PFAFF® Industrial

POWERLine

2235

ADJUSTMENT MANUAL

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

7 205 458 ⟶

296-12-19 119/002
Justieranleitung Ef. engl. 03.10

PFAFF Industriesysteme
und Maschinen AG

Hans-Geiger-Str. 12 - IG Nord
D-67661 Kaiserslautern

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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.

1.02 Tools, gauges and other accessories for adjusting

- Screwdrivers with blade width from **2** to **10 mm**
- Spanners (wrenches) with jaw width from **7** to **14 mm**
- **1** set Allen keys from **1.5** to **6 mm**
- **1** gauge for the top feed stroke **5.0 mm** (Part No. **61-111 633-60**)
- **1** feed dog adjustment gauge, Part No. **61-111 689-04**
- Metal rule (part No. **08-880 218-00**)
- Sewing thread and test materials

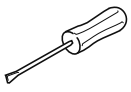
1.03 Abbreviations

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 Adjusting the basic machine

1.05.01 Basic position of the balance wheel (adjustment aid)

Requirement
When the needle bar is positioned at t.d.c., the marking "**0**" on the scale should be level with the top edge of the belt guard (see arrow).

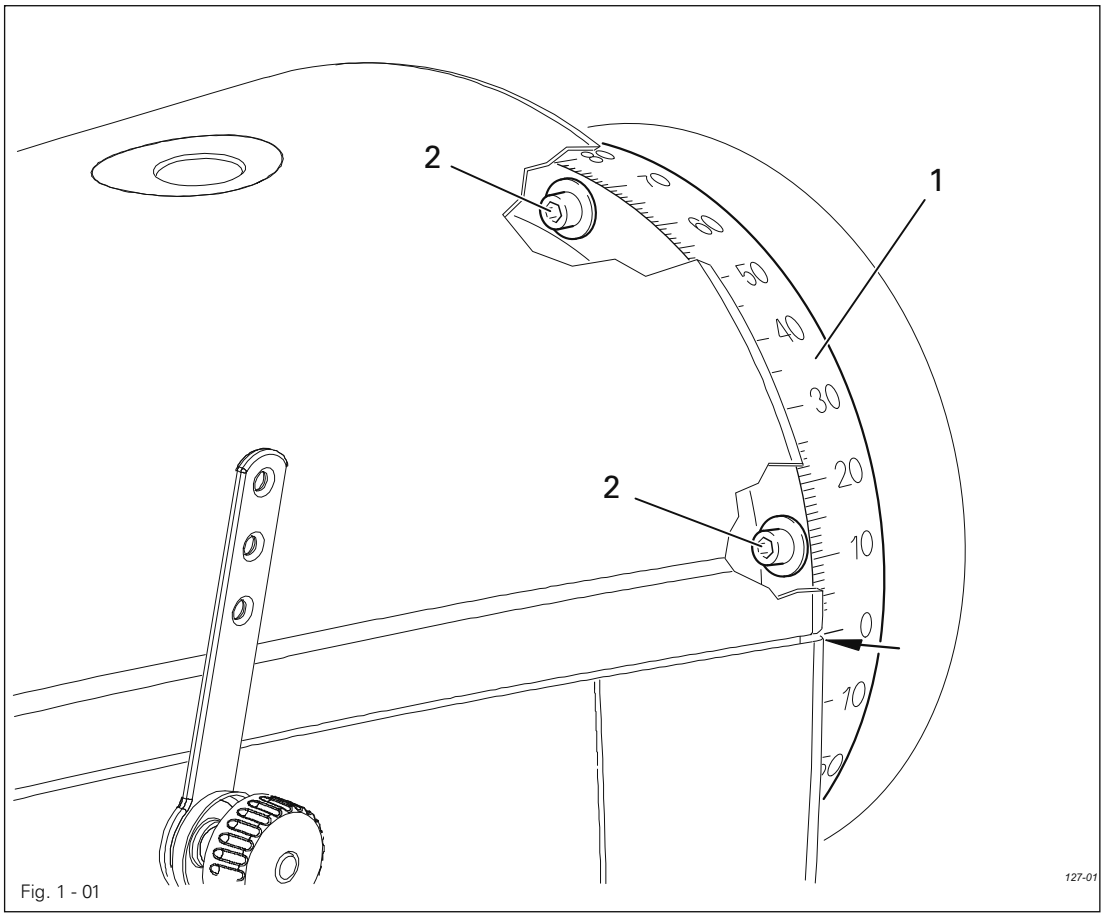


Fig. 1 - 01

Adjust the scale dial **1** (four screws **2**) in accordance with the **requirement**.

1.05.02 Balance weight

Requirement
When the needle bar is positioned at b.d.c. (balance wheel position 180°) the largest eccentricity of the balance weight **1** should be at the top.

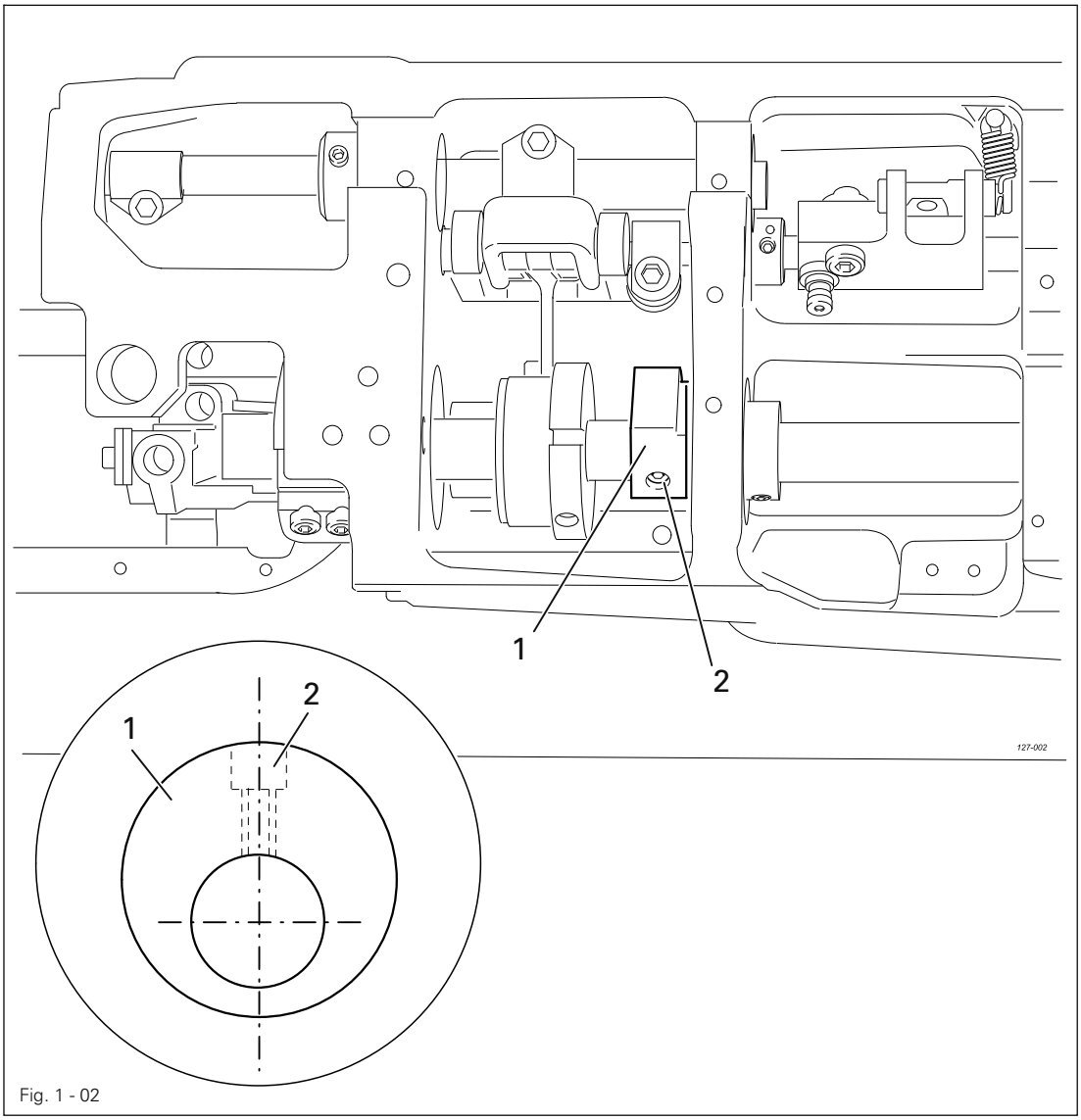


Fig. 1 - 02

- Adjust balance weight **1** (screw **2**) in accordance with the **requirement**.

1.05.03 Zero position of the unison feed

Requirement
When the stitch length is set at "**0**", the top and bottom feed dogs and the needle bar should not make any feeding motion when the balance wheel is turned.

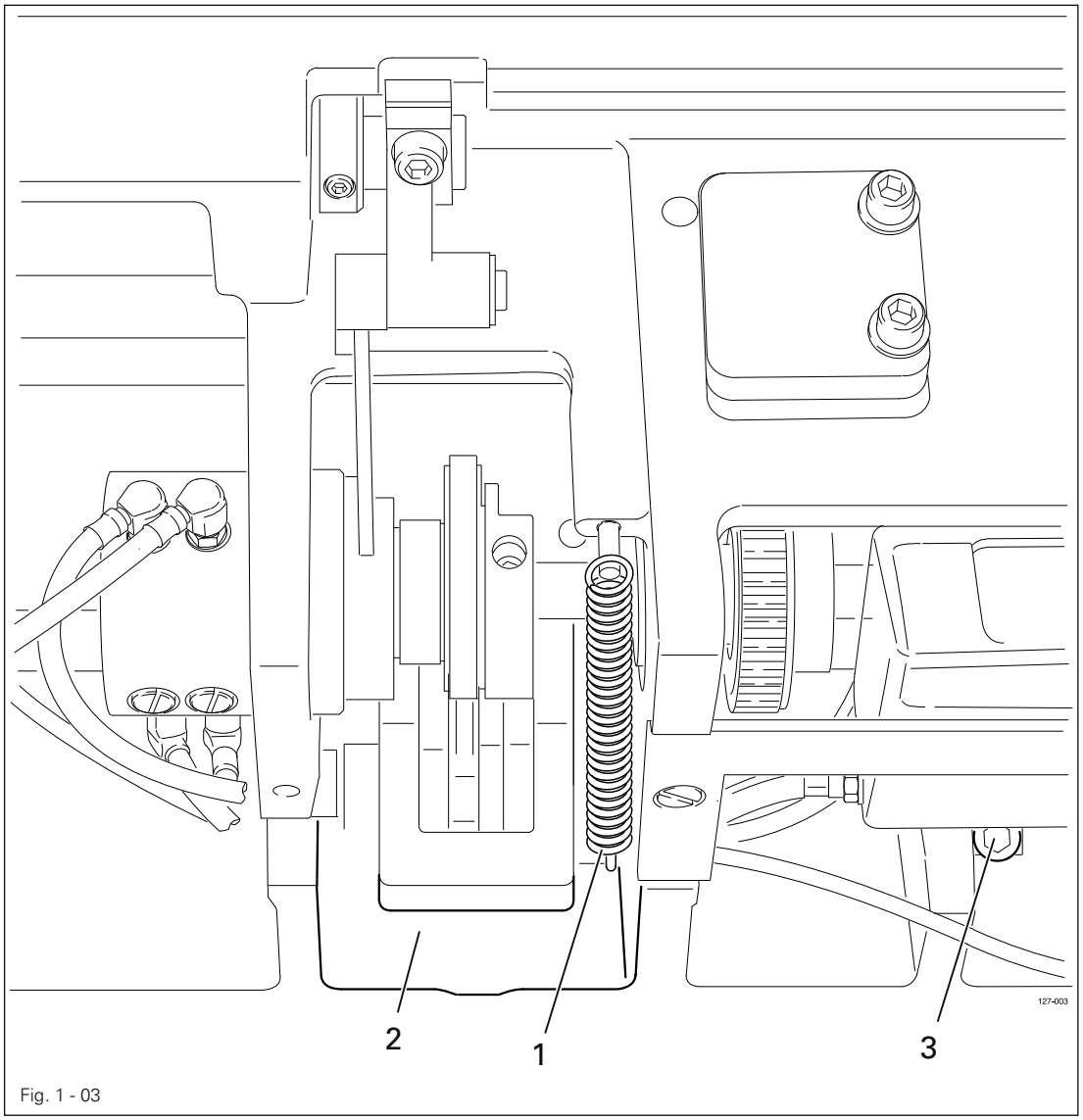
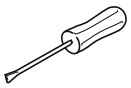


Fig. 1 - 03



- Remove spring **1**.
- Adjust crank **2** (screw **3**) in accordance with the **requirement**.
- Replace the spring **1**.

1.05.04 Feeding motion of the unison feed

Requirement
When the needle bar is positioned at b.d.c. (balance wheel position **180**°), and the maximum stitch length is set, the top and bottom feed dogs and the needle bar should not make any feeding motion when the reverse-feed lever is pressed.

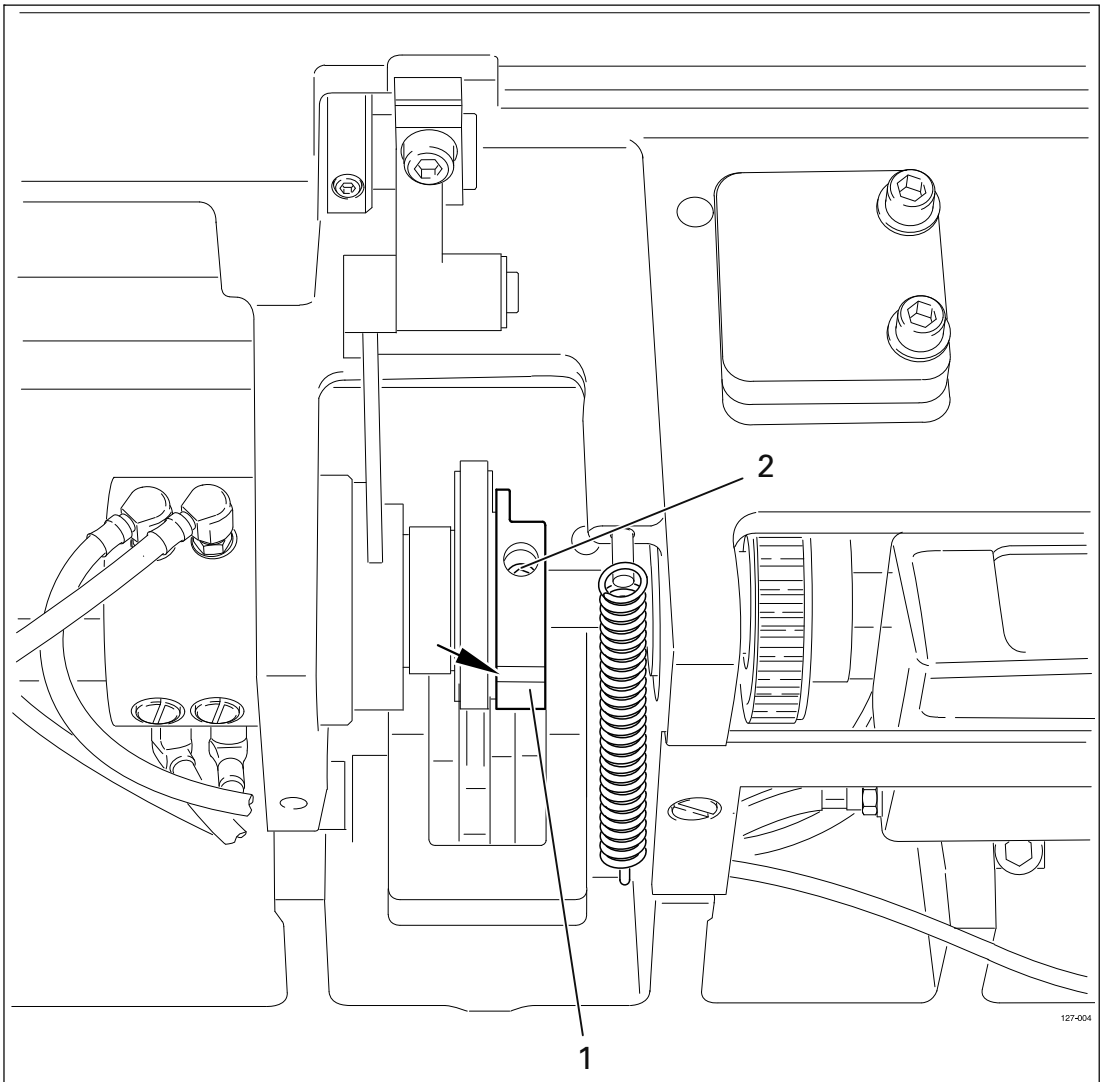
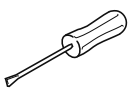


Fig. 1 - 04



- Adjust eccentric **1** (screws **2**) in accordance with the **requirement**. Make sure that the cut-out (see arrow) is visible.

1.05.05 Lifting motion of the bottom feed dog

Requirement
When the balance wheel is positioned at **180°**, the feed dog should be at t.d.c.

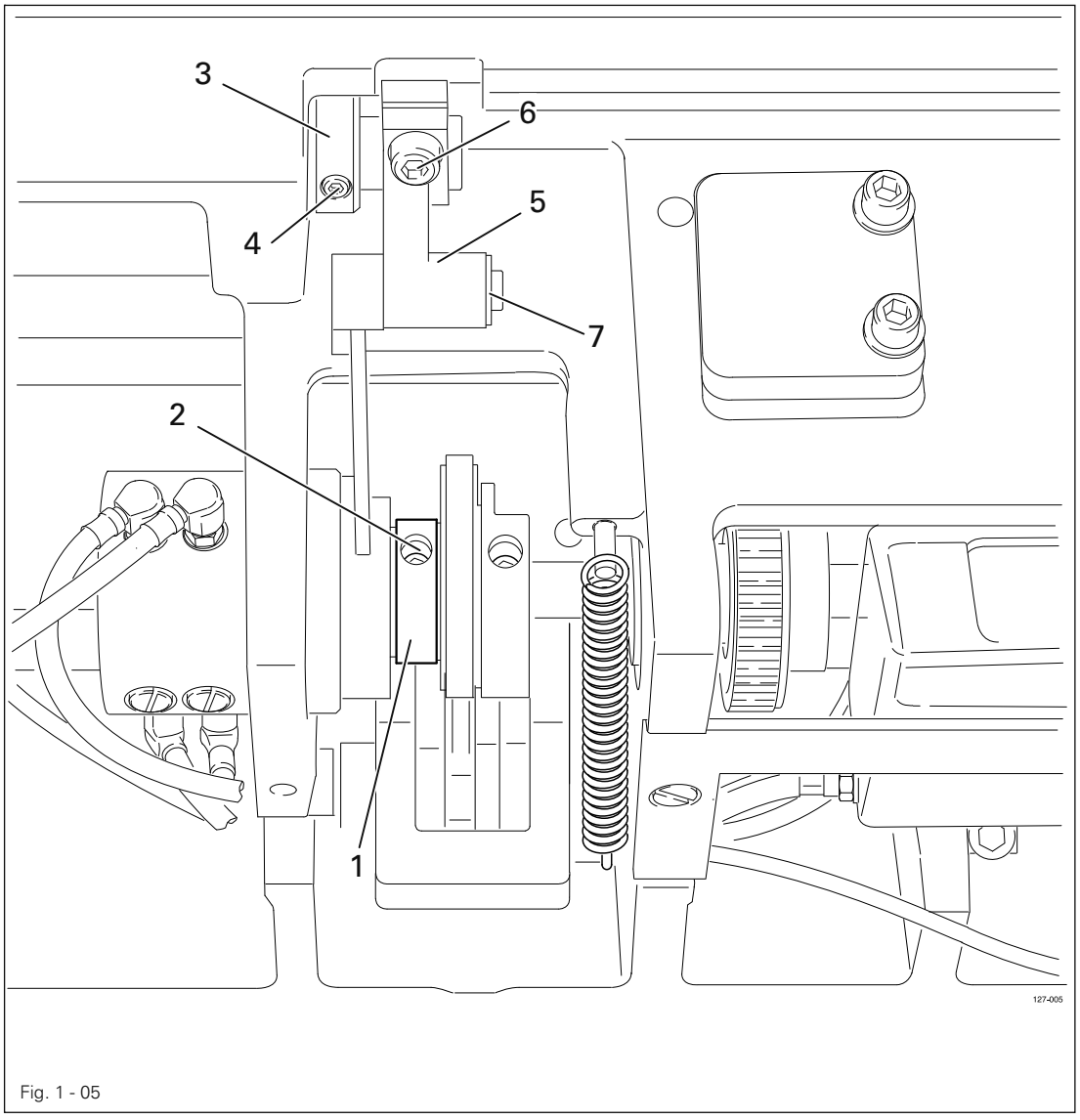


Fig. 1 - 05

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

Use the kit with the Order No. **91-501 398-90** to deactivate the transporter lifting movement.

Install assembly and adjust

- Remove collar **3** (screws **4**) and crank **5** (screw **6**, safety ring **7**).
- Mount the preassembled parts of the kit as shown in figures **1 - 05a**.
- Adjust bottom transporter height and stroke movement where required.

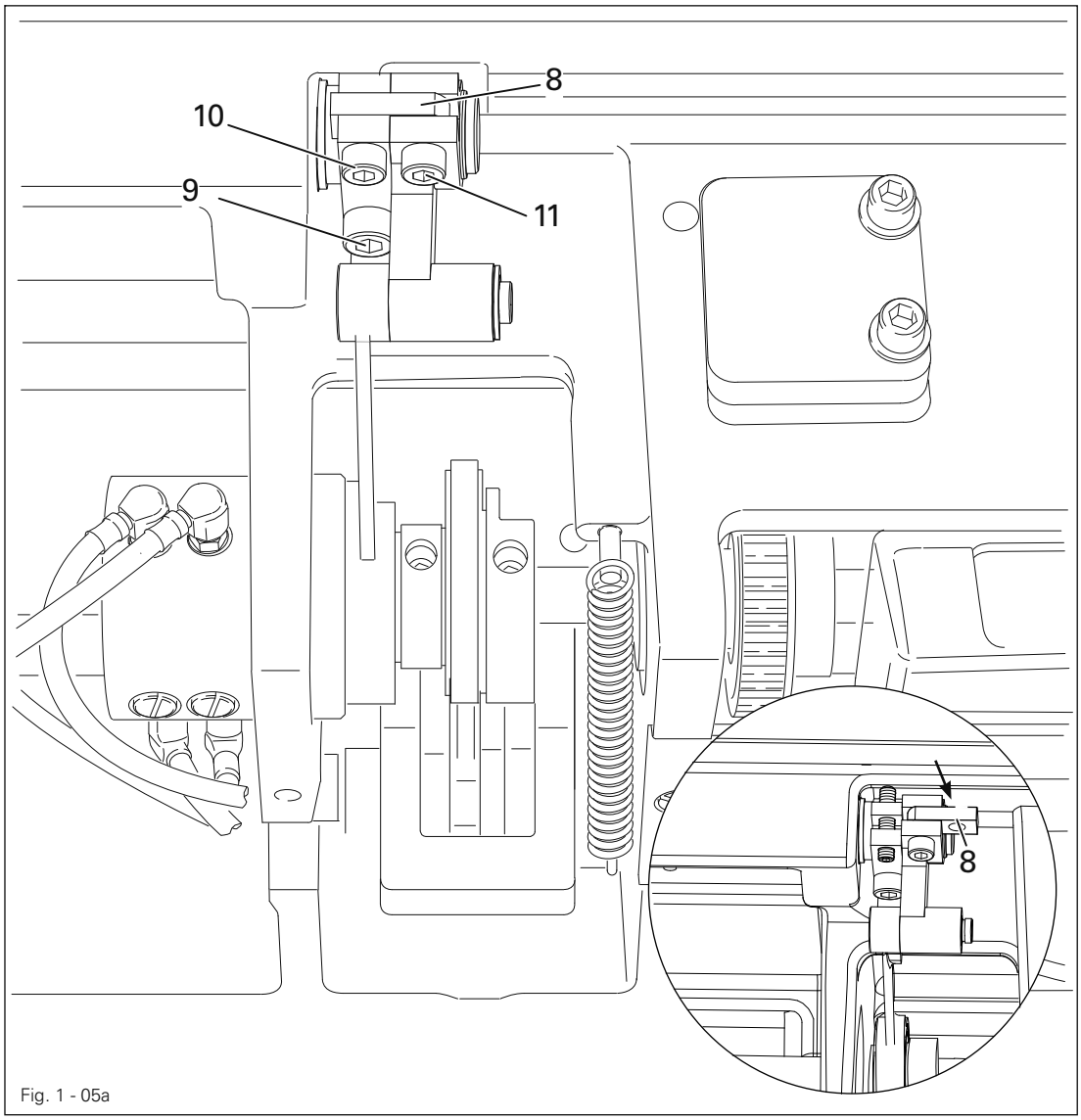


Fig. 1 - 05a

Activate lifting movement

- Lifting movement is activated if connection part **8** is swiveled in as shon in figures **1 - 05a**, and screws **9** (**M6 x 16**) and **10** (**M5 x 16**) have been attached.

Deactivate lifting movement

- Remove screws **9** and **10** and swivel connection part **8** (screw **11**) towards the right.
- Replace screw **9** with a screw **M6 x 25**.
- Replace screw **10** with a threaded pin **M5 x 25** and tighten to stop.

1.05.06 Height of the bottom feed dog

Requirement

1. When the stitch length is set at "**0**" and the needle bar is positioned at b.d.c. (balance wheel position **180°**), the bottom feed dog should be positioned **0.5 mm** horizontally above the top edge of the needle plate.
2. In the direction of sewing, the bottom feed dog should be positioned in the centre of the needle plate slot.

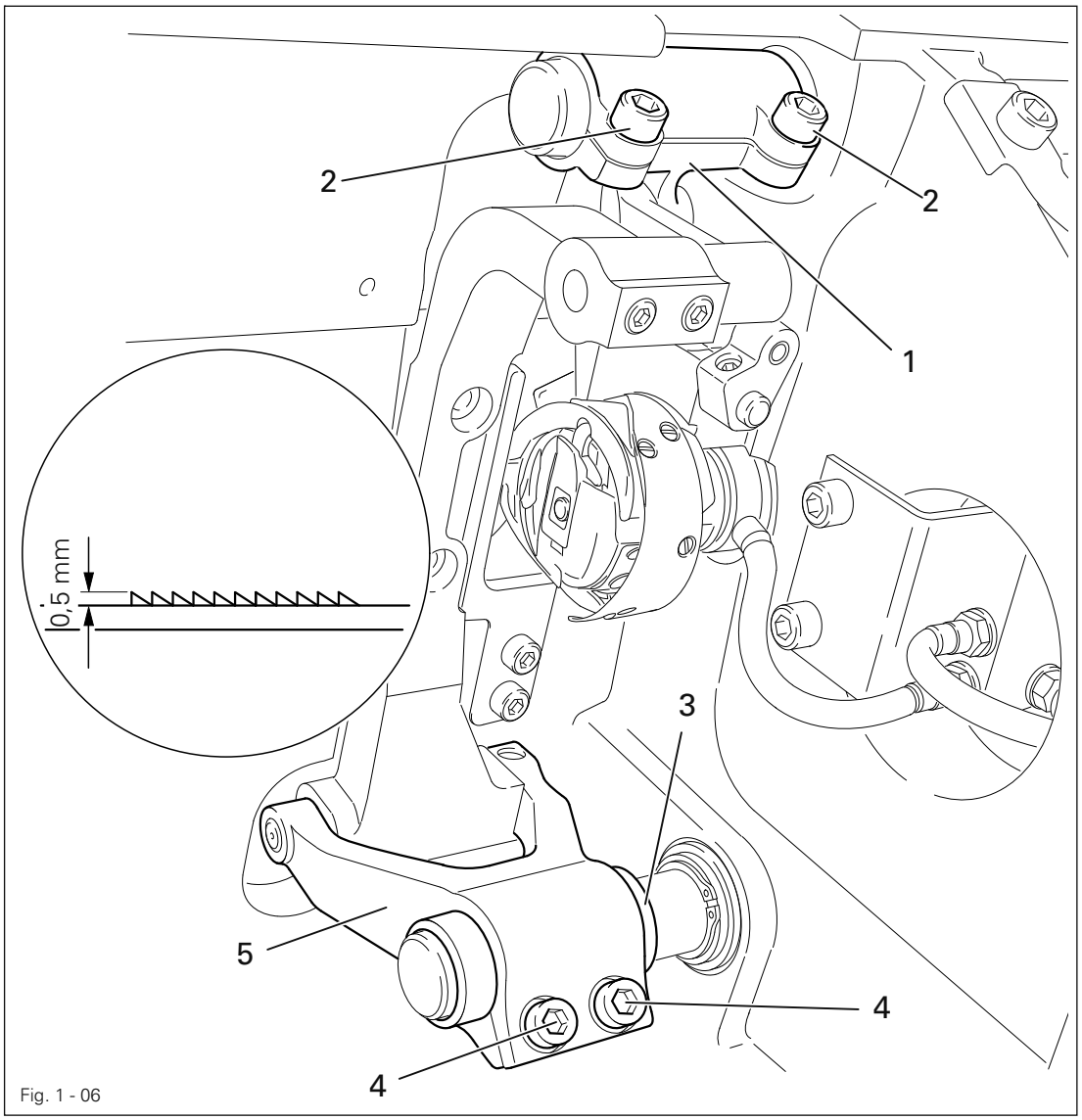
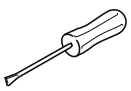


Fig. 1 - 06



- Turn lifting crank **1** (screws **2**) and eccentric sleeve **3** (screws **4**) in accordance with **requirement 1**.
- Adjust feed bar **5** (screws **4**) in accordance with **requirement 2**.

1.05.07 Feeding stroke difference

Requirement
With the maximum stitch length set, when the balance wheel is turned the feeding strokes of the needle and the bottom feed dog should be the same.

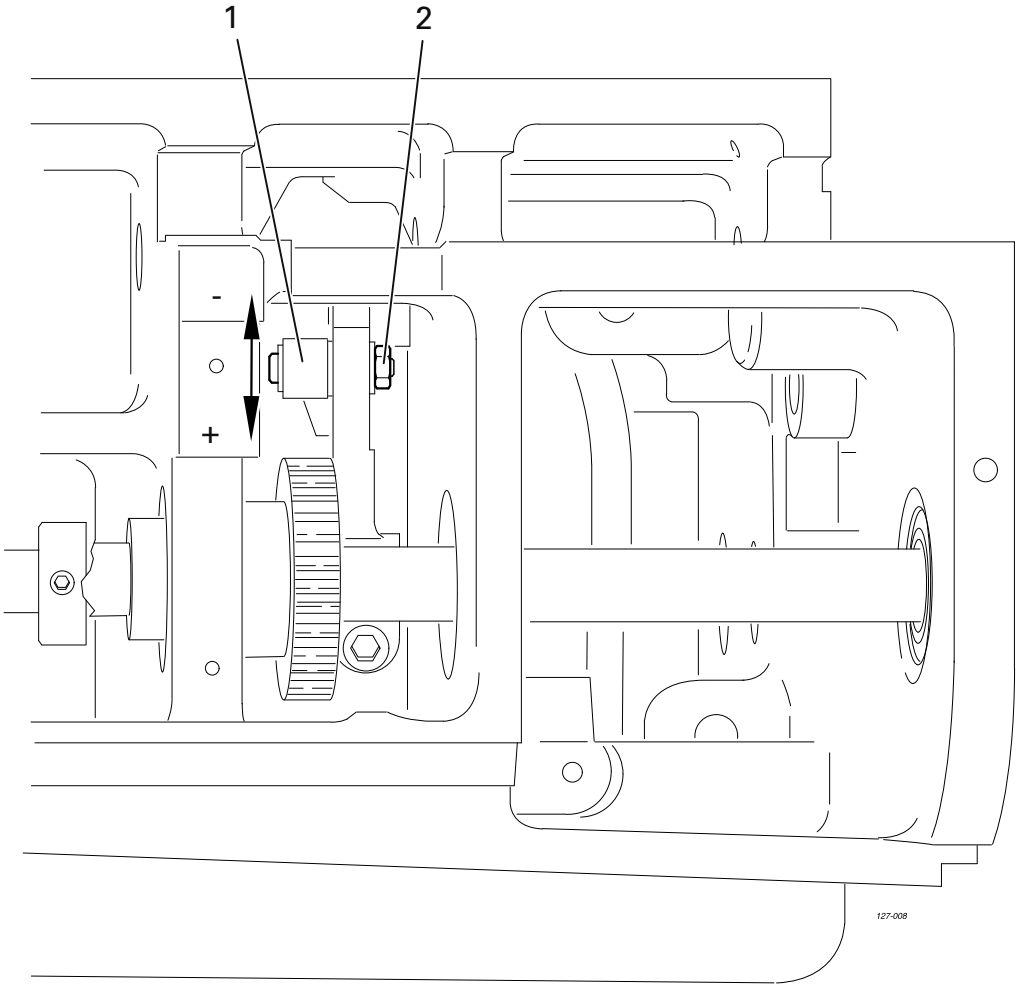
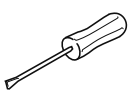


Fig. 1 - 07



- With connecting rod **1** (nut **2**) increase ("**+**") or reduce (**-**) the needle feed stroke in accordance with the **requirement**.

1.05.08 Preliminary adjustment of the needle height

Requirement
When the needle bar is positioned at t.d.c. (balance wheel position 0°), the clearance between the needle point and the needle plate should be **22 mm**.

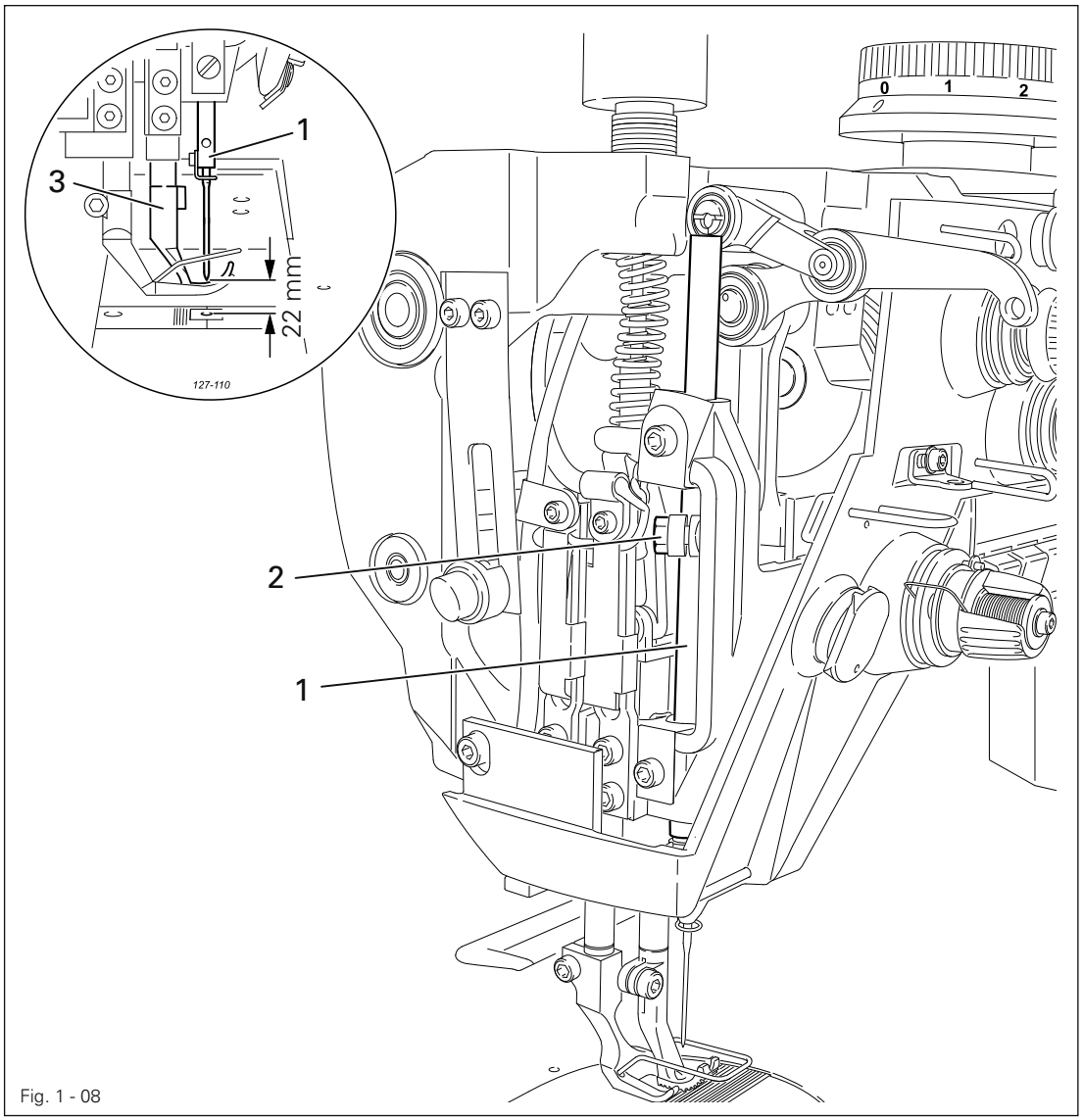
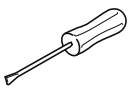


Fig. 1 - 08



- Without turning it, re-position needle bar **1** (screw **2**) in accordance with the **requirement**.

Make sure that needle bar **1** and foot **3** do not collide.

1.05.09 Needle rise, hook clearance and needle height

Requirement

With the stitch length set at "**4.5**" and in the needle rise position (see table)

1. The hook point **5** should be positioned at "needle centre" with a hook-to-needle clearance of **0.05 – 0.10 mm**.
2. The top of the needle eye should be positioned **0.8 mm** below hook point **5**.

Needle rise position

Model **C**: Balance wheel position **202° / 2.0 mm**

Model **C/D**: Balance wheel position **204° / 2.4 mm**

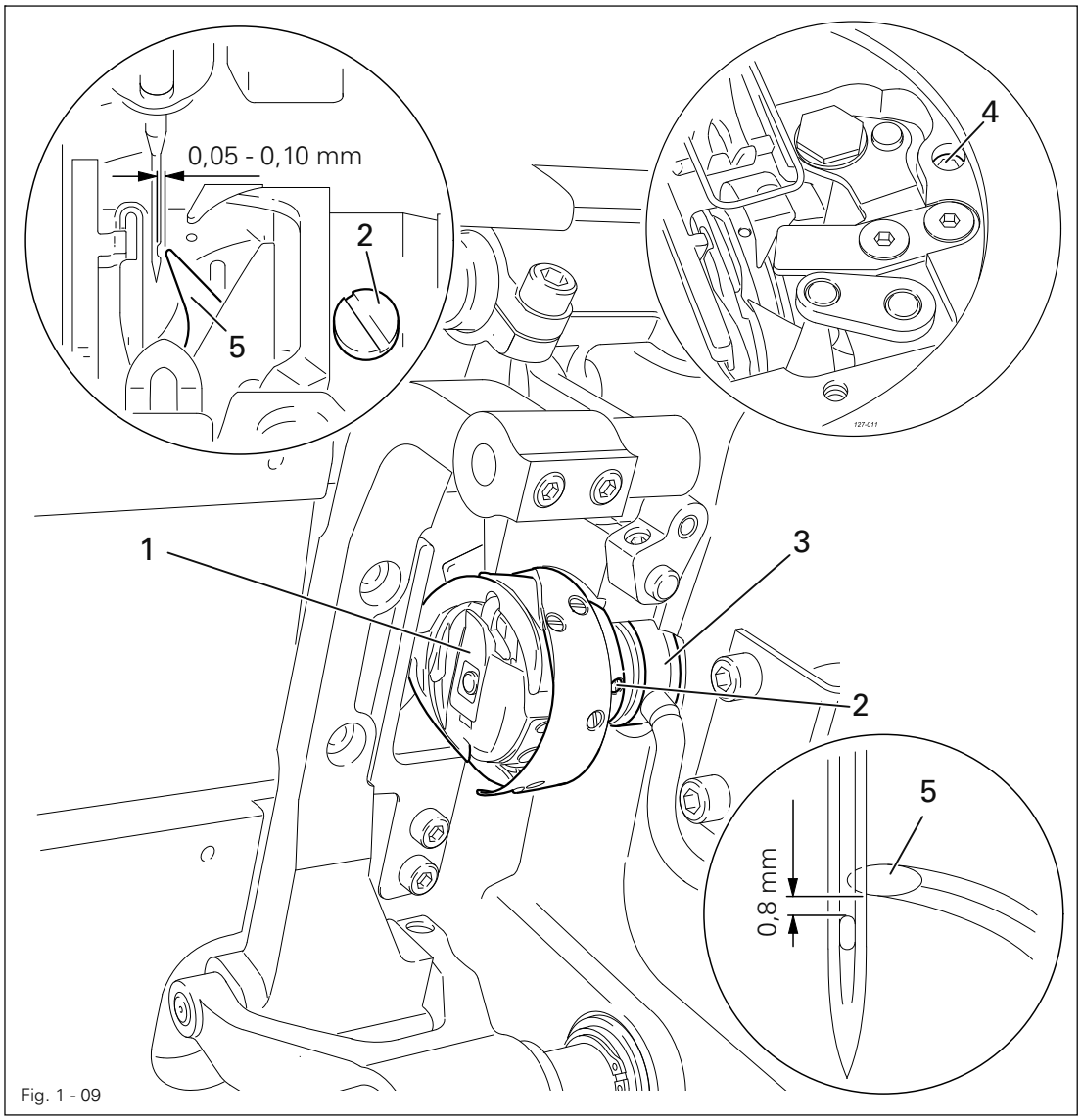


Fig. 1 - 09

- Set stitch length "**4.5**" and bring the balance wheel into the needle rise position.
- Adjust hook **1** (screws **2**) in accordance with **requirement 1**.
- Bring oil distributor ring **3** (screw **4**) into contact with hook **1**.
- Without turning it, re-position the needle bar in accordance with the **requirement 2**.

1.05.10 Top feed stroke

Requirement
With adjustment wheel **1** set at "**5**", the top feed dog **7** and presser foot **4** should each rise by **5.0 mm**.

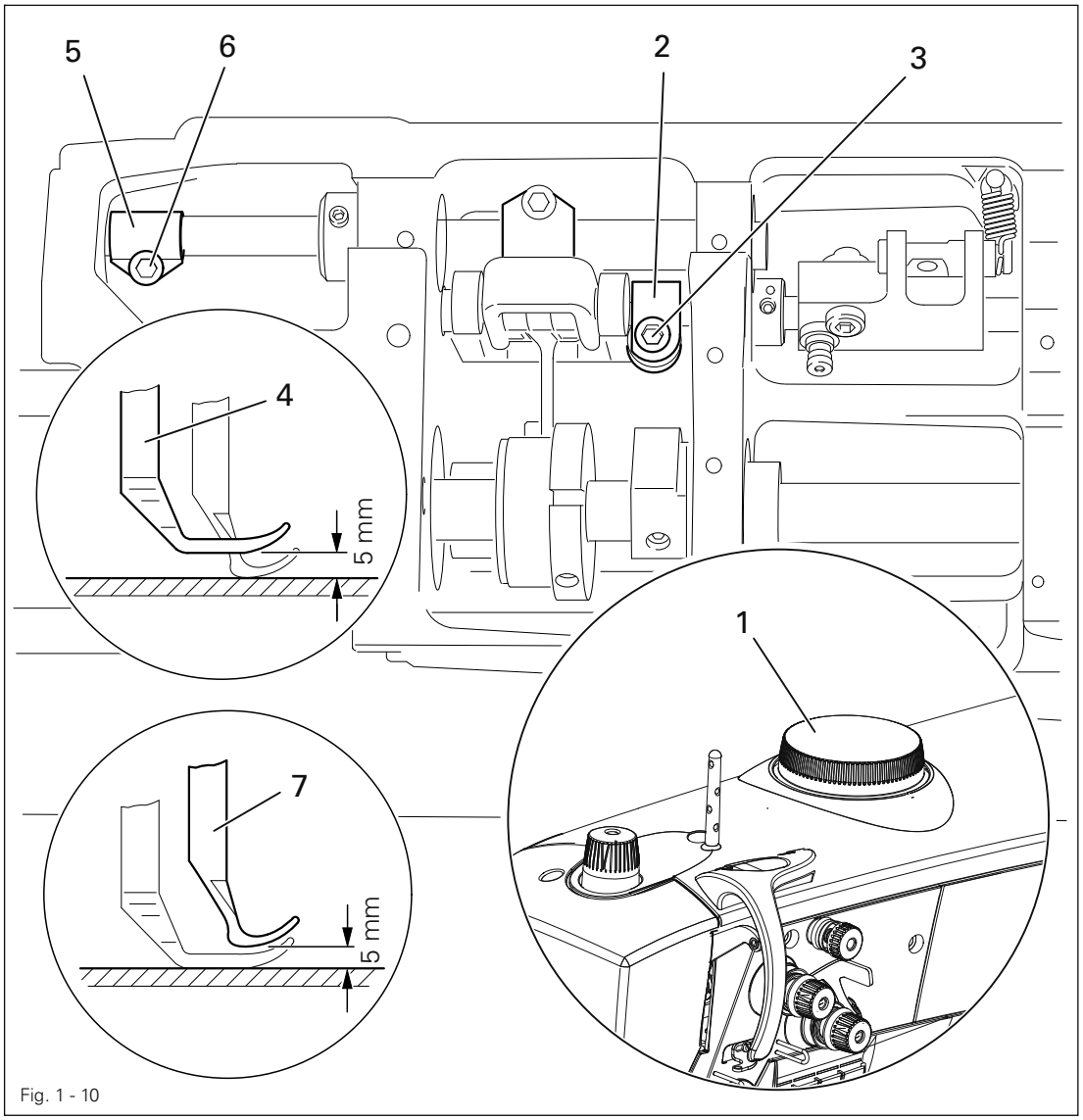


Fig. 1 - 10

- Remove the bottom feed dog and set adjustment wheel **1** at "**5**".
- Loosen the screws of the needle plate, place the metal gauge over the opening of the needle plate slot so that both sewing feet can be lowered onto the metal gauge.
- For the preliminary adjustment, adjust crank **2** (screw **3**) so that there is a clearance of **5 mm** between presser foot **4** and the needle plate.
- Adjust crank **5** (screw **6**) so that top feed dog **7** and presser foot **4** have the same stroke.
- Check the adjustment in accordance with the **requirement**, and correct if necessary.

1.05.11 Top-feed lifting motion

Requirement
The top feed dog should just have reached the needle plate when the presser foot lift is set at **5 mm** and the needle descending from above is **2 mm** above the needle plate.

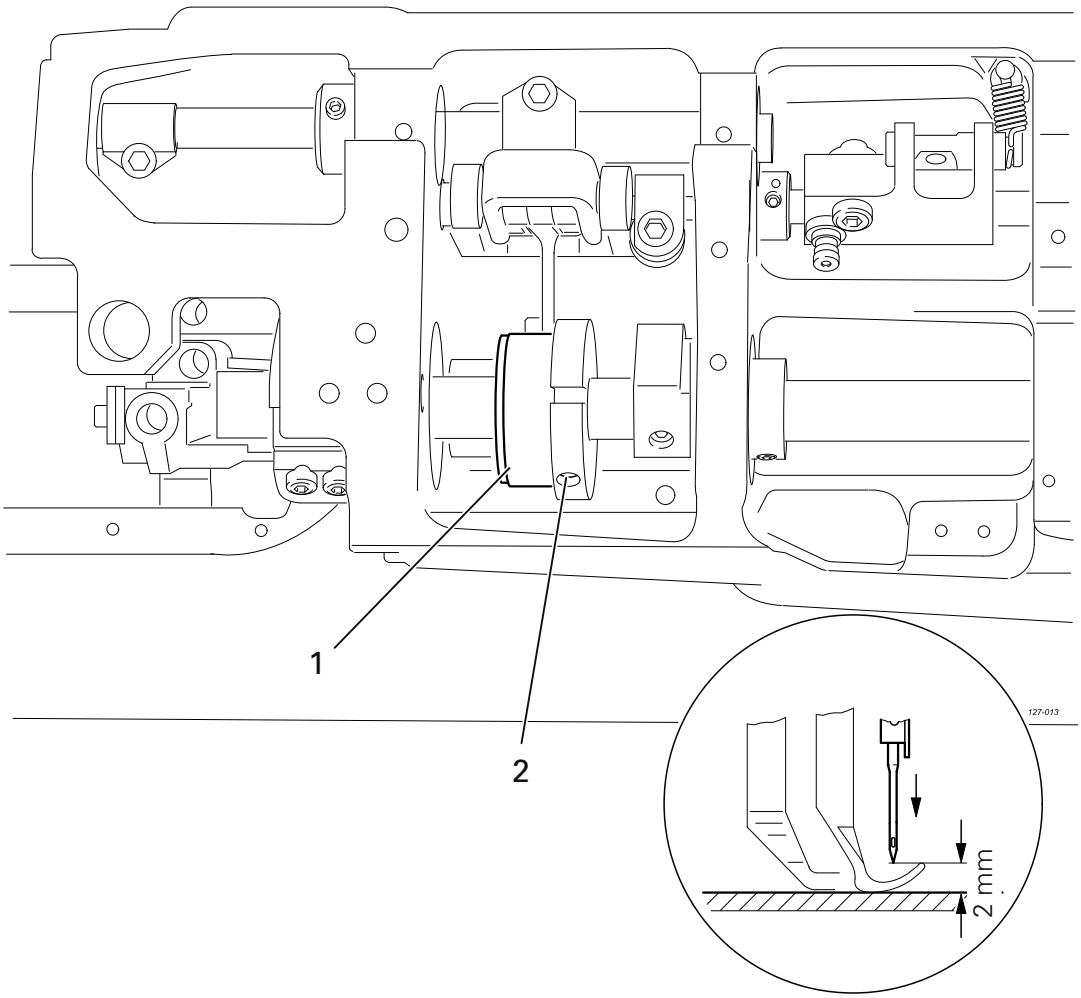


Fig. 1 - 11

- Turn eccentric **1** (screw **2**) in accordance with the **requirement**.

1.05.12 Adjusting the potentiometer for speed reduction (only on the 2235 PREMIUM)

- Press "P" on the control panel, while simultaneously switching the machine on.
- Enter the code **3112** via the numbered keys and confirm by pressing "**E**".
- Select parameter **501** via the numbered keys and confirm by pressing "**E**".
- Set the smallest stroke "**0**".
- Using the stroke adjustment function, call up the small stroke (LED off), see instruction manual.
- Take over the value displayed under parameter **501** by pressing "**+**".
- Select parameter **502** via the numbered keys.
- Set the largest stroke "**0**".
- Using the stroke adjustment function, call up the large stroke (LED on).
- Take over the value displayed under parameter **502** by pressing "**+**".
- Press "**P**" twice to quit the input level
- The new values are taken over when sewing is started, and these are maintained evenafter the machine is switched off.

The speed is adjusted in accordance with Chapter **3.03 Maximum Speed** in the instruction manual.
Under parameter **1**17 the speed at max. stroke adjustment can be reduced again.

1.05.13 Bobbin winder

Requirement

1. When the bobbin winder is engaged, the winding spindle must be driven reliably. When it is disengaged, friction wheel **3** should not be touching drive wheel **1**.
2. When it is switched off, the bobbin winder must click securely into its end position (knife raised).

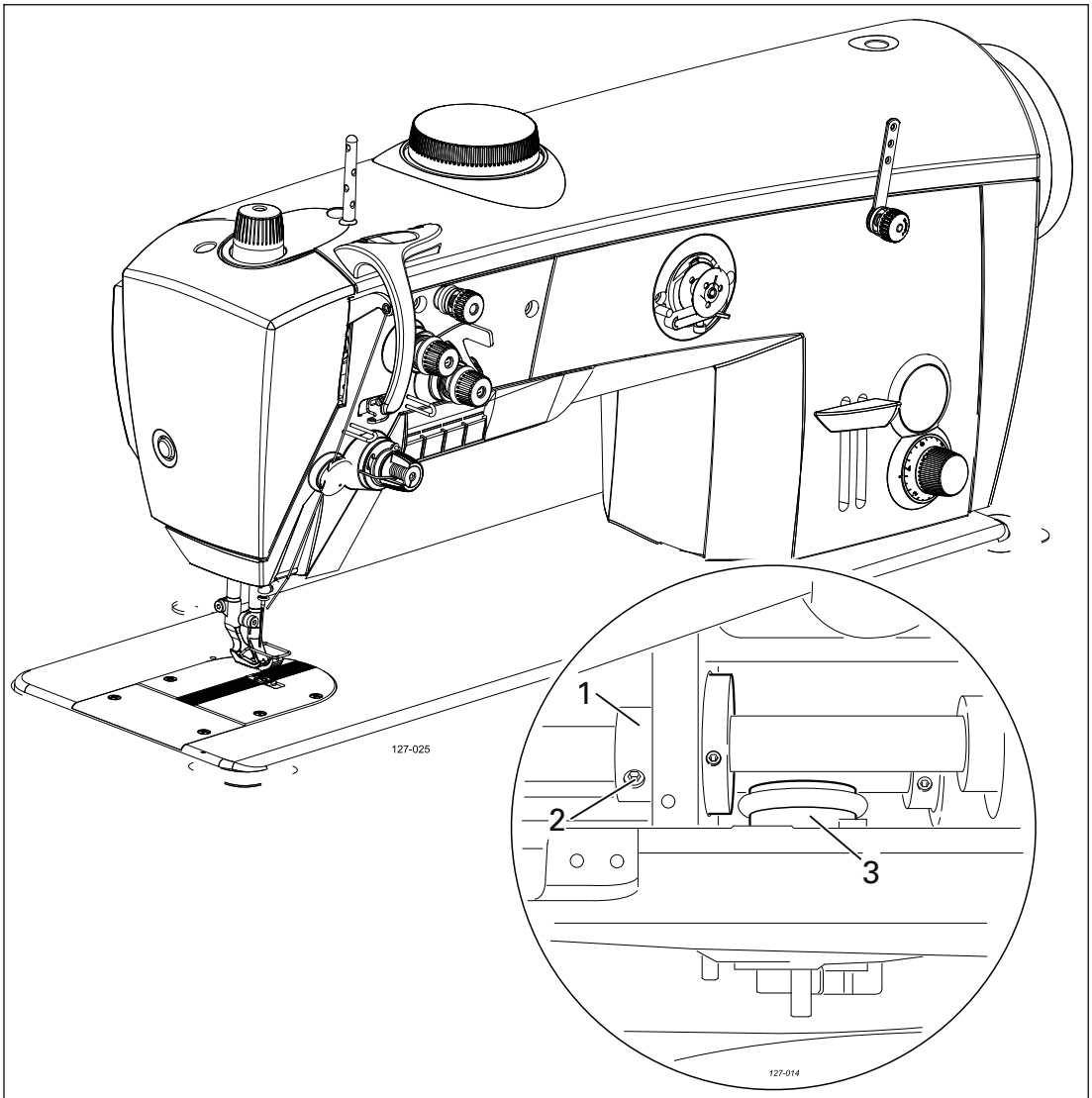
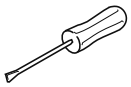


Fig. 1 - 12



- Adjust drive wheel **1** (screw **2**) in accordance with the **requirement**.

1.05.14 Thread check spring and thread regulator

Requirement

1. The movement of thread regulator **3** must be completed when the needle point enters the material.
2. When the thread loop is at its largest while being passed around the hook, the check thread spring **3** should rise slightly from the rest **1**.

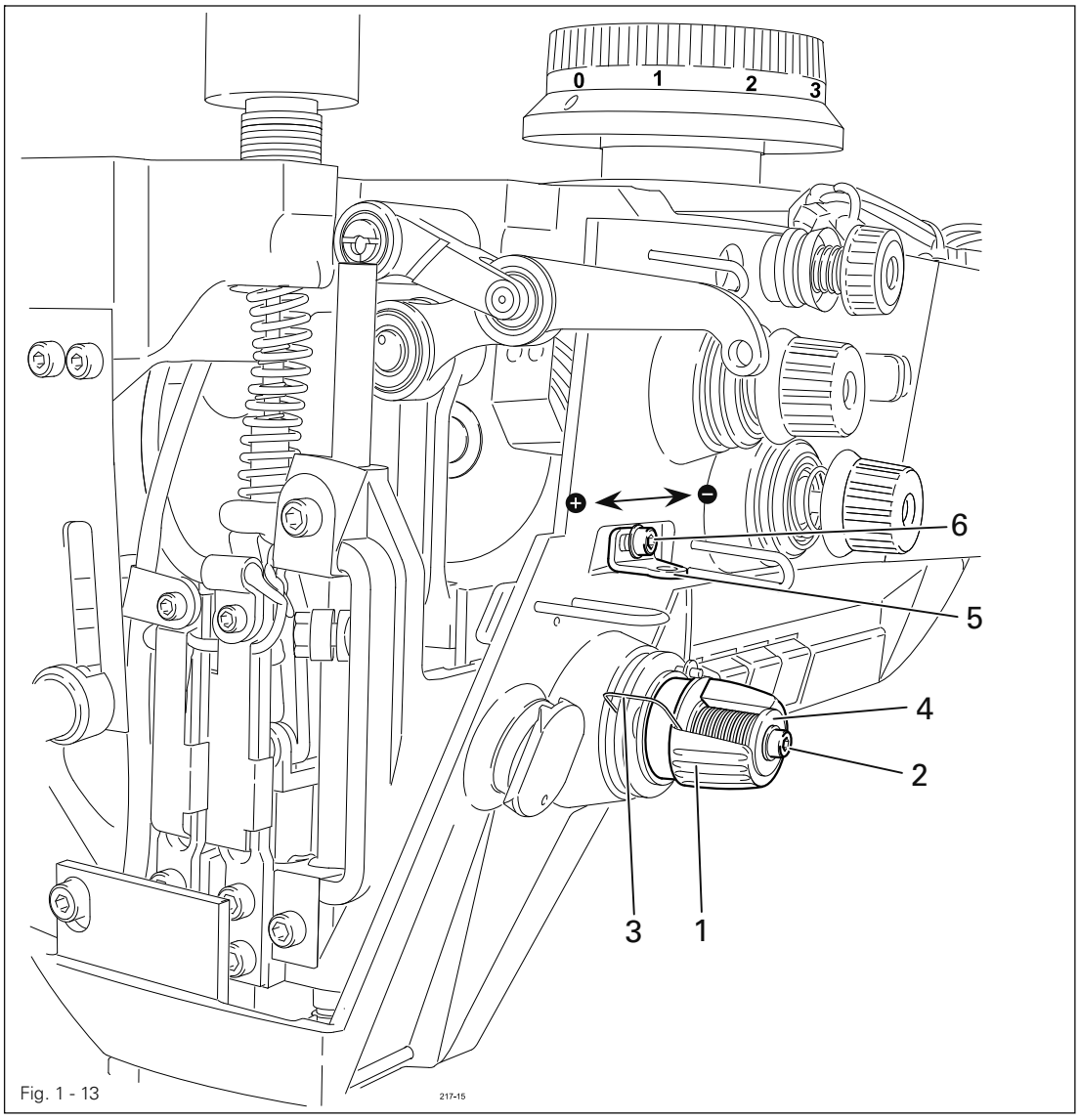


Fig. 1 - 13

- Position rest **1** (screw **2**) in accordance with **requirement 1**.
- Turn sleeve **4** (screw **2**) to adjust the tension of thread check spring **3**.
- Position thread regulator **5** (screw **6**) in accordance with **requirement 2**.

For technical reasons it may be necessary to deviate from the indicated spring stroke or spring tension.
Move thread regulator **5** (screw **6**) towards ("+") (= more thread) or ("-") (= less thread).

1.05.15 Sewing foot pressure

Requirement
The material should be fed properly even at maximum speed and with the smallest stroke.

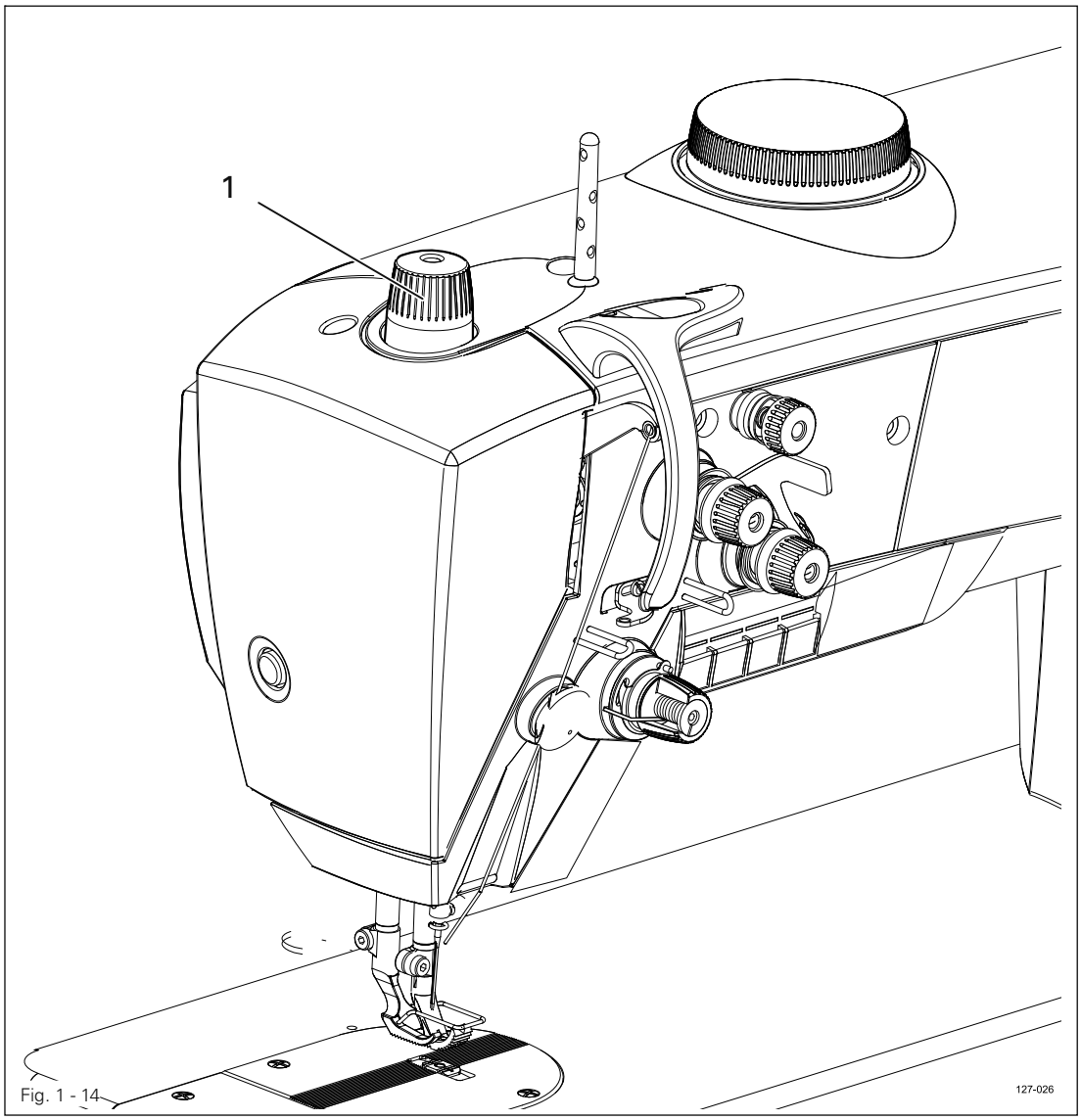
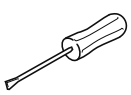


Fig. 1 - 14



- Turn adjustment wheel **1** in accordance with the **requirement**.

1.05.16 Lubrication

Requirement
After a running time of **10** seconds a thin film of oil should be visible on paper strip **1** when this is held over the hook.

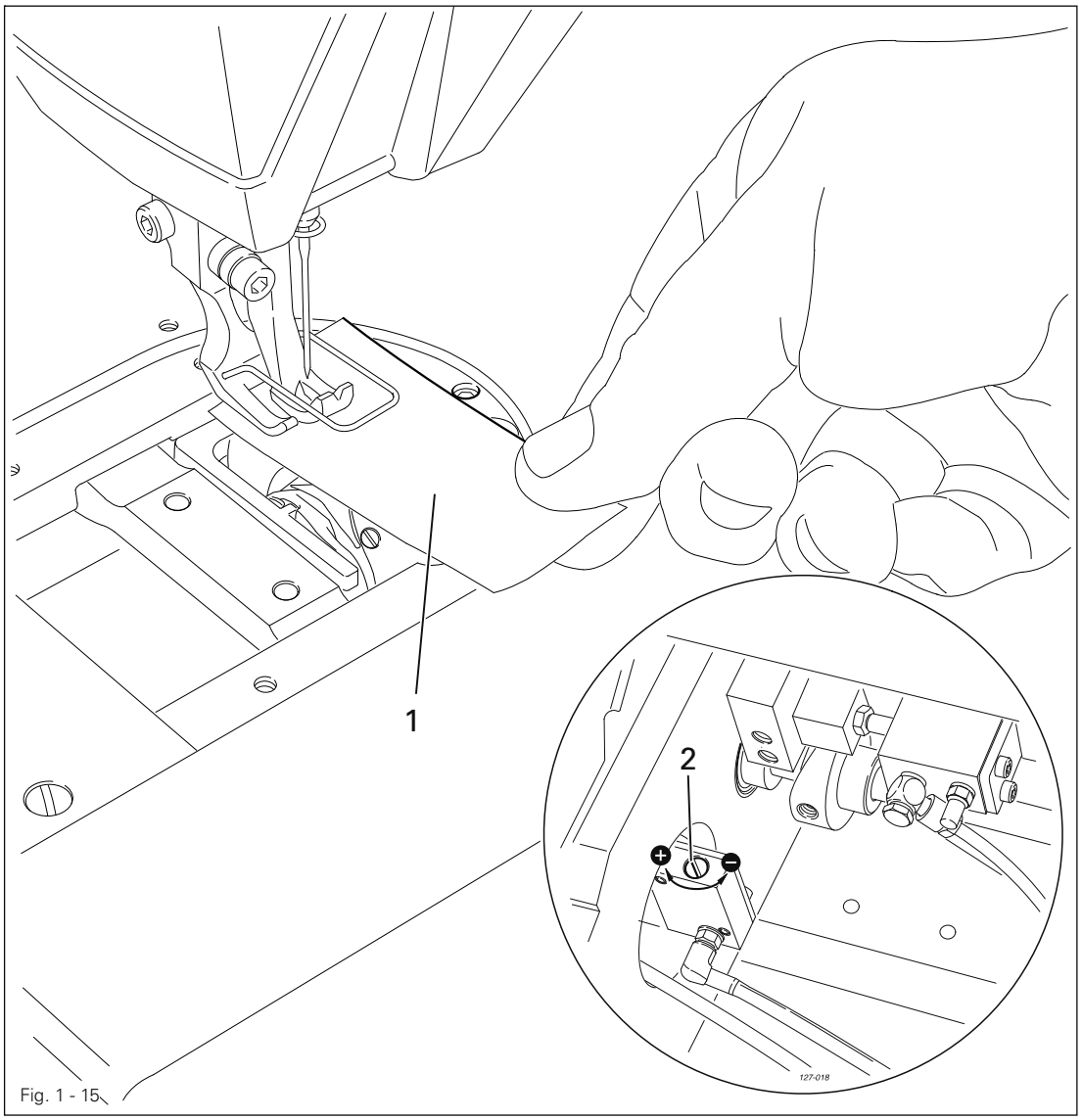


Fig. 1 - 15

- Check that the machine is filled with oil and that the oil lines are free of air.
- Run the machine for **2 – 3 min**.

Do not put your hands into the needle area when the machine is running!
Danger of injury from moving parts!

- With the machine running, hold paper strip **1** against the hook and check the **requirement**.
- If necessary, regulate amount of oil with screw **2**.

1.05.17 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 **4**.

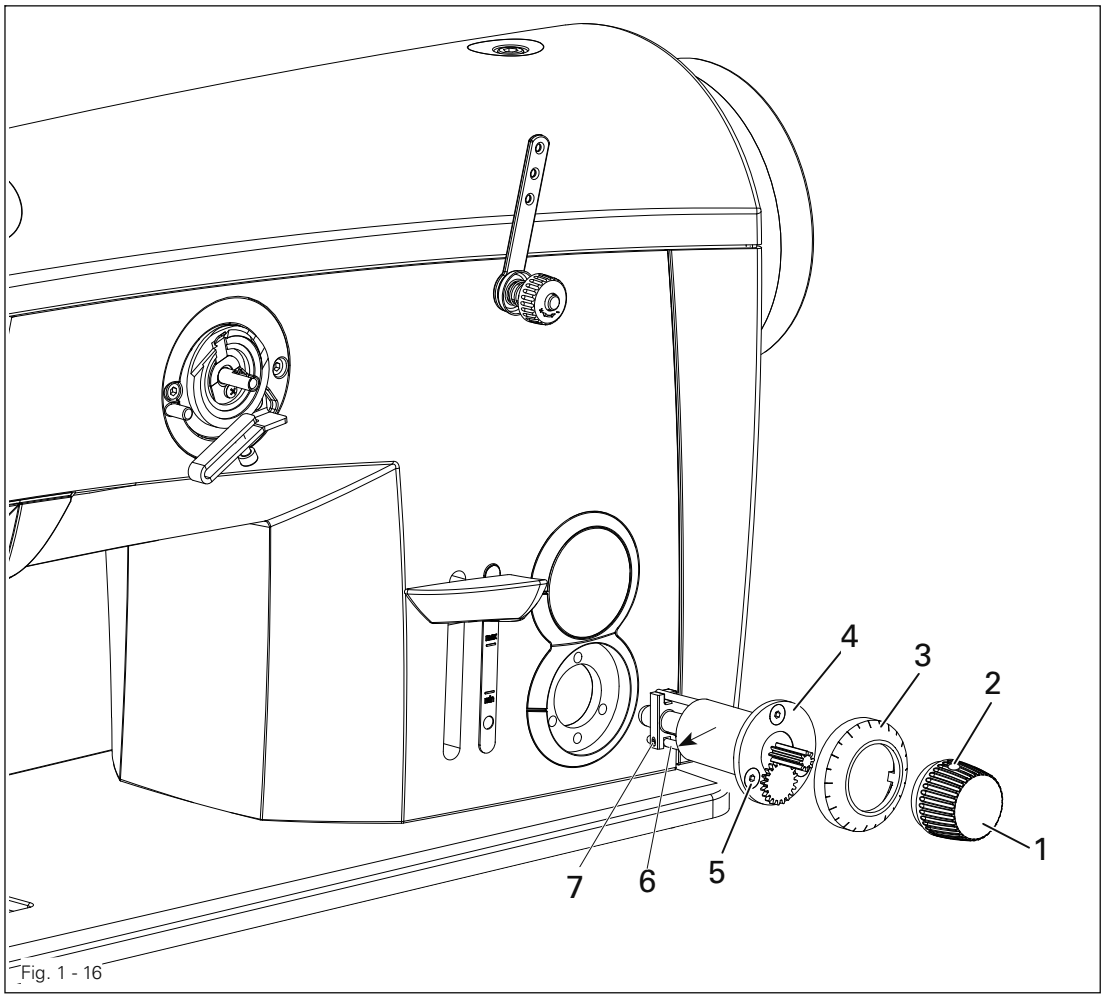


Fig. 1 - 16

- Set the desired max. stitch length at control button **1**
  (on model CN = **6.0** mm, on model CN**9** + C/DN**9** = **9** mm)
- Remove adjustment knob **1** (screws **2**) and scale dial **3**.
- Remove adjustment unit **4** (screws **5**).
- Bring lineal **6** (screw **7**) to the unit using stitch adjuster **4** (see arrow).
- Replace adjustment unit **4**, scale dial **3** and adjustment knob **1**.

1.06 Adjusting the thread trimmer -900/91

1.06.01 Basic position of the thread trimmer

Requirement

1. When the thread trimmer is in its resting position (cylinder extended), the point of thread catcher **6** should be flush with the cutting edge of knife **7** (see arrow).
2. The roller lever **3** should have a clearance of **1 mm** to the connecting piece.

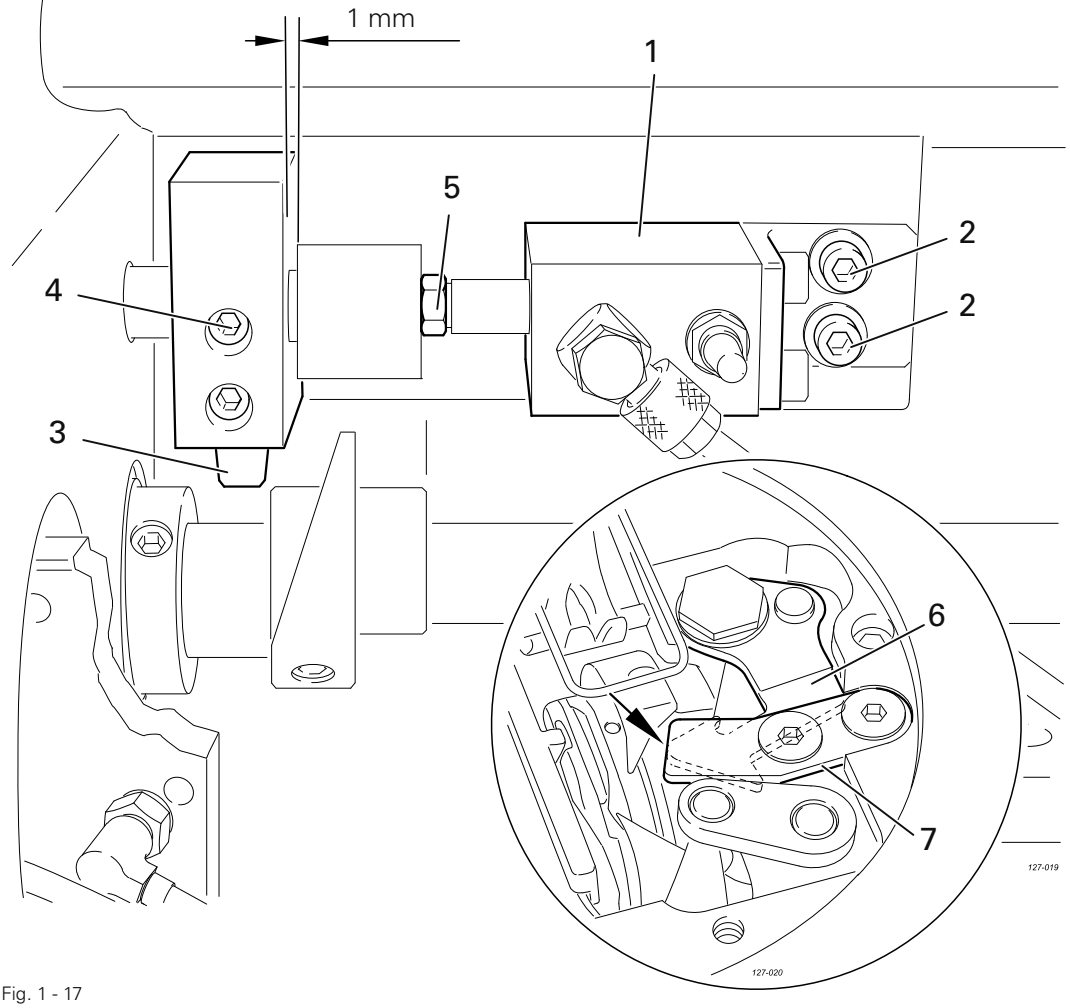


Fig. 1 - 17

- Adjust thread trimmer **1** (screws **2**) in accordance with **requirement 1**.
- Adjust roller lever **3** (only screw **4**) in accordance with **requirement 2**.

1.06.02 Control cam to roller lever clearance (resting position)

Requirement
When the thread trimmer is in its resting position (balance wheel position **270°**) there should be a clearance of **0.1 mm** between the roller lever **5** and the outside edge of control cam **1**.

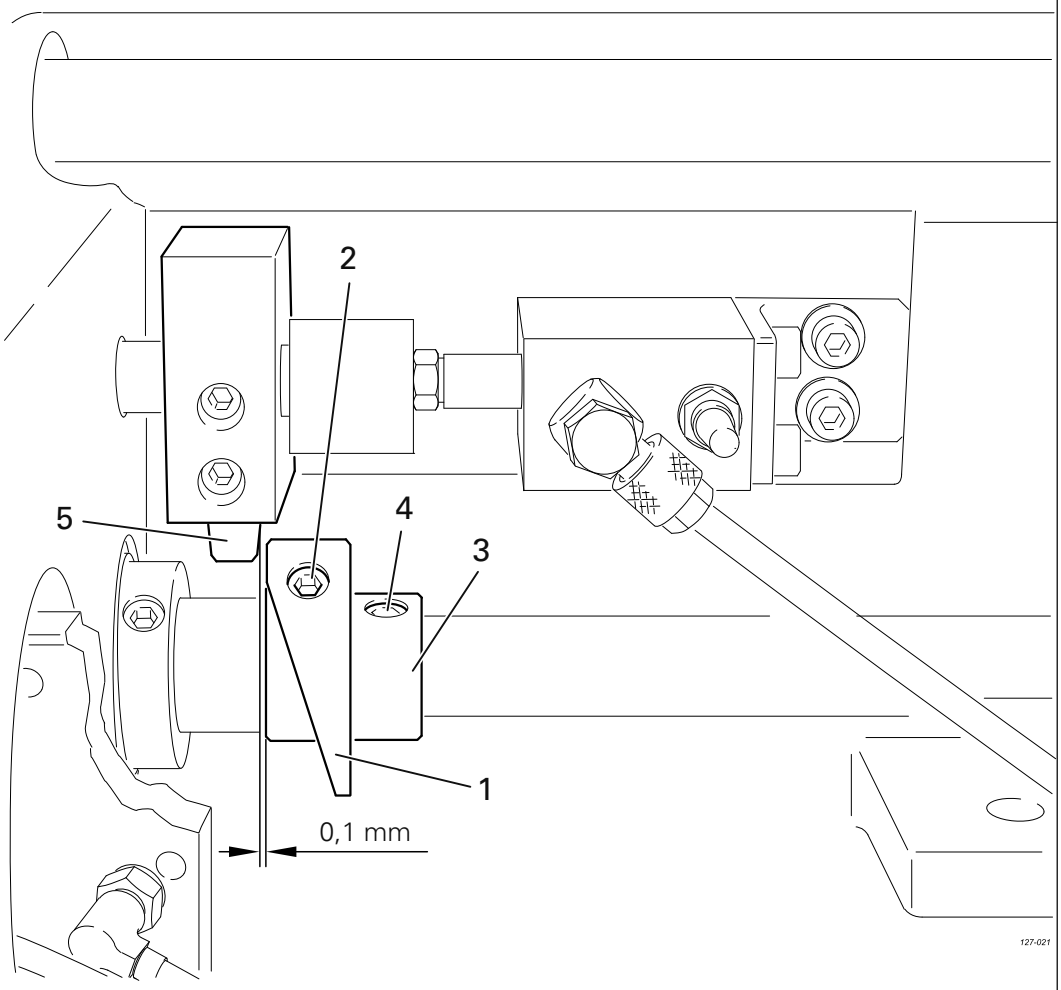
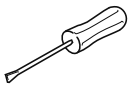


Fig. 1 - 18



- Adjust control cam **1** (screw **2**) together with retaining collar **3** (screw **4**) in accordance with the **requirement**.

1.06.03 Adjusting the control cam

Requirement
When the take-up lever is at the top of its stroke (balance wheel position **70**°), the cutting operation should just have been completed.

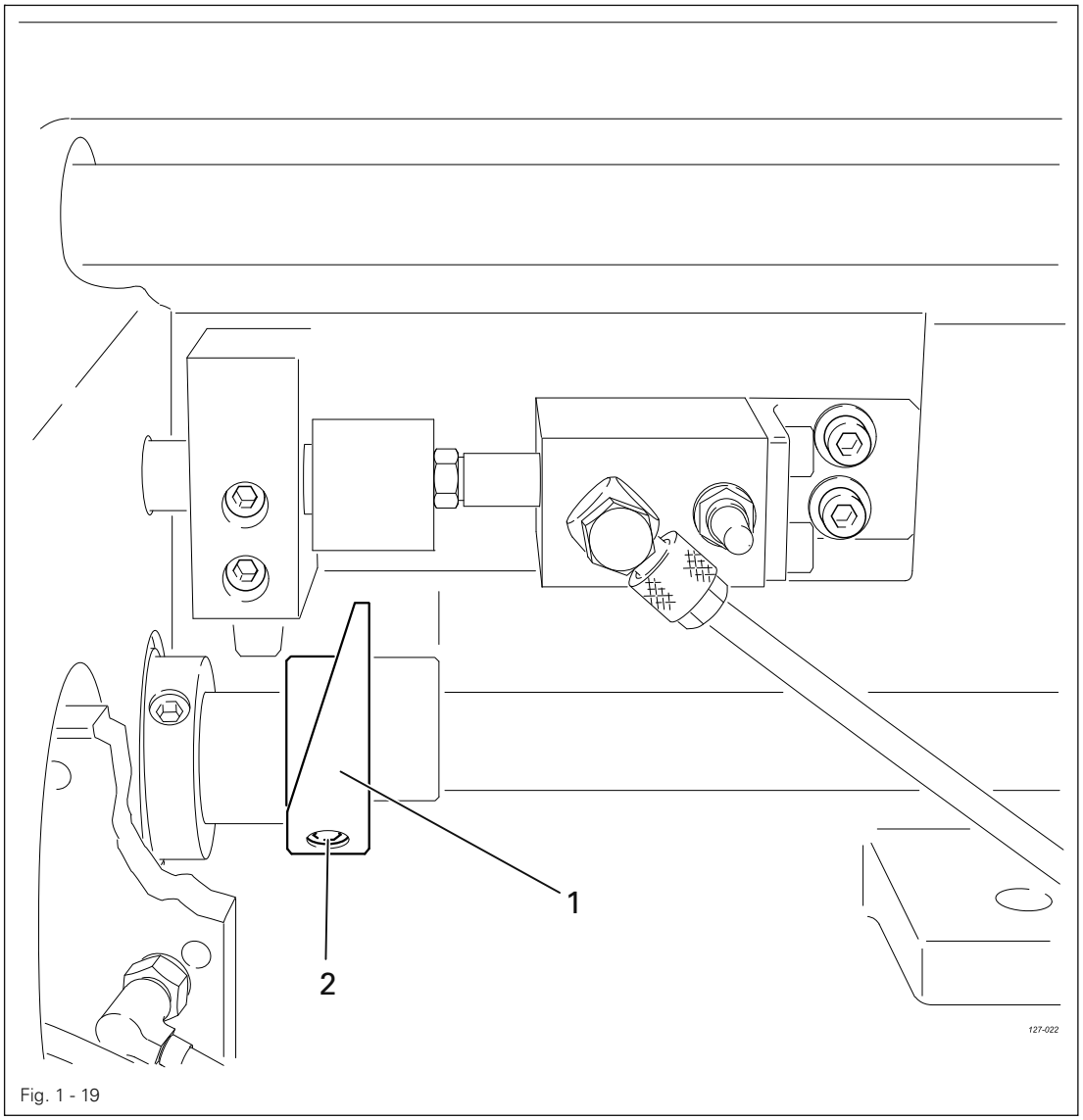
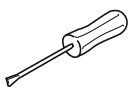


Fig. 1 - 19



- Adjust control cam **1** (screw **2**) in accordance with the **requirement**.

1.06.04 Knife pressure

Requirement
The thread should be cut reliably at all times.

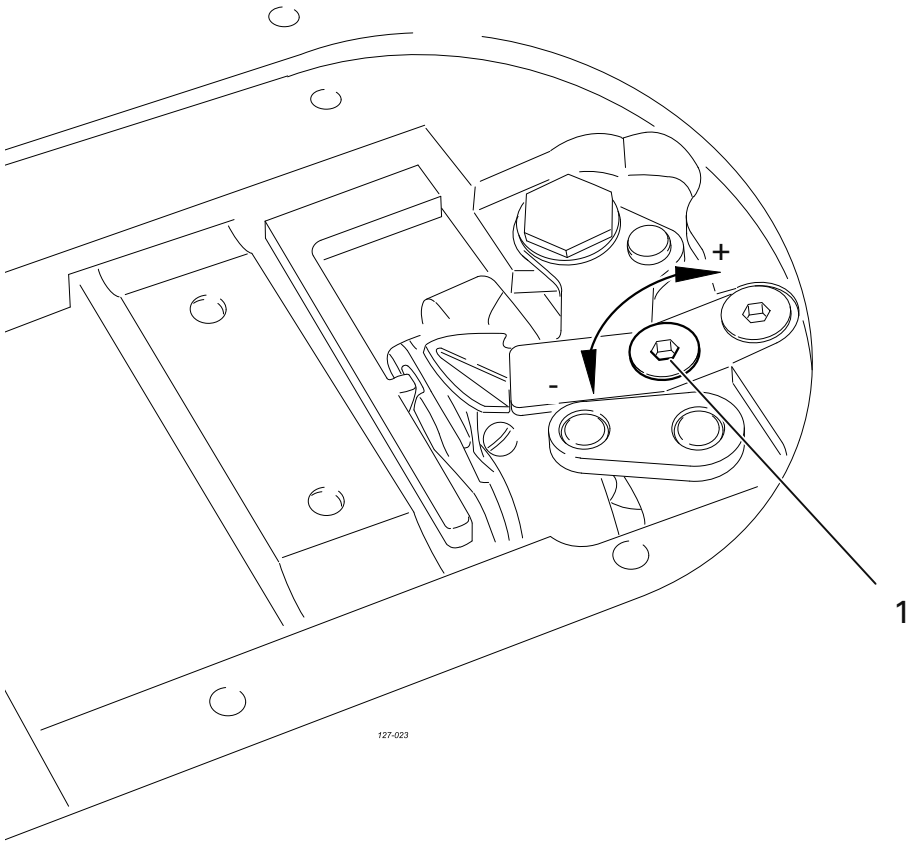
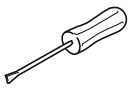


Fig. 1 - 20



- Increase ("+") or reduce ("-") the knife pressure accordingly with screw **1**.

1.06.05 Manual cutting test

Requirement
Both the needle and the bobbin thread should be cut neatly.

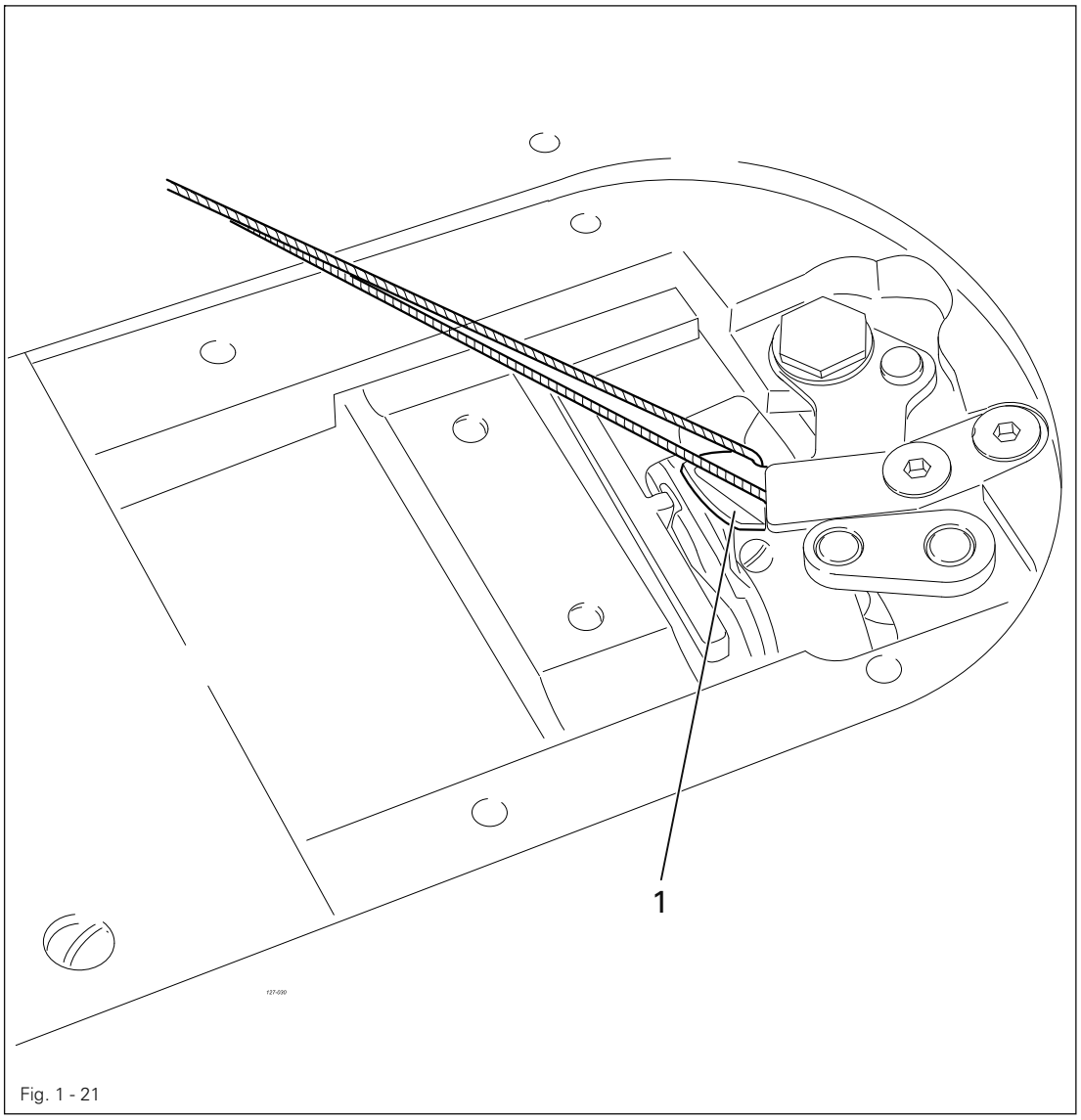


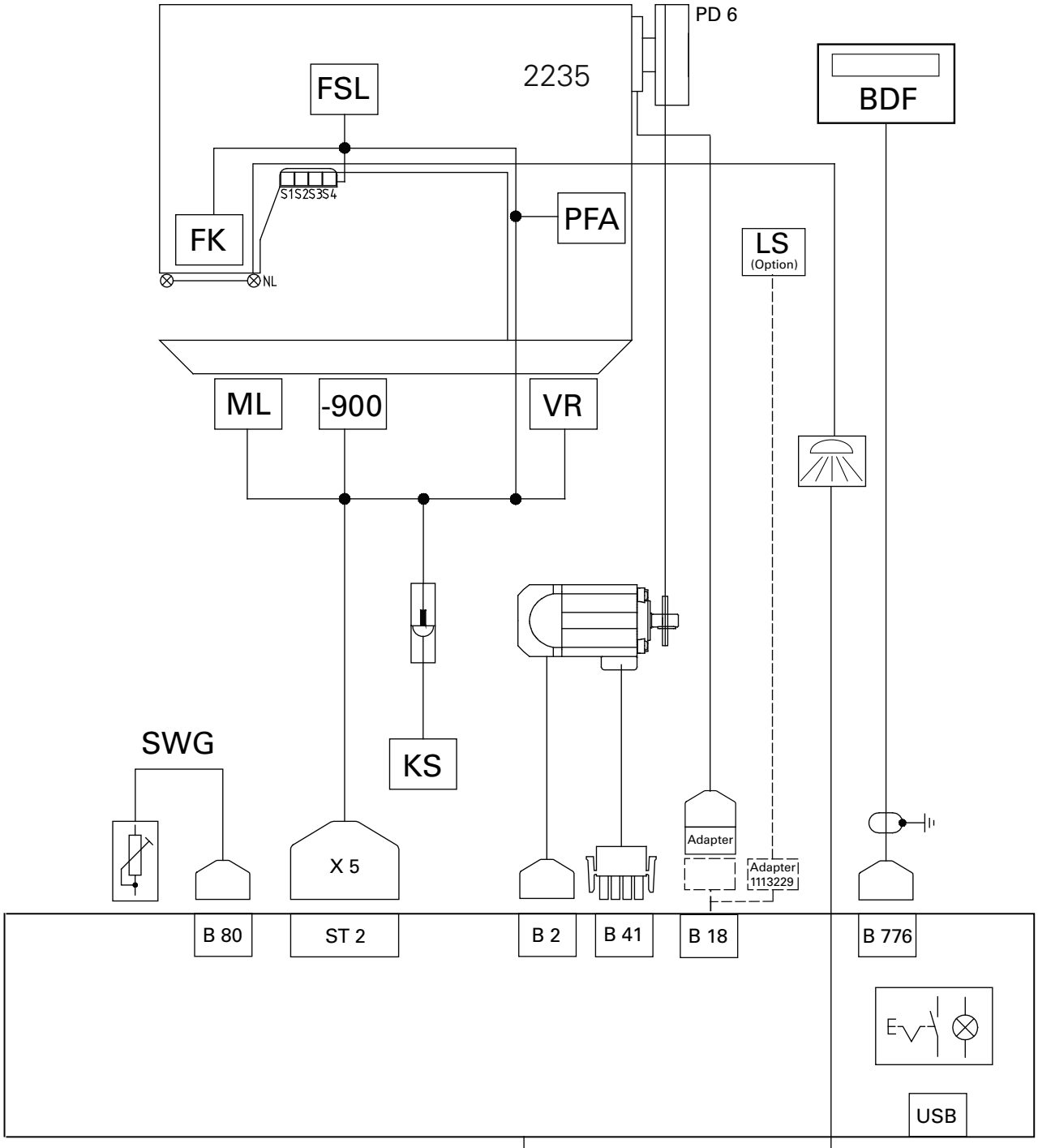
Fig. 1 - 21

- Bring thread catcher **1** by hand to its front position.
- Take a double thread and place it into the catcher slot.
- Carry out a manual cutting test.
- If the thread is not cut in accordance with the **requirement**, adjust the knife pressure as described in Chapter **1.06.04 Knife pressure**.

Consult the instruction manual for the drive for a description of the parameter settings and a list of the parameters.

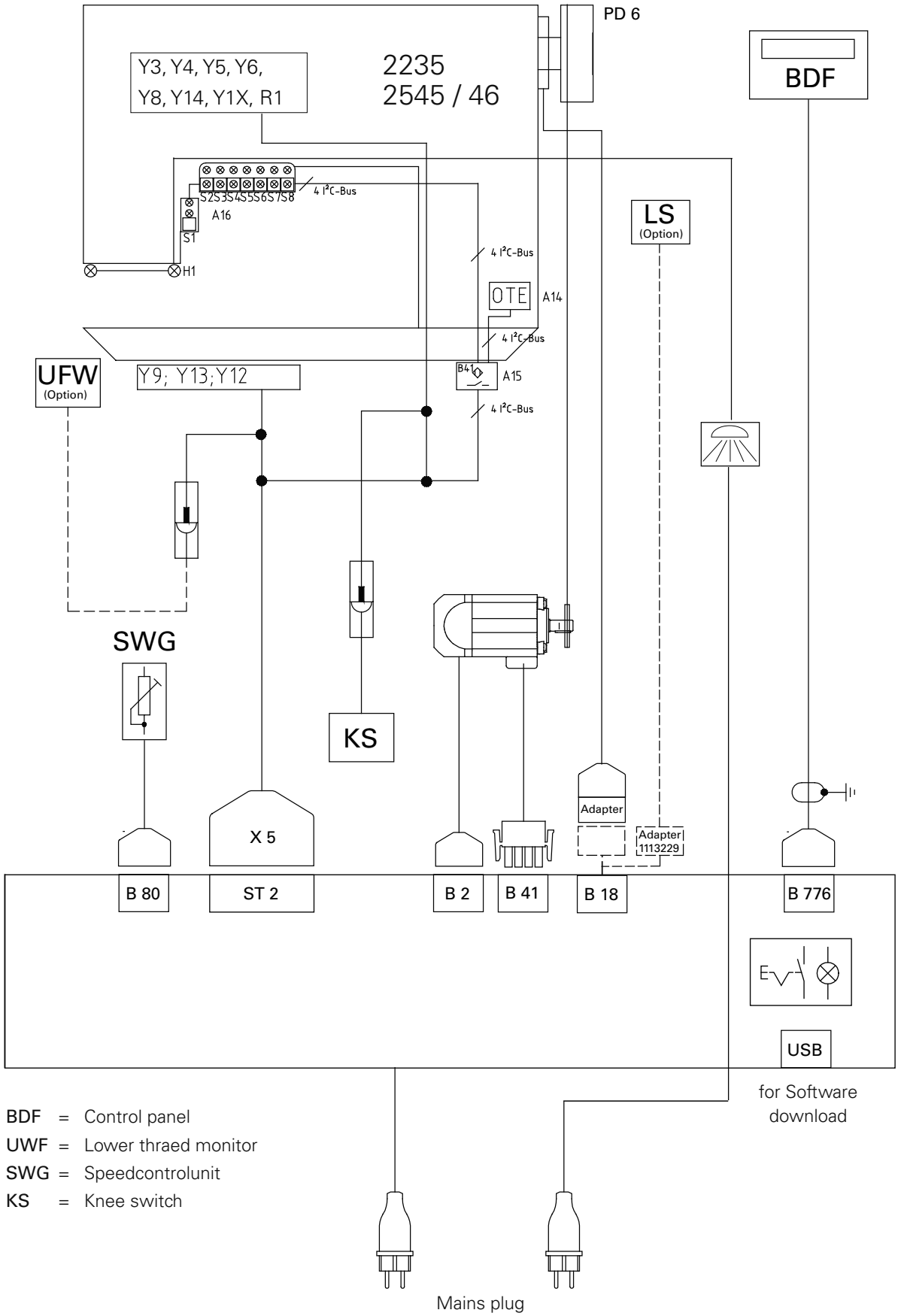
2 Block diagram

2.01 PFAFF 2235 PLUS with AB 321



FSL = Thread tension release
BDF = Control panel
FK = Thread clamp
PFA = Automatic presser foot lift
ML = Machine running signal
-900 = Thread trimmer
VR = Backtacking device
SWG = Speedcontrolunit
KS = Knee switch

2.02 PFAFF 2235 PREMIUM with PF 321



PFAFF® Industrial

Europäische Union
Wachstum durch Innovation – EFRE

PFAFF Industriesysteme
und Maschinen AG

Hans-Geiger-Str. 12 - IG Nord
D-67661 Kaiserslautern

Phone: +49-6301 3205 - 0
Fax: +49-6301 3205 1386
E-mail: info@pfaff-industrial.com

Hotlines:

Technical service:	+49-175/2243-101
Application consultance:	+49-175/2243-102
Spare-parts hotline:	+49-175/2243-103

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