

# PFAFF

## -900/..

**Service Manual**  
for the PFAFF 5480

From the library of Diamond Needle Corp

## General notes on safety

- This machine may only be operated by adequately trained operators and only after having completely read and understood the Instruction Manual!
- All Notes on Safety and Instruction Manuals of the motor manufacturer are to be read before operating the machine!
- The danger and safety instructions on the machine itself are to be followed!
- This machine may only be used for the purpose for which it is intended and may not be operated without its safety devices. All safety regulations relevant to its operation are to be adhered to.
- When exchanging sewing tools (e.g. needle, presser foot, needle plate, feed dog or bobbin), when threading the machine, when leaving the machine unattended and during maintenance work, the machine is to be separated from the power supply by switching off the On/Off switch or by removing the plug from the mains!
- Everyday maintenance work is only to be carried out by appropriately trained personnel!
- Repairs and special maintenance work may only be carried out by qualified service staff or appropriately trained personnel!
- When servicing or carrying out repairs on pneumatic devices, the machine is to be removed from the compressed air supply! The only exceptions to this are adjustments and function checks carried out by appropriately trained personnel!
- Work on electrical equipment may only be carried out by appropriately trained personnel!
- Work is not permitted on parts and equipment which are connected to the power supply! Exceptions to this are only to be found in the regulations EN 50110.
- Modifications and alterations to the machine may only be carried out under observance of all the relevant safety regulations!
- Only spare parts which have been approved by us are to be used for repairs! We expressly point out that any replacement parts or accessories which are not supplied by us have not been tested and approved by us. The installation and/or use of any such products can lead to negative changes in the structural characteristics of the machine. We shall not be liable for any damage which may be caused by non-original parts.

## For special attention

On electronic stop motors the thread wiper command is used for the thread trimmer 900/.. the condensed stitches at the end of the seam must only be made up to the edge of the material. Briefly before the cutting action, however, the machine must make a number of stitches without condensation (long stitches).

The number of stitches (3 long stitches at 3.5 mm stitch length and 1 - 2 long stitches at 6 mm stitch length) should be set via the double finish backtack at the motor.

The back tack speed should be 1800 U/min.

Further details are given in the operating manual of the motor manufacturer.

## Requirement

The stroke of the solenoid (subclass -900/51) or the cylinder (subclass -900/21, -900/71 and -900/75) should be 13 mm.

## Tools, gauges and other equipment

- 1 Set of screwdrivers, 2 - 10 mm blade widths
- 1 Set of allen keys, 1.5 - 6 mm
- 1 Set of open-ended spanners/wrenches, 7 - 14 mm
- 1 Metal rule
- 1 Adjustment gauge, part No. 61-111 643-06
- 1 Adjustment pin ( 5 mm diameter, part No. 13-030 341-05
- 1 c-clamp, part No. 08-880 137-00
- Spacing rings: 0.3; 0.5; 0.8 or 1.2 mm
- Shims: 0.3 or 0.6 mm (for machines with 911/..)

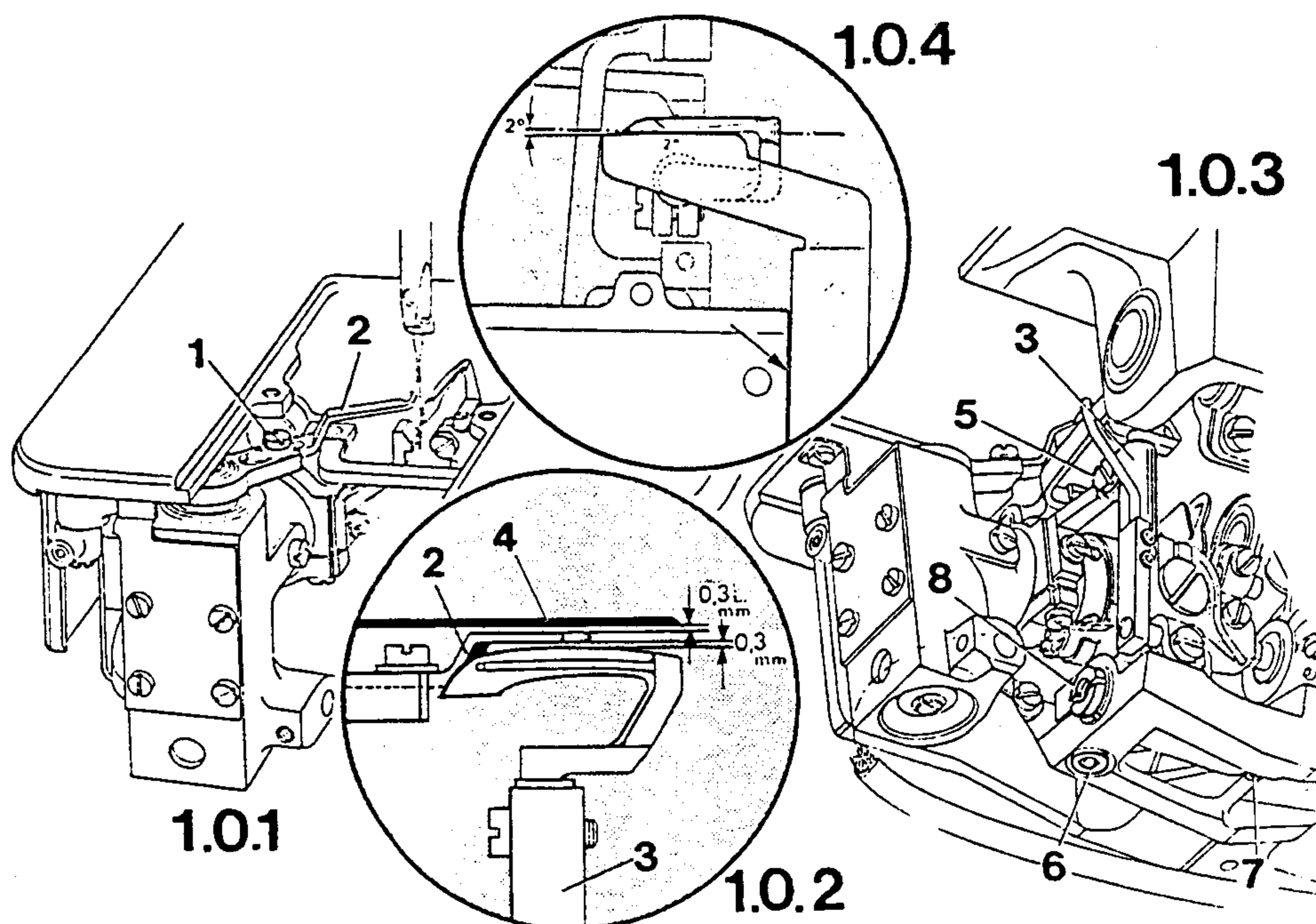
- 1 Spreader height and looper height (on machines with reversing mechanism 911/..)

Setting:

When looper carrier 3 (on its reverse movement) is vertical and the solenoid or the cylinder has been operated, there should be a clearance of 0.3 mm between the top of spreader 2 and the bottom of catcher 4. When the highest point of the back of the looper is exactly under the point of spreader 2, there should be a clearance of 0.3 mm between the back of the looper and the bottom of spreader 2.

Reference: This setting also applies to version "H" machines.

- 1.1 Remove machine bed slide, cover plate, needle plate and feed dog.  
1.2 Pull out screw 1 and remove spreader 2 and the shims.  
1.3 Insert the corresponding shim (see "1." on inside cover page), re-insert spreader 2 and secure it with screw 1.  
1.4 Fit the machine bed slide, position looper carrier 3 (on its reverse movement) vertically and operate the cylinder or solenoid by hand.  
1.5 Check whether a clearance of 0.3 mm exists between the top of spreader 2 and the bottom of catcher 4.  
If required, set the clearance of 0.3 mm according to items 1.2 to 1.5.  
1.6 Remove machine bed slide, loosen screw 5 and remove the looper.  
1.7 Place the corresponding spacing ring (see "1" on inside cover) onto the looper neck and insert the looper into the looper carrier 3 up to the stop.  
1.8 Position looper carrier 3 vertical, place the looper angle adjustment gauge against the left edge of the cover-plate guide (see arrow, Fig. 1.0.4), push it against the looper and set the looper surface with the thread groove against the gauge.  
1.9 Tighten screw 5 in this position and check whether a clearance of 0.3 mm exists between the back of the looper and the lower edge of spreader 2.  
1.10 For correction (fine adjustment), loosen screws 6 and 7, turn eccentric bearing pins 8 accordingly and re-tighten screws 6 and 7.  
1.11 Re-fit feed dog and needle plate and fit machine bed slide.



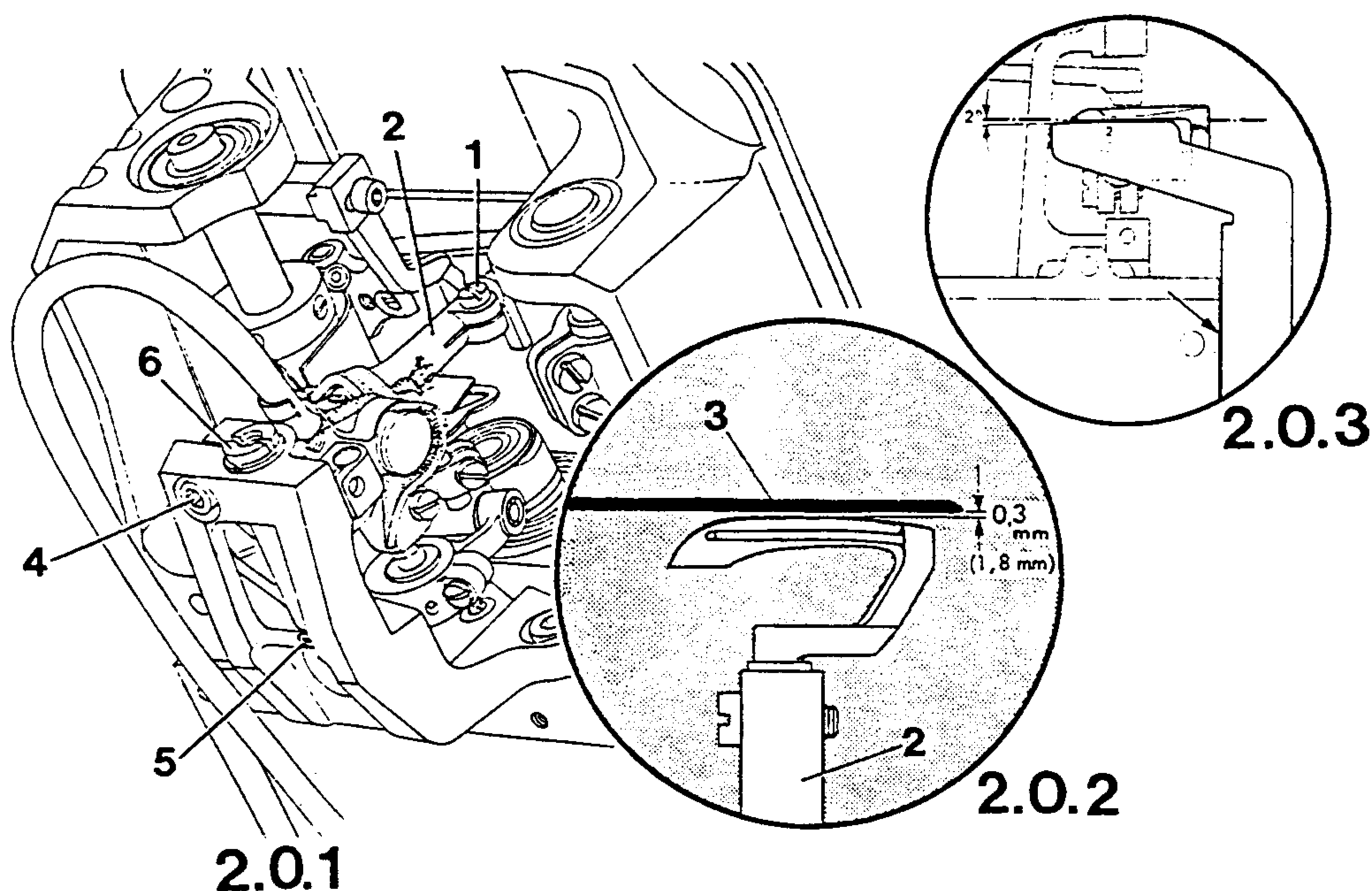
Looper-height

On machines without reversing mechanism 911/..)

## Setting:

When looper carrier 2 is vertical and the solenoid or the cylinder has been operated, there must be a clearance of 0,3 mm (or 1.8 mm in on version "H" machines) between the highest point of the looper back and the bottom of catcher 3.

- 2.1 Remove machine bed slide and cover plate and remove needle plate and feed dog.
- 2.2 Loosen screw 1 and remove the looper (take note of spacing ring).
- 2.3 Place the corresponding spacing ring (see "1" on inside cover) onto the looper neck and insert the looper in looper carrier 2 up to the stop.
- 2.4 Position looper carrier 3 vertical, place the looper angle adjustment gauge (61-111643-06) against the left edge of the cover-plate guide (see arrow, Fig. 1.0.4), push it against the looper and set the looper surface with the thread groove against the gauge.
- 2.5 Tighten screw 1 in this position.
- 2.6 Fit machine bed slide.
- 2.7 Position looper carrier 2 vertical, operate the cylinder or solenoid by hand and check whether a clearance of 0,3mm (or 1.8 mm on version "H" machines) exists between back of looper and catcher 3.  
If re-adjustment (fine adjustment) is necessary, loosen screws 4 and 5, turn eccentric bearing pin 6 accordingly and tighten screws 4 and 5.
- 2.8 Finally, re-fit the feed dog and the needle plate in conclusion and fit the cover plate.



3

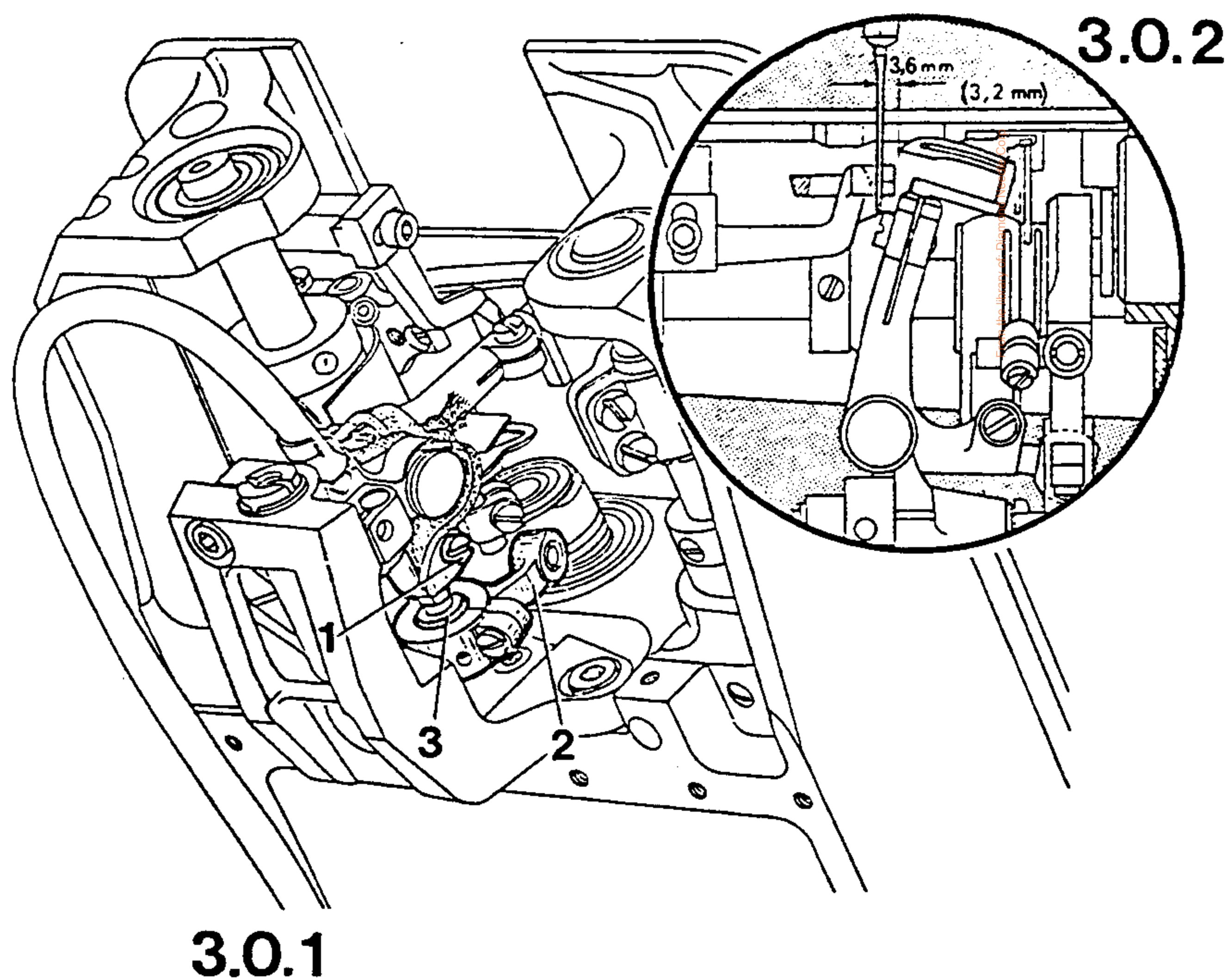
### Looper-to-needle distance

On machines with or without reversing mechanism 911/..

Setting

In the right reversal point of the looper there should be a clearance of 3.6 mm (or 3.2 mm on version "H" machines) between the looper point and the needle centre (needle nm 80).

- 3.1 Turn the balance wheel to set the looper at its right reversal point.
- 3.2 Loosen screw 1.
- 3.3 Place feeler gauge "3.6" (or "3.2" on version "H" machines) against the needle with its notch in feeding direction (adjustment gauge 61-111643-06) (number must be readable).
- 3.4 Making sure that drive crank 2 is vertical, turn eccentric ball stud 3 using a 6 mm open-ended spanner (wrench) until the looper point touches the right-hand edge of the feeler gauge.
- 3.5 Tighten screw 1 in this position.
- 3.6 Carry out a check (see setting).





Looper movement

(On machines with or without reversing mechanism 911/)

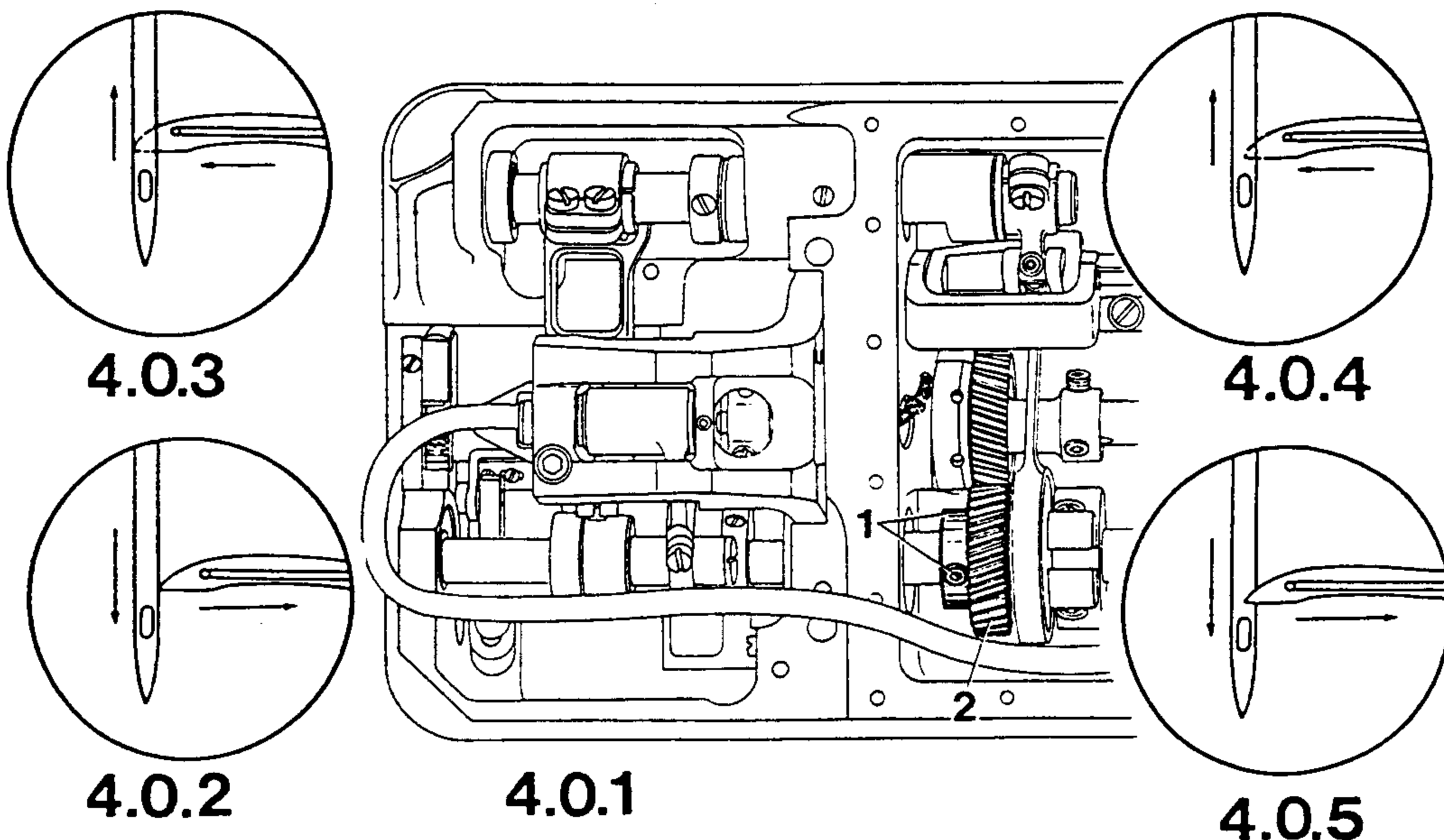
## Setting:

When the looper point, coming from the right, stops at the left side of the needle (Nm 80 needle) and the upwards movement of the needle bar is blocked by a C-clamp at the needle bar frame, the looper point must be exactly at the right needle side when the balance wheel is turned fully in the opposite direction.

Setting for  
H version:

When the looper point, coming from the right, stops at the middle of the needle, and the upwards movement of the needle bar is blocked by the C-clamp at the needle bar frame, the looper point must stop at the middle of the needle when the balance wheel is turned fully in the opposite direction.

- 4.1 Making sure a Nm 80 needle is inserted, turn the balance wheel until the point of the looper, coming from the right, stops exactly at the left needle side (on H version at needle centre) (Figs. 4.0.3 and 4.0.4).
- 4.2 Maintaining this position, fasten C-clamp 08-880137-00 to needle bar in such a way that it is against the needle bar frame.
- 4.3 Carefully move the balance wheel in opposite direction until the C-clamp again rests against the needle bar frame.
- 4.4 In this position, the looper point must be positioned exactly at the right needle side (on H version at needle centre) (Figs. 4.0.2 and 4.0.5).
- 4.5 If it is not, remove the C-clamp and loosen both screws 1 until gear 2 can be moved on its shaft against resistance.
- 4.6 Move gear 2 on its shaft and check this adjustment. Repeat adjustment steps 4.1 to 4.4, if necessary.
- 4.7 Remove C-clamp afterwards and firmly tighten screws 1.

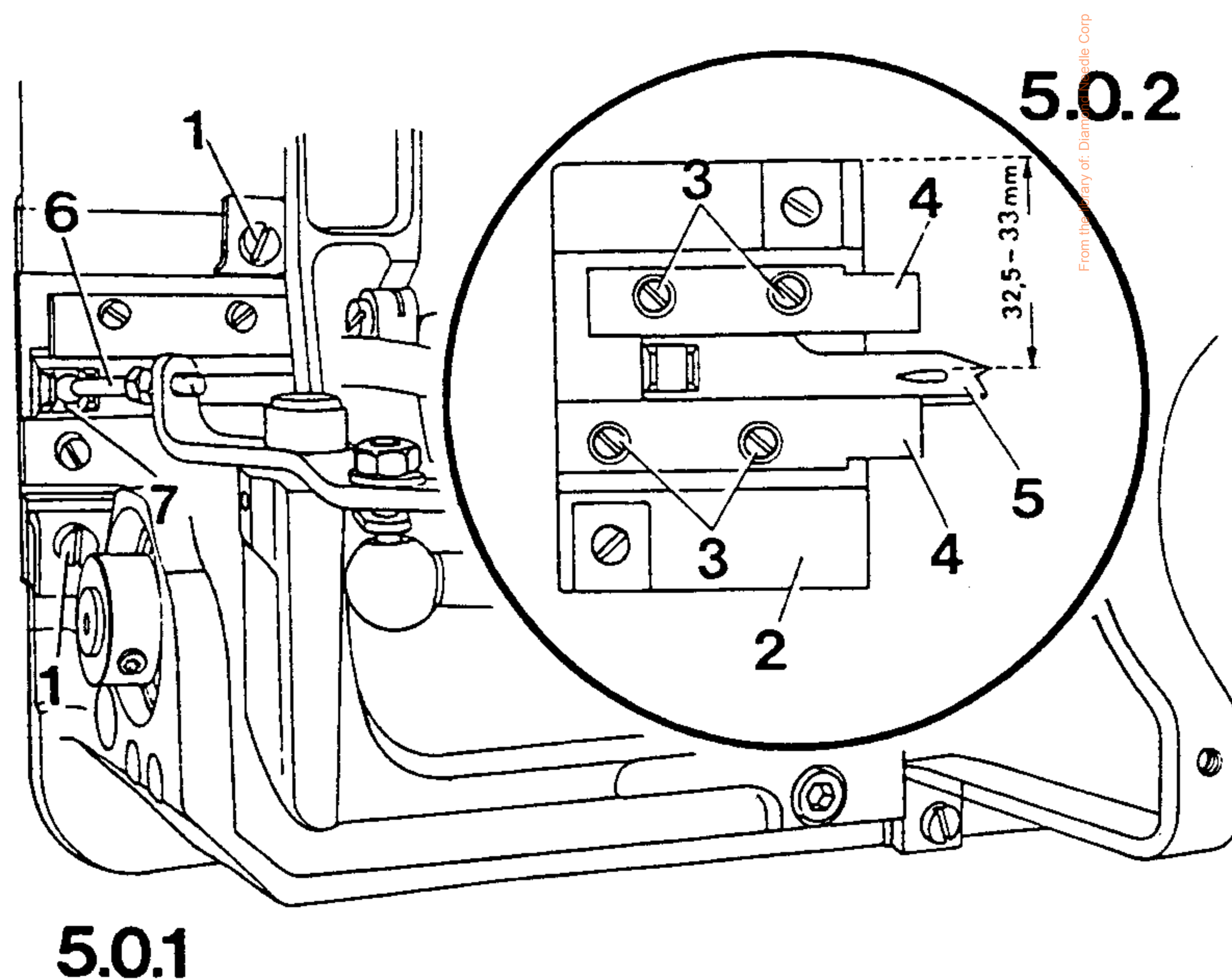


5 Thread-catcher (preliminary adjustment)

Setting:

In the resting position of the solenoid or cylinder, the clearance between catcher point and front edge of mounting plate 2 should be 32.5 - 33 mm . Guide strips 4 should be parallel to mounting plate 2. In addition, thread catcher 5 should work easily but with the slightest possible play.

- 5.1 Loosen both screws 1 and remove mounting plate 2.
- 5.2 Loosen the four retaining screws 3 of guide strips 4.
- 5.3 Set catcher 5 in such a way that a clearance of 32.5 - 33 mm results between its point and the front edge of mounting plate 2.
- 5.4 Retaining this position, align guide strips 4 in such a way that they stand parallel to mounting plate 2; note easy movement and play of catcher 5.
- 5.5 Tighten the four retaining screws 3 in this position.
- 5.6 Re-fit mounting plate 2; engage ball stud 6 in carrier 7.
- 5.7 Carry out a check (see setting).



## 6 Actuating ball stud

### 6.1 Height-setting

Setting:

In the vertical position of ball stud 3, there must be a clearance of 0.5 mm between the bottom of actuator 4 and ball head 5.

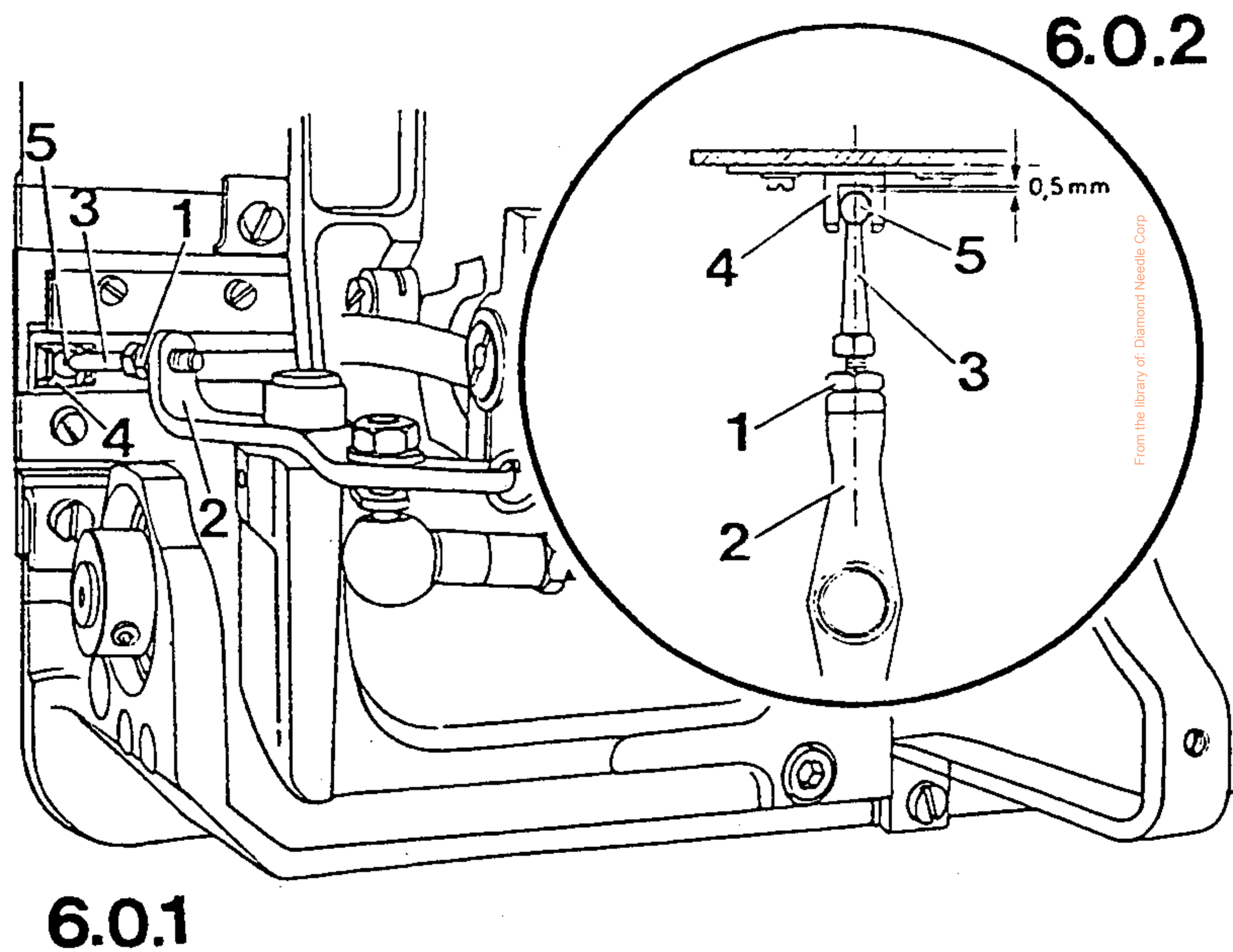
6.1.1 Loosen nut 1 on ball stud bracket 2.

6.1.2 Position ball stud 3 vertical.

6.1.3 Retaining this position, turn ball stud 3 in such a way that a clearance of 0.5 mm results between ball head 5 and the bottom of actuator 4.

6.1.4 In this position, tighten nut 1.

6.1.5 Carry out a check (see setting).





## 6.2 Centering the ball stud

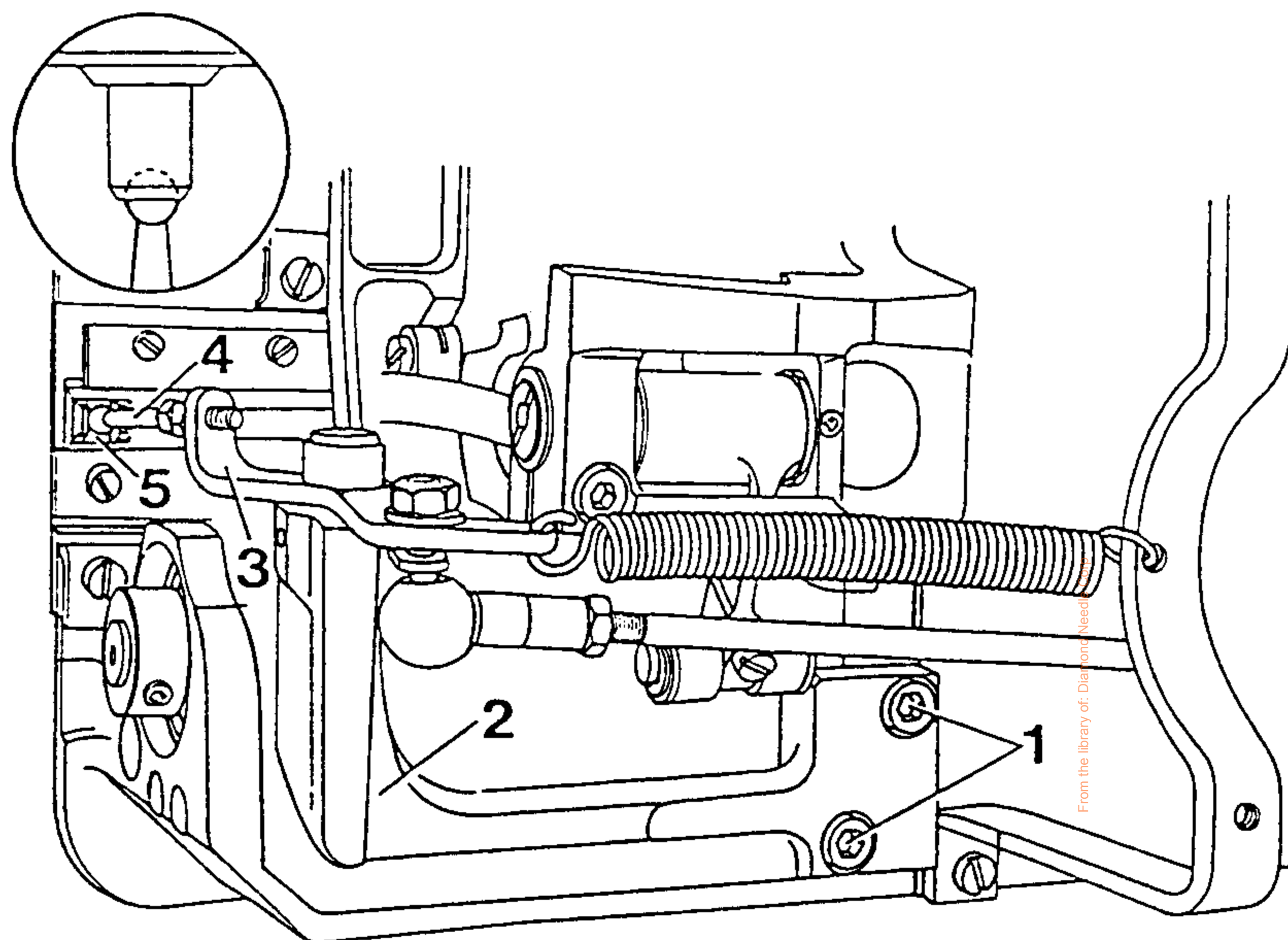
Setting: The head of ball stud 4 should be located in the middle of actuator 5.

6.2.1 Loosen screws 1.

6.2.2 Shift bracket 2 in such a way that the head of ball stud 4 is located in the middle of actuator 5.

6.2.3 Tighten screws 1 in this position.

6.2.4 Carry out a check (see setting).



**6.0.3**

Thread-catcher to needle

## Setting:

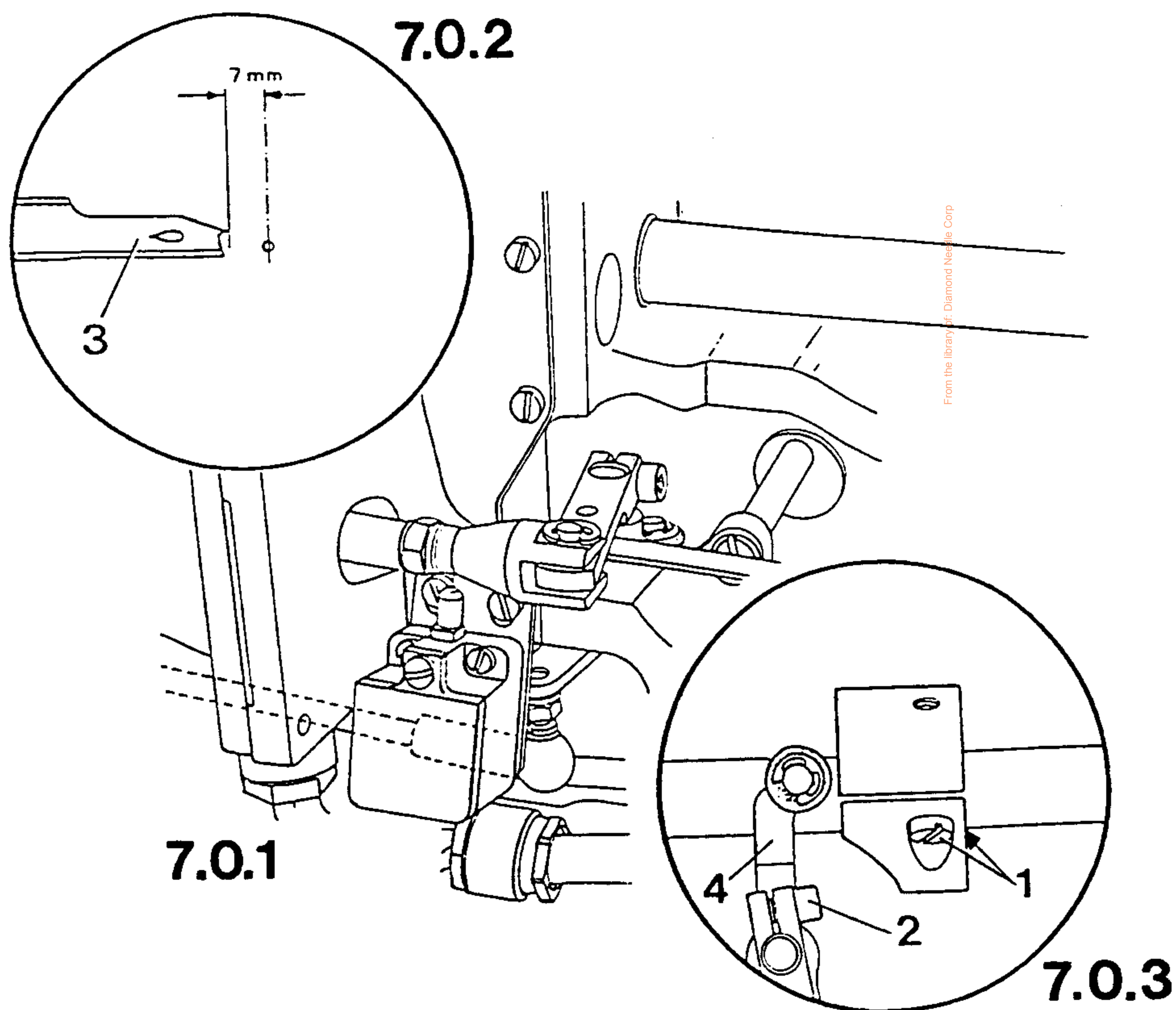
With thread-catcher 3 in its basic position there should be a clearance of 7 mm (or 8 mm\*) between its point and the needle centre.

## Reference:

Thread-catcher 3 must not come into contact with the feed dog.

- 7.1 Loosen screws 1.  
 7.2 Loosen clamp screw 2 a little.  
 7.3 Making sure that thread-catcher 3 is in its basic position, move lever 4 to a position in which a clearance of 7 mm (or 8 mm\*) results between the point of thread catcher 3 and the needle centre.  
 7.4 In this position tighten clamp screw 2 firmly.  
 7.5 Carry out a check (see setting).

\*On machines with extremely wide feed dog, e.g. Pfaff 5487 H-814/01-706/84-6/81 in CN-version.

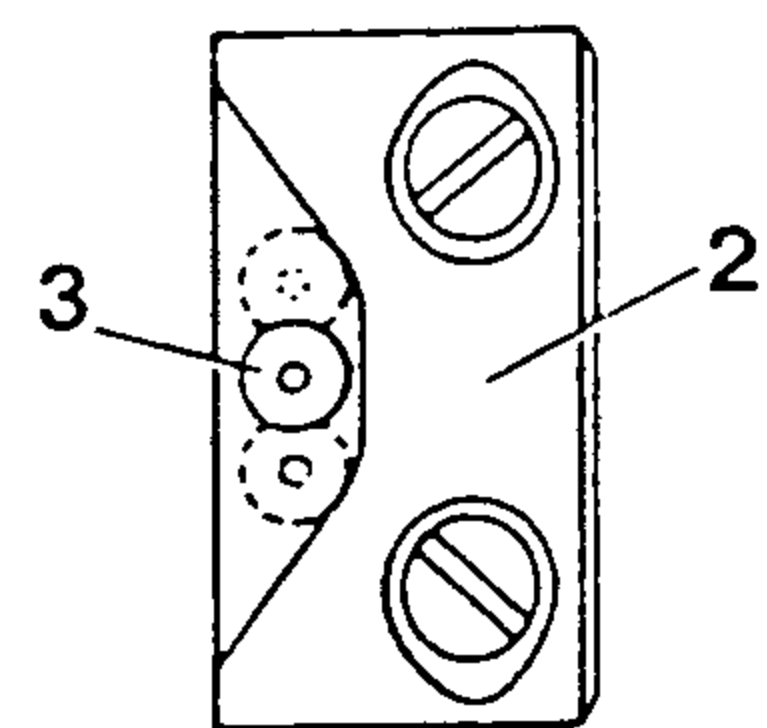
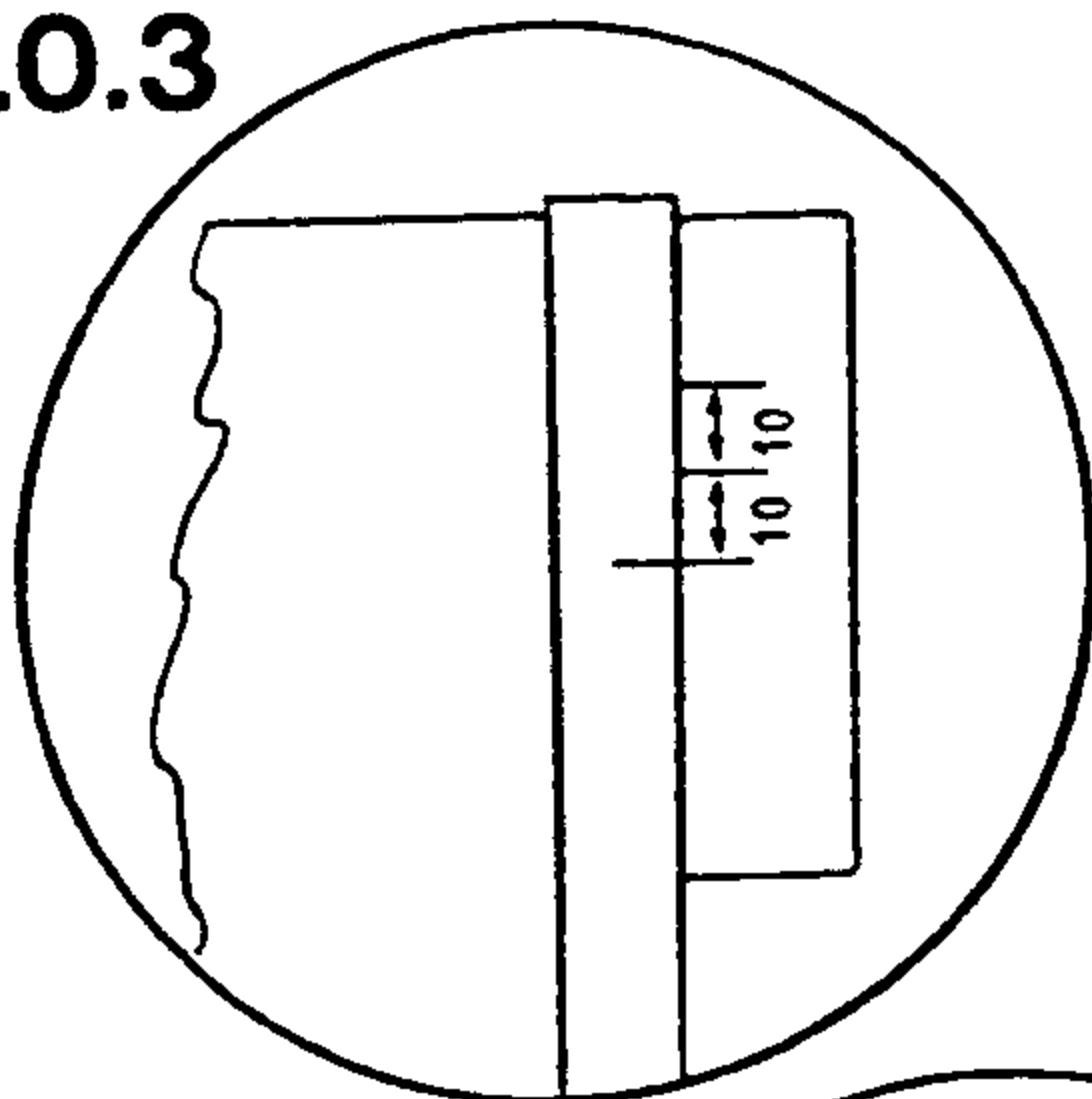


## Setting:

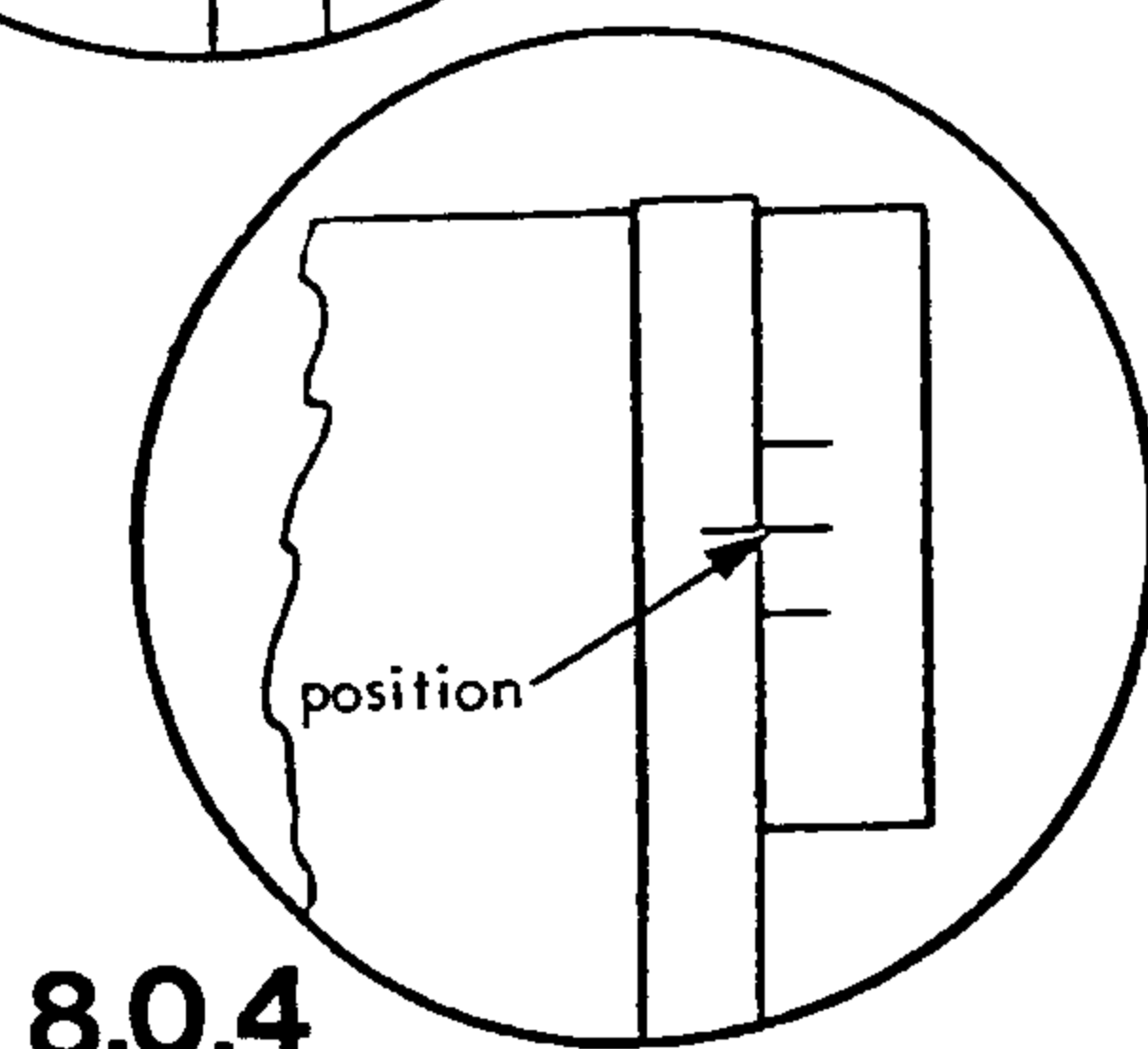
When in the cutting position (0.3 - 0.4 mm past t.d.c. of the needle bar) the balance wheel is turned 10 mm in sewing direction and 10 mm in the opposite direction, roller 3 (at front or rear) should rest lightly on the cutout wall of interlocking cam 2) (see Fig. 8.0.2). In the basic position of the solenoid or of the cylinder, a clearance of 0.5 - 1 mm should exist at the most narrow place between locking cam 2 and roller 3.

- 8.1 Tighten screws 1 in such a way that interlocking cam 2 can be pushed or turned on its shaft against a resistance.
- 8.2 Set the needle bar at top dead centre by turning the balance wheel.
- 8.3 Retaining this position, draw a marking line on the balance wheel and the belt guard.
- 8.4 From the mark on the balance wheel draw two further markings (opposite to sewing direction) at intervals of 10 mm each case (see Fig. 8.0.3).
- 8.5 Position the middle marking on the balance wheel opposite the marking on the belt guard (see Fig. 8.0.4). This position corresponds with the needle bar position 0.3 to 0.4 mm past top dead centre.
- 8.6 Retaining this position, turn interlocking cam 2 in such a way that roller 3 is exactly in the middle of the cutout of interlocking cam 2.
- 8.7 Move the solenoid or the cylinder to the basic position and push locking cam 2 (without twisting it) laterally in such a way that a clearance of 0.5 - 1 mm results between its most narrow point and roller 3.
- 8.8 In this position, firmly tighten the accessible screw 1.
- 8.9 Fully actuate the solenoid or the cylinder and carry out a check (see setting).
- 8.10 Make the second screw 1 accessible and also firmly tighten.

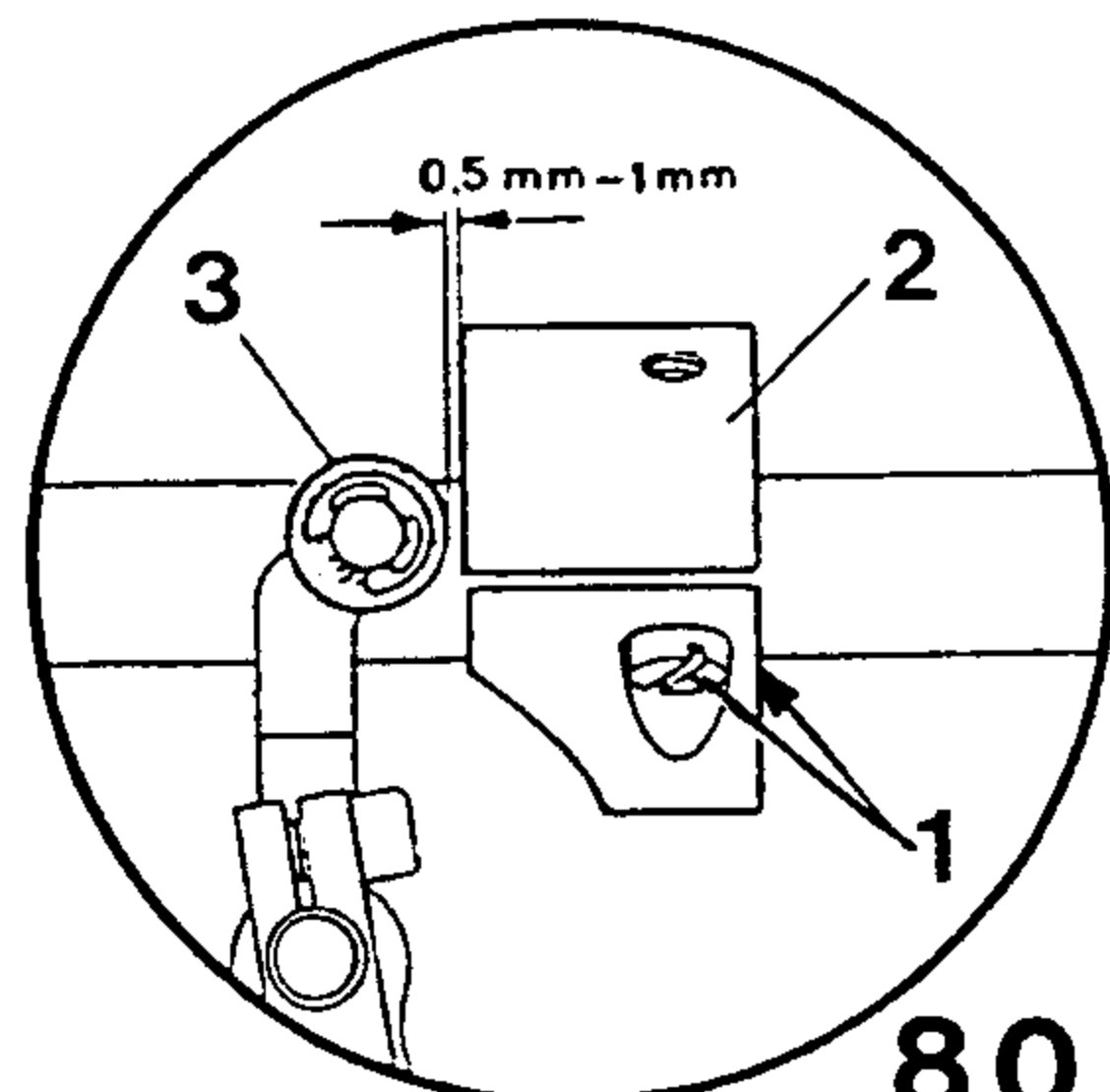
8.0.3



8.0.2



8.0.4



8.0.1

Tension release

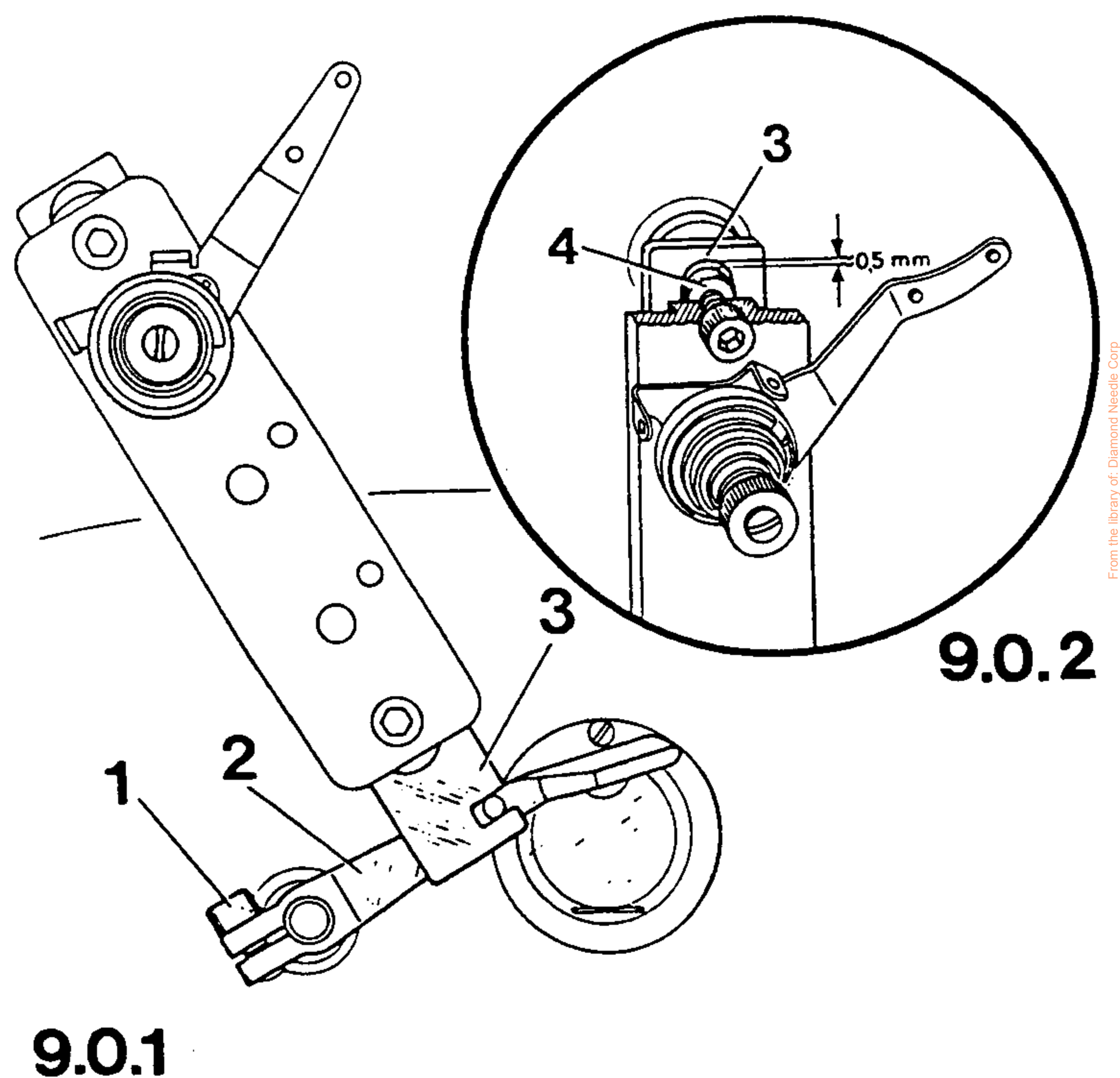
## Setting:

With the solenoid or cylinder fully actuated, a safety clearance of approximately 0.5 mm should exist between the top end of the elongated hole of tension release plate 3 and guide pin 3.

## Reference:

When the catcher picks up the threads, the tension should begin to release.

- 9.1 Loosen screw 1 in tension release lever 2.
- 9.2 Fully actuate the solenoid or the cylinder by hand.
- 9.3 Retaining this position set a safety clearance of approximately 0.5 mm between tension release plate 3 and guide pin 4.
- 9.4 Tighten screw 1 in this position.
- 9.5 Carry out a check (see setting).



## Setting:

In the case of a seam interruption the machine should position when the point of the looper coming from the right has passed the left needle side by approx. 2 mm.  
After the pedal is pressed backwards (thread trimming), the needle bar should position 0.3 to 0.4 mm past top dead centre.

## 10.1

On machines with lever-operated stop motor, type Quick 700

## 10.1.1

Pull out the plug of the thread trimming mechanism from the plug-in connector at the motor control panel.

On machines with subclass 900/21, 900/71 or 900/75 turn off the compressed air.

## 10.1.2

Remove cap 1 and loosen both screws 2.

## 10.1.3

With the markings applied as described in items 7.2 and 7.4, position the middle marking on the balance wheel exactly opposite the mark on the belt guard (= needle-bar position 0.3 to 0.4 mm past t.d.c.).

## 10.1.4

Retaining this position, turn the switch-off track nearest the balance wheel in such a way that the middle of the insulating surface is exactly over the carbon brush (see arrow in Fig. 10.0.1).

## 10.1.5

Tighten both screws 2 in this position.

## 10.1.6

Loosen cap screw 3 of synchronizer 3.

## 10.1.7

Turn the balance wheel until the point of the looper coming from the right has passed the left needle side by approx. 2 mm.

## 10.1.8

Retaining this position, turn the switch-off track farthest from the balance wheel in such a way that the middle of the insulating surface is exactly over the carbon brush.

## 10.1.9

Tighten cap screw 3 in this position.

## 10.1.10

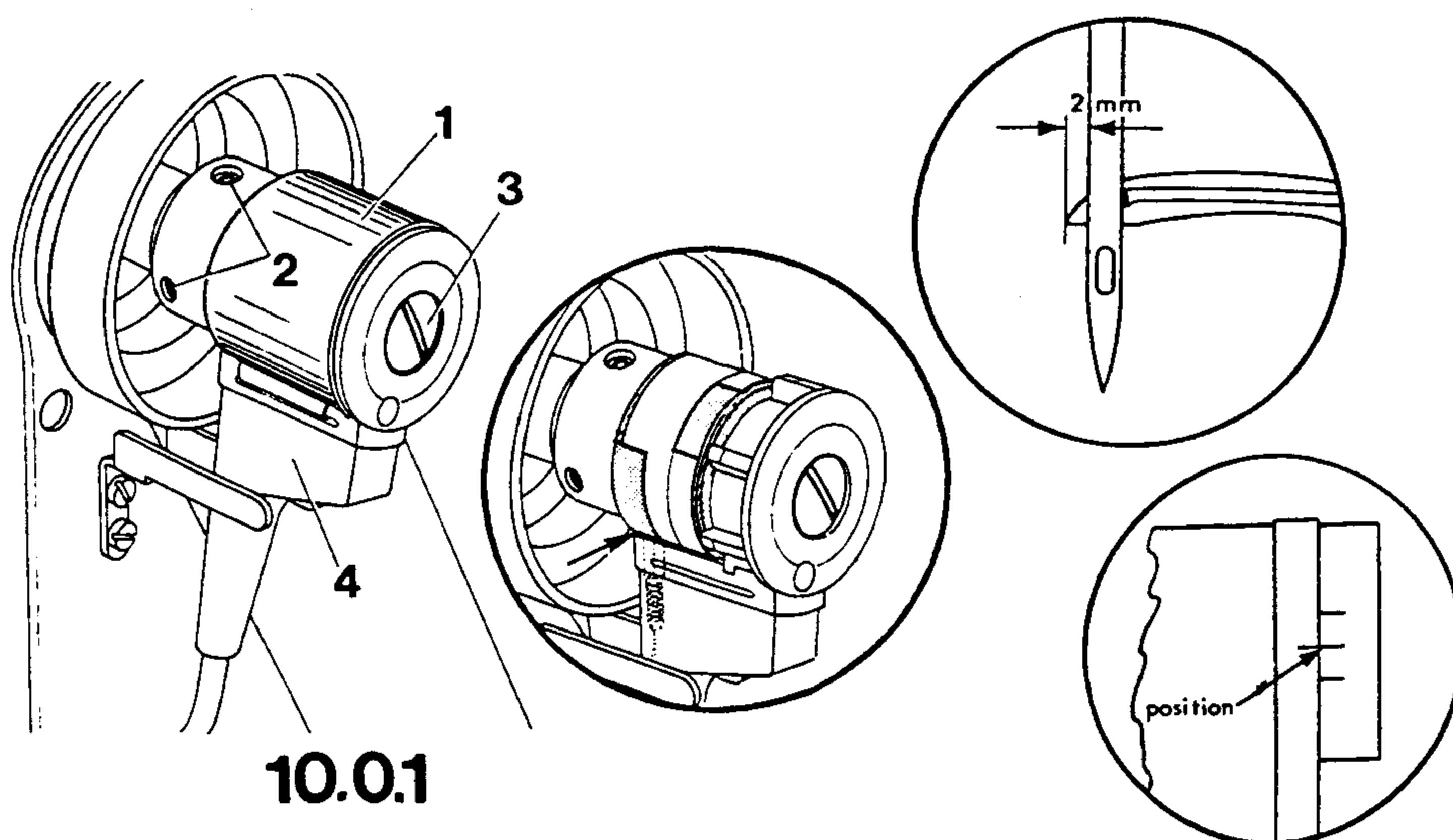
Re-connect the plug of the thread trimming mechanism at the motor control panel, switch on machine and re-connect compressed air on the pneumatic version.

## 10.1.11

Check both positions by means of the pedal (see setting) and readjust if necessary.

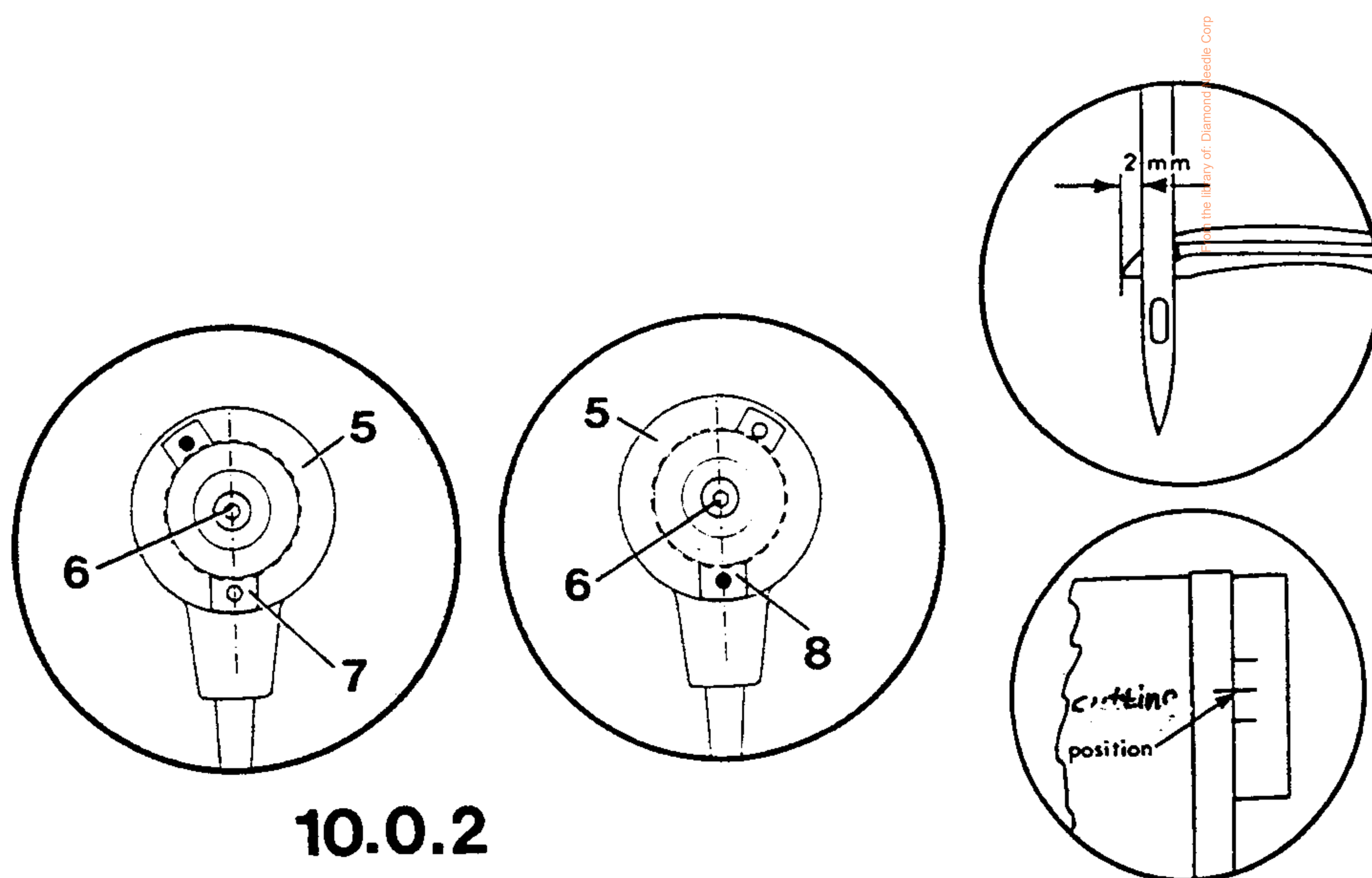
## 10.1.12

Finally, re-fit cap 1.

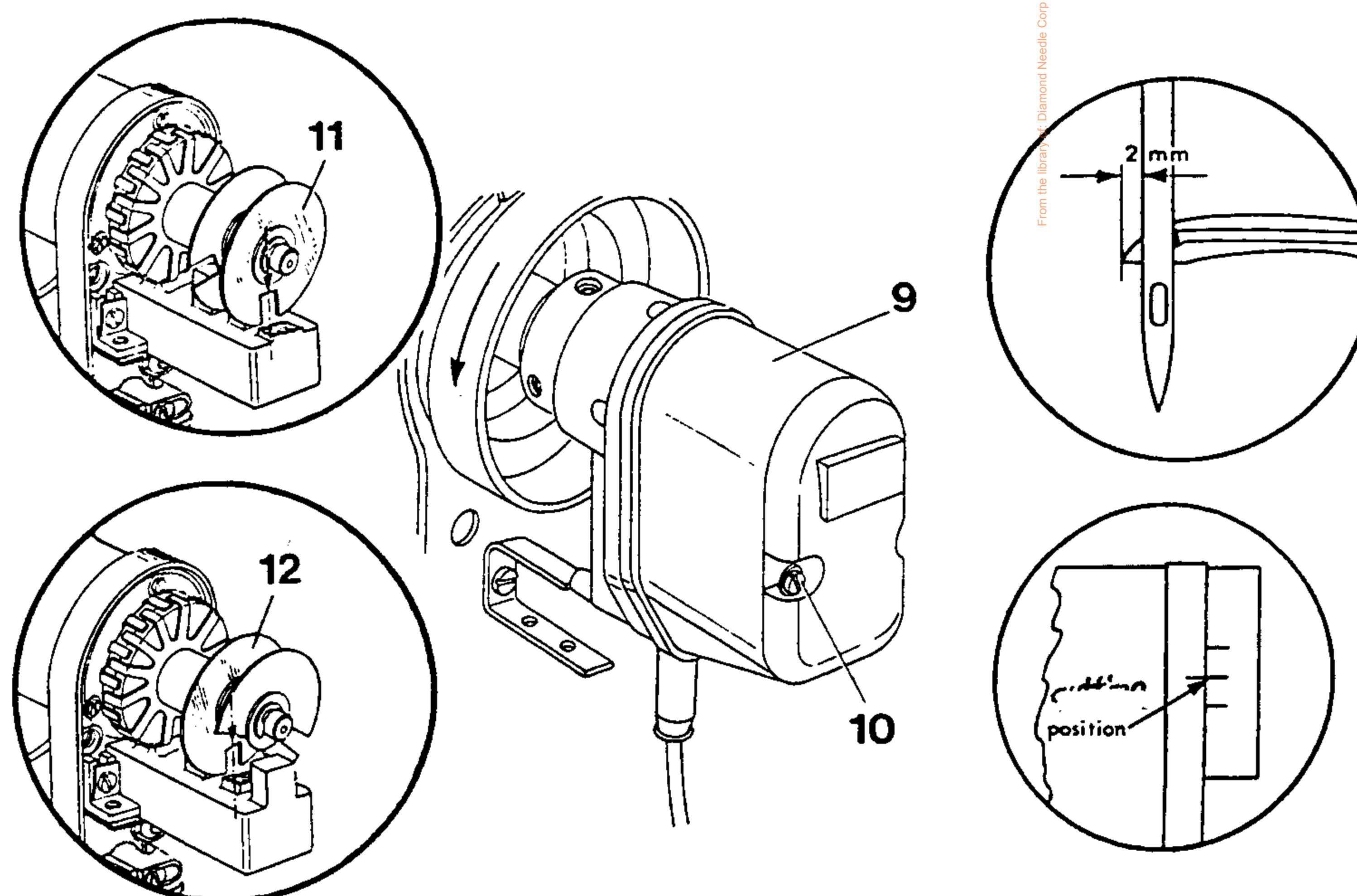




- 10.2.1 Pull out the plug of the thread trimming mechanism from the plug-in connector at the motor control panel.  
On machines with subclass 900/21, 900/71 or 900/75 disconnect the compressed air.
- 10.2.2 Remove the protection cap from the synchronizer and loosen screw 6.
- 10.2.3 Check that the marks made according to items 7.2 to 7.4 are still there and set the middle mark on the balance wheel exactly at the mark on the belt guard (= needle bar position 0.3 - 0.4 past t.d.c.).
- 10.2.4 Retain this position and set outer magnet mounting plate 7 with its yellow-marked magnet vertically downwards, in opposite pole position.
- 10.2.5 Turn the balance wheel until the looper point coming from the right has passed the left side of the needle by approximately 2 mm.
- 10.2.6 Retain this position and set inner magnet mounting plate 8 with its red-marked magnet vertically downwards, also in opposite pole position.
- 10.2.7 In this position, tighten screw 6.
- 10.2.8 Re-connect plug-in connector of the thread trimming-mechanism at the motor control panel, switch on machine and on pneumatic version re-connect compressed air.
- 10.2.9 Check both positions by means of pedal (see setting) and readjust if necessary.
- 10.2.10 Finally, re-fit the protection cap of the synchronizer.

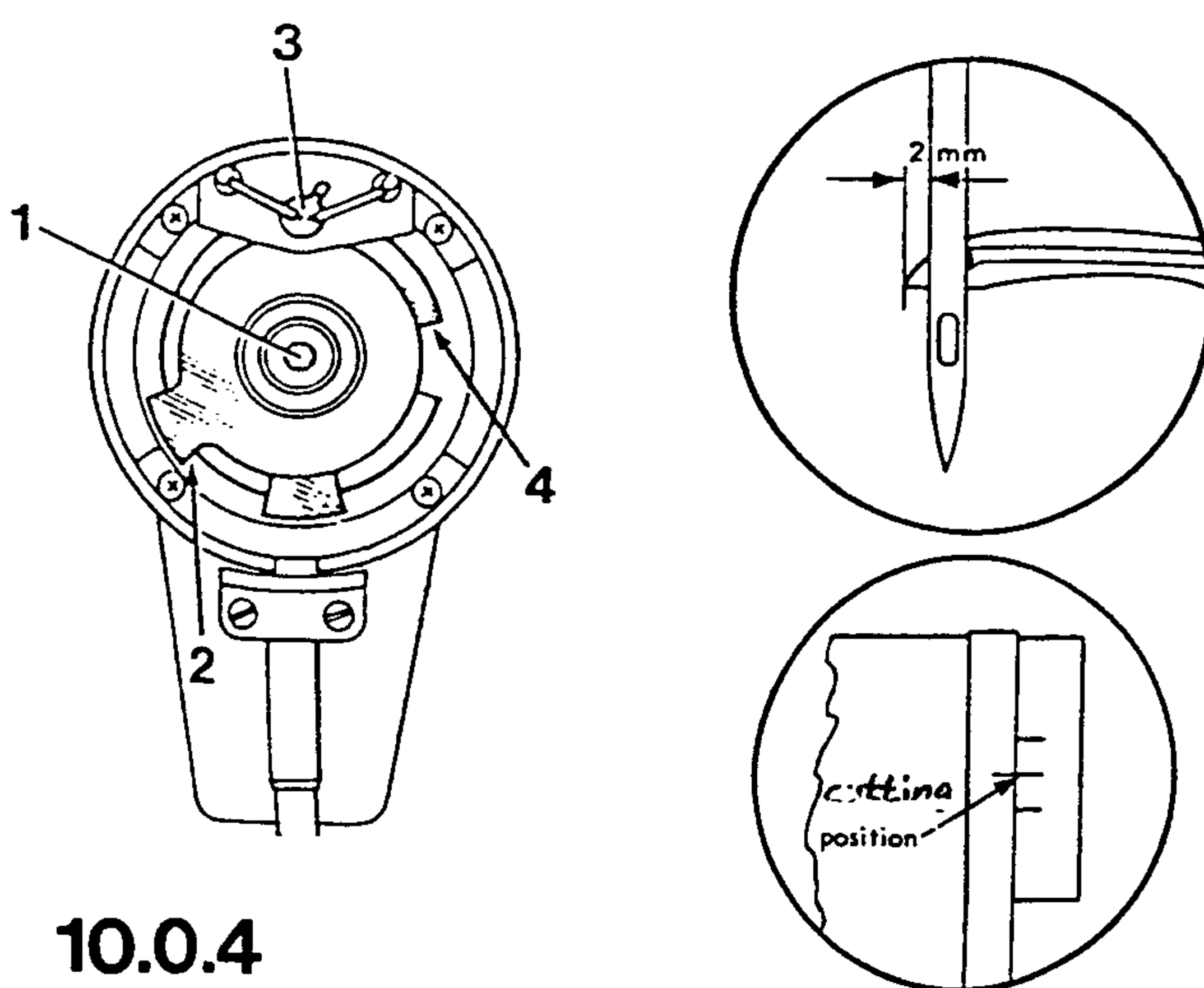


- 10.3 On machines with Efka Variostop motor, type V
- 10.3.1 Pull out the plug of the thread trimming mechanism from the plug-in connector at the motor control panel.  
On machines with subclass 900/21, 900/71 or 900/75 disconnect the compressed air.
- 10.3.2 Loosen screws 10 and remove cover 9.
- 10.3.3 Check that the marks made according to items 7.2 to 7.4 are still there and set the middle mark on the balance wheel exactly at the mark on the belt guard (= needle bar position 0.3 - 0.4 past t.d.c.).
- 10.3.4 Retaining this position, turn the hand-gathering control cam in such a way that its slot is between the projections of the plastic part.
- 10.3.5 Turn the balance wheel until the looper point coming from the right has passed the left side of the needle by approximately 2 mm.
- 10.3.6 Retaining this position, control cam 12 next to the balance wheel in such a way that its slot is between the projections of the plastic part.
- 10.3.7 Re-connect plug-in connector of the thread trimming-mechanism at the motor control panel, switch on machine and on pneumatic version re-connect compressed air.
- 10.3.8 Check both positions by means of pedal (see setting) and readjust if necessary.
- 10.3.9 Finally, re-fit cover 9.



**10.0.3**

- 10.4 On machines with Quick electronic stop motors, type 880 M
- 10.4.1 Pull out the plug of the thread trimming mechanism from the plug-in connector at the motor control panel.  
On machines with automatic stitch condensation switch off this function at the motor control box.  
On machines with subclass 900/21, 900/71 or 900/75 disconnect the compressed air.
- 10.4.2 Remove the protection cap from the synchronizer and loosen screw 1.
- 10.4.3 Check that the marks made according to items 7.2 to 7.4 are still there and set the middle mark on the balance wheel exactly at the mark on the belt guard (= needle bar position 0.6 - 0.7 past t.d.c.).
- 10.4.4 Retaining this position, set edge 2 of the outer control disc behind diode 3.
- 10.4.5 Turn the balance wheel until the looper point coming from the right has passed the left side of the needle by approximately 2 mm.
- 10.4.6 Retaining this position, set edge 2 of the inner control disc behind diode 3.
- 10.4.7 In this position, tighten screw 1.
- 10.4.8 Re-connect the plug of the thread trimming mechanism at the motor control panel, switch on machine and re-connect compressed air on the pneumatic version.
- 10.4.9 Check both positions by means of the pedal (see setting) and readjust if necessary.
- 10.4.10 Finally, re-fit protection cap.



11 Limit switch (only on solenoid-operated versions 900/11 and 900/51)

Setting: With the engaging solenoid fully engaged the actuator of limit switch 3 should be pressed by approx. 1 mm to ensure that the solenoid is definitely de-energized.

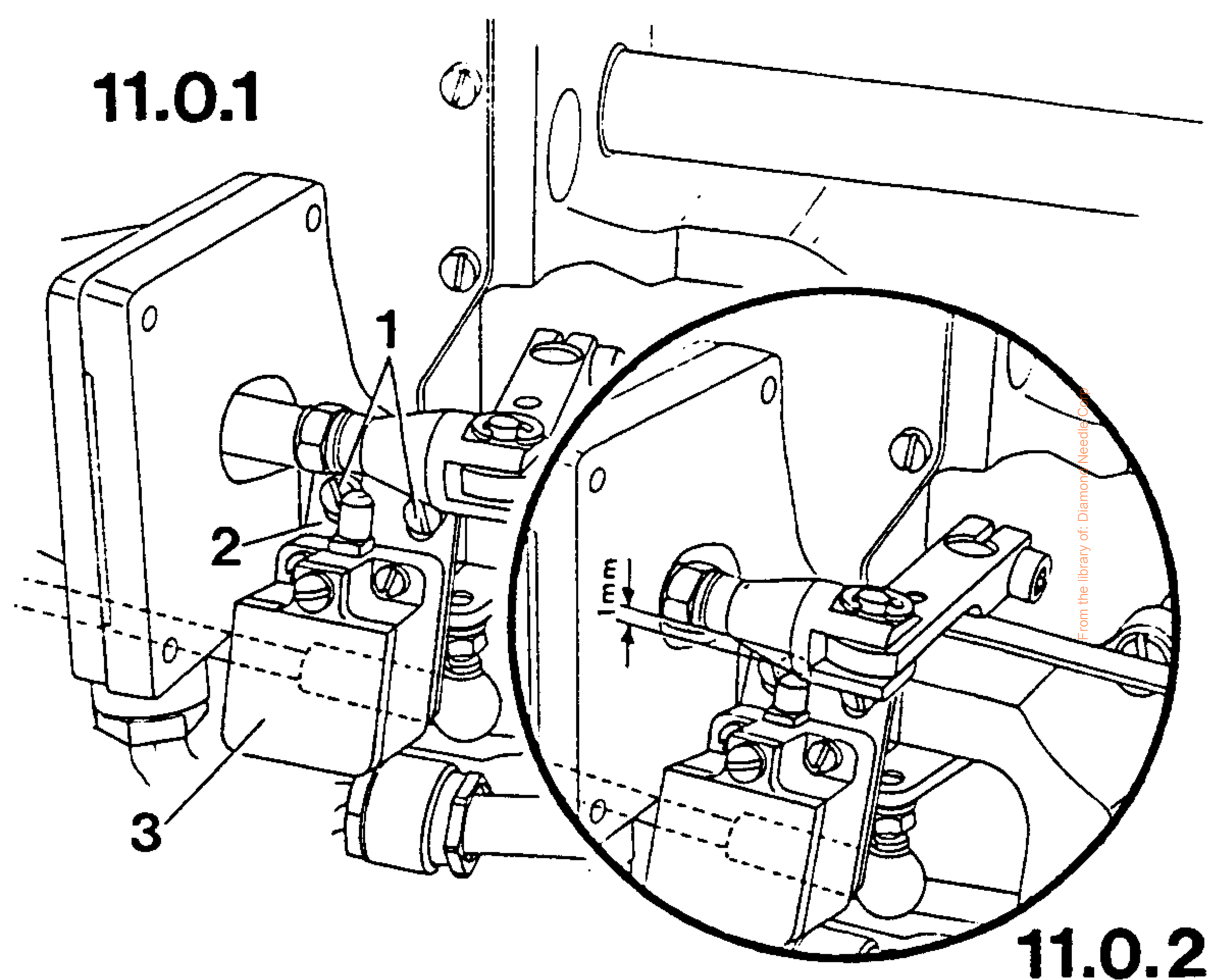
11.1 Loosen both screws 1 in switch bracket 2.

11.2 Fully operate the solenoid and leave it in this position

11.3 Align switch bracket 2 in the elongated hole in such a way that the actuator of limit switch 3 is pressed by approx. 1 mm in order to ensure that the solenoid is without current.

11.4 In this position tighten both screws 1.

11.5 Carry out a check (see setting).

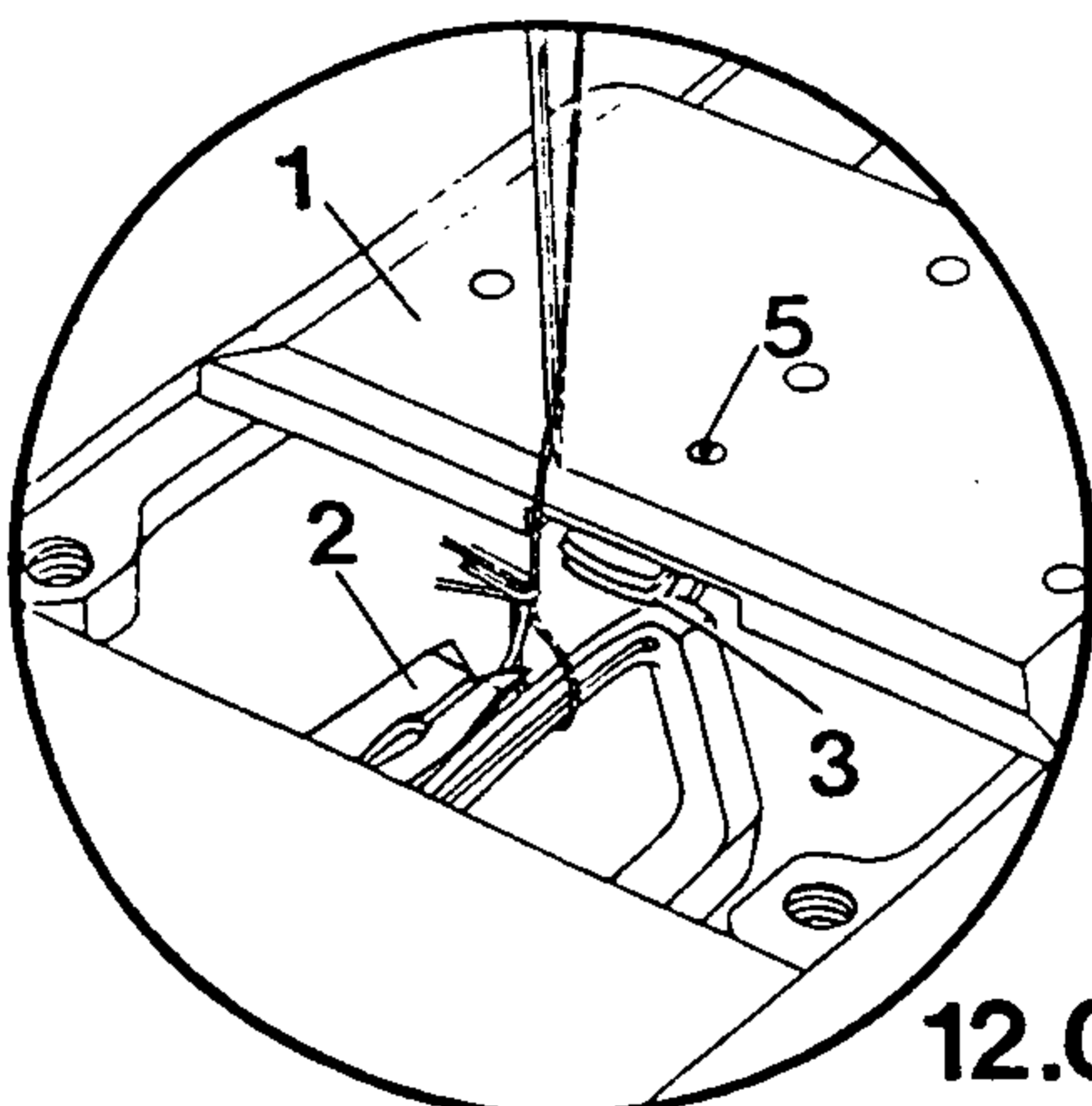


## 12 Readjusting the catchers and performing a cutting test

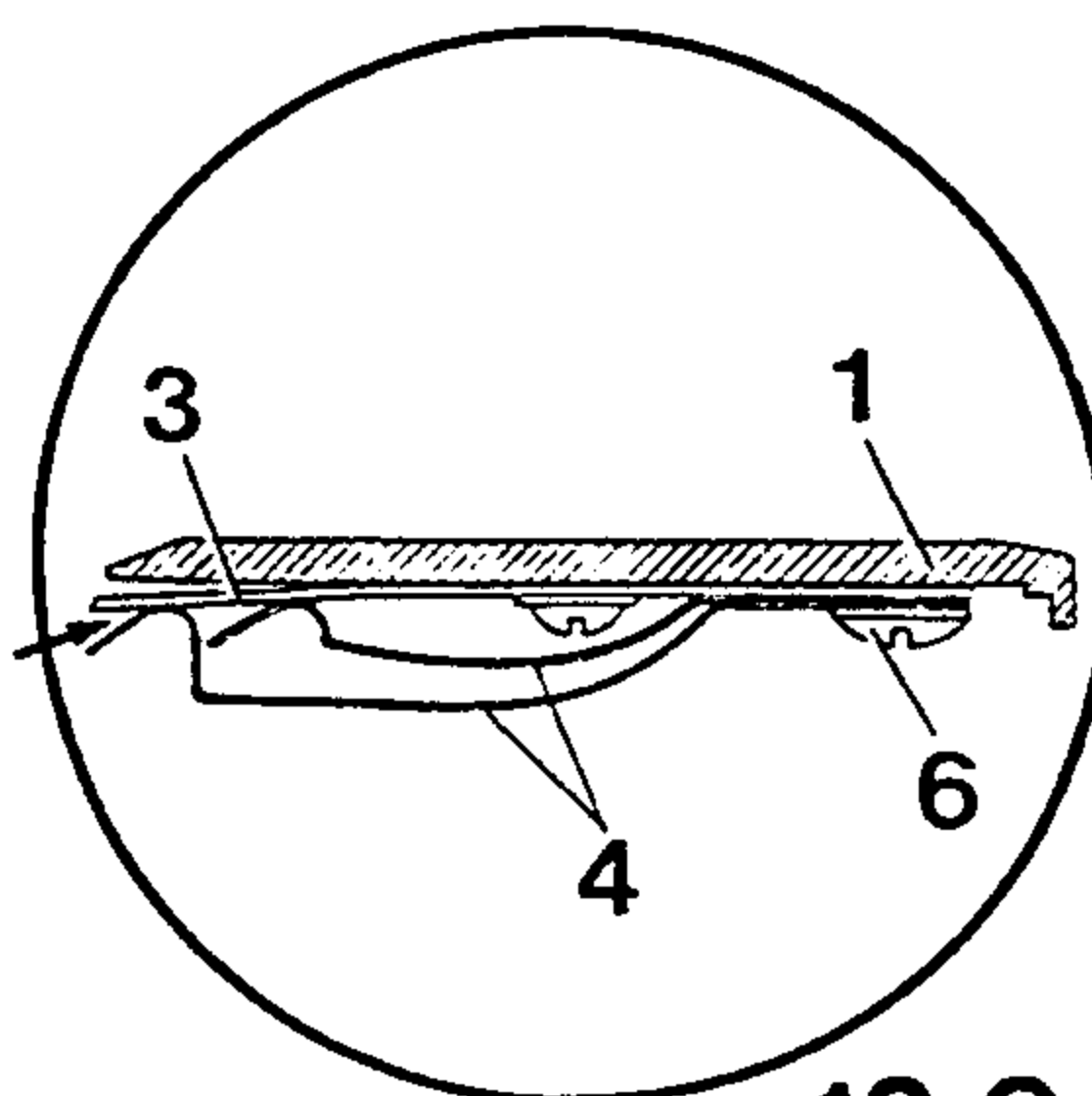
### Setting:

The catcher point should pick up the looper thread and the rear part of the needle-thread loop reliably. With the cover plate (knife bracket) removed the threads must remain undamaged and with the mounting plate removed they must be cut reliably.

- 12.1 Please note that on subcl. 900/11 and 900/51 the plug of the thread trimming mechanism is inserted at the motor control panel or on
- 12.2 Thread up the machine, turn on the master switch and remove cover plate 1.
- 12.3 Sew a number of stitches and switch off machine.
- 12.4 Make sure that the marks according to items 7.2 to 7.4 are still there and position the middle mark on the balance wheel at the mark on the belt guard (= needle bar at 0.3 to 0.4 past t.d.c.).
- 12.5 Operate the solenoid or cylinder by hand; observe whether the point of catcher 2 reliably picks up the looper thread and the rear part of the needle thread-loop. If necessary, readjust catcher 2 accordingly.
- 12.6 Operate the solenoid or the cylinder again and check whether catcher 2 passes between knife 3 and clamp springs 4 (see arrow, Fig. 12.0.2).
- 12.7 To correct this, carefully unscrew the regulating screw. Observe the required pressure of knife 3 on catcher 2 (thread-dependent).
- 12.8 Switch on machine, sew a few stitches and initiate cutting procedure by the pedal.
- 12.9 Switch off machine and check whether the threads are pulled out and undamaged.
- 12.10 If the threads are damaged or torn, reduce the pressure of the cylinders on subcl. 900/21, 900/71 and 900/75 accordingly, or re-adjust catcher 2 on the solenoid-operated and pneumatic versions again and/or re-polish the catcher claw of catcher 2.
- 12.11 Re-fit cover plate 1 and switch on machine.
- 12.12 Place material under the presser foot, sew a few stitches and initiate cutting procedure by pedal. The needle- and looper threads must be properly cut.
- 12.13 Remove material from under the presser foot, carefully remove cover plate 1 and observe whether the looper thread has been picked up by one of the clamp springs 4 (for reliable first stitch).
- 12.14 If necessary loosen screw 6 and position clamp springs 4 in the elongated hole in such a way that they do not touch in the operative and inoperative conditions and rest parallel on knife 3. Afterwards check that clamp spring 4 does not touch the looper.
- 12.15 Carry out a check (see setting).



12.0.1



12.0.2



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# PFAFF

From the library of Diamond Needle Corp

**G. M. PFAFF  
Aktiengesellschaft**

Postfach 3020  
D-67653 Kaiserslautern

Königstr. 154  
D-67655 Kaiserslautern

Telefon: (0631) 200-0  
Telefax: (0631) 172 02  
Telex: 45753 PFAFF D

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