

PFAFF

333^{-712/02}
333^{-712/03}

Instruction manual

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

2670704 →



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

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1 Safety

1.01 Regulations

This machine has been made according to 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 valid pollution control regulations! The locally valid regulations of the social insurance institution responsible for occupational accidents, or other supervisory authorities, must be strictly adhered to!

1.02 General notes on safety

- The machine must only be operated when the instruction manual has been fully read and understood, and only by operators who have had the necessary training!
- All notes on safety and the instruction manual of the motor manufacturer must be read before the machine is put into operation!
- All notices on the machine referring to danger and safety must be observed!
- The machine must be used for the purpose it is intended for and must not be operated without its safety devices; all regulations relevant to safety must be adhered to.
- When part sets are changed (e.g. needle, presser foot and needle plate), during threading, when the workplace is left unattended and during maintenance work, the machine must be isolated from the power supply by pressing the on/off switch or removing the plug from the mains!
- Daily maintenance work must only be carried out by appropriately trained persons!
- Repairs and special maintenance work must only be carried out by qualified technical staff or persons with the appropriate training! Exceptions to this are only allowed for adjustment and function checks by appropriately trained personnel!
- Repair work and special maintenance work must only be carried out by technical personnel or by persons with the appropriate training!
- 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 properties 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!



Caution

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

1.04 Important notes for the user

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

For further information please refer to your PFAFF agency.

1.05 Notes for operating and technical staff

1.05.01 Operating staff

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

The operating staff must be sure to observe the following items:

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

1.05.02 Technical staff

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

The technical staff must be sure to observe the following items:

- always observe the notes on safety in this instruction manual in their work!
- press the on/off switch before carrying out adjustment and repair work, and ensure it cannot be switched on again unintentionally, or isolate the machine from the power supply by removing the mains plug!
- never work on parts or equipment still connected to the power supply! Exceptions to this are only permissible according to regulations EN 50110;
- replace all safety covers after carrying out maintenance or repair work and, if applicable, close the electrical control box again!

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 or fingers in the sewing area during sewing!
Danger of injury by the needle!



While setting or adjusting the machine do not leave any objects on the table nor in the needle plate area! Objects may be trapped or flung out of the machine!



When a mechanically operated clutch motor without actuation lock is switched off, always wait until the motor has stopped! Danger of injury!

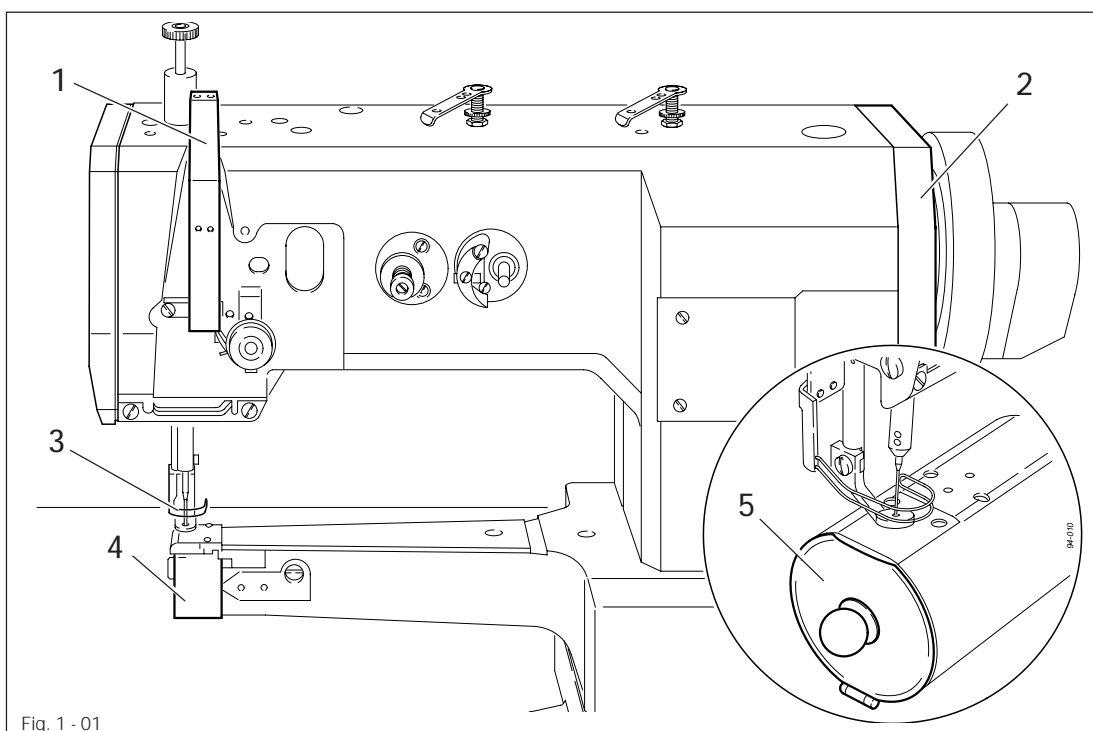


Fig. 1 - 01



Do not run the machine without take-up lever guard 1!
Danger of injury by moving take-up lever!



Do not operate the machine without belt guard 2!
Danger of injury from the running drive belts!



Do not run the machine without finger guard 3!
Danger of injury by up and down movement of needle!



Do not operate the machine without cylinder bed cover 4, or always operate it with flap 5 closed. Danger of injury from the rotating hook.

2

Proper use

The PFAFF 333-712/02 (with integrated sewing motor) and the PFAFF 333-712/03 are single-needle, lockstitch, cylinder bed sewing machines for industrial lockstitch darning work.



Any use of this machine which is not approved by the manufacturer shall be considered as improper use! The manufacturer shall not be held 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 PFAFF 333♦

Stitch type:	301 (lockstitch)
Machine model:	B
Needle system	190
Needle size in 1/100 mm:	80 to 100
Max. thread size (synthetic▲):	40/3

Max. sewing speed. *:	
PFAFF 333-712/02	1,000 s.p.m.
PFAFF 333-712/03	1,500 s.p.m.
Effective dia. of balance wheel	90 mm

Dimensions of the machine:	
Cylinder-bed end dia.:	51 mm
Cylinder-bed circumference:	approx. 165 mm
Length:	approx. 770 mm
Breadth:	approx. 380 mm
Height (above table)	approx. 630 mm

Clear workspace length:	265 mm
Clear workspace height:	115 mm
Max. fabric clearance:	
PFAFF 333-712/02	20 mm
PFAFF 333-712/03	11 mm

Net weight (sewing head):	approx. 38 kg
Mains voltage:	see instruction manual of motor
Max. power input:	see instruction manual of motor
Power supply fuse:	see instruction manual of motor

Ambient noise level:	
Workplace noise level, PFAFF 333-712/02, at a speed of 800 r.p.m.	78 dB(A)
Workplace noise level, PFAFF 333-712/03, at a speed of 1,200 r.p.m.	80 dB(A)
Noise measurement according to DIN 45636-48-A-1	

- ♦ Subject to technical alterations
- ▲ Or comparable sizes of other thread types
- * Depending on material and operation

3.02 Possible versions and subclasses

Version B:	For sewing medium materials
Work aids:	
Subclass -900/51	Thread trimmer

4 Disposal of the machine

- The proper disposal of the machine is the responsibility of the user.
- The materials used for the machine are steel, aluminium, brass and various plastics. The electrical equipment consists of plastics and copper.
- The machine must be disposed of in accordance with applicable local pollution control regulations. If necessary, a specialist is to be consulted.



Special care is to be taken that parts soiled by lubricants are separately disposed of in accordance with the applicable local environmental pollution control regulations!

5 Transportation, packing and storage

5.01 Transport zum Kundenbetrieb

Die Maschinen werden komplett verpackt geliefert.

5.02 Transportation to customer's premises

The machines are delivered completely packed.

5.03 Disposal of packing materials

The packing materials of this machine comprise paper, cardboard and VCE fibre. Proper disposal of the packing material is the responsibility of the customer.

5.04 Storage

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

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

Explanation of the symbols

6 Explanation of the symbols

In this Instruction Manual, work to be carried out and important information are drawn to your attention by symbols. The symbols have the following meanings:



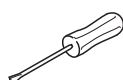
Note, information



Cleaning, care



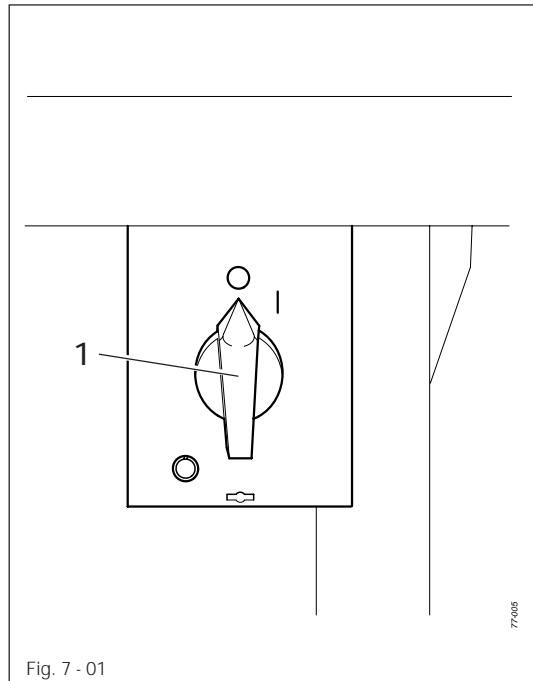
Lubrication



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

7 Controls

7.01 On/off switch

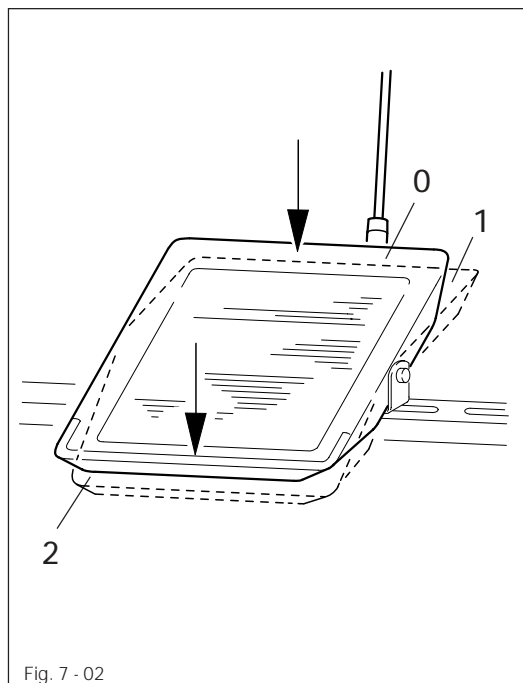


- Switch the machine on or off by turning on/off switch 1.



The illustrated on/off switch is fitted to machines with Quick motors. If other motors are used, a different switch may be fitted.

7.02 Pedal (on versions with one pedal)

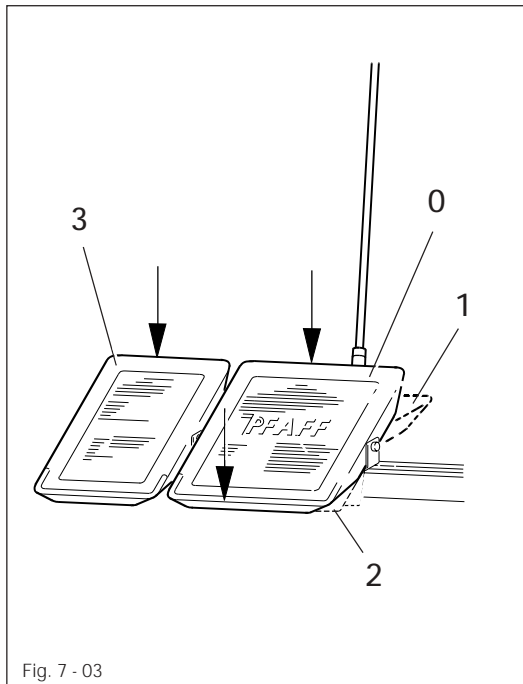


- 0 = Neutral position
- 1 = Sewing
- 2 = Thread trimming (on machines with thread trimmer -900/51) and presser foot lifting.



For further pedal functions please refer to the instruction manual of the motor manufacturer.

7.03 Pedals (on version with two pedals)

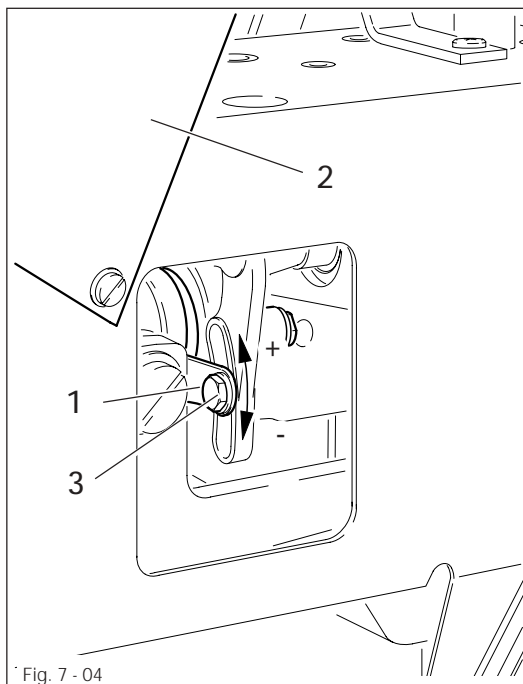


- 0 = Neutral position
- 1 = Sewing
- 2 = Thread trimming (on machines with thread trimmer -900/51).
- 3 = Raise presser foot



For further pedal functions please refer to the instruction manual of the motor manufacturer.

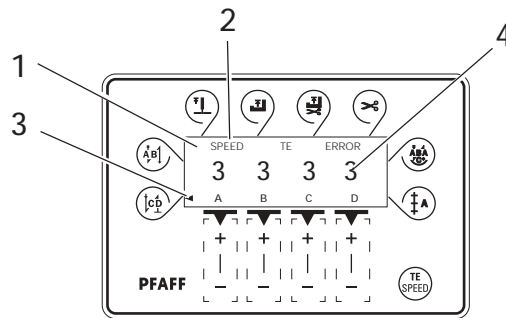
7.04 Top feed stroke adjustment



Switch off the machine!
Danger of injury due to unintentional starting of the machine!

- The top feed stroke is adjusted by repositioning lever 1. To do this, remove cover 2 at the rear side of the machine and loosen screw 3.
- After adjustment, tighten screw 3 and close cover 2.

7.05 Control panel (only PFAFF 333-712/02)



The control panel consists of display 1 and the function keys described below. The display 1 consists of a single-line alpha-numerical, 7 segment LCD display with 8 symbols. The texts 2, located above and next to the LCD display, show the respective status of the function keys and the operating status of the machine. The control panels switches on all LCD-segments and the horn automatically for a short time during the power-on phase, after which the lettering PFAFF appears on the display, until the higher-ranking control unit sends commands to the control panel.

The function keys are located around the display 1. They are foil-packed without permanent marking and without contact signal. Fixed functions are allocated to the keys, see Chapter 7.06.02 Function keys.

7.12.01 Screen displays

- Activated functions are displayed with a triangular marking 3 below or next to the respective function key.
- In the sewing mode all relevant sewing data is displayed and can be changed directly, depending on the status of the machine, see also Chapter 10 Sewing.
- During the parameter input the selected parameter number with the corresponding value is displayed, see Chapter 12.06.02 Example of a parameter input.

7.12.02 Function keys

The function keys described below are used basically to switch machine functions on and off.

Each time a key is pressed, this must be confirmed by at least one beep tone. Irrespective of the machine mode a double beep signal is given if invalid keys are pressed or maximum values reached.



If a corresponding value has to be set for the activated function, this is carried out with the corresponding +/- key. By pressing and holding the corresponding +/- key, the relevant numerical value 4 is changed slowly to begin with. If the corresponding +/- key is held down longer, the values change more quickly.



Start backtack

- This function key is not used on this machine.



End backtack

- This function key is not used on this machine.



Needle position

- If this key is pressed the "needle raised after sewing stop" function is switched on or off.
When the function is switched on, the needle positions at t.d.c. after sewing stops.



Foot position after stop

- This function key is not used on this machine.



Foot position after trimming

- This function key is not used on this machine.



Thread trimmer

- If this key is pressed the thread trimming function is switched on or off.



Darning program

- This function key is not used on this machine.



One-point tacking

- Press this key once to activate the one-point tacking function.
This function makes it possible to sew individual stitches.



TE/Speed

- If this key is pressed once the speed limit for the sewing mode is activated.
- If this key is pressed twice (within 5 seconds) the machine changes from sewing to input mode.

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 that will reliably support 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.

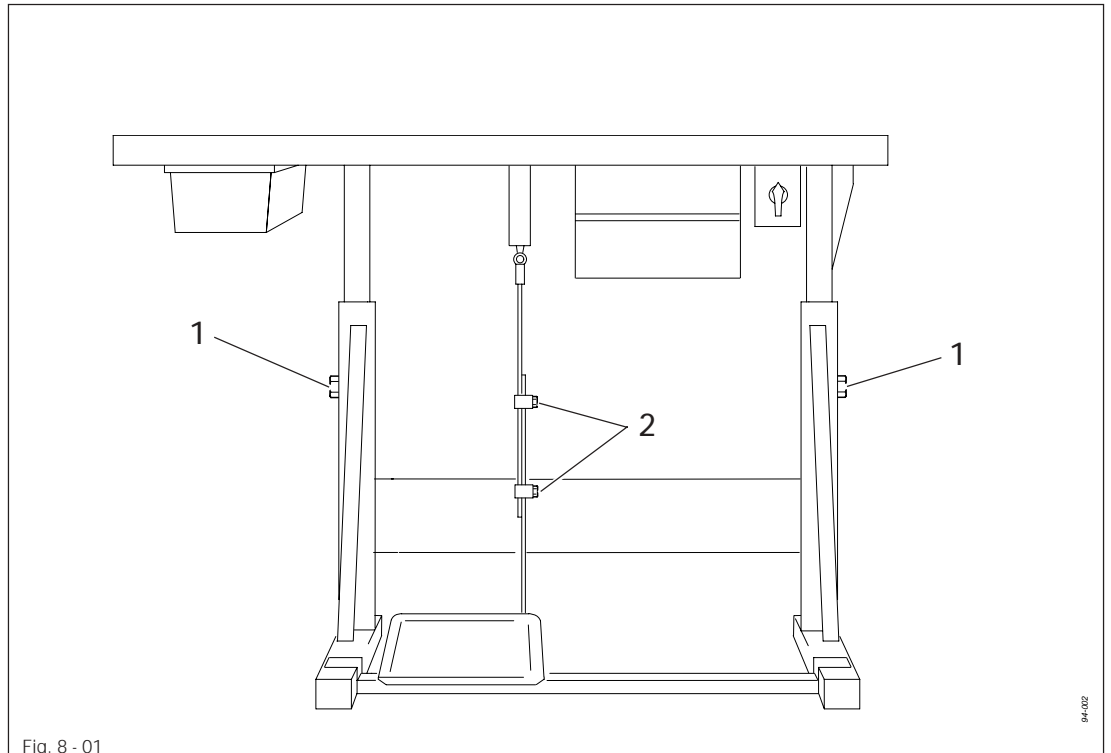
8.01 Installation

The site where the machine is installed must be provided with suitable connections for electric current and compressed air. It must be ensured that the standing surface of the machine site is firm and horizontal and that sufficient lighting is available.



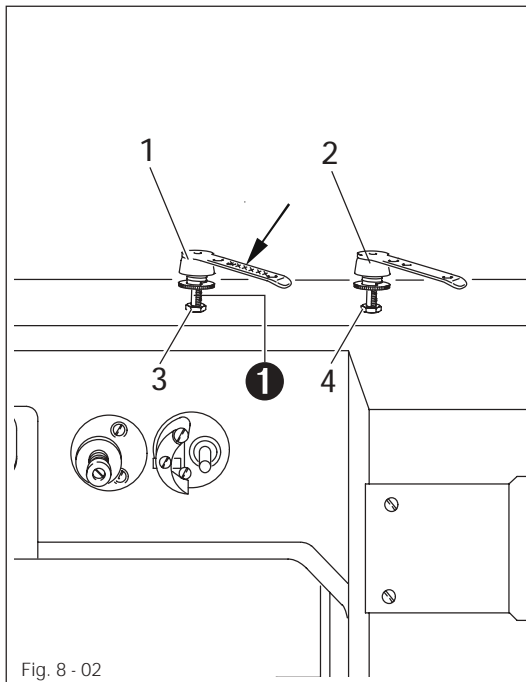
For packing and transportation reasons the table top is in the lowered position.
The table height is adjusted as described below.

8.01.01 Adjusting the table height



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

8.01.02 Mounting the thread retainers

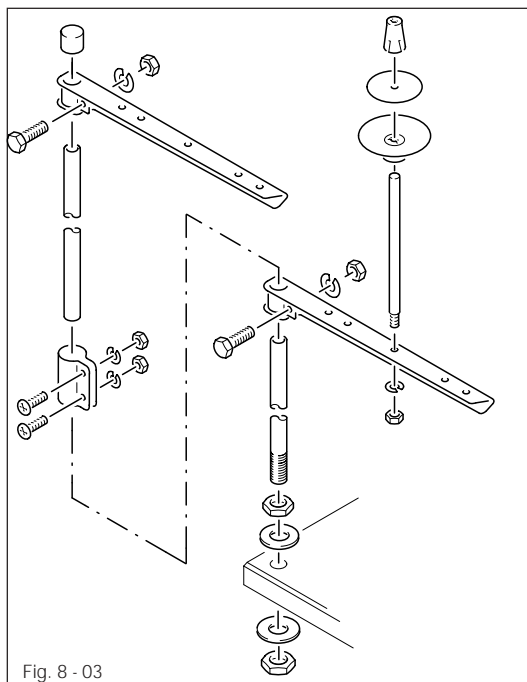


- Screw the thread retainers 1 and 2 into the tapped holes on the top side of the machine and fix them with nuts 3 and 4.



When mounting the thread retainers care must be taken to see that the thread retainer with the weak spring (recognizable from the engraving 91-141 873-91 on the top side) is mounted in position 1.

8.01.03 Assembling the reel stand



- Assemble the reel stand as shown in Fig. 8-03.
- Afterwards insert the stand in the hole in the table top and secure it with the nuts provided.

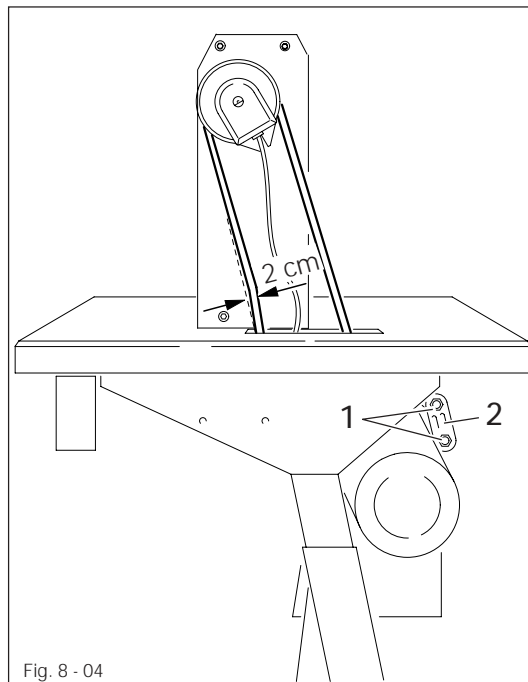
8.01.04 Fitting the sewing lamp[▲]

- Screw the sewing lamp onto the table top (wood screws 5 x 35) and have it connected by a mechanic.

[▲]The sewing lamp is available as an option.

8.02 Tension the V-belt/fit V-belt guard (only PFAFF 333-712/03)

8.02.01 Tensioning the v-belt

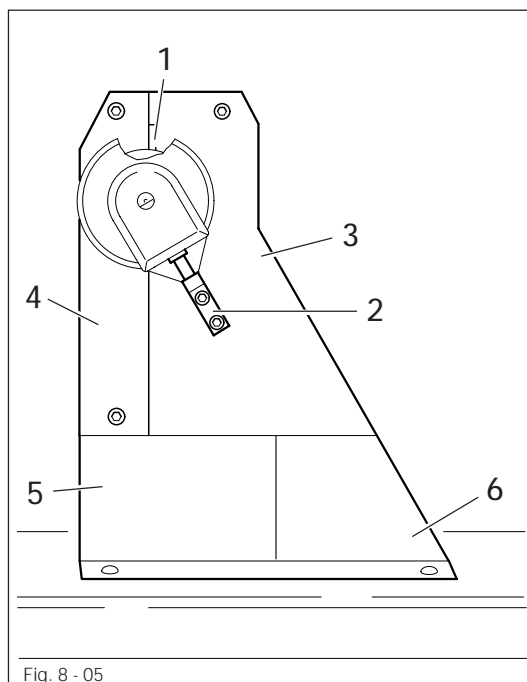


- Loosen nuts 1.
- Tension v-belt by adjusting bracket 2.
- Tighten nuts 1.



Fig. 8-04 shows a Quick motor. If a different motor is used, please refer to the instruction manual of the motor manufacturer.

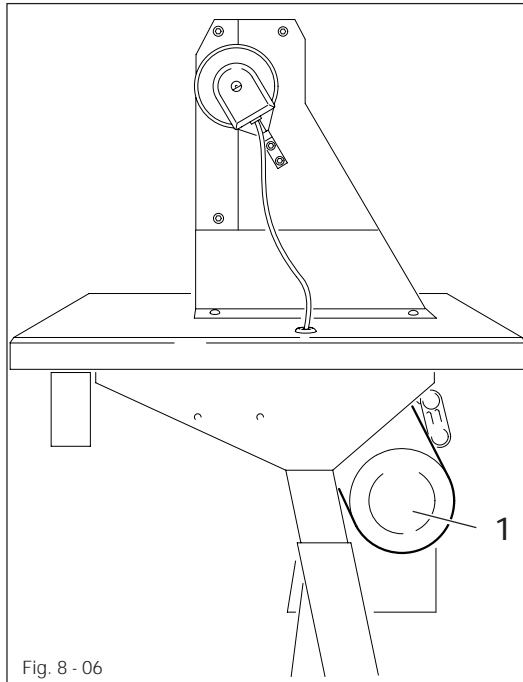
8.02.02 Fitting the upper belt guard



If a large balance wheel is in use, break off corner 1 of belt guard part 3.

- Screw stop piece 2 onto belt guard part 3.
- Screw on belt guard part 3 onto the housing.
- Screw on belt guard part 4 onto the housing.
- Secure belt guard parts 5 and 6 onto the table top.

8.02.03 Fitting the lower belt guard



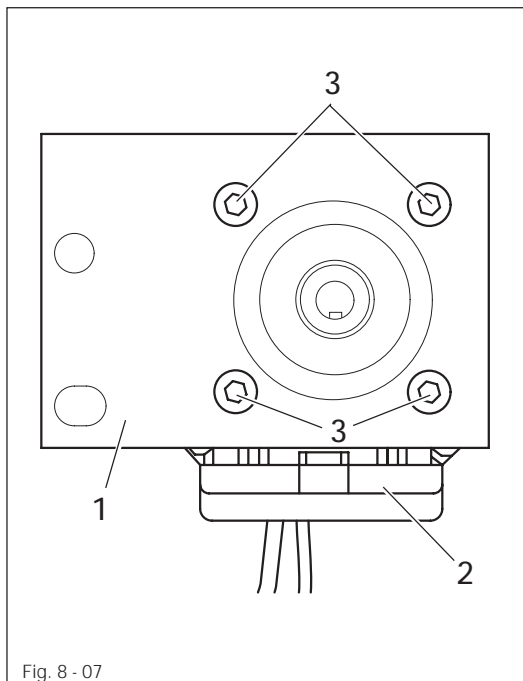
- Position belt guard 1 so that motor pulley and v-belt can run freely.



Fig. 8-04 shows a Quick motor. If a different motor is used, please refer to the instruction manual of the motor manufacturer.

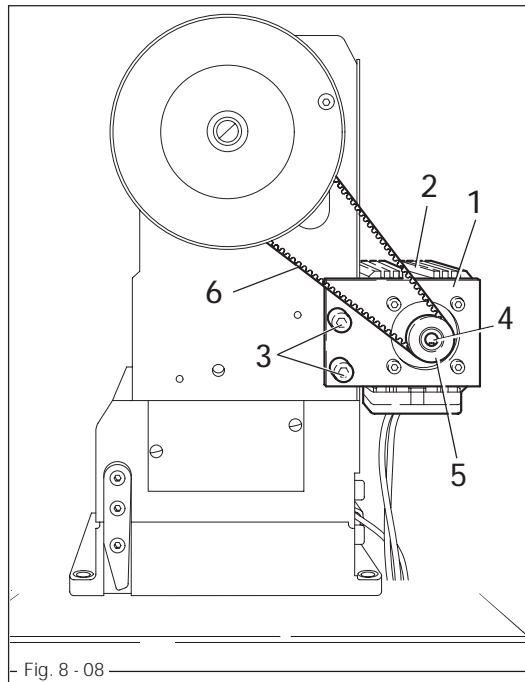
8.03 Mounting the flange motor (PFAFF 333-712/02)

8.03.01 Mounting the flange motor to the bearing plate



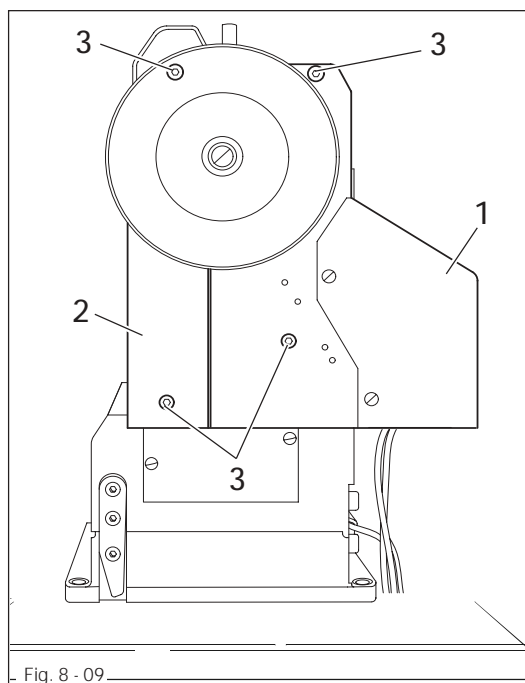
- Attach bearing plate 1 to motor 2 with screws 3 as shown in Fig. 8 - 07.

8.03.02 Mounting the flange motor to the machine

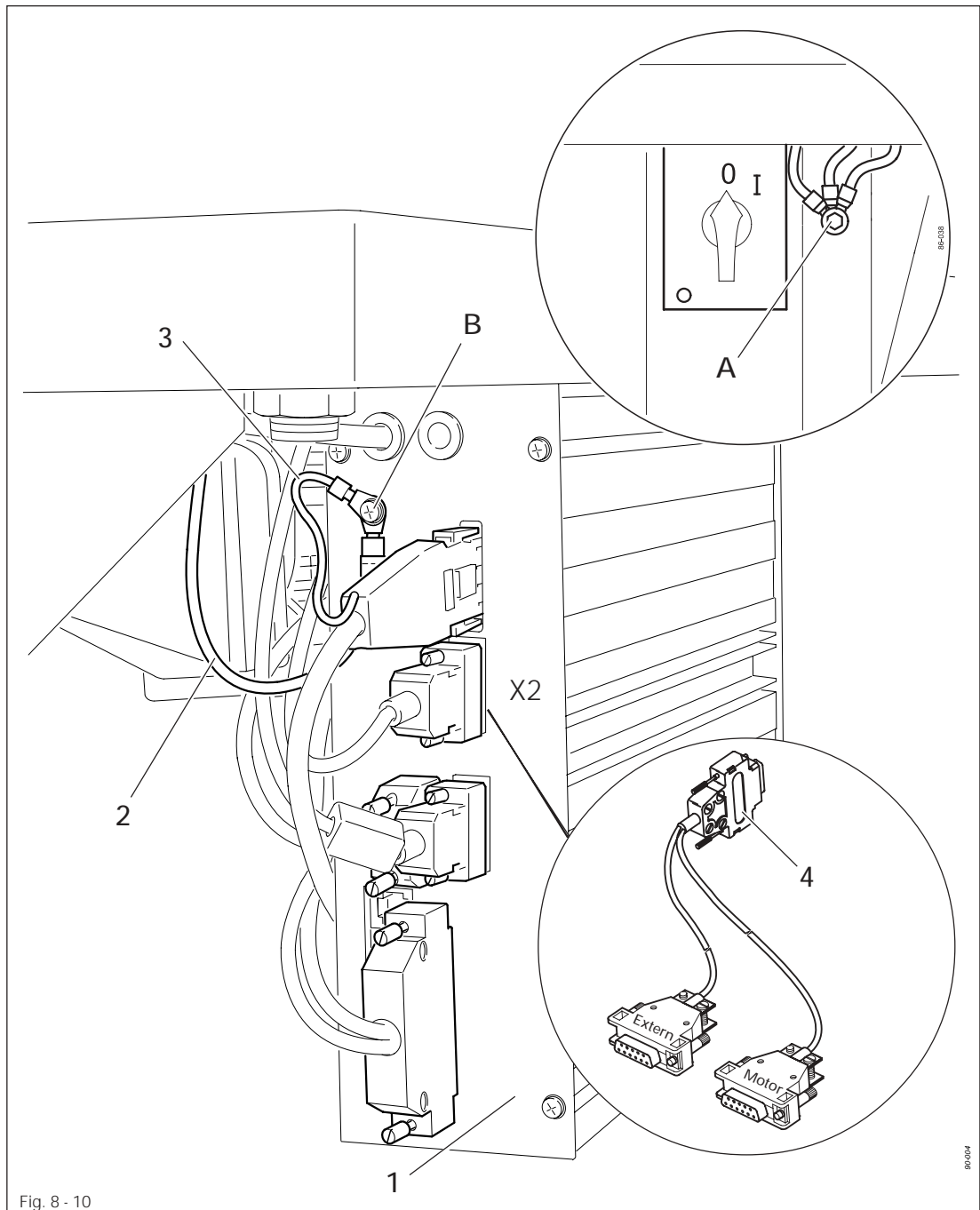


- Attach bearing plate 1 of motor 2 to the machine case with screws 3 (only tighten screws 3 slightly).
- Remove the wedge from motor shaft 4.
- Fit toothed belt wheel 5 to the motor shaft 4, so that the point of the screw is located in the groove of the motor shaft.
- Fit toothed belt 6.
- Tension the toothed belt by turning the motor.

8.03.03 Mounting the belt guard of the flange motor

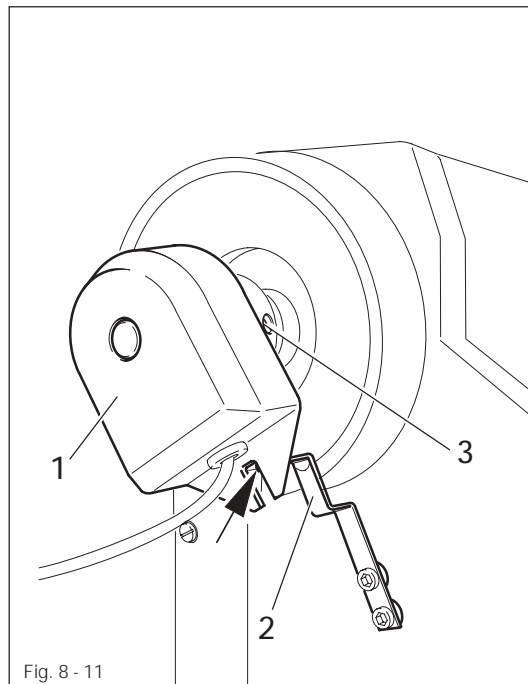


- Attach the right section of the belt guard 1 and the left section of the belt guard 2 with screws 3.



- Connect all plugs as labelled to the control box 1.
- On the PFAFF 333-712/02 plug 4 of the adapter cable (see enlarged illustration) is to be inserted into socket X2. The motor is to be connected to the plug "motor" and the synchronizer to the plug "external".
- Screw the earth cable from the sewing head and the main switch to earth point A.
- Connect earth point A to earth point B with earth cable 2.
- Screw the earth cable 3 from the motor to earth point B.

8.05 Fitting the synchronizer (only PFAFF 333-712/02)



- Slide synchronizer 1 onto the shaft, so that the position stop 2 is positioned in the groove of the synchronizer (see arrow).
- Tighten screws 3.
- Connect the cable of synchronizer 1 (see Chapter 8.04).


8.06 Commissioning

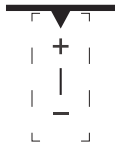
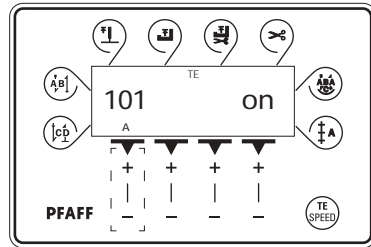
- Check the machine for any damage, particularly its electrical wiring and pneumatic tube connections.
- Clean the machine thoroughly and afterwards fill it with oil and oil the machine (see Chapter 11, Care and maintenance).
- Have a mechanic check whether the motor of the machine can be used with the available power supply and that the motor is correctly connected to the junction box. **Do not run the machine** if there is any discrepancy.
- When the machine is running, the balance wheel must turn towards the operator. If it does not, have the motor connection changed by a mechanic.

8.07 Switching the machine on/off

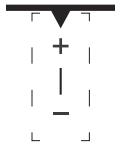
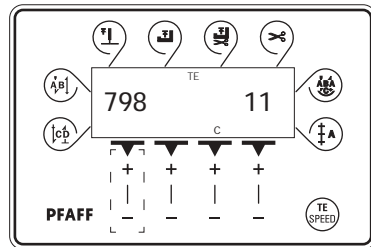
- Switch the machine on/off (see Chapter 7.01 On/off switch).
- Carry out a running test.

8.08 Basic setting of the machine drive unit (only PFAFF 333-712/02)

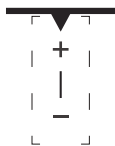
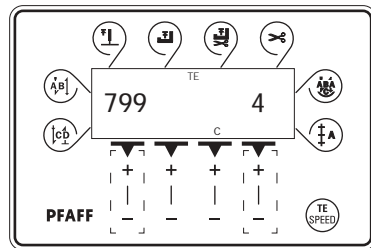
- Switch on the machine.
- 2 x  ● Press TE/Speed key twice to call up the input mode.



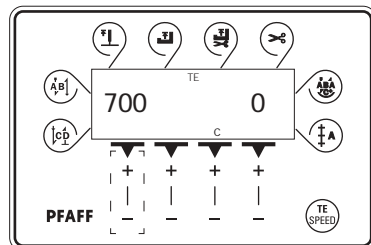
- By pressing the corresponding +/- key, call up parameter "798" and select service level "C", see Chapter 12.06.01 Selecting the user level.



- By pressing the corresponding +/- key, call up parameter "799" (selection of the machine class).



- By pressing the corresponding +/- key, set the value for the parameter at "4".
- By pressing the corresponding +/- key, call up parameter "700".



- By operating the pedal, sew one stitch.
- Turn the balance wheel in the direction of sewing until the tip of the needle is level with the top edge of the needle plate.



- Conclude the adjustment of the sewing motor by pressing the TE/Speed key.

9

Setting up



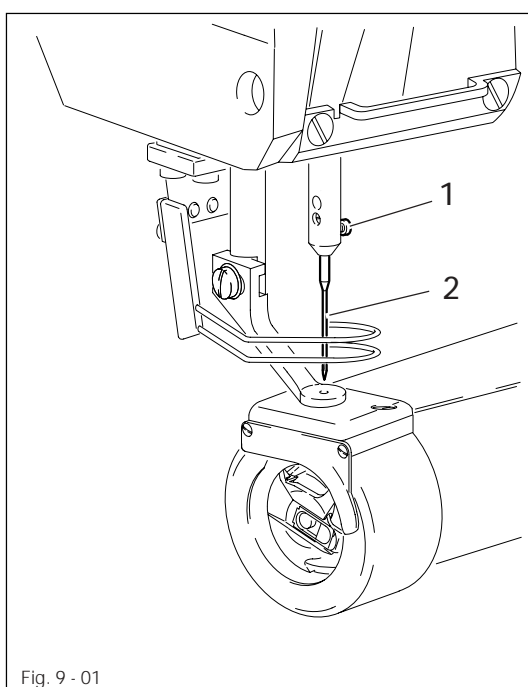
All instructions and regulations in this manual must be observed. Special attention must be given to all safety regulations!



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 the 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 due to unintentional starting of the machine!

Only use needles of system 134-35.

- Set needle bar at top position and loosen screw 1.
- Push needle 2 fully in (the long needle groove must face to the left).
- Tighten screw 1 again.



The choice of needle depends on the version of the machine and the sewing thread and material in use (see **Chapter 3, Specifications**).

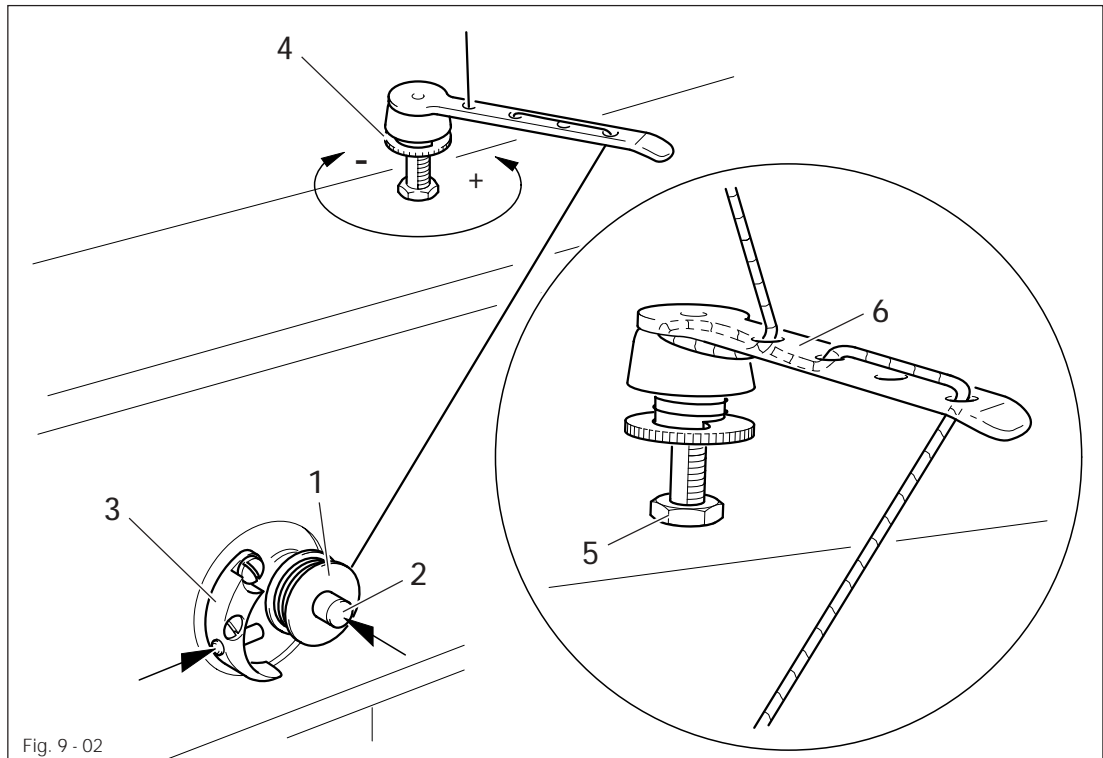


Fig. 9 - 02



Fig. 9-02 shows a machine with thread trimmer -900/51.

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



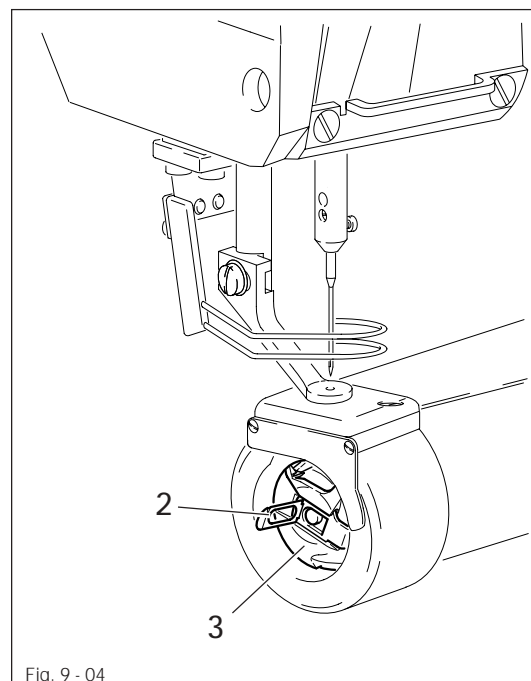
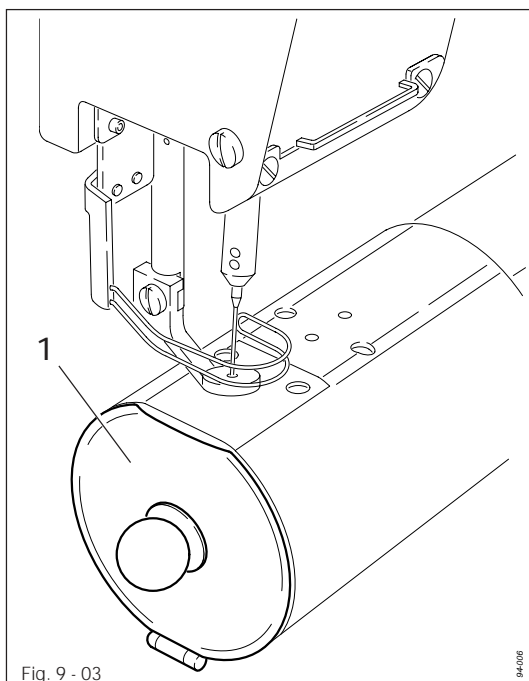
The bobbin is wound during sewing.

- The tension of the thread wound onto bobbin 1 is set on knurled screw 4.
- The bobbin winder will stop when sufficient thread is wound onto bobbin 1.

If the thread is wound on unevenly:

- Loosen nut 5.
- Turn thread guide 6 as required.
- Tighten nut 5 again.

9.03 Threading the bobbin thread and regulating the bobbin thread tension



Switch off the machine!
 Danger of injury due to unintentional starting of the machine!

Remove the bobbin case:

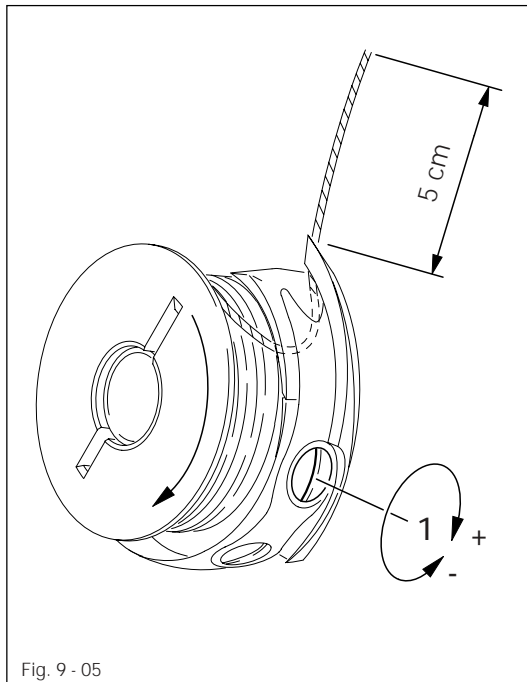
- On the PFAFF 333-712/02 open flap 1.
- Lift latch 2 and remove bobbin case 3.

Inserting the bobbin case:

- Insert the full bobbin case so that it clicks firmly into place.
- On the PFAFF 333-712/02 close flap 1 again.

9.04

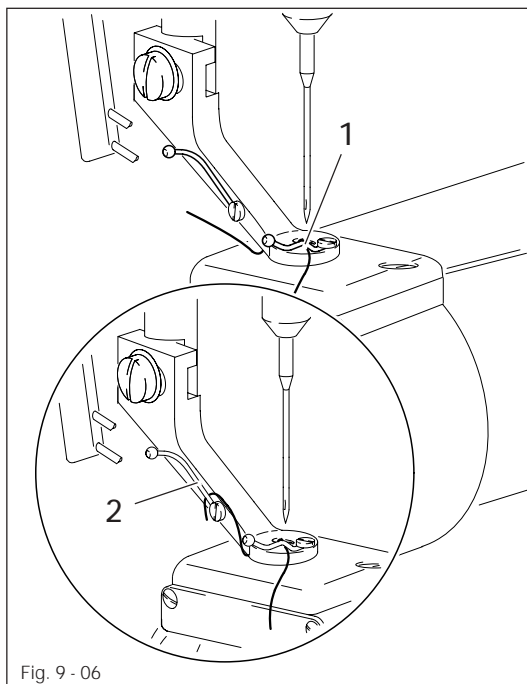
Threading the bobbin thread and regulating the bobbin thread tension



- Thread the bobbin as shown in Fig. 9-05.
- When the thread is pulled, the bobbin must rotate as shown by the arrow.
- Regulate the bobbin thread tension on screw 1.

9.05

Threading the gimp thread



Switch off the machine!
Danger of injury due to
unintentional starting of the
machine!

- Place gimp thread under spring 1 and thread it through the needle hole.
- After darning, clamp gimp thread under spring 2 to ensure the gimp thread does not have to be re-threaded for the next darning operation.

9.06 Threading needle thread/adjusting needle thread tension (on the Pfaff 333-712/02)

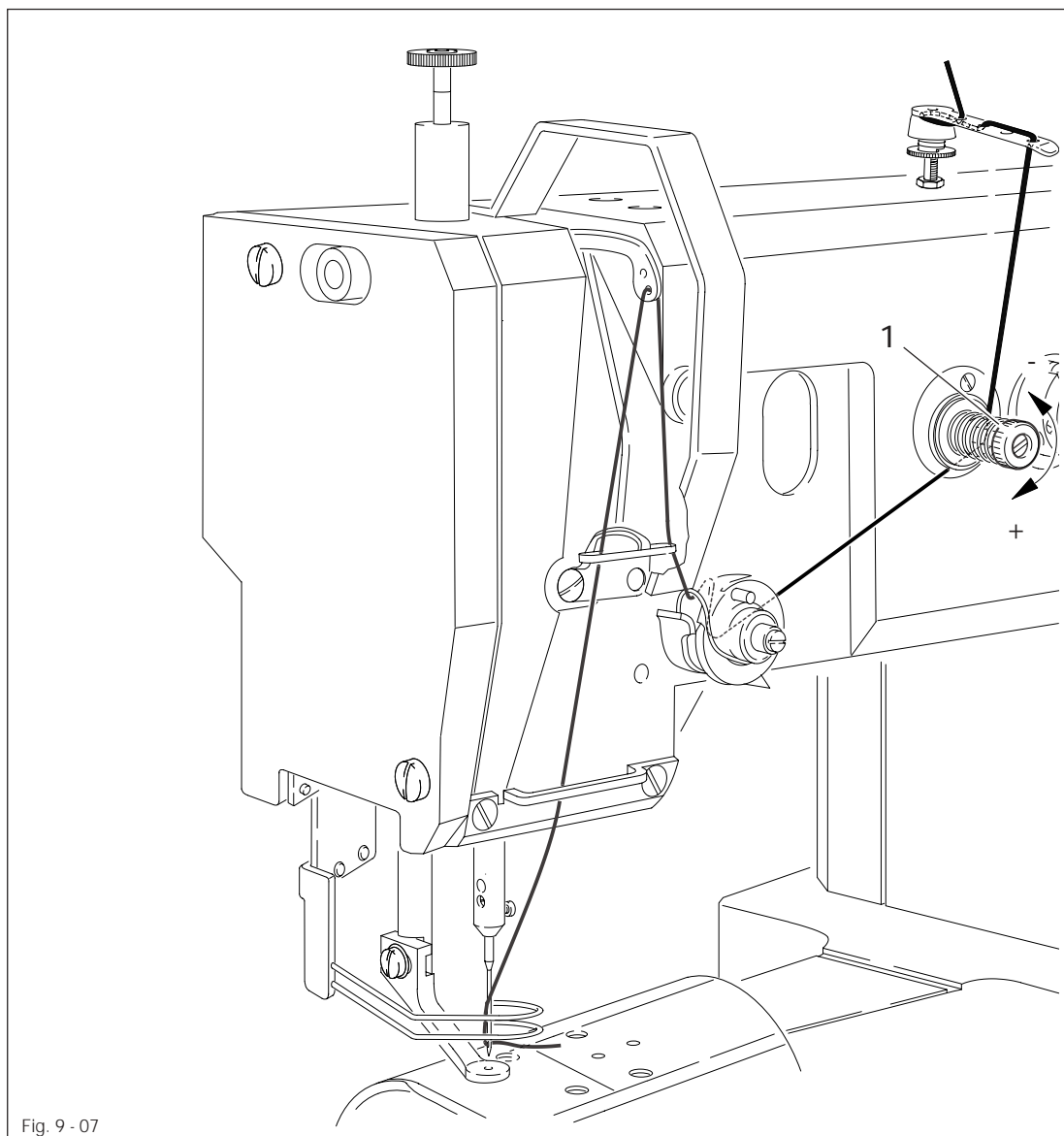


Fig. 9 - 07



Switch off the machine!
Danger of injury due to unintentional starting of the machine!

- Thread needle thread as shown in Fig. 9-07.
Be sure to thread the needle from the left.
- Regulate the needle thread tension by turning knurled screw 1.

9.07

Threading needle thread/adjusting needle thread tension

(on the PFAFF 333-712/03)

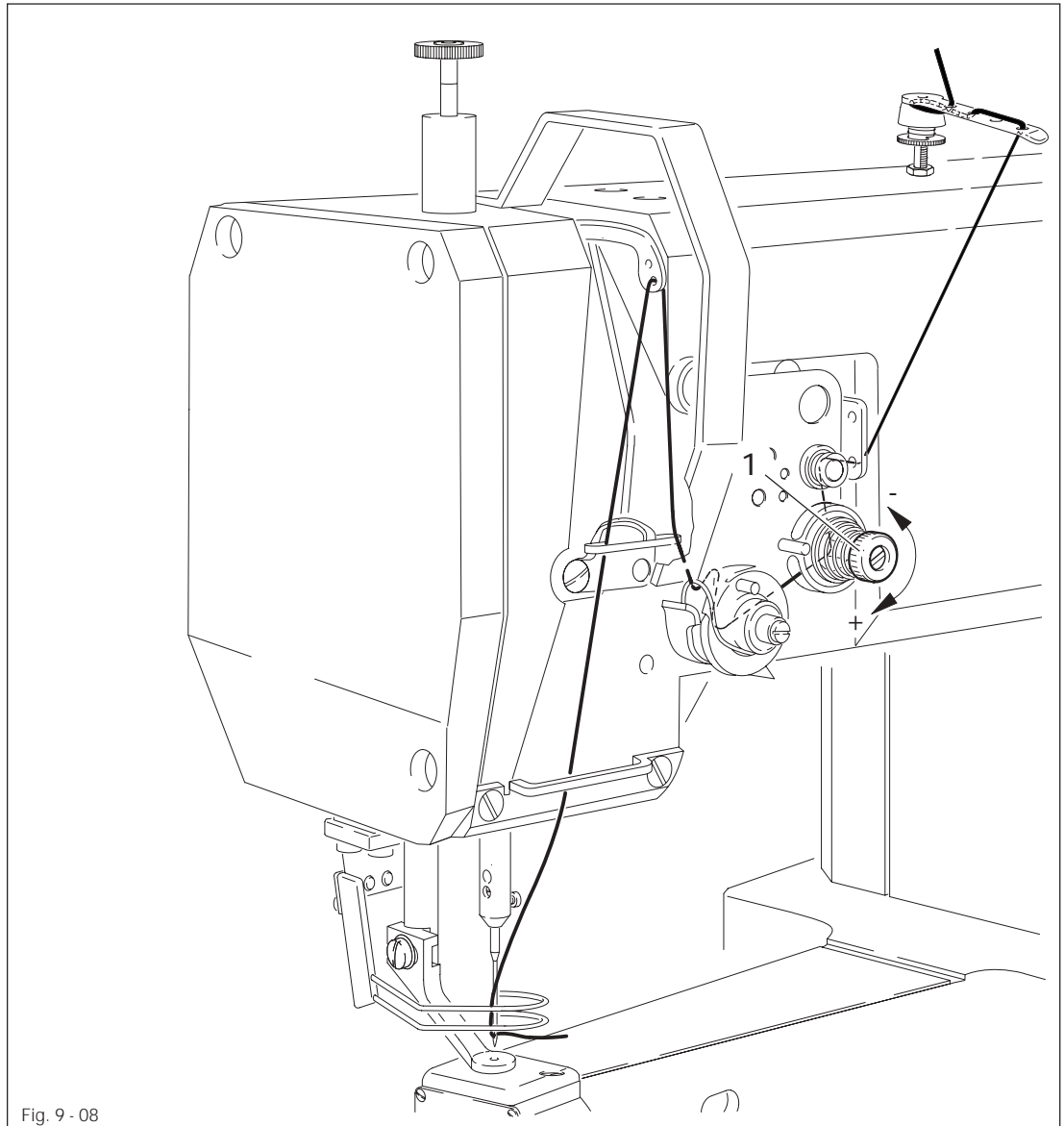


Fig. 9 - 08



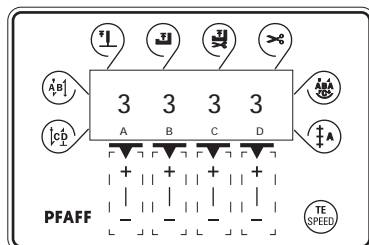
Switch off the machine!


Danger of injury due to unintentional starting of the machine!

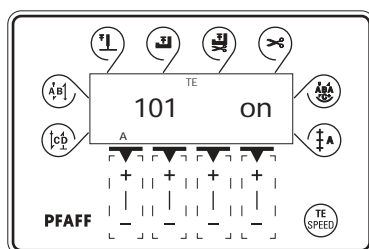
- Thread needle thread as shown in Fig. 9-08.
Be sure to thread the needle from the left.
- Regulate the needle thread tension by turning knurled screw 1.

9.08 Setting the stitch count function for the bobbin thread control
(only PFAFF 333-712/02)

- Switch on the machine.



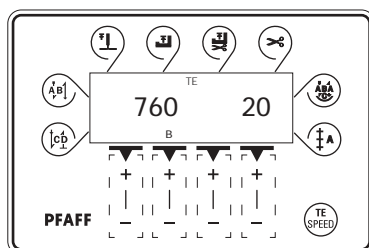
- 2 x  ● Press the parameter input key twice.



- Call up parameter "798" and select the technician level B, see Chapter 12.06.01 Selecting the user level.



- By pressing the corresponding +/- key select the parameter "760".



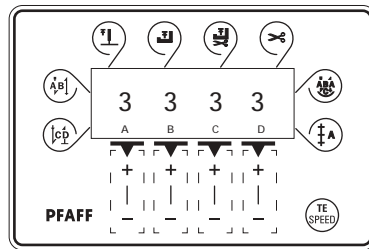
- By pressing the corresponding +/- key set the number of stitches to be sewn with one bobbin.
The selected value is multiplied by 200 and the result is the number of stitches.
Example display $20 \times 200 = 4000$ stitches.



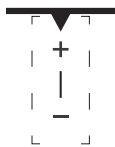
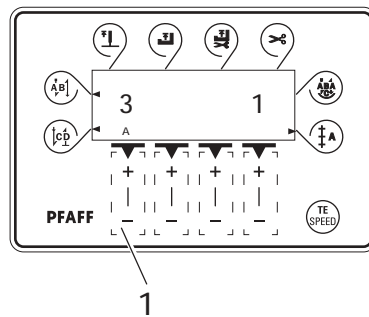
- Store the input by ending the parameter input function.

9.09 Setting the one-point tacking function (only on the PFAFF 333-712/02)

- Switch on the machine.



- Press the key for one-point tacking.

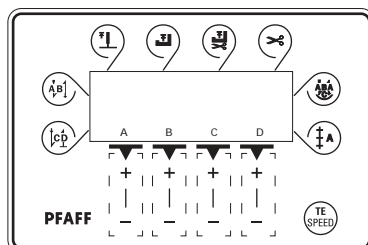


- Press +/- on key 1 to set the number of start stitches (for these stitches the intermittent thread tension release function is switched off)



10 Sewing

In the sewing mode all relevant settings for the sewing operation are displayed. Functions can be switched on or off by pressing a key.

- Switch on the machine.



Functions in the manual sewing mode, also see **Chapter 7.06.02 Function keys:**

-  Needle position raised on/off
-  Thread trimming on/off

- Sewing is carried out with the pedal functions, see **Chapter 7.02 Pedal..** or **7.03 Pedals..**

10.01 Sewing with the one-point tacking function



If the one-point tacking function is activated when sewing begins, first of all the preselected start stitches are sewn (see **Chapter 9.09 Setting the one-point tacking function**).

The machine then stops.

Each time the pedal is now operated, the machine sews one stitch.

11 Care and maintenance

11.01 Care and maintenance intervals

Cleaning	daily, in continuous operation several times
Oil the hook	daily, before putting into operation
Clean hook	once a week
General oiling	twice a week
Oil needle-head parts	twice a week



The maintenance intervals in the table refer to the average machine running time in single-shift operation.

If the machine running time is longer than this, it is advisable to shorten these intervals.

11.02 Cleaning



Switch off the machine!
 Danger of injury due to unintentional starting of the machine!

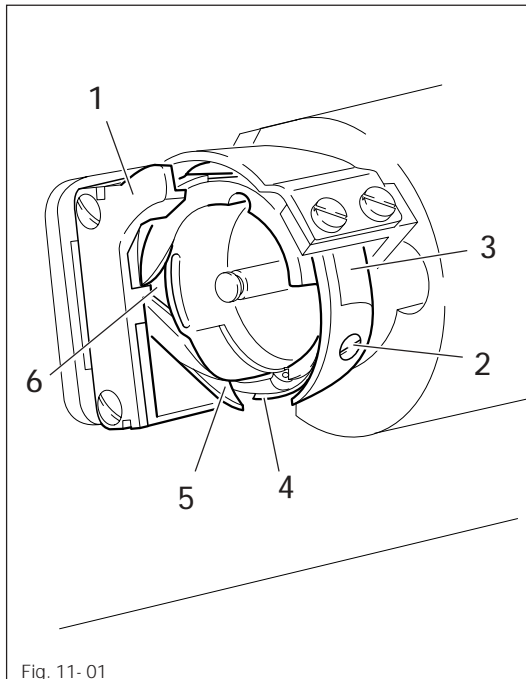


Fig. 11-01

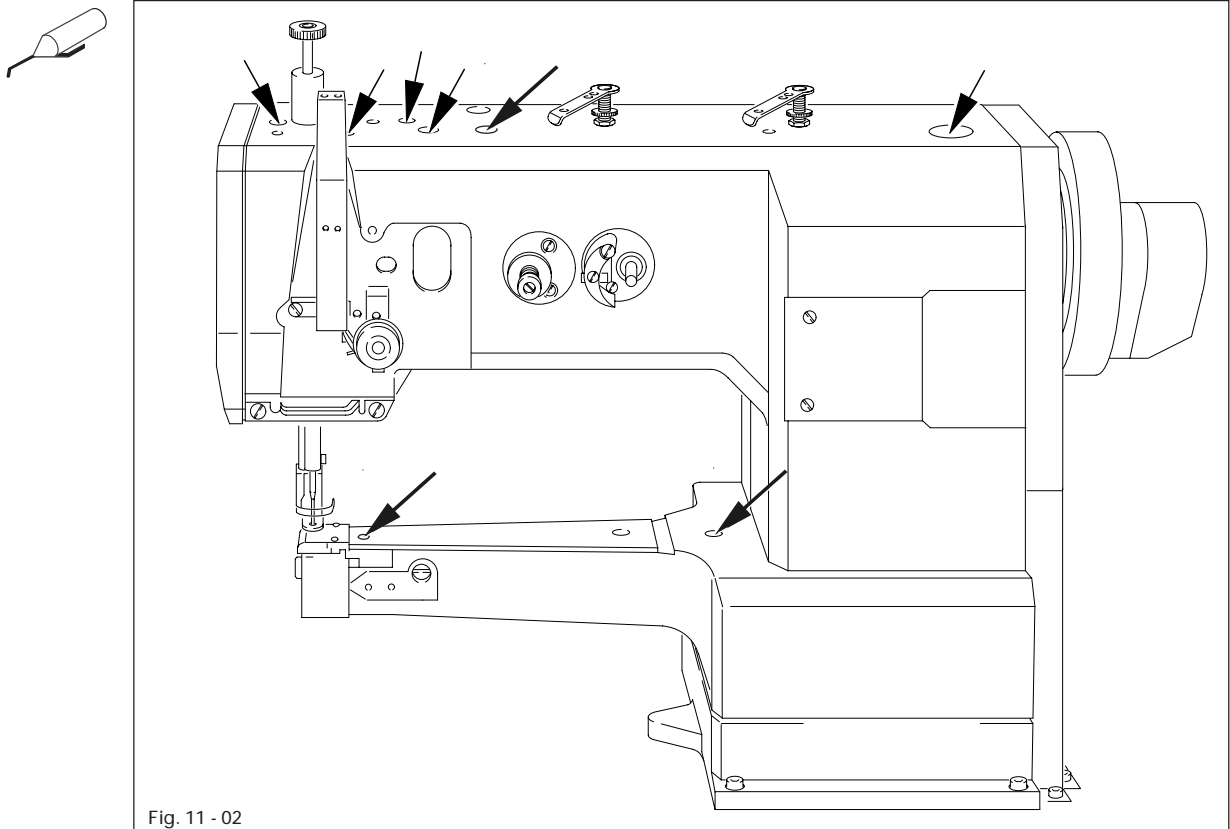
Cleaning the hook area

- Clean hook area with a brush daily, in continuous operation several times daily.

Cleaning the hook

- On the PFAFF 333-712/02 open the flap or on the PFAFF 333-712/03 remove the cylinder bed cover.
- Set needle bar at its highest position.
- Remove top of bobbin case together with bobbin
- Unscrew and remove bobbin case position stop 1.
- Remove screw 2 and take off hook gib 3.
- Turn balance wheel until point 4 is aligned with point 5.
- Take out bobbin case and clean hook race with petroleum spirit.
- When inserting the bobbin case, make sure that the lug on the rear side of bobbin case position stop 1 enters into groove 6.
- Screw on hook gib 3.
- Insert bobbin case and close cylinder-bed cap.
- On the PFAFF 333-712/02 close the flap or on the PFAFF 333-712/03 replace the cylinder bed cover.

11.03 General oiling

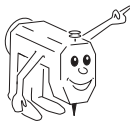


Switch off the machine!
Danger of injury due to unintentional starting of the machine!

- Apply oil at all bearing points above the table (see arrows) twice a week.



Only use oil with a viscosity of $22.0 \text{ mm}^2/\text{s}$ at 40°C and a density of 0.865 g/cm^3 at 15°C !



We recommend PFAFF sewing-machine oil, part No. 280-1-120144.

11.04 Oiling the sewing hook

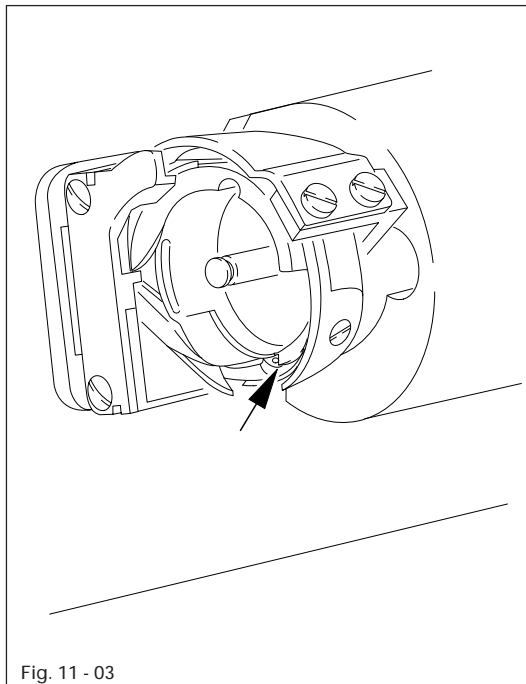


Fig. 11 - 03



Switch off machine!
Danger of injury by unintentional starting of the machine!

- Open the cylinder-bed cap.
- Apply 1 or 2 drops of oil in hole 1 in the hook race (see arrow)..
- Refit the cylinder-bed cap.



Only use oil with a viscosity of 22.0 mm²/s at 40° C and a density of 0.865 g/cm³ at 15°C!



We recommend PFAFF sewing-machine oil, part No. 280-1-120 144.

11.05 Oiling the needle-head parts

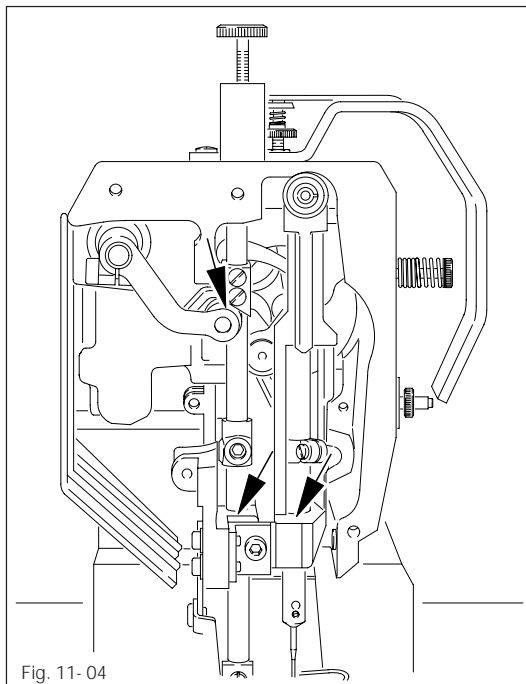


Fig. 11- 04

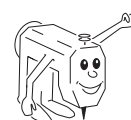


Switch off the machine!
Danger of injury due to unintentional starting of the machine!

- Remove the faceplate.
- Oil all moving parts and bearing points (see arrows) twice a week.
- Refit the faceplate.



Only use oil with a viscosity of 22.0 mm²/s at 40° C and a density of 0.865 g/cm³ at 15°C!



We recommend PFAFF sewing-machine oil, part No. 280-1-120144.

12 Adjustment



Unless stated otherwise, during all adjustment work the machine must be disconnected from the electric and pneumatic power supply!
Danger of injury if the machine is started accidentally!

12.01 Notes on adjustment

All adjustments in this instruction manual refer to a completely assembled machine and must only be carried out by **appropriately trained technical personnel**. Machine covers that have to be removed and replaced for checks and adjustment work are not mentioned in the text.

The screws and nuts indicated in brackets () are for the fixation of machine parts that have to be unscrewed before adjustment and tightened again afterwards.

12.02 Tools, gauges and other equipment for adjusting

- Screwdrivers with blade widths from 2 to 10 mm
- Spanners (wrenches) in sizes from 7 to 14 mm
- Allen keys from 2 to 6 mm
- Metal rule (part No. 08-880218-00)
- Needle-rise gauge (part No. 61-111600-01)
- Screw clamp (part No. 61-111600-35/001)
- Needles
- Sewing thread and material for stitching off

12.03 Abbreviations

t.d.c. = top dead centre

b.d.c. = bottom dead centre

12.04 Adjustment of the basic machine

12.04.01 Needle position in needle hole

Requirement

The needle must be exactly centred in the needle hole.

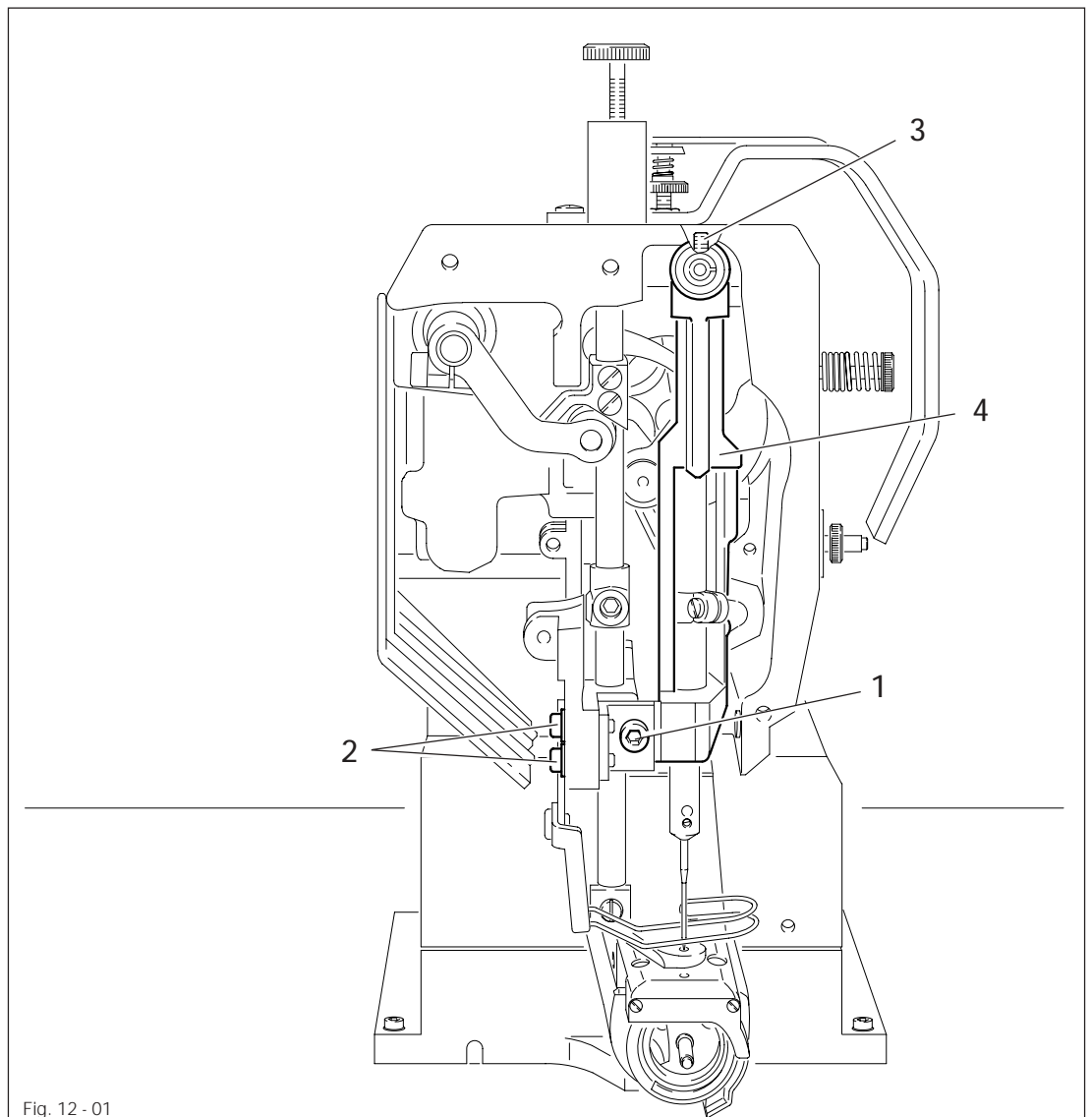
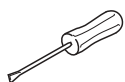


Fig. 12 - 01



- Loosen screws 1, 2 and 3.
- Turn the balance wheel to set the needle just above the needle hole.
- Re-position needle bar frame 4 according to **Requirement**.
- Tighten screws 1, 2 and 3.

Adjustment

12.04.02 Needle height (preliminary adjustment)

Requirement

With the needle bar at b.d.c. the clearance between needle bar and needle plate must be 23 mm (on the PFAFF 333-712/02) and 15 mm (on the PFAFF 333-712/03).

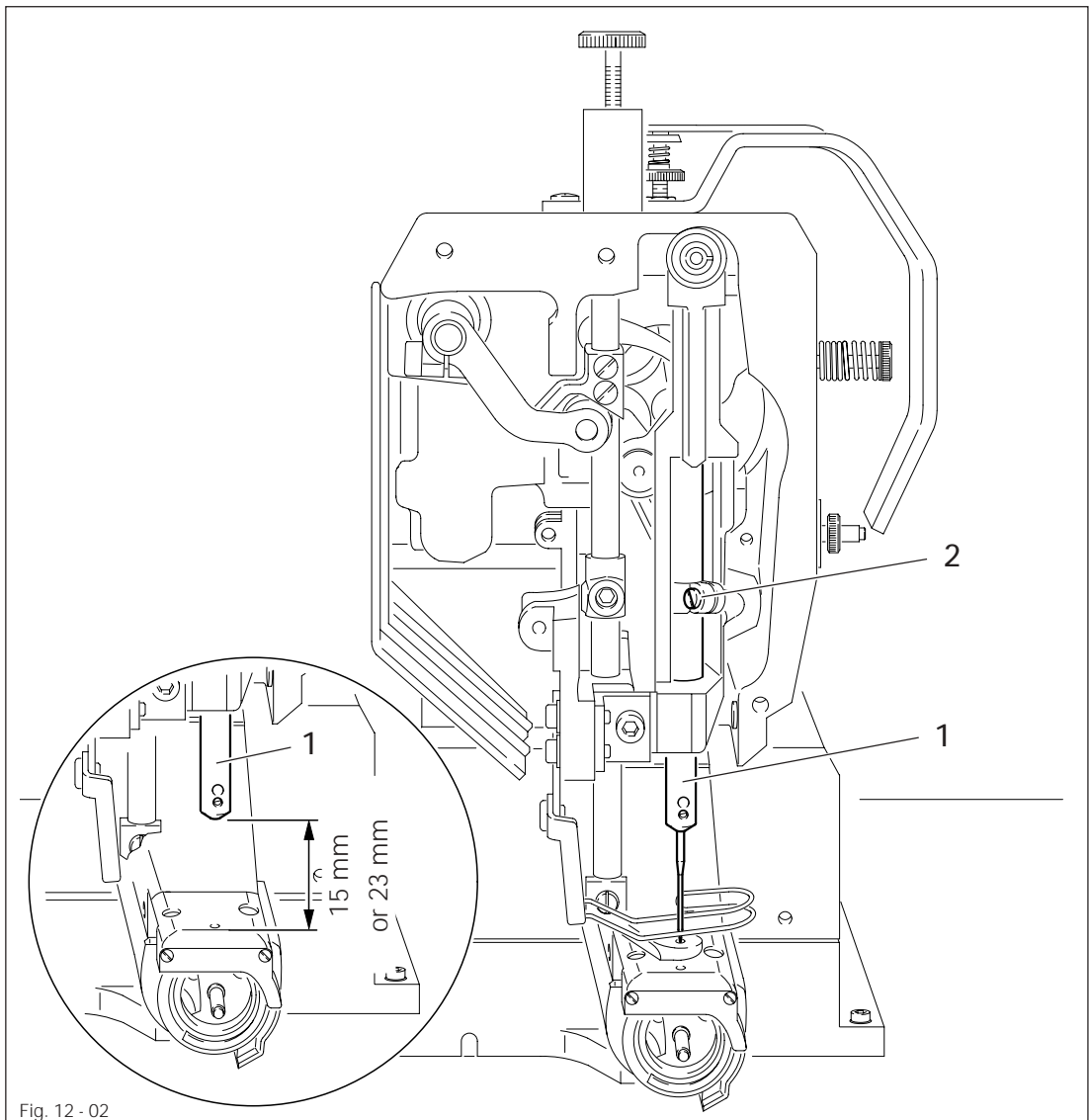
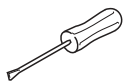


Fig. 12 - 02



- Position the height of needle bar 1 (screws 2) according to Requirement, but do not turn it.

12.04.03 Hook clearance, needle rise and needle height

Requirement

In the needle-rise position (= 1.8 mm past b.d.c. of the needle bar)

1. The hook point must be at "needle centre" and the clearance between hook and needle 0.05 to 0.1 mm, and
2. the top of the needle eye must be 0.8 mm below the hook point.

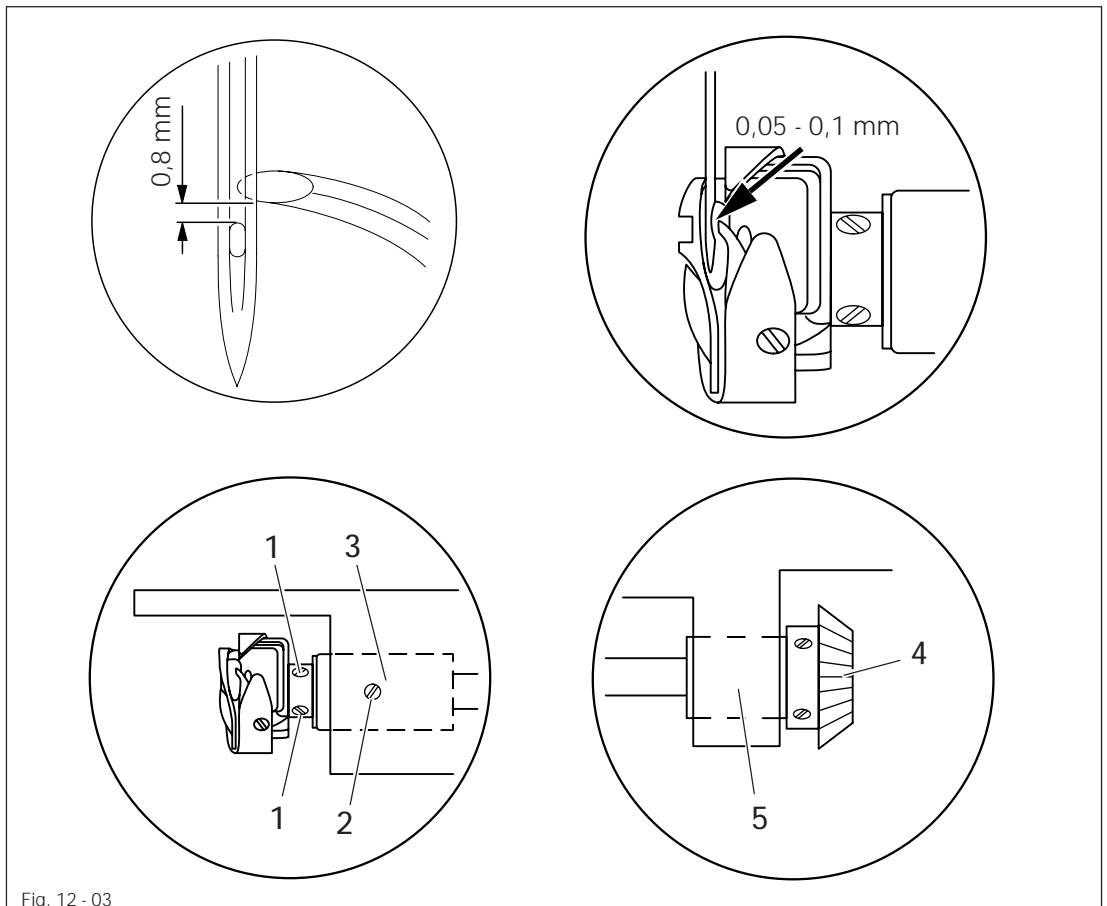
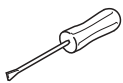


Fig. 12 - 03



- Loosen screws 1 and 2 (screw 2 is on the rear side of the machine).
- Set the needle bar at b.d.c. and place the 1.8 mm thick feeler gauge with its cutout close under the lower needle bar bearing.
- Place the screw clamp up against the feeler gauge and tighten it.
- Remove the feeler gauge and turn the balance wheel until the screw clamp is resting against the needle bar bearing.
- Adjust the hook according to **Requirements**.
- If necessary adjust the needle height, see **Chapter 12.04.02 Needle height (preliminary adjustment)**.
- Move hook shaft bearing 3 against the hook and tighten screw 2.
- Move bevel gear 4 against bearing 5 and tighten screws 1.



On machines with thread trimmer –900/51, adjustment of the axial play of the hook shaft and hook-shaft bearing 3 does not apply.

12.04.04 Top feed lifting motion

Requirement

When the balance wheel is turned, lifting presser 3 and needle point 6 must reach the needle plate at the same time.

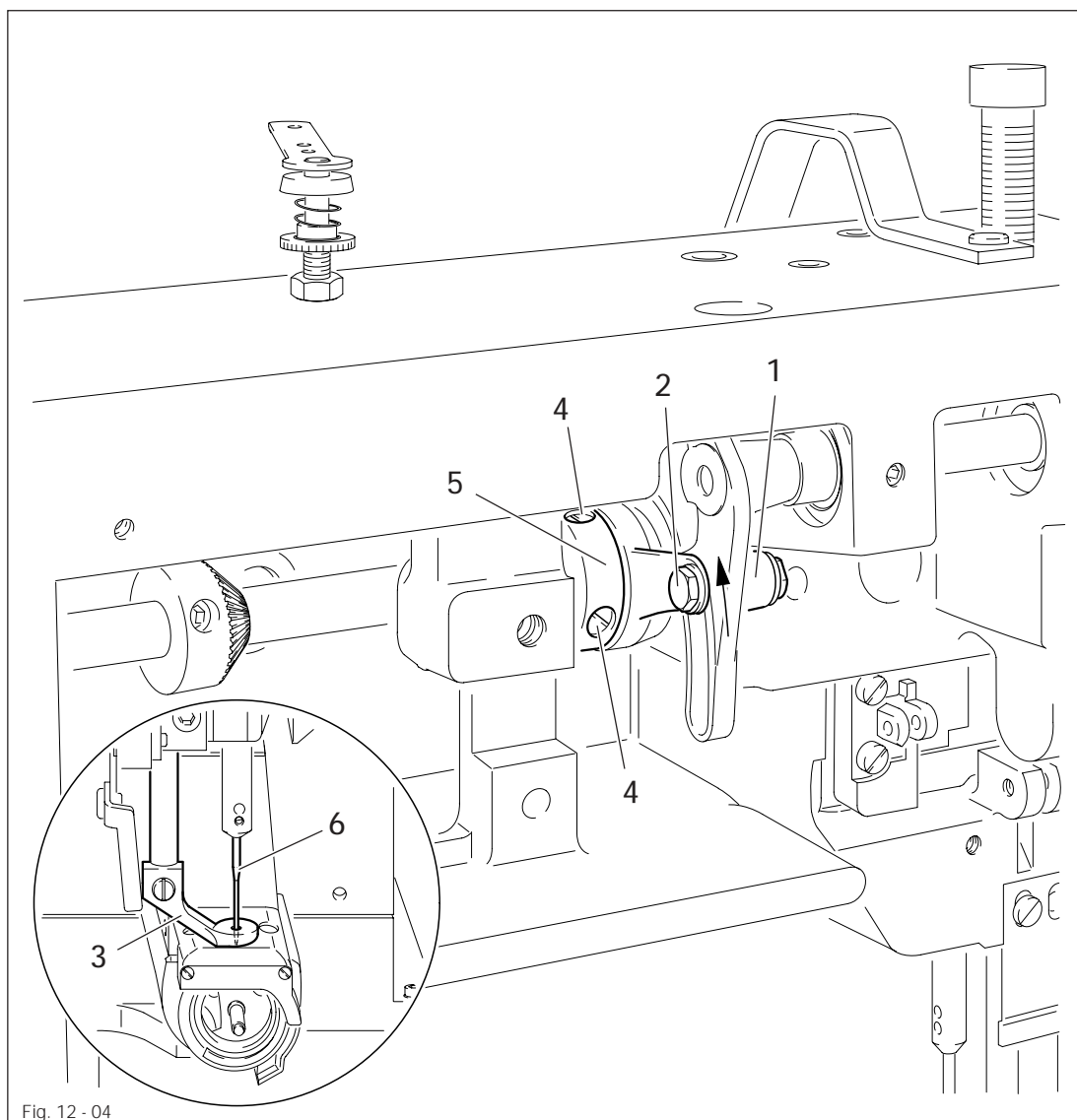
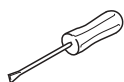


Fig. 12 - 04



- Push lever 1 (screw 2) fully up in its slot.
- Lower lifting presser 3 onto the needle plate.
- Loosen screws 4 just enough to allow eccentric 5 to be turned on its shaft.
- Turn eccentric 5 according to **Requirement**.
- Tighten screws 4.

12.04.05 Top feed stroke

Requirement

1. When the needle bar is at b.d.c. actuator 1 must be at a distance of 172 mm from the needle plate.
2. At the longest stroke setting, lifting presser 5 must be 20 mm (on the PFAFF 333-712/02) or 11 mm (on the PFAFF 333-712/03) from the needle plate when at t.d.c.

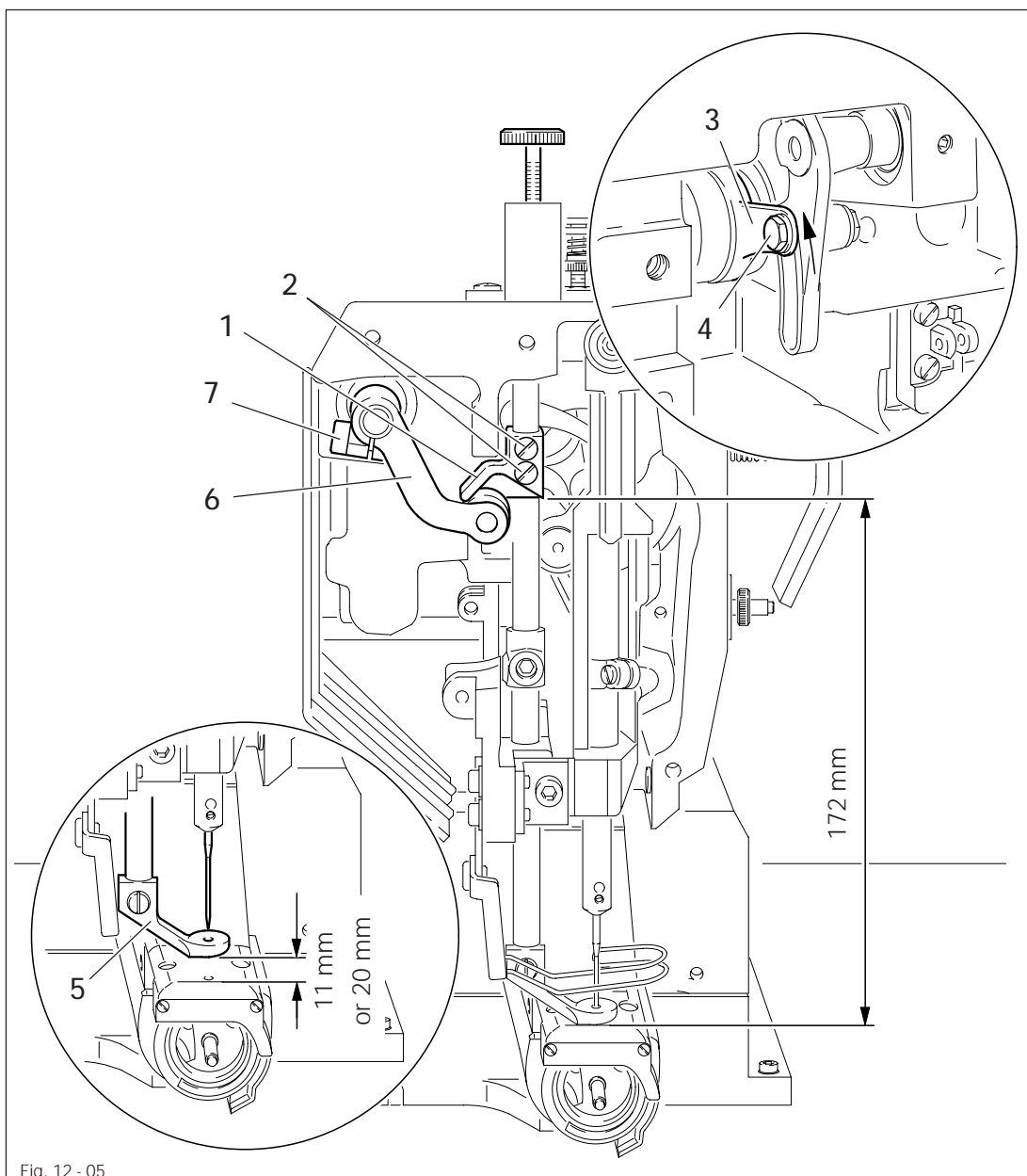
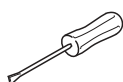


Fig. 12 - 05



- Set needle bar at b.d.c.
- Re-position actuator 1 (screws 2) according to Requirement 1.
- Push lever 3 (screw 4) to the top end of its linkage slot.
- Turn balance wheel to set lifting presser 4 at t.d.c.
- Turn crank 6 (screw 7) according to Requirement 2.

Adjustment

12.04.06 Needle-thread tension release (on the PFAFF 333-712/02)

Requirement

With the take-up lever at b.d.c. the tension disks must be apart by their maximum clearance of 1.0 mm.

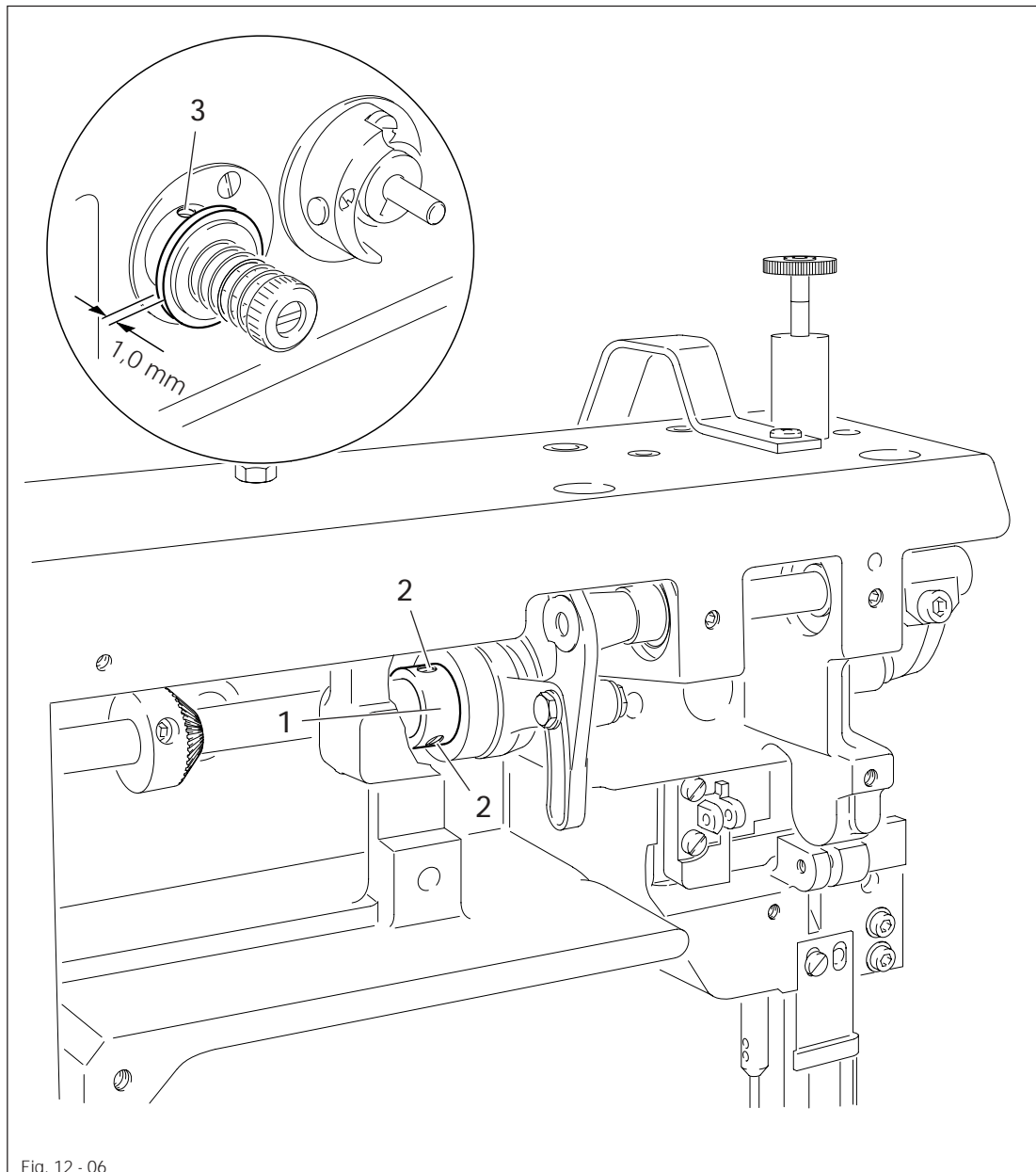
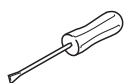


Fig. 12 - 06

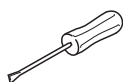
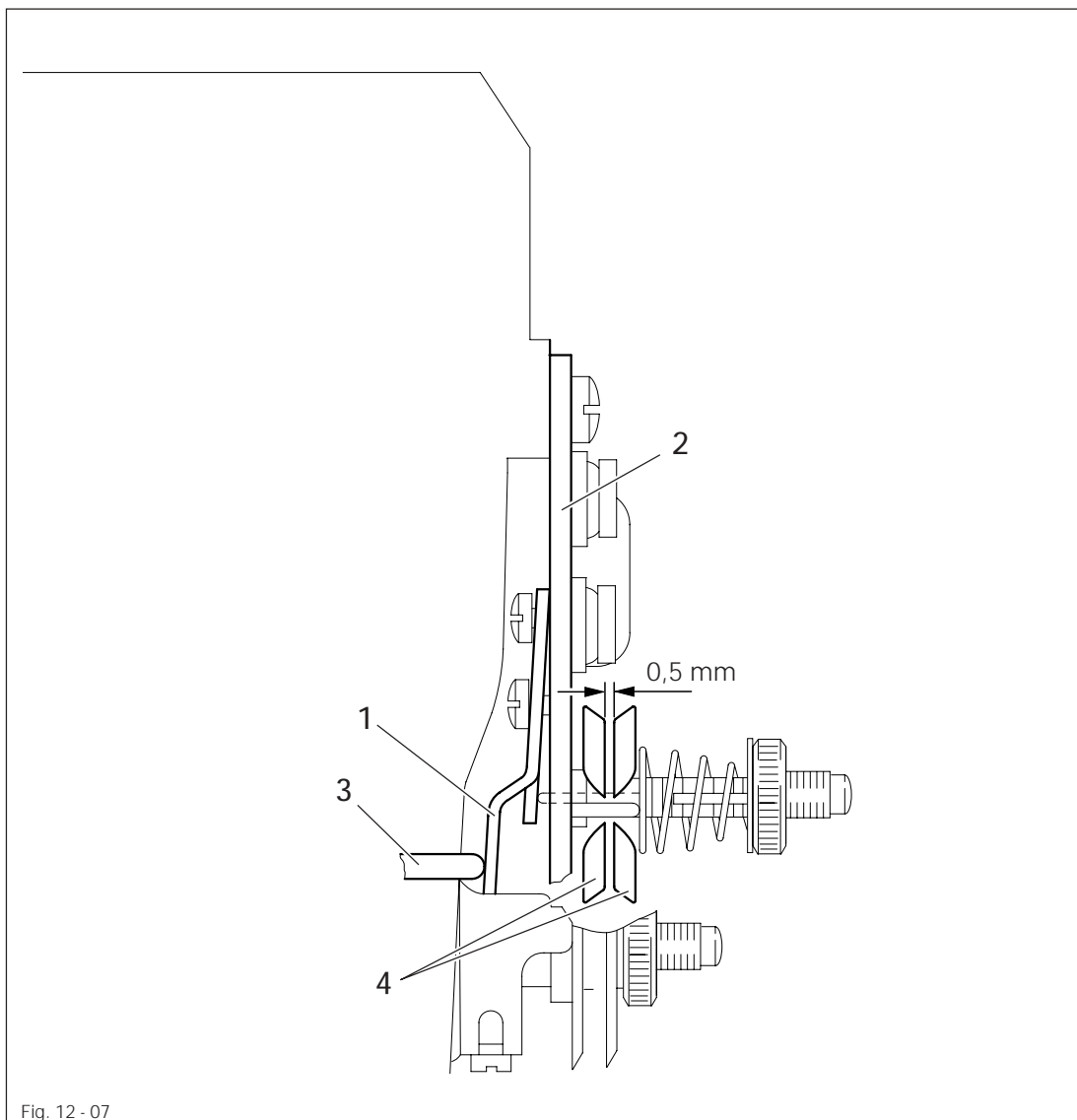


- Set take-up lever at b.d.c.
- Turn eccentric 1 (screws 2) until the tension disks are at their maximum clearance.
- Adjust tension (screw 3) according to Requirement.

12.04.07 Needle-thread tension release (on the PFAFF 333-712/03)

Requirement

When the lifting presser is raised the two tension disks 4 must be at least 0.5 mm apart.



- Raise lifting presser.
- Bend pressure plate 1 behind mounting bracket 2 according to Requirement.



When the tension is engaged, release pin 3 must not be under load.

Adjustment

12.04.08 Thread check spring

Requirement

The movement of thread check spring 5 must be finished when the needle point enters the material (= spring stroke of about 7 mm).

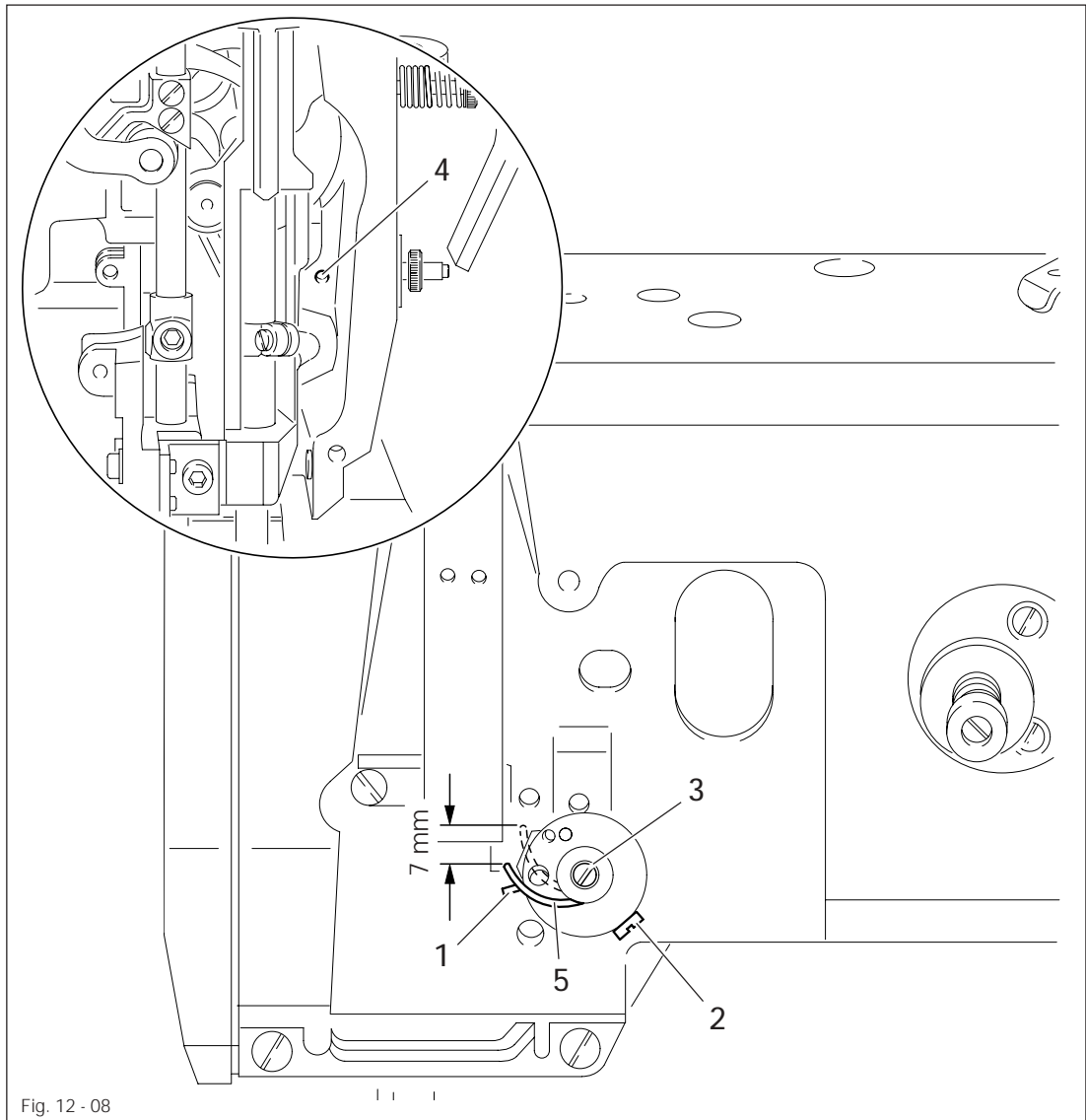
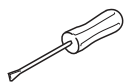


Fig. 12 - 08



- Adjust stop 1 (screw 2) according to **Requirement**.
- To adjust the pressure of the spring, turn screw 3 (screw 4).

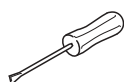
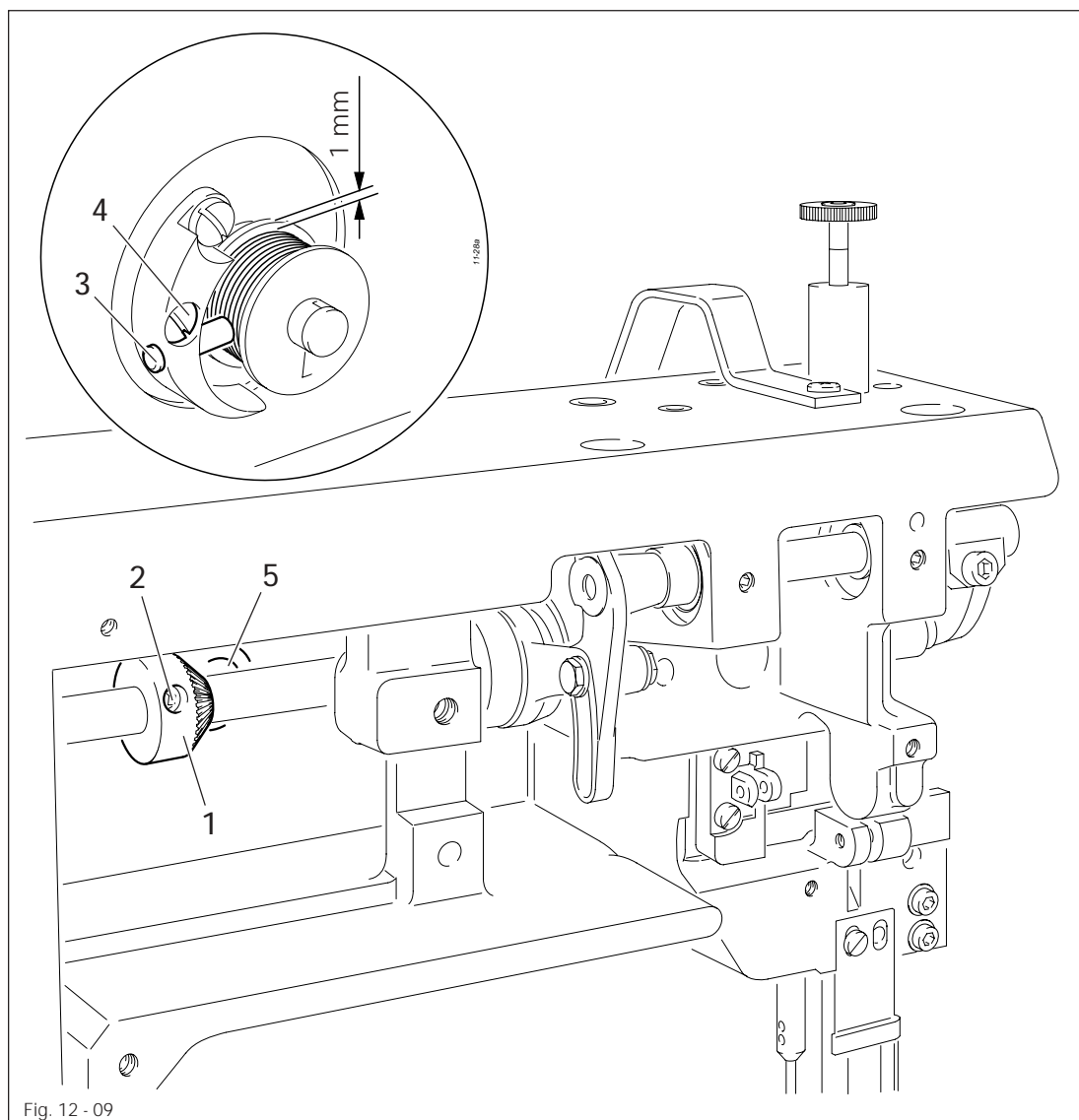


For technical reasons the length of the thread check spring stroke may vary upwards or downwards a little.

12.04.09 Bobbin winder

Requirement

1. With the bobbin winder engaged, friction wheel 5 must be driven reliably.
2. With the bobbin winder disengaged, friction wheel 5 must not run against drive wheel 1.
3. The bobbin winder must switch itself off when the filled thread is about 1 mm from the rim of the bobbin.



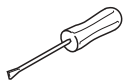
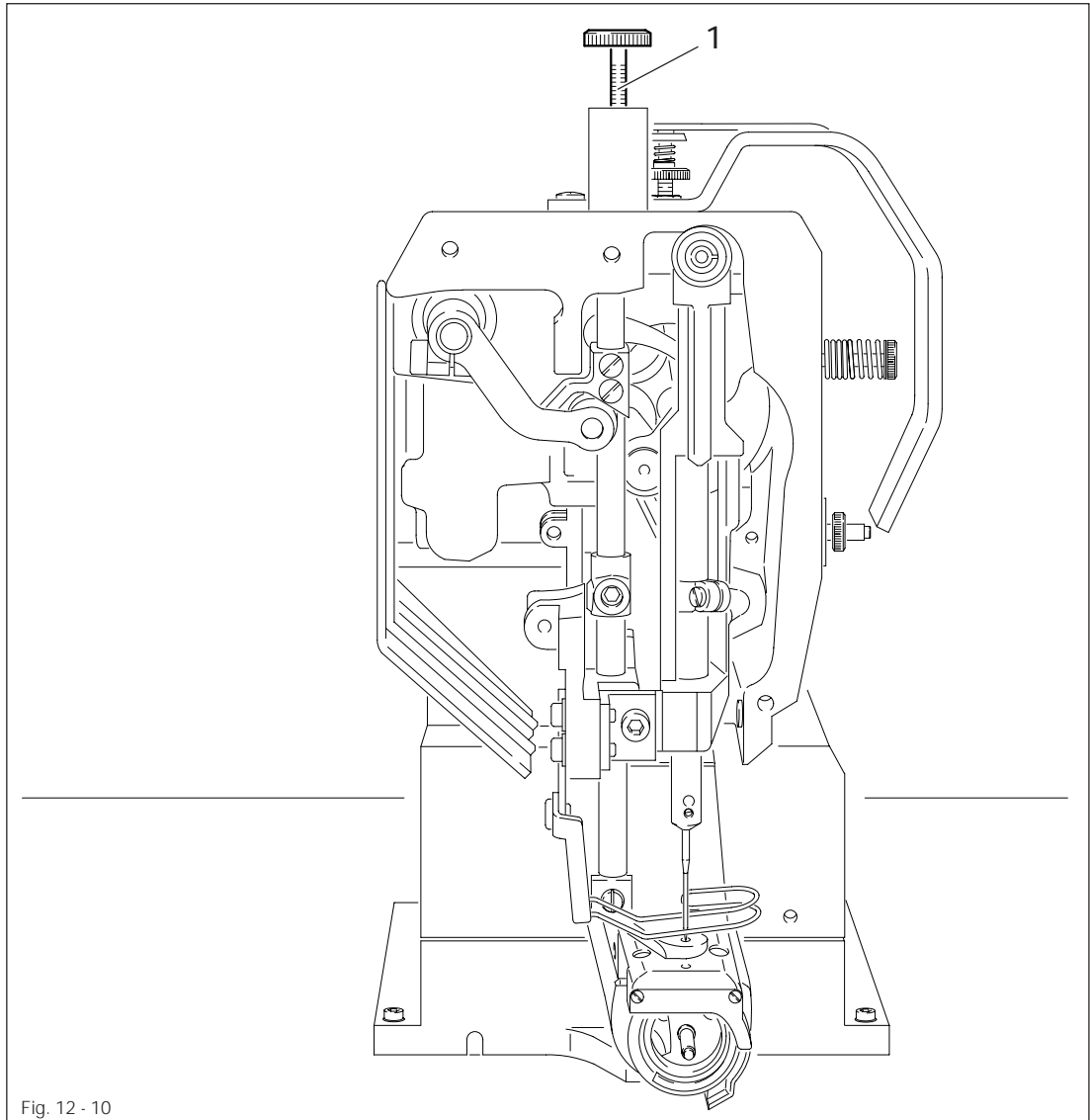
- Position drive wheel 1 (screws 2) according to Requirements 1 and 2.
- Position pin 3 (screw 4) according to Requirement 3.

Adjustment

12.04.10 Pressure of the lifting presser

Requirement

The material must be reliably held, even at the highest sewing speed.



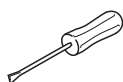
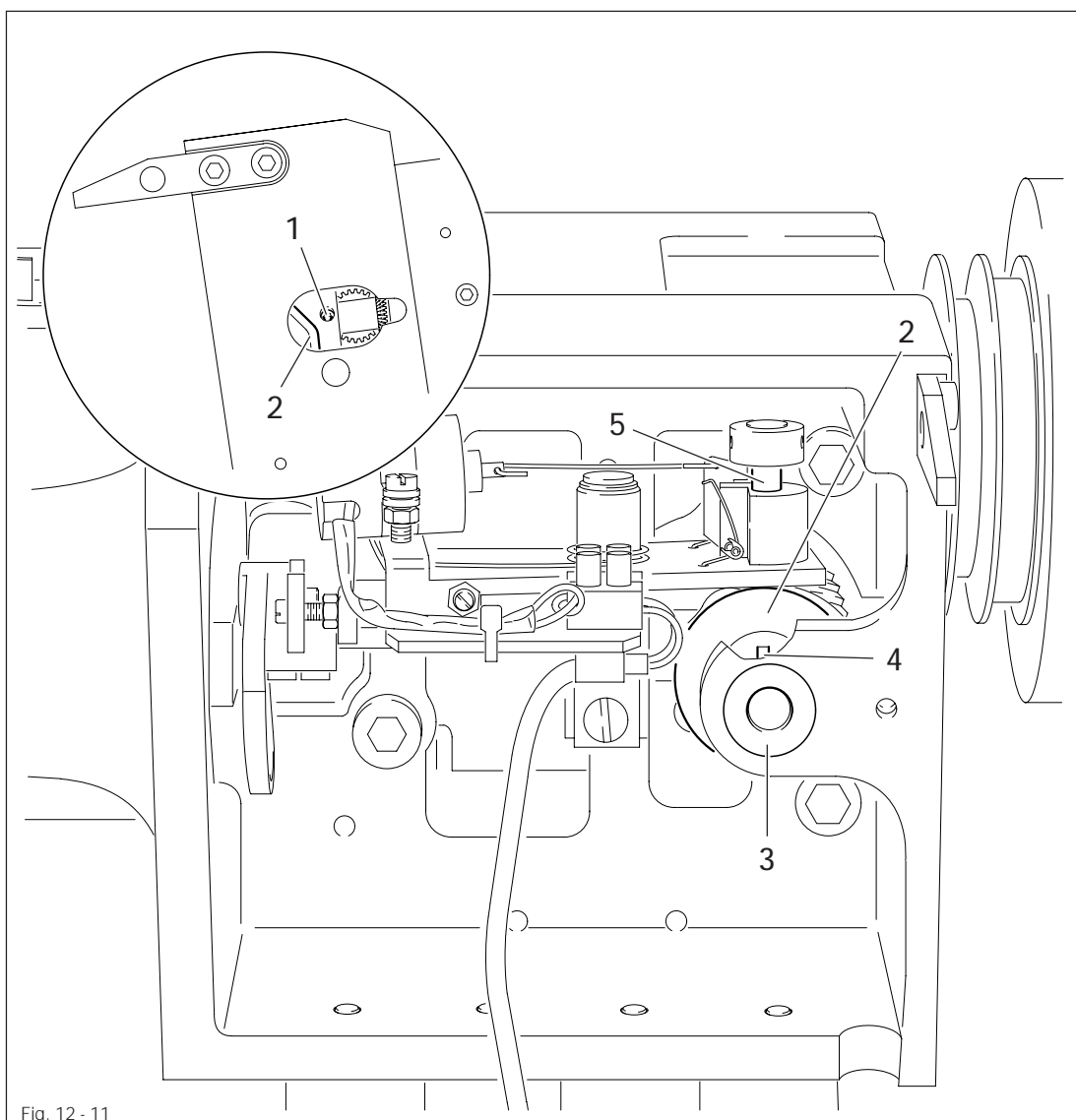
- Turn screw 1 according to Requirement.

12.05 Adjusting the thread trimmer -900/56

12.05.01 Control cam (preliminary adjustment)

Requirement

With the needle bar at b.d.c., groove 4 of control cam 2 must be vertically below control pin 5.



- Loosen screws 1 through the hole in the machine housing.
- Set the take-up lever at b.d.c.
- Turn control cam 2 according to **Requirement**.
- Move control cam 2 down against bearing 3 and tighten the accessible screw 1.
- Make the second screw 1 accessible and tighten it also.

Adjustment

12.05.02 Control lever height

Requirement

With the needle bar at b.d.c. there must be a clearance of **1.0 mm** between control lever **3** and control cam **4**.

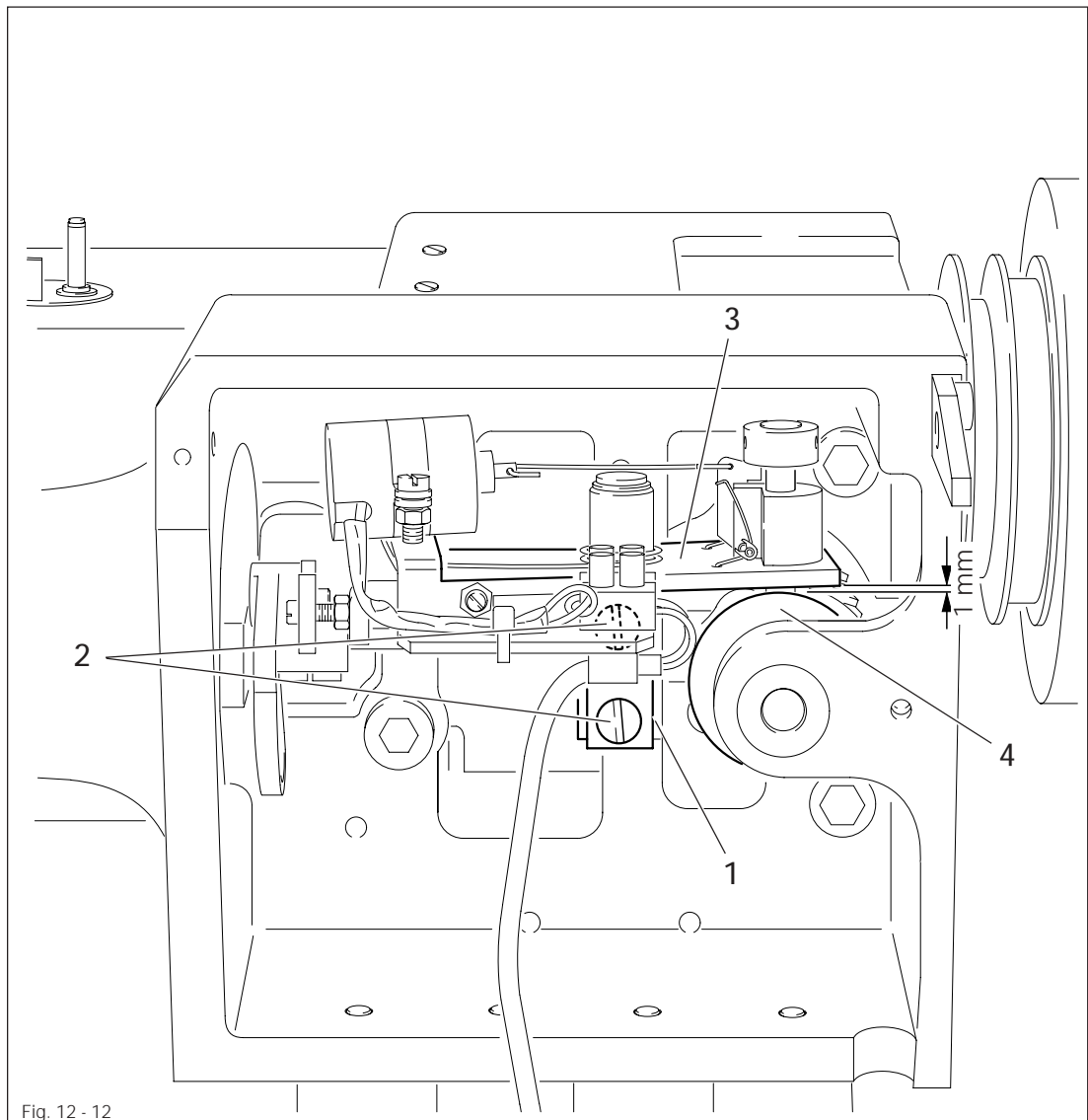
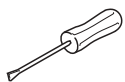


Fig. 12 - 12



- Set the needle bar at b.d.c.
- Position bracket **1** (screws **2**) of control lever **3** in the elongated hole according to Requirement.

12.05.03 Control pin

Requirement

With the needle bar at b.d.c. control pin 5 must drop easily into the track of control cam 7 when engaging solenoid 6 is operated.

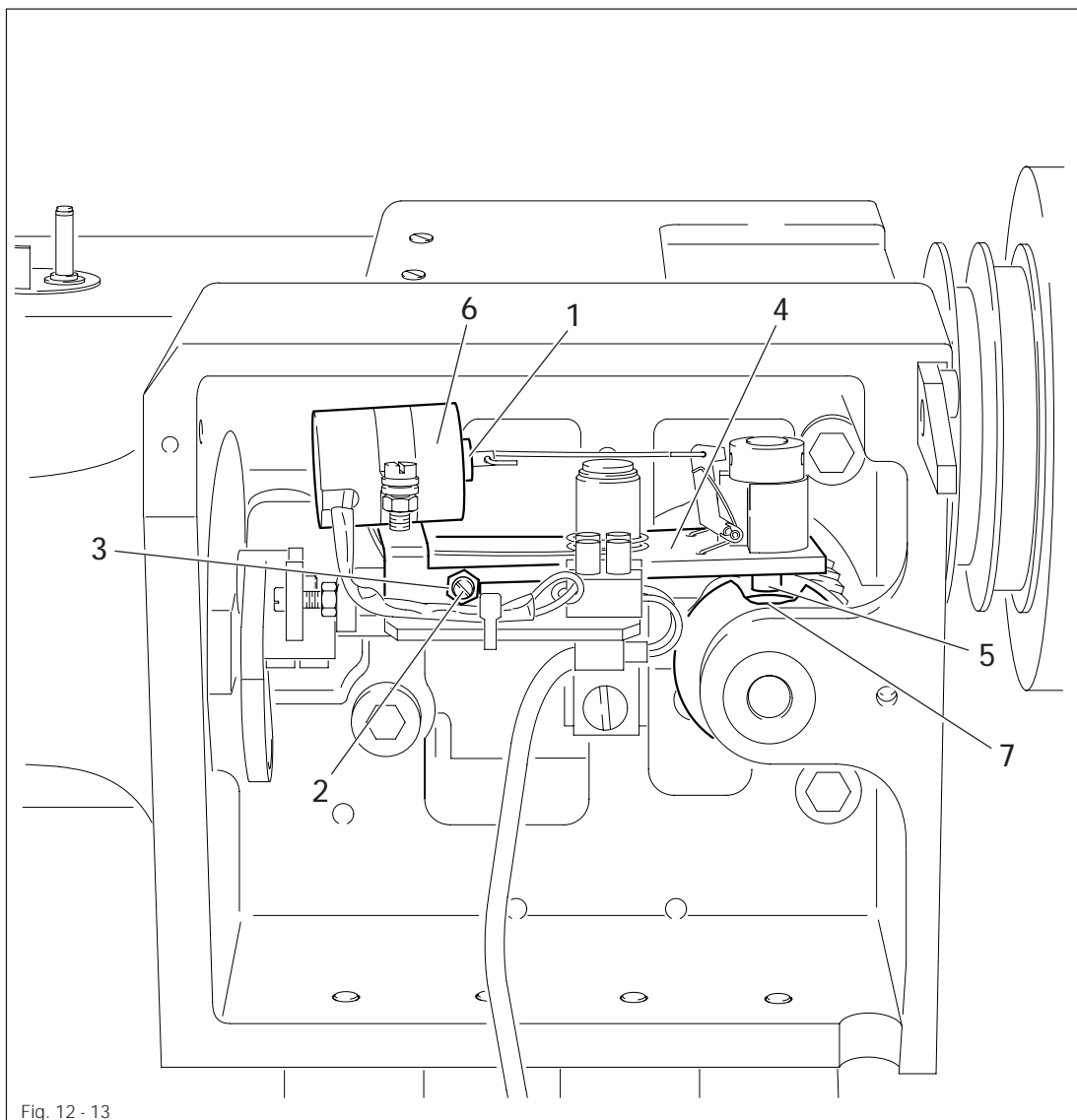
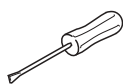


Fig. 12 - 13



- Set the needle bar at b.d.c.
- Operate the solenoid core by hand.
- Turn screw 2 (nut 3) inwards until it is resting lightly against control lever 4.
- Turn screw 2 back again by about half a turn until the movement of control pin 5 corresponds with the Requirement.

Adjustment

12.05.04 Engaging solenoid

Requirement

With the needle bar at b.d.c. and solenoid core 1 fully operated there must be a clearance of approx. 0.5 mm between locking pawl 4 and fixing collar 5.

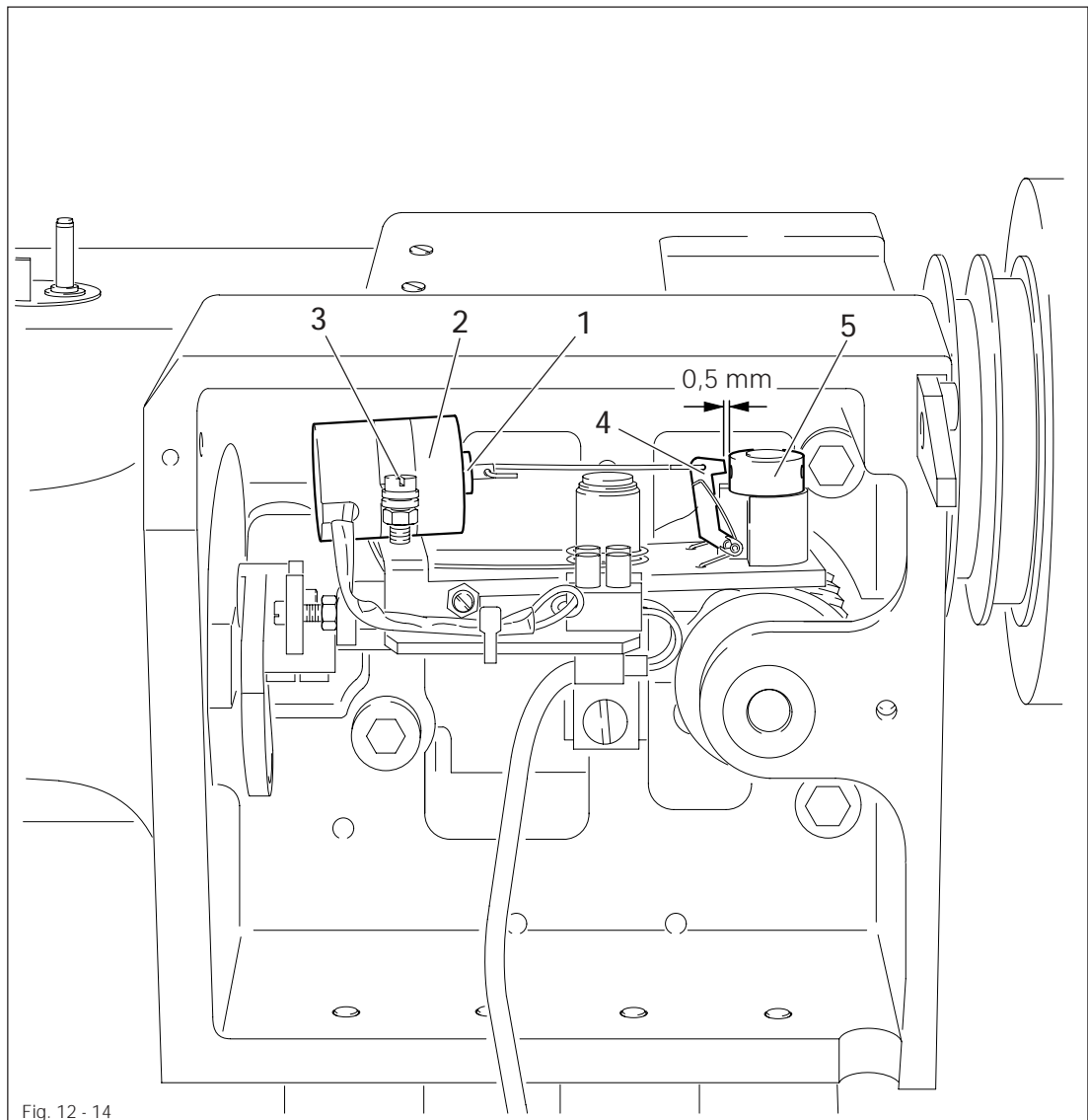
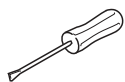


Fig. 12 - 14

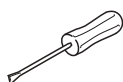
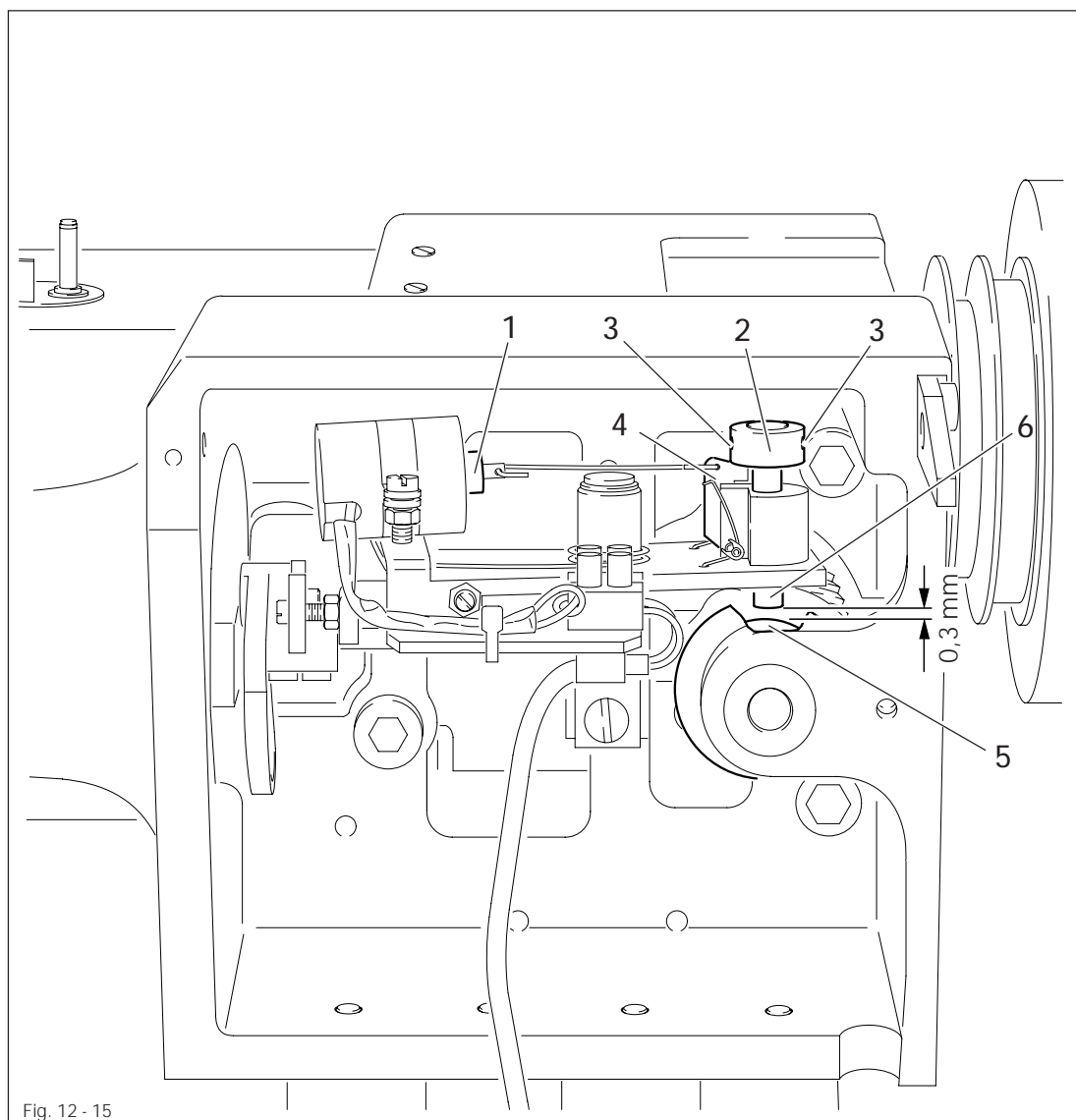


- Set the needle bar at b.d.c.
- Push solenoid core 1 fully in.
- Position solenoid housing 2 (screw 3) according to Requirement.

12.05.05 Control pin height

Requirement

With the thread trimmer in its resting position and locking pawl 4 engaged there must be a clearance of 0.3 mm between the highest point of control cam 5 and control pin 6.



- Set the needle bar at t.d.c.
- Operate the solenoid core.
- Position fixing collar 2 (screws 3) according to Requirement.

12.05.06 Front position of thread catcher

Requirement

With thread catcher **3** at its front position the back edge of the thread catcher cutout must be 1 mm beyond the front edge of bobbin case position stop **6**.

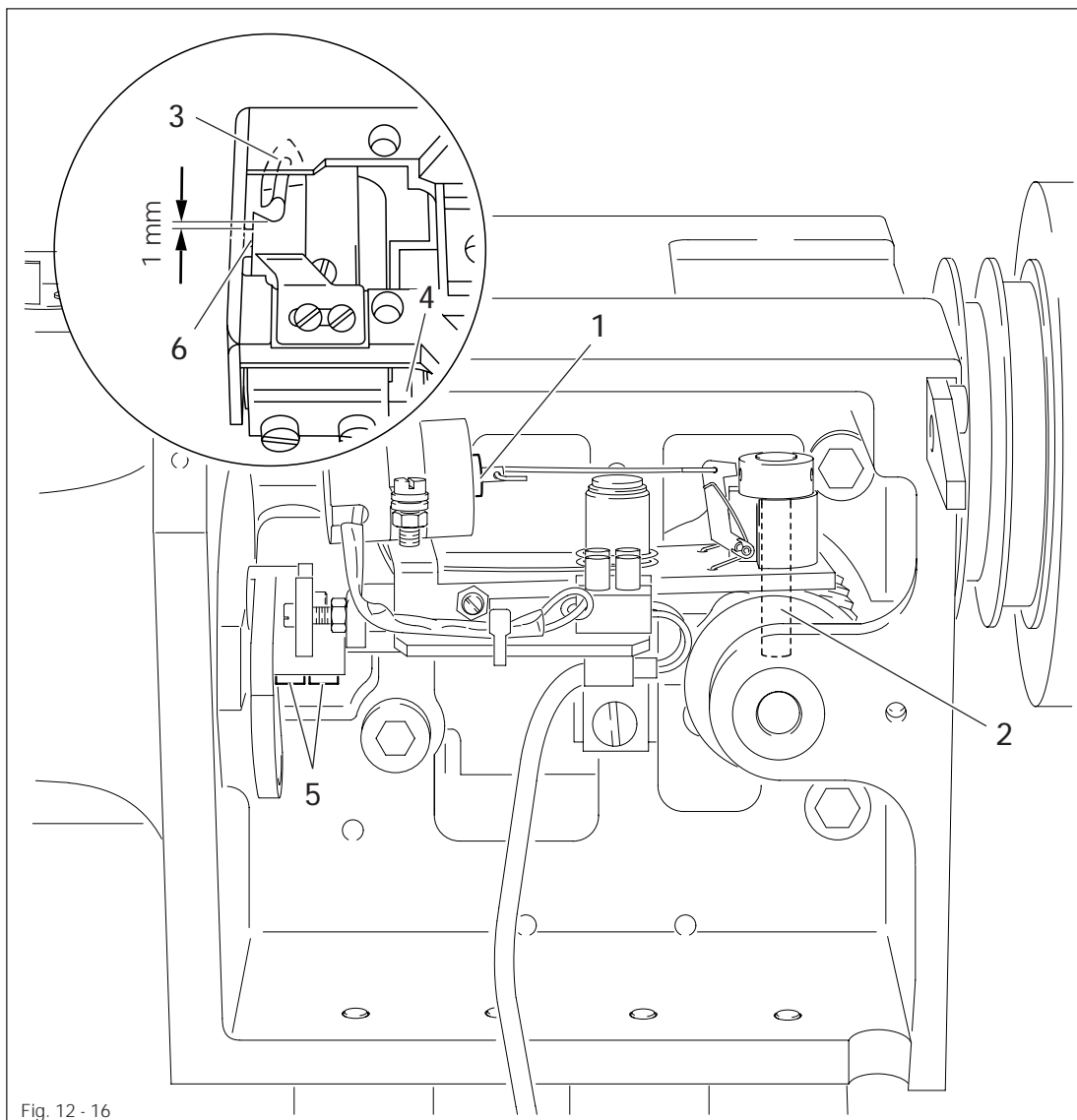
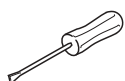


Fig. 12 - 16



- Set the needle bar at b.d.c.
- Operate solenoid core **1** so that control pin **2** drops into the cam track.
- Turn the balance wheel in sewing direction to set thread catcher **3** at its front position.
- Turn thread catcher **4** (screws **5**) to set thread catcher **3** according to **Requirement**.

12.05.07 Lateral position of thread catcher

Requirement

With the needle bar at b.d.c. the point of thread catcher 4 must be at the centre of the needle.

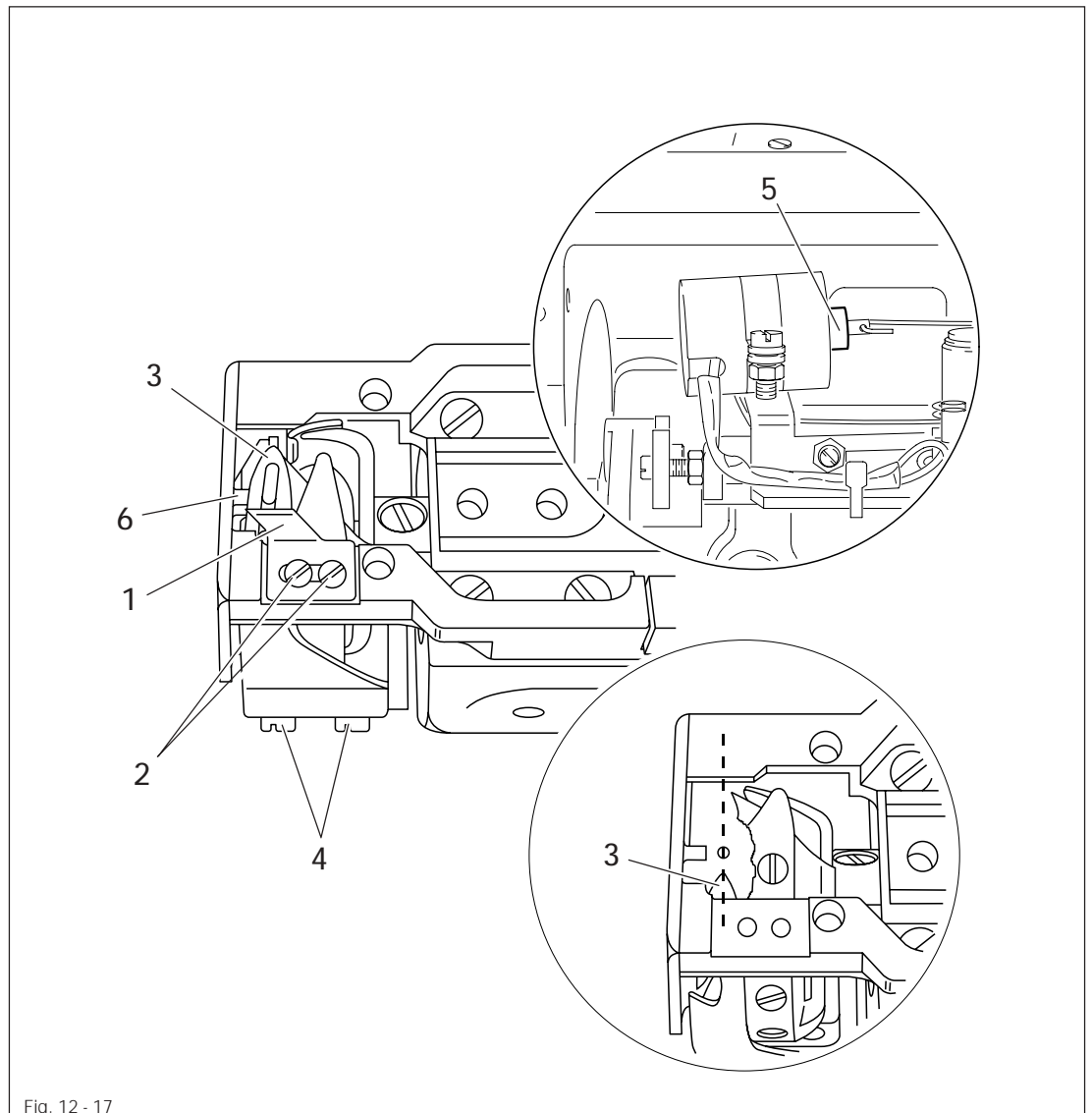
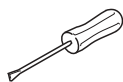


Fig. 12 - 17



- Remove knife 1 (screws 2).
- Set the needle bar at b.d.c.
- Operate solenoid core 3 by hand and turn the balance wheel until the needle bar is at t.d.c. In doing so, make sure that thread catcher 4 does not strike bobbin case position stop 5 during its motion.
- Set lateral position of thread catcher 4 (screws 6) according to **Requirement**.

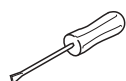
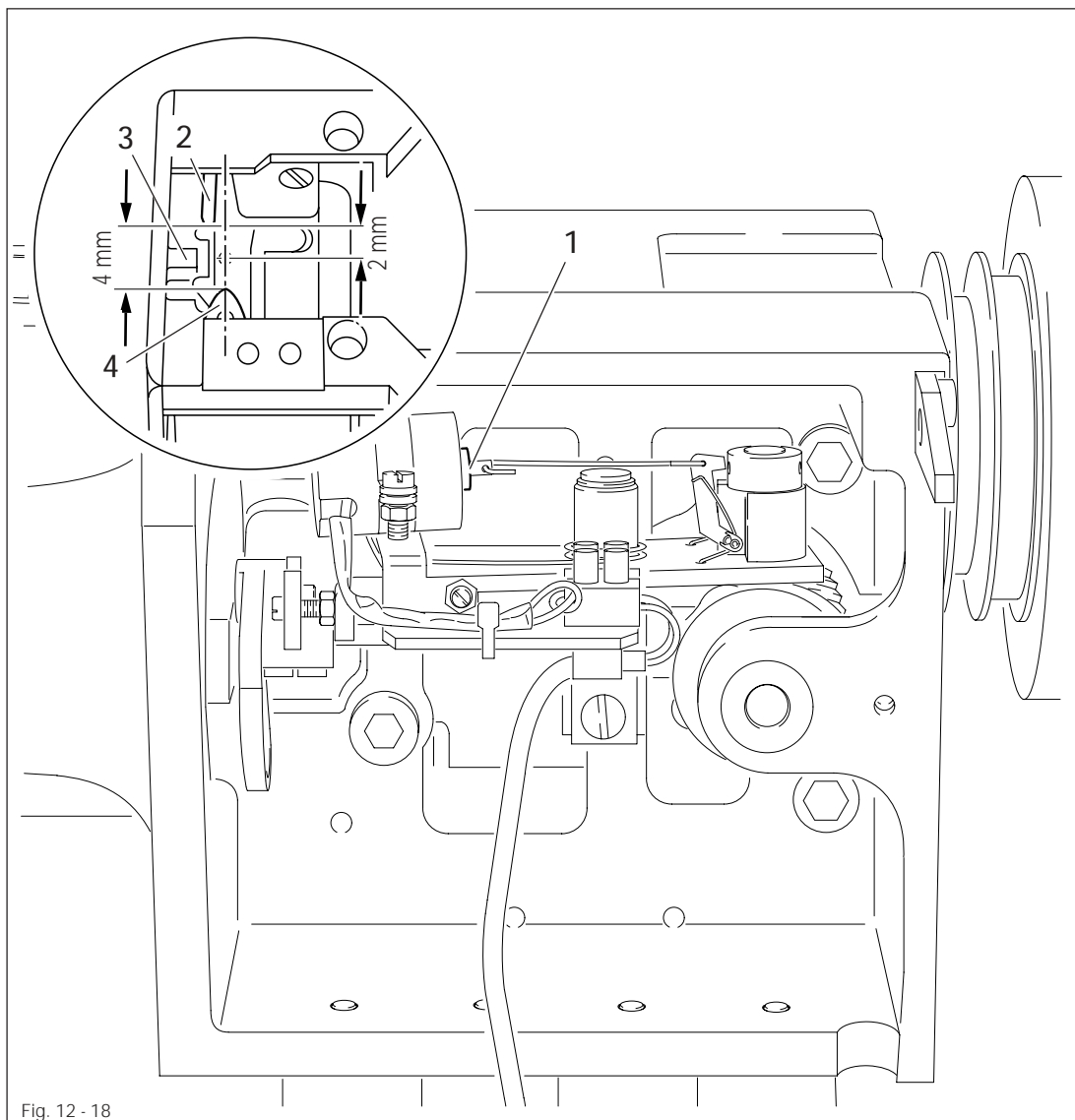


For further adjustments do not yet refit knife 1.

12.05.08 Control cam (final adjustment)

Requirement

When the end of hook gib 2 is 2 mm behind the centre of bobbin-case position finger 3, as viewed in feeding direction, there must be a clearance of **approx. 4 mm** between catcher point 4 and hook gib 2.



- Set the needle bar at b.d.c.
- Operate solenoid core 1 by hand.
- Turn the balance wheel farther (sewing direction) until the end of hook gib 2, viewed in sewing direction, is 2 mm behind the centre of bobbin case position finger 3.
- Check according to requirement and re-adjust control cam if necessary, see **Chapter 12.05.01 Control cam (preliminary adjustment)**.

12.05.09 Knife

Requirement

When the back edge of the thread catcher cutout is **1 mm** in front of the knife edge, the left knife edge must be flush with the edge of the thread catcher.

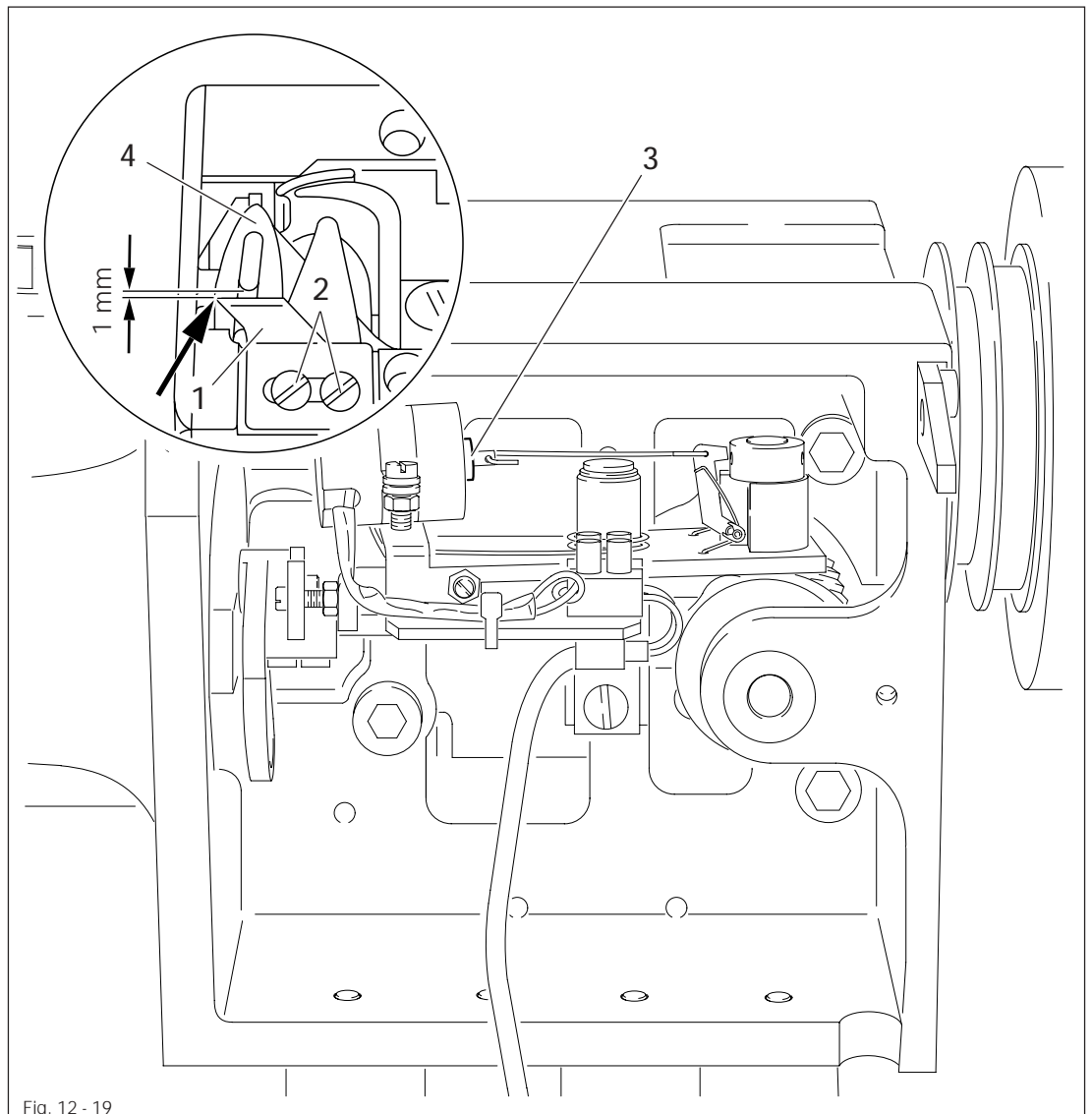
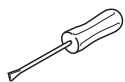


Fig. 12 - 19



- Screw on knife **1** (screws **2**) finger-tight.
- Set the needle bar at b.d.c.. and operate solenoid core **3**.
- Turn the balance wheel (sewing direction) until the short point of thread catcher **4** is aligned with the knife edge.
- Set the lateral position of knife **1** according to **Requirement** (see arrow).
- Tighten screws **2**.
- Turn the balance wheel to check whether the back of the thread catcher is not twisted in relation to the knife edge.
- If necessary re-adjust thread catcher **4**, see **Chapter 12.05.07 Lateral position of the thread catcher**.

12.05.10 Cutting test

Requirement

The knife must stand parallel to the thread catcher and both threads must be reliably cut.

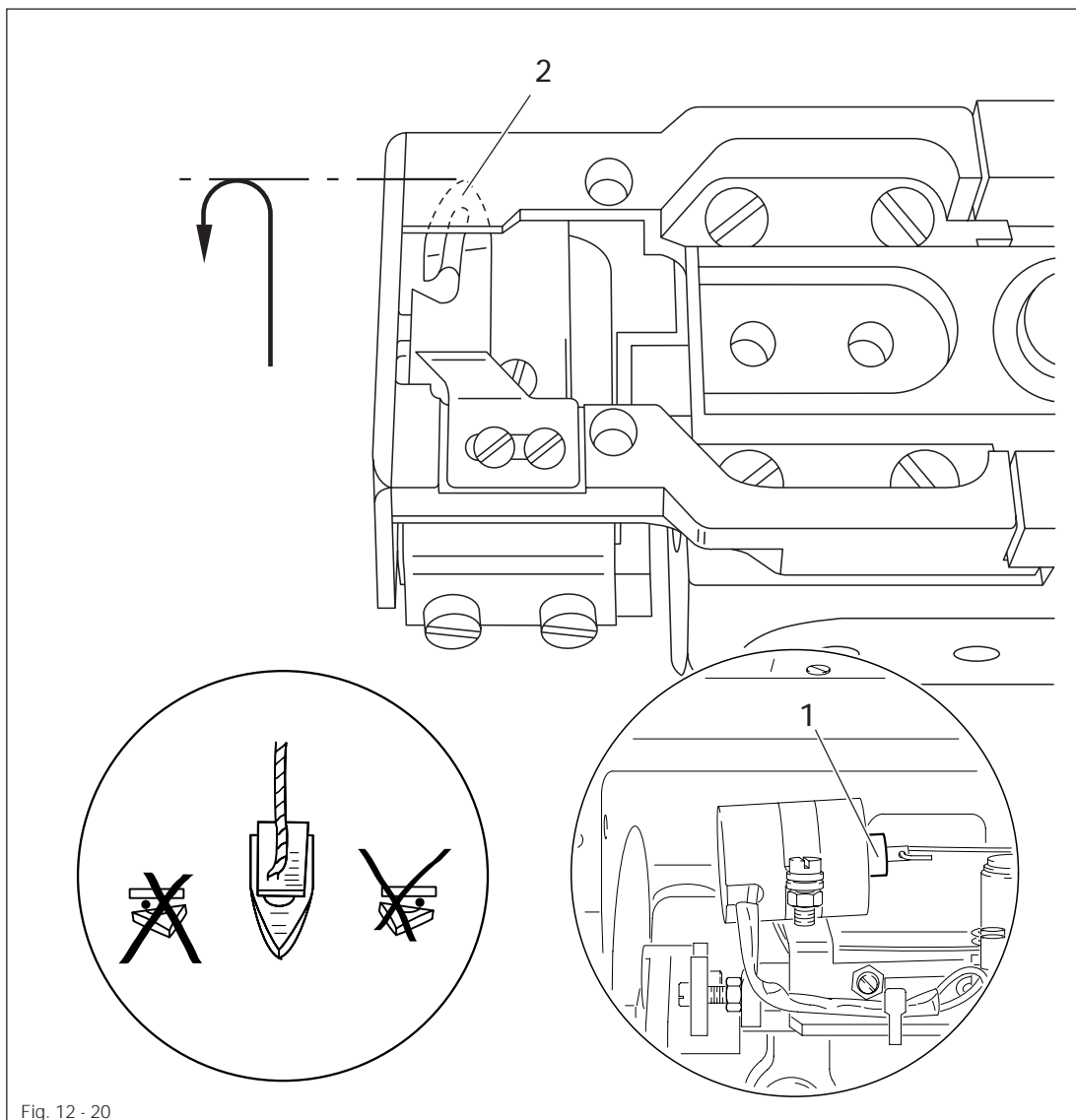
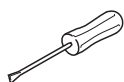


Fig. 12 - 20

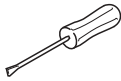


- Set the needle bar at b.d.c. and operate solenoid core 1.
- Turn balance wheel (sewing direction) until thread catcher 2 is in its front position.
- Take a double piece of thread, pull it into the cutout of thread catcher 2 and turn the balance wheel farther to make a cutting test.
- Check that both threads are reliably cut.
- If necessary, re-adjust thread catcher 2, see **Chapter 12.05.07 Lateral position of the thread catcher.**

12.05.11 Adjusting the synchronizer (PFAFF 333-712/03)

Requirement

1. On a seam interruption the machine must position 4 mm past b.d.c.
2. After a thread trim the machine must position at t.d.c. of the take-up lever.

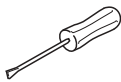


- Carry out adjustment according to motor instruction manual.

12.05.12 Setting the parameters for machine positions (PFAFF 333-712/02)

Requirement

1. On a seam interruption the machine must position 4 mm past b.d.c.
2. After a thread trim the machine must position at t.d.c. of the take-up lever.



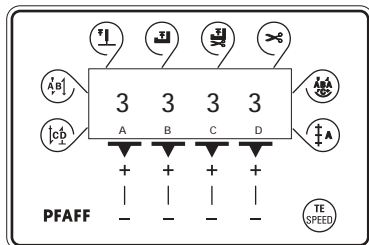
- Carry out the setting as described in the Motor Instruction Manual, taking care that parameter "702" is set at the value "40" and parameter "703" at the value "113", see Chapter 12.06.02 Example of a parameter input.


Adjustment

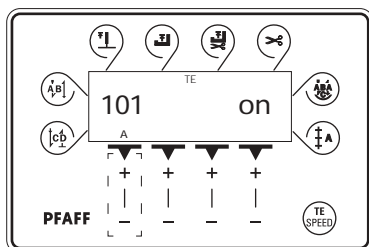
12.06 Parameter settings

12.06.01 Selecting the user level (only PFAFF 333-712/02)

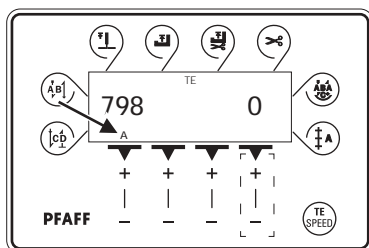
- Switch on the machine.



- 2 x  ● Press the TE/Speed key twice to call up the input mode.



- By pressing the corresponding +/- key select the parameter group "798".




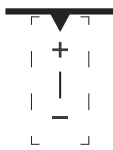
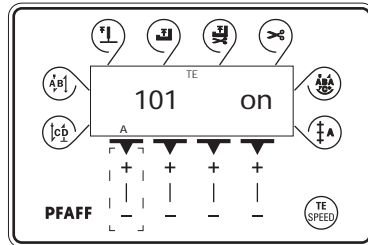
- By pressing the corresponding +/- key select the desired user level:

- "0" = operator level A
- "1" = technician level B
- "11" = service level C

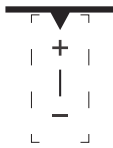
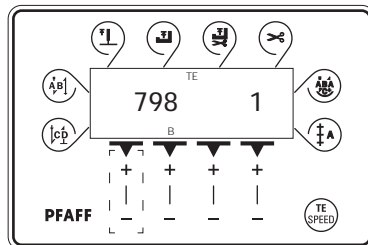
The selected user level is displayed on the screen. (see arrow)

12.06.02 Example of a parameter input (only PFAFF 333-712/02)

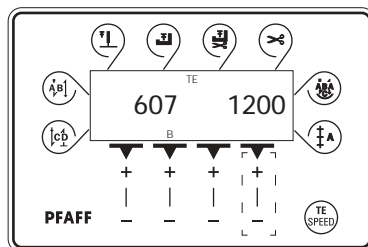
- Switch on the machine.
- 2 x  ● Press the TE/Speed key twice to select the input mode.



- By pressing the corresponding plus/minus key select parameter "798" and the mechanic level "B", see Chapter 12.06.01 Selecting the user level.



- Select parameter "607" by pressing the corresponding +/- key.



- Select the required value for the speed by pressing the corresponding +/- key.



- By pressing the TE/Speed key the selected value is taken over and the machine switches to the sewing mode.

12.06.03 List of parameters

Group	Parameter	Description	User level	Setting range	Set value
1	101	Control panel key tone (off = AUS, on = EIN)	A, B, C		on
6	605	Speed display (on = ja, off = nein)	B, C		off
	607	Speed	B, C	300 - 3200	1200
	609	Cutting speed 1	B, C	60 - 300	180
	660	Bobbin thread control 0 = off 1 = thread monitor 2 = reverse counter	A, B, C	0 - 2	0
7	700	Needle position 0 (needle reference position)	B, C	0 - 255	34
	702	Needle position 1 (needle lowered)	B, C	0 - 255	80
	703	Needle position 2 (take-up lever raised)	B, C	0 - 255	230
	705	Needle position 5 (end of cutting signal 1)	B, C	0 - 255	200
	706	Needle position 6 (start of cutting signal 2)	B, C	0 - 255	80
	718	Rest brake (start thread tension release)	B, C	0 - 100	10
	760	Multiplier for the fixed value (200) for stitch counting	A, B, C	0 - 250	5
	798	User level 0 = User level 1 = Mechanic level 11 = Service level	A, B, C	0, 1, 11	0
	799	Selected machine class	C	1 - 4	4
8	800	Rotating direction	C	0 - 1	1

12.07 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 the PC (serial interface or appropriate USB-adapter) and the machine control unit (RS232).
- Switch on the PC and start the PFP boot program.
- Select the machine type.
- Press the "programming" button.
- An extra program (quick loader) is started.
- Switch on the machine within 60 seconds.
- The software update is carried out, the update progress is shown on the bar display.
- When the update has been completed, the message "**software update successfully completed**" appears.



If this message does not appear, the entire procedure must be repeated!
The machine is not safe for operation until the programming has been completed successfully and without faults.

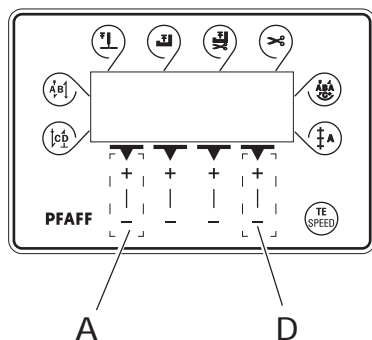
- Switch off the machine and end the quick loader and PFP boot program.
- End the connection between the PC and the machine control unit.
- Switch on the machine.
- A plausibility control is carried out and, if necessary, a cold start.



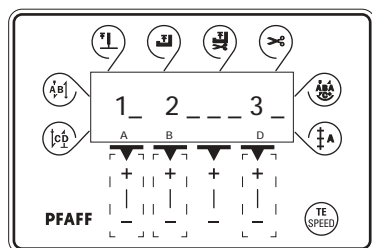
More information and assistance is at your disposal in the file "PFPHILFE.TXT", which can be called up from the PFP boot program by pressing the "help" button.

12.08 Reset / Cold start (only PFAFF 333-712/02)

After selecting the reset menu, by pressing the corresponding key it is possible to delete seam parameters, delete seam programs and to carry out a cold start.



- Press and hold "+" on keys A and D and switch on the machine, see Chapter 7.01 Main switch.



- A** Resetting the seam parameters
- Press "+" on key "A".
- All parameters are deleted, the display "—rE—" appears for a short time on the screen.

- B** Resetting the seam programs
- Press "+" on key "B".
- All seam programs are deleted, the display "—rE—nA" appears for a short time on the screen.

- D** Cold start
- Press "+" on key "D".
- With the exception of the value for the machine class, the values of the machine control unit are set back to their basic values, the display "—COLd—" appears for a short time on the screen.



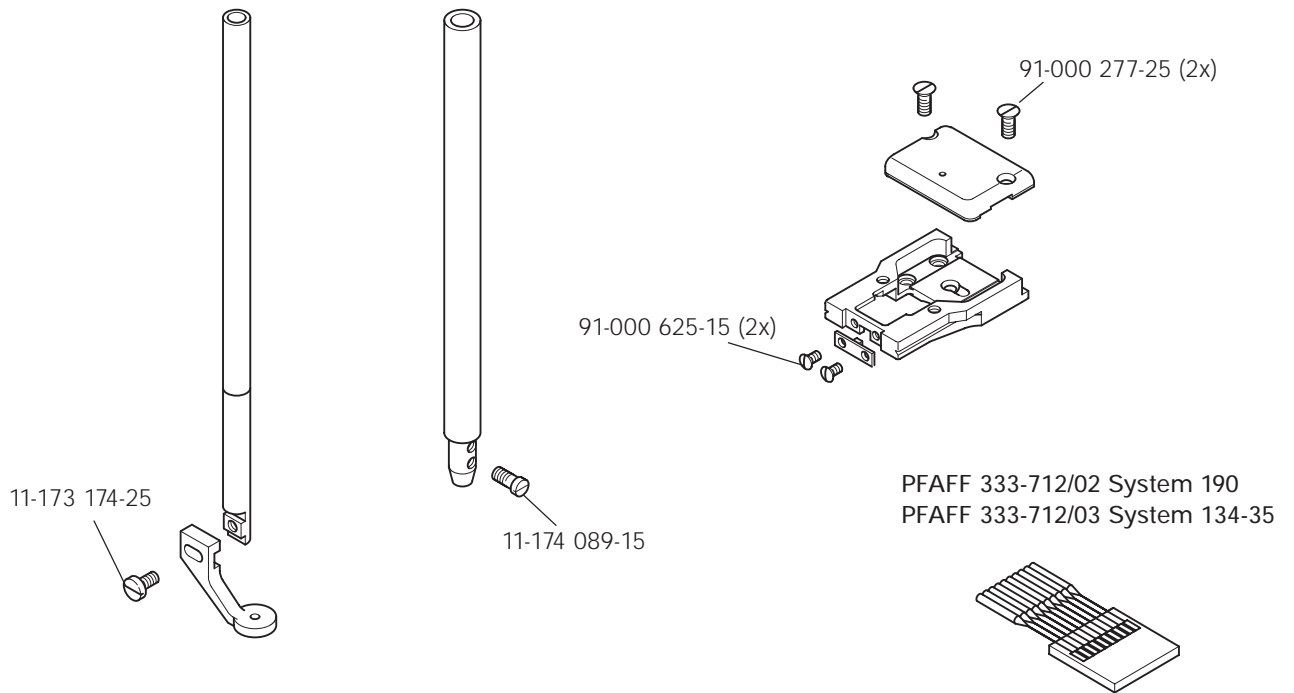
After the cold start all programmed values are set back to their status at the time of delivery. For this reason after a cold start it is necessary to re-enter first the parameter "799" and then the parameter "700".

13

Wearing parts

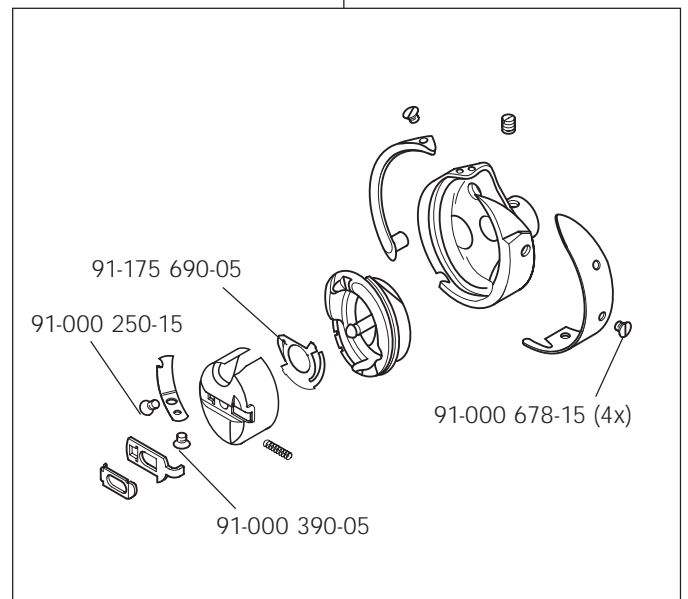
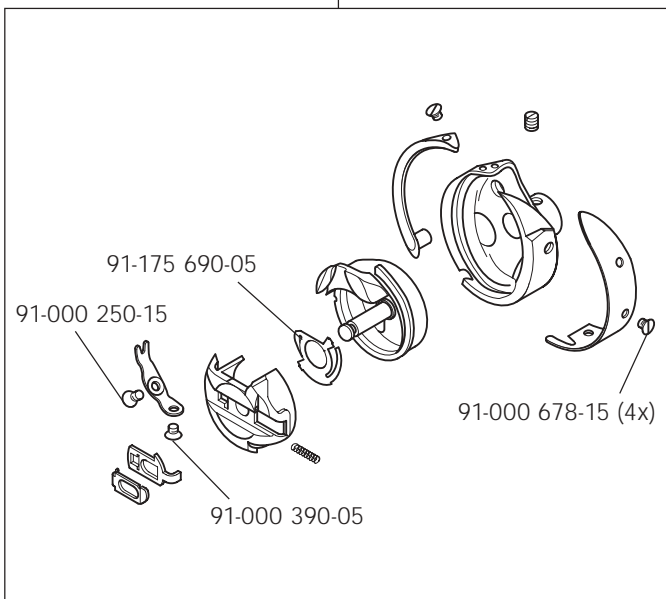


This list indicates the most important wearing parts.
You can request a detailed parts list for the complete machine under parts number 296-12-18 761.

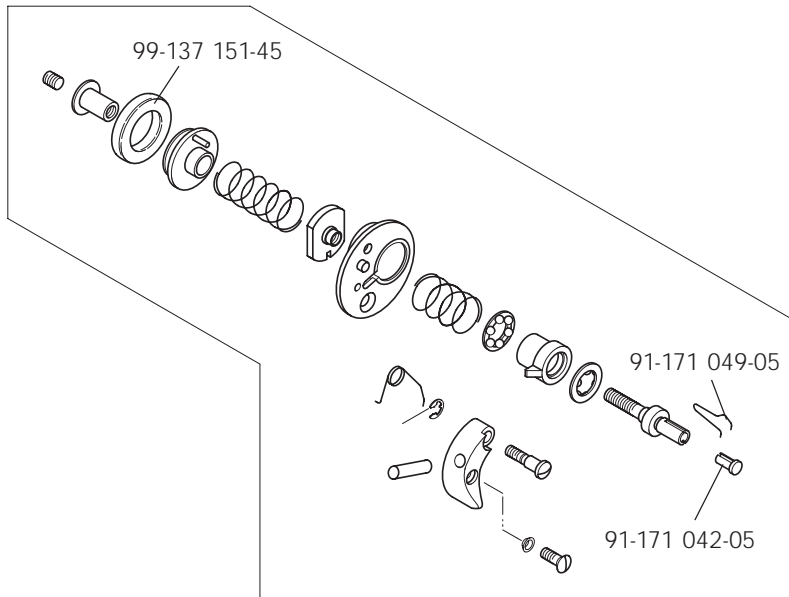


PFAFF 333 - G
91-060 581-91

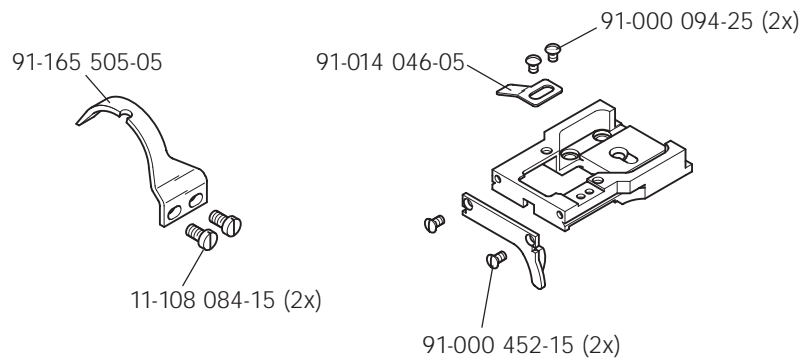
PFAFF 333
91-060 461-91



Wearing parts



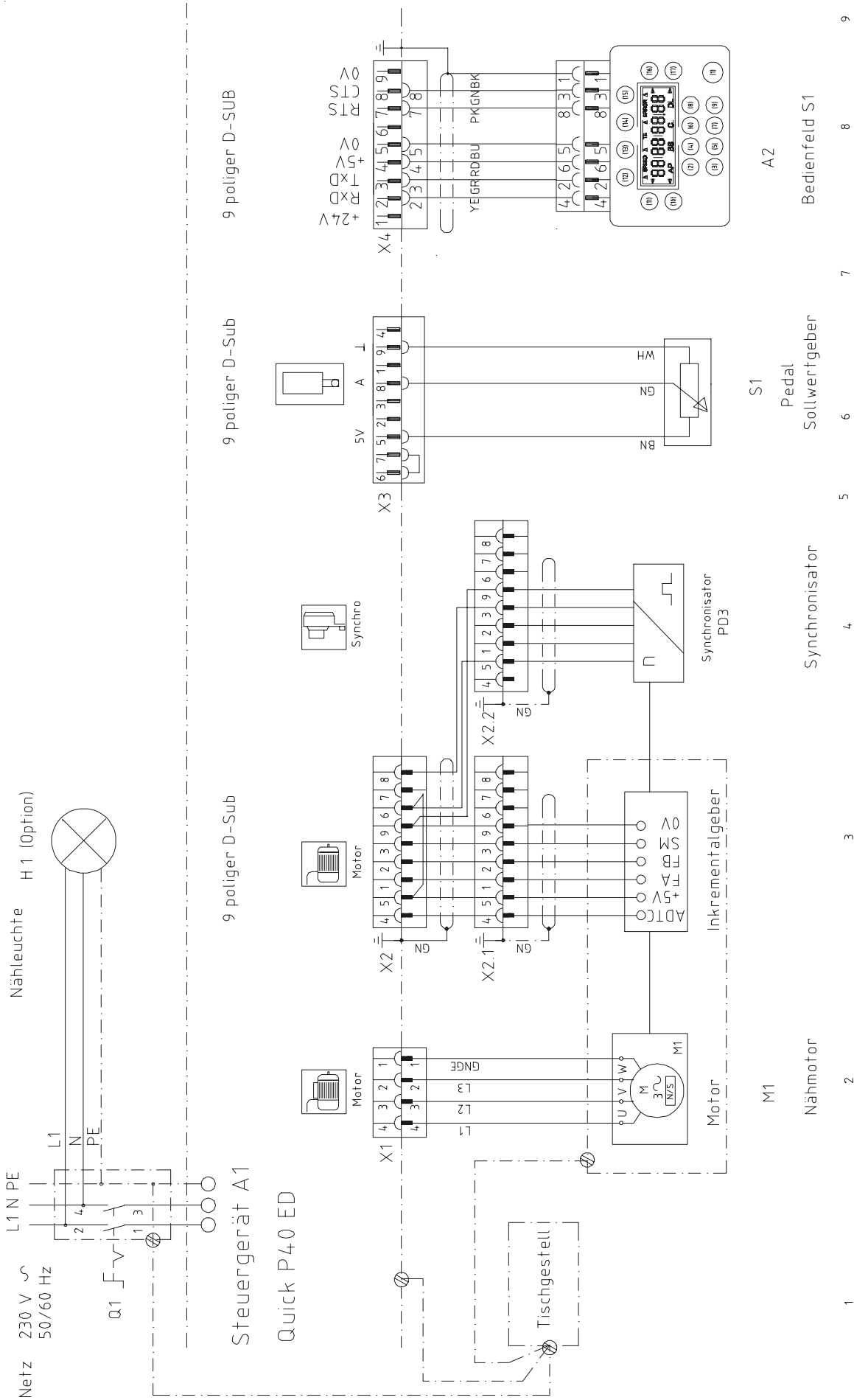
PFAFF 333-900/52

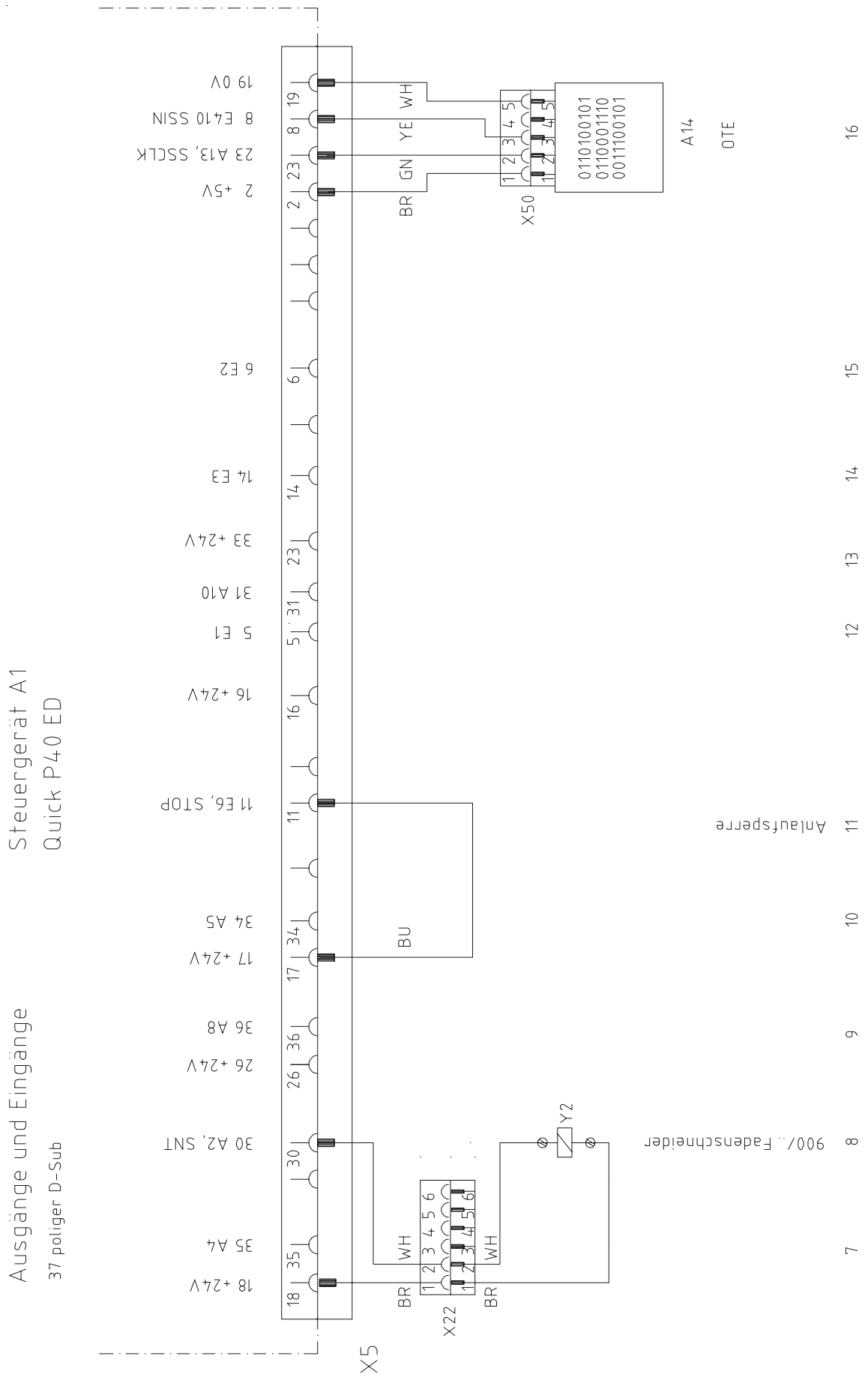


14 **Circuit diagrams**

Reference list for circuit diagrams

A1	Controller (Quick P40 ED)
A2	Control panel S1
A14	Sewing head identification
H1	Sewing lamp
M1	Sewing motor
Q1	Main switch
S1	Pedal set value transmitter
S6	Start inhibitor (bridge)
X0	RS232 interface (PC)
X1	Motor
X2	Incremental transmitter and synchronizer PD 3
X2.1	Incremental transmitter
X2.2	Synchronizer PD 3
X3	Set value transmitter
X4	Control panel
X5	Inputs-outputs
X6	Bobbin thread monitor (optional)
X7	Light barrier (optional)
X22	Thread trimmer (-900/..)
X50	Sewing head identification
Y2	Thread trimmer (-900/..)





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