

918 938 U

ADJUSTMENT MANUAL

938 938 U

This adjustment manual applies to machines from the serial number **8 300 001** and software version **0435/006** onwards.

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Observe and comply with all instructions in the instruction manual's **chapter 1 Safety!** In particular make sure that all safety covers are installed again correctly after making adjustments, see **chapter 1.06 Hazard information** in the instruction manual!



Unless otherwise stated, the machine must be disconnected from the mains before all adjustment work! Risk of injury due to accidental machine start-up!

 \bigwedge

No screw clamp may be fastened to the needle bar with the PFAFF **918** and **938!** This may damage the special needle bar coating.

Notes on adjustment

All adjustments in this manual are based on a fully assembled machine and may only be carried out by technical 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 that have to be completely adjusted. Both the preceding and following chapters must be observed if only specific individual work steps are carried out. The screws and nuts indicated in brackets () are fastenings for machine parts, which must be loosened before any adjustment and tightened again afterwards.

13.01 Tools, gauges and other accessories

- 1 set of screwdrivers with blade widths from 2 to 10 mm
- 1 set of wrenches with jaw widths from 7 to 14 mm
- 1 set of Allen keys from 1.5 to 6 mm
- 1 metal ruler, order no. 08-880 218-00
- 1 feed dog setting gauge, order no. 61-111 651-33
- 1 adjustment pin (5 mm diameter), order no. 13-030 341-05
- 1 hook bearing bracket setting gauge, order no. 91-129 996-05

13.02 Abbreviations

t.d.c. = top dead centre b.d.c. = bottom dead centre

13.03 Explanation of symbols

Activities to be performed or important information in this adjustment manual are emphasised by symbols. The symbols used have the following meaning:



Note, information

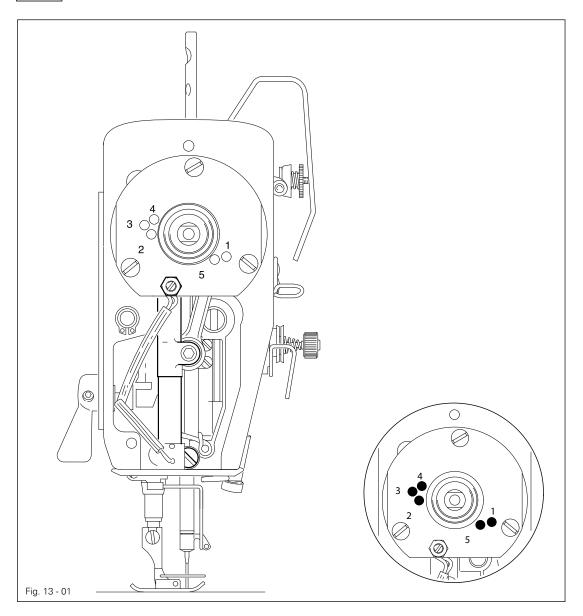


Maintenance, repairs, adjustment, service work (only to be carried out by technical staff)

13.04 Checking and adjustment aid



It is possible to precisely locate the required needle bar positions through insertion in holes 1 - 5.





- Turn the handwheel until the needle bar has almost reached the required position.
- Place the adjustment pin in the corresponding hole provided and press it down.
- Turn the handwheel slightly back and forth until the adjustment pin engages in the crank cutout behind the bearing plate, thus blocking the machine.

Hole 1 = 2.0 mm after bottom dead centre of the needle bar (2.0 after b.d.c.)

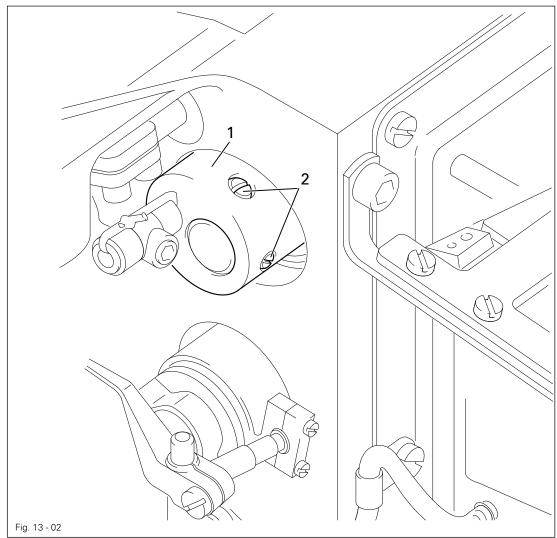
- Hole 2 = top dead centre of the needle bar (t.d.c.)
- Hole 3 = 0.25 mm after top dead centre of the needle bar (0.25 after t.d.c.)
- Hole 4 = 1.0 mm after top dead centre of the needle bar (1.0 after t.d.c.)
- Hole 5 = 4.0 mm after bottom dead centre of the needle bar (4.0 after b.d.c.)

Adjusting basic machine 13.05

Compensation weight 13.05.01

Rule

When the needle bar is in b.d.c., the largest eccentricity of the compensation weight 1 should be in the top position.





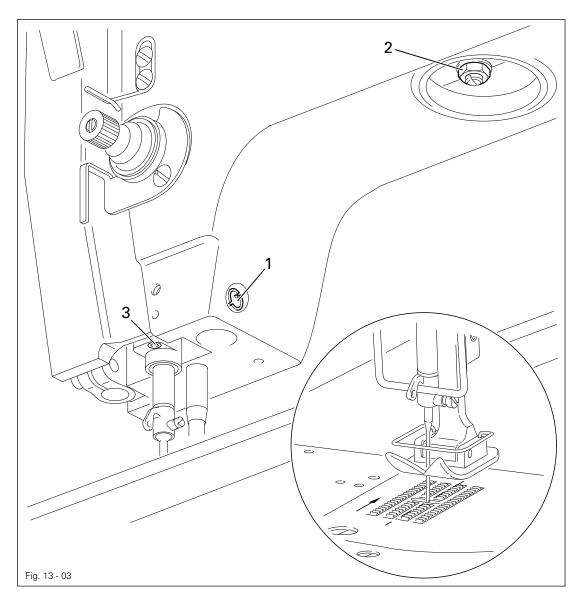
Move the needle bar to b.d.c.

Turn the compensation weight 1 (screws 2) according to the rule.

13.05.02 Needle in needle hole centre (in sewing direction)

Rule

At zigzag stitch setting **"0"** and the needle position setting **"Middle"**, the needle should pierce the middle of the needle hole looking in the sewing direction.





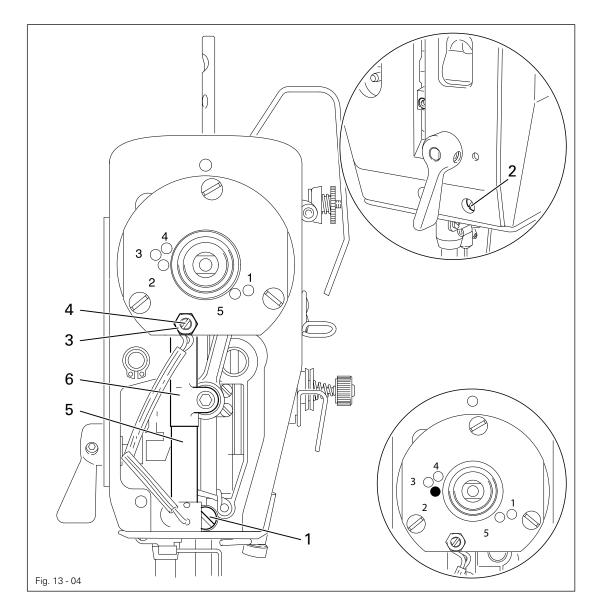
• Move the needle bar to b.d.c.

• Turn the eccentric pin 1 (nut 2 and screw 3) according to the rule.

13.05.03 Needle bar parallel guide

Rule

The guide bar 5 should be parallel to the needle bar.



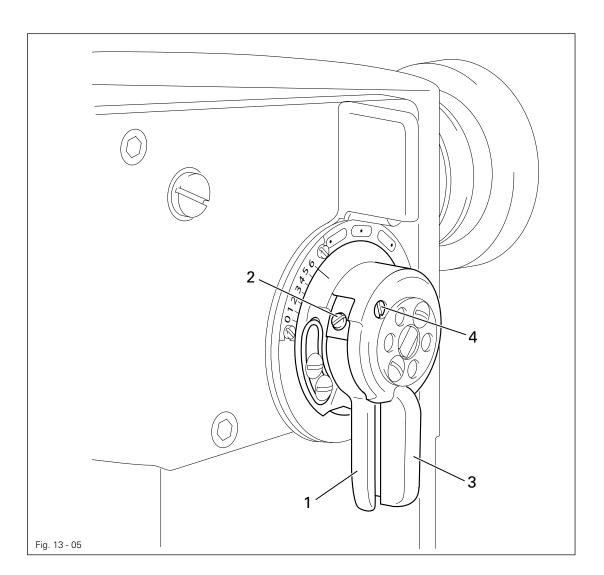


- Move the needle bar to t.d.c. (hole 2).
- Loosen the screws 1 and 2 and the nut 3.
- Position the largest eccentricity of the pin 4 to down.
- Move the cutout of the guide bar 5 until it abuts the eccentric pin 4, turn the eccentric pin 4 according to the rule and tighten the nut 3.
- Slide the guide bar 5 down and up again up to the stop. The bushing 6 must not move sideways (re-adjust the eccentric pin 4 if necessary).
- Move the guide bar 5 until it abuts the eccentric pin 4 and tighten the screws 1 and 2.

13.05.04 Locking lever

Rule

The zigzag stitch adjusting lever **3** should lock in any position.





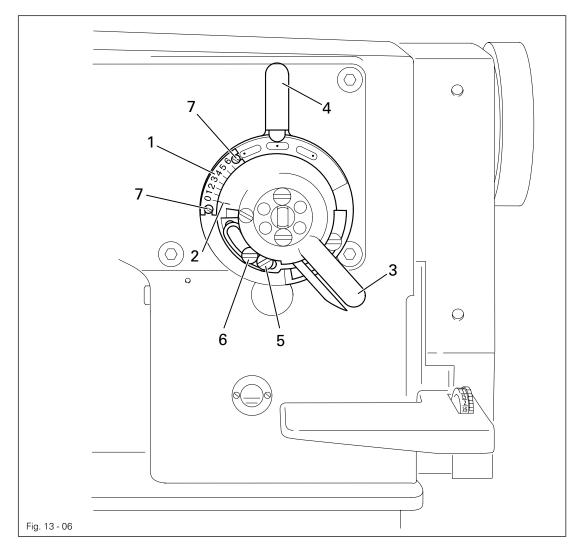
- Loosen the screw 2.
- Press the locking lever 1 until it pushes up against the zigzag stitch adjusting lever 3.
- Turn the pivot pin 4 to the left until it stops.
- Release the locking lever 1.
- The locking lever 1 should be parallel to the zigzag stitch adjusting lever 3.
- Tighten the screw 2.

13.05.05 Zero stitch and zigzag stitch scale

Rule

At zigzag stitch setting "0",

- 1. the needle bar should not move sideways when turning the handwheel,
- 2. the marking "0" on scale 1 should match the marking 2.



• Set the needle position adjusting lever 4 to "Middle" and loosen the screws 5 and 6.

Allow the machine to run slowly and turn the zigzag stitch adjusting lever 3 to the right until the needle bar no longer moves sideways.

- Switch off the machine, move the screw 5 until it abuts on the right and tighten.
- Loosen the screws 7 and adjust the scale 1 according to rule 2.

• Tighten the screws 7.



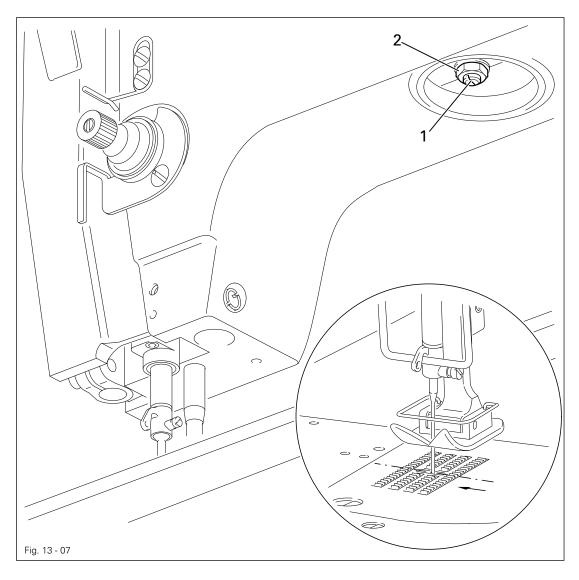
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The screw 6 remain loosened for the subsequent adjustments.

13.05.06 Needle in needle hole centre (crossways to sewing direction)

Rule

At zigzag stitch setting **"0"** and the needle position setting **"Middle"**, the needle should pierce the middle of the needle hole looking crossways to the sewing direction.



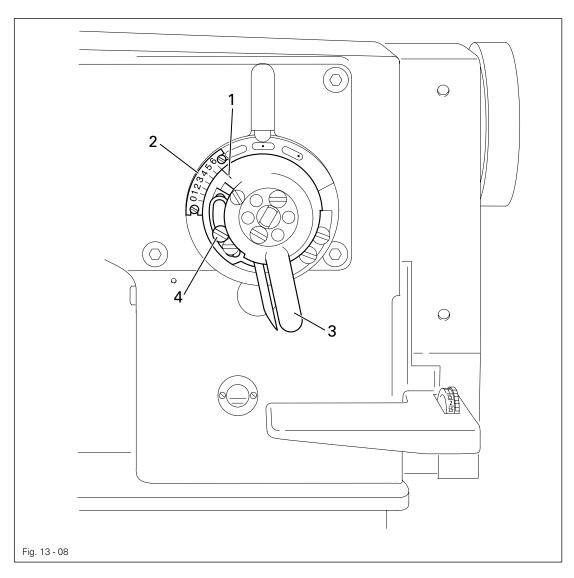


• Turn the eccentric pin 1 (nut 2) according to the rule.

13.05.07 Zigzag stitch width

Rule

At the largest zigzag stitch setting, the marking **1** should match the largest zigzag stitch indication on the scale **2**.





Turn the zigzag stitch adjusting lever **3** according to the **rule**.

Move the screw 4 to the top and tighten.

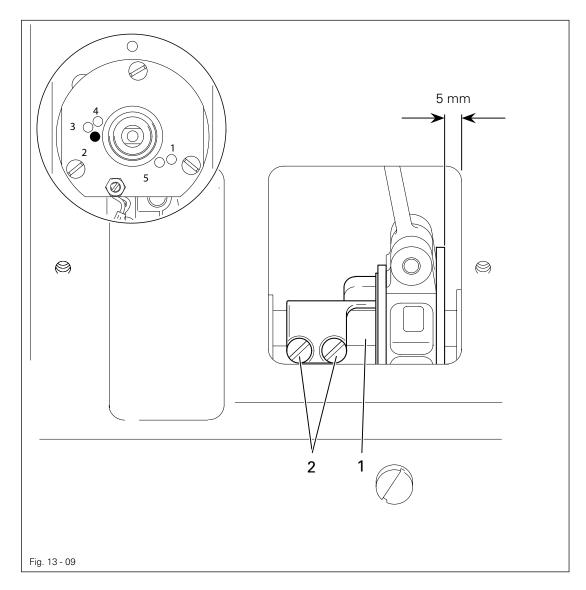


Should the machine be fitted with a needle plate that has a smaller needle hole than the zigzag stitch width on the scale, the zigzag stitch limit must be set according to the needle hole width of the needle plate.

13.05.08 Zigzag stitch movement (only on the 918 and 938)

Rule

If the needle bar is in t.d.c. (adjustment hole "2") coming from the right bottom dead centre, the needle bar should not move sideways when moving the zigzag stitch adjusting lever back and forth.





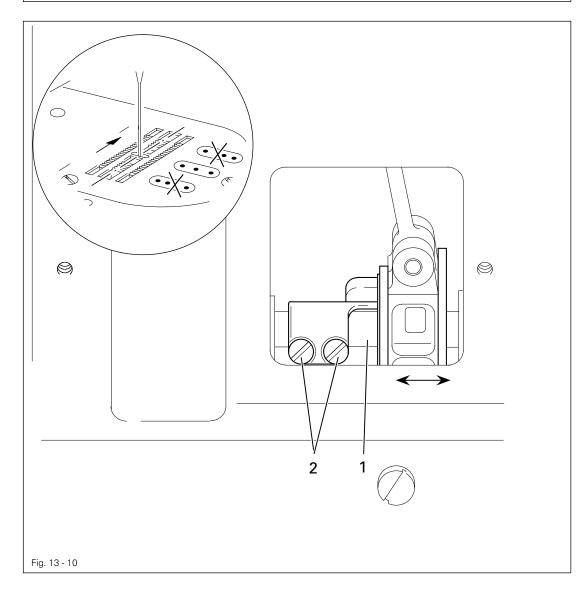
- Move the needle bar to t.d.c. coming from the right bottom dead centre and insert the adjusting pin into hole "2" of the bearing plate (block machine).
- Turn the zigzag eccentric 1 (screws 2) according to the rule. Make sure that the zigzag eccentric 1 protrudes about 5 mm from the right inner side of the cast wall.
- Pull the adjusting pin out of the bearing plate.

13.05.09 Needle hole symmetry - left, middle and right (only on the 918 and 938)

Rule

At zigzag stitch setting "0", the needle puncture position should be in the middle of the needle hole.

At the largest zigzag stitch setting, the needle hole should be the same distance from the middle puncture position on the left and right.



Let the needle pierce paper in the required zigzag stitch settings.

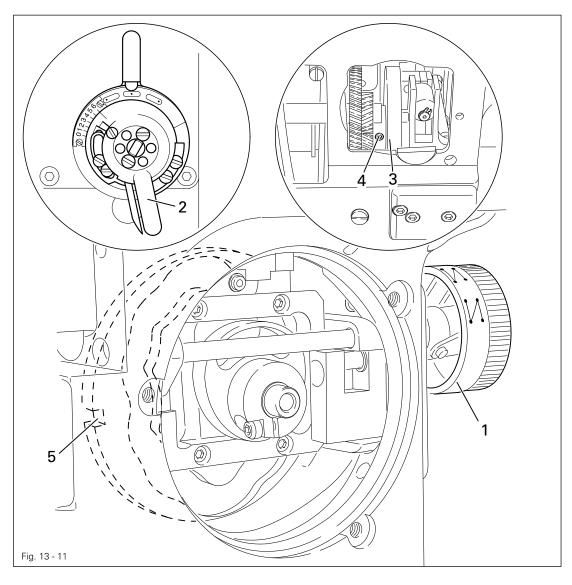
• Adjust the zigzag eccentric 1 (screws 2) - without turning it - according to the rule.

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13.05.10 Multi-stitch movement (only on the 918U and 938U)

Rule

- 1. If the needle is in the right-hand puncture position in b.d.c., the cutout **5** of the control cam **3** should be level and point backwards.
- 2. The sideways movement of the needle bar should end when the needle punctures the workpiece (carry out a check at the largest zigzag setting).

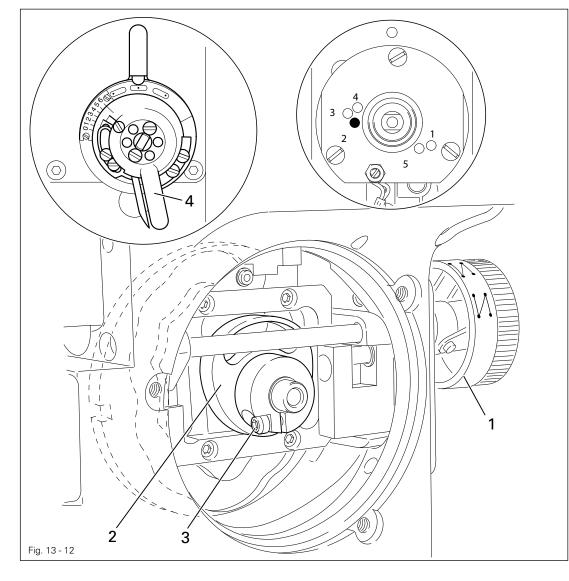


- Position the setting wheel 1 to multi-stitch.
- Set the zigzag adjusting lever 2 to "Largest zigzag stitch".
- Turn the control cam 3 (screws 4) according to the rule.

13.05.11 Zigzag movement (only on the 918U and 938U)

Rule

If the needle bar is in t.d.c. (hole 2) coming from the right b.d.c., the needle bar should not move sideways when moving the zigzag stitch adjusting lever 4 back and forth.



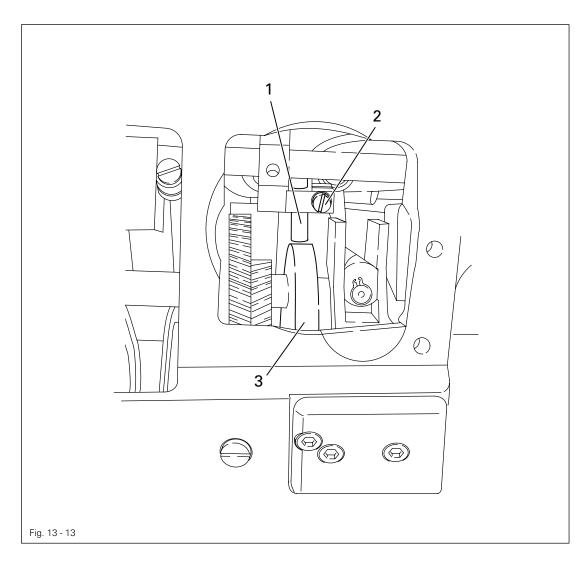
• Position the setting wheel **1** to zigzag.

• Turn the zigzag stitch eccentric 2 (screw 3) according to the rule.

13.05.12 Target positioning device sensor (only on the 918U and 938U)

Rule

There should be a clearance of 0.2 - 0.3 mm between the sensor 1 and the control cam 3.



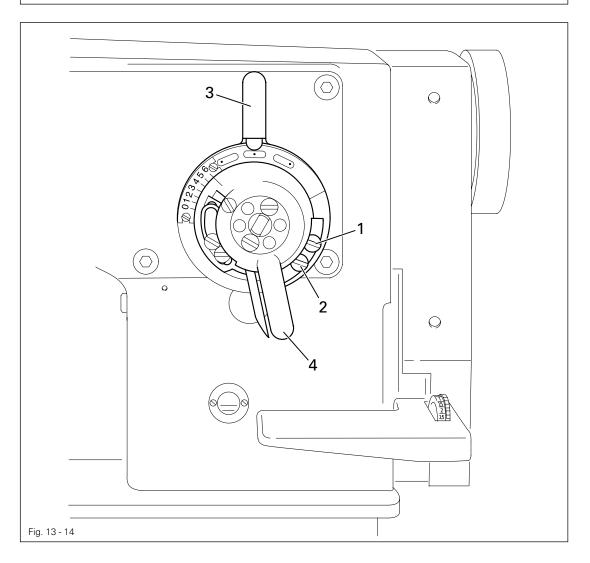


• Adjust the sensor 1 (screws 2) according to the rule.

13.05.13 Needle position adjusting lever

Rule

The left and right deflection of the needle should be the same size at both the largest zigzag stitch setting and the left or right needle position.



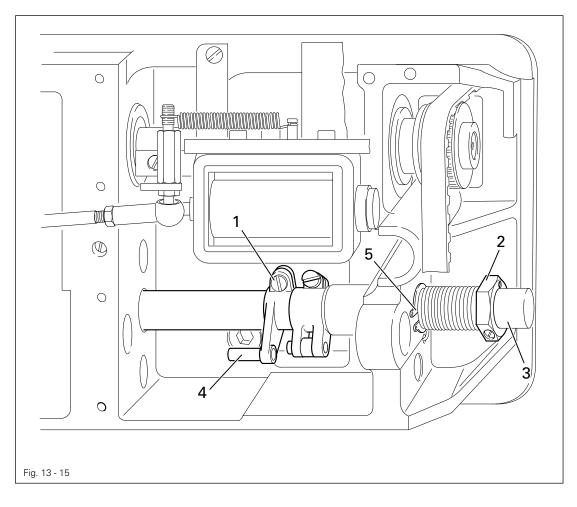


- Loosen the screws 1 and 2.
- Set the needle position adjusting lever 3 to "Middle" and the zigzag stitch adjusting lever 4 to the largest zigzag.
- Place a piece of paper under the presser foot and pierce on the left and right with the needle.
- Set the zigzag stitch adjusting lever 4 to "0" and slide the needle position adjusting lever 3 to the right and left until the needle is positioned over each of the previously punctured holes.
- Move the screw 1 until it abuts in the left needle position and the screw 2 until it abuts in the right needle position and tighten.

13.05.14 Bottom feed dog zero position (with a closed gear box)

Rule

The bottom feed dog should not move when turning the handwheel with stitch length regulation "0".



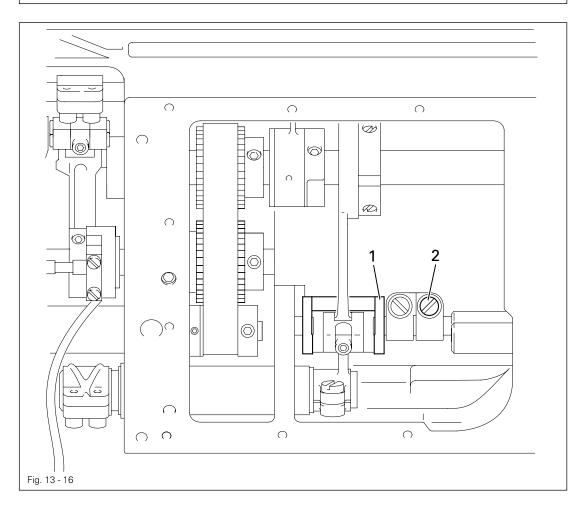
- Loosen the screw 1.
- Place the open-ended wrench (SW 27) on the spring tension ring 2 and use it to hold the regulating shaft 3 tightly.
- Whilst continuously turning the handwheel, turn the open-ended wrench on the spring tension ring 2 according to the rule.
- Move the adjusting crank 4 until it abuts the circlip 5 on the casting and tighten the screw 1.
- Carry out a check according to the **rule**.



13.05.15 Bottom feed dog zero position (with an open gear box)

Rule

The bottom feed dog should not move when turning the handwheel with stitch length regulation "0".





• Switch the machine on.

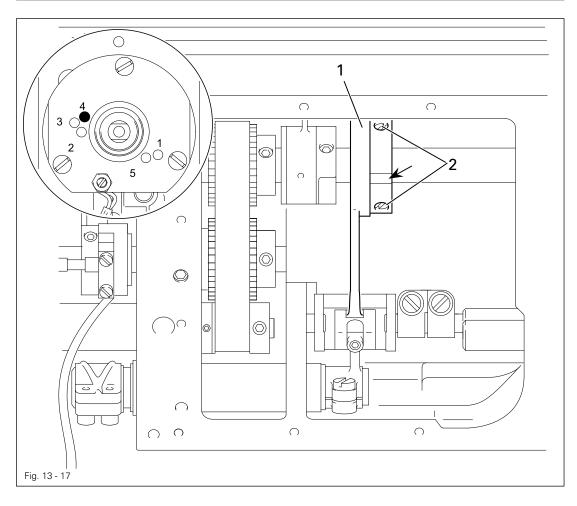
Whilst continuously turning the handwheel, turn the deflection crank 1 (screw 2) according to the rule.

• Switch off the machine.

13.05.16 Bottom feed dog sliding movement

Rule

At the largest stitch length setting and a needle bar position **1.0 mm** after t.d.c. (hole **4**), the bottom feed dog should not move when the reverse-feed button is pressed.





Whilst continuously pressing the reverse-feed button, turn the slide eccentric 1 (screws 2) according to the rule (the cutout in the slide eccentric 1 must be visible).

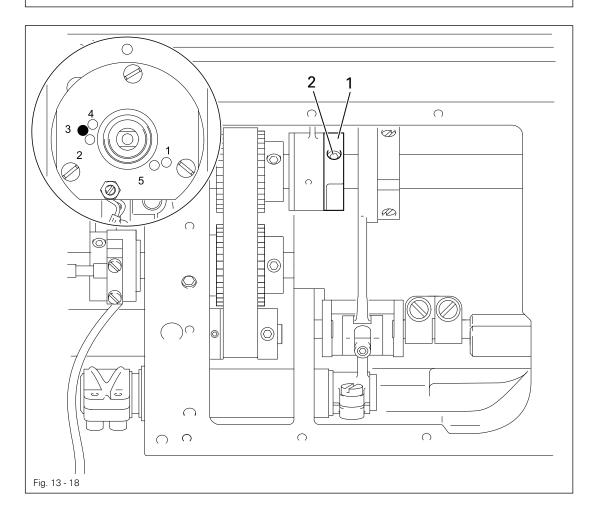


The slide eccentric 1 must not be adjusted axially.

13.05.17 Bottom feed dog lifting movement

Rule

At a stitch length setting of "0" and a needle bar position 0.25 mm after t.d.c. (hole 3), the bottom feed dog should be at its upper turning point.





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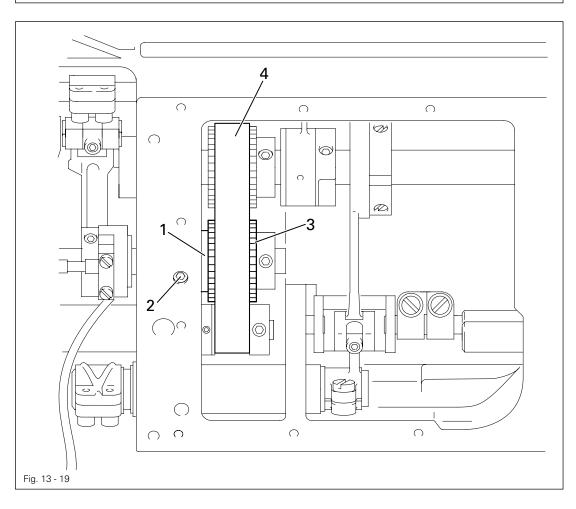
• Turn the lifting eccentric 1 (screw 2) according to the rule.

The lifting eccentric 1 must not be adjusted axially.

13.05.18 Driving belt in the gear box

Rule

The driving belt 4 should be tightened so that the machine does not move sluggishly and the gear wheels do not exhibit noticeable backlash.



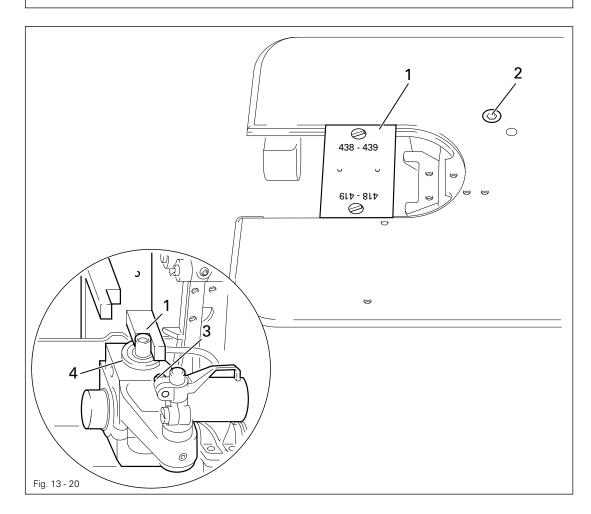


• Adjust the eccentric bearing bush 1 (screw 2) so that the driving belt 4 is in the middle of the bobbin lifter drive wheel 3 and turn according to the **rule**.

13.05.19 Hook bearing bracket

Rule

The hook bearing bracket should touch the top and side of the hook bearing bracket adjustment gauge 1.



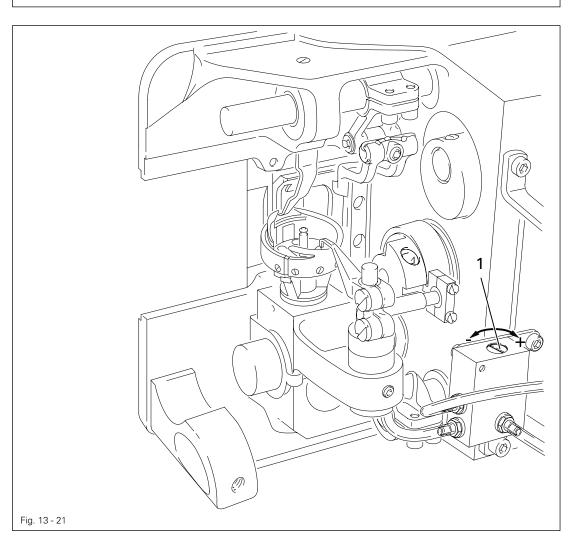


- Loosen the screw 3.
- Swivel the bobbin lifter to the right and remove the hook.
- Loosen the screw 2 and loosen the linear cam underneath by tapping gently on the screw head.
- Screw on the hook bearing bracket adjustment gauge.
- The numbers "438 439" must be legible from the front.
- Adjust or turn the hook bearing bracket 4 according to the rule.
- Tighten the screw 2.
- Adjust the bobbin lifter according to chapter **13.05.24** Bobbin lifter position.

13.05.20 Hook lubrication

Rule

A light oil strip should appear on a paper strip held over the needle plate cutout after approximately **10** seconds when the machine is running at full speed.



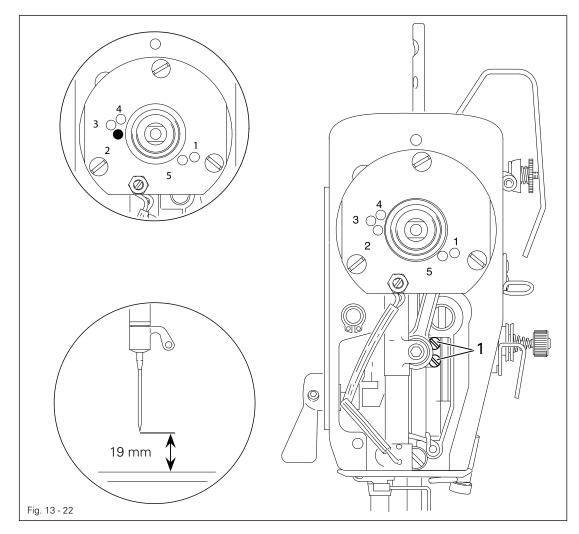


• Turn the screw **1** according to the **rule**.

13.05.21 Pre-calibrating the needle height

Rule

When the needle position is in t.d.c. (hole 2), the clearance between the needle point and the needle plate should be 19 mm.



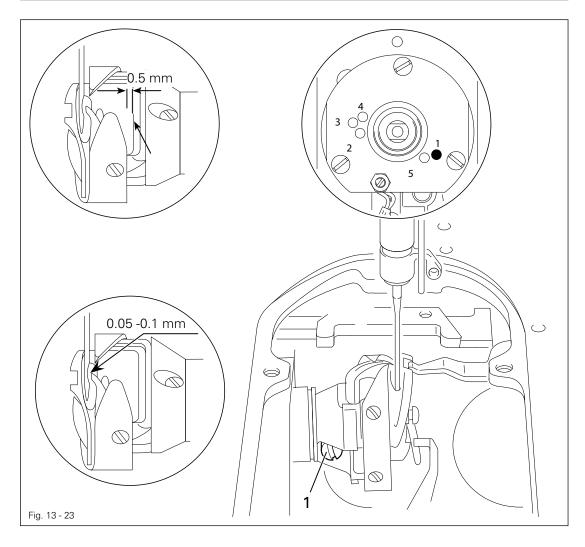


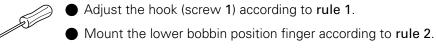
Adjust the needle bar (screws 1) without twisting according to the **rule**.

13.05.22	Needle bar rise,	hook-to-needle clearance	and lower bobbin p	osition finger
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Rule

- 1. At the needle position setting "Middle", a zigzag setting of "0" and a needle bar position 2.0 after b.d.c. (hole 1), the hook point should be in the middle of the needle and the clearance between the needle and the hook point should be 0.05 to 0.1 mm.
- The lower bobbin position finger should be mounted so that there is a clearance of 0.5 mm between the lower part of the bobbin case and the front edge of the bobbin case position finger (see arrow).

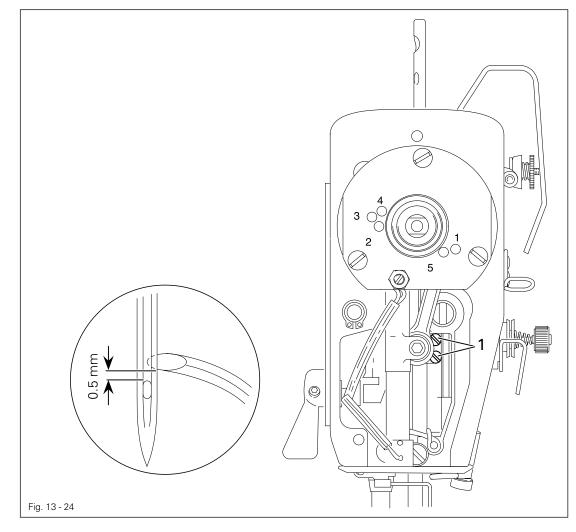




13.05.23 Readjusting needle height

Rule

If the hook point is in the middle of the needle at zigzag stitch setting "0" and needle position setting "Left", the top edge of the needle eye should be 0.5 mm below the hook point.



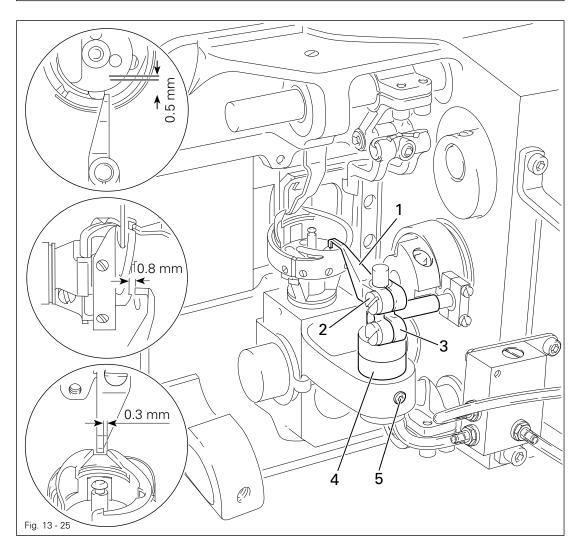


• Adjust the needle bar (screws 1) without twisting according to the **rule**.

13.05.24 Bobbin lifter position

Rule

- 1. There should be a clearance of **0.5 mm** between the top edge of the bobbin lifter and the inner edge of the lower part of the bobbin case.
- 2. There should be a clearance of **0.8 mm** between the bobbin lifter finger and the lower part of the bobbin case.
- 3. The bobbin case position finger should protrude approx. **0.3 mm** from the right side of the groove in the lower part of the bobbin case in the left reverse position of the bobbin lifter.





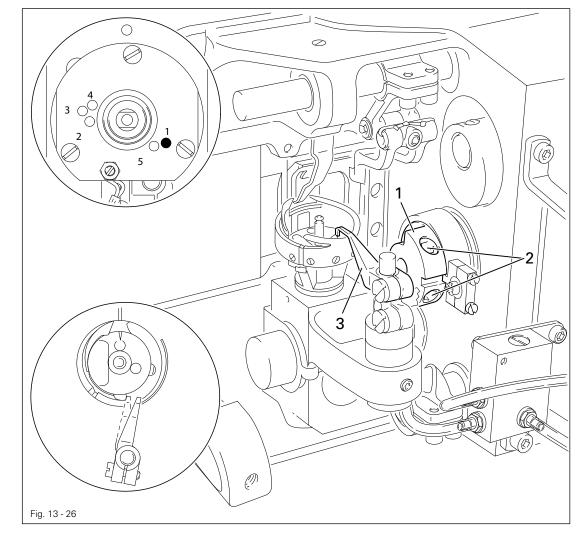
• Loosen the screw 2.

- Mount the bobbin lifter 1 on the right side of the lower part of the bobbin case, press against the clamp crank 3 underneath and gently tighten the screw 2.
- Adjust the eccentric bearing bush 4 (screw 5) according to rules 1 and 2.
- Turn the bobbin lifter 1 according to rule 3 and tighten the screw 2; make sure that the bobbin lifter 1 abuts the clamp crank 3.

13.05.25 Bobbin lifter movement

Rule

When the needle bar is positioned **2.0** after b.d.c. (hole **1**), the bobbin lifter **3** should be in the right turning point.



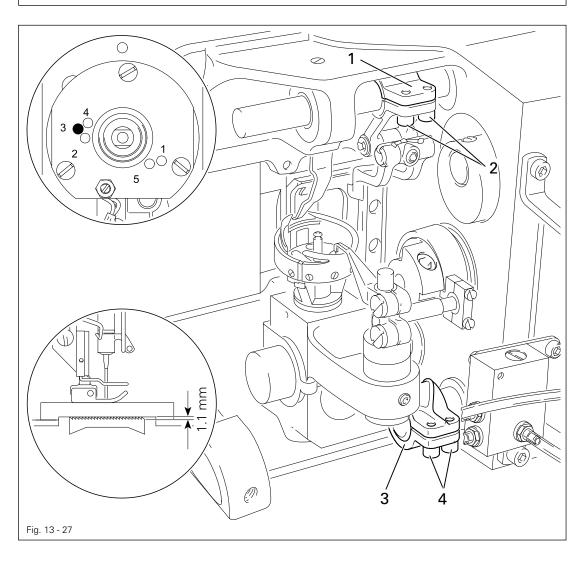


• Turn the bobbin lifter eccentric 1 (screws 2) according to the rule.

13.05.26 Bottom feed dog height

Rule

At a stitch length setting of "0" and a needle bar position 0.25 mm after t.d.c. (hole 3), the bottom feed dog should be in the middle of the needle plate cutout and abut the feed dog height adjustment gauge along its entire length.



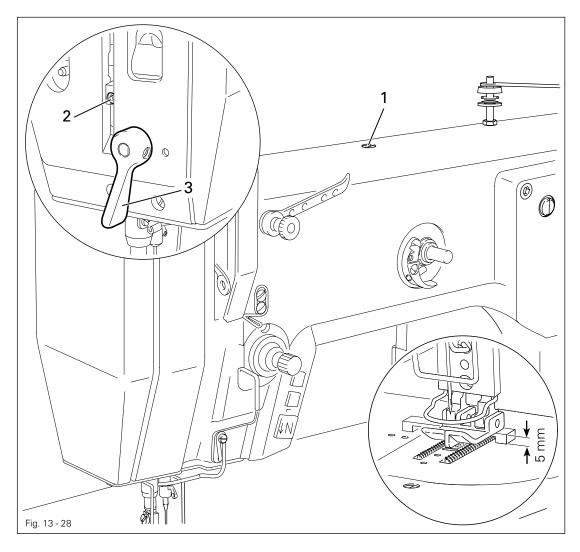


- Move the feed dog adjustment gauge under the presser foot with the cutout down.
- Fit the presser foot.
- Push up the feed bar and place the feed dog in the middle of the needle plate cutout.
- Turn the lifting crank 1 (screws 2) and the clamp bushing 3 (screws 4) according to the rule.

13.05.27 Clearance between the presser foot and needle plate

Rule

When the hand lever is raised, the needle should pierce the "middle of the needle hole" of the presser foot exactly and the clearance between the needle plate and presser foot should be 5 mm.



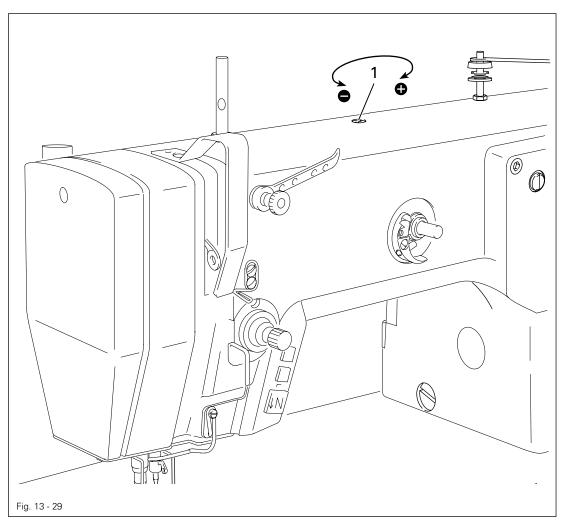


- Set the zigzag stitch adjusting lever to "0" and the needle position adjusting lever to "Middle".
- Put the presser foot on the needle plate and reduce the pressure on the presser bar by turning the screws 1.
- Move the feed dog adjustment gauge under the presser foot with the cutout down.
- Loosen the screw 2 and raise the hand lever 3.
- Pierce the needle in the needle hole and align the presser foot according to the **rule**.
- Push the presser bar lifting piece down and tighten the screw 2.

13.05.28 Presser foot pressure

Rule

The material should be transported properly even at top sewing speed. No pressure marks should appear on the material.





• Turn the screw **1** according to the **rule**.

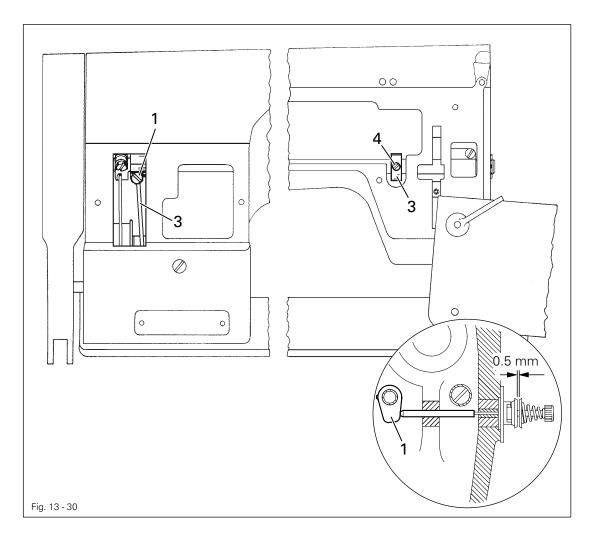


If necessary, the sewing foot pressure can be increased (\bigoplus) or reduced (\bigoplus) .

13.05.29 Needle thread tension release (in machines without -900/24)

Rule

When the hand lever is raised, the tension discs should be at least 0.5 mm apart.



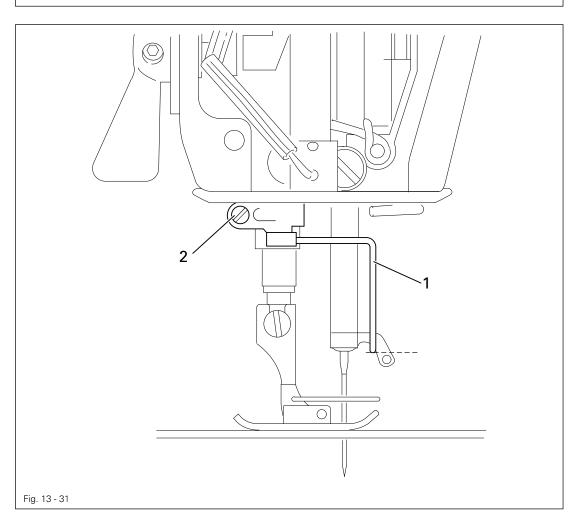


- Loosen the screw 1 and press the connecting rod 2 down until it touches.
- Raise the presser foot.
- Turn the dog 3 (screw 4) according to the rule.

13.05.30 Thread deflection bow

Rule

When the needle bar is in b.d.c., the top edge of the thread guide hole should be at the same level as the lower edge of the thread deflection bow.



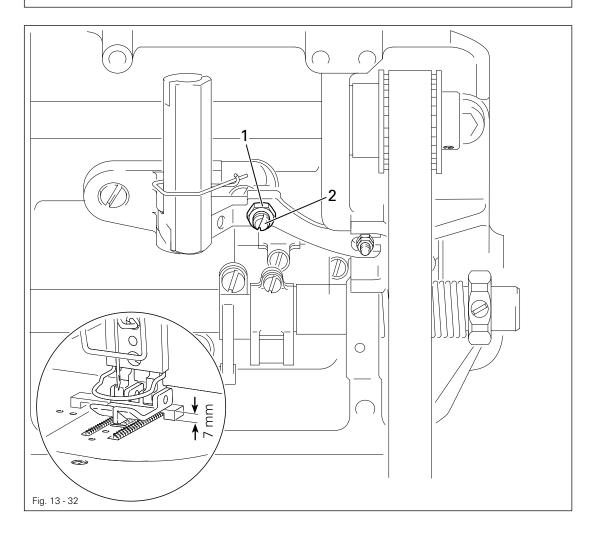


Adjust the thread deflection bow 1 (screw 2) according to the **rule**, making sure that it is parallel to the bed plate.

13.05.31 Knee lever travel limit

Rule

The hand lever should lower automatically and the presser foot should have lifted **7 mm** off the needle plate when the knee lever is activated.



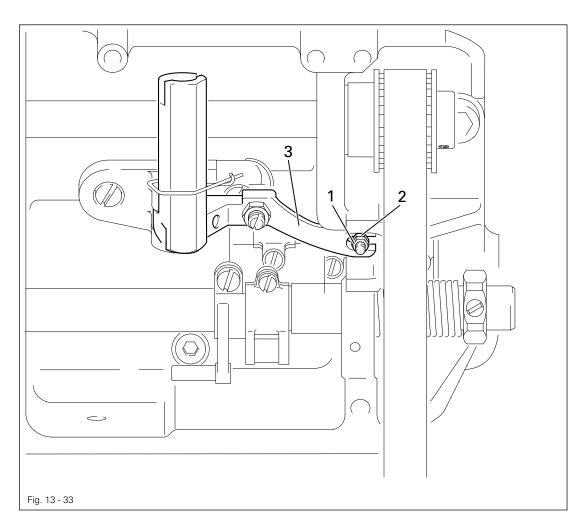


- Move the feed dog adjustment gauge under the presser foot with the cutout down and fit the presser foot.
- Loosen the nut 1 and unscrew the screw 2 a few turns.
- Move the knee lever to the right until it stops and hold firmly, making sure that the presser foot does not lift off the feed dog adjustment gauge.
- Screw in the screw 2 until it stops, then unscrew it half a turn.
- Tighten the nut 1.

13.05.32 Knee lever backlash

Rule

There should be noticeable backlash between the nut 1 and the fork 3 when gently activating the knee lever.



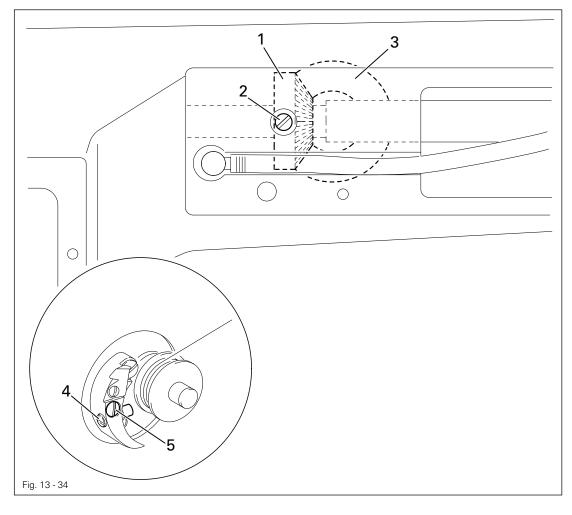


• Turn the nut 1 (nut 2) according to the **rule** and secure it with the nut 2.

13.05.33 Bobbin winder

Rule

- When the bobbin winder is switched on, the bobbin winder spindle should be moved easily, whereas when the bobbin winder is switched off, the friction wheel 3 must not touch the drive wheel 1.
- 2. The bobbin winder should switch off automatically if the thread fill is approx. 1 mm away from edge of the bobbin.





• Adjust the drive wheel 1 (screw 2) according to rule 1.

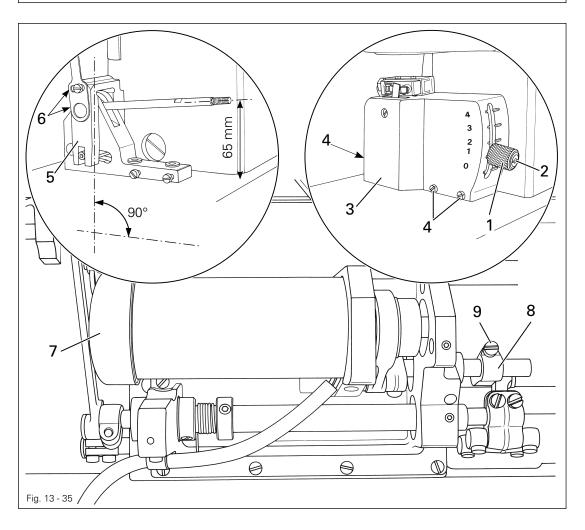
- Place a bobbin on the bobbin winder, thread the bobbin and switch on the bobbin winder.
- Adjust the bolt **3** (screw **4**) according to **rule 2**.

13.06 Adjusting the under-edge trimmer -771//05

13.06.01 Neutral knife position

Rule

When the adjusting lever 1 is in position "0", the knife should lift as little as possible.



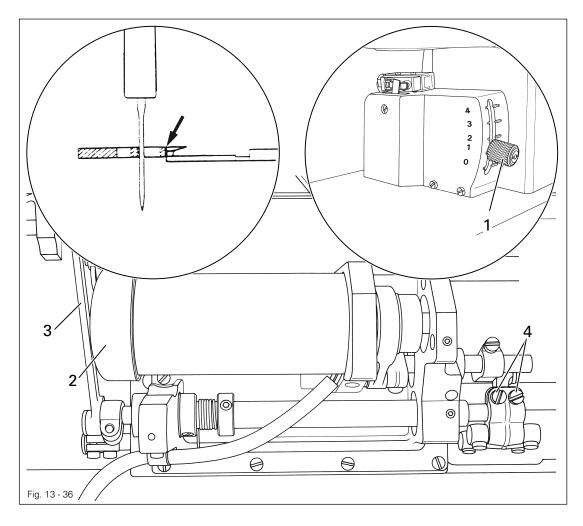


- Unscrew the knurled nut of the adjusting lever 1 (screw 2).
- Remove the cover **3** (screws **4**).
- Position the crank 5 (screws 6) at a right angle to the bed plate and, at the same time, set a clearance of 65 mm between the adjusting lever 1 and the bed plate.
- Attach the cover 3 (screws 4).
- Position the adjusting lever 1 to "0".
- Remove the cover cap 7 and check the stroke limit of the knife by turning the motor fan wheel (see rule).
- Turn the crank 8 (screw 9) according to the **rule**.

13.06.02 Knife height

Rule

When the adjusting lever 1 is in position "0" and the knife is at the upper turning point, the top edges of the needle plate and knife should be at the same level.



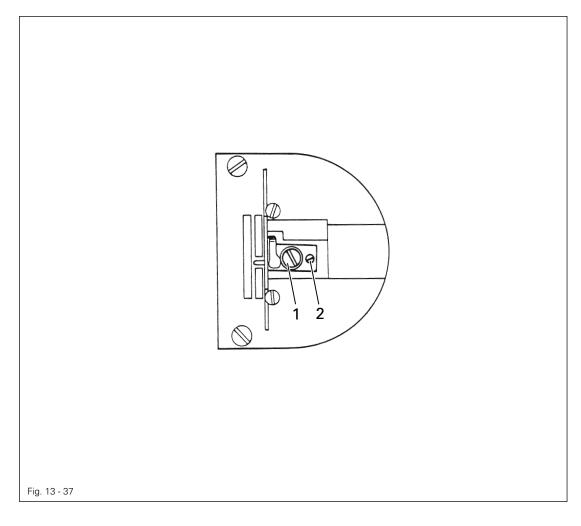


- Position the adjusting lever 1 to "0".
- Remove the cover cap **2** and turn the motor fan wheel until the knife is at its upper turning point.
- Adjust the connecting rod **3** (screw **4**) according to the **rule**.

13.06.03 Knife position

Rule

The knife should abut the stationary blade and be positioned slightly diagonally to the stationary knife





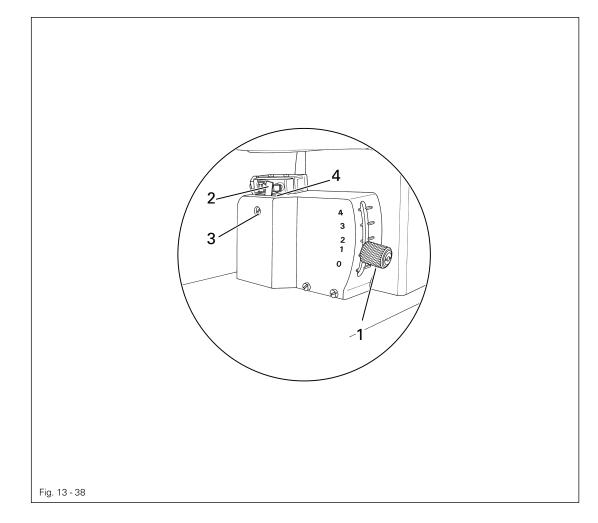
• Turn the eccentric 1 (screw 2) according to the rule.



13.06.04 Knife drive switch

Rule

The knife drive off and down position "1" should be switched on when the adjusting lever 1 is in position "0" .



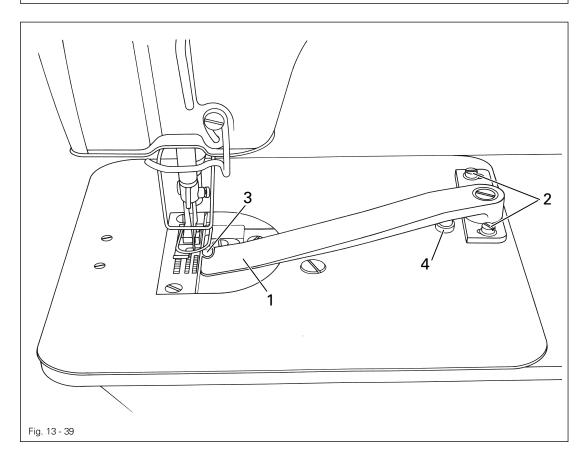


- Position the adjusting lever 1 to "0".
- Turn the lever 2 (screw 3) until the switch 4 is pressed.
- Position the adjusting lever 1 to "1".
- Check the setting according to the **rule**, adjust the lever **2** if necessary.

13.06.04 Workpiece protection guard

Rule

The workpiece protection guard 1 should be as close as possible to the knife 3 and abut the stop 4.





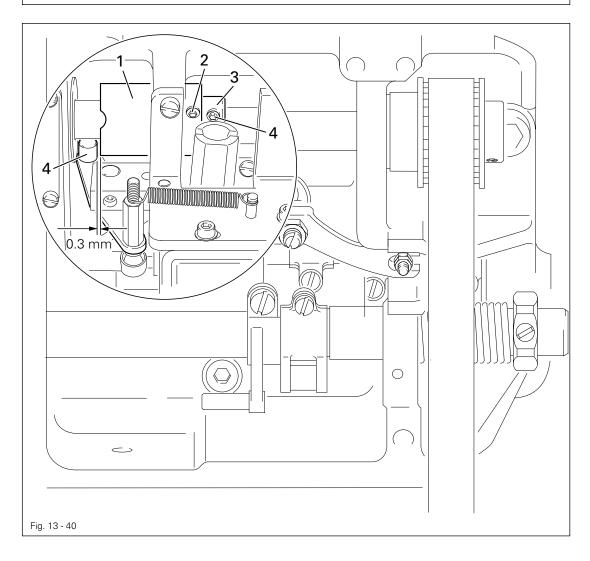
• Adjust the workpiece protection guard 1 (screws 2) according to the rule.

13.07 Adjusting thread trimmer -900/24

13.07.01 Axial control cam position

Rule

- 1. The roller **5** should have a clearance of **0.3 mm** to the control cam **1**.
- 2. The retaining collar **3** should abut the control cam **1**.



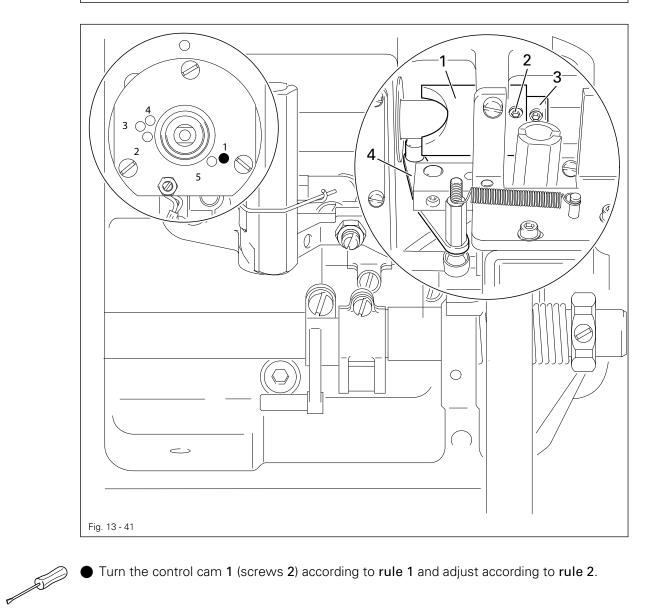


Adjust the control cam 1 (screw 2) and the retaining collar 3 (screw 4) according to the rules.

Control cam (pre-calibrating) 13.07.02

Rule

- 1. The roller lever 4 should engage in the corresponding control cam cutout in the needle rise position (hole 1).
- 2. The control cam 1 should abut the retaining collar 3.

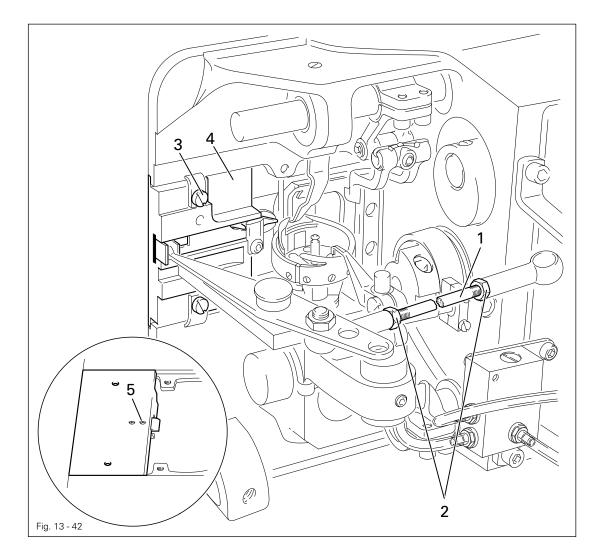


• Turn the control cam 1 (screws 2) according to rule 1 and adjust according to rule 2.

13.07.03 Thread catcher position and test cut

Rule

When the thread trimmer is in the neutral position, the edge of the thread catcher 6 should be flush with the edge of the mounting plate 4.





• Turn the connecting rod 1 (nuts 2 left and right-hand thread) according to the rule.

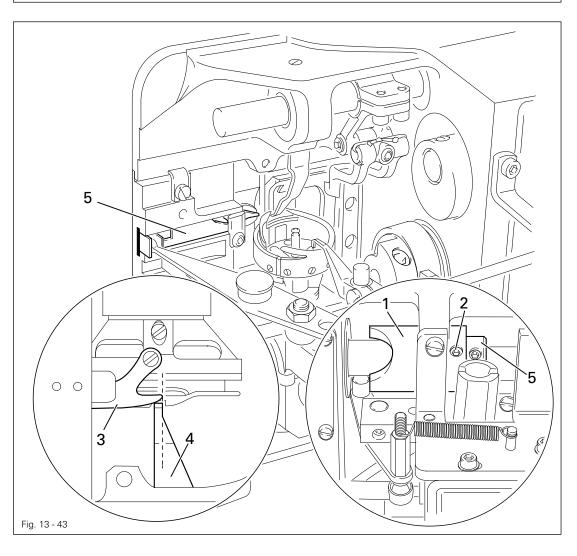
Remove the connecting rod 1 to perform a test cut, loosen the screws 3 and remove the mounting plate 4.

- Perform a test cut with double thread.
- Adjust the cutting pressure by turning the screw 5.
- Insert the mounting plate 4 so that the edge of it is flush with the edge of the bed plate.
- Tighten the screws **3** and insert the connecting rod **1**.

13.07.04 Control cam (recalibrating)

Rule

- The thread catcher 5 should start its forward movement when the end of the hook plate 3 is positioned at the level of the right edge of the bobbin case position finger 4 while turning the handwheel.
- 2. The control cam 1 should abut the retaining collar 6.

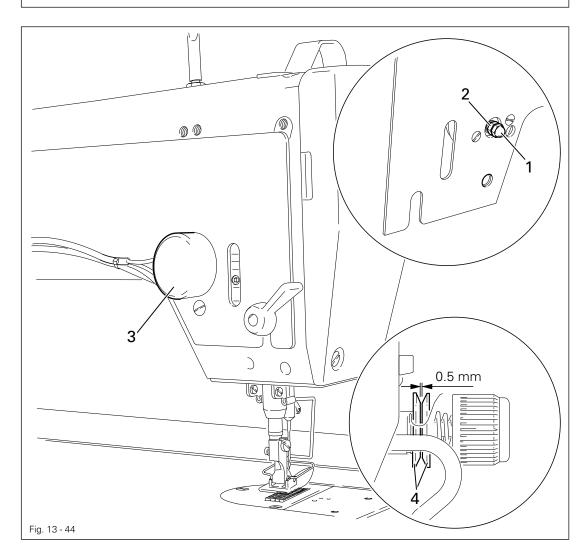


- Move the needle bar to b.d.c.
- Turn the control cam 1 (screws 2) according to rule 1 and adjust according to rule 2.

13.07.05 Needle thread tension release

Rule

- 1. When the magnet **3** is activated, the tension discs **4** should be at least **0.5 mm** away from each other.
- 2. When the thread trimmer device is in neutral position and the presser foot is on the stitch platen, tension should be fully activated.



- Unscrew the thread wiper.
- Turn the nut 1 (nut 2) according to the **rule**.
- Screw on the thread wiper again.

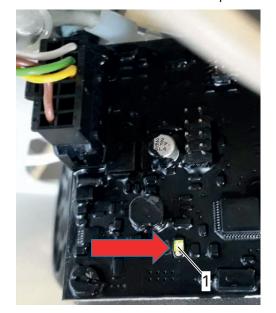
-Si

13.07.06 Functional check of bobbin thread monitor -926/04

Note:



Parameters t0602 and t0603 are analogue values that can be adjusted from 0 to 3.300 V. The value 1.650 V corresponds to 50% of the value. Parameter t0602 is the switching threshold of the receiver and parameter t0603 corresponds to the transmitter current, see separate parameter list P40 CD in the "Remaining thread monitor" chapter.



Testing when pulling the thread:

When parameter entry is selected, the LED 1 of the sensor circuit board indicates whether or not the bobbin reverberates. The LED 1 must switch on (light / dark) when turning the bobbin (by drawing off the thread).

Testing when sewing:

- Insert the bobbin with a little thread in the small bobbin chamber or unthread the needle thread.
- Start sewing.
- After 30 stitches, for example, the LED should flash red in the control panel and information 3217 appears on the display.
- Use the reset key (b) to acknowledge debugging for o0608 (1) on the control panel, see separate parameter list P40 CD in the "Remaining thread monitor" chapter.

13.08 Parameter settings

The separate parameter list for the machine describes how to select the user level and change parameters (see chapter 1.1.2 Technician level).

13.09 Internet update of control CD

- You need a dongle with the appropriate machine software to be able to perform a control update.
- You can obtain an empty dongle using the order number 72-250 303-91.
- The "DongleCopy" PC tool is needed to upload software onto the dongle.

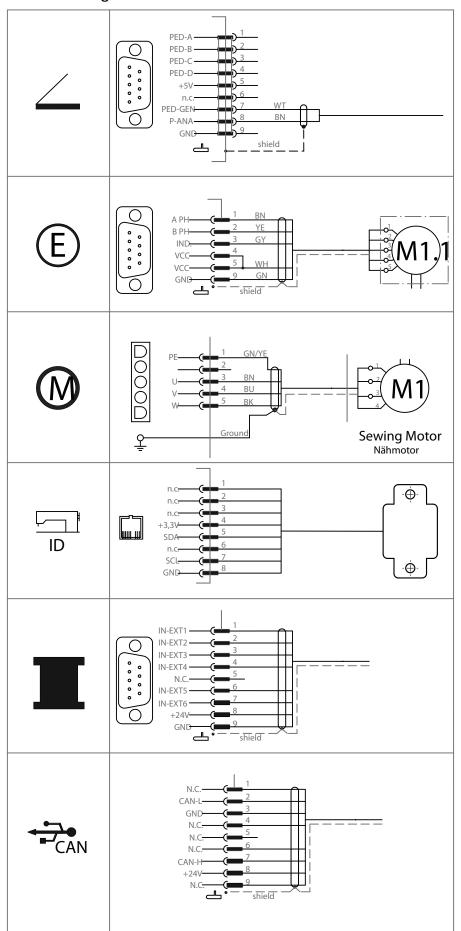


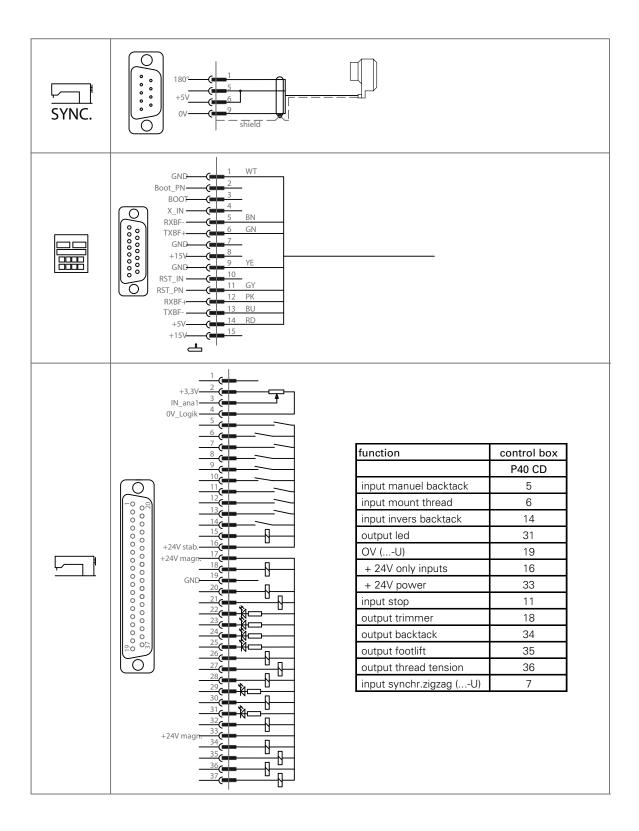
A description of how to perform an Internet update of control P40 CD as well as the **"DongleCopy"** PC tool can be downloaded from the Internet address https://partnerweb.pfaff-industrial.com/.

91-191 584-95 Part 1

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Circuit Diagrams 91-191 584-95





Notes











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