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# **Service Manual**

## **-900/51;/52 for**

## **Pfaff 330 series machines**



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## Service Manual for subcl. -900/.. for Pfaff 330 machines

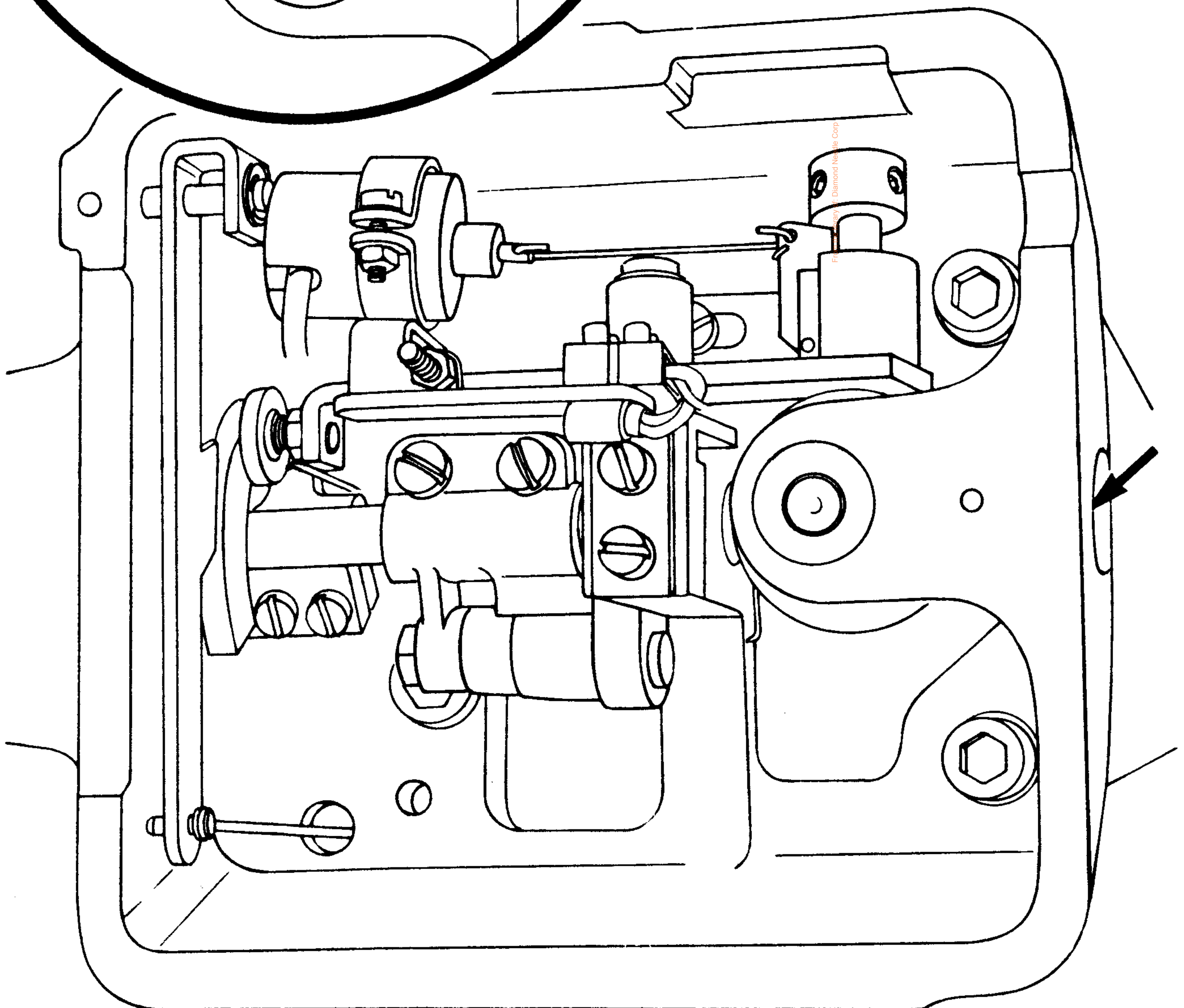
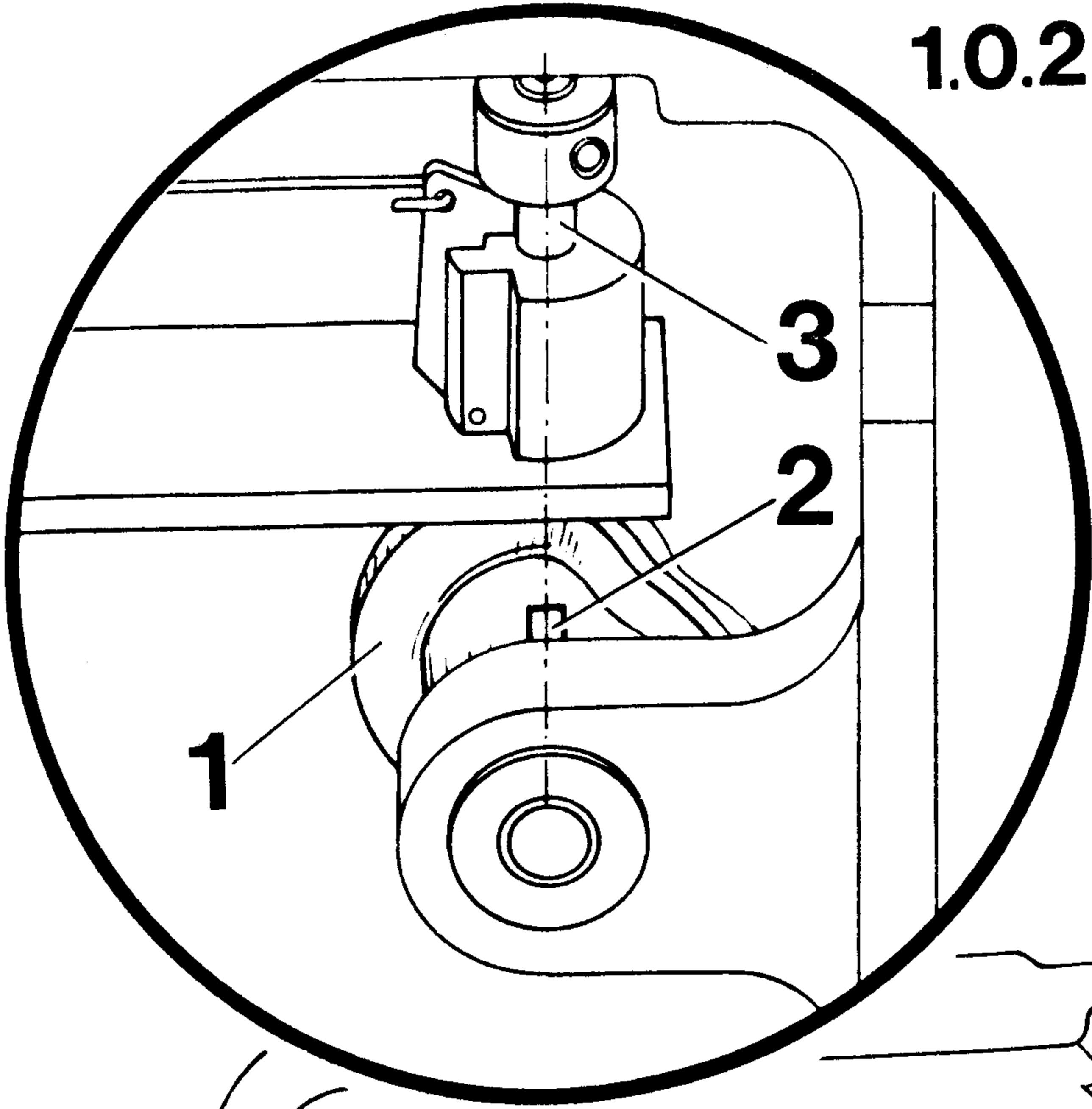
Note:

The following instructions apply to subclass -900/52 for Pfaff 335 machines and subclass -900/51 for Pfaff 337-734/01 machines.

The following tools and other equipment are required for adjusting subcl. -900/.. thread trimmers:

- 1 set of screwdrivers with blades from 2 to 10 mm wide
- 1 set of allen keys from 1.5 to 6.0 mm
- 1 set of open-ended spanners from 7 to 14 mm (across flats)
- 1 metal rule
- 1 circuit tester
- Sewing thread and material for testing purposes

1.0.2



1.0.1

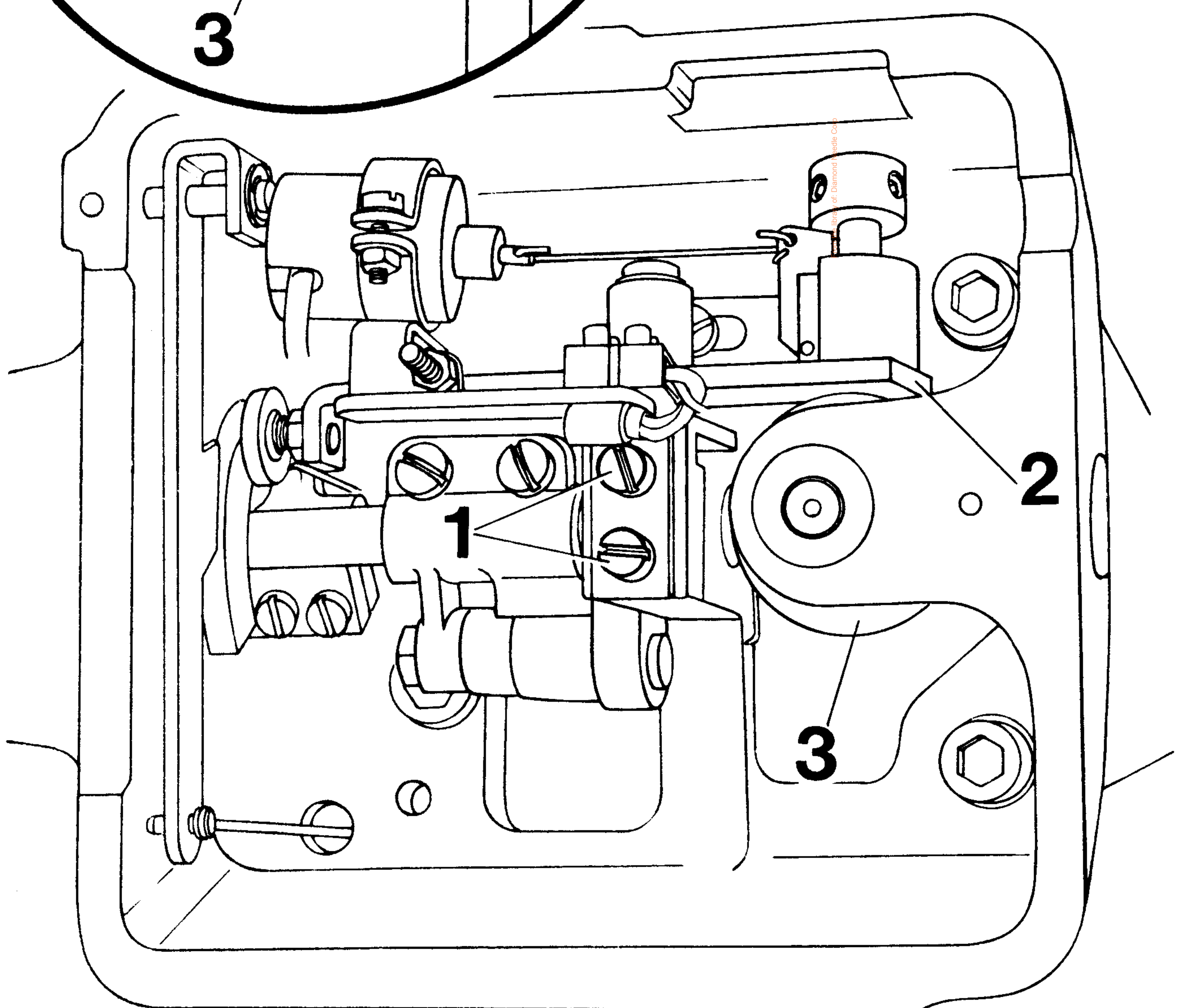
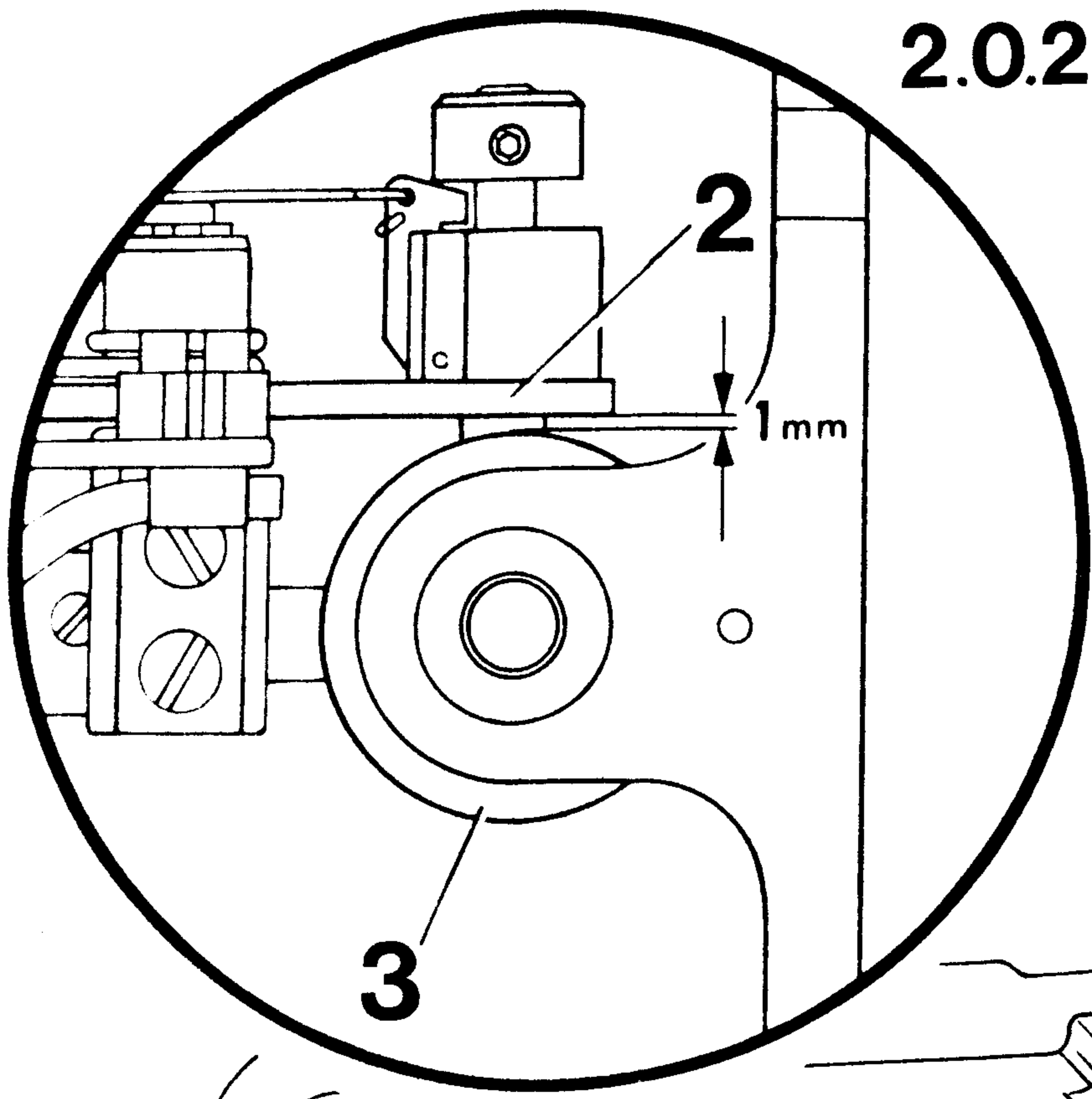
# 1 Preliminary adjustment of control cam

Correct  
setting:

When the take-up lever is at bottom dead center, groove 2 of control cam 1 should be positioned perpendicularly below control stud 3 (see Fig. 1.0.2).

- 1.1 Insert a screwdriver in the opening (marked with an arrow in Fig. 1.0.1) and loosen the two screws of control cam 1.
- 1.2 Turn the balance wheel and bring the take-up lever to bottom dead center.
- 1.3 Turn control cam 1 on its shaft until its groove 2 is positioned perpendicularly below control stud 3.
- 1.4 In this position, tighten the accessible screw of control cam 1, making sure that the latter contacts its bottom bearing.
- 1.5 Tighten the second screw of control cam 1, too.
- 1.6 Check this adjustment (see "Correct setting").

2.0.2



2.0.1

## 2     Control lever height

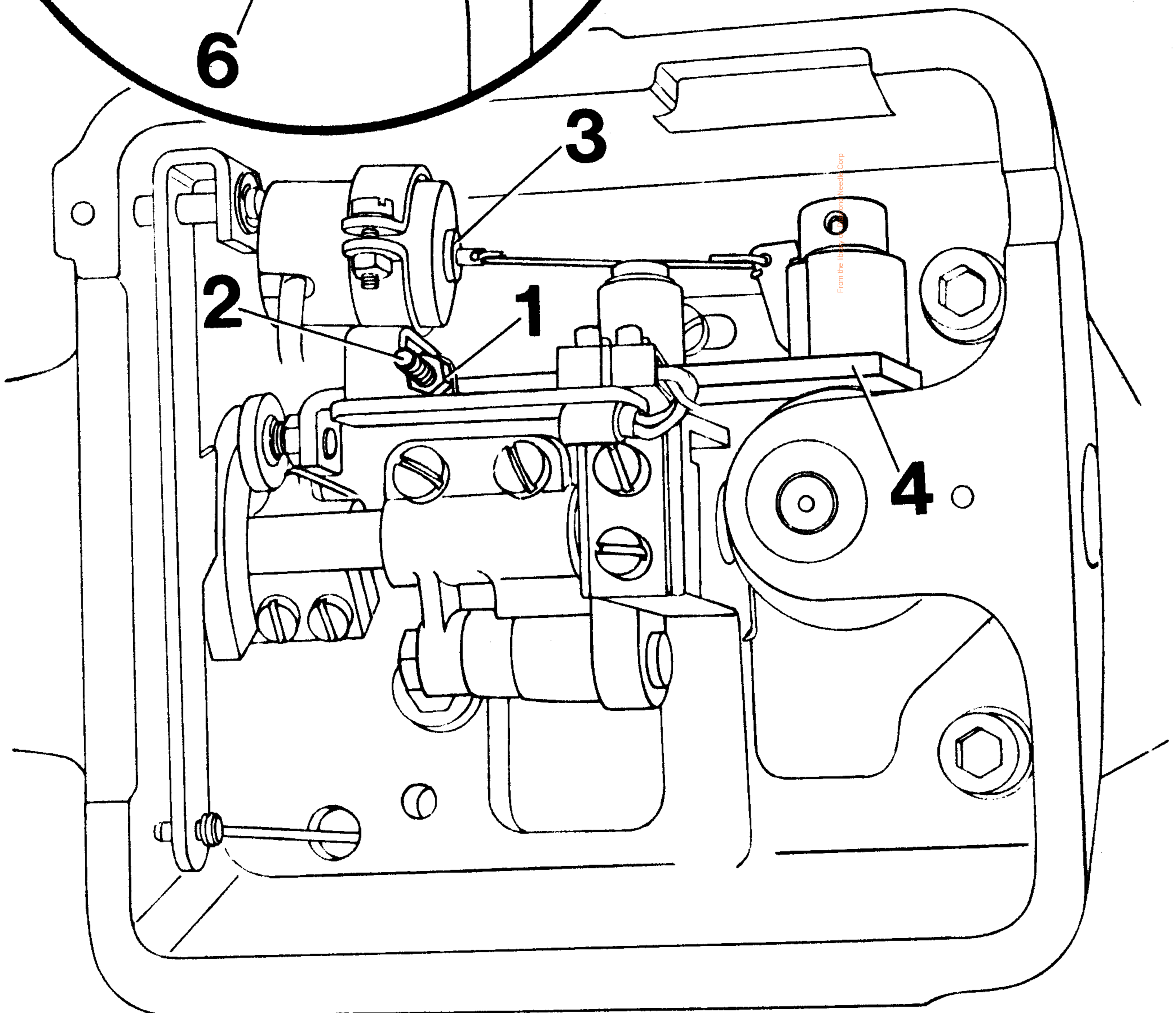
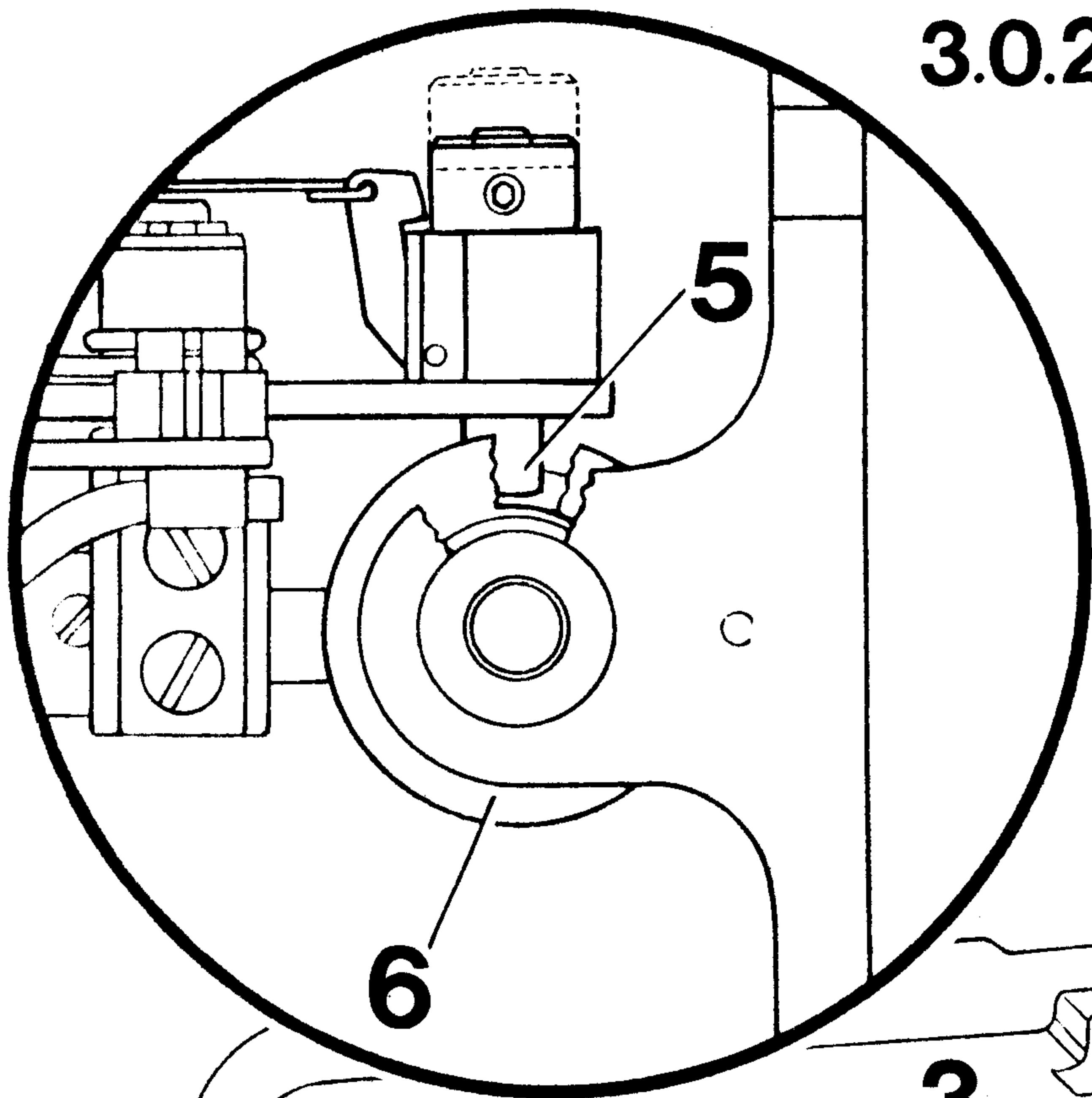
Correct  
setting:

With the needle bar at bottom dead center there should be a clearance of 1.0 mm between control lever 2 and control cam 3 (see Fig. 2.0.2).

- 2.1    Loosen the two screws 1 in the bracket of control lever 2 (Fig. 2.0.1).
- 2.2    Turn the balance wheel to bring the needle bar to bottom dead center.
- 2.3    Adjust the bracket in its elongated hole until there is a clearance of 1.0 mm between control lever 2 and control cam 3.
- 2.4    In this position, tighten both screws 1.
- 2.5    Check this adjustment (see "Correct setting").



3.0.2



3.0.1

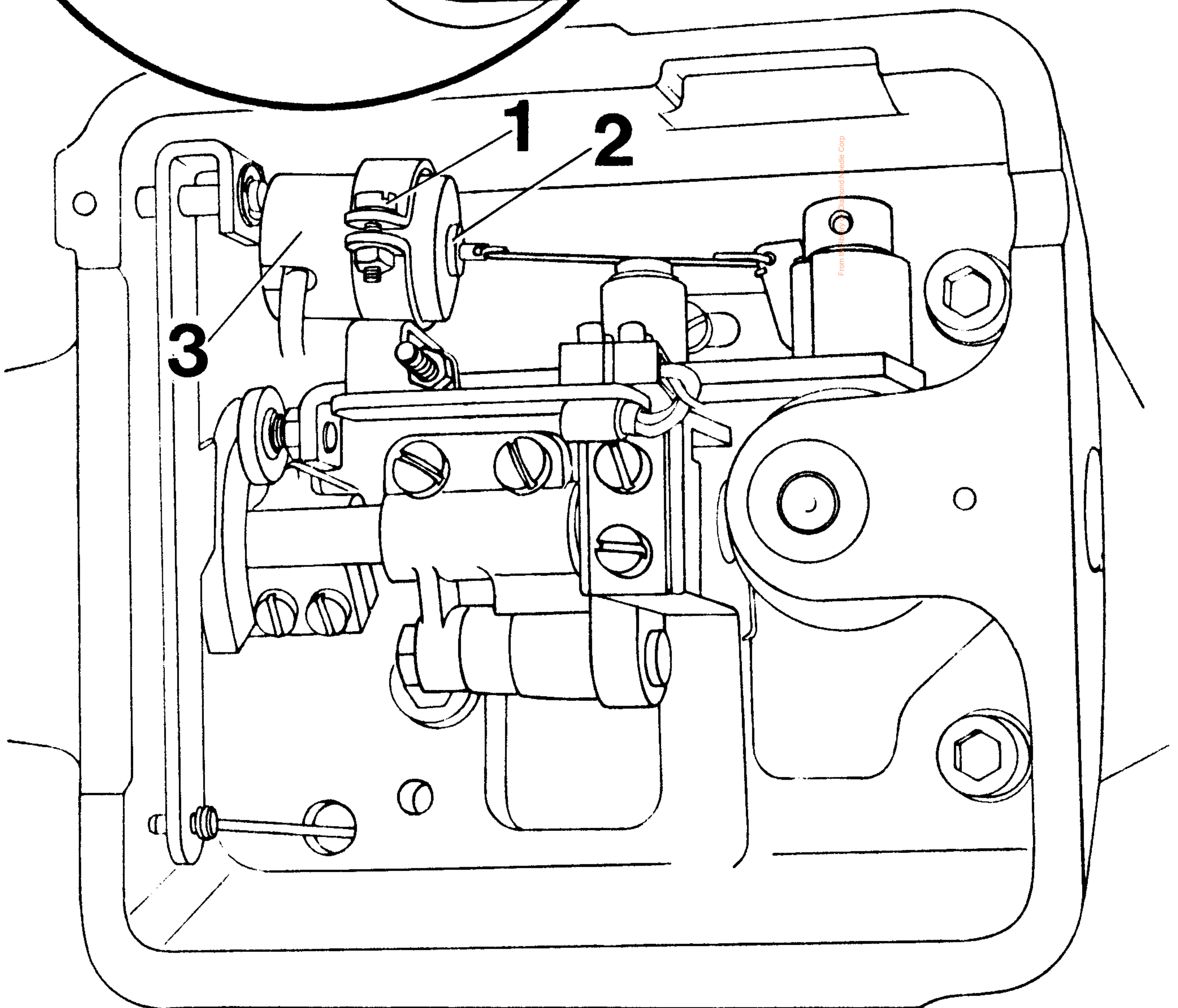
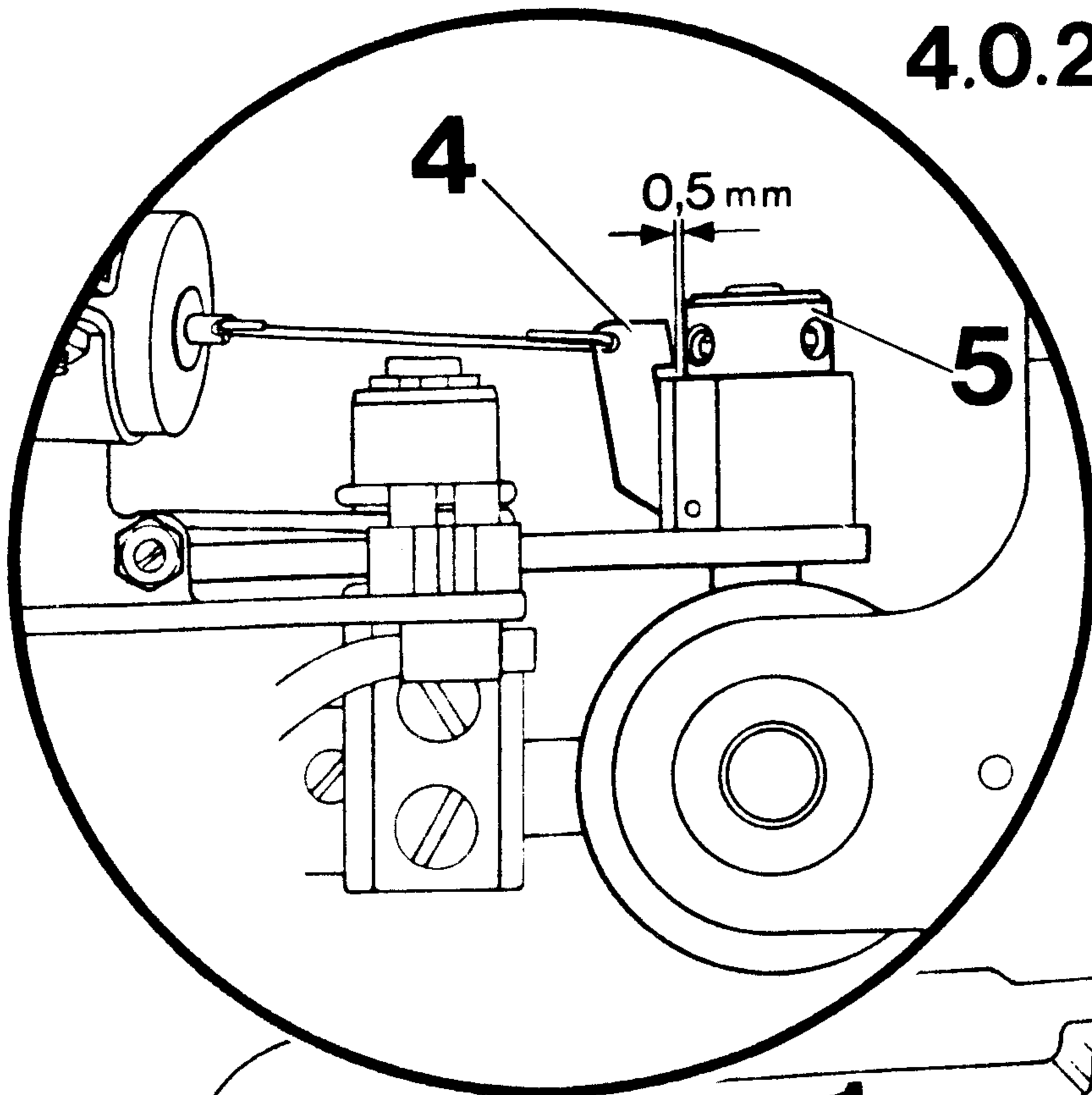
### 3      Control stud

Correct  
setting:

When engaging solenoid 3 is operated with the needle bar at bottom dead center, control stud 5 should drop freely into the track of control cam 6 (see Fig. 3.0.2).

- 3.1    Loosen nut 1 (Fig. 3.0.1) of screw 2.
- 3.2    Turn the balance wheel to bring the needle bar to bottom dead center.
- 3.3    Operate engaging solenoid 3 by hand.
- 3.4    Turn in screw 2 until it contacts the front edge of control lever 4 just lightly.
- 3.5    Turn screw 2 back out again by 1/2 turn; as you do this, control stud 5 should drop freely into the track of control cam 6.
- 3.6    In this position, tighten nut 1.
- 3.7    Check this adjustment (see "Correct setting").

4.0.2



4.0.1

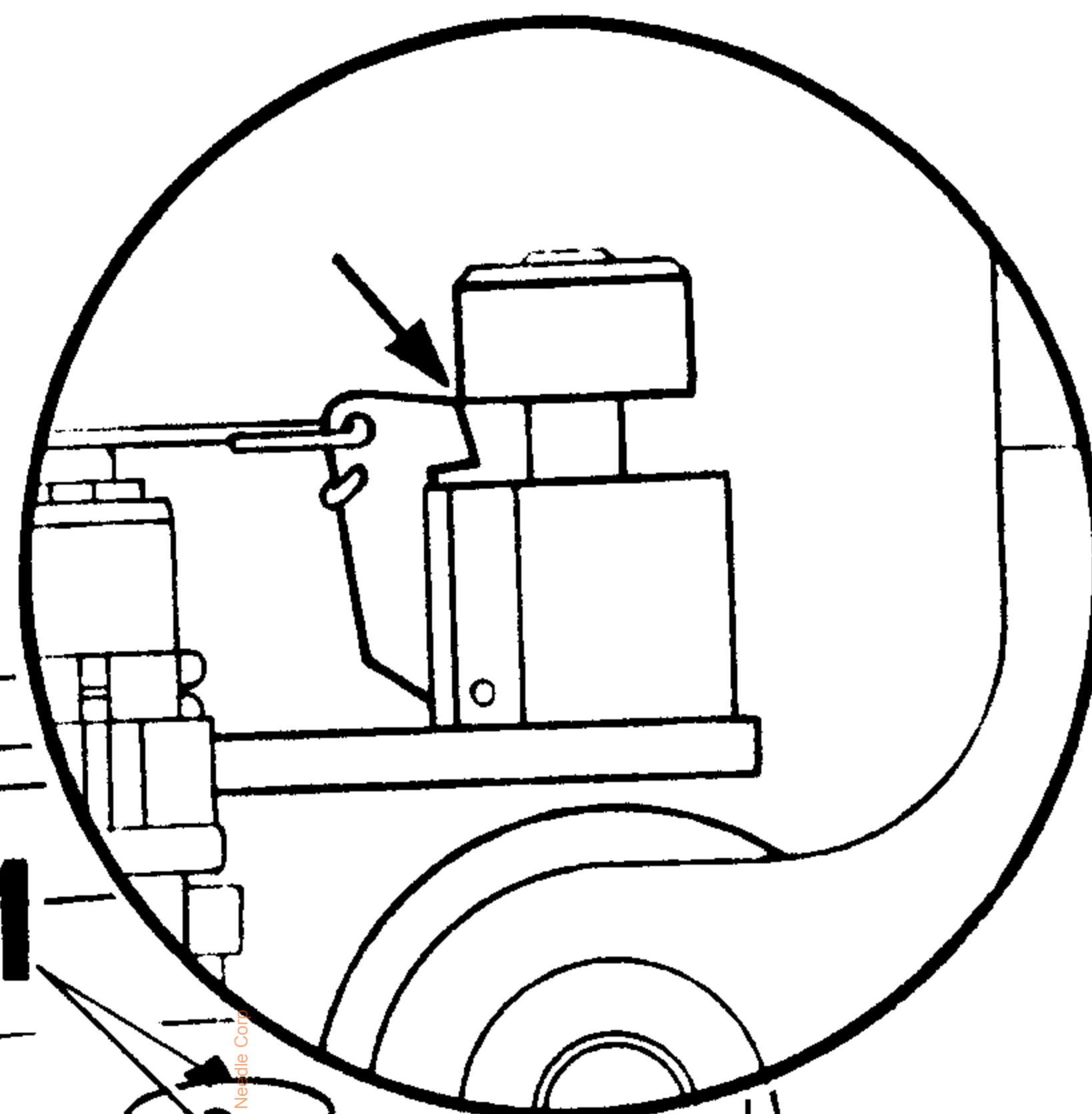
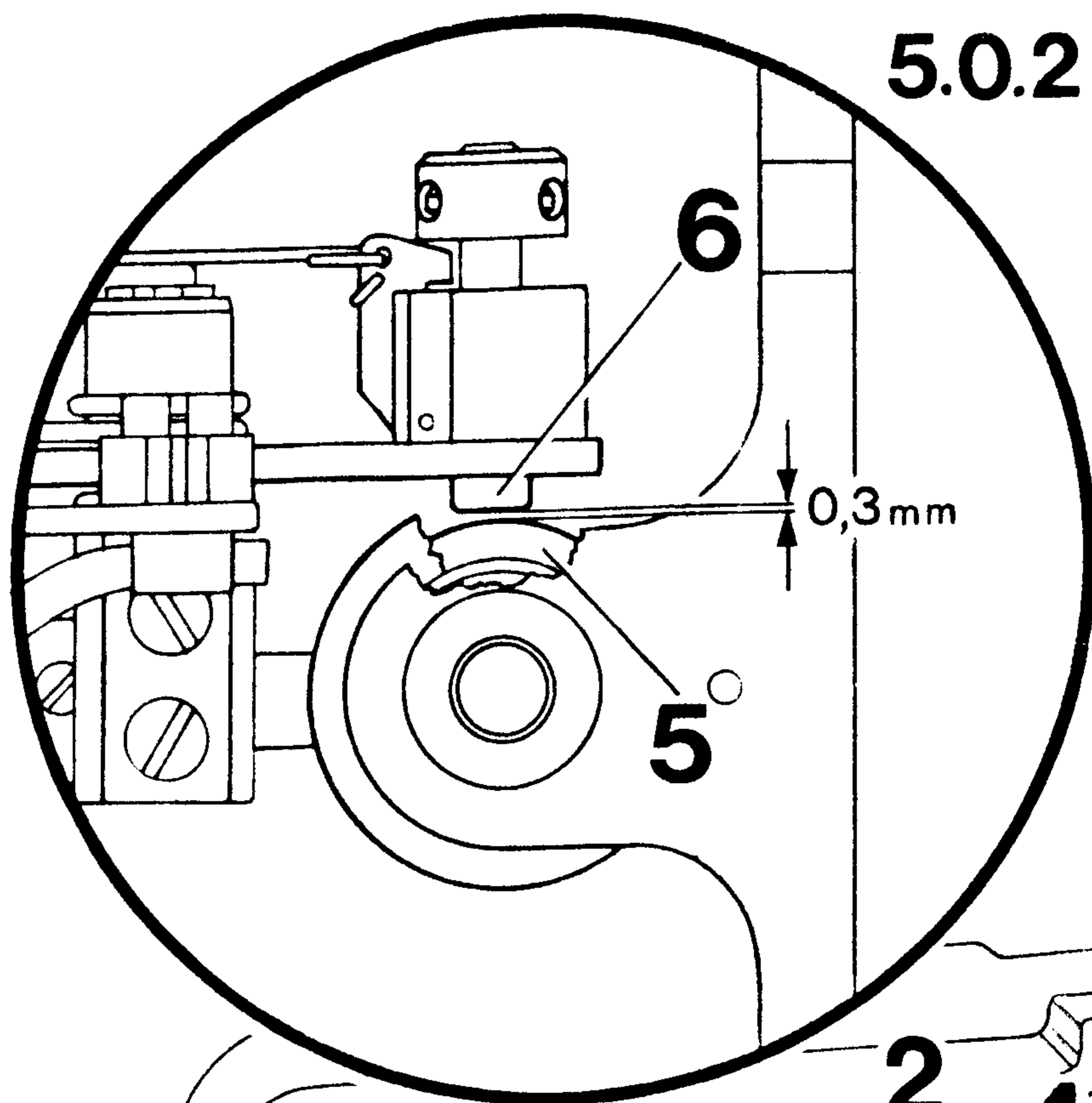
#### 4     Engaging solenoid

Correct  
setting:

When solenoid plunger 2 is pushed in as far as it will go with the needle bar at bottom dead center, there should be a clearance of abt. 0.5 mm between interlocking latch 4 and collar 5 (see Fig. 4.0.2).

- 4.1    Loosen screw 1 (Fig. 4.0.1).
- 4.2    Turn the balance wheel to bring the needle bar to bottom dead center.
- 4.3    Push solenoid plunger 2 in as far as it will go and hold it in this position.
- 4.4    Reposition solenoid housing 3 so that there is a clearance of abt. 0.5 mm between interlocking latch 4 and collar 5.
- 4.5    In this position, tighten screw 1.
- 4.6    Check this adjustment (see "Correct setting").

5.0.2



2

4

1

3

5.0.1

## 5 Control stud height

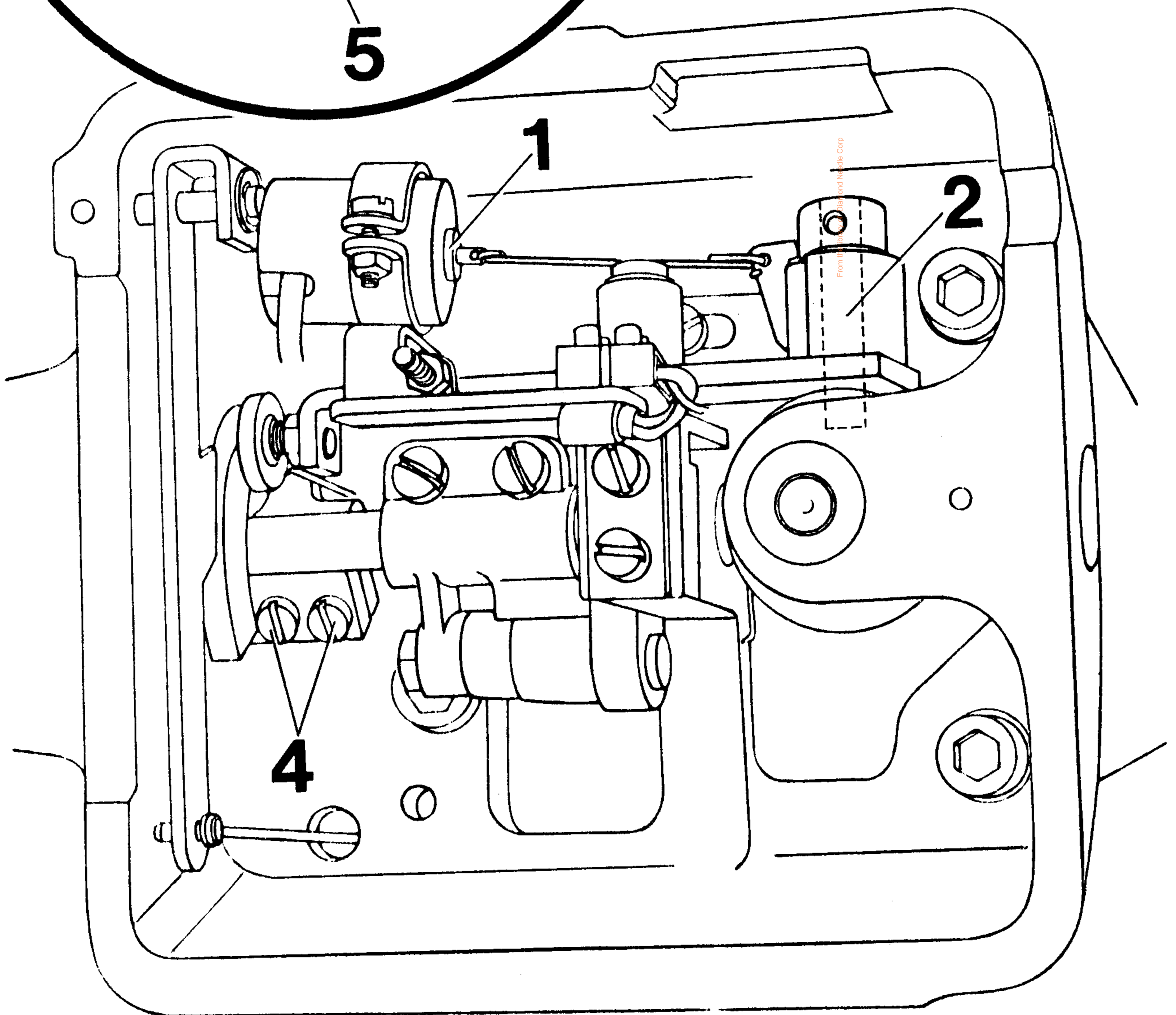
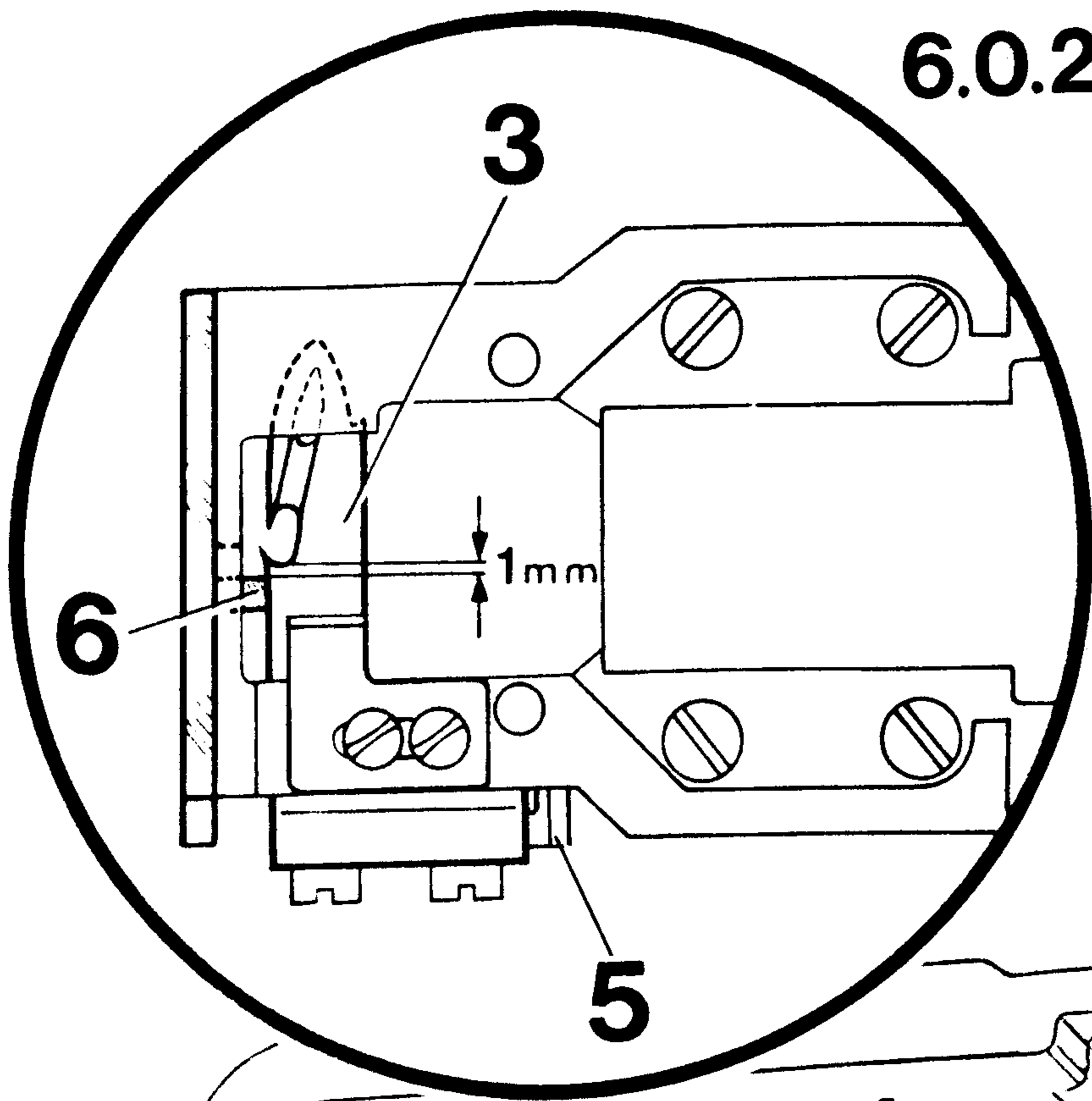
Correct  
setting:

When the thread trimmer is at rest there should be a clearance of 0.3 mm between the highest point of control cam 5 and control stud 6 (see Fig. 5.0.2).

- 5.1 Turn the balance wheel to bring the needle bar to top dead center.
- 5.2 Loosen the two allen screws 1 (Fig. 5.0.1) on the collar.
- 5.3 Operate the engaging solenoid 2.
- 5.4 Position collar 3 so that it rests lightly on the front edge (see arrow in small circle) of interlocking latch 4. This setting corresponds to a clearance of 0.3 mm between control cam 5 and control stud 6 when interlocking latch 4 is engaged.
- 5.5 In this position, tighten the two allen screws.
- 5.6 Check this adjustment (see "Correct setting").



6.0.2



6.0.1

## 6      Thread catcher

### 6.1    Forward point of reversal

Correct  
setting:

When thread catcher 3 is at its forward point of reversal, the rear edge of its cutout should be positioned 1 mm above the front edge of bobbin case position lug 6 (see Fig. 6.0.2).

6.1.1 Remove the cylinder arm cap and lift the cylinder arm cover and swing it toward the rear.

6.1.2 Unscrew the vibrating and lifting pressers.

6.1.3 Unscrew needle plate and feed dog.

6.1.4 Bring the needle bar to bottom dead center.

6.1.5 Operate engaging solenoid 1 (Fig. 6.0.1) so that control stud 2 drops into the cam track.

6.1.6 Turn the balance wheel in its normal direction until thread catcher 3 is at its forward point of reversal.

6.1.7 Loosen both clamp screws 4.

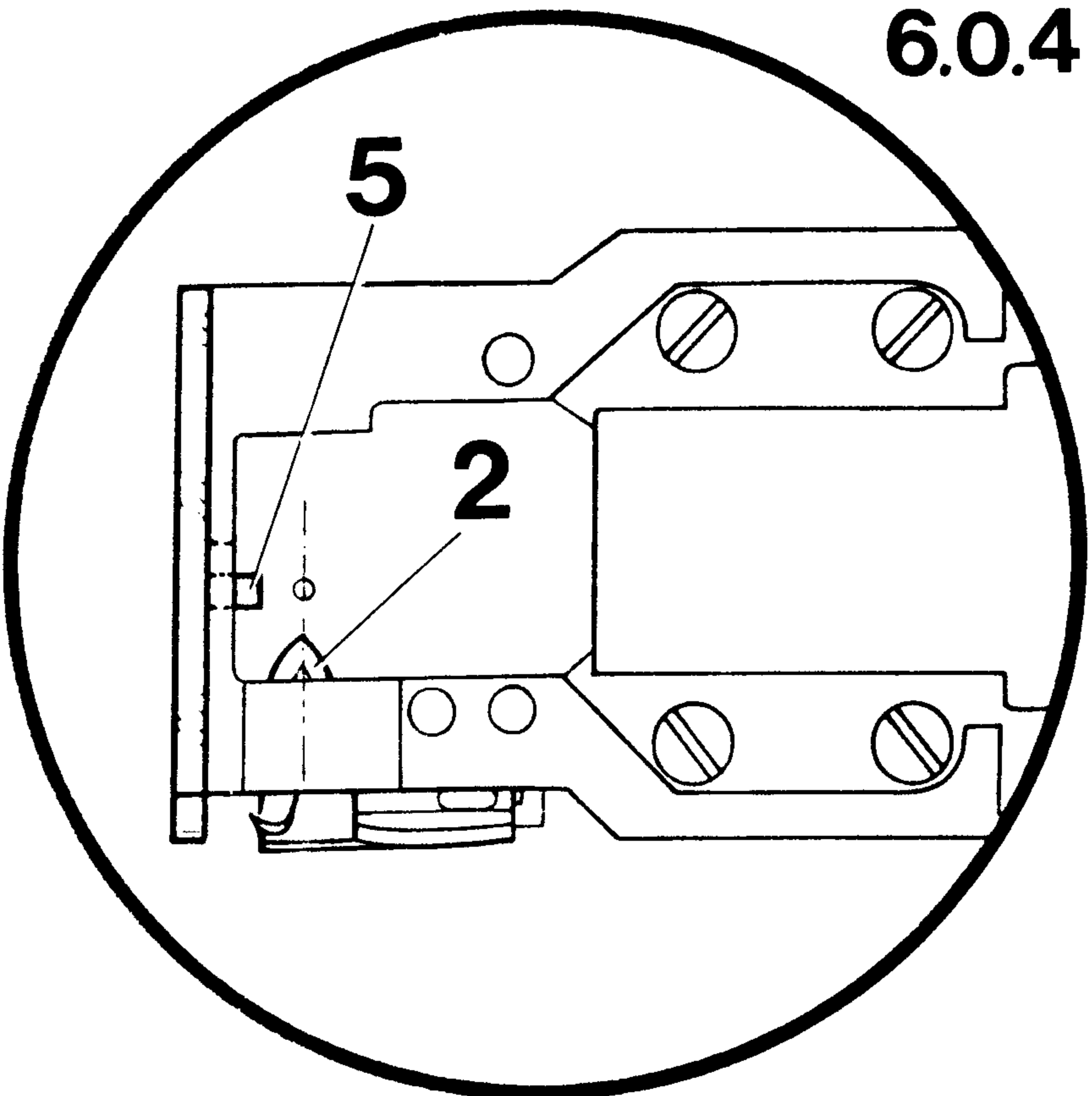
6.1.8 Adjust thread catcher 3 by turning catcher bracket 5 until the rear edge of the thread catcher cutout is positioned 1 mm above the front edge of bobbin case position lug 6.

6.1.9 In this position, tighten both clamp screws 4.

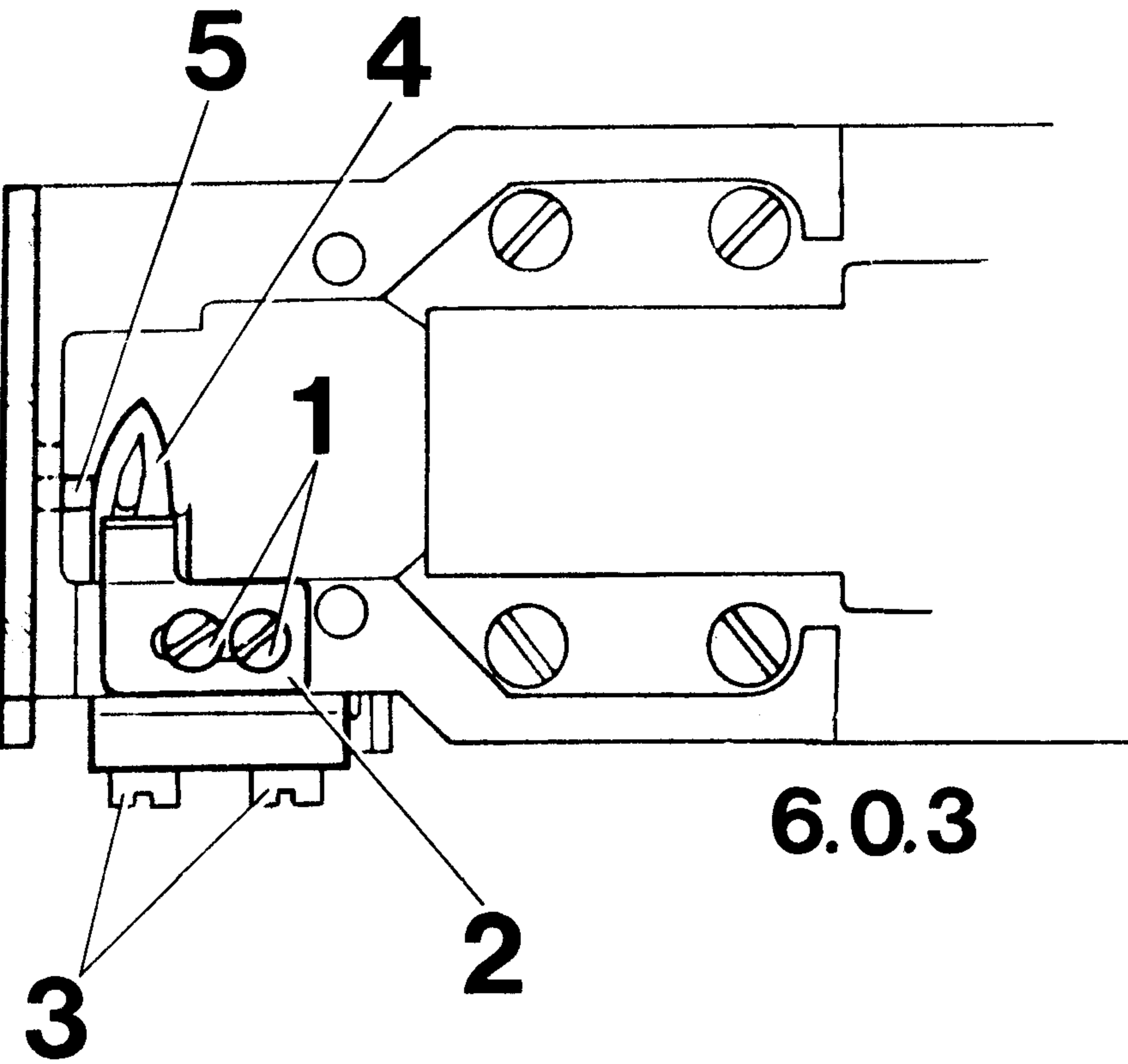
6.1.10 Check this adjustment (see "Correct setting").



6.0.4



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6.0.3

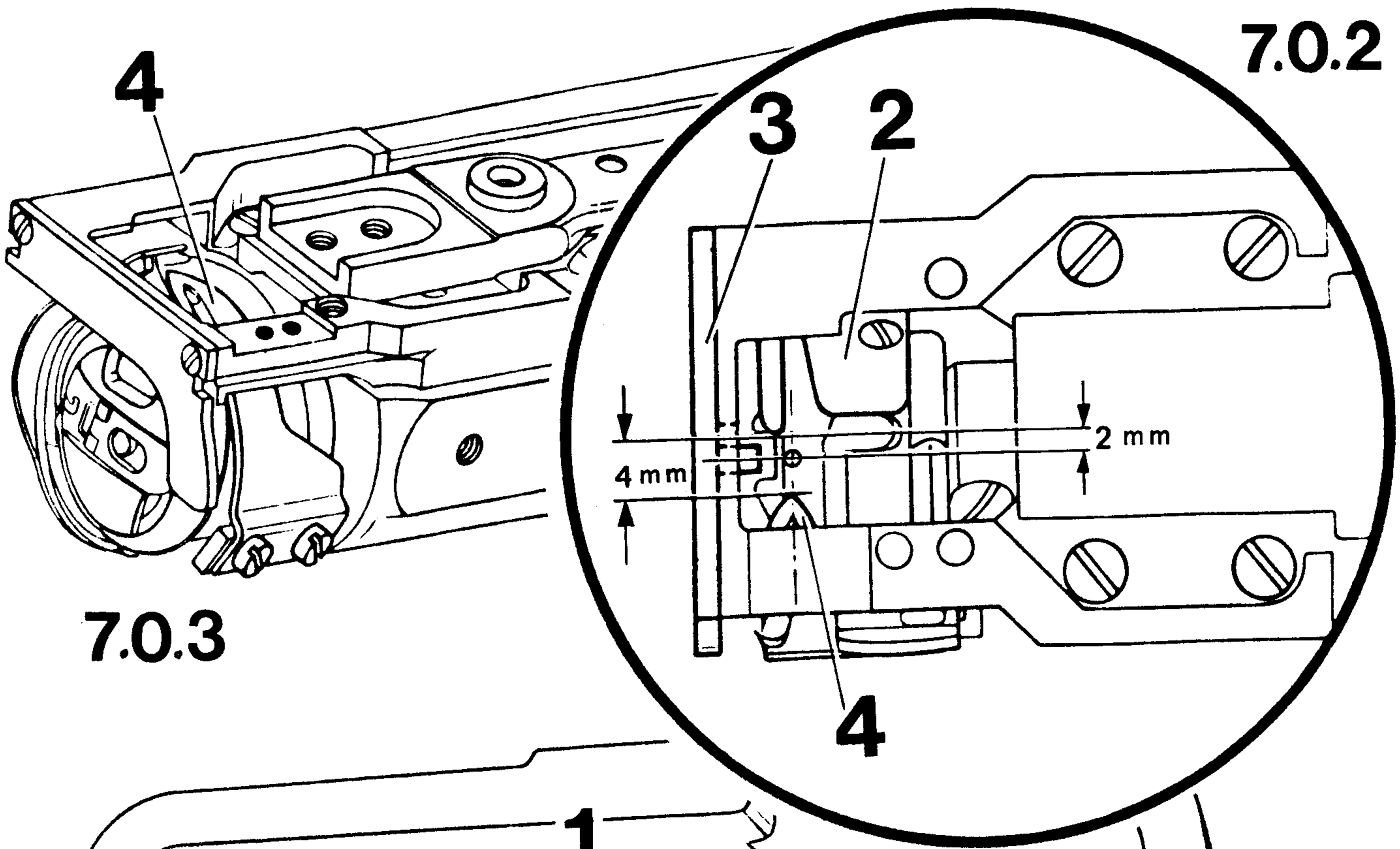
## 6.2 Lateral adjustment

Correct  
setting:

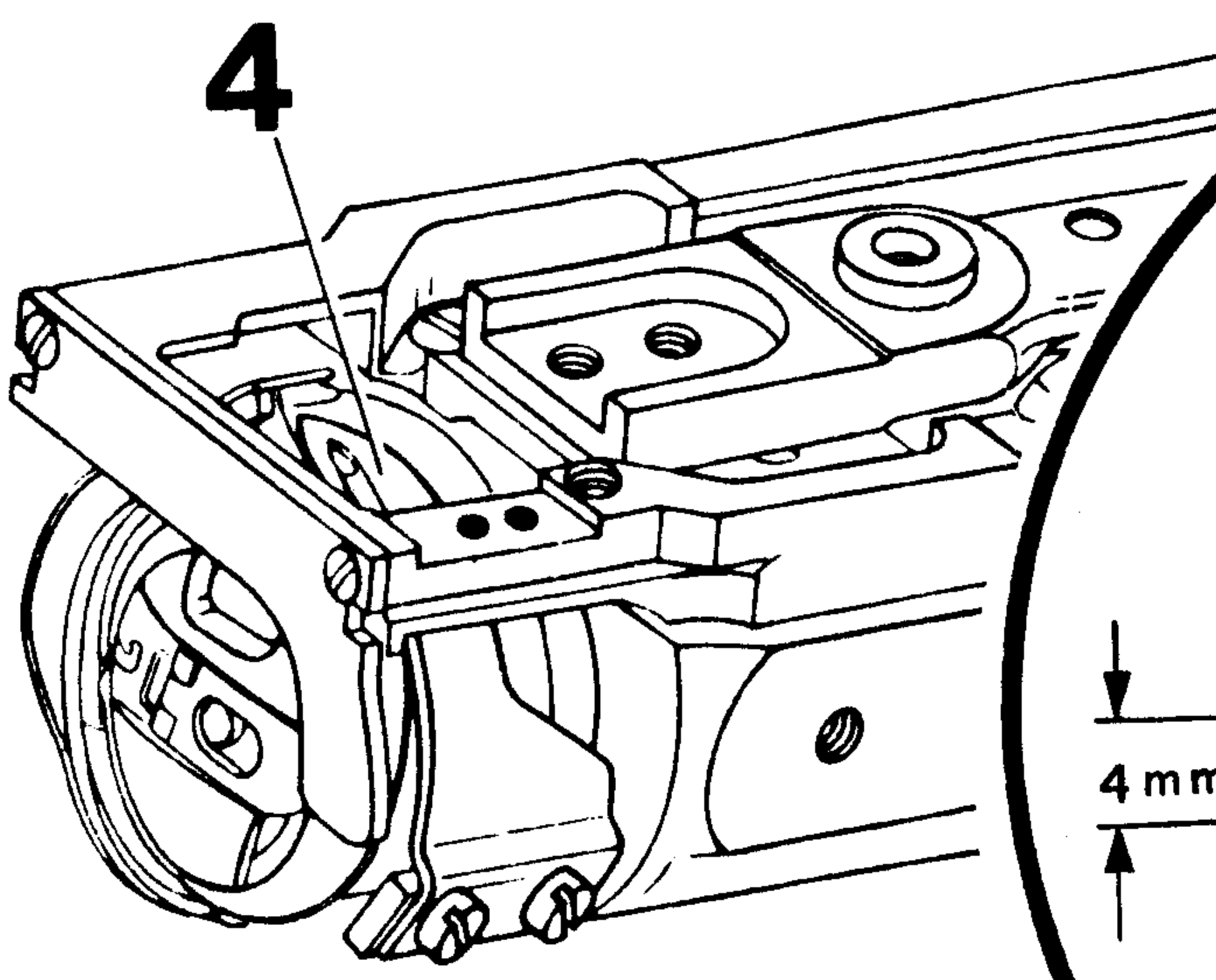
With the needle bar at bottom dead center, the tip of the thread catcher should be exactly opposite the center line of the needle (see Fig. 6.0.4).

- 6.2.1 Take out both screws 1 (Fig. 6.0.3) and remove knife 2.
- 6.2.2 Bring the needle bar to bottom dead center.
- 6.2.3 Loosen both screws 3 (Fig. 6.0.3).
- 6.2.4 Adjust thread catcher 4 laterally so that its tip is exactly opposite the center line of the needle.
- 6.2.5 In this position, tighten both screws 3.
- 6.2.6 Operate the engaging solenoid by hand and turn the balance wheel until the needle bar is at top dead center; as you do this, check to make sure thread catcher 4 does not strike bobbin case position lug 5.
- 6.2.7 Check this adjustment (see "Correct setting").

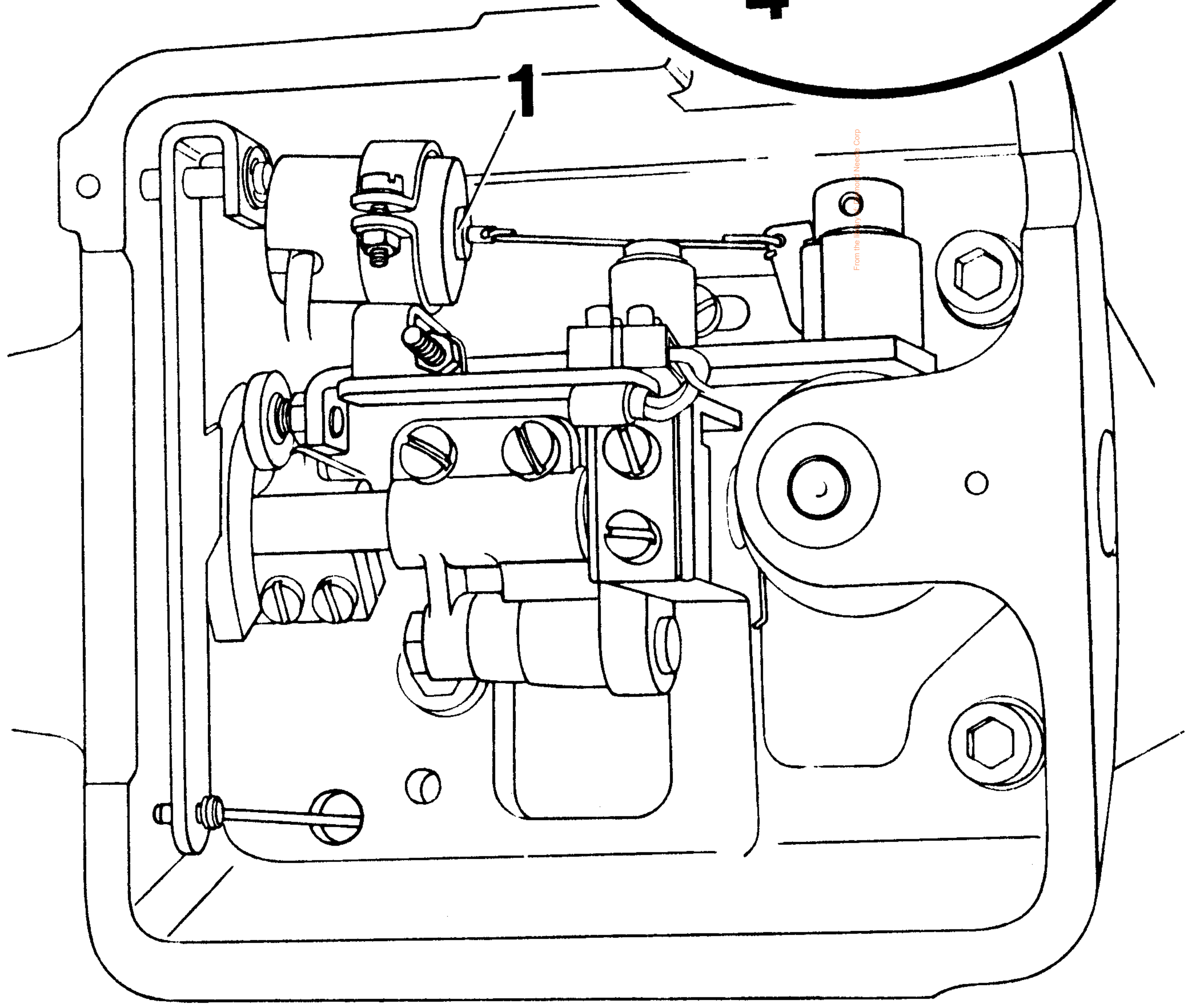
7.0.2



7.0.3



7.0.1



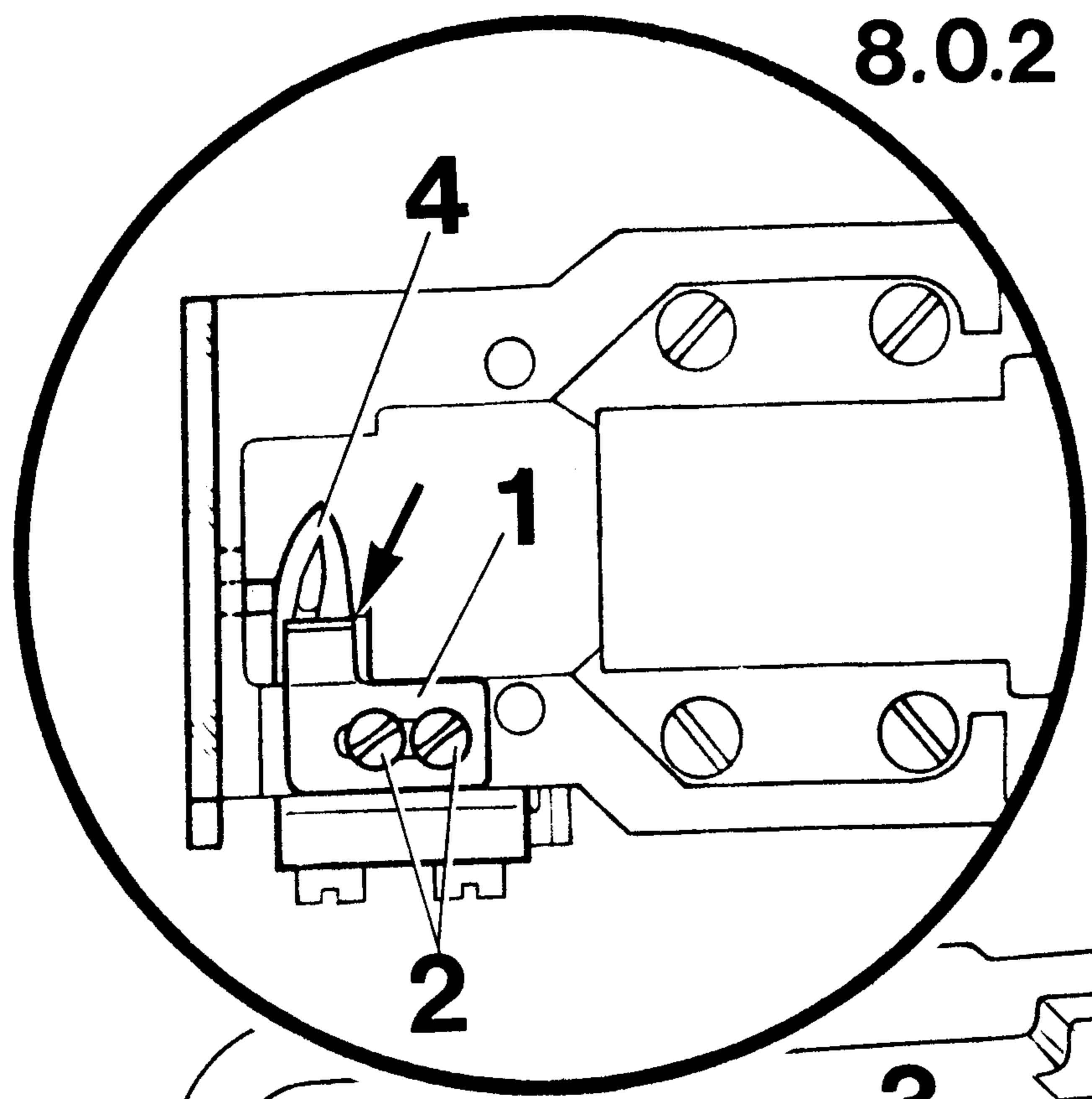
## 7 Final adjustment of control cam

Correct  
setting:

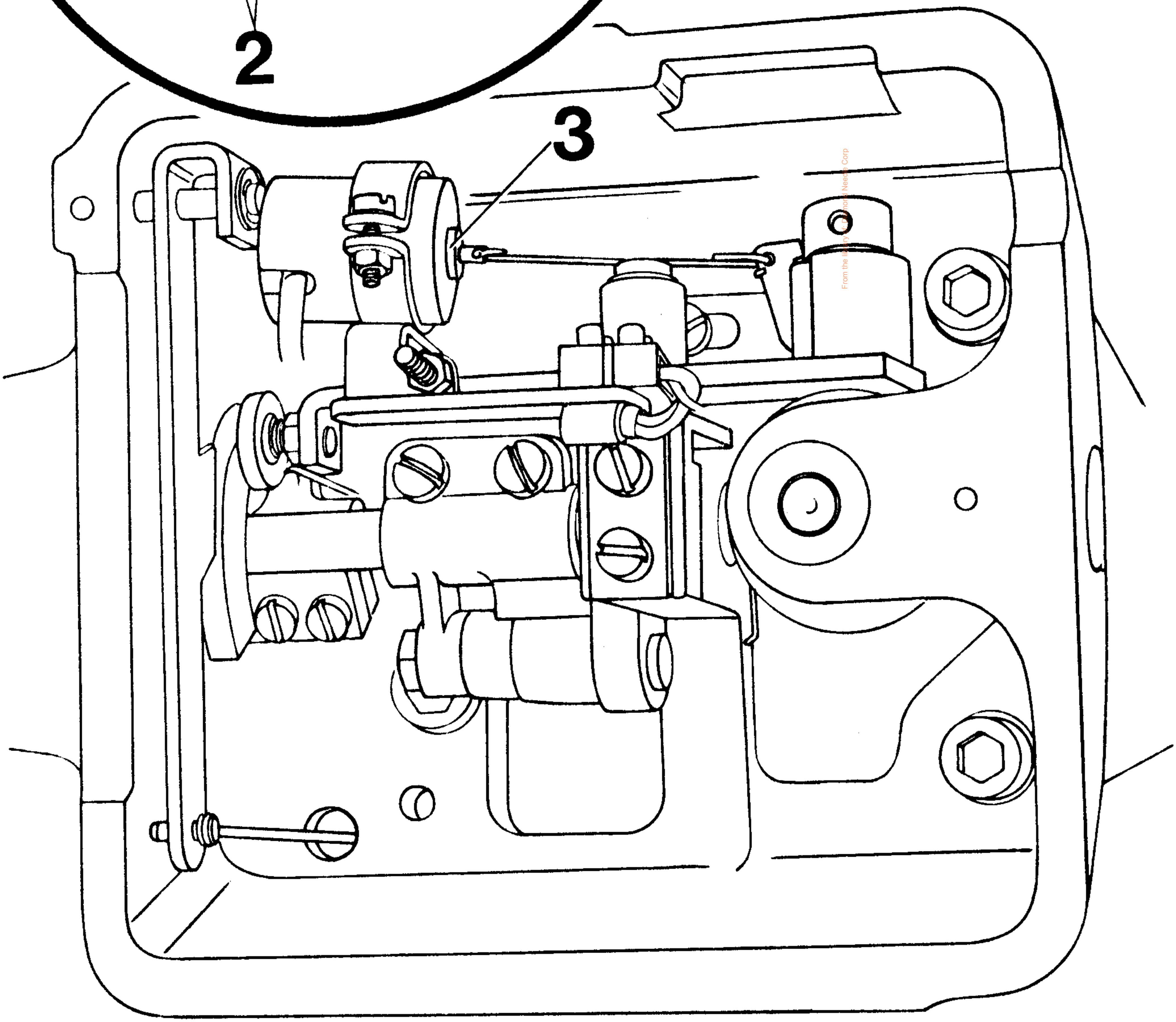
There should be a clearance of abt. 4 mm between the tip of thread catcher 4 and thread pull-off flange 2 when the rear edge of the latter is positioned 2 mm behind the center line of bobbin case position finger 3, as seen in the direction of feed motion (see Fig. 7.0.2).

- 7.1 Turn the balance wheel to bring the needle bar to bottom dead center.
- 7.2 Operate engaging solenoid 1 (Fig. 7.0.1) by hand.
- 7.3 Continue turning the balance wheel in its normal direction until the rear edge of thread pull-off flange 2 is positioned 2 mm behind the center line of bobbin case position finger 3, as seen in the direction of feed motion.
- 7.4 In this position, there should be a clearance of 4 mm between the tip of thread catcher 4 and thread pull-off flange 2.
- 7.5 If required, adjust the control cam as instructed in Section 1.
- 7.6 Check this adjustment (see "Correct setting").

8.0.2



3



8.0.1

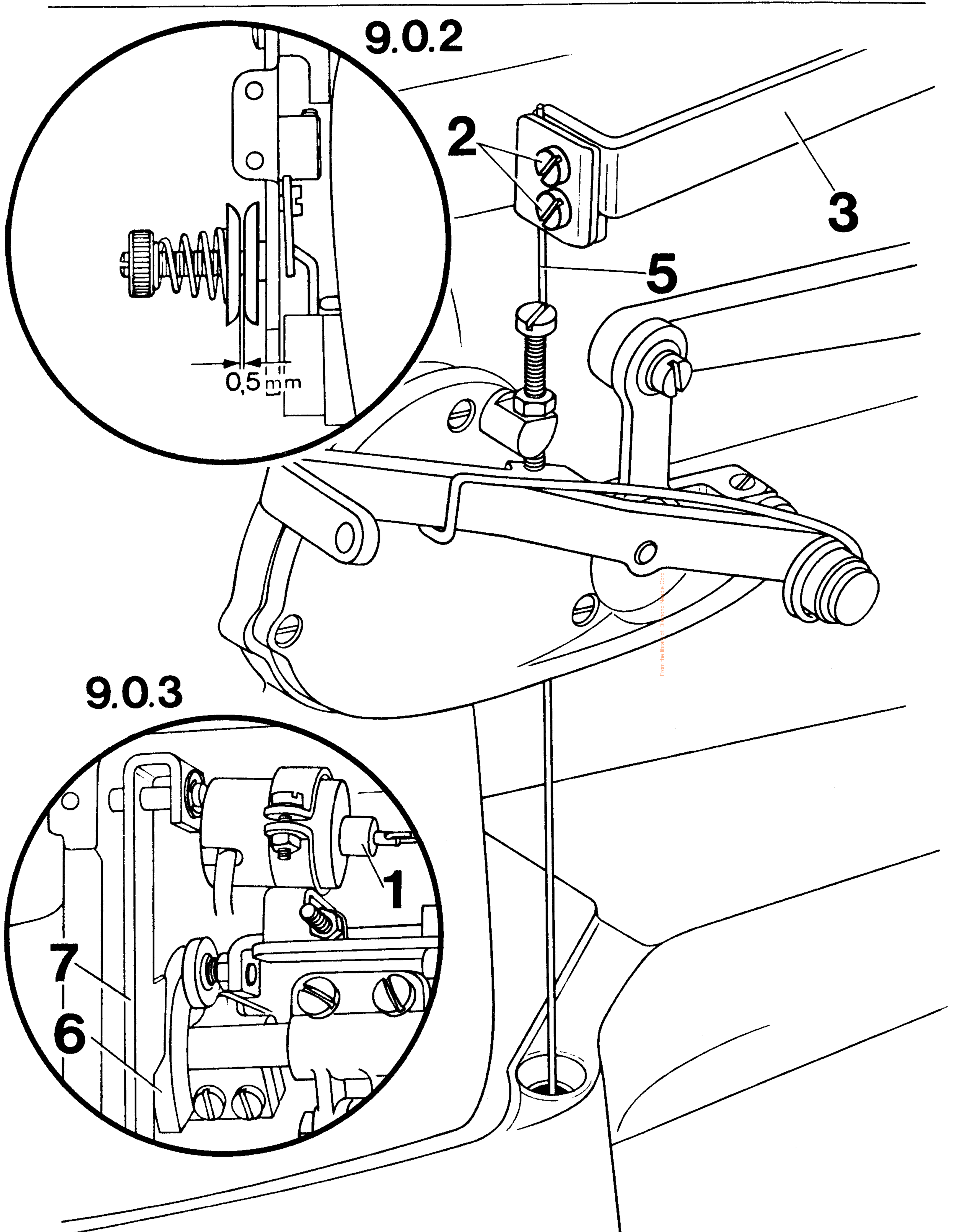
## 8      Knife

Correct  
setting:

When the short tip of thread catcher 4 is flush with the front edge of knife 1, the right edge of the knife should be in line with the recessed edge of the thread catcher (see arrow in Fig. 8.0.2).

- 8.1    Replace knife 1 (Fig. 8.0.2), tightening screws 2 only lightly.
- 8.2    Bring the needle bar to bottom dead center and operate engaging solenoid 3 (Fig. 8.0.1).
- 8.3    Turn the balance wheel in its normal direction until the short tip of thread catcher 4 is flush with the cutting edge of the knife.
- 8.4    Adjust knife 1 laterally so that its right edge is in line with the recessed right edge of thread catcher 4 (see arrow in Fig. 8.0.2).
- 8.5    In this position, tighten both screws 2.
- 8.6    Turn the balance wheel and check to make sure that the thread catcher is not tilted in relation to the cutting edge of the knife. If necessary, adjust thread catcher 4 as instructed in Section 6.
- 8.7    Check this adjustment (see "Correct setting").





## 9 Needle thread tension release mechanism

Correct  
setting:

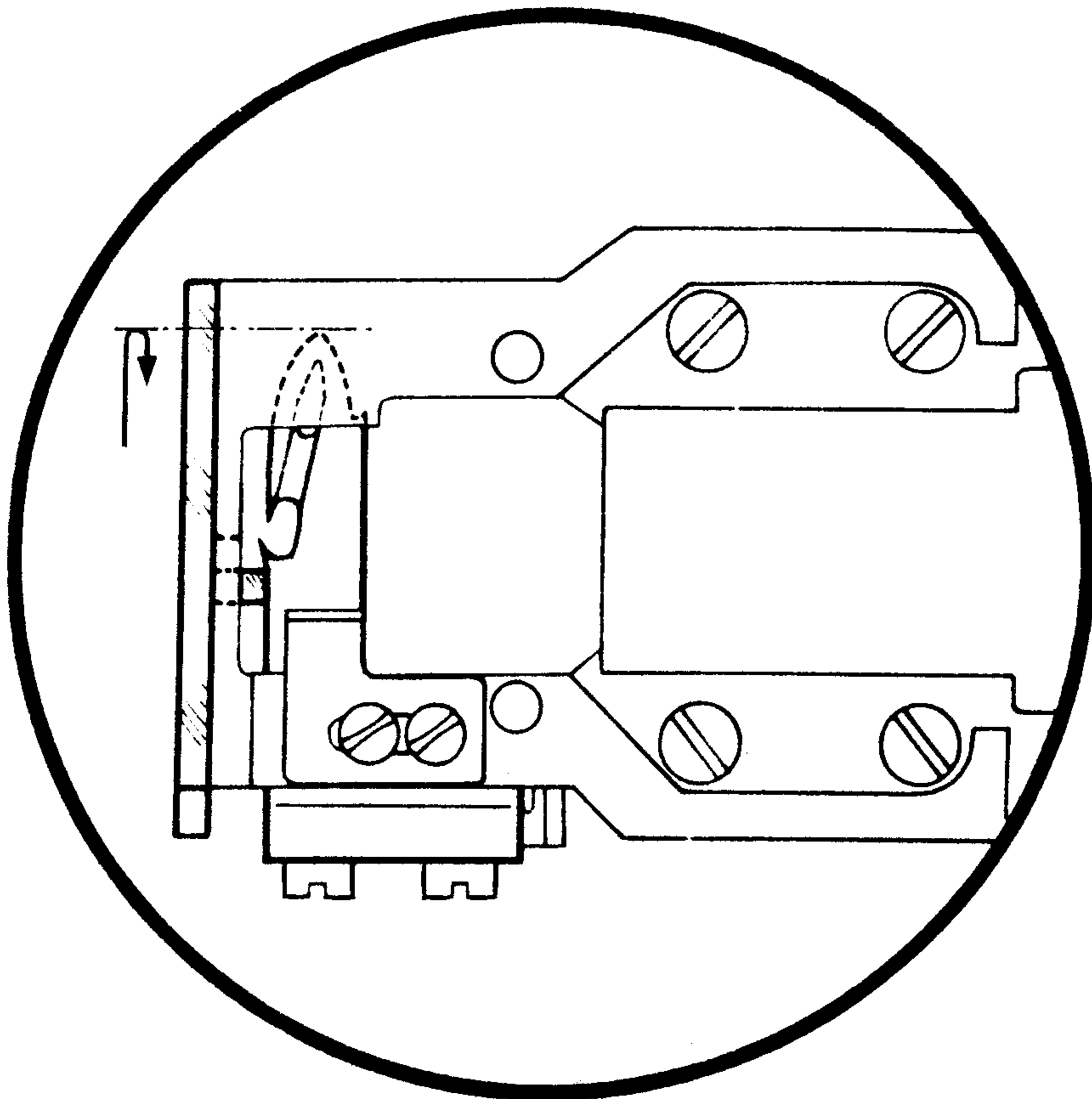
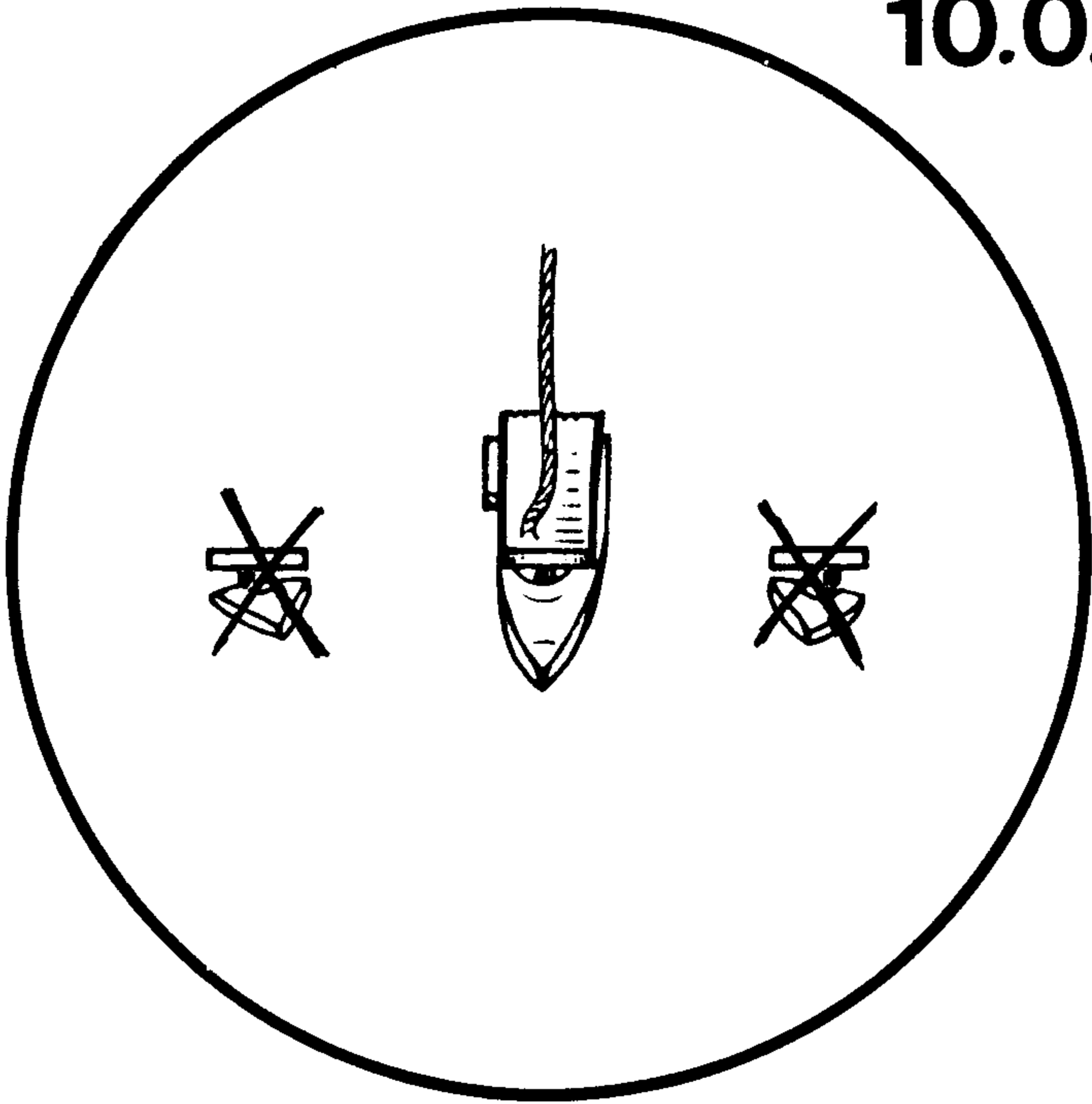
When the tip of tension release lever 7 is at the highest point of tension release cam 6, the tension discs should be at least 0.5 mm apart (see Fig. 9.0.2).

- 9.1 Lower the presser foot onto the needle plate by operating the presser bar lifter.
- 9.2 Bring the needle bar to bottom dead center and operate engaging solenoid 1 (Fig. 9.0.3).
- 9.3 Loosen both screws 2 (Fig. 9.0.1) on connecting lever 3.
- 9.4 Turn the balance wheel in its normal direction until thread catcher 4 is at its forward point of reversal.
- 9.5 Adjust connecting rod 5 vertically so that the tension discs are at least 0.5 mm apart.
- 9.6 In this position, tighten both screws 2.
- 9.7 Turn the balance wheel to complete the trimming action and bring the take-up lever to top dead center. In this position, the needle thread tension must be fully engaged.
- 9.8 Check this adjustment (see "Correct setting").
- 9.9 Slightly grease the surface of tension release cam 6 and the tip of tension release lever 7.



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## 10.0.2



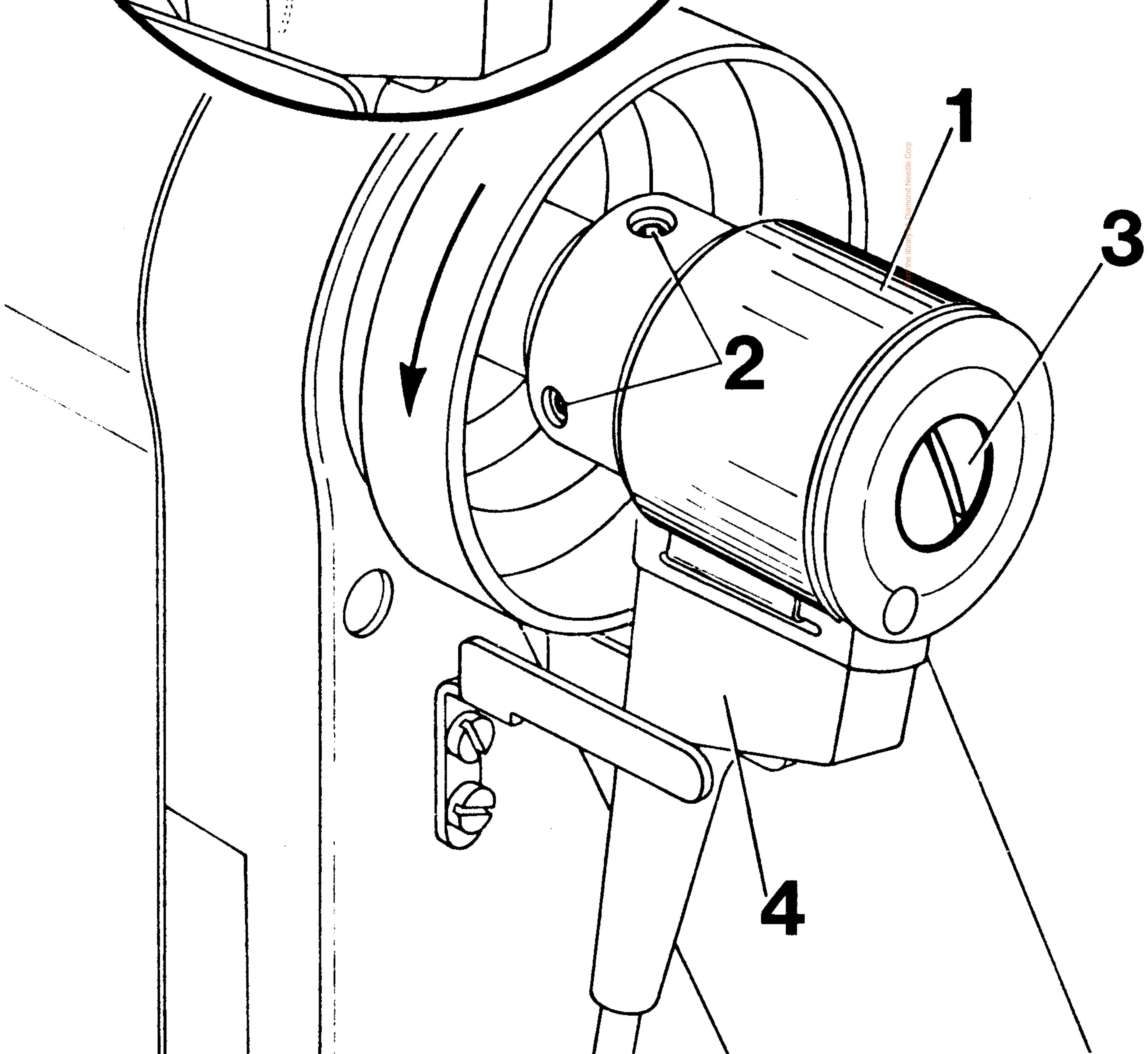
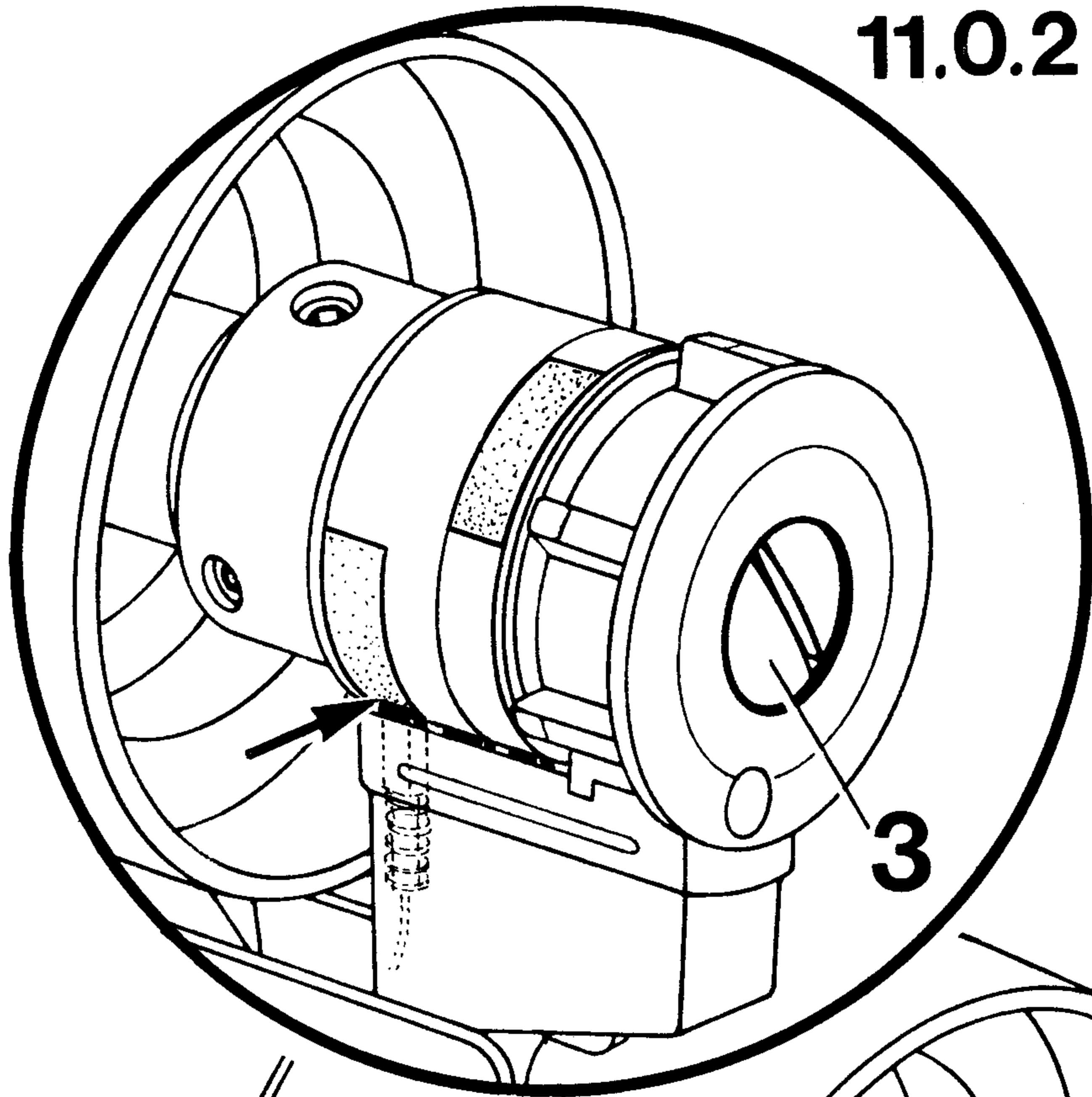
## 10.C.1

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10      Trimming test

- 10.1    Bring the needle bar to bottom dead center and operate the engaging solenoid.
- 10.2    Turn the balance wheel in its normal direction until the thread catcher is at its forward point of reversal (Fig. 10.0.1).
- 10.3    Pull two threads into the thread catcher cutout and turn the balance wheel further to make a trimming test. (Both threads must be properly cut.)
- 10.4    If one of the threads is not properly cut, adjust the position of the thread catcher in relation to the trimming knife, as instructed in paras. 6.2.1 - 6.2.4.
- 10.5    Replace and screw on feed dog and needle plate, making sure the feed dog does not strike the sides of its cutout in the needle plate.
- 10.6    Replace and screw on the vibrating and lifting pressers, replace the cylinder arm cap and swing back the cylinder arm cover.

11.0.2



11.0.1

## 11 Synchronizer

Correct  
setting:

When sewing is interrupted, the machine should stop with the needle bar at a position 4 mm past bottom dead center.

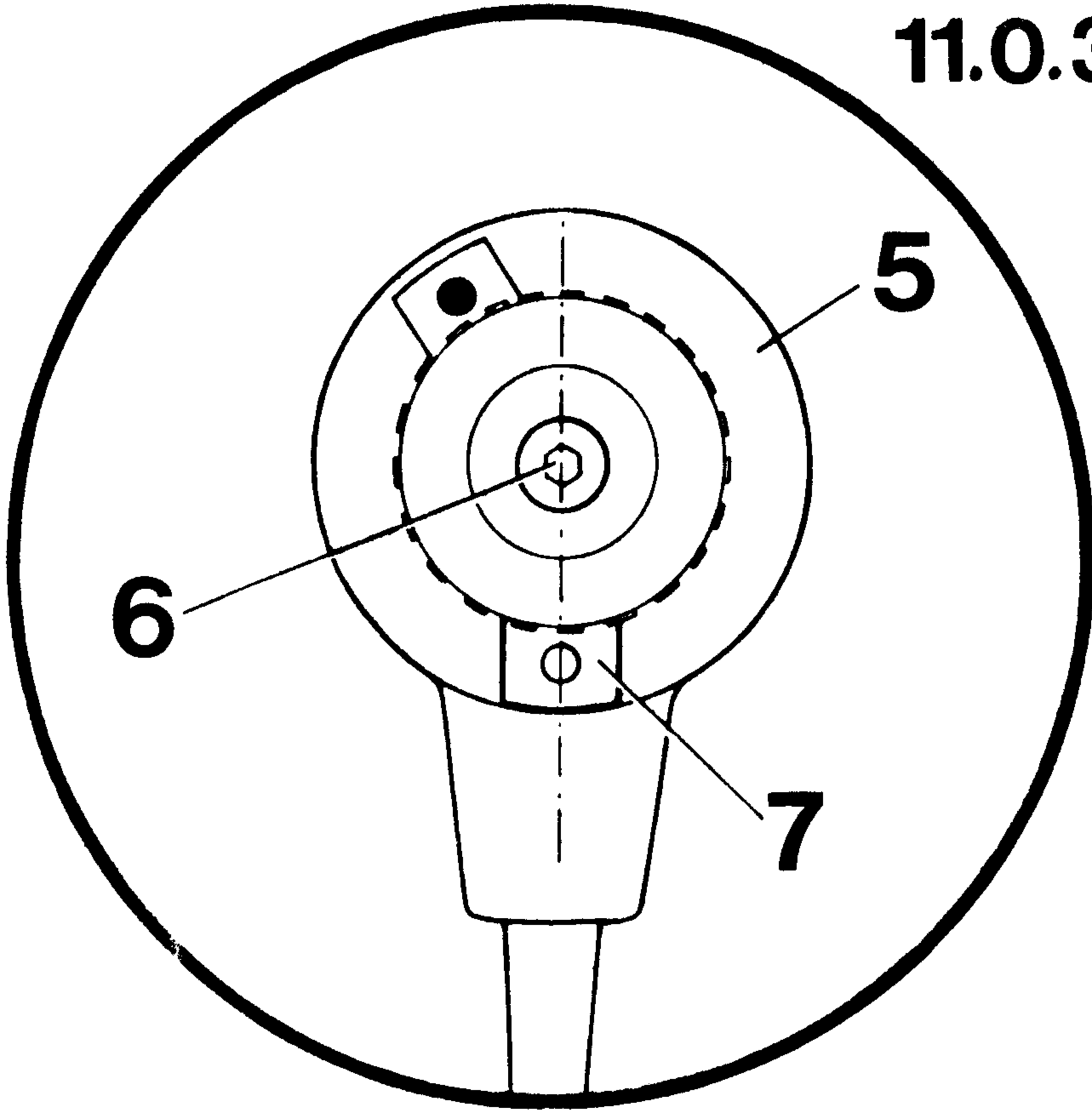
After the pedal has been pressed backwards (for thread trimming) the take-up lever should be at top dead center.

### 11.1 On machines equipped with lever-operated Quick-Stop motor, Type 700

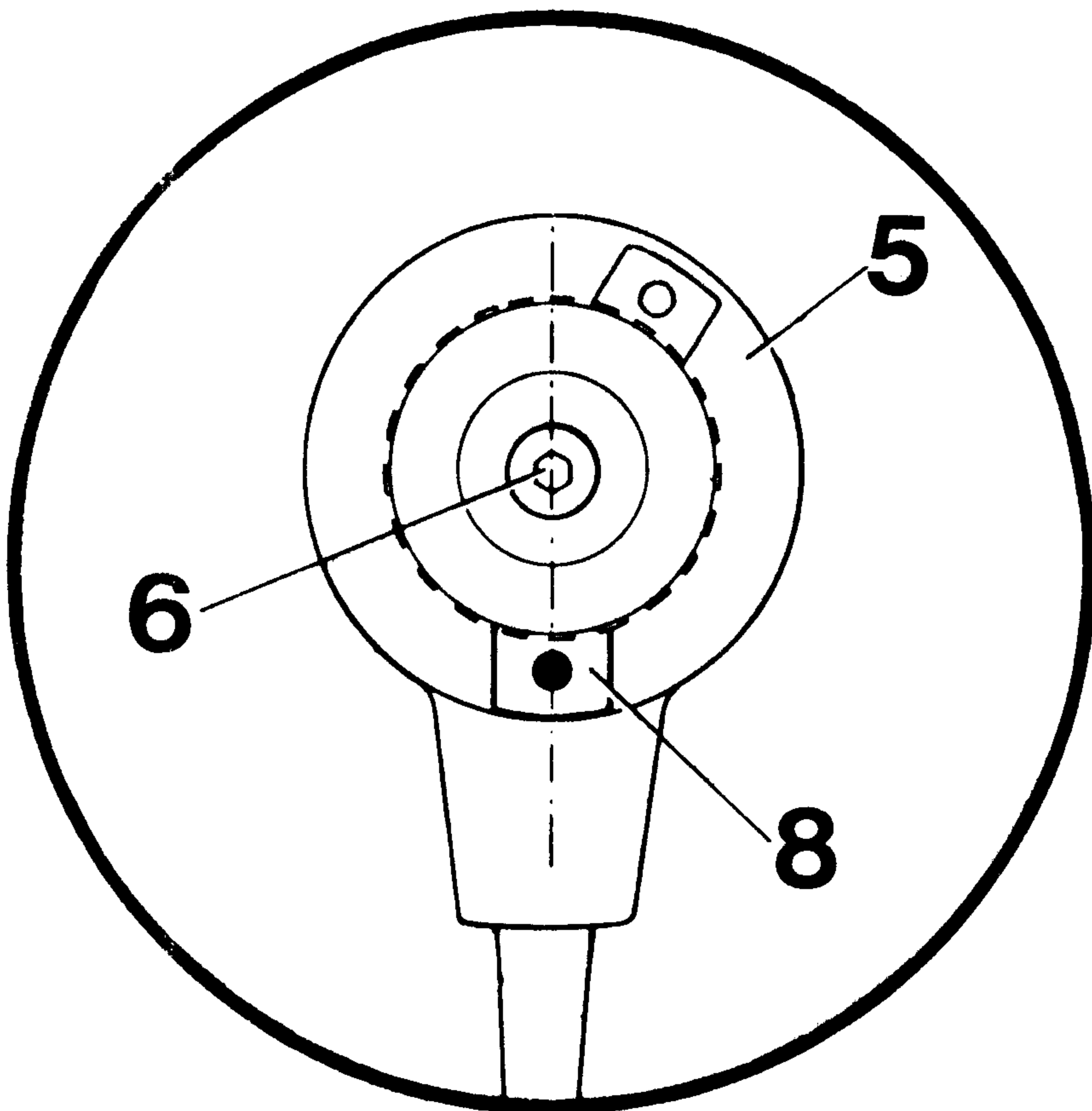
- 11.1.1 Pull the plug of the thread trimmer out of the socket on the motor control box.
- 11.1.2 Remove cap 1 (Fig. 11.0.1) and loosen both screws 2.
- 11.1.3 Turn the balance wheel in its normal direction to bring the take-up lever to top dead center.
- 11.1.4 In this position, center the switch-off track near the balance wheel above the carbon brush (see arrow in Fig. 11.0.2).
- 11.1.5 In this position, tighten both screws 2.
- 11.1.6 Loosen end screw 3 of synchronizer 4.
- 11.1.7 Turn the balance wheel in its normal direction to bring the needle bar to a position 4 mm past its bottom dead center.
- 11.1.8 In this position, center the switch-off track away from the balance wheel above the carbon brush.
- 11.1.9 In this position, tighten end screw 3.
- 11.1.10 Switch on the machine and check both positions by pedal control (see "Correct setting"). If necessary, re-adjust.
- 11.1.11 Replace cap 1.

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**11.0.3**



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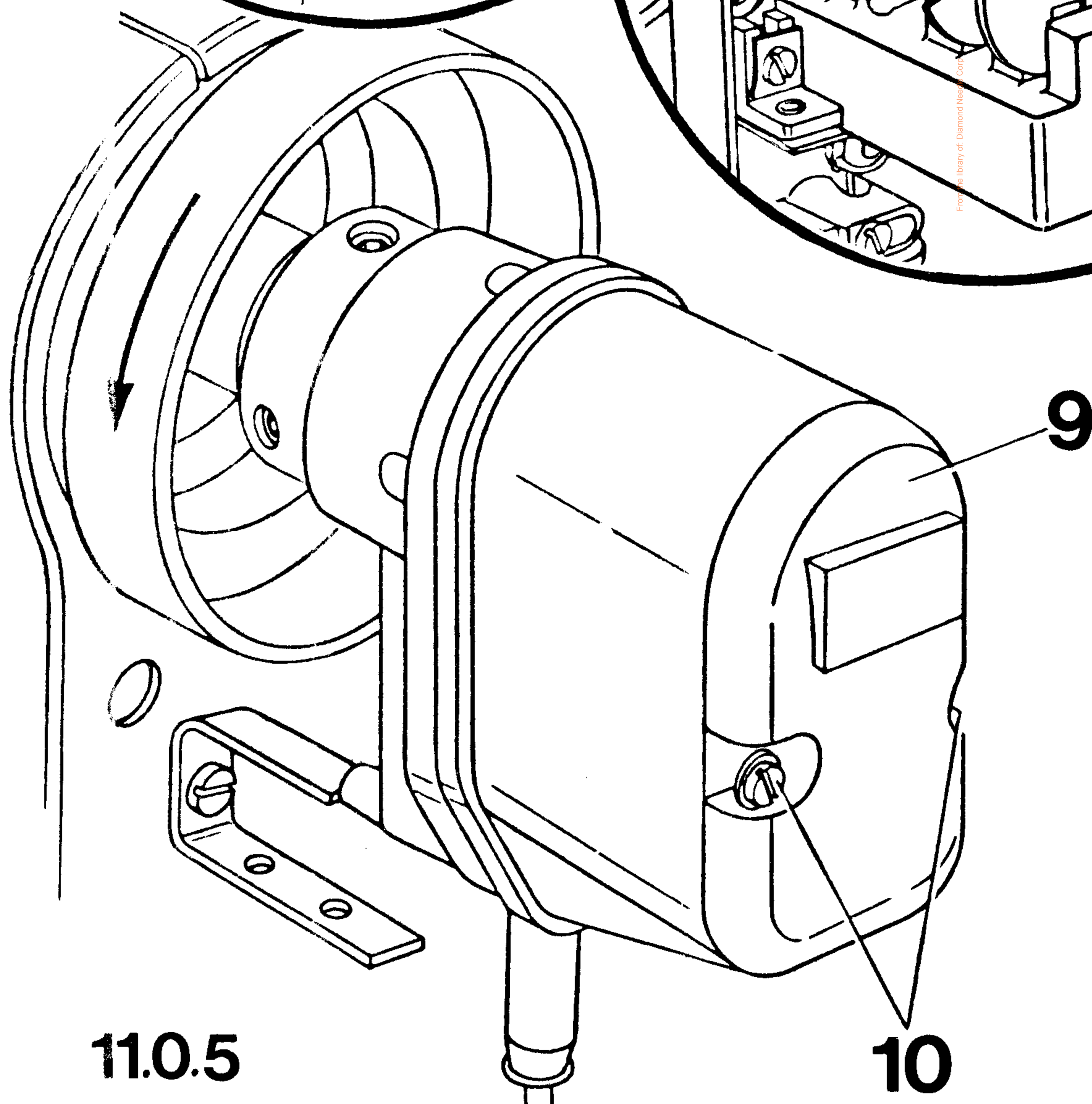
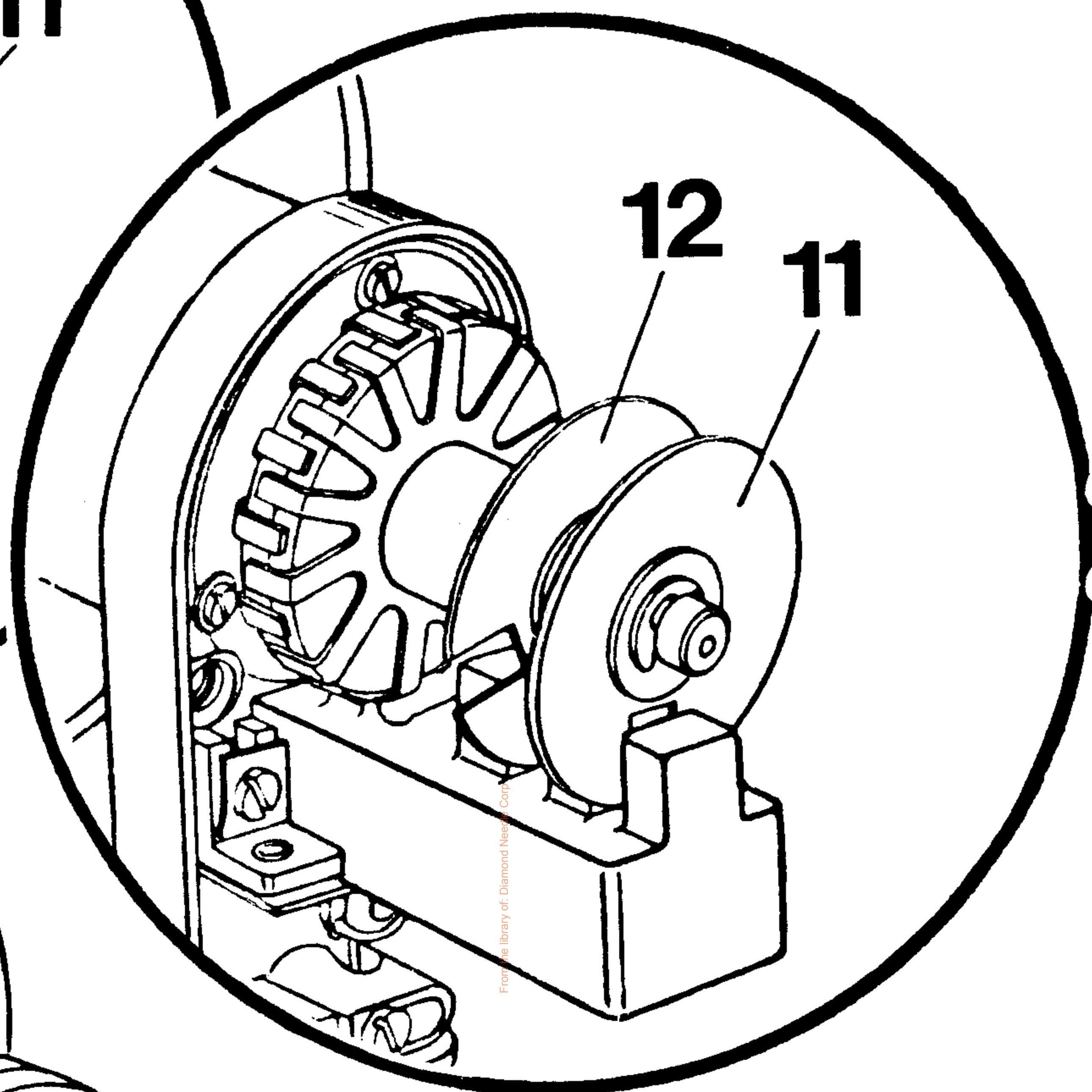
**11.0.4**

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- 11.2     On machines equipped with Quick-Electronic-Stop motor, Type 880
- 11.2.1   Pull the plug of the thread trimmer out of the socket on the motor control box.
- 11.2.2   Pull the protecting cap off synchronizer 5 (Fig. 11.0.3) and loosen screw 6.
- 11.2.3   Turn the balance wheel in its normal direction to bring the take-up lever to top dead center.
- 11.2.4   In this position, set the outer magnet bracket 7 with its yellow-marked magnet above the opposite pole at the bottom.
- 11.2.5   Turn the balance wheel in its normal direction to bring the needle bar to a position 4 mm past bottom dead center.
- 11.2.6   With the machine in this position, set the inner magnet bracket 8 with its red-marked magnet above the opposite pole at the bottom (Fig. 11.0.4).
- 11.2.7   In this position, tighten screw 6.
- 11.2.8   Switch on the machine and check both positions by pedal control (see "Correct setting"). If necessary, re-adjust.
- 11.2.9   Replace the protecting cap of synchronizer 5.

**11.0.6**

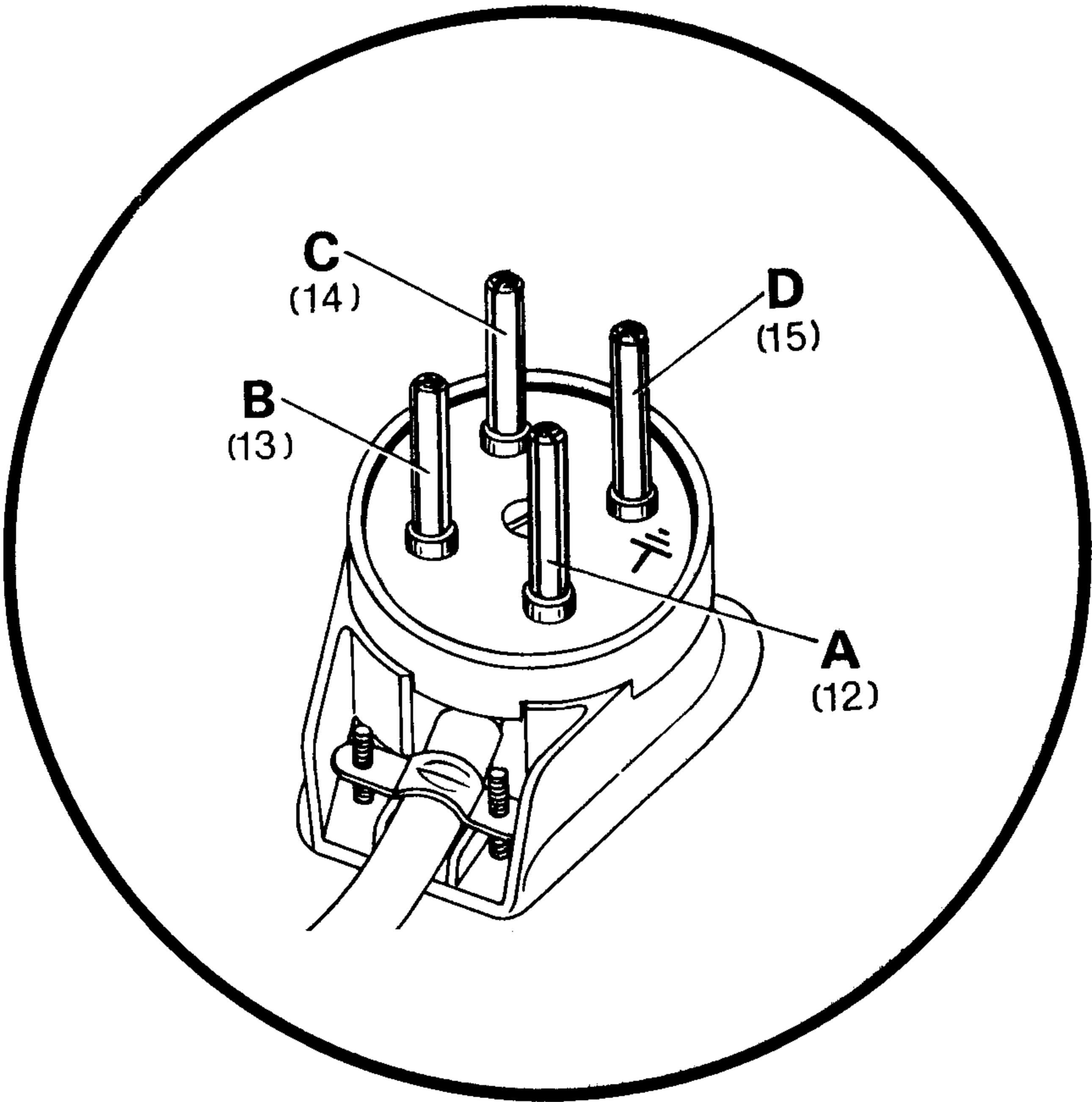
This diagram shows the internal components of the door lock assembly. The door handle (11) is shown in a cross-section, revealing its internal mechanism. The handle is connected to a lock cylinder (12) which is mounted on the door. The diagram illustrates how the handle's internal components interact with the lock cylinder to operate the door lock.





- 11.3     On machines equipped with Efka-Variostop motor, Type V
- 11.3.1   Pull the plug of the thread trimmer out of the socket on the motor control box.
- 11.3.2   Loosen screws 10 of synchronizer cover 9 (Fig. 11.0.5) and remove the latter.
- 11.3.3   Turn the balance wheel in its normal direction to bring the take-up lever to top dead center.
- 11.3.4   With the machine in this position, turn outer control disc 11 until its slot is positioned between the projections of the induction coil.
- 11.3.5   Turn the balance wheel in its normal direction to bring the needle bar to a position 4 mm past bottom dead center.
- 11.3.6   With the machine in this position, turn inner control disc 12 until its slot is positioned between the projections of the induction coil.
- 11.3.7   Switch on the machine and check both positions by pedal control (see "Correct setting"). If necessary, re-adjust.
- 11.3.8   Replace and screw on cover 9.





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12.0.1

## 12 Micro switches "b3" and "b5"

(Only on machines with lever-operated Quick-Stop motor, Type 700)

Note: For easy identification the four pins are marked clockwise from A to D. The numbers in parentheses from 12 to 15 indicate the wires connected to them. The pin next to the earth symbol is pin D.

- 12.1 Pull the four-pin plug out of the socket on the motor control panel marked "Synchronisator-Steckvorrichtung".
- 12.2 Lower the presser foot onto the needle plate.
- 12.3 Turn the balance wheel until the trimming mechanism is at rest.
- 12.4 Turn the balance wheel further until the inner switch-off track is positioned under the carbon brush.
- 12.5 In this position, no current must flow between between pins A and C as well as A and D.
- 12.6 Operate the engaging lever by hand, which action operates the two micro switches "b3".
- 12.7 In this position, current must flow between pins A and C. However there must be no flow of current between pins A and D.
- 12.8 Turn the balance wheel to return the trimming mechanism to its rest position.
- 12.9 Continue turning the balance wheel until the outer track is positioned under the carbon brush.
- 12.10 In this position, no current must flow between pins A and C. However current must flow between pins A and D.
- 12.11 On machines on which the needle "up" position does not set off the trimming action (subcl. -913/03) push the knee lever to the right as far as it will go (which action operates micro switch "b5").
- 12.12 In this position, no current must flow between pins A and D.
- 12.13 If micro switch "b5" does not switch over when the knee lever is operated, adjust the two nuts on the connecting rod to the right of the actuating bracket accordingly.
- 12.14 If the switches do not work properly, check all connections and switches.



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