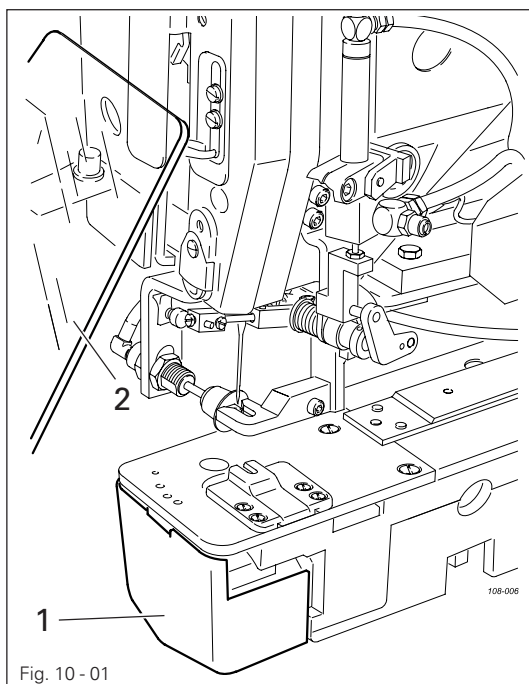
Only operate the machine with cover **3** closed!

Danger of injury from rotating hook!



- Insert the needle, see **Chapter 9.01 Inserting the needle.**
- Thread the needle, see **Chapter 9.02 Threading the needle thread.**
- Switch on the machine, see **Chapter 8.03 Switching the machine on/off.**
- Select the button type (three-hole button) and the corresponding program number, see **Chapter 9.04 Selecting the button type and program number.**
- Place the material under the work clamp as shown in the opposite illustration.
- Lower the work clamp with the pedal and start the sewing operation, see **Chapter 7.02 Pedal.**

10.03 Sewing with sub-class -5/..



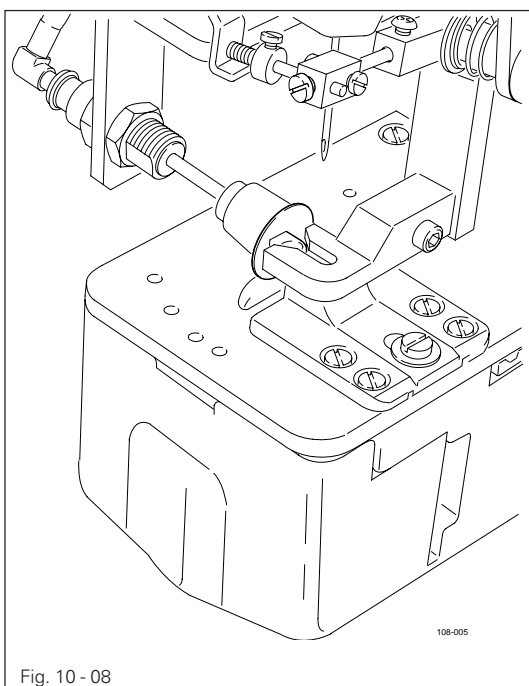
Only operate the machine with cover 1 closed!

Danger of injury due to the motion of the take-up lever!



Do not operate the machine without eye shield 2!

Danger of injury from flying needle or button fragments!



- Insert the needle, see **Chapter 9.01 Inserting the needle.**
- Thread the needle, see **Chapter 9.02 Threading the needle thread.**
- Switch on the machine, see **Chapter 8.03 Switching the machine on/off.**
- Select the button type (self-shank button) and the corresponding program number, see **Chapter 9.04 Selecting the button type and program number.**
- Place the self-shank button in the button holder and fix it in position with the button holding cylinder, see **Chapter 7.02 Pedal.**
- Place the material under the button holder.
- Lower the button holder with the pedal and start the sewing operation, see **Chapter 7.02 Pedal.**

11 Input

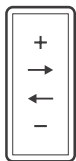
11.01 Seam pattern input on machines from subclasses -1/.. and -5/..

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

11.01.01 Seam pattern input for two-hole and self-shank buttons



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



- Select the desired button type and program number, see **Chapter 9.04 Selecting the button type and program number.**

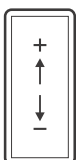
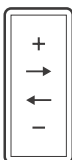


- Activate the seam pattern input function.
The first parameter (P01) with the corresponding values is shown on the display.

P01 0 0

Parameter input two-hole button

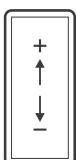
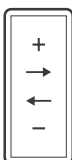
	P01	First needle entry position
	P02	Second needle entry position
	P07	Total number of stitches (1-99).
	P10	End knotting function: I = off, II = on In self-shank button programs the end knotting function must be switched off!



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



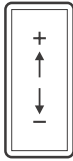
- Confirm input with **Enter.**
Machine moves automatically to input of the next parameter.



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



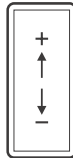
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



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



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



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



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



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



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

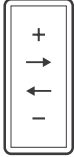


To achieve the best results, cutting should take place at the left needle entry position. This is achieved through the number of stitches and the location of the needle entry positions.

11.01.02 Seam pattern input for three-hole buttons



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



- Select the desired button type and program number, see **Chapter 9.04 Selecting the button type and program number.**



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

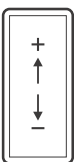
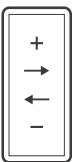
P01 0 0

Parameter input three-hole button

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

Seam pattern for the three-hole button

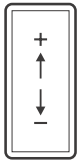
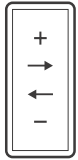
	Seam cycle (P09 = 1)
	Point (P09 = 2)
	Basting (P09 = 3)



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



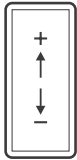
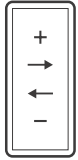
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



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



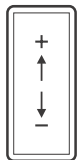
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



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



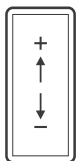
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



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



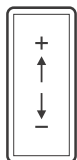
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



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



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



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



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



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



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

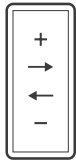


To achieve the best results, cutting should take place at the left needle entry position. This is achieved through the number of stitches and the location of the needle entry positions.

11.01.03 Seam pattern input for four-hole buttons



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



- Select the desired button type and program number, see **Chapter 9.04 Selecting the button type and program number.**



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

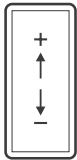
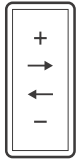
P01 0 0

Parameter input four-hole button

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

Seam pattern examples for the four-hole button

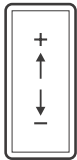
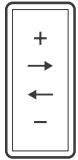
	Seam patterns with intermediate cutting (P06 = II), without seam cycle (P09 = 1).
	Seam patterns without intermediate cutting (P06 = I), and without seam cycle (P09 = 1).
	Seam patterns with seam cycle (P09 = 2), the intermediate cutting function is switched off automatically.
	Seam pattern "arrow" (P09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



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



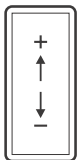
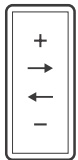
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



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



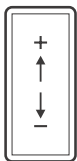
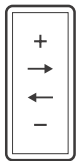
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



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



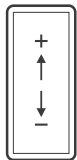
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



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



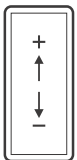
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



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



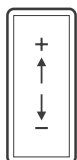
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



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



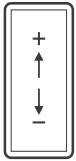
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



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



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



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



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



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



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

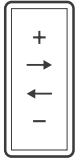


To achieve the best results, cutting should take place at the left needle entry position. This is achieved through the number of stitches and the location of the needle entry positions.

11.01.04 Seam pattern input for six-hole buttons



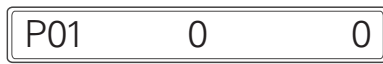
- Activate the sewing mode.
(The LED in the key must be on.)



- Select the desired button type and program number, see **Chapter 9.04 Selecting the button type and program number.**



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

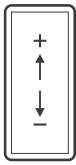
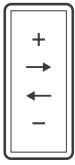


Parameter input six-hole button

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

Seam pattern examples for the six-hole buttons

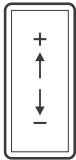
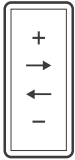
	Seam patterns with intermediate trimming (P08 = II), Stitch formation 1 (P09 = 1)
	Seam pattern without intermediate trimming (P08 = I), Stitch formation 1 (P09 = 1)
	Seam patterns with intermediate trimming (P08 = II), Stitch formation 2 (P09 = 2)



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



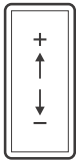
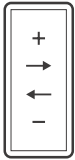
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



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



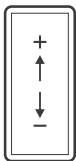
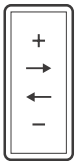
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



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



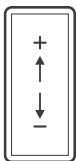
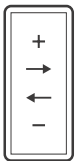
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



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



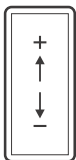
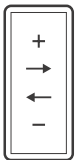
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



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



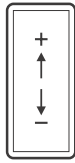
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



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



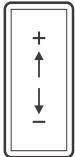
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



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



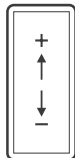
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



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



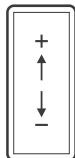
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



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



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



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



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

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



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



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



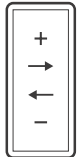
To achieve the best results, cutting should take place at the left needle entry position. This is achieved through the number of stitches and the location of the needle entry positions.

11.02 Seam pattern input on sub-class -4/.. machines

99 programs (basting seams) can be entered and stored under the button type, three-hole button. The basting seams can be entered when starting up or by entering certain seam parameters. The basting seam input is described below.



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



- Select button type and program number, see **Chapter 9.04 Selecting the button type and program number.**

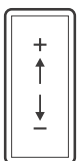


- Activate the seam pattern input function.
The first parameter (P01) with the corresponding values is shown on the display.

P01 0 0

Parameter input basting seam

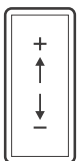
	P01	First needle entry position
	P02	Second needle entry position
	P03	Third needle entry position
	P07	Total number of stitches (2-99)
	P09	This parameter must be set at the value "3"!
	P10	End knotting function: I = off, II = on



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



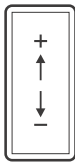
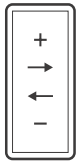
- Confirm input with **Enter.**
Machine moves automatically to input of the next parameter.



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



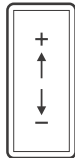
- Confirm input with **Enter.**
Machine moves automatically to input of the next parameter.



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



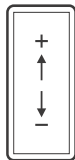
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



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



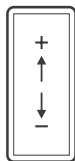
- Confirm input with **Enter**.
Machine moves automatically to input of the next parameter.



- With the corresponding plus/minus key select value "3" ("basting") for parameter "P09" (seam pattern)



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



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



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



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



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



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

11.03 Sequence input

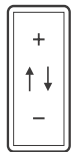
In one sequence up to 99 seam patterns can be stored in any order. When working with the sequence (sequence mode) the seam patterns are processed one after the other in the order specified. After the last seam pattern in the sequence, the first seam pattern follows again. Below is an example of a sequence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

- Switch on the machine

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



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



113



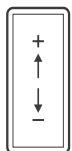
- Confirm the input with the **Enter key**.

113 SEQ1

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

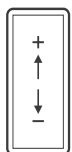


- Confirm the input with the **Enter key**.



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

1 5 1

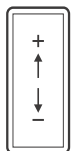


- If necessary, alter the stem length, e.g. to "2" using the corresponding **plus/minus key**.

1 5 2

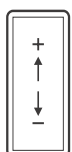


- If necessary, allocate the appropriate seam type, e.g. "sew-through button attachment".



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

2 5 2

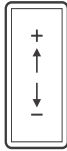


- Select the button type required and enter the seam pattern using the corresponding **plus/minus key**.

2 5 2



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



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

3 5 2



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

3 0 1



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



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

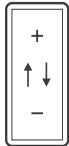
11.04 Parameter input

11.04.01 Selecting and changing parameters

- Switch on the machine.



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



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

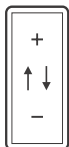
200



- Confirm with **Enter**.

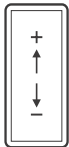
- Enter the code, see **Chapter 11.04.02 Entering/changing the access code**.

201 1



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

204 1



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

204 2



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



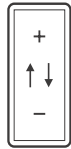
By pressing the **basic position** key the parameter input is interrupted, the old values are kept and the machine changes to the basic position of the parameter input mode.

11.04.02 Entering/changing the access code

- Switch on the machine.



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



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

800

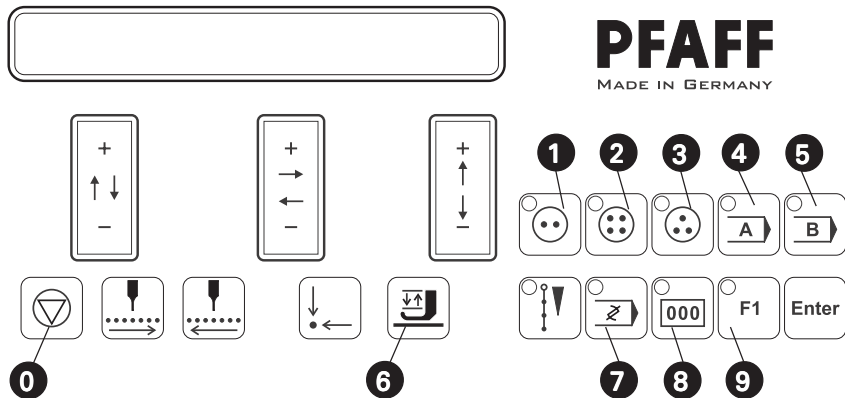


- Confirm with Enter.



- Enter the code

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

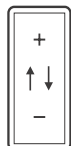


Code: 3307



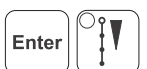
- Confirm with Enter.

801 0



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

819 3307



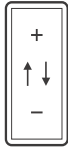
- Enter a new code number and save it by pressing Enter or by selecting the sewing mode.

11.04.03 Assigning access rights

- Switch on the machine.



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



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

800



- Confirm with **Enter**.

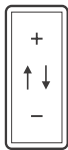
- Enter the code (e.g. : 3307).

Code: 3307



- Confirm with **Enter**.

801



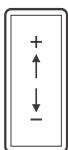
- Select the desired parameter "801 to 818" with the corresponding **plus/minus key**, see **Chapter 13.39 Parameter settings**.

818 1

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

0: Free access to parameter function.

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



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



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

12 Care and maintenance

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



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

12.01 Cleaning the machine

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

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

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



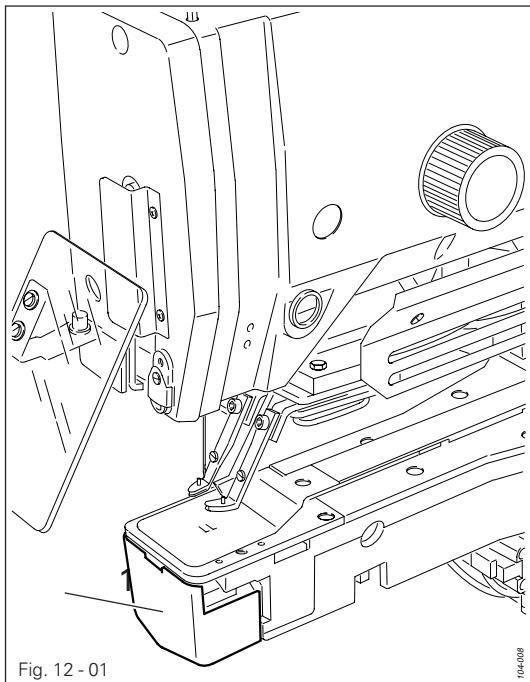
For all cleaning work the machine must be disconnected from the mains by switching off the on/off switch or by removing the mains plug!
Danger of injury if the machine suddenly starts up .



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

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

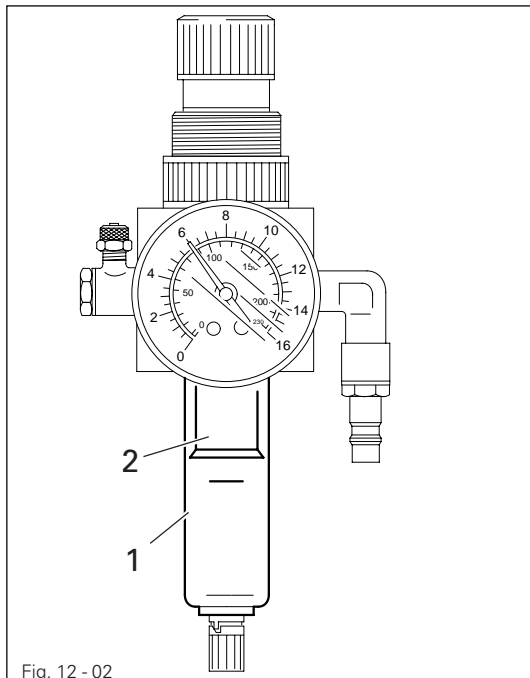
12.02 Cleaning the hook compartment



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

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

12.03 Cleaning the air filter/lubricator



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

Empty the water tank 1:

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

Clean filter 2:

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

12.04 Checking/adjusting the air pressure

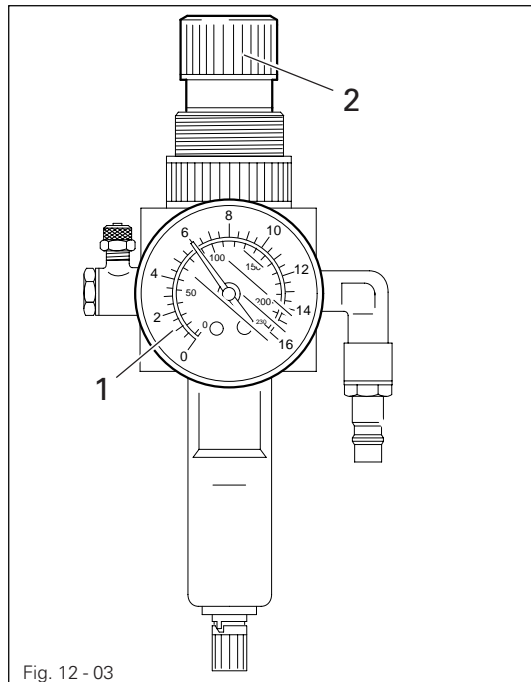


Fig. 12 - 03

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

12.05 Oil level for the needle drive unit

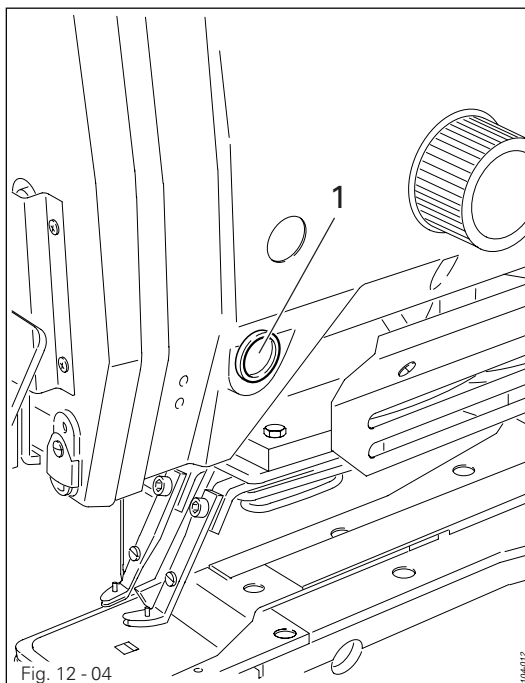


Fig. 12 - 04



Top up oil once a month.

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

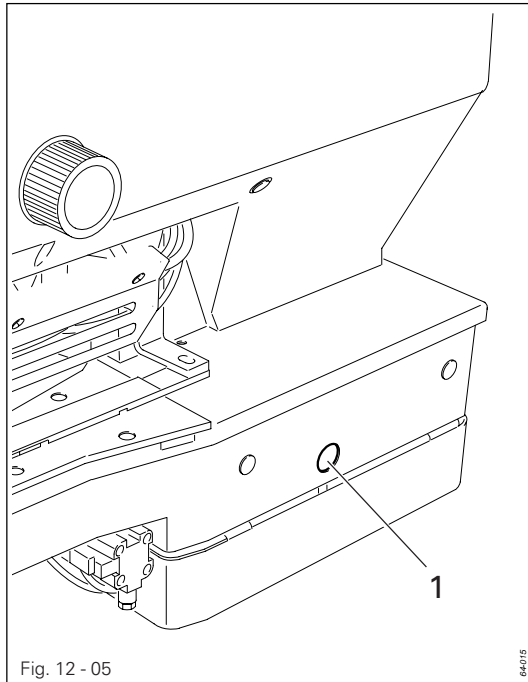


Only use oil with a mean viscosity of 31.0 mm²/s at 40° C and a density of 0.870 g/cm³ at 15° C.



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

12.06 Oil level for the gears

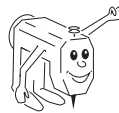


Top up oil once a month.

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



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



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

13 Adjustment



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

13.01 Notes on adjustment

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

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

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

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



For all the general settings in these adjustment instructions, illustrations of the subclass -1/. have been used, the relevant points of which can be transferred to subclass -4/ and -5/.. .

In the heading appropriate reference will be made to special settings, which are only valid for certain subclasses.

13.02 Tools, gauges and other accessories

- 1 set of screwdrivers with blade widths from 2 to 10 mm
- 1 set of wrenches with jaw widths from 7 to 14 mm
- 1 set of Allen keys from 1.5 to 6 mm
- 1 offset screwdriver, part no. 91-029 339-91
- 1 metal ruler, part no. 08-880 218-00
- 1 C-clamp, part no. 62-111 600-35/001
- 1 needle rise gauge 2.4 mm, part no. 61-111 600-01
- 1 adjustment gauge "hook centre", part no. 08-880 138-00
- 1 button gauge, part no. 61-111 635-66
- 1 locking pin "t.d.c. needle", part no. 61-111 635-92
- 1 locking pin "needle drive", part no. 13-030 272-05
- Needles, threads and test material

13.03 Abbreviations

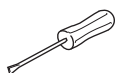
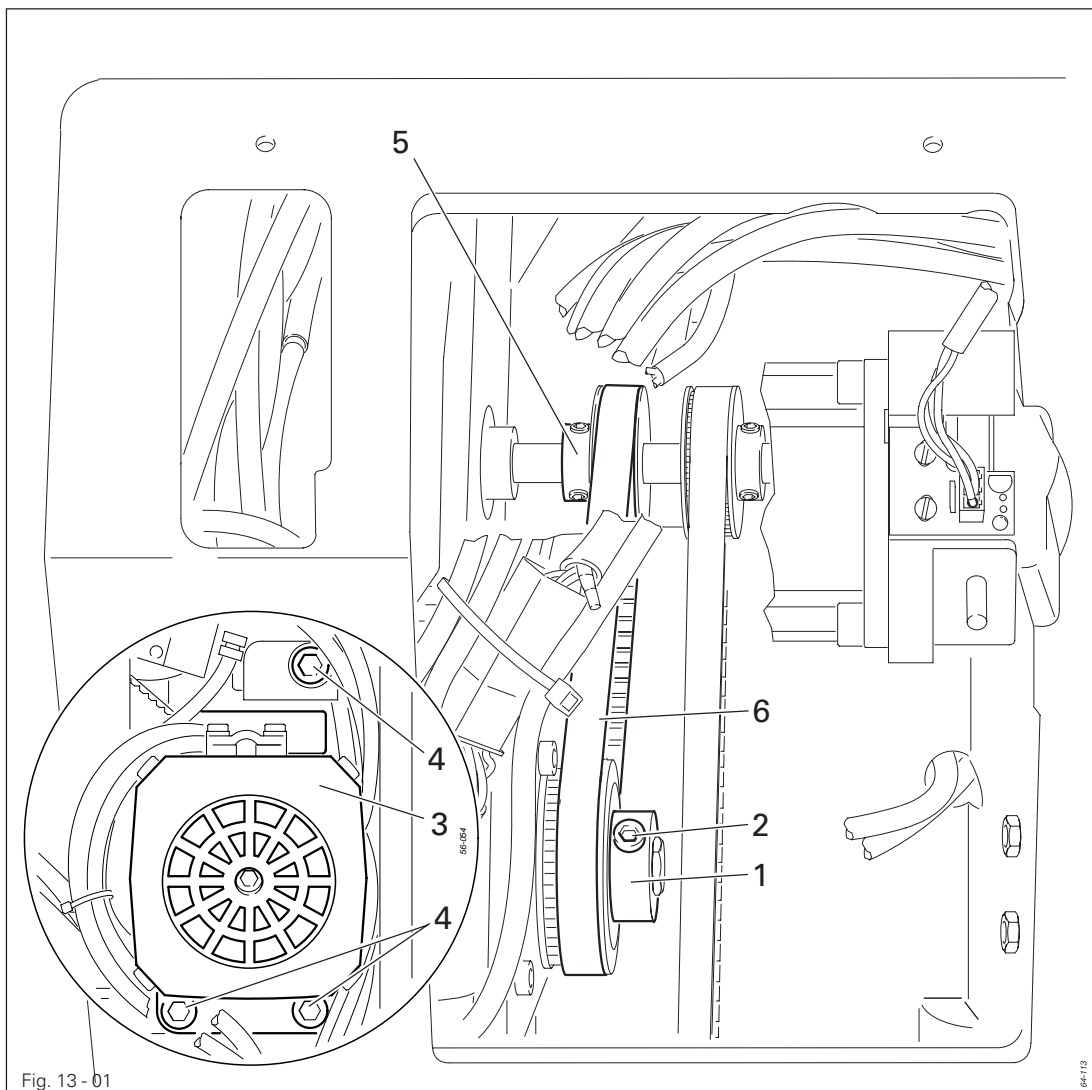
t.d.c. = top dead centre

b.d.c. = bottom dead centre

13.04 Toothed belts of the main drive

Requirement

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



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



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

13.05 Top needle bar position (reference position)

Requirement

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

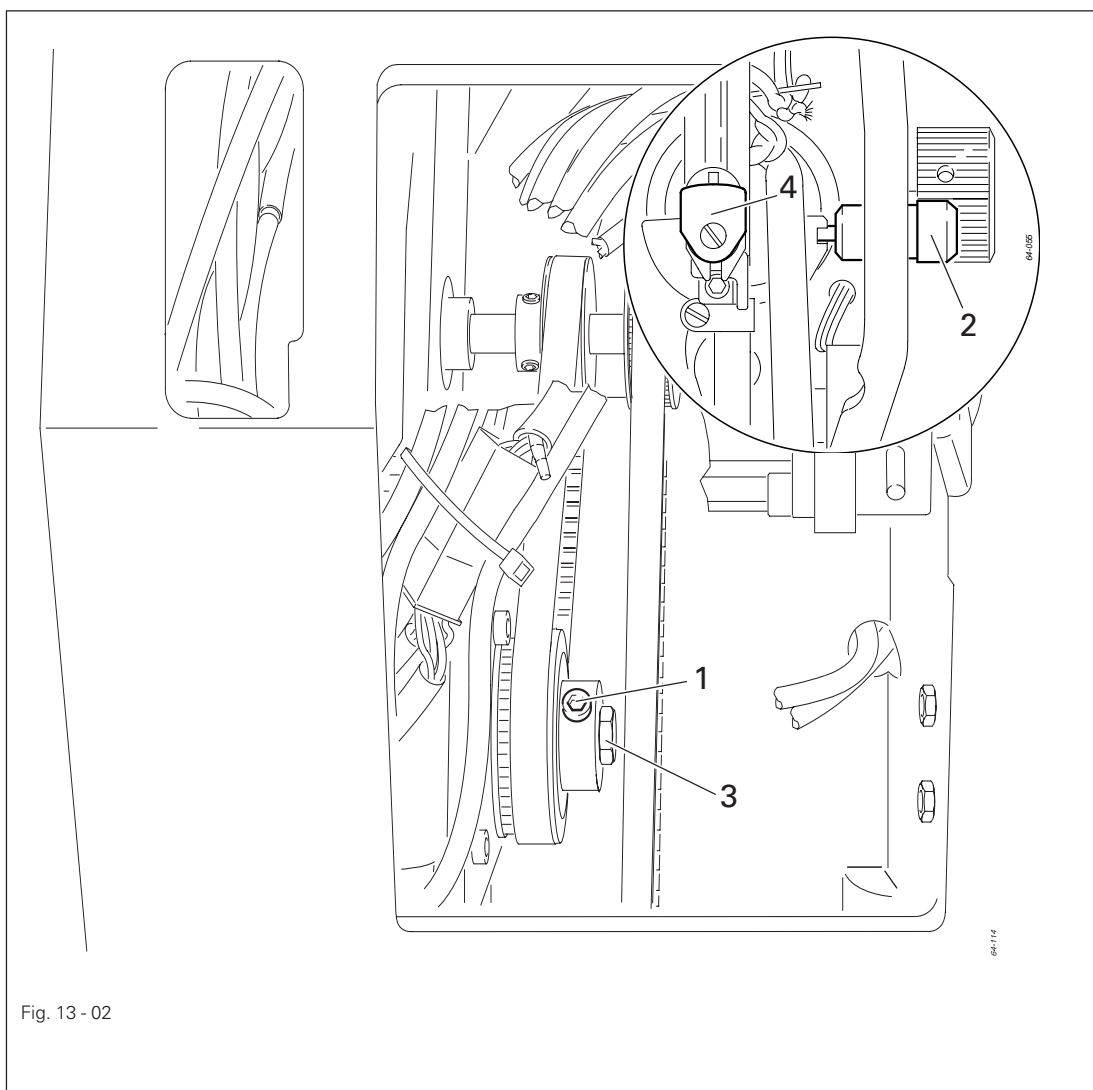
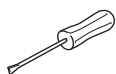


Fig. 13 - 02



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

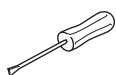
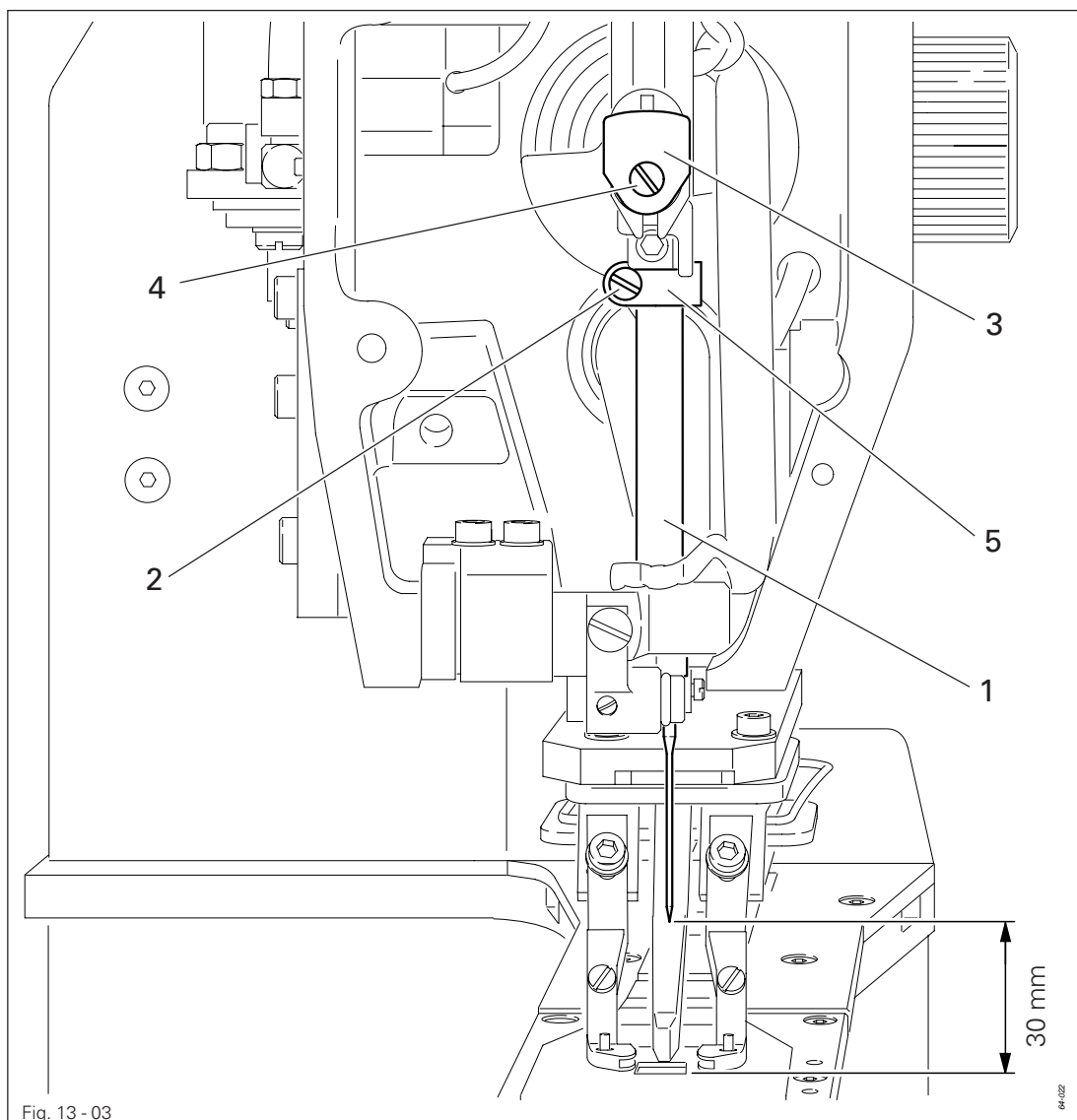


This setting can change again by ± 3 increments after checking.

13.06 Pre-adjusting the needle height

Requirement

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

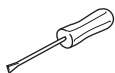
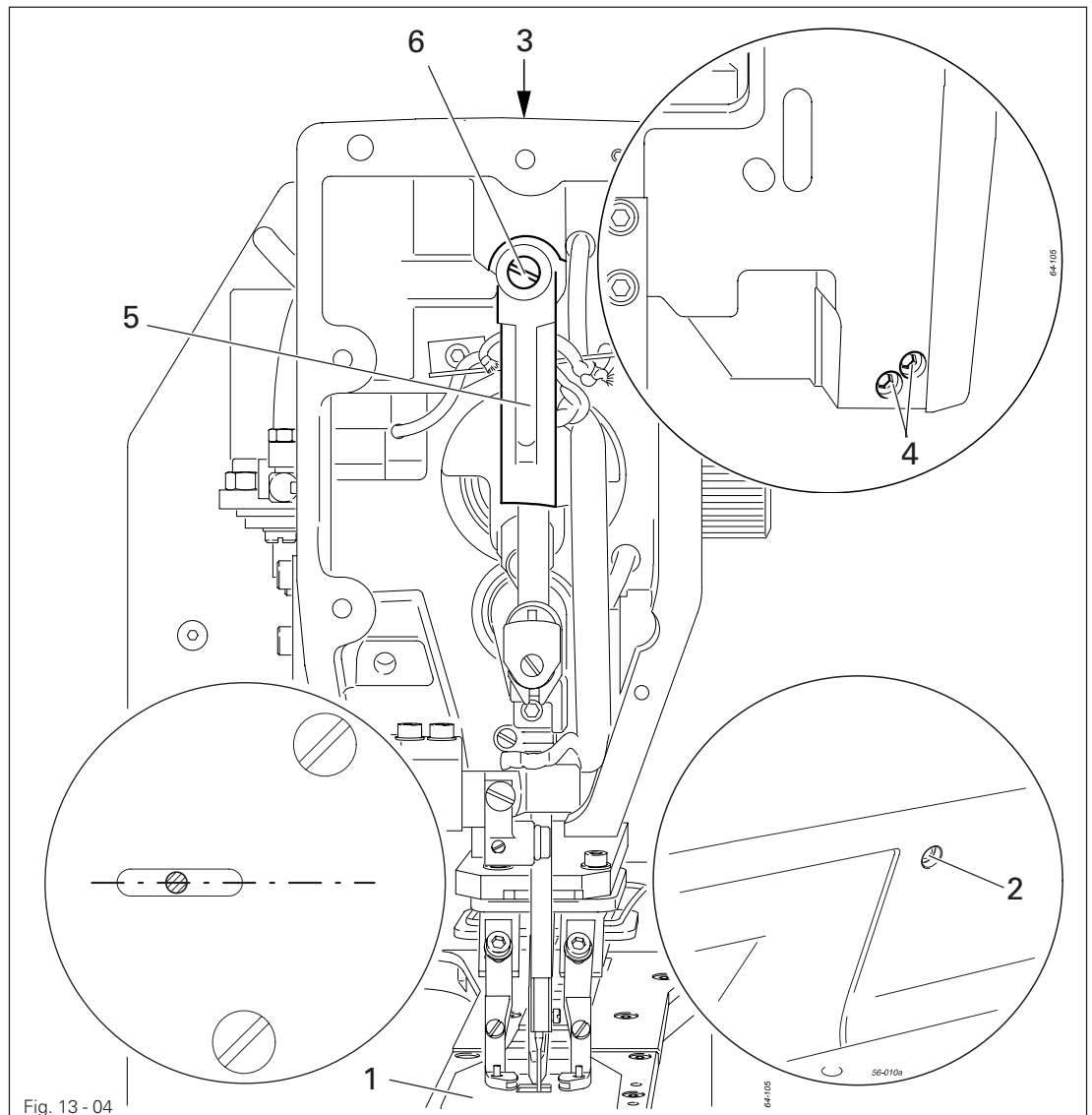


- Adjust needle bar **1** (screw **2**) and thread puller **3** (screw **4**) in accordance with the requirements.

13.07 Position of the needle to the needle hole

Requirement

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



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

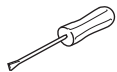
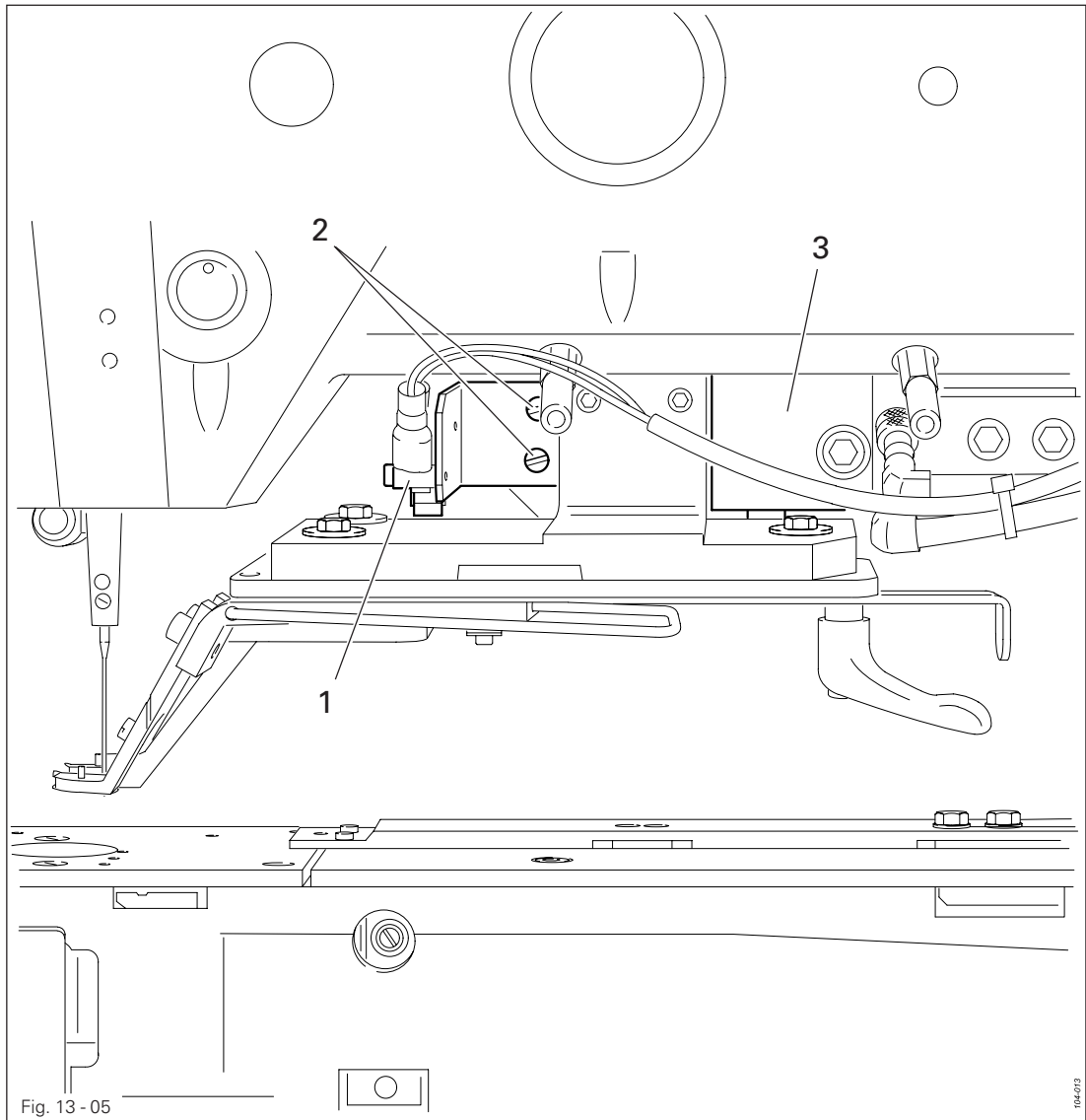


Screw 2 remains loosened for further adjustments.

13.08 Basic position "button clamp raised"

Requirement

When cylinder 3 is retracted completely, switch 1 should operate reliably.

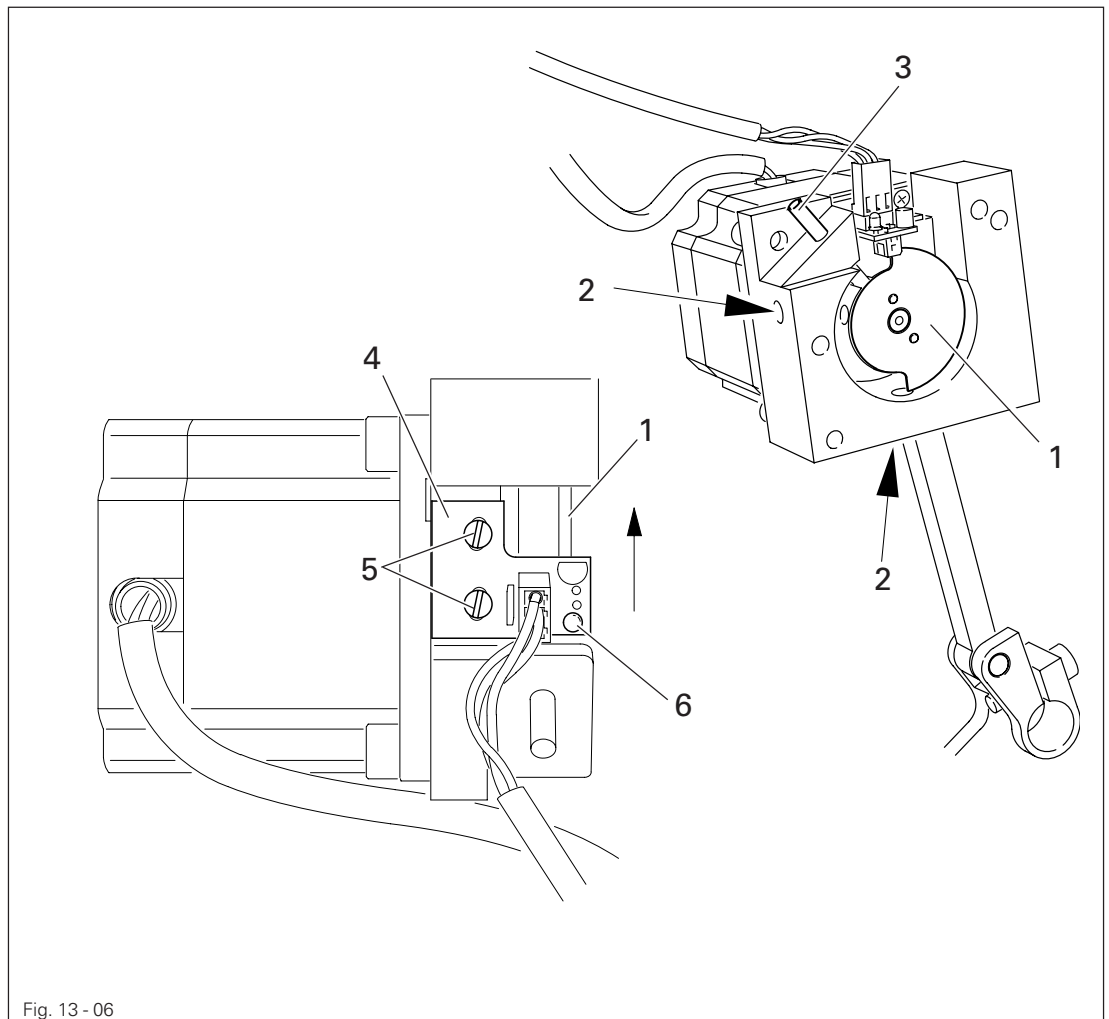


- Adjust switch 1 (screws 2) in accordance with the requirement.

13.09 Sensor board of the needle drive (in dismantled condition)

Requirement

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



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



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

- Completely remove the needle drive unit (plugs remain connected).
- Loosen screws 2.
- Lock eccentric 1 by placing the locking pin 3 (part no. 13-030 272-05) in the locking hole of the mounting bracket.

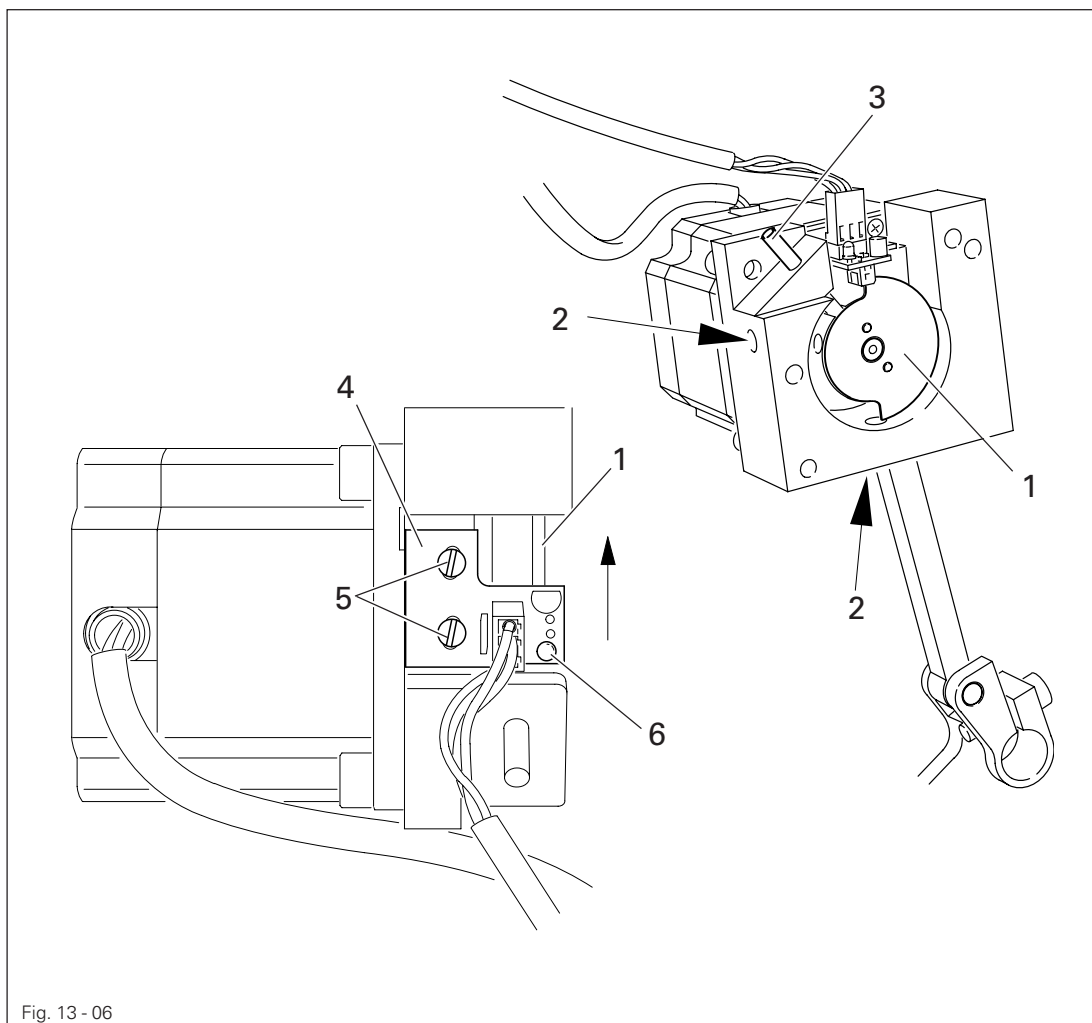
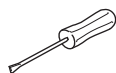


Fig. 13 - 06



- Switch on the machine and wait until the stepping motor has stopped running (ignore error message on the control panel).
- Set parameter "610" at "1" (see **Chapter 13.39.01 Selecting and changing parameters**).
- Making sure that it is touching the rear wall, move board 4 (screw 5) in the direction of the arrow, until LED 6 lights up and move it back until LED 6 has just extinguished.
- Move eccentric 1 in accordance with **requirement 2** and tighten screws 2.
- Switch off the machine.
- Remove locking pin 3.
- Switch on the machine and check the needle drive unit in accordance with **requirement 1**.
- Switch off the machine.
- Install needle drive unit and adjust it in accordance with **Chapter 13.10 Basic setting of the needle drive**.

13.10 Basic setting of the needle drive

Requirement

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

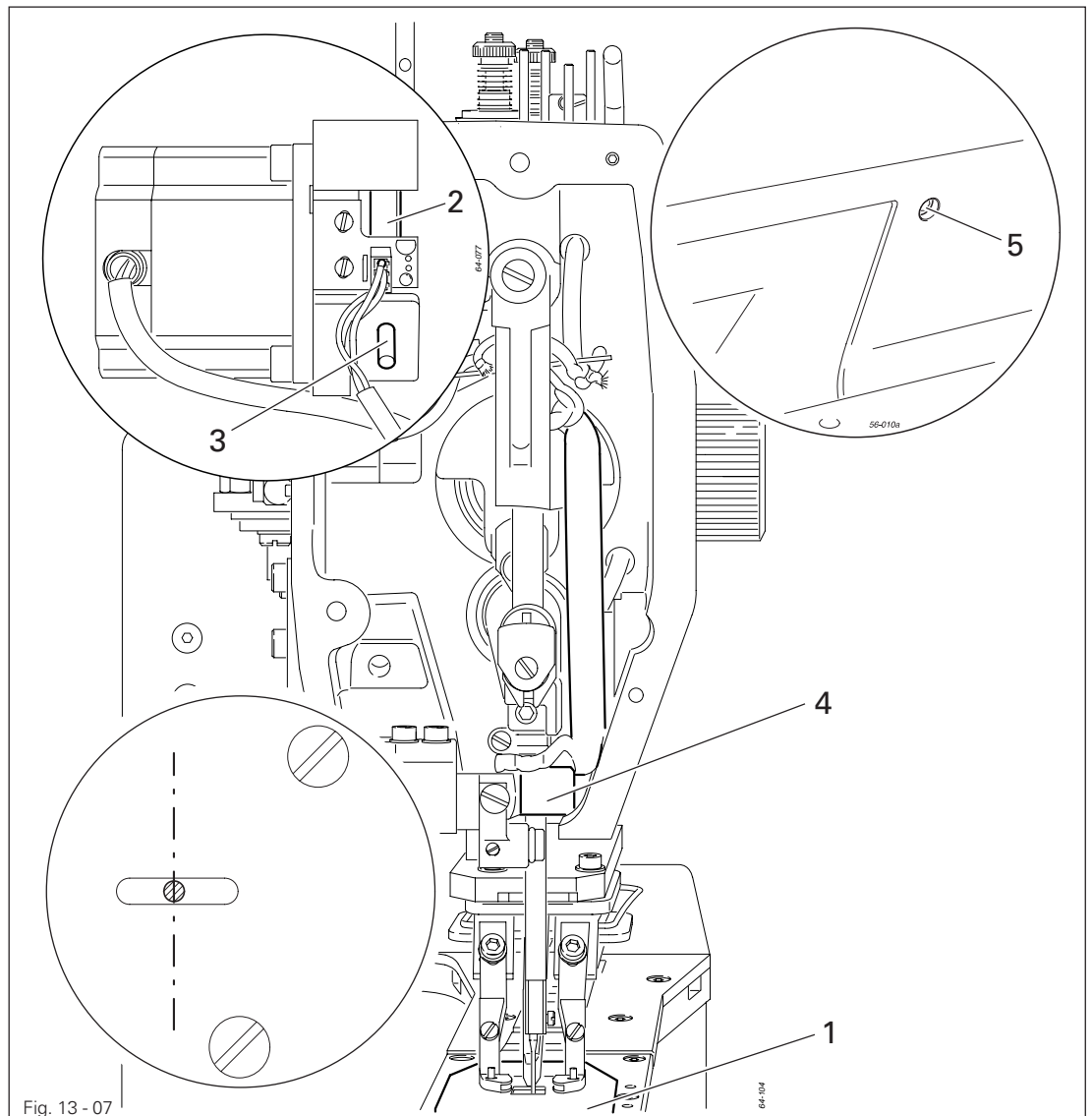
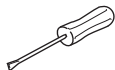


Fig. 13 - 07

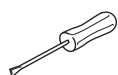
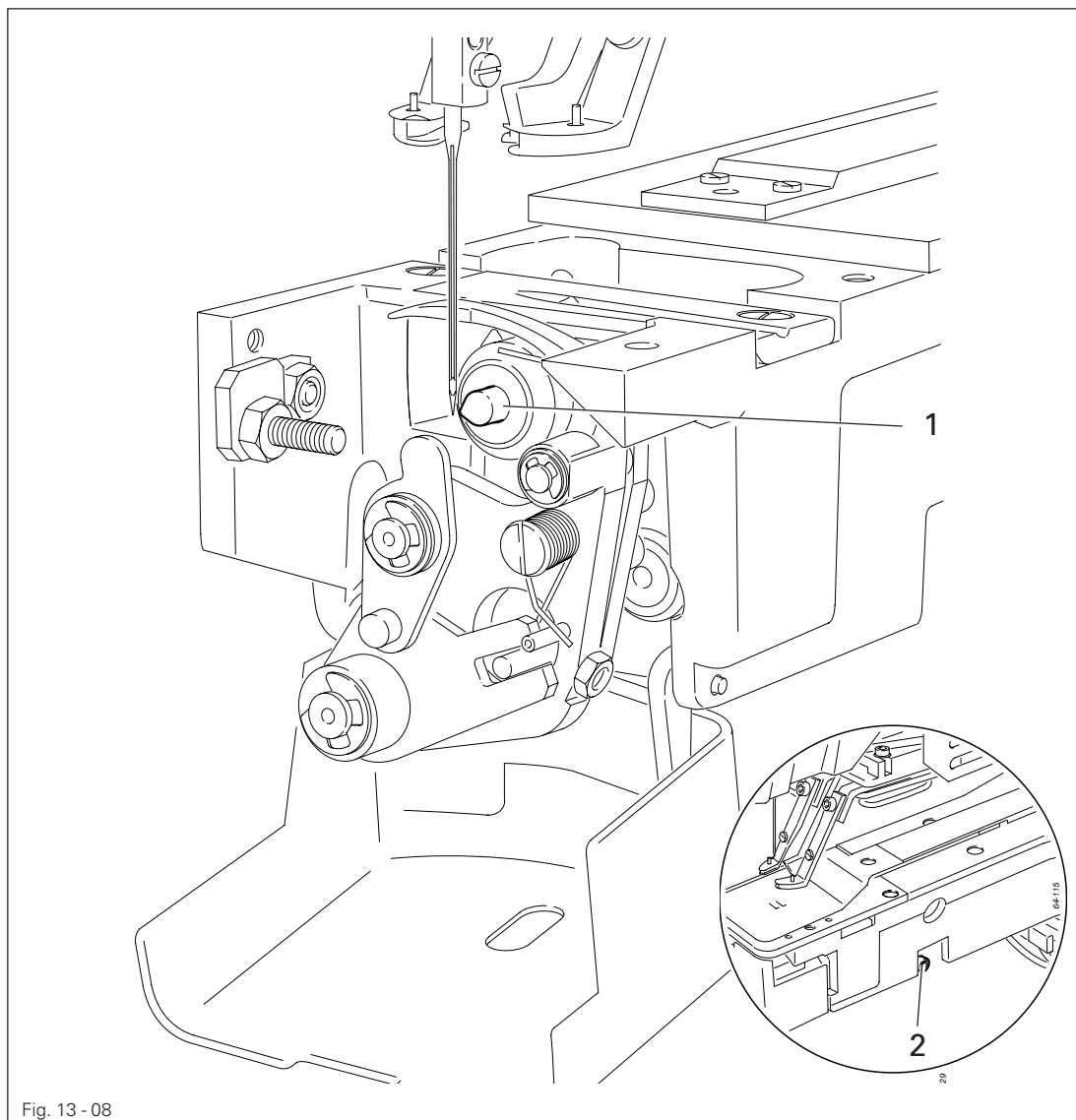


- Switch on the machine and set parameter "610" at "1".
- Unscrew cloth plate 1.
- Using the balance wheel, set the needle bar at its b.d.c. and lock eccentric 2 (locking pin 3, part no. 13-030 272-05).
- Adjust the needle bar frame 4 (screw 5) in accordance with the **requirement**.
- Remove locking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

13.11 Position of the hook shaft to the needle

Requirement

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



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



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

13.12 Adjusting the drag link mechanism

Requirement

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

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

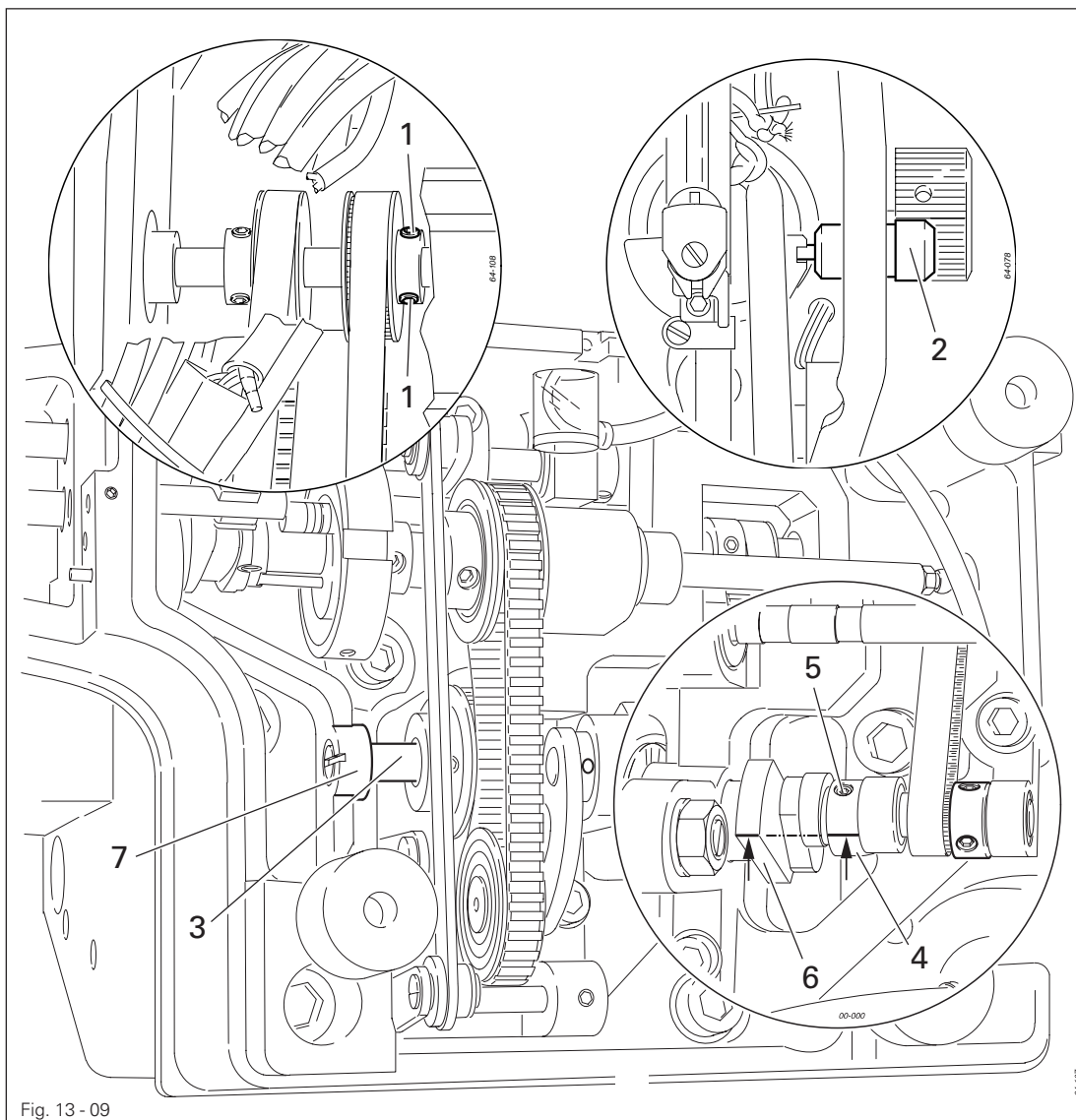
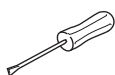


Fig. 13 - 09



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



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

13.13 Needle rise and hook clearance

Requirement

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

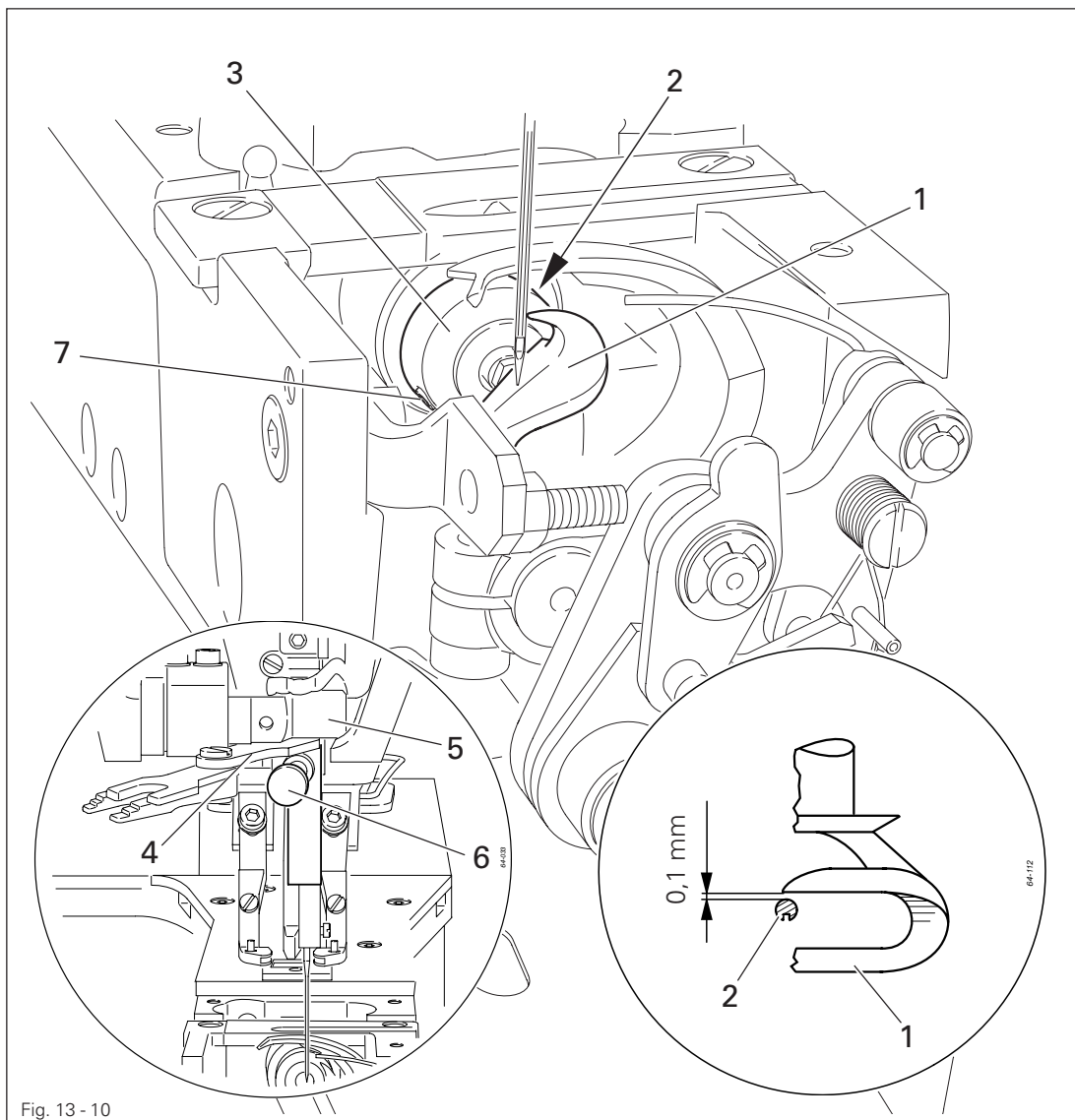
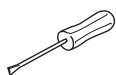


Fig. 13 - 10



- Dismount thread brake.
- Insert hook 1 so that screw 2 of collar 3 is on the surface of the hook shaft.
- Slightly tighten screw 2.
- Switch on the machine and set parameter "610" at "1".
- Turn the balance wheel in the direction of sewing until the needle bar is in its bottom stroke.
- Fit needle rise gauge 4 (2.4 mm) to needle bar frame 5 and fasten with C-clamp 6.
- Remove the needle rise gauge 4.
- Turn the balance wheel in the direction of sewing until C-clamp 6 is touching the needle bar bearing 5.
- Adjust hook 1 (screws 2 and 7) in accordance with the **requirement**.

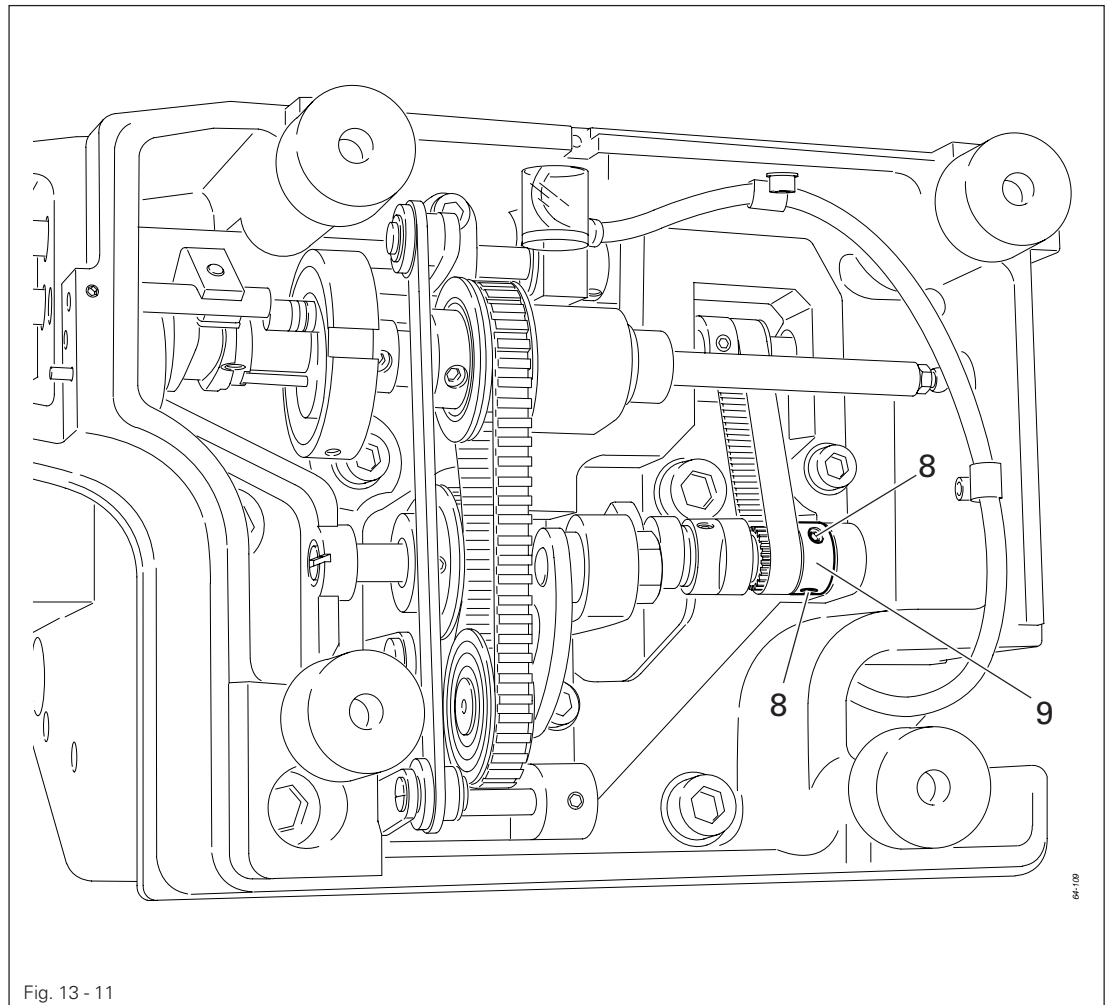
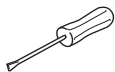


Fig. 13 - 11



- Remove C-clamp 6.
- Fit thread brake.



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

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

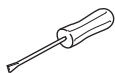
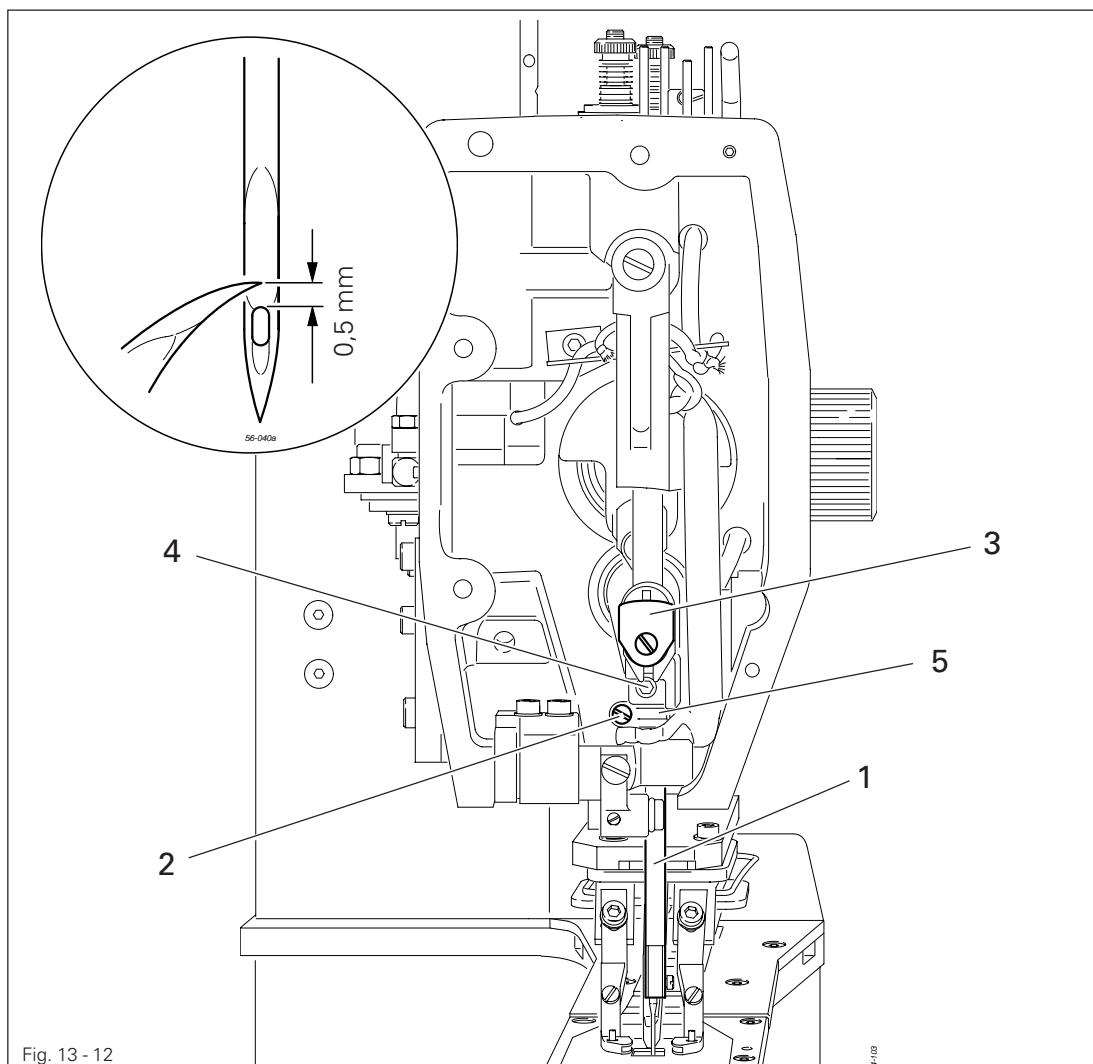


On the subclass -4/.. in certain circumstances it may be necessary to increase the hook point to needle clearance to **approx. 0.5 mm**.

13.14 Readjusting the needle height

Requirement

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



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



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

13.15 Adjusting the loop spreader

Requirement

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

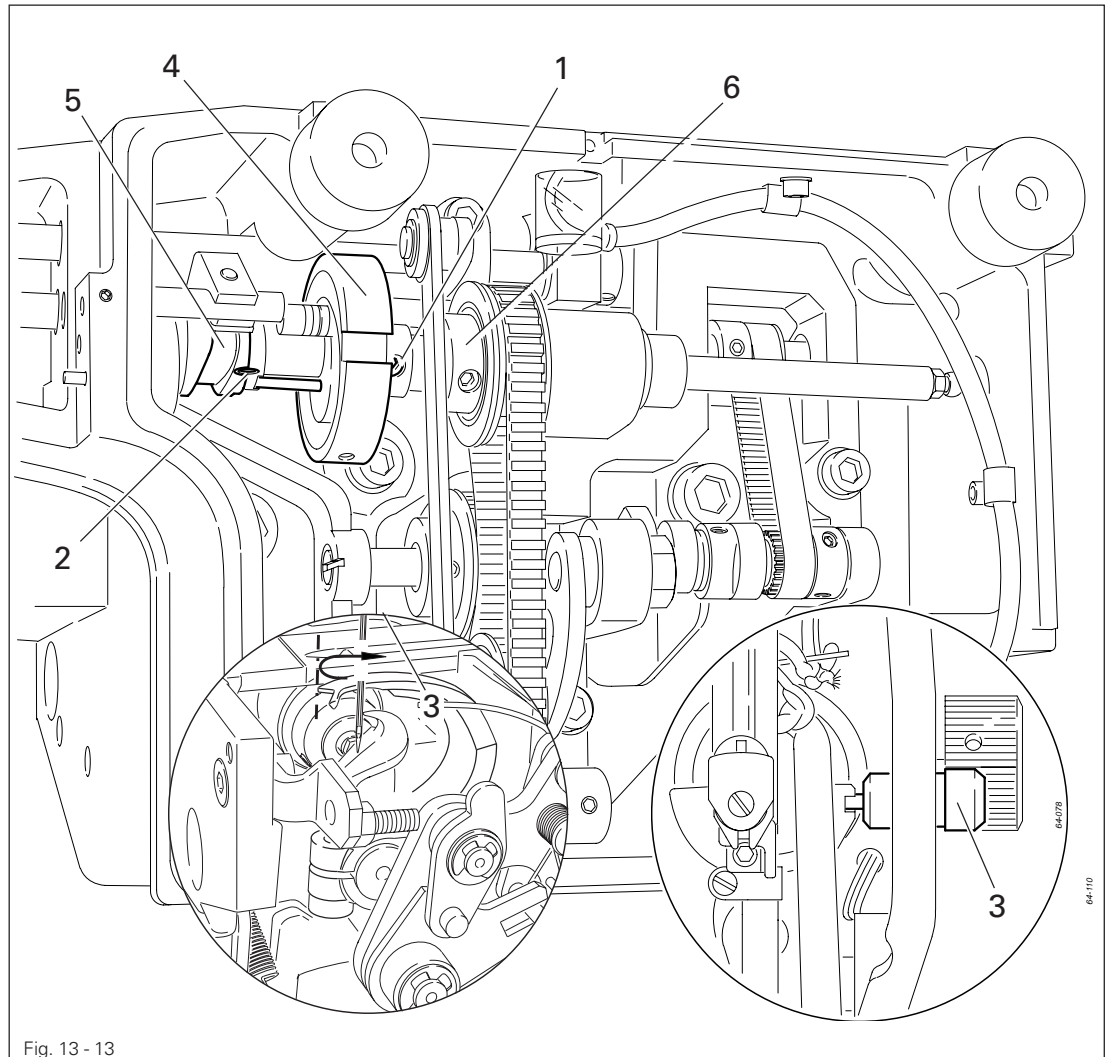
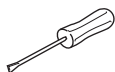


Fig. 13 - 13



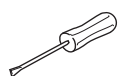
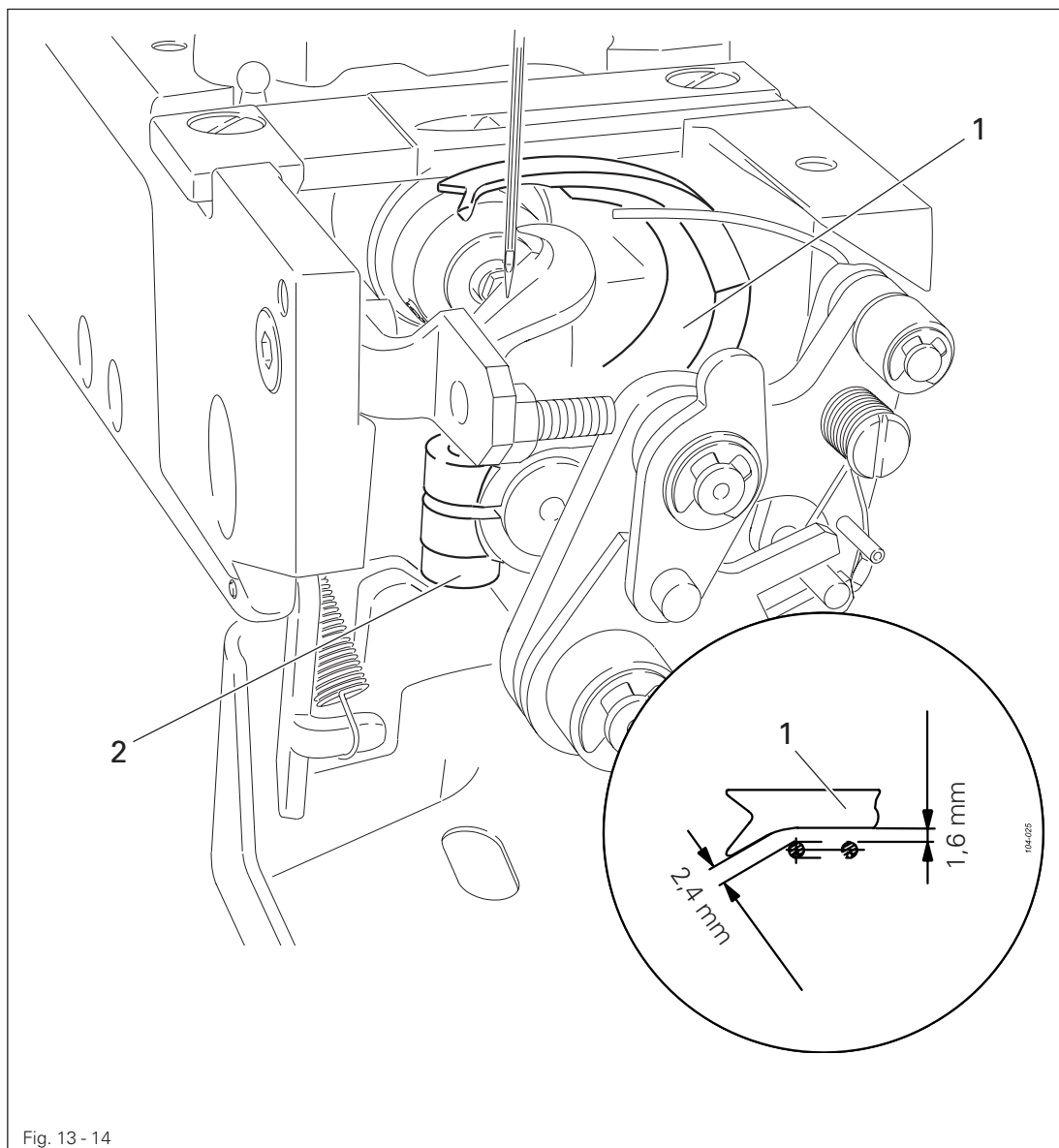
- Loosen screws 1 and 2.
- With the balance wheel set the needle bar at its t.d.c. and lock it with locking pin 3.
- Adjust control cam 4 together with control cam 5 in accordance with **requirement 1**.
- Move control cam 4 together with control cam 5 to touch drive wheel 6 and tighten screws 1 and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

13.16 Position of the loop spreader to the needle

Requirement

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

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



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

13.17 Adjusting the thread trimmer

Requirement

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

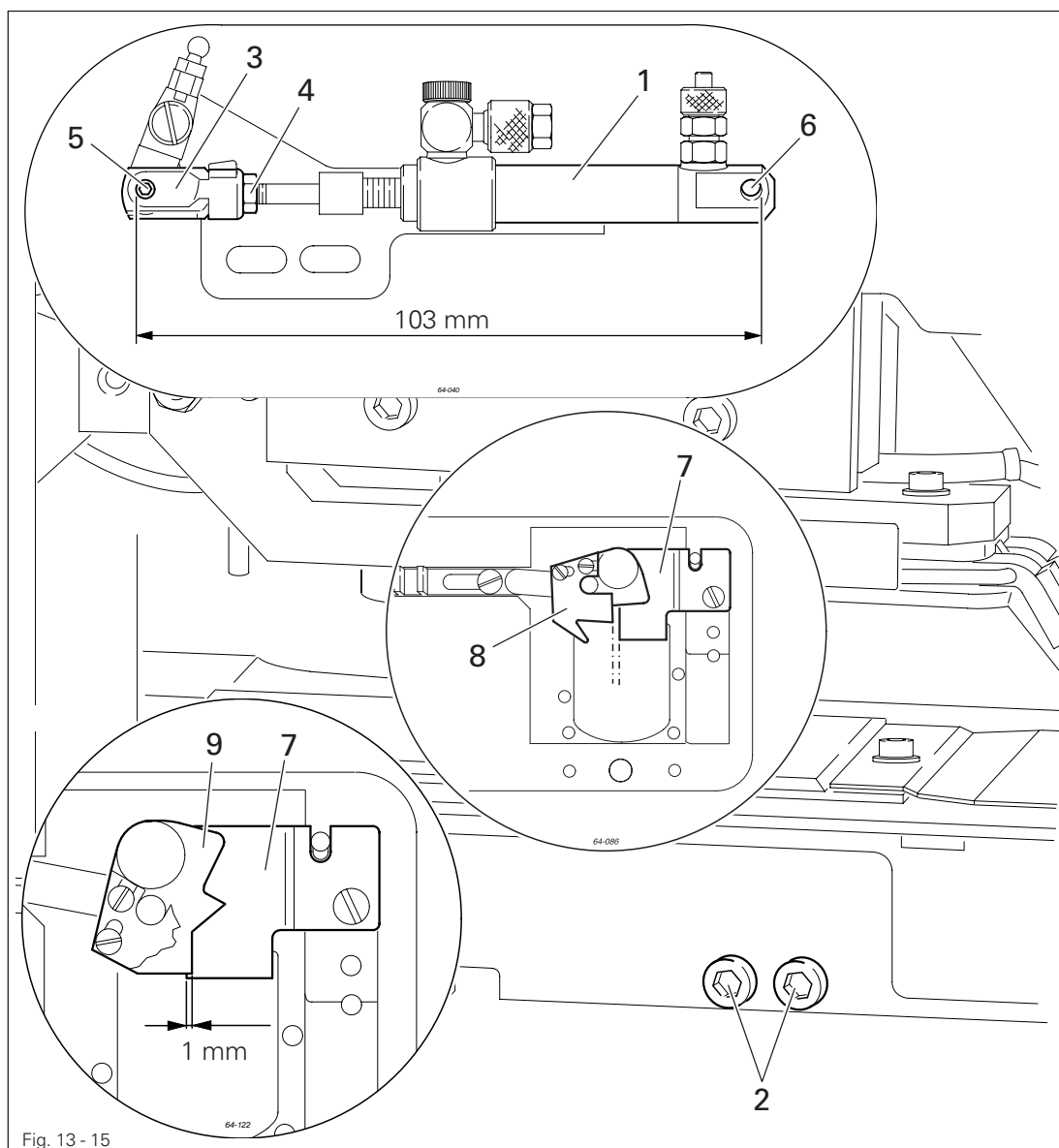
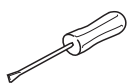


Fig. 13 - 15



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

13.18 Manual cutting test

Requirement

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

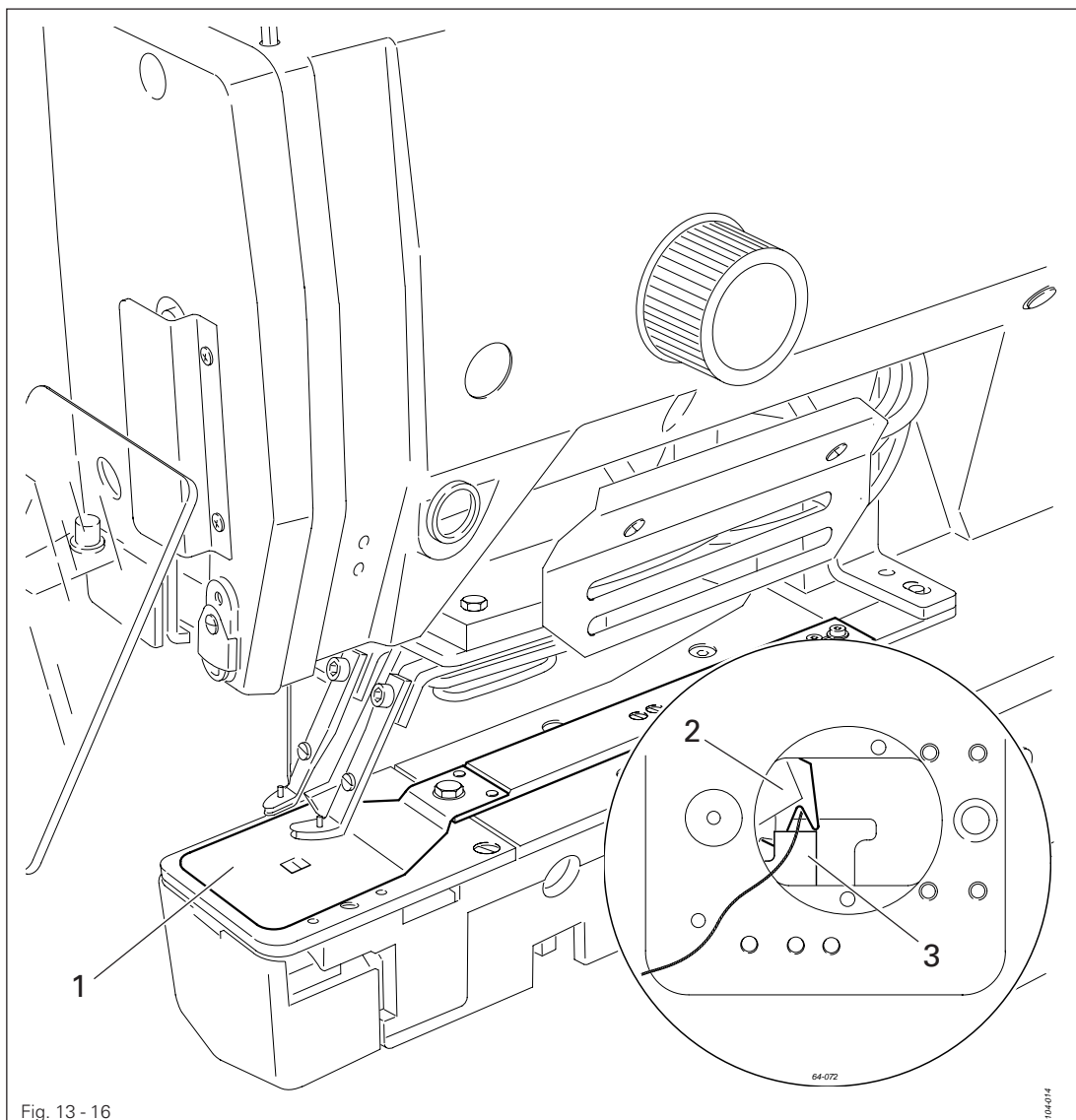
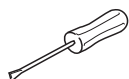


Fig. 13 - 16



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

13.19 Adjusting the thread catcher

Requirement

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

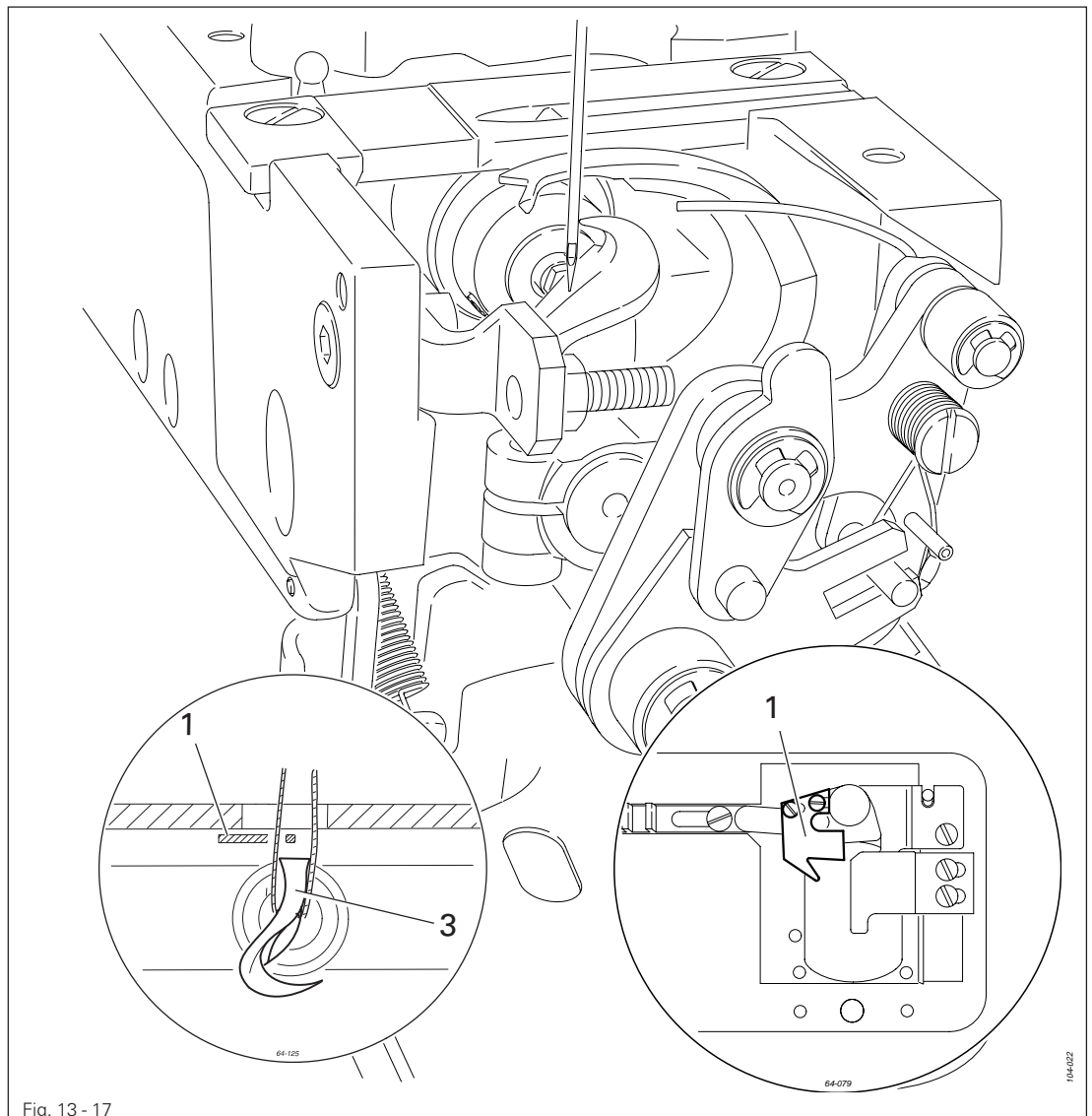
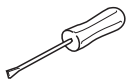


Fig. 13 - 17

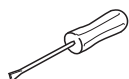
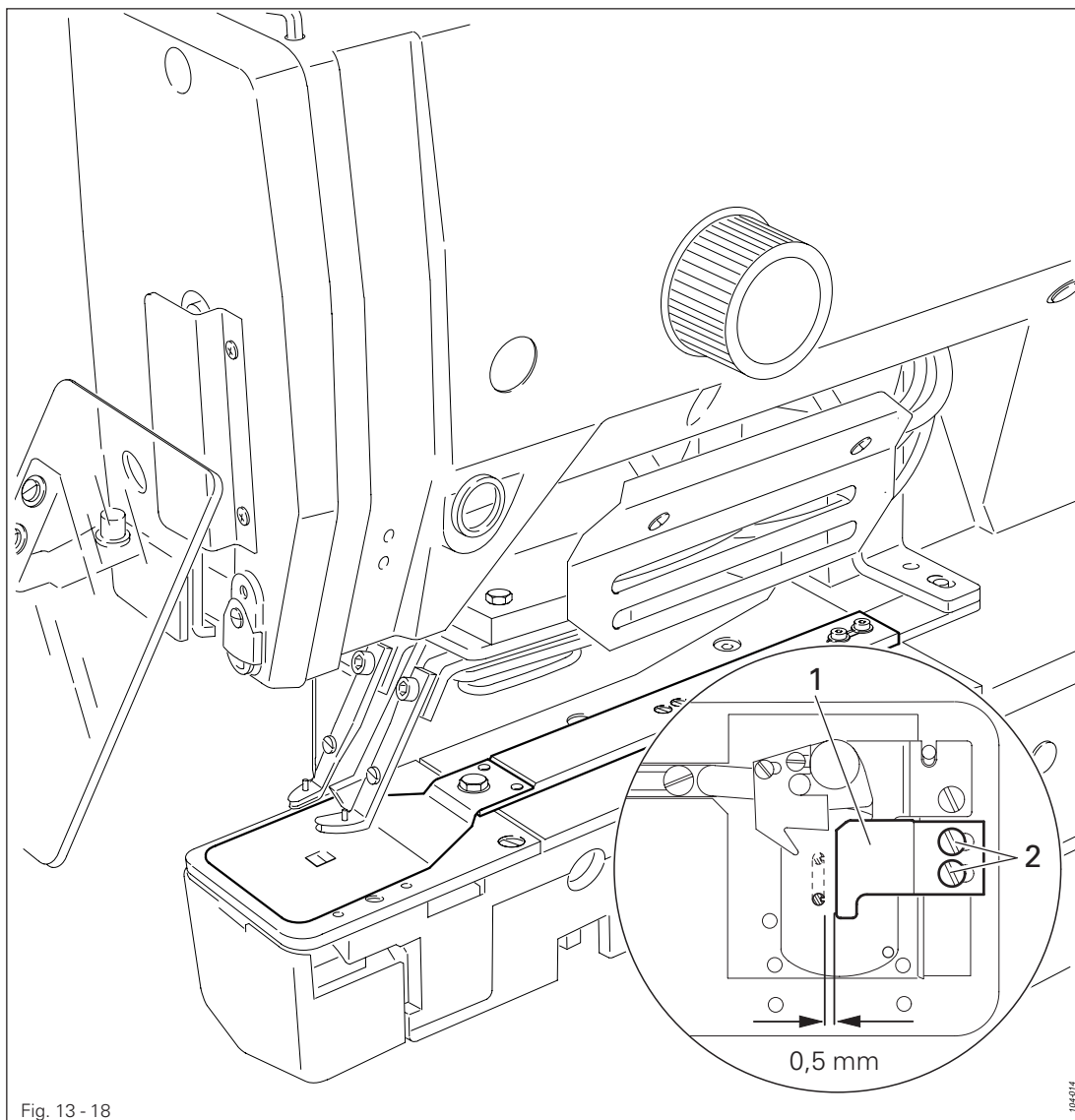


- Switch on the machine and set parameter "403" at the maximum value.
- Select the sewing mode and carry out a sewing operation.
- Switch the machine off in the cutting position at the on/off switch and disconnect it from the pneumatic power supply.
- Carry out the cutting operation manually, checking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

13.20 Adjusting the thread loop support

Requirement

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



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



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

13.21 Basic position of the button clamp drive

Requirement

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

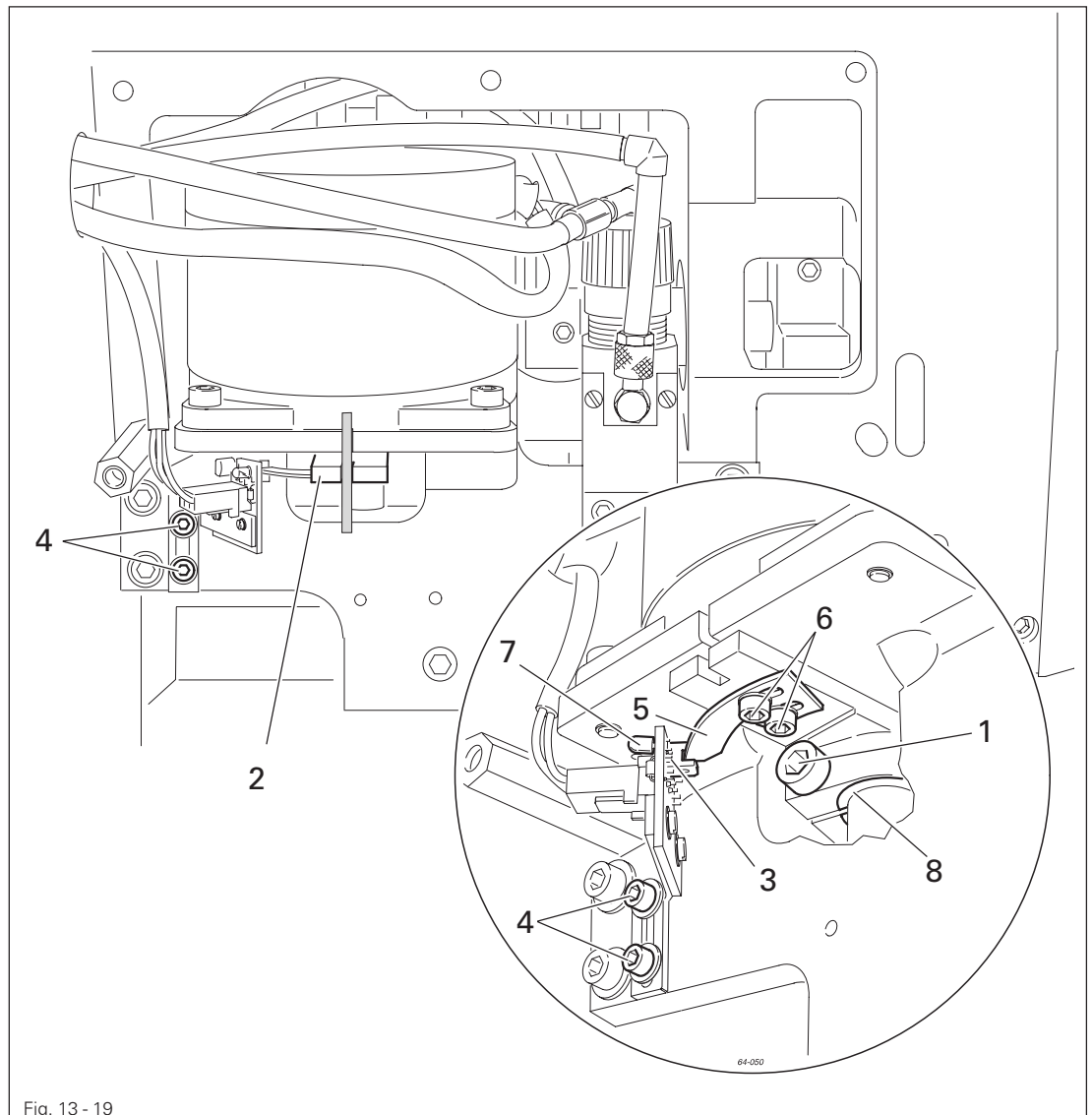
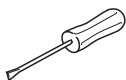


Fig. 13 - 19



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

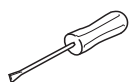
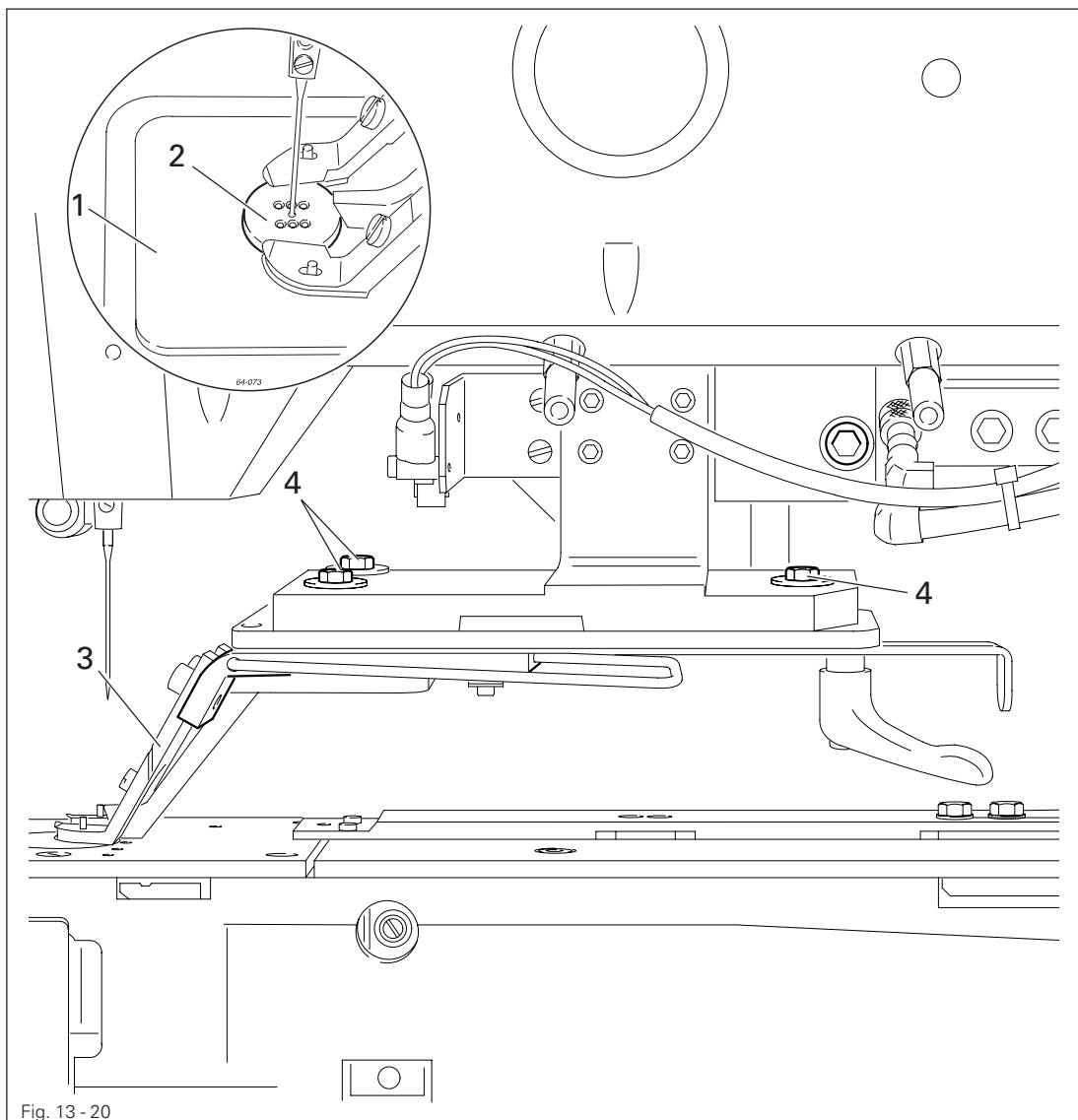


Spring clip 8 serves as an adjustment aid and should be touching lever 2. The open side of the spring clip 8 should be in alignment with the clamp groove of lever 2.

13.22 Aligning the button clamp (only on subclass -1/..)

Requirement

After parameter "610" has been selected (with value 4, 5, 6, 7 and 8), the needle should penetrate the centre of the respective hole of button gauge 2.

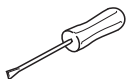
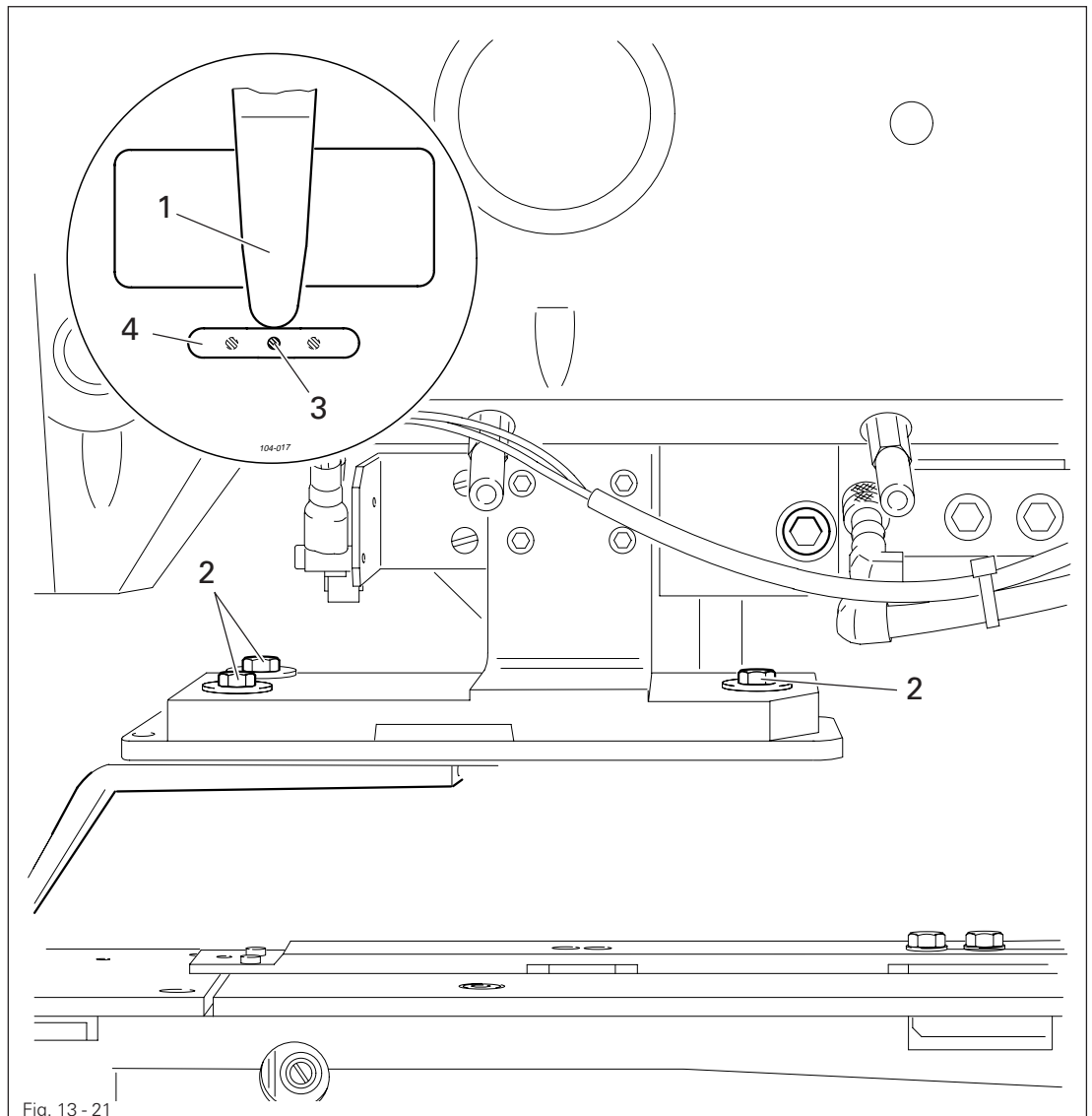


- Remove cloth plate 1.
- Switch on the machine and set parameter "610" at "4" (button gauge: centre).
- Insert and align button gauge 2 (part no. 61-111 635-66).
- Press down the button clamp by hand.
- Adjust button clamp 3 (screws 4) in accordance with the **requirement**.
- Check the remaining penetration positions of the needle in the respective hole of the button gauge 1 with the values "5", "6", "7" and "8" of parameter "610" in accordance with the **requirement**.
- Connect the machine to the pneumatic power supply and check the setting again.
- If necessary correct the position of the button clamp 3 (screws 4).
- Switch off the machine and disconnect it from the pneumatic power supply.
- Remove the button gauge and mount the cloth plate.

13.23 Aligning the work clamp (only on subclass -4/..)

Requirement

1. After selecting value "4" for parameter "610", work clamp 1 should be centred to the needle and be positioned at the front edge of the needle hole.
2. When value "6" is set, needle 3 should be positioned to the left of work clamp 1, and when value "7" is set, needle 3 should be positioned to the right of it.



- Switch on the machine and set parameter "610" at "4" (button gauge: centre).
- Push down work clamp 1 by hand.
- Adjust work clamp 1 (screws 2) in accordance with **requirement 1**.
- Check the other needle entry positions for values "6" and "7" of parameter "610" in accordance with **requirement 2**.
- Connect the machine to the pneumatic power supply and check the setting again.
- If necessary correct the position of work clamp 1 (screws 2).
- Switch off the machine and disconnect it from the pneumatic power supply.

13.24 Aligning the button holder and button support (only on sub-class -5/..)

Requirement

After parameter "610" has been set to value "4", the needle, at a distance of **5 mm** from the edge of the needle hole, should be centred to the needle hole of the button holder and button support.

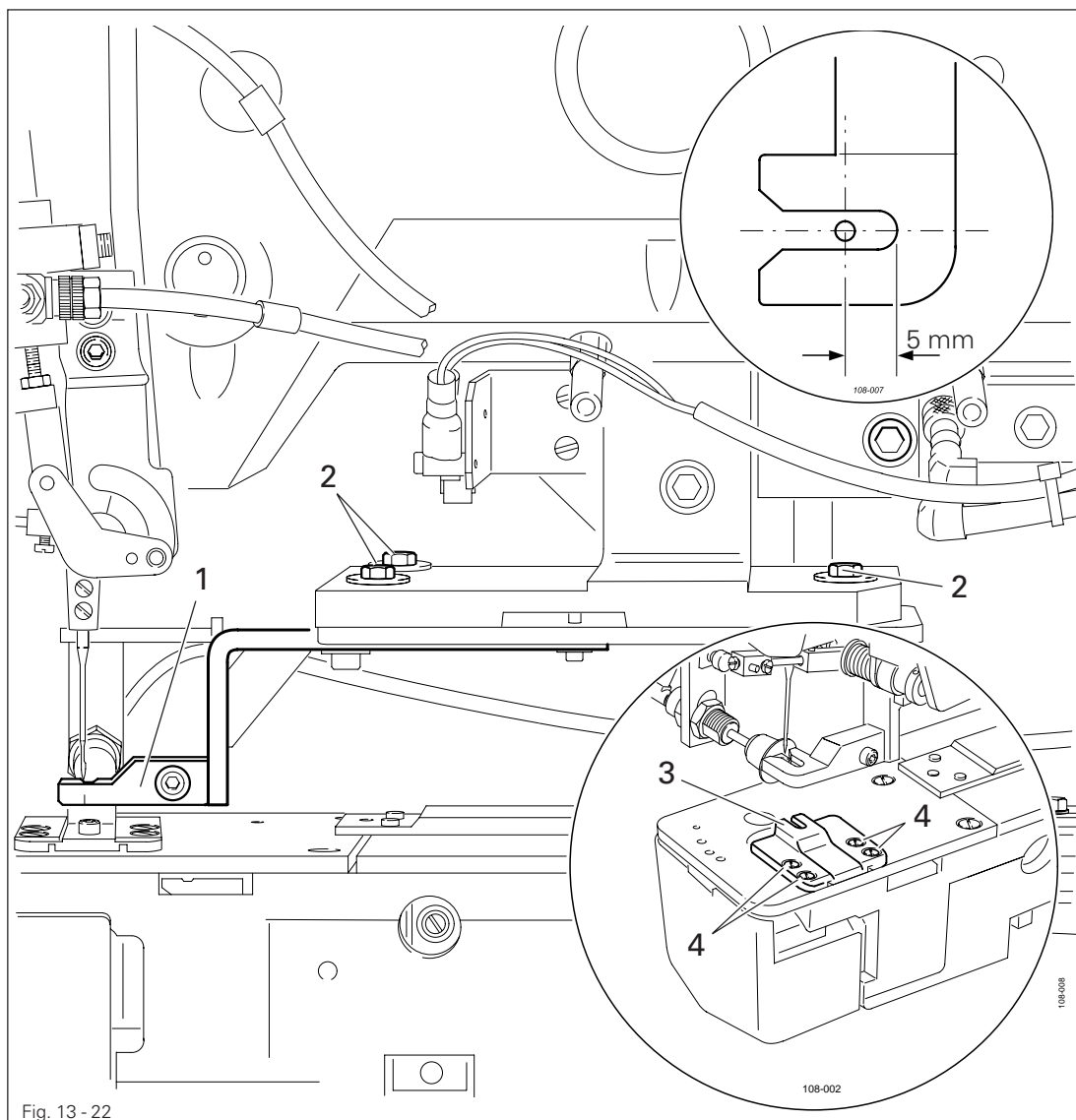
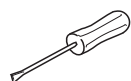


Fig. 13 - 22



- Switch on the machine and set parameter "610" at "4" (button gauge: centre).
- Adjust button holder 1 (screws 2) and button support 3 (screw 4) in accordance with the requirement.
- Connect the machine to the pneumatic power supply and check the setting again.
- If necessary, correct the position of button holder 1 (screws 2) and button support 3 (screw 4).
- Switch off the machine and disconnect it from the pneumatic power supply.

13.25 Adjusting the clamp pressure (only on subclass -1/..)

Requirement

When the button clamp is lowered, the clamp jaws 2 should be parallel to each other and touching the cloth plate.

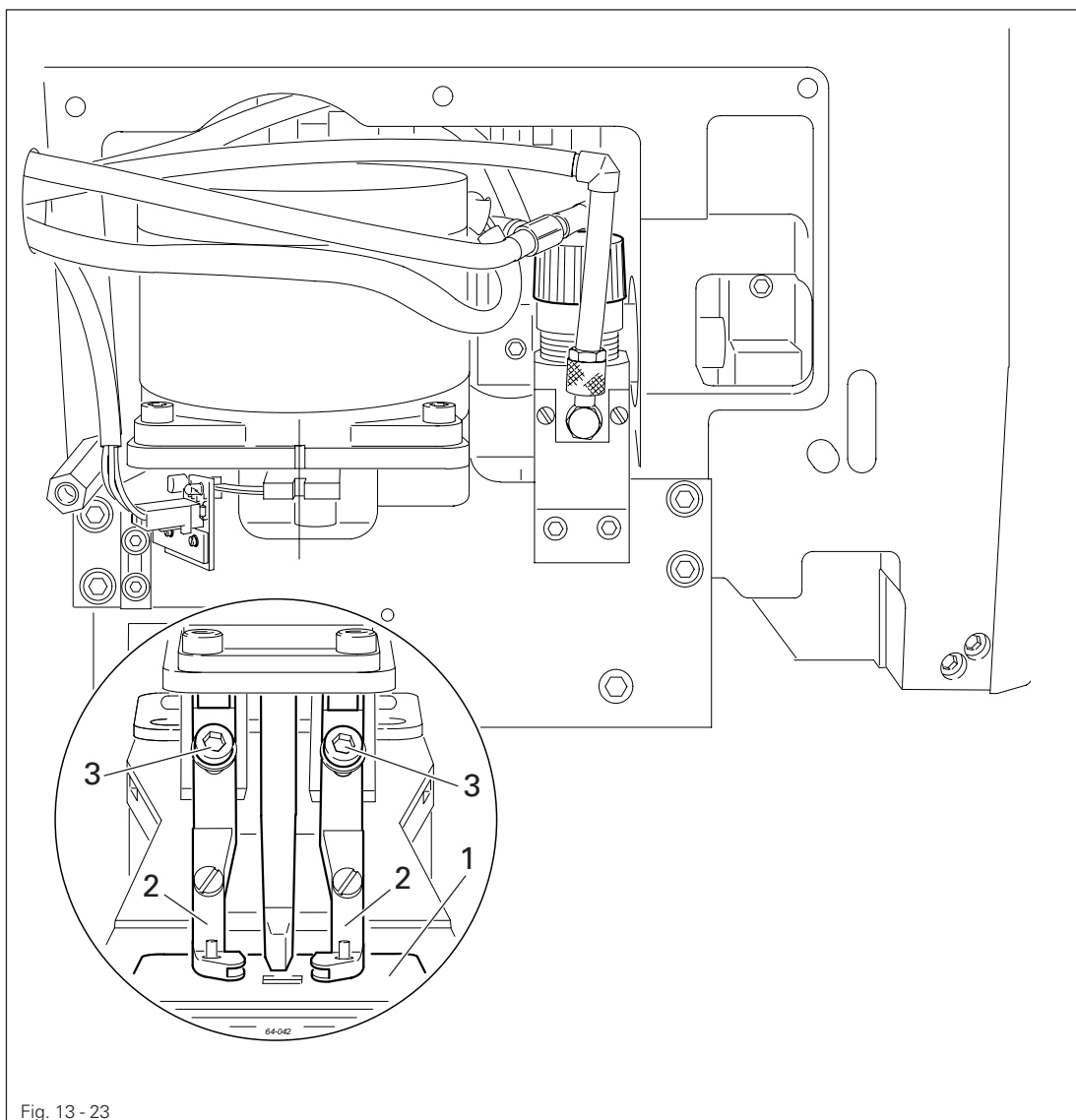
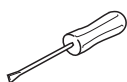


Fig. 13 - 23



- Remove cloth plate 1.
- Connect the machine to the pneumatic power supply.
- Switch on the machine and lower the button clamp.
- Align clamp jaws 2 (screws 3) in accordance with the **requirement**.
- Switch off the machine and disconnect it from the pneumatic power supply.

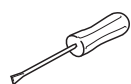
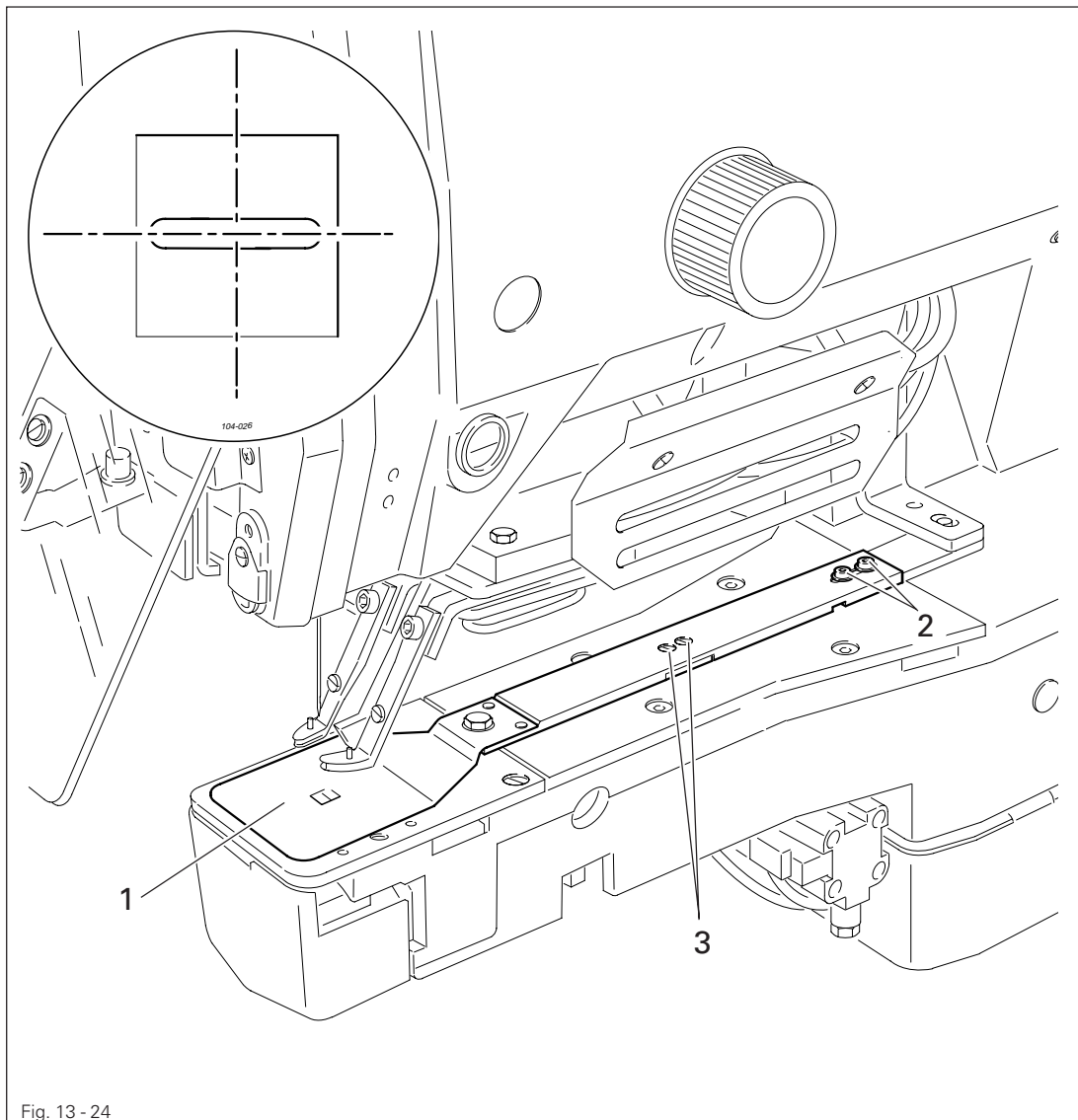


Alteration of the factory setting of the clamp pressure at 4 bar is not permitted.

13.26 Aligning the cloth plate (only on subclass -1/.. and -4/..)

Requirement

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



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

13.27 Basic setting of the end knotting equipment

Requirement

Retaining finger 5 should be parallel to loop spreader 7.

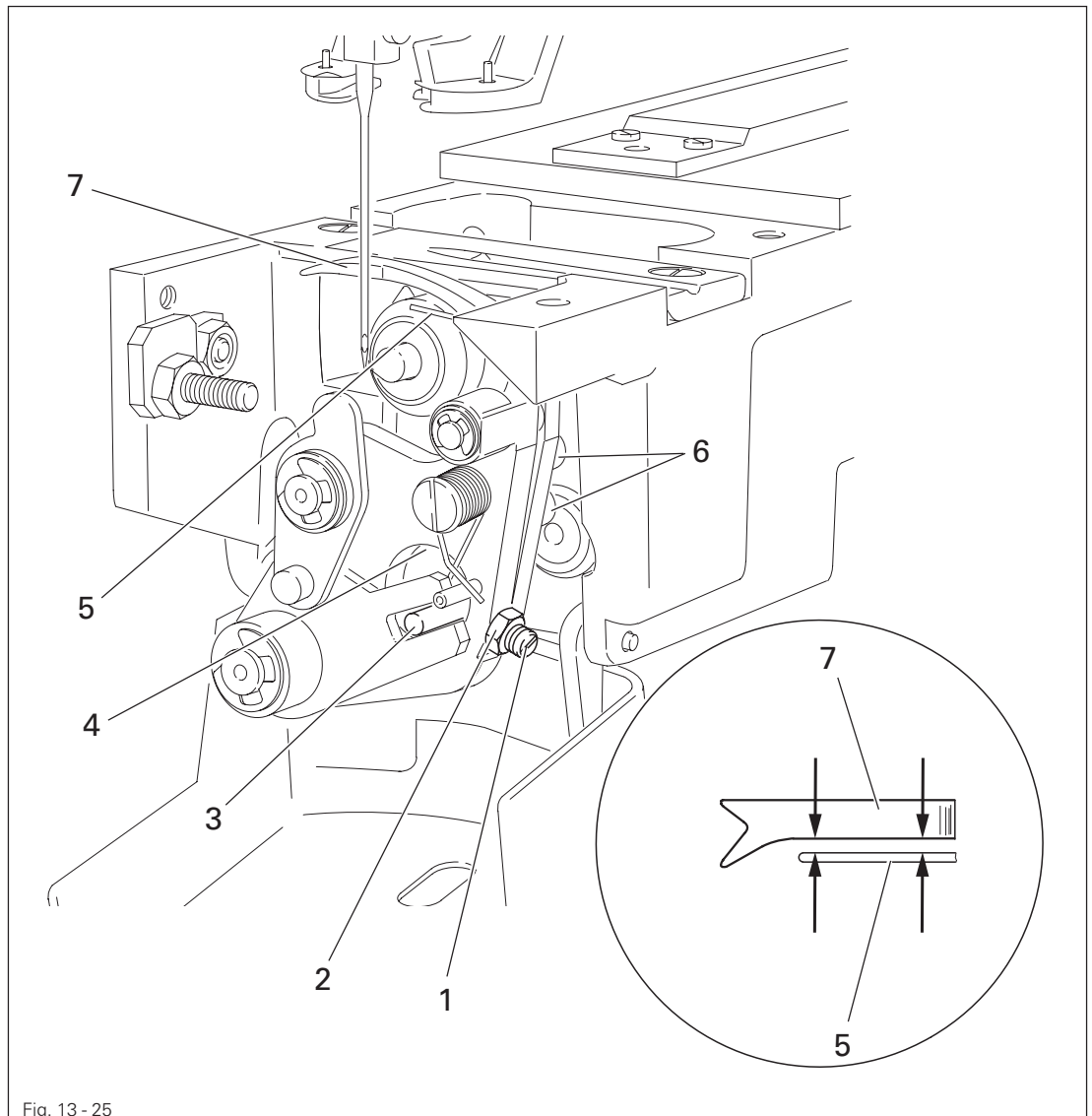
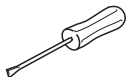


Fig. 13 - 25

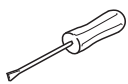
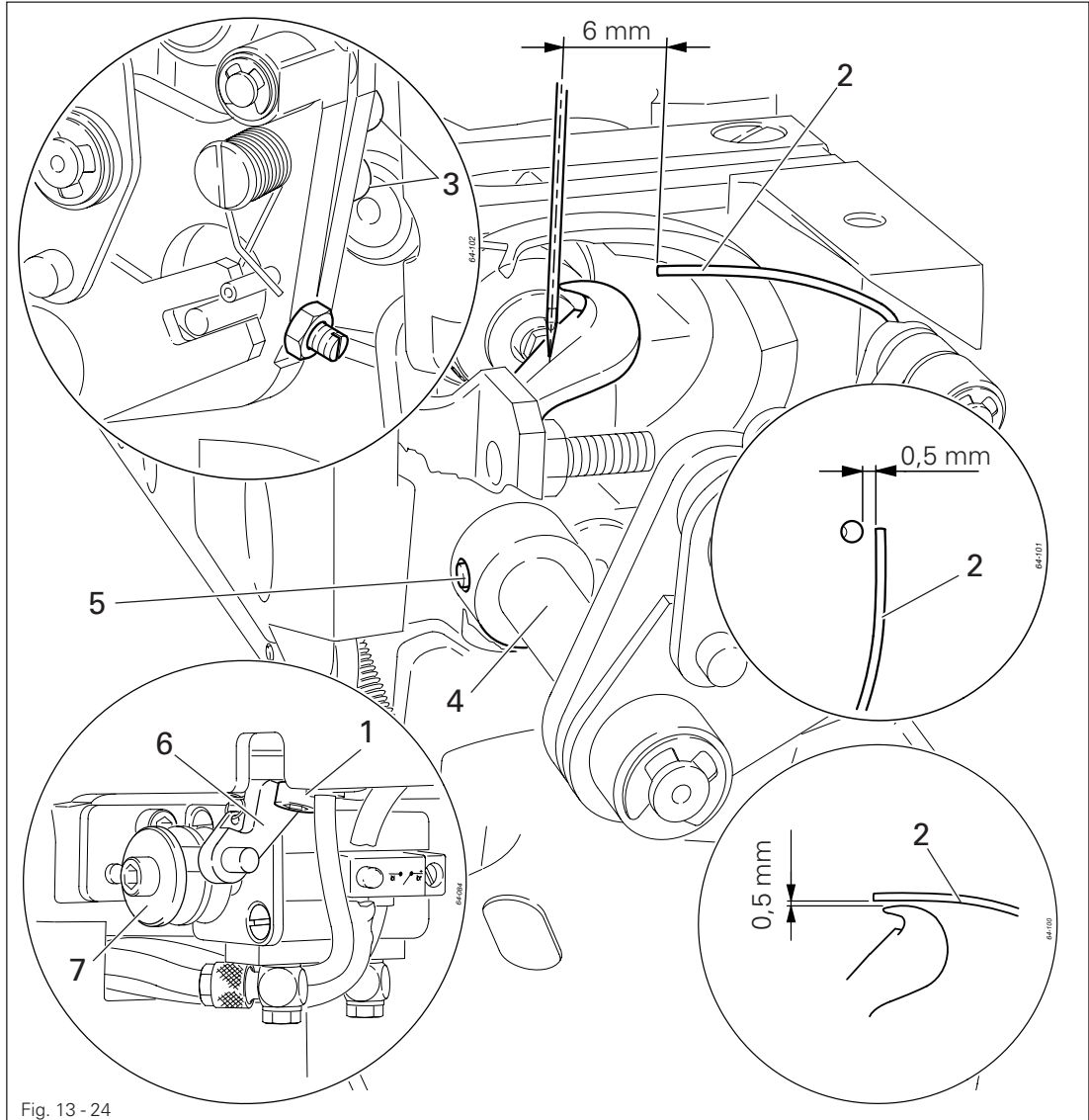


- Dismount cloth plate and needle plate.
- First of all remove screw 1 (nut 2), until pin 3 is touching the wall of hole 4.
- Then turn screw 1 round once and fix with nut 2.
- Align retaining finger 5 (screws 6) in accordance with the **requirement**.

Requirement

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

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



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

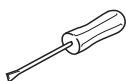
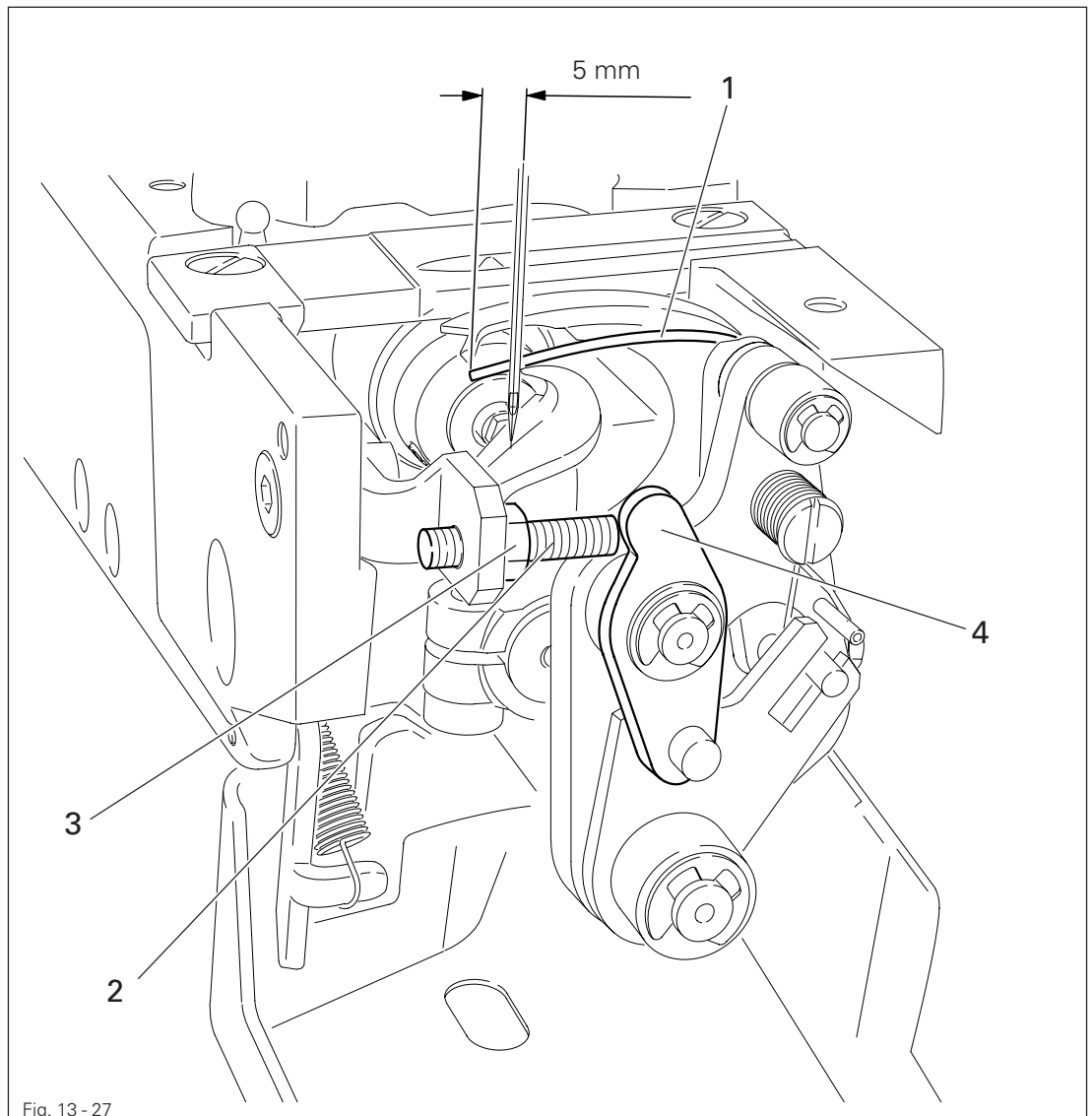


When tightening screw 1 take care to see that lever 6 engages reliably in part 7 and does not block the cylinder.

13.29 Adjusting the lifting lever of the end knotting equipment

Requirement

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



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



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

13.30 Adjusting the reed switch

Requirement

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

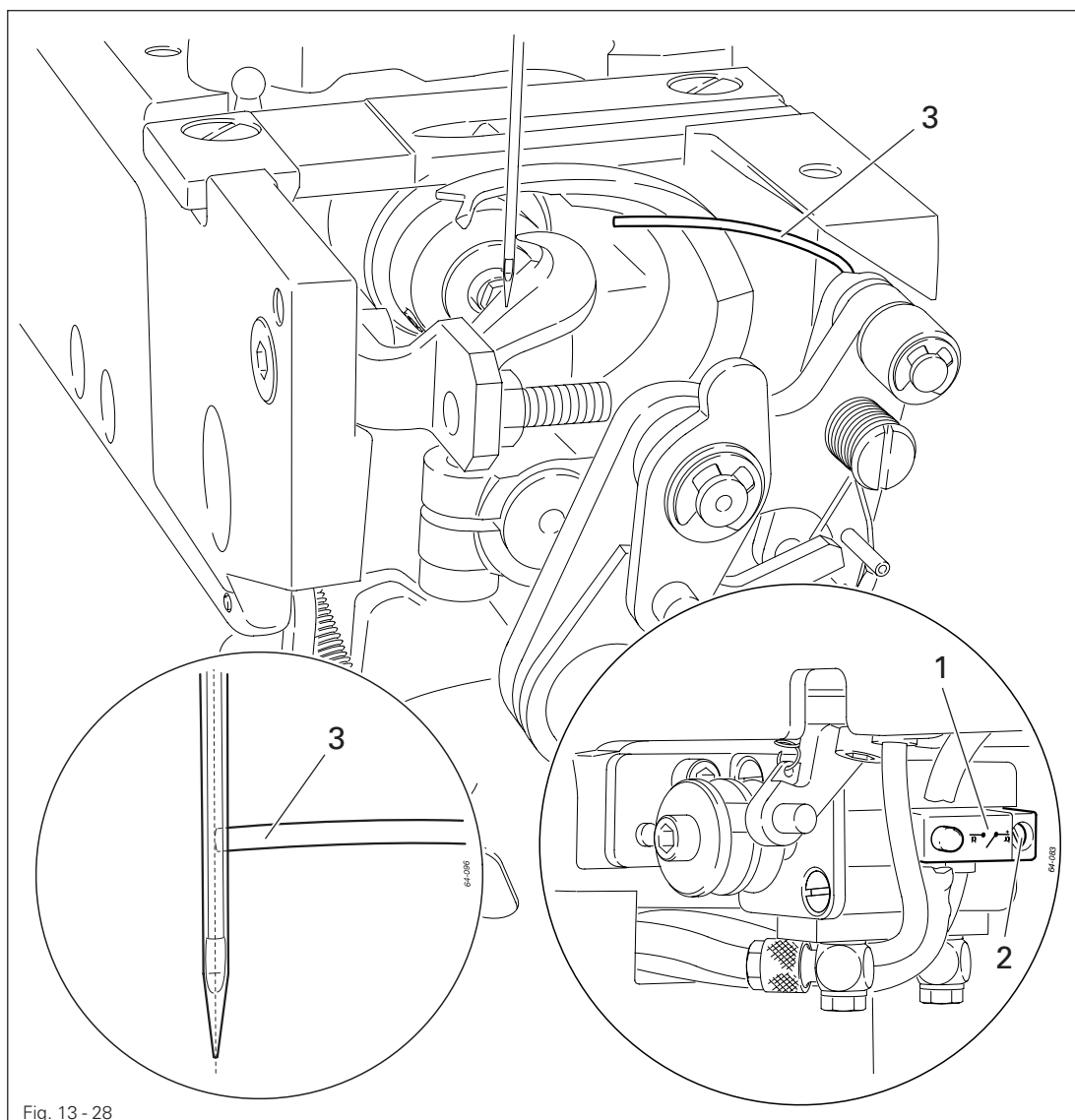
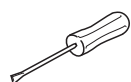
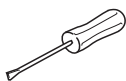
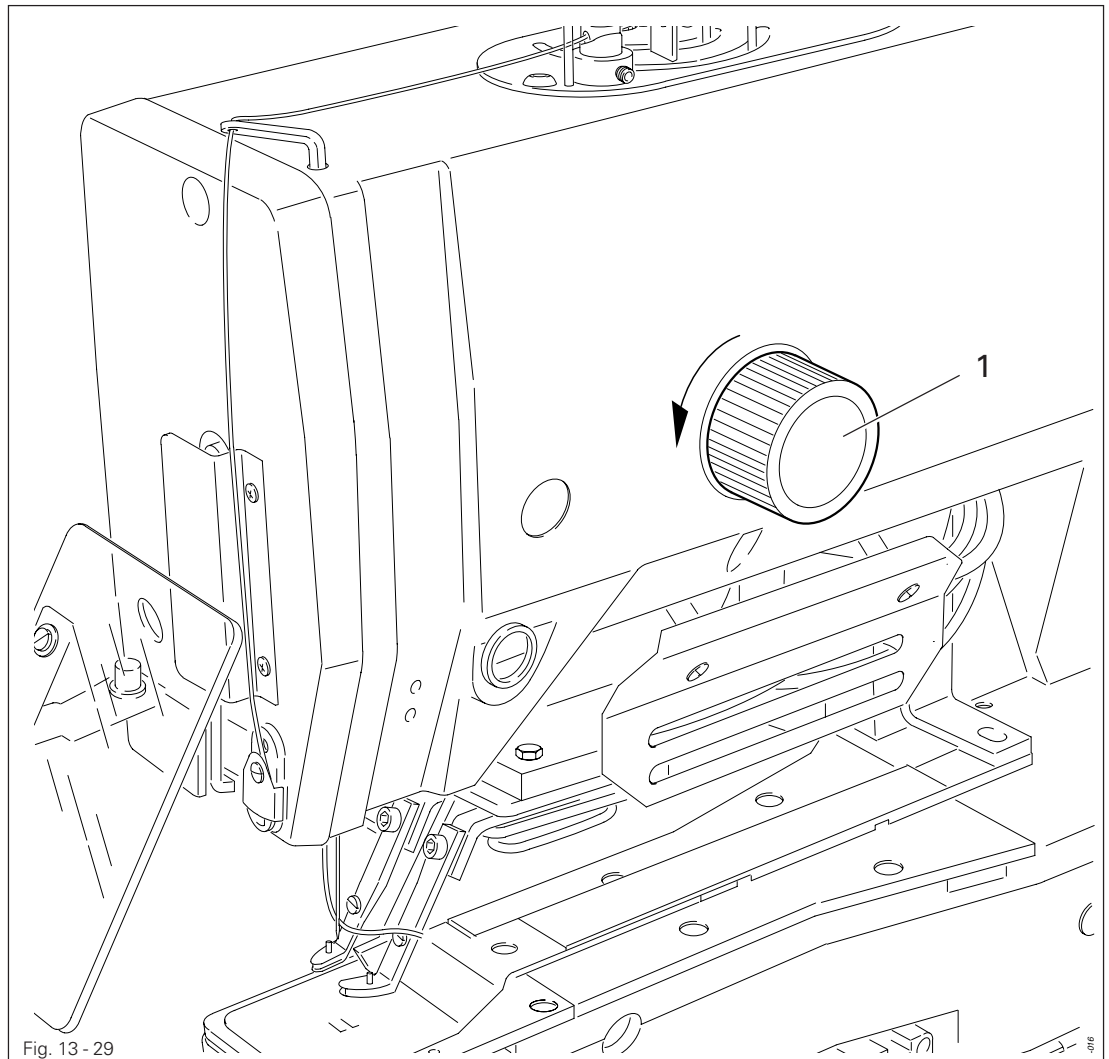


Fig. 13 - 28



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

13.31 Setting the angle for the end knotting (only on subclasses -1/.. and -4/..)

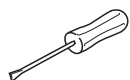
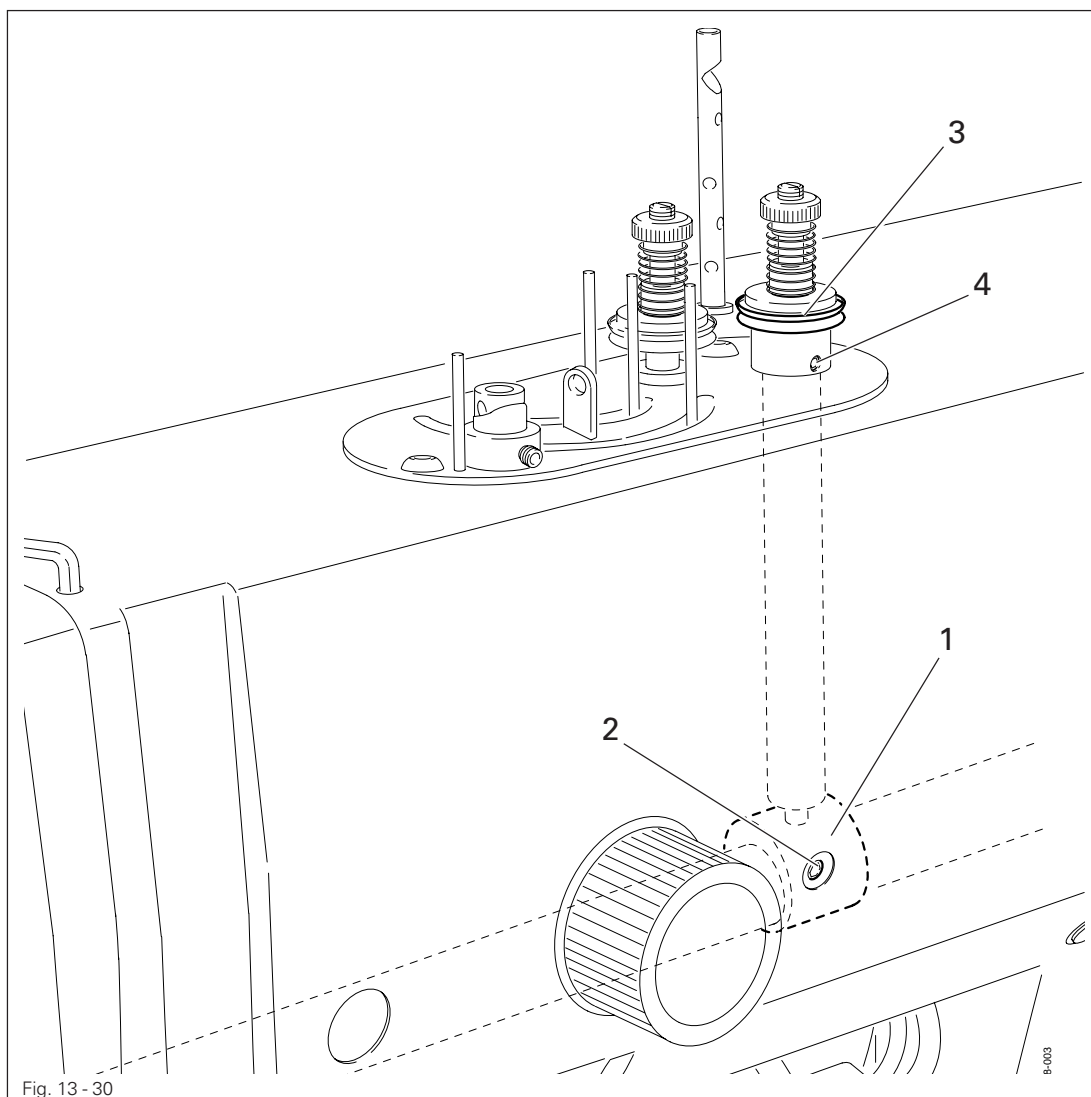


- Switch on the machine.
- Switch on the end knotting function, see **Chapter 11 Input**
- By turning the balance wheel **1** to "36" set parameter "506" (engaging position).
- By turning the balance wheel **1** to "52" set parameter "507" (disengaging position).
- Carry out ten sewing operations. Select parameter "604" and interpret the values for the engaging and disengaging position of the last ten sewing operations.
For uneven values (engaging position) the value should be "70".
For even values (disengaging position) the value should be "90".
- Change parameters "506" and "507" accordingly, a deviation of +/- 1 is permitted.
- Switch off the machine.

13.32 Adjusting the moment tension

Requirement

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



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

13.33 Adjusting the thread puller

Requirement

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

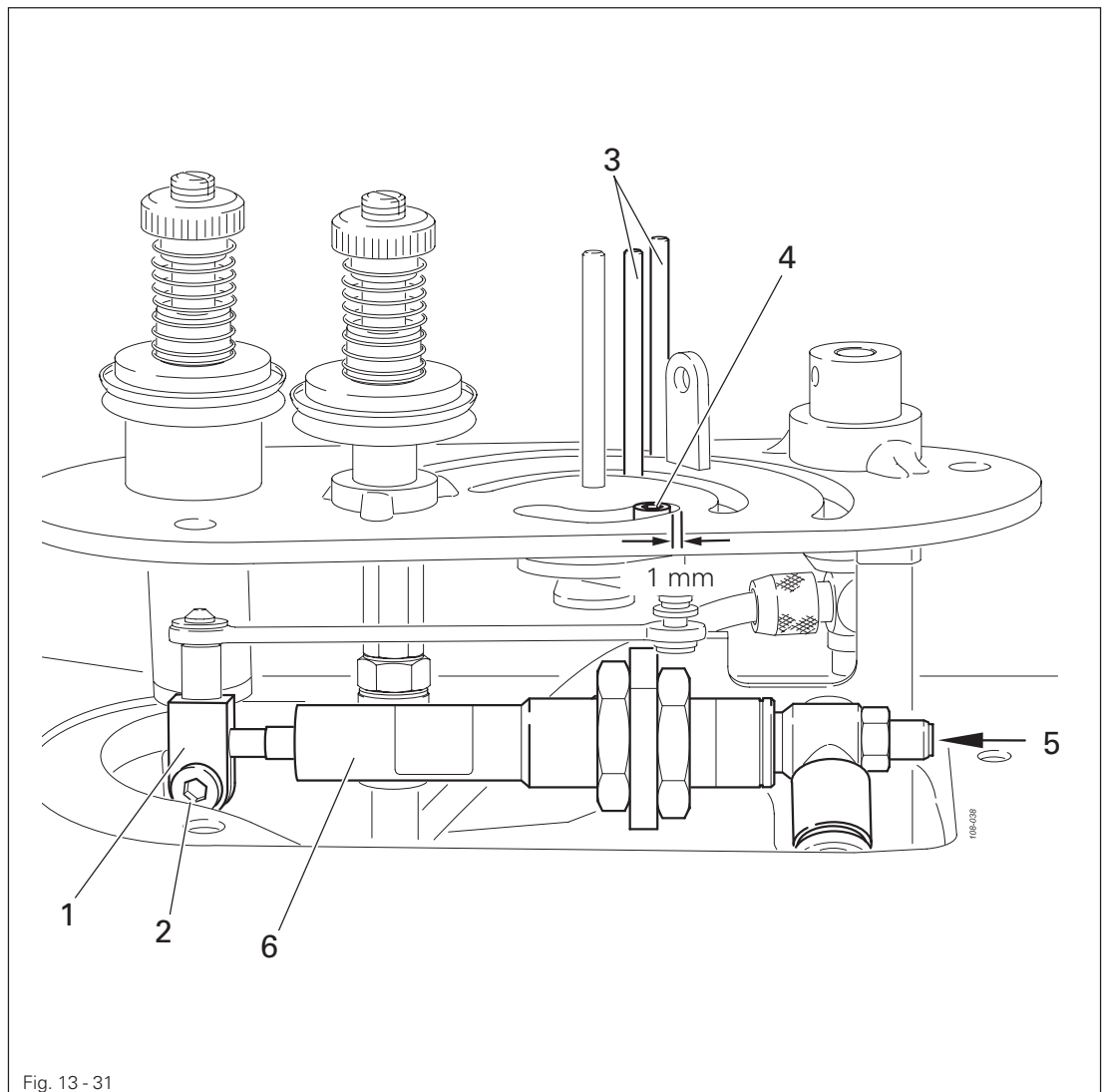
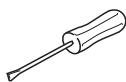


Fig. 13 - 31



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



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

13.34 Adjusting the thread clamp

Requirement

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

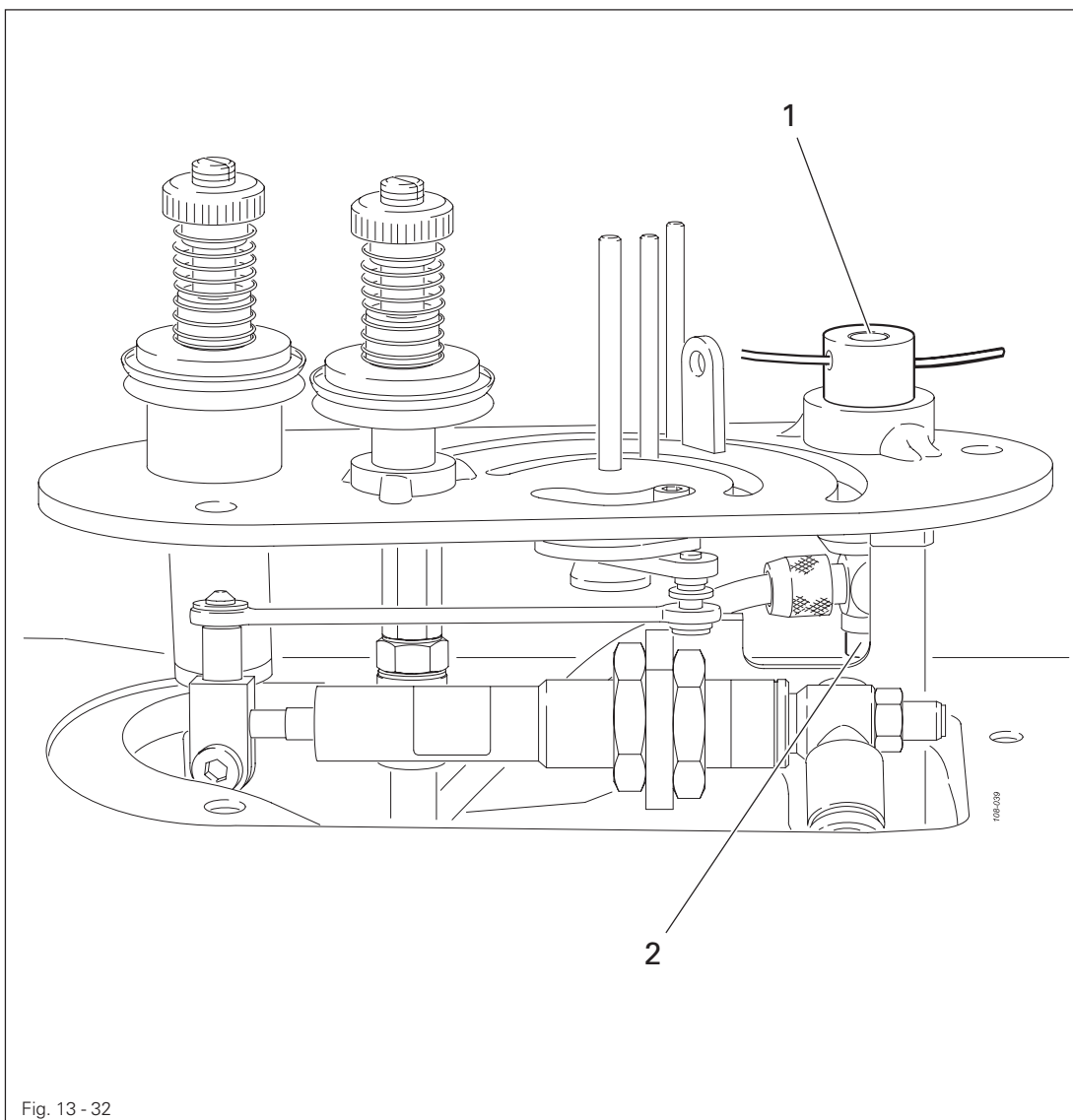
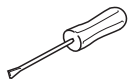


Fig. 13 - 32



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

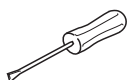
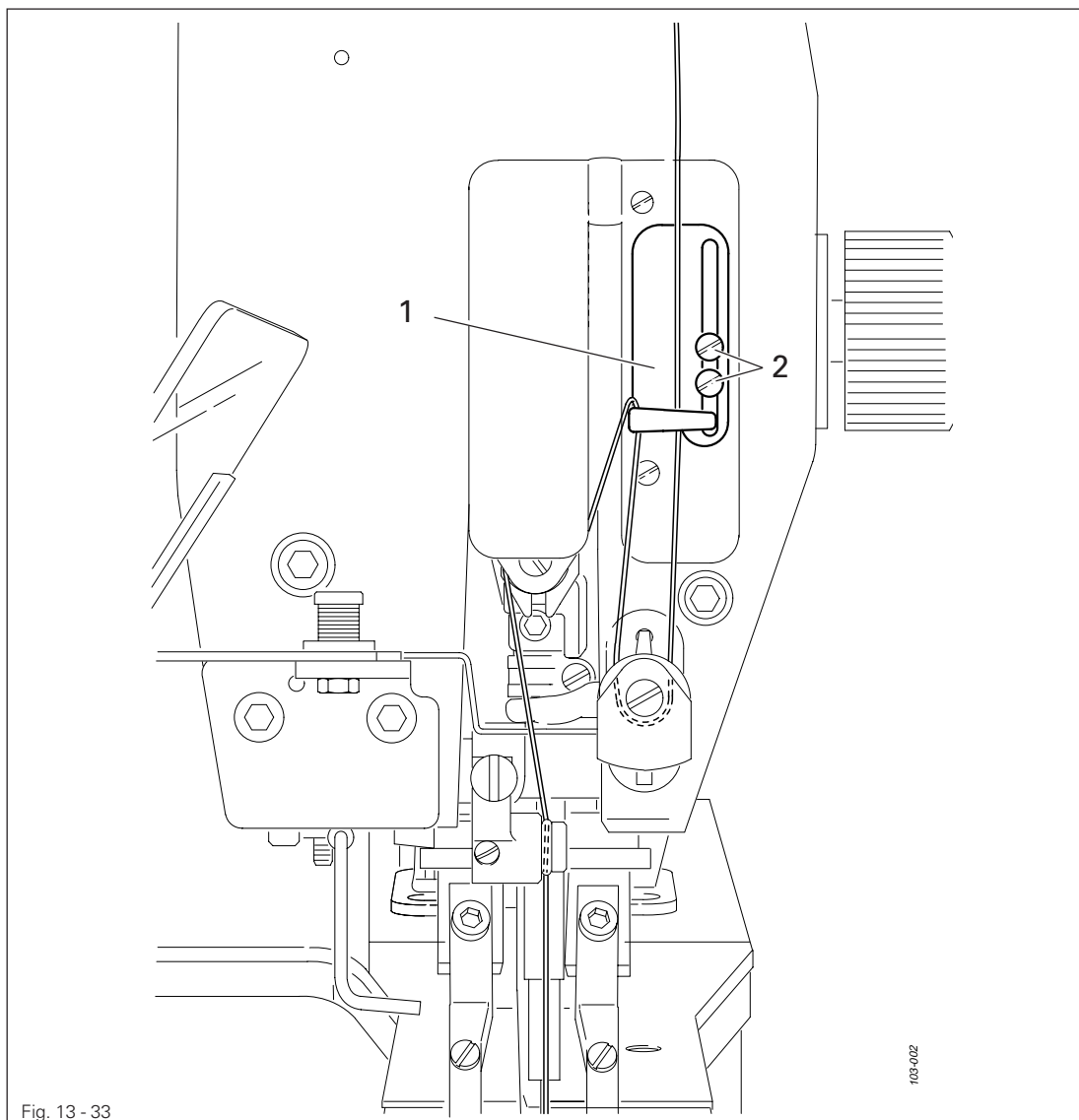


Following the adjustment, parameters "504", "508" and "510" must be checked, and adapted if necessary.

13.35 Adjusting the thread regulator

Requirement

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



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

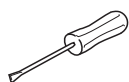
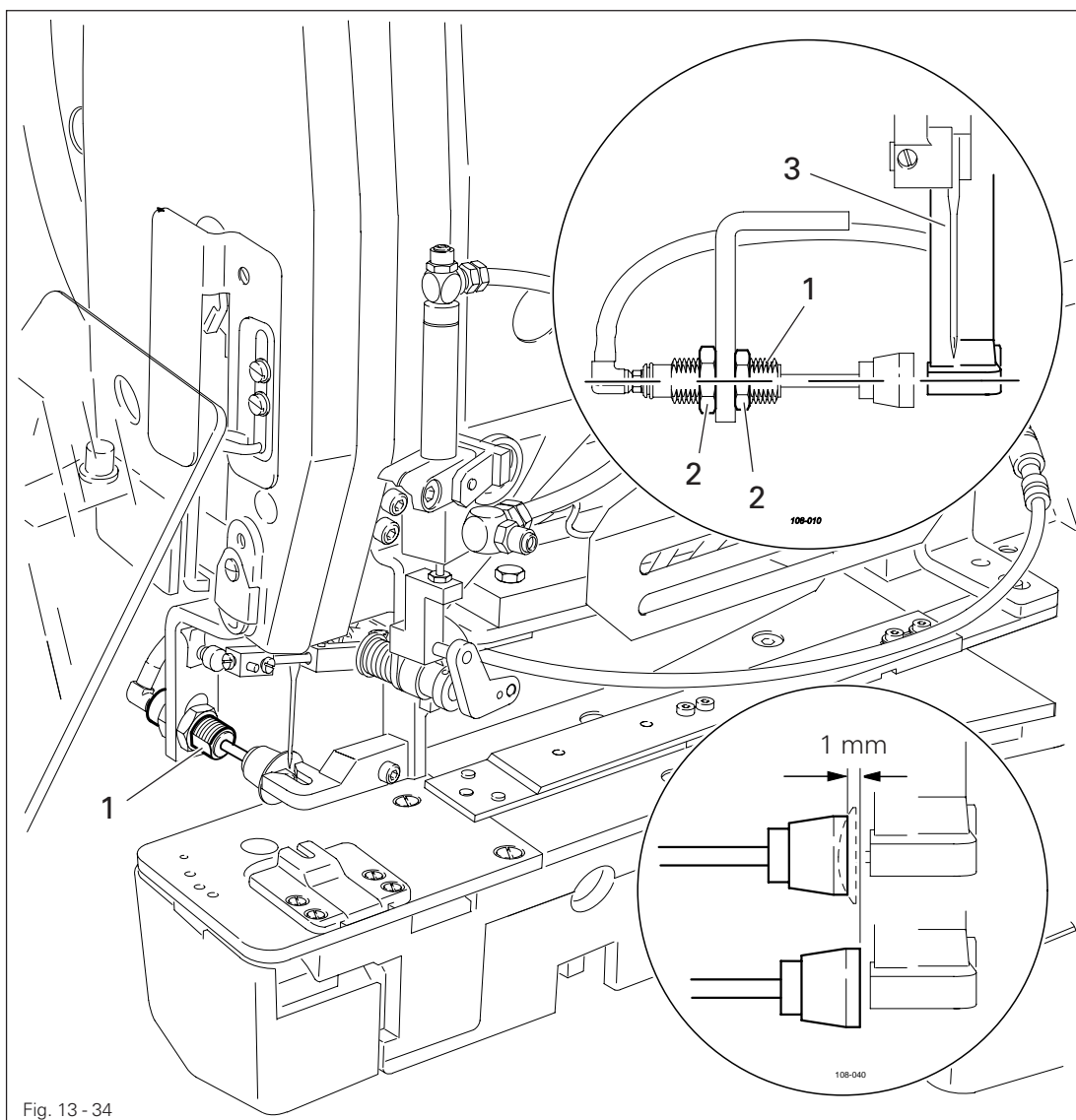


- Interrupt the sewing operation and bring the needle bar to its b.d.c. by turning the balance wheel.
- Adjust the thread regulator 1 (screws 2) in accordance with the requirement.
- Switch off the machine and disconnect it from the pneumatic power supply.

13.36 Adjusting the button holding cylinder (only on subclass -5/..)

Requirement

The button holding cylinder 1 should be at the same level as button seat 3, and without a button inserted it should extend approx. 1 mm further than with a button inserted.



- Adjust the button holding cylinder 1 (nuts 2) in accordance with the requirement.

13.37 Adjusting the thread wiper (only on subclass -5/..)

Requirement

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

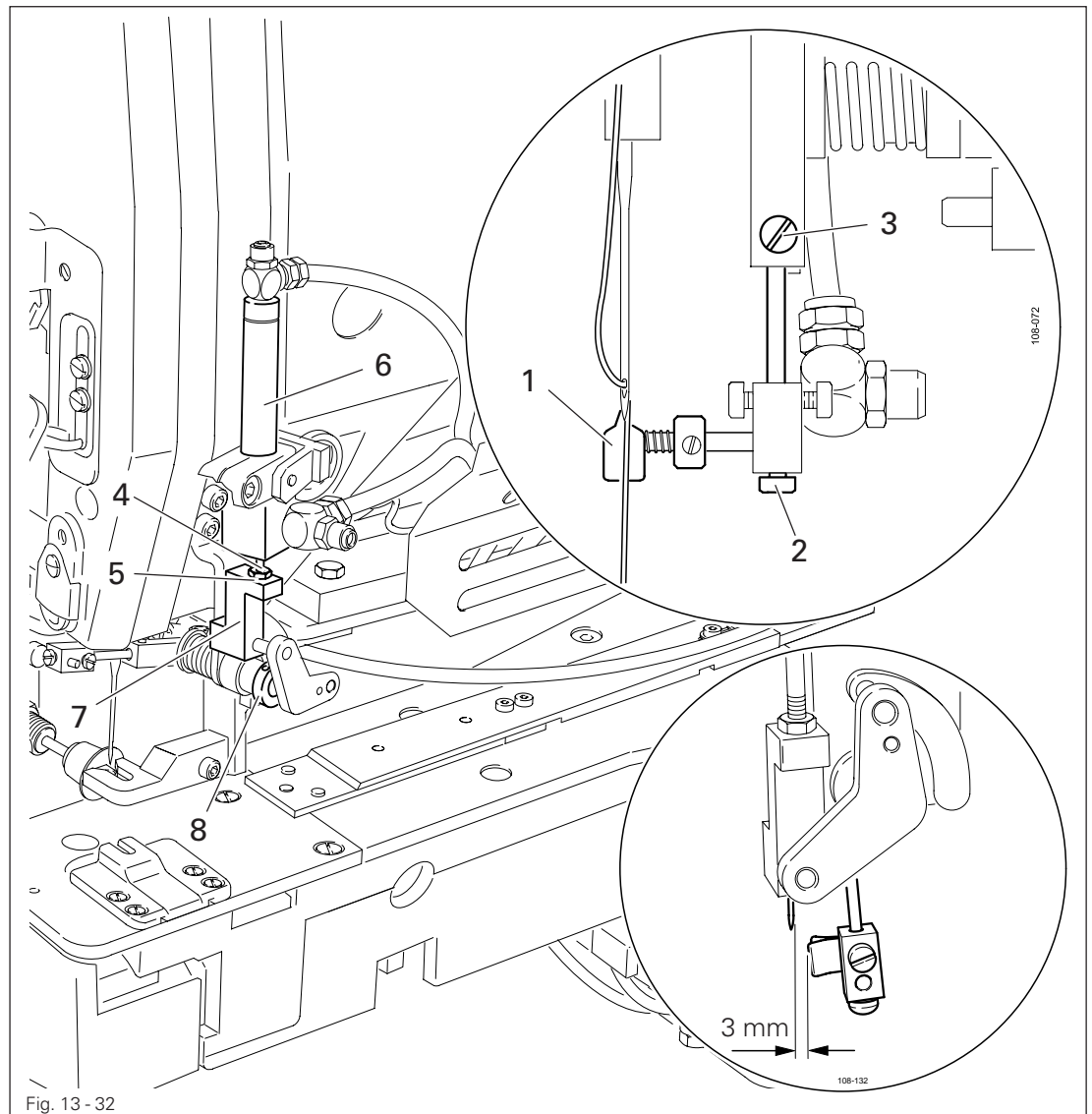
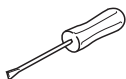


Fig. 13 - 32



- Connect the machine to the pneumatic system and switch it on.
- Engage thread wiper 1 using parameter "603".
- Adjust thread wiper 1 (screws 2 and 3) in accordance with **requirement 1**.
- Adjust piston rod 4 (nut 5) in accordance with **requirement 2**.
- Set parameter "403" to its maximum value.
- Check the setting during the sewing process and correct it if necessary.
- Reset parameter "403".
- Switch off the machine and disconnect it from the pneumatic system.

13.38 Cold start



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

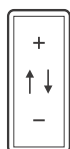
The machine is set back to its condition at the time of delivery.

The altered programs or parameter settings can be stored separately with the PC-program SAM, see **Chapter 13.42 Data backup and protection with PC-program SAM.**

- Switch on the machine.



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



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

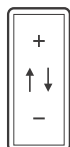
600



- Confirm input with **Enter**.

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

601



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

608 RESET



- Confirm input with **Enter**.

SWITCH OFF

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

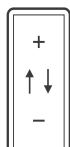
13.39 Parameter settings

13.39.01 Selecting and altering parameters

- Switch on the machine.



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

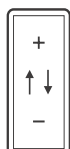


- Select the function group, e.g. "200" with the corresponding **plus/minus** key.

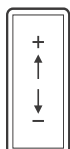


- Confirm the input with **Enter**.

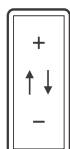
- Enter the code, see **Chapter 11.04.02 Entering/altering the access code**.



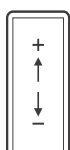
- With the corresponding **plus/minus** key enter e.g. parameter "102" (button height).

 1


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

 2


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

 I


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

 II


- End the input by switching to the sewing mode.

13.39.02 Parameter list

Group	Parameter	Description	Setting range	Set value
100	101	Display software version		0298/x; 0344/x
	102	Button height (with material) 1 = 0 – 6 mm 2 = 6 – 12 mm 3 = 12 mm and above	1 – 3	1
	103	Show display during sewing (I = stem height, II = speed)	I, II	II
	104	Stem height (incl. button thickness and material) 1 = 0 – 6 mm, 2 = 6 – 12 mm 3 = 12 mm and above	1 – 3	1
	105	Maximum speed	(500 - 2000)	2000
	108	Time delay during continuous operation	0 – 2s	0,3s
	109	Continuous operation I = off, II = on	I, II	I
	110	Software version for motor control		Vxx
	111	Software version for thread strength module		Vxx
	113	Sequence input (see Chap. 11.03)		
	114	Sequence (I = off, II = on)	I, II	I
200	201	Delete program		
	202	Machine version 1 = standard/self-shank button 2 = with blind stitching 3 = with stem wrapping 4 = with button feed 5 = with outer clamp 6 = tacking	1 – 6	1 (subcl. -1/..) 6 (subcl. -4/..) 1 (subcl. -5/..)
	203	PC connection		
	204	Cloth plate cut-out size see Ch. 3.02 Seam pattern size	1 - 6	1
	205	Missed stitch detection I = off, II = on	I, II	I
	206	Missed stitch detection threshold	0 - 999	120
	207	Fade-out stitches of the misses stitch detection function	0 - 9	6
	208	1 – 120 = Display thread size of last program (max. 120 stitches) 0 = Display calculated optimum threshold (for input in para. "206")	0 – 120	xxx

Group	Parameter	Description	Setting range	Set value
200	209	Air jet I = off, II = on muss die Blasdüse ausgeschaltet sein!	I, II	I
	210	Turn-on time air jet [s]	0 - 10	1
400	401	Raise clamp delay	0.0 - 1.5 s	0.0s
	402	Start delay after clamp lowered	0.0 - 1.5 s	0.0 s
	403	Delay before thread trimming	0.0 - 2.0 s	0.06 s
	404	Thread cutting time	0.0 - 2.0 s	0.06 s
	405	Waiting time for thread clamp (s)	0.00 – 2.00	0.10
	406	Waiting time for thread puller (s)	0.00 – 2.00	0.20
	407	Waiting time until thread wiper in basic position	0.00 – 4.00	0.20
	408	Time for added feature clamp	0.00 - 1.5 s	1,00
500	501	Soft start stitches Soft start speed (spm)	0 - 15 500 - 2000	0 500
	503	Extra stitches when sewing in same hole	0 - 3	0
	504	Delay time thread clamp open at beginning of seam	0 – 2s	0,02s
	506	Angle position for "end knotting on" Software version 0298/xxx Software version 0344/xxx	0 - 127 0 - 127	36 40
	507	Angle position for "end knotting off" Software version 0298/xxx Software version 0344/xxx	0 - 127 0 - 127	52 70
	508	Number of stitches for "thread clamp closed" at end of seam (calculated backwards from the last stitch) Angle position for "thread clamp closed" at end of seam	0 – 3 0 – 127	0 80
	510	Angle position for "thread clamp open" at last needle penetration before thread trimming	0 – 127	120
	511	Securing stitches before cutting	0 – 2	0
	512	Measuring point of missed stitch detection function with display of the thread strength	0 - 127	115 incr.

Adjustment

Group	Parameter	Description	Setting range	Set value
600	601	Move stepping motor clamp and needle		
	602	Display inputs 0123456789ABCDEF Position on the Display 0: Not assigned 1: Not assigned 2: Needle in material (NIS) 3: End knotting engaged (E16 - X5:7) 4: Error reset key S101 (E12 – X5:12) 5: Not assigned (E11 - X5:11) 6: Not assigned (E10 - X5:10) 7: Not assigned (E9 - X5:9) 8: Programmable input 1 (E8 - X5:16) 9: Programmable input 2 (E7 - X5:15) A: Not assigned (E6 - X5:14) B: Not assigned (E5 - X5:5) C: Clamp lowered (E4 - X5:3) D: Not assigned (E3 - X5:3) E: Reference needle (photoelectric barrier) F: Reference clamp (photoelectric barrier)	Meaning of the display value 0 - - - off▲ off▲ - - - - - - - - - raised▲ - switched switched	I - - - on on - - - - - - - - - - lowered - not assigned not assigned
	603	Switch outputs Position on the Display 1: Clamp (X13:1) 2: Not assigned (X13:3) 3: Thread clamp (X13:5) 4: Thread trimming (X13:6) 5: End knotting (X13:7) 6: Thread puller (X13:8) 7: Thread wiper (X13:9) 8: Not assigned (X13:10) 9: Not assigned (X13:11) 10: Not assigned (X13:12) 11: Not assigned (X13:13) 12: Not assigned (X13:25) 13: Not assigned (X13:24) 14: Self-shank button holder (X13:16) 15: Not assigned (X13:17) 16: Missed stitch lamp (X5:24)	Meaning of the display value 0 lowered - open off▲ off▲ off▲ off▲ - - - - - - - off▲ - off▲	I raised▲ - closed▲ on on on on - - - - - - on - on

▲ = basic position

Group	Parameter	Description	Setting range	Set value
600	604	Last engaging and disengaging positions for end knotting		
	605	Needle penetration point in fabric	0 - 127	43
	607	Turn sewing motor in sewing direction		
	608	Carry out cold start		
	610	Needle penetration points for adjustment 1: Centre 2: Max. penetration point right 3: Max. penetration point left 4: Button gauge: centre 5: Button gauge: front left 6: Button gauge: back left 7: Button gauge: back right 8: Button gauge: front right		
	611	Suppression thread trimming (I = OFF, II = ON)	I, II	I
	612	Adjusting aid for zero position of stepping motor using synchronisation mark		0
	614	Set cutting position X on right	± 25	5
	615	Set cutting position X on left	± 25	8
700	701	P-quota speed controller	1 - 50	10
	702	I-quota speed controller	0 - 100	50
	703	P-quota position controller	1 - 50	20
	704	D-quota position controller	1 - 100	30
	705	Time for position controller	1 - 100	25
	706	P-quota position controller for rest brake	1 - 50	25
	707	D-quota position controller for rest brake	1 - 50	15
	708	Maximum moment for rest brake	0 - 100	0
	709	Minimum machine speed	3 - 64	6
	710	Maximum machine speed	100 - 2000	2000
	711	Maximum motor speed	0 100	45
	712	Positioning speed	3 - 35	25
	713	Acceleration ramp	1 - 50	35
	714	Brake ramp	1 - 50	30

Adjustment

Group	Parameter	Description	Setting range	Set value
	715	Reference position	1 - 127	43
	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	Reference position correction	0 - 127	64
800	801	Right of access function group 100	0 - 1 [■]	0
	802	Right of access function group 200	0 - 1 [■]	1
	803	Right of access function group 300	0 - 1 [■]	1
	804	Right of access function group 400	0 - 1 [■]	1
	805	Right of access function group 500	0 - 1 [■]	1
	806	Right of access function group 600	0 - 1 [■]	1
	807	Right of access function group 700	0 - 1 [■]	1
	808	Right of access function group 800	0 - 1 [■]	1
	809	Right of access key max. speed	0 - 1 [■]	0
	810	Right of access key program number selection	0 - 1 [■]	0
	811	Right of access key piece counter	0 - 1 [■]	0
	812	Right of access F1 key	0 - 1 [■]	0
	813	Right of access key two-hole button	0 - 1 [■]	0
	814	Right of access key four-hole button	0 - 1 [■]	0
	815	Right of access key three-hole button	0 - 1 [■]	0
	816	Right of access key program group A	0 - 1 [■]	0

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

Group	Parameter	Description	Setting range	Set value
	817	Right of access key program group B	0 - 1 [■]	0
	818	Right of access programming key	0 - 1 [■]	0
	819	Enter access code (status on delivery: 3307)	0 - 9999	3307

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

13.40 Error messages on the display

- Error 1 System error
- Error 2 Sewing motor
 - 30: Time out + motor defect
 - 20: Time out + motor defect
 - 10: Speed + motor defect
 - 0B: StopX + motor defect
 - 0A: Reset stitch counter + motor defect
 - 9: Write parameter + motor defect
 - 5: Position tdc shortest path + motor defect
 - 3: Position tdc backwards + motor defect
 - 2: Position tdc forwards + motor defect
- Error 3 Input feed plate in (E6 - X5:14)
- Error 4 Missed stitch with needle penetration number or end knotting error with needle penetration number
- Error 5 Clamp entrance at bottom (E4 – X5:4) switch clamp locked as main drive not in t.d.c. position
- Error 6 Time monitoring when going through the sewing program
- Error 7
 - 1 Delay X not finished
 - 2 Delay Y not finished
 - 3 Delay X and Y not finished
 - 4 Ramp X not finished
 - 5 Ramp Y not finished

Adjustment

Error	8	Stitch length
Error	9	Seam outside area
Error	10	1 Error when moving the machine into home position, outputs not finished
		2 Raise clamp – no reaction/sub-class may be incorrect
		3 Insert position not reached
		6 Foot pedal operated
		7 X-centre not reached
		8 still at X-centre
		9 Y-centre not reached
		10 still at Y-centre
		11 time control home test
		12 Absolute position –0.3 not reached home test
		13 Absolute position +0.6 not reached home test
		14: Main drive unit has not reached t.d.c. position
Error	11	Stepping motor step frequency too high
Error	12	Error in sewing program
Error	13	Set position of stepping motor outside sewing area
Error	14	Time control outputs
		3: Thread clamp
		6: Thread wiper
		15: Programmable output 1
Error	15	Input signal not received
Error	16	Delay time with running sewing drive not permitted
Error	17	Cutting without sewing
Error	18	Incorrect command in data set
Error	19	Incorrect program number
Error	20	not assigned
Error	21	Power supply unit overload (24 V)
Error	22	Mains voltage
Error	23	Power supply unit 24 V too strong / too weak
Error	24	No stepping motor movement prepared (needle in material)
Error	25	Stepping motor not started yet (needle in material)

Error	27	1	Error on PC-interface Receiver Timeout
		2	Transmitter Timeout
		3	Transmission error
		4	Receiving buffer overflow
		5	Data error
		6	Answer too long
		7	No ASCII HEX
		8	Inadmissible program number
		9	Incorrect command syntax
		10	No number
		11	Unknown command
Error	29		CAN-ERROR
		1	Timeout
		2	Incorrect answer
		4	Data lost
Error	30		End knotting error with stitch entry number

13.41 Motor errors

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

13.42 Data backup and protection with PC-program SAM

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

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

Enter

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



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

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

13.43 Internet update of the machine software

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



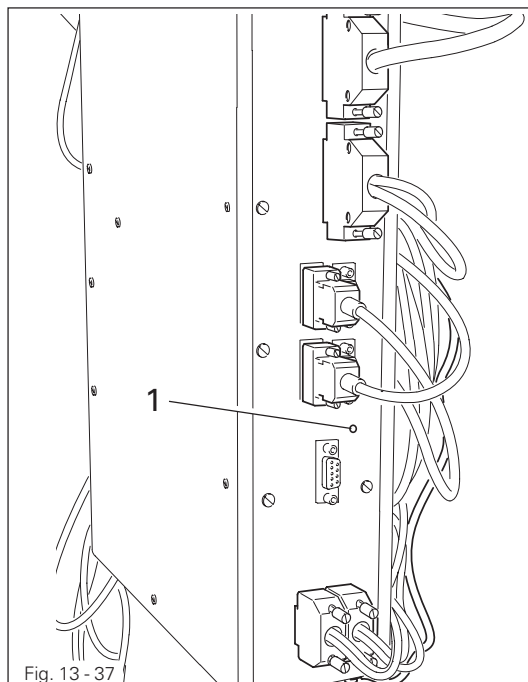
The PFP boot program and the control software of the machine type can be downloaded from the PFAFF-homepage using the following path:
www.pfaff-industrial.com/de/service/download/steuerungssoftware.html

To update the machine software carry out the following steps:



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

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



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



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

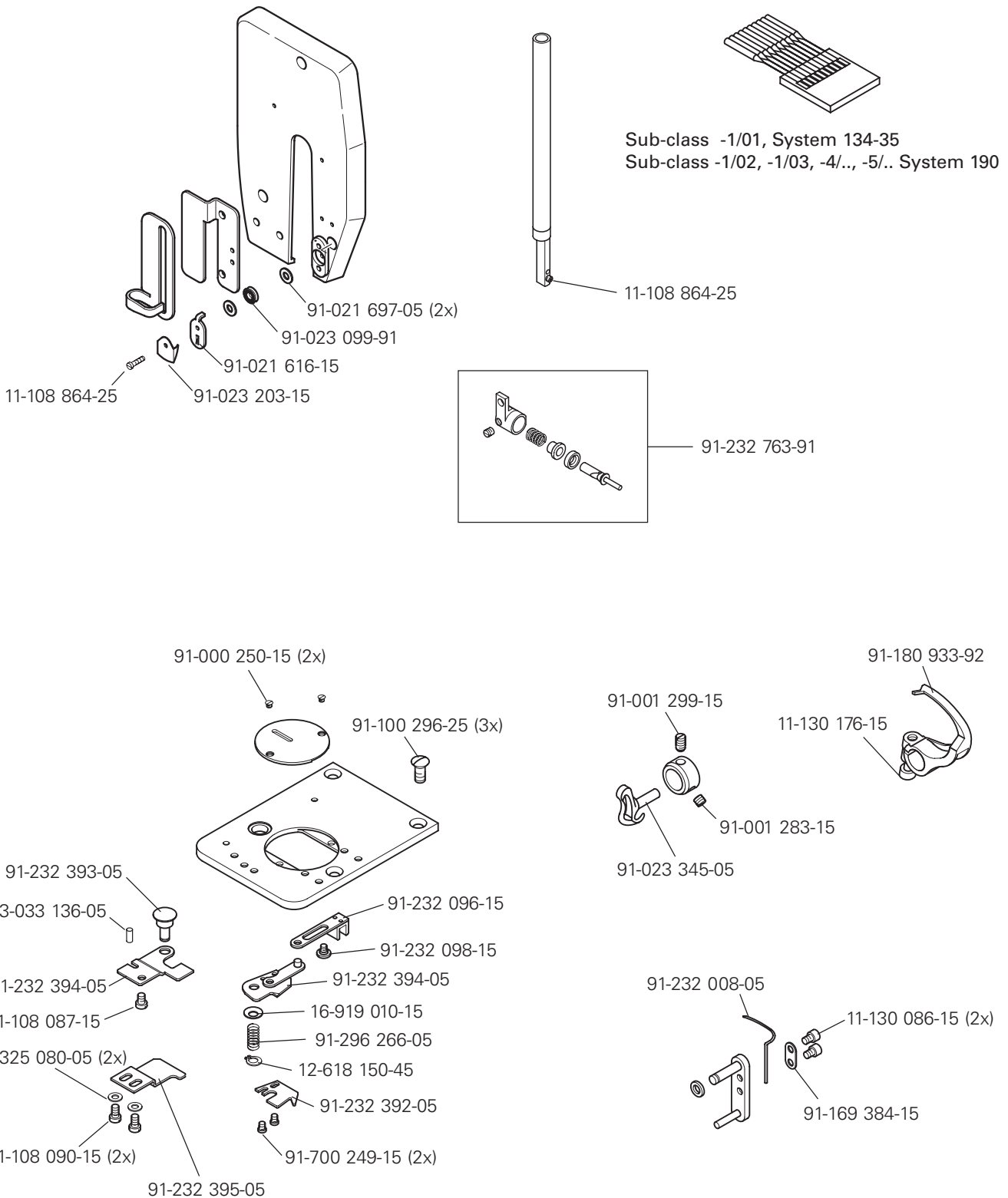
14

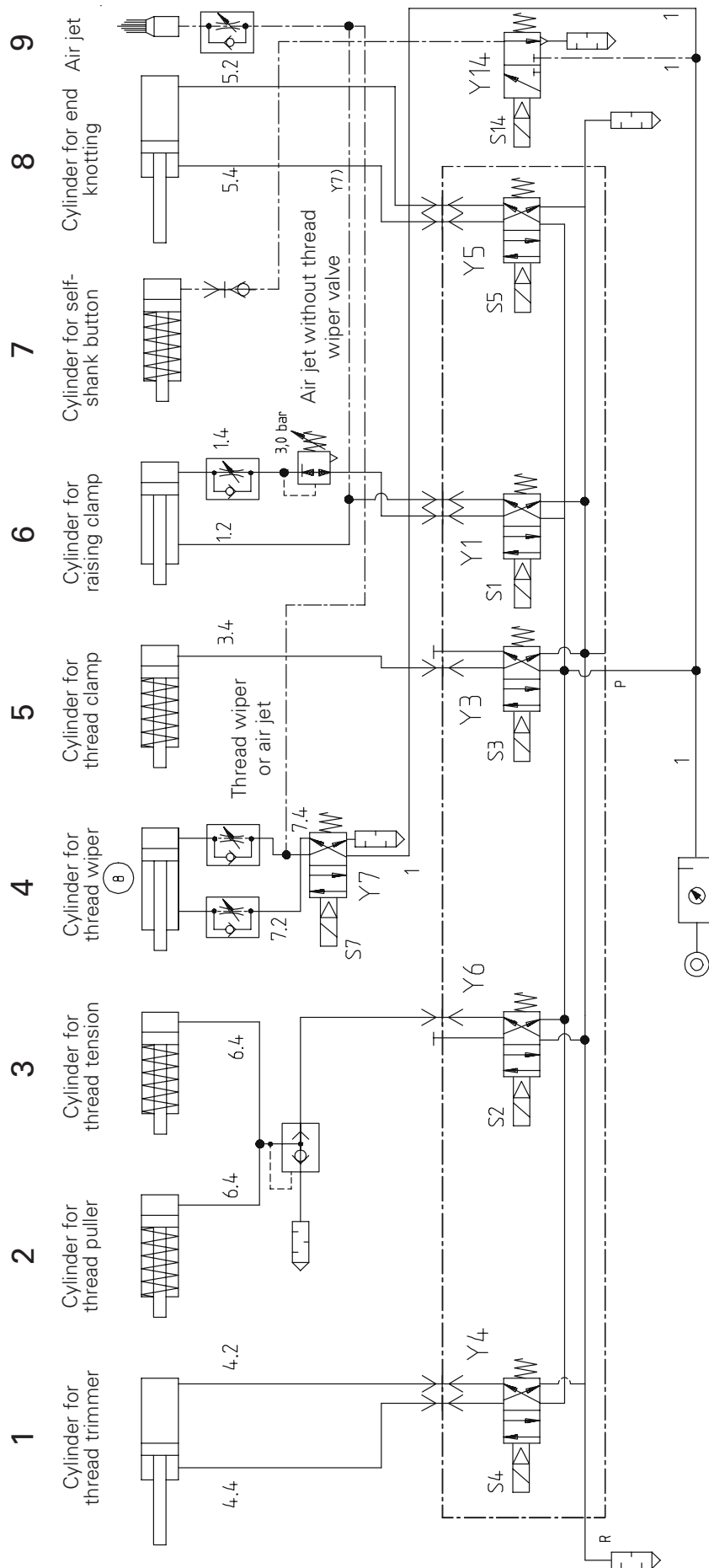
Wearing parts



This is a list of the most important wearing parts.

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



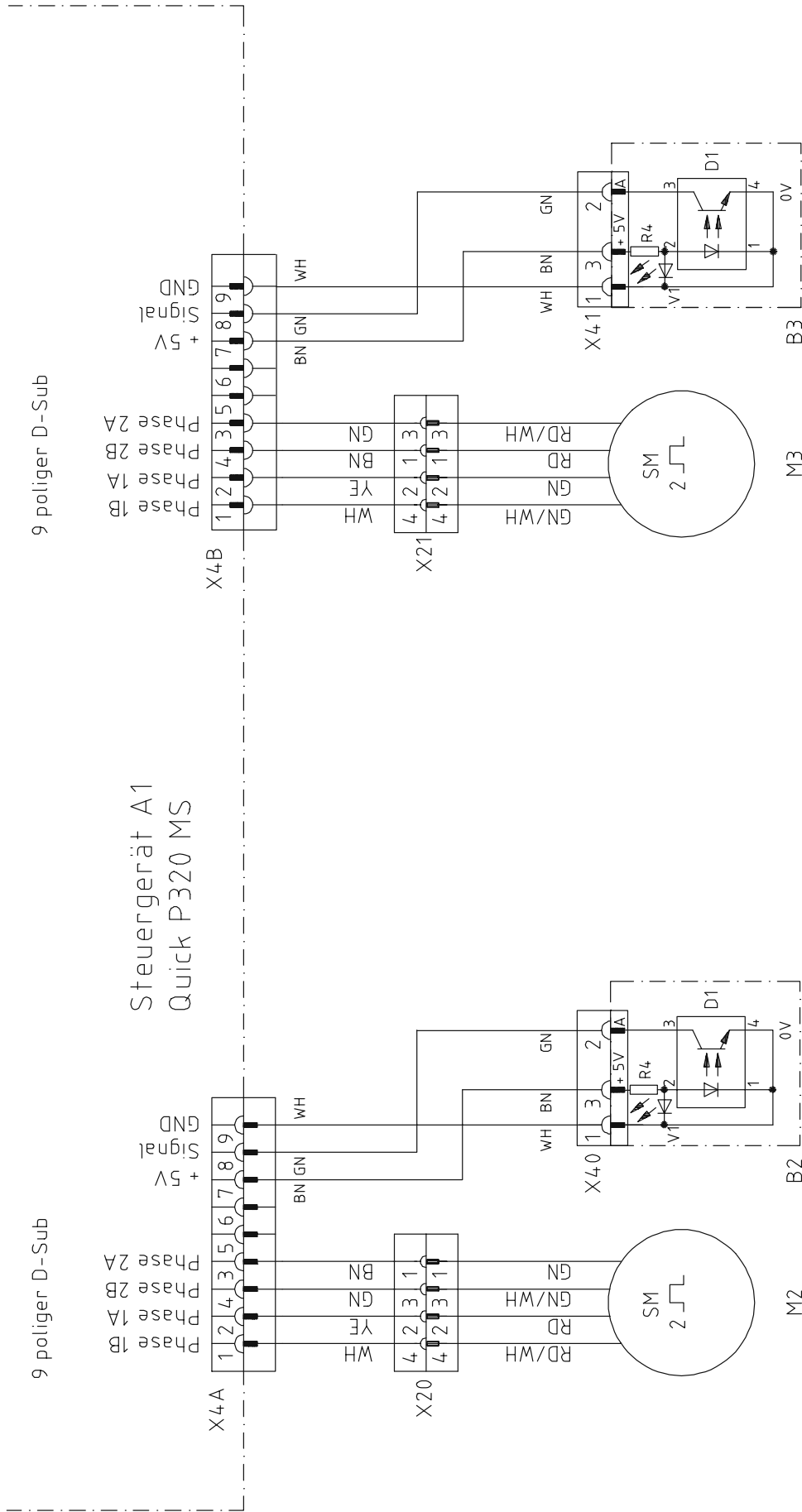


The control elements and valves are in the machine's basic position.
Main switch -ON, compressed air -ON

Reference list for circuit diagrams

A1	Controller Quick P320MS
A2	Control panel OC TOP
A100	Thread strength- module
A110	Thread strength – alarm + reset
B2	Hybrid light barrier needle reference
B3	Hybrid light barrier clamp reference
B100	Thread strength sensor
H1	Sewing lamp
H101	Lamp – alarm
M1	Sewing motor
M2	Stepping motor needle
M3	Stepping motor button clamp
Q1	Main switch
S1	Pedal speed control unit
S24	Key button clamp lowered
S36	Solenoid switch end knotting
S101	Key – reset
X1	Mains plug
X1A	RS232 – interface 1
X1B	Control panel OC TOP
X3	Incremental transmitter (sewing motor)
X4A	Stepping motor needle and hybrid light barrier
X4B	Stepping motor button clamp and hybrid light barrier
X5	Inputs
X8	Sewing motor
X11A	CAN interface
X11B	Pedal speed control unit
X13	Outputs
X20	Stepping motor needle
X21	Stepping motor button clamp
X34	Key button clamp lowered
X47	Hybrid light barrier needle reference
X48	Hybrid light barrier button clamp reference
X51	Clamp open
X53	Thread clamp
X54	Thread trimming
X55	End knotting
X56	Thread puller
X57	Thread wiper
X64	Self-shank button clamp
X101	Thread strength – module sensor + supply
X102	Thread strength – module CAN interface
X103	Thread strength – module RS232
X110	Thread strength – alarm + reset
X111	Thread strength – sensor
Y1	Clamp open
Y3	Thread clamp
Y4	Thread trimming
Y5	End knotting
Y6	Thread puller
Y7	Thread wiper
Y14	Self-shank button clamp

Schrittmotoren



Steuergerät A1
Quick P320 MS

Klammerreferenz
Gabellichtschranke

10

Knopfklammer

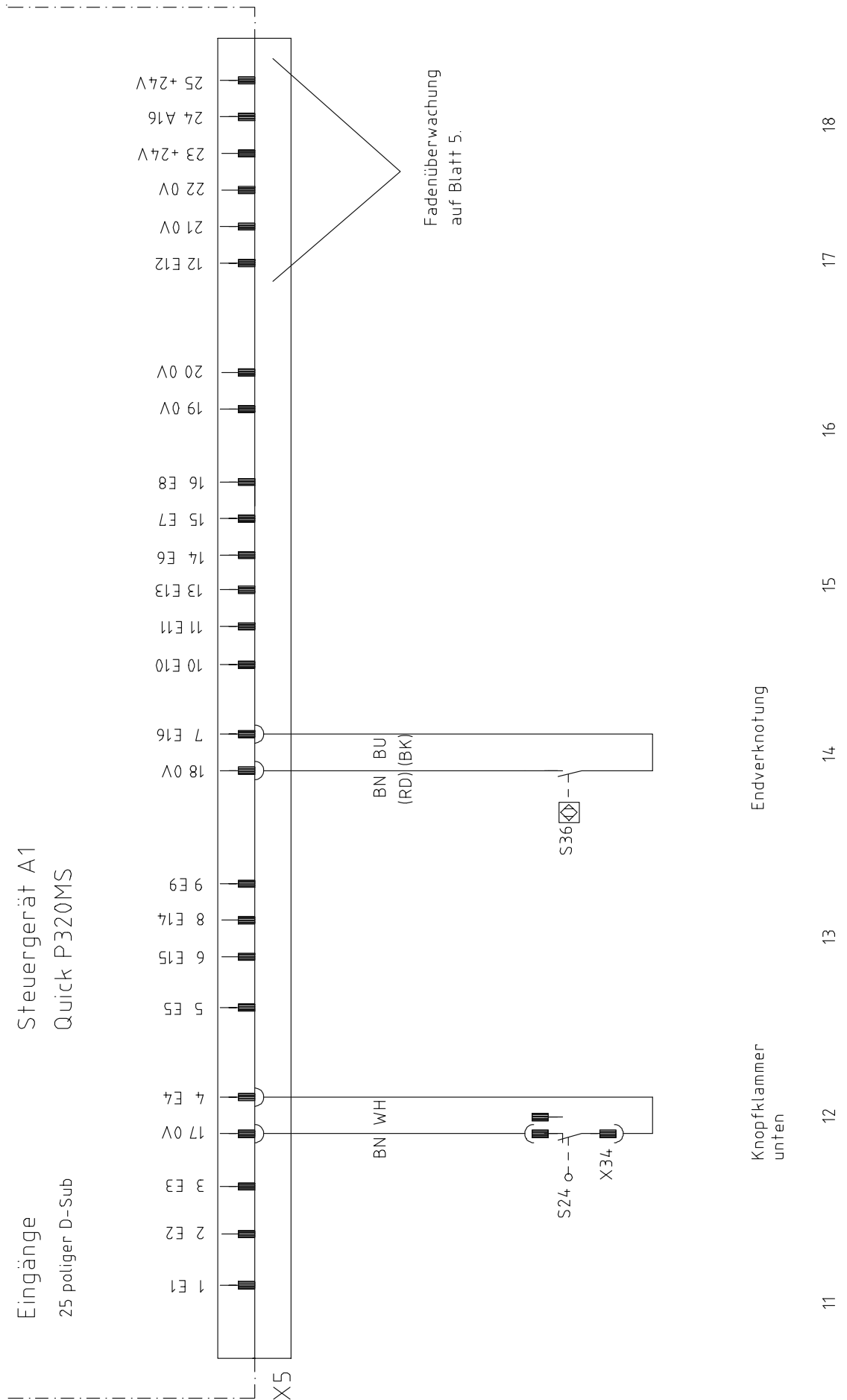
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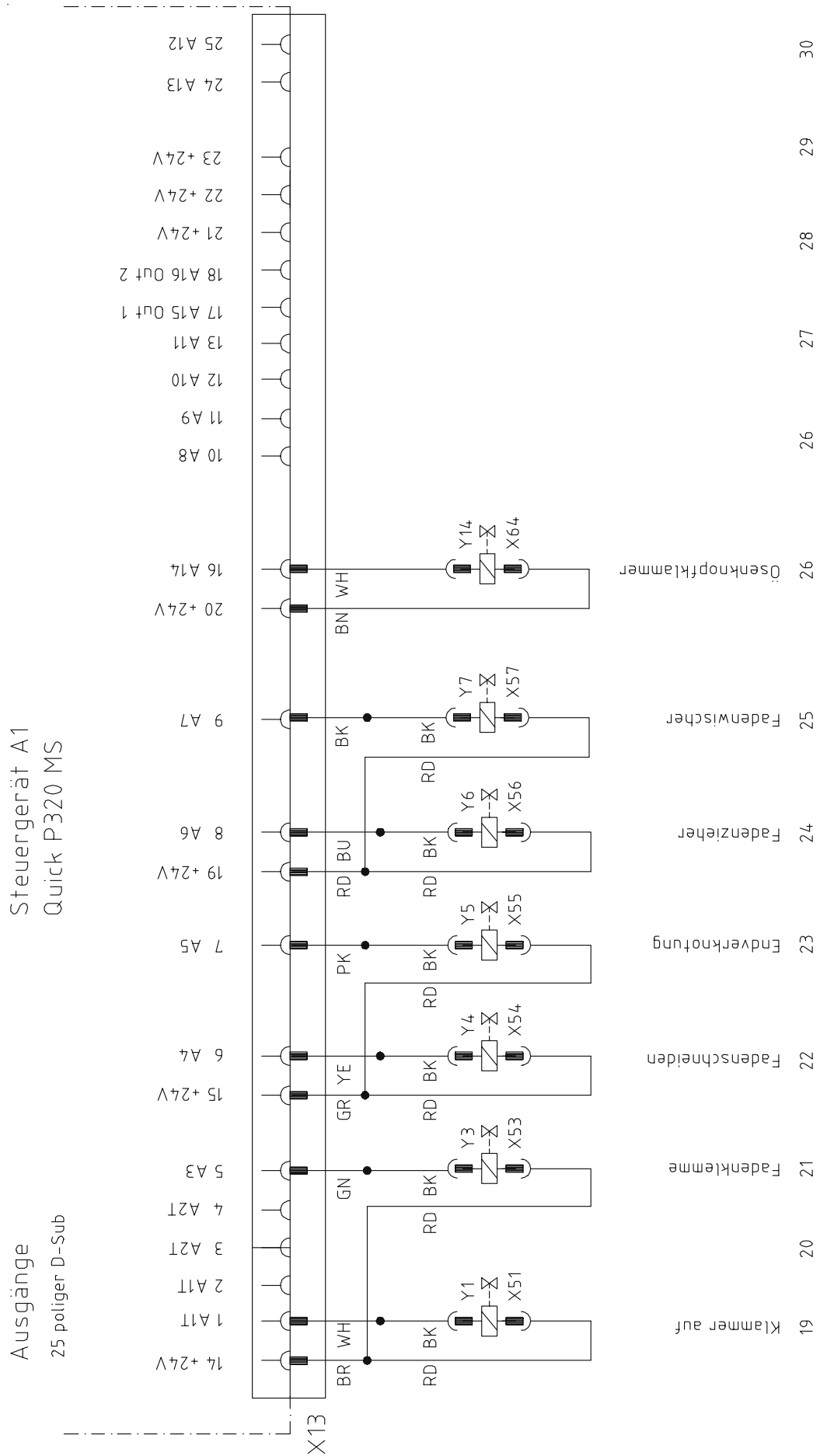
Nadelreferenz
Gabellichtschranke

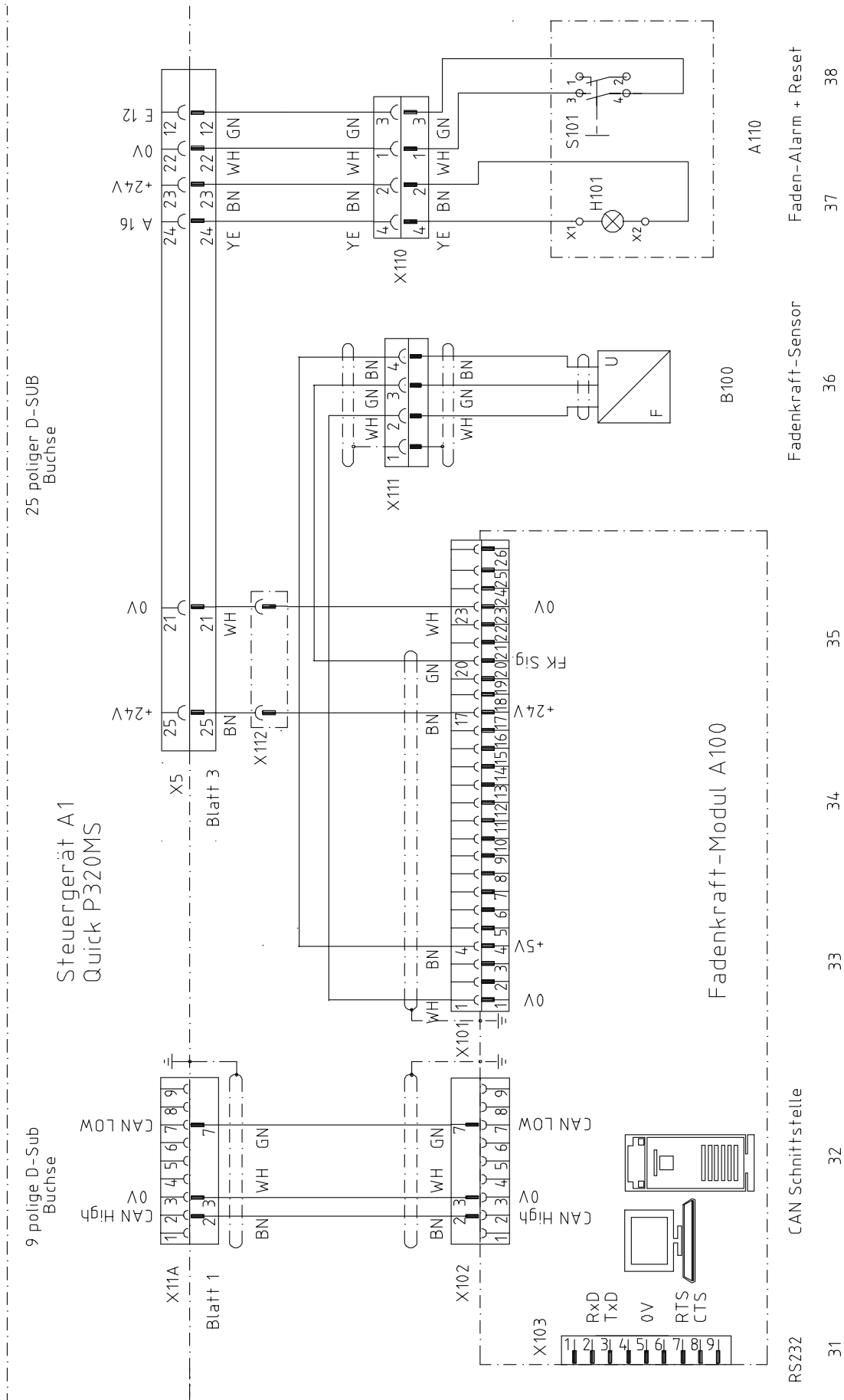
8

Nadel

7







RS232	31	CAN Schnittstelle	32
	33	Fadenkraft-Modul A100	34
	35	Fadenkraft-Sensor	36
	37	Faden-Alarm + Reset	38

PFAFF

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