

581

583

ADJUSTMENT MANUAL

This Adjustment Manual is valid for machines
from the following serial numbers onwards:

2 771 790 →

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**PFAFF Industriesysteme
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1 Adjustment



Please observe all notes from Chapter **1 Safety** of the instruction manual! In particular care must be taken to see that all protective devices are refitted properly after adjustment, see Chapter **1.06 Danger warnings of the instruction manual!**



If not otherwise stated, the machine must be disconnected from the electrical power supply.

Danger of injury due to unintentional starting of the machine!

1.01 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.



On the PFAFF 581 and 583 no c-clamps may be attached to the needle bar as this would damage the special coating on the needle bar.

1.02 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 22 mm
- 1 set of Allan keys from 1.5 to 6 mm
- 1 Absteckstift 5,0 mm (Best.-Nr. 13-030 341-05)
- 1 Adjustment gauge, part No. (Best.-Nr. 61-111 642-19)
- 1 metal ruler (part no. 08-880 218-00)

1.03 Abbreviations

t.d.c. = top dead centre

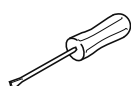
b.d.c. = bottom dead centre

1.04 Explanation of the symbols

In this adjustment manual, symbols emphasize operations to be carried out or important information. The symbols used have the following meaning:



Note, information



Service, repair, adjustment, maintenance
(work to be carried out by qualified staff only)

1.05 Control and adjustment aids



By marking the holes 1 - 7 with the adjustment pin ($\varnothing$ 5 mm), the desired needle bar positions can be fixed exactly.

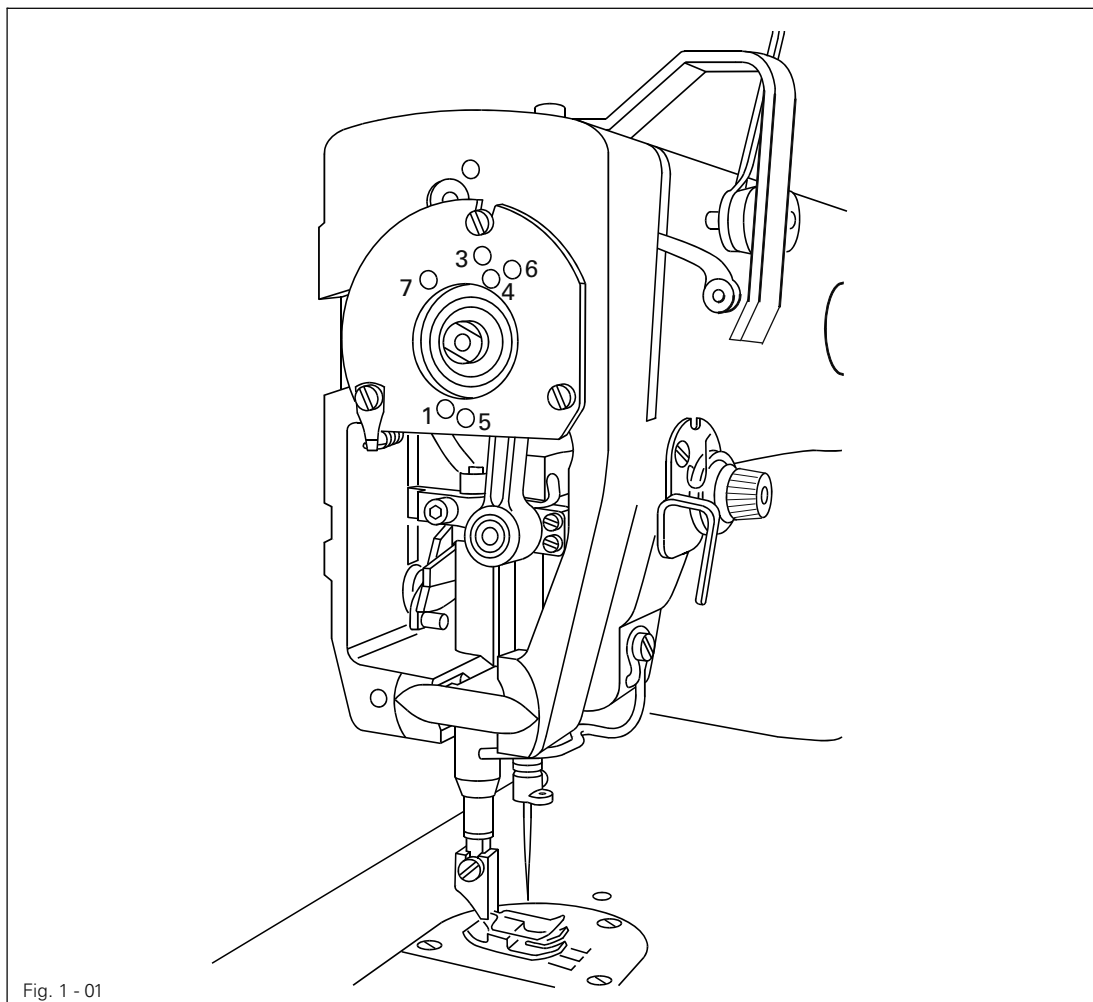


Fig. 1 - 01

- Turn the balance wheel until the needle bar is approximately in the desired position.
- Insert the adjustment pin into the appropriate hole and apply pressure.
- Turn the balance wheel slightly backwards and forwards, until the pin locks into the rear crank recess, in this way blocking the machine.

Adjustment hole 1 = 0.6 mm past top dead centre of the needle bar (0.6 past t.d.c.)

Adjustment hole 3 = 0.6 mm past bottom dead centre of the needle bar (0.6 past b.d.c.)

Adjustment hole 4 = 1.8 mm past bottom dead centre of the needle bar (1.8 past b.d.c.)

Adjustment hole 5 = top dead centre of the needle bar (t.d.c.)

Adjustment hole 6 = 4.0 mm past bottom dead centre of the needle bar (4.0 past b.d.c.)

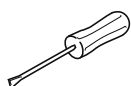
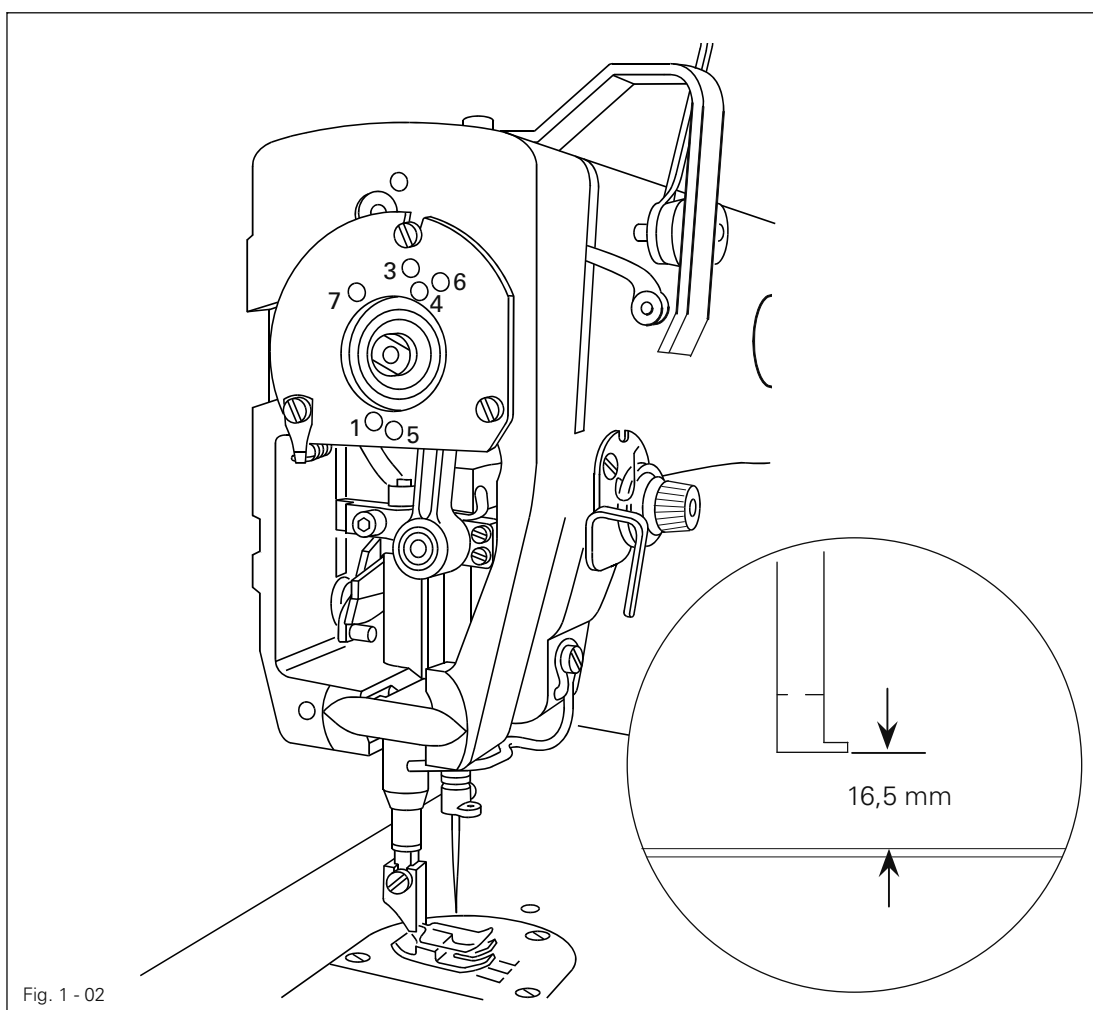
Adjustment hole 7 = 1,5 mm before bottom dead centre of the needle bar (1,5 before u.T.)

1.06 Adjusting the basic machine

1.06.01 Preliminary adjustment of the needle height

Requirement

With the needle bar at b.d.c. the distance between bottom edge of the needle bar and the needle plate must be **16.5 mm**.

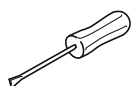
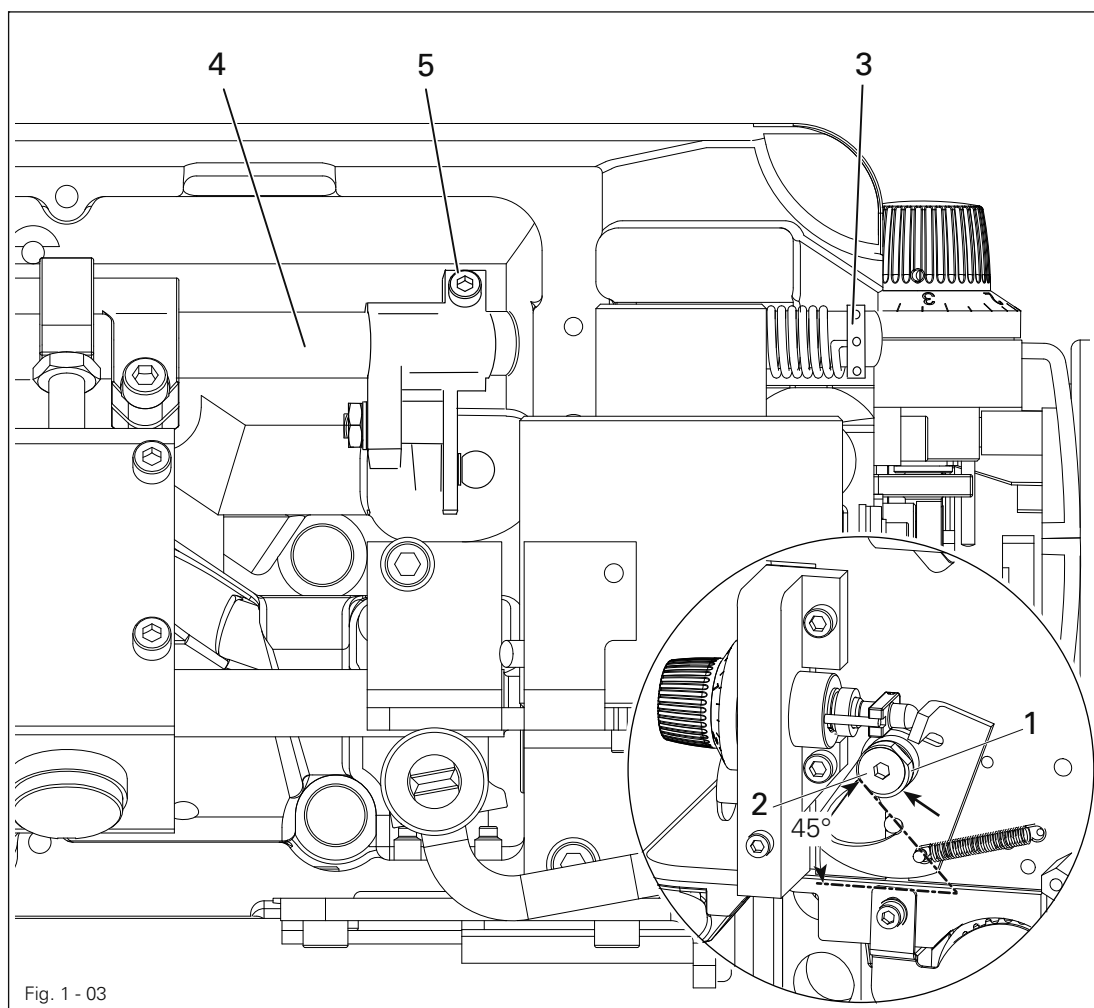


- Adjust needle bar 1 (screws 2) according to the requirement.

1.06.02 Neutral position of the bottom feed dog

Requirement

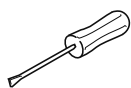
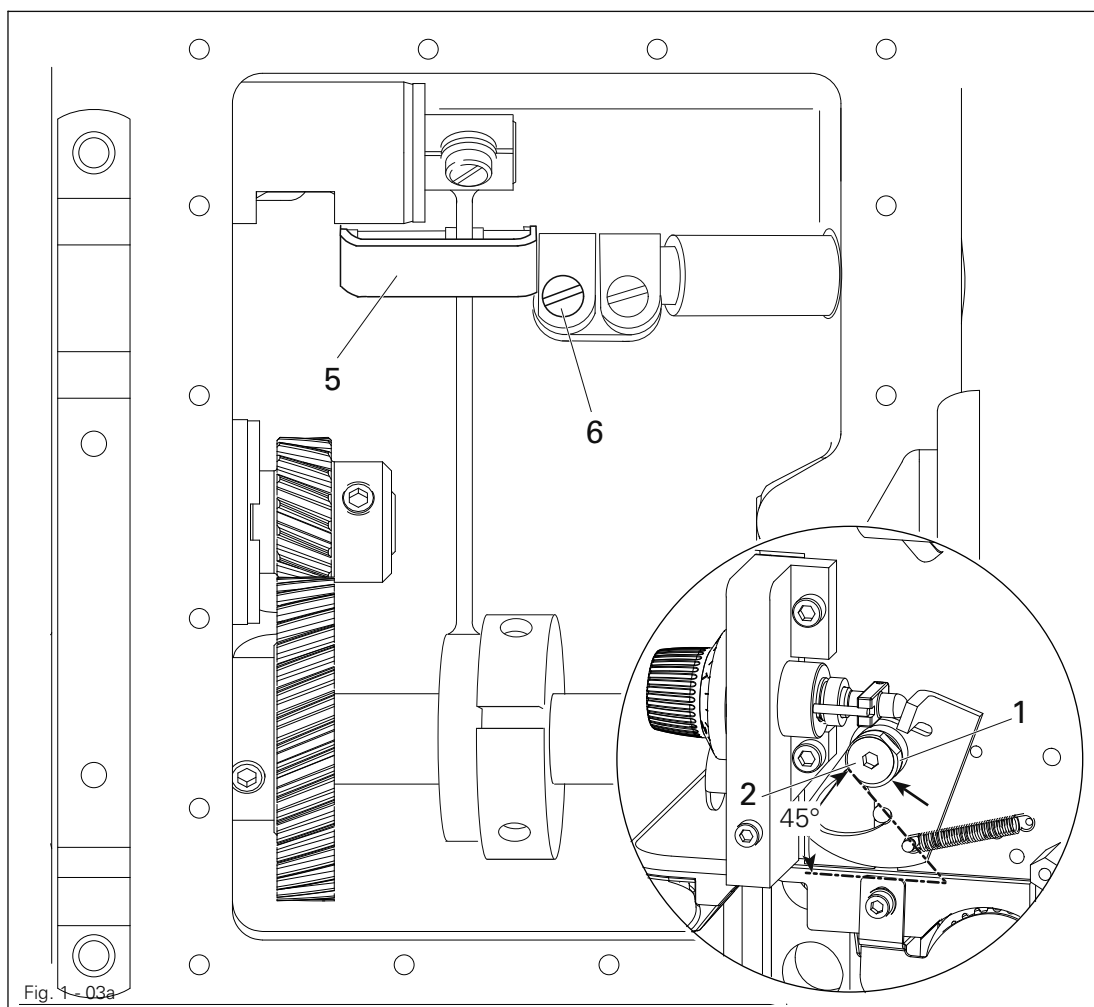
With the stitch length set at "0" there should be no feeding motion of the bottom feed dog when the balance wheel is turned..



Zeroing procedure with the gearbox closed

- Turn excenter sleeve 1 (screw 2) until largest excentricity is in lower area (see arrow) and the edge of the milled surface is at an angle of approx. 45° to the machine's base plate.
- Insert an Allen key in an opening for clamping ring 3 to hold shaft 4.
- Turn shaft 4 (screw 5) with the Allen key with a continuous movement of the handwheel in accordance with the **rule**.

Zeroing procedure with the gearbox open

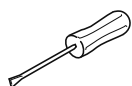
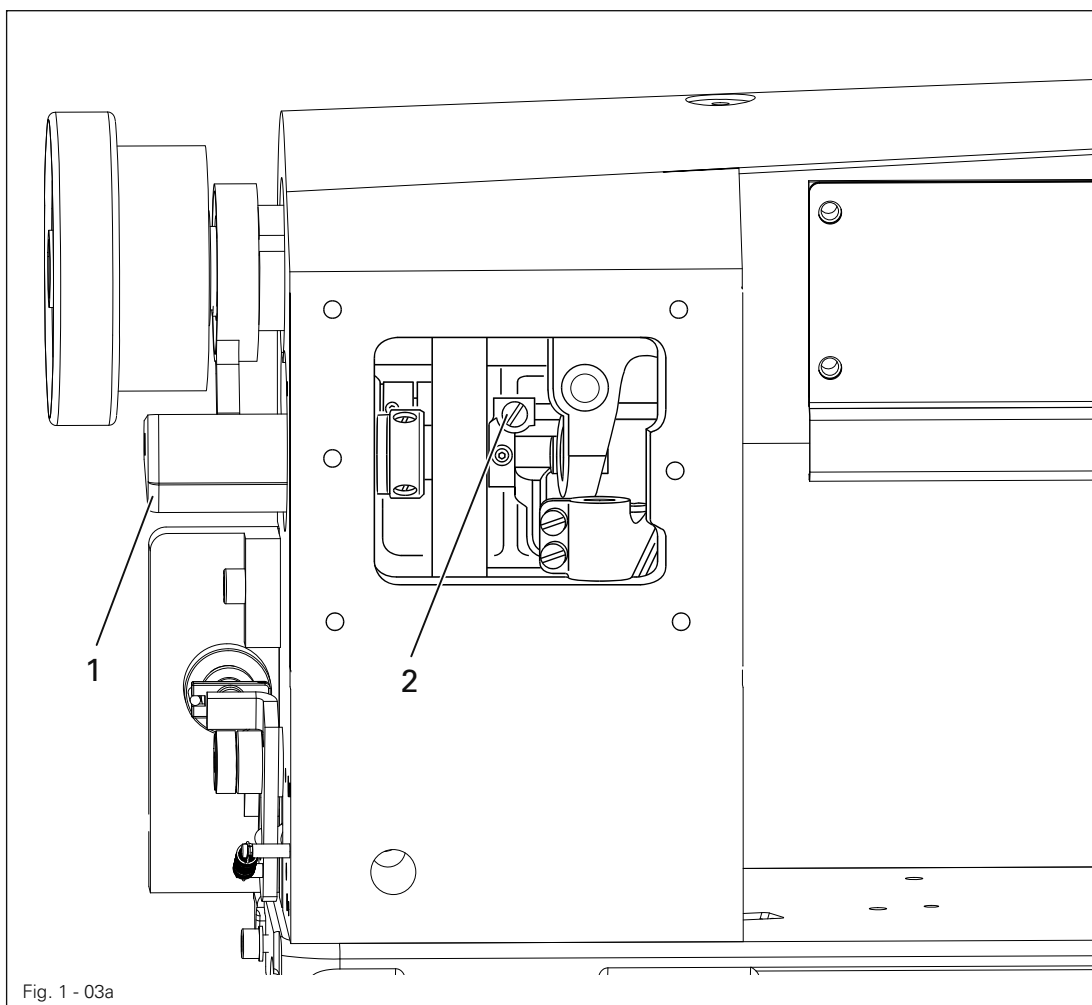


- Turn excenter sleeve 1 (screw 2) until largest excentricity is in lower area (see arrow) and the edge of the milled surface is at an angle of approx. 45° to the machine's base plate.
- Turn crank 5 (screw 6) according to the **rule**.

1.06.03 Zeroing the needle feed motion (not on the PFAFF 583)

Requirement

With the stitch length control set at "0" the needle bar should make no feed motion when the handwheel is turned.



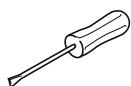
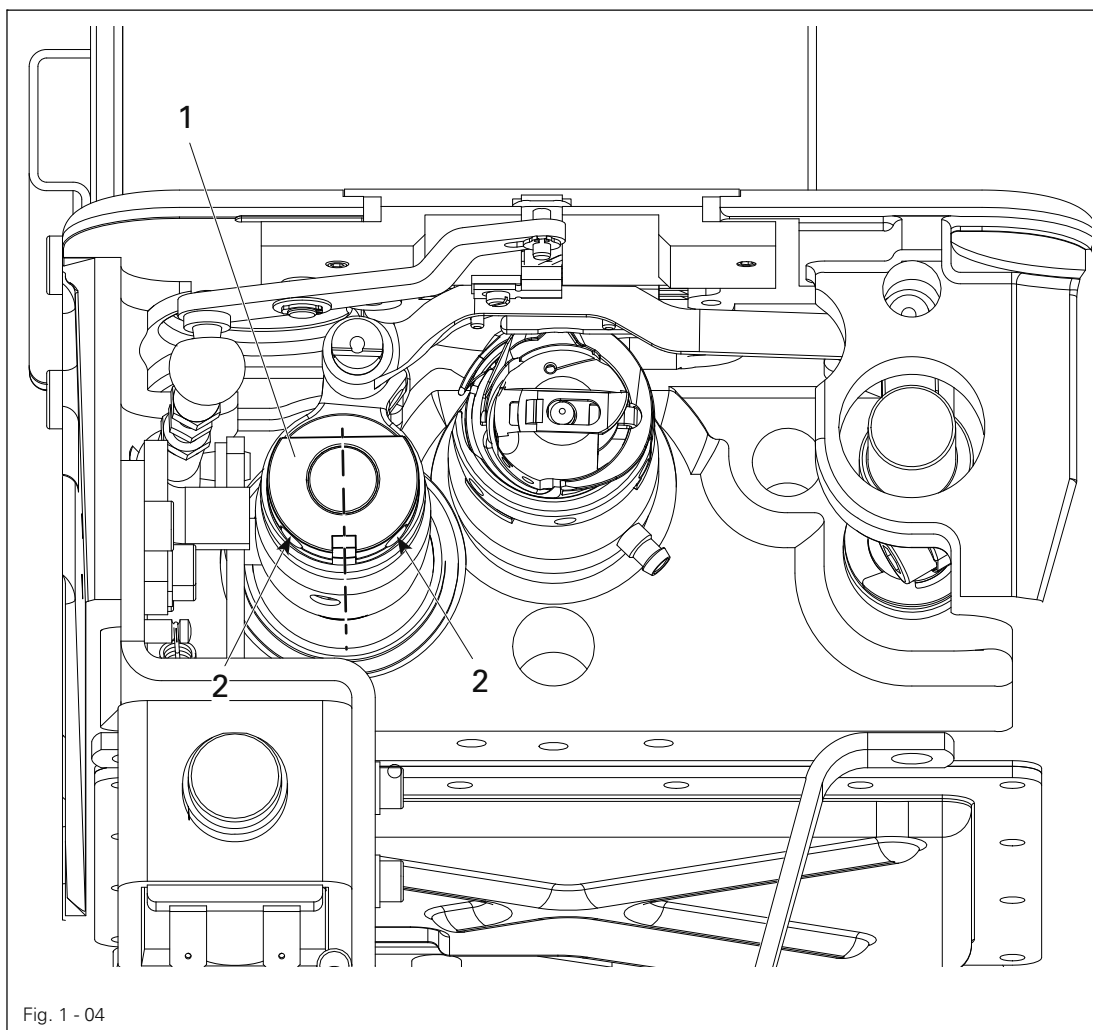
- Adjust needle feed regulating crank 1 (screw 2) according to the requirement

1.06.04 Bottom transporter stroke movement

Requirement

With the stitch length set at "0"

1. the feed dog should be at t.d.c. when the needle bar is at a position **1.5 mm** before b.d.c (cylindrical pin in hole "7"; for PFAFF 581) or **0.6 mm** past t.d.c (cylindrical pin in hole "1"; for PFAFF 583).
2. In this position, the notch in feed lifting eccentric **1** should be positioned perpendicularly below the center of the shaft.



- Turn feed lifting eccentric **1** (screws **2**) according to the requirement.

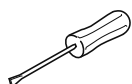
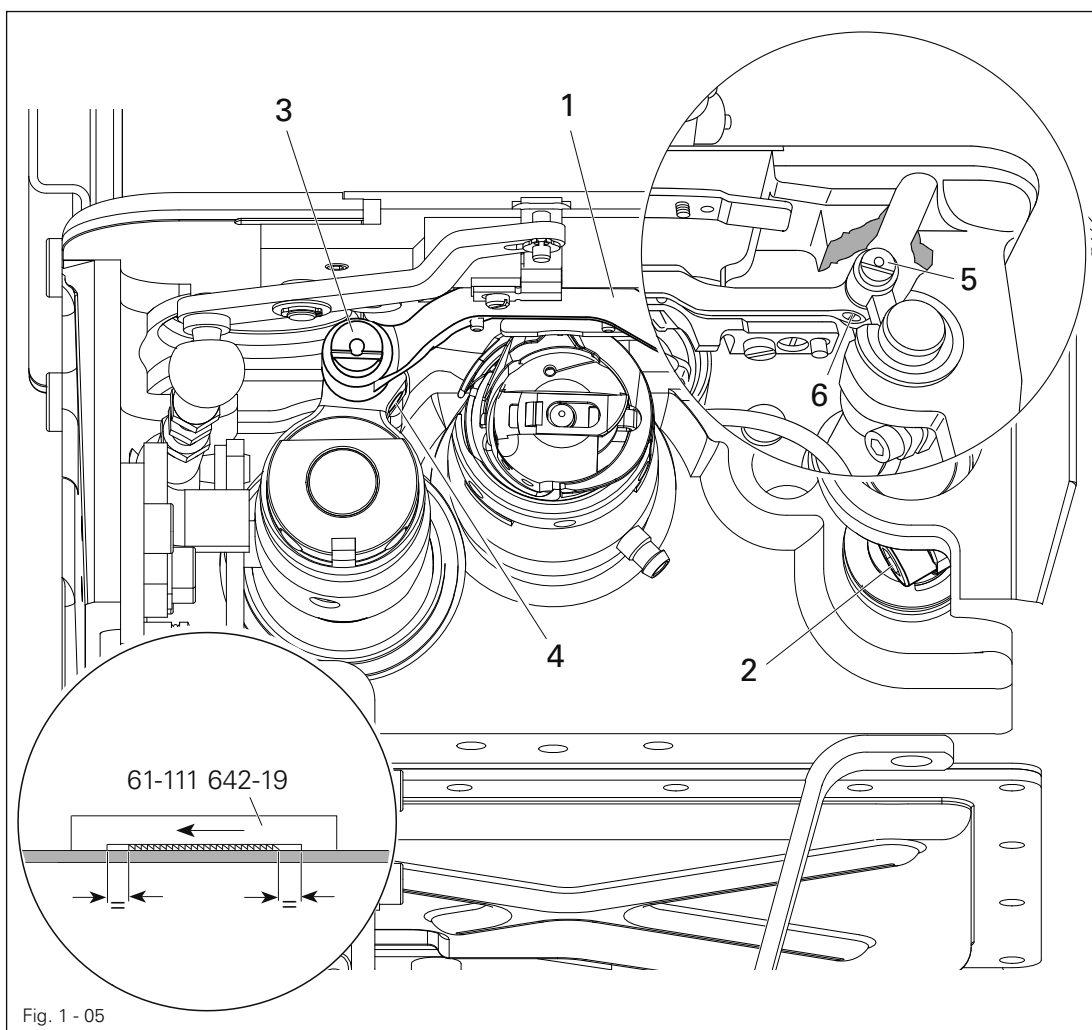
1.06.05 Bottom transporter height

Requirement

With the stitch length set at "0" and the needle bar at a position

1.5 mm before b.d.c (cylindrical pin in hole "7", for PFAFF 581) and **0.6** past t.d.c. (cylindrical pin in hole "1"; for PFAFF 583)

1. the feed dog must be positioned in the middle of the needle plate slots when looked at from the side as well as in feeding direction.
2. the feed dog must be at its top point of reversal and must contact the gauge throughout its entire length.



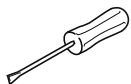
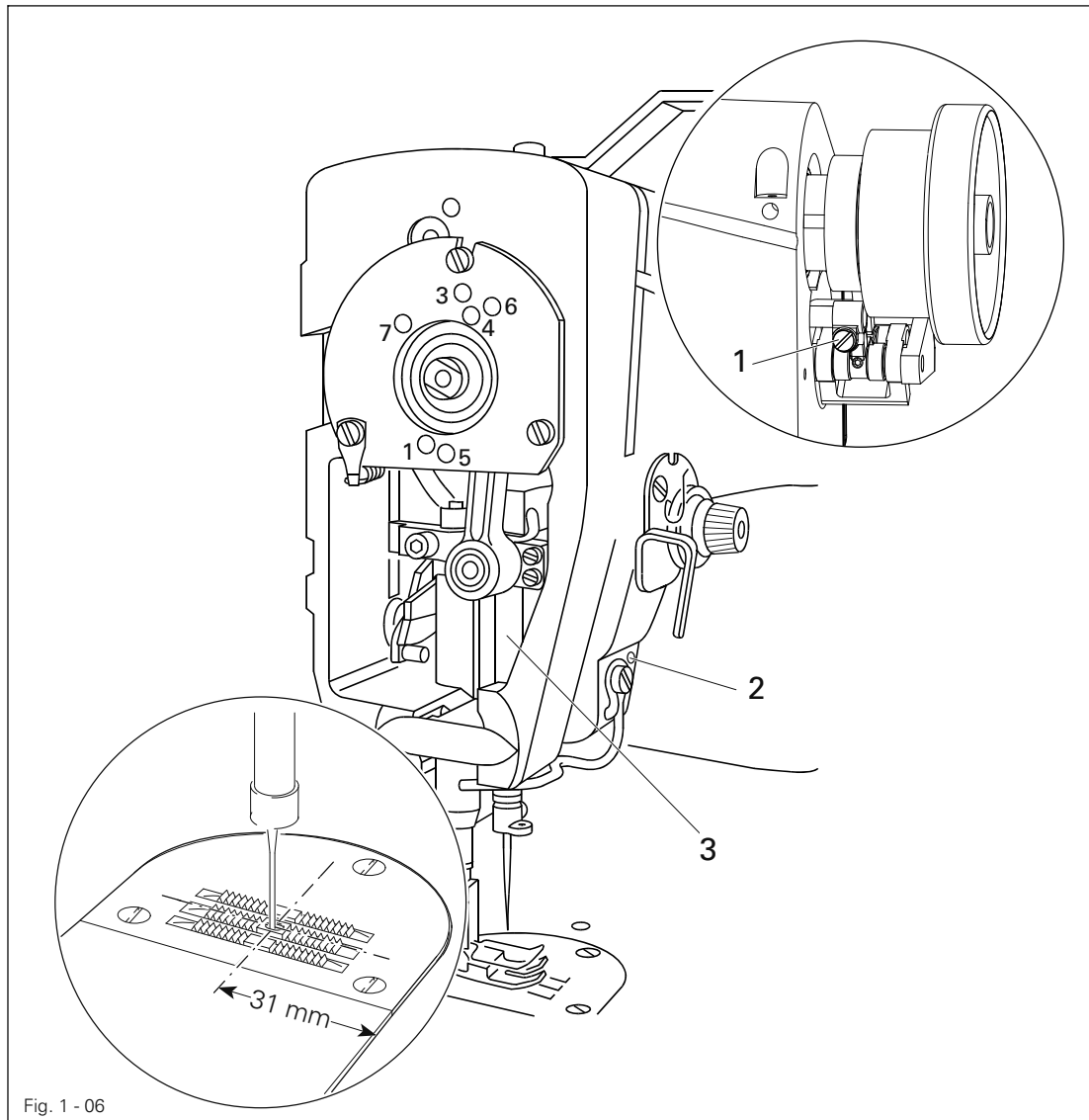
- Move feed bar 1 (screw 2) according to requirement 1.
- Turn eccentric 3 (screw 4) and eccentric 5 (screw 6) according to requirement 2.

1.06.06 Needle in stitch hole (in PFAFF 581)

Requirement

Bei Stichlängen-Einstellung "0" und in Nadelstangenposition 1,5 vor u.T. (Absteckbohrung "7") soll

1. zwischen Nadelmitte und der Gußkante des Stichplattenausschnittes ein Abstand von 31 mm bestehen,
2. The needle should be at the centre of the stitch hole when diagonal to the sewing direction.



- Loosen screws 1 and 2.
- Move needle bar frame 3 according to the rule and tighten screw 1.
- Turn the handwheel a few turns to ensure that the needle bar is not under stress in the needle bar frame and tighten screw 2.

1.06.07 Needle in stitch hole (in PFAFF 583)

Requirement

The needle must penetrate the needle hole right in the center.

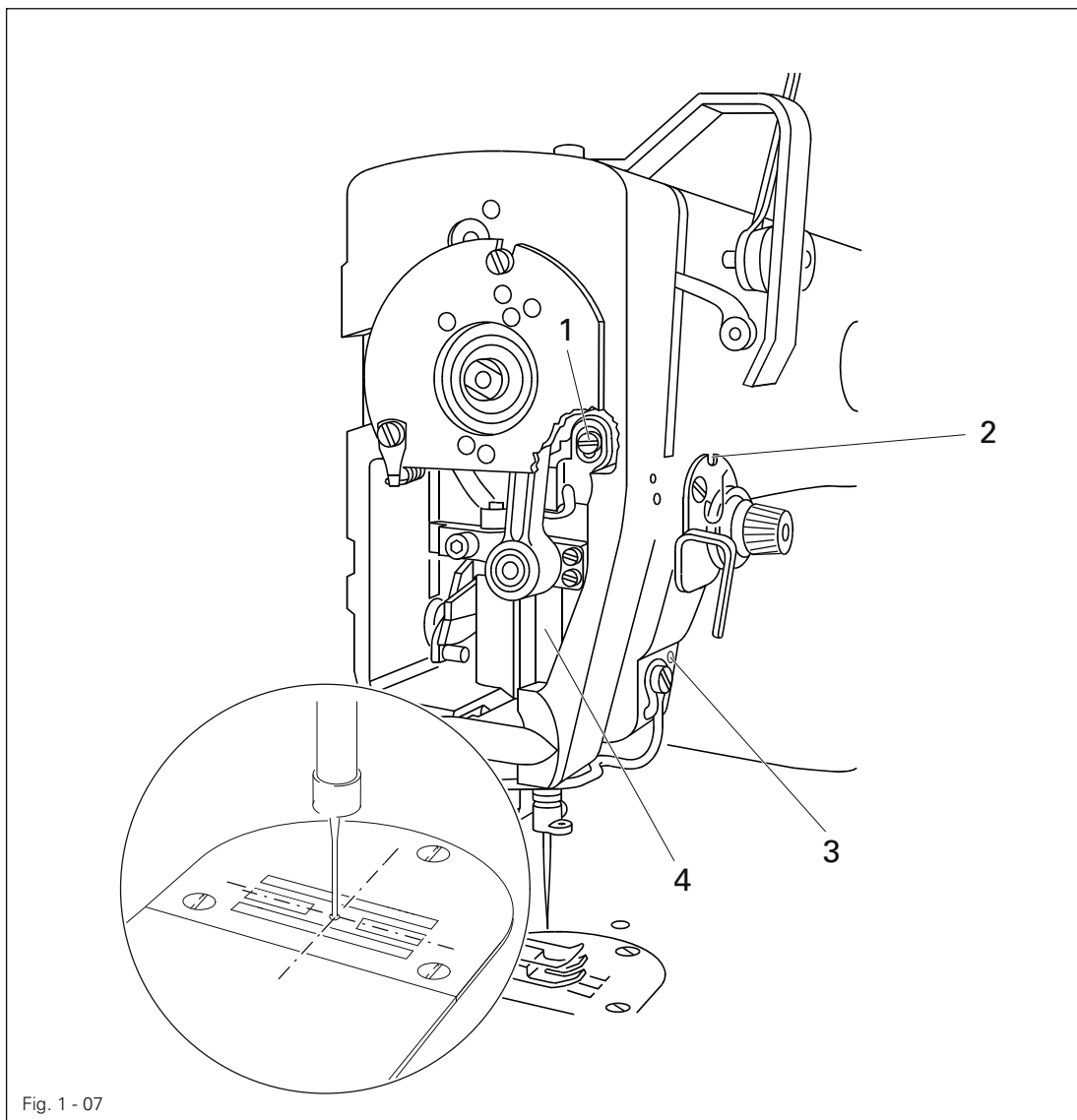
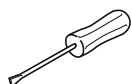


Fig. 1 - 07

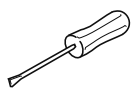
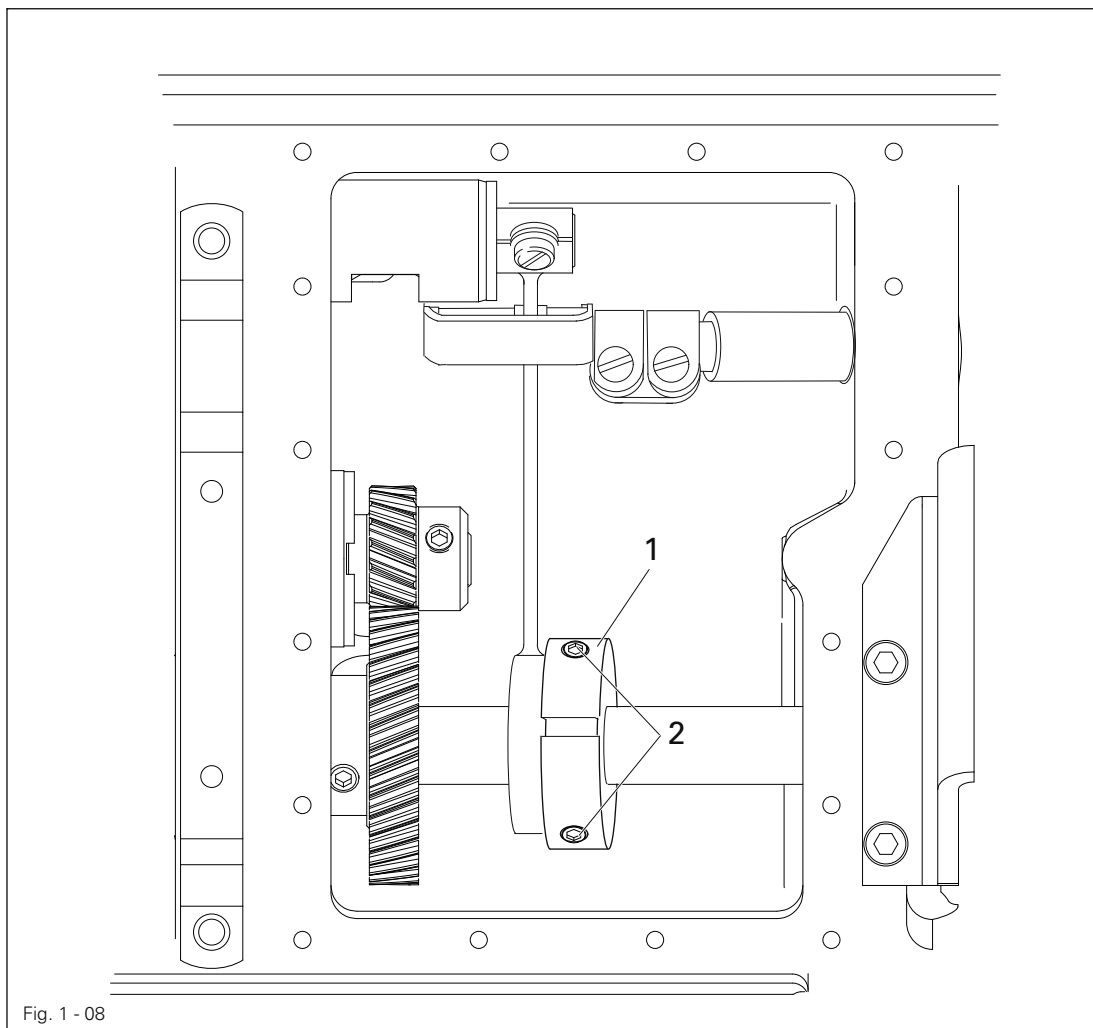


- Loosen screws 1, 2 and 3.
- Position needle bar frame 4 both lengthwise and crosswise of the sewing direction according to the requirement and tighten screw 2 just lightly and screw 3 firmly.
- Turn screw 1 to move the guide pin behind this screw towards the eye of the needle bar frame and tighten it.
- Turn the handwheel a few turns to ensure that the needle bar is not under stress in the needle bar frame and tighten screw 2.

1.06.08 Bottom transporter sliding movement

Requirement

With the longest stitch length set and
the needle bar at 1.5 mm before b.d.c. (cylindrical pin in hole "7"; for PFAFF 581)
the needle bar at 0.6 mm past t.d.c. (cylindrical pin in hole "1"; for PFAFF 583)
the feed dog should not move when the reverse-feed control is moved up and down.

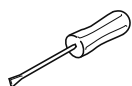
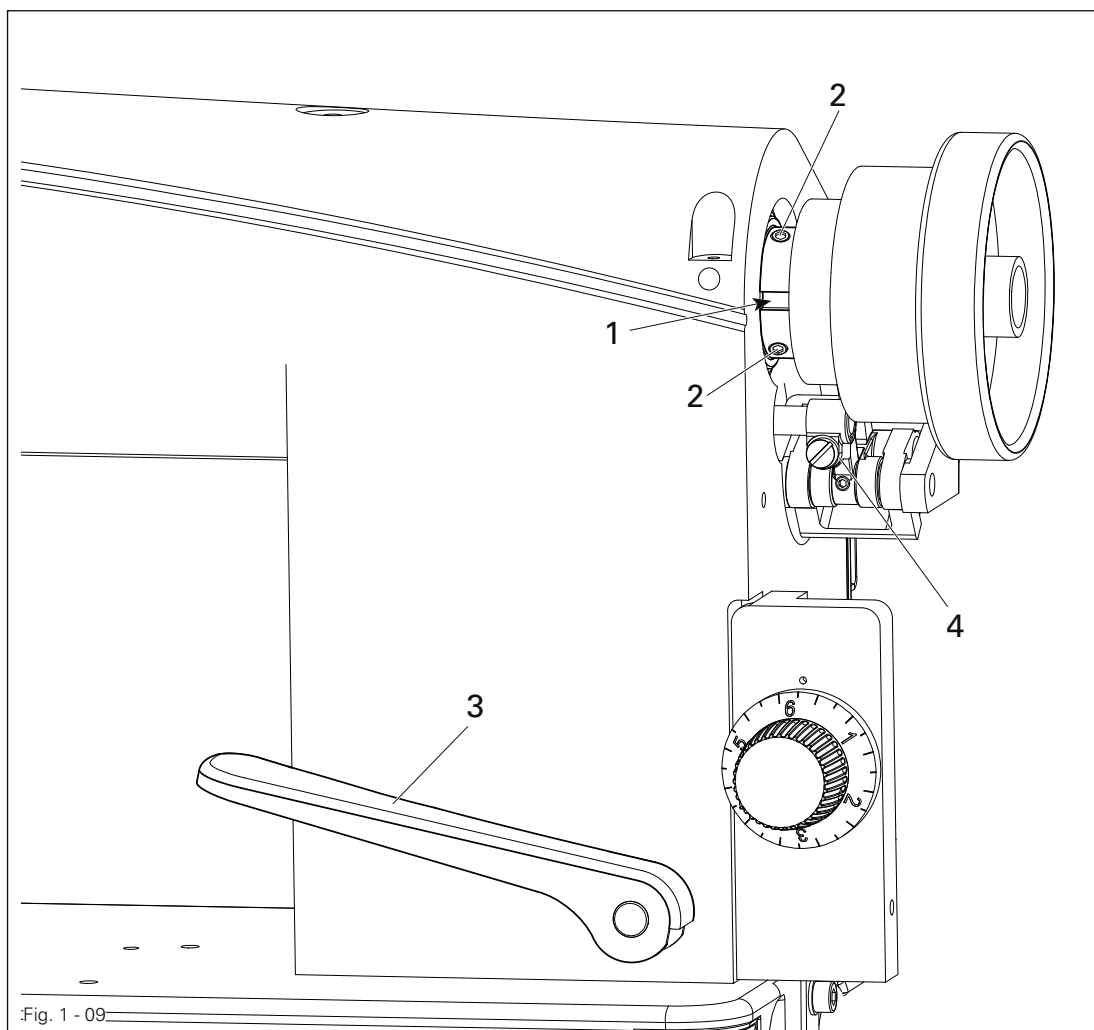


- Turn feed driving eccentric 1 (screws 2) according to the requirement.

1.06.09 Timing the needle feed motion (not on the PFAFF 583)

Requirement

Both the needle bar and the feed dog should remain motionless when reverse-feed control **3** is moved up and down with the machine set for its longest stitch and the needle bar set **1.5 mm** before its b.d.c. (cylindrical pin in hole "7").



- Turn feed driving eccentric **1** (screws **2**) according to the requirement making sure that the notch in feed driving eccentric **1** points to the front.



For easier checking insert a screwdriver in driving crank **4**.

1.06.10 Eccentric hook shaft bearing and hook-to-needle clearance

Requirement

The notch in bearing 3 (see arrow) must be visible from below.

1. There must be a slight but still noticeable play between gears 5 and 7.
2. With the hook set lightly against spin disc 4 and the hook point opposite the center line of the needle, there must be clearance of less than 0.1 mm between the hook point and the clearance cut of the needle.
3. Gear 5 must be flush with gear 7.

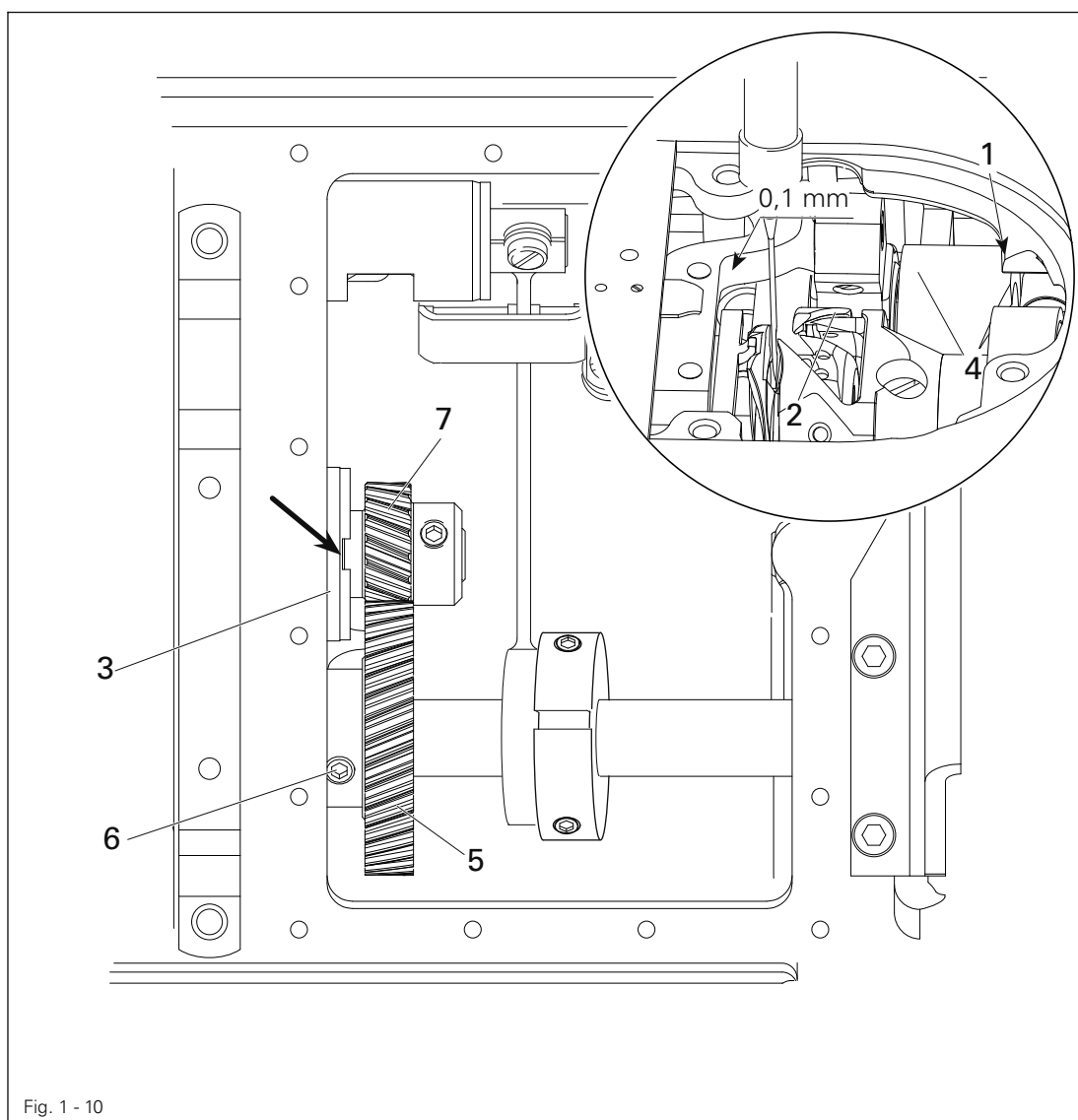
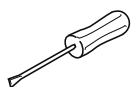


Fig. 1 - 10



- Loosen screws 1 and 2.
- Turn bearing 3 according to requirement 1.
- Set the hook lightly against spin disc 4, shift bearing 3 - without turning it - according to requirement 2 and tighten screws 1 and 2.
- Position gear 5 (screws 6) according to requirement 3.

1.06.11 Needle rise, hook-to-needle clearance, needle height and bobbin case position finger

Requirement

In stitch length setting "0" and in needle bar position 1.8 mm to d.c.p. (pin bore "4"),

1. the tip of the gripper should be at the middle of the needle and have a distance of **0.05 mm - 0.1 mm** to the fillet of the needle, and
2. the upper edge of the eye of the needle should be **0.8 mm** under the tip of the gripper.
3. There should be a gap of **0.5 mm** between the nose of the bobbin case stopper 4 and the base of the stop groove.

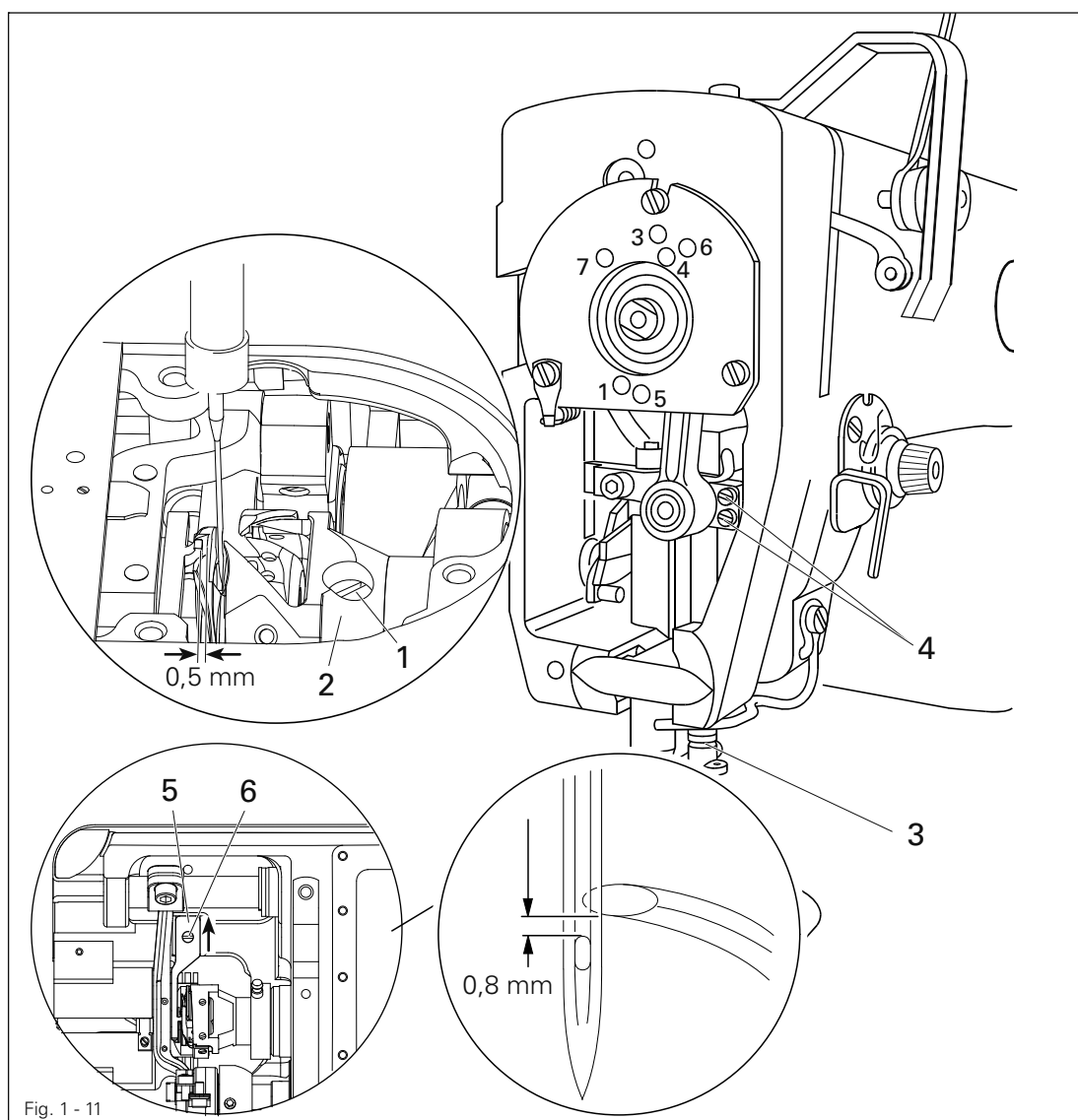
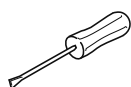


Fig. 1 - 11

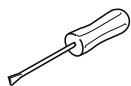
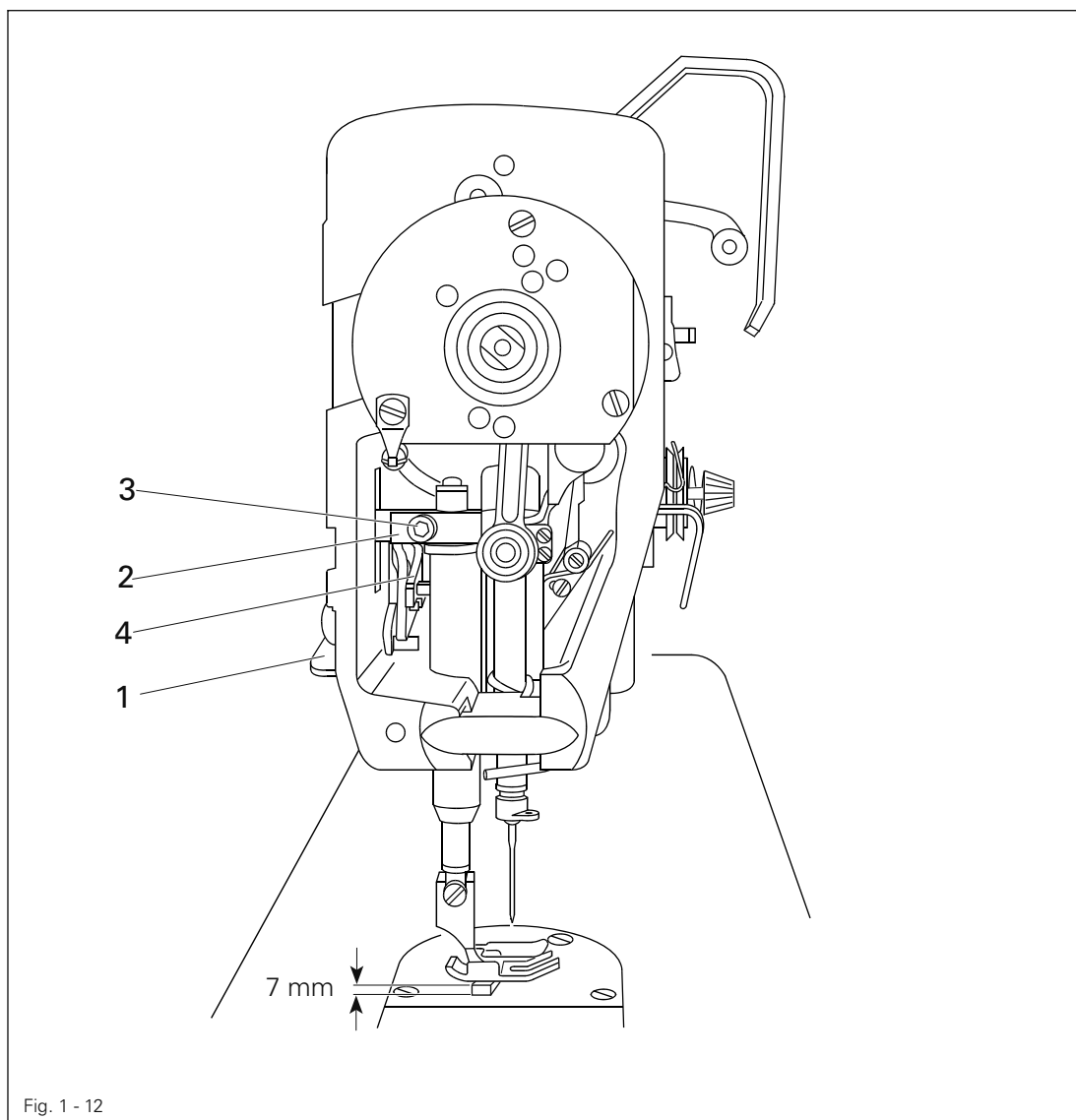


- Adjust the gripper 1 (screws 2) according to rule 1.
- Move needle bar 3 (screws 4) without twisting according to rule 2.
- Slide the bobbin case stopper 5 (screw 6) backwards to the stop (see arrow) and align according to rule 3.

1.06.12 Clearance between presser foot and needle plate

Requirement

With presser bar lifter **1** raised there must be a clearance of **7 mm** between presser foot and needle plate.



- Raise the sewing foot with handwheel **1**.
- Insert a **7 mm** gage between sewing foot and stitch platen.
- Move lifting piece **2** (screw **3**) to touch lift lever **4**.

1.06.13 Correction of forward feed offset (only in PFAFF 581)

Requirement

In the 'largest' stitch length setting, the movements of needle and bottom transporter should be equal when turning the handwheel.

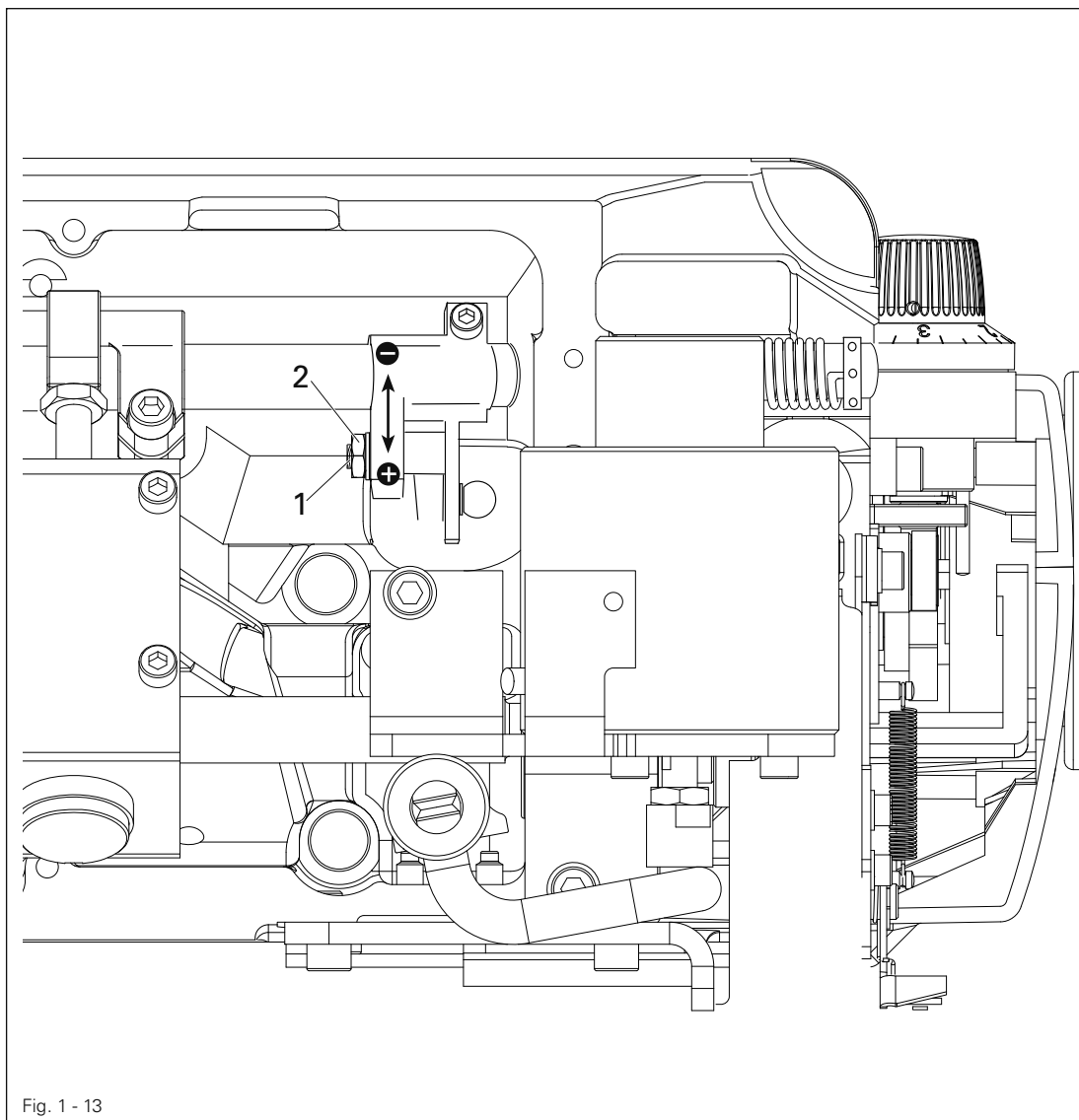
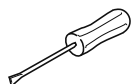


Fig. 1 - 13



- Move joint bolt 1 (nut 2) in accordance with the **rule**.
- Check needle transport zero position (see Chapter 1.06.03), correct where required.

1.06.14 Stitch length adjustment

Requirement

The stitch length set to "3" should be the same size in forward and reverse transport.

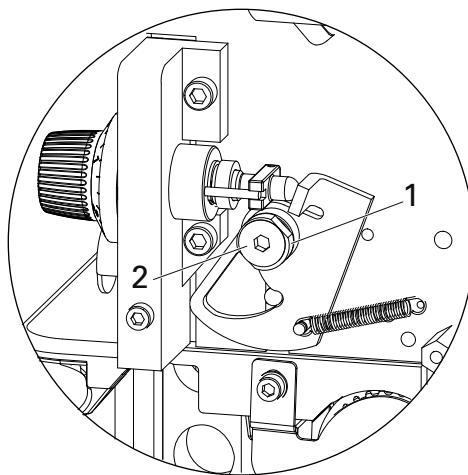
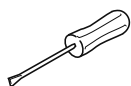


Fig. 1 - 14



- Turn excenter sleeve 1 (screw 2) according to the rule.

1.06.15 Limiting the stitch length



When exchanging the parts kit with stitch lengths differing from the as-delivered state of the machine, limit the max. stitch length using stitch adjuster 6.

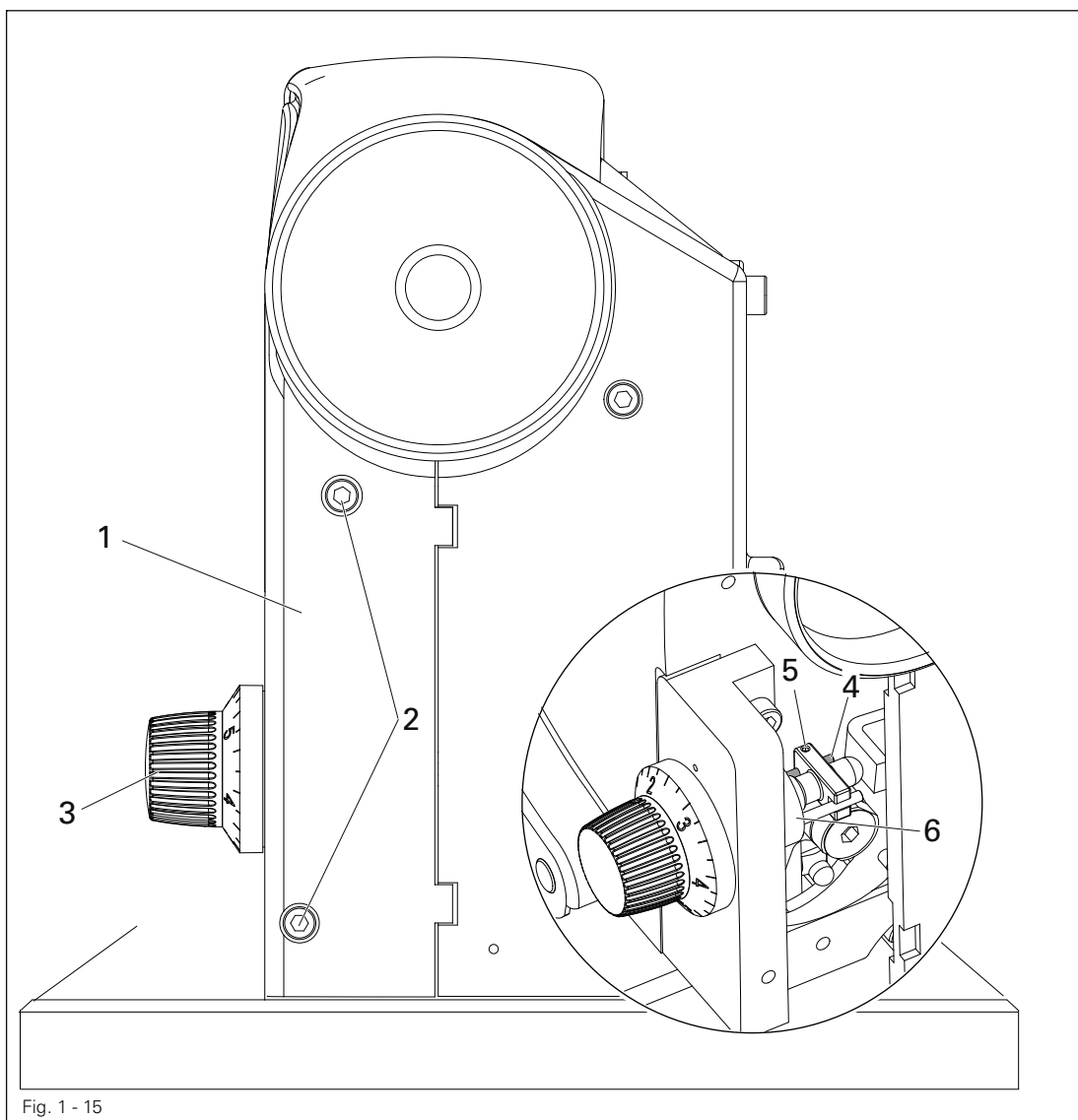
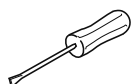


Fig. 1 - 15

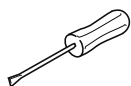
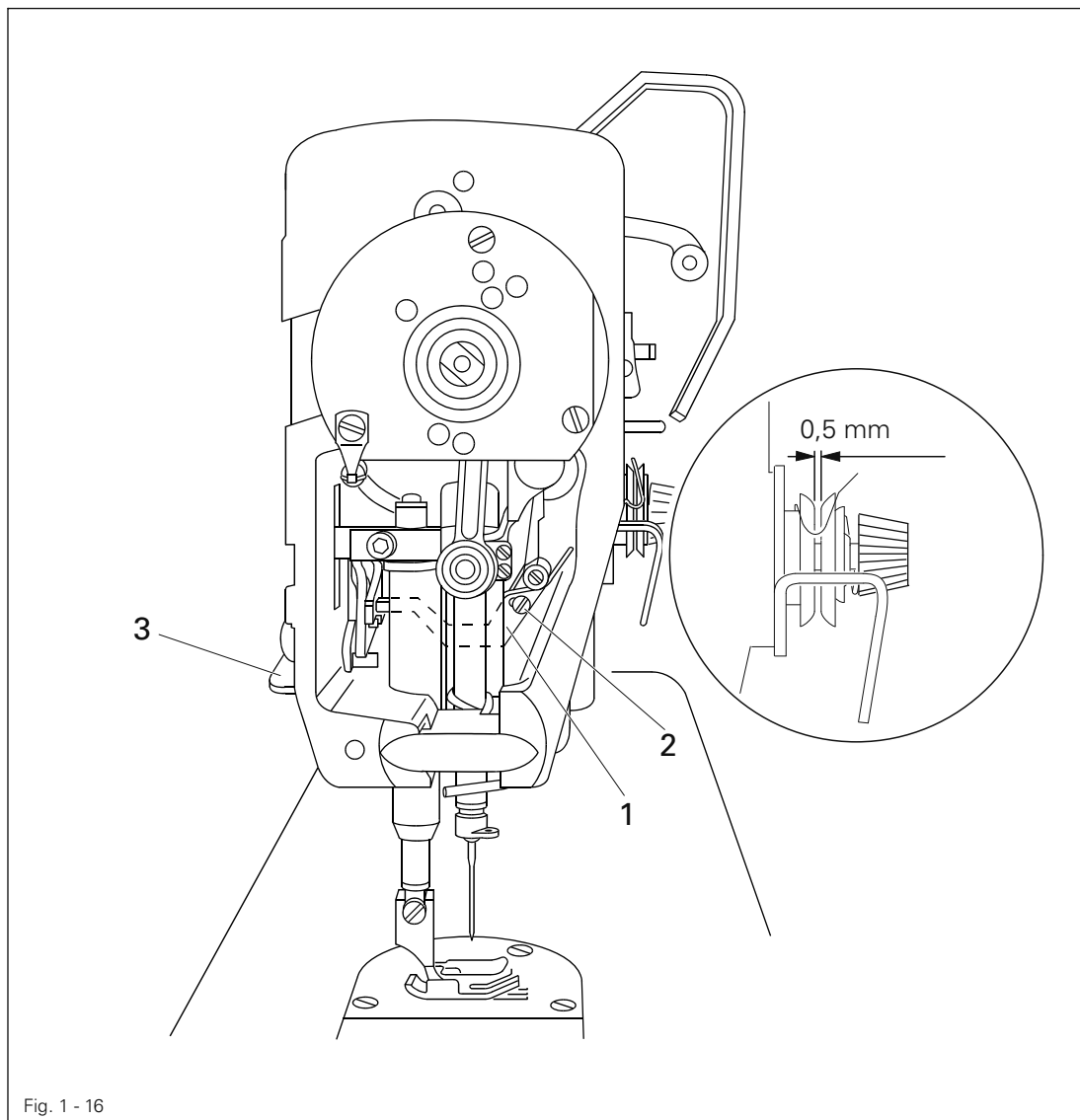


- Linke Maschinenabdeckung 1 (Schrauben 2) abnehmen.
- Am Einstellknopf 3 die gewünschte max. Stichlänge einstellen
- Anschlag 4 (Schraube 5) an der Stelleinrichtung 6 zur Anlage bringen.
- Maschinenabdeckung 1 (Schrauben 2) wieder anschrauben.

1.06.16 Tension release mechanism

Requirement

When presser bar lifter **3** is raised both tension discs must be at least **0.5 mm** apart.

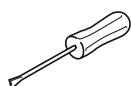
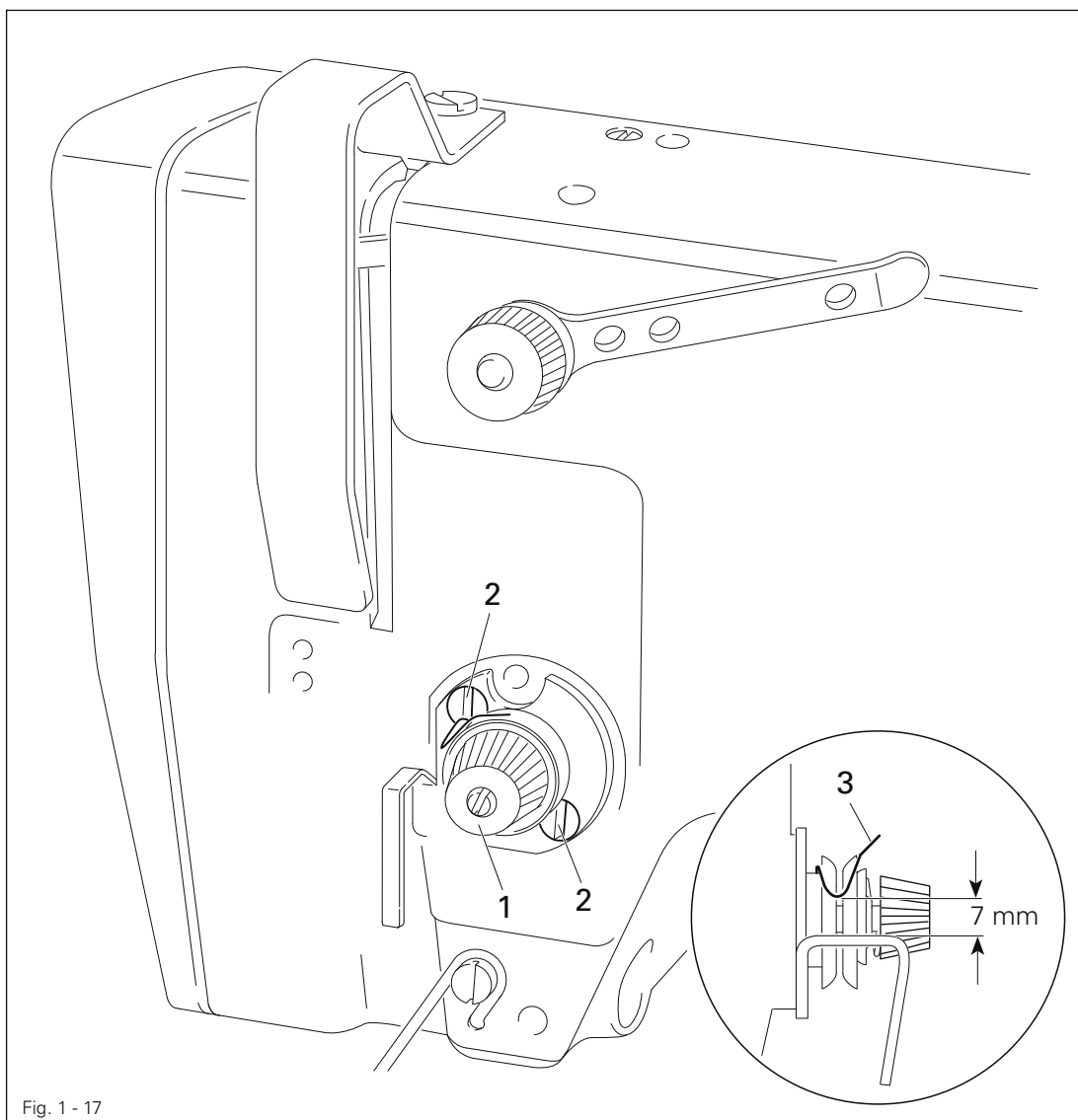


- Adjust tension release lever **1** (screw **2**) according to the requirement.
- Lower the presser foot onto the needle plate. Now the tension must be fully activated.

1.06.17 Thread check spring

Requirement

Thread check spring **3** must have moved by its full stroke by the time the point of the needle enters the material (stroke approx. **7 mm**).



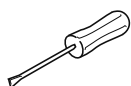
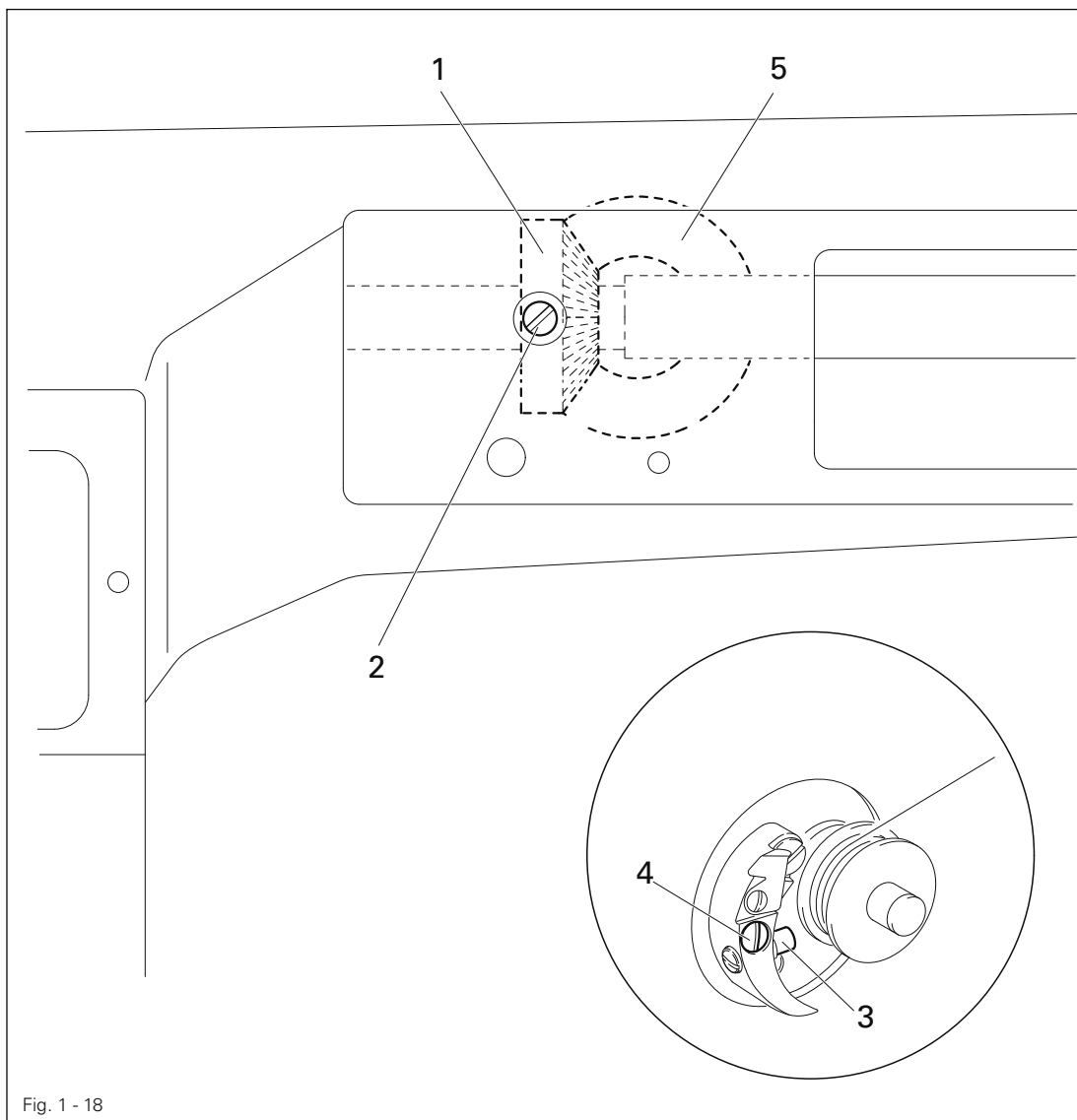
- Turn thread tension **1** (screws **2**) according to requirement.



The travel of the thread tensioning spring **3** depends on the material and thread, and must be adjusted according to sewing results.

Requirement

1. With the bobbin winder on, the drive wheel **1** must engage reliably.
2. With the bobbin winder off, the friction wheel **5** must not be driven by the drive wheel **1**.
3. The bobbin winder must turn off automatically when the thread level is approx. **1 mm** from the edge of the bobbin.

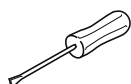
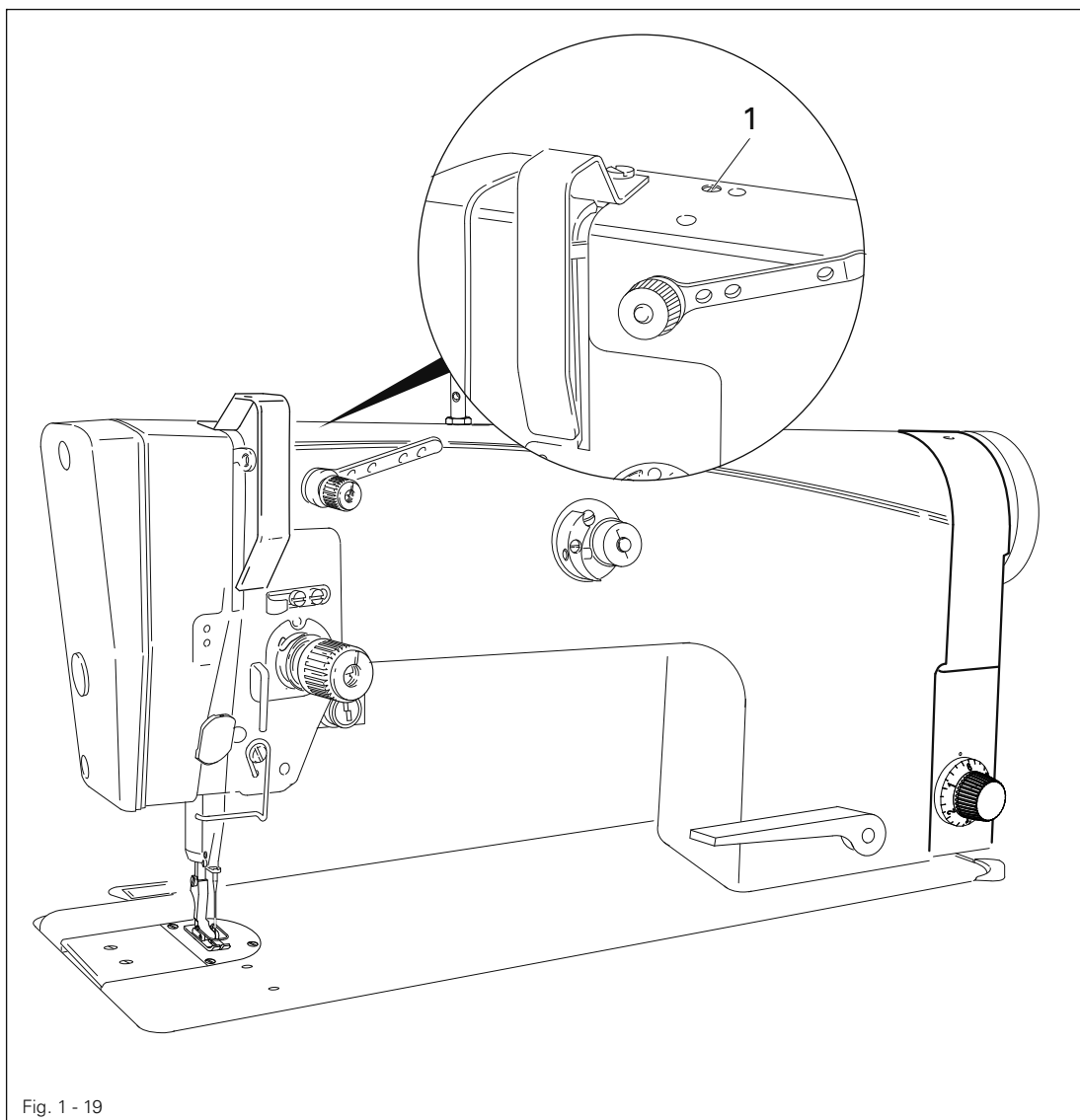


- Move drive wheel **1** (screws **2**) in accordance with requirement **1** and **2**.
- Move bolt **3** (screw **4**) in accordance with requirement **3**.

1.06.19 Presser foot pressure

Requirement

The material should be transported properly even at top motor speed.



- Turn screw 1 according to the requirement.

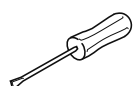
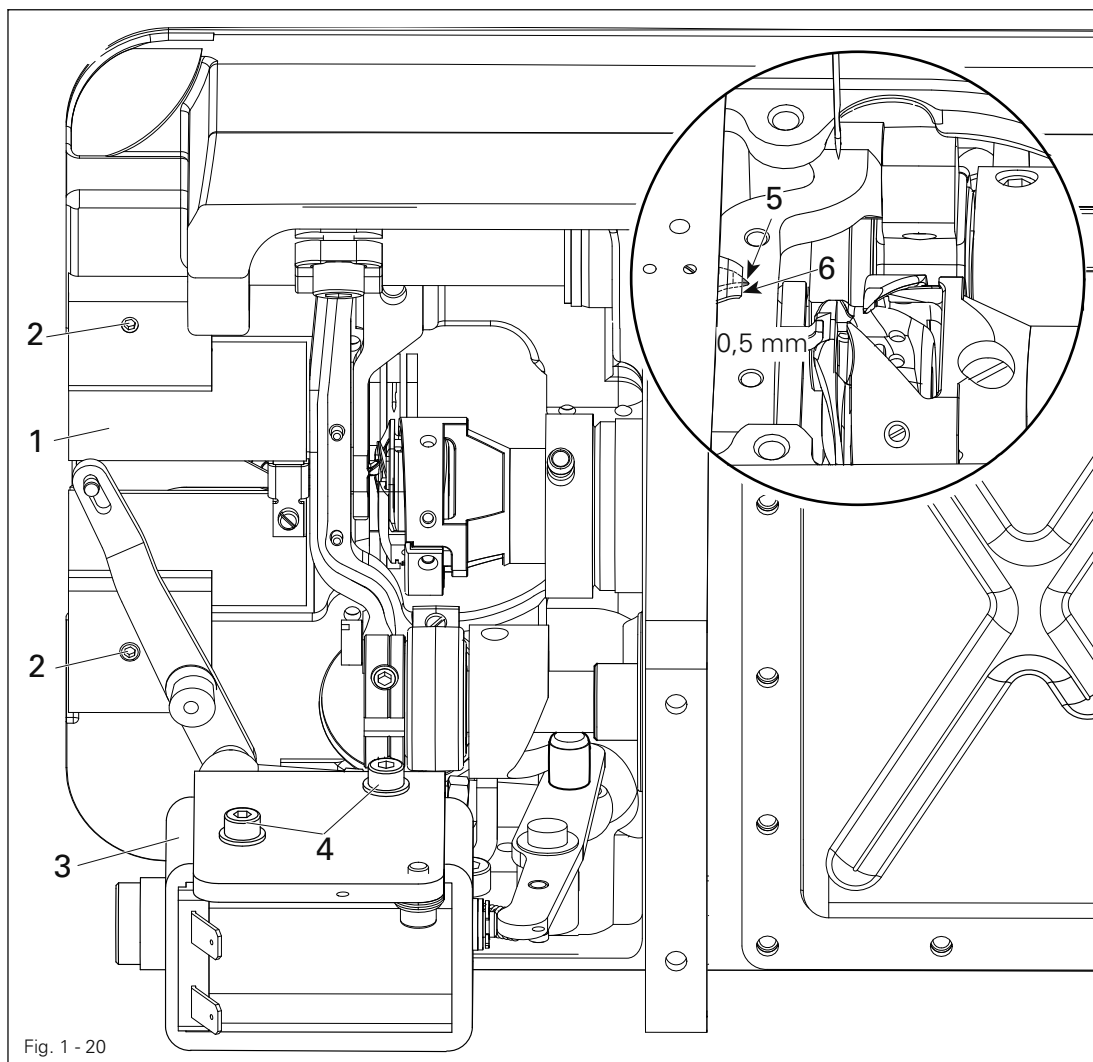
1.07 Adjusting the thread trimming device -900/24

1.07.01 Home position of the roller lever

Requirement

In Grundstellung der Fadenabschneid-Einrichtung soll

1. der Fänger-Träger an der Stichplatte anliegen,
2. die Spitze des Fadenfängers 5 max. 0,5 mm vor der Messerkante 6 stehen.

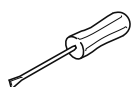
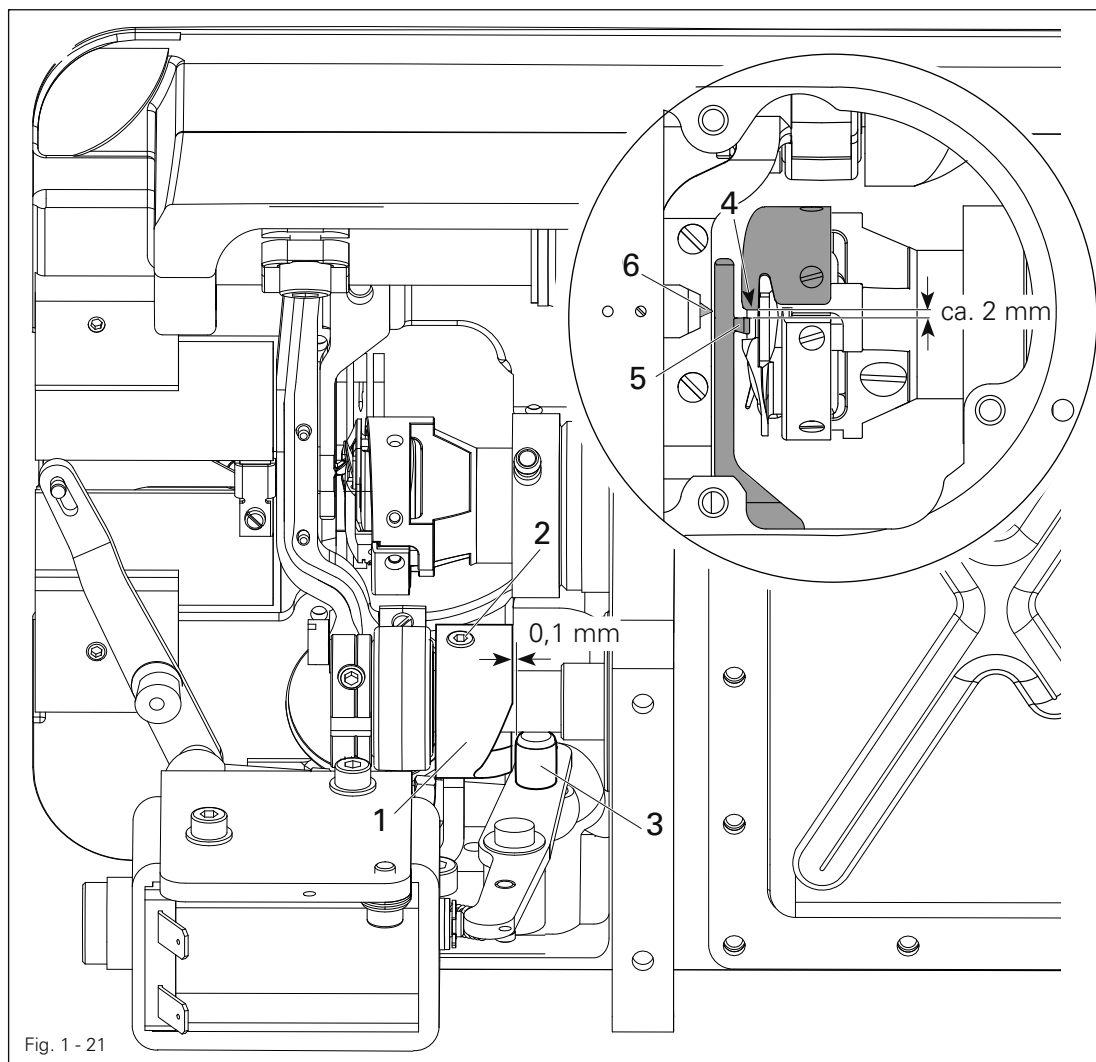


- Fänger-Träger 1 (Schrauben 2) entsprechend der Regel 1 verschieben.
- Move magnet 3 (screws 4) in accordance with the rule.

1.07.02 Control cam

Requirement

1. Im Grundstellung der Fadenschneid-Einrichtung soll zwischen Rollenhebel 3 und Steuer-kurve 1 ein Abstand von **0,1 mm** bestehen.
2. Wenn beim Drehen am Handrad in Drehrichtung das Ende des Greiferbleches 4 ca. **2 mm** hinter der Hinterkante des Spulen-kapsel-Anhaltestücks 5 steht (Nadel von u.T. kommend), soll der Fadenfänger 6 mit seiner Vorwärtsbewegung beginnen.

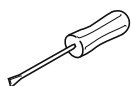
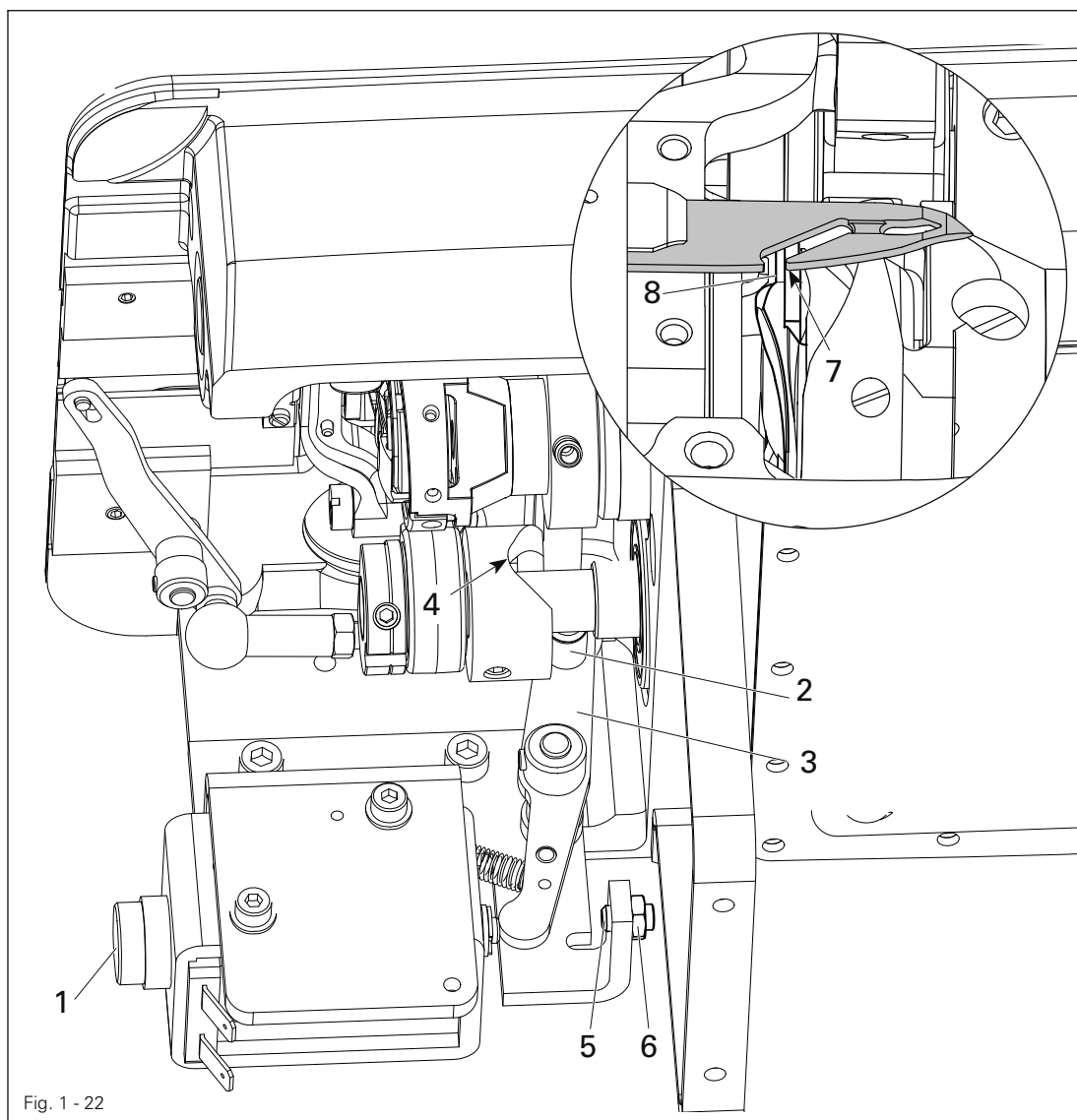


- Set control curve 1 (screws 2) in accordance with rule 1.

1.07.03 Front return position of the thread catcher

Requirement

When roller 2 of roller lever 3 has reached the lowest position of control curve 4 (see arrow), the tip of the catcher hook 7 should be positioned at the left edge of the gap in the bobbin case carrier 8 (see magnification).

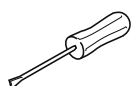
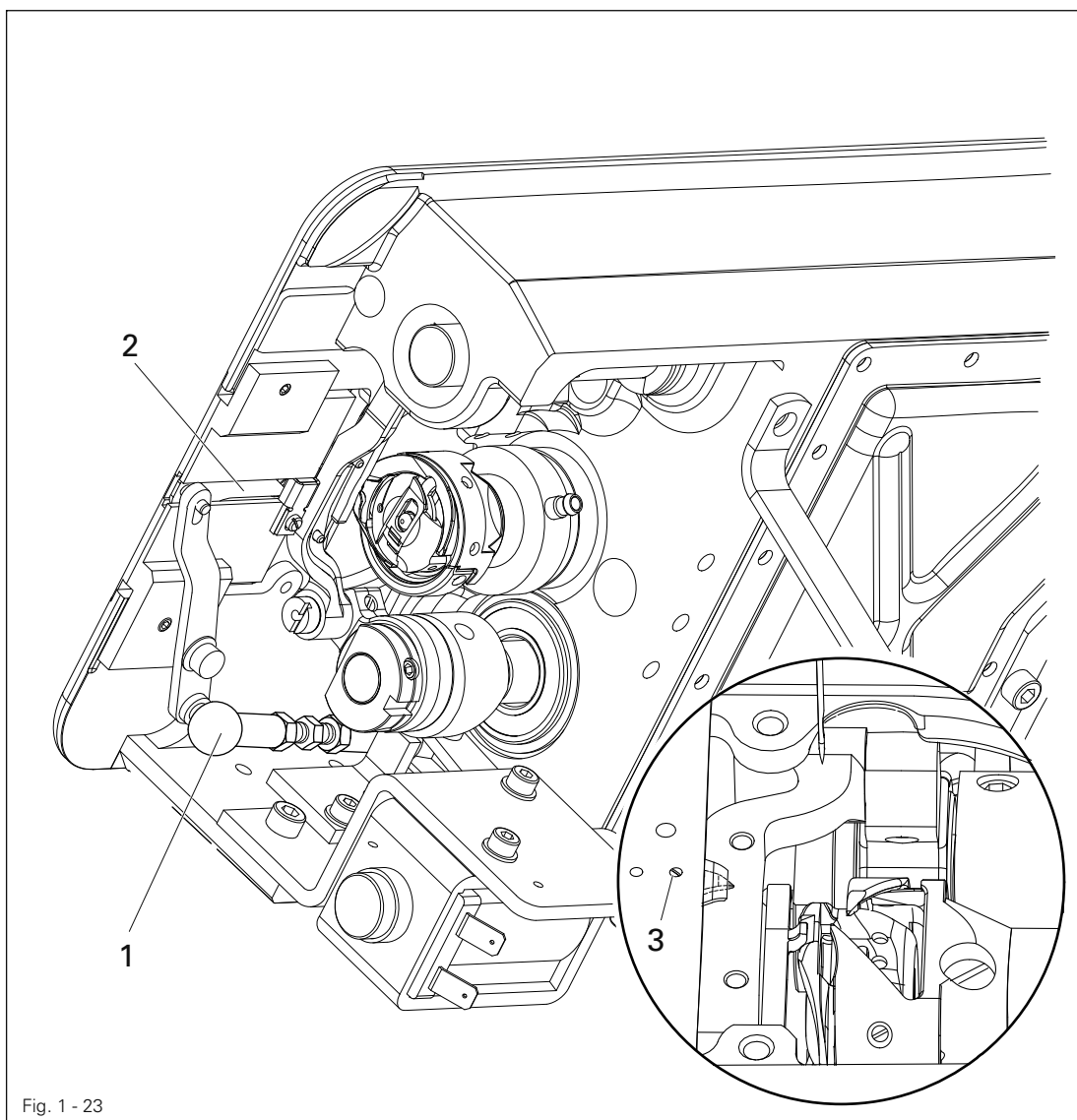


- Activate magnet 1 manually, and turn handwheel in rotational direction until roller 2 of roller lever 3 has reached the lowest position of control curve 4.
- Turn screws 5 (nut 6) according to the rule.

1.07.04 Knife pressure and cut test

Requirement

The threads must be cut precisely.

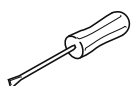
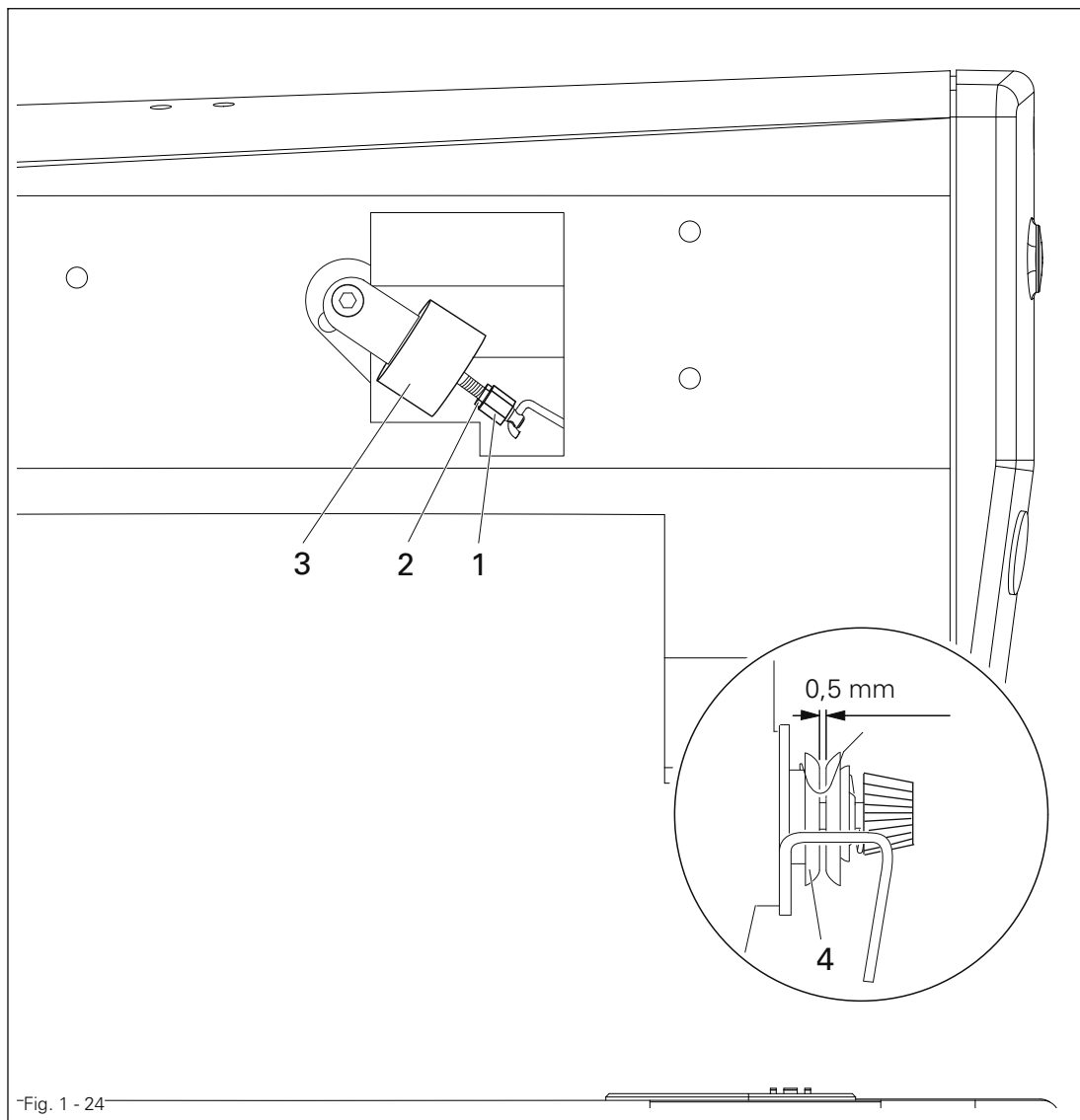


- Remove connection bar 1.
- Insert a doubled-up length of thread in thread catcher 2 and carry out a test cut.
- Adjust the cutting pressure by turning screw 3.
- Replace connection bar 1.

1.07.05 Top thread tension release (in machines with -900/..)

Requirement

1. With magnet **3** activated, tension shims **4** should be at least **0.5 mm** apart.
2. When the thread trimmer device is in rest position and the sewing foot is on the stitch platen, tension should be fully activated.



- Turn nut **1** (counter nut **2**) according to the **rule**.

2 Basic position of the machine drive unit

2.01 On machines with PicoDrive and control unit P41 PD2

- Switch on the machine.
- Call up the parameter input by pressing the “**scroll**” key.
- To switch the function keys to input (LED in the **TE** key lights up), press the **TE** key.
- By pressing the corresponding +/- **keys**, select parameter “**798**” and service level **C**, see Chapter **Selecting the User Level** in the separate Control Panel Instruction Manual.
- Select parameter “**799**” by pressing the corresponding +/- **keys**.
- Check whether the value is set at “**2**” and alter if necessary.
- Switch the machine off and then on again.
- Select parameter “**800**” by pressing the corresponding +/- **keys**.
- Check whether the value is set at “**0**” (balance wheel turns towards the operator) and alter if necessary.
- Select parameter “**802**” by pressing the corresponding +/- **keys**.
- Check whether the value is set at “**0**” (= no reduction ratio) and alter if necessary.
- .By pressing the corresponding +/- **key**, select parameter “**700**”
- Sew a stitch by operating the pedal.
- Turn the balance wheel in the sewing direction until the descending needle is level with the top edge of the needle plate.
- Conclude the adjustment of the sewing motor by pressing the “**scroll**” key



For additional settings, please see the instruction manual for the drive.

2.02 With drive system MD-4-58-220-CE



- Press and hold button and switch on machine
- Parameter **176** is displayed.



- Call up parameter **181**.



- Call up input level.
- Sew a stitch with the pedal function.
- Turn the handwheel in rotational direction until the needle point (approaching from above) is on the upper edge of the needle plate.



- Confirm entry.



- Call up parameter **192**.



Call up input level.



Press button **D+** to turn function “off”



Press button “**S**” to exit input.

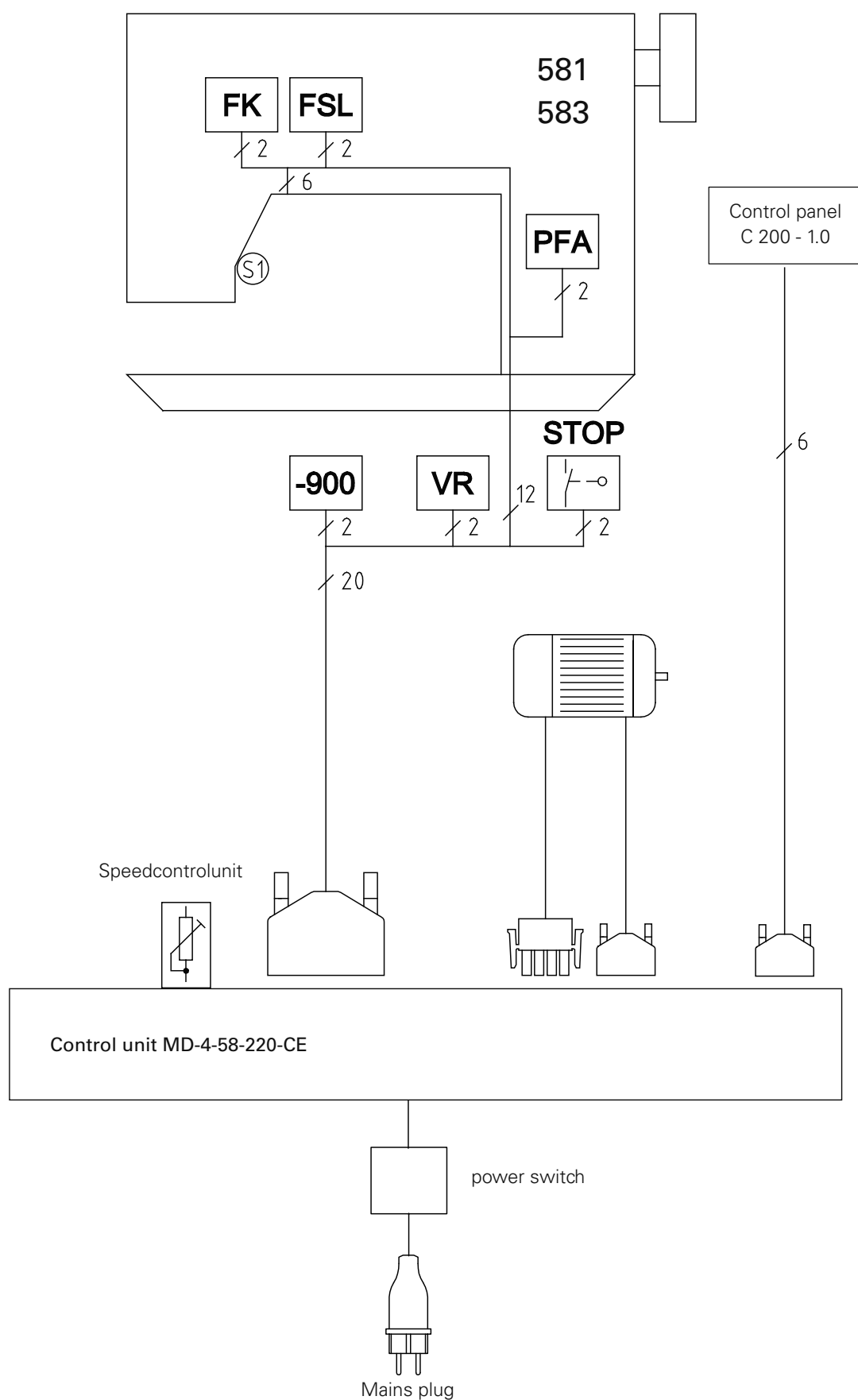
2.03 Resetting the drive system MD-4-58-220-CE



- Press and hold buttons “A+” and “B+” and switch machine On.
- The control unit will carry out an automatic reset.
- Switch machine off.
- Check home position as described in Chapter **2.02**.

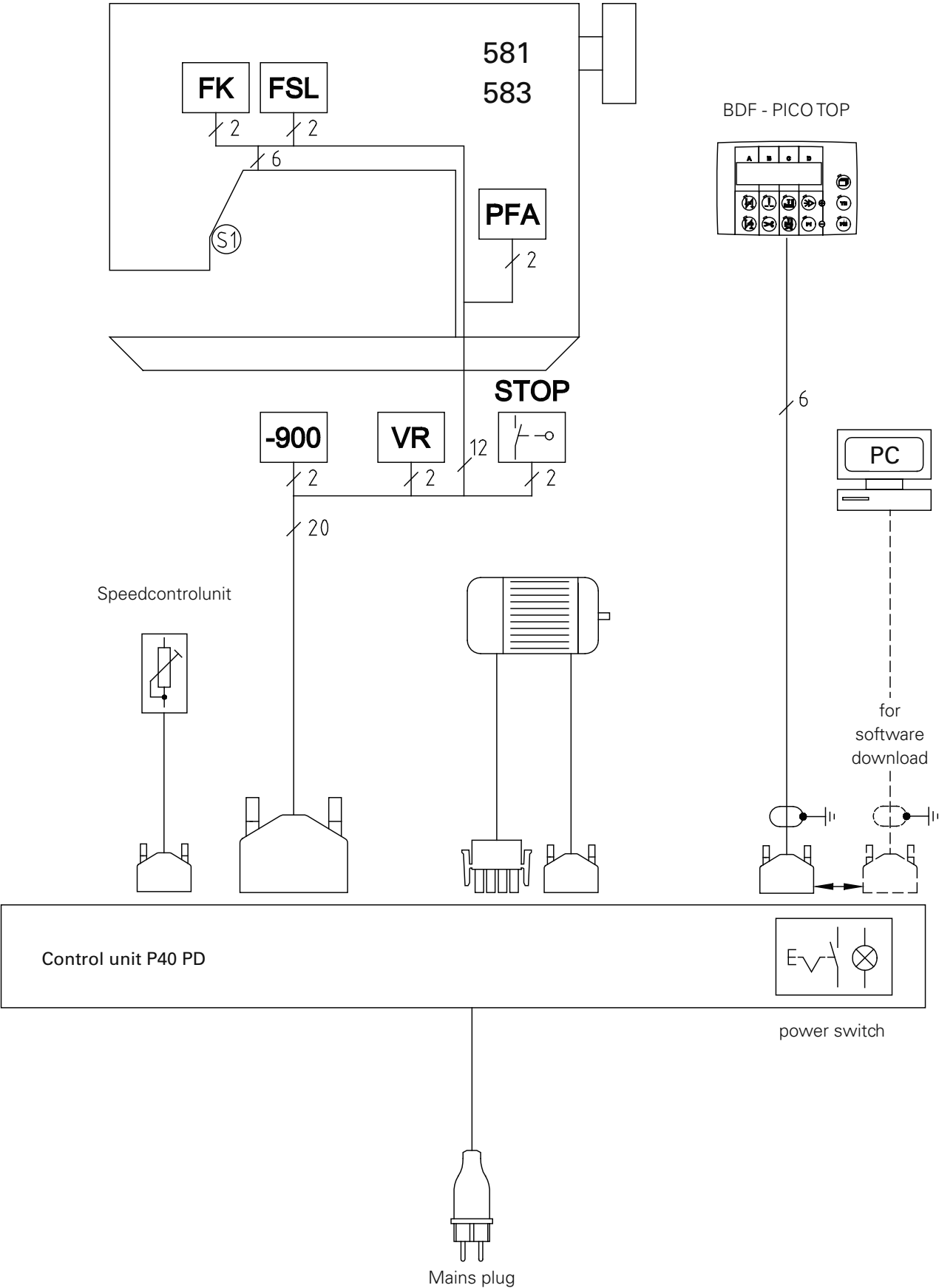
3 Block diagram

3.01 PFAFF 581 + 583 with MD-4-58-220-CE



Block diagram

3.02 PFAFF 581 + 583 with PicoDrive and control unit P41 PD2



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